BUREAU OF RECLAMATION

2022 Annual Operations Plan

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

U.S. Department of the Interior

April 2022

Mission Statements

The U.S. 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 Bureau of Reclamation's (Reclamation) Klamath Project (Project) delivers water for irrigation and related purposes to approximately 230,000 acres in southern Oregon and northern California. This 2022 Operations Plan (Plan) describes Project operations that are anticipated to occur between April 15 and September 30, 2022[1] (as further described below), based upon current and projected hydrologic conditions.

This Plan necessarily reflects and accounts for the ongoing extreme drought conditions for the third consecutive year afflicting the Klamath Basin. Inflows to the Project's reservoirs are among the lowest on record, and these extraordinary conditions compel Reclamation to take exceptional measures in operating the Project this year.

Specifically, Reclamation has determined that hydrologic conditions are currently preventing and will continue to prevent Reclamation from operating the Project consistent with the conditions anticipated to occur for species listed as threatened or endangered under the Endangered Species Act (ESA) in Upper Klamath Lake (UKL), Gerber and Clear Lake reservoirs, and the Klamath River, as specified in the National Marine Fisheries Service's (NMFS) *Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response* (2019 NMFS BiOp), issued on March 29, 2019, and the U.S. Fish and Wildlife Service's (USFWS; collectively Services) *Biological Opinion on the Effects of the Proposed Interim Klamath Project Operations Plan, effective April 1, 2020, through September 30, 2022, on the Lost River and Shortnose Sucker* (2020 USFWS BiOp), issued on April 10, 2020.

Under Term and Condition (T&C) 1A of the 2019 NMFS BiOp and T&C 1c of the 2020 USFWS BiOp, Reclamation is required to meet and confer with the Services in the event that hydrologic conditions in UKL and the Klamath River are anticipated to fall outside the scope of certain "boundary conditions" analyzed by the Services in their respective BiOps. Reclamation is further required to coordinate with the Services on the causative factors for such conditions and identify corrective actions and means by which Reclamation may adaptively manage to protect ESA listed species.

Consistent with the T&Cs in the Services' BiOps, Reclamation has been conferring with the Services since the process was initiated on February 25, 2022, on observed and anticipated hydrologic conditions and corresponding Project operations. Reclamation has engaged in the meet and confer process and has coordinated with stakeholders including Klamath Basin Tribes (Yurok, Hoopa Valley, Karuk, Klamath, Quartz Valley tribes and Resighini Rancheria), the Klamath Water Users Association, Project irrigation and drainage districts, the Services, Oregon Water Resources Department, the Bureau of Indian Affairs, PacifiCorp, and leadership from the Department of the Interior and the Department of Commerce. As a result, Reclamation determined it was necessary to make temporary adjustments to the 2020 IOP to adaptively manage operations for the remainder of water year 2022 as further described below, to address immediate and temporary competing needs,

[1] It is recognized that although the operating season and water year ends on September 30 of each year, final spring/summer diversions continue until mid-November to finish crop productions.

including the needs of all threatened and endangered species, in a reasonable and balanced manner informed by real-time hydrological and biological data.

2022 Project Operations

Amidst the current extraordinary hydrologic conditions, Reclamation must operate the Project based on real-time monitoring and forecasting information. The information that Reclamation will use to guide Project operations will include observed hydrologic conditions, inflow forecasts, and biological monitoring related to ESA-listed species and their designated critical habitat. Reclamation will continue to coordinate Project operations with the Services, and any deviations from the general operations described below will be addressed as they arise, in conference with the Services.

As a result of the historically dry hydrologic conditions, competing needs and multiple federal legal requirements, Reclamation has determined that the Project Supply allocation from UKL and the Klamath River for the 2022 spring/summer irrigation season will be insufficient to provide full deliveries to Repayment and Settlement Contractors ("A" Contractors) and at this time no water will be available for other Project contractors.

As in previous years, Reclamation retains discretion to update or amend this plan as conditions change or as information continues to become available. Reclamation will communicate substantive changes to the Plan to stakeholders in writing, which may affect previously estimated allocations among other material aspects of operations.

Upper Klamath Lake & Klamath River

Upper Klamath Lake

For the reasons previously described, Reclamation has determined that meeting the specific UKL water surface elevations identified as "boundary conditions" in the 2020 USFWS BiOp is not obtainable in 2022. Specifically, the UKL water surface elevation is currently below 4,142.0[2] feet (ft) and projections indicate that it: 1) is unlikely to reach 4,142.0 ft in April or May and 2) is likely to be less than 4,140.5 ft by July 15.

Reclamation currently projects that the UKL water surface elevation will not exceed 4,140.5 ft by July 15, even without Project deliveries or releasing a Surface Flushing Flow (SFF) in the Klamath River.

UKL will be operated such that water surface elevations will remain at or above 4,138.15 ft., exceeding the 2020 USFWS BiOp end of season minimum elevation of 4,138.00 ft. Reclamation will seek to augment UKL elevation in the event that favorable hydrology manifests through the summer, as described below.

[2] All elevations in this document are per Reclamation's established datum.

Klamath River

For the Klamath River, Reclamation has determined that the Environmental Water Account (EWA) distribution is expected to meet the expenditure rates identified in T&C 1A of the 2019 NMFS BiOp between March 1 and September 30, 2022, based on observed and projected river releases from UKL (for meeting Iron Gate Dam target flows).

Reclamation is not anticipating or proposing deviations to the minimum Klamath River target flows at Iron Gate Dam, analyzed in the 2019 NMFS BiOp, which consist of flows of 1,325 cubic feet per second (cfs) during the month of April; 1,175 cfs in May; 1,025 cfs in June; 900 cfs in July and August; and 1,000 cfs in September.

Surface Flushing Flow

Consistent with *Section 1.3.2.6.4 Disease Mitigation and Habitat Flows* of the NMFS 2019 BiOp, Reclamation is anticipating, to the extent possible under the UKL surface elevations and hydrologic conditions, implementation of a SFF on or around April 15, 2022. Releases at Link River Dam from UKL would be managed to produce a target flow event exceeding 4,200 cfs for approximately 24 hours at Iron Gate Dam. Reclamation will strive to maximize the peak flows during the SFF. Table 1 below indicates approximate peak flows proposed for the 2022 SFF event given current projections.

Table 1. Approximate targeted Surface Flushing Flow Rates (cfs) if implemented on or Around April 15 under the Natural Resource Conservation Service 50 percent Upper Klamath Lake Inflow Exceedance Forecast.

	April 15	April 16	April 17
Peak Flow (cfs)	4,200	3,200	4,050

To reduce potential effects to ESA-listed species (i.e., endangered Lost River and shortnose sucker populations) present in UKL and to address the duration that UKL is below fill trajectories, Reclamation will attempt to coincide the SFF with a hydrologic event. Further, Reclamation will implement accelerated ramp down rates during the SFF event. Reclamation will coordinate with the Services to monitor and integrate real-time conditions to ensure that peak SFF discharges (*see* Table 1) would be commensurate with the maximum discharge capability of Link River Dam and PacifiCorp's dams in the hydroelectric reach on days 1 and 3 for no less than 24 hours unless a greater magnitude can be achieved over a shorter duration.

Although Reclamation's analysis indicates that the SFF should not result in human health and safety and/or property concerns, if such concerns are encountered during implementation of the SFF event, it will be halted immediately.

Project Supply

Reclamation has determined that it will adaptively manage the Project Supply[3], as described further

[3] Project Supply is the volume of water available from UKL and the Klamath River for lands within the Klamath Project boundaries not served by the Lost River Basin (i.e., Clear Lake and Gerber reservoirs).

below, in a manner that will maintain the UKL at or above an end-of-season minimum water surface elevation of 4138.15 ft. The Project Supply volume will be dependent on subsequent inflows to UKL and is currently estimated at approximately up to 62,000 AF as a result of projected hydrologic conditions which currently align with as a result of the April 1, Natural Resource Conservation Service (NRCS) 50 percent UKL inflow forecast, trajectories observed in water year 2021, and borrowing up to 20,000 AF from PacifiCorp reservoirs.

Distribution

Irrigation deliveries will be initiated on or about April 15 and the Project Supply will be adaptively managed through a collaborative effort with Project contractors and the Services in a manner that will ensure UKL water surface elevations do not recede below 4,138.15 ft. at the end of the operating season. The actual available Project Supply will be dependent on observed inflows and UKL elevations during the spring/summer period. This adaptive management approach will require continual monitoring of all operational parameters and projections, and frequent communication with Project contractors and the Services to ensure that Project deliveries, coupled with releases to the Klamath River, do not cause UKL to be at any time reduced below elevation 4,138.15 ft.

Further, if observed cumulative UKL inflows and/or UKL elevations for any given operational week exceed expectations, the following action may be taken, as situationally appropriate. Increased volumes would be split, with 50 percent to remain in UKL to assist in providing a buffer in the end of season UKL elevation, with the remaining 50 percent to be distributed as Project Supply for irrigation use and/or refuge purposes, according to contract priorities.

In the event that observed inflows or UKL elevations do not materialize as forecasted, net inflow volumetric shortfalls will be calculated, and diversions for Project purposes would be reduced to a rate allowing UKL elevations to remain above 4,138.15 ft. If it is projected that a reduction in, or cessation of, Project diversions is insufficient to ensure a minimum UKL elevation of 4,138.15 ft., Reclamation would confer with NMFS to determine if a temporary reduction in releases from UKL could be instituted.

As the above distribution criteria for forecasted inflows is based on real-time observations, Reclamation would continue to monitor hydrologic conditions in coordination with the Services and conduct any additional environmental analysis as deemed appropriate.

Reclamation will continue to coordinate with the Services and Project contractors on Project diversions to address unforeseen circumstances that may arise this year. The estimated available water supply is tracked daily, with updates regarding remaining Project Supply to Project water users occurring approximately every week during the irrigation season or as needed. If the Project Supply must be curtailed, Reclamation will provide notification in writing.

Reclamation will also be coordinating with Project contractors on the need for a Project Drought Plan. Until such time that Reclamation releases a Drought Plan, adaptive management and resulting deliveries made to irrigators will occur in line with contractual priorities. To the extent that districts who are entitled to the supply decide not to split evenly or if otherwise all districts mutually agree to allocate the available supply (as defined by Reclamation in the Plan or as modified in subsequent plans) in a different manner of priority outside the contractual priorities, it is incumbent upon the districts

to carefully document such agreement and communicate it to Reclamation.

Canal Charging

No Project supply was available in 2021, therefore selected canals are being charged slowly before irrigation diversions occur. The longer charging period is allowing for additional monitoring to ensure canals remain in safe operating condition. The Klamath Irrigation District began priming the A Canal and C Canal systems to provide an extended period of re-saturating the earthen lining, which had been dry since the 2020 irrigation season. From March 1 through the April 15 start of Project deliveries, it is estimated that 644 AF will have been diverted into the A Canal, a quantity that will be considered as Project Supply.

PacifiCorp Borrow

Reclamation will work with PacifiCorp to borrow likely 15,000 AF, but up to 20,000 AF of water from their hydroelectric project reservoirs downstream of UKL to assist with implementation of the late summer 2022 Yurok Tribe's Ceremonial Boat Dance flow event. The borrowed water would be *paid back* so that PacifiCorp's downstream reservoirs can be returned to normal operating levels. Details on the *PacifiCorp pay back* would be determined through further coordination and agreement between Reclamation, the Services, and PacifiCorp with agreements to be finalized prior to fall 2022.

Real-Time Management

The real-time management approach consists of close monitoring and reporting of observed hydrologic conditions and will occur to assist Reclamation, the Services, and other affected parties in determining if further adaptive management actions are needed in response to evolving environmental conditions. Overall, using real-time monitoring and forecasting information, Reclamation will continue to meet and confer with the Services as necessary while updating and receiving input from affected Klamath Basin parties on the dynamic hydrologic conditions allowing timely action on opportunities to reduce risk to ESA-listed species, meet tribal trust responsibilities, and uphold contractual water supply obligations.

Clear Lake Reservoir

The estimated water supply available from Clear Lake Reservoir is based on several factors, including current hydrologic conditions and projected inflows for April through September, the end of September minimum elevation analyzed in the 2020 USFWS 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 6, 2022, the water surface elevation in Clear Lake Reservoir was 4,522.08 ft, representing a total volume of 59,400 AF of stored water. The end of September minimum water surface elevation in Clear Lake Reservoir analyzed under the 2020 USFWS BiOp is 4,520.60 ft. With the anticipated inflows and estimated evaporation and seepage rates, Reclamation estimates there will be no Project water available from Clear Lake Reservoir during the 2022 spring/summer irrigation

season. The average historic Project demand from Clear Lake Reservoir is approximately 35,000 AF, with a range of up to approximately 40,000 AF.

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 2020 USFWS 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 provided approximately every two weeks during the irrigation season or as needed.

The water surface elevation of Gerber Reservoir, as of April 6, 2022, was 4,806.99 ft, representing a total volume of 11,413 AF of stored water. The end of September minimum water surface elevation in Gerber Reservoir analyzed in the 2020 USFWS BiOp is 4,798.10 ft. With the anticipated rates of evaporation and seepage, Reclamation estimates there will be approximately 7,000 AF of Project water available from Gerber Reservoir during the 2022 spring/summer irrigation season.

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. As such, the Project water supply from the Lost River is primarily constrained by the physical availability of water, primarily from return flows. 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

Klamath Project Drought Response Program

Reclamation has entered into cooperative agreement #R21AC10334 with the Klamath Project Drought Response Agency (KPDRA); a joint powers state entity in Oregon and California organized in 2018 and comprised of representatives of Project districts. Their primary function is to work with Reclamation to administer programs to align water supply and demand on the Project pursuant to the Klamath Basin Water Supply Enhancement Act of 2000 (114 Stat. 2221) as amended (132 Stat. 3886 and 134 Stat. 976).

Reclamation is providing up to $20 million in funding to the KPDRA to administer a land idling "no irrigation" program in which irrigators will contract with the KPDRA to receive monetary compensation in lieu of Project water. Reducing demand for Project water in this way is expected to contribute to aligning Project Supply with demand.

Any additional programs administered by Reclamation and the KPDRA under the cooperative agreement are subject to Reclamation approval, which would be conditioned on the ability of the proposed program to align Project water supply and demand, available funding, and other considerations.

Voluntary Project Water Transfers

Reclamation supports voluntary transfers of Project water as a means of promoting flexibility in managing 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.

Reclamation's prior written approval is required to transfer Project water among Project lands, in accordance with existing contracts. Local irrigation, drainage, and similar districts also have the discretion to approve transfers of Project water from within their designated service area, independent of Reclamation's approval process. Individual landowners who are interested in transferring Project water are advised to work with their respective districts to obtain Reclamation's approval of Project water transfers. Transfers of Project water to Lower Klamath National Wildlife Refuge (LKNWR) or Tule Lake National Wildlife Refuge will also require the approval of USFWS. Compliance with other applicable federal and state laws may also be necessary.

Water transfers within the Project will also 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.

Finally, 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.

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:

https://www.usbr.gov/pn/agrimet/agrimetmap/agrimap.html

Lower Klamath National Wildlife Refuge Deliveries

In accordance with this Plan, water from Project Supply (as described above) is only available for delivery to LKNWR when consistent with Reclamation's contractual and other legal obligations.

Voluntary transfers, exchanges, or other arrangements can also make water available to LKNWR. Subject to these conditions, LKNWR, including Area K, can use any portion of Project Supply, when available to the rest of the Project, through November 30.

Any water rights transferred to LKNWR pursuant to Oregon or California law, such as those water rights originally appurtenant to the Agency Lake and Barnes Ranch properties upstream of UKL, are separate from the water available to LKNWR from UKL under the Project Supply. USFWS has administrative responsibility over the exercise of these non-Project water rights.