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MEMORANDUM

TO: Fish Passage Advisory Committee

Michele DeHart

FROM: Michele DeHart

DATE: December 2, 2005

RE: CSS Workshop Document relating to transportation and within year SARs

The purpose of this memorandum is to clarify some technical points regarding the findings of the CSS Workshop held in February 2004. FPAC was recently provided a group of documents which included a document entitled, "second declaration of John G. Williams" that references Fish Passage Center (FPC) data and findings from the Comparative Survival Study Workshop held in February, 2004. The Comparative Survival Study is a joint collaborative effort between Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Idaho Department of Fish and Game, the Columbia River Intertribal Fish Commission and the US Fish and Wildlife Service. The Comparative Survival Study Workshop was held in February 2004 for the purpose of:

- Synthesizing the results of the Comparative Survival Study and other research results;
- Documenting and assessing evidence relating to various factors that can affect survival rates over different life history stages including; hydrosystem passage, delayed mortality, time of ocean entry and travel time;
- Producing a report synthesizing and assessing the evidence for and against hypothesized mechanisms for differential survival (hatchery-wild; upstream-downstream) and smolt to adult returns; and
- Providing the foundation for a series of publications in peer-reviewed journals.

Participants in the workshop were researchers, including those from NOAA, who were collecting and analyzing data on salmon and steelhead at various life stages and the factors affecting survival at those life stages.

There are some statements in the Williams document that might cause confusion regarding the CSS workshop document and its conclusions. The Williams document could incorrectly be understood to infer that the CSS workshop participants validated the approach taken by Williams and the application of within year SARs to management determinations.

Bill Muir, NOAA, presented data from Williams et al (2003) on within-year changes in SARs and D (delayed mortality) for cohorts of in-river and transported chinook and steelhead that were tagged or marked during specific weeks at Lower Granite Dam. The participants in the workshop cautioned that

“The confidence intervals on these estimates of D and SAR will vary inversely with the number of fish marked or tagged. Estimates of D and SAR will therefore be less reliable during periods with fewer migrants and will be less reliable for wild fish than for hatchery fish”.

This important point is overlooked in the Williams document. The uncertainty around the estimates is ignored. In addition, the in-season SARs are not presented with any confidence intervals, so the uncertainty is not defined but likely very large due to single-digit adult return for several of the periods presented.

The Williams document refers to the workshop participants' discussion of “an optimal window” relative to the effect of time of entry into the estuary on survival. Again, the workshop participants recommended caution considering how confidence intervals and small numbers apply to this discussion. The “optimal window” for entry into the ocean discussed in the CSS workshop did not refer to timing of transportation, but to timing of entry to the estuary for in-river as well as transported fish. The discussion focused on an “optimal window” related to the provision of flow and its relationship to travel time, migration through the lower Columbia, and resulting entry into the estuary, for both in-river and transported fish, not the timing of when transportation should be commenced or ceased as inferred by Williams. The “optimal window” discussion was provided as an illustration and is not intended as a basis for management decisions since measures of uncertainty were not included.

We caution FPAC that the within-year SAR estimates should not be used as a basis for management decisions without consideration of the confidence intervals around those estimates and without considering the broad range of other available analyses. In addition, it must be recognized that the transport to control ratios will vary among years. The Williams analysis loses the year to year variation by averaging over years.