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November 6, 2002

### MEMORANDUM

**TO:** Council Members

**FROM:** Erik Merrill

**SUBJECT:** Council Request for ISAB Review of Flow and Flow Augmentation Issues

#### Proposed Action

Staff recommends that the Council approve a request to the Independent Scientific Advisory Board (ISAB) to review a set of biological questions related to flow and flow augmentation to inform the Council's mainstem program amendment process.

#### Background

Idaho Council Member Jim Kempton requested ISAB review of two different sets of questions related to the issues of the flow-survival relationship and flow augmentation from storage reservoirs. Similar questions are raised by the Council's draft mainstem amendments, and so it seems useful to obtain a review of these matters by the ISAB in time to help inform the Council's final decisions on mainstem program amendments.

On set of questions -- concerning the relevance of conclusions about the survival effects related to year-to-year differences in natural flows to the effects of within-year flow augmentation -- were identified in the Idaho Water Users' mainstem amendment recommendations. Another set of questions -- concerning the proper statistical methods for evaluating information on flow/survival relationships -- has been generated by a desire for scientific peer review of recent analyses related to flow and juvenile salmonid survival not examined in the ISAB's review of the Giorgi Report (ISAB 2002-1) and conducted after the ISAB's Review of Lower Snake River Flow Augmentation Studies (ISAB 2001-5). These analyses include but are not limited to those of the Fish Passage Center, NMFS, USFWS, and the Idaho Department of Water Resources.

A primary question for ISAB review is what is the evidence and to what extent will flow augmentation from storage reservoirs result in the same environmental attributes as higher flow under natural conditions? In other words, how sound is the scientific approach of research that looks at correlations of fish movement and survival in relation to natural variations of environmental conditions such as flow, temperature, and turbidity, and then extrapolates to infer that man-made additions of flow will result in the same environmental attributes? Are there studies that more directly measure the effects of flow augmentation? If so what are the results of those studies?

To what extent will incremental flow augmentation within a year have the same effect on survival as the year-to-year changes in flow that are also accompanied by year-to-year changes in climate and ocean conditions? Relevant to the draft mainstem amendments, to what extent will changes in reservoir release strategies that could result in decreases in spring and summer flows of approximately 10% or less have a statistically significant effect on juvenile salmon and steelhead survival? A linked question is what scientific evidence exists that decreased travel time as result of flow augmentation will result in increased juvenile survival/

A second line of inquiry would have the ISAB review the statistical methods used in recent flow-survival analyses, with particular scrutiny of the treatment of 2001 low-water-year data. We will need to work with the ISAB to frame these questions in the way most useful to an expedited review.

If approved, staff will forward the Council's request to the ISAB executive committee and NMFS and Tribal representatives for review. The ISAB is jointly sponsored by the Council, the National Marine Fisheries Service, and on a trial basis, the Columbia River Basin Tribes. Consequently, NMFS and the tribes may have questions to add to the Council's request and information necessary to ensure a thorough review. In developing assignments and work plans, staff works with the board's executive committee to balance the competing demands on the board's time. Given current ISAB assignments, the likely subcommittee will be available to conduct the review over the next couple of months.

### **Proposed Timeframe and Resources**

To be of greatest value to the Council's mainstem program amendment process, the ISAB review would be expedited for completion by January 31, 2003. The board will likely assign a subcommittee of three members and enlist an ad hoc member. Based on similar past projects, estimated costs for completion are \$35,000, which would be covered by the ISAB's existing 2003 budget. No additional funding is requested.