



Independent Scientific Review Panel

for the Northwest Power & Conservation Council
851 SW 6th Avenue, Suite 1100
Portland, Oregon 97204
www.nwccouncil.org/fw/isrp

Memorandum (ISRP 2011-11)

April 26, 2011

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

From: Eric Loudenslager, ISRP Chair

Subject: Follow-up Review of 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 April 1, 2011 request, the ISRP reviewed a revised proposal for 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 and 2010. In its latest review of June 16, 2010, the ISRP provided specific recommendations and comments for each of the projects' objectives ([ISRP 2010-20](#)).

Recommendation and Comments

ISRP recommendations and specific comments are provided below for individual proposal objectives, as was done in the 2010 ISRP review (ISRP 2010-20).

Overall, the response provided a more comprehensive presentation of past data than was provided in the earlier version of the proposal. The data provided are useful. Similarly the response included a useful description of the sampling design, data collection protocols, and statistical analysis methods. However, the ISRP would appreciate a more thorough presentation of the interpretation of this data and how it has guided management decisions.

More information is required to address many concerns expressed below. Most of these concerns could be handled during contracting. The following issues should be resolved through a response to the ISRP:

1. What management decisions will these data inform?

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

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 2010 - Response Requested

This task requires further detail as well as attention to methodological problems. See details below.

ISRP 2011: Response Requested – The description of fish handling techniques and statistical methodology to measure trap efficiency is improved, and reference to standard methods is adequate. Still lacking, however, is a clear definition of purpose that relates the task of monitoring population / life-stage abundance of spring Chinook and summer steelhead to a decision framework that uses target and limit reference points. What are the management decisions that these data will inform? Does the precision of the data provide an acceptable probability that correct decisions will be made? What levels of population abundance or life stage survival in the two streams trigger these decisions?

The response concerning problems with sample sizes of PIT-tagged fish needs clarification. The proponents list nine items that could yield information from PIT-tag recoveries (downstream migration rates, adult recoveries, etc). However, in the response they state that the number of fish that can be tagged would provide only a low level of precision. The level of PIT-tagging proposed has not been adequately justified, even if strong caveats are provided with results as the proponents suggest.

The project description states that one goal of monitoring the status and trends in natural production of spring Chinook and steelhead in the Warm Springs River and Shitike Creek is to provide input to subbasin and hatchery management policies:

“The specific objectives of providing management and co-management direction include:

- 1) Cooperating in Deschutes River Basin Fisheries Management Activities;
- 2) Estimating harvest of Chinook salmon and Steelhead in the Deschutes River Subbasin;
- 3) Providing co-management and assistance with fish handling at the WSNFH [Warm Springs National Fish Hatchery].”

Many of the management objectives in the project description were stated in general terms. One exception was a numerical escapement objective for wild spring Chinook salmon upstream from the fish hatchery: “Although the WSNFH is primarily a production facility, it is also used as a tool to improve and enhance runs of wild spring Chinook salmon and steelhead. Management actions at the hatchery are used to meet the long-term Deschutes Subbasin goal of achieving a spawning escapement of 2,200 to 2,300 adult wild spring Chinook salmon above the barrier dam

at the WSNFH (NPCC 2005).” The ISRP assumed in our review that one of the principal goals of this monitoring project is to determine if the natural production objectives of the two watersheds are being met, or if not, what management actions will be implemented to assure they will be achieved.

It seems that more could be learned from this monitoring activity, although much data was presented in the revision. By deleting or reducing the components of genetic evaluation or habitat restoration effectiveness, as appropriately suggested, the proposal is limited to inventory and population status monitoring. Is this project now primarily for harvest management, decisions about allowing hatchery fish to pass above the hatchery barrier, and questions of whether to supplement naturally spawning fish in the tributaries with hatchery-produced juveniles? To use the data for these purposes requires that the freshwater and marine life stages and recruitment be analyzed separately, and then together. A plot of outmigrant or smolt recruits versus spawners should reveal whether the system is at capacity and what that capacity is. For example, there is already some evidence of compensatory survival adjustments of progeny in response to escapement density. An analysis of recruits per spawner will convey the level of allowable harvest, as another example. This level of detail concerning objectives is still needed.

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

ISRP 2010 - Does Not Meet Review Criteria

ISRP 2011: This objective was dropped from the project.

Objective C) Summer rearing snorkel surveys

ISRP 2010 - Response Requested

Methods for snorkeling are very general, and it is not clear if standard methods are being followed. Statistical methods are not adequately explained, and it is not clear how presence or absence data in the lower Warm Springs River will tie in with “quantitative” snorkeling upstream. The proponents also need to provide information on methods for obtaining presence or absence data in the lower reaches

ISRP 2011: Response Requested – In general, method descriptions for this objective are much improved. Improved data collection methods and standardization were proposed, including calibration with other techniques. Some questions remain. Is the GRTS-based sampling grid adequate for this situation? Because the streams in question pass through inaccessible canyons, implementing a spatially balanced sampling program will be challenging. The project description refers to “oversampling” to circumvent this problem – and this is a good idea – but what assumptions will be made about fish densities in those reaches where sampling is impractical? Will methods proposed for electrofishing minimize sublethal effects on juvenile salmon and non-target species? Another question pertains to the ability to calibrate snorkel counts in larger channels where multiple-pass electrofishing is impossible. The ISRP suggests that the project proponents continue to explore ways of verifying and validating field methods to achieve accuracy and precision targets.

Objective D) Spawning ground (redd) surveys

ISRP 2010 – Response Requested

Statistical methods for redd survey data are not given in detail, and the proponent should provide justification that the effort will provide adequate precision.

ISRP 2011: Response Requested – Revisions to redd surveys and discussion of limitations and improved methods were provided. However, difficult topography and access to the river requires the proponents to use index reaches. Additional information on how representative the available data are in index reaches should be provided. Differences in observer efficiency when wading in tributaries compared to using a kayak in the lower Warm Springs River could be problematic.

The potential issue of bias in computing prespawn mortality was not well addressed. The proponent’s claim that the Chinook will not spawn downstream of the WSNFH should be supported by evidence from the Warm Springs or other rivers.

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

ISRP 2010 – Response Requested

The proposal requires inclusion of statistical methods as well as information on any plans to improve weirs so they work at high water.

ISRP 2011: Meets Criteria – Details and references to statistical methods provided in the response are adequate. Plans to improve the Shitike Creek weir so it works at high water were deferred until an experienced consultant is retained. They should specify what level of flood event the weir will be able to safely handle (e.g., 50-year flood). An efficient weir that can continue to function at high flows is key to the success of this monitoring. A review of the weir’s effectiveness and the precision of the data should be conducted soon after installation and reported in the next proposal review.

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

ISRP 2010 – Does not meet review criteria

Creel census methods are not described in sufficient detail. Proponent is encouraged to coordinate with CRITFC harvest monitoring projects.

ISRP 2011: Not applicable - Creel surveys will not be included in the work objectives for this specific project. Reference to the process and agencies involved and how data might be used is nonetheless still required as background for the proposal and should be included in the trends analyses, since harvest decisions appear the key management goal.

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 2010 – Response Requested

The ISRP concluded this objective has a strong policy element. Protocols for monitoring and evaluating the effectiveness of management programs should be specified.

ISRP 2011: Meets Criteria – Discussion of policy and management decisions is now limited. As discussed above, the ISRP was still uncertain how these monitoring data would be used to inform harvest and hatchery management actions. The proponents give good potential indicators or protocols for assessing effectiveness of management programs, and it is to the proponent's credit that they recognize them. However, they give no information about whether they are actually measuring them or not. The ISRP will review how these indicators are measured during subsequent reviews of the project.

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

ISRP 2010 – No Recommendation

The ISRP concluded this objective has a strong policy element. The ISRP was unsure if evaluation of this use is within the scope of this review and hence did not comment on this sub-objective.

ISRP 2011: Not applicable. The proponents have given quite a good description of their role at the hatchery.