

**KLAMATH PROJECT: REVIEWS OF REGULATORY DECISIONS BY THE
NATIONAL ACADEMY OF SCIENCES
MAY 2020**

General Background

The Klamath River Basin comprises about 10 million acres, 200,000 of which are the irrigated lands of the Project. (See attached map with shading of the Klamath Basin and circle around Klamath Project area.) The Project was developed by the U.S. Bureau of Reclamation (Reclamation) under the 1902 Reclamation Act and maintains some operational and oversight responsibilities for delivery of Project water via irrigation districts to the end user landowners (farmers). Consumptive use of water on Project lands is almost certainly less than what occurred in undeveloped conditions. This is because there were areas of open water and marsh on what are now irrigated lands, and the evaporation and evapotranspiration rates on those lands were greater than the rate of evapotranspiration on cropland.

Project irrigation water supplies are threatened by regulation for:

- (1) Endangered suckers in Upper Klamath Lake, as to which there are issues regarding Upper Klamath Lake elevations that Reclamation must maintain in order to comply with the Endangered Species Act (ESA); and
- (2) Threatened coho salmon, as to which there are issues regarding Klamath River flows immediately below Iron Gate Dam that Reclamation must furnish in order to comply with the ESA.

A disastrous, complete curtailment of Project diversions in 2001, in the name of protection of these species under the ESA, led to agencies seeking review of the 2001 biological opinions by the National Research Council, National Academy of Sciences (NRC).

- **The NRC's Preliminary Report,¹ issued in 2002, focused primarily on the scientific support for the Upper Klamath Lake elevations and Klamath River flows that were required in 2001. The NRC's conclusions were stark, and found no scientific support for the Upper Klamath Lake elevations and Klamath River flows that were required in 2001. In fact, the NRC found that there was no scientific basis for departing from the range of Upper Klamath Lake elevations and Klamath River flows that had been experienced in the decade preceding 2001. That decade witnessed years with the lowest flows *ever recorded* and the lowest Upper Klamath Lake elevations *ever recorded*.**
 - "The committee concludes that there is no substantial scientific foundation at this time for changing the operation of the Klamath Project to maintain higher water levels in Upper Klamath Lake for the

¹ National Research Council. 2002. Scientific Evaluation of Biological Opinions on Endangered and Threatened Fishes in the Klamath River Basin: Interim Report. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10296>.

endangered sucker populations or higher minimum flows in the Klamath River main stem for the threatened coho population.”

- “Despite a monitoring record of substantial length, there is no clear evidence of a connection between the lake levels and the welfare of the two sucker species in Upper Klamath Lake.”
 - “Extensive field data on the fish and environmental conditions in Upper Klamath Lake do not provide scientific support for the underlying premise of the RPA that higher lake levels will help maintain or lead to the recovery of these two species.”
 - “Finally, and most important, water added as necessary to sustain higher flows in the main stem during dry years would need to come from reservoirs, and this water could equal or exceed the lethal temperatures for coho salmon during the warmest months.”
- **After the NRC’s Preliminary Report, the National Marine Fisheries Service sent the NRC a letter asking whether the NRC had considered certain issues or not. The NRC responded in a letter that reinforced its conclusions.²**
- “The committee was skeptical of analogies that were drawn between habitat requirements of coho and Chinook salmon, because their life histories differ in important ways.”
 - “In general, the committee was concerned with the paucity of evidence for the assertion in the biological opinion that the main stem is an important rearing area for coho salmon.”
 - “Given the absolute scarcity of coho, it seemed unlikely to the committee that the coho were saturating its available main-stem habitat, even without augmentation of main-stem flow.”
 - “As the interim report pointed out, if low spring flows were limiting survival in dry years, then year classes from wet years would have been stronger than those from dry years, but no evidence was presented that they were.”
- **In 2004, the NRC issued its comprehensive report on threatened and endangered species in the Klamath Basin.³ There are two major themes in the report: (1) agency decision-makers elevated hypothesis and theory above empirical data and facts, which is not good science; and (2) continued regulation of Klamath Project water supplies will not bring back ESA-listed species’ populations.**
- “Recovery of endangered suckers and threatened coho salmon in the Klamath basin cannot be achieved by actions that are exclusively or primarily focused on operation of USBR’s Klamath Project.”
 - “Further research may show a relationship between inundation of the spawning area [for suckers] and larval recruitment. Present data suggest, however, that any relationship would be either weak or indirect. Thus, the connection does not appear to be especially important for the population.”

² The National Academies, Letter to Dr. William Hogarth, 30 Apr. 2002.

³ National Research Council. 2004. Endangered and Threatened Fishes in the Klamath River Basin: Causes of Decline and Strategies for Recovery. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10838>.

- “Although USFWS went to considerable lengths to examine the direct influence of high water levels in Upper Klamath Lake on sucker welfare, the data now on hand contradict the hypothesis that water level is associated with fish kills.”
 - “Water level in Upper Klamath Lake shows no relationship to water quality conditions that result in mass mortality of adult suckers or other potentially adverse water quality conditions. In addition, water level shows no relationship to year-class strength or to abundance of fry or juveniles over the years during which standardized sampling is available.”
 - “The low abundance of juvenile coho in the main stem in summer, the known thermal regimes of the main stem, and the bioenergetic requirements of coho together suggest that the most crucial rearing habitat for juveniles is that of cool tributaries.”
 - “Whereas professional judgment is essential for successful ESA implementation where site-specific information is absent, its use is more problematic when initial judgments fail empirical tests. Reversal of an initial judgment may seem to be an abandonment of duty or a principle, but it is unrealistic to expect that all initial judgments will be presumed proved sound.”
- **In 2008, the NRC issued another report.⁴ This report reviewed a “natural flow study” prepared by Reclamation and a report known as the “Hardy Phase II” report, which uses the natural flow study and computer modeling of fish habitat that is used in setting regulatory requirements related to coho.**
- **Prior to the Hardy Phase II study being completed, the NRC, in its 2004 report, stated:**
 - “Application of computer modeling to habitat availability on the main stem is not likely to be relevant to coho.”
 - **The NRC’s 2008 report states the following in regard to the Hardy Phase II study/report:**
 - “The report does not purport to provide information specific to coho; it is far more general. It is not targeted for any individual species ([ESA]) listed or otherwise.”
 - “Although coho salmon and steelhead are found in the main stem, tributaries contain the most important habitat for producing juveniles of these species. Since technical assessments conducted as part of the IFS were confined to the main-stem Klamath, **the usefulness of the . . . study for evaluating coho salmon and steelhead management options is severely limited . . .**”
 - “There are sufficient **uncertainties and flaws associated with the study** to show that it cannot be used as a specific guide to specific flows with much confidence.”
 - “The approach used in the IFS apparently assumes that physical habitat is an important limiting factor to recovery of the salmonid fishes. However, the study does not demonstrate when (or if) habitat may be limiting to the fish species and the identification

⁴ National Research Council. 2008. *Hydrology, Ecology, and Fishes of the Klamath River Basin*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12072>.

of potential life-stage ‘bottlenecks’ when comparing existing and naturalized flow time-series simulations.

Despite these conclusions by a blue-ribbon scientific panel, agencies continue to use the Hardy Phase II study in imposing regulatory requirements on the Klamath Project; the minimum Klamath River flows are approximately double the amount that occurred in dry years during the historical period reviewed by the NRC. Agencies also continue to require that Upper Klamath Lake be maintained at high elevations for suckers; elevations that are much higher than occurred in dry years during the historical period reviewed by the NRC.

Klamath Water Users Association (KWUA) perceives that, over time, a regulatory culture has developed that emphasizes regulation of Klamath Project water supplies as an end unto itself. Theory is elevated over empirical data and facts; the Klamath Project is a knob that can be turned, and so it is turned. KWUA hopes and believes that today’s federal policy-makers have come to understand that there is a problem, and we are optimistic that it will receive attention.

