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Review of

Updated Proposed Action (UPA)
Habitat Projects to Improve Survival of
Upper Columbia River Spring Chinook
and Steelhead

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Review of Updated Proposed Action (UPA) Habitat Projects to Improve Survival of Upper Columbia River Spring Chinook and Steelhead

Background

At the request of the Council and the Bonneville Power Administration (BPA), the ISRP reviewed a set of nine habitat projects in the Columbia Cascade Province intended to help achieve Biological Opinion tributary habitat metric goals for Upper Columbia Spring chinook and steelhead. These projects were submitted to the Council and BPA for funding under the Fish and Wildlife Program. The Bureau of Reclamation (an Action Agency) developed these proposals in coordination with willing landowners, local governments, conservation groups, and tribes. BPA assisted the Bureau of Reclamation in developing the set of projects for Fish and Wildlife Program funding to address needs described under the Action Agencies' Updated Proposed Action (UPA). The justification for these projects is based on NOAA Fisheries analyses that 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 survival improvements are needed for Upper Columbia River spring Chinook and steelhead during their spawning and rearing life stages. To increase survival, BPA agreed to help achieve certain tributary habitat metric goals. 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 set of projects under review are currently scheduled for implementation in fiscal year 2005 and are intended to help achieve milestones set forth and described in the tributary habitat action section of the 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.

The proposals are:

1. Chewuch Dam Barrier Removal (Methow)
2. Fulton Dam Barrier Removal (Methow)
3. Hottell Diversion Headgate and Fishscreen Protection (Methow)
4. McPherson Side Channel Reconnection (Methow)
5. Marrachi Diversion and Piping (Methow)
6. MSRF Side Channel (Methow)
7. Peshastin Creek Diversion and Fish Passage (Wenatchee)
8. Entiat Wells (Entiat)
9. Whitehall Unscreened Surface Pump Elimination (Entiat)

The Bureau of Reclamation (an Action Agency) developed these proposals in coordination with willing landowners, local governments, conservation groups, and tribes. Consequently, these proposals were not generated as part of the Council and BPA's standard project solicitation and selection process. Additionally, this request for an ISRP review came with the proposed projects further down the path of project development and selection than typically occurs for an ISRP review. In fact, planning and design of several of these projects is apparently already underway through other funding sources such as Washington's Salmon Recovery Funding Board, WDFW,

and Douglas County PUD, 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 going toward a total cost of \$1,709,769.

The ISRP was informed in advance that this request was pending and told of the atypical generation of these proposals. In anticipation of the submittal of proposals, the ISRP sent the Council and BPA a memo detailing the type of information the ISRP would need to conduct an efficient review in the short time available. Specifically, the ISRP requested descriptions of the rationale for the projects, the linkage of the projects to subbasin plans, the location of the projects, the restoration methods, and the monitoring and evaluation planned for the projects. The ISRP requested that the proposals should be submitted in the standard proposal narrative format required in typical solicitations such as that for the provincial review process, or outlined in a consistent manner with that format. In addition, the ISRP included a copy of the form that lists criteria used for evaluation of proposals. Documenting the elements of proposed projects consistently is not only important for ISRP review, but is also important for project implementation and program accountability and fairness.

ISRP reviews are based on a determination that projects:

1. *are based on sound science principles,*
2. *benefit fish and wildlife,*
3. *have a clearly defined objective and outcome,*
4. *include provisions for monitoring and evaluation of result, and*
5. *are consistent with the Council's fish and wildlife program.*

In the following text, the ISRP first provides general comments on the set of proposals followed by comments on the individual proposals.

Conclusions and Recommendations

The ISRP reviewed the project descriptions and background information from BPA and Council including relevant language from the Action Agencies UPA. Reviewers examined the projects using the ISRP review criteria and a basic logic pathway of defining the species or group under focus, defining the stressors responsible for depressed condition (or conversely in need of protection), proposing a conservation action/solution to improve or protect the species under focus, and then entering into an adaptive management loop (complete with well-defined hypotheses and a monitoring and evaluation component). In addition, the reviewers tried to discern whether each project tied back into its respective Subbasin Plan or other coordination efforts.

The ISRP found the review difficult to conduct. The proposals as a whole appear hastily prepared, use boilerplate descriptions, and do not follow the formatting and content guidance provided by the ISRP in our memo to BPA and Council. The "proposals" are not stand-alone documents. Most are more "abstracts" than fully developed proposals and are not reviewable except in the context of background materials supplied by the Council and BPA, our prior knowledge of the subbasins involved, and consultations with knowledgeable persons in the Upper Columbia Basin. The proposals and additional materials from BPA do not constitute a comprehensive and organized package to track the origins of the projects or sufficiently justify

the action to those reviewers outside the process. The materials provided generally are not of the quality of proposals reviewed in the provincial reviews. The process employed to select these projects appears very similar to ad hoc project selection processes that were employed before 1997 when the ISRP, Council, and BPA implemented a formal standardized review process. Informal off-cycle submissions, such as these, could erode the improvements in the proposal review process gained over the past eight years with respect to accountability, transparency, and fairness.

Although it is possible that some of these projects could have significant biological merit, these proposals are not technically justified and therefore, are “not fundable” as submitted. The proposals do not provide information necessary to satisfy the ISRP evaluation criteria described in the ISRP’s memo to Bonneville prior to submission. Specifically, this includes:

- (a) Information on technical and scientific background is lacking in most of the proposals. Generalities stated in Bonneville’s letter are insufficient to provide a basis for judging the scientific merit of these individual specific actions. A context needs to be provided that would show how these projects fit into a specific larger-scale plan, with a prioritized set of actions.
- (b) Relationships to subbasin plans are poorly defined.
- (c) Descriptions of relationships to other projects are not provided.
- (d) Discussions of monitoring and evaluation are inadequate.

In broad terms, BPA’s submittal describes the development of these proposals as being a coordinated effort with the Bureau of Reclamation and local entities with significant potential cost-share from the Upper Columbia Salmon Recovery Board (UCSRB), Douglas PUD, and WDFW. The proposal packet would have been improved by further describing how the projects fit in with these other efforts underway in the Columbia Cascade, such as the Upper Columbia Salmon Recovery Board (UCSRB) and the Habitat Conservation Plans of the Mid-Columbia PUDs. Bonneville’s submission, while it refers to the Washington State Salmon Recovery Fund and the Upper Columbia (SRF) Board, neglects the fact that the SRF Board and the Habitat Conservation Plans (HCPs) of Douglas and Chelan County PUDs have in place an institutional mechanism for coordinating their efforts toward habitat improvement for salmonids in tributaries in the Upper Columbia Region (Council’s Columbia Cascade Province). A Regional Technical Team (RTT), which reports to the SRF Board, provides technical review of proposals for habitat improvement and ranks them according to scientific merit. Several of the proposals submitted for ISRP review had previously been reviewed by the RTT and considered by the SRF Board for funding. Results of those reviews and funding decisions were not provided to the ISRP.

Considering the different roles of these various entities in the Columbia Cascade province, the ISRP feels it is essential that the Council and BPA work with the SRF Board and the PUDs to develop a coordinated, unified process to identify projects and implement measures aimed at restoration of habitat for salmonids in the Upper Columbia Basin. This coordinated process should streamline the proposal submittal and scientific review; i.e., so proposals are developed that apply to the various funding sources and the ISRP, Recovery Board, or other independent agency conducts a coordinated review of the proposals.

The materials provided do not adequately describe the project selection process, other than to refer to sources that identify "habitat improvement" in general as an approach that would be expected to lead to benefits for chinook and steelhead. There are no criteria given for selection and prioritization of projects. Some of these proposals have been reviewed by the Regional Technical Team of the Upper Columbia River Salmon Fund Board and the HCP process. A question arises as to their relative ranking with other proposals. What projects were not funded? Any? Relative to this point, Chuck Pevan has developed a "Framework for Strategies Under the Entiat Subbasin Plan", November 2004, for the planning committee of the HCPs. This document lays out a logical process for prioritizing projects. The entire ISRP has not officially reviewed this framework document, but it is cited here as a useful example for project prioritization. The steps in the process are based upon: 1) the target species (prioritized); 2) primary limiting factors; 3) list of strategies for dealing with those; 4) comparison of feasibility (with benefits and costs); and 5) final assignment of priorities. A process like this appears to be a missing step in the selection of these projects that are purported to be aimed at the UPAs. The "Prioritization Framework..." and other prioritization frameworks presented in subbasin plans deserve consideration as a method for sorting out proposed projects under the UPAs, HCPs, and BPA project funding.

General Comments on the Set of Proposals

In our earlier memo we requested information on a few topic areas. BPA's memo provided some responses to our request. Included below are some comments on the various issues.

Subbasin Plans

The BPA memo describes an effort to compare the projects with the subbasin plans, and there are short statements about subbasin plans in the brief project summaries, noting that they fit the plans and their limiting factors. While the projects fit the general thrust of the plans, a closer tie-in would demonstrate some thoughtful consideration of strategic vs. opportunistic thinking. In most cases, the subbasin plans identified the primary stressors in the watersheds (EDT-based). Regardless of whether or not the EDT analysis was perfect, it would provide a key indication of what is going on in the basin. If poor passage is the key stressor, then passage needs to be addressed.

Objective, Tasks, and Methods

Most project descriptions contained an overly brief description of objectives, tasks, and methods befitting one-page summaries of what are mostly construction projects; however, most failed to provide a rationale for why certain approaches were taken. Additionally, most of the proposals did not describe the expected outcomes (e.g., project benefits and magnitude). Outcomes could have been cast as hypotheses, which could be evaluated after completion of the project.

Active Restoration

BPA notes all of the projects submitted in this review set are active construction projects. It was not evident that alternatives including passive approaches were considered in any of the proposed projects. In previous reviews (e.g., the Provincial Review Process), the ISRP has expected project sponsors to discuss several potential solutions to a problem in their proposals before justifying their preferred approach.

Monitoring and Evaluation

A robust and rigorous monitoring design was not part of any project write-up. We have only the BPA assurance that more will be done, either as part of the project or by some other entity on a broader scale. The ISRP review criteria (as specified in the 1996 Amendment to the Power Act) require that projects have associated M&E components, either internal to the project or as part of a regional coordinated effort. Details need to be provided in each proposal, even if the monitoring effort is being overseen by another project. Additionally, linkages for cooperation and coordination with regional monitoring efforts, such as the Wenatchee habitat action effectiveness proposal, the Action Agencies' RME plan or the HCPs, need to be identified. Monitoring and evaluation efforts underway as part of the SFRFB are generally described, but additional details are needed.

One approach to evaluating project success and effectiveness is to employ a BACI (before-after-control-impact) study (Smith et al. 1993CJFA 50:627-637) by documenting "pre-construction data" for habitat and fish population distribution and abundance in the form of summary statistics for each of these projects with adequate references to the primary data, where they are stored, and the sources of the metadata. Comparison with "post-construction" data should be part of the requirement for funding.

Comments on the Specific Proposal

1. Chewuch Dam Barrier Removal (Methow)

The proposal describes good collaboration and planning from the SFRFB document. This is a good example of collaborative funding. Completion of the project could have significant benefits to salmon/steelhead, although these benefits are not documented because of the lack of pre-project data on, for example, current spawner abundance. The proposal also lacks a clear monitoring program that would document post-project changes in spawner density. Species of interest/focus are defined (UCR spring Chinook & summer steelhead ESUs and bull trout – coho have been extirpated) as are the primary stressors affecting less than desired productivity and population capacity (i.e., artificial barriers to passage, reduced flows and redd exposure during freezing, and sedimentation from uncontrolled erosion). The primary hypotheses (while not explicitly stated) associated with the proposed actions are that passage would be improved thru this project and that ditch and dam renovation would avoid redd stranding/exposure. Reviewers assume that there are existing screens that currently prevent juvenile salmonid entrainment, and that topic was not addressed in the proposal because it is not an issue.

The project refers to the Subbasin Plan, although no specific detail is provided.

There is no real adaptive management information loop provided to evaluate claims of improvement (although these seem reasonable) and no specific detail for monitoring and evaluation. Presumably, the proposers will have some idea of the kinds or magnitude of response this action might provide – these should be included.

The project description has one main problem; it is not stated what is meant by "rebuild...to current standards". The standards are not given and the specific objectives, methods, and tasks

are not provided. The SRFB application provides more of this information, but in a very scattered fashion.

2. *Fulton Dam Barrier Removal (Methow)*

The format here is the same as for the Chewuch Dam project; that is, a one-page abstract and the SRFB application. The abstract is satisfactory, as it states that a v-weir dam is to be built. This project seems a necessary precursor to the Chewuch Dam passage project, else that one will have little need for passage. This brings out the need for an overarching justification for the project. The combination of the remake of the Fulton Dam near the mouth and the Chewuch Dam at RM 8 makes a combined project to reestablish salmon, steelhead, and bull trout in the Chewuch River. The combination might have been better described.

Species of interest/focus are defined (UCR spring Chinook & summer steelhead ESUs and bull trout – coho have been extirpated) as are the primary stressors affecting less than desired productivity and population capacity (i.e., artificial barriers to passage). The primary hypothesis (while not explicitly stated) associated with the proposed action is that passage would be improved thru this project. However, no protocol for testing the hypothesis through monitoring post-project changes in spawners is proposed.

The project refers to the Subbasin Plan, although no specific detail is provided.

Although the application gives some of the needed details for evaluation of the project, there is no real adaptive management information loop provided to evaluate claims of improvement (although these seem reasonable) and no specific detail for monitoring and evaluation. Presumably, the proposers will have some idea of the kinds or magnitude of response this action might provide – these should be included.

3. *Hottell Diversion Headgate and Fishscreen Protection (Methow)*

The one-page (plus a little extra) abstract was sufficient to identify the need, the objective, and a straightforward solution, which is a installation of a headgate upstream of a screen on an irrigation canal plus a wasteway to carry off high runoff water not needed in the ditch. The project should benefit salmon and steelhead.

Species of interest/focus are defined (UCR spring Chinook & summer steelhead ESUs) as is the primary stressors affecting less than desired productivity and population capacity (i.e., entrainment and stranding of juveniles from poorly functioning fish screens). The primary hypotheses (while not explicitly stated) associated with the proposed actions is that juvenile survival would be improved in passage at this project through reduced stranding.

The project refers to the Subbasin Plan with sufficient detail and consideration.

There is no real adaptive management information loop provided to evaluate claims of improvement (although these seem reasonable) and no specific detail for monitoring and evaluation. They do refer to redd and snorkel surveys, which indicates that some level of *in situ*

monitoring is ongoing and could help with the evaluating the project action's response. Presumably, the proposers will have some idea of the kinds or magnitude of response this action might provide – these should be included.

4. McPherson Side Channel Reconnection (Methow)

A 4-page proposal outlines this project, which is to rehabilitate an old side channel of the lower Chewuch River with headgate, channel improvements, and improved access at the mouth. Species of interest/focus are defined (UCR spring Chinook & summer steelhead ESUs and bull trout) as are the primary stressors affecting less than desired productivity and population capacity (i.e., riparian, instream, and floodplain habitat degradation).

The proposed action is an active restoration project that is relatively expensive as compared to the other proposed projects. The primary hypothesis (while not explicitly stated) is that juvenile survival would be increased through improved rearing habitat conditions in the side channel. The proposal contains little information to predict the extent of gain in juvenile salmonid rearing or to evaluate the effectiveness of the project. It is uncertain whether the effluent will be of sufficient quality for rearing (issues of discharge quantity appear addressed). It is unclear if winter rearing habitat, which could be more in short supply than summer rearing habitat, would be created. If it is, this might be a cost-effective project; if it is not, the funds would be better spent elsewhere. Furthermore, methods for clearing accumulated sediment within the channel via flood-type flows and food productive capacity in the channel are not addressed. Nor are efforts to restore riparian vegetation along the channel margins.

The project refers to the Subbasin Plan with sufficient detail and consideration.

There is no real adaptive management information loop provided to evaluate claims of improvement (although these seem reasonable) and no specific detail for monitoring and evaluation. They do refer to redd and snorkel surveys, which indicates that some level of in situ monitoring is ongoing and could help with the evaluating the project action's response. Presumably the proposers will have some idea of the kinds or magnitude of response this action might provide – these should be included.

5. Marrachi Diversion and Piping (Methow)

The one-page abstract of the project on Beaver Creek (tributary to the Methow downstream of Twisp), which is to replace an annual push dam with a permanent v-weir and headgate into the diversion, plus piping the ditch to reduce infiltration and allow more water to remain in the creek. Specifically, eliminating infiltration water loss by piping “could result in a return to the stream of 1.0 to 1.5 cfs of flow”.

Many uncertainties surrounding this project make it a poor candidate for funding. Moreover, funding of this project is not justified unless the proposed water gain can be achieved and the increased flow dedicated to instream use for salmonids. It is unclear in the proposal by what percentage this flow augmentation will increase current flows (relative flow gain based on hydrological assessment). What will be the water quality characteristics of the irrigation return

water? How much of the stream will benefit from this increased flow? Will the increased water simply be withdrawn further downstream? What assurance is there that the “new” water will not be spread by the user to irrigate new private land or would not be appropriated immediately downstream. We are concerned whether this project can be effective in the absence of dealing with the problem of blockage downstream at the “Fort Thurlow” project. No mention is made of this in the proposal.

Species of interest/focus are defined (UCR spring Chinook & summer steelhead ESUs and bull trout) as are the primary stressors affecting less than desired productivity and population capacity (i.e., poor passage, low flows, poor water quality). The primary hypothesis is not explicitly stated and therefore unclear as to which life stages will benefit from the actions (presumably adult passage and juvenile survival from increased flow, but proposal should describe better).

Given all the problems with this stream, including naturally low flows, apparently extensive dewatering due to irrigation withdrawal, and presence of non-native brook trout, it is questionable whether this project will have much positive impact on salmonids. Fish passage benefits are claimed, but to what extent they would accrue to rainbow/brook trout (vs. bull trout /salmon/steelhead) is not clear in this particular situation. What is the threat to bull trout from brook trout and their hybrids? Will increased flows and passage be helpful/harmful/neutral in regard to bull trout? This threat is not addressed, but perhaps this is done elsewhere.

The project refers to the Subbasin Plan with sufficient detail and consideration.

There is no real adaptive management information loop provided to evaluate claims of improvement (although these seem reasonable) and no specific detail for monitoring and evaluation. Presumably, the proposers will have some idea of the kinds or magnitude of response this action might provide – these should be included.

6. MSRF Side Channel (Methow)

The one-page abstract outlines this project on the Twisp River, which is to rehabilitate an old side channel that had been turned into a series of ponds. A headgate at the upper end of the old side channel would supply water to the ponds (now provided by pumps from the river). The ponds would provide natural rearing for Chinook and steelhead. A site plan was provided. Species of interest/focus are defined (UCR spring Chinook & summer steelhead ESUs). The primary stressors affecting less-than-desired productivity and population capacity are referred to, but in general for the Methow Subbasin, rather than for the specific area.

The proposal was brief, confusing, and poorly prepared (incomplete sentences, spelling and punctuation errors). It was not clear in the proposal which three ponds are used for hatchery acclimation and which two would be for native fish, and how the two groups of fish would be segregated (or would they be?). The ISRP remembers this site from the provincial review site visit, and reviewers recall the focus was on hatchery acclimation ponds. If indeed this provides new winter rearing habitat it might be valuable, but a leap of faith is needed with this minimal proposal.

Many of the ISRP's comments on the McPherson Side-Channel are relevant to this project. Specifically, the proposal contains little information to predict the extent of gain in juvenile salmonid rearing or to evaluate the effectiveness of the project. Furthermore, methods for clearing accumulated sediment within the channel via flood-type flows and food productive capacity in the channel are not addressed. Nor are efforts to restore riparian vegetation along the channel margins.

The project refers to the Subbasin Plan, but with little detail and consideration.

Because this is an ongoing project, the ISRP was surprised that no information was provided as to the effectiveness of ongoing side channel nursery work. There is no adaptive management information loop provided to evaluate claims of improvement (although these seem reasonable) and no specific detail for monitoring and evaluation. Presumably the proposers will have some idea of the kinds or magnitude of response this action might provide – these should be included. The primary hypothesis is not explicitly stated. Yet, the project appears to have possible merit for providing important nursery areas for salmon and steelhead. It is said to be occurring at some level already using pumps – this project will take advantage of gravity feed of flow.

7. Peshastin Creek Diversion and Fish Passage (Wenatchee)

The proposal is one paragraph long, and the background information on the set of proposals indicates that BPA funds are not requested. There is really nothing to review. No information or tie in with Subbasin Plan is provided. No focal species are identified that will benefit from the action. No indication of what the primary stressors are or how this will address these. No clear picture is presented as to what will actually be done. What will benefit and to what magnitude? There is no Monitoring and Evaluation within an adaptive management loop.

8. Entiat Wells (Entiat)

This proposal has little to review, as it contains only detailed specifications for drilling a well. No context or justification is provided. The proposal is not reviewable and cannot be supported. There is no information or tie in with Subbasin Plan. No focal species are identified that might benefit from the action. There is no indication of what the primary stressors are or how this will address these. No clear picture is presented as to what will actually be done. What will benefit and to what magnitude? There is no mention of Monitoring and Evaluation within an adaptive management loop.

9. Whitehall Unscreened Surface Pump Elimination (Entiat)

The one-page abstract accompanied by maps and photos proposes replacing unscreened pump intakes with wells. Is this the project for which the “Entiat Wells” are intended? Insufficient background is provided. There is no information or tie in with the Subbasin Plan. No focal species are identified that might benefit from the action. There is no indication of what the primary stressors are or how the proposed actions will address these. No clear description is presented as to what will actually be done. What will benefit and to what magnitude? There is no discussion of monitoring and evaluation within an adaptive management loop.

This project is portrayed as benefiting fish by reducing entrainment, and generates two issues. First, is the current unscreened operation in violation of statutes and is there a requirement to remedy it? Second, shouldn't the project result in new water remaining inchannel? Why no mention of this? If that will not result, there is no justification for funding this project.

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