Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Memorandum (ISRP 2009-11) **April 10, 2009**

To: Tony Grover, Fish and Wildlife Division Director, Northwest Power and Conservation Council

From: Eric Loudenslager, ISRP Chair

Subject: Final Review of Scope Expansion for the Project *Reestablish Connectivity and Restore Fish Habitat in the East Fork of the South Fork Salmon River Watershed* (project #200712700)

Background

At the Council's March 9, 2009 request, the ISRP completed its review of a scope change submittal for the Nez Perce Tribe's project *Reestablish Connectivity and Restore Fish Habitat in the East Fork of the South Fork Salmon River Watershed* (project #200712700). This review takes into account the Tribe's response to our January 2009 review of this scope change, in which we asked for a response to a number of issues (see appendix). The Tribe responded by revising their proposal and limiting the scope of their request to Fiscal Year 2009 activities.

ISRP Recommendation

Meets Scientific Review Criteria (Qualified).

Further work is needed to provide adequate monitoring and evaluation to confirm that sedimentation is the limiting factor and to demonstrate likely benefits to fish. These monitoring and evaluation improvements should be reflected in the project history and evaluation of activities in the next proposal review.

Satisfactory responses were provided for most of our concerns identified in the January 2009 scope change review. The section on implementation monitoring and other monitoring and evaluation (pg. 9) was not as detailed, but the implication was that the Integrated Status and Effectiveness Monitoring Project (ISEMP) would provide, at least via modeling if not using before-after surveys, the necessary detail to assess the biological effectiveness of the fish passage and road decommissioning planning and efforts. We encourage the further development of monitoring and evaluation actions that indicate the quantitative value of the planned efforts in terms of juvenile abundance, and in particular, smolt yield as the key response variable. This evaluation would most

appropriately be in a control-treatment based adaptive management experiment in cooperation with other rehabilitation works in the subbasin or province.

One aspect of the original proposal that was not included in the revised version was the reconstruction of a section of the Sugar Creek floodplain. It was not clear whether this project was eliminated from the proposal – we assume it has been. According to the cover letter, "The revised proposal submitted here is only working on fish passage and road decommissioning." The detail that was provided on the latter aspects was technically thorough and complete.

ISRP Summary

In our preliminary review, we acknowledged that the proposed projects might make a substantial contribution to the restoration of aquatic ecosystems in the South Fork Salmon River, but that the proposed set of projects were not described fully enough to allow a scientific evaluation. Consequently, we asked the Tribe to provide:

1. meaningful biological justification for the proposed effort, with ties to fish habitat and fish populations, beyond basic identification of the target species,
2. discussion of sediment levels in the South Fork tributaries and the extent to which they are detrimental to fish,
3. evidence to show that the proposed actions would significantly reduce sedimentation,
4. justification for the proposed conservation easement for 0.75 miles of streamside habitat on Johnson Creek, from the Rocky Mountain Elk Foundation, and,
5. a description of monitoring sufficient to properly gauge project success.

On the positive side, the response provided much information that clarified some of the confusion that arose from the initial request. The response gave a clearer idea of the project scope and work planned and accomplished. Photos and maps were very helpful. From the proposal, "The FY09 Statement of Work for this ongoing project includes the replacement of 3 fish passage barrier culverts (Salt, Profile, and Parks Creeks), decommissioning of 10 - 20 miles of roads within the South Fork Salmon River watershed, continued road surveys and transportation planning in tributary sub-watersheds, and fish barrier data collection for the entire South Fork Salmon Subbasin from both the Payette and Boise National Forests to identify future high priority restoration projects. The 3 barrier culvert replacement project designs and specifications for implementation in 2009 were completed last spring by NPT DFRM – Watershed staff and are all free-span, pre-cast concrete bridges. Construction implementation of the 3 bridge projects is scheduled for completion by October 31, 2009." Overall, this is a good plan.

There were some strengths here. One was the emphasis put on planning, inventory, and prioritization of road decommissioning. Perhaps less clear were the parameters used in prioritization – was priority given to work nearest to streams with the best restoration potential? Perhaps the Watershed Erosion Potential Prediction (WEPP) roads analysis

protocol (pg 20) and subsequent contract report will provide more detail on the process of this prioritization.

In more critical review, only one of the five items listed above was fully addressed by the response, and ironically that was the easement (item 4) which has been put on the back burner. The additional detail provided on the easement site makes pursuing it more logical now compared with its initial mention, and we suspect it shall appear as a worthwhile work element in subsequent proposals.

In further consideration of the details in the response to the five points raised in our January 2009 review:

1.) The justification for the proposed projects is improved over the original version of the proposal. The general area in which road work will be conducted does have road erosion problems and the road segments to be treated are being assessed and prioritized prior to the application of treatments. All the passage-blocking culverts that will be replaced have considerable lengths of usable fish habitat above them. However, the quality and fish production capacity of the habitat made available was not discussed. In fact, no attempt to quantify the potential benefit to fish populations inhabiting the watersheds where restoration treatments will be applied was included in the response to our earlier review. Nonetheless, the added material does improve the justification for the proposed projects.

2.) No information on the sediment levels in the South Fork Salmon River was provided. The fact that erosion is an issue in the watershed, especially in areas underlain by the Idaho Batholith, was emphasized. Batholith areas exist throughout the Coast Mountain Range and elsewhere, and exfoliating events exist, but may not be the underlying cause that limits fish population abundance – evidence for this was lacking. Perhaps some evaluation of this issue has been included in habitat assessments that have been conducted in the area, but that was not included or summarized in the response. Including this information in the proposal would have addressed this deficiency.

3.) The photos and the expanded description of the work elements indicated that the methods being used to decommission roads are proven to reduce sediment generation. The original proposal included a project to recontour the floodplain along a section of Sugar Creek. This work element appears to have been eliminated from the revised proposal. Our request for clarification on the original proposal includes some questions about this aspect of the proposal. Has the work on the Sugar Creek floodplain been eliminated?

4) Conducting an evaluation of the potential value of the easement and undertaking some of the preliminary coordination of the effort seems a reasonable first step.

5) The monitoring and evaluation section is much improved over that presented in the original version of the proposal, yet remains incomplete. A more complete description of how the monitoring and evaluation activities being conducted by others in the area will

provide information relevant to the specific projects being proposed would have been useful.

Reviewers continue to have a fundamental difference of opinion with the NPT DFRM – Watershed Division regarding (a) the extent to which projects are directly tied to fish (items 1 and 2 above) and (b) monitoring and evaluation, beyond some basic assessment of implementation (items 3 and 5). The proposal states: "The NPT DFRM – Watershed Division believes that effective restoration projects must be approached at a ridge-top to ridge-top watershed scale; consequently, this proposal includes restoration across the entire watershed based on limiting factors identified in the Salmon Subbasin Plan." Thus, work is conducted to address what is presumed to be the limiting factor throughout the system. In contrast, the more appropriate approach taken elsewhere has been to first gather the data on target fish species by life stage for each stream reach, then analyze (EDT or similar) to determine limiting factors and subsequent actions needed to protect, restore, or increase fish production. For example, some reaches may be limited in available spawning habitat (e.g., high gradient boulder reaches) while others may lack rearing habitat (e.g., logged to the streambank and lacking LWD, or with high summer temperature) or lack food resources due to low or a limiting nutrient level, whereas low gradient sediment-laden reaches may lack both spawning and rearing habitat. It is unlikely that a single factor applies throughout. A full survey is usually required to develop the analyses and then prioritize restoration tasks. While approaches may differ, the ISRP seeks a generally standardized and/or consistent science-based approach to watershed assessment, prescription, rehabilitations as well as monitoring and evaluation, as emphasized in our initial review. Manuals for such differ slightly among Oregon, Washington, British Columbia, California, and elsewhere; e.g., OR Watershed Assessment Manual 1996; Johnston, N.T. and P.A. Slaney. 1996 (Fish habitat assessment procedures. B.C. Min. Environ., Lands and Parks, and B.C. Min. For., Victoria, B.C. Watershed Restoration Tech. Circ. No. 8.), but the basic approach and format employs a systematic assessment. The approach articulated in the quote from the proposal above assumes that some good will come from the application of measures to reduce sediment production, regardless of where in the watershed that action is taken. This assumption may be true, but this approach is a very inefficient way to allocate limited restoration resources. A more science-based approach considers each individual stream segment and its fish populations, by life stage and species, taking note of the important habitat attributes and fish abundance, in representative or randomly-selected (or all) stream segments, then following this with a listing, in order of priority, of the efforts needed for restoration and preservation by reach. The next steps are to complete the rehabilitation effort, and follow this with efforts to gauge effectiveness, for which the ISRP seeks a monitoring and evaluation plan.

Regarding monitoring and evaluation, the proposal states that monitoring beyond implementation monitoring "will be conducted by USFS Payette NF and Nez Perce Tribe staff and will include snorkeling for presence and abundance, water temperature data collection, stream longitudinal profiles, stream cross-sections, and sediment delivery measurements." As noted above, further development of a monitoring and evaluation plan is expected in the next proposal for this project.

Attachment: ISRP 2009-1 Response Request, January 15, 2009

Background

At the Council's November 2008 request, the ISRP reviewed information proposing a change in scope for the project *Reestablish Connectivity and Restore Fish Habitat in the East Fork of the South Fork Salmon River Watershed* (#200712700). For the Fiscal Year 2007-09 review, the ISRP found that the originally proposed project met scientific review criteria,[1] the Council did not recommend funding the project, but BPA funded the project as part of its Implementation Planning Budget. After that, the project was changed from what was originally proposed in FY 2007-09 and reached us after iterations with the Budget Oversight Group, Council, and BPA.

This project originally intended to reestablish fish passage through a 30-foot tall cascade - the Glory Hole - and rehabilitate one mile of fish habitat through a degraded reach of the upper mainstem East Fork of the South Fork Salmon River. Since the time of the initial project development, the land-owner of the Glory Hole river reach entered into a lease-to-purchase option with a gold mining company; consequently, the reach is now inaccessible for habitat-enhancement activities. Therefore, early in 2008, the sponsors (Nez Perce Tribe) proposed a change in the area and scope of this project in relation to other high-priority needs of the South Fork Salmon River identified in collaboration with the U.S. Forest Service. The proposed change addresses fish passage (i.e., culverts), road decommissioning and relocation, and riparian habitat enhancements in the South Fork below the original project site. In May 2008, the Council and BPA approved the scope change, without ISRP review, but with the understanding that the approval was for only Fiscal Year 2008 and 2009 and that out-years are dependent on outcomes of future project reviews.

In September 2008, the Nez Perce Tribe requested an additional scope modification to pursue a fish passage project on Parks Creek and a conservation easement on the Wapiti Meadows Ranch on Johnson Creek. In November, the Council thought the project had changed enough in scope to warrant an ISRP review.

Our review follows below.

ISRP Recommendation: *Response Requested, Currently Does Not Meet Scientific Review Criteria*

The proposed projects may very well make a substantial contribution to the restoration of aquatic ecosystems in the South Fork Salmon River. Activities such as decommissioning roads, paving bridge approaches, removing barriers, revegetating old road and trail beds, and perhaps even placing large woody debris (LWD) and securing conservation easements may be required and might produce increased productivity or capacity.

[1] www.cbfwa.org/solicitation/components/forms/Proposal.cfm?PropID=448#part2

However, the proposed set of projects are not described fully enough to allow a scientific evaluation of whether they are technically justified and, thus, might provide benefit to fish and wildlife resources. Consequently, the current proposal Does Not Meet Scientific Criteria for proper evaluation.

There are four objectives. Two of those (Objective 1, administration, and Objective 4, to increase public awareness) fall outside an ISRP review. Objective 3, to reestablish connectivity, was apparently completed in 2008. Therefore, this review applies primarily to Objective 2, to reduce sediment delivery to anadromous fish streams.

We conclude that further meaningful biological justification is needed for the proposed effort, and that it must be tied to fish habitat and fish populations, other than just identifying the target species. There is inadequate discussion of sediment levels in the South Fork tributaries and the extent to which they are detrimental to fish. Sufficient information is not provided to show that the proposed actions would significantly reduce sedimentation. Adequate justification is not given for the proposed conservation easement for 0.75 miles of streamside habitat on Johnson Creek, from the Rocky Mountain Elk Foundation. The monitoring described is not sufficient to properly gauge project success; only a rather vague mention is made of compliance monitoring by the USFS in the general vicinity. These information gaps should be addressed in a response.

ISRP Comments

Some of our comments may pertain to actions that have already been done, as the proposal has work elements that were scheduled to be completed in FY 2008. But even if the work elements are completed, our comments may inform similar actions that might be pursued in the future.

1. Technical Justification, Program Significance and Consistency, and Project Relationships (sections B-D)

This proposal only provides a generic technical rationale for the planned restoration activities. Reduction in sediment delivery, improved access to floodplain areas, and replacing culverts that restrict fish passage are all very likely to be worthwhile activities. However, little technical information is provided on the selection criteria and process for locations where these activities will be implemented. It is not clear if the project locations or activities are the highest priority within the South Fork Salmon River watershed. Similarly, the purchase of the conservation easement for Wapiti Meadows Ranch may be a very significant conservation action, but only if the ranch possesses some unique or critically important ecological attributes that would benefit from the conservation easement, and be potentially lost without the easement. Insufficient information is provided to substantiate the conservation easement.

The Salmon River Subbasin Plan, on page 63, identified several issues of concern in general terms in the East Fork of the South Fork, including: reductions in riparian vegetation, bank instability, sediment sources due to grazing, water diversions for

irrigation, and fine sediment. It did not specifically identify in technical detail any of the proposed actions in this scope expansion as priorities.

There was no experimental or empirical evidence presented or cited that sediment limits anadromous fish here, and at which life stage. Others have attempted modeling when empirical data was lacking, such as EDT. Assessments from the subbasin plan, BiOp, and possibly other watershed analysis are needed to 1) establish the potential smolt capacity and 2) indicate how the productivity and/or capacity might be improved by the actions proposed. Without this information it is not clear whether the limitation to production might primarily be out-of-basin and oceanic, on the smolt-to-adult stage. Thus, reduced escapement might be the cause for low yield of wild smolts, so low that it is possible that juvenile production is not limited by habitat quantity (much could be vacant), nor limited by habitat quality (unless the list of contaminates and heavy metals, or level of sedimentation is demonstrated as limiting, and the life stage is identified).

Sugar Creek is mentioned only once in the subbasin plan, and this in reference to contamination with heavy metals from mining activity along one of its tributaries. It is unclear if the level of contamination is a higher priority than, say, culvert replacement or sedimentation. Perhaps the contamination problem has been addressed, but no information on that point is provided.

There is no mention of Ruby Meadows, Vibika Creek, and Wapiti Meadows Ranch in the subbasin plan. If these watersheds are high priorities for the restoration of fish populations in the South Fork Salmon River watershed, it seems reasonable that they would have been identified as such in the subbasin plan. Since the project sites were not mentioned in the subbasin plan, a clear and complete explanation as to why these locations are now important should have been included in the proposal to more adequately justify the projects.

The ISRP seeks reference to an adequate watershed assessment and subsequent prescription plan, along with the rehabilitation priorities and actions, to be followed by a reasonable monitoring and evaluation plan. The sponsor mentions an assessment following the 2007 fire in the area, but we are provided no reference to documentation of that assessment. We must see at least the summary and reference to reports that detail methods and standard procedures from which the list of rehabilitations was developed. The Crosswalk document lists the removal of passage barriers and channel improvements in relation to needs in this subbasin, but the detailed information of instream habitat, riparian, gully, and hillslope assessments and their treatment, and linkage to fish yield, are lacking or not referenced.

2. Objectives, Work Elements, and Methods (section F)
General objectives of the proposed projects are provided in Table 2, but specific objectives for each project are not included. Very few details are provided regarding the work elements and methods. Each work element is described in a brief paragraph, but virtually no detail about the manner in which the work element will be accomplished is

provided. Therefore, it is not possible to determine whether or not the proposed approach is likely to be successful. Some specific examples of the deficiencies follow.

Work Element A-F (Collect/Generate/Validate Field and Lab Data) proposes a road inventory in South Fork/Lower Secesh, Ruby Meadows, Sugar Creek, Vibika Creek, and Antimony Ridge Mine to identify sites for decommissioning. No detail on how the survey will be conducted and what information will be collected is provided. We seek criteria and standard procedures that will be used to determine whether or not a road should be decommissioned. The surveys should also collect information that could identify sites where actions short of decommissioning (e.g., improved road drainage, better surfacing material) might contribute to reduced sediment delivery to streams, or other options, but these are not presented. Photo 1 provides a clear example of a road crossing that might require attention, but there is no information or evidence on the seriousness of sediment delivery from this source. Under Work Element E. Install Fish Passage Structure (184), no information is given at all. Work Elements A-F are basically to decommission up to 20 miles of road within South Fork/Lower Secesh by re-contouring roads back to natural topography and to decommission up to 15 miles of road network in Ruby Meadows by re-contouring roads back to natural topography, which is intended to reduce surface erosion and sediment delivery to streams. This seems like a reasonable effort for many reasons, but without additional information it is not possible to evaluate whether fish habitat would be significantly improved.

Work Element H would recontour the floodplain, but an explanation of why or how is lacking. Such an approach, involving replanting and large woody debris (LWD), is unjustified based on the information presented. More site-specific detail is required. What will the recontouring criteria be? For example, will it be based on a preferred width/depth ratio for the channel? How will the large wood be incorporated – singly or in groups? Will wood pieces be anchored to the bed or bank or installed adopting Dr. Tim Abbe's design approach? Will the riparian plantings use a soil bioengineering approach, and if so which one(s)?

Work Elements I-K: Approximately 5 miles of the Sugar Creek road would be converted to a trail to minimize sediment delivery to the stream. This might be a worthwhile endeavor, but more details are needed. Why is a trail needed here compared to decommissioning and revegetation, and what are the alternatives? The claim is made that this conversion will provide improved access to the floodplain. Improved access to floodplain habitat implies that the conversion from a road to a trail will either include frequent culverts or bridges that will enable aquatic species to move upslope of the trail or the trail will be relocated outside of the floodplain. Not enough detail is provided for this work element to determine what will be done on the trail to improve access. Photo 3 indicates that this road runs along the channel of Sugar Creek. If this is the case, a trail may still generate and deliver significant amounts of sediment to the stream. It also is unclear why this road was selected for treatment before the road inventory was completed (work element A). If the judgment was made that this section of road is so obviously problematic (as the photo indicates) that it can be identified as a priority without the benefit of the full road inventory, that is fine. But the rationale for making this judgment

should be included in the proposal. Replacing Parks Creek, Salt and Profile culverts with *clear-span* pre-cast concrete bridges should be considered.

Work Element M: Conduct Pre-Acquisition Activities. Insufficient detail was provided on activities that must be done prior to acquisition of the conservation easement for Wapiti Meadows Ranch.

Work Elements N-O: TBL Work. This work element relates to activities that need to be completed prior to securing the conservation easement for Wapiti Meadows Ranch. It includes items such as appraisals, development of an MOA, real estate negotiations, survey/photogrammetry, and GIS work. These activities appear to not differ from those that would be included under Work Element M. Nonetheless, a clear connection to the subbasin plan and justification for the conservation easement as it relates to target species was not provided.

3. Monitoring and Evaluation (sections G and F)

A brief mention of Implementation Monitoring is included in section C. However, very little detail is provided. Monitoring and evaluation is not adequately addressed in this proposal. The proposal indicates that pre- and post-construction habitat and biological monitoring will occur but no detail of what measures will be included or how they will be collected is provided. It is noted that Payette National Forest biologists will conduct monitoring that includes "snorkeling, water temperature data collection, and sediment delivery measurements." However, it is not clear whether or not these USFS monitoring efforts will occur at the sites where the projects will be implemented. The only other mention of monitoring is in Objective 2-Work Element L Analyze / Interpret Data which states "Analyze biological and habitat data to determine project efficacy." However, no information is provided about experimental design, what parameters will be measured, what methods will be used to collect these data or how it will be analyzed and interpreted.

An improved explanation of monitoring and evaluation is required that develops indicator sites or other reasonable evidence of success, and is preferably tied to the overall subbasin M&E for habitat projects – see the Metrics Review (ISRP 2008-7) and comments under effectiveness monitoring of habitat rehabilitation projects in the 2007 Retrospective Report (ISRP 2007-4). In addition, a review of comments on adaptive management in the retrospective report might assist with focusing monitoring and evaluation in this subbasin.