

State, Federal and Tribal Fishery Agencies Joint Technical Staff

*Columbia River Inter-tribal Fish Commission
Idaho Department of Fish and Game
Oregon Department of Fish and Wildlife
US Fish and Wildlife Service
Washington Department of Fish and Wildlife*

June 14, 2004

Mr. Michael Langsley
NWD Corps of Engineers
PO Box 2870
Portland, OR 97208-2870

Dear Mr. Langsley:

In response to your request of May 28, the state, tribal and federal salmon managers have reviewed the proposed study entitled, “**Assessing critical assumptions associated with survival estimates of sub yearling Chinook salmon using radio-telemetry, 2004**”. We support the evaluation of assumptions regarding using radio tagging of fall chinook to estimate their survival, and recognize the challenges to doing this well. However, we do not expect the proposed assessment based upon retrospective analysis to generate conclusive results because of limitation we discuss in further detail below. We offer the following review comments for your consideration.

On May 18, 2004 the state, federal and tribal fishery agencies submitted a joint letter to the Corps of Engineers regarding comments on SPE-04-NEW, entitled “Summer spill evaluation”. In those comments the agencies and tribes raised serious concerns regarding the assumptions inherent in the proposed spill evaluation. The agencies and tribes comments emphasized that it is important to conclusively evaluate the assumptions in our previous comments prior to conducting the proposed Bonneville Summer Spill study. The agencies and tribes objected to the conduct of the Bonneville Dam spill study, SPE-04-NEW, prior to validation of assumptions. We have attached those comments for reference. It is important to note that the proposed study only addresses two of the four assumptions critical to the previously proposed “Summer spill evaluation”, SPE-04-NEW. Although we continue to support the evaluation of assumptions regarding radio tagging of fall chinook, we do not expect the proposed assessment based upon retrospective analysis to generate conclusive results.

We believe caution should be used in interpreting the results of the proposed retrospective analysis. As proposed it is highly probable that no difference between groups will be found either for size related analyses or temporal analyses. Our detailed comments related to

Objective 1 reflect our concern that a result of no difference will not conclusively establish that size or temporal differences do not effect survival estimates. Instead it will reflect the limitations of the retrospective analysis.

Objective 1.

Retrospective analysis of survival of subyearling chinook based on size of fish used in radio-telemetry studies

In their retrospective analysis, USGS proposes to reanalyze survival data, dividing fish into two categories, less than 120mm compared to greater than 120mm. Since, in the initial studies, they were limited to tagging fish a minimum 110 mm, the smaller size group would range in length from 110mm to 120mm. Plots provided with the proposal show the mean length of fish collected at the dams, labeled “river fish”, ranged between 101 mm and 108 mm, with minimum fork lengths possibly 75mm to 85 mm (hard to determine based on figures). This limits inferences from the analysis to fish larger than the mean. Therefore, if no difference between groups is found, it does not pertain to fish smaller than 110mm, and cannot be used to make inferences regarding those fish. In other words, a result of no difference leads to no conclusive information regarding the assumption that survival studies using larger fish represent the entire population. Also, if a difference is found, between the two groups of large fish, it is possible the survival of smaller fish could show an even greater difference than those found in the analysis. The USGS proposal acknowledges this problem, and states that this analysis seeks to find insight into trends in survival related to size. But trends are not readily quantified and this particular analysis should not be considered a definitive test of the assumption nor will the results be able to quantify the difference in survival rate of fish less than 110 mm, which represent greater than fifty percent of the population (or “river fish”) during the test periods analyzed.

The researchers anticipate that there may be difficulty in finding a difference in survival between the two groups in their retrospective analysis because, as they write; “Given that the sample sizes associated with these studies were planned such that pre-established precision targets could be met, the parsing of the data (data mining) that will occur during these retrospective analyses will result in a reduced ability to detect the level of differences that were prescribed in the original proposals describing the studies.”... We believe that this parsing of data will lead to a greater likelihood of a result of no significant difference between the two size categories (i.e., greater probability of a Type II error). Again, this result will have limited value for inference to the population and for addressing the assumption.

Retrospective analysis of survival of subyearling chinook based on timing

We have similar concerns regarding the inferences of this analysis as we had to inferences to size related survival, namely that the researchers will look for trends in the data for a given time period ~June 20 to July 20 and try to make inferences to a later time period, the end of July through August. As previously stated, if no trend or difference is found between early season and late season, or no trend over time is found, it provides very limited inference for August. Conditions in August, and likely fish behavior in August are different than June and July, and therefore inferences about the effects of operations from studies conducted in June and July may

not be applicable to August. The researchers have developed several tasks under objective 2 in their proposal to look at temperature effects related to tagging fish in August, because of the higher temperatures in the river. We share their concern that higher temperatures in August could have a greater impact on fish; particularly that survival through the bypasses and turbines may be lower as temperatures increase. Summer spill studies at The Dalles Dam showed decline in survival in the later part of the migration. Stock composition as well as other factors changes temporally as the migration season continues. Further, studies by the Corps at Bonneville Dam indicate that juveniles change their vertical orientation in the water column during the summer, seeking lower depths later in the summer.

Objective 2

This objective seeks to explore the effects of tagging during periods of elevated temperature. It does not address an assumption so much as seek to broaden the time period when tagging studies can be carried out, which would then allow studies to address the assumptions identified in the introduction to the proposal related to subyearling chinook survival in August.

Task 2.2 would use laboratory fish to test discrete temperatures. Test fish should be of similar size to fish actively migrating so that tag size versus fish size is similar, especially for swim performance tests.

Objective 3 and Objective 4

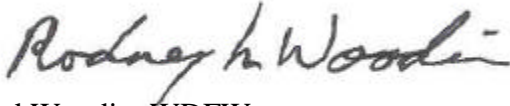
These objectives do not directly assess any assumption per se, but may lead to the use of radio-tags in smaller fish. It seems that identifying a smaller tag/antenna configuration should be done first, then proceed with tasks identified in objective 3 related to testing the effects of tagging on smaller fish and identifying minimum sizes of fish that can be tagged harmlessly. The same may be true of some tasks under Objective 2. Otherwise, another round of tests might be required once smaller tags have been developed to determine the effects of smaller tag/antenna.

To conclude, we believe the proposal will begin the much-needed assessment of the validity of use of radio tags for survival estimation of fall chinook. However, we do not believe that conclusive determinations will be possible from this work. Instead, we believe that some insight into necessary future study designs will result.

Sincerely,



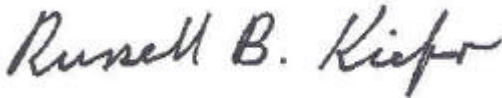
Steve Haeseker, USFWS



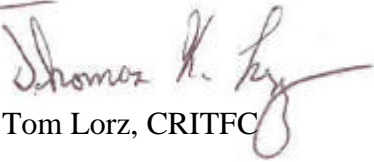
Rod Woodin, WDFW



Ron Boyce, ODFW



Russ Kiefer, IDFG



Tom Lorz, CRITFC