



# FISH PASSAGE CENTER

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## MEMORANDUM

TO: Fish Passage Advisory Committee

FROM: Michele DeHart

DATE: November 10, 2005

RE: Federal Columbia River Power System – Summer Spill – After Action Report – October 31, 2005

We have reviewed the Federal Columbia River Power System, Summer Spill 2005 After Action Report, (After Action Report) posted on the Federal Salmon Recovery. We offer the following review comments for your consideration. The Fish Passage Center (FPC) provided FPAC with in-season updates of passage throughout the 2005 salmon migration season. The FPC provided FPAC and the region with four preliminary summaries of juvenile fall Chinook passage, on September 12, September 16 and on October 21, October 25, 2005. Following are our general conclusions regarding the Federal After Action Report:

### **General Conclusions**

- The only information provided in the After Action Report that was additional to the FPC analysis was the estimated economic impacts and the preliminary RSW study and radio tag study results. The FPC is not prepared to make any comments on the economic impact estimates. Nor can we make comments on the RSW preliminary analysis because study sponsors are not required to make the preliminary data available to the public. Therefore, it is impossible to comment without access to the data and the analysis.
- We agree with the action agencies statement that a life cycle study of fall Chinook needs to be conducted that evaluates in-river and transportation of fall Chinook. In fact the state, tribal and USFWS proposed a collaborative study in 2005, which would have evaluated transportation and in-river passage with spill. The study design and collaborative process required a collaborative agreement on study design, study implementation and analysis and reporting of results. The COE and NOAA Fisheries rejected this proposal in 2005.
- We agree with the action agencies concern that one-year of study with summer spill is inadequate to determine life cycle effects of spill and transportation. We agree that the

life cycle study as included in the collaborative proposal by the agencies and tribes needs to be repeated for several years with summer spill and transportation to evaluate the most beneficial operation for future years.

- The NOAA estimates of survival and passage of fall Chinook juvenile migrants are not significantly different from the FPC estimates in the preliminary migration updates. There is no information in the After Action Report that conflicts with, or causes modification in FPC conclusions.

## Specific Comments

**Holdovers, page 5, pg 2** – The After Action Reports states that holdovers will determine the final survival estimate for the 2005 summer migration. In addition, the After Action Report states that in recent years “holdovers” accounted for over 50% of the adult returns to the Snake River. On May 10, 2005 the FPC staff provided FPAC with a memorandum that summarized the over-wintering data collected to date. The After Action Report statement on 2005 survival and 2006 “holdover” out-migrants should be considered with caution. The 2005 survival of fish migrating in-river is unlikely to change significantly with the consideration of “holdover” fish, since past data indicates that most “holdover” fish are migrants that pass Lower Granite Dam later than mid-July or hold over above Lower Granite Dam. Present preliminary estimates do not incorporate large numbers of late migrants. We do not agree with NOAA that juvenile survival can be readily adjusted to account for “holdover” migrants. The uncertainties surrounding the “holdover” phenomenon for fall Chinook were addressed in the May 10, FPC memorandum.

- There are indications that the holdover phenomenon in fall Chinook may largely be the result of human activities.
- A life cycle accounting for “holdover” fall Chinook needs to account for the number of subyearlings that do not migrate in the fall and attempt to over-winter. In addition an estimate of over-wintering mortality needs to be developed. The method for estimating over-wintering mortality and the starting population of holdovers is a key question and is not identified or described by NOAA.
- Smolt-to-adult returns cannot be accurately assessed for “holdover” fish unless a method to estimate the starting population and the over-wintering mortality is developed.
- Past PIT tag data indicate that “holdover fall Chinook tend to result from late migrating wild fall Chinook from the Clearwater River, and backfill releases of small hatchery fish which have later release dates.’ In addition past data indicate that most of the “holdover” phenomenon takes place in lower river reaches.

## PIT Tag Reach Survival Data and Estimates

**Page 5, pg 3** – In this paragraph NOAA predicts relative and absolute differences in overall system survival between a no-spill summer operation and a spill summer operation. These estimates should be considered cautiously and should be considered in the context of the passage experience of the total population. NOAA predicts that the system overall survival difference between the spill and no-spill operation could be in absolute terms from -1 to +1 percent. A 1% difference in adult returns is significant. However, this absolute value primarily reflects the proportion of the population that was transported and experienced the D-value range assumed by NOAA compared to the proportion of the population that migrated in-river and experienced spill. NOAA compared summer 2004 with summer 2005. The passage timing distribution was

different in each year. The proportion of the fall Chinook juvenile population transported is calculated for each year and included in the FPC Annual Smolt Monitoring Report. In 2004 approximately 97% of the outmigration population approaching Lower Granite Dam was destined for transport, in 2005 over 80% of the outmigration population was transported. The difference in absolute survival of the two operations is a direct result of the proportion of the population that experienced in river migration. Repetition of the operation and actual adult returns will determine whether or not NOAA predictions contained in the After Action Report are accurate or not.

### **Fish Passage Center (FPC) Analysis**

**Page 9, pg 1-** The After Action Report discusses points that were not included in the FPC analysis. The FPC analysis clearly stated the methods and data used and included in the estimation of survival and travel time. The FPC memorandum dated, October 5, 2005 and posted on the FPC web site addresses some of these concerns. We agree and clearly documented the fact that we did not and could not address the issue of transported fall Chinook. Although there have been estimates of smolt-to-adult returns for transported fall Chinook calculated for past years, which were included in the NOAA technical memorandums supporting the Biological Opinion, these transportation benefits from past years were not optimistic. We agree that the overall assessment of the efficacy of transportation and spill requires several additional years of study with summer spill provided, in order to assess the effect on adult returns. We agree and stated in the FPC analysis that it was simply an assessment of the migration characteristics, survival and travel time that occurred in 2005.

Overall the After Action Report does not disagree with the findings of the FPC memorandum but criticizes the FPC analysis for questions it did not cover, such as transportation and holdover fish. The FPC analysis did not attempt to address these questions or determine the final disposition of passage mitigation programs for fall Chinook, nor did the FPC analysis address what should have or could have happened relative to the court ordered spill program.

The After Action Report indicates that the summer spill program may have influenced “holdover” fish and infers that “holdover” fish have a high value in terms of adult returns. The inference as to the value of holdover fish should be considered with caution. Past data on “holdover” fish was summarized in the May 10, 2005 FPC memorandum to FPAC. Valid estimates of smolt-to-adult return on “holdover” fish will require accurate estimates of the starting population of “holdovers” and the over-wintering mortality. The After Action Report fails to mention or recognize the possibility that the contribution rate of “holdover” fish to adult returns could be linked to the fact that “holdover” fish are not transported and they migrate the following spring under spring spill conditions. In addition the proportional contribution of “holdover” fish to adult returns varies a great deal from year to year and is affected by the passage conditions and survival of within year migrants. In other words, poor summer passage conditions and poor transportation survival of sub-yearling migrants would by necessity affect the proportion of the resulting total adult return that is comprised of sub-yearlings migrants versus “holdover” migrants. We agree that the “holdover” phenomenon needs to be studied relative to overall lifecycle survival but would recommend caution on statements regarding the value of “holdovers” to the entire population until additional data is available.

### **2005 Summer Survival Studies**

It is impossible to provide specific comments on the After Action Report regarding RSW, and radio-tagging survival estimates. The actual data and methods utilized to arrive at these estimates are not available to the public. However, the agencies and tribes have repeatedly expressed their concerns regarding the appropriate application of these study results and their limitations to management applications. In addition the agencies and tribes have expressed their concern that RSW studies done to date do not address reach survival and tailrace survival issues adequately. In addition RSW studies have emphasized the reduction of spill without addressing the question of how to maximize project survival utilizing spill and RSWs in concert with each other.