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Klamath River Basin Issues and Activities: An Overview

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September 22, 2005

Abstract. As is true in many regions in the West, the federal government plays a prominent role in the Klamath Basin's water management. This role stems from three primary activities: (1) the operation and management of the Bureau of Reclamation's Klamath Water Project and Central Valley Project (e.g., Trinity River Dams); (2) management of federal lands in the Basin, including five national wildlife refuges, several national forests, and public lands; and (3) implementation of federal laws, such as the Endangered Species Act (ESA), Clean Water Act (CWA), and National Environmental Policy Act (NEPA). The Congress has oversight over these federal activities and has held several hearings to discuss Klamath Basin issues. In particular, congressional debate has focused on the role of the ESA in water management, the operation of the Klamath Project and, other Upper Basin topics. Therefore, this report focuses on the Upper Basin. It provides some information on the Lower Basin (i.e., the watershed area below and west of Iron Gate Dam).

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Klamath River Basin Issues and Activities: An Overview

Summary

The Klamath River Basin, an area on the California-Oregon border, has become a focal point for local and national discussions on water management and water scarcity. Water and species management issues were brought to the forefront when severe drought in 2001 exacerbated competition for scarce water resources and generated conflict among several interests — farmers, Indian tribes, commercial and sport fishermen, other recreationists, federal wildlife refuge managers, environmental groups, and state, local, and tribal governments. The conflicts over water distribution and allocation are physically and legally complex, reflecting the varied and sometimes competing uses of limited water supplies in the Basin. For management purposes, the Basin is divided at Iron Gate Dam into the Upper and Lower Basins.

As is true in many regions in the West, the federal government plays a prominent role in the Klamath Basin's water management. This role stems from three primary activities: (1) the operation and management of the Bureau of Reclamation's Klamath Water Project and Central Valley Project (e.g., Trinity River dams); (2) management of federal lands in the Basin, including five national wildlife refuges, several national forests, and public lands; and (3) implementation of federal laws, such as the Endangered Species Act (ESA), Clean Water Act (CWA), and National Environmental Policy Act (NEPA).

Conflict was sparked in April of 2001 when the Bureau of Reclamation, which has supplied water to farms in the Upper Basin for nearly 100 years, announced that "no water [would] be available" for farms normally receiving water from the Upper Klamath Lake to avoid jeopardizing the existence of three fish species listed as endangered or threatened under the ESA. While some water was subsequently made available to some farmers from other sources (e.g., wells and other Bureau sources), many farmers faced serious hardships.

During Reclamation's operations in September of 2002, warm water temperatures and atypically low flows in the lower Klamath contributed to the death of at least 33,000 adult salmonids. This die-off damaged fish stocks and the tribes, commercial fishermen, and recreational anglers that catch Klamath fish.

There have been many studies, Biological Opinions, and operating plans over recent years, all of which have been controversial. The events of 2001 and 2002 prompted renewed efforts to resolve water conflicts in the Klamath Basin. Congress has responded to the controversy in a number of ways, including holding oversight hearings and appropriating funds for activities in the area. This report provides an overview of recent conflict in the Klamath Basin, with an emphasis on activities in the Upper Basin, and summarizes some of the activities taking place to improve water supply reliability and fish survival. This report will be updated as events warrant.

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Klamath River Basin Issues and Activities: An Overview

Introduction

The Klamath River Basin — a region along the California-Oregon border — has become a focal point for local and national discussions on water management and water scarcity. Water management issues were brought to the forefront when severe drought conditions in 2001¹ exacerbated competition for scarce water resources and generated conflict among several interests — farmers, anglers (commercial and sport), other recreationists, federal wildlife refuge managers, environmental organizations, and state, local, and tribal governments.

As is true in many regions in the West, the federal government plays a prominent role in the Klamath Basin's water management. This role stems from three primary activities: (1) the operation and management of the Bureau of Reclamation's Klamath Water Project and Central Valley Project (e.g., Trinity River Dams); (2) management of federal lands in the Basin, including five national wildlife refuges, several national forests, and public lands; and (3) implementation of federal laws, such as the Endangered Species Act (ESA), Clean Water Act (CWA), and National Environmental Policy Act (NEPA).

The Congress has oversight over these federal activities and has held several hearings to discuss Klamath Basin issues. In particular, congressional debate has focused on the role of the ESA in water management, the operation of the Klamath Project and, other Upper Basin topics. Therefore, this report, like its predecessor,² focuses on the Upper Basin. It provides some information on the Lower Basin (i.e., the watershed area below and west of Iron Gate Dam), but it is not detailed.

Background

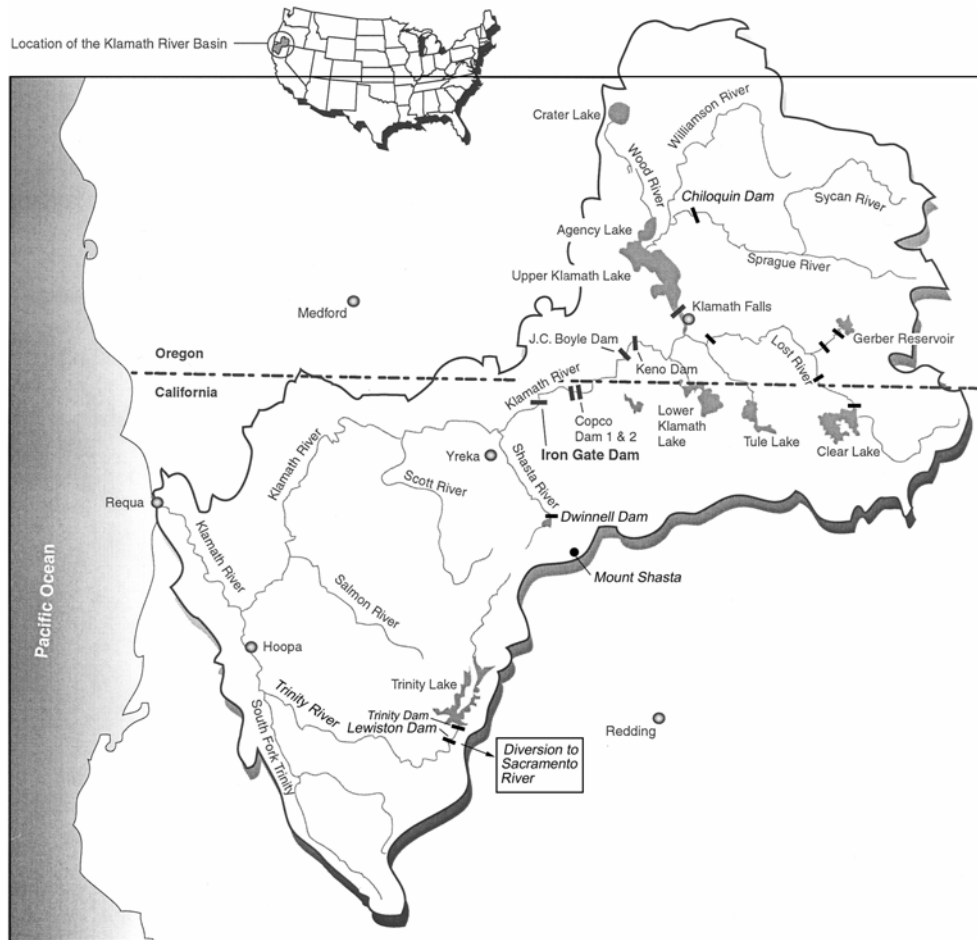
The Klamath River originates in southern Oregon and travels 263 miles before emptying into the Pacific Ocean off northern California. The Klamath River Basin — or watershed — covers approximately 12,100 square miles (**Figure 1**) and, for water management purposes, is divided into Lower and Upper River Basins. The

¹ The U.S. Geological Survey indicated that the region was in severe or extreme drought during the summer of 2001. See the Drought Monitor archive, available on Aug. 16, 2005, at [<http://www.drought.unl.edu/dm/archive.html>]. The Bureau of Reclamation's water year designation for the Klamath Basin in 2001 was "critically dry" (the driest possible designation).

² CRS Report RL31098, *Klamath River Basin Issues: An Overview of Water Use Conflicts*.

Upper Basin (**Figure 2**) lies largely above (upriver) and east of Iron Gate Dam on the Klamath River and includes four major lakes: Upper Klamath, Lower Klamath, Clear, and Tule. The Lower Basin includes nearly 200 miles of the Klamath River — between Iron Gate Dam and the Pacific Ocean — and four major freshwater tributaries: the Trinity, Salmon, Scott, and Shasta Rivers. (See **Figure 3**.) While the two sub-basins are linked, some of the issues they face are distinct.

Figure 1. Klamath River Watershed



Source: U.S. Government Accountability Office, *Klamath River Basin: Reclamation Met Its Water Bank Obligations, but Information Provided to Water Bank Stakeholders Could be Improved* (March 2005), GAO-05-283, p. 2, with alterations by Patricia McClaughry of the CRS technology office.

Endangered Species Act (ESA)

Description. A primary factor driving issues in Klamath Basin water management is the interplay between federal project operations and the federal ESA.³ The 1973 ESA is intended to protect species at risk of extinction. Under the ESA,

³ P.L. 93-205, as amended; 16 U.S.C. §§1531-1543. For background on the ESA, see CRS Report RL31654, *Endangered Species Act: A Primer*. Another important factor is the status and potential quantification of tribal water rights.

species (or distinct population segments) of plants and animals may be listed as either endangered or threatened according to assessments of the risk of their extinction. Under the ESA, officials are required to “conserve” listed species: i.e. to recover their numbers to the point that they no longer need the protections of the ESA. In furtherance of this goal, federal agencies are to consult with either the Fish and Wildlife Service (FWS) — for terrestrial and freshwater species — or the National Marine Fisheries Service (NMFS) — for marine species and anadromous fish — on agency actions (e.g., project operations for a given year) that might affect a listed species, and are to avoid jeopardizing its continued existence.⁴

When a federal agency proposes an action, the action is analyzed in a “Biological Assessment”⁵ and the FWS or NMFS issues a “Biological Opinion” as to whether the proposed agency action is likely to jeopardize a species. If jeopardy is likely, FWS or NMFS identifies “reasonable and prudent alternatives” (RPAs) to the proposed agency action that would avoid jeopardy. If jeopardy cannot be avoided, the agency must forego the proposed action, seek an exemption, or, as the Supreme Court has noted, proceed at its “own peril” in light of the civil and criminal penalties applicable under the ESA.⁶ Thus, even though civil or criminal penalties have seldom been imposed, the Opinions and recommendations rendered by the FWS and NMFS in practice are compelling. The agency and certain others may petition the Secretary of the Interior to convene an Endangered Species Committee, a high-level committee that can grant an exemption for the proposed action from the penalties of the ESA. However, this Committee has seldom been used.

ESA in the Klamath Basin. The Klamath River Basin provides habitat for several endangered and threatened species. Three aquatic species — the Lost River and shortnose suckers⁷ (listed as endangered in 1988) and coho salmon⁸ (listed as threatened in 1997) — have been the focus of water management debates. The two species of suckers reside in the Upper Basin and are under the jurisdiction of the FWS. The coho salmon are an anadromous species that historically existed throughout the Klamath Basin, but are now extinct above Iron Gate Dam, which is the first of several Klamath mainstem dams blocking fish passage; coho salmon are under the jurisdiction of NMFS. In addition, Bear Valley NWR and other Basin lands provide habitat for bald eagles, which were listed as threatened throughout Oregon in 1978.⁹

To avoid jeopardizing the endangered and threatened species in the Klamath Basin, federal activities in the Basin are subject to review by the FWS and the NMFS. In particular, ESA considerations have become a major factor in decisions regarding operating or licensing large water projects. In the Klamath Basin,

⁴ 16 U.S.C. §1536(a)(2).

⁵ 50 C.F.R. §402.12(a).

⁶ See *Bennett v. Spear*, 520 U.S. 154, 170 (1997).

⁷ 53 *Fed. Reg.* 27130 (July 18, 1988).

⁸ 62 *Fed. Reg.* 24588 (May 6, 1997).

⁹ 43 *Fed. Reg.* 6230, 6233 (Feb. 14, 1978).

Reclamation's Klamath Project has been at the center of debate over ESA-related management decisions. The Klamath Project — which includes 7 dams¹⁰ and miles of irrigation channels — regulates the timing and distribution of flows originating in the Upper Basin.¹¹ Each year, Reclamation establishes a management plan for the Project based on its April 1 designation of water year type. Specifically, Reclamation uses the Natural Resource Conservation Service's forecast of April through October inflows into Upper Klamath Lake to designate one of four water year types: above average (>500,400 acre-feet (af)), below average (312,800 af — 500,400 af), dry (185,000 af — 312,800 af), or critically dry (<185,000 af).¹² While the Klamath Project has been the primary focus of debate, management of Reclamation's Trinity River dams (Trinity and Lewiston Dams) in the Lower Klamath Basin is also subject to ESA review.¹³ Trinity flows are diverted for delivery to central California as part of Reclamation's Central Valley Project. ESA considerations are a major element in relicensing discussions for PacifiCorp's four hydroelectric dams (Keno, J.C. Boyle, Copco, and Iron Gate) on the Klamath River.¹⁴

Federal ESA consultation requirements and Reclamation's responses were the focal point of the 2001 "water crisis" in the Upper Klamath Basin; however, issues related to species and water management, and tribal water supply allocations had simmered for years prior to the 2001 critically dry year. The following sections provide further detail on Reclamation's Klamath Project and management issues in the two sub-basins.

The Upper Klamath Basin

The Upper Klamath Basin is an area with limited water resources. It represents approximately 38% (4,630 square miles) of the Klamath Basin land area, but accounts for only 12% of its water runoff.¹⁵ Management of Upper Basin water has

¹⁰ Clear Lake Dam, Gerber Dam, Link River Dam, Lost River Diversion Dam, Malone Diversion Dam, Anderson-Rose Diversion Dam, and Miller Diversion Dam. Accessed at [<http://www.usbr.gov/dataweb/html/klamath.html>] on Aug. 16, 2005. While part of the Klamath Project, some of the dams are operated by various non-Reclamation entities. Pacific Power and Light (PacifiCorp) operates the Link River Dam, the Anderson-Rose Dam is operated by Tule Lake Irrigation District, and the Malone and Miller dams are operated by the Langell Valley Irrigation District.

¹¹ See U.S. Dept. of the Interior, Bureau of Reclamation website, accessed on Aug. 16, 2005, at [<http://www.usbr.gov/dataweb/html/klamath.html>].

¹² U.S. Dept. of the Interior, Bureau of Reclamation, *Biological Assessment of the Klamath Project's Continuing Operations on Southern Oregon/Northern California ESU Coho Salmon and Critical Habitat for Southern Oregon/Northern California ESU Coho Salmon* (Jan. 22, 2001), p. 8.

¹³ These dams are part of the Central Valley (CA) Project. See Bureau of Reclamation website on Aug. 16, 2005 at [<http://www.usbr.gov/dataweb/html/cvp.html>].

¹⁴ PacifiCorp also operates a power plant at Reclamation's Link River Dam.

¹⁵ National Academy of Science, National Research Council, *Endangered and Threatened Fishes in the Klamath River Basin: Causes of Decline and Strategies for Recovery* (continued...)

largely revolved around Reclamation's Klamath Project upstream of Keno Dam. Authorized in 1905 and largely completed in 1907, the Project is one of the oldest U.S. reclamation projects. The Project is different from many other Reclamation projects because the Basin's geography makes it difficult to find suitable sites for reservoir storage. Upper Klamath Lake is the primary source for Project water. However, the Lake is not a storage reservoir such as is found at other reclamation project sites because it is relatively shallow and has little storage carryover from year to year, and thus is highly dependent on current precipitation and snowmelt for water supply.

Through this Project, Reclamation facilities control Klamath and Lost River flows between the Link River Dam — at the outlet of the Upper Klamath Lake — and the Keno (water level regulation) Dam. (See **Figure 2.**) The Link River Dam controls flows from Upper Klamath Lake, sending some water downriver and some into the A Canal for irrigation distribution. Pursuant to a contract with Reclamation, the dam is operated and maintained by PacifiCorp, an energy company that operates several hydroelectric and re-regulating dams on the Klamath River.¹⁶ The 50-year operating licenses for PacifiCorp's Klamath dams, issued by the Federal Energy Regulatory Commission (FERC), expire in 2006; their operation and physical infrastructure may be adjusted as part of the relicensing process.¹⁷

Reclamation's Klamath Project facilities overall provide irrigation water to approximately 1,400 farms (nearly 1,000 full-time farms) covering about 235,000 acres in the Upper Basin.¹⁸ Reclamation has contracts to deliver water from Upper Klamath Lake to approximately 1,200 of these farms, which grow various crops including wheat, malt barley, potatoes, onions, and alfalfa.¹⁹ Water is also used on pastures where beef cattle graze.

¹⁵ (...continued)

(Washington, DC: 2004). p. 52. Hereafter referred to as the *2004 NRC Report*.

¹⁶ Including Keno Dam, J.C. Boyle Dam, Copco Dam, and Iron Gate Dam.

¹⁷ For more information on the FERC relicensing process, see CRS Report RL31903, *Relicensing of Non-Federal Hydroelectric Projects: Background and Procedural Reform Issues*, by Kyna Powers.

¹⁸ Different acreage estimates have been reported for the Project. According to the Bureau's *Factual Data on the Klamath Project* (Oct. 1995), the Project includes 233,625 acres, of which approximately 204,492 were irrigated in 1979. The Bureau's *1992 Summary Statistics, Water, Land, and Related Data* (the last edition to be published) reports the total Project area as 240,412 acres, including areas not in irrigation rotation, farmsteads, ditches, canals, and urban and suburban lands. This source reports that 232,020 acres (1,364 farms) were in irrigation rotation in 1992, and 190,234 acres were harvested with a gross crop value of \$98.4 million.

¹⁹ Some crops, such as wheat and barley, are federally subsidized "surplus crops" (with farmers receiving income support payments as well as payments to offset low market prices); see CRS Report RS20848, *Farm Commodity Programs: A Short Primer*, by Jasper Womach. An effort to limit the use of project water to grow surplus crops within the national wildlife refuges was defeated during debate on the FY2004 Interior appropriations bill. See H.Amdt. 261 to H.R. 2691, Jul. 17, 2003.

Figure 2. The Upper Klamath Basin

Key: (1) Wood River Ranch, (2) Barnes Ranch, (3) Agency Lake Ranch, (4) Williamson Delta Preserve, (5) Caledonia Marsh, (6) Running Y Marsh

Source: U.S. Government Accountability Office, *Klamath River Basin: Reclamation Met Its Water Bank Obligations, but Information Provided to Water Bank Stakeholders Could be Improved* (March 2005), GAO-05-283, p. 2 and 34, with alterations by Patricia McClaughy of the CRS technology office.

A portion of the irrigation water is returned to streams or canals for downstream use. Some of the return flows provide water to the Lower Klamath National Wildlife Refuge (NWR) and the Tule Lake NWR. (See **Figure 2.**) These Refuges contain wetlands that are major stopping points for migratory birds on the Pacific Flyway. The Tule Lake NWR, for example, provides habitat for at least 263 bird species, including bald eagles which are listed as a threatened species under the ESA.

Project operations also affect two species of Upper Basin fish listed under the ESA — the Lost River and shortnose suckers.²⁰ These fish live in Upper Klamath Lake, which is also the principle source of water for the Project. The suckers are particularly important to the Klamath, Modoc, and Yahooskin Tribes who use the fish for ceremonial purposes, but historically relied on the fish for sustenance. Upper Basin tribes and recreational anglers also used to catch salmon. However, Iron Gate Dam, constructed in 1962, blocks salmon passage upstream. (See **Figure 1.**)

Portions of the Upper Klamath River support a major trout fishery and other recreational activities. In particular, 11 miles of the Upper Klamath River — from the J.C. Boyle Powerhouse to the California-Oregon border — are designated as a Wild and Scenic River. Fed year-round by releases from the J.C. Boyle Dam, this section of the river contains more than 20 rapids rated class III or higher, making it a major destination for commercial and private white-water rafting and kayaking.

Water Rights. The allocation of water rights in the Upper Klamath Basin is a subject of continuing debate. The State of Oregon controls its water allocation; however, certain federal or trust rights (e.g., Tribal rights) have very early, high-priority rights and there also are federal water rights associated with federal land reservations (e.g., national forests and national wildlife refuges). However, many of the region’s water rights have not been quantified. A general adjudication of Oregon water rights and priorities began in 1975 and is still underway. This process will establish or register quantities and priorities of all rights in the Upper Basin. It is expected to be completed in 2008.²¹

Reclamation began acquiring water rights for the Klamath Project in 1905 and filed a formal application with the State of Oregon in 1909 to appropriate water for delivery to landowners within the Project area. Some private rights predate the 1909 rights for reclamation purposes. In 1957, the bi-state Klamath River Compact²² gave domestic (including municipal) users and irrigators in the Upper Basin preferential use of “unallocated” water supplies; however, the effect of the Compact is not clear because it excepts the rights and obligations of the United States. Further, it is unclear what, if any, water was unappropriated by 1957.

Although they have yet to be quantified, the Klamath Tribes may have water rights that predate those of irrigators. A court has held that the rights of the Klamath Tribes have a priority date of “time immemorial”²³ and are not restricted by the date

²⁰ 53 *Fed. Reg.* 27130 (July 18, 1988). The scientific names of these fish are *Deltistes luxatus* and *Chasmistes brevirostris*, respectively.

²¹ The adjudication involves an administrative process to determine pre-1909 water rights that will then be presented to a state court for a final decree. (Oregon began regulating water rights in 1909.) Claimants include the federal government, irrigation districts, the Klamath and Modoc Tribes, the Yahooskin Band of Snake Indians, and individuals who may have established or otherwise acquired rights before 1909.

²² P.L. 85-222, 71 Stat. 497.

²³ *United States v. Adair*, 723 F. 2d 1394 (9th Cir. 1983); *Parravano v. Babbitt*, 70 F. 3d 539 (continued...)

of the Tribes' 1864 Treaty with the U.S. government.²⁴ These tribal water rights could take precedence over any other water rights in the Basin. A recent court decision clarified both the priority date of the Tribes' rights and their possible scope. The federal district court for Oregon held that the Klamath Tribes have reserved gathering rights along with their hunting, fishing, and trapping rights, and that all of these rights have accompanying water rights.²⁵ The decision stipulated that these rights are to be quantified at a level that will sustain productive habitat so that there will be game to hunt, and fish to catch, as well as edible plants to gather. The state had looked to language stating that the Tribes were entitled rights to natural resources that would "provide the Indians with a livelihood — that is to say, a moderate living"²⁶ — a view that would have entitled Tribes only to that amount of unconsumed water flowing through each described river reach as of the date of the first Adair case, or the quantity of water claimed by the BIA for physical habitat maintenance flows, whichever is less. However, the court concluded that the Tribes' water could not be reduced below that necessary to maintain productive habitat and that to do otherwise would be tantamount to assigning a 1979 or 1984 priority date to the Tribes' water rights, a result that was not permissible because the priority date of the Tribes' rights is "time immemorial." How this holding will affect Klamath Basin water allocations under the ongoing water rights adjudication is not yet clear.

The six national wildlife refuges in the Upper Klamath Basin were established between 1908 and 1958.²⁷ Two of these refuges (Lower Klamath NWR and Tule Lake NWR) rely on water from the Klamath Project. These refuges have received lower priority for water than irrigators or Tribes, thus they may not receive water in times of shortage and often depend on irrigation return flows. However, the Lower Klamath NWR (est. 1908) may have federal reserved rights for an as-yet undetermined amount of water sufficient to accomplish its purposes.²⁸ The presence of migratory birds and at least one species listed under the ESA also may affect the water supplies to the refuges.

²³ (...continued)

(9th Cir. 1995); *Klamath Water Users Association v. Patterson*, 204 F. 3d 1206 (9th Cir. 2000).

²⁴ *United States v. Adair*, *supra*, at 1414.

²⁵ *United States v. Adair*, 187 F. Supp. 2nd 1273 (D. Or. 2002).

²⁶ 187 F. Supp. 2nd 1275-1278, discussing Adair, *supra*, at 1414-1415, and quoting from 443 U.S. at 686.

²⁷ U.S. Dept. of the Interior, Fish and Wildlife Service, *Klamath Basin National Wildlife Refuges: California/Oregon..*

²⁸ *Pacific Coast Federation of Fishermen's Associations v. Bureau of Reclamation*, 138 F. Supp. 2d 1228, 1231 (N.D. Cal. 2001).

The 2001 “Water Crisis.”²⁹ Recent controversy in the Klamath Basin results from the interaction of Reclamation’s annual operation of the Project with other purposes and legal considerations — specifically, the appropriate levels of and releases from Upper Klamath Lake each month — and the effect of that operation on threatened and endangered species in the Upper and Lower Basins. At the Klamath Project, ESA issues have been an integral component of operating decisions since the FWS listed the suckers as endangered in 1988,³⁰ and increasing after the NMFS listed the Basin’s coho salmon as threatened under the ESA in 1997.³¹

Since the ESA listings, Reclamation, the NMFS, and the FWS have issued biological assessments and Biological Opinions addressing the Project’s effects on the two species of suckers and coho salmon. In 1992, for example, Reclamation prepared a Biological Assessment of Klamath Project operations, and the FWS subsequently issued a Biological Opinion on the long-term effects of Project operations on the two listed suckers. A 1992 FWS Biological Opinion required Reclamation to develop a long-term operations plan, which was completed 10 years later, in 2002.³² In 1993, FWS issued a recovery plan for the two species of suckers.³³ Further, Reclamation has consulted with the FWS annually since 1995 on the effects of Project operations on endangered suckers, and with NMFS (for coho salmon) for 1998 and 1999. In early 2001, however, a federal district court faulted Reclamation for failing to formally consult with NMFS on the effects of irrigation releases on downstream coho salmon under its 2000 operating plan, and enjoined (prohibited) Reclamation from making further irrigation releases until it formally consulted on its next (2001) annual plan.³⁴

In April 2001, the FWS and NMFS each issued final Biological Opinions concluding that Reclamation’s proposed operation of the Project for 2001 would

²⁹ The “water crisis” developed when Reclamation decided to not deliver water to farmers to comply with Biological Opinions of FWS and NMFS implementing the ESA. Many believed violence was on the verge of breaking out; farmers threatened to open Reclamation head gates by force, and federal officials were threatened. The crisis made national news and created a virtual stand-off between federal officials and farmer activists.

³⁰ 53 *Fed. Reg.* 27130 (July 18, 1988).

³¹ 62 *Fed. Reg.* 24588 (May 6, 1997). The scientific name of this fish is *Oncorhynchus kisutch*.

³² U.S. Dept. of the Interior, Bureau of Reclamation, *Final Biological Assessment: The Effect of Proposed Actions Related to Klamath Project Operation (April 1, 2002- March 31, 2012) on Federally Listed Threatened and Endangered Species* (Feb. 25, 2002), available at [http://www.usbr.gov/mp/kbao/docs/Final_Biological_Assessment_02-25-02.pdf] on July 29, 2005. This Biological Assessment was subsequently found by FWS and NMFS to jeopardize the existence of threatened species, resulting in Reclamation operating the project on a one-year plan.

³³ Under the ESA, a recovery plan only recommends actions, and does not require or force agency action (16 U.S.C. §§ 1533(f), 1538).

³⁴ *Pacific Coast Federation of Fishermen’s Assoc. v. Bureau of Reclamation*, 138 F. Supp. 2d 1228 (N.D. Cal. April 3, 2001). The court was addressing the year 2000 Operating Plan; Reclamation then consulted on the year 2001 Operating Plan.

jeopardize the continued existence of the two species of suckers and the population of coho salmon, and would harm, but not jeopardize, the continued existence of the bald eagles. Because of large die-offs of suckers in Upper Klamath Lake since 1992 and new information on the potential adverse effects of low lake levels, the FWS concluded that higher minimum lake levels were needed than had been recommended in its 1992 Biological Opinion and included in Reclamation's proposed 2001 operating plan.³⁵ NMFS's determination on water requirements for coho salmon in the Lower Basin further complicated matters by recommending the release of additional water from Upper Klamath Lake at the same time that FWS was recommending water be held to raise the lake level.³⁶ Because of severe drought³⁷ conditions, there was not enough water to implement both Biological Opinions, let alone provide irrigation water for farmers.

Reclamation announced its response on April 6, 2001, implementing proposed alternatives that severely limited the delivery of irrigation water. For the 2001 water year, Reclamation stated that the normal (for a non-dry or non-critically dry year) 70,000 acre-feet (af) of water would be available for lands receiving water from Clear Lake and Gerber Reservoirs, but that no water would be available from Upper Klamath Lake for deliveries to irrigators or to the Lower Klamath NWR. In a "normal" (non-dry or non-critically dry) year, net water deliveries for agricultural use from the Lake could range from 325,000 af to 400,000 af.³⁸

Subsequently, Secretary of the Interior Gale Norton announced that about 70,000 af to 75,000 af would be released from Upper Klamath Lake to assist farmers. This amount of water represented about 15%-20% of the water typically delivered to Project users from the Lake in non-drought years, and could have restored some wells and saved pastures, hay, and some row crops, but came too late in the season to provide significant help to farmers. The availability of the water was attributed to higher-than-anticipated inflows into Upper Klamath Lake and to water conservation measures.

Prior to the mid-July 2001 release, Project water users estimated losses to the surrounding economy for the 2001 crop year at between \$160.7 million and \$222

³⁵ U.S. Dept. of the Interior, Fish and Wildlife Service, *Biological/Conference Opinion Regarding the Effects of Operation of the Bureau of Reclamation's Klamath Project on the Endangered Lost River Sucker (Deltistes luxatus), Endangered shortnose Sucker (Chasmistes brevirostris), Threatened Bald Eagle (Haliaeetus leucocephalus), and Proposed Critical Habitat for the Lost River/shortnose Suckers* (prepared by Klamath Falls FWS Office, April 2001), Section I, p. 1.

³⁶ U.S. Dept. of Commerce, National Marine Fisheries Service, *Biological Opinion, Ongoing Klamath Project Operations*. Available Sept. 20, 2005 at [<http://swr.ucsd.edu/psd/kbo.pdf>].

³⁷ See the Drought Monitor archive available on Aug. 16, 2005 at [<http://www.drought.unl.edu/dm/archive.html>].

³⁸ Written communication *via* facsimile, U.S. Dept. of Interior, Bureau of Reclamation, Klamath Project, Oct. 1, 2001.

million.³⁹ The National Research Council (NRC) reported that the total value of agricultural production in the Upper Basin is \$283 million, but that nearly half of this value is from farms in Klamath, OR.⁴⁰ The Klamath Water User's Association estimated the annual value of crops grown in the Klamath area at \$110.8 million, based upon a five-year average (1996-2000). A study by Oregon State University's Agricultural and Resource Economics Department estimated that Reclamation's water allocation plan would reduce personal income in the Klamath area by \$70 million and reduce total gross sales in the area by \$157 million during the first year of implementation.⁴¹ Although some of these losses may have been offset by payments under federal crop insurance and other disaster assistance programs, it is not clear to what extent this relief was made available.

Unlike farms, the Lower Klamath NWR did not receive water from Upper Klamath Lake during Reclamation's mid-July 2001 release, and a notice of intent to sue was filed by the Oregon Natural Resources Council and others, asserting that under FWS's Biological Opinion of April 5, 2001, the Refuge was to receive a minimum of 32,255 af of any extra water that might be available from the Upper Klamath Lake. That amount was identified as the minimum amount sufficient to sustain about a thousand bald eagles and 6% of the Refuge's 1.8 million birds during the fall migration. Subsequently, the Refuge received 2,600 af from Clear Lake, PacifiCorp donated some water, and other water was purchased. Including rainfall, the Refuge received approximately 23,815 af from May 1 through October 31 (74% of the minimum figure in the Biological Opinion).⁴² As a result of the shortfall, there may have been less successful nesting and rearing of young waterfowl due to reduced habitat and increased concentration of birds, which made them more susceptible to predation.⁴³

Because many disagreed over the fundamental guidance contained in the 2001 Biological Opinions, the Secretary of the Interior sought and secured review of the scientific decisions by the National Research Council (NRC), an arm of the National Academy of Sciences. The NRC concluded that there was no substantial scientific basis for changing the operation of the Project to maintain higher water levels in Upper Klamath Lake as proposed in the FWS 2001 Biological Opinion, or for the lower levels proposed in Reclamation's 2001 Biological Assessment.⁴⁴ Similarly, the

³⁹ Klamath Water Users Association, letter "To Whom It May Concern" (May 22, 2001).

⁴⁰ *2004 NRC Report*, p. 81.

⁴¹ Oregon State University, Dept. of Agricultural and Resource Economics, *Economic Impacts of 2001 Klamath Project Water Allocation*, (Corvallis, OR: May 22, 2001). The primary difference in this study's conclusion as compared with the water users' estimate appears to be that the OSU study used more conservative multipliers when estimating indirect effects on the local economy.

⁴² Communication from Tim Mayer, Region 1, Fish and Wildlife Service, U.S. Dept. of the Interior, on April 2, 2002.

⁴³ *Ibid.*

⁴⁴ See pages 5 - 9 of the *2004 NRC Report*. In examining the scientific data available, the NRC found that low lake levels were not always correlated with low larvae survival or fish
(continued...)

committee found that there was no substantial scientific support for higher minimum flows in Klamath River as stipulated in the NMFS 2001 Biological Opinion, or for reducing main-stem flows as would be allowed under Reclamation's 2001 Biological Assessment.⁴⁵ Therefore, the Committee concluded scientific data were insufficient to support any of the Upper Klamath Lake level management regimes proposed by federal agencies for the 2001 growing season, although it did find support for other measures included in the NMFS and FWS Biological Opinions.

The NRC report clearly points out that the ESA agencies faced a difficult dilemma. ESA requires agencies to use the best scientific data available in their efforts to avoid jeopardy, a standard that may benefit species.⁴⁶ However, the agencies must do this without delay, and without the luxury of extensive monitoring and experimentation and thus some remedies may later be proved ineffective.⁴⁷ This is an especially frustrating situation for those suffering economic losses or social disruption as a result of agency actions and has led to many calls for amending or eliminating the ESA. For more information on this issue see CRS Report RL32992, *The Endangered Species Act and "Sound Science,"* and CRS Report RL33468, *The Endangered Species Act (ESA) in the 109th Congress: Conflicting Values and Difficult Choices.*

Given the "crisis" of 2001, current discussions in the Upper Basin focus largely on how to manage the Klamath Project, and other Basin waters, to reduce extinction pressures on populations of threatened and endangered species while ensuring adequate irrigation supplies.

The Lower Klamath Basin

For management purposes, the Lower Klamath Basin is designated as the watershed area lying below and west of Iron Gate Dam (located in California just south of the Oregon/California border). The Klamath River at this point runs unobstructed to the Pacific Ocean. (See **Figure 3.**) The Lower Basin represents approximately 62% (7,470 square miles) of the Klamath Basin's land area; however, it is the origin of 88% of its runoff.⁴⁸ Much of this water flows into the lower Klamath from 4 tributaries: the Shasta, Scott, Salmon, and Trinity Rivers.

⁴⁴ (...continued)

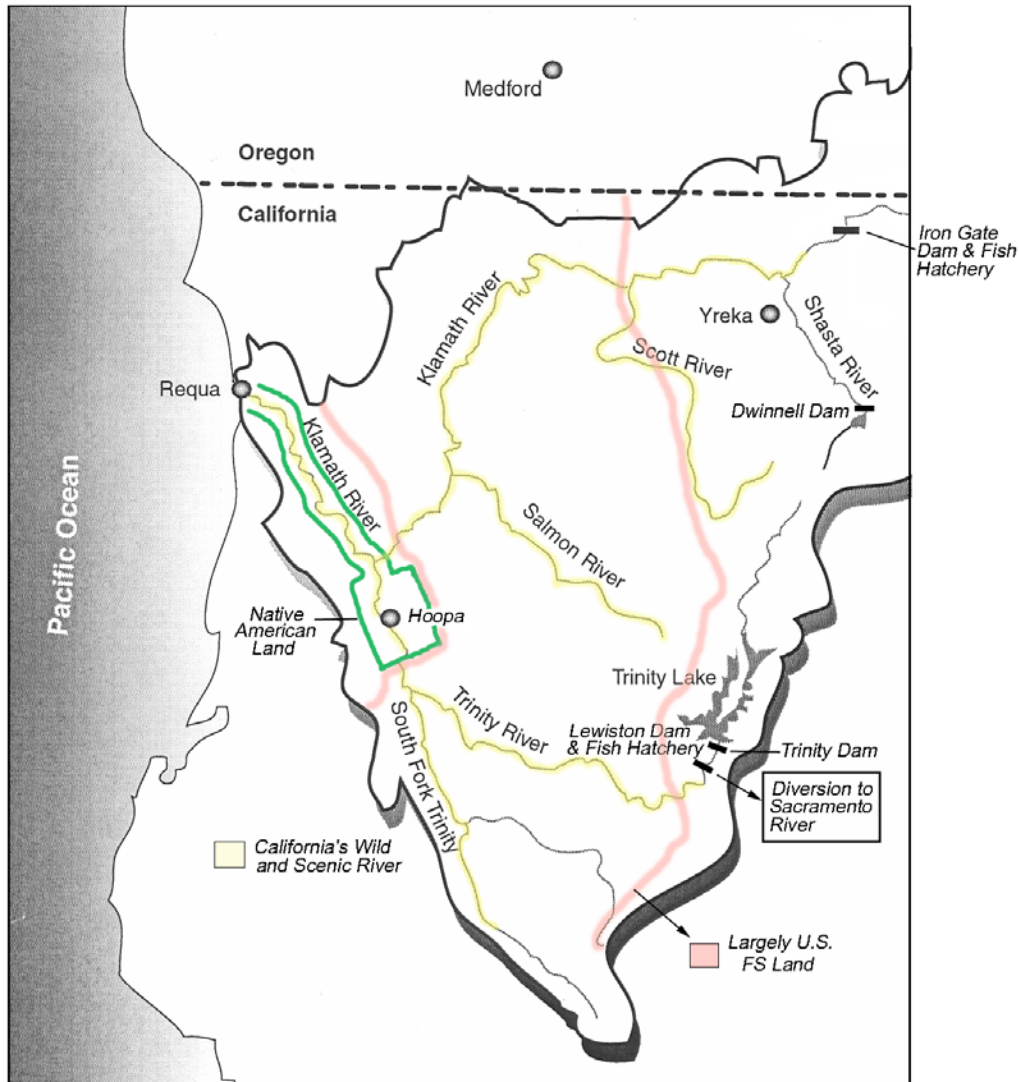
abundance, and hence no causal relationship could be supported. Specifically, the NRC stated "there is no evidence of a causal connection between water level and water quality or fish mortality over the broad operating range in the 1990s... Neither mass mortality of fish nor extremes of poor water quality shows any detectable relationship to water level" (p. 6). The NRC further allowed that while higher lake levels intuitively made sense, their contribution to successful spawning was difficult to defend scientifically (p. 227) and in at least one year appeared to be contradicted (p. 226).

⁴⁵ Ibid.

⁴⁶ 16 U.S.C. §1536(a)(2). See also House Rept. 96-697 (1979), p. 12, indicating that the "benefit of the doubt" should be given species.

⁴⁷ 2004 NRC Report, p. xv.

⁴⁸ 2004 NRC Report, p.52.

Figure 3. The Lower Klamath Basin

Source: U.S. Government Accountability Office, *Klamath River Basin: Reclamation Met Its Water Bank Obligations, but Information Provided to Water Bank Stakeholders Could be Improved* (March 2005), GAO-05-283, p. 2, with alterations by Patricia McClaughry of the CRS technology office.

As in the Upper Basin, agriculture is a prominent activity in the Lower Basin. In particular, irrigated agriculture is important in the Shasta, Scott, and Trinity River watersheds.⁴⁹ As of 1997, however, the number of Lower Basin farms (974) was about 40% of that found in the Upper Basin, and agricultural production was estimated to be less than half the value of Upper Basin agriculture (\$114 million compared to \$283 million).⁵⁰ However, both Basins support other economic interests. Much of the acreage in the Lower Basin is managed by the U.S. Forest Service for multiple purposes (e.g., timber production, recreation, fish and wildlife habitat, etc.).

⁴⁹ 2004 NRC Report, p. 82.

⁵⁰ 2004 NRC Report, p. 81 & 91.

The lower Klamath River provides habitat for several fish species. Below Iron Gate Dam, for example, the Klamath River is inhabited by the Southern Oregon/Northern California Coasts population of coho salmon, and other species. This “evolutionarily significant unit”⁵¹ of coho salmon was listed as threatened under the ESA in 1997,⁵² and the Klamath River was designated as *critical habitat* for this population.⁵³ There has been controversy and litigation over this listing because of the relative abundance of hatchery-raised, as compared to native, coho salmon. (See “Fish Hatcheries,” below.) The river also contains trout, chinook salmon, and other fish species.

Salmon are an important resource for Tribes — including the Yurok, Hoopa Valley, and Karuk — in the Lower Basin. Yurok tribal members, for example, operate both subsistence and commercial gill net fisheries in the Klamath River near its mouth. In the late 1980s, the Yurok’s commercial fishery harvest represented a direct value to the Tribe of \$3 million and additional income to the region’s businesses.⁵⁴ During this period, the Hoopa Valley Tribe caught 3,000 to 9,000 chinook salmon (fall and spring run) in the Trinity River. The Karuk Tribe also catches Klamath fish.⁵⁵ These Tribes, which have rights to 50% of the total allowable harvest of fall run chinook salmon, have been harmed by declines of Klamath fish.⁵⁶

Salmon and other anadromous fish from the Klamath River also support commercial and sport fisheries off the northern California and southern Oregon coasts. In past years, more than one-third of the 600,000 Chinook salmon taken by commercial hook-and-line trollers on the ocean between Fort Bragg, CA, and Coos Bay, OR, are estimated to have originated in the Klamath Basin.⁵⁷ Beyond the direct revenues of these fish to commercial fishermen of nearly \$6 million annually since 1986, commercial fishing also supported various businesses in fishing ports that contribute substantially to local economies.⁵⁸ Users of these fish have been harmed by increasingly restrictive fishing regulations and low fish populations during the last decade, exacerbated by even more stringent restrictions on fishing subsequent to the 1997 ESA listing of the coho salmon in the Klamath Basin. Since the 1970s, salmon

⁵¹ An “evolutionarily significant unit” (ESU) is the marine species equivalent of “distinct population segment” used for terrestrial species under the ESA.

⁵² 62 *Fed. Reg.* 24588 (May 6, 1997).

⁵³ 64 *Fed. Reg.* 24049 (May 5, 1999).

⁵⁴ Klamath River Basin Fisheries Task Force, *Long Range Plan for the Klamath River Basin Conservation Area Fishery Restoration Program* (Jan. 1991), p. 1-6. Available at [http://www.krisweb.com/biblio/gen_usfws_kierassoc_1991_lrp.pdf] on July 11, 2005. Hereafter referred to as *KRBFTF Document*, 1991.

⁵⁵ *KRBFTF Document*, 1991.

⁵⁶ Troy Fletcher and Sue Masten of the Yurok Tribe, “Yurok Perspective of Trinity River Fisheries Resources,” (2001), p. 7-11, available on on July 29, 2005 at [<http://www.humboldt.edu/~extended/klamath/proceedings2001/KLAMSYM7.PDF>].

⁵⁷ *KRBFTF Document*, 1991.

⁵⁸ *KRBFTF Document*, 1991.

landings at the ports of Eureka and Crescent City have decreased to about 5% of historic levels.⁵⁹ As of 2000, the Chinook salmon catch at these ports had declined to 26,450 fish at a value of approximately \$107,887.⁶⁰

Recreational activities are also prevalent throughout the Lower Basin. For example, recreational fishing occurs in the ocean off the mouth of the Klamath River and upstream within the Klamath Basin.⁶¹ Further, much of the lower Klamath River and its tributaries are part of California's Wild and Scenic River System.

Management of Lower Basin Waters.⁶² In addition to the Klamath Project, Reclamation manages some Lower Basin waters as part of its California Central Valley Project. Congress authorized initial features of the Central Valley Project (CVP) in the 1937 River and Harbors Act⁶³; however, federal undertaking of the project began two years earlier.⁶⁴ The project consists of canals and aqueducts that work in conjunction with the California State Water Project (SWP) to supply water to the Central Valley of California and metropolitan areas in the southern region of the state. The dams and reservoirs of the CVP were constructed primarily to control floods, improve navigation, and develop hydroelectric power. Subsequent laws were enacted to protect and enhance fish and wildlife (e.g., the 1946 Fish and Wildlife Coordination Act and the 1992 Central Valley Project Improvement Act).

The Trinity River Division (TRD) of the Central Valley Project was authorized by Congress in 1955 and completed in 1964.⁶⁵ The Trinity River is the largest tributary of the Klamath River, but enters the River not far from where the Klamath meets the Pacific Ocean. The TRD takes water from the Trinity River system and transports it, by means of dams, reservoirs, tunnels, and powerplants, into the separate watershed of the Sacramento River for use in water-deficient areas to the south.

While not discussed fully in this report, management of the Trinity River has been a topic of ongoing debate and litigation. In particular, debate has focused on the quantity of water that should remain in the Trinity River versus the amount exported via the Sacramento River to other CVP water users. Until recently, nearly 90% of the water in the Trinity River was exported to the Central Valley. These exports have had devastating effects on Trinity and Lower Klamath River fisheries, including coho salmon, and hence have been the subject of lawsuits and much controversy. In

⁵⁹ 2004 NRC Report, p. 92-93.

⁶⁰ 2004 NRC Report, p. 92-93.

⁶¹ *KRBFTF Document*, 1991.

⁶² Prepared with assistance from Steven Viña, American Law Division, CRS.

⁶³ Ch. 832, 50 Stat. 844, 850 (1937).

⁶⁴ The CVP was initially authorized by a finding of feasibility by the Secretary of the Interior under then-existing Reclamation Law. Federal funds were first provided by Congress under the Emergency Relief Appropriation Act of 1935 (49 Stat. 115). Many of the CVP units were authorized under separate project- (unit-) specific statutes.

⁶⁵ Ch. 872, 69 Stat. 719; P.L. 84-386.

particular, an attempt by the U.S. Department of the Interior in the late 1990s to increase flows in the Trinity was opposed by CVP water users and resulted in the case *Westlands Water District v. U.S. Department of the Interior*.⁶⁶ A recent court decision in this case directs the Bureau of Reclamation to release the amount of water called for in 2000 Record of Decision (discussed below) into the Trinity River.

Fishery Declines. The long-term health of Klamath fisheries is a primary concern in the Lower Basin. The anadromous fish populations of the Klamath-Trinity River system have historically supported a vast commercial, sport, and tribal fishery, particularly in Humboldt County which borders the Pacific Ocean in northwest California. Development of the Klamath River and its tributaries has caused a steady decline in the fisheries and harmed the sport and commercial coastal fishing industries. Damming of the Trinity River as part of the CVP has been particularly harmful, because it eliminated anadromous fish access to approximately 109 miles of habitat upstream of the Lewiston and Trinity Dams. (See **Figure 3**.) Construction of the Lewiston Dam also altered conditions in the lower Trinity River. For example, the dam reduced runoff to 10% of former levels and prolonged periods when the river was turbid. It also warmed downstream waters earlier in the season than previously. In addition, the dam reduced spawning habitat between the North Fork and Lewiston dam to 56% of what was available prior to its construction.

Within a decade of the 1963 Trinity diversion, biological damage by the diversion had become apparent, and salmon and steelhead populations had declined considerably.⁶⁷ Data on numbers of salmon and steelhead returning to the Trinity River prior to the construction of Lewiston Dam are fragmentary and incomplete; after construction, returns declined to only a few hundred wild fish.⁶⁸ The Trinity River Hatchery, located at the base of Lewiston Dam, was constructed to compensate for the loss of historic salmon and steelhead trout spawning and nursery grounds upstream of Lewiston Dam, but failed to prevent the continued decline of salmon and steelhead.⁶⁹ Operating agreements for the Trinity Project identified water releases for fish maintenance downstream from Lewiston Dam. Under 1968 conditions, 10% of the historic (1911-1960) annual flow of 1,188,000 af was provided downstream.⁷⁰ In 1981, that flow was increased to 340,000 af, but allowed for reductions in dry and critically dry years.⁷¹ In a 2000 Record of Decision (ROD) on a proposal to restore Trinity River fisheries, Reclamation recommended a management plan that included instream flows ranging from 369,000 af in critically dry years to 815,000 af in

⁶⁶ *Westlands Water District v. U.S. Dept. of the Interior*, 376 F.3d 853 (9th Cir. 2004). Hereafter referred to as WWD v. DOI.

⁶⁷ *2004 NRC Report*, p. 295.

⁶⁸ *2004 NRC Report*, p. 295.

⁶⁹ *2004 NRC Report*, p. 295.

⁷⁰ *59 Fed. Reg.* 51607 (Oct. 12, 1994).

⁷¹ *59 Fed. Reg.* 51607 (Oct. 12, 1994).

extremely wet years.⁷² As noted earlier, decisions on Trinity flows have been the subject of continuous litigation.⁷³

The “Fish Crisis” of 2002. While Klamath fisheries have declined steadily over the last century, a dramatic event in 2002 renewed water management concerns throughout the Lower and Upper Basins. In September 2002, thousands of adult salmon died in the lowermost 40 miles of the Klamath River mainstem.⁷⁴ While fall-run chinook salmon were the primary species affected, coho salmon, steelhead trout, and other species were also lost.⁷⁵ This loss prompted renewed focus on Klamath Project operations. Some believe Klamath Project water management decisions — made in the spring of 2002 — were responsible for the 2002 fish kill; others dispute this view.

On March 29, 2002, Reclamation began water deliveries to farms for the 2002 growing season based on two-month (April and May) “letters of concurrence” issued by the NMFS and the FWS. By late April 2002, Reclamation had reduced mainstem flow below Iron Gate Dam to 1,350 cubic feet per second (cfs), despite significantly increased rainfall in the Klamath Basin. This flow was 350 cfs less than the amount identified by NMFS’s 2001 Biological Opinion as the minimum flow necessary to prevent coho salmon extinction. The Pacific Coast Federation of Fishermen’s Associations (PCFFA) and others filed suit to enjoin these reduced flows, in a suit in which many counties and Tribes intervened.⁷⁶ Although the court determined the Biological Opinion and resulting agency action to be arbitrary and capricious, it allowed their continued implementation as to short-term flows.

On April 25, 2002, the FWS released its Draft Biological Opinion on the impact of the Klamath Water Project on Upper Klamath Basin species, indicating that Reclamation’s proposed 10-year (June 1, 2002, through March 31, 2012) plan would jeopardize the continued existence of sucker species, and noting a number of actions needed to mitigate impacts. Higher lake levels were not required except in dry and critically dry years. On May 16, 2002, NMFS released its Draft Biological Opinion, also concluding that Reclamation’s 10-year plan would likely jeopardize the down-river coho salmon. The PCFFA lawsuit was the first challenge to Reclamation’s 10-year plan, although the plan was criticized by fishermen and the California Department of Fish and Game as reducing the chances for successful fish restoration and having devastating impacts on down-river salmon fisheries.

⁷² U.S. Dept. of the Interior, Bureau of Reclamation, *Record of Decision, Trinity River Mainstem Fishery Restoration, Final Environmental Impact Statement/Environmental Impact Report* (Dec. 2000).

⁷³ For example, see *WWD v. DOI, et al.*

⁷⁴ *2004 NRC Report*, p. 9.

⁷⁵ State of California, Dept. of Fish and Game, *September 2002 Klamath River Fish Kill. Preliminary Analysis of Contributing Factors*. Available on Aug. 16, 2005 at [<http://www.pcffa.org/KlamFishKillFactorsDFGReport.pdf>].

⁷⁶ *Pacific Coast Federation of Fishermen’s Associations v. Bureau of Reclamation*, 2003 U.S. Dist. LEXIS 13745 (N.D. Cal.2003).

The Final Biological Opinions from both FWS and NMFS were released on May 31, 2002. Both Final Opinions found Reclamation's 10-year plan likely to jeopardize the continued existence of ESA-listed species. The NMFS jeopardy determination focused on incremental depletions of Iron Gate Dam flows over the 10-year plan, increasing risk to coho salmon. The FWS jeopardy determination focused on (1) sucker "entrainment" losses⁷⁷ at Project dams and diversions in Upper Klamath Lake; (2) adverse Project effects on water quality and sucker health in Upper Klamath Lake; and (3) sucker habitat loss in Upper Klamath Lake. FWS and NMFS each developed "reasonable and prudent" alternatives to avoid the jeopardizing effects of Project operations. On June 3, 2002, however, Reclamation formally rejected both Final Biological Opinions for the 10-year plan, and opted instead to operate under a one-year plan that it asserted complied with the Opinions.

Although Reclamation asserted that its plan complied with the NMFS and FWS Biological Opinions, more than 33,000 adult salmon died in September 2002. Most of the salmon killed, however, were Chinook salmon, not the ESA-listed coho (which enter the Klamath at a different time). Coming on the heels of Reclamation's controversial decision to curtail flows from Upper Klamath Lake in 2001 and then to resume irrigation flows, many believed water management decisions in the Upper Basin contributed to the 2002 fish kill; others believed flows similar to 2001 would not have prevented the fish kill. Regardless, the *direct* cause of this fish kill was an epizootic disease.⁷⁸ Several factors contributed to stressful conditions for fish, which ultimately led to the epizootic disease — (1) an above average number of Chinook salmon entered the Klamath River from the ocean between the last week in August and the first week in September 2002; (2) river flow and volume of water in the fish-kill area were atypically low (due in part to drought); and (3) water temperatures were very warm.⁷⁹ These three factors resulted in high fish densities which may have been further exacerbated by impeded fish passage upstream due to low water depths of certain riffles, perhaps caused by higher Trinity water flows several years earlier that may have changed the stream bed. The warm water temperatures and high fish density created ideal conditions for pathogens to infect salmon and spread quickly; however, neither the flows nor the temperatures that occurred were unprecedented.⁸⁰ It is not clear to what degree Reclamation's spring 2002 decisions contributed to these factors, but the NRC postulated that the flows in the Trinity River "could be most effective in lowering temperatures," presumably in the future.⁸¹

⁷⁷ Entrainment (i.e., entrapment) occurs when sucker larvae, juveniles, sub-adults, and adults enter water diversions and become trapped. Screening of water diversions to reduce sucker entry is the primary means to address this concern.

⁷⁸ This epizootic disease was a combination of ubiquitous ich (the ciliated protozoan parasite *Ichthyophthirius* sp.) and columnaris (infection by the bacterium *Flexibacter columnaris*) pathogens.

⁷⁹ California Dept. of Fish and Game, *September 2002 Klamath River Fish-Kill: Final Analysis of Contributing Factors and Impacts* (July 2004), 173 p., available at [<http://www.dfg.ca.gov/html/krfishkill-2004.pdf>].

⁸⁰ 2004 NRC Report, p. 9.

⁸¹ 2004 NRC Report, p. 9.

Litigation Overview

In part because of the economic implications of whatever actions Reclamation, FWS, and NMFS may take regarding Klamath Basin water, suits have been filed by many of the groups with interests in the region and its water, including Tribes, irrigators, fishermen, environmentalists, states, and counties. In addition, suits have been filed elsewhere regarding some of the same or similar issues. Some cases relate to Klamath directly. Others affect Klamath indirectly, because they are relevant to Klamath issues, such as suits regarding the authority of Reclamation to reduce water deliveries for ESA purposes; the nature of rights under a Reclamation contract; whether compensation is owed for water reductions; priorities of rights; extent of tribal rights; standing to sue; and standards for the science used to support Biological Opinions and agency decisions. A full description and analysis of the suits and judicial opinions is beyond the scope of this paper, but a summary of some of the most important cases and trends follows.

Some patterns are discernible among the various suits. At times, agencies have been found to have failed to comply with important procedural requirements of either the ESA, NEPA, or both, but often events on the ground (or in the water) may overtake orders from the courts to remedy situations. For example, Reclamation was found to have violated the ESA by failing to consult with NMFS concerning the impact of the Klamath Project 2000 Operations Plan as required by §7(a)(2) of the ESA, and was ordered to maintain minimum flows until consultation was completed.⁸² The court, in this case, noted that the ESA establishes procedural requirements that are designed to avoid substantive violations of the act.⁸³ Reclamation then consulted on the 2001 Operations Plan; however, decisions Reclamation made to comply with the results of consultation (e.g., to not deliver water to certain irrigators) became the subject of new lawsuits from agricultural interests.

As agencies and Administrations attempt to implement different policies, the plaintiffs in suits may change, even if the nature of challenges remains the same. For example, as just discussed, fishermen sued with respect to the 2000 Operations Plan, and irrigators sued to enjoin the 2001 Operations Plan,⁸⁴ or to receive compensation for reduction in water deliveries. At other times, environmental groups, Tribes, or counties have sued to challenge agency decisions. Also, even if a plaintiff may be successful in establishing a legal right or principle, litigation may nonetheless continue as efforts are made to compel that the principle be translated into water flows.⁸⁵

⁸² *Pacific Coast Federation of Fishermen's Associations v. Bureau of Reclamation*, 138 F. Supp.2d 1228 (D. N.D. Cal. 2001).

⁸³ *Id.* at 1248.

⁸⁴ *Kandra v. United States*, 145 F. Supp. 2d 1192 (D. Or. 2001). In this case, irrigators and local counties sued to enjoin implementation of the 2001 Operating Plan, but the court denied the motion, finding the interests of the irrigators subject to the ESA requirements.

⁸⁵ For example, the Klamath Tribes have consistently won cases articulating the extent of
(continued...)

The nature of contractual rights to Reclamation water will continue to figure prominently in cases. In a case some believed to be wrongly decided,⁸⁶ but which was settled rather than appealed by the government, the Federal Court of Claims directed the federal government to pay compensation to irrigators for water not delivered by California pursuant to a contract between the United States and California, even though the contracts of both the United States with California and California with irrigation districts contained language excusing reductions in deliveries.⁸⁷ Other cases in the past have addressed the nature and compensability of rights under Reclamation contracts,⁸⁸ and additional cases will undoubtedly be filed now. One recent suit sought compensation for Klamath irrigation water reductions. In a significant development, fishermen were allowed to intervene in this suit, which meant another group with a major interest in the water would be heard by the court. The court of claims recently granted summary judgment denying compensation under the Fifth Amendment of a “taking of water,” and the court was critical of the previous Tulare Lake decision on this point.⁸⁹

Various suits have been filed challenging the science reflected in Biological Opinions and the actions of Reclamation in failing to consult,⁹⁰ or in either releasing or not releasing water flows for various purposes and these suits too will undoubtedly continue. Some suits involve the CVP disputes and holdings in that some of the waters of the Trinity River are diverted to parts of California to the south. The proper interpretation and scope of new contract language used in renewal contracts and the procedures by which contracts are being renewed also is generating new suits.

⁸⁵ (...continued)

their rights to water: *United States v. Adair*, 478 F. Supp. 336 (D. Or. 1979)(Adair I), *aff'd* *United States v. Adair*, 723 F. 2d 1394 (9th Cir. 1984) (Adair II), *cert. denied sub nom, Oregon v. United States*, 467 U.S. 1252, (1984); *United States v. Adair*, 187 F. Supp. 2d 1273 (D. Or. 2002)(Adair III). However, dissension continues as to what quantities will be released.

⁸⁶ See, for example, the *Los Angeles Times* (Dec. 22, 2004), stating that the California Attorney General’s Office, the Schwarzenegger Administration, and attorneys for the National Oceanic and Atmospheric Administration wrote the Justice Department urging that the decision be appealed.

⁸⁷ *Tulare Lake Basin Water Storage District v. United States*, 49 Fed. Cl.313 (2001). This opinion addressed the liability issues in the case.

⁸⁸ *O’Neill v. United States*, 50 F. 3d 677 (9th Cir. 1995); *Natural Resources Defense Council v. Houston*, 146 F. 3d 1118 (9th Cir. 1998); and *Klamath Water Users Protective Ass’n v. Patterson*, 204 F. 3d 1206 (9th Cir. 1999), *cert. denied* 531 U.S. 812 (2000), holding that irrigators were not third party beneficiaries of contract between Reclamation and a power company to operate Link Dam, and Reclamation was not liable to them. See Reed D. Benson, “Whose Water Is It: Private Rights and Public Authority Over Reclamation Project Water,” *Virginia Environmental Law Journal* (1997), vol 16, p. 3., cited in *Rio Grande Silvery Minnow*, 333 F. 3d 1109, 1139 (10th Cir. 2003), which held that Reclamation could lawfully release irrigation water to meet its duties under the ESA.

⁸⁹ *Klamath Irrigation District v. United States*, 2005 U.S. Claims, LEXIS 256 (Fed. Cl. 2005).

⁹⁰ *Pacific Coast Federation of Fishermen’s Ass’ns v. Bureau of Reclamation*, 138 F. Supp. 2d 1228 (N.D. Cal. 2001).

Some suits have involved very basic questions, for example, what populations of fish may be listed under the ESA,⁹¹ or who has standing to sue to question water reductions by Reclamation. The Supreme Court recently (after the *Tulare Lake* liability case) held that irrigators as ultimate recipients of Reclamation water lack standing to challenge or enforce the contractual arrangements between Reclamation and an irrigation district.⁹²

It is not clear what will be the ultimate result of multiple Klamath River Basin suits; however, each one has the potential to affect in significant ways the planning, coordination, and management of Klamath River waters.

Management of Klamath Basin Waters

In response to the events of 2001 and 2002, stakeholder groups and regional management entities have renewed focus on resolving water issues in the Klamath Basin. In particular, entities are focused on preserving sufficient supplies of irrigation water to sustain the agricultural economy of the Upper Basin and on restoring sufficient habitat — and the associated quantity and quality of water — to support listed species. As described later, there is no comprehensive plan for resolving the Basin's water issues. However, several activities are taking place — largely with federal and state funding — to help alleviate tensions in the Basin and improve the survival of endangered fishes.

Water Supply

A primary issue in the Upper Klamath Basin is how to provide sufficient instream flows and adequate lake levels for listed species while not reducing water available for irrigation. The issue of water availability is most serious during spawning periods and during dry summer months when irrigation water is essential for crops and low lake levels and low instream flows can lead to water temperatures that harm fish populations.⁹³

Storage. One strategy for increasing the water available to farmers and fish during low-flow periods is to store water during spring floods for release when water is more scarce. However, the geography of the Upper Basin offers little in the way of potentially suitable sites. Even so, several options to expand or build reservoirs have been discussed.⁹⁴ The Klamath Basin Water Supply Enhancement Act of 2000

⁹¹ *Alsea Valley Alliance v. Dept. of Commerce*, 358 F. 3d 1181 (9th Cir. 2003).

⁹² *Orff v. United States*, 545 U.S. ___, 125 S. Ct. 2606, 162 L. Ed. 2d 544 (2005).

⁹³ Part of the problem is that there is limited water and it may be needed to keep lake levels high to avoid sucker fish mortality and lower at times to provide instream flows for coho salmon. Consequently, there is ongoing debate over what lake levels are necessary at what times to avoid collapse of the distinct fisheries which have divergent water needs.

⁹⁴ U.S. Government Accountability Office, *Klamath River Basin: Reclamation Met Its water Bank Obligations, but Information Provided to Water Bank Stakeholders Could Be* (continued...)

(P.L.106-489) authorized Reclamation to study the feasibility of increasing storage capacity at Klamath Project facilities and developing Klamath Basin groundwater supplies.

Reclamation's efforts to expand existing capacity have focused on Upper Klamath Lake. Reclamation has identified six primary options for expanding Upper Klamath Lake onto adjacent lands at Agency Lake Ranch, Barnes Ranch, Wood River Ranch, the Williamson River Delta Preserve, Caledonia Marsh, and Running Y Marsh.⁹⁵ (See **Figure 2.**) Jointly, these lands could store an additional 100,000 af of water, but could lose half that amount to evaporation.⁹⁶ The amount of storage varies, depending on the combination of projects. For example, Reclamation's Agency Lake Ranch could not be fully used for water storage without acquiring Barnes Ranch; together Reclamation estimates that they could store 30,000 to 50,000 af.⁹⁷ While Reclamation has conducted initial investigations into purchasing Barnes Ranch, current proposals would place the land and Agency Lake Ranch under the jurisdiction of the FWS. While an appraisal is underway to determine the price of Barnes Ranch,⁹⁸ Congress included \$2 million in its FY2006 Department of the Interior and Related Agencies Appropriations Act for the purchase as part of the Klamath Lake National Wildlife Refuge.⁹⁹

While the purchase of Barnes Ranch is under consideration, a number of uncertainties are associated with options to expand storage at Upper Klamath Lake. For example, water releases from the expanded storage could be limited by reservoir elevation requirements established by the FWS to protect sucker fish. Furthermore, "environmental impacts of developing water storage areas vary and would need to be addressed by Reclamation as part of the storage development process."¹⁰⁰ Klamath County commissioners and other entities oppose lake expansion, arguing that it would erode agricultural activity that supports the region's economy and the county's tax base.¹⁰¹ There are also concerns that the purchase of Barnes Ranch is being considered without a corresponding management plan.¹⁰²

⁹⁴ (...continued)

Improved (March 2005), GAO-05-283, p. 32. (Hereafter referred to as *GAO Report 2005*)

⁹⁵ *GAO Report 2005*, p. 33.

⁹⁶ *GAO Report 2005*, p. 33.

⁹⁷ U.S. Dept. of the Interior, Bureau of Reclamation, Klamath Basin Area Office, *Issue Book* (July 2004), p. 4.

⁹⁸ The property was appraised in 2003 and 2004 at \$4.6 to \$7.0 million dollars.

⁹⁹ FY2006 Dept. of Interior and Related Agencies Appropriations Act, P.L. 109-54. Conference report, H.Rept. 109-188 (July 26, 2005) p. 79.

¹⁰⁰ *GAO Report 2005*, p. 36.

¹⁰¹ Letter from the Klamath County Commissioners to the U.S. Fish and Wildlife Service on May 12, 2005, available July 11, 2005 at [http://www.klamathbasincrisis.org/letters/kccommissionersbarnes051205.htm].

¹⁰² Letter from the Klamath Water Users Association to the U.S. Fish and Wildlife Service (continued...)

Offstream storage is also being examined in the Upper Basin, although the region's terrain is not generally favorable for usual storage reservoirs. In particular, attention has centered on Long Lake Valley, located southwest of Upper Klamath Lake. "According to Reclamation, converting Long Lake Valley into a reservoir could yield up to 250,000 acre-feet of water, with a depth of 250 to 300 feet when full."¹⁰³ Storage at this site could provide flows to Upper Klamath Lake or the Klamath River during times of shortage. These flows would likely be cooler — and thus more beneficial to fish, particularly coho salmon — than additional water available from Upper Klamath Lake.

As with options to expand Upper Klamath Lake, however, there are uncertainties associated with developing storage at Long Lake. Storage would depend on the availability of spring spills and the environmental impacts of diverting flows to this offstream storage site are unclear. It is also unclear whether the geology of Long Lake would provide a good barrier to prevent leakage. While Reclamation's initial examination of the Valley's floor is promising, investigations of the Valley's walls are still underway. If these studies suggest that the valley's walls and floors are sufficiently impermeable, then Reclamation may move ahead with a full feasibility study. Such a study, however, would not begin until a funding plan has been established. According to GAO, "Reclamation estimates that a feasibility study would take three years to complete and would cost approximately \$12 million. Subsequently, reservoir construction funds would need to be obtained. There are no reliable estimates available, but Reclamation's most recent projection of construction costs is approximately \$350 million, not including real estate acquisition costs. The Long Lake development would take at least 10 years to complete, which means that Long Lake would not address any immediate water demand issues in the Klamath Basin."¹⁰⁴

Water Banks. While efforts are underway to create a more permanent source of water, water banks are being used to free up water for instream uses. During the water shortage of 2001, Reclamation initiated the Groundwater Purchase Program (GPP),¹⁰⁵ a water bank to buy water for fish and wildlife.¹⁰⁶ Through this program, Reclamation purchased approximately 50,091 af of water at an average cost of \$35.61 per af.

This water bank concept was incorporated into NMFS' May 2002 Biological Opinion. The Opinion stated that Reclamation could avoid jeopardizing the continued existence of the coho salmon if, among other actions, it created a water

¹⁰² (...continued)

on May 11, 2005, available July 11, 2005 at [<http://www.klamathbasincrisis.org/storage/barnescommentskwua051605.htm>].

¹⁰³ *GAO Report 2005*, p. 37.

¹⁰⁴ *GAO Report 2005*, p. 39.

¹⁰⁵ Reclamation's water bank website is at [http://www.usbr.gov/mp/kbao/pilot_water_bank/index.html], available on July 29, 2005.

¹⁰⁶ Washington Dept. of Ecology, *Analysis of Water Banks in the Western United States* (July 2004). Available at [<http://www.ecy.wa.gov/pubs/0411011.pdf>] on Feb. 21, 2005.

bank.¹⁰⁷ Pursuant to this Biological Opinion, Reclamation's water bank could help ensure sufficient flows from Keno Dam and the Lost River for coho salmon. Following the release of the Biological Opinion, Reclamation stated that it would work with water users to obtain 20,000 af for its water bank in 2002. The amount of water needed for the water bank increases through 2012. Under the Biological Opinion, Reclamation would bank 50,000 af in 2003, 75,000 af in 2004 and 100,000 af in 2005 through 2012. 100,000 af is approximately 6% of the total annual flow through Iron Gate Dam (1,581,000 af).¹⁰⁸

To achieve these goals, Reclamation operates two pilot water bank programs: dryland operations and groundwater pumping or groundwater substitution. Under the Dryland Operations program,¹⁰⁹ Reclamation accepts bids from eligible farmers¹¹⁰ who are willing to forgo irrigated agriculture on their lands. Cost is the primary selection criteria, but other factors are also considered. Under the Groundwater Pumping and Groundwater Substitution programs,¹¹¹ eligible farmers can bid to irrigate their lands with groundwater from their own wells (groundwater substitution) or pump groundwater to the river (groundwater pumping). Once land is accepted into the pilot program, Reclamation pays the landowner for the associated water rights for that year and then releases water downstream that it would otherwise pump to farmers from Upper Klamath Lake. To date, Reclamation has used this water bank primarily to increase instream flows during the spring runoff.

While Reclamation's water bank is one of the few activities that actually makes water available for instream uses, it may not be a long-term solution. In particular, the water-bank may be difficult to maintain because of its substantial annual cost. As shown in **Table 1**, Reclamation paid more than \$12 million for water in the last three years. Continuing the program is expected to cost an additional \$7.6 million per year, excluding administrative costs.¹¹² Therefore, budget watchdogs and some environmental organizations argue that tax dollars would be better spent to purchase agricultural lands, thereby permanently reducing this source of demand for irrigation water. (See "Land Retirement," below.)

¹⁰⁷ U.S. Dept. of Commerce, National Marine Fisheries Service (NOAA), *Biological Opinion, Klamath Project Operations* (May 2002). Available on Feb. 21, 2005 at [<http://www.usbr.gov/mp/mp150/envdocs/kbao/KpopBO2002finalMay31.pdf>].

¹⁰⁸ *2004 NRC Report*, p. 52.

¹⁰⁹ U.S. Dept. of the Interior, Bureau of Reclamation, "2nd Call Dryland Operations Instructions." Available on Feb. 21, 2005 at [http://www.usbr.gov/mp/kbao/pilot_water_bank/docs/2005_Dryland_Operation_2nd_Call_Instructions_and_App.pdf].

¹¹⁰ This program is limited to those farmers located above Keno Dam who do not operate federal lease lands or lands under temporary surplus water contracts. Also, they must have at least 20 contiguous acres.

¹¹¹ U.S. Dept. of the Interior, Bureau of Reclamation, "Groundwater Operations Instructions." Available on Feb. 21, 2005 at [http://www.usbr.gov/mp/kbao/pilot_water_bank/docs/2005_Groundwater_Operation_Application_peg.pdf]. Hereafter referred to as "Groundwater Operations Instructions."

¹¹² "Groundwater Operations Instructions," p. 16.

Certain subsets of the water bank program raise additional concerns. For example, it is difficult to gauge the amount of water Reclamation receives from dryland farming and crop idling. Reclamation estimates the amount of water that would otherwise be demanded, but it has reduced its estimate from 5 af in 2003 to 2 af in 2005. The actual amount received varies depending on specific factors, such as weather and crop types.¹¹³ While it is difficult to measure the amount of water stored in the reservoir because of the water bank, the GAO found that Reclamation met its obligations in terms of in-stream releases.¹¹⁴ Groundwater pumping is easier to measure, but there are concerns that it could lower the water table. The U.S. Geological Survey (USGS), found that the water level in some wells near pumping centers declined 10 to 20 feet during the 2004 irrigation season, while wells more distant from pumping centers — and thereby more likely to be affected by climate than pumping — dropped 1 to 3 feet.¹¹⁵ Furthermore, some entities oppose paying farmers to pump cool, clean groundwater onto crops so that warm nutrient-loaded water can be available for instream flows.

Table 1. Reclamation’s Water Bank Expenditures, FY2002-2004

Expenditures	FY2002	FY2003	FY2004	Total
Groundwater substitution or pumping contracts	\$1,000,000	\$1,788,711	\$4,009,451	\$6,798,162
Crop idling contracts (Dryland Operations)	\$0	\$2,700,789	\$637,258	\$3,338,047
Klamath Basin Rangeland Trust contracts for off-Project crop idling	\$948,300	\$0	\$690,221	\$1,638,521
Administration	\$2,479	\$175,233	\$255,119	\$432,831
Other	\$10,215	\$22,213	\$144,785	\$177,213
Total	\$1,960,994	\$4,686,946	\$5,736,834	\$12,384,774

Source: U.S. Government Accountability Office, *Klamath River Basin: Reclamation Met Its Water Bank Obligations, but Information Provided to Water Bank Stakeholders Could Be Improved* (March 2005), GAO-05-283.

Dollar amounts are not adjusted for inflation.

Land Retirement. Retiring land from production is another possible mechanism for decreasing the consumptive use of Upper Klamath water. According

¹¹³ GAO Report 2005, p. 26.

¹¹⁴ GAO Report 2005, p. 26.

¹¹⁵ U.S. Dept. of the Interior, Geological Survey, *Assessment of the Klamath Project Pilot Water Bank: A Review from a Hydrologic Perspective* (May 3 2005), p. 32.

to GAO, roughly 50,000 acres of land — approximately 9%¹¹⁶ of the Upper Basin’s irrigated acreage — would need to be retired to meet water bank requirements. This land could cost \$15 to \$150 million to purchase.¹¹⁷ While some entities advocate this alternative, and argue that removing the Basin’s poorest quality land from production would have little effect on agricultural output, the agricultural community is generally opposed to any permanent decrease in farmed acreage. They argue that removing land from production would harm the region’s agricultural economy and would set a bad precedent for future water decisions.

Groundwater Pumping. Following the shortage of surface water in 2001, “there is broad interest in exploring the use of ground water to augment or replace surface water for certain uses, and to augment stream flows,”¹¹⁸ and the rate of well drilling appears to be increasing throughout the Basin. Between 2001 through 2003, 124 irrigation wells were drilled, up from 14 in the previous three years. Furthermore, Reclamation relied heavily on groundwater pumping to meet its 2004 water bank targets. In that year, Reclamation obtained nearly 70% (approximately 60,000 af) of its deliveries by pumping groundwater.

While drawing groundwater can help reduce water shortages during times of drought, the longer-term impact of groundwater pumping on the region’s aquifers and potential stream flows is not clear. To gain a better understanding of the groundwater flow system and its response to proposed ground-water development, the USGS, along with the Oregon Water Resources Department, began the Upper Klamath Basin Ground-Water Study in 1998.¹¹⁹ The study is expected to be substantially completed in 2005.¹²⁰ In a study focused on the water bank, the USGS concluded that groundwater pumping has increased in recent years and that increased pumping has affected the water table. Specifically, the USGS found that increased pumping has caused well interference, seasonal water-level declines of up to 20 feet, and year-to-year declines of up to 8 feet.¹²¹ However, these effects vary throughout the Upper Basin and the long term consequences of pumping at 2003 and 2004 rates are unclear.

Fish Passage and Water Quality

While increasing summer water supplies in the Upper Basin is likely to be important, it is only one component of the solution for the Basin’s endangered fish

¹¹⁶ According to the *2004 NRC Report* (p. 80) there were 541,958 acres of irrigated land in the Upper Basin as of 1997. They estimate that total agricultural land in the Upper Basin is 2,005,206 acres as of 1997.

¹¹⁷ *GAO Report 2005*, p. 31-32.

¹¹⁸ U.S. Geological Survey (USGS) *Upper Klamath Basin Ground-Water Study*, available June 9, 2005 at [http://or.water.usgs.gov/projs_dir/or180].

¹¹⁹ USGS *Upper Klamath Basin Ground-Water Study*.

¹²⁰ *GAO Report 2005*, p. 28.

¹²¹ United States Geological Survey, *Assessment of the Klamath Project Pilot Water Bank: A Review from a Hydrologic Perspective* (May 3 2005), p. 33.

and the communities those fish support. Improving fish passage and water quality are also seen as key to fisheries restoration.

Fish Passage: Dam Operations and Removal. Downstream of Reclamation’s Link River Dam, five major dams¹²² and seven powerhouses were constructed on the Klamath River and Fall Creek. (See **Figure 1.**) PacifiCorp, a subsidiary of Scottish Power, operates these facilities which have a combined capacity of 151 megawatts¹²³ and produce approximately 757,000 megawatt hours (mWh) of electricity per year.¹²⁴

While these facilities provide power benefits, they also generate costs. Licensed by the Federal Power Commission — predecessor to the Federal Energy Regulatory Commission (FERC) — in 1956, before modern environmental requirements, only J.C. Boyle Dam has downstream fish passage facilities.¹²⁵ Without fish passage structures, the four lowest dams block salmon, steelhead, Pacific lamprey and other species from accessing more than 350 miles of habitat.

The FERC license (FERC Project No. 2082) for these dams is set to expire in 2006, and fish considerations have become a major subject of the relicensing proceeding.¹²⁶ In their formal comments, environmental organizations¹²⁷ have stated that fish passage should be a minimum condition of relicensing. In its final license application, PacifiCorp proposes adding fishways at Fall Creek and Spring Creek powerhouses, but not at 4 of the Project’s dams.¹²⁸ In addition, PacifiCorp proposes a number of project modifications to benefit fisheries. Ultimately, FERC and natural resource agencies will determine what fishway prescriptions will be included in the FERC license. However, PacifiCorp is currently in closed-door negotiations with

¹²² Keno Dam, J.C. Boyle Dam, Copco Dam No. 1, Copco Dam No. 2, and Iron Gate Dam. PacifiCorp also operates a facility at Reclamation’s Link River Dam; see [<http://www.pacificorp.com/File/File35473.pdf>] visited on Feb. 24, 2005.

¹²³ These facilities account for 1.3% of PacifiCorp’s total generation capacity (84,195 MW). See [<http://www.pacificorp.com/File/File46511.pdf>] on Feb. 15, 2005.

¹²⁴ According to PacifiCorp, this is enough power to supply an estimated 69,500 homes. Relicensing Presentation available at [<http://www.pacificorp.com/File/File1010.pdf>] on Feb. 15, 2005.

¹²⁵ PacifiCorp, “Fish Passage Planning and Restoration,” available on Feb. 24, 2005, at [<http://www.pacificorp.com/File/File35473.pdf>]. Originally licensed to the California Oregon Power Company.

¹²⁶ For more information on the FERC relicensing process see CRS Report RL31903, *Relicensing of Non-Federal Hydroelectric Projects: Background and Procedural Reform Issues*, by Kyna Powers.

¹²⁷ See, for example “American Rivers, California Trout, Trout Unlimited, and World Wildlife Fund, Comments on NEPA Scoping Document 1, Klamath Hydroelectric Project, FERC No. 2082-027” Federal Energy Regulatory Commission Submittal 20040722-5044 (July 22, 2004).

¹²⁸ PacifiCorp, *Final License Application, Klamath Hydroelectric Project (FERC Project No. 2082)*, Available at [<http://www.pacificorp.com/Article/Article28613.html>] on Mar. 14, 2005. See “Executive Summary,” p. 4-17 to 4-20.

these agencies and other entities to develop a settlement agreement, as part of the FERC licensing process. An agreement could be reached by the fall of 2005.¹²⁹ Further complicating matters is a proposal by another energy company to purchase PacifiCorps' Klamath River dams.

Dams have also become part of the broader restoration debate. In its 2003 report, the NRC recommended studying the removal of the Project's Iron Gate Dam.¹³⁰ While PacifiCorp has not studied this option as part of its relicensing application, a study by G&G Associates on behalf of American Rivers, produced rough estimates of the cost of decommissioning.¹³¹ Based on these estimates, some environmental organizations argue that removal is feasible and less expensive than adding fishways. The Klamath Tribes, who also support dam removal, filed a \$1 billion suit against PacifiCorp in May 2004, for damages associated with the loss of salmon in the Klamath Basin.

While PacifiCorp's dams have been the focus of relicensing discussions, the NRC recommended examining the removal of Dwinnell Dam on the Shasta River and the Chiloquin Dam on the Sprague River.¹³² Discussion has focused primarily on Chiloquin Dam, which blocks trout and endangered sucker fish from 70 miles of habitat. The NRC report states that "removal of Chiloquin dam has a high priority and should be pursued aggressively."¹³³ A broad array of entities, including the Klamath Water Users Association,¹³⁴ support the removal of Chiloquin Dam and activities are underway to study this option. In FY2004, Congress appropriated up to \$1 million to study the removal. Phase I and II of a preliminary study have been completed to evaluate dam removal and fish ladder construction options. The President's FY2006 budget request included \$2.1 million to remove Chiloquin Dam,¹³⁵ but it was not included in the final FY2006 Interior appropriations act.

Water Quality. While there has been much focus on the availability of Project water, water quality is also an issue in the Klamath Basin. Two aspects of water quality — nutrient loads and temperature — are of primary interest due to their effect on fish survival. For example, sucker fish have died from low oxygen levels (hypoxia) in Upper Klamath Lake, and high water temperatures have contributed to fish kills in the Lower Basin. According to the Oregon Department of Environmental

¹²⁹ See PacifiCorp fact sheet on settlement negotiations, available July 11, 2005, at [<http://www.pacificorp.com/File/File39739.pdf>].

¹³⁰ *2004 NRC Report*, p. 223.

¹³¹ G&G Associates, *Klamath River Dam Removal Investigation: J.C. Boyle Dam, Copco 1 Dam, Copco 2 Dam and Iron Gate Dam* (July 2003).

¹³² *2004 NRC Report*, p. 223.

¹³³ *2004 NRC Report*, p. 223.

¹³⁴ Klamath Water Users Association, *Weekly Update* (Nov. 7, 2003), available at [<http://www.klamathbasin-crisis.org/articles/KWUA-Newsletter/NL-2003/nl-110703.htm>] on July 29, 2005.

¹³⁵ U.S. Dept. of the Interior, *Department of the Interior Budget in Brief, Bureau Highlights, Bureau of Indian Affairs* (Washington, DC: GPA, Feb. 2005), p. BH-87.

Quality (DEQ), federally listed salmon “are highly sensitive to warm stream temperatures.”¹³⁶ Heat from human activities is defined as a pollutant that comes from two sources: land use changes that increase solar radiation heat loading and heat from the direct discharge of warm water. Nutrient loads are also an issue throughout the Klamath Basin. Erosion and runoff from land use practices related to agriculture, forestry, and mining are primary sources of nutrients.¹³⁷

To address temperature and sediment problems in the Klamath River and some of its tributaries, California’s North Coast Regional Board and Oregon’s Department of Environmental Quality are working together and with the EPA to develop guidelines for the amount of heat or nutrients that the waters can receive and still meet water quality standards.¹³⁸ These guidelines are known as Total Maximum Daily Loads or TMDLs.¹³⁹ A TMDL proposal is expected for the Klamath River and the Lost River by the end of 2005.¹⁴⁰

Habitat Restoration. While the TMDL’s may affect the discharge of nutrients and heated water, they do not directly address land use practices that contribute to erosion or increased solar radiation. To address these issues, a number of entities are undertaking specific projects to improve water quality and restore habitat. For example, the U.S. Department of Agriculture’s Natural Resources Conservation Service (NRCS) has a Work Plan for Adaptive Management for the Klamath Basin to mitigate the effects of drought on agriculture.¹⁴¹ The core objectives of this program are: (1) decreasing water demand; (2) increasing water storage; (3) improving water quality; and (4) developing fish and wildlife habitat. Under this plan and the 2002 Farm Bill, NRCS expected to allocate approximately \$76 million in technical and financial assistance to the Basin’s private landowners through 2007.¹⁴² Among other activities, this funding could help to implement “over

¹³⁶ Oregon Dept. of Environmental Quality, *Upper Klamath Lake Drainage Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WQMP)* (May 2002), p. ii.

¹³⁷ *2004 NRC Report*, p. 304.

¹³⁸ Oregon Dept. of Environmental Quality, “Fact Sheet — January 2004: Lost River and Klamath River TMDLs.” Available June 7, 2005, at [<http://www.deq.state.or.us/wq/wqfact/LostRivKlamathRivTMDLFactsheet.pdf>].

¹³⁹ For more information, see CRS Report 97-831, *Clean Water Act and Total Maximum Daily Loads (TMDLs) of Pollutants*.

¹⁴⁰ Oregon Dept. of Environmental Quality, “Fact Sheet — November 2004: Status of Lost River and Klamath River TMDLs,” Available June 7, 2005, at [<http://www.deq.state.or.us/wq/wqfact/LostRivKlamathRivTMDLStatusFactsheet.pdf>].

¹⁴¹ U.S. Dept. of Agriculture, Natural Resources Conservation Service, *Work Plan for Adaptive Management, Klamath River Basin, Oregon and California* (May 19, 2004). Available Aug. 29, 2005, at [http://www.nrcs.usda.gov/feature/klamath/images/AMPMay19_2004.pdf].

¹⁴² Klamath Water Users Association, *Summary of Environmental Restoration and Water Conservation Efforts Undertaken by Klamath Water Users Association (KWUA) & Landowners*. Available June 10, 2005, at [<http://www.kwua.org/conservation/10pgsummary083004.htm>]. Hereafter referred to as *KWUA Summary*.

27,600 acres of wetland, wildlife, and conservation buffer enhancements.”¹⁴³ During FY2002 and 2003, the NRCS reported 1,828 acres of conservation buffers among their on-farm accomplishments.¹⁴⁴

The FWS also promotes watershed restoration through the Klamath River Basin Conservation Area Restoration Program based on recommendations from the Klamath River Basin Fisheries Task Force. Through FY2006, when it expires, this program is authorized at \$1 million per year. FWS also tries to meet the recommendations of the Task Force using funds allocated to the department’s Jobs in the Woods and Partners for Fish and Wildlife Programs.¹⁴⁵ Furthermore, the U.S. Forest Service, which administers 54% of the land in the Basin,¹⁴⁶ is undertaking riparian restoration projects and other activities that could benefit the fisheries.¹⁴⁷ While these activities are helping to restore fish habitat throughout the Basin, it is unclear what affect the projects have, or will have, on fish survival and reproduction.

Salmon Fisheries: Other Activities

As described above, there are many activities taking place to develop sources of instream flows and improve fisheries habitat. In addition, there are activities taking place to increase the number of juvenile salmon and spawning adults.

Fish Hatcheries. Dam construction and land use changes have reduced the amount of viable spawning habitat in the Klamath Basin. Klamath hatcheries for coho, Chinook, and steelhead began as early as 1910 as a way to augment fish stocks. The two primary hatcheries in the Klamath Basin are the Trinity River Hatchery, built in 1963, and the Iron Gate Hatchery, built in 1966.¹⁴⁸ (See **Figure 3**.) These hatcheries augment fish populations by hatching and raising juveniles for release back into the river. Jointly, the Trinity and Iron Gate hatcheries release 576,000 coho per year, along with 7-12 million Chinook and 1 million steelhead.¹⁴⁹ Like native or wild fish, the hatchery fish migrate to the ocean and later return to the river (hatchery), to spawn.

Given the number of hatchery-released fish, there is debate as to whether the coho salmon should be listed as endangered. On September 10, 2001, a federal

¹⁴³ *KWUA Summary*, summary.

¹⁴⁴ *KWUA Summary*, p. 7.

¹⁴⁵ U.S. Dept. of the Interior, Fish and Wildlife Service, *Klamath River Basin Conservation Area Restoration Program, FY2002 Annual Report*.

¹⁴⁶ U.S. Dept. of Agriculture, Forest Service, *Briefing Paper: Restoration Activities in the Klamath Basin*. Available June 10, 2005, at [<http://www.fs.fed.us/r6/frewin/projects/klamathbasin/briefing.shtml>].

¹⁴⁷ For U.S. Forest Service projects in the region, see [<http://www.fs.fed.us/sopa/state-level.php?or>] available June 10, 2005.

¹⁴⁸ *2004 NRC Report*, p. 262-268.

¹⁴⁹ *2004 NRC Report*, p. 262-268.

district court in *Alsea Valley Alliance v. Daley*¹⁵⁰ struck down the listing of the Oregon Coast Evolutionary Significant Unit (ESU) coho salmon (i.e., the coastal population north of the Klamath River drainage) as threatened. The court found that, while NMFS treated hatchery and wild salmon alike for some purposes and evidence was before the court to the effect that the two were genetically identical, NMFS considered only the wild salmon in declaring the ESU to be threatened. The court set aside the listing decision as arbitrary and capricious, and remanded the matter to NMFS for further consideration consistent with the opinion. The government did not appeal the ruling, announcing instead that it would review 23 other listings of salmon populations in light of the court's opinion. An environmental organization was allowed to intervene for purposes of appeal and the 9th Circuit stayed the de-listing pending appeal. The appeal was dismissed and the stay dissolved by the 9th Circuit Court of Appeals.¹⁵¹

Although NMFS has retained the listing of the Klamath River coho as threatened,¹⁵² concerns exist as to what effect hatchery fish will have on the overall population. In particular, there are concerns that hatchery fish harm wild populations. Specifically, some fishery biologists are concerned that a preponderance of hatchery fish in a population (i.e., possibly less genetic diversity) could weaken that population's ability to respond to a diversity of environmental stresses and conditions. According to the NRC, hatchery juveniles tend to be larger than their wild counterparts. These larger juveniles could harm the wild populations through competition for food, predation, or injury.¹⁵³ In addition, there have been concerns that hatchery fish could carry disease to the wild population and reduce genetic variation.

Fishing Restrictions for Salmon. According to the *2004 NRC Report*, overharvesting may have contributed to the initial decline in the Klamath fisheries. In 1986, to benefit the fisheries, Congress funded a 20-year fisheries restoration plan, and authorized a Klamath River Basin Fisheries Task Force to implement the program.¹⁵⁴ Various groups have attempted to negotiate fisheries management and harvest agreements, with differing opinions on how many adult Chinook salmon should be permitted to spawn and how large a commercial harvest should be allowed. Because the Southern Oregon/Northern California Coasts population of coho salmon is listed as threatened under the ESA, the commercial harvest of coho salmon have been prohibited to protect these fish. In addition, the Chinook salmon harvest has been restricted in northern California and southern Oregon marine waters for several years to allow the Klamath River to attain the Pacific Fishery Management Council's spawning escapement goals.

¹⁵⁰ 2001 U.S. Dist. LEXIS 14443 (D. Or. 2001).

¹⁵¹ *Alsea Valley Alliance, Et al. v. U.S. Dept. of Commerce*, 38 F.3d 1181 (9th Cir. 2004), U.S. App., Lexis 3402, 57 ERC (BNA) 2094.

¹⁵² The Klamath River coho are a part of the Southern Oregon/ Northern California ESU of coho salmon.

¹⁵³ *2004 NRC Report*

¹⁵⁴ P.L. 99-552 (16 U.S.C. §460ss, *et seq.*)

Sucker Management

Chiloquin Dam. Fish passage at Chiloquin Dam on the Sprague River is a concern as this dam, although equipped with a fish ladder, continues to block shortnose and Lost River suckers from an estimated 70-80% of their spawning habitat.¹⁵⁵ Section 10905 of P.L. 107-171, the Farm Security and Rural Investment Act of 2002 (the 2002 Farm Bill), authorized the Secretary of the Interior to study of the feasibility of providing upstream and downstream passage for fish at the Chiloquin Dam. More recently, attention has turned to complete removal of the dam. Toward this effort, the Bureau of Indian Affairs has assumed leadership with the Bureau of Reclamation doing engineering and design work. If this dam is removed, additional upstream habitat restoration is anticipated.

Fish Screens. Stranding of suckers in the irrigation canals of the Klamath Reclamation Project has been a source of contention between irrigators and the Klamath Tribes. In some years, as many as 10,000 suckers were manually seized from irrigation canals and returned to Upper Klamath Lake. Some of these problems were alleviated in early 2003 when the construction of self-cleaning fish screens was completed at the head-gates of the A Canal, where upon intercepted fish are shunted through a bypass pipe and pumped back into Upper Klamath Lake above the Link River Dam.¹⁵⁶ The construction of these fish screens was partially financed by \$5 million of the \$15 million in FY2002 federal appropriations for the Bureau of Reclamation's Klamath Project included in P.L. 107-66; the total project cost was estimated as close to \$14 million.¹⁵⁷

Other Activities. The Bureau of Reclamation is reviewing ways to improve fish passage at other dams that may block sucker movement.¹⁵⁸

Planning and Coordination

Following the events of 2001 and 2002, emotions have run high throughout the Basin. Over the years, the Tribes have lost much of their land and have seen a primary food source decline precipitously. The Upper Basin's agricultural community was built on the promise of water and faced severe economic hardship with the reduction in that supply in 2001. The fishing community has also faced economic hardships as declines in the Klamath fisheries have resulted in harvest

¹⁵⁵ Statement of Christine Karas, Bureau of Reclamation, U.S. Dept. of the Interior at Klamath River Basin Fisheries Task Force meeting, June 23-34, 2004, at Klamath Falls, OR.

¹⁵⁶ Dylan Darling, "Fish Screened From Canal Danger," *Klamath Falls Herald and News* (Sept. 20, 2004), and "Screens accomplish at least one big goal," *Klamath Falls Herald and News* (Nov. 7, 2004).

¹⁵⁷ Testimony of Sue Ellen Woodridge, U.S. Dept. of the Interior, before the House Committee on Resources on Mar. 13, 2002.

¹⁵⁸ For example, see U.S. Dept. of the Interior, Bureau of Reclamation, *Link River Dam Fishway Replacement Feasibility Study* (May 2001). Available Aug. 5, 2005, at [http://www.usbr.gov/pmts/hydraulics_lab/bmefford/Link%20River%20Fishway.pdf].

prohibitions and catch limits for many years prior to 2001. These hardships have resulted in communities with strong feelings and a personal stake in how the Basin's water issues are resolved.

Given the potential for difficulty with communication and coordination among so many entities, a number of questions are raised. What does the law require? Is there sufficient coordination to resolve the Basin's issues? Are federal agencies duplicating efforts? Are federal monies being used effectively? While this section does not answer these difficult questions, it provides a glimpse into the Basin's coordination activities.

As acknowledged by the panel in a July 2004 field hearing held by the House Committee on Resources in Klamath Falls, there is no one entity that represents the Basin and has the authority to resolve its issues.¹⁵⁹ Rather, the Basin has more than 25 inter-agency and regional working groups.¹⁶⁰ These groups reflect the complexity of a Basin that lies in two states, and crosses tribal, federal, state, local, and private lands.

Table 2. Selected Federal and Basin Groups in the Klamath River Basin

Name	Focus and Jurisdiction
Federal and State Entities	
Klamath River Basin Compact Commission	<p>Focus: Promoting comprehensive management of Klamath Basin water for a broad spectrum of purposes as outlined in the Klamath River Basin Compact of 1957. Furthering intergovernmental cooperation.</p> <p>Membership: 3 members — 1 appointed by the President, a representative each of Oregon and of California.</p> <p>Region of Jurisdiction: Upper and Lower Basins</p> <p>Authority: P.L. 85-222, Article IV, Klamath River Basin Compact.</p> <p>When created: 1954, congressional consent in 1957.</p>
Klamath River Basin Federal Working Group	<p>Focus: Advise the President on long-term solutions to enhance water quantity and quality and address other complex issues in the Klamath River Basin.</p> <p>Membership: Chairman of the Council on Environmental Quality, and the Secretaries of the Interior, Agriculture, and Commerce, or their designees.</p> <p>Region of Jurisdiction: Upper and Lower Basins</p> <p>Authority: Presidential memorandum, available at [http://www.whitehouse.gov/news/releases/2002/03/20020301-10.html].</p> <p>When created: Mar. 2002</p>

¹⁵⁹ U.S. House of Representatives, Committee on Resources, Subcommittee on Water and Power, *Oversight Hearing on the Endangered Species Act 30 Years Later: The Klamath Project* (Klamath Falls, OR; July 7, 2004), Serial No. 108-104.

¹⁶⁰ For more information on these groups, see [<http://www.kbef.org/groups/>], available on July 26, 2005.

Name	Focus and Jurisdiction
State and Federal Klamath Basin Coordination Group	<p>Focus: Increase coordination among federal and state agencies, identify short-term actions to improve conditions in the Basin, and develop and implement the Klamath Basin Conservation Implementation Program concept.</p> <p>Membership: representatives from the States of Oregon and California, the Departments of Interior, Agriculture, Commerce, and U.S. Environmental Protection Agency.</p> <p>Region of Jurisdiction: Upper and Lower Basins.</p> <p>Authority: Inter-agency agreement available at [http://www.doi.gov/news/klamathagreement.pdf].</p> <p>When created: Oct. 2004</p>
Klamath River Basin Fisheries Task Force	<p>Focus: Restoring the Klamath River fisheries (anadromous)</p> <p>Membership: 16-person federal advisory committee with representation from the commercial fishing industry; sportfishing community; the Yurok, Hoopa, and Karuk Tribes; four northern California counties; California Dept. of Fish and Game; Oregon Dept. of Fish and Wildlife; National Marine Fisheries Service; the U.S. Dept. of Agriculture; and the U.S. Dept. of the Interior.</p> <p>Region of Jurisdiction: Klamath River Basin Conservation Area, as defined in P.L. 99-552</p> <p>Authority: P.L.99-552, §4 (16 U.S.C. 460ss-3).</p> <p>When created: 1986.</p> <p>Sunsets: 2006.</p>
Klamath Fishery Management Council	<p>Focus: Manage harvests and ensure viable population of anadromous fish in the Klamath Basin.</p> <p>Membership: 11 members that bring together commercial and recreational fishermen, Native American tribes, and state and federal agencies.</p> <p>Region of Jurisdiction: Upper and Lower Basins and related coastal waters</p> <p>Authority: P.L. 99-552, §3 (16 U.S.C. 460ss-2).</p> <p>When created: 1986.</p> <p>Sunsets: 2006.</p>
Klamath Watershed Coordination Group	<p>Focus: Ensuring projects proposed and funded under the Upper Klamath Basin Working Group are consistent with other basin-wide fish and wildlife conservation plans by drafting a cooperation agreement.</p> <p>Membership: Upper Klamath Basin Working Group, Klamath River Basin Compact Commission, Trinity Management Council, and Klamath River Basin Fisheries Task Force.</p> <p>Region of Jurisdiction: Upper and Lower Basins</p> <p>Authority: Within the Oregon Resource Conservation Act (P.L. 104-208), §201(c) requires coordination among various groups.</p> <p>When created: 1996</p>

Name	Focus and Jurisdiction
Regional Entities	
Upper Klamath Basin Working Group (Hatfield Group)	<p>Focus: Developing an overall plan for enhancing ecosystem restoration, improving economic stability, and minimizing impacts associated with drought.</p> <p>Membership: 30 people appointed by the Governor of Oregon, representing federal, state, and local governments and agencies; the Klamath Tribes; conservation organizations; farmers and ranchers; and industry and local business.</p> <p>Region of Jurisdiction: Upper Basin</p> <p>Authority: P.L.104-333, §1024, but existed prior to this enactment; see details in P.L.104-208 (Oregon Resource Conservation Act, 110 Stat. 3009-532)</p> <p>When created: 1996</p>
Trinity Management Council	<p>Focus: Oversight and direction of Trinity River Restoration Program to restore and maintain anadromous fisheries resources of the Trinity River</p> <p>Membership: Representatives from the U.S. Fish and Wildlife Service, Bureau of Reclamation, Forest Service, National Marine Fisheries Service, Trinity County, Hoopa Valley Tribe, Yurok Tribe, and the State of California.</p> <p>Region of Jurisdiction: Trinity River</p> <p>Authority: Within the Record of Decision for the Trinity River Restoration Program, an implementation plan established this Council to supercede the Trinity River Basin Fish and Wildlife Task Force (established by P.L. 98-541, 98 Stat. 2721).</p> <p>When created: Dec. 2000 to supercede the Task Force established in Oct. 1984</p>

Federal and State Coordination. Efforts to increase coordination among federal and state entities working in the Klamath Basin are ongoing. The Klamath River Compact Act of 1957¹⁶¹ established the Klamath River Basin Compact Commission with three representatives: one from Oregon, one from California, and one federal representative appointed by the President.¹⁶² (See **Table 2.**) The Commission is charged with administering the Klamath River Basin Compact Act to facilitate and promote “the use of water for domestic purposes; the development of lands by irrigation and other means; the protection and enhancement of fish, wildlife and recreational resources; the use of water for industrial purposes and hydroelectric power production; and the use and control of water for navigation and flood prevention.”¹⁶³ In recent years, this entity has been fairly inactive beyond supporting the Chadwick workshops (described below), signing a Memorandum of Understanding with Reclamation to study water storage, and holding public meetings on water quality.¹⁶⁴

¹⁶¹ Article IX, §7 (P.L.85-222, 71 stat.497). For more information see [http://www.nd.water.ca.gov/IndexFiles/Partnerships/KRCC/index.cfm] available July 26, 2005.

¹⁶² President George W. Bush has not replaced the chair of this commission through a new appointment.

¹⁶³ P.L.85-222, 71 stat.497.

¹⁶⁴ Personal communication with Alice Killam, chair of the Klamath Basin Compact (continued...)

On March 1, 2002, President Bush announced the formation of the Klamath River Basin Federal Working Group,¹⁶⁵ a high-level interdepartmental group comprised of the Secretary of Agriculture, the Secretary of the Interior, the Secretary of Commerce, and the Chair of the Council on Environmental Quality. The group held its first meeting March 11, 2002, and announced measures to improve water quality and availability — including \$1.6 million in Department of Agriculture funds to deliver conservation, technical, and financial assistance for irrigation water management, increase filter strip use, and create wildlife habitat — an extension of the deadline for enrolling in the Emergency Conservation Program; stream improvement projects in the Winema-Fremont National Forest; completion of Biological Opinions for the operation of the Project on a highest priority basis; and the acceleration of fish screen construction to minimize the number of fish entering the A Canal (the major water diversion from Upper Klamath Lake). While this entity reached some of its objectives, including completion of the new A Canal fish screens on April 1, 2003, it appears that the group has become less active in recent years.

Efforts to coordinate continue. In October 2004, four federal agencies¹⁶⁶ and the States of Oregon and California signed an agreement to form the State and Federal Klamath Basin Coordination Group. Under the agreement, they resolved to “place priority on their Klamath Basin activities and on their coordination and communication with one another and with Tribal governments, local governments, private groups and individuals” to resolve the Basin’s issues.¹⁶⁷ While there is general acknowledgment that coordination and information sharing has improved in recent years, the effectiveness of this recent agreement is unknown.

Selected Regional Entities. In addition to the federal and state coordinating groups, there are more than 15 sub-basin groups. A major non-governmental planning entity in the Upper Basin is the Upper Klamath Basin Working Group (or Hatfield Group).¹⁶⁸ This entity has drafted a plan¹⁶⁹ for the Upper Basin and is currently sponsoring studies and restoration activities on the Sprague and Williamson Rivers. It also works to involve private landowners in restoration activities. The group’s 7-member science committee is helping set priorities for restoration activities conducted through grants awarded by the U.S. Fish and Wildlife Service.

¹⁶⁴ (...continued)

Commission, on July 1, 2005.

¹⁶⁵ See [<http://www.whitehouse.gov/news/releases/2002/03/20020301-10.html>] , available on July 26, 2005.

¹⁶⁶ Departments of the Interior, Agriculture, Department Commerce, and U.S. Environmental Protection Agency.

¹⁶⁷ *Klamath River Watershed Coordination Agreement* (October, 2004). Available July 13, 2005, at [<http://www.doi.gov/news/klamathagreement.pdf>].

¹⁶⁸ See [<http://www.fs.fed.us/r6/frewin/projects/ukbwg/>], available July 26, 2005.

¹⁶⁹ Upper Klamath Basin Working Group, *Crisis to Consensus — Restoration and Planning for the Upper Klamath Basin* (Aug. 2002).

In the Trinity River Basin, a major planning entity is the Trinity Management Council (TMC). The TMC reports to the Secretary of the Interior and is responsible for management and oversight of the Trinity River Restoration Program. It is supported by several entities including a technical advisory committee, independent review panels, and an adaptive environmental assessment and management team. The Council makes recommendations to Reclamation regarding the timing of instream flow releases from the Trinity River Diversion. It also works on channel rehabilitation, sediment management, and watershed restoration activities in the Trinity Basin.

In the Lower Basin, two major non-governmental management entities are the Klamath River Basin Fisheries Task Force and Fisheries Management Council.¹⁷⁰ As established in 1986, the Task Force guides the Klamath River Basin Conservation Area Restoration Program, working by consensus to coordinate restoration planning, fund restoration projects, and express opinions on issues affecting the Klamath River.¹⁷¹ For example, the Task Force developed a long-range plan for fisheries restoration in the Klamath River Basin Conservation Area and has been undertaking regional restoration activities.¹⁷² The Task Force also sponsors directors for six sub-basins. These directors, who also act as grant writers, raise awareness of fish needs in the sub-basins and help to coordinate and encourage restoration activities on private lands. The Klamath River Basin Fisheries Management Council receives funding from the Task Force, but is a smaller entity focused on the scientific aspects of restoration. The Council's technical team models Klamath fish stocks and reviews harvest and management goals. Ultimately, the Council makes recommendations to the Pacific Fishery Management Council regarding catch limits and management objectives for the Klamath fisheries. Authorization for both these entities sunsets in 2006.

While these entities generally operate separately, formation of a Basin-wide task force is a topic of continual discussion. For a number of years, the Trinity Management Council considered expanding representation to the Upper Basin, but this proposal never came to fruition. Recent efforts focus on creating a new Basin-wide entity. In particular, Reclamation has released two draft proposals for a Klamath River Basin Conservation Implementation Program, or CIP. The CIP is Reclamation's response to NMFS May 2002 Biological Opinion, which directs Reclamation to establish a Basin-wide plan for restoring the coho salmon in consultation with stakeholders.¹⁷³ However, the CIP has been met with significant resistance. In particular, Lower Basin entities have expressed concern that an organization managed by Reclamation would not sufficiently represent their interests.

¹⁷⁰ For more information see [<http://pacific.fws.gov/yreka/tf.htm>], available July 26, 2005.

¹⁷¹ P.L. 99-552, §4 (16 U.S.C. 460ss-3).

¹⁷² Klamath River Basin Fisheries Task Force, *Long Range Plan For The Klamath River Basin Conservation Area Fishery Restoration Program* (Jan. 1991), available July 29, 2005, at [http://www.krisweb.com/biblio/gen_usfws_kierassoc_1991_lrp.pdf].

¹⁷³ U.S. Dept. of the Interior, Bureau of Reclamation, "Cover Letter and Program Document," available at [<http://www.usbr.gov/mp/kbao/CIP/docs/CIP-ProgramDoc.pdf>] on July 11, 2005.

While there is currently resistance to Reclamation's CIP, Basin stakeholders — including Native American tribes, farmers/irrigators, local businesses, federal, state, and local agencies, environmental groups, and interested community members — have been coming together through a series of three-day workshops. These Greater Klamath Basin Stakeholders' Workshops, or Chadwick Workshops,¹⁷⁴ were prompted by a session facilitated by Bob Chadwick at the Klamath Watershed Conference of 2004.¹⁷⁵ Following the conference, a coalition of stakeholders initiated subsequent workshops which have been sponsored by several Basin entities.¹⁷⁶ These meetings, which are ongoing and sometimes draw over 100 people, are the main focus of activity in the Basin. The purpose of these meeting is to address three questions: (1) is there any way to deal with competing demands for water that recovers the fish, yet sustains and enhances the rural communities, (2) can we create fair and equitable solutions, and (3) how can we solve these problems locally, "from the bottom up" rather than "top down."¹⁷⁷ The workshops are largely focused on giving each participant the opportunity to speak and be listened to in a supportive environment. In addition, the workshop participants develop collective statements, including a short term purpose statement and strategies and actions for the next year. Due to the widespread participation in these meetings, some see them as a grassroots entity that could eventually provide support for Reclamation's CIP, or that could agree on an alternative plan of action.

Conclusion

While drought exacerbates water supply issues, conflicts have been continuous in the Klamath Basin because demands are greater than current supplies. Reducing demand has proven difficult due to the importance of water for sustaining both irrigation and the endangered fisheries upon which tribes and commercial fishermen depend. However, some progress has been made since 2001 and 2002. Studies have increased understanding of fisheries needs, groundwater aquifers, and the geology of storage sites. Ecosystem restoration projects are slowly improving habitat and water quality. Further, activities such as the Chadwick meetings appear to be increasing communication and building mutual understanding throughout the Basin.

While some progress has been made, a number of uncertainties remain. In July of 2005, another fish kill occurred, thus demonstrating that the long-term health of the fishery is still in doubt. It also is unclear whether sufficient steps have been taken to prevent another agricultural crisis. Additional questions include (1) is there sufficient coordination and understanding to develop a basin-wide management plan,

¹⁷⁴ People refer to the workshops by the name of mediator, Bob Chadwick, who facilitates the workshops.

¹⁷⁵ "Klamath Watershed Conference: Communities, Resources and Restoration — Putting What We Know to Work," held Feb. 26-26, 2004 in Klamath Falls, OR.

¹⁷⁶ Sponsors include the Klamath Compact Commission, Oregon State University Extension (Klamath Falls), and the Upper Klamath Basin Working Group.

¹⁷⁷ Personal communication on Sept. 20, 2005 with Lori Fernlund, Oregon State University.

and (2) what should be the federal role in facilitating and implementing such an agreement? Given the number of issues, it is likely that some level of conflict will persist, and given the presence of the federal irrigation project and federal responsibility under the ESA, CWA, and other federal laws, significant federal issues and involvement will continue.

It is also likely that Congress could be faced with a number of decisions related to the Klamath Basin. Perhaps most pressing is the decision of whether to reauthorize the Klamath River Basin Conservation Area Restoration Program (P.L. 99-552), which sunsets in 2006, and which authorizes activities of the Klamath Fishery Management Council and the Klamath Basin Fisheries Task Force. Further, there is the question of how much, if any, money to appropriate for Klamath Basin activities. In the near-term, Congress will likely be asked to continue funding habitat restoration activities, Reclamation's water bank, and additional studies. Further, Congress may be faced with decisions over whether to authorize and provide appropriations for new or expanded storage, dam removal projects, and land purchases.