

RECLAMATION

Managing Water in the West

KLAMATH PROJECT 2013 OPERATIONS PLAN

June 5, 2013

INTRODUCTION

The Klamath Project (Project) provides water for irrigation purposes to over 200,000 acres in southern Oregon and northern California. This 2013 Operations Plan (Plan) describes estimated Project operations from March 1, 2013, through February 28, 2014, based upon current and expected hydrologic conditions.

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:

- West Side delivery area: This area includes lands in southern Oregon and northern California that receive Project water primarily from Upper Klamath Lake (UKL) and/or the Klamath River. This area also includes the Tule Lake National Wildlife Refuge and Lower Klamath National Wildlife Refuge (LKNWR).
- East Side delivery area: This area includes lands within the Lost River watershed upstream of Harpold Dam, which receives water from Clear Lake Reservoir, Gerber Reservoir and the Lost River.

Consistent with the integrated biological opinion issued jointly by National Oceanic and Atmospheric Administration's National Marine Fisheries Service and the U.S. Fish and Wildlife Service on May 31, 2013, (BO), Reclamation is implementing an adjusted water management approach, which will be used for 2013 Project operations. The elements of the water management approach are described in more detail below.

A summary of the estimated 2013 water supply for both the West Side and East Side delivery areas is presented in Table 1. Additional details are provided in the sections that follow.

Table 1. Calculated 2013 Project Water Supply

Delivery Area/Water Source	Calculated 2013 Irrigation Season Project Water Supply (AF)	Calculated Remaining Project Water Supply as of June 1 (AF)
West Side: UKL/Klamath River	289,125	214,455
East Side: Clear Lake Reservoir	12,327	6,435
East Side: Gerber Reservoir	43,000*	36,000

* Average deliveries are approximately 38,000 AF

WEST SIDE DELIVERY AREA

PROJECT WATER SUPPLY

Water Supply from UKL

Consistent with the operations plan described in the May 31, 2013, BO, the final water supply to be reserved in UKL (UKL Reserve), the volume of water designated for the Klamath River referred to as the Environmental Water Account (EWA), and the volume available for delivery to the Klamath Project (Project Supply) for March through November are calculated based on the Natural Resources Conservation Service (NRCS) June 1, 2013, UKL inflow forecast and the actual observed UKL inflows from March 1 to June 1. The NRCS inflow forecasts are based on historic inflow records and are influenced by the water use activities occurring upstream of UKL. A decrease or increase in water use occurring in the watershed upstream of UKL will likely result in inflows to UKL that are more or less than forecasted by NRCS.

The UKL Reserve is calculated to be 122,164 acre-feet (AF) with a corresponding end of September modeling objective of 4,138.12 feet elevation for UKL. The EWA supply from UKL is calculated to be 320,000 AF for the March through September period. The Project Supply from UKL is calculated to be 289,125 AF for March 1 through November 30 for the 2013 irrigation season. See the BO for details regarding the calculation of UKL Reserve, EWA and Project Supply. If the elevation of UKL is anticipated to drop below 4,137.72 feet as described in the BO, Reclamation may need to adjust Project deliveries.

Based on the June 1, 2013, NRCS inflow forecast, the projected inflow to UKL from June 1 through September 30, at the 50% exceedance and 70% exceedance are 83,000 AF (46% of average) and 62,000 AF (34% of average), respectively (see Table 2).

Table 2. Summary of Current Elevation, Storage and Inflow Forecasts for UKL

Waterbody	June 1 Elevation (feet)	June 1 Storage (AF)	June-September Forecast (90% Exc) (AF)	June-September Forecast (70% Exc) (AF)	June-September Forecast (50% Exc) (AF)
UKL	4,142.01	408,355	13,000	62,000	83,000

West Side Project Deliveries

Reclamation will account for deliveries from UKL at five main diversion points – A Canal, Miller Hill Pumping Plant, Station 48, North Canal and Ady Canal. The “A1 area” of the West Side of the Project is the area served by A Canal, Miller Hill Pumping Plant, and Station 48 (Figure 1). A Canal, Miller Hill Pumping Plant and Station 48 deliver Project Supply water to the A1 area from March through November. The “A2 area” of the West Side of the Project is the area served by North and Ady canals (Figure 1). North and Ady canals deliver Project Supply water to the A2 area from March through September. Additional deliveries can be made to the A2 area during the October through February timeframe contingent upon available water supply. Ady Canal can also deliver water to the LKNWR when the Project Supply exceeds 390,000 AF or, if less than 390,000 AF, when irrigators do not use all of the supply and surplus water is available in UKL. Natural runoff and return flows from the Lost River watershed are delivered to Project water users through the Lost River Diversion Channel at times during the year. These flows do not count against the Project Supply as they are not diverted directly from UKL or the Klamath River.

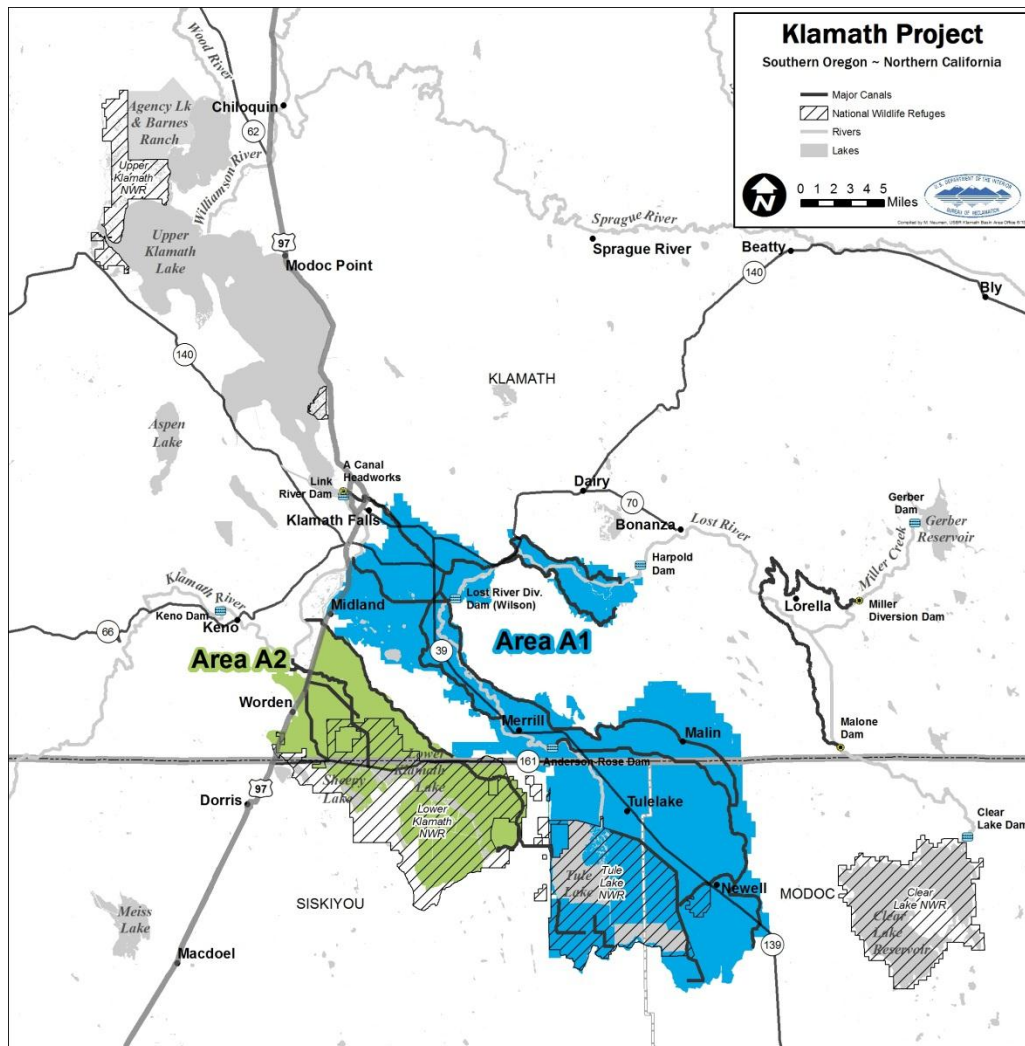


Figure 1. Upper Klamath Basin of Oregon and California depicting Project lands which are shown as shaded areas and A1 and A2 areas which are shown as color shaded areas. *Source: Bureau of Reclamation 2012.*

West Side Project Demand

The demand for Project water from UKL is estimated to be between approximately 354,000 and 406,000 AF for March 1 through November 30 for the 2013 irrigation season, based on historical usage from 1981-2011 in average and similar above average demand years.

Reclamation will regularly reevaluate the Project water supply throughout the irrigation season and track water demand compared with the available supply. Reclamation will update Project water users and other interested parties on the Project water supply on a regular basis.

EAST SIDE DELIVERY AREA

PROJECT WATER SUPPLY

Water Supply from East Side Reservoirs

The Project water supply from Clear Lake and Gerber reservoirs was estimated based on the hydrologic conditions at the time, the June 1, 2013, NRCS inflow forecasts for June through September, minimum required elevations on September 30, operational constraints, projected deliveries, and estimated evaporation and seepage. The remaining available water supply is updated every two to four weeks during the irrigation season as NRCS issues new forecasts. Based on the current water supply estimate, there is approximately 12,327 AF available for Project use from Clear Lake Reservoir during the 2013, irrigation season.

A full Project water supply (greater than 38,000 AF) is anticipated from Gerber Reservoir for the 2013 irrigation season. This estimate is based upon the hydrologic conditions existing on June 1, 2013, the 70% exceedance inflow forecast for June through September, minimum required elevations on September 30, and estimated evaporation and seepage for Gerber Reservoir.

East Side Project Deliveries

Deliveries from Clear Lake Reservoir are measured at the dam outlet on the Lost River. Deliveries from Gerber Reservoir are measured at the dam outlet on Miller Creek.

Table 3 displays the elevations of Clear Lake and Gerber reservoirs on June 1, 2013, the forecasted June through September inflows (various exceedances), and the minimum elevations needed to meet the BO requirements for endangered suckers on September 30.

Table 3. Summary of Current Elevation, Storage, Inflow Forecasts, and BO Requirements for East Side Delivery Area Reservoirs

	June 1 Elevation (feet)	June 1 Storage (AF)	June- September Inflow Forecast (90% Exc) (AF)	June- September Inflow Forecast (70% Exc) (AF)	June- September Inflow Forecast (50% Exc) (AF)	BO Minimum Sept. 30 Elevation (feet)	BO Minimum Sept. 30 Storage (AF)
Clear Lake Reservoir	4,523.98	89,390	86	344	1,204	4,520.6	41,150
Gerber Reservoir	4,819.11	39,768	18	53	300	4,798.1	1,308

East Side Project Demand

The long-term average Project water demands for April 1 through September 30 are approximately 34,000 AF from Clear Lake Reservoir and 38,000 AF from Gerber Reservoir.

On July 1, 2013, Reclamation will reevaluate the available Project water supply from Clear Lake and Gerber reservoirs, based on actual and projected hydrologic conditions and water demands. Reclamation will coordinate with affected Project water users and other stakeholders concerning any change in planned operations.

OTHER INFORMATION RELEVANT TO 2013 OPERATIONS PLAN

Klamath River Operational Requirements

Klamath River operational criteria include the following ramp down rates at Iron Gate Dam:

- When the flow at Iron Gate Dam is greater than 3,000 cfs: Ramp down rates will follow the rate of decline of inflows into UKL combined with accretions between Keno Dam and Iron Gate Dam.
- When Iron Gate Dam flows are above 1,750 cfs but less than 3,000 cfs: Decreases in flows of 300 cfs or less per 24-hour period, and no more than 125 cfs per four-hour period.
- When Iron Gate Dam 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.

Releases at Iron Gate Dam

In order to better mimic the natural flow variability in the Klamath River, releases from Iron Gate Dam will be based on actual recent hydrologic conditions observed in the upper Klamath Basin during the last week. The Iron Gate Dam daily average target flows will be implemented approximately one week after hydrologic conditions are observed in the upper Klamath Basin. The Iron Gate Dam release calculation takes into account UKL storage, accretions between Link River and Iron Gate Dam and several other factors as detailed in the BO, to determine releases from UKL at Link River. Additional details regarding the calculation of daily Iron Gate Dam releases and minimum required flows can be found in the BO.

Comparison of Estimated Project Water Supplies to Historic Deliveries

The following comparison is provided for informational purposes only. Table 5 compares the 2013 estimated Project water supply from April 1 through September 30 to average historical deliveries from the indicated time periods.

Table 5. Comparison of Estimated 2013 Project Water Supply to Historic Deliveries

Delivery Area	2013 Estimated Supply April – September (AF)	Average Historic Delivery (AF)*
West Side Delivery Area	289,000	367,663
East Side Delivery Area	50,000	69,083

* West Side average historic deliveries for 1981-2011; East Side average historic deliveries for 1986-2009.

The current estimated remaining Project supply is less than the projected remaining irrigation demand, as depicted in Figure 2.

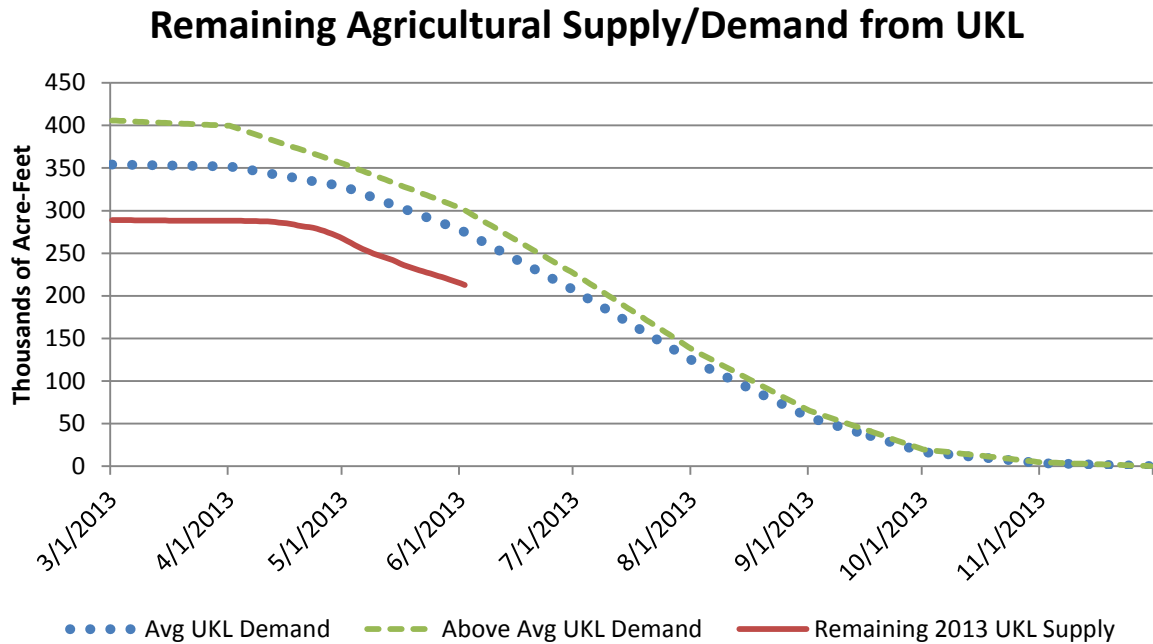


Figure 2. Agricultural Supply for 2013 versus Historic Demand

WATER SHORTAGE PLANNING

State Water Rights Administration

One potential response to a shortage in Project water supplies is to request that the State of Oregon enforce water rights on behalf of the Klamath Project. Project water rights holders can make a call on behalf of Project water rights, which may result in additional inflows to UKL.

Oregon law provides for the regulation of water use according to the doctrine of “prior appropriation.” Under this doctrine, in the event water supplies are insufficient to satisfy all needs, a water user with a water right with an earlier (“senior”) priority date can “call” for the State to regulate (i.e., curtail diversions) under later (“junior”) water rights. Oregon Water Resources Department (OWRD) is responsible for administering a water rights call in accordance with Oregon law, which is carried out by the district watermaster (District 17 for the Klamath Basin).

On March 7, 2013, OWRD issued the Findings of Fact and Order of Determination for the Klamath Basin Adjudication. With the issuance of the Findings of Fact and Order of Determination, all water use within the basin is potentially subject to regulation by OWRD in accordance with the prior appropriation doctrine. Reclamation will coordinate with Project water users on any decision to make a call on behalf of Project water rights. Once a call is made, the watermaster is required to investigate the validity of the call before determining if and how to regulate junior water users.

Water User Mitigation Program

The Water User Mitigation Program (WUMP) is a Reclamation funded study of the potential for a local entity to develop and manage, over the long term, market-based programs to balance Project water supply and demand. The WUMP is administered by the Klamath Water and Power Agency (KWAPA).

KWAPA’s programs for the 2013 irrigation season include full season demand management (land idling), partial season demand management and supplemental groundwater pumping (see Table 6).

Table 6. 2013 Estimated Yield of WUMP Strategies (as of June 1, 2013).

Strategy	West Side (AF)	East Side (AF)
Groundwater Pumping	50,000-65,000	0
Full Season Demand Management	14,000	4,000
Partial Season Demand Management	1,000	0

Klamath Project 2013 Drought Plan

Reclamation will work with Project water users to coordinate any voluntary means of allocating limited Project water supplies consistent with Reclamation’s legal obligations. The WUMP is already operating to reduce Project demand, and may be available to further offset demand as the irrigation season progresses. Based on the Findings of Fact and Order of Determination, Project water rights holders have the ability to request enforcement of Project water rights to assist in offsetting a shortage in the available supply. However, if Reclamation determines that involuntary curtailments are necessary to ensure that Reclamation can fulfill its contractual obligation to Project water users, then Reclamation will implement the Klamath Project 2013 Drought Plan (Drought Plan). The Drought Plan provides a means for allocating limited Project water supplies among various contractual priorities within the Klamath Project.

Reclamation will coordinate any decision to implement the Drought Plan with KWAPA, the Klamath Water Users Association and OWRD. If the Drought Plan is implemented, Reclamation will notify Project water users of the estimated amount of Project water expected to be available through the remainder of the irrigation season.