Northwest Power and Conservation Council

March 8, 2005

DECISION MEMORANDUM

TO: Council Members

FROM: Mark Fritsch, Project Implementation Manager

SUBJECT: Council decision on habitat projects for Bi-Op Implementation

PROPOSED ACTION:

The staff recommends that the Council conditionally approve allocating Fiscal Year 2005 funds, not to exceed $635,520, for the Updated Proposed Action (UPA) habitat proposals as defined in the submittal received from Bonneville Power Administration on March 8, 2005. The condition of approval is a favorable ISRP review of the package of proposals.

SIGNIFICANCE:

Bonneville Power Administration (Bonneville) and Bureau of Reclamation (BOR) implementation and funding of updated proposed action (UPA) habitat projects in the Wenatchee, Entiat and Methow subbasins (see attached letter, Summary of Upper Columbia River Spring Chinook and Steelhead UPA Actions, spreadsheet summarizing the 9 proposed projects, and 2005-2007 Implementation Plan for the Updated Proposed Action). Bonneville must initiate contracting this month to meet the implementation schedule of the revised Biological Opinion (BiOp).

BUDGETARY/ECONOMIC IMPACTS:

Bonneville is requesting $635,520 in Fiscal Year 2005 for these projects. It is anticipated that the proposed projects will be completed during FY05. There will likely be additional projects implemented in FY06 in order to meet the Action Agencies' metric goals for these three subbasins. In addition, Bonneville expects to integrate the UPA habitat project implementation in Fiscal Year 2007 and beyond with the Council's Program as part of a future solicitation process.

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BACKGROUND:

Bonneville, Bureau of Reclamation (BOR), along with the U.S. Army Corps of Engineers, have developed an UPA on their joint operation of the Federal Columbia River Power System (FCRPS). The UPA includes a program to improve the quality of tributary habitat to help provide "off-sets" to the impacts of hydro operations on the survival of certain listed anadromous species (Evolutionarily Significant Units or ESUs). Together, the Action Agencies have agreed to address specific limiting factors on the survival of these ESUs in specified areas of their passage, spawning and rearing habitats. The effects of the November 24, 2004 Updated Proposed Action were evaluated in a revised BiOp on the FCRPS issued by NOAA Fisheries on November 30, 2004 pursuant to section 7 of the Endangered Species Act (ESA).

NOAA Fisheries analyses determined that habitat actions addressing limiting factors have the potential to increase the ESU populations. The updated NOAA Fisheries analyses for the Biological Opinion found that a qualitative estimate of improvement is needed for Upper Columbia River spring Chinook and steelhead. To fill part of that gap, Bonneville agreed to help achieve tributary habitat metric goals to improve overall survival for fish in these ESUs during their spawning and rearing life stages. The proposed action to meet these goals focuses on four limiting factors: fish entrainment, instream flow, channel morphology, and riparian protection/enhancement. These proposed projects will assist in achieving milestones set forth and described in the tributary habitat action section of the UPA at three and six year intervals.

The BOR has provided funds for the planning and design of these projects. Bonneville's strategic approach in FY05 is to provide cost-share funds for the habitat projects in the Columbia Cascade Province to enable the Action Agencies to achieve the specific metric goals identified in NOAA Fisheries' 2004 Biological Opinion and Updated Proposed Action (UPA).

On February 16, 2005 Bonneville presented to the Council a review of the anticipated implementation of the Updated Proposed Action (UPA) for the Biological Opinion for the Federal Columbia River Power System by the Action Agencies. At that presentation they requested that the proposed projects be reviewed by the ISRP and that a decision from the Council be made during your March meeting.

On March 8, 2005 Council staff received the habitat proposals from Bonneville. (see attached letter, Summary of Upper Columbia River Spring Chinook and Steelhead UPA Actions and spreadsheet summarizing the 9 proposed projects - also included with the submittal was individual project details for the

ANALYSIS:

The projects have been developed by the Bureau of Reclamation (BOR) in coordination with willing landowners, local governments, conservation groups, tribes, the Upper Columbia Salmon Recovery Board, and others.

The proposed projects have been selected on a short schedule in 2005, leaving little time for ISRP review. Bonneville feels that these proposed habitat projects are consistent with the Fish and Wildlife Program. Planning and design of several of these projects are already underway through other funding sources, although Bonneville funding is necessary for projects to move

forward with construction. The estimated Fiscal Year 2005 amount of Bonneville funding required for these projects is $635,520.

ISRP is anticipating the submittal and is aware that Council staff has discussed with Bonneville that the set of projects could be submitted as a single document for ISRP review. The ISRP agrees that the proposed activities might be presented in a unified manner.

The UPA three-year metric goals for these proposed projects will address is 5 irrigation diversion screens; 12 cfs of water protected for instream flow; 60 miles of access restored to anadromous fish; and 5 miles of habitat complexity restored; 4 miles of riparian habitat protected; and 6 miles of riparian habitat enhanced. Details associated with the proposals include diversion replacements with wells and new intakes, irrigation efficiency (i.e., ditch vs. piped), and passage and passage improvements at diversion dams.

Staffs from Bonneville and Council have coordinated and obtained additional information from entities and sub-basin planners familiar with the projects involved. Council staff from Washington have reviewed the proposed project descriptions to ensure that the proposed work is consistent with the draft Subbasin Plans and determined that these projects and their locations are priorities within the Subbasin Plans. One of the projects was also reviewed and prioritized as part of the solicitation associated with the Columbia Cascade Province (i.e., Marrachi Diversion - Proposal #29010, *Restore passage on Private lands in Beaver Creek Drainage to Benefit Spring Chinook, Steelhead and Bull Trout*, as outlined in "Part 2" of the fish and wildlife managers prioritized second block of projects). One project is being totally funded by Washington State Salmon Recovery Funding Board (SRFB). In addition, the proposed projects have a total cost of $1,709,769, which demonstrates the extensive amount of cost share associated with the proposed habitat projects (e.g., SRFB, Washington Department of Fish and Wildlife, and Douglas Co. PUD).

The majority of proposed projects can all be defined as water optimization projects (i.e., projects that address efficiencies regarding water usage and quantity in a particular basin) and should have early demonstrable benefits for fish.

A favorable ISRP review of the proposals is critical to confirm the consistency to the Program and merits of the habitat proposals.

Therefore Council staff recommends that the Council approve Fiscal Year 2005 funds not to exceed $635,520 for the habitat proposals as defined in the submittal received from Bonneville on March 8, 2005. This recommendation is conditioned on a favorable ISRP review of the proposals.

ALTERNATIVES:

I. Defer Action to a Future Project Solicitation

The Council could choose to not take action on the request from Bonneville and suggest that the actions be addressed as part of a future project solicitation process. Bonneville and BOR have presented these proposed UPA habitat projects in the Wenatchee, Entiat and Methow Subbasins in an attempt to ensure that the quantitative milestones are

reached within the three and six year intervals for the defined limiting factors. Aligning the UPA measures to the next project solicitation would most likely prevent meeting the UPA implementation schedule. Therefore staff does not recommend this alternative.

II. Postpone Until ISRP Recommendation

The Council could choose to postpone a decision until the ISRP has adequate time to review and provide their recommendation regarding the merits of the UPA habitat projects. Due to the concerns regarding the urgency of implementation in 2005 staff feels that it would be more prudent to not recommend this alternative. If the ISRP raises significant concerns Council staff would convey those to Bonneville immediately for a decision to suspend or terminate the contract.

Attachment: Letter received from Bonneville Power Administration, on March 8, 2005, regarding the UPA habitat projects for Bi-Op Implementation.

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

ENVIRONMENT, FISH AND WIL

In reply refer to:

Mr. Doug Marker
Fish & Wildlife Director
Northwest Power and Conservation Council
851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204

Dear Mr. Marker:

In coordination with the Northwest Power Council (Council), the Bonneville Power Administration (BPA) seeks Independent Scientific Review Panel (ISRP) review of a suite of Columbia Cascade Province offsite anadromous fish mitigation projects for consistency with the Fish and Wildlife Program prior to the Council meeting in March. Implementation of these projects, detailed on the Columbia Basin Fish and Wildlife Authority (CBFWA) website at www.cbfwa.org (www.cbfwa.org/mods/components/forms/DisplayWYOngoing.cfm?ModID=210&action=final), is planned to help achieve Biological Opinion tributary habitat metric goals for Upper Columbia Spring chinook and steelhead. We are hopeful that the information provided here and in the attachments meets the expectations of our most recent discussions on this topic. (Project descriptions, maps and spreadsheet with further details are also attached).

NOAA Fisheries analyses determined that habitat actions addressing primary anthropogenic limiting factors have the potential to increase the ESU populations. The updated NOAA Fisheries analyses for the Biological Opinion found that a qualitative estimate of "medium" (from 2 to 24 percent) improvements is needed for Upper Columbia River spring Chinook and steelhead. To fill part of that gap, BPA agreed to help achieve tributary habitat metric goals to improve overall survival for these ESUs during their spawning and rearing life stages. The proposed action to meet these goals focuses on four limiting factors: fish entrainment, instream flow, channel morphology, and riparian protection/enhancement; with quantitative milestone goals at three and six year intervals. The suite of projects currently scheduled for implementation in fiscal year 2005 will help achieve milestones set forth and described in the tributary habitat action section of the Updated Proposed Action (UPA). The three-year metric goals to which these projects will apply are 5 irrigation diversion screens addressed, 12 cfs of water protected for instream flow, 60 miles of access restored to anadromous fish and 5 miles of

habitat complexity restored. Please refer to the draft enclosure pertaining to the implementation plan for the UPA.

Staffs from BPA, Council, have coordinated among each other and obtained additional information from entities and sub-basin planners familiar with the projects involved. Council staff from Washington reviewed the project plans and found them consistent with the sub-basin plans. We anticipate this suite of habitat projects scheduled for implementation will be consistent with the Fish and Wildlife Program. Planning and design of several of these projects is already underway through other funding sources, although BPA funding is necessary for projects to move forward with construction. The estimated FY05 amount of BPA funding required for these projects is $635,520. However, if unforeseen construction or contractual issues arise causing budget increases, BPA will coordinate with the Council.

Additional Information to address Guidance for Documentation from the ISRP

Technical and scientific background -
Several investigations have been performed to identify the habitat limiting factors in the Wenatchee, Entiat, and Methow subbasins and to assess the opportunities for improvement (most notably the Washington State Conservation Commission's Limiting Factors Analyses for the Wenatchee, Entiat, and Methow subbasins). The suite of projects is designed to address limiting factors in these subbasins. NOAA's recent analysis of potential habitat improvement measures and practical constraints in all three sub-basins (Kratz et al. 2004) was also considered in developing the metric goals that this suite of projects will help achieve. Specific limiting factors were matched with sub-basin opportunities, e.g., willing landowners, to focus efforts on specific strategies that could be addressed by agency funding. Projects have been planned and designed to implement these strategies.
(See attached document of Updated from Proposed Action for tributary actions for the Upper Columbia River Spring Chinook and Steelhead; see also detailed project information from www.cbfwa.org/mods/components/forms/DisplayWYOngoing.cfm?ModID=210&action=final).

Subbasin Plans –
Each project description briefly addresses objectives and limiting factors.
Considerable investigations have been performed to identify the habitat limiting factors in the Wenatchee, Entiat, and Methow sub-basins and to assess the opportunities for habitat improvement through the subbasin planning efforts. The Upper Columbia Subbasin Planners are essentially "The Upper Columbia Salmon Recovery Board" which includes entities throughout the subbasins including the Yakama Nation, the Colville Confederated tribes, Chelan County, and Douglas County. These entities are working with the State and Federal agencies and others to develop salmon recovery plans for the Upper Columbia River tributaries. This group also revised the subbasin plans to address the ISRP comments specifically inadequacies in the Management Plans and Limiting Factors. Part of the overall coordination effort of this group was to develop a list of projects that would address the UPA metric goals and also be consistent with the subbasin plans. Technical evaluation at the local level for these projects was conducted by the Regional Technical Team (RTT), which is composed of biologists and other scientists from a wide variety of state, local, tribal, PUD and federal agencies. Attached is a list of these projects by subbasin, proposed for implementation in FY 05.

Objective, Tasks and Methods-

BPA has sought the initial project selection and prioritization process for the suite of projects to be addressed as part of the Updated Proposed Action and coordination efforts. We also note that none of the projects proposed are in the Methow River reach that goes subsurface (e.g., the Arrowleaf Reach). Maps are provided with each project description.

Active Restoration-
All of the projects are "active" in the sense that an action will be taken to mitigate an entrainment or barrier problem associated with an irrigation diversion or will restore channel complexity in locations behind dikes that will not be removed because they are protecting private property. Passive restoration of natural functions is simply not an option in all locations because of legal and social constraints. Opportunities for passive restoration, such as riparian protection and stream flow improvements, are still being pursued.

Monitoring and Evaluation-
Each of these projects that has already been submitted to a grant funding review has a monitoring component in the original project proposal. In the case of those projects 100% funded by BPA, each of these projects is also using the Habitat Improvement Program BiOp format for consultation with NOAA Fisheries. Those familiar with this process know that it contains a strong "built-in" construction and site restoration-monitoring requirement including annual reporting and photo-documentation. Either the project sponsor or the Bureau of Reclamation will perform this photo-documentation subsequent to construction in each case.

The US Forest Service, WDFW, USFWS, Yakama Indian Nation, Colville Confederated Tribes, USGS, University of Idaho, Bureau of Reclamation and the Corps of Engineers are all conducting some form of biological or habitat monitoring related to listed salmonids in the Methow Subbasin. There activities are being coordinated through the Upper Columbia Salmon Recovery Board's Regional Technical Team (RTT), which is in turn linked to provincial –level efforts to standardize methods and protocols across the Columbia Basin. Because the level of monitoring in the subbasin is so extensive, some form of information useful for long -term effectiveness monitoring is presently being collected in a manner consistent with regional protocols in every reach where a 2005 project is proposed. For example, reach specific information for the Marrachi the USGS and the University of Idaho are presently collecting project as part of a larger Beaver Creek colonization and sediment transport study associated with Reclamation's barrier removal program in the Beaver Creek watershed. Similarly, fish usage is presently being monitored by trapping and pit tagging at the MSRF Side Channel project and this monitoring will continue.

A finding from the ISRP that these projects are consistent with the Fish and Wildlife Program will help facilitate implementation of these projects as part of the current budget process. We thank you for the expedited review of this suite of projects.

Sincerely,

William C. Maslen
Director for Fish and Wildlife

Upper Columbia River Spring Chinook and Steelhead UPA Actions

Tributary Habitat Actions

The updated NOAA Fisheries analyses found that a qualitative estimate of "medium" (from 2 to 24 percent) improvements are needed for Upper Columbia River spring Chinook and steelhead. The Action Agencies consider this survival change to be in the lower range of medium. To fill that gap, the BPA and Reclamation propose a tributary habitat program to improve overall survival for the ESU during its spawning and rearing life stages.

NOAA Fisheries evaluated the likelihood of improving species survival through habitat improvements through an analytical approach that included the four VSP criteria of:

- abundance,
- productivity,
- diversity, and
- distribution.

NOAA performed a qualitative evaluation of trends in population status and associated tributary habitat condition and considered the potential to address identified habitat limitations sufficiently to elicit a response in population status. Qualitative rankings of high, medium, or low were assigned to population and habitat parameters based on the magnitude of the observed or potential change.

For Upper Columbia spring Chinook, NOAA concluded that there is a *medium potential* to improve spawning and rearing habitat in the Wenatchee, Entiat, and Methow subbasins. For Upper Columbia steelhead, NOAA Fisheries concluded that there is a medium level of intrinsic potential to improve spawning and rearing habitat in the Wenatchee and Methow Rivers subbasins and a low to medium level of intrinsic potential in the Entiat. A summary of NOAA's analysis of the potential to increase populations, identification of anthropogenic limiting factors, identification of the ecological improvement potential, and adjusted improvement potential based on practical constraints is summarized in Table 1.

Table 1. NOAA Summary of Upper Columbia Spring Chinook (Yearlings)

Population	Index of Potential to Increase Population[1]	Primary Anthropogenic Limiting Factors [2]	Ecological Intrinsic Potential[3]	Intrinsic Potential Summary (practical constraints)[4]
Wenatchee	Very High	Medium—Channel morphology, flood plain connectivity, flows	Medium	Medium
Entiat	Very High	High—Channel morphology	Medium	Medium
Methow	Very High	Medium—Flows, entrainment, channel morphology, water	Medium	Medium

[1] Based upon an analysis of base period (historic) average annual redd counts and recent average annual redd counts.
[2] Anthropogenic limiting factors include instream flows, channel morphology (barriers, connectivity, condition of bed, sedimentation, etc.), entrainment (lack of fish screens), riparian condition, water quality including water temperature, etc.
[3] Ecological Improvement Potential is the anticipated qualitative response to improve population status by addressing limiting factors that resulted from anthropogenic management actions.
[4] An adjustment of the Ecological Improvement Potential based upon practical constraints which may limit the ability to address limiting factors including legal, social, political, or economic constraints.

Population	Index of Potential to Increase Population[1]	Primary Anthropogenic Limiting Factors [2]	Ecological Intrinsic Potential[3]	Intrinsic Potential Summary (practical constraints)[4]
		temperatures		

Table 2. Upper Columbia River Steelhead (Yearlings)

Population	Index of Potential to Increase Population[5]	Primary Anthropogenic Limiting Factors [6]	Ecological Intrinsic Potential[7]	Intrinsic Potential Summary (practical constraints)[8]
Wenatchee	Medium to High	Medium-High—Barriers, channel morphology including flood plain connectivity, flows	Medium	Medium
Entiat	Low to Medium	Medium—Channel morphology, flows	Medium	Low to Medium
Methow	High	Medium—Irrigation, sedimentation, barriers, large woody debris, riparian vegetation, and flows	Medium	Medium

Upper Columbia spring Chinook and steelhead spawn and rear in a limited number of tributaries to the upper Columbia River below Chief Joseph Dam. These tributaries rise along the eastern slope of the Cascade Range and include populations of the ESUs in the Wenatchee, Entiat, and Methow. The Okanogan subbasin also includes populations of Upper Columbia River steelhead. Actions to improve spawning and rearing habitat in Wenatchee, Entitat, Methow, and Okanogan subbasins are proposed in the UPA.

Considerable investigations have been performed to identify the habitat limiting factors in the Wenatchee, Entiat, and Methow subbasins and to assess the opportunities for improvement. We do not reiterate those findings here. However, NOAA's recent analysis of potential habitat improvement measures and practical constraints in all three subbasins (Kratz et al. 2004) was considered in developing the UPA. In addition, we verified opportunities by contacting local knowledgeable individuals and organizations, reviewing the considerable information made available by the Council's drafted subbasin plans, and consulting other state and local documents.

Wenatchee Subbasin. NOAA Fisheries' analysis showed that channel morphology, including flood plain connectivity and flows are the primary anthropogenic limiting factors in the Wenatchee subbasin. We include a significant increase of habitat condition associated with channel morphology. However, the flow improvement potential identified by NOAA Fisheries

[5] Based upon an analysis of base period (historic) average annual redd counts and recent average annual redd counts.

[6] Anthropogenic limiting factors include instream flows, channel morphology (barriers, connectivity, condition of bed, sedimentation, etc.), entrainment (lack of fish screens), riparian condition, water quality including water temperature, etc.

[7] Ecological Improvement Potential is the anticipated qualitative response to improve population status by addressing limiting factors that resulted from anthropogenic management actions.

[8] An adjustment of the Ecological Improvement Potential based upon practical constraints which may limit the ability to address limiting factors including legal, social, political, or economic constraints.

focuses on large streamflow increases in the lower Wenatchee River. Although low flows in this area limit some of the habitat potential, they do not form a migration barrier to other areas of the subbasin. Based upon practical constraints, there is little likelihood that flows could be significantly enhanced in that reach. Most upstream areas appear to have sufficient fish flows; but additional flow needs, if any, need to be confirmed by IFIM studies. Those studies are currently ongoing. Also, to provide greater assurance that the appropriate level of survival improvements accrue in the Wenatchee subbasin, BPA and Reclamation propose a habitat improvement action to address two additional limiting factors,1) entrainment, and 2) riparian enhancement and protection. NOAA did not identify these primary anthropogenic limiting factors, but the Action Agencies believe they would yield survival improvements. Based on the Action Agencies' analysis, the total proposed habitat improvements in the Wenatchee subbasin would meet the level of intrinsic potential needed to improve habitat conditions and juvenile survival.

Entiat Subbasin. NOAA identified channel morphology to be a primary anthropogenic limiting factor in the Entiat subbasin and considered the lower, channelized, section of the Entiat River to be of particular importance. Therefore, the UPA includes several morphology projects in the lower reach of the river including some opportunities to improve stream complexity and channel connectivity. We also anticipate that other channel morphology improvement projects will be implemented in other reaches of the subbasin.

Methow Subbasin. NOAA identified the primary anthropogenic limiting factors in the Methow as flows, entrainment, channel morphology, and water temperatures. The UPA considers those habitat limiting factors and NOAA's opportunity analyses to identify tributary habitat improvements for the Methow subbasin. Virtually all diversions in the Methow basin have been screened; consequently, our UPA focuses on implementing channel morphology projects. We also propose to implement some limited streamflow improvements and riparian protection and enhancement opportunities actions.

UPA performance metrics

To confirm that the survival improvement goals are achieved, the Action Agencies will implement a habitat effectiveness monitoring program in the Methow subbasin. The program will inform the Action Agencies and NOAA about the survival effects of habitat improvement projects for these ESUs. As our knowledge and understanding increases, we may modify the habitat goals associated with each limiting factor if a different mix of limiting factor goals would improve results.

Specific performance metrics and associated targets for improving Upper Columbia spring Chinook and steelhead juvenile survival production in the Wenatchee, Entiat, and Methow subbasins are shown in Table 3. Metrics measurements and goals are established for 3 years (by 2007) after this UPA is adopted and cumulative goals for 6 years (by 2010) after adoption.

Table 3. UPA Performance goals for Upper Columbia Spring Chinook and Steelhead in the Wenatchee, Entiat, and Methow Subbasin

Limiting Factor	Metric Measurement	Metric Goal in three years	Cumulative Metric Goal in six years
Entrainment[9]	a. Number of screens addressed	5	10
Instream flow projects[10]	a. Cubic Feet per Second (cfs) of water protected for instream flows	12 cfs	40 cfs
Channel Morphology[11]	a. Miles of access restored b. Miles complexity restored	60 miles 5 miles	105 miles 10 miles
Riparian Protection/Enhancement[12]	a. Number of miles protected b. Number of miles enhanced.	4 miles 6 miles	12 miles 12 miles

Okanogan Subbasin Conservation Measure for Upper Columbia River steelhead

For Upper Columbia River Steelhead, NOAA concluded that there is a high level of "intrinsic potential" to improve spawning and rearing habitat in Okanogan is possible when practical constraints are not considered. BPA considered the primary limiting factors identified by NOAA Fisheries for the subbasin that include temperature, barriers, flow, and sediment. Since Reclamation does not have authority to fund habitat actions in the Okanogan, BPA evaluated potential options for improving habitat in the subbasin. BPA proposes to implement some habitat activities to address limiting factors, such as enhancing riparian habitat and improving flows through instream water transactions. BPA may pursue these habitat actions in the Okanogan subbasin through the Council's Fish and Wildlife Program.

[9] Fish entrainment at screens may be addressed through adding new screens, modifying existing screens to meet current criteria, or eliminating the diversion through replacement wells or other means.

[10] Instream flow projects include lease or purchase of streamflow, water conservation projects which yield actual "wet water" instream which may be secured through state water law. Not counted in this metric are gaging stations or other water measurement initiatives or investigations which may be necessary to support the evaluation and protection of instream flows for fish.

[11] Channel morphology projects include Access projects which provide fish passage at structures or conditions that create migration barriers including diversion dams, culverts, low flow channels, etc. Stream Complexity Restoration projects include side channel connectivity, flood plain connectivity, channel reconfiguration, large woody debris placement, etc.

[12] Riparian protection projects include acquisition of riparian easements or purchases. Riparian enhancement projects include streambank stabilization and riparian treatments such as fencing or reconstruction.

COLUMBIA CASCADE HABITAT ACTIONS IN THE ENTIAT, METHOW AND WENATCHEE SUBBASINS											
Limiting Factor	**Metric Measurement**	**Metric Goal in three years (by 10/1/07)**	**Project**	**Brief Project Description/Comment**	**Projected Metric**	**Total Metrics Planned for 05**	**Estimated BPA Contract Start Date in 2005**	**Total Project Cost Estimate**	**BPA Cost-Share Estimate in FY05 (underlined figures are NOT in current FY05 SOY budget)**	**Construction Funding Partners**	**Project Sponsor**
Entrainment	a. Number of screens addressed	5 screens	Entiat 4 Mile	Replace diversion with well(s).	1		April	$ 80,000	$40,000		
			Whitehall Wells	Replace 4 unscreened diversions with well(s).	4		April	$ 50,000	$40,000		
			Hottell	Existing screen would be protected by new intake gate.	1		May	$ 53,000	$11,520		Okanogan Conservation District
						6 screens					
Instream flow	a. Cubic Feet per Second (cfs) of water protected for instream flows	12 cfs	Marrachi Diversion	Irrigation diversion replaced with a rock v-weir and piped to increase instream flows.	1 cfs		July	$ 134,600	$105,000	WDFW ($5000)	Okanogan Conservation District
						1 cfs					
Channel Morphology	a. Miles of access restored	60 miles	Peshastin Irr. District	Provide passage through an existing diversion dam on Peshastin Creek	11 miles		N/A	$ 200,000	No BPA Funds Needed	SRFB will fund the construction of this project.	
			Fulton Diversion	Present passage impediment will be replaced with a roughened channel and rock v-weir.	8.2 miles		May	$ 600,223	$146,000	SRFB (~80%)	Chewuch Basin Council
			Chewuch Diversion	Present passage impediment will be replaced with a roughened channel and dam repaired.	23 miles		May	$ 393,091	$122,000	SRFB (~80%), Douglas Co. PUD (25% of dam repair)	Chewuch Basin Council
						42.2 miles					
	b. Miles complexity restored	5 miles	Methow Salmon Recovery Foundation Side Channel Enhancement	Side channel reconnected using headgate through existing rock levee	0.75		March	$ 75,000	$65,000	MSRF (15% in kind)	MSRF
			MacPherson Side Channel Restoration	Side channel reconnected using headgate through existing rock levee	0.3		March	$ 123,855	$106,000	WDFW (10%)	MSRF
						.78 miles		$ 1,709,769	$ 635,520		

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Draft
2005 – 2007 Implementation Plan for the Updated Proposed Action

U.S. Army Corps of Engineers
Bureau of Reclamation
Bonneville Power Administration
March 2, 2005

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Draft 2005 — 2007 Implementation Plan

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D. Tributary Habitat Protection and Improvement Actions

Tributary habitat protection and improvement actions were included in the UPA to augment hydrosystem, predator control, and estuary habitat actions for Upper Columbia River spring Chinook and Upper Columbia River steelhead ESUs. Additional conservation measures were included in the UPA to improve survival, but are not required to avoid jeopardy. Conservation measures for Upper Columbia steelhead in the Okanogan subbasin were included by BPA. Conservation measures for Mid-Columbia steelhead in the Upper John Day, Middle Fork John Day, and North Fork John Day; and for Snake River spring/summer Chinook and Snake River steelhead in the Lemhi, Upper Salmon, and Little Salmon subbasins were included by Reclamation.

The following tables identify metrics for lists of known projects and summarize metrics for additional anticipated projects to meet or exceed the near-term (2007) priorities. Habitat projects are conducted in cooperation with private landowners and often require additional coordination among a wide array of State, Federal, and local agencies. The list of known projects indicates that construction funding has been secured, and all participants have agreed to complete the project. Preliminary work has been initiated on additional anticipated projects for the ESUs listed below, but specific identification of projects at this time could impair project completion. Consequently, only summary metrics are reported for additional anticipated projects.

Upper Columbia River Spring Chinook and Upper Columbia River Steelhead

Streamflow, Entrainment, Channel Morphology, and Riparian Protection and Enhancement Actions

Near-term priority (2007): In the Wenatchee Entiat, and Methow subbasins, lease, purchase, and/or conserve 12 cfs of water; resolve 5 irrigation diversion screen problems; restore 60 miles of tributary access; restore 5 miles of complexity; protect 4 miles of riparian habitat, and enhance 6 miles of riparian habitat through 13 known and 26 additional anticipated projects.

Long-term priority (2010): In the Wenatchee, Entiat, and Methow subbasins, lease, purchase, and/or conserve 40 cfs of water; resolve 10 irrigation diversion screen problems; restore 105 miles of tributary access; restore 10 miles of complexity; protect 12 miles of riparian habitat, and enhance 12 miles of riparian habitat.

Table 11 Habitat Metrics for List of Known Projects and Estimates for Anticipated Projects for Upper Columbia ESUs

Project Name	Agency	CFS to acquire	# of screens	Miles of access	Miles of complexity	Miles protected	Miles enhanced
MVID East Canal Fish Screens	BPA/USBR		1.0				
Hottell Fish Screen	BPA/USBR		1.0				
Marracci Diversion Reconstruction	BPA/USBR			21.8			
Fulton Diversion Structure	BPA/USBR			30.1			
Chewuch Ditch Diversion Structure	BPA/USBR			22.8			
Rockview Channel Reconnect	USBR				0.7		
MSRF Twisp Ponds Reconnection	BPA/USBR				0.8		
McPherson Channel Reconnection	BPA/USBR				1.0		
Whitehall Unscreened Surface Pump Elimination	BPA/USBR		1.0				
Entiat 4 Mile Push-up Dam Replacement and Screen	BPA/USBR		1.0				
Water Entity Project (CBWTP and Riparian Easement)	BPA	5.0				5.0	
Jones Shotwell Ditch	USBR		1.0		0.2		
Peshastin Irrigation District Lower Diversion	USBR			2.4			
Metrics Total for Contracted Projects		5.0	5.0	77.1	2.7	5.0	0.0
Metrics Totals for Anticipated Additional Projects for Completion by 2007		13.0	2.0	100.0	4.8	4.4	7.6
Grand Total		18.0	7.0	177.1	7.4	9.4	7.6
Near-term Metric Goal by 2007		12.0	5.0	60.0	5.0	4.0	4.0
Long-term Metric Goal by 2010		40.0	10.0	105.0	10.0	12.0	12.0