# Committee on Resources,

## Full Committee

- - Rep. James V. Hansen, Chairman
U.S. House of Representatives, Washington, D.C. 20515-6201 - - (202) 225-2761

## Witness Statement

**TESTIMONY OF DAVID A. VOGEL**
**Before the House Committee on Resources**
**Oversight Field Hearing on:**
**Water Management and Endangered Species Issues in the Klamath Basin**
**June 16, 2001**

Mr. Chairman and members of the Committee, thank you for the opportunity to testify at this important hearing. My name is David Vogel. I am a fisheries scientist who has worked in this discipline for the past 26 years. I earned a Master of Science degree in Natural Resources (Fisheries) from the University of Michigan in 1979 and a Bachelor of Science degree in Biology from Bowling Green State University in 1974. I previously worked in the Fishery Research and Fishery Resources Divisions of the U.S. Fish and Wildlife Service (USFWS) for 14 years and the National Marine Fisheries Service (NMFS) for one year. During my tenure with the federal government, I received numerous superior and outstanding achievement awards and commendations, including Fisheries Management Biologist of the Year Award for six western states. For the last 10 years I have worked as a consulting fisheries scientist on a variety of projects on behalf of federal, state, and county governments, Indian tribes, and numerous other public and private groups. During the past decade, I have advised the Klamath Water Users Association (KWUA) on Klamath River basin fishery resource issues. I was the principal author of the 1993 "*Initial Ecosystem Restoration Plan for the Upper Klamath River Basin*" and was one of the primary contributing authors to the Upper Basin Amendment to the Klamath River fishery restoration program. I was a principal contributor of information for the 1992 Biological Assessment on Long-Term Operations of the Klamath Project. More recently, I was a contributor to technical portions of the March 2001 document, "*Protecting the Beneficial Uses of Waters of Upper Klamath Lake: A Plan to Accelerate Recovery of the Lost River and Shortnose Suckers*". This plan was also authored by Dr. Alex Horne and I have attached his March 21, 2001 testimony before the Senate Subcommittee on Water and Power. I have performed research projects on coho salmon and the endangered suckers, as well as many other species.

Today, I am providing your Committee with important information concerning the science, or more aptly stated, lack of rigorous science, behind the artificially created regulatory crisis that has been imposed on the Upper Klamath basin. These topics relate to the sucker fish, which the USFWS has focused on to regulate higher-than-normal lake elevations in Upper Klamath Lake, and coho salmon, which NMFS has focused on to demand higher-than-normal flows below Iron Gate Dam on the Klamath River. And lastly, I am providing your Committee with recommendations to avoid the regulatory crisis that has been created in the Klamath Basin.

### Decision-Making Process

In my entire professional career, I have never been involved in a decision-making process that was as closed, segregated, and poor as we now have in the Klamath basin. The constructive science-based

processes I have been involved in elsewhere have involved an honest and open dialogue among people having scientific expertise. Hypotheses are developed, then rigorously tested against empirical evidence.

None of those elements of good science characterize the decision-making process for the Klamath Project. At one time, several years ago, the agencies would interact with all interests who had expertise or a stake in the decisions. Recently, my role has been to receive completed analyses (usually without supporting data) and mail in comments. Often, the timeline is such that it is virtually impossible to comment and certainly impossible for the agencies to consider the comments objectively and meaningfully. The overriding sense I have is that the goal is to dismiss what we have to offer. A scientist that I work with has had the experience of being invited to a technical meeting, then literally turned away. Additionally, we have been invited to attend recent meetings related to downstream flow studies, but our presence was requested at the end of the process, after key assumptions had been developed.

I provide examples below of the kinds of information that have not, in my opinion, received objective consideration or open discussion. I also include alternative actions and recommendations.

## Klamath Basin Suckers

### Endangered Species Status

Disturbingly, I have learned from an extensive review of the relevant Administrative Record that the information used by the USFWS to list the two sucker species as endangered in 1988 under the Endangered Species Act (ESA) is now very much in question. The USFWS so selectively reported the available information that it can only be considered a distorted view of information available to the agency at that time. The dominant reason that the USFWS listed the species was an apparent precipitous decline in both populations in the mid-1980s and the lack of successful reproduction (recruitment) for 18 years. Documents selectively used by the Service to support the listing portrayed an alarmist tone indicating that the species were on the brink of extinction. Because of information in the Administrative Record and scientific data developed since the listing, major questions are now posed calling into question the integrity of the original listing decision.

Due to extensive research performed on the Lost River and shortnose sucker populations in recent years, relative population abundance estimates are available for both species. Although there are differences in the manner by which each estimate was computed and some estimates have broad confidence intervals, the numbers represent the best available information that was used by the USFWS to list and monitor the species. A comparison of estimates developed prior to and after the listing demonstrates a remarkable change in the species' status (Table 1). Recent data demonstrates that the sucker populations exceeded the original estimates used to justify listings by an order of magnitude.

It is now evident that either:

1) The estimates of the sucker populations in the 1980s were in error and did not, in fact, demonstrate a precipitous decline (i.e., the populations were much larger than assumed), or

2) The estimates of the sucker populations in the 1980s were reasonably accurate and the suckers have demonstrated an enormous boom in the period since the listing and no longer exhibit "endangered" status.

Furthermore, in contrast to the lack of recruitment described in 1988, it is now very evident that the Upper Klamath Lake sucker populations have experienced substantial recruitment in recent years and also exhibit recruitment every year. Only three years after the sucker listing, it also became apparent that the assumptions concerning the status of shortnose suckers and Lost River suckers in the Lost River/Clear Lake watershed were in error. Surveys performed just after the sucker listing found substantial populations of suckers in Clear Lake (reported as "common") exhibiting a biologically desirable diverse age distribution. Within California, the USFWS surveyors considered populations of both species as "relatively abundant, particularly shortnose, and exist in mixed age populations, indicating successful reproduction". Recent population estimates for suckers in the Lost River/Clear Lake watershed indicate their populations are substantial, and that hybridization is no longer considered as "rampant" as portrayed by the USFWS in 1988. Tens of thousands of shortnose suckers, exhibiting good recruitment are now known to exist in Gerber Reservoir. In 1994 the Clear Lake populations of Lost River suckers and shortnose suckers were estimated at 22,000 and 70,000, respectively, with both populations increasing in recent years exhibiting good recruitment and a diverse age distribution (Buettner 1999). Unlike the information provided by the USFWS in the 1988 ESA listing, it is now obvious that the species' habitats were sufficiently good to provide suitable conditions for these populations. Additionally, the geographic range in which the suckers are found in the watershed is now known to be much larger than believed at the time of listing. The shortnose populations in the lower Klamath River reservoirs (J.C. Boyle, Copco, and Iron Gate), previously believed to be small or essentially non-existent at the time of the listing, are more abundant and widespread than assumed in 1988 (Markle et al. 1999).

In summary, although the species had obviously declined from their historic population levels in the early to mid-1900s, the surmised status of the species was not as severe as assumed in the mid- to late-1980s. The two fish species presently exhibit far greater numbers, over a much larger geographic range, and with greater recruitment than assumed more than a decade ago. "Remnant" populations postulated in 1988 are now known to be abundant. "Severe" hybridization among the species assumed in 1988 is now known not to be as problematic. In the mid-1990s, Upper Klamath Lake sucker populations were found to exist on an order of magnitude greater than believed in the mid-1980s. And it is now clear that widespread recruitment of both species regularly occurs.

This all leads to an important, albeit an awkward, question for the USFWS and is one that the agency cannot, or will not, answer. Which assumption is correct: that posed by the agency in 1988 or that of the present day? The species were either inappropriately listed as endangered because of incorrect or incomplete information or the species have rebounded to such a great extent that the fish no longer warrant the "endangered" status.

**Upper Klamath Lake Elevations**

I believe the USFWS's recent Biological Opinion on the Operations of the Klamath Project has artificially created a regulatory crisis that did not have to occur. This circumstance was caused by the USFWS's focus on Upper Klamath Lake elevations and is a major step in the wrong direction for practical natural resource management. The USFWS rationale for imposing high reservoir levels ranges from keeping the levels high early in the season to allow sucker spawning access to one small lakeshore spring, to keeping the lake high for presumed water quality improvements. This measure of artificially maintaining higher-than-historical lake elevations is likely to be detrimental, not beneficial, for sucker populations. The data do not show a relationship between lake elevations and sucker populations, and to maintain higher-than-normal lake elevations can promote fish kills in water bodies such as Upper Klamath Lake.

During the mid-1990s, I predicted that fish kills could occur if the Upper Klamath Lake elevations were maintained at higher-than-historical levels. Subsequently, those fish kills did occur. The USFWS recent Biological Opinion dismissed or ignored the biological lessons from fish kills that occurred in 1971, 1986, 1995, 1996, and 1997 and, instead, selectively reported only information to support the agency's concept of higher lake levels. All the empirical evidence and material demonstrate that huge fish kills have occurred when Upper Klamath Lake was near average or above average elevations, but not at low elevations (Figure 1). This is not an opinion but a fact extensively documented in the Administrative Record and subsequently ignored by the USFWS.

A good indicator that Upper Klamath Lake elevations do not create a "population-limiting factor" for the suckers is a comparison of historical seasonal lake elevations with sucker year class strength that may or may not result from those lake elevations. Sucker year class strengths for some years are now available because suckers killed during die-offs in 1995, 1996, and 1997 were examined to determine the age of the fish. This allows a determination of the year the fish were hatched and, because sufficient numbers of fish were collected, the relative "strength" of one year class compared to other years. Using this new analysis of the best available scientific information, it is evident the sucker populations do not experience a population-limiting condition from lower lake elevations as incorrectly postulated by the USFWS. In fact, one of the strongest year classes of suckers occurred during a drought year in 1991 when lake levels were lower than average. These data demonstrate that there are no clear relationships between Upper Klamath Lake elevations and sucker year-class strength. Additionally, the data now demonstrate that the two species did not suffer "total year-class failures" during the drought years in the late 1980s and early 1990s as was commonly speculated at that time. It is particularly noteworthy that the strong 1991 class of suckers experienced extremely low lake elevations during the severe drought of 1992 but nevertheless remained the dominant year class observed in 1995, 1996, and 1997. Also, based on the age structure of suckers determined from the 1997 fish kill, it was readily apparent that many older-aged suckers were in the population; from the early 1990s until 1997, it had been surmised that the age structure of the sucker populations were almost entirely younger fish. This new evidence indicates that environmental conditions resulting from the drought, including low lake elevations, did not have the adverse impacts on the sucker populations assumed by the USFWS. The USFWS Biological Opinion notably ignored extremely relevant scientific data and information that was contrary to the agency's premise in the Biological Opinion. The USFWS failed to point out empirical evidence the agency could have provided in the Biological Opinion which demonstrates that Upper Klamath Lake levels lower than demanded in the Biological Opinion will not harm (and may actually benefit) the sucker species.

## Klamath Coho Salmon

In my opinion, the National Marine Fisheries Service (NMFS) significantly and inappropriately added to the regulatory crisis in the Klamath Basin by calling for higher-than-normal releases from Iron Gate Dam under the auspices of protecting the coho salmon, a "threatened" species, from extinction.

### Primary Factors Affecting Coho are in the Tributaries, Not the Mainstem

Coho salmon, as a species, prefer smaller tributary habitats, as compared to larger mainstem river habitats. This extremely important biological fact was not incorporated into the rationale NMFS used to assess Klamath Project effects on coho. Fry and juvenile coho normally occupy small shallow streams where there are more structurally complex habitats (e.g., woody debris) than are found in larger, mainstream river systems; this fact is amply described in the scientific literature. NMFS ignored the fact that proportionally and numerically only small numbers of fry use the reach most affected by the Klamath Project as compared

to the entire basin. NMFS has notably failed to reconcile this critical piece of biologically relevant information. NMFS avoided using an excellent source of information that would demonstrate this fact. A 1985 U.S. Department of Interior document entitled: "Klamath River Basin: Fisheries Resource Plan" thoroughly describes and graphically shows the distribution of coho in the Klamath Basin. That voluminous, peer-reviewed document clearly demonstrates that the upper Klamath River, in proportion to the entire Klamath River basin, is a geographically minor area of coho presence. This fact is evident from the attached Figure 2 adapted from the Klamath River Basin Restoration Plan. Instead of acknowledging this indisputable information, NMFS has singularly focused on demanding dramatically increased, higher-than-historical flows from Iron Gate Dam to "protect" coho from extinction. In so doing, NMFS has inappropriately suggested that coho habitats should somehow be re-created in the large river channel downstream of Iron Gate Dam to serve as a surrogate for the lost or degraded habitats in Klamath basin tributaries. This misguided, scientifically deficient approach is unlikely to succeed.

I thoroughly reviewed thousands of pages of documents in detail to determine whether the available scientific data and information suggest that the recent historical flow regime in the mainstem Klamath River below Iron Gate has been a significant factor affecting Klamath River fishery resources. These documents included scientific peer-reviewed literature, state and federal agency documents and reports, and investigations encompassing many decades of research on the Klamath River. This extensive review revealed that numerous factors other than the recent historical mainstem flow regime at Iron Gate Dam are overwhelmingly documented to have affected Klamath River fishery resources. There are many other documented factors that have affected salmon runs in the Klamath River; I compiled a comprehensive listing of those factors in March 1997 and provided that list to NMFS. None of the documents I have reviewed provided any supporting scientific information or data suggesting that the historical mainstem flow regime at Iron Gate Dam is a significant factor adversely affecting coho salmon. To the contrary, the available information provides compelling evidence that other factors are far more important in affecting fish populations than the recent historical Iron Gate Dam flow regime.

It is particularly noteworthy that the multi-million dollar, multi-agency Long-Range Plan for restoring Klamath River anadromous fish (the principal document guiding salmon restoration in the basin) addresses the issue of Iron Gate Dam releases and potential effects on salmonids in an almost passing manner (Klamath River Basin Fisheries Task Force 1991). Nearly the entire discussion in the Long-Range Plan on the topic of salmon production focuses on the tributaries in the lower Basin. This is instructive because, despite all the efforts and research accomplished to date on the Klamath River, no entity has developed any scientific data to support the premise that specific Iron Gate releases over the past several decades has been a significant factor limiting Klamath River salmonids.

Probably the strongest indicator demonstrating that the recent historical Iron Gate Dam flow regime is not a primary factor affecting lower Klamath River fish is the response of the fish populations. There are no apparent cause-and-effect relationships between historical flow levels at Iron Gate Dam and resulting production of coho salmon. Clearly, there are other well documented factors that have an influence on the Klamath River salmon runs than the flow regime alone (e.g., harvest, hatchery production, tributary habitats).

The following are highly relevant facts ignored by NMFS in the agency's Biological Opinion:

1. Fry rearing habitat in the upper mainstem Klamath River is not as quantitatively or qualitatively important to the species as is rearing habitat in the Klamath River tributaries.
2. Numerically and proportionally, very small numbers of coho fry rear in the mainstem downstream of

Iron Gate Dam in the reach most influenced by the Klamath Project.

3. The indirect effects of variable Iron Gate flow on adult coho populations in the Klamath basin is minuscule when compared to other direct factors such as incidental ocean harvest and other harvest of adult fish.

NMFS relied on a closed process to formulate the agency's recommendations for Klamath River instream flows. Individuals involved with this process purposefully excluded scientific experts that could have provided meaningful input to the process. This exclusionary process is contrary to scientific and procedural processes employed elsewhere in the United States, particularly in California.

In summary, sound scientific bases for the NMFS Biological Opinion are lacking. NMFS relied on an incorrectly applied and incomplete computer modeling exercise to support the agency's conclusions of the effects of the Klamath Project operations on coho. A close examination of the NMFS Biological Opinion demonstrates that it does not empirically describe how Klamath Project operations affect coho populations in the Klamath River basin. Instead, the agency's action resulted in too much warm water dumped in the wrong place at the wrong time and for all the wrong reasons. The purported biological benefits to coho salmon will not be realized.

## The Need for Alternatives using a Pro-Active, Adaptive Management Approach

### Implement Meaningful Restoration Actions

New data and analyses indicate that regulatory measures and some research implemented over the past decade, although perhaps well intended, misdirected resources away from other more beneficial actions. Also, unfortunately, to the extent recovery or restoration efforts have been undertaken over the past 13 years since the listing, they have not been effective. The USFWS has contended that maintaining high reservoir elevations is the only feasible short-term measure that can be implemented to benefit the sucker populations; this is incorrect. Alternatives are available to benefit the species/ecosystem and have been presented to the agency. These alternatives could have prevented the crisis we are in today.

There are fundamental changes that have occurred in Upper Klamath Lake that cannot be ignored. As an example, the fact that non-native fish were introduced into the lake and are now proliferating is a change that is absolute. Such changes have permanently altered the ecosystem. Despite the emotional rhetoric one may hear about "Nature healing herself", there is no turning back to a so-called "pristine" ecosystem. These non-native fish prey on and compete with suckers and will never be extirpated from the lake. However, there are numerous on-the-ground actions that could be undertaken to improve the existing situation and provide greater flexibility and balance for resource management. The Upper Klamath Basin is in a situation where millions of dollars have been spent on "ecosystem restoration" (primarily land acquisition) under the auspices of sucker recovery; unfortunately, the site-specific linkages to sucker recovery are highly debatable and unclear. These benefits have not been forthcoming. It is time to take a new approach.

Several recovery projects first identified in the early 1990s hold promise for increasing the sucker populations. To this end, the KWUA recently developed a document entitled "*Protecting the Beneficial Uses of Waters of Upper Klamath Lake: A Plan to Accelerate Recovery of the Lost River and Shortnose Suckers*" (Plan) to promote timely implementation of biologically innovative action-, and results-oriented restoration projects. This Plan was presented to the Senate Subcommittee on Water and Power in March 2001. Some of the projects in the Plan are embodied in the 1993 USFWS Sucker Recovery Plan, but have not been pursued. The Plan focuses on implementation of specific actions to accelerate the recovery of the

endangered suckers while minimizing conflicts among competing uses for common resources. This Plan's use of cooperative efforts between local interests and those individuals and groups sharing common goals is considered preferable to traditional fragmented plans which result in tragic conflicts for limited resources we are seeing in the basin today. The Plan recommends actions such as improving access of suckers in the Sprague River to physical and water quality improvement projects in Upper Klamath Lake.

As with the suckers in the Upper Klamath Basin, there are viable alternatives and opportunities to increase coho populations in the Lower Klamath Basin, particularly in the tributaries. However, until NMFS changes its singular and misdirected focus on higher-than-historical flows from Iron Gate Dam, restoration opportunities using the agency's approach are unlikely to succeed. Unfortunately, whatever the existing lower basin programs may have accomplished to date, fishery restoration does not appear to be one of them. Although many millions of dollars have been spent on the lower basin programs, benefits to fish have not been evident. A new strategy of embracing a more holistic watershed approach and cooperative partnerships in the tributaries, instead of the traditional adversarial approach is needed.

**Implement Independent Peer Review**

Many of the mistakes made by the USFWS and NMFS during this year could have been avoided through a proper peer review of the agencies' actions. It is imperative that the peer review not be a facade of "like-minded" individuals or agencies promoting or protecting their policies or positions. To prevent the flawed process that occurred this year, it will be necessary to ensure that a peer review be performed by individuals without a vested interest in the suckers and coho remaining listed species under the ESA; to do otherwise undermines the integrity of the scientific process. For example, it is clearly inappropriate to have so-called peer review by some stakeholders demanding water rights, including high lake levels. Likewise, researchers dependent on the ESA controversy for funding may have a clear conflict with objective review. Individuals that would use the threatened or endangered status as "leverage" to promote their positions should also be excluded from the process. Additionally, the peer review should be a "blind" review process to allow reviewers to be anonymous; this will ensure that "peer pressure", instead of peer review, does not occur. The peer review of the agencies' Biological Opinions should be performed outside the Departments of Interior and Commerce to avoid the problems we have observed in the Klamath basin crisis. Data must be examined with clear, scientific objectivity using widely accepted scientific principles. To be objective, agency policies and positions do not belong in this scientific process. Good science will lead to good policy. And, if the agencies are willing to do so, there is a great opportunity to accomplish restoration goals without doing the kind of harm that is being experienced now.

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