

**DRAFT EXTENSION OF THE 2008 COLUMBIA BASIN FISH  
ACCORDS MEMORANDUM OF AGREEMENT AMONG THE  
STATE OF MONTANA, BONNEVILLE POWER  
ADMINISTRATION, U.S. ARMY CORPS OF ENGINEERS,  
AND U.S. BUREAU OF RECLAMATION**

DRAFT FOR PUBLIC REVIEW

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**DRAFT EXTENSION OF THE 2008 COLUMBIA BASIN FISH ACCORDS  
MEMORANDUM OF AGREEMENT AMONG THE STATE OF MONTANA,  
BONNEVILLE POWER ADMINISTRATION, U.S. ARMY CORPS OF ENGINEERS,  
AND U.S. BUREAU OF RECLAMATION**

## **I. INTRODUCTION**

This 2018 Extension agreement (“**Extension**”) updates and extends the 2008 Columbia Basin Fish Accords Memorandum of Agreement between the State of Montana and FCRPS Action Agencies (“**2008 Accord**”) and was developed through good faith negotiations by the Bonneville Power Administration (“**Bonneville**”), the U.S. Army Corps of Engineers (“**Corps**”), and the U.S. Bureau of Reclamation (“**Reclamation**”) (together the “**Action Agencies**”) and the State of Montana (collectively “**the Parties**”). The Action Agencies and the State of Montana (“**Montana**”) intend that this Extension will provide benefits to all the Parties.

This Extension continues to address direct and indirect effects of construction, inundation, operation, and maintenance of the fourteen federal multiple purpose dam and reservoir projects in the Federal Columbia River Power System that are operated by the Action Agencies as a coordinated water management system for multiple congressionally authorized public purposes and referred to as the **Columbia River System**,<sup>1</sup> as well as Reclamation’s Upper Snake River Projects on fish and some wildlife resources of the Columbia River Basin. The Action Agencies and Montana intend that the 2008 Agreement, as continued by this Extension, will provide benefits to all the Parties.

The Parties’ purposes for the Extension, like the 2008 Agreement, include, among others:

- To address the Parties’ mutual concerns for certainty and stability in the funding and implementation of projects for the benefit of fish affected by the Columbia River System;

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<sup>1</sup> For purposes of this Accord extension, the Columbia River System comprises 14 Federal multipurpose hydropower projects and the Upper Snake River Projects. The 12 projects operated and maintained by the Corps are: Bonneville, The Dalles, John Day, McNary, Chief Joseph, Albeni Falls, Libby, Ice Harbor, Lower Monumental, Little Goose, Lower Granite, and Dworshak dams. Reclamation operates and maintains Hungry Horse Project, Columbia Basin Project, which includes Grand Coulee Dam, and the Upper Snake River Projects which are Minidoka, Palisades, Michaud Flats, Ririe, Little Wood River, Boise, Lucky Peak, Mann Creek, Owyhee, Vale, Burnt River and Baker.

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- To foster a cooperative and partnership-like relationship in implementation of the mutual commitments in this Extension as was done under the 2008 Accord;
- To align the Parties regarding compliance with laws applicable to the Columbia River System; and
- To ensure Bonneville remains a cost competitive source of renewable power for the Pacific Northwest region into the future.

Accomplishments realized from the Parties' pursuit of these purposes, through 2018 via the 2008 Accord, are summarized in Section II, below. Based on the biological successes rooted in those accomplishments, and the purposes stated above, the Parties agree to this Extension.

This Extension is intended to further the purposes of the Pacific Northwest Electric Power Planning and Conservation Act (“**Northwest Power Act**”)<sup>2</sup>, including its assurance to the Pacific Northwest of an adequate, efficient, economical, and reliable power supply as well as its commitments to protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries that have been affected by the Columbia River System development and operations. This Extension helps provide a means to achieve the overall balance between fish and wildlife, power, and other project purposes for which the Northwest Power Act makes the Action Agencies responsible.

This Extension reflects the Parties' intention to continue the productive and proven approach to alignment and project implementation for fish and wildlife mitigation while reasonably accounting for ongoing legal, financial, and operational uncertainties confronting the Action Agencies. Due to developments in the energy market and increased spring spill operations such as those following the 2018 order of the U.S. District Court for the District of Oregon, Bonneville expects reductions in its near-term revenue. For Bonneville, this Extension is part of its approach to improved cost management of the Bonneville Fish and Wildlife Program.

This Extension reflects the Parties continued realization of the many benefits of the 2008 Agreement, while reasonably accounting for new economic and operational uncertainties confronting the Action Agencies.

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<sup>2</sup> See 16 U.S.C. § 839b(h)(6)(E) (mandating “improved survival” at Columbia River System dams and “flows of sufficient quality and quantity . . . to improve production, migration, and survival of such fish as necessary to meet sound biological objectives”). When Congress passed the Northwest Power Act the estimated average juvenile mortality at each dam was 15-20% with losses recorded as high as 30%. See *NW Res. Info. Center v. NW Power Planning Council*, 35 F.3 1371, 1374 (9<sup>th</sup> Cir. 1994) (citing the U.S. General Accounting Office, *Impacts and Implications of the Pacific Northwest Power Bill* at page 22 (Sept. 4, 1979)).

The provisions in the 2008 Agreement that are unchanged and remain effective under this Extension are listed in **Attachment B: Provisions from the 2008 Agreement that Remain in Effect**.

## II. MITIGATION & ACCOMPLISHMENTS UNDER THE 2008 ACCORD

This Extension builds on the foundation of the partnership and mutual commitments developed by the Parties during the term of the 2008 Accord. This Extension reflects the Parties’ intent to continue their productive and proven approach to collaboration, alignment, and project implementation for fish and wildlife mitigation.

### A. RESULTS OF THE OVERHAUL OF THE COLUMBIA RIVER SYSTEM

Montana acknowledges the significant work done by the Action Agencies to overhaul the Columbia River System, improve habitat to protect, mitigate, and enhance fish and wildlife, ensure system operations are not likely to jeopardize Endangered Species Act (“**ESA**”) listed species or destroy or adversely modify their designated critical habitat, and contribute to the conservation of listed species. System improvements also successfully addressed the broad anadromous fish mandates in the Northwest Power Act.<sup>3</sup>

### B. MONTANA ACCOMPLISHMENTS UNDER THE 2008 ACCORD

Project	Date Completed	Bonneville Funding	Bonneville % Contribution to Total Project Cost	Total Project Acres	Min. Bonneville Credits	Remaining Funding
Beginning Accord Amount						\$15,500,000
Swan Forest Legacy Project	Dec. 2010	\$9,742,006	100	4,477	9.742	\$5,757,994
Section 31 Perry Creek	Sept. 2011	\$1,034,500	100	167	1.035	\$4,723,494
Diamond B CE	Dec. 2011	\$309,250	29	192	0.309	\$4,414,244
Otter Island FCA	Jan. 2011	\$1,600,000	100	147	1.615	\$2,799,244
TBL costs	2011	\$47,090				\$2,752,154
TBL costs	2012	\$12,465				\$2,739,689

<sup>3</sup> The 2014 returns were five times higher than the 471,119 salmonids that passed Bonneville Dam in 1938 when it was completed. Data for 1938 adult salmonid returns is available from the Fish Passage Center’s website [http://www.fpc.org/environment/fcounts.asp?fr\\_cdy=1938&fr\\_cdm=1&fr\\_cdd=1&to\\_cdm=12&to\\_cdd=31&prj=BO&subbtn=salmon&op=runsum](http://www.fpc.org/environment/fcounts.asp?fr_cdy=1938&fr_cdm=1&fr_cdd=1&to_cdm=12&to_cdd=31&prj=BO&subbtn=salmon&op=runsum)

Contemporary salmonid return numbers reported in *Endangered Species Act Federal Columbia River Power System 2016 Comprehensive Evaluation*—Section 1 at page 5 (Jan. 2017) (*hereinafter* 2016 Comprehensive Evaluation).

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Kokanee Bend South CE	Sept. 2013	\$640,000	88	70	0.640	\$2,099,689
TBL costs	2013	\$35,000				\$2,064,689
North Shore WMA (Worm)	Feb. 2014	\$1,610,000	93	189	1.610	\$454,689
TBL costs	2014	\$15,000				\$439,689
Otter Island FCA Additions	Mar. 2015	\$157,760	81	20	0.158	\$281,929
TBL costs*						\$281,929
		<b>\$15,203,071</b>		<b>5,262</b>	<b>15.11</b>	

### III. BIOLOGICAL INVESTMENT PORTFOLIO AND BUDGET COMMITMENTS

#### A. MANAGING AN EFFICIENT AND EFFECTIVE BIOLOGICAL INVESTMENT PORTFOLIO

The Parties are aligning around a new approach to mitigation cost management to more purposefully manage fish and wildlife mitigation projects and Columbia River System operations as a single effort incorporating legal compliance, best available science, and cost effectiveness.

The Parties are using this approach to better incorporate sound business principles into the Action Agencies' efforts to address the effects of the Columbia River System on fish and wildlife. Managing the costs of fish and wildlife mitigation investments in a more unified manner will, for the term of this Extension, help address uncertainty in current biological, economic, and legal conditions directly affecting the Action Agencies. Bonneville will manage its mitigation costs as a single biological investment portfolio to better enable it to fulfill its strategic goals to “[h]old the sum of [its] program costs, by business line, at or below the rate of inflation through 2028,”<sup>4</sup> and take “a more disciplined approach to managing the total cost of [its] Fish and Wildlife Program”<sup>5</sup> by prioritizing its portfolio of mitigation investments “based on biological and cost-effectiveness and their connection to mitigation for the impacts of the Columbia River System.”<sup>6</sup>

By embracing these principles, the Parties—Bonneville and Montana in particular—are agreeing to use a biological investment portfolio model as a sound business approach to managing the

<sup>4</sup> Bonneville Strategic Plan at 12.

<sup>5</sup> *Id.* at page 34.

<sup>6</sup> *Id.* at page 39.

costs of protecting, mitigating, and enhancing fish and wildlife, and providing them equitable treatment with the other purposes for which the Action Agencies operate the Columbia River System, while simultaneously ensuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. The commitments in this Extension allow Bonneville and Montana flexibility related to budget and rate certainty by reducing transaction costs and providing savings when called upon. Finding this biological, legal, and economic foundation sound and in support of the objectives of Bonneville's 2018-2023 Strategic Plan, the Parties renew and extend their partnership as enumerated in greater detail below.

## ***B. BUDGET COMMITMENTS***

1. Bonneville's funding commitments to Montana beginning in FY 2019 are set out in **Attachment A: Montana Project Portfolio**, to this Extension. The funding commitments reflect discussions on Montana's project portfolio as it has evolved through implementation of the 2008 Agreement, including consideration of (a) actions for improving the effectiveness of certain projects, (b) promoting mitigation that directly protects and mitigates fish and wildlife and deemphasizing redundant or unnecessary research, monitoring and evaluation as appropriate, and (c) Montana's agreement to certain reductions in budgets during the term of the Extension. Annual budgets shown in Attachment A reflect agreed upon reductions in recognition of Bonneville's need to manage its environmental compliance and mitigation costs more aggressively.
2. The total amount of funds that can be spent in a single fiscal year – including any unspent carry forward funds from any prior fiscal years – shall not exceed 120% of the budgeted amount for that year set forth in Attachment A, unless Bonneville and Montana agree otherwise. This cap governs request for changes in the timing of implementation and distribution of Extension dollars, through preschedules, reschedules, or budget transfers, as defined below.
  - a. **Out-year Pre/Reschedules** – Preschedules and reschedule are defined as the transfer of funds for a project to an earlier or future period, respectively. Presechdules and reschedules of a project's working budget (e.g., changes to budget timing) will be allowed so long as the funds are not currently obligated and adjustment is consistent with Montana's annual budget cap shown in Attachment A.
  - b. **Budget-transfers** – Budget transfer means the transfer of funding from one project to another in the same or different years. Budget transfer may be allowed through mutual agreement so long as the funds are not currently obligated and the adjustment is consistent with the budget cap.



- c. **Obligated Funds** – Funds included in a currently open contract are considered obligated funds and may not be rescheduled or transferred until they are de-obligated. Upon completion of contract deliverables (including status and annual reports) and payment of final invoice, any savings (remaining contract balance) will be de-obligated from the contract and returned to the project budget and may at that point be obligated to another contract or fiscal year. Project managers should expect a delay between end of contract and the return of excess funds to the project budget. Uncompleted work element deliverables and funds associated with them may be rescheduled from one year to the next via modification to the current contract and inclusion in the subsequent contract.
3. For capital funding commitments stemming from the 2008 Accord, specifically the land acquisition known as “Swift Lazy”, Bonneville commits to making completion of this project a top habitat acquisition priority and will seek to complete the acquisition expeditiously.
4. Bonneville’s financial situation can vary from year to year. Consistent with past practice under the 2008 Agreement, in the case of deteriorating Bonneville financial circumstances due to events such as poor water conditions, depressed power marketing conditions, court orders, or similar conditions beyond Bonneville’s control, Bonneville may call on Montana to voluntarily further reduce expenditures under this Extension on an annual basis. Further savings will only occur by mutual agreement. Such additional savings would be selected so as to not compromise and to preserve the Action Agencies’ ability to comply with the ESA and other applicable laws and reasonably reflect each Party’s expertise, responsibilities and commitments.

Funds called upon for savings in one year would be available in the following years consistent with existing budget rules above. The Parties will seek efficiencies in project management as noted in Section III.C below. Conversely, in the case of strengthening Bonneville financial circumstances and in recognition of budget reductions agreed to by Montana in this Extension, Montana may call on Bonneville to voluntarily increase funding or expenditures under this Extension on an annual basis, including providing relief from the Budget Rules in Section III.B.2 above.

The Parties accept that failure to reach agreement on a party’s requested increase or decrease in funding, under the circumstances described above, may under some circumstances meet the conditions of one or more off-ramps in Section V.E below.

### ***C. PROJECT ADMINISTRATION AND EFFICIENCIES***



Consistent with the Parties' partnerships and to support the purposes of this Extension, the Parties intend to implement actions set forth in this Extension recognizing their respective expertise and roles described below. The Parties intend to implement projects in a manner that is timely and consistent with the each others' expertise in identifying and implementing fish and wildlife mitigation measures and objectives, and will seek to find efficiencies in project administration where such efficiencies:

- Are consistent with the legal rights of Montana,
- Complement the Montana's current and future management actions,
- Fulfills or helps to fulfill Bonneville's legal compliance responsibilities, and
- Are consistent with Bonneville's obligations to conduct its affairs, including its legal compliance responsibilities, in a sound and businesslike manner.

The Parties shall respect each others' expertise in all aspects of project development and implementation. As partners in implementation, efficiencies in project administration will be found with this reciprocity of deference and understanding that will:

- Reduce delay in project implementation
- Increase certainty in accomplishing project goals
- Support coordination with project cosponsors
- Comply with applicable federal acquisition regulations
- Fulfill environmental compliance responsibilities

In addition, the Parties will seek efficiency in project management and implementation by working together to streamline requirements for contracting, reporting, and environmental compliance and through project bundling, multi-year contracting, and other actions, including pursuit and tracking of cost-sharing opportunities, particularly for habitat improvement (sometimes called enhancement or restoration) projects.

To the extent that differences of opinion arise in project implementation, the Parties will promptly seek resolution of those differences by elevating the matter to higher levels within their respective organizations. In so doing, the Parties will collaborate to pursue a mutually agreeable solution.

## **IV. PROJECT-RELATED IMPLEMENTATION PROVISIONS**

### ***A. HIGH PRIORITY ACTIONS***

1. During the term of this Extension, the Parties will work together to support the following time-sensitive and critical goals and milestones with respect to the subject areas discussed above:
  - a. Issuance of 2018 National Oceanic and Atmospheric Administration (“NOAA”) Fisheries and U.S. Fish and Wildlife Service Biological Opinions covering the coordinated water management of the Columbia River System, including operations, maintenance, and configuration of the dam and reservoir projects.
  - b. Spring and summer spill and other system operations for the 2019-2021 period.
  - c. Collaborating to seek alignment of regional sovereigns in support of the 2018 Columbia River System Biological Opinions, including system operations, in appropriate forums.
  - d. Coordinating and submitting recommendations for amendments to the Columbia Basin Fish and Wildlife Program that are complementary to this agreement.
  - e. Finding efficiencies in project implementation that reduce administrative obligations related to project contracting, reporting, and environmental compliance.
2. The Parties will meet annually during the term of this Extension to consider the results of their efforts to meet the milestones above and will report on their efforts, including specific actions taken and planned or revised strategies, for meeting these milestones

## ***B. HYDROSYSTEM IMPLEMENTATION ACTIONS***

1. Montana agrees not to oppose the updated spill, transportation, and other fish operations for the Columbia River System as described in **Attachment C: Columbia River System Operations**, building on the base of the operations in the 2008 NOAA Fisheries Biological Opinion (“BiOp”), as supplemented in 2010 and 2014, as long as those operations do not lead to demands for augmented flows from Libby or Hungry Horse or adversely impact or preclude the improvement of Montana Operations.
2. The Parties acknowledge that new biological information will be available during the term of this Extension, which will inform the methods and assumptions used to analyze the impacts of Columbia River System operations on fish and wildlife species affected by this Extension. The Parties commit to make best efforts to collaboratively seek alignment on methods and assumptions for such analyses, building on analyses performed in development of future Columbia River System Endangered Species Act consultations during the term of this Extension as warranted. Under this Extension, the Parties retain their ability under the 2008 Agreement to respond and adapt to relevant new information regarding survival, flow, spill, and other relevant indicators of fish and wildlife impacts;

provided, all such new information is reviewed and discussed collaboratively amongst the Parties in an effort to reach alignment.

3. The Action Agencies continue to support current reservoir operations at Libby and Hungry Horse dams (“**Montana Operations**”) as set forth in previous relevant biological opinions. This includes variable discharge (variable Q or VARQ) as well as spring and summer operations developed as part of the Northwest Power and Conservation Council’s (“**Council**”) [2003 Mainstem Amendments](#). The Action Agencies will continue to consider the content of the “Montana Operations at Libby and Hungry Horse Dams” paper completed in 2017 and submitted by the State of Montana in its comments during scoping for the Columbia River System Operations Environmental Impact Statement (“**CRSO EIS**”), as appropriate.
  - a. The Action Agencies will remove any reference to these operations as “experimental” in future proposed actions and other documents.
  - b. The Parties support continued investigations to refine operations at Libby and Hungry Horse dams that further improve conditions for fish and wildlife impacted by these multi-purpose projects and do not adversely affect fish in the lower river, e.g., actions that help reservoir refill, reduce the potential for spill, reduce downstream flooding, and make operations mutually beneficial for the United States and Canada.
  - c. Montana will continue working with the Action Agencies to discuss proposals for adjustments to winter and spring operations at Libby and Hungry Horse dams, including consideration of the potential impacts of winter operations at both dams (i.e. winter power peaking) on the recovery of native fish species, the food web, and fish and wildlife habitat restoration efforts, and attempt to offset for those impacts if necessary.
4. Montana supports the Action Agencies’ efforts to address their Clean Water Act (“**CWA**”) responsibilities for the Columbia River System. The Parties’ understanding, as well as the nature, of these obligations has changed since 2008. The Action Agencies will coordinate with Montana as appropriate with respect to the Action Agencies’ efforts to address federal responsibilities for:
  - Hazardous waste clean-up at the Columbia River System dams
  - Actions to address water temperatures that are lethal to salmon
  - Total dissolved gas requirements, including state water quality standards
  - Harmful plant growth in Columbia River System reservoirs

### ***C. HABITAT IMPLEMENTATION ACTIONS***

1. Projects for ESA-listed species funded under this Extension shall take into account forthcoming U.S. Fish and Wildlife Service biological opinion and final approved ESA recovery plans. The Parties have found the projects in Attachment A consistent with the Council’s Columbia Basin Fish and Wildlife Program (“**Council Program**”).
2. The Parties intend to implement the projects identified in Attachment A. The portfolio includes projects that the Parties reviewed using the following criteria:
  - Preserving and building on past accomplishments and lessons learned
  - Protecting fish and wildlife, recognizing the importance of habitat protection and enhancement to meet the Action Agencies mitigation responsibilities;
  - Addressing climate change and water temperature issues;
  - Fulfilling legal objectives; and
  - Avoiding conflict with other mandates such as the prohibition against augmentation of appropriations or the in lieu funding prohibition of the Northwest Power Act.

In addition, Reclamation will continue to provide technical assistance on tributary habitat projects in existing subbasins covered by its Tributary Habitat program.

3. For specific and cumulative habitat actions, Montana will continue to make available identified biological benefits associated with projects included in this Extension, and will support those biological benefits. Habitat projects are based on the best available science and have been reviewed and recommended for funding by the Council. Any new or expanded habitat projects will provide or facilitate on-the-ground benefits through mitigation, enhancement, or protection, with a particular emphasis on projects that help the Action Agencies fulfill commitments under applicable biological opinions, and will address one or more of the following priorities:
  - Water transactions, leases, etc. to augment in-stream flows to benefit fish
  - In-stream, riparian, and floodplain ecosystem restoration
  - Culvert or other fish passage improvements
  - Protection and enhancement of habitat through acquisition and easements

### ***D. INTERGOVERNMENTAL CONTRACT ADMINISTRATION***

All the Extension projects will rely on separate and discrete intergovernmental agreements for goods or services. Bonneville shall issue intergovernmental agreements for projects listed in

Attachment A following the Bonneville Purchasing Instructions. Once Bonneville and Montana execute an intergovernmental agreement for a project, that agreement governs all activities under that project. Any decision to change project implementation, including termination, must follow the terms of the applicable intergovernmental agreement. Bonneville cannot and will not terminate project funding under an intergovernmental contract without first going through the process identified in the Bonneville Purchasing Instructions.

***E. COLUMBIA BASIN FISH AND WILDLIFE PROGRAM***

1. In developing this Extension, the Parties acknowledge that the Council’s Program has matured through several decades of implementation and has established a settled framework for mitigating the impacts of hydroelectric development in the Columbia River Basin. In addition, the Parties recognize that the Action Agencies have made long-term, investments to provide equitable treatment to fish and wildlife in how they operate and manage the Columbia River System. Bonneville in particular has also relied on guidance in past Council programs in making extensive funding commitments for long-term fish and wildlife mitigation projects. This Extension builds on those commitments. The Parties intend to ensure the benefits to fish and wildlife continue to accrue while the costs of ensuring those benefits remain stable over the course of this Extension.
2. The Parties agree that the Bonneville funding commitments in this Extension are commitments of the Bonneville Fund, 16 U.S.C. § 838b(i), for implementation of projects.
3. The Parties will explore and encourage the following actions with the Council for efficiency and effectiveness.
  - a. Support cost-sharing opportunities for funding on habitat enhancement and improvement projects.
  - b. Support more cost effective approaches to research, monitoring, and evaluation.
4. Each Party shall share with the other Parties all draft recommendations for amendments to the Council’s Program, comments on recommendations, and comments on the draft amendments in a timely manner, but prior to submitting to the Council, that upholds the commitments under this Extension to coordinate and avoid surprises.
5. Council Member Role. Montana’s Council representatives participated in the development of the 2008 Agreement and this Extension. Nothing in these agreements, however, is intended to affect, or shall be construed as affecting, consideration by such

representatives of recommendations from parties other than Montana when discharging their duties under the Northwest Power Act. Similarly, nothing in this Agreement is intended to affect, or shall be construed as affecting, the Action Agencies' rights under Section V of this Extension with respect to withdrawal in the event that the Council takes action inconsistent with Montana's commitments as described in Sections III and IV under this Agreement.

## **V. AFFIRMATIVE SUPPORT, TERM and RENEWAL, NO SURPRISES, and WITHDRAWAL**

### ***A. AFFIRMATION OF ADEQUACY***

This Extension is based on the commitments of the Action Agencies to implement Biological Opinions under the ESA as well as the preferred alternative selected in the Action Agencies' Records of Decision for the **CRSO EIS**, and their obligations to act consistently with the Northwest Power Act. Upholding these commitments for the duration of this Extension will fulfill the Federal government's duties for:

- Conserving listed salmon and steelhead, including avoiding jeopardy and adverse modification of critical habitat under the Endangered Species Act;
- Operating, configuring and maintaining the Columbia River System dams consistent with the Action Agencies' Resources, Legal and Institutional purposes identified in the CRSO EIS, including providing for the conservation of fish and wildlife resources affected by System operations;
- Protection, mitigation, enhancement, and equitable treatment of fish under the Northwest Power Act; and
- Substantially complying with CWA and National Environmental Policy Act (“NEPA”) provisions related to the Columbia River System dams.

### ***B. LITIGATION ALIGNMENT AND SUPPORT***

1. Montana agrees to support and align itself with the Action Agencies in all litigation and other appropriate forums related to the Columbia River System where such alignment is consistent with this Extension or furthers the implementation of this Extension, as long as the Action Agencies continue to support and avoid adversely impacting or precluding the improvement of the Montana Operations. Montana further agrees to support the federal

actions as fulfilling compliance with the ESA, the Northwest Power Act, the CWA, and NEPA with respect to the Columbia River System.

2. The Parties will collaborate in seeking to attract other regional sovereigns to support Columbia River System operations that preserve and enhance Bonneville’s ability to sustain its statutory obligations to continue providing competitive cost-based electric power and transmission services and fulfilling other valuable public service responsibilities for the region, including the protection, mitigation and enhancement of fish and wildlife affected by the development and operation of the Columbia River System.
3. With respect to the CRSO EIS, Montana supports the Action Agencies’ procedural approach to complying with the Court’s orders regarding NEPA. The relationship of the Action Agencies to Montana is described in the Cooperating Agency MOU. In accordance with the Cooperating Agency MOU between the Action Agencies and Montana Fish, Wildlife and Parks, the Action Agencies agree to provide the State with advance notice and copies of the draft and Final EIS, including the identified preferred alternative.

### ***C. TERM AND RENEWAL***

1. Unless otherwise decide by a Party pursuant to this Section, this Extension will be in force until the earlier of either when the Action Agencies issue their final decisions on the Columbia River System Operations Environmental Impact Statement and any associated consultation under the ESA for the Columbia River System, or September 30, 2022.<sup>7</sup>
2. The Parties agree that amendments, including extension or modification of this Extension will be a topic for discussion and negotiation at least one year prior to the expiration of this Extension. At that time the Parties will also discuss whether to amend or renew this Extension through 2028.

### ***D. COMMITMENT TO CONFER—NO SURPRISES***

Each Party will make best efforts to confer with other Parties prior to taking any action that could reasonably be interpreted as inconsistent with any part of this Extension. The Parties agree

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<sup>7</sup> This Extension may expire before the expirations of some individual project contracts between Bonneville and Montana. Bonneville and the Montana intend that such individual project contracts continue through their terms, pursuant to Section IV.D above, even if those terms extend beyond the expiration of this Extension.



that conferring should be as informal and with the least amount of process needed to ensure that the Parties are fulfilling the good-faith obligation to implement and support the Extension. Through these discussions, the Parties intend to continue collaborating and seeking each other's input on strategic considerations regarding the Action Agencies' compliance with the ESA, NEPA, the Northwest Power Act, the CWA, and other regional compliance processes.

***E. WITHDRAWAL, RENEGOTIATION, AND OFF-RAMPS***

1. Any Party may seek to withdraw from or renegotiate this Extension in the following circumstances, as described further below:
  - a. The Parties enter into this Extension with the assumption that NOAA Fisheries and USFWS will issue new BiOps for the operation of the Columbia River System in 2019 and beyond that, combined with this Extension, will meet the Action Agencies' obligations under the ESA, Northwest Power Act, and NEPA for the term of this Extension. Should the new BiOps fail to meet any Party's expectation, the Party may exercise one of the off-ramps of this Extension in the following circumstances, as described further below.
    - In particular, if as part of a new BiOp for the coordinated water management of the Columbia River System, NOAA Fisheries or U.S. Fish and Wildlife Service recommends a Reasonable and Prudent Alternative (“**RPA**”), or includes Terms and Conditions in an Incidental Take Statement, where the RPA or Terms and Conditions specify additional or different actions from those proposed by the Action Agencies during the consultation process that are either financially material to a Party or Parties, materially change the Montana operations, or materially constrain the Action Agencies from fulfilling Columbia River System purposes authorized by Congress.
  - b. If any court finds that a Columbia River System biological opinion or related Action Agency decision document is arbitrary, capricious, an abuse of discretion or otherwise not in accordance with law, and the court orders additional or different actions that are either financially material to a Party or Parties, materially change the Montana operations, or materially constrain the Action Agencies from meeting any Columbia River System purposes authorized by Congress.
  - c. In the event of noncompliance with this Extension, or the initiation of litigation by one or more of the Parties challenging the sufficiency of the measures or actions included within the scope of this Extension to meet Federal obligations under the ESA, NEPA, Northwest Power Act, or the CWA.

- d. In the event of a material change, positive or negative, in Bonneville’s financial condition due to energy market, river flows, litigation, or other conditions outside of Bonneville’s reasonable control, from those conditions assumed by Bonneville as a matter of prudent business judgment in rate setting and which materially affect Bonneville’s financial health and its associated ability to sustain the fulfillment of any of its multiple statutory responsibilities.
2. In such circumstances, the Parties will first seek to preserve this Extension and the operative provisions of the underlying 2008 Agreement and will meet promptly to determine the appropriate response. The affected Party or Parties will notify the other Parties immediately in writing, identifying why the event is considered material and potential options for resolution, including financial rebalancing through prioritization of fish and wildlife spending. Prior to withdrawal, the Parties shall first make at least a 90-day good faith effort to renegotiate mutually agreeable modifications to this Extension. A Party may not withdraw from this Extension on the basis of its own noncompliance.
3. If renegotiation is not successful, the affected Party may notify the other Parties in writing of its intent to withdraw by a date certain. At the time the withdrawal is effective, all funding commitments and covenants made by the withdrawing Party cease; however, the withdrawing Party’s liabilities and obligations under intergovernmental contracts effective on the date of withdrawal remain in effect until addressed as provided in the intergovernmental contract.
4. The withdrawing Party reserves any existing legal rights under applicable statutes, including all arguments and defenses, and this Extension cannot be used as an admission or evidence. Other Parties also reserve all existing legal rights under applicable law. This includes the ability to advocate in all forums (e.g. judicial, administrative, in proceedings before the Council, and in rate-related proceedings) for additional, fewer, or different fish and wildlife mitigation actions, greater or lesser fish and wildlife funding, or other mitigation actions.

**ATTACHMENT A: Montana Project Portfolio**

ATTACHMENT A  
Montana – FISH and WILDLIFE PROJECTS

PROJECT No.*	PROJECT NAME	Base Value	2019	2020	2021	2022	TOTAL 2019-2022 (Base)	Comments	
<b>Expense</b>									
1	199101903	Hungry Horse Mitigation Habitat Restoration and Research, Monitoring and Evaluation (RM&E)	\$ 2,062,573	\$ 1,876,857	\$ 1,746,857	\$ 1,768,693	\$ 1,790,801	\$ 7,183,208	
2	199500400	Libby Reservoir Mitigation Restoration and Research, Monitoring and Evaluation (RM&E)	\$ 912,711	\$ 1,187,460	\$ 1,187,460	\$ 1,202,303	\$ 1,217,332	\$ 4,794,555	
3	200600800	Mainstem Columbia Amendments Research at Libby Dam	\$ 356,718	\$ -	\$ -	\$ -	\$ -	\$ -	
4	200880000	Montana Resident Fish Habitat Aquisition	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	
5	201200800	Montana Regional Coordination	\$ 122,011	\$ 130,711	\$ 130,711	\$ 130,711	\$ 130,711	\$ 522,844	
6	201900100	Sekokini Springs Hatchery	\$ -	\$ 267,685	\$ 267,685	\$ 271,031	\$ 274,419	\$ 1,080,820	
7	201900200	Kootenai Wildlife Ops Mitigation	\$ 234,685	\$ 234,000	\$ 234,000	\$ 236,925	\$ 239,887	\$ 944,812	
		<b>YEARLY EXPENSE TOTAL:</b>	\$ 3,788,698	\$ 3,696,713	\$ 3,566,713	\$ 3,609,663	\$ 3,653,150	\$ 14,526,239	
<b>Capital</b>									
1	200880000	Montana Resident Fish Habitat Aquisition	\$ -	\$ 3,333,333	\$ 3,333,333	\$ 3,333,333	\$ 3,333,333	\$ 10,000,000	
		<b>YEARLY CAPITAL TOTAL:</b>	\$ -	\$ 3,333,333	\$ 3,333,333	\$ 3,333,333	\$ 3,333,333	\$ 10,000,000	

\* Note: BPA Project numbers may change over time

## **ATTACHMENT B: Provisions from the 2008 Agreement that Remain in Effect**

The following provisions in the 2008 Agreement remain unchanged and in effect during the term of this Extension.

- II.E—Emergency Operations for Unlisted Fish
- III.C.1-2 —Council and ISRP Review
- III.B.1—Second Bullet: Bonneville funding commitments shall be consistent with Bonneville’s then applicable policies, including but not limited to its *in lieu* policy and capital policy
- IV.D—Good Faith Implementation and Support
- V.B—Applicable Law
- V.C—Authority
- V.E—Binding Effect
- V.F—No Third Party Beneficiaries
- V.G—Prior Communications
- V.I—Notice

## **ATTACHMENT C: Columbia River System Operations**

### ***A. THE PARTIES ARE COLLABORATING ON SUPPORT OF THE FOLLOWING PROPOSED ACTIONS<sup>8</sup> FOR OPERATION OF THE COLUMBIA RIVER SYSTEM.***

During the spring and summer juvenile fish migration, the Action Agencies will continue to provide spill to facilitate juvenile fish passage for ESA-listed salmon and steelhead species, while seeking to minimize any adverse effects on adult migrants. Juvenile dam passage survival performance standard test results from studies conducted under the 2008 BiOp will serve as the baseline for Columbia River System operations covered by this Extension Attachment C. See Table 1. The summarized results shown in Table 1 will also serve as a reference in future delayed mortality studies.

### ***B. SPRING SPILL***

Spring spill operations are planned as follows:

- For the four lower Snake River dams, spill will begin on April 3 and continue through June 20.
- For the four lower Columbia River dams, spill will begin on April 10 and continue through June 15.

There are differing views among regional technical experts regarding the biological value of further increases in spring spill levels relative to those spill levels informed by the results of performance standard testing conducted under the 2008 BiOp. These divergent viewpoints are linked to differing interpretations of existing data regarding delayed mortality, the effects of exposure to high total dissolved gas (TDG) levels, and the use of smolt-to-adult return ratios (SARs) as a performance metric for evaluating Columbia River System operations. To address this uncertainty, beginning in 2019 the Action Agencies will conduct research to test the hypothesis that further increasing system-wide spill levels (up to the current applicable state water quality standards of 115/120% TDG) will have the effect of substantially increasing adult salmonid return rates (i.e., increased SARs due to decreased latent mortality). The most recent CSS 2017 Annual Report hypothesizes increases of 23 percent or more. The Action Agencies

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<sup>8</sup> This Attachment focuses on key commitments with regard to fish operations the Parties are aligned around. A broader description of all Columbia River System operations, including further detail on fish operations, will be in the consultation package that the Action Agencies will submit to NOAA Fisheries and the U.S. Fish and Wildlife Service.

will conduct this research by alternating spill levels between the Base Operation (informed by performance standard test results 2008-2018) and the Test Operation (spill to meet but not exceed the 115 percent/120 percent TDG limits). Additional details on the study design for a block design spill operation will be developed with NOAA Fisheries based on the Independent Scientific Advisory Board (ISAB) review of the Columbia River latent mortality test power analysis that was completed in the spring of 2018. The Parties will discuss and seek alignment on any modifications to the study design.

### ***C. SPRING JUVENILE TRANSPORTATION***

Spring transportation will be initiated at Lower Granite, Little Goose, and Lower Monumental Dams no later than May 1, or as coordinated with the RIOG and TMT. Coordination and adaptive management between Parties and other regional sovereigns through the Regional Forum, as appropriate, during the migration season may result in modified transportation protocols, such as during atypical low flow years. Transportation protocols will be reviewed annually, taking into account new information concerning adult returns, in-river and transportation SARs, and model results. If new information indicates a modified transportation protocol is warranted, the Parties will use existing adaptive management procedures to make the appropriate adjustments in timing and criteria for spring spill and transportation.

In the adaptive management process, the Parties may consider the exposure of fish to TDG during transport (or lack of) versus in-river conditions experienced by control fish throughout the Columbia River System during increased spill operations.

### ***D. SUMMER SPILL***

Spill operations developed to facilitate safe passage of subyearling Chinook salmon will occur at the lower Snake River dams beginning on June 21 and at lower Columbia River dams on June 16, as shown in Tables 2 and 3 below. The Action Agencies will adjust summer spill timing at the lower Snake River projects according to when this species is actively migrating past those projects, as follows:

- Spill will continue at each project until the criteria below are met for that dam, or until August 31, whichever comes first.
- The Action Agencies will provide juvenile fish passage spill in August at Lower Granite Dam until subyearling fall Chinook collection counts at that dam fall below 300 fish per day for 4 consecutive days (with counting beginning on July 28).

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- The Action Agencies will provide juvenile fish passage spill in August at Little Goose Dam until subyearling fall Chinook collection counts at that dam fall below 300 fish per day for 4 consecutive days (with counting beginning on July 28).
- The Action Agencies will provide spill in August at Lower Monumental and Ice Harbor Dams<sup>9</sup> until subyearling fall Chinook collection counts at Lower Monumental Dam fall below 300 fish per day for 4 consecutive days (with counting beginning on July 28).
- In the event that fish collection counts increase above 500 fish for 2 consecutive days at a project where spill has ended prior to August 31<sup>st</sup>, the Parties agree to work together to develop an adaptive strategy to assess options and determine if an alternative spill operation is warranted until the criteria above are met again.

The Parties will meet annually before March 1 to determine whether to increase the quantity of PIT-tagged natural production (or hatchery reared surrogates for) subyearling fall Chinook salmon required to examine the null hypothesis. Special emphasis may be applied to the Clearwater fall Chinook salmon subgroup, which present a split life history strategy and variability in run-timing.

The Parties will continue to discuss and explore other potential changes to summer spill focusing on spill during the month of August for each of the lower Columbia River dams. In particular, the decrease in PIT-tagged fall Chinook passing the lower Columbia River dams will be investigated with regards to run-timing and reductions in August spill. Proposals under consideration include:

- Subyearling fall Chinook salmon count criteria (e.g., less than 1,200-1,500 fish) for a minimum of three consecutive sampling dates (current sampling rate varies at each site by date and water temperature, but without water temperature restrictions, sample in August occurs every other day at McNary and Bonneville dams and every three to four days at John Day Dam, yielding a minimum of 6-12 consecutive days);
- Continue to spill during the first half of August (August 1-15) at a reduced rate of spill and then provide only day spill (also a reduced level of spill) between August 16-31; and,
- Combined fish count criteria with reduced levels of spill during August.

### ***E. SUMMER TRANSPORTATION***

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<sup>9</sup> Daily collection does not occur at Ice Harbor Dam, so spill at that project will follow criteria for Lower Monumental Dam and continue until the same day.



Transport operations targeting fall Chinook will continue until approximately September 30 at Lower Monumental Dam and through October 31 at Lower Granite and Little Goose Dams, in accordance with all relevant Fish Passage Plan operating criteria. The Parties and other regional sovereigns, through the Regional Forum, will review the transportation protocols annually, taking into account new information concerning adult returns, in-river and transportation SARs, and model results. If new information indicates a modified transportation protocol is warranted, adaptive management will be used to make the appropriate adjustments in timing and criteria for summer transportation.

Test results of in-river versus transported subyearling fall Chinook salmon on the lower Snake River suggest the primary benefit of transportation, as it relates to increases in SARs, occurs in the months of August-October. One proposed consideration by the Action Agencies is to transport subyearling fall Chinook by trucks beginning August 1 and continue through the fall (with actual dates and criteria to be defined).

#### ***F. AVIAN PREDATION***

The objective of avian predator deterrence is to reduce avian predation on juvenile salmonids. The Corps will continue to implement and improve, as needed, avian predator deterrent programs at lower Snake and Columbia River dams. This program will be coordinated through the Fish Passage Operations and Maintenance (FPOM) Team and included in the annual Fish Passage Plan (FPP). Avian monitoring and deterrence action plans are implemented annually at lower Snake and Columbia River dams and are included in the FPP (see Appendix L in the 2018 FPP for an example). At each dam, bird numbers are monitored, feeding birds are hazed, and passive predation deterrents, such as irrigation sprinklers and bird wires are deployed. Hazing typically involves launching long-range pyrotechnics at concentrations of feeding birds and occurs primarily near the spillway and powerhouse discharge areas, and juvenile bypass outfall areas. Reservoir operations noted in Section H may also have ancillary biological benefits that complement the avian predation reduction actions noted above.

#### ***G. ADULT PASSAGE***

The increase in proposed spring spill during the Spring Test Spill Operation may delay upstream migrating adult salmon and steelhead, specifically adult spring and summer Chinook salmon. If adult delay at any project is observed, existing adaptive management processes will be used to address the issue.

During low flow conditions, similar to the flows observed in 2015, with or without warm water temperatures, the Parties and other regional sovereigns, through the Regional Forum, will evaluate the appropriate balance between providing spill for juvenile passage, while not delaying upstream adult passage.

## ***H. HYDRO OPERATION FLEXIBILITY***

Increased flexibility in hydro operations is being discussed regionally, and several adjustments to operations are being considered, including:

1. The Action Agencies plan to increase the useable forebay range at Snake River projects by 6 inches (MOP +1.5-foot) to allow a full usable foot. Currently, project operators limit actual operations to the middle two-thirds of the MOP +1.0-foot range to avoid unintentionally going above or below the prescribed elevation. Beginning April 3, all Lower Snake River projects (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite projects) will be operated within the MOP +1.5-foot reservoir operations with very limited instances in which the pool would be within 0.25 feet of the bottom or top of the MOP range. Lower Granite Reservoir may be raised as needed after September 1, in order to operate the adult fish holding facilities to support brood stock collection.
  - As with the 6-inch expansion of operating range described for the lower Snake River projects, the John Day Dam forebay will be operated within 2 feet of MIP—the lowest elevation range. This action will allow full utilization of 1.5-foot operating range (262.5 to 264.5 feet) that will continue to allow irrigation withdrawals from April 10 through September 30. Slight deviations from these levels, based on navigation needs, load following, and operation sensitivity, may be required on occasion.
2. The parties will work together to evaluate other emerging issues on an as needed, site-specific basis. Examples of emerging issues that may warrant addition site specific monitoring include new turbine testing at Ice Harbor and/or alternate methods of implementing spill programs (e.g. 24 hour spill averaging) while allowing for integration of intermittent power sources such as solar or wind which could also potentially be tested at a single project like Ice Harbor. Any of these types of RM&E efforts would need to be further developed and defined so that they could be integrated into and be complementary with the BiOp spill program.

**Table 1.** Juvenile dam passage survival estimates, passage times, and spill passage efficiency for yearling Chinook salmon and juvenile steelhead are derived from performance standard tests from 2010-2014. Spill passage efficiency is the percent of all downstream migrating juvenile salmon or steelhead that passed a dam through the spillway and other surface passage routes.

Dam	Year	Species	Dam Passage Survival (percent with Standard Error)	Median Forebay Passage Time (hours)	Spill Passage Efficiency (percent)	Spill Operation (Target / Actual)
<b>Lower Columbia River</b>						
Bonneville	2010	Yearling Chinook Salmon	95.69 (0.42)	n/a	n/a	100 kcfs / 100 kcfs (30 Apr – 13 May)
Bonneville	2011	Yearling Chinook Salmon	95.97 (1.76)	0.55	59.59	100 kcfs / 181 kcfs (season-wide)
Bonneville	2010	Steelhead	97.55 (1.80)	n/a	n/a	100 kcfs / 100 kcfs (30 Apr – 13 May)
Bonneville	2011	Steelhead	96.47 (2.12)	0.85	64.06	100 kcfs / 181 kcfs (season-wide)
Bonneville	2012	Subyearling Chinook Salmon	97.39 (0.69)	0.48	57.06	85 kcfs day 121 kcfs night / 149 kcfs 95 kcfs 24 hrs / 149 kcfs
The Dalles	2010	Yearling Chinook Salmon	96.41 (0.96)	1.28	94.66	40% / 39.9%
The Dalles	2010	Steelhead	95.34 (0.97)	1.28	95.36	40% / 39.9%
The Dalles	2010	Subyearling Chinook Salmon	94.04 (0.91)	1.20	82.98	40% / 39.8%
The Dalles	2011	Yearling Chinook Salmon	96.00 (0.72)	0.97	83.10	40% / 43.1%
The Dalles	2011	Steelhead	99.52 (0.83)	0.81	89.10	40% / 43.1%
The Dalles	2012	Subyearling Chinook Salmon	94.69 (0.59)	1.08	78.39	40% / 40.4%
John Day	2011	Yearling Chinook Salmon	96.66 (1.03)	2.00	61.20	30% / 30%
			97.84 (1.07)	1.50	66.40	40% / 40%
			96.76 (0.71)	1.42	63.68	Season-wide
John Day	2011	Steelhead	98.36 (0.90)	4.30	61.20	30% / 30%
			98.97 (0.96)	3.20	66.40	40% / 40%
			98.67 (0.61)	2.91	62.78	Season-wide

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**Table 1.** (continued) Juvenile dam passage survival estimates, passage times, and spill passage efficiency for yearling Chinook salmon and juvenile steelhead are derived from performance standard tests from 2010-2014. Spill passage efficiency is the percent of all downstream migrating juvenile salmon or steelhead that passed a dam through the spillway and other surface passage routes.

Dam	Year	Species	Dam Passage Survival (percent with Standard Error)	Median Forebay Passage Time (hours)	Spill Passage Efficiency (percent)	Spill Operation (Target / Actual)
John Day	2012	Yearling Chinook Salmon	96.73 (0.65)	1.15	74.56	30% / 37.1% 40% / 37.1%
John Day	2012	Steelhead	97.44 (0.28)	2.39	74.52	30% / 37.1% 40% / 37.1%
John Day	2014	Subyearling Chinook Salmon	91.96 (0.74) 91.31 (0.77)	2.28 1.91	55.52 71.26	30% / 30% 40% / 40%
McNary	2012	Yearling Chinook Salmon	96.16 (1.40)	1.76	72.46	40% / 50.9%
McNary	2012	Steelhead	99.08 (1.83)	1.78	83.15	40% / 50.9%
McNary	2012	Subyearling Chinook Salmon	97.47 (1.14)	1.77	78.32	50% / 61.6%
McNary	2014	Yearling Chinook Salmon	96.10 (1.27)	1.73	71.40	40% / 52.6%
McNary	2014	Steelhead	96.98 (1.36)	2.57	84.33	40% / 52.6%
<b>Lower Snake River</b>						
Lower Monumental	2012	Yearling Chinook Salmon	98.68 (0.90)	2.35	78.89	Gas Cap (26 kcfs) / 29.7 kcfs
Lower Monumental	2012	Steelhead	98.26 (0.21)	2.17	65.85	Gas Cap (26 kcfs) / 29.7 kcfs
Lower Monumental	2012	Subyearling Chinook Salmon	97.89 (0.79)	2.60	83.56	17 kcfs / 25.2 kcfs
Lower Monumental	2013	Subyearling Chinook Salmon	92.97 (1.05)	2.99	89.10	17 kcfs / 19.8 kcfs
Little Goose	2012	Yearling Chinook Salmon	98.22 (0.76)	2.58	65.28	30% / 31.8%
Little Goose	2012	Steelhead	99.48 (0.81)	2.67	56.09	30% / 31.8%
Little Goose	2012	Subyearling Chinook Salmon	95.08 (0.97)	2.80	72.49	30% / 38.5%
Little Goose	2013	Subyearling Chinook Salmon	90.76 (1.39)	3.66	76.83	30% / 30%

**Table 2. Initial juvenile fish passage spill operations at lower Snake River dams.**

Project	Spring base spill operation <sup>4</sup>	Spring test spill operation <sup>10,11,12</sup>	Spring dates	Summer operation	Summer dates <sup>13</sup>
Lower Granite	20 kcfs	TDG Spill Cap	April 3 – June 20	18 kcfs	June 21-Aug 31
Little Goose	30%	TDG Spill Cap	April 3 – June 20	30%	June 21-Aug 31
Lower Monumental	TDG Spill Cap	TDG Spill Cap	April 3 – June 20	17 kcfs	June 21- Aug 31
Ice Harbor	30%	TDG Spill Cap	April 3 – June 20	30%	June 21 – Aug 31

<sup>10</sup> Spring spill levels will be systematically alternated between “base spill” and “test spill” as part of a latent mortality study. See the research section for more detail.

<sup>11</sup> If adult delay at any project is observed, existing adaptive management processes will be used to address the issue.

<sup>12</sup> The 120%/115% TDG spill cap refers to spill to the maximum level that meets, but does not exceed, the current TDG criteria allowed under state law (120% TDG in the project’s tailwater and 115% TDG in the next downstream forebay. Manage juvenile fish spill on an hourly basis to meet but not exceed the state water quality standards for WA and OR. Implementation of the daily spill averaging would include ± hourly variation in spill amounts within a day to facilitate integration of renewable power including solar and wind.

<sup>13</sup> The Action Agencies will adjust the timing of August spill based on the timing of the juvenile fall Chinook migration according to the following criteria. Beginning August 1, the Action Agencies will adjust summer spill operations to juvenile outmigration at Lower Granite, Little Goose, or Lower Monumental, or Ice Harbor Dams if subyearling Chinook collection counts fall below 300 fish per day for four consecutive days (beginning July 28, 29, 30, and 31 for August 1 summer spill completion). Spill will continue at Ice Harbor until the same day as at Lower Monumental, since daily collection does not occur at that project. Additionally, in any year where natural-origin adult returns of Snake River fall Chinook salmon are equal to or less than 400 fish, summer spill in the following year would continue at Snake River projects through August 31, even in years where subyearling Chinook counts fall below the 300 fish per day for four consecutive days as stated above.

**Table 3. Initial juvenile fish passage spill operations at Columbia River dams.**

<b>Project</b>	<b>Spring base spill operation</b>	<b>Spring test spill operation<sup>14,15,16</sup></b>	<b>Spring dates</b>	<b>Summer spill operation</b>	<b>Summer dates</b>
McNary	48%	TDG Spill Cap	April 10 – June 15	57%	June 16 – Aug 31
John Day	32%	TDG Spill Cap	April 10 – June 15	35%	June 16 – Aug 31
The Dalles	40%	TDG Spill Cap	April 10 – June 15	40%	June 16 – Aug 31
Bonneville	100 kcfs	TDG Spill Cap <sup>17</sup>	April 10 – June 15	95 kcfs	June 16 – Aug 31

<sup>14</sup> Spring spill levels will be systematically alternated between “base spill” and “test spill” as part of the Action Agencies’ latent mortality research plan.

<sup>15</sup> If adult delay at any project is observed, existing adaptive management processes will be used to address the issue.

<sup>16</sup> The 120%/115% TDG spill cap refers to spill to the maximum level that meets, but does not exceed, the current TDG criteria allowed under state law (120% TDG in the project’s tailwater and 115% TDG in the next downstream forebay. Manage juvenile fish spill on an hourly basis to meet but not exceed the state water quality standards for WA and OR. Implementation of the daily spill averaging would include ± hourly variation in spill amounts within a day to facilitate integration of renewable power including solar and wind.

<sup>17</sup> Spill to the TDG Spill Cap, not to exceed 150 kcfs.