



— BUREAU OF —  
RECLAMATION

# 2020 Annual Operations Plan

**Klamath Project, Oregon-California**  
**Interior Region 10, California-Great Basin**



## **Mission Statements**

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

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 and related purposes to approximately 230,000 acres in southern Oregon and northern California. This 2020 Operations Plan (Plan) describes Project operations that are anticipated to occur during the 2020 spring-summer irrigation season (March 1 to November 30), based upon current and projected hydrologic conditions. The Plan is consistent with Reclamation's Interim Operations Plan and the effects analyzed in the March 29, 2019, Biological Opinion issued by the National Marine Fisheries Service and the April 10, 2020, Biological Opinion issued by the U.S. Fish and Wildlife Service (FWS; collectively, the Services' BiOps).

## 2020 Project Water Supplies

Reclamation uses several water sources to meet irrigation demands within the Project, including live flow into and stored water from Upper Klamath Lake (UKL), the Klamath River, Clear Lake Reservoir, Gerber Reservoir, and the Lost River. The estimated water supply available from each of these sources during the 2020 spring-summer irrigation season is discussed below.

### Upper Klamath Lake

Reclamation uses observed inflow and storage volumes in UKL coupled with the Natural Resources Conservation Service's (NRCS) monthly inflow forecasts (at the 50 percent exceedance value) as the basis for Project operations for UKL during the spring-summer irrigation season.

The April through September UKL inflow forecast issued by NRCS on April 2, 2020, was 290 thousand acre-feet (TAF). Actual observed inflows to UKL during the month of March 2020 were 73.5 TAF. Adding this volume to the April through September inflow forecast value results in a total actual and projected inflow from March through September of 363.5 TAF. This volume (called the "Mar50vol" as used in the Klamath Basin Planning Model) is used to determine the end of September storage target for UKL. Based on the calculated Mar50vol volume, the end of September storage target is 192 TAF.

Note that the end of September storage target is not a management target for UKL, but rather a volume used in calculating the amount of water scheduled for release from Link River Dam for meeting required flows in the Klamath River (called the Environmental Water Account or EWA) and providing water from UKL for irrigation purposes in the Project (called the Project Supply).

The Mar50vol (363.5 TAF) plus the end of February storage volume (405.5 TAF) minus the end of September storage target (192 AF) equals a figure called "UKL Supply", which is used to determine EWA. Based on the reported values for the three variables, UKL Supply is currently calculated as

577 TAF, resulting in an initial EWA of 407 TAF. The 407 TAF includes 7 TAF for the Yurok Tribal Boat Dance Ceremony in August.

In years where UKL Supply is between 550 TAF and 950 TAF, the EWA is augmented by an additional 40 TAF. As the April UKL Supply is 577 TAF, the 40 TAF augmentation is triggered, resulting in a final EWA of 447 TAF.

In accordance with the Interim Operations Plan, the above calculated UKL Supply (577 TAF) and initial EWA allocation (407 TAF) results in an initial Project Supply calculation of 147 TAF (i.e.,  $577 - 407 - 23 = 147$ ). This Project Supply is the amount of water available for diversion from UKL through the Project's five main points of diversion (i.e., A Canal, Station 48, Miller Hill Pumping Plant, Ady Canal, and North Canal).

One further adjustment is necessary to determine the volume of Project Supply available for diversion from UKL through the Project's five main points of diversion listed above. Specifically, 7,436 AF is initially subtracted from the 147 TAF Project Supply, to account for Project diversions from the Lost River Diversion Channel and Klamath River other than at Station 48, Miller Hill Pumping Plant, North Canal, and Ady Canal. To the extent that Reclamation determines and verifies that diversions of Project Supply at these other points of diversion are less than 7,436 AF, the difference will be added to the Project Supply available at the five main points of diversion identified above. After accounting for diversions in the Lost River Diversion Channel and Klamath River, the April 1 Project Supply allocation is therefore approximately 140 TAF.

Reclamation will coordinate with districts and individuals regarding their allowable diversions of Project Supply in accordance with the Interim Operations Plan, and consistent with Reclamation's existing contracts with water users and districts.

Under the Interim Operations Plan, the Project Supply as calculated based on the April 1 NRCS inflow forecast, is "locked in" and cannot be reduced to the extent that Project operations are consistent with the Services' BiOps as described below.

UKL Supply, EWA, and Project Supply will be recalculated, consistent with the above methodology, based on the May and June UKL inflow forecasts issued by NRCS. Project Supply may increase with these subsequent inflow forecasts. Although the Interim Operations Plan includes a provision for enhanced May/June flows that could potentially reduce Project Supply by up to 10,000 AF (based on the May 1 UKL Supply), it is unlikely it will be triggered during the 2020 irrigation season (because the May UKL Supply volume would have to increase by approximately 50 TAF over the April UKL Supply volume). As such, the 140 TAF April Project Supply allocation represents the "locked-in" volume available for Project deliveries from UKL during the 2020 irrigation season.

Project Supply is available for use within the Project from March 1 through November 30, except for private lands within Klamath Drainage District, where it is available from March 1 through October 31. There are no limitations on the rate at which Project Supply may be used, though such use may be constrained by applicable water right limitations under state law.

In addition to Project Supply, any water released from the Lost River Diversion Channel and Klamath Straits Drain into the Klamath River between March 1 and September 30 is available for diversion to the Project without counting against Project Supply. Reclamation will coordinate with

districts within the Project regarding the use of and accounting for such releases and associated diversions.

## **Clear Lake Reservoir**

The estimated 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 U.S. Fish and Wildlife Service 2020 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, 2020, the water surface elevation in Clear Lake Reservoir was 4,530.52 feet above sea level (USBR datum), representing a total volume of 217 TAF of stored water. The end of September minimum elevation in Clear Lake Reservoir analyzed under the FWS 2020 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 full supply of Project water available from Clear Lake Reservoir during the 2020 spring-summer irrigation season. The average historic Project demand from Clear Lake Reservoir is approximately 35 TAF, with a range of up to approximately 40 TAF. Reclamation will coordinate with districts within the Project when additional water is available and needed from Clear Lake Reservoir to supplement the supply available from UKL and the Klamath River, consistent with Reclamation's existing contracts with water users.

## **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 elevation analyzed under the FWS 2020 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, 2020, was 4,828.82 feet above sea level (USBR datum), representing a total volume of 70 TAF of stored water. The end of September minimum elevation in Gerber Reservoir analyzed in the FWS 2020 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 full supply of Project water available from Gerber Reservoir during the 2020 spring-summer irrigation season. The average historical Project demand from Gerber Reservoir is 35 TAF, with a range of up to 40 TAF. Reclamation will coordinate with districts within the Project when additional water is available and needed from Gerber Reservoir to supplement the supply available from UKL and the Klamath River, consistent with Reclamation's existing contracts with water users.

## **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 Services' BiOps 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 Services' BiOps. Reclamation does not 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.

## **Other Operational Considerations**

### **Lower Klamath National Wildlife Refuge Deliveries**

Under the Interim Operations Plan, water from Project Supply (as described above) is only available for delivery to Lower Klamath National Wildlife Refuge (LKNWR) when consistent with Reclamation's contractual and other legal obligations. Voluntary transfers, exchanges, or other arrangements (see below) can also make water available to LKNWR. LKNWR, including Area K, can use any portion of Project Supply from March 1 through November 30.

In 2020, as a result of the current severe drought conditions, Reclamation has been authorized to acquire water for the purpose of protecting fish and wildlife resources, pursuant to section 102 of Title I of the Reclamation States Emergency Drought Relief Act of 1991 (Pub. L. 102-250, 106 Stat. 54, 43 U.S.C. §2212). Pursuant to this authority, Reclamation has proposed acquiring up to 25 TAF of water for use within LKNWR and Tule Lake National Wildlife Refuge (TLNWR). The water acquired would come from districts within the Project, that through conservation, efficiency, forbearance arrangements, and other operational means, can willingly provide water that would otherwise not be available for fish and wildlife purposes. The volume, timing, and rate of water to be acquired will depend upon the actions of the districts. The delivery and use of the water will be determined by the FWS, in accordance with existing management plans for LKNWR and other refuges.

Outside of these kinds of voluntary arrangements, the availability of Project Supply for delivery to LKNWR under the Interim Operations Plan is dependent on the in-season irrigation demands of other lands within the Project to which Reclamation has a contractual obligation to deliver water to. To determine if Project Supply is available for LKNWR, beginning in July, Reclamation will coordinate with FWS and other Project water users to evaluate anticipated remaining irrigation demands outside of LKNWR through the remainder of the spring-summer irrigation season. Any volume of Project Supply over the anticipated remaining irrigation demands will be identified at that time as available for diversion by FWS to LKNWR. Reclamation will continue to monitor irrigation demands and hydrologic conditions and may notify FWS to cease diversions to LKNWR if

necessary, to meet Reclamation's contractual and other legal obligations. This process will be repeated in August, September, October, and November. Diversions to LKNWR will remain at the discretion of FWS.

Any water rights transferred to LKNWR pursuant to state law, such as those water rights originally appurtenant to the Agency Lake and Barnes Ranch properties, are separate from the water available to LKNWR from UKL under the Interim Operations Plan. FWS has administrative discretion over the exercise of these non-Project water rights.

## **Voluntary Water Conservation**

There are a number of active conservation efforts that Project water users can employ to conserve water and to extend available Project water supplies. Such strategies range from Project-wide actions, to district initiatives, to individual efforts at the farm or field level.

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 "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, please visit <http://www.usbr.gov/mp/kbao/> and or contact David Felstul at 541-880-2550 or [dfelstul@usbr.gov](mailto:dfelstul@usbr.gov).