ATTACHMENT B

BPA/BOR/Colville Tribes MOA Project Abstracts

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(Note: Projects with a BPA number have additional detailed information available in products developed in the Northwest Power and Conservation Council's 2007-2009 F&W Program process)

ESA PROJECTS

1. Implement Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan (New)

Abstract: This comprehensive, programmatic plan is the centerpiece for mitigation, recovery and conservation in the Okanogan River and is driven by the Colville Tribes (CCT)-developed Okanogan Initiative Plan that arose from subbasin and recovery planning. The project will focus on the sequenced steps necessary to successfully implement habitat-related projects in the Okanogan Subbasin (project development, local landowner interaction, etc.). Projects will be targeted in priority tributaries and the mainstem of the Okanogan and will be directed at known factors limiting UCR Steelhead, UCR Spring Chinook and UCR Summer/fall Chinook, and sockeye production, including water quantity, barriers, warm water temperatures and excessive amount of fine sediment.

Riparian vegetation is important in tributaries of the Okanogan River because these tributaries are typically narrow (i.e. 10 to 15 ft. base flow width) and during the summer the flow is likely to be 10 cfs or less. Thus solar input can greatly increase water temperature making the environment uninhabitable for salmonids. Efforts will be made to rehabilitate, maintain, or enhance riparian vegetation along tributaries within the Okanogan River subbasin**.**

Priority will be on habitat protections for ESA-listed species. Later, funds may be used to increase the viability of sockeye salmon population and for reestablishing coho salmon, in the Okanogan River basin as listed stocks are demonstrated to be on a trend to recovery. Funds may also be used for prioritized land and water acquisition opportunities. Most of the current recovery priorities are detailed in Table 5.9 of the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: ~64% increase in Okanogan steelhead survival (Recovery Plan, Table 5.11); See also Figure 5.5 for improvements in Okanogan steelhead diversity, productivity and abundance. The FCRPS PA indicated a 14% increase in habitat quality improvement and survival (Habitat Proposed Action Summary, page 3 and 18) for the projects included in the Proposed Action.

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- References: See CCT proposal # 200722400 in the NPPC's 2007-2009 F&W Program process; pages 6 – 26 of the July 2006 Okanogan Initiative and page 198 of the Upper Columbia Salmon Recovery Plan (Recovery Plan).

2. Omak Fish Passage (Ongoing – Expanded)

Abstract: This project supports continuing habitat rehabilitation efforts to address sources of fine sediment and improve passage for UCR Steelhead and spring Chinook. In addition, monitoring and evaluation efforts will assess effectiveness of ongoing activities.

Omak Creek is a unique tributary to the Okanogan, since it is hydrologically unaltered and currently supports UCR Steelhead and to a lesser extent spring Chinook salmon. Range and forest management practices have diminished the quality of habitat that exists within Omak Creek and its tributaries. A recognizable source for reducing the quality of habitat is the extreme amount of fine sediment within Omak Creek, which reduces the incubation success of salmonid eggs. The primary source of fine sediment is from forest roads. These roads contribute sediment from the road prism (chronic) and from washouts of undersized culverts (acute). Efforts have been made by the CCT-Environmental Trust and Fish and Wildlife to identify the undersized culverts and replace them prior to failure. The expected result is to reduce the amount of fine sediment delivered to the waterways within the Omak Creek watershed and ultimately increase steelhead and spring Chinook production.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: 25% increase in Omak steelhead production (pg 21, Okanogan Initiative)

- References: See CCT proposal # 200000100 in the NPCC's 2007-2009 F&W Program process; pages 18-22 of the July 2006 Okanogan Initiative and the implementation schedule of the Recovery Plan.

3. Salmon Creek Project (Ongoing-Expanded)

Abstract: Salmon Creek was historically-renowned for abundant anadromous salmonids. During the early 1900's the water in Salmon Creek was diverted for irrigation, thereby terminating these runs. In a continuing effort to recover federally-listed and depressed anadromous fish stocks, the Colville Tribes have signed an MOA with the Okanogan Irrigation District (OID) to provide 700 acre-ft annually to provide fish passage from the mouth of Salmon Creek to upstream of the OID's diversion dam. The Colville Tribes' Salmon Creek project is directed at reconnecting this productive tributary of the Okanogan River. This project initially involves a 12-year water lease with

the Okanogan Irrigation District and construction of a low flow channel (and subsequent maintenance that may be necessary) within the lower reach.

In the event that water (above average snow pack) is available, additional water could be purchased and fish passage could be extended. The result would be an increased number of steelhead accessing the high quality habitat that exists in Salmon Creek thereby increasing natural production of endangered Upper Columbia River Steelhead. This project is related to the Chief Joseph Hatchery Project, as Salmon Creek will provide the primary habitat in the U.S. Okanogan for reintroduction of UCR Spring Chinook. The long-term objective of the Tribes is use of about 3,500 acre-feet of water annually to allow natural production of both UCR Steelhead and UCR Spring Chinook.

(A) BPA funds will be used to acquire, lease, and/or pump additional water (additional to the 700 AF under the existing CCT/OID arrangement, and additional to the BOR commitments of (B), below) through arrangements with OID and/or through use of the Bureau of Reclamation's Shellrock Pump Station.

(B) Consistent with Section II.A.2.c of the Agreement to which this Attachment B is attached, Reclamation will provide funding to the Colville Tribes (by separate agreement) for up to 500 acre-feet (AF) annually of willing-seller leased water in addition to the 700 AF already secured by the Colville Tribes-Okanogan Irrigation District MOA of 2006, to assist with the immediate restoration of instream flow in lower Salmon Creek to allow for viable natural production of UCR Steelhead. This annual 500 AF increment is authorized and contemplated in the 2006 Colville-OID MOA. Reclamation will fund the 500 AF increment in the amount of $72 per AF. If in any given year the 500 AF increment, or any portion thereof, is not available on a willing seller or willing lessor basis, Reclamation and the Tribes, in partnership with the District, may utilize the Reclamation funding identified in this paragraph to attempt to provide the additional water needed to achieve the full 500 AF increment by means of pumping from the Shellrock Pump Station, or other mutually agreeable means, to the extent permitted under applicable State law. In any year in which leased or pumped water may be available in excess of the 500 AF increment, and where agreeable to the Tribes, OID and Reclamation, within the limits of the funding provided in this paragraph, additional waters may be provided for Salmon Creek flows, with attendant fishery benefits estimated. The Colville Tribes will assist in any consultations with the Washington Department of Ecology necessary to seek authorization of the pumping or other means of providing the water for instream purposes. Reclamation will ask NOAA Fisheries to count the 500 AF increment of instream flow as an additional benefit to Upper Columbia steelhead in the FCRPS BiOp (and thereby become part of the baseline in the Okanogan Project consultation). Reclamation will conclude its ESA consultation on the Okanogan Project as promptly as possible.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: Estimated production is 200,000 steelhead fry and 300,000 spring Chinook fry (pg 18, Okanogan Initiative); 980 natural-origin adult steelhead and 800 natural-origin adult spring Chinook (S.Smith, Benefits of the Salmon Creek Project, July 16, 2004)

- References: See CCT proposal # 199604200 in the NPCC's 2007-2009 F&W Program process; the July 2006 Okanogan Initiative, and the limiting factors analysis of the Recovery Plan.

4. Okanogan Habitat (New)

Abstract: Funds will be used by the Colville Tribes for identifying and prioritizing land and water acquisitions within the Okanogan River subbasin, targeting habitat enhancement and protection opportunities. ESA-listed species will be the focus of activities to improve habitat that can allow steelhead and spring Chinook to trend to recovery. Projects will be based on addressing limiting factors as outlined in the Recovery Plan and the Okanogan Initiative. Up to $75,000 of this funding will be available to investigate and plan for cost-effective and needed habitat enhancements in the Canadian Okanagan watershed for the benefit of Chinook salmon and steelhead trout; these habitat enhancements would then be implemented with funds other than those provided by BPA.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: see Project #1

- References: see Project #1

5. Okanogan River Water Acquisition (Ongoing)

Abstract: The CCT will work with the Washington Water Trust on water transactions within the Okanogan River subbasin. This project funds water right transactions to restore streamflows and focused riparian easements on critical fish-bearing tributaries. This project is already funded by BPA for BiOp implementation. The Action Agencies have agreed to target some of that funding from the water transactions project specifically for Okanogan acquisitions.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: Provides critical instream flow necessary for the targeted species.

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- References: See Project # 200201301

6. Land and Water Acquisition (New)

Abstract: The Colville Tribes will implement additional land and water acquisition projects. These funds will be applied to enhance ESA-listed species, and may be applied for more general FCRPS fish and wildlife mitigation when listed species are demonstrating a trend towards recovery. These funds and those in Projects #1 and # 4 may also be used to provide O&M for existing and future habitat projects funded as mitigation for the FCRPS to sustain or enhance their benefit to listed species.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: see Project #1

- References: see Project #1

7. Develop Locally Adapted Okanogan Steelhead Broodstock and Recondition Steelhead Kelts. (New)

Abstract: This project is directed at augmenting the production of wild steelhead by increasing capabilities to collect local, naturally-produced adult steelhead and rearing the F1 progeny at Cassimer Bar Hatchery. Current capacity is 20,000 steelhead smolts. As habitat conditions within tributaries are rehabilitated, production needs of locally adapted steelhead is estimated to increase to 200,000 smolts. In addition, a program to recondition an estimated 200 kelts is proposed. This kelt program may be adjusted based on the reproductive success of the kelts in the wild. Some alterations at Cassimer Bar Hatchery may be required for the kelt program.

Developing a locally adapted broodstock to reintroduce or supplement steelhead in rehabilitated Okanogan tributaries can greatly increase the reproductive success of spawning F1 hatchery fish. The current Wells Hatchery steelhead program releases progeny of highly domesticated, hatchery-origin broodstock that are believed to be poor adapted to successful spawning in the natural habitat.

Intensely managing the proportion of hatchery-origin steelhead in the Omak Creek and Salmon Creek watersheds (and possibly above Zosel Dam in Canadian waters) should also increase the productivity of these population components. More broadly, throughout the Okanogan Basin, the proportion of hatchery steelhead in spawning populations can be

better controlled through more intensive, selective fishing by Colville Tribes and recreational anglers.

Kelt reconditioning has the potential to greatly increase the abundance and productivity of natural spawning steelhead populations by increasing and stabilizing steelhead escapement with well-adapted female steelhead. This project will determine the effectiveness of the relative reproductive success of reconditioned kelt steelhead compared to first time spawners.

- Target ESU/Populations: UCR Steelhead /Okanogan population.

- Projected Benefits: Transitioning from Wells Hatchery steelhead to hatchery fish from a local broodstock can be expected to increase productivity of the steelhead population by 200% to 300%. Potential benefits of reconditioned kelts is high, but remains uncertain.

- References: See CCT proposal # 200721200 in the NPCC's 2007-2009 F&W Program process.

8. Chief Joseph Hatchery (Ongoing)

Abstract: CJHP is designed to increase the abundance, productivity, distribution, and diversity of naturally spawning populations of UCR Summer/Fall Chinook salmon in the Okanogan & Columbia Rivers above Wells Dam and to reintroduce extirpated spring Chinook salmon to historical habitats in the Okanogan subbasin. The Project will initially rear and release unlisted Leavenworth stock spring Chinook until an adequate and stable supply of surplus UCR Spring Chinook eggs are available from the Methow River. Once UCR Spring Chinook are available, then all or part of the Leavenworth spring Chinook production will be replaced with the Methow stock. The project includes education and training for prospective hatchery management personnel and fish culturists in 2008-2012. The funding identified in Attachment A is a maximum, and given anticipated cost-share funding, BPA's share is expected to be lower than this maximum.

This project is related to the Salmon Creek and the Omak Creek Passage projects as UCR Spring Chinook from CJHP will be released into these historical habitats.

- Target ESU/Populations: UCR Spring Chinook/Okanogan population.

- Projected Benefits: Program is designed to increase UCR summer/fall Chinook run past Wells Dam by 6,000-29,000 hatchery-origin adults and 2,700 hatchery-origin adult spring Chinook (CJHP Master Plan, May 2004). Upon availability of UCR Spring Chinook eggs, CJHP will be used to reintroduce the species in the Okanogan subbasin. Subsequent production of natural-origin spring Chinook could be in excess of 800 adults (see Salmon Creek project). Reintroduction of

spring Chinook into historical habitats is also planned for Omak Creek and the Okanogan River in the United States. Significant benefits may be achieved with reintroduction of spring Chinook into historical Canadian habitats, but such program action would require funds other than BPA.

- References: See CCT proposal # 200302300 in the NPCC's 2007-2009 F&W Program process; CJHP Master Plan, and CJHP Step 2 Report.

9. Selective Harvest Gear Evaluation (Ongoing)

Abstract: The project has evaluated numerous live-capture, selective fishing gears to harvest targeted (non-listed) species while protecting listed UCR Steelhead and UCR Spring Chinook. Results will be useable in the Okanogan and upper Columbia Rivers. Results should also have wide applicability throughout the Columbia Basin to increase harvest of hatchery stocks while providing increased survival of listed wild populations.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: Live-capture selective fishing gears have the potential to harvest 20 to 60 hatchery fish for every wild fish or non-target fish mortality. These gears allow more selective tribal fisheries with much lower mortalities to ESA-listed species. Use of selective gears also removes excess numbers of hatchery-origin fish from escapements, thereby increasing the productivity of the natural spawning populations.

- References: See CCT proposal # 200724900 in the NPCC's 2007-2009 F&W Program process.

10. Selective Gear Deployment (NEW)

Abstract: Funds will be used to deploy selective fishing gear by the Colville Tribes for selective fishing by Tribal members within waters containing ESA-listed species.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: Live-capture selective fishing gears have the potential to harvest 20 to 60 hatchery fish for every wild fish or non-target fish mortality. These gears allow tribal harvests to therefore occur at much lower mortalities to ESA-listed species. Use of the gears also remove excess numbers of hatchery-origin fish from escapements, thereby increasing the productivity of the natural spawning populations.

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- References: See CCT proposal # 200724900 in the NPCC's 2007-2009 F&W Program process.

11. ESA F&W Law Enforcement (New)

Abstract: The Tribes' existing law enforcement program will be enhanced to include the protection of endangered steelhead and Chinook salmon, and resident fish in the Upper Columbia River. Emphasis will be placed on depleted stocks that are listed and petitioned/proposed for listing under the Endangered Species Act. Monitoring of the CCT selective harvesting will be one of the primary work elements of this project. The CCT anticipates implementing portions of this project in 2008 with the hiring of law enforcement personnel (including training) and purchase of necessary enforcement equipment (including enforcement boat, etc.)

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: Increased protection for the listed populations by monitoring of the harvest activities in the Upper Columbia River. To increase survival of anadromous salmonids throughout the Upper Columbia Basin -- by reducing illegal take and protecting critical habitats from degradation caused by violation of water and land use regulations. This project will coordinate with the efforts of project #199202400 to ensure consistency where applicable.

- References: See project proposal #199202400 (Columbia Basin Law Enforcement Program)

12. Okanogan Basin M&E (Ongoing)

Abstract: Monitor and evaluate important biological, water quality, and physical habitat indicators for anadromous fish throughout the Okanogan River subbasin to establish a long-term status and trend data set and determine responses from habitat restoration efforts. The plan is designed to do status, trend and effectiveness monitoring. It addresses questions about habitat conditions and abundance, distribution, life-stage survival, and age-composition of anadromous fish in the Okanogan River Basin. The program ultimately will determine how these factors change over time and determine responses from habitat restoration efforts. The program will eliminate duplication of work, reduce costs, and increase monitoring efficiency. This project will also serve to facilitate data sharing between the Colville Tribes and other regional efforts.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/Okanogan populations.

- Projected Benefits: OBMEP will provide status and effectiveness monitoring for two endangered species that is required in the FCRPS and other BiOps.

- References: See CCT proposal # 200302200 in the NPCC's 2007-2009 F&W Program process;

13. FCRPS Water Management Studies (New)

Abstract: The Tribes will perform evaluation or analyses of alternative FCRPS water management activities, including dry year operations and forecasting, and provide input on Treaty and non-Treaty water use options to address impacts to Upper Columbia River listed ESUs. These alternative operations could provide important improvements in survival of UCR Steelhead, UCR Spring Chinook and other spring migrating ESUs. Through this project the Colville Tribes will assist BPA in scoping, conducting and analyzing modeling results of these alternative FCRPS operations. The Colville Tribes, working and coordinating with the other Action Agencies, NOAA and other sovereigns, will provide reports on costs and benefits of alternative operations of UCR Steelhead, UCR Spring Chinook and other ESUs relative to their current and prospective viability, and the BiOp jeopardy standard. The specific deliverables will be developed in the contracting process with BPA, and the project scope and need will be reviewed by the Parties prior to the start of Year 5.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/All populations. All spring migrant ESUs.

- Projected Benefits: Improved flow management in the month of May in low runoff years is of particular benefit given the poor status of the UCR Steelhead and UCR Spring Chinook ESUs, as well as the status of certain populations within the Snake River Steelhead ESU. Preliminary analyses indicates potential increases in May mid-Columbia flows and lower Columbia River flows in low runoff years can provide a marked increase in juvenile UCR Steelhead passage survival..

- References: see papers submitted during Collaboration and preliminary draft Statement of Work.

14. Adult Salmon and Steelhead Passage Investigations (New)

Abstract: As a part of implementation of proposed RPAs, BPA will be funding analyses to validate the adult survival assumptions used for estimating UCR Steelhead and UCR

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Spring Chinook survival from Bonneville to McNary Dams, on which were based calculations of extinction risk and recovery potential. BPA will fund the Colville Tribes, as provided in Attachment A, to provide a portion of the deliverables for this work, as mutually agreed. Details on the scope of work, methodologies, and contractor(s) will be determined at a later date based on mutual agreement. Additional funding to the Colville Tribes may be appropriate, depending on the further study development. These studies and evaluations will also be coordinated with NMFS and other interested parties.

- Target ESU/Populations: UCR Steelhead and UCR Spring Chinook/All populations; Okanogan sockeye; Okanogan summer/fall Chinook.
- Projected Benefits: Potential to increase adult UCR steelhead survival by 22% and UCR spring Chinook survival by 6% through the lower Columbia River.
- References: Table 12.1 of the FCRPS draft BiOp

NON-ESA PROJECTS

15. Chief Joseph Kokanee Enhancement (Ongoing)

Abstract: The Chief Joseph Kokanee Enhancement Project supports natural production kokanee in the blocked area that includes both Lake Roosevelt and Lake Rufus Woods. At the request of the ISRP in 2000 the project began to study entrainment at Grand Coulee Dam in 2007 the project returned to enhancing natural populations of kokanee in the tributaries within the reservation boundaries and its ceded land that have historically supported healthy kokanee populations. A Three Step process will begin in 2008.

- Target: Naturally reproducing kokanee in Lake Roosevelt and Lake Rufus Woods and selected tributaries.
- Projected Benefits: Restoration of natural kokanee production in Sanpoil and Barnaby Creeks and increase production in the lower Nespelem River to provide for increased harvest and recreational opportunities. An increase in natural production kokanee salmon will provide a source of nutrients for the ecosystem that has been absent since the blockage of anadromous fish migration with the construction of Chief Joseph and Grand Coulee Dam hydro power facilities.
- References: See Project # 199501100 in the NPCC's 2007-2009 F&W Program process; Intermountain Subbasin Plan 38-33 – 38-42, 2004. CCT F&W Management Plan, 2007.

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16. Lake Roosevelt Rainbow Habitat Improvement (Ongoing)

Abstract: Lake Roosevelt Habitat/Passage Improvement Project is a resident fish substitution project designed to mitigate for anadromous fish losses. It provides habitat and passage improvements in primarily the Sanpoil Sub-basin and monitors the results. Other activities include nutrient enhancement, riparian and flow enhancements, restoration of hydrologic function, EMAP status and trend monitoring, and adfluvial rainbow trout population monitoring.

- Target: Naturally produced adfluvial rainbow trout, a large bodied rainbow trout genetically tied to the historic steelhead populations in the blocked areas of the Upper Columbia.

- Projected Benefits: Increased natural production of adfluvial rainbow trout will provide for increased harvest and recreation opportunities in the Sanpoil River and Lake Roosevelt. Habitat and passage improvements will benefit not only the adfluvial rainbow trout but native redband rainbow trout and naturally reproducing kokanee as well. The enhancement of nutrients and restoration of hydraulic function will benefit all aquatic species, increase juvenile and adult condition factors and provide for improved flows.

- References: See Project # 199001800 in the NPCC's 2007-2009 F&W Program process; Intermountain Subbasin Plan 38-4 – 38-33 2004. CCT F&W Management Plan, 2007.

17. Colville Hatchery (Ongoing)

Abstract: The Colville Tribal Fish Hatchery is a resident fish substitution project for lost anadromous fish in the blocked areas. It supports resident fish populations in all Reservation waters. Fish are raised at the hatchery and stocked in Reservation Lakes and streams. As part of the project fish populations as well as environmental conditions and angler success rates are monitored and information gained is used to guide hatchery stocking strategies.

The hatchery was first opened in 1990. Because of this much of the equipment is old and will need to be updated. Some of these updates have already been accomplished. Significant funds will need to be spent in the coming years to continue the revitalization of the hatchery.

- Target: Hatchery is in the process of converting to native locally captured redband rainbow trout from triploid coastal rainbow trout.

- Projected Benefits: Repopulation of native redband rainbow trout and conversion from non-native coastal rainbow trout in Reservation tributaries is anticipated to increase survival in the warmer temperatures and lower oxygen levels found locally during the late summer and early fall providing for increased carry over and natural production. The project is designed to provide for increased harvest and recreational opportunities. This project is intended as partial substitution for the loss of anadromous fish due to the creation of the federal hydropower system utilizing resident fish (resident fish substitution).

- References: See Project # 198503800 in the NPCC's 2007-2009 F&W Program process; Intermountain Subbasin Plan 31-5 – 31.7, 2004. CCT F&W Management Plan, 2007.

18. Resident Fish RM&E (New)

Abstract: Land acquisitions, fencing, and other passage structures that have been completed or are planned require maintenance, monitoring, and further research is needed into limiting factors for resident fish. This new project would provide that support.

- Projected Benefits: This project will provide long tem status and trend monitoring as well as maintenance of completed habitat and passage improvements to maintain their benefits to fisheries.

- References: CCT F&W Management Plan, 2007.

19. Bridge Creek Water Rights Transfer (New)

Abstract: Low flows in the Sanpoil are a continuous problem for fisheries and landowners that have existing water withdrawal rights for the Sanpoil or its tributaries have been targeted for exchanges in water rights. Cost share with Natural Resource Conservation Service (NRCS) will be utilized to exchange the existing in-stream water right for a well permit. The project will be conducted under the Lake Roosevelt Habitat Improvement Project.

- Projected Benefits: Improvement of flows in summer and early fall for increased juvenile to adult survival of adfluvial rainbow trout, improved spawning habitat availability for kokanee, and improved survival of native redband rainbow trout.

- References: See Project # 199001800 in the NPCC's 2007-2009 F&W Program process; Intermountain Subbasin Plan 38-4 – 38-33, 2004. CCT F&W Management Plan, 2007.

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20. Twin Lakes Enhancement (New)

Abstract: Because of eutrophication and the introduction of invasive fish species the significant trout fishery in these lakes has suffered in recent decades. During the summer trout are restricted to a narrow band of water severely limiting the holding capacity of the lake. The temperature in the top 5 meters of the water column is too warm and water below seven meters in anoxic. Injection of oxygen into the hypolimnion during summer months will greatly increase the volume of water available to trout. This technique has been used successfully in other Eastern Washington Lakes (Newman Lake). Oxygen injection will begin at North Twin. After one season of oxygenation and a year of study a second oxygenation unit will be constructed at South Twin.

- Projected Benefits: Increased oxygen levels in Twin Lakes will increase the amount of usable habitat allowing for increased stocking levels improved survival and allow fish to access available food improving condition factors and improved over winter survival.

- References: Washington State University Summer Habitat Use and Prey Selection of Hatchery Rainbow Trout in Twin Lakes, Washington Report to CCT, 2008.

21. Resident Fish Loss Assessment (New)

Abstract: To date most resident fish work has been proposed and funded as resident fish substitution for lost anadromous fish and their habitat. The subbasin plans and wildlife habitat loss assessments covered some aquatic and riparian habitat and operational losses related to resident fish.. BPA will work with the Colville Tribes to develop a plan to better integrate resident fish habitat protection as part of the ecosystem-based approach to fish and wildlife mitigation begun with the wildlife loss assessment and subbasin plans. This project will include approaches for addressing the creditable value of past and on-going BPA-funded measures for resident fish.

- Projected Benefits: Provide an assessment of unaddressed resident fish habitat losses from inundation by Federal Hydropower facilities at Chief Joseph and Grand Coulee Dams relative to existing efforts. Develop a crediting system to track mitigation of resident fish losses. .

- References: Intermountain Subbasin Plan, 342 – 34-6 2004.

22. Rufus Woods Harvest Augmentation with Feminized Triploid Rainbow Trout and Creel (New)

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Abstract: Because of early escapes from commercial net pens and subsequent purchase and release of net pen reared triploid rainbow trout by the Colville Tribes a popular fishery has developed. In 2008 and 2009 this project will continue to release net pen reared feminized triploid rainbow trout fish as well a monitoring the fishery to determine angler catch rates, the optimal number and size of fish to be released, the origin of fish caught and the primary factors affecting the quality of this fishery. In years 2010-2012 the study will be expanded to better understand the primary productivity of the reservoir and to answer questions raised by the 2008-2009 study.

- Projected Benefits: Increased understanding of the origin of rainbow trout stocks in Lake Rufus Woods and the optimum stocking numbers and well as the contribution to the fishery from fish stocked in Lake Roosevelt and angler pressure. References: See Project # 200740500 in the NPCC's 2007-2009 F&W Program process.

23. Lake Roosevelt Habitat Enhancement Structures (New)

Abstract: This conceptual proposal is intended to mitigate for the annual operational impacts at Grand Coulee Dam associated with the spring drawdown for flood control and summer drawdown to benefit downstream ESA listed species. Annual de-watering and desiccation occurs with normal operations and impact the native resident fish species, macrophytes and macro-invertebrates that utilize the near shore littoral habitat of Lake Roosevelt. Desiccation of eggs and increased predation on the young of year has reduced populations of native resident fish and thereby reducing available forage species within the lake; subsequently, increasing predation on focal species such as kokanee and rainbow trout. The placement of artificial substrates and hiding structures will increase juvenile to adult fish survival and production of macrophytes and macro-invertebrates providing additional food sources to increase productivity and reduce predation on focal game species.

- Projected Benefits: This project will improve survival and productivity of shoreline spawning native and non-native prey species that have been impacted by hydropower operations at Grand Coulee Dam. An increase in available prey species will reduce the dietary overlap between rainbow trout and kokanee in the lake and reduce predation on trout and kokanee by walleye by providing additional food source for game species and improving their return to creel.

- References: CCT F&W Management Plan 2007, Columbia River Water Management Plan EIS 2008.

24. Lake Roosevelt Burbot Population Assessment (New)

Abstract: Burbot populations are decreasing and this conceptual study would assess the current population status and determine any limiting factors impacting their success in

Lake Roosevelt. Enhancement work, and associated reprogramming of Agreement funding (see Section II.E.3) may be proposed as a result of this proposed study.

- Projected Benefits: Burbot populations are decreasing in Lake Rufus Woods and Lake Roosevelt. This project will assess the population status and determine the limiting factors so that projects can be developed to increase their numbers.

- References: Intermountain Subbasin Plan 30-8, 2004. CCT F&W Management Plan, 2007.

25. White Sturgeon Enhancement (New)

Abstract: This project is would build on the results of the many studies currently being conducted to address limiting factors for sturgeon in Lake Roosevelt and enhance their populations.

- Projected Benefits: Currently population studies are assessing the location and population status of sturgeon and the Lake Roosevelt Risk Assessment under the Comprehensive Environmental Recovery Cost and Liability Act (CERCLA) is looking at the impacts from heavy metal and other contaminates in Lake Roosevelt that may have in part led to the juvenile recruitment failure. This project will build on that information and address the determined limiting factors with habitat improvements projects to recover sturgeon populations in the Lake.

- References: Intermountain Subbasin Plan 30-6 – 30-8, 2004. CCT F&W Management Plan, 2007. Trans-boundary Sturgeon Recovery Plan, 2002.

26. Rufus Woods Redband Rainbow Trout Broodstock Net Pens (New)

Abstract: The Colville Tribal Hatchery was not designed to hold broodstock. One of the primary goals of the Hatchery is to convert from raising a coastal strain of rainbow trout to the native red band rainbow. To do this at least 1/3 of the holding capacity of the hatchery will have to be used for holding broodstock if another holding location can not be developed. There are no acceptable lakes readily available. Rufus Woods Reservoir has proved to be an excellent location for raising rainbow trout in net pets. Tribally owned net pens in Rufus Woods would be used to hold up to four age classes of redband broodstock as well as to raise triploid rainbow trout for release into Rufus Woods to support the fishery.

- Projected Benefits: Hatchery operations are limited due to the small size of the hatchery. This project would provide additional area to raise broodstock and

stocks for planting in Rufus Woods eliminating the need to purchase fish for planting, increasing the number of fish for planting and increasing harvest and recreational opportunities

- References: See Project # 200740500 in the NPCC's 2007-2009 F&W Program process.

27. Lake Roosevelt Floating Habitat Enhancement Structures (New)

Abstract: This conceptual proposal is intended to mitigate for the annual operational impacts at Grand Coulee Dam associated with the spring drawdown for flood control and summer drawdown to benefit downstream ESA listed species. Annual de-watering and desiccation occurs with normal operations and impact the native resident fish species that utilize the near shore littoral habitat of Lake Roosevelt. Desiccation of eggs and increased predation on the young of year has reduced populations of native resident fish and thereby reducing available forage species within the lake; subsequently, increasing predation on focal species such as kokanee and rainbow trout. The placement of artificial floating spawning and rearing beds will increase egg to juvenile fish survival providing additional food sources to increase productivity and reduce predation on focal game species.

- Projected Benefits: This project will increase egg to juvenile survival providing additional food sources to increase productivity and reduce predation of focal game species increasing harvest and recreational opportunities in Lake Roosevelt.

- References: CCT F&W Management Plan 2007, Columbia River Water Management Plan EIS 2008.

28. Colville Tribes Wildlife Land Acquisitions (Ongoing)

Abstract: Continuing segment of the Colville Tribes overall goal of mitigating for wildlife losses associated with Grand Coulee and Chief Joseph Dam Projects. This project is the expense portion of the budget to support pre-acquisition activities necessary for potential addition of additional land to the existing mitigation base by acquiring management rights to adjacent or similar lands within the project area. In FY 07 part of the Jacobsen property was acquired, for FY 08 the Tribes intend to acquire similarly appropriate parcels. CCT has approximately 1,844 HU's still unmitigated and one of these parcels will help meet the Tribes goal of mitigation for hydropower impacts. This project covers the costs of evaluating, compiling, and implementing the steps necessary to acquire this parcel. Approximately $120,000 funding per year is needed to complete

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this pre-acquisition work in addition to the actual property costs. (See associated project abstract entitled Omak Lake Parcel Acquisition)

- References: See Project # 199506700

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29.A Wildlife Mitigation, Hellsgate Project, O&M (Ongoing)

Abstract: The Colville Confederated Tribes (CCT) Wildlife Mitigation Project is an ongoing project (Hellsgate Big Game Winter Range Wildlife Mitigation Project**)**. The original Hellsgate project was initiated in 1992 with land purchases within the bounds of the CCT Hellsgate Wildlife Game Reserve, but at present the project manages 57,418 acres spread across the 1.4 million acres of the CCT Reservation and three Inter-mountain Province (IMP) Sub-basins. The CCT Wildlife Mitigation Project is proposed as the only project to address partial mitigation for habitat losses that the Colville Tribes sustained as a result of Chief Joseph and Grand Coulee Hydropower Projects. The CCT Wildlife Mitigation Project protects and manages core habitat areas for the biological requirements of managed wildlife species. The majority of mitigation lands are located on or near the Columbia River (Rufus Woods Lake and Lake Roosevelt) and surrounded by Tribal land. To date a total of 34,576 habitat units (HUs) have been acquired towards a total of 35,820 HUs lost from hydropower development (USDOE, 1986 and USDOE, 1992). The goal of the CCT Wildlife Mitigation Project is to protect, restore and enhance enough land to compensate for hydropower losses and then manage, enhance, and maintain those habitats for the life of the hydropower projects. Wildlife management will focus on these areas as well as state-threatened or endangered species, species of concern, and species that are important for traditional cultural and/or subsistence use. This project is similar in scope and nature to other projects in the IMP and will continue to protect, restore, and enhance lands acquired for mitigation until fully mitigated. After all acquisitions are completed then this project will become the Hellsgate O&M project to continue protecting the acquired HU's and any enhancements for the life of the project. The Hellsgate Operation and Maintenance Project will conduct all of the O&M activities on project lands. We are mitigating to offset wildlife losses from Grand Coulee and Chief Joseph Dam Projects. Currently 57,418 acres have been enrolled in the project for protection.

For FY 08 & 09, the Hellsgate Project will contribute toward a united UCUT RM&E proposal. The UCUT Wildlife Monitoring and Evaluation Project (UWMEP) is a 5-nation cooperatively managed, habitat and wildlife monitoring program, focused on determining the efforts and outcomes of protection and restoration projects in and proximate to the reservations and aboriginal lands of the Tribes. The UWMEP will focus on the effect of management related changes to habitat on neo-tropical breeding birds, small mammals, vegetation, amphibians, and insects/invertebrates. Other species of concern (e.g., sage and sharp-tailed grouse, traditional foods, and medicines) and/or studies that relate to specific habitat cover types may be added in the future. Five percent of the budget of the Hellsgate project (RM&E work element) for FY 08 & 09 is dedicated for this effort. In 2010 we will again continue RM&E on project lands. This will include collecting biological data as well as periodic monitoring of all mitigation lands on a 5-year schedule.

- References: See BPA Project # 1992204800

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29.B Wildlife Mitigation, Hellsgate Project, O&M (New)

Abstract: These Operation and Maintenance funds will be used to conduct all of the O&M management activities to provide protection on the approximately 60,000 acres of mitigation land. The mitigation is addressing wildlife losses from Grand Coulee and Chief Joseph Dam projects.. Currently 57,418 acres have been enrolled in the project for protection.

30. Omak Lake Parcels Acquisition (New)

- **Abstract:** Continuing segment of the Tribes' overall goal of mitigating for wildlife losses associated with Grand Coulee and Chief Joseph Dam Projects. This project provides for funding the acquisition of management rights to adjacent or similar lands stemming from pre-acquisition supported by project #28.