



Independent Scientific Review Panel

for the Northwest Power & Conservation Council

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Memorandum (ISRP 2011-13)

May 25, 2011

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

From: Eric Loudenslager, ISRP Chair

Subject: Review of May 2011 Response for the Confederated Tribes of the Warm Springs Reservation's Fish Accord Proposal, *Natural Production Monitoring and Management* (#2008-311-00)

Background

At the Council's May 9, 2011 request, the ISRP reviewed a response to its recent review of the Confederated Tribes of the Warm Springs Reservation's Fish Accord Project, *Natural Production Monitoring and Management* (#2008-311-00). The project goals are to (1) continue annual life stage monitoring of wild spring Chinook salmon and steelhead in the Warm Springs River and Shitike Creek, and (2) provide management and co-management direction of fisheries resources in the Deschutes River Subbasin. The ISRP reviewed earlier versions of this proposal in 2008, 2010, and 2011. In its latest review of April 26, 2011, the ISRP provided specific recommendations and comments for each of the projects' objectives ([ISRP 2011-11](#)). The ISRP continues this review organization in this memo.

Recommendation

Response requested for the remaining three objectives (A, C, and D) that do not have a final ISRP recommendation. The project proponents are making progress with each iterative review. For the next response, they could benefit from advice from an experienced statistician or expert in life-cycle modeling on the issues of decision making and data acquisition; statistical support for their sample size (especially in terms of the PIT-tagging effort); and the field protocols for the GRTS sampling plan including how to account for the inaccessibility of some sites.

ISRP General Comments

ISRP comments on responses to the three overarching questions raised in our previous review are presented immediately below, followed by ISRP recommendations and specific comments for each proposal objective.

1. What management decisions will these data inform?

The primary objectives of the project are to assess the status and trends of populations of spring Chinook and steelhead in the Warm Springs River system. The description of activities remains unclear with regard to how data from the project will be used both in the context of harvest or habitat restoration decisions. Collecting information on fish abundance – adult, parr, and smolts, to establish stock assessment metrics that are used in fishery management decision-making needs to be closely linked to the decision framework. The proponents do not specify how the status and trend data will be used for management purposes. The goals are given generally to “provide naturally sustaining and harvestable levels of wild spring Chinook and steelhead” which is admirable, but without targets it is difficult to say if the sampling of outmigrants and returning adults is contributing to a measurable objective. As an example the proponents state that Figure 3 (outmigrants per spawner on spawners) suggests the entire basin has a carrying capacity of “around 1300 spawners” without indicating how the capacity estimate was derived or would be used. Is the objective to limit spawners, by harvesting, to this abundance level?

2. Will the data, including PIT-tag data, be sufficiently precise to adequately manage risk and provide confidence in decisions made? Evidence of data adequacy should be provided.

In the response to questions about the adequacy of the data to meet the needs of management the proponents state, “*Although the CTWSRO has been collecting data for several decades, it has only been the past few years that there has been a concerted effort to compile those data and determine their utility for management decisions. We have determined that many of the data collection protocols were lacking...*” This candor is appreciated. However, what the ISRP needs now is a clear indication of what the data is needed for, how the past data was insufficient, and how the revised protocols will correct the deficiencies.

The response attempts to justify the number of fish tagged based on similar numbers in other watersheds, rather than on the data needs for management decisions related to this project. Justification that the numbers from other studies are actually adequate is necessary. The proponents provide text that identifies the proportion of the population that could be tagged, if all captured fish were tagged. However, a description of the use of the data is necessary with an indication that the tagging rate and detection rate of tagged fish will yield information with sufficient precision to be useful.

The proponents have included a caveat suggesting that the confidence level in the data will be factored into management decisions. This caveat addresses some of the ISRP’s concerns, but does not answer the question of whether the PIT-tagging program will yield really useful information from a management perspective. A statistical basis for providing data for fishery management is essential for the ISRP to arrive at a conclusion on the scope of work proposed.

3. Will the GRTS-based sampling design be adequate given the physical constraints in the study area?

The project proponents did not fully address the question about obtaining representative samples from stream reaches located in hard-to-reach canyons. They simply state that although the canyon is difficult to access, they can and will perform the sampling. The ISRP feels the GRTS-based approach is appropriate for the task; however, we remain concerned that there appears to be no stated way to assess fish abundance in remote canyon-dominated reaches. Because the location and extent of such reaches are not given in the project description, we are still unsure how much of the drainage network will be under-sampled because of poor access. Simulation modeling of the effect of missing GRTS sites on bias and precision of estimates would be useful, so the effects of site loss can be determined and alternative approaches to filling holes in the data can be proposed.

ISRP Comments and Recommendation Specific to Each Objective

For objectives that were dealt with in the previous review, see detailed comments in [ISRP 2011-11](#).

Project Goal 1. Continue and improve annual life stage monitoring of wild spring Chinook salmon and steelhead in the Warm Springs River Basin and Shitike Creek.

Objective A) Juvenile Outmigration Monitoring

ISRP 2011-11: Response Requested

In the response, the proponents provide a general statement on the use of outmigrant abundance for tracking the status of each brood year, and also state that improving the precision of the data will in turn improve the data's utility in predicting adult returns based on SARs. In their response the proponents emphasize that the project will adopt field methods that are consistent with what other groups are doing elsewhere in the Columbia Basin (e.g., GRTS-based sampling, PIT-tagging, redd and carcass surveys, and snorkel and electrofishing surveys). They state that their methods will follow ISEMP protocols where possible. Doing so will make it possible to compare results with other monitoring efforts, although the project description still does not explicitly explain how the Warm Springs River and Shitike Creek data would be evaluated from a management standpoint. The ISRP was looking for criteria (e.g., habitat conditions, or smolt per spawner ratios) that would be used to determine whether the natural production of spring Chinook salmon and steelhead were trending in the right direction, or under what circumstances management changes would be warranted. What is needed is an explanation of the transparent use of the data in the cohort run-reconstruction and how improved precision will be achieved by the work they propose.

Objective B) Collect tissue samples for genetic analysis of *O. mykiss* in the Warm Springs River drainage

ISRP 2011-11: This objective was dropped from the project.

Objective C) Summer rearing snorkel surveys

ISRP 2011-11 - Response Requested

The response is very general, and the proponents have not responded with direct answers to specific ISRP concerns such as electroshocking protocols. Specific information is also required on the alternate methods proposed for non-wadeable streams, for example, the EPA IMAP protocol (did they mean EMAP?). The project description contains insufficient detail on how assessments of hard-to-access reaches would be treated. We suggest that a plan for sampling a subset of canyon-dominated reaches be formulated with clear rules for extrapolating these data to other, similar reaches. It would be helpful if the study plan identified the location and extent of such reaches so their relative significance within the drainage system as a whole would be more apparent. What fraction of the stream network do canyon-dominated reaches occupy?

Objective D) Spawning ground (redd) surveys

ISRP 2011-11: Response Requested

The response contains a short description of a double counting exercise to correlate kayak accessed counting versus wade access counting. What is missing is a method to evaluate how representative the index reaches are, although it appears the spawning index sites comprise about half of the spawning reaches available to spring Chinook (study plan, page 31). GRTS sampling has been developed as an alternative to index reach sampling because expanding from index site counts were determined to provide poor watershed level estimates. As with the other parameters being monitored, spawning surveys will generally not occur in canyon-dominated reaches – the assumption being that these are not preferred spawning sites. It would be helpful to verify this assumption at some point, perhaps with aerial surveys.

Objective E) Enumerate adult escapement into Shitike Creek and the Warm Springs River

ISRP 2011-11: Meets Criteria

Objective F) Estimate harvest of Chinook salmon and Steelhead in the Deschutes Basin

ISRP 2011-11: Not Applicable

Project Goal 2. Provide management and co-management direction of the fisheries resources in the Deschutes River Basin

Objective A) Cooperate in Deschutes River Basin Fisheries Management Activities

ISRP 2011-11: Meets Criteria

Objective B) Provide co-management and assistance with fish handling at the Warm Springs National Fish Hatchery

ISRP 2011-11: Not Applicable