

KLAMATH PROJECT 2009 OPERATIONS PLAN

April 3, 2009

INTRODUCTION

This is the 2009 Operations Plan (Plan) for the Bureau of Reclamation's (Reclamation) Klamath Project (Project), which is located within the upper Klamath River Basin in southern Oregon and northern California. This Plan describes expected Project operations from April 1, 2009 through March 31, 2010 based upon current and expected hydrologic conditions and consistent with the biological opinions¹ (BOs) issued by the U.S. Fish and Wildlife Service (Service) and National Oceanic and Atmospheric Administration (NOAA) Fisheries (aka the National Marine Fisheries Service or NMFS) as modified pursuant to the U.S. District Court ruling CIV. NO CO2-2006 SBA dated March 27, 2006. We have received the new BO from the Service in April of 2008. The Plan is initially derived from the April 1, 2009 Natural Resource Conservation Service (NRCS) inflow forecast. Reclamation developed this Plan to serve as a planning aid for agricultural water users, Klamath Basin Tribes, national wildlife refuges and other interested parties. This plan provides an estimated Project water supply to the following areas:

- Upper Klamath Lake delivery area: This area generally includes lands in Oregon and California that receive Project water primarily from Upper Klamath Lake (UKL) and/or the Klamath River. This area also includes the Tule Lake and Lower Klamath National Wildlife Refuges.
- East Side delivery area: This area generally includes lands within the Langell Valley Irrigation District and Horsefly Irrigation District on the east side of the Project area. This area receives water from Clear Lake Reservoir, Gerber Reservoir and the Lost River.

UPPER KLAMATH LAKE (UKL) DELIVERY AREA

1. ESTIMATED INFLOW TO UKL DURING 2009:

- The predicted inflow (in acre-feet) to UKL from April 1 through September 30, 2009, using the NRCS forecast at 70% exceedance, is 365,000 acre-feet for river flow operational criteria.

2. KLAMATH RIVER WATER YEAR TYPE:

- The initial water year type applicable to the Klamath River is BELOW AVERAGE for river flow operations planning, subject to changes in actual hydrologic conditions subsequent to April 1. Table 1 shows the five water year types for river flow operations planning:

Table 1. UKL Water Year Types for River Flow Planning

	Water Year Type				
	Wet	Above Average	Average	Below Average	Dry
UKL Inflow (1000 acre-feet)	More than 785.2	785.2 to 568.6	568.5 to 458.4	458.3 to 286.8	Less than 286.8
Occurrences(s) during 10-yr period	1999	1993, 1996, 1998	1995, 1997	1990	1991, 1992, 1994

3. LAKE ELEVATION AND RIVER FLOW OPERATIONAL CRITERIA FOR UKL:

¹ U.S. Fish and Wildlife Service 2008-2018 Biological Opinion, dated April 2, 2008 and National Marine Fisheries Service Biological Opinions on Klamath Project Operations from June 1, 2002 through March 31, 2012, dated May 31, 2002.

- Reclamation will operate the Project so that elevations in UKL do not recede lower than the minimums required by the Service’s April 2, 2008 BO. Table 2 displays these elevations:

Table 2. Lake Elevation Operational Criteria for UKL

	Elevation Requirements and Targets
March 31	4142.2
April 30	4142.2
May 31	4141.6
June 30	4140.5
July 31	4139.3
August 31	4138.1
September 30	4137.5
October 31	4139.1 *
November 30	4139.9 *
December 31	4140.8 *
January 31	4141.7 *
February 28	4141.5

* Elevations for October through January are target elevations to aid in the filling of UKL, and are not minimums. These targets must be met to allow the use of Interactive Management (IM) water for downstream augmentation during this period.

- Pursuant to the U.S. District Court ruling CIV. NO CO2-2006 SBA, Reclamation will operate the Project so that Klamath River flows at Iron Gate Dam (IGD) meet or exceed the operational criteria in Table 3. Table 3 incorporates the requirements of Phase III of the NOAA BO which delineates the flows of Table 9 consistent with the Reasonable and Prudent Alternative in the final biological opinion².

Table 3. Klamath River Operational Criteria for Flows at IGD

Month	Water Year Type and Flow (cubic feet/second)				
	Wet	Above Average	Average	Below Average	Dry
April	2050	2700	2850	1575	1500
May	2600	3025	3025	1400	1500
June	2900	3000	1500	1525	1400
July	1000	1000	1000	1000	1000
August	1000	1000	1000	1000	1000
September	1000	1000	1000	1000	1000
October	1300	1300	1300	1300	1300
November	1300	1300	1300	1300	1300
December	1300	1300	1300	1300	1300
January	1300	1300	1300	1300	1300
February	1300	1300	1300	1300	1300
March	2300	2525	2750	1725	1450

- The river flow operational criteria include the following down ramping rates at IGD:
 1. When IGD flows are above 1750 cubic feet per second (CFS): Decreases in flows of 300 CFS or less per 24-hour period, and no more than 125 CFS per four-hour period.
 2. When IGD flows are 1,750 CFS or less: Decreases in flows of 150 CFS or less per 24-hour period, and no more than 50 CFS per two-hour period.

²Source: Table 9, Page 67, May 31, 2002 BO.

4. ADDITIONAL WATER FOR PROJECT USE FOR 2009:

- Klamath Water and Power Agency will develop additional water supplies through the Water User Mitigation Plan to assist in meeting on Project needs. It is possible this water may not be used.

5. ESTIMATED PROJECT WATER SUPPLY FROM UKL FOR IRRIGATION AND REFUGES DURING 2009:

- Water Supply for Irrigation. The estimated Project water supply for irrigation from UKL from April 1 through September 30, 2009 is about 400,000 acre-feet based upon the hydrological conditions existing on April 1. This quantity may increase or decrease in response to hydrological conditions after April 1, because actual conditions may differ widely from those assumed by the forecast model. Project water deliveries after October 1, would be contingent upon availability of water from UKL consistent with Tables 2 and 3, and hydrological conditions from October 2009 through March 2009.
- Water Supply for Refuges. The estimated amount of Project water available from UKL for delivery to national wildlife refuges from April 1 through October 31, 2009 will be about 25,000 acre-feet. This was estimated in relation to increasing recent year deliveries to refuges.

EAST SIDE DELIVERY AREA

ESTIMATED PROJECT WATER SUPPLY FOR THE EAST SIDE DELIVERY AREA DURING 2009:

- The estimated Project water supply for irrigation from Gerber Reservoir and Clear Lake from April 1 through September 30, 2009 is 60,000 acre-feet. Table 4 displays the projected elevations of Gerber Reservoir and Clear Lake on April 1; the minimum elevations needed to meet the BO requirements for endangered suckers on September 30 (i.e., to provide adequate over-wintering habitat for endangered suckers); and the difference between the April 1 and September 30 reservoir/lake capacities, minus evaporation and seepage. The difference between the reservoir/lake capacity on April 1 and September 30 is the estimated Project water supply for irrigation.

Table 4. Estimated Project Water Supply for East Side Delivery Area

	Projected April 1 Elevation	April 1 Capacity (acre-feet)	ESA Minimum Sept 30 Elevation	Sept 30 Capacity (acre-feet)	April 1 - Sept 30 Evap/Seepage (acre-feet)	Estimated Sept 30 Elevation	Net Diff. Between April 1 and Sept 30 Capacities
Gerber Reservoir	4824.58	56,278	4798.1	25,778	6,400 (est)	4813.81	36,000
Clear Lake	4523.95	88,880	4520.6	41,150	30,000 (est)	4520.6	15,000
Total amount of project water available for East Side delivery area							51,000

OTHER INFORMATION RELEVANT TO 2009 OPERATIONS PLAN

COMPARISON OF ESTIMATED WATER SUPPLY TO HISTORIC DELIVERY:

- The following comparison is provided for information purposes only and uses a **BELOW AVERAGE** water year type. Table 5 compares the 2009 estimated Project water supply for irrigation and refuges from April through September to historical deliveries from 1961 to 2007.

Table 5. Comparison of Estimated 2008 Project Water Supply to Historic Deliveries

	2008 Estimated Supply April - September (1000 acre-feet)	Historic Delivery (1961-2007) (1000 acre-feet)
UKL Delivery Area	400.0	Ave = 340 (278.8 to 447)
East Side Delivery Area	51.0	Ave = 68.6 (46.4 to 84.9)