Independent Scientific Advisory Board
for the Northwest Power and Conservation Council,
Columbia River Basin Indian Tribes,
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Latent Mortality Report Presentation

Tom Poe, ISAB member, and Rich Alldredge, ISAB ad hoc member, will present findings from the ISAB's Latent Mortality Report.

The full report is available at **www.nwcouncil.org/library/isab/isab2007-1.htm**.

Executive Summary

On November 27, 2006, NOAA Fisheries requested that the ISAB review a number of hypotheses about the causative factors that contribute to latent mortality. Additionally, the Columbia River Inter-Tribal Fish Commission urged the ISAB to agree on a method for assigning weights to the submitted hypotheses. These hypotheses are intended for incorporation in the Comprehensive Passage (COMPASS) model, specifically to affect the "below Bonneville" component of the model. In an effort to provide the modeling team with some initial input, the ISAB offers the following recommendations and conclusions:

- The ISAB recommends that the various components of latent mortality be merged into a single model. A merged data set should be used to evaluate this model with a statistical analysis that aids in selecting among hypotheses. The ISAB recommends this investigation as the most scientifically rigorous approach to reducing the number of alternative hypotheses based on all available data.

- The ISAB concludes that the hydrosystem causes some fish to experience latent mortality, but strongly advises against continuing to try to measure absolute latent mortality. Latent mortality relative to a damless reference is not measurable. Instead, the focus should be on the total mortality of in-river migrants and transported fish, which is the critical issue for recovery of listed salmonids. Efforts would be better expended on estimation of processes, such as in-river versus transport mortality that can be measured directly.

- Estimates based on limited time series have a high degree of uncertainty, and ocean conditions that affect survival will vary on several time/space scales. Thus there will be considerable uncertainty in estimates of post-Bonneville survival, and the ISAB recommends that this uncertainty be accounted for as efforts to reduce it continue.

Estimates of the uncertainty should be bounded and incorporated in simulation models and annual management planning processes.

- Future monitoring and research is needed to further quantify biological factors that contribute to variability in estimated post-Bonneville mortality. In particular, the ISAB recommends that acoustic tags continue to be developed and used to assess and partition mortality in the lower river, the estuary, and the Pacific Ocean shelf. In addition, the ISAB recommends the continuation of PIT tagging with a monitoring and evaluation program designed to reduce the current levels of uncertainty.

- The ISAB also recommends that a logit modeling approach be investigated as a potential alternative framework for future modeling of post-Bonneville mortality.