



Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Memorandum (ISRP 2008-13)

October 24, 2008

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

From: Eric Loudenslager, ISRP Chair

Subject: FY 2007-09 Follow-up Review of Wenatchee Complexity Project, 200732500

Background

At the Council's September 2008 request, the ISRP reviewed the Chelan County Natural Resource Department's response to the ISRP's recommendation and comments from the FY 2007-09 project review¹ for the Wenatchee Complexity Project (200732500). In the FY 2007-09 review, the ISRP recommended that Chelan County develop and justify restoration plans, obtain landowner agreements, and develop monitoring and evaluation plans for each site individually. Subsequently, the Council recommended that funding be provided for securing land owner agreements and implementation plans, but funding for implementation is contingent on favorable ISRP and Council review of implementation plans.

Chelan County's response is intended to address the Council's and ISRP's recommendations for the Wenatchee Complexity Project, but the County also provided some information on the Wenatchee Access (200728300) and Passage (2007040000) projects. The ISRP's review focuses on the Wenatchee Complexity Project.

The ISRP's full FY 2007-09 recommendation and comments were:

Fundable in part. "Reconnecting potential floodplain habitats is definitely worthwhile, but this proposal does not provide enough information to enable a technical evaluation of the merits of each project individually. In some of the site descriptions there was insufficient information on how the berms/levees/roads would be breached or otherwise removed to reconnect the river with potential floodplain habitats, or what habitat conditions (e.g., acres of wetland ponds, riparian terraces, side channels, etc.) would be created after access is restored. Without this information, it was difficult to assess the potential benefits of each site scientifically.

¹ ISRP 2006-6: www.nwcouncil.org/library/isrp/isrp2006-6.htm

Therefore, the ISRP recommends partial funding for this project until the plans for each site are more fully developed and landowner agreements are finalized. Given the high total cost of the reconnecting the five floodplain sites, each location should be treated as an individual project and justified more completely. It is highly likely that these floodplain reconnection projects could have real benefits to fish and wildlife in the Wenatchee subbasin, but each area deserves a more complete description, a landowner agreement, and a reasonable monitoring plan. We suggest that funding be provided for securing agreements and developing thorough engineering plans, with implementation contingent on preparation of more complete proposals for each site.

ISRP Recommendation

Response Requested

The ISRP requests that the sponsor provide the complete design report for CMZ 11, not just Chapter 5 Project Monitoring, and the construction plan. This will permit the ISRP to evaluate the implementation plan and post-construction monitoring activities. Similar information should be provided for the CMZ N4, CMZ 6, CMZ 17, and CMZ 20 sites.

In addition to providing the complete design report, the ISRP requests information on (1) quantitative estimates of the new production by species for each site and (2) the habitat features being engineered into the side channels.

Although the ISRP would prefer to review the projects together as a package, we realize there may be good reasons for conducting sequential site-specific reviews. Therefore, we request that the sponsor submit a complete summary of the implementation plan, anticipated focal species benefits, ecological justification, landowner agreement, and monitoring plan for each site as soon as possible.

ISRP Review Summary

In order to properly justify habitat restoration projects, the project sponsors need to provide sufficient essential details that enable the ISRP to assess the value of the project on scientific merit.

This basic information includes:

1. an adequate description of what will be done, including the details of anticipated habitat benefits;
2. identification of focal species and some quantitative expression of how the project would contribute to the species' recovery;
3. an ecological justification of the project, often achieved by citing its importance to successful implementation of the appropriate subbasin plan and by showing linkages with ongoing recovery programs in the area;
4. evidence of landowner cooperation, usually documented by reference to conservation easements and other long-term agreements; and

5. a thorough description of the post-implementation monitoring plan, including the procedures used to verify the project’s habitat benefits and biological effectiveness.

In its FY 2007- 09 review, the ISRP was unable to judge the scientific merits of the Wenatchee Complexity Project because this project involved five different channel migration zone (CMZ) restoration sites and insufficient information was presented for each site to satisfy the basic information needs outlined above. The Council, in response, provided funding for securing landowner agreements, completing implementation plans, and developing monitoring plans for each of the floodplain reconnection locations. Once that phase was completed, and pending scientific review by the ISRP, the projects could go forward.

Based on the material provided to the Council on September 3, 2008, the ISRP received substantially more information for only one of the five project sites (CMZ 11), but even that was not entirely adequate to form the basis for a scientific evaluation. Insufficient information was provided on the other four sites – CMZ N4, CMZ 6, CMZ 17, and CMZ 20 – to evaluate their value to salmon recovery. According to the letter of transmittal from the Chelan County Natural Resource Department (CCNRD), a design report is completed for CMZ 11 and a number of elements requested by the ISRP for the other four sites will be forthcoming at a later date, and it is likely that this project will be again referred to the ISRP for review. Although we have asked that each restoration site be described individually, the ISRP believes that it would be more efficient to review them as a group rather than piecemeal. However, we realize that submitting each site separately for review may be justified, for example, when there are unavoidable delays in obtaining landowner agreements or when the opportunity to learn from the experience of implementing other site restoration actions is present. We thus request that project sponsors secure landowner agreements, draw up the implementation plans, and develop site-specific monitoring plans for all five site locations so they can be reviewed as soon as is feasible. The ISRP is willing to review each site separately; however, we do ask project sponsors to provide information specific to each site, as discussed below.

The following matrix summarizes, based on submitted material, the current status of each project site according to the five criteria given above. A blank cell in the matrix indicates that no details were given to the ISRP.

Site	Design/Implementation plan	ID focal species benefits	Ecological justification	Landowner agreement	Monitoring plan
CMZ 11	X ¹	X ²	X ³	X	X ⁴
CMZ N4		X ²	X ³	X	
CMZ 6			X ³	X	
CMZ 17			X ³		
CMZ 20			X ³		

¹ It was unclear from the supporting information if, in fact, this project has already been implemented. According to the project sponsor's response, restoration of CMZ 11 is scheduled for 2008.

² Focal species benefits were described in qualitative terms only. It might be possible to estimate how many fish could use these sites based on data from other side channels and tributary junctions in the area.

³ In general terms the ecological justification has been summarized in the 2004 Jones & Stokes Final Report.² However, each site needs additional information on specific habitat condition (see suggestions in text below).

⁴ See suggestions for the monitoring plan below.

Suggestions

Focal Species Benefits

The ISRP stated in its FY 2007-09 review that reconnecting floodplains and improving habitat complexity near tributary junctions in the lower Wenatchee River was a laudable goal. However, it would be very helpful to have more than just a list of the species that would likely use the newly created habitat. As mentioned in the second footnote above, it should be possible to estimate the potential benefits of these restoration projects by extrapolating existing information on the densities of focal species observed in existing side channels and tributary junctions in the Wenatchee subbasin. The proposed projects will be fairly expensive to build and maintain, so providing a more quantitative estimate of additional salmonid production or at least habitat use made possible by the habitat improvements would help justify the cost.

Ecological Justification

More information on the geomorphology of the side channels and other habitat improvements is needed as it is difficult to ascertain the physical condition of the bioengineered habitats from the engineering plans. Specifically, what will the channel characteristics be in terms of riffles and pools, and how will these characteristics be measured (e.g., will they be based on the methods used to characterize the natural side channels in the area)? If large wood and boulders are to be added to the site, how and where will the structures be located (e.g., as shown in the engineering plans for CMZ 11, dated 4/11/08) and what will be the basis for determining their arrangement? What is the rationale for carrying out these additions, as opposed to allowing the sites to recover passively with new wood and boulders being recruited through natural fluvial and riparian processes?

² Jones & Stokes. 2004. Chelan County Natural Resource Program, Final Wenatchee River Channel Migration Zone Study - Phase II. April 16. (J&S 01243.01) Bellevue, WA. Prepared for the Chelan County Natural Resource Program, Wenatchee, WA.

Monitoring Plan

Chapter 5 (Project Monitoring) provides a description of the 5-year monitoring plan for project CMZ 11. The ISRP appreciates that objectives, performance standards, and monitoring methods were summarized succinctly in Table 5-1. We have some suggestions that would improve the quality of information gained from monitoring studies.

- The 5-year interval between surveys of channel condition (Objective 1.1) is too long; more frequent surveys are needed. If, as indicated, CCNRD intends to use volunteers to conduct the monitoring, the cost of surveying more often should not be great. Re-examining the site after exceptional storms should indicate whether the channel survived high flows as hoped.
- The plan calls for spring/summer visits to the side channel in years 1, 3, and 5 post-construction (Objective 2.1) to determine if sediment deposits block fish entrance or egress. It would help to describe how this will be done.
- Monitoring depth at the inlet and outlet ends of the side channel during low and high flow periods is a good idea, but it would also be very helpful to document water depth throughout the channel itself. If the channel is experiencing sediment deposition, it would help to know whether “deep water” winter habitat is being lost to channel aggradation.
- It was not clear when snorkel surveys for fish location would be done. At a minimum, surveys should be conducted in mid to late summer during low flow conditions and again during periods of winter base flow. Yearly surveys would be helpful, as fish density will be influenced by spawning recruitment, and use of the side channels is likely to vary from year to year. It would also be useful to know if fry or pre-smolts are being stranded in the channel.
- The vegetation surveys are well described, but the plan does not state how often these will be conducted or what features of the vegetation will be measured. We recommend that the success of riparian plantings be monitored 1, 3, and 5 years post-construction.

Site-Specific Habitat Suggestions

CMZ11: This is billed, admittedly by implication, as a floodplain reconnection site. However, this project seeks to provide a high-flow refuge for juvenile salmonids by cutting a new channel within the existing, gravel-mined floodplain (not attempting to access the floodplain cut-off by SR2). By increasing the cross-sectional area of Wenatchee River channel available at higher flows, this project will actually decrease out-of-banks flow and thus further disconnect the stream from its floodplain. The inlet channel will be stabilized by rip-rap to prevent erosion, but nothing is said about the outlet – which is where erosion will take place because the outlet is perched 5ft above the river and headward incision of the constructed channel is highly possible or even likely

over the short distance of 500ft. Habitat features will be constructed of large wood and boulders, which is appropriate since the floodplain here appears to be forested.

CMZ4: The proposal involves installation of two 8ft diameter culverts to increase the connectivity between the river and an oxbow. A clear-span bridge should be considered for this connection; there are a number of very cost-effective options for bridges up to 20ft span, and the ecological benefits of a bridge versus a culvert are such that the extra cost is usually worthwhile.

CMZ6: Details are as yet unavailable, but it seems likely that the proposal will involve reattachment of the stream to the head of the oxbow, to provide a “sweetening flow” at some range of river stage. If this is so, maintenance will likely become an issue to keep the connection open. A good question to ask is “How long is the connection estimated to remain open?” In many cases, a high-level overflow is chosen. Connecting the downstream end of the oxbow with the river for all flows might be a better option.

CMZ17: The existing proposal seems somewhat contradictory, in the sense that an overflow channel will not increase the sinuosity of the creek, and increasing (instream) flood capacity in fact diminishes floodplain connectivity (for the reason described in CMZ11 above). Getting rid of the Dryden Diversion Dam and restoring the meanders to the Peshastin reach, accompanied by berm and levee removal, seems like a good alternative restoration plan to consider here. It is not clear how providing a high-level overflow would overcome the deadening effect of the dam backwater. The proponents of this proposal should be aware that doing something that gives a small but significant part of the maximum benefits that could be obtained, could make justification of doing the full restoration difficult when the opportunity arises; it’s a question of diminishing returns.

CMZ20: Our initial reaction is to take advantage of the fine sediments laid down by the river, using appropriate soil bioengineering designs to bring back dense stands of suitable pioneer tree species, including willow and cottonwood. The purpose is to bring back beaver and recreate the conditions under which the stream developed. Beaver dams will ensure the floodplain connectivity and stop further downcutting. While the beaver are still absent, the tree and shrub roots will arrest the erosion. Suitable bioengineering techniques, including the extensive use of live woody materials, need to be chosen with care by an experienced professional.