



Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Memorandum (ISRP 2009-8)

March 27, 2009

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

From: Eric Loudenslager, ISRP Chair

Subject: Final Review of the Proposed Scope Expansion of the Project *Restore Potlatch River Watershed* (#200206100)

Background

This review is the ISRP's final review of information supporting a scope change for the Latah Soil and Water Conservation District's (Latah SWCD) project *Restore Potlatch River Watershed* (200206100). This review began with the Council's November 2008 request for us to review the Conservation District's scope change request. We reviewed that information, and on December 19, 2008, we requested a response, see attachment below. On February 23, 2009, we received the response, and this memo considers that response and the original submittal.

The Conservation District requested the addition of select work elements to the existing project to address significant limiting factors as outlined in the Potlatch River Watershed Management Plan. The work elements are designed to address upland issues as well as instream habitat and riparian issues.

The work elements include:

- WE#27 – Remove Debris
- WE#29 – Increase Instream Habitat Complexity
- WE#30 – Realign, Connect, and/or Create Channel
- WE#33 – Decommission Road/Relocate Road
- WE#84 – Remove/Install Diversion
- WE#181 – Create, Restore, and/or Enhance Wetland
- WE#184 – Install Fish Passage Structure
- WE#186 – Operate and Maintain Habitat/Passage/Structure

This action is addressed in the recently signed Memorandum of Agreement between the State of Idaho and the FCRPS action agencies.

ISRP March 2009 Final Recommendation

Meets Scientific Review Criteria (In Part)

Although the ISRP realizes that considerable habitat degradation has occurred in the lower Potlatch River watershed and that restoration is needed, the Latah SWCD proposal to add eight work elements to its existing BPA contract did not provide sufficient information in response to our request for more details on some of the projects. Several of the work elements appear reasonably justified, including: WE 27, WE 33, WE 186, and probably WE 84 (although the benefits expected from replacing old culverts with “fish friendly” culverts were not adequately justified). The other work elements – Big Bear Creek cascade fish passage improvement, WE 29, WE 30, WE 181, and WE 184 – were not described in such a way that the ISRP could fully appreciate and support the ecological justification for the bioengineering approach that has been or will be employed. In addition, the M&E program was presented as a collection of separate monitoring efforts without explaining how they would be coordinated (with specific respect to this proposal) and results incorporated into future management actions for the Potlatch watershed.

ISRP March 2009 Final Comments

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

In our December 2008 review, we found that the narrative did a good job of describing the habitat losses associated with a variety of land and water uses. A reasonable case was made to expand upland treatments (largely improved agricultural practices) to also include riparian and instream projects that should have direct benefits to the target species – A-run steelhead. We agreed that the greatest potential for restoration of steelhead habitat lies in the lower tributaries, largely in private ownership, and that in these tributaries there no longer exist the “raw materials” (especially large woody debris) needed for passive restoration.

However, we stated a concern that initiating active restoration efforts, as proposed, raises the stakes as far as cost and risk. Not only is there risk of physical failure (i.e., an instream structure being washed out), but there is risk that the proper limiting factor was not addressed by the action. In the case of these lower Potlatch tributaries, we were concerned that creating pool habitat, presumably for summer rearing, may not aid steelhead if water temperature is too high. We asked that the response address this issue.

In the response, the project sponsors assert that creating pools will provide localized pockets of cool water for steelhead to inhabit when ambient stream temperatures approach stressful or lethal levels. Cool water at the bottom of pools can occur when the pool intersects hyporheic flow paths, allowing cooled subsurface water to enter the surface flow. They cite some research in northern California as well as IDFG studies on

steelhead distribution to support the assumption that pool creation will provide the necessary protection from lethal summer stream temperatures. The ISRP agrees that cool-water zones can be enhanced by pool formation; however, the extent of hyporheic water exchange will be strongly influenced by the depth and characteristics of the stream's substrate and the presence of an impervious layer (e.g., bedrock) underneath the alluvium. In other words, there must be a hyporheic channel with sufficient flow located close to the stream bottom that will seep into the surface water when pools are excavated. Not all pools will possess such thermal refugia. The response does not present direct evidence that pools in the lower Potlatch tributaries are cooler than in other habitat types. It certainly seems possible that deep pools would contain some cool water based on the photographs of largely dry channels with pervious, coarse substrates (e.g., Corral and Pine creeks), which would favor subsurface flow. However, based on information in the response, the argument that pool creation would mitigate high stream temperatures rests on theoretical assumptions.

We also asked to what extent the proposed investments on streams flowing through private lands will be protected (by easements, changes in livestock management, etc.) in the future. The response did not address this question. It did describe each of the work elements with photos and statements of justification and expected benefits, but there was no mention of possible easements or other conservation agreements with private landowners.

2. Objectives, Work Elements, and Methods (section F)

In our December 2008 review, we requested explicit descriptions of what exactly will be implemented in each target subwatershed identified for restoration actions. We asked where the restoration measures would be sited, how the actions would address limiting factors at those particular locations, and what the desired habitat and A-run steelhead responses to restoration would be. We requested photos (if available) and suggested that maps showing target locations for each type of restoration treatment would be a great help. We also asked what was meant by “increasing riparian habitat complexity” or how the goal of increasing riparian complexity would be achieved.

The response included photos of the sites for each work element, and the photos in general did a good job of illustrating the need for restoration. No map was provided. The response did not directly answer the question about what was meant by increasing riparian habitat complexity, but several of the photos (Figs. 8, 9, 17, 18, 19, 20, 25, 26, 27, and 28) depict work that will involve riparian manipulation. Many of the site restoration efforts involved intensive bioengineering, as opposed to passive restoration, and the need for continued maintenance (if necessary) was not discussed.

We had some questions on some specific actions. Although we agreed with actions calling for artificial migration barrier removals, we wondered whether the Conservation District planned to provide adult migration at a natural passage barrier (which the ISRP

generally does not support) at stream mile 5.6 of Big Bear Creek – the top priority subwatershed.

The response stated that the passage barrier was seasonal and not year-round, and further that steelhead had been documented above the cascade on Big Bear Creek. The response does not state whether Latah SWCD still wishes to improve fish passage around this natural stream feature. The ISRP continues to believe that restoration funds are better spent improving fish passage where anthropogenic impediments exist. The response did not describe the native species that inhabit Big Bear Creek above the cascade, or how these fishes could be impacted by steelhead or other species making use of improved passage past a natural seasonal barrier.

We also asked for additional clarification on two work elements (WE). WE 30 includes channel realignment, which may or may not provide significant benefit to steelhead rearing, depending on the situation. Likewise, WE 27, debris removal, is often aggressively pursued (to the detriment of stream habitat) by government entities in an effort to minimize flood damage to human structures.

The response states that work element 30 is needed for steelhead spawning and rearing, and the photograph in Figure 19 does show an incised channel with raw, eroding banks. Figure 20 shows a segment of stream (Tee Meadows?) that has been reconstructed and the stream bank covered with a biodegradable cloth to help retard erosion. The channel shown in Figure 20, however, appears suitable for neither steelhead spawning nor rearing as it is incised and seems to be lacking in suitable substrate and cover (also see Figure 18 for another example of a heavily bioengineered but deeply incised channel). The response does not indicate specifically how the WE 30 reaches will be restored and managed to retain conditions that will benefit this species. In particular, how are they expected to respond to natural disturbances such as floods? Will livestock be excluded from all such restored reaches?

The WE 27 debris removal work element is described as removing large wood and other possible migration obstructions from the Pine Creek bridge abutment and plugged logging road culverts. This work element seems justified.

3. M&E (sections G and F)

In our December 2008 review, we noted that the Conservation District's November submittal referred to the FY2007-09 project description for details about the M&E plan; however, we had already stated that not enough information was given in that document. There was also mention of a new IDFG steelhead population study to include the Potlatch subbasin, but no further information was provided, including whether the IDFG monitoring would include the five target subwatersheds in this proposal.

The response did not give the impression that the Latah SWCD monitoring plan had been thoroughly thought out. For example, the response states that temperature loggers will be

installed in select tributaries and a set of formal photo points will be placed in restoration sites, but no details of any kind were given (e.g., how many loggers would be deployed, and where; how would the photo points be selected, and how frequently would they be re-visited?). Further, although the monitoring programs of other agencies were described, including the new, IDFG steelhead population study, there was no explanation of how data would be shared, how monitoring information would be analyzed, and how results would be reported.

For a few work elements (e.g., WE 184 – Install Fish Passage Structure at the old Troy reservoir dam), projects appear promising but planning is not yet complete. Insufficient details were given for the ISRP to evaluate the merits of the work element or the monitoring that would be needed to assess its effectiveness.

4. Overall Comments - Benefit to F&W (all proposal)

In December, we stated that the project is on the right track and should produce real benefits to A-run steelhead, especially when upland treatments already underway are combined with riparian and instream restoration actions. The additional information provided was only partially sufficient to justify the proposed actions.

Attachment: ISRP Response Request Recommendation and Comments December 19, 2008

Background

In their November 2008 request, the Conservation District emphasized that the additional information provided was intended to supplement the project's FY 2007-09 proposal¹ to provide full justification for a scope expansion. As requested, the ISRP relied on the original FY 2007-09 proposal and the supplemental information to evaluate the proposed scope change. The ISRP also referred to the Potlatch River Watershed Management Plan: www.latahsoil.org/id50.html.

The ISRP's review of the FY 2007-09 proposal was favorable:

Fundable. The ISRP is pleased to see stronger ties to fish and aquatic habitat here than in most SWCD proposals; this still works to implement Best Management Practices, but the authors have done an assessment and prioritized the tributaries with an understanding of what needs to be worked on first. This is a very strong point of this proposal. They used information from their assessment to actually inform their current understanding; i.e., some of the assessment data changed their minds. There is also a strong working connection, not just lip service, to IDFG steelhead studies on the Potlatch system.

The M&E needs to be better developed and coordinated; see ISRP's programmatic comments on M&E. Fish monitoring would be dependent upon IDFG. This is not likely a situation where in-depth habitat effectiveness monitoring is needed. The effectiveness monitoring should use methods that are peer reviewed and up to Pacific Northwest Aquatic Monitoring Partnership (PNAMP) and Collaborative Systemwide Evaluation Program (CSMEP) standards.

In order to track progress toward a "restored" state, abundance targets (in this case, numbers of steelhead) are needed. Project staff will need to work with others to better identify abundance goals for fish in the Potlatch River. On page 9, paragraph 2 of the proposal, 5,900 - 10,000 adult A-run steelhead are identified as the goal for the Clearwater, and sponsors suggest that the Potlatch could produce a significant number of these fish. These goals should largely be identified by management agencies and perhaps a recovery plan.

ISRP December 2008 Recommendation

Response Requested

The narrative did not provide sufficient information to scientifically justify adding instream habitat and riparian improvement actions to the upland measures already being implemented in this project. In all likelihood these actions are justified, but few or no details were provided with regard to where, in each of the target subwatersheds, the restoration measures would be sited, how the actions would address limiting factors at

¹ <http://www.cbfwa.org/solicitation/components/forms/Proposal.cfm?PropID=650>

those particular locations, and what the desired habitat and A-run steelhead responses to restoration would be. While the sponsors suggest evidence for this is "supported by language in the original proposal", evidence is lacking there and in the revised work elements, other than reference to general items of concern for temperature, sediment, lost riparian vegetation, changed vegetation, and altered environmental process. Sufficient detail and information is lacking on how these eight elements would specifically address these issues at specific sites and in relation to the bigger picture on smolt yield and adult recruits.

Additionally, the description of the M&E program did not significantly expand on the already incomplete description provided in the FY2007-2009 proposal. Once these details are added to the narrative, the ISRP is hopeful that the proposed instream and riparian actions will meet scientific criteria.

ISRP December 2008 Comments

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

The narrative did a good job of describing the habitat losses associated with a variety of land and water uses. Much of the background information is given in the FY2007-09 proposal for Project 200206100 or in the October 2007 Potlatch River Watershed Restoration Plan. The FY2007-09 proposal also describes the linkages between this project and other restoration and conservation efforts in and around the Potlatch River. A reasonable case was made to expand upland treatments (largely improved agricultural practices) to also include riparian and instream projects that should have direct benefits to the target species – A-run steelhead.

Reviewers accept the logic presented in the narrative that the greatest potential for restoration of steelhead habitat lies in the lower tributaries, largely in private ownership, and that in these tributaries there no longer exist the “raw materials” (especially large woody debris) needed for passive restoration. However, initiating active restoration efforts, as proposed, raises the stakes as far as cost and risk. Not only is there risk of physical failure (i.e., an instream structure being washed out), but there is risk that the proper limiting factor was not addressed by the action. In the case of these lower Potlatch tributaries, reviewers are concerned that creating pool habitat, presumably for summer rearing, may not aid steelhead if water temperature is too high. The narrative should address this issue.

Also, to what extent will the proposed investments on streams flowing through private lands be protected (by easements, changes in livestock management, etc.) in the future?

2. Objectives, Work Elements, and Methods (section F)

The narrative includes a list of possible restoration measures and a list of the subwatersheds where the instream and riparian work will be done. However, there is no

explicit description of what exactly will be implemented in each subwatershed. Referring to the FY2007-09 project description and Watershed Restoration Plan only provides a summary of the presumed limiting factors, as determined by QHA analysis, and a suite of possible restoration actions, but this information is not sufficient for scientific evaluation until more detail is provided. For example, if a water diversion structure is to be improved, where will it be located and what are the anticipated benefits (e.g., increased summer flows, reduced juvenile entrainment, etc.)? Inclusion of a map showing target locations for each type of restoration treatment would be a great help. Other details are needed as well. It was not clear what was meant by “increasing riparian habitat complexity” or how the goal of increasing riparian complexity would be achieved. The narrative states that the expanded work would include removing artificial migration barriers, and the ISRP strongly agrees with this objective. However, the Potlatch Management Plan notes that Big Bear Creek – the top priority subwatershed – has a natural passage barrier at stream mile 5.6, and we wonder if providing adult migration passage at this natural barrier (which the ISRP generally does not support) is part of the plan. We believe that inclusion of these details in the narrative is needed for us to evaluate the proposal for scientific adequacy.

The Work Elements (WE) that would be added are generally consistent with the restoration needed, but two raise possible red flags. WE 30 includes channel realignment, which may or may not provide significant benefit to steelhead rearing, depending on the situation. Likewise, WE 27, debris removal, is often aggressively pursued (to the detriment of stream habitat) by government entities in an effort to minimize flood damage to human structures. Therefore reviewers request that these WE’s receive particularly close attention.

3. M&E (sections G and F)

The narrative refers to the FY2007-09 project description for details about the M&E plan; however, the ISRP has already stated that not enough information was given in that document. There is also mention of a new IDFG steelhead population study to include the Potlatch subbasin, but no further information is provided, including whether the IDFG monitoring will include the five target subwatersheds in this proposal.

4. Overall Comments - Benefit to F&W (all proposal)

The ISRP believes this project is on the right track and should produce real benefits to A-run steelhead, especially when upland treatments already underway are combined with riparian and instream restoration actions. Addition of more details (and photos, if available) about the work being contemplated, including explicit location, justification, expected benefits, and a more detailed monitoring plan, will enable us to evaluate the scientific merits of the proposal.