



COLUMBIA BASIN FISH & WILDLIFE AUTHORITY

August 30, 2006

Dr. Tom Karier
Northwest Power and Conservation Council
851 S.W. Sixth Avenue, Suite 1100
Portland, OR 97204

Dear Chairman Karier:

The Columbia Basin Fish and Wildlife Authority (CBFWA) is concerned that progress envisioned from the Subbasin Planning process for the Northwest Power and Conservation Council's (Council) Fish and Wildlife Program may be lost through the FY 2007-2009 Project Solicitation process because funding is insufficient for the implementation of essential projects and tasks. A significant investment in planning and collaboration is at risk if inadequate funding is provided for implementation of these historic plans. We realize that the final decisions have not been made, but it is now clear that there are insufficient funds to support the highest priority projects and tasks identified within your process.

Members of the CBFWA actively participated in the local and provincial prioritization processes as part of the FY 2007-2009 Project Solicitation process, working with local interest groups and within assigned planning budgets for the respective provinces. The province level groups had a high level of participation and made difficult decisions when facing limited funding. However, in spite of these significant efforts, the CBFWA Members are concerned that many essential projects and tasks had to be put off in order to achieve the budget targets set for FY 2007-2009. The Members of CBFWA do not see this as an allocation problem because the 70-15-15 split among anadromous fish, resident fish and wildlife is an important goal within the Program; rather, this as an overall budget availability problem.

The CBFWA Members have identified specific projects and tasks that represent essential needs, defined in the context of priorities set within Subbasin Plans, which should be funded *in addition to* the province level recommendations. We request that the Council support the attached recommendations that are based on the best judgment and fish and wildlife management responsibilities of CBFWA Members. We also request that the Council collaborate with CBFWA and the Bonneville Power Administration to identify additional funds to implement the projects listed. This is important in the implementation of the Subbasin Plans and the Fish and Wildlife Program.

Examples of essential projects and tasks currently at risk due to insufficient funding are provided below. Because the Council's decision making process is still underway, this list may change, but the total level of essential projects and tasks will remain greater than the current funding level. The attached list of projects and tasks totals more than \$15 million and does not include a large list of projects in the state of Washington that have been identified by the Salmon Recovery

851 SW Sixth Avenue
Suite 260
Portland, Oregon 97204

Phone: 503.229.0191
Fax: 503.229.0443
www.cbfgwa.org

COORDINATING AND PROMOTING EFFECTIVE PROTECTION AND RESTORATION
OF FISH, WILDLIFE AND THEIR HABITAT IN THE COLUMBIA RIVER BASIN

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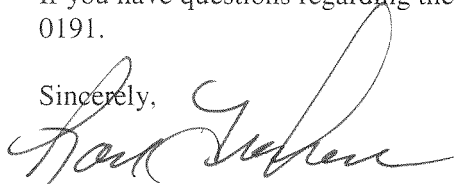
Boards in that state or additional projects that may be identified in the NOAA Fisheries Biological Opinion Remand process. The final list may total as much as \$30 million or more.

Lack of or reduced funding for the essential projects will result in significant biological or management consequences. Important actions identified in the Subbasin Plans may not be implemented. We are consistent with several of the Washington Salmon Recovery Boards in expressing our concern that the current budget may not allow adequate implementation of BPA's portion of the Subbasin Plans.

The Members of CBFWA look forward to working with you to solve this critical funding issue. The health of fish and wildlife populations of the Columbia River Basin are depending on our efforts. The poor status of Columbia River fish resources demands immediate attention. The Council's own program set goals to reverse the decline of anadromous fish populations by 2005 and to increase runs to 5 million by 2025. At the current level of funding we will be unable to fully implement the Subbasin Plans as envisioned when they were written and achieve the Program's goals. We would like to work with you to develop action plans that meet the needs identified in Subbasin Plans at an accelerated pace, to achieve the goals set out by the Fish and Wildlife Program.

If you have questions regarding these comments, please contact Brian Lipscomb at (503) 229-0191.

Sincerely,



Ron Trahan, Chair
Columbia Basin Fish and Wildlife Authority

Cc: CBFWA Members
Greg Delwiche, BPA
Bill Maslen, BPA
Larry Cassidy, NPCC
Judi Danielson, NPCC
Vice-Chair Joan Dukes, NPCC
Melinda Eden, NPCC
Jim Kempton, NPCC
Bruce A. Measure, NPCC
Rhonda Whiting, NPCC

Attachment: Examples of essential projects and tasks that are currently at risk of not being funded for FY 2007-2009 due to inadequate funding for the Fish and Wildlife Program.

Project ID: 198402100

Title: Mainstem, Middle Fork, John Day Rivers Fish Habitat Enhancement Project

Unfunded Project:

Required Additional FY 07 Funding: \$486,515

This primary emphasis of this project is to restore riparian function through the use of riparian corridor fences that currently reduce impacts of livestock grazing on 144.7 miles of stream. Future plans are for an additional five miles of stream to be protected each year. If this project does not get funded, annual maintenance of the existing fences under cooperative agreements will not be completed, and riparian areas that are currently in good condition will be compromised. The project addresses the following limiting factors as identified in the Subbasin Plan.

- Channel stability - restored riparian vegetation prevents unnatural rates of erosion and channel incision (Kauffman et al, 2002; Rosgen, 1996)
- Flow – protecting riparian vegetation helps prevent channel incision. Restoring riparian vegetation has been demonstrated to restore perennial flows in previously intermittent flowing streams (Beschta et al, 1991; Kauffman et al, 2002)
- Habitat Diversity/Key Habitat – restored riparian vegetation will result in increased large wood recruitment, pool formation, undercut banks, increased channel sinuosity, improved floodplain connectivity, and increased off-channel areas for high flow refugia (Kauffman et al, 2002; Rosgen, 1996)
- Sediment Load – restored riparian vegetation acts as a filter to reduce upland fine sediments from reaching the stream and reduces bank erosion. Unnatural rates of erosion upsets the balance between sediment recruitment and downstream movement (Rosgen, 1996).
- Temperature – restored riparian vegetation results in improved width-to-depth ratios, increased shade, and improved floodplain connectivity, all of which contribute to reduced water temperatures (Kauffman et al, 2002).
- Healthy fish populations are directly related to quantity of high quality habitat. The expected biological response is that fish populations will increase as the habitat diversity, water quality, and flow are restored through riparian vegetative recovery (Kauffman et al, 2002, Beschta et al, 1991).

Literature Cited

Beschta, R.L., Platts, W.S., and B. Kauffman. 1991. Field review of fish habitat improvement projects in the Grande Ronde and John Day River basins of eastern Oregon. DOE-AP79-91BP21493. Bonneville Power Administration. Portland, Oregon.

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Kauffman, J. B., P. Bayley, H. Li, P. McDowell and R.L Beschta. 2002. Research/Evaluate Restoration of NE Oregon streams: Effects of livestock enclosures (corridor fencing) on riparian vegetation, stream geomorphic features and fish populations. DOE/BP 00006210-1. Available from BPA online at <http://www.efw.bpa.gov/searchpublications/>

Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, Colorado.

Project ID: 198805303

Title: Hood River Production M&E (Warm Springs)

Unfunded Objectives: “Spring Chinook and summer steelhead acclimation and PIT tagging.”

Required Additional FY 07 Funding: \$98,897

The spring Chinook acclimation and the summer steelhead acclimation in the West Fork Hood River will be direct releases due to the difference in funding levels. This is important because the non-migrant fish are not released to the Hood River. Instead the fish that don't leave the acclimation facility on their own are transported to the Columbia where they are released. By cutting the acclimation program the possibility of residualism may increase. This also changes the data that will be collected from the PIT tags. We will no longer be able to estimate the residualism of these fish, because there will be no way to collect information from the fish that leave on their own volition and those that would otherwise not leave the system.

Project ID: 198805304

Title: North Hood River Production Program - ODFW M&E

Unfunded Objectives: “Creel the Hood River spring fishery and fall operation of downstream migrant traps.”

Required Additional FY 07 Funding: \$89,935

Several tough choices had to be made to achieve the OSPIT mandated budget cuts. Dollars were insufficient to hire the personnel required to both 1) creel the Hood River spring fishery and 2) trap downstream migrant salmonid smolts. These are concurrent activities and we felt it was more important to continue PIT tagging wild salmonid smolts (i.e., as per the ISRG request) and to estimate subbasin steelhead production. The spring creel was intended to provide the data required to estimate adult salmonid escapements to the mouth of the Hood River subbasin, and in conjunction with other project tasks to estimate harvest in the Bonneville pool. Harvest information in both the Bonneville Pool and in the Hood River subbasin is critically important for recovery planning in the Hood River subbasin; primarily because data suggests that Hood River stocks of steelhead may be subject to fairly high exploitation rates in mainstem Columbia River fisheries. The spring creel, in conjunction with bio-sampling at Powerdale Dam, is also important to

evaluating the Hood River Production Program relative to achieving the subbasin plans biological fish objectives. Additionally, the greater percentage of summer and winter steelhead and spring Chinook salmon harvest occurs during the spring, and the loss of our creel will seriously hamper our ability to accurately monitor and evaluate restoration projects implemented under the umbrella of the Hood River Subbasin Plan.

In addition to discontinuing the spring creel, we will lack the dollars to operate our downstream migrant traps during the fall. This trapping is considered critically important for PIT tagging pre-smolt salmonids, but more importantly for PIT tagging fall migrant spring Chinook salmon. Estimates of fall migrant "pre-smolt" spring Chinook salmon from the Hood River subbasin have been as high as 20,000 migrants. PIT tagged fall migrants would provide the information required to evaluate whether out-migrant juvenile spring Chinook salmon are over wintering in the Bonneville Pool and migrating as smolts in the spring, or are migrating as true smolts in the fall. This information would be used to evaluate and refine wild smolt-to-adult survival rates defined in both the Hood River Subbasin plan and EDT models; information which is critical to subbasin recovery planning.

Project ID: 198805307

Title: Hood River Production O&M - WS/ODFW

Unfunded Objectives: "Facility maintenance improvements and staff."

Required Additional FY 07 Funding: \$45,282

This project will suffer some reduction in staff and maintenance of the facility will be compromised. The maintenance lost will include annual servicing of a freezer and a compressor, painting the holding ponds, and painting the residences. Normal scheduled equipment and facility maintenance will be reduced. This will all result in increased costs later. The project will lose a GSA truck that staff uses for transportation to meetings and to transport eggs to Oak Springs Hatchery. This will require the use of a larger truck that carries a fish tank for all purposes. Three years of this reduced funding level may require increased costs to repair the facility in the future.

Project ID: 198805308

Title: Hood River Powerdale Dam Fish Trap/ Oak Springs/Pelton Ladder O&M

Unfunded Objectives: "Spring Chinook production and operation of Powerdale Adult Fish Trap."

Required Additional FY 07 Funding: \$94,860

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Project #198805308 forms the cornerstone for the slate of projects associated with the Hood River Production Program (HRPP), as this project provides for the operation and maintenance of the Powerdale Adult Fish Trap (PAFT) and funds the hatchery rearing of summer steelhead, winter steelhead, and spring Chinook at the representative hatcheries. The project is closely linked with the council's 2000 fish and wildlife program, along with the Hood River Subbasin Plan. Escapement, life history, genetic, and fitness information collected from this project is directly related to fulfilling natural production goals associated with the fish and wildlife program and the Subbasin Plan. Supplementation efforts for steelhead and spring Chinook associated with this project are directly related to the artificial production strategies defined in each plan. Along with providing key information and activities needed for implementation of the fish and wildlife program and subbasin plan, continued operation of the PAFT will be critical in providing information necessary to implement the removal of Powerdale Dam in 2010 with minimum disturbance to the natural environment. In addition, biological information collected at the PAFT has been used extensively for Lower Columbia River recovery planning. Recommended budget amounts will require a reduction in spring Chinook production numbers, and will likely adversely effect the continued operation of the PAFT.

Project ID: 199000501

Title: Umatilla Natural Production M&E

Unfunded Objectives: "Assessment and evaluation to contribute to recovery evaluations."

Required Additional FY 07 Funding: \$384,528

Project consistency with Planning Documents:

This project is in accordance with and pursuant to measures 4.2A, 4.3C.1, 7.1A.2, 7.1C.3, 7.1C.4 and 7.1D.2 of the Northwest Power Planning Council's (NPPC) Columbia River Basin Fish and Wildlife Program (NPPC 1994).

This project is coordinated with two ODFW research projects that also monitor and evaluate the success of the Umatilla Fisheries Restoration Plan. Our project deals with the natural production component of the plan and the ODFW projects evaluate hatchery operations (project No. 19000500, Umatilla Hatchery M & E) and smolt outmigration (project No. 198902401, Evaluation of Juvenile Salmonid Outmigration and Survival in the Lower Umatilla River). Collectively these three projects comprehensively monitor and evaluate natural and hatchery salmonid production in the Umatilla River Basin as prescribed under the Umatilla Hatchery Master Plan (CTUIR and ODFW 1990).

This monitoring and evaluation proposal has been developed collaboratively with CTUIR and ODFW research staff since 2002 in response to ISRP review of all Umatilla RM&E programs. It addresses all programmatic and project RM&E requirements posed by the previous ISRP review. CTUIR and ODFW worked collaboratively to produce a comprehensive review of RM&E work and results to date (Chess et al. 2003). Furthermore, a comprehensive Umatilla Basin Salmonid RM&E plan was developed and extensively reviewed by the ISRP (Schwartz and Cameron 2005). This RM&E plan is detailed in Appendix H of the Umatilla Subbasin Plan and includes 44 separate RM&E objectives. The proposed activities from this project were prioritized in the Umatilla Subbasin Plan, are mandated in the Umatilla Hatchery Master Plan, and are critical components of the developing Salmon Recovery Plan.

Biological Outcomes:

Anticipated biological outcomes by project objectives are:

- Collect and revise Viable Salmonid Parameters -
- Assess and detect changes in status and trends in abundance and spatial structure of summer steelhead, spring Chinook, fall Chinook, bull trout, and mountain whitefish in the Umatilla River Subbasin throughout their life history.
- Assess salmonid productivity in the Umatilla Subbasin.
- Assess salmonid life history diversity in the Umatilla Subbasin.
- Evaluate program effectiveness, including habitat and hatchery effects on natural production in space and time.
- Support the Umatilla Hatchery Master Plan and Subbasin Plan -
- Coordinate and administer the Umatilla RM&E program
- Report and disseminate findings.

Project ID: 199005500

Title: Idaho Steelhead Monitoring and Evaluation Studies (ISMES)

Unfunded Objectives: “Little Salmon smolt monitoring, remote site PIT tagging, and population viability analysis.”

Required Additional FY 07 Funding: \$221,174

The Reasonable and Prudent Alternative (RPA) Action 180 of the NMFS BiOp calls for the development of hierarchical basin wide monitoring programs to collaborate with regional agencies, such as IDFG, to determine population and environmental status. Agencies have primary responsibility for data collection (BiOp, p 9-165). Research, monitoring, and evaluation (RME) actions are outlined in the Final Updated Proposed Action for the FCRPS Biological Opinion Remand (UPA) and the 2005 – 2007 Implementation Plans for the FCRPS (IP) that will be coordinated with federal, state, and

tribal agencies. ISMES is a primary vehicle for IDFG to collect and analyze steelhead data and can provide information required to monitor steelhead in the federal RME plans. Both the IP (pp 39 – 40) and UPA (pp 90-92) outline hydrosystem RME actions to implement adult and juvenile migration status monitoring within the hydrosystem corridor and improve upon these capabilities to provide dam-specific and system-level passage survival information for ESA-listed species. The UPA Strategy 1 Status Monitoring (pp 88 – 92) discussed the need for regional monitoring of adult and juvenile abundance, distribution, and survival necessary to track the status of ESA populations. ISMES has collected or is capable of collecting steelhead data needed for actions proposed in Substrategy 1.1: System Level Monitoring and Substrategy 1.2: Tributary Monitoring.

The Clearwater and Salmon Subbasin Plans identify biological objectives and data gaps that should be addressed with an RME plan. Both plans make repeated reference to this project to provide or collect steelhead data needed to implement the RME plan. RME strategies associated with this project include determining population abundance, life history characteristics, spawn-recruit relationships, and specific SAR from a representative set of index streams. Within the Salmon Plan many of the data gaps that were identified as strategies to achieve aquatic biological and environmental objectives (Table 10, pp113 – 114) are being addressed by this project. Specifically strategies 2A3 and 2A4 that will describe population size, population growth rate, and provide information to assess risk metrics; strategy 3A1 and 3A2 to increase knowledge of freshwater survival and productivity; and strategies 3C1, 3C2, and 3C3 to better assess progress toward delisting. The Clearwater Subbasin Plan lists research needs to aid in resolving aquatic management uncertainties (section 4.3.1). This project is identified a coordinator and has collected steelhead data relevant to the proposed research. Specifically: General Proposed Research 2, Determine migration characteristics and timing of smolts outmigrating from the subbasin and assess hatchery:wild ratio (pg 63); General Proposed Research 3, Develop appropriate intensity and spatial distribution of monitoring to estimate parr carrying capacity (pg 63); Water Quality Proposed Research 1, Define and treat spatial and temporal gaps in temperature M&E at the subbasin scale; Water Quality Proposed Research 2, Develop temperature standards; Wild-Hatchery Interactions Proposed Research 1, Quantify salmon and steelhead stray rates and potential genetic consequences; Anadromous Fish Proposed Research 1, Investigate population status of Chinook, coho, and summer steelhead; and Anadromous Fish Proposed Research 2, Profile anadromous salmonid genetics.

Project ID: 199107200

Title: Redfish Lake Sockeye Salmon Captive Broodstock Program

Unfunded Objectives: “Genetics elements for planning and evaluation purposes.”

Required Additional FY 07 Funding: \$138,548

Biological outcome that is expected from the implementation of this project - - This project establishes and maintains captive broodstocks of Redfish Lake sockeye salmon. Eyed-eggs, juveniles and prespawners are reintroduced to the habitat. Key hatchery as well as post-release performance outcomes are monitored, evaluated and adaptively managed.

Limiting factors or critical needs and tasks described in subbasin plans or planning documents that your project will address - - This project addresses many Aquatic Objectives identified in the Salmon Subbasin Plan including: 1A, 1B, 2A, 3A, 3C. This project is collecting life history and migratory survival information that will contribute to the Region’s understanding of species production and productivity. Population specific smolt-to-adult return rates are being developed (Strategies 1A2, 3A1, and 3A2). The Sockeye Salmon Captive Broodstock Program is using artificial propagation to minimize short- and long-term genetic, ecological, and life history effects on the population. Innovative techniques (e.g., DNA-based spawning matrices, adherence to risk-adverse fish culture protocols, and a rigorous monitoring and evaluation component) are being implemented to meet the goals identified in Table 6 of the 2004 Salmon Subbasin Plan (Strategies 1B1 through 1B4). The Sockeye Salmon Captive Broodstock Program has worked with the University of Idaho and NOAA Fisheries geneticists to preserve the genetic integrity of the population. DNA-based breeding plans guide spawning events. Care is taken to ensure that a maximum number of individuals contribute to the next generation. Family representation is equalized as new broodstocks are developed. This program is furthering the development of captive intervention methodologies and techniques (Strategies 2A1 through 2A5). Population-specific juvenile and adult abundance information is being collected (including the development of species productivity estimates such as the number of smolts produced by each natural female spawner and population smolt-to-adult return rates). In the hatchery as well as in the wild, reproductive success is being assessed using pedigree information as well as other genetic methods such as exclusion analysis (Strategies 3C1 through 3C5). Research, monitoring and evaluation needs relative to artificial propagation programs are identified in the Salmon Subbasin Plan. Many of these needs (e.g., refine genetic preservation techniques, apply safety net hatchery intervention, implement additional artificial propagation programs to meet adult return objectives, monitor and evaluate artificial propagation programs.....) are currently being addressed by the Sockeye Salmon Captive Broodstock Program.

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The 2004 Updated Proposed Action document calls for the Action Agencies to fund safety net programs for Snake River Sockeye salmon. The UPA lists "the continued operation of the existing safety-net program for Snake River sockeye salmon" as a performance objective. Production of an additional 150,000 smolts is also called for.

The Sockeye Salmon Captive Broodstock Program collects information relevant to the following sections of the Draft Columbia River Basin Research Plan: 1) Critical Management Uncertainties for Hatcheries, 2) Research Priorities for the Fish and Wildlife Program, and 3) Appendix C. Hatcheries – Regional Research Recommendations.

Project ID: 199107300

Title: Idaho Natural Production Monitoring

Unfunded Objectives: "Probabilistic redd surveys, expansion of the parr monitoring project to include new survey designs, and reduced project staff funding."

Required Additional FY 07 Funding: \$176,260

Biological outcome that is expected from the implementation of this project - - During 2007-2009, we propose to address four objectives: 1) to refine the description of spring/summer Chinook population structure in Idaho, 2) to estimate statistically the annual Chinook redd abundance in the upper Salmon watershed, 3) to monitor juvenile production of spring/summer Chinook and steelhead in the Clearwater and Salmon sub-basins, and 4) to evaluate life cycle survival and productivity of spring/summer Chinook. The decrease in funding during the Provincial review process removed portions of the proposal including probabilistic redd surveys, expansion of the parr monitoring project to include new survey designs, and reduced project staff funding by ~10%.

Limiting factors or critical needs and tasks described in subbasin plans or planning documents that your project will address - - This project (INPMEP) produces information relevant to problems discussed in the Clearwater and Salmon management plans. The parr monitoring objective's data are mentioned frequently in assessments and plans for both sub-basin. The data produced by INPMEP addresses many of the strategies and data gaps identified in the plans. For example, Table 15 in the Salmon Sub-basin Plan (p125-131) identifies 'Key Performance Measures' to evaluate strategies implemented. INPMEP data can be applied to at least one of the performance measures listed for all the objectives in Table 15. In fact, for 80% of the objectives listed in Table 15, we currently estimate over half of the performance measures listed (and all in some cases). The draft Columbia basin research plan (NPCC 2005) describes a framework for monitoring and evaluation to inform the CBFWP. It builds on the requirements generated

by sub-basin planning and ESA recovery responsibilities. INPMEP already addresses many of the needs described in this draft plan. The changes to INPMEP detailed in this proposal should provide an even better fit. INPMEP is a population status and trend monitoring at both Tiers 1 and 2. The draft plan gives priority to projects generating data relevant at multiple scales and to more than one sub-basin. INPMEP covers both Clearwater and Salmon sub-basins and generates information at population, major population group, and ESU scales. The draft plan directs that initial analyses should be conducted on current data where possible. INPMEP is the source of the most comprehensive extant data regarding salmonids within the Salmon and Clearwater sub-basins. Numerous critical uncertainties and information needs explicated in the draft plan can be addressed with INPMEP data. This proposal will maintain the integrity of the invaluable INPMEP data sets, add to them, and conduct research aimed at enhancing their value.

This proposal will provide RME data relevant to the recovery commitments by the FCRPS Action Agencies. INPMEP is specifically mentioned as providing status monitoring and action effectiveness research in Table 25 of the 2005-2007 Implementation Plan for the Updated Proposed Action by the Action Agencies. INPMEP has established important baseline data that can be used for Tier 3 effectiveness monitoring programs within the Salmon and Clearwater sub-basins.

Project ID: 199306000
Title: Select Area Fisheries Enhancement Project
Unfunded Project:
Required Additional FY 07 Funding: \$1,804,868

The Select Area Fishery Evaluation (SAFE) Project has provided significant and valuable opportunities for both commercial and recreational fisheries to harvest strong, locally-produced stocks of hatchery salmon in off-channel areas of the Columbia River with minimal impacts to non-local stocks including species listed under the Endangered Species Act. Continuation of the SAFE Project will allow harvest opportunity until weak stocks have recovered to a point where they can sustain harvest.

In keeping with the vision statement for the Lower Columbia River and Columbia River Estuary Subbasin Plan, this project utilizes “supportive hatchery and harvest practices...” while avoiding issues related to mixed-stock fisheries. The project is consistent with the objectives outlined in the NPPC’s Final 2000 Columbia River Basin Fish and Wildlife Program. The Bi-state Mainstem Lower Columbia River and Columbia River Estuary Subbasin plans identify the management of “Columbia River fisheries at sustainable levels, maintaining a viable population through adequate spawner abundance, and

directing harvest away from depressed stocks” as Strategy 15 in the biological objectives of the recovery plan (p. 9 of the Executive Summary and p. 4-63 of the Management Plan). Continuation of the Select Area Project is specifically called for in Measure 37 (p. 4-63) of the Management Plan.

As outlined in the Management Plan Supplement (p. 5-36, 5-74, 5-111, 5-146, 5-180), the SAFE Project has demonstrated a high potential to contribute the following objectives: 1) supports a healthy Columbia basin, 2) maintains biological diversity, 3) maintains genetic integrity, and 4) increase run sizes or populations. The Select Area fisheries project is justified in Physical Objective 15 of the Management Plan Supplement (p. 5-86, 5-122, 5-156, 5-191). The Supplement recommends the continuation of the Select Area Fisheries Project because it has a “High” probability to contribute to the biological objectives in the recovery of chum (p. 5-36), fall Chinook (pp. 5-54 and 5-74), coho (pp. 5-92 and 5-111), winter steelhead (pp. 5-128 and 5-146), spring Chinook (pp. 5-162 and 5-179), and summer steelhead (pp. 5-198 and 5-217).

The Washington Lower Columbia River and Estuary Subbasin Plan recommends a strategy “preserving fishery opportunities focused on hatchery fish in a manner that does not adversely affect recovery efforts” (Section 6.6, pp. 6-32 and 6-35). The plan recommends “utilization of the Select Area off-channel sites” as action to minimize impacts to naturally spawning steelhead, coho, and spring Chinook (Section 6.6, pp. 6-41, 6-42, and 6-43). For future monitoring and research, the Washington Estuary Subbasin Plan lists “evaluate innovative techniques (e.g. terminal fisheries and tangle nets) to improve access to harvestable stocks and reduce undesirable direct and indirect impacts to wild populations” (Section 7.8.5 p. 7-30).

While these strategy recommendations are listed in the estuary and lower Columbia subbasin plans, conservation benefits from the Select Area fishery program apply to anadromous stocks in every subbasin of the Columbia River.

Project ID: 199402600

Title: Pacific Lamprey Research and Restoration

Unfunded Project:

Required Additional FY 2007 Funding: \$ 528,000

Project consistency with Planning Documents:

The CTUIR’s Pacific Lamprey Research and Restoration Project has been instrumental in obtaining and providing much needed information on all life history phases of the Pacific lamprey in the Columbia River Basin. Through field and lab experimentation, the project has successfully restored larval lamprey back into the Umatilla River. Continuation of the

Pacific Lamprey Research and Restoration Project is essential for effective conservation and restoration of Pacific lamprey in the Umatilla River, and addresses needs outlined in both the Umatilla Subbasin Plan and in provisions of the 2000 Fish and Wildlife Program. Furthermore, the proposed passage efficiency study and modification of low-head diversions will be implemented in communication with many other Subbasins, and the results of this project will continue to have implications and utility for the entire Columbia River Basin.

The Umatilla/Willow Subbasin Plan calls for strategies to “Implement the Pacific lamprey restoration plan for the Umatilla Basin” (page 5-40) by conducting the following actions:

- Action 1.1 Continue outplanting of adults as detailed in the Umatilla River Basin Pacific Lamprey Restoration Plan (Close 1999). Action addressed by proposal Obj 5.
- Action 1.2 Determine reproductive success of adult outplants. Action addressed by proposal Obj 2 & 6.
- Action 1.3 Monitor for increases in larval abundance, juvenile outmigration and adult returns. Action addressed by proposal Obj 1, 6 & 7.
- Action 1.4 Operate Umatilla Basin Project phase I pumps to provide instream flows for adult lamprey migration in the Umatilla River below Threemile Dam throughout the summer. Action monitored by proposal Obj 3 and additional passage provided by Obj 4.

The proposed project also directly addresses a number of critical uncertainties ranked by the Columbia River Lamprey Technical Workgroup (CRLTW). Specifically, the continuation of this project will allow us to address the following priority critical uncertainties identified by CRLTW: Lamprey Status, Passage, Population Delineation, Limiting Factor Analysis and Restoration Activities.

Biological Outcomes:

Anticipated biological outcomes by project objectives are:

- 1) Estimate the numbers of adult lampreys entering the Umatilla River.
 - assess Umatilla adult lamprey population to track restoration success.
- 2) Investigate the olfactory cues lamprey use to orient in the Umatilla Subbasin.
 - identify possible migratory and sex pheromones and assess behavioral responses.
- 3) Monitor passage success to spawning areas.
 - document passage success of adult Pacific lamprey at Umatilla River diversion structures.
- 4) Develop structures to improve passage success.
 - provide low-elevation ramps at problem Umatilla diversions to allow for adult lamprey passage.

- 5) Increase larval abundance in the Umatilla River by continuing to outplant adult lamprey
 - increase adult (up to 500 annually) and larval abundance in Umatilla Basin by continuing reintroduction efforts.
- 6) Monitor larval population trends in the Umatilla River by conducting electrofishing surveys.
 - obtain estimates of larval populations to document natural production success of outplants.
- 7) Estimate the numbers of juvenile lampreys migrating out of the Umatilla River.
 - document increased Umatilla larval production by operation of out-migrant traps.

Project ID: 199601100

Title: Walla Walla Juvenile and Adult Fish Passage

Unfunded Objectives: "Construction of two fish screening projects on mainstem Walla Walla River."

Required Additional FY 07 Funding: \$170,000

In the May 2004 version of the Walla Walla Subbasin Plan, the Old Lowden and Bergevin-Williams ditches are the listed imminent threats under section 7.3.1 "Management Plan – Aquatic Strategies - Imminent Threats and Passage Barriers" (pages 147-151). These two diversions are also referenced in the Final Addendum of the Walla Walla Subbasin Plan (Nov 2004). These are the last two major passage threats located in the mid mainstem Walla Walla River and are described as "sites of significant water withdrawals along the reach without having screening or screening believed to be effective". Passage concerns at these two diversions would not be addressed at the proposed reduced project budget level. In addition there are numerous other obstructions and fish screen/diversion sites identified in Section 7.3.1 and Table 7-4 which this project could supply cost share funding for addressing if fully funded at the requested amount. In the Final Addendum of the Walla Walla Subbasin Plan, Section 1.3 "Strategic Project Prioritization Framework" (pages 9-10), adult passage obstructions and inadequately screened water diversions are termed as top priority imminent threats to aquatic focal species in the Walla Walla Basin. These passage threats are located in stream reaches which pass fish to or through priority geographic areas as identified by the Walla Walla Subbasin EDT model. This project would protect and enhance production from those priority areas. Imminent threats associated with priority geographic areas are described as the highest priority projects in the Walla Walla Subbasin Plan.

Project ID: 199604601

Title: Walla Walla Basin Fish Habitat Enhancement

Unfunded Objectives: "All habitat enhancement tasks."

Required Additional FY 07 Funding: \$281,000

Work proposed for the period of 2007 through 2009 will be focused on two priority reaches.

South Fork of the Walla Walla River:

The South Fork of the Walla Walla River is identified as "priority" for restoration and protection in the Walla Walla Subbasin Plan (page 59). Out of 26 priority areas in the basin, the South Fork of the Walla Walla River ranked number 3 in "restoration" potential for spring Chinook and number 7 for summer steelhead (Tables 3-2 and 3-4). The EDT predictions for "protection benefit" ranked the South Fork of the Walla Walla (mouth to Elbow Creek which includes the proposed project areas) as number 1 for spring Chinook and summer steelhead. Proposed work includes riparian and upland restoration and instream aquatic habitat enhancement.

South Fork of the Touchet River:

The South Fork of the Touchet River is identified as "priority" for restoration and protection in the Walla Walla Subbasin Plan (page 59). The South Fork of the Touchet was ranked 12 out of 47 priority reaches for restoration potential for summer steelhead and 15th for spring chinook. The same reach was ranked 10th for protection of summer steelhead and 3rd for spring Chinook. All work will be conducted on approximately 8,000 acres owned by the CTUIR in the upper reaches of the South Fork of the Touchet River. This area is within the Rainwater Wildlife Area and includes approximately 8 miles of river habitat. Proposed work includes the addition of approximately 400 whole trees to the channel and floodplain and the obliteration and reclamation of approximately 3 miles of road bed located in the riparian area.

Limiting Factors Common to Both Priority Reaches:

- Embeddedness
- LWD
- Pools
- Riparian function
- Confinement
- Water Temps
- Bedscour
- Summer Flow

Anticipated Biological Outcomes include:

Improved spawning and rearing conditions and thus higher survival of juvenile summer steelhead, spring chinook, and bull trout. Proposed work will elevate the survival of adult and juvenile fish in the Walla Walla Basin. Various native tree and shrub species will also be enhanced as a result of these activities.

GEOGRAPHIC AREA (GA)	PROPOSED RESTORATION ACTIVITY	MEASURABLE BIOLOGICAL OUTCOMES
South Fork Walla Walla River-46 acres owned by the CTUIR	Upland restoration	Several thousands native trees and shrubs will be re-introduced into 13 acres of former riparian and upland habitat on the South Fork of the Walla Walla River. This effort will result in improved stream channel stability, thermal cover for birds and mammals, channel shading, insect drop, and enhanced spawning and rearing potential for juvenile and adult summer steelhead, bull trout, and spring chinook over approximately ½ mile of the South Fork of the Walla Walla River.
South Fork Walla Walla River – McCain/Lampson/Kentch	Instream habitat enhancement	Landowner permission has been secured for this work. A total of 10 cross-vane boulder structures, 12 J-hook boulder vanes, and 14 root wad bank installations over a distance of 2.5 stream miles on the South Fork of the Walla Walla River. EDT analysis suggests that an increase in channel complexity in this stream reach will result in higher adult and juvenile utilization, spawning opportunities, and production for summer steelhead, bull trout, and spring chinook.
South Fork Touchet River-8,000 acres owned by the CTUIR	Whole conifer tree additions	A total of 400 whole conifer trees over 7 miles of stream will be placed in the South Fork of the Touchet River. These enhancements will increase habitat complexity for summer steelhead and to a lesser extent bull trout. EDT analysis suggests these efforts will result in a capacity of almost 3,000 juveniles.
South Fork Touchet - River8,000 acres owned by the CTUIR	Obliteration of riparian roads	Three miles of draw bottom road will be removed during the funding cycle. This effort will substantially reduce stream sediment input, impact to spawning gravels, and disturbance of native fishes. Ultimately this will result in the restoration of a naturally functioning floodplain and riparian corridor and higher survival and production of rearing juvenile salmonid fishes, particularly summer steelhead.

Project ID: 199700100

Title: Salmon River Chinook Salmon Captive Rearing Program

Unfunded Objectives: “Genetics elements for evaluation.”

Required Additional FY 07 Funding: \$101,773

Biological outcome that is expected from the implementation of this project - - This project will increase the number of naturally spawning Chinook Salmon adults in the wild and maintain metapopulation structure in selected populations at high risk of extinction. Some risks associated with multigenerational hatchery culture will be avoided through the use of captive rearing as opposed to captive broodstock techniques.

Limiting factors or critical needs and tasks described in subbasin plans or planning documents that your project will address - - This project addresses many Aquatic Objectives identified in the Salmon Subbasin Plan including: 1A, 1B, 2A, 3A, 3C. This project is collecting life history and migratory survival information that will contribute to the Region’s understanding of species production and productivity (Strategies 1A2, 3A1,

and 3A2). The Chinook Salmon Captive Rearing Program is using artificial propagation to minimize short- and long-term genetic, ecological, and life history effects on the population. Innovative techniques (e.g., DNA-based spawning matrices, adherence to risk-adverse fish culture protocols, and a rigorous monitoring and evaluation component) are being implemented to meet the goals identified in Table 6 of the 2004 Salmon Subbasin Plan (Strategies 1B1 through 1B4). The Salmon Captive Rearing Program has worked with the University of Idaho and NOAA Fisheries geneticists to preserve the genetic integrity of the population. This program is furthering the development of captive intervention methodologies and techniques (Strategies 2A1 through 2A5). In the hatchery as well as in the wild, reproductive success is being assessed using pedigree information as well as other genetic methods such as exclusion analysis (Strategies 3C1 through 3C5). Research, monitoring and evaluation needs relative to artificial propagation programs are identified in the Salmon Subbasin Plan. Many of these needs (e.g., refine genetic preservation techniques, apply safety net hatchery intervention, implement additional artificial propagation programs to meet adult return objectives, monitor and evaluate artificial propagation programs...) are currently being addressed by the Chinook Salmon Captive Rearing Program.

The 2004 Updated Proposed Action document calls for the Action Agencies to continue funding safety net programs for Snake River spring/summer Chinook salmon.

Project ID: 199701501

Title: Imnaha River Smolt to Adult Rate and Smolt Monitoring Project

Unfunded Project:

Required Additional FY 07 Funding: \$324,987

The Imnaha River Smolt to Adult Rate and Smolt Monitoring Project (199701501) is specifically required in the 2005 – 2007 Implementation Plan (2005-07 IP, pg. 46) for the Federal Columbia River Power System (FCRPS) as one of four tributary monitoring sites within the basin intended to facilitate fish passage management decisions, including Biological Opinion implementation. As such, the Bonneville Power Administration has committed to funding this project in 2007 (June 1st 2006 Delwiche letter to Whiting, Northwest Power and Conservation Council).

This project is a formal tributary specific (Imnaha River) trapping and marking project for the Smolt Monitoring Project (SMP; 198712700) which is recommended for funding 2007 (Mainstem/Systemwide). This aspect of the SMP was separated from the main SMP proposal for contracting purposes in 1997. The Imnaha River Smolt Monitoring Project (199701501) plays an essential role by providing PIT tagged natural origin Chinook salmon and steelhead for monitoring through the hydrosystem by the larger SMP project.

In addition, the Imnaha River Smolt to Adult Rate and Smolt Monitoring Project (199701501) receives considerable cost share assistance from the Lower Snake River Compensation Plan Monitoring and Evaluation Project conducted by the Nez Perce Tribe. Collective results from these two projects provides the Technical Recover Team (TRT) with specific natural origin juvenile Chinook Salmon and steelhead production estimates and life stage specific survival estimates. These data types (performance measures) are called for in the Imnaha Subbasin Plan and considered essential (core) under the Northeast Oregon Hatchery Monitoring and Evaluation Plan. Quantification of these key performance measures enables assessment of Chinook and steelhead in-basin survival and productivity (smolt-per-female) and out-of-basin limiting factors.

The Blue Mountain province local group and OSPIT supported funding for this project as a high priority but was not able to include it within the budget allocation. They stated, *“The Budget cannot accommodate this Bi-op designated project, however, if additional funding becomes available, consider funding this project as a high priority.”*

Project ID: 199801004

Title: Monitor and Evaluate Performance of Juvenile Snake River Fall Chinook Salmon from Fall Chinook Acclimation Facilities

Unfunded Project:

Required Additional FY 07 Funding: \$371,780

The Monitor and Evaluate Performance of Juvenile Snake River Fall Chinook Salmon from Fall Chinook Acclimation Facilities project (199801004) is specifically required in the 2005 – 2007 Implementation Plan (2005-07 IP, pg. 48) for the Federal Columbia River Power System (FCRPS). As such, the Bonneville Power Administration has committed to funding this project in 2007 (June 1st 2006 Delwiche letter to Whiting (NPCC)).

This project provides critical population status data on Snake River fall Chinook salmon. In combination with projects 199801003 and 198335003 an index of Snake River fall Chinook salmon spawner abundance and distribution of spawners by conducting aerial redd counts is quantified. Failure to fund this aspect of the project would significantly reduce the applicability and power of the other two project’s results. In addition, this project provides the core in-hatchery monitoring and post release performance assessments for Snake River fall Chinook salmon produced under project 199801005. As such, this project is critically integrated with three projects which are recommended for funding.

The Blue Mountain province local group and OSPIT supported funding for this project as a high priority but was not able to include it within the budget allocation. They stated, *“The Budget cannot accommodate this Bi-op designated project, however, if additional funding becomes available, consider funding this project as a high priority.”*

Project ID: 199801600

Title: Salmonid Productivity, Escapement, Trend, and Habitat Monitoring in the John Day River Subbasin

Unfunded Project:

Required Additional FY 07 Funding: \$997,800

Project 199801600 provides basin-wide status and trend information on the two anadromous salmonid fish species and their habitats in the John Day River basin including SAR, abundance, productivity, and freshwater survival. These estimates are essential to track recovery of listed stocks. No other project in the John Day basin provides the basin-wide context of anadromous salmonid status and trend information which is important for measuring the collective success of individual restoration projects. This project addresses several monitoring needs identified in the subbasin plan including: 1) GRTS/EMAP and GIS-based sampling frameworks—statistical measures for the subbasin plan objectives of restoring freshwater productivity of steelhead and Chinook populations, 2) measuring basin-wide status and trends in habitat that are determined limiting factors in the subbasin plan (habitat diversity, sediment load, channel stability, 3) development of statistically reliable abundance, productivity, spatial structure and diversity data on fish species, 4) observations of the presence and quantification of salmonid hatchery strays, 5) habitat information for suggested research on the restoration potential of the lower subbasin, riparian conditions studies, and large woody debris goals. The John Day Subbasin Plan has also identified areas of research needs for the subbasin including: declines in the Granite Creek spring Chinook and range of bull trout migration. This project first identified fluvial bull trout use of lower mainstem habitat and the decline of Chinook in the Granite Creek system. Most importantly, this project provides much needed data to parameterize the EDT model which currently relies heavily on professional judgment and is proposed to be the main tool used to prioritize restoration efforts. In addition, cooperation with NOAA recovery efforts would be lost. This project is an integral component of the intensively monitored watershed (IMW) approach being implemented by NOAA in the John Day River basin to determine effectiveness of restoration processes. The current IMW effort relies on our fish metrics for a major portion of their monitoring. The system-wide Comparative Survival Study (CSS) relies on survival estimates derived from our PIT tagging efforts. The only PIT tagging of natural production spring Chinook and steelhead in the mid-lower Columbia River basin for the CSS would be lost.

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August 30, 2006
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Project ID: 199801800
Title: John Day Watershed Restoration
Unfunded Objectives: "Habitat restoration."
Required Additional FY 07 Funding: \$261,616

The lost funding would have gained 3.1 miles of new channel restoration, 3.75 miles of in-channel habitat enhancement, 6.5 miles of added connectivity from culvert work, 150 acres of upland improvements, and 3 additional passage barriers removed.

Project ID: 199802200
Title: Pine Creek Conservation Area
Unfunded Project:
Required Additional FY 07 Funding: \$278,836

The 33,557-acre Pine Creek Conservation Area is the largest wildlife mitigation project in the John Day Subbasin. It permanently protects regionally significant habitat types, including grasslands, shrub-steppe, and riparian, and improves aquatic habitats for summer steelhead, redband trout, and spring Chinook salmon. BPA is committed to funding management as partial mitigation for habitat losses at John Day Dam. The Conservation Area is intended to serve as an example of wildlife habitat and watershed management in the lower John Day Basin. Since acquisition in 1999 and 2001, the Tribes have worked in partnership with many other organizations to manage habitats and monitor changes.

Management has included returning water rights to instream flows, two prescribed fires, three fish passage projects on Pine Creek, enrollment and planting of a CREP riparian buffer, weed control, juniper cutting, fence removal, and implementation of a successful tribal and public access program. Monitoring includes Habitat Evaluation Procedures, aerial photography, vegetation plots and mapping, weed monitoring, winter deer and elk surveys, hunter harvest reporting, breeding bird point counts, bat monitoring, riparian photos, riparian vegetation and function, water quality, temperature, and stream flow, aquatic habitat structure, steelhead spawning, and weather.

This proposal is for Fiscal Years 2007-2009 operations and management funding for the Pine Creek Conservation Area, including three prescribed fires and three juniper cuts to slow juniper encroachment into shrub-steppe and grassland habitats and improve watershed health. The Pine Creek Conservation Area has been among the most cost-efficient wildlife mitigation projects in the Columbia Basin. An increased funding

commitment is requested to maintain the improvements achieved, and to further progress toward the original goals of the project.

Project ID: 200003100

Title: North Fork John Day River Basin Anadromous Fish Habitat Enhancement Project

Unfunded Project:

Required Additional FY 07 Funding: \$270,000

The project is consistent with Chapters III and V of the 2000 NPPC FWP, Sections 7.6 – 7.8 of the 1994 NPPC FWP, Appendix A. of BPA’s 1997 Watershed Management Program EIS, Volume 1, pp. 5b-12 through 5B-14 and Volume 2, p. 44 of CRITFC’s 1995 Wy-Kan-Ush-Mi Wa-Kish-Wit: Spirit of the Salmon, and habitat objectives and restoration strategies in the subbasin plan (pp. 245 – 246). Spring Chinook salmon and summer steelhead are the primary focal species this proposal will benefit. Both, species have been delineated as wild MCR ESU populations within the NFJD Basin by NOAA Fisheries. Summer steelhead are listed as “threatened” under the ESA. The project will implement improvements in the Desolation, Granite, Upper Camas and Lower Camas Creek Geographic Areas (GA), which are ranked among the five highest priority GA’s for aquatic habitat restoration in the subbasin plan (*Table 72., p. 250*). The project will address limiting factors, identified in the subbasin plan, including channel stability, flows, habitat diversity/key habitat, obstruction, oxygen, sediment load (*pp. 243-44*), wetland habitat (*pp. 303-4*), and aspen (*pp. 307-8*). The project will implement the five highest ranking strategies in the plan (with the exception of fish screens), including protect existing habitat, passage, riparian habitat improvements, in-stream activities, upland restoration, and education and outreach (*Table 73., p 250*). This project is the only project implementing habitat enhancements on private properties within the upper North Fork John Day Drainage. The project provides a critical link to achievement of the overall biological and habitat objectives indicated in the subbasin plan. Many miles of degraded habitat remain to be addressed within the upper basin along with protection of critical headwater sanctuaries on public lands.

Measurable Biological Outcomes:

GEOGRAPHIC AREA (GA)	PROPOSED RESTORATION ACTIVITY	MEASURABLE BIOLOGICAL OUTCOMES
Desolation Creek	Removal/replacement of 2 culverts.	Improved access to 1 miles of spawning and 2 miles of summer rearing habitat for summer steelhead in North Fork Desolation Creek.
Desolation Creek	Placement of log jams.	Increased spawning opportunities, habitat complexity and cover for juvenile and adult spring Chinook salmon and summer steelhead over 6 stream miles.
Granite Creek	Removal of mine tailings.	Increased habitat diversity, off-channel refugia, riparian vegetation and associated shade and increased spawning and rearing habitat for spring Chinook salmon and summer steelhead in a 3,800-foot reach of Clear Creek.

Granite Creek	Removal/replacement of 2 culverts.	Improved access to 26.1 miles of spawning and rearing habitat for spring Chinook salmon and summer steelhead in Granite and Clear Creeks.
Upper Camas Creek	Placement of log jams.	Increased spawning for summer steelhead and habitat complexity and cover for juvenile spring Chinook salmon and summer steelhead over 5 stream miles in Hidaway Creek.
Upper Camas Creek	Construction of riparian exclusion fencing.	Improved stream channel stability, width to depth ratios, quality and quantity of spawning areas, off-channel habitat; increased pool habitat, thermal cover for mammals, channel shading, and native plant recovery and succession for adult summer steelhead and juvenile spring Chinook salmon and summer steelhead over 5 stream miles in Hidaway Creek.
Upper Camas Creek	Development of 5 off-stream, upland livestock watering sites.	Better distribution of livestock in upland areas improving grazing management; improved stream channel stability, width to depth ratios, quality and quantity of spawning areas, off-channel habitat; increased pool habitat, thermal cover for mammals, channel shading, and native plant recovery and succession for adult summer steelhead and juvenile spring Chinook salmon and summer steelhead over approximately five stream miles.
Upper Camas Creek	Pool development.	Increased spawning opportunities for spring Chinook salmon in Camas Creek; improved habitat complexity and cover for juvenile and adult spring Chinook salmon and summer steelhead over several hundred yard stream reach.
Lower Camas Creek	Construction of riparian exclusion fencing, combined with riparian plantings.	Improved stream channel stability, width to depth ratios, quality and quantity of spawning areas, off-channel habitat; increased pool habitat, thermal cover for mammals, channel shading, and native plant recovery and succession for juvenile and adult summer steelhead over approximately 2.2 stream miles of lower Cooper and Snipe Creeks.
Lower Camas Creek	Development of 3 off-stream watering sites.	Improved grazing management; improved stream channel stability, width to depth ratios, quality and quantity of spawning areas, off-channel habitat; increased pool habitat, thermal cover for mammals, channel shading, and native plant recovery and succession for juvenile adult summer steelhead over approximately 2.2 stream miles of lower Cooper and Snipe Creeks.
Lower Camas Creek	Pool development.	Increased spawning for spring Chinook in Camas Creek; improved habitat complexity and cover for juvenile and adult spring Chinook salmon and summer steelhead over a several hundred yard stream reach.

Project ID: 200003800

Title: Walla Walla Hatchery 3-Step Process

Unfunded Project:

Required Additional FY 07 Funding: \$250,000

Artificial propagation is a key element in the comprehensive Walla Walla fisheries restoration program and is required in order to achieve spring Chinook natural production, broodstock, and harvest objectives outlined in the Walla Walla Subbasin Summary (CTUIR et al., 2001) and Walla Walla Subbasin Plan (Walla Walla Watershed Planning Unit and Walla Walla Basin Watershed Council 2004). Strategy 6 in the Walla Walla Subbasin Summary specifically identifies actions directly related to this hatchery proposal. Action 6.1 calls for construction of a spring Chinook hatchery and acclimation facilities. Action 6.3 calls for completion of appropriate pre-construction hatchery planning as per NPCC and other processes. In addition, Section 7.3.8 of the Walla Walla Subbasin Plan recognize that other enhancement efforts including artificial propagation will be needed to meet the subbasin numeric objectives. This proposal for hatchery production for the Walla Walla River was also identified in the 1994 Council Fish and Wildlife Program under Section 7.4.L as well as every other Walla Walla subbasin

restoration planning document that has been developed. Facilities constructed under this project will be an essential part of the comprehensive Walla Walla River fish restoration plans developed by CTUIR, ODFW and WDFW in cooperation with the Council, BPA, US Army COE, Bureau of Reclamation (BOR), NMFS, and various irrigation districts and private landowners. The project will increase smolt production and will directly increase returns and survival of salmon to the upper Columbia River Basin which is consistent with the Council's Fish and Wildlife Program, *U.S. vs. OR*, Columbia River Fish and Wildlife Plan, and the Pacific Salmon Treaty.

Project ID: 200003900

Title: Walla Subbasin Collaborative Salmonid Monitoring and Evaluation

Unfunded Objectives: "Assessments of in-stream habitat conditions, groundwater-surface water interactions, and groundwater support of essential fish habitat."

Required Additional FY 07 Funding: \$667,375

Project consistency with Planning Documents:

This proposal adopts the general guidelines for integrated RM&E presented by the Federal Caucus, the Columbia Basin Pilot Projects, PNAMP, and CSMEP, WCMS, the Oregon Plan and the SRSRP. Some of these processes have been reviewed intensively by the ISRP (ISRP 2004, 2005b, ISRP and ISAB 2005). This project is also in accordance with the most recent FWP Plan that lists research and monitoring as the ninth strategy for recovery in the Basinwide Provisions (section III, NPPC 2000).

The Walla Walla Subbasin Plan (2005) subbasin plan describes the based measurements of abundance, productivity, spatial structure, and diversity that are needed to 1) describe status and trends, 2) evaluate project/program performance, and 3) facilitate continued prescriptive and predictive modeling and updates to the Walla Walla Subbasin Plan. The priority elements of these recommendations are essentially the Biological Objectives and Work Elements of this proposal. The data gathered by this proposed project will more effectively answer numerous questions and meet requirements outlined in the FWP, by the ESA, Washington's Wild Salmonid Policy (1997), and in the Walla Walla River Basin Hatchery Master Plan (2004). Funding of this collaborative proposal under the FWP seems a logical extension of work already begun within the basin by CTUIR and WDFW.

The objectives and tasks detailed in this proposal are well supported by the recommendations of the ISRP (ISRP 2004, 2005b, ISRP and ISAB 2005), and a parallel adaptations of the standardized methods under employment in the John Day and Wenatchee Pilot Project being conducted by state and federal science programs. This project considers the proposed effort to study adult and juvenile salmonids to be a natural

extension of the Pilot Project, and the priority RM&E project in the Walla Walla Subbasin. The objectives of this proposal were prioritized in the Walla Walla Subbasin Plan, and are a critical component of the developing Salmon Recovery Plans.

Biological Outcomes:

- Anticipated biological outcomes by project objectives are:
- Collect and revise Viable Salmonid Parameters -
- Assess and detect changes in status and trends in abundance and spatial structure of summer steelhead, spring Chinook, fall Chinook, bull trout, and mountain whitefish in the Umatilla River Subbasin throughout their life history.
- Assess salmonid productivity in the Umatilla Subbasin.
- Assess salmonid life history diversity in the Umatilla Subbasin.
- Evaluate program effectiveness, including habitat and hatchery effects on natural production in space and time.
- Support the Walla Walla Technical Work Group and Science Program -
- Coordinate and administer the Umatilla RM&E program
- Report and disseminate findings

Project ID: 200201600

Title: Evaluate the Status of Pacific Lamprey in the Lower Deschutes River Subbasin, Oregon

Unfunded Objective: "Determine Pacific lamprey spawn timing, over-wintering, and spawning habitat."

Required Additional FY 07 Funding: \$15,000

The results of this objective will provide valuable and currently unknown information on Pacific lamprey spawning distribution and habitat use in the lower Deschutes Subbasin. The results will allow us to identify key over-wintering and spawning stream reaches in the subbasin. This will allow managers to protect lamprey spawning habitat and assist with efforts to restore lamprey upstream of the Pelton-Round Butte Hydroelectric projects. In addition, continued radio tagging through 2009 will allow us to estimate annual tributary escapement and associated variance. Identifying the proportion of spawning escapement (Objective 1) in each tributary coupled with an estimate of larvae produced from each redd (Objective 3) may provide the necessary data to develop a stock recruitment model to determine tributary production.

Determining adult lamprey migration patterns; spawn timing and habitat and tributary production are identified Primary Research and Evaluation Strategies in the Deschutes Subbasin Plan (MP-14, 16, 18, 23). The results of this objective will answer questions

about lamprey status considered “imminent” by the Columbia Basin Lamprey Technical Working Group as well as population delineation and limiting factors considered “highly important”.

Project ID: 200203700

Title: FW Mussel Research and Restoration

Unfunded Project:

Required Additional FY 2007 Funding: \$ 295,000

Project consistency with Planning Documents:

The CTUIR Freshwater Mussel Research and Restoration Project is the only one of its kind in the entire FW Program. Numerous populations are ESA-listed in the mid and eastern United States but relatively less is known about mussels in the west. Continuation of this project is essential for effective conservation and restoration of freshwater mussels in the Umatilla River, and addresses needs outlined in both the Umatilla Subbasin Plan and the provisions of the Fish and Wildlife Program. Furthermore, the proposed project sampling strategy will be implemented in communication with many other Subbasins, and the results of this project will continue to have implications and utility for the entire Columbia River Basin.

The Freshwater Mussel Research and Restoration Project is consistent with the Umatilla Subbasin Plan strategy to “conduct initial investigations and develop a restoration plan for freshwater shellfish in the Umatilla River (Section 5.3.2.6).” From 2003 to 2006 the project completed significant components of portions of 4 of the 5 recommended strategies and actions for restoring mussels in the Umatilla Basin (pages 5-40 – 5-41), including:

- Action 1.1 Conduct qualitative and quantitative surveys to assess shellfish populations.
- Action 1.2 Survey genetic variations within and among Umatilla and selected Columbia River subbasins.
- Action 1.3 Determine macrohabitat and physiochemical factors controlling distribution and abundance of shellfish.
- Action 1.4 Determine the role of fish communities controlling distribution and abundance of shellfish.

The proposed continuation of this project will allow us to complete investigations of genetic variation of freshwater mussels in the Umatilla and other Columbia River subbasins, and will allow us to begin to examine interactions and feedback mechanisms between freshwater mussel populations and native fish species, including how mussels provide ecosystem services for native salmonids. The completion of this information will

inform the fifth and final recommended strategy listed in the Subbasin plan: “Action 1.5 Develop and implement recovery plan for shellfish in the Umatilla Basin.”(p. 5-41). Freshwater mussels are designated in the Subbasin Plan as “Species Designated by Columbia Plateau Tribes as Having Cultural or Religious Values” (Section 3.2.1.4). Mussels were historically an important subsistence food resource for Native Americans throughout the Columbia Basin, including within the Umatilla/Willow Subbasin (Ray 1942, Lyman 1984). Freshwater mussels are noted in the Subbasin Plan as “Species Designated as Threatened, Endangered or Sensitive” (Section 3.2.1.1), “Species Recognized as Rare or Significant to the Local Area” (Section 3.2.1.2), and a “Locally Extirpated and Introduced Species (Section 3.2.1.5).

Biological Outcomes:

Anticipated biological outcomes of this project are to:

- Assess the patterns of genetic diversity in freshwater mussels of the Columbia Basin with respect to other western drainages.
- Understand the host fish requirements for the three genera of western freshwater mussels.
- Examine rates of key physiological processes in freshwater mussels in the Columbia River Basin.
- Determine the suitability of restocking the extirpated western pearlshell, *Margaritifera falcata*, in the Umatilla River through translocation experiments.
- Characterize the demographic and phylogeographic histories of freshwater mussels of the Columbia River Basin.
- Determine the current and historic distribution of freshwater mussels in the Columbia Basin Plateau.

Project ID: 200205900

Title: Yankee Fork Salmon River Dredge Tailings Restoration Project

Unfunded Objective: “Habitat restoration in the Yankee Fork.”

Required Additional FY 07 Funding: \$543,328

We believe that habitat restoration in the YFSR has strong potential to enhance production of endangered salmonids in the upper Salmon basin through a number of processes described below. Aerial photograph analysis allowed us to quantify the extent of channel relocation, shortening, and loss of sinuosity associated with past dredge mining. Additional research has shown that dredged reaches currently possesses fewer large pools than reference conditions (Overton et al. 1999) and the channel of the YFSR is presently composed of material significantly coarser than that preferred for Chinook salmon spawning. The observed median particle size is approximately 77 mm, with a

geometric mean of approximately 65 mm (Buffington et al. in review), far greater than the sizes selected by spawning Chinook in the Salmon River basin (7-20 mm; Platts et al. 1979). Historically, the YFSR provided 10 to 15% of the available Chinook spawning habitat within the entire Upper Salmon Subbasin (4th HUC), and 25 to 30% of the spawning habitat (substrate size, channel type) typical to the Chinook salmon phenotype (time of spawning, size of spawner) utilizing stream sections in the main Salmon River downstream of Valley Creek down to and including the East Fork Salmon River drainage (Buffington et al. in review). But, as long as the channel remains confined by dredge piles, the power of the river at high flows winnows away any fine materials, and no spawning-sized substratum can accumulate. Restoring floodplain connectivity would allow deposition of gravels and fine sediments, which would also reduce the turbidity and fine sediment load entrained in surface waters.

Water temperatures in the dredged portion of the YFSR are 3 to 5°C warmer than upper reaches of the YFSR and West Fork Yankee Fork, with maximum temperatures periodically exceeding criteria for salmonids (Meyer 1996). Overton et al. (1999) attributed high water temperatures in the lower YFSR to below average flows, and increased surface water exposure to solar radiation in widened and poorly vegetated reaches. The ultimate goal of restoring floodplain connectivity would lead to greater riparian shading, as well as increased river-groundwater interactions, both of which would buffer the system against temperature increases and also benefit salmonids (e.g., Torgersen et al. 1999, Baxter and Hauer 2000, Ebersole et al. 2003). In addition to the future goal of restoring physical habitat, design outcomes of this project would advance towards re-establishing fluxes of energy and nutrients that are critical to the productivity of linked river-floodplain systems. Loss of floodplain connectivity reduces the exchange of organic matter between terrestrial and aquatic ecosystems (Cummins et al. 1989). Because multiple trophic levels in stream food webs depend on terrestrial carbon sources, this can significantly diminish in-stream productivity (Wallace et al. 1997). Severing stream-riparian connections can also reduce inputs of terrestrial invertebrate prey, which are known to play an important role in the diets and energy budgets of salmonids (Baxter et al. 2005). The proposed restoration on the YFSR would help re-establish all of these important terrestrial-aquatic food web linkages.

Finally, the design and future restoration approach proposed here have the potential to serve as an example for similar efforts throughout the Pacific Northwest. Our goal to restore production in the YFSR will use strategies and approaches that reflect the current paradigm shift in river restoration from hard engineering approaches to the restoration of the natural sustainable processes characteristic of healthy functioning ecosystems (Ebersole et al. 2003, Palmer et al. 2005, Reeve et al. 2006). Collectively, our project team has amassed a large dataset documenting conditions in the YFSR and reference watersheds in central Idaho and this existing information is the basis for our assessment

and post restoration monitoring program. The success of our project is rooted in this effort and our work will benefit from the opportunities that this data provides, including the ability to assess responses at the watershed scale using within and paired watershed comparisons. Palmer et al. (2005) emphasized the need for effective post-restoration monitoring in successful river restoration. Surprisingly, Bernhardt et al. (2005) found that such monitoring was associated with only 10% of the 3700 river restoration projects included in their global review of river restoration. The synergy with other projects/programs in this drainage, the extensive dataset, and historical and cultural significance of the YFSR, make this watershed a strong candidate for restoration. Our ultimate goal is to disseminate our findings widely and use the lessons learned from this endeavor to inform similar efforts around the region.

Budget reduced from \$4,430,634 to \$1,945,588.

Project ID: 200301700

Title: Integrated Status and Effectiveness Monitoring Program (ISEMP)

Unfunded Objective: "Implementation of Salmon Subbasin pilot project."

Required Additional FY 07 Funding: \$968,858

Objectives: during the 2007-2009 period, the ISEMP seeks to continue development and implementation of regionally supported status and effectiveness monitoring and evaluation methods in three pilot subbasins; the Wenatchee, John Day and Salmon.

Pilot implementation of study designs in the three subbasins is proposed as a means to test the effectiveness of alternative study designs in satisfying the information needs of the Federal RME program specifically as it relates to the influence of habitat status on the status and trends of listed anadromous salmonids and the effectiveness of offsite habitat mitigation at improving survival and abundance of anadromous salmonids.

The ISEMP design for the Salmon River Subbasin, although positively reviewed by the ISRP, cannot be implemented under the proposed province recommended funding level.

The South Fork Salmon River (SFSR) was selected because: 1) it represents a substantial contributor to Snake River spring/summer Chinook salmon production and 2) ongoing monitoring activities are accompanied by a substantial time series and present an opportunity to evaluate sampling alternatives in a "common garden." The initial phases of ISEMP implementation in the SFSR will emphasize status and trends monitoring development to take best advantage of a developed monitoring infrastructure and historical data collection efforts.

The primary goal of the Lemhi Habitat Action Effectiveness Pilot Project is to identify and quantify the effects of classes of habitat actions (e.g., channel reconnection, flow augmentation, physical changes in channel morphology etc.) on the abundance productivity/survival, condition, and distribution of anadromous and resident salmonids within the Lemhi watershed. The primary goal of the Lemhi Habitat Action Effectiveness Pilot Project is to identify and quantify the effects of classes of habitat actions (e.g., channel reconnection, flow augmentation, physical changes in channel morphology etc.) on the abundance productivity/survival, condition, and distribution of anadromous and resident salmonids within the Lemhi watershed. Because multiple habitat actions may be collocated, assessing the individual affects of classes of habitat actions will require a modeling approach. The model-based approach will be useful for conducting *a priori* simulations to estimate the potential effects of different suites of proposed habitat actions. The primary goal of the Lemhi Habitat Action Effectiveness Pilot Project is to identify and quantify the effects of classes of habitat actions (e.g., channel reconnection, flow augmentation, physical changes in channel morphology etc.) on the abundance productivity/survival, condition, and distribution of anadromous and resident salmonids within the Lemhi watershed.

Project ID: 2003072000

Title: Habitat and Biodiversity Information System for the Columbia River Basin

Unfunded Objective: “Implementation of CHAP for the Willamette Valley Basin.”

Required Additional FY 07 Funding: \$45,000

The additional funding is requested to further implement the Combined Habitat Evaluation Procedures and the Habitat Value Method (CHAP) for the Willamette Valley Basin. The funding will go to evaluate and assess reference and potential acquisition site using the Habitat Value Method (HV) coupled with the Habitat Evaluation Procedures (HEP) verification transects. The CHAP uses portions of both methods to assess a sites ecological value and cross-walking these values to account for and track Bonneville Power Administration’s (BPA) Habitat Units determined by the Willamette Valley Basin loss assessment. Beside accounting and tracking a site(s) value and crediting of HUs, Geographic Information System (GIS) maps depicting amount and location of wildlife habitat types, structural conditions, key environmental correlates and invasive species will also be developed to show a site’s baseline condition. This information will be given to the Regional HEP Team, BPA and others as part of the portfolio for the site.

Project ID: 200600600

Title: Habitat Evaluation Procedures (HEP)

Unfunded Objective: “Development and implementation of CHAP.”

Required Additional FY 07 Funding: \$85,000

As the Region moves closer to fulfilling BPA's terrestrial habitat obligation ("HU ledger"), it is increasingly important to ensure that HEP evaluations are conducted in a timely, consistent manner across the entire Columbia Basin Region. The need for HEP evaluations will increase as BPA moves closer to meeting its terrestrial mitigation obligation (managers need to know how many and what type of unmitigated habitat units remain and where they occur). In addition, HEP is not a "one size fits all" crediting tool. Clearly, another "tool" is needed to determine habitat unit credit in areas such as the Willamette Valley.

The Regional HEP Team has partnered with the Northwest Habitat Institute (NHI) and ODFW to develop another approach to crediting for use in the Willamette Valley i.e., Combined Habitat Assessment Protocols (CHAP). CHAP is an ecological based tool derived from combining aspects of HEP with NHI's Habitat Value (HV) approach to assessing habitat. This new tool eliminates several challenges inherent with attempting to apply Willamette habitat losses to out-of-kind compensation sites located in the Willamette Valley e. g., habitat unit stacking issues, species selection disagreements, lack of public support for HEP, etc.

The CHAP approach has garnered support from BPA and has been favorably reviewed by Council staff and NGOs such as The Nature Conservancy. It is imperative to complete development of CHAP not later than June 2007 and to apply this new innovative approach to crediting as soon as possible to existing and new mitigation projects located in the Willamette Valley. **Therefore, the \$85,000 requested to develop and apply CHAP should be reinstated as part of the Regional HEP Team's FY 2007 budget.**

The requested funds will also ensure that the RHT will be able to complete a significant workload increase in FY 2007. Workload will increase due to the following factors:

1. BPA will likely request pre-acquisition HEP surveys which will require the RHT to "split" into two teams in order to ensure that HEP evaluations on new acquisitions are conducted in a timely manner (acquisitions are generally "opportunity driven" and therefore are temporally unpredictable requiring the RHT to be flexible and responsive to the needs of wildlife area managers).
2. HEP evaluations are needed on both recent acquisitions and established projects (a number of projects have not been re-evaluated for 10 years or more).
3. The RHT has been historically under-funded and could accomplish more if adequately funded.
4. HEP is not the best "tool" to determine habitat unit credit for Willamette Valley mitigation projects and that another methodology such as the Combined Habitat Assessment Protocols (CHAP) needs to be developed to accomplish this crediting

- task. CHAP is preferable to HEP as a tool to determine HU crediting in the Willamette Valley for the following reasons:
- a. Standardized HEP models were not used to determine habitat losses for Willamette hydro-projects and are, therefore, not available for use in the Willamette Valley.
 - b. Appropriate crediting rates (HU stacking) cannot be applied to Willamette Valley mitigation projects due to the lack of applicable models.
 - c. Most if not all habitat types described in Willamette loss assessments do not occur in the Willamette Valley resulting in off site/out of kind mitigation/compensation.
 - d. Subbasin plans for the Willamette Valley list different priority habitats and wildlife species than those described in loss assessments.
 - e. HEP is not readily accepted by the public, NGOs, and state/federal entities concerned about mitigation in the Willamette Valley.
 - f. CHAP is an ecologically based habitat assessment tool that is much broader in scope than HEP habitat suitability models.
 - g. CHAP eliminates the need for and/or subsequent discussions/arguments over species models and HU stacking (CHAP evaluation parameters include key ecological correlates (KECs), key ecological functions (KEFs), functional redundancy, etc.).
5. Development and application of CHAP requires assistance from the Northwest Habitat Institute (NHI) including habitat evaluation support, map products, and data analysis.
 6. The RHT will spend significant time evaluating Willamette Valley mitigation projects during the next funding cycle (this will result in additional travel costs etc.).

Project ID: 200702400

Title: Coeur d'Alene Trout Ponds

Unfunded Project:

Required Additional FY 2007 Funding: \$ 201,345

This project represents mitigation for lost fishing opportunities to the Coeur d'Alene Tribe. The Tribes salmon fishery was blocked by the construction of the FCRPS which forced them to rely more heavily on resident fish resources on the reservation and within ceded territories. Subsequently, those resources have been depleted such that the Tribe cannot provide subsistence harvest opportunities to its members except through alternative harvest strategies like the trout pond project proposed. The Tribe has closed to harvest cutthroat trout on reservation streams such that no opportunity currently exists

for the subsistence use of culturally significant fishery resources except those described within this project.

Other projects currently recommended for funding in the Intermountain and other provinces provide similar services under the resident fish substitution policy of the Fish and Wildlife Program.

This project was recommended for funding however, only limited funding was available. This meant that the project was fundable; however, there was just not enough funding to go around. Thus, if money does become available this project should be reconsidered for funding.

Project ID: 20072700

Title: Lake Rufus Woods Subbasin Area Stock Assessment, Habitat Assessment and Fisheries Evaluation Program

Unfunded Project:

Required Additional FY 07 Funding: \$626,892

Lake Rufus Woods is a regulatory reservoir between Chief Joseph and Grand Coulee Dams and is adjacent to the Colville Reservation. These underutilized boundary waters are part of the mainstem of the Columbia River and of primary concern for subsistence, mitigation and cultural opportunities for Tribal Members. Rufus Woods Lake supports two commercial fish farms with an annual production of more than 5 million pounds of salmonids. Recreational interest continues to grow due to the Colville Tribes efforts of purchasing and stocking triploid rainbow trout using tribal dollars. The last two state records for rainbow trout have come from Rufus Woods.

While there have been a few studies of Rufus Woods. These are outdated, limited or were never completed. Work to be preformed includes management of fisheries studies within the reservoir, coordination of regional work groups and other research activities. Stock assessment studies on focal species and resident fish including rainbow trout, kokanee, walleye, bass, sturgeon, and burbot. Stock assessment will be accomplished through, electro-fishing, gill net surveys, beach seining, longline, pot fishing, creel and other methods. Predation studies will be completed along with the Fall Walleye Index survey (FWIN). DNA sampling will occur on native rainbow trout with analysis to be contracted. Macro invertebrate sampling and analysis will be conducted, and periphyton and phytoplankton studies will be initiated with sample analysis to be contracted. Water chemistry studies will include temperature at depth studies. Habitat surveys and assessment of subbasin streams is also scheduled under this proposal to determine the condition of available spawning and rearing habitat and assess opportunities for habitat

improvements. All work will benefit the understanding of how this reservoir functions and assist management of species for tribal and recreational and subsistence needs.

References

Rufus Woods Subbasin Overview portion of the Columbia Upper/Intermountain Province plan.

Project ID: 200708300

Title: Grande Ronde Cooperative Salmonid M&E

Unfunded Objectives: “EMAP assessments of juvenile fish and habitat/ecological conditions and summer steelhead spawning.”

Required Additional FY 07 Funding: \$305,000

Project consistency with Planning Documents:

This project is the measuring tool of natural production restoration efforts in the Grande Ronde Subbasin as outlined in the NPPC Columbia River Basin Fish and Wildlife Program (measures 4.2A, 4.3C.1, 7.1A.2, 7.1C.3, 7.1C.4 and 7.1D.2; NPPC 1994). This collaboration proposes to adopt the general guidelines for integrated RM&E presented by the Federal Caucus, the Columbia Basin Pilot Projects, PNAMP, and CSMEP, and reviewed intensively by the ISRP (ISRP 2004, 2005b, ISRP and ISAB 2005).

This collaboration is proposing to continue an on-going salmonid fish stock assessment in the Grande Ronde Subbasin, with significant modifications to achieve regional standardization and integration. We will implement a regionally coordinated and standardized RM&E effort as outlined in the Grande Ronde Subbasin Plan. In addition we will address the inherent information requirements of the viability criteria presented by the NOAA Interior Columbia Technical Recovery Team (TRT 2004, 2005), and support the information requirements outlined in the Northeastern Oregon Hatchery Master Plan and corresponding Northeastern Oregon Hatchery Research, Monitoring, and Evaluation Plan.

Work under this project is in large part to measure achievement of run restoration goals for spring and fall Chinook salmon and summer steelhead trout listed in Tables 61 and 62 (p. 264-266) in the Grande Ronde Subbasin Plan (Nowack 2004).

Anticipated biological outcomes by project objectives are:

- Collect and revise Viable Salmonid Parameters -
- Assess and detect changes in status and trends in abundance and spatial structure of summer steelhead, spring Chinook, fall Chinook, bull trout, and

mountain whitefish in the Umatilla River Subbasin throughout their life history.

- Assess salmonid productivity in the Umatilla Subbasin.
- Assess salmonid life history diversity in the Umatilla Subbasin.
- Evaluate program effectiveness, including habitat and hatchery effects on natural production in space and time.
- Support the Walla Walla Technical Work Group and Science Program -
- Coordinate and administer the Umatilla RM&E program
- Report and disseminate findings

Project ID: 200713200

Title: NEOH Monitoring & Evaluation Implementation (formerly a component of 199805301)

Unfunded Objectives: Coordinate Monitoring and Evaluation Activities and communicate Program Findings to Resource Managers.

Required Additional FY 07 Funding: \$250,520

The NEOH Monitoring and Evaluation Implementation project (200713200) represents a regionally coordinated and integrated approach for hatchery effectiveness monitoring. Approximately 75% of the plan's activities are ongoing through 18 projects currently funded by Bonneville Power Administration. Initiating funding for coordinating, integrating, and reporting ongoing project data within the context of the NEOH M&E plan can be started prior to actual construction of new NEOH facilities. This effort would be consistent with and support the Independent Science Advisory Board/ Review Panel (ISAB/RP), National Oceanic and Atmospheric Administration (NOAA) Fisheries, Collaborative System-wide Monitoring and Evaluation Program (CSMEP), and Columbia River Inter-tribal Fish Commission (CRITFC) efforts to establish a regional approach for assessing supplementation effectiveness.

In addition, increasing the number of PIT tags applied to naturally produced fish by 42,000 through existing projects in the Imnaha and Grande Ronde tributaries is critical to improve precision of key performance measures called for in the NEOH M&E plan, Imnaha Subbasin Plan, and Grande Ronde Subbasin Plan.

Project ID: 200715700

Title: Bull Trout Status and Abundance Monitoring in the Waters in and Bordering the Warm Springs Reservation, Oregon

Unfunded Objective: "Determine the temporal and spatial diversity in movements of adult bull trout within migratory corridors."

Required Additional FY 07 Funding: \$25,330

In this objective we proposed to investigate the life history pattern(s) of bull trout in the Warm Springs River through the use of PIT and radio tags. There is increasing evidence that bull trout in the Warm Springs River may exhibit a dominantly “resident” life history. That is they reside solely in the Warm Springs River basin rather than migrating to and from the Deschutes River. If this is the case the assumption of re-connecting this population with the Metolius River populations as a primary recovery action, identified by the USFWS in the draft Bull Trout Recovery Plan, will need to be revisited. If these fish are predominantly resident, other actions will be necessary to recover this population. This may include controlling brook trout numbers and re-introducing bull trout to formerly occupied habitat. In short, the results from this objective would have provided crucial information on the steps necessary to recovery this population of bull trout.

Work of this nature is identified in the Deschutes Subbasin Plan on pages MP-14, 16 and 18 as a primary research strategy. The results from this objective will address key recovery goals and objectives identified in the Deschutes chapter of the USFWS Draft Bull Trout Recovery Plan.

Project ID: 200716400

Title: Determination of Steelhead Production and Productivity Response to Habitat Manipulations in the Upper Potlatch River, Idaho

Unfunded Project:

Required Additional FY 07 Funding: \$262,126

Biological outcome that is expected from the implementation of this project - - This project will determine the production and productivity of steelhead trout in the Upper Potlatch River basin and compare tributary (spatial) variations and trends in production and productivity to determine the effectiveness of habitat manipulations.

Limiting factors or critical needs and tasks described in subbasin plans or planning documents that your project will address - - This project contributes to many of the RM&E needs as indicated in the Clearwater Subbasin Plan. The project will meet goals of RM&E strategies A-1, A-2, B-1, B-2, B-3, B-4, and B-5 as indicated in Table 5, page 55 of the Subbasin Plan. This project will also address framework components as listed in the Supplemental Information for Research, Monitoring, and Evaluation Proposals for the FY07-09 Fish and Wildlife Program Project Solicitation Process (05 RM&E Solicitation Questions, 2005). The project is an action effectiveness research project using an observational approach to evaluate habitat manipulation effectiveness at both the tributary and watershed level. Through the use of standardized regional sampling

recommendations such as those being developed in PNAMP, the project will also contribute significant information regarding Snake River Basin steelhead status and trend monitoring to regional data stores. The status and trend information from the Potlatch River Basin will contribute significantly to answering regional management questions regarding the performance objectives within the Columbia Basin Fish and Wildlife Program and BPA's responsibilities under the ESA. First, the proposed work will directly address the impact of one of the four H's, habitat, in the absence of significant hatchery influence and harvest on steelhead production and productivity. Secondly, the proposed work will also provide important status information on the abundance, productivity, and diversity of steelhead populations, their growth rate, freshwater productivity, age structure, and hatchery influence if any.

Project ID: 200719800

Title: Grande Next Steps in Subbasin Planning: Umatilla Pilot Project

Unfunded Project:

Required Additional FY 07 Funding: \$382,432

Project consistency with Planning Documents:

This project would fulfill requests for integrated modeling that were clearly stated in the Umatilla Subbasin Plan and Comprehensive Monitoring and Evaluation Plan for Chinook and Steelhead (Schwartz and Cameron 2005). In theory this pilot project would lead to the establishment and charter of a Columbia River Collaborative modeling program (CRiCo), following review by the Agencies and Authorities. This effort would be integrated with PNAMP, CSMEP, and NED to facilitate effective subbasin assessments through collaborative, pro-active, and technically sound modeling of Columbia Basin fishes and their ecosystems.

Anticipated biological outcomes by project objectives are:

- Create a conduit between data collection, the Northwest Environmental Data-system, and the Agencies and Authorities modeling programs
- Initiate a sustainable Basin-Wide collaborative subbasin assessment modeling process among the agencies' and authorities' science programs through cooperative revision of the Ecosystem Diagnosis and Treatment framework as was requested in the Umatilla and Walla Walla Subbasin Plans
- Prepare the Umatilla management system for planned revisions to the subbasin plan and future subbasin assessments.

Project ID: 200724900

Title: Evaluation of Live-Capture, Selective Fishing Gear

Unfunded Objectives: Evaluate gear to 1) increase harvest of target species while conserving weak stocks and 2) reduce proportion of hatchery fish on spawning grounds

Required Additional FY'07 Funding: \$394,600

This project is essential to the Colville Tribes to conduct their ceremonial and subsistence fisheries on spring Chinook, summer/fall Chinook, sockeye, and steelhead while protecting ESA-listed UCR spring Chinook and UCR steelhead. Results of the gear evaluation will also allow the Colville Tribes to fish selectively on marked hatchery-origin fish while providing greater protection to unmarked natural-origin fish. Selective fishing will allow the Colville Tribes to rebuild their C&S fisheries with less impact on ESA-listed and natural-origin fish.

Selective fishing will allow the Colville Tribes to limit the numbers of hatchery-origin Chinook and steelhead in the natural spawning populations thereby increasing the viability and productivity of the natural populations.

Gear types will be tested with application to the mainstem Columbia River and the Okanogan River. Results from the study will have broad application to other mainstem and tributary fishery opportunities where other fishery managers may seek to reduce effects of fisheries on weak stocks or increase the harvest and benefits of hatchery-origin fish.

The study will be coordinated with tests of other live-capture, selective fishing gear types for use in collecting local broodstock to improve hatchery performance and compatibility of hatchery programs with recovery of natural populations. Live-capture fishing gears offer an alternative to constructing expensive and disruptive weirs to collect local hatchery broodstocks.

Project ID: 200725000

Title: Genetic Evaluation of Chinook Salmon Supplementation in Idaho Rivers

Unfunded Project:

Required Additional FY 07 Funding: \$1,287,711

Implementation of this proposal will provide information on five research topics related to the evaluation of the Idaho Supplementation Study (ISS) specifically and naturally spawning Chinook salmon populations in general. Each research topic will contribute to multiple "critical needs" identified in the Salmon and Clearwater river sub-basin summaries, but for brevity only one data need from each summary will be addressed here. The first research topic is, does the reproductive contribution of hatchery, natural, and supplementation adults differ? This information contributes to data in the Salmon River to monitor the effectiveness of ongoing programs (i.e., ISS) and to "measure reproductive success of hatchery salmon and steelhead through parentage analysis" (pg 25). This need is identified in the Clearwater sub-basin in the call to "continue to develop stock specific knowledge of the interaction between hatchery and wild fish" (pg. 19). The second research topic is to determine the relatedness or differentiation of spawning populations in ISS treatment and control streams and the hatchery stocks used in ISS juvenile releases. These data will determine how successful we have been in efforts to "preserve the genetic integrity and diversity of wild stocks in the Salmon River that have not been influenced by hatchery intervention" (pg. 24). Relatedness information will contribute to the development of "index stocks within the Clearwater sub-basin to evaluate abundance, life history, and spawn recruit relationships (pg. 14). The third topic addressed is an estimate of the effect of reproductive differences on population growth, recovery, and fitness according to VSP criteria. These data will be useful in evaluating how well LSRCP and IPC hatcheries are meeting their mitigation responsibilities in the Salmon River (pg. 21). They will also provide a means of "maximizing hatchery effectiveness in the [Clearwater] sub-basin to... support fisheries, natural production augmentation, reintroduction, and research" (pg. 21). The next research topic is to determine if F1 parental origin affects the reproductive contribution of F2 progeny. These data will lead to an evaluation of an "ongoing program in areas where [hatchery] intervention has occurred in order to achieve delisting targets" in the Salmon River (pg. 21). In the Clearwater these data will contribute to the same data gap identified in the third data need above (pg. 21). Finally, we will determine if F1 juveniles of different parental origin return at different rates as adults. This will provide an estimate of "population productivity (i.e., spawner to spawner ratios) in the Salmon River (pg. 25). These data will also allow us to participate in investigations "designed to examine mainstem and ocean mortality associated with differential migration timing and life histories (pg. 14). Implementation of this proposal will address the genetic effects (and contribution) of general production hatchery adults on naturally spawning populations, provide a genetic evaluation of supplementation for population augmentation and restoration, and will resolve ISRP concerns about the analysis of ISS data.

Project ID: 200728100

Title: Washington Salmonid Abundance and Productivity Monitoring Framework

Unfunded Project:

Required Additional FY 07 Funding: \$512,000

This project develops and collects/analyzes data from a framework of new and existing RM&E projects that provide the requisite monitoring of abundance and productivity VSP attributes across a sample of ESA-listed salmon populations whose recovery has been deemed important for de-listing. This Framework contains populations from every Major Population Group (MPG) and Evolutionary Significant Unit (ESU) of listed anadromous salmonids in the Washington portions of the Columbia Basin and Puget Sound. Abundance and productivity estimates collected/developed through this project will be made available through Internet accessible databases. While the Framework is still in development most of the populations to be included have been identified. Many of the Columbia Basin populations are already monitored for downstream migrant and adult abundance and/or productivity through on-going projects funded by the NPCC and others. The Framework also identifies populations that are currently not monitored. Requests for funding to monitor most of these are included in other new NPCC proposals discussed in the proposal narrative. A request for funding to monitor the juvenile production of Grande Ronde summer steelhead and spring Chinook is included in this proposal. Analysis of the adequacy of adult monitoring of Framework populations has not yet been completed. The proposal requests placeholder funding to begin or improve monitoring of adult abundance for one or more yet-to-be named populations. All or nearly all of the sub-basin plans describe the need for downstream migrant, adult, and productivity monitoring in their RM&E sections. For example, the Grande Ronde Sub-Basin Plan's RM&E section describes an assumption for its aquatic monitoring programs that is particularly germane to this project... "Monitoring that is proposed will be more effective if it fits within a broader programmatic network of status monitoring programs and intensively monitored watersheds." The plan goes on to describe abundance and productivity/survival as objectives #1 and #2 of six identified in the plan. Other populations identified in the Framework that would be monitored for downstream migrant and adult abundance/productivity through new project proposals to the NPCC are also identified in their sub-basin plans as monitoring priorities (e.g. Lower Columbia, Walla Walla, etc.).

Project ID: 200729300

Title: Umatilla River Stream Temperature Monitoring

Unfunded Project:

Required Additional FY 07 Funding: \$25,000

Stream temperature has been identified as a key limiting factor to salmonid restoration and recovery. The Draft Umatilla/Willow Creek Subbasin Plan identifies the importance of habitat and ecosystem monitoring to measure salmonid restoration efforts. Stream temperature monitoring is an important part of habitat and ecosystem monitoring. Stream temperature data are used to evaluate habitat restoration effectiveness and land use changes, estimate the suitability of stream reaches for salmonid production, and understand current salmonid life histories and the distribution of salmonids in the basin.

With the results from this project, area managers will be able to continue monitoring improvement of a key limiting factor in the Umatilla Basin. This project will also enable area managers to adaptively manage salmonid restoration and recovery efforts.

Stream temperature data is a critical need for all fisheries managers. By removing this task from project #199000501 into a separate project, temperature monitoring can be consolidated into a basin wide effort to maximize consistency and coverage without duplicating effort. Stream temperature data will continue to be available to all area managers through an online database managed by CTUIR. In addition, the Umatilla TMDL technical committee, ODEQ and a variety of other agencies and individuals routinely utilize stream temperature data collected by CTUIR.

This project is an integral part of the Umatilla Basin Restoration Effort and Watershed Enhancement and Rehabilitation Projects. It is the logical monitoring component to measure the natural production benefit from multiple projects in the basin.

Project ID: 200732300

Title: Investigate genetic parentage analysis techniques to estimate spawner abundance in ESA-listed steelhead *Oncorhynchus mykiss* populations

Unfunded Project:

Required Additional FY 07 Funding: \$406,964

Sixteen steelhead population units have been identified in Idaho and one unit (Hells Canyon, SNHCT-s) that lie in Idaho and Oregon for ESA recovery planning. An estimate of adult escapement in each population unit is not available either historically or currently yet delisting criteria will require some estimates of spawner abundance in these population units. The options to assess spawner abundance in population units, at this time, are limited to weir counts at index streams within some of the units and juvenile abundance estimates. This proposal is designed to investigate the feasibility of sampling juvenile steelhead and using parentage analysis techniques to estimate the number of spawners in rivers.

The Reasonable and Prudent Alternative (RPA) Action 180 of the NMFS BiOp calls for the development of hierarchical basin wide monitoring programs to collaborate with regional agencies, such as IDFG, to determine population and environmental status. Research, monitoring, and evaluation (RME) actions are outlined in the Final Updated Proposed Action for the FCRPS Biological Opinion Remand (UPA) and the 2005 Implementation Plan for the FCRPS (IP) that will be coordinated with federal, state, and tribal agencies. The UPA Strategy 1 Status Monitoring (pp 88 – 92) discussed the need for regional monitoring of adult and juvenile abundance, distribution, and survival necessary to track the status of ESA populations.

The Clearwater and Salmon Subbasin Plans identify biological objectives and data gaps that should be addressed. Both subbasin plans list as their first aquatic objective the need to increase the number of naturally spawning adults within each basin to achieve recovery goals. RME strategies associated with this objective include determining population abundance, life history characteristics, spawn-recruit relationships, and specific SAR from a representative set of index streams. This proposal's goal is to develop methodologies that can assess steelhead adult abundance in rivers using genetic techniques.