Independent Scientific Review Panel
for the Northwest Power & Conservation Council
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Memorandum (ISRP 2011-21) **August 8, 2011**

To: Bruce Measure, Chair, Northwest Power and Conservation Council

From: Rich Alldredge, ISRP Chair

Subject: Follow-up Review of the BiOp proposal, Tucannon River Programmatic Habitat Project (#2010-077-00)

Background

At the Council's July 6, 2011 request, the ISRP reviewed a second response for the Tucannon River Programmatic Habitat Project (#2010-077-00). This project is proposed by the Snake River Salmon Recovery Board. The goal of this project is to restore habitat function and channel processes in priority reaches of the Tucannon River to improve spring Chinook productivity, as identified in the 2008 FCRPS Biological Opinion.

In our previous reviews of this project, we requested more detail to justify the proposal. Specifically, in our most recent review (ISRP 2011-8, March 10, 2011), we commented, "[T]he rationale for the proposed projects is still too vague to determine whether or not they are technically justified. The proponents must clarify the hypothesized linkages between proposed restoration actions, habitat improvements and VSP parameters in the Tucannon River and how progress will be monitored. The information provided in support of the establishment of a program to select future restoration projects remains vague."

Our review below is organized around the four main areas upon which we requested additional details.

Recommendation

Meets Scientific Criteria (qualified)

Many of the issues raised during previous reviews have been addressed in this response and during the May 2011 field trip. However, there remain areas of concern that have not yet been addressed. The ISRP qualification on our recommendation is based on these remaining items.

First, the criteria that will be used to prioritize future projects need to be developed. The response indicates that this information is being developed this summer. The success of this program will be dependent on the process and criteria used to prioritize projects; there are many high priority restoration actions listed in Table 1, but the list is presented without a strategy, rationale, timetable, and expected benefit for sequencing these actions. Second, a comprehensive restoration strategy and associated prioritization process should be developed before implementation of on-the-ground restoration activities. The ISRP suggests that a report to the Council (reviewed by the ISRP) on the prioritization process and its application, the status of habitat assessments, identification of reach-scale plans, implementation of plans, and evaluation of monitoring data on habitat conditions, including coordination between program objectives and current understanding of problems with Tucannon salmon production, be produced by the project proponents by spring 2013.

Comments

1. *Objectives: the objectives for reach-scale restoration actions, how the proposed actions will achieve the objectives, quantification of the contribution that achieving the habitat standards would make to achieving Viable Salmonid Population (VSP) goals*

The primary objective provided in the response indicates that the program aspires to restore the Tucannon ecosystem to something minimally disturbed by human activities: "In summary, the actions identified and yet to emerge from this habitat programmatic are intended to restore normative processes because we believe this is a more effective way to achieve the goals than doing a lot of smaller 'stick and boulder' work." EDT was used to estimate the impact restoring normative conditions would have on VSP parameters. This provides a high-level indication of what might be achieved with a fully restored system but is not useful in terms of identifying the most effective reaches or projects. Site specific objectives should be developed. In addition, the EDT model implies instantaneous response by fish to restoration projects (see Figure 1), when in reality projects such as riparian zone enhancement will take years to achieve full effectiveness.

The response indicates that the objectives have not yet been developed at a reach-scale but this will take place during 2011, based on habitat assessment work underway. However, Attachment 1 does provide some reach-specific restoration recommendations (based on a completed geomorphic assessment) but does not establish priority reaches, identify reach potential, or link reach conditions to watershed scale processes. Ultimately, the restoration actions selected need to address the primary causes of habitat degradation and be implemented at a scale sufficient to correct the problems in a landscape with potential to respond. A logic path from habitat assessments to reach-scale conditions and processes, to watershed scale conditions and processes and, finally, to fish response is lacking. The 2013 report proposed for review by the ISRP should provide details on the reach-scale objectives and

articulate how these actions will contribute to recovery of desired ecosystem characteristics and fish recovery.

Ideally, the objectives should be based on a thorough understanding of the factors that are limiting Chinook salmon and steelhead production in the Tucannon. The response clearly indicates that natural origin Chinook are doing poorly, with 6% egg-to-smolt survival and a very high rate of straying by both natural and hatchery origin Chinook. It is somewhat surprising, therefore, that the objectives for the project are not directly related to understanding and correcting the factors that underlie the poor egg-to-smolt survival and the high stray rate. In fact, the response states: "The Tucannon Habitat Restoration Project was not specifically designed to determine the specific linkages between restoration actions and site level fish responses." Yet as salmon and steelhead recovery are the overarching goal of the program, developing this understanding is critical to long-term program success. Rather the objective for the program is to restore normative conditions and processes, assuming that achieving such a goal will create habitat conditions conducive to fish production. The ISRP does not dispute that restoring normative conditions will aid fish population performance. But we also believe that a better understanding of the factors that are contributing to low egg-to-smolt survival and adult straying could be used to more effectively prioritize future habitat projects.

The response to the ISRP query on quantifying the contribution that achieving habitat objectives would make to achieve VSP goals needs further development. Proponents state that the relationship between habitat improvements and population response is imprecisely known. The ISRP concurs. However, the ultimate goal is to sustain a spring Chinook population in the Tucannon River that meets some viability standard. Figures 1 through 3 present information on the current status and EDT viability analysis. It is important at this early stage to be explicit about the expectations for improvement from this habitat restoration program, and a time frame for improvement, because the response is imprecise. Now is the time to establish the expectations and develop plans for alternative actions and evaluations if expectations are not met. The linkage with ISEMP should help to develop the information required to better focus future restoration projects. The RM&E program should be associated with a very explicit adaptive management process to ensure new information is rapidly incorporated into habitat restoration actions.

2. *Conditions: current habitat and fish population conditions at project sites*

The current habitat conditions and fish population status were provided. Some detail on current habitat condition was provided. Additional information on habitat conditions is being compiled this summer. Some additional description of the two major obstructions to fish passage (Starbuck dam, Hatchery dam) would have been useful.

3. *Selection of habitat restoration actions: justification for a program to identify and support projects in the future, details about the composition of the review committee, the criteria they will employ in project selection and overall program structure and governance*

One of the foundation elements for a habitat restoration program is a technically sound process for identifying those projects with the greatest potential for contributing to salmon recovery. This element has not yet been fully developed for this program, and a final technical review is not possible until it is complete. The procedural aspects of the process that will be used to prioritize projects are adequately covered in the response. The Regional Technical Team and the consultants who conducted the recent habitat assessments will participate in this process and will evaluate potential project benefits at multiple spatial scales. However, the actual criteria they will use to assign project priorities have yet to be developed. The response indicates that prioritization criteria are being finalized this summer. The lack of this information represents a deficiency that should be addressed. The proponents indicate that a draft geomorphic assessment and habitat restoration report has been completed for the lower 88 km of the mainstem Tucannon River. This information has been used to identify a preliminary set of reach-scale projects, listed in Attachment 1. However, the scientific basis for this slate of projects remains unclear and it seems appropriate that a re-ranking of the projects should occur after prioritization criteria are developed. The response did not indicate whether this re-ranking will occur. The response also notes that a habitat restoration study currently is underway for reaches 6 through 10 with an additional study to address reaches 1 through 5 planned for no later than 2013. The project proponents indicate that this information will be used to refine the existing projects, develop more specific objectives and expand efforts beyond the area for which habitat data is currently available. The ISRP would like the opportunity to review the prioritization criteria for this program, as well as the implementation plans for high priority reaches. In addition, the manner in which new information from habitat assessments or the RM&E program will be incorporated into the prioritization process should be explained. The 2013 report should include a thorough description of these program components.

The response indicates that “other factors such as landowner support” will be important considerations for project prioritization. Although landowner support is necessary for project implementation, the weight placed on this element should not be so great as to overrate projects that are within reaches with limited potential to contribute to fish restoration simply because of a willing landowner. A thorough watershed level assessment can provide the necessary context to avoid this problem. The watershed assessment also can be a useful tool in communicating to landowners why a specific project may be critical to recovery efforts in the Tucannon, thereby cultivating landowner trust and cooperation. Choosing the best among willing landowners before prioritization may not result in actions occurring in highest priority landscapes.

4. *Research, Monitoring and Evaluation (RM&E): description of the RM&E program including interaction with ISEMP and a decision framework for modifying restoration actions if sufficient improvement does not occur.*

ISRP review comments regarding the RME for this program were generally well addressed. The inclusion of the Tucannon River in the CHaMP program should provide good information on habitat condition. Including a set of stream reaches that will be restored and corresponding control reaches in the CHaMP sampling panel will provide a good indication of habitat response to the application on restoration actions. The fish-in/fish-out monitoring will enable some understanding of the linkage between habitat change and population response at a watershed scale. However, information on fish response to particular habitat projects would be useful in judging the relative effectiveness of various restoration project types. The level of fish sampling need not be intensive for these project-scale assessments of fish response. For example, seasonal sampling of parr utilization of off-channel habitat could be accomplished by snorkel surveys. This type of data may be sufficient to develop a better understanding of the features of off-channel habitat preferred by salmon and steelhead parr. This information would enable off-channel habitat projects to be located and designed more effectively.

Two elements of the RM&E program deserve some additional consideration. The first relates to the comment above about the lack of apparent coordination between program objectives and the current understanding of problems with Chinook production in the watershed. Given the very low egg-to-smolt survival rate and high straying rate of Tucannon Chinook, some targeted research to better understand these issues seems appropriate. The ISEMP and CHaMP efforts may shed some light on the egg-to-smolt survival issue but there does not appear to be any research directed towards the issue of straying. Second, there was an incomplete description of the decision framework that will be employed to refine the program based on RM&E. The adaptive management process should be fully developed before actual restoration actions begin.