

State, Federal and Tribal Fishery Agencies Joint Technical Staff

US Fish and Wildlife Service

Columbia River Inter-Tribal Fish Commission

Idaho Department of Fish and Game

Oregon Department of Fish and Wildlife

April 10, 2003

Rock Peters
United States Army Corp of Engineers
Portland District
P.O. Box 2946
Portland, OR 97208-2946

Subject: John Day Spring Survival Test 2003

Dear Mr. Peters:

We have reviewed and discussed the proposed spring survival test at John Day. At present, there are several issues of concern with the proposed study. This study was originally developed to address preliminary results from the 2002 study at John Day, which suggested that bypass survival declined with increased spill levels. The 2002 report has not been made available for review. Without a final or preliminary report of this work, we are unable to evaluate the strength of this conclusion.

Further, we are aware of several study design issues that could compromise conclusions based on the 2002 study results. The primary concern, discovered after hydraulic evaluations done last month, was that turbine unit priority at the powerhouse during the 2002 studies was not what had been agreed upon in the Fish Passage Plan, FPP. In fact, the wrong turbine unit priority has been used since at least 1999. The FPP had designated for the fish passage season a priority of units 5, 1, 2, 3, 4, and then 6-16 in any order. By concentrating turbine operations to the south, more flow was concentrated at the bypass outfall, increasing velocity over 4 ft/sec and entraining the majority of the bypass flow downstream instead of drawing the outfall flow to the north towards the middle of the river. After reviewing the actual unit operations in previous years it was discovered that this operation has not occurred. Once the FPP operation was modeled, conditions at the outfall improved, raising the strong possibility that powerhouse operations could account for the lower survival at the outfall under Biological Opinion (BiOp) spill operations.

Due to these, and other concerns, the Columbia River Inter-Tribal Fish Commission, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, and Idaho Department of Fish and Game feel it would be prudent to alter the proposed 2003

John Day spill test. The project survival in 2002 was estimated for 24 hour 30% spill at 96.3% (93 – 99.6%), which was higher than the BiOp 12 hour 60% spill condition at 92.9% (89.5 – 96.3%). Since the evaluation in 2002 was compromised because of turbine operating conditions it would seem logical to only test BiOp 12 hr 60% spill to determine if there is a need to consider alternatives. Our specific concerns are detailed below.

1. The test proposed by the COE would evaluate BiOp spill of 60% night vs. 45% night spill. While the BiOp states that nighttime spill at John Day is 60% of the flow, actual spill percentages historically have not attained these levels. The seasonal average for spill percent during the previous evaluations has been in the range of 51% in 1999 to 52% - 54% in 2000 and 2002. Consequently, it will be very difficult to discern a survival difference between these two operations (45% spill and 52-54% spill). Further, 45% Spillway Passage Efficiency (SPE), has been shown in previous years to be lower than BiOp spill SPE. The 2003 juvenile out migration is projected to be one the largest out migrations in recent history with over 1.6 million wild spring/summer chinook alone predicted for the Snake. Based on the preliminary and potential inconclusive basis for this test, we are apprehensive about reducing the number of juvenile salmonids through the spillway and thus increasing the passage through the powerhouse. More so when one considers the current estimates for turbine survival range from 77.8 (67.3 – 87.0%) for yearling chinook for BiOp spill and 70.3 (48.4 – 88.5%) for wild steelhead during BiOp spill, some of the lowest turbine survivals ever observed at Corps projects. This operation would not aid in reaching BiOp survival standards since more juveniles would be routed through the turbines, which is the lowest estimated survival route at John Day.
2. Another point of concern is that after looking at the velocity profiles generated from the hydraulic model at the Corps facility in Vicksburg it became apparent that the hydraulic difference at and around the outfall for the 45% spill and BiOp spill levels under FPP turbine priority was very minor. Additionally, this was only done at one river flow condition of 180 kcfs, a flow less than recommended in the Biological Opinion for the spring migration. As river flows are increased past this level, these subtle differences diminish even further. The model runs were done assuming 60% for the BiOp spill level, but as discussed lower levels (51-54%), due to Total Dissolved Gas concerns, will likely be observed during the evaluation. As the BiOp spill level is reduced closer to the proposed 45% test level the differences between the hydraulics at the outfall for the two test conditions will further be reduced. This will only exacerbate the concern about detecting a difference between the test blocks.
3. The BiOp 60% spill has not been achieved due to Total Dissolved Gas (TDG) constraints at The Dalles Dam forebay. Because of TDG levels, the volume of spill for the BiOp test block did not achieve the 60% level. The Water Quality Team is evaluating the current fixed monitoring sites and is considering moving The Dalles Dam forebay monitor because its current location is not representative of forebay gas levels. If this evaluation were done under full implementation of the BiOp 60% spill level, an evaluation of 45% spill compared to BiOp would be technically feasible. In the interim, however, it would make more sense experimentally and

from a fish safety perspective to first evaluate whether powerhouse turbine operations were the cause for the apparent reduced short-term survival at the outfall under BiOp spill levels in past years' studies.

4. With only one test block more fish could be released through other routes to reduce variability and improve survival estimates. Currently turbine estimates have large confidence intervals on the order of +/- 10% for yearling chinook and +/- 20% for steelhead. The bypass was on the order of +/- 5% for both groups. This information could be compared to previous years' information.
5. After reviewing previous studies it is apparent that daytime spill in the spring is very effective at passing the fish that are actively migrating during the day. The concern with daytime spill is that some juveniles tend to be holding in the forebays, especially steelhead, during the day. However it would seem prudent to test an RSW or some other surface spill option in the future to determine if it is possible to induce these juveniles to continue to migrate, which would further improve FPE. Perhaps efforts this spring should consider evaluating this concept (or some part of it) possibly using a bulk weir like was tested in 1997.
6. Lastly, if 2003 tests of BiOp spill following FPP turbine operating criteria prove that bypass survival is unacceptably low, we recommend that consideration be given to evaluation of alternative bypass outfall sites that would improve bypass survival at BiOp spill levels. Although this could result in lengthy evaluations and an expensive fix to bypass outfall problems at John Day, it could be the prudent long-term solution that provides the greatest survival at the project rather than trying to fix the problem by reducing spill that has a high likelihood of reducing project survival.

We appreciate the opportunity to discuss the John Day spring study and understand that these discussions are occurring very close to the beginning of the season. However, because of our high concern on how we should proceed with this study we urge the Corps to not proceed until full agreement can be reached on the study. We look forward to discussing these issues with you.

Sincerely,



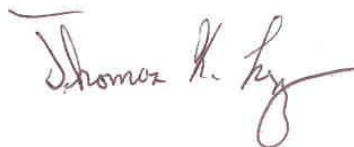
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