

A Klamath Basin Coalition Briefing Paper

National Research Council Interim Report: Scientific Evaluation of Biological Opinions on Endangered and Threatened Fishes in the Klamath River Basin

During the summer of 2001, a record drought in the Klamath River Basin made already chronically over-stretched water supplies scarce. At the time, Biological Opinions (BO's) produced by federal fish and wildlife agencies reduced irrigation diversions from Upper Klamath Lake to ensure more water for lake fish and salmon protected under the Endangered Species Act (ESA). The decision set off a firestorm of controversy that grabbed news headlines around the nation.

In response, the Bush Administration hired the National Research Council (NRC) to conduct a review of the science supporting the biological opinions. In February 2002, after just four months of work, the NRC released an interim report. Unfortunately, the number of serious errors and misstatements of fact in this report have further clouded an already muddy situation.

Even before the NRC had released this flawed interim report, the Bush Administration sought to publicly highlight certain findings within the report, while ignoring others. As a result, a great deal of confusion and misinformation surround the report to this day.

The Klamath Basin Coalition created this briefing paper to dispel some of the fallacies associated with the report, outline its flaws, and raise awareness of how the Bush Administration has politicized the science in the Klamath Basin to drive a pre-determined policy agenda. Our effort parallels that of the scientific community, which has begun to provide constructive criticism of the NRC's errors. For example, in March 2003, the peer-reviewed journal *Fisheries* published a critique of the NRC report by Oregon State University researchers Douglas Markle and Michael Cooperman.

Fallacy and Fact Regarding the Interim Report

Fallacy: The report was written by members of the National Academy of Sciences (NAS), a society composed of the most distinguished scientists in the nation.

Fact: No NAS members participated in preparing this report, and several of the authors of the report are not scientists. The report was written by a committee selected by the NRC, a body employed by the NAS to oversee science policy and technical work.

Fallacy: The interim report represents a peer review of the science contained in the 2001 BO's issued by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). These BO's formed the basis for the decision to provide more water to threatened and endangered fish in 2001.

Fact: The interim report is not a peer review. Several authors of the report do not possess the qualifications necessary to evaluate the science in the BO's.

Fallacy: The report determined that the BO's were based on inadequate scientific information.

Fact: The report found there was solid scientific support for all of the findings in the BO's except for the lake level and river flow recommendations. The report did not determine that the water levels recommended by NMFS and USFWS were wrong, only that the science is currently inconclusive. In fact, there are no scientific data available that refute the BO recommendations. This means that scientific data not considered when preparing the report, and new scientific data, may well show that higher water levels are warranted. Unfortunately, as the massive fish kill on the Klamath River in September 2002 demonstrated, the endangered and threatened fish of the Klamath Basin cannot wait five to ten years for further scientific studies to be developed and refined. Maintaining the current status quo will likely result in extinctions.

Fallacy: The report is based on an objective evaluation of scientific data cited in the BO's.

Fact: The report is a largely subjective review of data used in the BO's. Many statements in the report lack scientific credibility. There are no sound scientific data to support many of the statements and conclusions made in the report (see *Specific Flaws* below).

Interim Report Findings Ignored by the Bush Administration

Poor irrigation practices in the Upper Klamath Basin send animal wastes, fertilizers, and pesticides into streams, Upper Klamath Lake, and the Klamath River (p. 13).

Proposals by the Bush Administration to further reduce the water levels in Upper Klamath Lake and in the Klamath River have no scientific justification and would put the lake fish and coho salmon at an unacceptable risk of extinction (p. 4).

General Flaws in the Interim Report

The report contains several clear misstatements of published data and findings critical to the scientific foundation of the 2001 BOs. The report also contains several highly speculative statements unsupported by known sources (see *Specific Flaws* below).

The report lacks a clear and uniform standard to judge "scientific and technical validity" of the BO's.

The report insisted upon a standard of scientific certainty far more stringent than federal law, and did not evaluate whether the BOs were based on the best available scientific data, as required by the ESA for protecting endangered species. The report ignored the fact that USFWS and NMFS biologists responsible for implementing the ESA are required by law to make risk-management decisions for endangered species based on the best available data. As the 1995 NRC report, *Science and the Endangered Species Act*, stated "The ESA reasonably asks scientists to make conservative decisions about protecting species on the brink of extinction based on the best available data. It does not require certainty or all of the information that a scientist or decision maker might like to have."

By requiring a level of scientific certainty not required by federal law, the authors effectively nullified the Congressional mandate contained in the Endangered Species Act. In fact, the United States Congress has mandated that the USFWS and NMFS follow the exact opposite of the standard set by this report. Under the legal mandates of the ESA, federal policy-makers must always ensure against harm from any proposed action that may affect an endangered species. The 1995 NRC report *Science and the Endangered Species Act* noted that a policy requiring conclusive evidence of harm, rather than a policy to ensure against harm, creates bias against protection not intended by the ESA.

The authors ignored the Precautionary Principle. This common-sense principle calls for erring on the side of caution when setting policy for endangered species, even when some facts remain uncertain. The principle has formed the foundation of many important ESA decisions. Other NRC committees have again and again supported the Precautionary Principle in ESA-related decision-making. For example, the 2002 NRC report, *Effects of Trawling and Dredging on Seafloor Management* declared that lack of specific data was insufficient justification to postpone management decisions intended to help endangered species.

The report ignored a basic principle of conservation biology by neglecting to judge the impact of current lake levels and river flow management against the pre-Klamath Irrigation Project, natural lake levels and flows. Instead, the report judged the proposed actions of 2001 against the 1990 to 2000 operation regime, as if this 10-year regime represented the natural system the fish evolved under. From an ecological standpoint, few meaningful conclusions can be drawn from this comparison.¹

¹ Yurok Tribe 2002, p. 12.

The report goes beyond its statement of task. By making a value judgment about the 1990 to 2000 USBR water management regime, the report essentially set future water policy in the Klamath Basin.

Specific Flaws in the Interim Report’s Evaluation of the Biological Opinion on Shortnose and Lost River Suckers

Obvious misstatements and errors within the report seriously undermine arguments against the USFWS lake level recommendations:

- ◆ *The authors misstate the premise for the lake level recommendations, then depend on this misstatement to dismiss the BO’s recommendations.* “An essential premise of the lake-level recommendations [of the BO]... is that the adverse water quality conditions are associated with the lowest water levels within the recent historical range of levels.” (p. 16) This statement is not true, but does vaguely refer to the risk-management premise behind the lake level recommendations. This premise may be arrived at as follows: Runaway algae growth contributes significantly to poor water quality in Upper Klamath Lake (UKL).² Poor water quality results in frequent fish kills.³ Scientific studies of UKL and other shallow lakes indicate higher lake levels would reduce the potential for algae growth.⁴ But higher lake levels alone do not guarantee against the algae growth—poor water quality—fish kill sequence, because certain variable weather conditions (such as sustained calm, intense sunlight, and warm temperatures) can promote algae growth enough to counteract lake depth benefits. Meanwhile, low lake levels do not guarantee lethal algae buildup, because strong winds and cloudy, cool weather can disrupt algae growth.⁵ But higher lake levels would reduce the risk of catastrophic fish kills over a range of weather conditions. This risk-management concept, ignored by the interim report, represents an essential premise pursued in the BO.⁶
- ◆ *The authors cite a data error within the report itself to support an argument against a generally accepted scientific principle.* The authors argue on page 17 that UKL is an exception to the generally accepted dilution rule. The dilution rule states that a large amount of pollution in a smaller body of water will have a far greater effect than a large amount of pollution in a larger body of water. The authors cite Figure 4 to support an argument against this principle. Welch and Burke (2001), in turn, is cited as the data source for Figure 4, but this citation does not support the apparently erroneous Figure 4 data.⁷ Discussion and citations in Welch and Burke (2001) further contradict the report’s already error-based argument against dilution benefits.⁸
- ◆ *Yet another misstatement:* Page 17: “Also, lake level fails to show any quantifiable association with extremes of [water quality] (see Welch and Burke 2001).” Welch and Burke (2001) actually shows years 1992 and 1994, the lowest water years in the timeframe considered by the report, with extremely poor water quality conditions.⁹
- ◆ *The authors did not discuss and apparently did not review the Klamath Tribes’ 1995 progress report on Upper Klamath Lake, although the BO does cite the document.*¹⁰ This omission represents an error, since the Committee’s Statement of Task included assessment of all the documents cited in the BO.¹¹

² Welch and Burke 2001; Fig. 4-11.

³ Loftus 2001; Perkins et al. 2000.

⁴ Laenen and LeTourneau 1996; Noges et al, 1997; Welch and Burke 2001; Sheffer 1998.

⁵ Kann, presentation to the NRC Committee, November 6, 2001; Kann and Dunsmoor 2002, p. 11.

⁶ Kann and Dunsmoor 2002, p 10; USFWS 2001, Sec. III, part 2, p. 70.

⁷ Kann and Dunsmoor 2002, p. 2 and p. 11.

⁸ Kann and Dunsmoor 2002, p. 12.

⁹ Welch and Burke 2001: Fig 4-7, Fig 4-12; Kann and Dunsmoor 2002, p. 2 and p. 13.

¹⁰ NMFS 2001, Section III, Part 2, p. 112.

¹¹ NRC Interim Report, p. 33.

Specific Flaws in the Evaluation of the Biological Opinion on Klamath Basin Coho Salmon

The report approves one flow regime, then rejects the same regime under a different name. The authors approve of the USBR's 1990 to 2000 flow regime for the Klamath River, but disapprove of USBR's 2001 plan.¹² There is no discernible difference between these flow regimes.¹³ Ironically, the authors declare the USBR's 2001 flow regime presents an "unknown risk" to coho.¹⁴

Arguments dismissing the NMFS flow recommendations don't hold up under scrutiny:

- ◆ *The central "temperature problem" argument is unsupported by data, contradicted by available science, and refuted by statements within the report itself:*
 - In the *Principal Findings* section, the authors provide no supporting data or evidence for their "most important" argument against the flow recommendation: "Finally, and most important, water added as necessary to sustain higher flows in the [Klamath River] 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." (p. 4) The authors then acknowledge there is *no science* to support their reservoir temperature argument: "This issue apparently has not yet been studied in any rigorous manner." (p. 24)
 - The authors contradict their own argument with the following statement: "Modeling has shown that higher releases of water to the main stem can reduce water temperature slightly (Deas and Orlob 1999)." (p. 23)
 - Deas and Orlobb (1999) casts serious doubts on any temperature-based argument against higher flows. This study showed higher flows can reduce the adverse warming impacts of the Shasta and Scott rivers, two main tributaries with frequently high water temperatures. In addition, the USBR's 2002 Biological Assessment found water releases from the last reservoir on the Klamath remained below the temperatures in the main river year-round, except for a one-week window in the fall. Modeling in Deas and Orlobb (1999) and INSE (1999) also show higher flows protect salmon against deadly daytime water temperature spikes during warm weather.
- ◆ *The "refugia problem" argument is unsupported by data and contradicted by available science:* From page 24: "Increased flows could have a detrimental effect on the availability of thermal refugia [pockets of cooler water, typically at the mouths of small tributaries, where salmon gather]." The authors offer no scientific data to support this statement. Available scientific data indicates the prescribed NMFS flows did not harm Klamath River refugia during the summer of 2001.¹⁵
- ◆ *The "no habitat benefit" argument is unsupported by references and contradicted by available science:* From page 22: "[T]he percentage increase in [coho fry] habitat space corresponding to increases in flow during dry years is relatively small (as low as a few percent)(INSE 1999, NMFS 2001)" In fact, the NMFS 2001 data indicates the prescribed flow increases would provide a *thirty-five to three hundred fifty-eight percent* gain in habitat, depending on month and river zone.¹⁶

¹² NRC Interim Report, p. 4-5.

¹³ Yurok Tribe 2002, p. 12.

¹⁴ NRC Interim Report, p. 4

¹⁵ USFWS, Yurok Tribal Fisheries Program, unpublished data, 1998-2001.

¹⁶ Yurok Tribe 2002, p. 7-8.

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