IMST Review of

the USFWS and NMFS 2001 Biological Opinions on

Management of the Klamath Reclamation Project

and Related Reports

Executive Summary

An excerpt from:

Independent Multidisciplinary Science Team. 2003. IMST Review of the USFWS and NMFS 2001 Biological Opinions on Management of the Klamath Reclamation Project and Related Reports. Technical Report 2003-1 to the Oregon Plan for Salmon and Watersheds, Oregon Watershed Enhancement Board, Salem, Oregon.

Full report is available at http://www.fsl.orst.edu/imst

EXECUTIVE SUMMARY

Different community and environmental goals and conflicting information in the Klamath Basin became a major concern for citizens of Oregon and California, Klamath Basin Tribes, and agencies responsible for managing natural resources. In an April 25, 2001 letter, Governor John Kitzhaber asked the IMST to "review the information and offer an independent assessment of the science used to establish lake levels and instream flow targets for suckers and coho." Questions concerning 1) status and management of coho salmon in the Klamath River and 2) management of Upper Klamath Lake and its watershed directly relate to the responsibilities of the IMST.

The Klamath Reclamation Project is operated by the US Bureau of Reclamation (USBR) and supplies irrigation water to approximately 220,000 acres of farmland. As a federal project, the Klamath Reclamation Project is required to follow national laws for resource protection, including the Endangered Species Act (ESA). The US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) are required by the Endangered Species Act to review the effects of Klamath Reclamation Project operations on the endangered and threatened species, Lost River suckers *(Deltistes luxatus*), shortnose suckers (*Chasmistes brevirostris*), and coho salmon (*Oncorhynchus kisutch*).

In 2001, a severe drought occurred in the Klamath Basin. USFWS and NMFS reviewed the USBR's 2001 Biological Assessments and operations plans for the Klamath Reclamation Project based on drought forecasts. Both USFWS and NMFS issued Biological Opinions that stated the Klamath Reclamation Project's proposed operations for 2001 were likely to jeopardize the endangered species of the Klamath Basin.The USFWS and NMFS and subsequent reviews raised several major questions about:

- The status of sucker populations,
- Factors responsible for fish kills,
- Use of lake levels as a management tool for protecting sucker populations, and
- Instream flow requirements for coho salmon in the Klamath River.

The IMST reviewed the Biological Assessments of the USBR, Biological Opinions of USFWS and NMFS, scientific literature, and scientific reviews of the Klamath Basin environmental issues. In this Summary, we list our conclusions, followed by brief explanations, specific to Upper Klamath Lake, management of the Klamath River below Iron Gate Dam, and broad landscape-level conclusions. IMST developed eight specific recommendations to the State of Oregon and their cooperators in co-management of the Klamath Basin and its resources.

IMST Conclusions Specific to Upper Klamath Lake

Conclusion 1: Sucker populations may have declined in the last decade, particularly in response to three major fish kills and several low water years, though population sizes are difficult to accurately estimate and are subject to many sources of error. Long-term declines over the last century have been substantial.

Conclusion 2: Between 1991 and 2001, abundance of juvenile suckers was lowest in the years of lowest lake levels.

Conclusion 3: Availability of spawning areas and access to refuges in Upper Klamath Lake are greater during high than low water.

Conclusion 4: IMST concludes that factors involved in fish kills are complex and difficult to predict. They involve lake levels, phytoplankton blooms, stratification, winds, mixing, and bottom sediments. We also agree with the NRC that there is no strong scientific data to link fish kills with lake levels between 1990 and 2000. Typically, from such a short time series it is difficult to determine scientifically whether a relationship does or does not exist.

Conclusion 5: Regulating lake levels is one of the few options available to management agencies to protect sucker populations. IMST agrees with USFWS that lake level management is one of several appropriate management tools to reduce conditions that may lead to fish kills, but lake level management alone will not prevent sucker die-offs. The minimum lake levels required for protection of suckers are not exact.

Conclusion 6: Wetland and riparian restoration could lower the risk of sucker die-offs and provide additional benefits to the Upper Klamath Lake and Klamath River system.

Conclusion 7: Management of tributary spawning habitat, using a watershed approach, will be important to survival of sucker populations.

IMST Conclusions Specific to the Klamath River

Conclusion 8: Review of the literature indicates that the scientific basis for NMFS (2001) decision requiring minimum instream flows at Iron Gate Dam for coho salmon in the Klamath River is conceptually sound.

Conclusion 9: Data on distribution of coho salmon and habitat use in the mainstem Klamath River throughout the year are scarce and incomplete. Decisions about management actions are limited by the timeframe and spatial extent of existing data.

IMST Conclusions for Broader Landscape-level Issues

Conclusion 10: The 2001 Biological Opinions prepared by USFWS and NMFS were based on the best available science. The types of data and information used in the Biological Opinions are appropriate and technically sound.

Conclusion 11: Upper Klamath Lake, the Klamath River and Klamath Basin watershed have been changed by many factors (e.g., land use, erosion, nutrient loading, wetland destruction, and introduction of non-native species), which have all contributed to decline of shortnose and Lost River suckers and coho salmon.

Conclusion 12: The IMST recommends that future research and management include lake stratification and stability, weather, historical precipitation levels and streamflow, and historical fish distributions.

Conclusion 13: The IMST finds that a high degree of uncertainty is related to complex phenomena and/or scarce empirical information. In the face of uncertainty, a precautionary approach to management is warranted.

Conclusion 14: Interstate coordination and an active negotiation process are needed for management of Upper Klamath Lake and the Klamath River.

Recommendations

Recommendation 1: The IMST recommends that the State of Oregon work with the State of California and the federal agencies and tribal co-managers to develop an integrated long-term management program for the entire Klamath River Basin.

Recommendation 2: The IMST recommends that the State of Oregon consult with the State of California and the federal and tribal co-managers to develop a program for collecting relevant data on sucker populations and lake habitats and salmonid populations and river habitats in the Klamath River Basin.

Recommendation 3: The IMST recommends the Department of Fish and Wildlife of the State of Oregon to collaborate with the State of California and the federal and tribal co-managers to develop monitoring data needed on salmonid use of the mainstem Klamath River throughout the entire year, including summer and autumn.

Recommendation 4: The IMST recommends that the State of Oregon collaborate with the State of California and the federal and tribal co-managers to develop and test a model that relates the influence of management actions on Upper Klamath Lake, on the long-lived sucker species in the lake, and flows in the Klamath River.

Recommendation 5: The IMST recommends that the State of Oregon work with the State of California and the federal and tribal co-managers to resolve the debate about the historical climate and streamflow in the Klamath River Basin and develop a common framework for determining appropriate instream flow in the mainstem Klamath River.

Recommendation 6: The IMST endorses efforts to restore the wetlands around Upper Klamath Lake and recommends that the State of Oregon place high priorities on opportunities to restore wetlands and riparian areas along streams and lakes within the Klamath River Basin.

Recommendation 7: The IMST recommends that the State of Oregon, State of California, and federal agencies increase technical assistance to land owners along streams, rivers, and lakes in the Klamath River Basin restore riparian areas, wetlands, and streamflows to the degree possible.

Recommendation 8: The IMST recommends that the State of Oregon develop explicit, measurable benchmarks for environmental conditions that represent periods of high ecological risk. State policies could be refined to identify precautionary actions that would be triggered during periods of high risk and greater uncertainty.

Recommendation 9: The IMST recommends that the Oregon Water Resources Department resolve and complete the on-going adjudication process in the Klamath River basin. The previous IMST recommendations require active water resource management in the Klamath River Basin, and adjudication is essential before implementing these recommended actions.

Recommendation 10: The IMST recommends that in tributaries and springs of Upper Klamath Lake, ODFW, in collaboration with other state agencies, should assess water quality and fish passage problems that potentially limit sucker recovery. The IMST recommends that ODFW assess effectiveness of the existing fish ladder for passage of adult suckers at the Chiloquin Dam. ODFW and DEQ should assess and improve water quality in spawning areas.