

Klamath Basin Coalition Fact Sheet

Costs and Consequences of the 2003 Klamath Project Operations Plan

The U.S. Bureau of Reclamation has touted its recently released 2003 Operations Plan for the Klamath Irrigation Project as a balanced formula to provide for the water needs of the Klamath Project, threatened and endangered fisheries, several key National Wildlife Refuges, and the Native American, commercial, and recreational fishing communities dependent on the Klamath River. In reality, the plan heavily favors irrigation interests at the expense of all other communities in the Basin, and continues the Bureau's divisive and often disastrous policy of full irrigation deliveries to the Project, regardless of resulting high risks to other interests in the basin.

Under the Bureau's plan, the Project will receive 299,000 acre-feet of water from Upper Klamath Lake this year, with the U.S. government spending \$4 million to pay irrigators not to use an additional 50,000 acre-feet. According to the Bureau's own data, this combined allocation—349,000 acre-feet delivered or paid for—is more than Klamath Project irrigation has received in any dry year during the 41-year period the Bureau provides for comparison.

In sharp contrast, the Klamath River fisheries face flows at times lower than last year, when over 33,000 Klamath salmon died from low flows in the largest adult fish-kill in western U.S. history. Meanwhile, the National Wildlife Refuges of the Klamath Basin—essential habitat for migrating waterfowl and the largest wintering population of threatened bald eagles in the Lower 48—are slated to receive the smallest water delivery since at least 1961.

A Lopsided Policy

The Bureau has claimed Project irrigators will only receive 75% of normal deliveries in 2003, and are therefore sharing the burden of water over-allocation in the Basin. This figure disguises the profound unfairness of the plan by relying on an apples-to-oranges comparison of wet and dry water year allocations, and neglects to factor in the 50,000 acre-foot water bank. As the Bureau's own figures show, Project irrigators will receive or be paid for 103% of average water deliveries in a dry year.

In comparison, the refuges within the Project will receive only 53% of average deliveries in a dry year, or roughly a quarter of the amount necessary to sustain refuge habitats into the critical migration season. Klamath River flows take even deeper cuts, with flow ranges varying from 45% to 76% of dry year levels scientists have recommended to recover salmon populations (Hardy and Addley 2001). Upper Klamath Lake fares no better. The 2003 plan proposes to dry out all of the lake's bordering marshes—covering thousands of acres—from August through November. This extended period of low lake levels will have a devastating impact on the lake's ecosystems and water quality, disrupt the fall migration of waterfowl, and jeopardize the survival of the lake's endangered Lost River and shortnosed suckers.

The Bureau's plan fails to provide river flows and lake levels adequate to prevent harm to species on the brink of extinction. It also falls far short of the U.S. government's Tribal Trust responsibility to provide the water necessary to achieve and maintain the robust, harvestable fisheries promised the Klamath region's tribal nations over a century ago.

Given the extreme disparity between the water allocation to Project irrigators in comparison to the allocations for all other interests in the Basin, two questions remain: *Where is the balance in the Bureau's plan, and what did the Bureau's water bank pay for?*

Klamath River Impacts

*Klamath River at Iron Gate Dam Flow Comparison.*¹ Flow units in cubic feet per second (cfs). The column in bold shows river flows slated under the Bureau’s 2003 plan, the column in italics represents flows necessary for salmon recovery.

Time Step	2003 Bureau Water Plan			2002 Bureau Minimum Flows ³	<i>Hardy Phase II Minimum Dry Year Flows⁴</i>
	Base Flow + Water Bank ² = Total				
Apr 1-15	822	398	1220	1742	<i>1600</i>
Apr 16-30	739	381	1120	1347	<i>1600</i>
May 1-15	676	223	899	1700	<i>1600</i>
May 16-31	731	19	750	1300 ⁵	<i>1600</i>
June 1-15	641	59	700	957	<i>1350</i>
June 16-30	617	33	650	612	<i>1350</i>
July 1-15	516	34	550	547	<i>1000</i>
July 16-31	515	0	515	542	<i>1000</i>
Aug 1-15	560	0	560	647	<i>1000</i>
Aug 16-30	560	190	750	647	<i>1000</i>
Sept 1-30	731	165	896	749	<i>1000</i>

- In every month of 2003, flows at Iron Gate Dam will be less than either the Hardy Phase II flows or the 2002-2012 Coho Biological Opinion’s “target flows” designated to prevent extinction.
- California Department of Fish and Game biologists determined low flows caused the massive 2002 fish kill, and they predict the Klamath’s current flow management plan will likely cause significant fish kills during dry years in the future. (CDFG Fish Kill Report 2002, pp. 54, 57)
- Low flows and fish kills have long gone hand and hand in the Klamath River. Significant water quality-related fish kills occurred in 1994, 1997, and 2000; out-migrating young salmon suffered extraordinary mortality in 1995; unnaturally high stress levels brought outbreaks of the parasite *Ceratomyxa shasta* in 1994, 1995, and 1996; and in the spring of 2002, Bureau water diversions to Project irrigators dropped river flows dramatically, stranding hundreds of young salmon.

¹ 2002-2012 Coho Biological Opinion on Klamath Project Operations, NMFS 2002; *Evaluation of Interim Instream Flows Needs in the Klamath River, Phase II* (Draft Final) Hardy and Addley 2001, pp. 244, 258; *Klamath Project 2003 Operations Plan*, U.S. Bureau of Reclamation 2003.

²Water Bank is 50,000 acre-feet of water purchased for 2003 by the Bureau from Project farmers willing to idle their lands, at a purchase price of \$187.50/acre.

³ On June 15, 2002, the Bureau changed the water year classification from “Below Average” to “Dry.” This allowed for a significant drop in flow targets for the subsequent months.

⁴ Hardy Phase II or the ‘Hardy Flow Study’ flows are the minimum recommended for salmon recovery by the scientific team doing multi-agency flow analysis of the Klamath Basin, which represents the best available science to date on in-stream flow requirements for salmonids. The 90% Exceedance Level represents a drought year or “critically dry year” (classed by the Bureau under “dry year”) such as 2003.

⁵ In May 2002, per the request of the National Marine Fisheries Service, the Bureau increased target flows from 1021cfs to 1700cfs from May 7 through 15, and from 1043cfs to 1300cfs from May 16 through May 31.

- April, May, and June are particularly critical months for salmon fry. Small juvenile fish require streamside edge habitat, preferably areas of inundated vegetation, to avoid predators and escape from strong water currents. Low flows narrow the river channel, greatly reduce essential edge habitat, force fry into harsh mid-channel currents, and dramatically increase mortality due to predation and exhaustion.
- High river flows are also essential for young salmon smolts migrating to the sea. Robust flows lower smolt travel time and reduce deaths due to migration delays, predation, and exposure to poor water quality.

Lower Klamath, Tule Lake, and Clear Lake National Wildlife Refuges Impacts

- The 2003 plan estimates—but does not guarantee—a 22,000 acre-feet water delivery to Lower Klamath and Tule Lake refuges. This represents the smallest water delivery to the refuges in 41 years.
- U. S. Fish and Wildlife Service documents indicate 2002 was the sixth year out of the last 13 when the refuges received no water in the fall, when peak waterfowl migration occurs. The 2003 plan almost guarantees a seventh year of dry refuges. This chronic lack of water degrades marsh habitat, disrupts waterfowl migration, and reduces the food supply for threatened bald eagles.
- The Upper Klamath Basin supports the largest seasonal concentration of bald eagles in the Lower 48 states, and Tule Lake and Lower Klamath refuges contain much of the key wintering habitat for these eagles (Keister et al., 1987). The 2003 plan supplies 10,000 acre-feet less water than required in 2001 to prevent a die-off of bald eagles.
- The 2003 plan threatens California's only remaining breeding colonies of American white pelicans, and two of the last fifteen colonies remaining in the world, located within Lower Klamath and Clear Lake refuges. Low water levels expose pelican nesting islands to predators, which can cause the mass desertion of nests and young. According to the California Department of Fish and Game, destruction of nesting islands and breeding habitat has caused a precipitous decline in pelican numbers.⁶ As of early April, three of Clear Lake's four pelican nesting islands were already land-bridged by low water levels and unsuitable for nesting.
- Combating avian botulism—a disease that can kill thousands of birds on the refuge in a single outbreak—requires the ability to alternatively flood or drain different parts of the refuge. Refuge water shortages insure the increased prevalence of botulism by preventing essential water management.⁷

Upper Klamath Lake and Upper Klamath National Wildlife Refuge Impacts

- The 2003 plan will eliminate the lake's marsh habitat—essential to both endangered fish and migratory waterfowl—for four solid months. The plan calls for lowering Upper Klamath Lake water levels below 4140 feet in elevation from August through December, and for levels at or below 4139 feet from August through November. When the lake falls below 4140 feet, bordering marshes start going dry. Roughly half of the lake's marshes will have no water at 4139.5 feet. Below 4139 feet, *all* of Upper Klamath Lake's marshes will be completely dry. Under the plan, all 14,400 acres of Upper Klamath

⁶ http://www.dfg.ca.gov/hcpb/info/bird_ssc.shtml#White_Pelican

⁷ *Development of Water Supply Production Wells for Lower Klamath NWR*, Final EA, USFWS 2001, p. 26

refuge marshes will remain dry from August through November, leaving thousands of acres of critical refuge wetlands dry during the fall migration of waterfowl and other birds. Other marshes left dry by the plan include the Klamath Game Management areas at Squaw Point, Shoalwater Bay, and marsh restoration projects along the lake.

- The plan's low lake levels will increase the likelihood of algae blooms and related mass die-offs of endangered suckers in the late summer and early fall. Higher water levels can decrease the duration and intensity of such algae blooms (Laenen and LeTourneau 1996; Noges et al, 1997; Welch and Burke 2001; Sheffer 1998), thereby minimizing the likelihood of a recurrence of the devastating adult fish kills observed in 1995, 1996, and 1997.
- Lowered lake levels will cut off suckers from essential spawning habitat around the lake. Loss of spawning grounds is one of the principle factors in the decline of the lake's sucker populations. Lowered levels will also cut off access to the cool, clear waters of lakeside springs and creeks, where fish often take refuge from the lake's often lethal water quality conditions.
- The lake's wetland areas provide critical safe havens for young Lost River and shortnosed suckers, which use marshes to escape predators. The dramatic, long-term loss of marsh habitat under the Bureau's plan will greatly reduce their chances for survival, and impact sucker populations for generations to come.
- The plan's long-term low lake levels will worsen Upper Klamath Lake's already extreme water quality problems. Leaving the marshes dry from August through November will eliminate the positive water-filtering function of the lake's bordering wetlands. In addition, chronically dry marshes may become a source of poor water quality: exposed marsh peat soils can oxidize, releasing nitrogen and phosphorous. When water finally returns to the marshes, these pollutants wash into the lake and increase water quality problems.