

Chief Joseph Hatchery Program

Final Environmental Impact Statement - Summary

DOE/EIS-0384

November 2009



US Army Corps
of Engineers®
Seattle District



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**Bonneville Power Administration
Confederated Tribes of the Colville Reservation
U.S. Army Corps of Engineers**

November 2009

Abstract - Chief Joseph Hatchery Program

Responsible Agencies: Lead federal agency: U.S. Department of Energy - Bonneville Power Administration (BPA); cooperating federal agency: U.S. Army Corps of Engineers; cooperating tribe: Confederated Tribes of the Colville Reservation

Title of Proposed Project: Chief Joseph Hatchery Program

State Involved: Washington

Abstract: The Final Environmental Impact Statement (DEIS) describes a Chinook salmon hatchery production program sponsored by the Confederated Tribes of the Colville Reservation (Colville Tribes). BPA proposes to fund the construction, operation and maintenance of the program to help mitigate for anadromous fish affected by the Federal Columbia River Power System dams. The proposed hatchery supports the goal of the Colville Tribes to produce adequate salmon to sustain tribal ceremonial and subsistence fisheries and enhance the potential for a recreational fishery for the general public. The final EIS discloses the environmental effects expected from facility construction and program operations and a No Action alternative. The final EIS also responds to public comments received on the draft EIS released in May 2007.

The proposed action is to build a hatchery near the base of Chief Joseph Dam on the Columbia River for incubating, rearing and releasing summer/fall and spring Chinook. Along the Okanogan River, juvenile Chinook would be reared, imprinted and released from three existing irrigation ponds, one existing salmon acclimation pond, and two new acclimation ponds (to be built). The Chief Joseph Dam Hatchery Program Master Plan (Master Plan, Northwest Power and Conservation Council, May 2004) provides voluminous information on program features. The US Army Corps of Engineers, Washington Department of Fish and Wildlife, Washington State Parks and Recreation Commission, Oroville-Tonasket Irrigation District and others cooperated on project design and siting.

BPA and the Corps of Engineers will issue Records of Decision whether to implement the project by March 1, 2010.

For more information about the EIS, please contact:

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The EIS and affiliated documents are also on the Internet at:

http://www.efw.bpa.gov/environmental_services/Document_Library/Chief_Joseph/.

For additional information on DOE NEPA activities, please contact Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance, GC-20, U.S. Department of Energy, 1000 Independence Avenue S.W., Washington D.C. 20585-0103, phone: 1-800-472-2756 or visit the DOE NEPA Web site at www.eh.doe.gov/nepa.

SUMMARY

Purpose and Need

The Northwest Power and Conservation Council (NPCC, www.nwcouncil.org) recommended that the Bonneville Power Administration (BPA) study and consider funding a Chinook salmon production program and hatchery proposed by the Confederated Tribes of the Colville Reservation (Colville Tribes, CTCR). The proposal intends to increase returns of adult summer/fall Chinook by raising and releasing juvenile fish in the waters of the Okanogan River, and in the Columbia River below Chief Joseph Dam and above its confluence with the Okanogan River. The proposed program would construct, operate and maintain a hatchery below the Chief Joseph Dam on the Columbia River and several fish acclimation and release ponds on the Okanogan River and Omak Creek in Okanogan County, Washington (Figure S-1). These facilities may also be used to produce and reintroduce spring Chinook salmon to historic habitats in the Okanogan subbasin. This Environmental Impact Statement (EIS) presents the design of the project and a summation of its probable environmental effects to inform the public and guide consideration of this possible undertaking by federal agencies as required by the National Environmental Policy Act (NEPA).

The proposed project is needed to assist in the protection and mitigation of Chinook salmon (*Oncorhynchus tshawytscha*) populations in the Okanogan River and the Columbia River between the Okanogan River and Chief Joseph Dam that are affected by the Federal Columbia River Power System (FCRPS). BPA comes by this protection and mitigation responsibility under the Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act, 16 U.S.C. Sec. 839 et seq). After issuing the Draft Environmental Impact Statement, BPA, the U. S. Army Corps of Engineers (USACE), and the Colville Tribes signed a 2008 Columbia Basin Fish Accords Memorandum of Agreement (http://www.salmonrecovery.gov/Biological_opinions/FCRPS/2008_biop/docs/Colville-Tribes-Action-Agency-Agreement.pdf). Under the agreement, BPA agreed to make capital funds available to construct the proposed hatchery subject to NPCC review and meeting all legal compliance conditions; the USACE agreed to support the planning, design and construction of the hatchery. The proposed project would be one more element of a continuing effort by BPA, the Colville Tribes, USACE and several other partners and cooperators to protect and manage anadromous fish populations and mitigate for effects of the FCRPS in these waters.

BPA has defined the scope of the proposed action and any viable alternatives in terms of four primary purposes and decision factors to be met:

1. The proposal's objective is to increase abundance, distribution and diversity of naturally spawning summer/fall Chinook within their historical Okanogan subbasin habitat and in the Columbia River between the Okanogan River and Chief Joseph Dam. As well as helping to protect the species and mitigate for the FCRPS, the proposal is integrated with and complementary to the myriad of other

local and regional fishery improvement efforts (habitat improvements, fish passage, water rights programs, harvest controls, etc.) in these waters.

2. Operation of the FCRPS, particularly Chief Joseph Dam, must remain unaffected by the proposal (e.g., spill, timing, dissolved gases, etc.). Power system operational flexibility must not be diminished or otherwise adversely affected.
3. The action must not adversely affect populations listed under the Endangered Species Act (ESA) (e.g., through mixed stock harvest, reducing productivity, or otherwise) such that it creates a greater mitigation, protection or recovery burden on BPA. The proposal must not be contrary to FCRPS biological opinions, ESA recovery objectives, or the Hatchery Scientific Review Group findings on federal hatcheries (http://www.hatcheryreform.us/hrp/summary/welcome_show.action).
4. The Colville Tribes, as project proponents, want to produce adequate adult summer/fall and spring Chinook salmon returns to support a tribal ceremonial and subsistence fishery. BPA supports this goal to augment anadromous fish populations so as to enhance the potential for tribal ceremonial and subsistence harvests and a recreational fishery for the general public, although BPA has no authority to permit or regulate harvest.

This EIS is the second step in a 3-step project planning process outlined by the NPCC. The first step was preparation of a fish production and hatchery master plan that was released to the NPCC in May 2004 and for public review in August 2004 (Chief Joseph Dam Hatchery Program Master Plan, <http://www.nwcouncil.org/library/Default.htm>, incorporated by reference in its entirety in this EIS). The third step is the final design and cost estimate review leading to the construction of the hatchery and acclimation ponds. The Northwest Power and Conservation Council recommended the project to BPA for Step 3 level activities in April 2009 following a favorable review by the Independent Scientific Review Panel.

BPA will use this EIS to decide whether or not to fund the hatchery and fish production program as proposed by the Colville Tribes and recommended by the NPCC. The BPA Administrator will issue a Record of Decision based on this final EIS, which includes a response to comments received on the draft EIS (Appendix C) which was released for public, agency and tribal review and comment in May 2007. The USACE, as administrator of the site where the hatchery is proposed, and the State of Washington, as administrator of sites where some other project facilities are proposed and as co-manager of the area's fisheries, may also issue decision documents based on this EIS to serve their environmental and public review responsibilities.

In order to identify initial concerns and issues with the proposed project and any potential alternatives to the proposed action, BPA scoped the project with the public, agencies and Northwest tribes during August and September 2005 through a combination of open meetings and informative mailings.

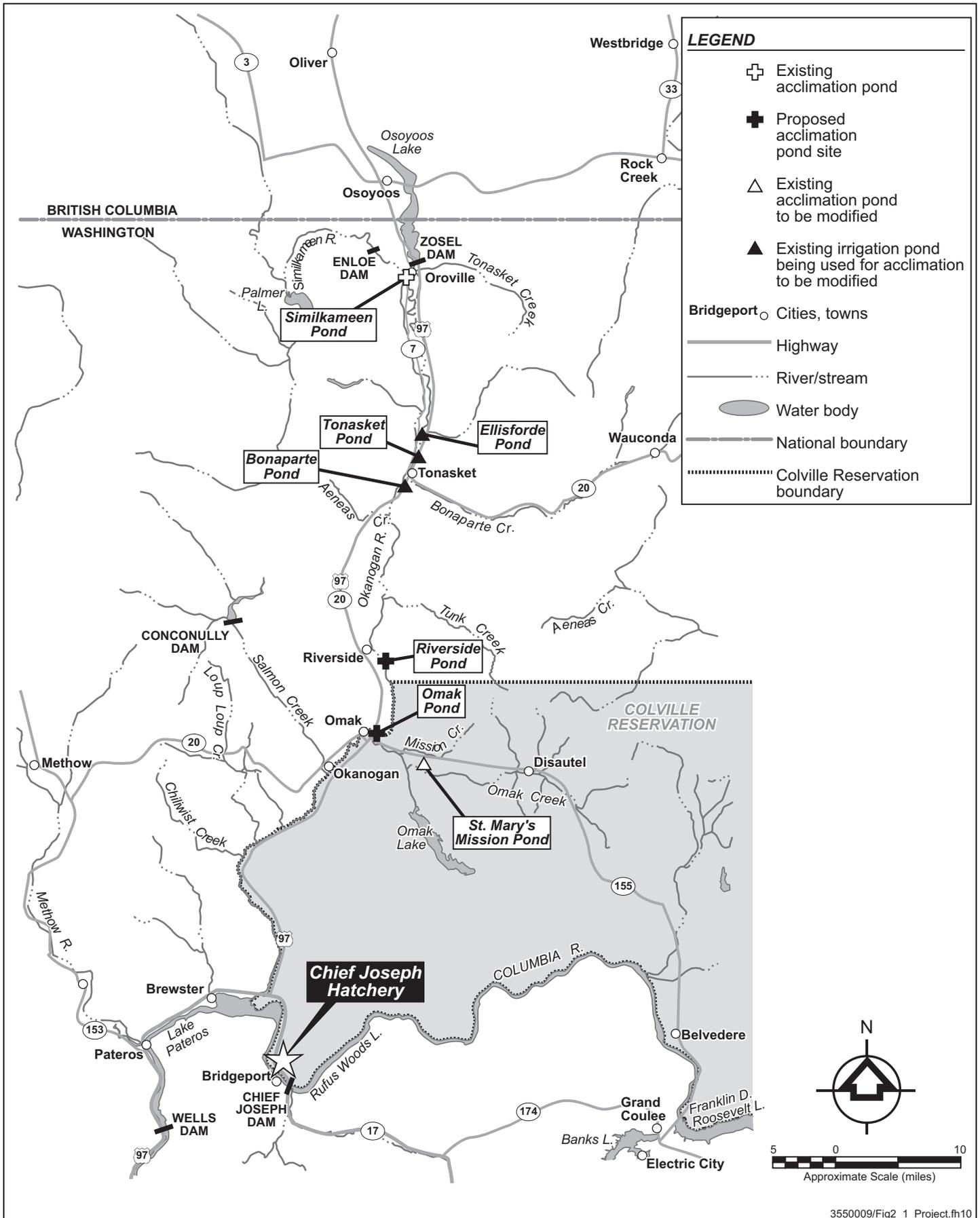


Figure S-1.
 Location of
 Project Facilities



Five key issues surfaced from scoping that guided the development of this EIS.

1. The effect of the fish production program on the quality of surface waters and wells in the vicinity of the hatchery and acclimation ponds
2. The effect of the production program, hatchery and acclimation ponds on water quantity and use, especially FCRPS dam operations and irrigation and municipal withdrawals
3. The effect of the production program and facilities on aquatic organisms including additional stocking of hatchery-bred fish into the Okanogan subbasin and the Columbia River below Chief Joseph Dam
4. The effect of the production program and facilities on terrestrial organisms and resources including key wildlife species, plants and their habitats in the area
5. The effect of the production program and facility construction on local communities and BPA electric power ratepayers

The substance of the public issues did not indicate that another alternative needed to be developed to compare with or replace the proposed action (Appendix C). It was generally acknowledged that a fish production program supported by a local hatchery is needed and desired to complement other ongoing efforts and increase adult salmon returns in the Okanogan subbasin. Therefore only the proposed action and the No Action alternative required by NEPA are analyzed in the EIS (Appendix D).

As preliminary planning progressed, numerous improvements to the original proposed project were made to address cost, physical feasibility, functionality and environmental concerns. Some examples are: local public utility districts offering to cost-share the program; eliminating the ideas of locating the hatchery water supply pipe above ground or submerging it in Rufus Woods Lake in favor of a less obtrusive buried pipeline; eliminating potential hatchery and pond locations associated with high property or environmental costs; rejecting less desirable fish rearing and spawning reaches; designing hatchery components and operations to avoid impacts from and to operation of Chief Joseph Dam; and selecting between housing sites for hatchery personnel based on cost and distance from the hatchery in case of an operational emergency.

The Proposed Project

The proposed production program has three components. These components could be adopted in part or as a whole.

- Component 1 is a program designed to increase abundance, distribution, run timing and diversity of naturally spawning summer/fall Chinook salmon within their historical Okanogan subbasin habitat. This supplementation program would produce 1,100,000 hatchery smolts annually.

- Component 2 would produce an additional 500,000 early-arriving and 400,000 late-arriving summer/fall Chinook hatchery smolts primarily for harvest purposes. When combined with Component 1, this would enhance the potential to support tribal ceremonial and subsistence fisheries and provide recreational fishing opportunities for summer/fall Chinook.
- Component 3 is a spring Chinook program that would produce 900,000 smolts in an effort to return naturally spawning spring Chinook to their historical Okanogan subbasin habitat and in the Columbia River between the Okanogan River and Chief Joseph Dam. This component could also increase the potential for tribal ceremonial and subsistence fisheries and recreational fishing opportunities. Hatchery fish surplus to recovery needs in other nearby subbasins would be used to support this component. It may contribute to the recovery of the ESA-listed Upper Columbia River Spring Chinook Evolutionarily Significant Unit (ESU).

The summer/fall Chinook components (Components 1 and 2) of the proposed production program would involve:

- Developing a local Okanogan River brood stock
- Propagating the full historical run of summer/fall Chinook by extending the current brood stock collection by two months
- Propagating yearling and sub-yearling life stages to reflect natural diversity and add some necessary flexibility in the program
- Improving spawning distribution throughout their historical habitat
- Controlling the proportion of hatchery-origin fish spawning naturally

To facilitate the Chinook production program, a fish hatchery would be constructed on the Columbia River adjacent to and just downstream of Chief Joseph Dam. Hatchery design and operational parameters were developed in collaboration with the USACE to ensure that it does not interfere with dam operations. Concurrently, dam operations were factored into production program considerations and hatchery design.

Water to the hatchery would come from three sources: Rufus Woods Lake, a relief tunnel that collects seepage from the abutment of Chief Joseph Dam, and a well field. Potable water would come from the same well field supplying the hatchery and would be conveyed in the same buried pipeline. Electric power for the facilities may be provided by Nespelem Valley Electric Cooperative, whose lines span the hatchery site. Sanitary sewer treatment for the hatchery complex site would be a new on-site septic drain field disposal system. In addition to the hatchery, a housing area for critical hatchery employees would be developed upland of the Lake Woods Golf Course. All fish production program and hatchery employees would be hired and managed by the Colville Tribes.

Summer/fall Chinook salmon and spring Chinook salmon incubated and reared at the hatchery would be released from there into the Columbia River or transported to ponds along the Okanogan River and Omak Creek for final rearing, acclimation and release (Figure S-1). Two new ponds would be constructed (Riverside and Omak), three ponds currently serving a double purpose as irrigation settling ponds and fish acclimation ponds would be improved to function better (Ellisforde, Bonaparte and Tonasket), and one existing acclimation pond would receive minor upgrades (St. Mary's Pond).

A comprehensive monitoring and evaluation plan would be developed to evaluate general program success. The plan would be coordinated with existing programs and forums to share information and ensure integration with monitoring and evaluation efforts in this and other subbasins of the Columbia Cascade Province and the Columbia River Basin.

The proposed project includes two vital research and monitoring studies which are on-going, but substantially completed. The first study consists of radio-telemetry research to determine where and when summer/fall Chinook migrate, where they congregate, the extent to which they are spatially separated from other population components, and whether the timing of passage over Wells Dam is related to timing and location of subsequent spawning. This information is essential to the development of successful brood stock collection protocols and subsequent acclimation of their progeny. This study (Ashbrook et al, 2006) documents migration into tributaries between Wells Dam and Chief Joseph Dam and use of the Chief Joseph Dam tailwater by summer/fall Chinook, among other things.

The second research study tests the viability of live-capture, selective fishing gear for local brood stock collection (CTCR 2008). Methods evaluated include use of tangle nets, beach seines, floating trap-nets, fish wheels, and dip-nets. The success of the live-capture, selective fishing methods provides the ability to control the ratio of hatchery to natural fish on the spawning grounds. Also, the use of live capture techniques would reduce impacts to other native fish species incidentally collected at the facilities. Study results indicate preliminary success in the use of live-capture gear.

Comparison of Alternatives and Summary of Potential Effects

Table S-1 compares the Proposed Project and the No Action Alternative to the stated purposes of taking action.

Table S-2 summarizes potential environmental consequences of the Proposed Project and the No Action Alternative.

Table S-1. Comparison of Alternatives to Stated Purposes of Taking Action

| Purposes of Action | Proposed Action | No Action |
|--|---|---|
| <p>1. Increase abundance, distribution, and diversity of naturally spawning summer/fall Chinook within their historical Okanogan subbasin habitat and in the Columbia River between the Okanogan River and Chief Joseph Dam.</p> | <p>Would meet this purpose by acclimating fish to underutilized habitat. Implementation of the summer/fall Chinook component of the production program would provide the greatest potential to protect and enhance the summer/fall Chinook population and mitigate for FCRPS effects.</p> | <p>Would partially meet this purpose to the extent provided by ongoing and new fish habitat and passage improvements, water rights programs, harvest control programs. Rearing program at Similkameen Pond would continue.</p> |
| <p>2. Operation of the FCRPS, particularly Chief Joseph and Grand Coulee dams (e.g., spill, timing, dissolved gases, etc.), must remain unaffected by the fish production program.</p> | <p>Hatchery design and operational parameters were developed in collaboration with the USACE to ensure that the hatchery does not interfere with dam operations. Concurrently, dam operations were factored into design of the hatchery.</p> | <p>Would meet this purpose by not changing the current situation and having no effect or risk to dam operations.</p> |
| <p>3. The program must not adversely affect populations listed under the ESA (e.g., through mixed stock harvest, reducing productivity, or otherwise) such that it creates a greater mitigation, protection or recovery burden on BPA.</p> | <p>The production program is designed and would be implemented and monitored to ensure listed species are not adversely affected. Upper Columbia spring Chinook populations should increase.</p> | <p>Ongoing habitat, passage, water rights, and harvest control efforts would contribute to this objective. Existing facilities would continue to support the limited ongoing Chinook production program in the Okanogan River. Current risks, insufficiencies, and limitations associated with the existing situation would continue.</p> |
| <p>4. Increase Chinook salmon populations to enhance the potential for tribal ceremonial and subsistence harvests and a recreational fishery for the public.</p> | <p>Has the greatest potential to enhance adult fish returns of summer/fall and spring Chinook in historical habitat to sustain naturally spawning populations and tribal ceremonial and subsistence or public recreational fisheries.</p> | <p>Unlikely to sustain a harvestable fishery as the current situation has insufficient and downward- trending adult returns long-term. Would not change the depleted spring Chinook situation.</p> |

Table S-2. Summary of Environmental Consequences of Alternatives

| Environmental Feature | Proposed Action | No Action |
|--|---|---|
| <p>Fish and Aquatic Habitat</p> <p>(EIS Section 3.2 and Issue #3)</p> | <p>Implementing the three production program components should produce greater diversity, abundance and distribution of summer/fall and spring Chinook in the Okanogan subbasin. These returns should complement other on-going salmon protection and mitigation efforts.</p> <p>Some individual fish of all species could experience short-term stress and possible mortality from live fish trapping gear and subsequent capture and handling. Competition and predation between aquatic species at all life stages including hatchery-bred fish would not threaten viability of any species. Some increase in aquatic nutrients is likely from decaying spawned-out salmon carcasses.</p> <p>During construction, site and channel alterations would create minor, localized, temporary disturbances that would not measurably affect the viability of any aquatic species. Water withdrawals during operation of ponds would have an immeasurable effect on habitat in the immediate reach of each diversion for the season of the withdrawals. Fish released from hatchery and rearing facilities would have a low potential to introduce pathogens to other fish populations.</p> | <p>Current risks to salmon population viability would continue but would likely diminish slightly in the long-term due to the other on-going complementary protection and mitigation efforts (habitat and passage improvements, harvest controls, water rights programs).</p> <p>Current conditions of habitat and population viability of other aquatic species should remain unchanged.</p> |
| <p>Wildlife</p> <p>(EIS Section 3.3 and Issue #4)</p> | <p>No state or federally listed species are known to nest or breed at or near project sites, so no adverse effects are expected.</p> <p>Salmon carcasses may provide a long-term seasonal food source for many large and small scavenger and predator species and certain insects.</p> <p>Animals may be displaced or disturbed in the vicinity of construction activities and during facility operations and occupation (noise, presence of humans and machines, outside lighting). New power lines at the hatchery, housing and Omak Pond sites may provide perches or minor collision risks for certain birds.</p> | <p>No changes to current trends, conditions or protection status are expected for any animal species.</p> |
| <p>Vegetation, Wetlands, Geologic Hazards and Soils</p> <p>(EIS Sections 3.4 & 3.5, and Issue #4)</p> | <p>No state or federally listed plant species occur at or near any project sites, so no effects are expected.</p> <p>At the hatchery site, about 25 acres of non-native vegetation shrub steppe habitat would be disturbed of which about 20 acres would remain permanently developed. At the housing site, about 10 acres of native vegetation shrub steppe habitat would be disturbed of which about 5 acres would be permanently developed.</p> <p>Developing Riverside Pond would convert about 4 acres of hay fields and Omak Pond would convert about 2 acres of pasture to development. Work at all other pond sites would disturb little</p> | <p>On-going disturbance and habitat conversion would continue at current rates.</p> <p>Exotic plants and weeds would continue to exist and be subject to control as in the past.</p> |

Table S-2. Summary of Environmental Consequences of Alternatives

| Environmental Feature | Proposed Action | No Action |
|---|---|---|
| Floodplains | <p>The two new ponds (Riverside and Omak) and their intake and discharge structures would be located in the Okanogan River's 100-year floodplain. Upland sites are infeasible. Ponds possibly could be inundated in a 100-year flood event, but the facilities would likely receive little damage and have little effect on downstream flood dynamics.</p> <p>The hatchery's fish ladder entrance and discharge would be in Columbia River waters directly below Chief Joseph Dam. They are designed to be compatible with dam operations and water flow regimes. No effect on dam operations is expected.</p> | Floodplains remain unchanged. The existing ponds are within 100-year floodplains with potential for inundation with the exception of St. Mary's Pond which is not in a mapped floodplain. |
| <p>Land Use, Transportation and Recreation</p> <p>(EIS Section 3.7 and Issue #5)</p> | <p>Facility construction, operation, occupancy, and use would be consistent with applicable local zoning, laws and regulations. Necessary permits would be pursued if the project proceeds to final design and implementation.</p> <p>During construction, temporary disruptions to the USACE Visitor Orientation Area and nearby walking trails would occur.</p> <p>During construction, traffic would increase locally for workers, equipment, and delivery of supplies and materials. No new public roads or changes to existing public transportation system would occur. Long-term traffic increases related to fish transport and worker commutes would be minor.</p> <p>If the production program is successful, there could be a long-term increase in recreation traffic and activities related to salmon viewing and fishing. Public environmental education opportunities may increase through hatchery site visitation.</p> | No change to current land use, transportation or recreation is predicted. |
| <p>Cultural Resources</p> <p>(EIS Section 3.9 and Issue #5)</p> | <p>Potential long-term sustainable tribal ceremonial and subsistence fishery and recreational fishery would most likely be restored if all components of the production program are implemented. If only Component 1 is implemented, it is unlikely that more than a modest ceremonial and subsistence fishery would result.</p> <p>Possible adverse effects at one of the pond sites on known cultural materials potentially eligible for listing in the National Register of Historic Places would be mitigated by investigative and curation actions taken in agreement with the Tribal Historic Preservation Officer.</p> <p>Known archaeological sites would be avoided at all other project sites, so no effects are expected. If evidence of cultural materials is found later, activity would cease until the finds could be properly assessed.</p> | No change from current conditions at any site is expected. The current fishery is inadequate for even modest ceremonial and subsistence purposes, or recreational fishing. It is unlikely that a sustainable tribal ceremonial and subsistence fishery or recreational fishery would result through currently on-going fishery improvement efforts. |

Table S-2. Summary of Environmental Consequences of Alternatives

| Environmental Feature | Proposed Action | No Action |
|---|---|--|
| | Traditional tribal fishing at the base of Chief Joseph Dam would be temporarily disrupted while installing the hatchery fish ladder and water pipeline. | |
| <p>Aesthetics</p> <p>(EIS Section 3.11 and Issue #5)</p> | <p>The scenic qualities of all sites would remain typical of the region. Aesthetic attributes are not remarkably distinctive, scenic or unique. Although the proposed hatchery site is adjacent to the Columbia River, it is in close proximity to Chief Joseph Dam and would appear congruent with the existing complex of development there. The housing site is an undeveloped upland setting but not within a popular viewshed. The acclimation ponds are all in rural settings and their low profile would not conflict with the setting.</p> | <p>No change to any sites.</p> |
| <p>Socioeconomics</p> <p>(EIS Section 3.8 and Issue #5)</p> | <p>Negligible increase to population overall. Some hatchery employees would reside at the hatchery housing site near Bridgeport. Employment opportunities would be created for up to 100 temporary positions during hatchery and housing construction. Long-term new employment for 8 to 15 workers would support hatchery operations.</p> <p>Construction would entail expenditures of about \$37.5 million in the region with a long-term payroll for hatchery operations of about \$2.1 million annually.</p> <p>Some benefit to local economy could be realized if Chinook recover and stimulate fishing and related recreation and tourism. No measurable effects to area housing, utilities, schools, law enforcement, or tax base are predicted.</p> <p>No impact to BPA ratepayers would occur since the project funds would be part of an established program of annual investment in protection and mitigation of fish and wildlife related to FCRPS facilities and operations.</p> | <p>No project-induced changes to local economies, communities or BPA ratepayers are likely. The potential for some adverse effect on local economy remains if salmon stocks continue to decline.</p> |
| <p>Air, Climate Change, Noise and Public Safety</p> <p>(EIS Section 3.10 and Issue #5)</p> | <p>Dust and vehicle exhaust would increase locally during construction with no long-term climate effects at any sites.</p> <p>Temporary increase in noise would occur during construction at all sites, but would not exceed State standards. Long-term noise from new traffic, operations and residences would be negligible.</p> <p>An increase in demand for public services (medical, hospital, sheriff, fire, etc.) during construction is possible. New safety risks to the public would be short term and mainly associated with construction traffic encounters.</p> | <p>No change in air quality, climate, noise, or public safety would occur at any sites.</p> |

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