

State, Federal and Tribal Fishery Agencies Joint Technical Staff Memo

Nez Perce Tribe

Oregon Department of Fish and Wildlife

Washington Department of Fish and Wildlife

US Fish and Wildlife Service

TO: Brad Eppard, SRWG Chairperson



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SUBJECT: Lower Columbia Survival Studies, SRWG meeting April 13, 2012

DATE: August 17, 2012

The purpose of this memorandum is to clearly communicate concerns regarding the acoustic tag studies being conducted by the Corps of Engineers, PNNL, and the UW to assess compliance with at-project performance standards in the NOAA Biological Opinion.

On April 13, 2012 the SRWG met to discuss concerns regarding the acoustic tag studies. The SRWG agreed that significant high grading of study fish has occurred in these studies to-date and the investigators agreed to make efforts to reduce, but not eliminate the high grading. The SRWG did not, however, address other significant concerns regarding these studies and the management application of the results. These concerns, expressed in verbal comments and several memorandums to the U.S. Army Corps of Engineers and the region, focus on the acoustic tag study design, study implementation, analyses and results. They point out that the recent body of scientific work indicates that the acoustic tag studies presently conducted do not accurately or

adequately assess the impacts of hydroelectric project passage on the survival of salmon and steelhead and other species such as lamprey.

A June 5, 2012 correspondence from Joyce Casey, Chief Environmental Branch of the Portland District COE, to the SRWG, transmitted a summary report of acoustic tag study data results, prepared by PNNL, explaining that the purpose of the summary report was to provide input data for NOAA COMPASS modeling of the FCRPS, presumably to determine the effectiveness of Biological Opinion measures. The outstanding unresolved technical issues identified by the fishery managers, summarized in this memorandum, raise serious concerns regarding the use of these data for COMPASS modeling and the propriety of basing certain hydrosystem management decisions on acoustic tag data.

As in any mathematical modeling exercise, precision of the COMPASS model output is limited by the quality, accuracy and precision of the model input data. Technical concerns regarding the acoustic tag study design, analysis, representativeness of the data to the run-at-large, and the exclusion of consideration of documented delayed mortality associated with powerhouse passage, raise serious questions on the validity and advisability of using acoustic tag data results for COMPASS model inputs.

Our specific comments are:

- The limitations inherent in acoustic tagging studies are significant and affect the applicability of results to the run-at-large population.
- The salmon managers are very concerned with the large discrepancy between the expected tagging selection bias and the actual reported bias. Carlson (2010) indicated that researchers expected to reject “less than 1% of the fish over the sampling season” based on the proposed condition criteria. Data presented in the 2010 performance standards reports indicate, however, that researchers actually rejected 12.5% of fish collected due to size or condition. These high levels of tagging selection bias based on fish length and physical condition will result in higher survival estimates than would occur if tagging were truly representative of the target population. The managers do not believe the study results with this large a bias can be applied to the run-at-large.
- The acoustic tag data base should be made public and available for review. Transparency and rigorous peer review of data used and the data selection process are essential for effective regional collaboration and evaluation.
- If acoustic tag study results are biased high, then the Biological Opinion performance standards are not being met. The recently released interim report by Ploskey, et al., June 2012, “Route-Specific Passage Proportions and Survival Rates for Fish Passing through John Day Dam, The Dalles Dam, and Bonneville Dam in 2010 and 2011”, cites in Table 3.1, three 2011 estimates of survival exceeding 100 %. This suggests that some study assumptions and or requirements were not met at the identified sites for the Virtual Paired Release (VPR) study design. Several reviewers have raised concerns regarding the specific acoustic tag study design being implemented at lower Columbia River projects, and that the current design may be generating at-dam survival estimates that are biased high. Participants at the April SRWG meeting offered that the current study design is

potentially seriously flawed, further raising doubt regarding the management application of study results. Also at this meeting, it was stated that acoustic tag data appear to generate reach survival estimates that are biased high relative to PIT-tag data on the run-at-large.

- Concerns remain regarding the implementation of the lower Columbia River studies. The selection of study fish based on size and physical condition raises issues whether the results from these acoustic tag studies can be applied to the run-at-large. In addition, fish handling and the actual tag implantation surgery raise concerns regarding fish behavior and whether results can be applied to the run-at-large. These issues raise further questions regarding confidence and management applicability of study results.
- In addition to all of the limitations and concerns associated with the present measurement of performance standards, a growing body of scientific evidence indicates that at-project survival estimates generated by these acoustic tag studies do not reflect the actual impact of hydroelectric project passage on juvenile salmon and steelhead survival. The existence of apparent and significant delayed mortality associated with powerhouse passage is emerging from several different analyses. A growing body of scientific information indicates that powerhouse passage has extended impacts on juvenile salmon and steelhead, their first year ocean survival and adult return (Haeseker et al. 2012, Petrosky and Schaller 2010, Tuomikoski et al. 2010, FPC Memos May 21, 2009; Feb 3, 2010; Oct 6, 2010; Jan 19, 2011). The present at-dam survival estimates do not incorporate or address the delayed mortality impact of dam passage. Therefore, they underestimate actual impacts of powerhouse passage, and are thus inadequate to provide a basis for determining specific project operations for fish passage.

In summary, it is our expectation that given the importance of the performance standards testing, that the COE will seek regional agreement (consensus) on how the studies are conducted and the applicability of the results.