Independent Scientific Advisory Board
for the Northwest Power Planning Council,
the National Marine Fisheries Service,
and the Columbia River Basin Indian Tribes
851 SW 6th Avenue, Suite 1100
Portland, Oregon 97204

Presentation to the Northwest Power Planning Council - February 19, 2003
Review of Flow Augmentation: Update and Clarification

ISAB member Dr. Charles Coutant, Oak Ridge National Laboratory, and ad hoc member Dr. Richard Whitney, ISRP and ex-U of W, will present the findings of the ISAB's report, Review of Flow Augmentation: Update and Clarification (February 10, 2003).

Background. At its November 14, 2002 meeting, the Northwest Power Planning Council asked the ISAB to update and clarify its review of flow augmentation by the end of January 2003. The Council and the Columbia River Inter-Tribal Fish Commission (CRITFC) submitted questions on the subject to the ISAB. The issue is timely for the Council as it proposes amendments to the mainstem portion of the Fish and Wildlife Program. The issue is important in a broader context, because flow commitments are part of the legal agreements under ESA for some listed stocks. The relationship between river flows and salmon production has been reviewed before by the ISAB, but many questions remain. The ISAB considered the Council's questions and deadline, and suggested (by memo of December 19) that it could make a short response to the questions within that timeframe, and, if requested, follow this response with more detailed information. This report contains our initial response.

Stimulated by the specific questions posed by Council and others, the ISAB has taken a fresh look at the whole matter of river flow and fish survival with special emphasis on the Lower Snake River reaches. There have been improvements in study designs over the years, particularly in the PIT-tag and radiotelemetry studies. Also, the quantity and quality of accumulated data have improved, and the range of factors potentially related to survival of anadromous fish has been extended. This has allowed more patterns to be resolved in analyses. To focus only on the specifics of the questions posed to the ISAB would be to miss the point: the whole issue of flow and fish survival requires reevaluation. Management alternatives for improving survival of migrating juvenile anadromous fish include many dimensions beyond the current procedures for "flow augmentation." The ISAB answered the specific questions in the text of this report, but considers them to be a subset of the broader issue.

A different perspective emerged from this latest review. We realize that the prevailing rationale for flow augmentation is inadequate. It is neither complete nor comprehensive. There is room for alternative explanations of available data that have both scientific justification and practical value for managing the hydrosystem for multiple uses including salmon recovery. We identified several alternative explanations (hypotheses) for the correspondence of observed flow-survival data and radio-telemetry data, which are not necessarily mutually exclusive. These alternatives do, indeed, lead logically to management opportunities that extend beyond flow augmentation as presently defined. This report outlines several of them. We assembled enough information about them to suggest that they need serious further study and evaluation.

The ISAB believes that, with improved knowledge and subsequent management actions, it may be possible to achieve improved survival of juvenile salmonids through the lower Snake River reaches and their dams, even at lower flows. With an expanded perspective, this might occur at lower costs for operation of the hydrosystem and more effective use of stored water for other purposes than is possible with the prevailing flow-augmentation paradigm.

The full report is included with the meeting packet and available at the Council website:
www.nwcouncil.org/library/isab/isab2003-1.htm