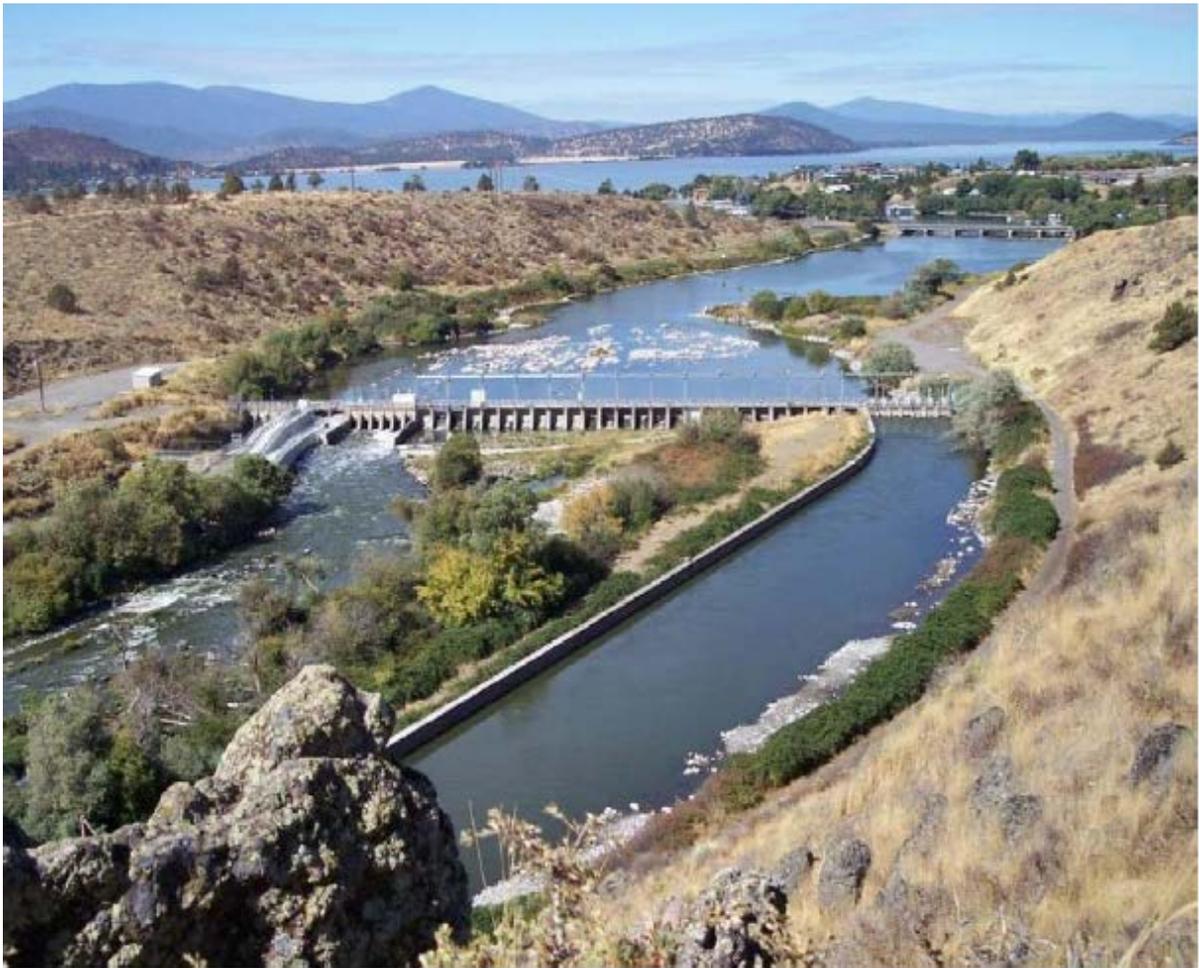


# RECLAMATION

*Managing Water in the West*

## Klamath Project, Oregon-California, Mid-Pacific Region **2018 Annual Operations Plan**



U.S. Department of the Interior  
Bureau of Reclamation  
Mid-Pacific Region

June 2018

## **Mission Statements**

The Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

# Introduction

The Klamath Project (Project) delivers water for irrigation purposes to approximately 230,000 acres in southern Oregon and northern California. This 2018 Operations Plan (Plan) describes Project operations that are anticipated to occur during the 2018 spring-summer irrigation season (March 1 to November 15), based upon current and projected hydrologic conditions. The Plan is consistent with Reclamation's proposed action analyzed in the biological opinions issued jointly by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) on May 31, 2013 (2013 BiOp). The Plan also addresses the effect of the modified injunctive order of the U.S. District Court of Northern California, dated March 24, 2017, in Case Nos. 3:16-cv-06863-WHO and C16-cv-04294-WHO (2017 Court Order) on 2018 Project operations.

This Plan is divided into three sections. The first section describes the estimated water supplies available for irrigation during the 2018 spring-summer season. The second section discusses the voluntary water conservation measures that Reclamation and Project water users will employ to manage and conserve limited water resources. The third section addresses additional operational considerations.

## 2018 Hydrologic Conditions and Project Water Supplies

The Klamath Basin, similar to much of California and Oregon, had a prolonged dry winter. As of April 1, snowpack in the upper basin was 55 percent of normal; May 1, 46 percent of normal and as of June 1 no snowpack remained at SNOTEL sites. The minimal snowpack melted approximately 1-2 weeks earlier than normal. May precipitation was 76 percent of average resulting in a streamflow forecast for June – September to be as low as 26 percent of normal in various parts of the basin (USDA NRCS Oregon Basin Outlook Report, June 1, 2018).

Due to the continuing drought conditions, there is a shortage of surface water from Upper Klamath Lake for the Project resulting in unreliability of water supply to all users, and serious concerns regarding availability of late season deliveries. Reclamation has been informed that the resulting shortage will result in the majority of producers not having an adequate water supply to meet the requirements of good irrigation practices for the acres served by the Project.

## Upper Klamath Lake & Klamath River

Consistent with the proposed action analyzed in the 2013 BiOp, Reclamation uses the monthly 50 percent exceedance inflow forecasts from the Natural Resources Conservation Service (NRCS) as the basis for Project operations with respect to UKL and the Klamath River during

the spring-summer irrigation season. To estimate the water supply available from UKL and the Klamath River, Reclamation relies on actual inflows to UKL and NRCS inflow forecasts for UKL to determine three key operational values: (1) the volume of water to be reserved in UKL to maintain lake elevations analyzed in the 2013 BiOp (UKL Reserve); (2) the volume of water designated for the Klamath River, referred to as the Environmental Water Account (EWA); and (3) the volume of water available from UKL for delivery for irrigation purposes to the Klamath Project (Project Supply).

Reclamation makes a preliminary calculation of these three values on March 1; however, those estimates are subject to change based on actual UKL inflows after March 1 and subsequent NRCS inflow forecasts. Reclamation recalculates these values on April 1, based on actual UKL inflows observed in March and NRCS UKL inflow forecast for April 1 to September 30. This April 1 calculation establishes the minimum Project Supply available from UKL during the spring-summer irrigation season. This calculation is subsequently updated based on the May 1 and June 1 inflow forecasts, which may result in an increase in the available Project Supply over that determined based on the April 1 forecast.

Based on the June 1, 2018, NRCS inflow forecast, Reclamation calculates: (1) the UKL Reserve to be 123,487 acre-feet (AF); (2) the EWA volume to be 365,000 AF; and (3) the Project Supply to be 310,881 AF (See Part 4 of the 2012 Biological Assessment and Chapter 4 of the 2013 BiOp for further details regarding the calculation of UKL Reserve, EWA, and Project Supply).

Beginning in 2017, Klamath Project operations related to UKL and the Klamath River are subject to the 2017 Court Order. The 2017 Court Order applies until Reclamation completes reinitiated consultation with NMFS and the USFWS regarding the effects of Project operations on threatened coho salmon (*Oncorhynchus kisutch*) in the Klamath River and Lost River suckers (*Deltistes luxatus*) and shortnose suckers (*Chasmistes brevirostris*) in the Upper Klamath Basin.

The 2017 Court Order requires Reclamation to implement three specific flows in the Klamath River, as measured immediately downstream of Iron Gate Dam: (1) a surface flushing flow of 6,030 cubic feet per second (cfs) for 72 hours, required every year; (2) a deep flushing flow of 11,250 cfs, required every other year after 2017, subject to certain conditions; and (3) an emergency dilution flow of 3,000 to 4,000 cfs from a reserve of 50,000 AF established by April 1 of each year if certain triggers are eclipsed. The Court ordered these flows in an attempt to mitigate the risk of *Ceratonova shasta* disease conditions for threatened coho salmon in the Klamath River. Although the Court Order mandates that Reclamation implement the flows, it gives Reclamation the discretion as to the timing of the flows, as long as flows occur within the timeframes specified in the 2017 Court Order. The applicable time period for implementing the flushing flows is November 1 to April 30. The time period for emergency dilution flows is April 1 to June 15, or until 80 percent of juvenile salmon have out-migrated from the middle Klamath River, whichever occurs first.

In 2018, complying with the Court Order required Reclamation to implement a 38,425 AF surface flushing flow (April 6-15) and a 50,000 AF emergency dilution flow (May 7-28). The water necessary to produce these separate flow events was released from Upper Klamath Lake (76,713 AF). Reclamation borrowed non-Project water that was volunteered by the Refuge to

implement the court-ordered flushing flow; 4,011 AF were provided from the Upper Klamath National Wildlife Refuge, and 7,701 AF were provided from Lower Klamath National Wildlife Refuge (collectively Refuges).

The 2017 Court Order states that the flows cannot interfere with the conditions necessary to protect endangered suckers in UKL as specified in the 2013 BiOp. Additionally, the 2017 Court Order states that the downriver flows cannot impact EWA calculations or come out of EWA supply. Accordingly, the only sources of water for the 2017 Court Order are Project Supply and non-Project water. In 2018, the flows released for the 2017 Court Order were provided from both Project Supply and non-Project water (i.e., 11,712 AF supplied from the Refuges). Accordingly, the 76,713 AF used this year from Upper Klamath Lake to meet the flows required under the Court Order must come from Project Supply. In other words, the 2017 Court Order requires that the Project Supply be reduced by an amount equivalent to that used to implement the Court-ordered flows.

Under the 2013 BiOp, Project Supply is also required to meet the “enhanced” Klamath River minimum flows from March 25 through June 23 (up to 16,400 AF). To date, 257 AF have been utilized towards these enhanced minimum flows. Reclamation anticipates that additional volume may be necessary to meet the enhanced minimum flows during the month of June, though this additional volume is likely to be less than 1,000 AF.

Reclamation estimates that an additional volume of approximately 8,000 AF from Upper Klamath Lake will be necessary to implement the Yurok Tribal Boat Dance Ceremony (Boat Dance) in late August. The Boat Dance flow is to be implemented in even years as specified in the 2012 Biological Assessment (page 4-31). The actual amount of water required will depend on hydrologic conditions at the time of the event.

Accounting for these various considerations, the estimated Project Supply for the 2018 irrigation season is 233,911 AF.

As of June 18, 2018, approximately 38,000 AF of the Project Supply from UKL has been diverted and used for irrigation within the Project, leaving a remaining estimated Project Supply of approximately 196,000 AF.

The actual amount of water available for delivery to the Project during the 2018 spring-summer period from UKL and the Klamath River may be less than the above calculated Project Supply under certain hydrologic conditions. Project Supply may also be impacted by the need to refill PacifiCorp reservoirs following transfer operations that occurred in April and May 2018. In addition, Reclamation may be required to reduce the amount or rate of Project deliveries based on criteria established in the 2013 BiOp, due to tribal trust obligations, and to meet the requirements of the 2017 Court Order. Reclamation will coordinate with Project stakeholders in advance of any decision to adjust the amount and rate of Project deliveries. Reclamation will also continue to monitor conditions throughout the spring-summer period to determine the availability of additional unforeseen water supplies and if any additional volume could be provided to the Project.

## Clear Lake Reservoir

The estimated Project water supply available from Clear Lake Reservoir is based on several factors, including current hydrologic conditions and projected inflows over the end of September minimum elevation analyzed in the 2013 BiOp, as well as the rate and volume of irrigation releases and non-beneficial losses (e.g., evaporation and seepage). The estimated available water supply is tracked daily, with updates to Project water users occurring approximately every two weeks during the irrigation season or as needed.

As of April 1, 2018, the water surface elevation in Clear Lake Reservoir was 4,530.57 feet above sea level (USBR datum), representing a total volume of 218,540 AF of stored water. The end of September minimum elevation in Clear Lake Reservoir analyzed under the 2013 BiOp is 4,520.60 feet above sea level (USBR datum). With the anticipated inflows and estimated evaporation and seepage rates, Reclamation estimates there to be a near full supply of Project water available from Clear Lake Reservoir during the 2018 spring-summer irrigation season; the average historic Project demand from Clear Lake Reservoir is approximately 36,680 AF.

As of June 18, 2018, approximately 10,080 AF have been released from Clear Lake Reservoir for irrigation use within the Project (2,058 AF were used to meet irrigation demand within the Klamath Irrigation District (KID) and Tulelake Irrigation District (TID)), leaving a remaining supply of approximately 26,600 AF. Reclamation assumes that no additional stored Clear Lake water will be released for use on the Westside of the Klamath project for the remainder of the 2018 irrigation season.

## Gerber Reservoir

Similar to Clear Lake Reservoir, the estimated Project water supply available from Gerber Reservoir is based on several factors, including current hydrologic conditions, projected inflows for April through September, the end of September minimum elevations analyzed under the 2013 BiOp, as well as the rate and volume of irrigation releases and non-beneficial losses (e.g., evaporation and seepage). The estimated available water supply is tracked daily, with updates to Project water users occurring approximately every two weeks during the irrigation season or as needed.

The water surface elevation of Gerber Reservoir, as of April 1, 2018, was 4,831.64 feet above sea level (USBR datum), representing a total volume of 80,264 AF of stored water. The end of September minimum elevation in Gerber Reservoir analyzed in the 2013 BiOp is 4,798.10 feet above sea level (USBR datum). With the anticipated rates of evaporation and seepage, Reclamation estimates there will be a near full supply of Project water available from Gerber Reservoir during the 2018 spring-summer irrigation season; the average historical Project demand from Gerber Reservoir is 34,050 AF.

As of June 18, 2018, approximately 8,800 AF have been released from Gerber Reservoir for irrigation use within the Project (671 AF were delivered to meet irrigation demand from TID and KID), leaving a remaining supply of approximately 25,250 AF.

## Lost River

Natural runoff and return flows in the Lost River may also be available at certain times for irrigation use within the Project. Diversions from the Lost River during the spring-summer irrigation season are not included in the calculation of the Project Supply available from UKL and the Klamath River analyzed under the 2013 BiOp during the corresponding period. As such, the Project water supply from the Lost River is primarily constrained by the physical availability of water, primarily from return flows, as opposed to operational constraints within the analysis in the 2013 BiOp. Normally Reclamation does not formally estimate the available supply from the Lost River during the spring-summer irrigation season, but rather allows Project water users to divert the supply as it becomes available, consistent with the terms of their respective contracts. This year, due to a provision in the 2017 Court Order that states “Reclamation shall manage the Klamath Reclamation Project...in a manner that will not preclude the ability to provide Reserve Water to implement up to 50,000 AF for dilution flows and/or interfere with its ability to meet its obligations under the ESA with regard to endangered suckers and/or their critical habitat,” diversions from the Lost River were restricted until such time as the required 50,000 AF was available for the Court Ordered flows.

## Voluntary Water Conservation Measures

In an effort to continue responsible resource stewardship and eliminate or minimize the extent of Project water shortages during drought conditions, Reclamation and Project water users will continue to employ strategies to conserve water.

There are a number of active conservation efforts that Reclamation and Project water users can employ to conserve water and to extend available Project water supplies during water shortage situations. Such strategies range from Project-wide actions, to district initiatives, to individual efforts at the farm or field level. Reclamation is currently working with districts on additional strategies to navigate the challenges presented this year.

Reclamation works with districts and individuals to encourage independent initiatives aimed at conserving Project water supplies. District-level conservation initiatives may include rotating water use among irrigators that receive water from a particular canal or lateral, de-watering certain irrigation laterals when not in use, and limiting tailwater flows at the ends of canals and laterals.

Individual, on-field efforts may include planting less water intensive crops, using high-efficiency irrigation systems such as sprinklers or gated pipes, and employing so-called “deficit” irrigation techniques, where water is applied at less than the full consumptive use demand of a particular crop type. Reclamation encourages Project water users to employ all available tools to conserve water and keep demands at a minimum, especially when water shortages exist.

To assist in on-field conservation efforts, Reclamation operates AgriMet stations in the Klamath Basin, which use site-specific weather data to estimate evapotranspiration (i.e., crop water use)

for various crop types typically grown within the Project. This information can be used to identify the required amount of water to apply to a crop based on current weather conditions and growth stage. AgriMet crop water use charts for the Klamath Basin are updated each morning, and can be found online at <http://www.usbr.gov/pn/agrimet/agrimetmap/agrimap.html>.

For more information regarding conservation or relief strategies, please contact your respective district. Irrigators and districts are also encouraged to discuss relief or government funded conservation strategies with your local Farm Services Agency, Natural Resources Conservation District, extension offices, and other state or local conservation agencies. Reclamation continues to explore relief opportunities in coordination with Project districts.

## **Other Operational Considerations**

There are a number of other operational considerations that Reclamation and Project water users should take into account when operating the Project including voluntary water transfers within Project lands and refuge water deliveries.

### **Voluntary Project Water Transfers**

Reclamation supports voluntary transfers of Project water as a means of promoting flexibility in managing limited water supplies and maximizing Project benefits. Accordingly, subject to its approval as described below, Reclamation will allow transfers of Project water, within the limits of applicable federal and state law.

With respect to state law, Reclamation may require that parties to a proposed transfer first demonstrate compliance with applicable state law. Reclamation will coordinate with Oregon Water Resources Department (OWRD) to facilitate any transfers approved by OWRD.

Federal law also imposes certain limitations on transfers of Project water. Reclamation can only approve transfers of Project water among lands eligible to receive Project water under an existing contract with Reclamation, or for refuge purposes within Lower Klamath National Wildlife Refuge (LKNWR) or Tule Lake National Wildlife Refuge (TLNWR). Transfers of Project water to LKNWR or TLNWR will also require the approval of USFWS and the districts that serve refuge lands. Compliance with other applicable federal laws may also be necessary.

Reclamation's prior written approval is required to transfer Project water between Project districts. However, prior approval is not required if districts elect to allocate or distribute water within their respective service areas for lands irrigated under existing contracts with Reclamation. Individual landowners who are interested in transferring Project water are advised to work through their respective districts to obtain Reclamation's approval of Project water transfers.

Such transfers will be contingent, in part, upon the ability to accurately measure corresponding water use, on both the transferring and receiving lands, in order to ensure that the amount of water used does not exceed the associated total available duty.

## **National Wildlife Refuge Deliveries**

LKNWR and TLNWR also use water from Upper Klamath Lake and the Klamath River for refuge-related purposes, including irrigation. LKNWR encompasses 51,713 acres, which were reserved by Executive Order “as a preserve and breeding ground for native birds.” TLNWR consists of 39,990 acres, also reserved by Executive Order “as a refuge and breeding ground for birds.” USFWS manages both LKNWR and TLNWR to provide a variety of habitat types for native birds, including wetland, open water, and agricultural habitats.

The United States holds Project water rights for lands in LKNWR and TLNWR for agricultural irrigation, and claims to additional water for irrigation and other refuge purposes.

Certain refuge lands are within the boundary of TID and the Klamath Drainage District (KDD) and receive water for irrigation and refuge purposes within those districts.

For the portion of LKNWR outside KDD (i.e., within the State of California), the 2013 BiOp specifies that these lands can receive a portion of the unused Project Supply from UKL and the Klamath River, as well as receive additional deliveries from UKL and the Klamath River under wetter hydrologic conditions. Accordingly, the amount of water from UKL and the Klamath River that will be available for the portion of LKNWR in California during the 2018 spring-summer irrigation season, consistent with the 2013 BiOp, is undetermined at this time.

Outside the processes specified in the 2013 BiOp, described above, LKNWR can potentially receive water from UKL and the Klamath River as a result of voluntary water transfers within the Project.

Reclamation may also acquire Project water for the LKNWR and TLNWR, through voluntary contracts with water users within the Project. Reclamation will make information publicly available and solicit comments regarding proposals to acquire additional water for LKNWR or TLNWR.

For more information, please visit <http://www.usbr.gov/mp/kbao/> and or contact Laura Williams at 541-883-6935 or [ljwilliams@usbr.gov](mailto:ljwilliams@usbr.gov).