



FISH PASSAGE CENTER

1827 NE 44th Ave., Suite 240, Portland, OR 97213

Phone: (503) 230-4099 Fax: (503) 230-7559

<http://www.fpc.org>

e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: Andrew Kolosseus, Washington Department of Ecology
Agnes Lut, Oregon, Department of Environmental Quality

Michele Seibert

FROM: Fish Passage Center Staff

DATE: June 2, 2008

RE: Response to comments made by Shane Scott regarding CSS Study presentation

You asked us to respond to comments made by Mr. Shane Scott regarding the use of water travel time and CSS data in general. The following are the paragraphs from Mr. Scott's comments that apply to your request:

"The remaining document area copies of comment letters sent in by various organizations commenting on the Fish Passage Center's CSS study. In summary, the Northwest Power and Conservation Council was going to defund the CSS study due to lack of intellectual rigor and selective use of data. There has been ongoing criticism of this project since its inception. Most specifically the FPC selects data from old dam survival reports that are not applicable to the today's dam operations. Most specifically, they state that water travel time (WTT) is the same as fish travel time (FTT). Fish do travel at about the same speed as water in the reservoirs but things have significantly changed at the dams (they passively migrate with the river currents). There used to be significantly delay at dams, that is why the FPC advocates for large spill volumes. Fish used to have to dive 50 feet to pass under the old spill gates. Fish delayed in the forebays, searching back and for many hours to days before they pass. Today, surface bypass systems allow fish to pass as soon as they enter the dam forebays. Passage times are now measured in minutes not days and hours. WTT does not change with spill because what gets to the dam passes the dam. The FPC's CSS study does not reflect these changes in dam configuration.

Also, most important to remember is that river flow (WTT) is most dependant upon water supply, not spill volumes. You can not spill during a low water year to create (WTT or FTT) fish survival rates observed in high water years. High rain levels and snow pack relate to faster river flows and faster outmigration times, lower water temperatures and higher turbidity (all relate to lower predation lower predation) and higher survival. Low water years relate to lower river flows, lower turbidity and higher water temperatures all which adversely affect fish survival. Please note that the FPC does not analyze annual water volume with fish survival only WTT. Also, please note that the FPC has been critical of surface bypass technologies since their inception.

The FPC often mentions 2001 and the lack of spill that year to state that spill is the primary factor in fish survival. Please recall that 2001 was a record low water year with several factors that resulted in low juvenile survival. Also there was no spill in 2001 as all fish collected (over 95%) were safely transported to below Bonneville Dam. The only fish left in the river were test fish marked to measure survival. We know that predation by birds an especially other fish species increases with warm, low water flows. So, since so few fish were left in the river, the logical conclusion that they were eaten by predators or in the case of steelhead, residualized due to the warm water temperatures. But this does not represent that most fish were safely transported out of the river.“

First, we take exception to Mr. Scott's mischaracterization of the CSS Study's authorship. The CSS is not an FPC study. It is a joint study conducted by the Idaho Department of Fish and Game, the Washington Department of Fish and Wildlife, the Oregon Department of Fish and Wildlife, The Columbia River Inter-Tribal Fish Commission and the U.S. Fish and Wildlife Service. Second, we take exception to Mr. Scott's speculations about the opinions of the Northwest Power and Conservation Council with regard to the CSS. The following are summary conclusions of the Northwest Power and Conservation Council's Independent Scientific Advisory Board's and Independent Scientific Review Panel's assessment after their latest review of the CSS study.

- *“Overall, the CSS Ten-Year Retrospective was effective in answering the concerns posed by the ISAB's review of the CSS 2005 Annual Report (ISAB 2006-3). The Retrospective provided improved clarity in the presentation and explanation of the sophisticated methodologies used in analyses of CSS data. The scope of CSS investigations resulted in an extensive report, containing many detailed summaries of past and present work, and the report presents key data and data summaries in support of their major conclusions. The CSS team has responded very well in a short time frame to the difficult challenge of including enough details to allow scientific review.”*
- *“The ISAB and ISRP also find many well-supported interpretations in the CSS Retrospective that should be carefully considered by Council and other decision-makers.”*
- *“Similar to the ISAB review of the 2005 CSS Annual Report, this current ISAB/ISRP review finds that the design, implementation, and interpretation underpinning the 10-Year Retrospective Report are very good.”*

Contrary to Mr. Scott's speculations, the Northwest Power and Conservation Council's Independent Scientific Advisory Board and Independent Scientific Review Panel concluded that the CSS utilized sophisticated methodologies in the detailed summaries of past and present work, that the design, implementation, and interpretation underpinning the CSS study were very good, and that the CSS conclusions were well-supported. We stand behind the science of the CSS study and welcome Mr. Scott to submit credible scientific comments on the report, rather than speculative hearsay as to the opinions of other independent scientists and organizations, especially when those scientists and organizations have provided documented support of the CSS study directly contradicting Mr. Scott.

The statements made by Mr. Scott refer to the FPC, but actually pertain to the presentation of the CSS data to the Adaptive Management Team at the March 11th meeting by Dr. Steve Haeseker (USFWS), who is a member of the CSS Oversight Committee. Mr. Scott's statements regarding the presentation are inaccurate. Judging from the questions he posed at the meeting to Dr. Haeseker, Mr. Scott is obviously confused regarding the statistical analysis presented and the differences between independent and dependent variables. This confusion seems to carry forward in his statement: "*most specifically, they state that water travel time (WTT) is the same as fish travel time (FTT).*" Mr. Scott's statement reflects his failure to read or understand the CSS report, wherein it is clearly stated that "we define fish travel time (FTT) as the number of days spent migrating each of the two reaches, LGR-MCN and MCN-BON" (Schaller et al. 2007; p. 13) and "water travel time was calculated by dividing the total volume of reservoirs by the flow rate" (Schaller et al. 2007; p. 16). Mr. Scott's statement that the CSS states that water travel time is the same as fish travel time is obviously wrong. The presentation given to the Adaptive Management Team makes it clear that water travel time is an independent variable used to represent water velocity and that fish travel time is a dependent variable used as a measure of fish velocity. The independent variable WTT is then used as an environmental factor that can affect both fish travel time and fish survival. In fact, the presentation concludes that juvenile travel times, instantaneous mortality rates, and survival rates through the hydrosystem are strongly influenced by managed river conditions including flow, water travel time, and spill levels. Contrary to Mr. Scott's comment that "*most specifically the FPC selects data from old dam survival reports that are not applicable to the today's dam operations,*" the data and analyses that were presented to the AMT were solely derived from recent PIT-tag data collected during 1997-2006. These data are certainly applicable to today's dam operations.

Mr. Scott suggests that spill decreases forebay residence time and that in turn improves juvenile fish travel time and survival. This is likely true. However, the statement that the FPC is critical of surface bypass technology is factually untrue and irrelevant to the discussion of forebay monitors. It should be apparent that the RSW technology is providing spill and that spill was accounted for in the CSS analyses presented to the AMT. Scientific studies evaluating the effects of conventional versus RSW spill at similar spill volumes in terms of juvenile and adult survival have not been completed. The RSW at Lower Granite Dam was not installed until 2002 and, while the data suggest that the RSW in combination with conventional spill at Lower Granite Dam does pass juveniles and decreases forebay delay, the Ice Harbor RSW was not installed until 2005 and data thus far has not shown the benefit observed at Lower Granite Dam. The McNary TSW was installed in 2007 and only has one year of limited data, and John Day TSW and Lower Monumental RSW were not installed until 2008. Consequently, it is too soon

to assess whether this technology provides an increased benefit to both juvenile and adult survival relative to conventional spill at similar spill volumes.

Another example of Mr. Scott's confusion regarding the CSS analysis his statement that "*the FPC does not analyze annual water volume with fish survival only WTT.*" The presentation given by Dr. Haeseker clearly outlines that flow was considered as an environmental variable, in addition to water travel time. The documentation materials (Schaller et al. 2007) also clearly demonstrate that water travel time was a better predictor of migration and survival rates than flow. However, it does not seem that Mr. Scott understands the calculation of WTT, because WTT is itself dependent upon flow. WTT is calculated as: $WTT = Volume / Flow$ and is therefore a function of the flow measured, with WTT decreasing as flow increases. We agree with Mr. Scott's statement that the yearly flow is dependent on the annual water supply.

Lastly, the statement that Mr. Scott makes that "*you can not spill in a low water year to create fish survival rates observed in high water years,*" is factually untrue. In the Snake River, 2007 was considered an extremely poor water year, second only to 2001 in terms of spring flow volume in recent years. Prior to 2007, the management operation in a low water year was to terminate spill and maximize the collection and transportation of juveniles. In 2007, the operation during this low flow year was to provide spill during the juvenile migration period. The juvenile survival observed for in-river migrants in 2007 was similar to those observed in 2006, a high water year. In contrast, under similar flow conditions in 2001 but without spill, the juvenile survival rates observed were poor. These empirical data again contradict the statements of Mr. Scott, while simultaneously demonstrating the importance of spill to juvenile fish survival.

In conclusion, we remain committed to providing the water quality agencies with the most accurate information on the potential impacts regarding the removal of forebay monitors. The comments submitted by Mr. Scott on Dr. Haeseker's presentation of the CSS study results to the AMT were largely misinformed and inaccurate. Additionally, Mr. Scott failed to review the supporting documentation materials provided in Schaller et al. (2007) to improve his understanding. The overall conclusions of the CSS study results presented to the Adaptive Management Team remain unchanged: increased levels of spill are associated with faster migration rates and increased survival rates of juvenile steelhead and yearling Chinook.