



**Independent Scientific Review Panel**  
for the Northwest Power & Conservation Council  
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**Memorandum (ISRP 2010-38)**

**November 15, 2010**

**To:** Bruce Measure, Council Chair  
**From:** Eric Loudenslager, ISRP Chair  
**Subject:** Follow-up Review of the Confederated Tribes of the Warm Springs Reservation's Fish Accord Proposal, Deschutes River Sockeye Development (#2008-307-00)

### **Background**

At the Council's August 2, 2010 request, the ISRP reviewed responses to our detailed final review of the Confederated Tribes of the Warm Springs Reservation's Fish Accord Proposal, Deschutes River Sockeye Development (#2008-307-00) ([ISRP 2010-19](#); June 15, 2010).

In our final review, we recommended that the proposal "Meets scientific review criteria (In-Part, Qualified)." We included specific recommendations for each major project objective:

- Objective 1 (genetic analysis): Meets Science Review
- Objectives 2, 3, and 4 (determine outmigration timing and abundance, movement from Suttle Lake, and compare SAR values): Response Requested – confirmation of the adequacy of sample sizes to achieve precision in the population estimates is needed. The ISRP recommends consultation with statisticians.
- Objective 5 (hydroacoustic surveys): Meets Science Review
- Objective 6 (determine spawner escapement): Response requested – provide confirmation that sample sizes of marked and recaptured fish are providing robust estimates of kokanee spawning escapement to the Metolius River.
- Objective 7 (prepare reports): Delete – this is an administrative task associated with all other objectives. It would be more appropriate to incorporate as a work element (task) under each objective associated with management objectives.
- Objective 8 (develop a sockeye reintroduction plan): Meets Science Review (qualified). If the reintroduction of sockeye involves artificial production funded through the Fish and Wildlife Program a proposal to develop a Master Plan using the Council's Three-Step process would be needed. See additional literature on sockeye reintroduction plans.

The Warm Springs Tribes responded to our recommendation regarding Objectives 2, 3, 4, and 6 that they consult a statistician to ensure that the sample sizes are sufficient to achieve precision in the population and spawning escapement estimates. They also addressed our recommendations pertaining to Objectives 7 and 8. As recommended they deleted Objective 7. They also clarified their approach to kokanee reintroduction (Objective 8, now Objective 7).

## **ISRP Recommendations and Comments on Response**

Overall, the response shows a great deal of effort on the part of the proponents to resolve the queries raised by the ISRP. As a result, the project should be strengthened. The Warm Springs Tribes' cover letter clearly identified revisions to the proposal and was very helpful to reviewers.

*Objectives 2, 3, and 4: Determine outmigration timing and abundance, movement from Suttle Lake, and compare SAR values*

**Recommendation:** Meets Review Criteria.

The proponents have provided essential information in their response and the attached references. They provide a reasoned prioritization of the sequence of evaluation based on fish availability, and explanation of statistical methods and consultation as a follow-up to the earlier ISRP review. The relative priority of the three objectives to each other was determined, and the input of qualified statisticians was used to assess sample size issues.

For Objective 3, the new material regarding PIT tag sample size seems to adequately address that issue. For Objective 4, the scope was clarified and the statement that the number of fish to be marked will be solely a function of the number of outmigrants seems reasonable.

With respect to sample sizes and precisions, the desired sample size of 400 provided by Skalski and Townsend for estimating the precision of survival leads to a margin of error of between about 11% and 16%. Justification of the adequacy of this level of precision should be carefully considered. The observation that precision curves flatten out appreciably when release sizes are much above 400–500 depends on the eye of the observer and the scale of the visual aid, so additional justification is warranted.

*Objective 6: Determine spawner escapement*

**Recommendation:** Meets Review Criteria

The proponent is employing methods developed by CRITFC biologists and statisticians that have been previously reviewed by the ISRP. The CRITFC proposal is an ongoing refinement of mark/recapture estimation with constraints owing to tag loss and such. Using this developing methodology to design the kokanee population estimate in the Metolius River is reasonable.

The proponent's discussion of assessing spawner escapement, as well as the CRITFC report by Galbreath and Hyun (2008), indicate the difficulties in making a precise and accurate estimate. Incorporation of the CRITFC analysis into the proposal (and indication of ongoing CRITFC staff involvement) strengthens the study by more clearly addressing the assumptions required and the inherent limitations.

*Objective 7 (previously 8): Develop a sockeye reintroduction plan*

**Recommendation:** Meets Review Criteria (qualified)

The reintroduction plan being developed for sockeye in the Deschutes Subbasin is funded and executed under the FERC relicensing of the Round Butte Dam; therefore, participation by the Warm Springs Tribe is appropriate. The qualification in our recommendation is that the ISRP should be given an opportunity to review and comment on the reintroduction plan, especially if Columbia Fish Accord or other Fish and Wildlife Program projects are going to be involved in executing the RM&E for the reintroduction.

If the reintroduction plan for sockeye salmon in the Deschutes Subbasin involves artificial production under the Council's Fish and Wildlife Program, a Three-Step Master Plan review will be needed.