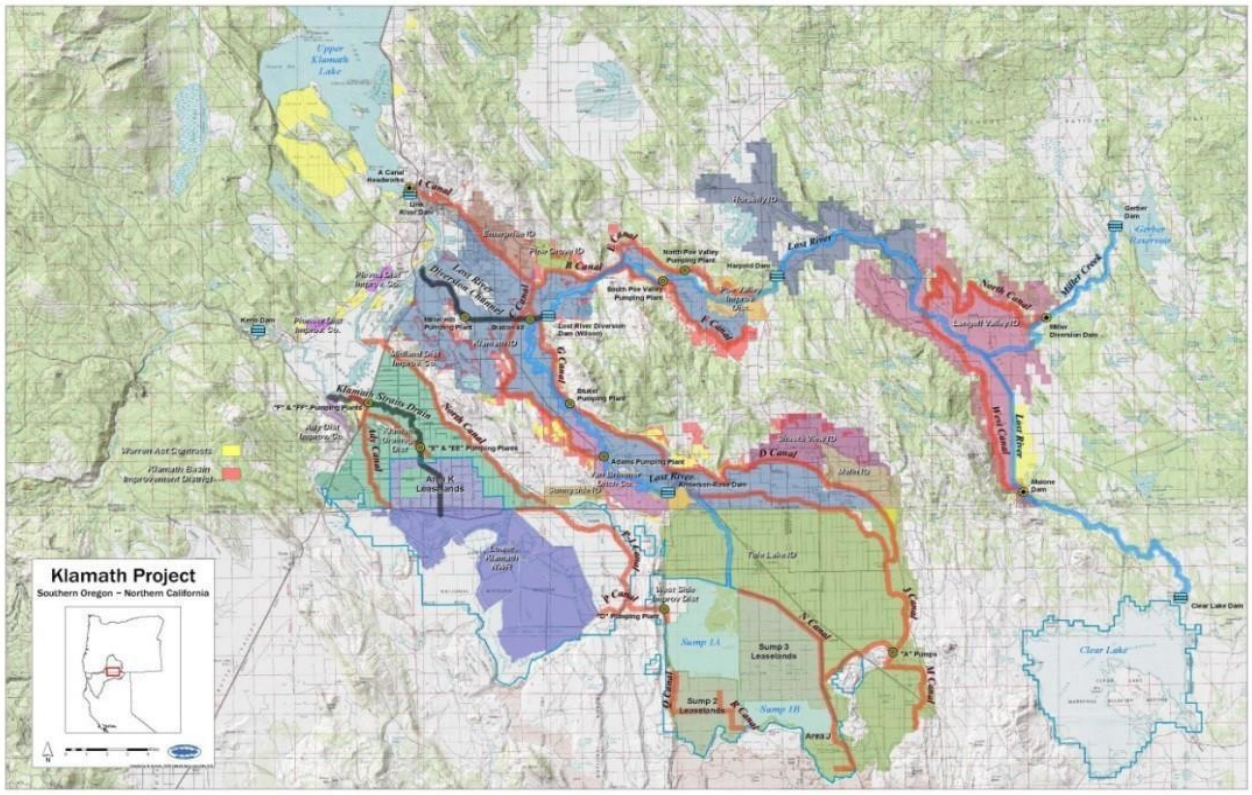
BUREAU OF RECLAMATION

Supplemental Environmental Assessment

Water Acquisitions for Fish and Wildlife Purposes

Klamath Project, Oregon/California
Interior Region 10 California Great Basin
CGB-EA-2020-028



Estimated Lead Agency Total Costs Associated with Developing and Producing this EA
$21,000

Mission Statements

The mission of the Department of the Interior is to protect and manage the Nation's natural resources and cultural heritage; provide scientific and other information about those resources; and honor 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.

Contents

Acronyms and Abbreviations

AF	Acre-Feet
BiOp	Biological Opinions on the Effects of Proposed Klamath Project Operations from May 31, 2013, through March 31, 2023, on Five Federally-Listed Threatened and Endangered Species
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	Cubic feet per second
CLNWR	Clear Lake National Wildlife Refuge
CLR	Clear Lake Reservoir
Contract	Contract No. 20-WC-20-5651 with the Klamath Project Drought Response Agency
DRA	Reclamation States Emergency Drought Relief Act (Pub. L. 102-250, 106 Stat. 53, as amended; 43 U.S.C. §§2211-2217); Klamath Project Drought Response Agency
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
EWA	Environmental Water Account
GHG	Greenhouse Gas
HID	Horsefly Irrigation District
ITA	Indian Trust Asset
KDD	Klamath Drainage District
KID	Klamath Irrigation District
LKNWR	Lower Klamath National Wildlife Refuge
LRS	Lost River suckers
LRSNS	Lost River and shortnose suckers
LVID	Langell Valley Irrigation District
MODFLOW	Modular finite-difference flow model
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NWR	National Wildlife Refuge
Project	Klamath Project
Reclamation	Bureau of Reclamation
SEA	Supplemental Environmental Assessment
SNOTEL	Snowpack telemetry
SNS	Shortnose suckers
TID	Tulelake Irrigation District
TLNWR	Tule Lake National Wildlife Refuge
UKL	Upper Klamath Lake
U.S.C.	United States Code

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Section 1 Introduction

1.1 Background

This Supplemental Environmental Assessment (SEA) supplements the April 22, 2020 Environmental Assessment (EA) (2020 EA; CGB-EA-2020-018) entitled *Implementation of Klamath Project Interim Operating Procedures 2020-2023,* which analyzed the proposed implementation of interim operating procedures for the Klamath Project (Project) (Interim Operating Procedures) and resulted in a Finding of No Significant Impact. In addition to evaluating the Interim Operating Procedures, the 2020 EA also included a Refuge Water Acquisition component under the Proposed Action Alternative, under which the Bureau of Reclamation (Reclamation) proposed to enter into one or more temporary water contracts with willing district entities within the Project (or their authorized representatives) for the acquisition of up to 25,000 acre-feet (AF) of Project water for use for fish and wildlife purposes within Tule Lake National Wildlife Refuge (TLNWR) and Lower Klamath National Wildlife Refuge (LKNWR) (collectively, the Refuges). The 2020 EA related to the Interim Operating Procedures for the Project is incorporated by reference. Following issuance of the 2020 EA, Reclamation entered into a contract (Contract No. 20-WC-20-5651; Contract) with the Klamath Project Drought Response Agency (DRA), for acquisition of up to 22,432 AF of water. Consistent with the EA and pursuant to the Contract, as of June 25, 2020, Reclamation has acquired approximately 1,500 AF from the DRA, which has been used for fish and wildlife purposes within LKNWR and TLNWR.

However, the current, severe drought in the Klamath Basin is also impacting fish and wildlife resources outside the Refuges. In particular, there is concern among Reclamation, the U.S. Fish and Wildlife Service (USFWS), the Klamath Tribes, and others over the potential impacts to endangered Lost River suckers (*Deltistes luxatus*) and shortnose suckers (*Chasmistes brevirostris*) due to low water conditions in Upper Klamath Lake (UKL). Inflows into UKL are currently below the 10th percentile over the period of record, and current projections have UKL ending at or slightly above water surface elevations designated under the Endangered Species Act (ESA) by the USFWS in its 2020 Biological Opinion (2020 USFWS BiOp) on Project operations as critical to the continued existence of suckers. Water quality conditions in UKL are anticipated to deteriorate over the course of summer to levels hazardous for humans, animals, and aquatic life. Localized fish mortality events have been observed to occur under similar conditions in the past.

Due to the severe drought conditions, Reclamation is proposing to modify the action previously reviewed in the 2020 EA to consider acquiring Project water for fish and wildlife purposes in UKL, in addition to acquiring water for fish and wildlife purposes within the Refuges. Reclamation is proposing to use some or all of the acquired water to raise UKL elevations above those that are currently projected to occur, which are at or slightly above the minimum elevations deemed critical by USFWS for purposes of meeting Reclamation's ESA compliance obligations

in connection with its operation of the Project.

This SEA addresses the potential direct and indirect effects, beneficial and adverse, of Reclamation's proposed acceptance of up to 25,000 AF of Project water for fish and wildlife purposes for use in UKL to provide benefits for endangered Lost River and shortnose suckers or within the Refuges. Based on the critical drought conditions and limited water availability, and given current environmental concerns, interests, and resource values, this document will evaluate the impacts of acquiring water for either the Refuges or UKL or some combination of the two.

Once the SEA is completed, the Interim Operating Procedures for 2020 through 2023 would outline the manner in which the Project would be operated for the time period extending from April 2020 through February 2023, including the subcomponent of executing one or more contracts with willing sellers to acquire a total of 25,000 AF of Project water for fish and wildlife purposes annually in the event of drought. The acquired water would either be delivered to the Refuges or held in UKL for a total of 25,000 AF for 2020, or any other year these water acquisitions programs are carried out. Similar contracts for future years, beyond 2020, would be subject to reauthorization of the Reclamation States Emergency Drought Relief Act of 1991, as amended (Pub. L. 102-250, 106 Stat. 56, 43 U.S.C. §§2211 et seq.) (Drought Relief Act). Although the authority and funding for drought relief activities is uncertain in future years, given the downward trend in Project water supply due to drought and other causes, it is reasonable to assume that similar programs and activities may be carried out over the term of the EA.

This SEA has been prepared in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C §4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508), and the Department of the Interior regulations for the Implementation of the NEPA (43 CFR Part 46). If there are no significant environmental impacts identified as a result of the analyses, a Finding of No Significant Impact can be signed to complete the NEPA compliance process. This EA would also be used to inform Reclamation's decision-making within the scope of the Proposed Action Alternative.

1.2 Location

The geographic scope of the Proposed Action Alternative is the Upper Klamath Basin starting at UKL, in Klamath County, Oregon, and Siskiyou and Modoc counties, California (*see* map in Appendix A).

1.3 Need for the Proposal

The Klamath Basin is currently experiencing severe drought conditions, according to the United States Drought Monitor. Precipitation since October 1, 2019 has been 67 percent of average. Inflows to UKL, the largest water source for the Project, are currently below the 10th percentile over the period of record. The forecasted June through September inflow to UKL is 82,000 AF, which is approximately 50 percent of average (U.S. Department of Agriculture Natural Resources Conservation Service, 2020).

Due to the severe drought conditions, the anticipated water supply available to the Project from UKL during the spring/summer irrigation season is 140,000 AF, approximately forty percent of historical irrigation demand. Additionally, flows in the Klamath River for threatened coho salmon (*Oncorhynchus kisutch*) are anticipated to require approximately 423,000 AF to be released from UKL between March 1 and September 30. These demands, combined with low inflows, are expected to result in water surface elevations in UKL being at or slightly above levels that the USFWS has designated as critical to the continued existence of suckers (USFWS 2020 BiOp).

By letters dated March 10 and April 1, 2020 respectively, the Governors of the States of Oregon and California requested that Reclamation provide temporary drought assistance for the Klamath Basin in accordance with the Drought Relief Act. The Commissioner of Reclamation approved these requests on April 13, 2020.

Title I of the Drought Relief Act (43 U.S.C. §§2211-2215) gives Reclamation authority to purchase water from willing sellers and make water available for the purposes of protecting and restoring fish and wildlife resources, including mitigation losses, that occur as a result of drought conditions or the operation of a Federal Reclamation project during drought conditions.

Given the current drought conditions and projected UKL elevations, Reclamation is proposing to acquire Project water from the DRA and use it for increasing water surface elevations in UKL to be above those required by the 2020 USFWS BiOp for the benefit of endangered Lost River and shortnose suckers through the summer and early fall. The purpose of increased water levels (above levels designated as critical under the ESA by USFWS) is to provide benefits to suckers by providing additional wetland habitat and access to cold water refugia during the late summer and early fall, when water quality in UKL will likely be impaired. Poor water quality and lack of access to refugia in the late summer and early fall period frequently results in localized fish mortality, including for suckers. Higher water levels in UKL also inundate additional wetland and riparian areas within Upper Klamath National Wildlife Refuge (UKNWR), providing additional benefits for other fish and wildlife.

1.4 Authority

The proposed water acquisition is being undertaken pursuant to Title I of the Reclamation States Emergency Drought Relief Act of 1991, as amended (Pub. L. 102-250, 106 Stat. 56, 43 U.S.C. §§2211 et seq.). Section 101 (43 U.S.C. §2211(c)) gives Reclamation authority to "purchase water from willing sellers, including, but not limited to, water made available by Federal Reclamation project contractors through conservation or other means with respect to which the seller has reduced the consumption of water." Section 102 (43 U.S.C. §2212(d)) authorizes Reclamation to "make water from Federal Reclamation projects and non-Project water available on a non-reimbursable basis for the purposes of protecting or restoring fish and wildlife resources, including mitigation losses, that occur as a result of drought conditions or the operation of a Federal Reclamation project during drought conditions."

Section 2 Alternatives

2.1 No Action Alternative

Under the No Action Alternative, through the existing contract with the DRA and any other similar contracts that may be executed in the future, to the extent Reclamation acquires water for use for fish and wildlife purposes, it would be used within the Refuges and not UKL. With the water going to the Refuges, as opposed to irrigation purposes, water surface elevations in UKL would be consistent with the Interim Operating Procedures and the 2020 USFWS BiOp and are currently projected to be at or slightly above the minimum required operating levels throughout the remainder of the 2020 spring/summer operating season, including several specific elevations that USFWS has determined to be critical to suckers and which served as "boundary conditions" for purposes of the 2020 USFWS BiOp. The specific boundary condition elevations cited in the 2020 USFWS BiOp are 4,142.0 feet (ft) prior to May 31, 4,140.0 ft prior to July 15 and a minimum elevation 4,138.0 ft at any time (USBR datum). Currently, based on anticipated inflows, river releases and irrigation demands through the remainder of the year, UKL is projected to be at 4,140.31 ft on July 15 and 4,138.14 at the lowest point this year. At these elevations, additional wetland habitat and access to water quality refugia for suckers would be limited during the late summer and early fall, when water quality in UKL is regularly impaired.

For 2020, the contract with the DRA would remain in effect allowing for a total volume of up to 22,432 AF to be acquired, but any water acquired would only be provided to the Refuges, to the extent the DRA actually makes water available. If not made available by the districts and/or the DRA, the water would be used for irrigation purposes. In 2020, Reclamation has already acquired approximately 1,500 AF from the DRA, which has been or is still being used for fish and wildlife purposes within the Refuges. This leaves a balance of approximately 21,000 AF to potentially be made available by the DRA for use within the Refuges under Contract No. 20-WC-20-5651. It is possible that the DRA and/or districts within the Project may not be able or willing to make any additional water available for fish and wildlife purposes, over the approximately 1,500 AF already acquired. If not made available by the districts and/or the DRA, the water would be used for irrigation purposes.

In 2021 and 2022, Reclamation could again contract for and acquire up to 25,000 AF for use for fish and wildlife purposes in the Refuges, subject to drought conditions occurring again and Reclamation having authority and funding for drought assistance.

Accordingly, consistent with the 2020 EA, under the No Action Alternative, the range of water that Reclamation could potentially acquire moving forward in 2020 is between 0 and approximately 21,000 AF (excluding the 1,500 AF already acquired from the DRA). Overall, for all years, the environmental impacts would remain consistent with those described and analyzed for the Refuge Water Acquisition component of the 2020 EA.

2.2 Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation would acquire up to 25,000 AF of water for use for fish and wildlife purposes in UKL or for use within the Refuges in 2020 and possibly 2021 and 2022, subject to drought conditions occurring again and Reclamation having authority and funding for drought assistance.

Project water would be made available to Reclamation for fish and wildlife purposes within UKL by foregoing diversions of water otherwise available for irrigation purposes, consistent with the Interim Operating Procedures for the Project. The exact source of the water would depend on where it can be made available by districts or their representatives. The most likely sources are water already present in UKL and water in the Lost River Diversion Channel (LRDC) and Klamath Straits Drain (KSD).

The means of delivery for this water would depend on Reclamation's intended place of use (i.e., UKL or the Refuges). For example, water stored in UKL can be retained and not released from the lake, in order to increase water surface elevations above what would occur were this water to be released for irrigation. Stored water can also be released from the lake and delivered directly to the Refuges through existing Project facilities.

Water in the LRDC and KSD can likewise be delivered directly to the Refuges through existing Project facilities or can result in additional storage in UKL through an operational exchange. In this latter situation, if water in the LRDC and KSD (that is otherwise available for diversion) is not actually diverted, it flows to the Klamath River and results in a comparable volume being retained in UKL – water that would otherwise have been released to meet ESA required flows in the Klamath River downstream of Iron Gate Dam. The mechanism for this operation is called the "UKL Credit" under the Interim Operating Procedures (*see* 2020 EA, section 2.2.4) and ensures that a volume equal to the amount not diverted from the LRDC and KSD is retained in UKL from March 1 through September 30.

October 1, 2020 is the start of the next water year, when inflows to UKL are anticipated to increase, beginning the gradual refill of UKL. This date also marks the transition to the fall-winter period under the Interim Operating Procedures, for purposes of determining river flows and required lake levels. Through the fall-winter period and beyond, the water acquired for fish and wildlife purposes in UKL and remaining in UKL at the end of the water year if not delivered to the Refuges would be managed consistent with the Interim Operations Procedures. In general, higher UKL elevations in the early fall result in potentially more operational flexibility over the fall-winter period, including for releases to the Klamath River and deliveries to the Project. However, the elevation differences likely to occur as a result of the Proposed Action Alternative are likely to result in small operational differences, to the extent they occur.

The additional water retained in UKL results in water surface elevations during the spring/summer operating season higher than the minimum required operating levels that USFWS has determined to be critical to suckers for purposes of Reclamation's compliance with the ESA.

If the full 25,000 AF is acquired by Reclamation and retained in UKL in 2020, the water surface elevation would be approximately 0.25 ft higher at the end of September than would otherwise occur (*see* Figure 1, for illustration of potential effect in 2020). Based on current projections for 2020, if 25,000 AF are retained in UKL, it would result in the lake being at or above 4,138.37 ft on September 30, 2020 and 4,138.3 ft at its lowest point of the year (around October 12).

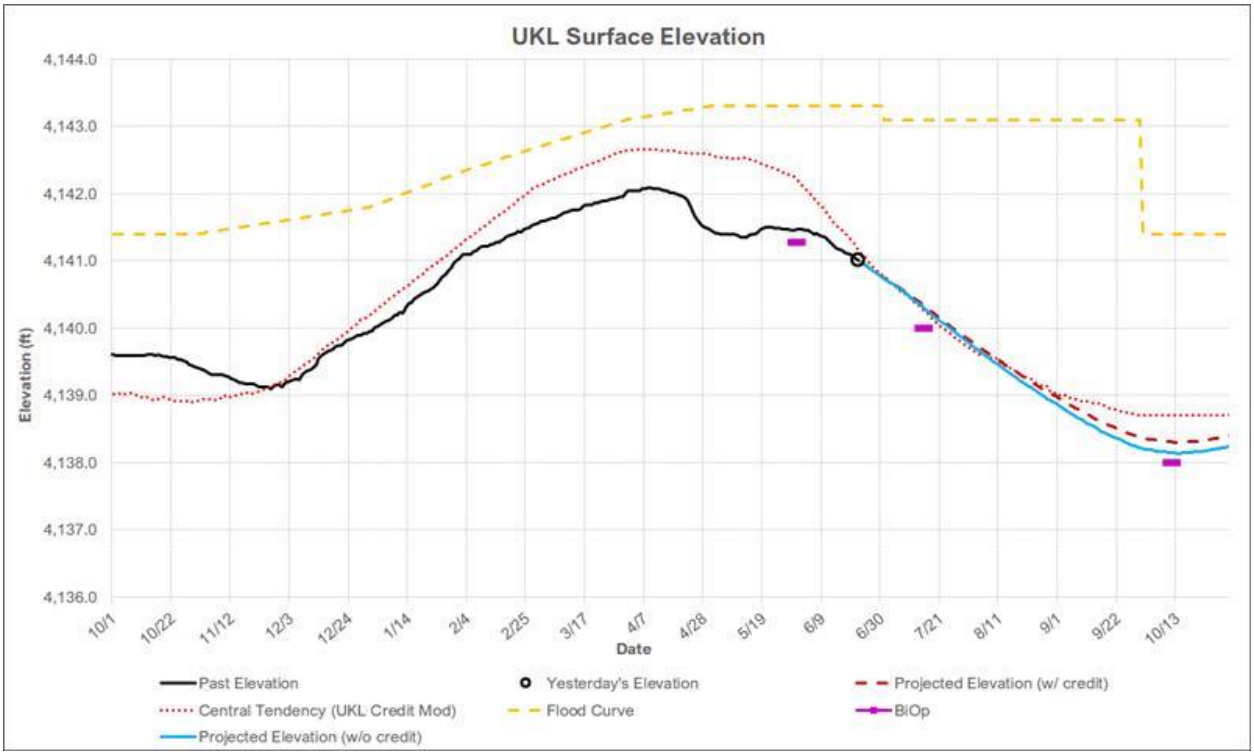


Figure 1. Projected water surface elevation of UKL under the Proposed Action Alternative of acquiring and storing 20,000 AF (inclusive of the 9,018 AF that accrued prior to June 1) in UKL by September 30, 2020 (dashed red line) versus the No Action Alternative (blue line).

According to the 2019 USFWS BiOp, water surface elevations greater than or equal to 4,138.3 ft at the end of September provide some protections for adult suckers against hazardous water quality condition, by providing the fish access to Pelican Bay, where they can seek water quality refugia and better avoid predators. When water quality conditions become especially stressful, adult suckers have been documented seeking refuge in or near Pelican Bay, where springs provide cooler water and higher dissolved oxygen concentrations.

Reclamation's discretionary action encompasses using water that is acquired for fish and wildlife purposes in either UKL or the Refuges, or potentially both, rather than just being limited to the Refuges. The exact ratio of water acquired that will be used for fish and wildlife purposes in UKL versus the Refuges is uncertain. Drought conditions and the corresponding impacts to fish and wildlife through the course of summer and fall will influence Reclamation's decision on where to best use water acquired for fish and wildlife purposes. General factors that would likely be considered in this decision would be input and information received from USFWS regarding hydrologic conditions within UKL and the Refuges and the biological needs of fish and wildlife in the respective locations at that time.

Both the No Action and Proposed Action alternatives assume Reclamation may acquire a volume of water ranging from 0 to 25,000 AF for fish and wildlife purposes. Water acquired would be used to mitigate the impacts caused to fish and wildlife resources due to drought conditions, regardless of where exactly the water is used (i.e., either UKL or the Refuges). Under either alternative, Reclamation anticipates acquiring some volume of water, the exact amount uncertain, for use within the Refuges. For example, in 2020, Reclamation anticipates the need for water to maintain permanent or seasonal wetlands during the summer period in LKNWR, to support waterfowl broods. Additionally, it is anticipated that water will be needed to re-fill Sump 1B in the Tule Lake Sumps in the late summer or early fall. Special operation of Pumping Plant D, to deliver water to LKNWR, may also occur this year, subject to water availability.

Water acquired and initially used for fish and wildlife purposes in UKL may also subsequently be delivered to the Refuges, as circumstances and fish and wildlife needs warrant. This operation could occur with the stored water being released from UKL and re-diverted downstream at existing diversion works (i.e., Ady Canal and LRDC). This approach to managing any water made available to and acquired by Reclamation is intended to provide operational flexibility for responding to changing drought conditions and associated impacts to fish and wildlife resources.

No new construction or modification of existing facilities would occur in order to complete the Proposed Action Alternative. Reclamation's action is administrative in nature and serves to optimize and provide operational flexibility with the use of limited water supplies in the Klamath Basin, given the severe drought conditions and current environmental concerns, interests, and resources values.

Section 3 Affected Environment & Environmental Consequences

This SEA supplements the 2020 EA in further evaluating the potential effects to the environment as a result of implementing the Proposed Action Alternative, as described here. The No Action Alternative presented here would be a continuation of the Proposed Action Alternative described and analyzed in the 2020 EA, particularly with respect to the Refuge Water Acquisition component. Therefore, the potential effects to the environment from the No Action Alternative are the same as described for the Proposed Action Alternative in the 2020 EA, and that information and analysis, with respect to the resources addressed in this SEA, are incorporated here by reference.

The Proposed Action Alternative differs from the No Action Alternative in that the water Reclamation acquires for fish and wildlife purposes from districts or their representatives within the Project would be used either in UKL or the Refuges, as opposed to the use being limited to the Refuges, as in the 2020 EA. This section describes the potential effects to the environment that may occur under the Proposed Action Alternative, in comparison to the effects anticipated to occur under the No Action Alternative.

3.1 Resources Not Analyzed in Detail

Effects on certain environmental resources were examined and found to be negligible. For the reasons noted below, these resources were eliminated from further review in this SEA.

3.1.1 Cultural Resources

Cultural resources are prehistoric and historic-era districts, sites, buildings, structures, and objects, as well as properties of religious or cultural importance to Native Americans or other traditional communities. Title 54 U.S.C. section 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA), requires Federal agencies to take into account the effects of their undertakings on significant cultural resources, which are known as historic properties. Section 106 compliance follows a process outlined at 36 CFR Part 800. The Proposed Action Alternative would involve no new construction, ground disturbance, or changes in land use. Pursuant to 36 CFR section 800.3(a)(1), Reclamation determined the Proposed Action Alternative has no potential to cause effects on historic properties. Reclamation has no further obligations under Section 106 of the NHPA. No significant impacts to historic properties would result from the Proposed Action Alternative (*see* Appendix B).

3.1.2 Indian Sacred Sites

Sacred sites are defined in Executive Order (EO) number 13007 (May 24, 1996) as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." The purpose of EO 13007 is to accommodate access to and use of Indian sacred sites by Indian religious practitioners and to avoid adversely affecting such sites to the extent possible. The Proposed Action Alternative would not restrict access to or use of Indian sacred sites, nor result in adverse effects to any sacred site.

3.1.3 Climate Change and Greenhouse Gases

Climate change and greenhouse gases (GHS) refers to changes in measures of climate (e.g., temperature, precipitation, or wind) lasting for decades or longer. Many environmental changes can contribute to climate change (e.g., changes in the sun's intensity, changes in ocean circulation, deforestation, urbanization, burning fossil fuels) (EPA 2015). Climate change implies a change having important economic, environmental, and social effects in a climatic condition such as temperature or precipitation. Climate change is generally attributed directly or indirectly to human activity that alters the composition of the global atmosphere, additive to natural climate variability observed over comparable time periods. Neither the Proposed Action nor No Action alternatives would contribute to climate change or GHG.

3.2 Resources Analyzed in Detail

3.2.1 Water Resources

No Action Alternative

As noted above, the environmental effects expected to occur under the No Action Alternative are the same as described for the Proposed Action Alternative in the 2020 EA. The 2020 EA describes these potential effects across the full range of hydrologic conditions reasonably foreseeable during the term of Interim Operating Procedures (i.e., 2020-2022). However, the effects that can be reasonably expected to occur in 2020 can now be described with more specificity, given information presently available.

Under the No Action Alternative, the water surface elevation of UKL would continue to decline on its present trajectory through the summer and early fall of 2020 (*see* Figure 1, above). According to current projections UKL would be at 4,140.31 ft on July 15; 4,138.22 ft on September 30; and 4,138.14 ft at its lowest point, on October 13, 2020. These elevations are consistent with the Interim Operating Procedures for a year with similar hydrologic conditions.

The gradual refill of UKL over the 2020-2021 fall and winter would depend on hydrologic conditions and resulting inflow to UKL. In 2021 and 2022, UKL water surface elevations would remain consistent with those levels expected to occur under the Interim Operations Procedures and analyzed in the 2020 EA.

Flows in the Klamath River at Iron Gate Dam would remain at 1,025 cubic feet per second (cfs) for the remainder of June, and likely be at minimum monthly values specified under the Interim Operating Procedures and consistent with the National Marine Fisheries Service's (2019 NMFS BiOp). These flows are 900 cfs for July and August and 1,000 cfs for September and October. Flows in the Klamath River from November 2020 through February 2021 will likely vary based on hydrologic conditions, but given the low UKL levels that will likely exist, be at or near 950 cfs at Iron Gate Dam, the minimum flow specified during this period under the Interim Operating Procedures and analyzed in the 2019 NMFS BiOp.

As the flows in the Klamath River are anticipated to be the same as prescribed in the Interim Operating Procedures, the effect on water quality in the Klamath River is expected to be the same as described in 2020 EA (*see* 2020 EA, section 4.3.2).

Water quality in UKL is influenced by a number of environmental conditions. Section 4.3.2 of the 2020 EA discusses the current science and best information available concerning the potential relationship between water surface levels and water quality in UKL. The No Action Alternative would result in water levels consistent with the Interim Operating Procedures and consistent with the 2020 USFWS BiOp, and thus the analysis in the 2020 EA related to water quality in UKL is still applicable.

With respect to groundwater resources, although Reclamation would not be acquiring groundwater under either the Proposed Action or No Action alternatives, it is possible under

either scenario that districts within the Project would utilize funds obtained from this program to finance groundwater pumping to make up for the supply made available and acquired by Reclamation. These conditions were previously analyzed in the 2020 EA (*see* 2020 EA, section 4.3.3).

As noted previously, Reclamation has already acquired approximately 1,500 AF from the DRA for use within the Refuges. Under the No Action Alternative, Reclamation may acquire up to an additional approximately 21,000 AF pursuant to the contract with the DRA, with the entire volume being used within the Refuges. It is more likely, however, that Reclamation would acquire less than the full 21,000 AF potentially remaining, given current drought conditions and the corresponding water supply available from UKL for the Project. Accordingly, under the No Action Alternative, Reclamation may acquire between 0 and approximately 21,000 AF for the Refuges in 2020, and between 0 and 25,000 AF in 2021 and 2022, subject to drought conditions occurring and Reclamation having the authority and funding for drought assistance in those years.

Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation is proposing to acquire up to a maximum volume of 25,000 AF of water to be used for fish and wildlife purposes. If Reclamation acquires the maximum volume of water anticipated (25,000 AF) and uses this water for fish and wildlife purposes in UKL, water surface elevations in the lake at the end of the season are projected to be approximately 0.25 ft higher than would otherwise occur. Assuming this volume is accumulated gradually over the remainder of the spring/summer irrigation season, the water surface of UKL would be at approximately 4,138.37 ft on September 30 and 4,138.30 at the lowest point this year, around October 12, 2020. A reasonable assumption is that up to approximately 50 cfs (or approximately 100 AF per day) would be acquired and stored in UKL under the Proposed Action Alternative. These assumptions and corresponding lake elevations are shown in Figure 1, above.

Like the No Action Alternative, the gradual refill of UKL over the 2020-2021 fall and winter under the Proposed Action Alternative would depend on hydrologic conditions and resulting inflow to UKL; however, to the extent the lake ends the season with additional water in storage, the refill would presumably occur earlier than would otherwise occur under the No Action Alternative.

In 2021 and 2022, UKL water surface elevations would remain consistent with those levels expected to occur under the Interim Operations Procedures and analyzed in the 2020 EA. It is possible that Reclamation could acquire additional water for fish and wildlife purposes in UKL in either 2021 or 2022, although such actions would be contingent upon the Reclamation States Emergency Drought Relief Act of 1991 being re-authorized, drought conditions occurring in the Klamath Basin, and Federal appropriations for drought assistance being available, among other conditions.

The best available science does not indicate that the projected increase in elevations under the Proposed Action Alternative would alter water quality conditions compared to the No Action Alternative. Water quality in UKL is influenced by a number of environmental conditions. Section 4.3.2 of the 2020 EA provides further information on the potential relationship between water surface levels and water quality.

Similar to the No Action Alternative, the Proposed Action Alternative is not anticipated to result in additional effects to groundwater resources beyond those previously analyzed in the 2020 EA. Overall, districts are anticipated to use the funds obtained from Reclamation to compensate well owners, including themselves, for the cost of pumping groundwater to make up for the shortage in the supply available from UKL. However, it is likely that the same level of groundwater pumping would occur regardless of whether the funds are obtained from Reclamation because of the extent of shortages to the Project water supply.

For the Refuges, the Proposed Action Alternative would mean that water acquired by Reclamation for fish and wildlife purposes in 2020 and possibly 2021 and 2022 would not necessarily go to the Refuges but may alternatively be used in UKL. If this were to happen there would be a reduction in the cumulative amount of water delivered to the Refuges, equivalent to the amount of water that is instead used in UKL.

To date, Reclamation has acquired approximately 1,500 AF of water from the DRA for use within the Refuges in 2020. The Proposed Action Alternative would not affect that water.

Moving forward, it is uncertain how much water districts and their representatives will make available to Reclamation, and further uncertain what portion of that water Reclamation would utilize in UKL as opposed to the Refuges. So, like the No Action Alternative, the Proposed Action Alternative could result in between 0 and 21,000 AF being acquired and used within the Refuges in 2020 and between 0 and 25,000 AF in 2021 and 2022.

Under the Proposed Action Alternative, there would be a reduction in the cumulative amount of water delivered to the Refuges relative to the No Action Alternative, equivalent to the amount of water that is instead used in UKL. Although the amount is uncertain, it is reasonable to assume that the Proposed Action Alternative would result in less water being acquired for the Refuges compared to the No Action Alternative, given competing fish and wildlife needs in UKL. However, any water provided to the Refuges will have beneficial environmental effects relative to the No Action Alternative reviewed in the 2020 EA; these beneficial effects may simply be reduced under the Proposed Action Alternative reviewed in the SEA, depending upon whether any water that may be acquired is used at the Refuges, UKL, or some combination of the two.

Any water acquired and not used within the Refuges would be due to paramount fish and wildlife needs in UKL in response to drought conditions. Reclamation will coordinate with USFWS in evaluating fish and wildlife needs between UKL and the Refuges. As noted previously, general factors that Reclamation would consider in making this decision would be input and information received from USFWS, present hydrologic conditions, water levels in the Refuges, and the biological needs of fish and wildlife in the respective locations at that time.

3.2.2 Biological Resources

3.2.2.1 Federally Protected Species

No Action Alternative

Under the No Action Alternative, effects to ESA-listed species are anticipated to be consistent with those outlined in the 2020 EA. Operations would continue in accordance with the Interim Operations Procedures described and analyzed in the 2020 EA. Elevations in UKL would continue to decline at the rate of current projections to at or slightly above the water surface elevations identified by USFWS as critical to the continued existence of Lost River and shortnose suckers (s*ee* section 2 and 3.2.1, above). Klamath River flows would also be the same as prescribed in the Interim Operating Procedures. Accordingly, no additional impacts to ESA-listed species would be anticipated to occur outside those evaluated in the 2019 NMFS BiOp and the 2020 USFWS BiOp and identified in the 2020 EA (*see* sections 4.4.1, 4.4.2, and 5.2).

Proposed Action Alternative

Lost River and Shortnose Suckers

Water surface elevations in UKL under the Proposed Action Alternative are anticipated to be within the range of levels anticipated to occur under the 2019 NMFS BiOp and the 2020 USFWS BiOp and those identified in the 2020 EA (*see* sections 4.3.3.1 and 5.2 and tables 4.1 and 4.2). Acceptance of the UKL water acquisition proposal could result in UKL water surface elevations in 2020, and possibly 2021 and 2022, being up to approximately 0.25 feet higher than would otherwise occur under the No Action Alternative. This potential range of increased lake levels is within the range of elevations anticipated to occur under the 2019 NMFS BiOp and the 2020 USFWS BiOp and analyzed to occur under the 2020 EA (*see* section 5.2).

The increased water surface elevations in UKL that may occur as a result of the UKL water acquisition proposal are anticipated to provide some level of beneficial effect for endangered Lost River and shortnose suckers. Higher UKL elevations in the summer and early fall months are associated with greater amounts of larval, juvenile (wetland habitat) and adult sucker habitat (based on water depths). UKL elevations above 4,138.0 feet are also known to provide access to water quality refugia for suckers, particularly at Pelican Bay (*see* 2020 EA, section 6.1.5.3). Water quality in UKL predictably deteriorates in the late summer, frequently to levels that can cause localized fish mortality. Access to water quality refugia is therefore beneficial to the endangered Lost River and shortnose suckers, along with other fish and aquatic wildlife, particularly during warm and dry hydrologic conditions, as are occurring in 2020.

Bull Trout, Oregon Spotted Frog and Applegate's Milkvetch

The Proposed Action Alternative would increase UKL and Agency Lake elevations during the summer months compared to the No Action Alternative. Agency Lake is designated as Critical Habitat for bull trout (*Salvelinus confluentus*), given that it serves as a potential migratory corridor for the species. The elevation differences are expected to occur in the summer months, during a time period when bull trout are unlikely to use the lake as a migratory corridor. Therefore, the Proposed Action Alternative is not likely to affect bull trout or their habitat.

The Proposed Action Alternative may have an indirect benefit for Oregon spotted frog (*Rana*

pretiosa). It is possible that increased water surface elevations in UKL and Agency Lake could indirectly influence and sustain wetland areas along the lower one mile of Wood River, providing a benefit for Oregon spotted frogs in the area.

The Proposed Action Alternative does not affect areas occupied by Applegate's milkvetch (*Astragalus applegatei*), so no effect would likely occur to this species.

Coho and Chinook Salmon, Eulachon, Green Sturgeon Southern Resident Killer Whale
Under the Proposed Action Alternative, Reclamation's acquisition of a volume of water for use for fish and wildlife purposes in UKL or the Refuges would result in the same flows in the Klamath River as those that would occur under the No Action Alternative. That condition is true for the remainder of the spring/summer operating season, as well 2021 and 2022, if similar actions are taken by Reclamation. Accordingly, no additional effects are expected to occur as a result of implementation of the Proposed Action Alternative for coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), eulachon (*Thaleichthys pacificus*), green sturgeon (*Acipenser medirostris*), or southern resident killer whales (*Orcinus orca*), outside those effects identified and associated with the No Action Alternative.

3.2.2.2 Other Fish and Wildlife Species (Non-ESA-Listed)

No Action Alternative
Under the No Action Alternative, effects to non-ESA-listed species are anticipated to be consistent with those described and analyzed in the 2020 EA. No additional impacts to non-ESA-listed species are anticipated to occur outside those identified in the 2020 EA and section 4.4.3 of the 2020 EA is therefore incorporated herein by reference

Proposed Action Alternative
Under the Proposed Action Alternative, Reclamation's acquisition of water for use for fish and wildlife purposes in UKL or the Refuges would likely result in slightly increased water surface elevations in UKL. Klamath River flows would still be the same as anticipated to occur under the No Action Alternative. The increased UKL elevations under the Proposed Action Alternative may provide a beneficial effect and are likely to be sufficient to continue to support native and other non-native fish species in UKL, such as redband trout, chub, bass, sunfish, and yellow perch. As there is no change anticipated for Klamath River flows from the No Action Alternative, the effects to non-ESA-listed species would be the same as identified in section 4.4.3 of the 2020 EA.

In general, and similar to the No Action Alternative, terrestrial species in the affected area would likely continue to experience similar conditions as compared to the No Action Alternative. Should terrestrial species experience some difference to food or habitat availability, terrestrial species would likely migrate to areas that fulfill their biological needs. The need for movement to areas of more suitable habitat would likely be less than a few miles.

Though removed from protection under the ESA, bald and golden eagles continue to be protected under the Bald and Golden Eagle Protection Act (16 U.S.C. §§668-668c). No measurable change in impacts are anticipated for these species under the Proposed Action Alternative.

3.2.2.3 Wetland and Riparian Areas and Migratory Birds

No Action Alternative

In 2020, Reclamation has already acquired approximately 1,500 AF for fish and wildlife use within the Refuges, which will be unaffected under either alternative. Under the No Action Alternative, Reclamation may acquire up to an additional 21,000 AF for use within the Refuges in 2020 consistent with the contract with the DRA, and up to 25,000 AF in 2021 and 2022. The amount of water acquired will would depend in part on the extent the districts and their representatives (including the DRA) actually makes water available to Reclamation. Therefore, the range in the volume of water that may be acquired for the Refuges under the No Action Alternative is between 0 and 25,000 AF in any given year, including 2020. The effect this action would have on wetland and riparian areas within the Refuges, and the resulting impact to migratory birds, would vary depending on the volume acquired and where exactly it is used.

Water conditions and requirements between the two Refuges currently vary. TLNWR receives water primarily from irrigation return flows and tributary runoff that accumulates in the Tule Lake Sumps. As such, the water supply available for TLNWR is generally reliable and use of water for fish and wildlife purposes is derived as much from the timing and location of water being applied to the lands as is from the volume. For example, a common practice within TLNWR is to gradually flood farmed lands in the fall and winter to make the unharvested portion of the crop or the crop residue available for consumption by waterfowl, ideally at a suitable time and rate. The concept is to gradually make leftover crops and crop residue available over the course of the fall and winter to support migrating waterfowl. These inundated areas are then drained in the late winter or early spring, and the saturated soils are used to grow crops. Suitable habitat for waterfowl (i.e., wetlands and waterbodies) is not constrained, given the presence of the Tule Lake Sumps, which are generally inundated throughout the year.

For 2020, USFWS has elected to drain Tule Lake Sump 1B to generate wetland vegetation, with the objective of reflooding it later this summer or fall. If water is available from the districts and their representatives, Reclamation may acquire water to reflood Sump 1B as directed by and in coordination with USFWS. Other than this specific operation for 2020, water that is acquired by Reclamation for use in TLNWR would most likely be used to flood farmed lands in the fall and winter, rather than to maintain open water or wetland areas during the spring and summer. Flooding farmed lands makes the unharvested portion of the crop and the crop residue available for consumption by waterfowl. Without such water being applied, the flooding of farmed lands in the fall and winter may be constrained, affecting the timing and quantity of food resources available for migrating waterfowl. Approximately 9,000 AF was acquired and used for this purpose in the most recent drought year, 2018, and it is reasonable to assume that a similar volume would benefit migratory waterfowl in 2020.

For LKNWR, the lack of a reliable water supply is a limitation on refuge management. Water is used in LKNWR to some extent to grow agricultural crops to provide food for migrating waterfowl, but the predominant use of water is to flood diked units that are managed by USFWS as seasonal or permanent wetlands. USFWS designates and manages particular units in this manner, in accordance with existing management plans for LKNWR. These wetland areas provide habitat for the nesting, brooding, molting, and migration of waterfowl throughout the

year.

Wetland units within LKNWR require continual inputs of fresh water, particularly during the summer, to offset evapotranspiration and other consumptive losses. Unlike TLNWR, existing drainage infrastructure functions to evacuate irrigation return flows and other natural runoff prior to reaching LKNWR, so the refuge cannot currently take advantage of this potential source. Instead, water inputs to LKNWR are generally limited to water pumped from the Tule Lake Sumps through Pumping Plant D and direct diversions from the Klamath River via the Ady Canal. These sources of water are generally reduced under drought conditions, as is the case in 2020.

With respect to potential impacts to wetland areas and migratory waterfowl in 2020, LKNWR received 27,194 AF of water through the Ady Canal, along with another 14,300 AF from Pumping Plant D, between October 2019 and April 2020. As a result of water delivered prior to April, there are approximately 5,500 acres of permanent wetlands in LKNWR presently inundated with water (Units 2 and 3). There is an additional approximately 2,000 acres of seasonal or temporary wetlands that are also partially inundated currently (Units 6A and 12C).

Despite current water levels in LKNWR, assuming that conditions remain warm and dry this summer, the combined approximately 7,500 acres of wetlands in the refuge would likely be effectively dry by fall, absent additional water deliveries this summer. Approximately 14,000 AF would be necessary to maintain through the summer the permanent wetland areas that are currently inundated, and another 2,000 to 4,000 AF to maintain the seasonal wetland areas that are currently partly inundated.

Of particular concern in 2020, with respect to wetland areas in LKNWR, is the need to maintain adequate habitat for nesting waterfowl broods. USFWS has reported that waterfowl production in LKNWR may be at the highest level in years. The gradual drying of wetland areas in LKNWR due to a lack of freshwater inputs would likely cause increased mortality among juvenile waterfowl. However, it is not certain that the No Action Alternative would avoid these impacts, in the event districts and their representatives are unable or unwilling to make additional water available to Reclamation. However, to the extent water is made available to Reclamation for fish and wildlife purposes in 2020, using it to maintain permanent wetland areas within LKNWR would most likely be Reclamation's priority.

Reclamation is coordinating with USFWS on water conditions and waterfowl needs in LKNWR as drought conditions change this year. The most likely effect of current nesting and brooding conditions in LKNWR is to shift the refuge's most critical water needs from the fall to the summer period.

Under the No Action Alternative, if Reclamation acquires up to an additional 21,000 AF in 2020, and up to 25,000 AF in 2021 and 2022, this water would likely be used to maintain permanent and seasonal wetland areas within LKNWR and flood farmed lands in TLNWR, as described above. Lesser volumes would result in a proportional reduction in the amount of land that is inundated in the Refuges. It is possible under the No Action Alternative that no additional water would be acquired by Reclamation for the Refuges, due to districts within the Project being

unable or unwilling to make further water available. Overall, for purposes of evaluating the potential impacts, generally between two to three AF per acre is required to maintain wetland area units over the course of the summer period. A similar volume is required to reflood dry farmland or wetland areas in the Refuges at any time of the year.

Under this range of volumes potentially acquired for the Refuges, the impacts to wetland and riparian areas, and migratory birds that rely on this habitat would be the same as those anticipated to occur and analyzed in the 2020 EA (*see* sections 4.4.4 and 4.4.5).

Proposed Action Alternative

Both the No Action and Proposed Action alternatives assume that the volume of water that may be acquired for the Refuges would range between 0 and 25,000 AF in any given year under the Interim Operations Plan (i.e., 2020-2022). As such, it is possible that the volume of water acquired by Reclamation for the Refuges could be the same under both the No Action and Proposed Action alternatives.

Nevertheless, under the Proposed Action Alternative, to the extent Reclamation acquires water for use for fish and wildlife purposes in UKL, the volume that could be used with the Refuges would potentially be reduced, unless the water is used in both places. For this and the other reasons further described in section 3.2.1, above, the most likely result of the Proposed Action Alternative is that Reclamation would acquire a lesser volume of water for the Refuges than it otherwise would acquire under the No Action Alternative, though the exact volume is uncertain.

Acquiring less water for the Refuges may result in drought-related impacts to wetland and riparian areas and the migratory birds that rely on these areas, which otherwise might be further stemmed or mitigated under the No Action Alternative. The exact location (i.e., which refuge and what habitat type) and number of acres that might otherwise be benefited under the No Action Alternative would depend on where exactly and when the additional water would be used, which is unknown presently.

However, as noted above, it is reasonable to assume that roughly two to three AF of water is required to maintain wetland areas in the summer period, or to flood dry farmland and wetland areas within the Refuges. Reductions in the quantity of water acquired and used within the Refuges would mean a proportional reduction in the number of acres of wetlands that can be maintained or reflooded. Presumably in this case the benefit to fish and wildlife in UKL, particularly suckers, would be likely be deemed to outweigh the potential benefit to wetland areas and migratory waterfowl in the Refuges, or mitigate the overall impact to fish and wildlife resources, that that does not change the fact that less water would potentially be delivered to the Refuges.

Less water available for mitigating drought-related impacts occurring specifically within the Refuges, including wetlands in LKNWR, could result in a further reduction from the historical level of food resources and habitat in the Klamath Basin for migratory birds, including waterfowl, shorebirds, gulls, terns, cranes, rails, herons, grebes, egrets, songbirds, and raptors. Low water levels in LKNWR and the concentration of birds in smaller wetland areas in both Refuges also increases the potential for waterfowl diseases, particularly avian botulism, to spread. These impacts would be expected to occur roughly in proportion to the difference in the

amount of water acquired under the Proposed Action Alternative compared to the No Action Alternative. Overall, less water acquired would increase the likelihood, extent, and severity of these impacts.

These considerations with respect to wetland and riparian areas, and associated migratory waterfowl, would factor into Reclamation's decision as to where and how exactly to use water acquired for fish and wildlife purposes. Drought-related impacts to fish and wildlife resources within the Refuges would be weighed against competing needs in UKL. Ultimately, Reclamation would attempt to use the water acquired in a manner that maximized the associated fish and wildlife benefit, whether that meant using the water in UKL, the Refuges, or both.

To the extent Reclamation decides to use water acquired for fish and wildlife purposes in UKL, the Proposed Action Alternative has the potential to benefit wetland areas surrounding the lake, including portions of Upper Klamath Lake National Wildlife Refuge (UKNWR), by generating higher water surface elevations in UKL. Marshes adjacent to UKL are generally inundated when water levels are at or above 4,140.00 ft in elevation. The Proposed Action Alternative may result in the lake reaching this level earlier and lasting longer through the fall and winter than would otherwise occur under the No Action Alternative, but the effect is likely short in duration.

As described in the 2020 EA (*see* sections 4.4.4 and 4.4.5), drought-related impacts to wetland areas and wetland-dependent species, including waterfowl are not a result of operation of the Project under the Proposed Action Alternative but rather factors outside of Reclamation's control, including drought and resulting water availability, ESA requirements, the United States' contractual obligations to Project water users and trust obligations to tribes in the Klamath Basin, and relevant water rights (*see* 2020 EA, section 1.4.4). The Proposed Action seeks to mitigate these impacts by acquiring water for fish and wildlife purposes, some or all of which may be used at the Refuges. Any water provided to the Refuges will have beneficial environmental effects relative to the No Action Alternative reviewed in the 2020 EA; these beneficial effects may simply be reduced under the Proposed Action Alternative reviewed in the SEA, depending upon whether any water that may be acquired is used at the Refuges, UKL, or some combination of the two.

3.2.3 Recreation

No Action Alternative

Under the No Action Alternative, Reclamation may acquire up to 25,000 AF for the Refuges in 2020, 2021, and 2022 (including the approximately 1,500 AF already acquired and used within the Refuges). As described in section 3.2.2.3, this water would most likely either be used to maintain wetland areas in LKNWR this summer and fall or flood farmed lands or wetland areas in either TLNWR or LKNWR this coming fall and winter. In addition to providing food, habitat, and sanctuary for migratory birds, the Refuges also offer hunting and other recreational opportunities for the general public.

For 2020 and potentially 2021 and 2022, if drought conditions exist, it is possible that the USFWS may temporarily close areas within LKNWR to hunting due to lack of water. This condition is equally applicable under either the No Action or Proposed Action alternatives. The decision to temporarily close portions of LKNWR to hunting is within the discretion of USWFS,

subject to Federal laws and regulations. For context, the annual numbers of hunters that visit LKNWR varies between approximately 1,500 and 2,600.

Recreational opportunities related to wildlife observation and photography would likely continue under either alternative, though additional water may improve the quality of these activities under the No Action Alternative.

The effects on recreation associated with the No Action Alternative would be consistent with those identified and analyzed in the 2020 EA (*see* section 4.5).

Proposed Action Alternative

It is possible that the same volume of water would be acquired for the Refuges under the Proposed Action Alternative compared to the No Action Alternative, which would mean that the effects on recreation would be the same under either alternative. However, as previously discussed, it is reasonable to assume that the Proposed Action Alternative would result in less water being acquired for the Refuges than would otherwise occur under the No Action Alternative. The effect of this reduction in water on recreational opportunities would depend on location and timing of the additional water that would have otherwise been acquired and used within the Refuges.

As noted above, under either the No Action or Proposed Action alternatives, it is possible that the USFWS may temporarily close areas within LKNWR to hunting, due to lack of water. The decision to temporarily close portions of LKNWR to hunting is within the discretion of USWFS, subject to Federal laws and regulations and has not yet been made. Accordingly, the decision to temporarily close portions of LKNWR to hunting and any resultant associated conditions are speculative at this time. The likely consequence of closures would be to shift hunting pressure to other areas that remain open (e.g., TLNWR, Miller Island Refuge, UKNWR). Recreational opportunities related to wildlife observation and photography would likely continue under either alternative.

By generating higher water surface elevations earlier throughout the summer and fall, the Proposed Action Alternative has the potential to benefit recreational opportunities in UKL, including UKNWR. Channels and open water areas within marshes adjacent to UKL are generally accessible by boat, including canoes and kayaks, when water levels are at or above 4,140.00 ft in elevation. The Proposed Action Alternative may result in the lake reaching this level earlier and lasting longer through the fall and winter than would otherwise occur under the No Action Alternative, but the effect is likely short in duration. Boat access to adjacent wetland areas, including in UKNWR, would therefore be similar under both alternatives.

3.2.4 Land Use

No Action Alternative

Under the No Action Alternative, involuntary idling of agricultural land is anticipated to occur when Project water supplies are inadequate, and no alternative source of water is available. Specifically, involuntary land idling was estimated to occur in 20 years of the 39-year period of record analyzed in the 2020 EA for the Interim Operating Procedures. Fallowed acreage averages 18,200 acres over the POR, or 35,500 acres per occurrence of years of short water

supplies. These effects on land use associated with the No Action Alternative would be consistent with those identified and analyzed in the 2020 EA (*see* section 4.6).

Proposed Action Alternative

The Proposed Action Alternative could but is not expected to result in additional fallowing of agricultural lands within the Project. The extent of land fallowed (i.e., not planted and farmed) in 2020 is and would be the result of the current drought and the resulting shortage and the supply of water available for irrigation from UKL. The announced supply available is 140,000 AF, which is approximately one-fourth the historical irrigation demand for the approximately 200,000 acres of farmland served by the Project. Districts and individuals are anticipated to make water available for UKL water acquisition from sources and at times that minimize the impact of water shortages to farm operations. The acquisition of water by Reclamation may result in delayed or reduced irrigation practices to some extent, but not in additional land idling beyond what would already be expected to occur were Reclamation to not acquire water. The primary effect of water acquisition would be to replace involuntary land idling with voluntary land idling, through water users' participation in non-Federal demand reduction programs carried out by districts and their representatives.

The Proposed Action would only be taken in drought years, like 2020, so even though the acreage of land participating in voluntary land idling is uncertain, the same short-term impacts would be expected as for involuntary land idling. The socioeconomic effect of such water acquisition would therefore be to partially offset the immediate economic impact of water shortages by providing funding that can in turn be used by districts and their representatives (if they so choose) for voluntary demand management programs.

3.2.5 Socioeconomics

No Action Alternative

Under the No Action Alternative, the socioeconomic conditions would remain consistent with those analyzed in the 2020 EA (*see* section 4.7). Generally, surface water shortages would be expected to occur in 59 percent of years with some years where groundwater pumping is able to mitigate the shortage and some years experiencing unmitigated shortages. Additionally, an increased frequency of years with regional job losses would occur. These effects result from drought conditions, project operations under the Interim Operating Procedures, and the resulting limitations in the water supply available for irrigation within the Project, not from the Refuge Water Acquisition component, as described in the 2020 EA and further analyzed here. Overall, acquiring water for fish and wildlife purposes should mitigate, to some extent, the socioeconomic impacts associated with drought, by providing funding for voluntary demand management programs. These programs in the past have generally included compensating landowners for the cost of pumping supplemental groundwater or voluntarily agreeing to forego the use of surface water. These programs serve to offset the economic impacts to farmers within the Project due to water shortages. This likely result is equally applicable under either the No Action or Proposed Action alternatives.

There would continue to be no fishing opportunities for the Klamath Tribes. Under the No Action alternative, conditions related to tribal fisheries-related socioeconomic resources for the Klamath River Tribes would continue as described in the 2020 EA which are incorporated herein

by reference (*see* section 4.7). However, standard of living and health improvements would likely occur over the long term which would exceed the three-year period covered by the 2020 EA.

Under the No Action Alternative, riverine conditions for commercially fished species including coho and Chinook salmon are expected to improve relative to previous conditions. However, due to a number of factors (*see* 2020 EA, section 4.7), the conditions anticipated to occur under the No Action Alternative are not likely to translate into a measurable impact related to commercial fishing opportunities and associated resultant economic activity.

Under the No Action Alternative, conditions for recreation related socioeconomics are unlikely to be measurably impacted compared to previous conditions except in critically dry hydrologic years, like 2020. Water-based recreation centered on recreational fishing would continue similar to previous conditions.

Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation's acquisition of water for fish and wildlife purposes in UKL or the Refuges in 2020, and possibly future years, would offset at least part of the economic impacts to agriculture by providing Federal funds that can be used (if districts so choose) to compensate landowners for the cost of pumping supplemental groundwater or voluntary or involuntary curtailments resulting in fallowed lands. This benefit may partially mitigate the negative impacts of reduced water supply as discussed in the 2020 EA (*see* section 4.7), for years like 2020 and similar drought years in the future, should a similar program be implemented.

Although increased UKL elevations are anticipated to provide benefits to UKL and endangered shortnose and Lost River suckers, due to the status of the species, the continuation of conditions where there are no fishing opportunities for the Klamath Tribes would continue. As Klamath River flows are anticipated to remain consistent with the Interim Operating Procedures and the 2019 NMFS BiOp, no change in flows would occur as a result of implementation of the Proposed Action Alternative. The conditions where there may be less potential for adverse effects to tribal fisheries-related socioeconomic resources in the lower river that could increase fish harvest for subsistence and commercial fishing would continue. Overall, there would be no change between the No Action and the Proposed Action alternatives with respect to Indian tribal communities' socioeconomic status.

As Klamath River flows would continue to be managed consistent with the Interim Operating Procedures and the 2019 NMFS BiOp, no change in flows would occur as a result of implementation of the Proposed Action Alternative. Therefore, there would be no change between the No Action and the Proposed Action alternatives with respect to socioeconomic effects on commercial fishing.

A socioeconomic impact may occur due to loss of hunting opportunities in LKNWR, to the extent USFWS decides to temporarily close portions of the refuge due to lack of water, although this decision and associated resultant conditions are speculative at this time. However, the more likely consequence of closures is to shift hunting pressure to other areas that remain open (e.g., TLNWR, Miller Island Refuge, UKNWR).

3.2.6 Air Quality

No Action Alternative

Under the No Action Alternative there is a likelihood that agricultural lands within the Project boundaries would be fallowed as a result of individual farming practices or due to reductions in water supplies available to the Project. Details of this land fallowing are presented in section 4.6 of the 2020 EA. Dust emissions (PM2.5) within the Project boundaries would likely occur as a result of fallowed land due to limited Project water supplies under certain hydrologic conditions. Dust mitigation practices such as cover crops and stubble management may be employed but are speculative and not able to be measured accurately as they would occur at the farm level but would likely be short-term, temporary and limited to drought years, like 2020.

Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation's acquisition of water for fish and wildlife purposes in UKL or the Refuges is not expected to result in additional impacts to air quality, because the extent of fallowing of agricultural farmland would be the same as under the No Action Alternative. These shortages are due to the supply available under the Interim Operating Procedures, not Reclamation's action of acquiring water for fish and wildlife purposes. Additional farmland would not be fallowed in order to make water available to Reclamation for fish and wildlife purposes. Details of this land fallowing, which would occur in addition to lands fallowed as a result of Project Operations, are presented in section 4.6 of the 2020 EA. Similar to the No Action Alternative, dust emissions (PM2.5) within the Project boundaries would likely occur as a result of fallowed land and could experience incremental increases in drought years. Dust mitigation practices such as cover crops and stubble management may be employed but are speculative and not able to be measured accurately as they would occur on a farm level and would likely be short-term, temporary and limited to drought years, like 2020. As such, there would be no change to between the No Action and the Proposed Action alternatives with respect to air quality.

3.2.7 Indian Trust Resources

No Action Alternative

Under the No Action Alternative, elevations in UKL would continue to decline at the rate of current projections to or slightly above the water surface elevations identified by USFWS as critical to the continued existence of Lost River and shortnose suckers (s*ee* sections 2 and 3.2.1, above). Klamath River flows would be the same as prescribed in the Interim Operating Procedures.

In most years, the No Action Alternative would likely provide sufficient habitat for adult suckers that have led to relatively consistent and high survival rates, with juvenile suckers experiencing continued low survival and very limited recruitment into the adult sucker populations. The Klamath Tribes' (located in the Upper Klamath Basin) current levels of ceremonial use would continue and fishing for ESA-listed suckers for subsistence and commercial needs would still not occur. As such, there would be no change relative to current conditions.

Implementation of the No Action Alternative includes a preventative measure for minimizing

disease in the form of a forced surface flushing flow that would be provided with certainty in nearly every year. The No Action Alternative provides a 20,000 AF augmentation to the Environmental Water Account (EWA) in certain year types for May and June which can be either used for habitat flows or disease mitigation purposes at the recommendation of the Flow Accounting and Scheduling Technical Advisory Team to meet fisheries needs. Additionally, the No Action Alternative includes interim measures that may provide an additional 40,000 AF augmentation to the EWA in certain years to be flexibly used to address disease and habitat concerns in the Klamath River in April, May, and June. Klamath River management would continue under the Interim Operating Procedures and the related effects are included in the 2020 EA and incorporated herein by reference (*see* 2020 EA, section 4.9). Tribal trust fisheries in the Klamath River would likely experience increased fitness and decreased vulnerability, allowing for harvest of salmon for subsistence, ceremonial, and commercial needs under the No Action Alternative.

Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation's acquisition of water for fish and wildlife purposes for UKL would not impact Indian trust resources. Implementation of the Proposed Action Alternative would be anticipated to provide some level of beneficial effect for endangered Lost River and shortnose suckers resulting from increased UKL elevations. However, due to the current status of these species, the current levels of ceremonial use would continue and fishing for endangered Lost River and shortnose suckers for subsistence and commercial needs would still not occur. As such, there would be no change between the No Action and the Proposed Action alternatives with respect to trust resources for the Klamath Tribes.

As Klamath River flows would continue to be managed consistent with the Interim Operating Procedures, no change in flows would occur as a result of implementation of the Proposed Action Alternative. Current levels of harvest of salmon for subsistence, ceremonial, and commercial needs would likely continue. As such, there would be no change between the No Action and the Proposed Action alternatives with respect to downriver tribal trust resources.

3.2.8 Environmental Justice

No Action Alternative

Under the No Action Alternative, the existing constraints on the availability of water from the Project for irrigation purposes may result in involuntary land idling, resulting in reduced employment of agricultural workers to raise and harvest crops. Agricultural employment is a potential environmental justice issue due to the fact that agriculture employs a higher proportion of minority and low-income workers than are employed in the general workforce.

Under the No Action Alternative, it is anticipated that the tribal fishery in the Klamath River would experience increased fitness and decreased vulnerability, allowing for a potential increase in coho and Chinook salmon availability as an economic and cultural resource. For suckers, there would be no change from previous levels related to use as an economic and cultural resource for the Klamath Tribe. In turn, under the No Action Alternative, the overall risk to the tribal fisheries and the associated environmental justice would be reduced for Lower Klamath Basin Tribes and maintained for The Klamath Tribes.

Proposed Action Alternative

Under the Proposed Action Alternative, Reclamation's acquisition of water for fish and wildlife purposes in UKL could lessen the economic hardships on local low income rural agricultural communities in Klamath, Modoc, and portions of Siskiyou counties during years of dry hydrologic conditions like 2020, by providing a source of funding for non-Federal voluntary demand management activities including land idling and groundwater pumping, etc.
No change in environmental justice impacts are anticipated for the Klamath tribal communities as compared to the No Action Alternative. The Proposed Action Alternative would provide temporary benefits to UKL and Lost River and shortnose suckers, however, due to the current status of the species, no change related to use as an economic and cultural resource for the Klamath Tribes is expected relative to the No Action Alternative. As Klamath River flows are anticipated to be consistent with the No Action Alternative, no change from those conditions are anticipated as a result of implementation of the Proposed Action Alternative.

Overall, under both alternatives, the impacts on minority and low-income populations throughout the action area are expected to be minor due to the short term of the action. Therefore, ethnic minority and/or low-income sectors of the population are not expected to be disproportionately affected by adverse environmental impacts associated with the either alternative.

3.2.9 Cumulative Impacts

According to the Council on Environmental Quality regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as: "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." (40 CFR §1508.7)

Acquisition of water for fish and wildlife purposes in UKL or the Refuges does not have any controversial or highly uncertain effects or involve unique or unknown environmental risks. The Proposed Action Alternative would not trigger other water acquisition actions outside those evaluated in this EA and would not contribute to cumulative effects to physical resources when added to other past, present or reasonably foreseeable actions. The action is administrative in nature, involves acquiring water that would otherwise be available for diversion for irrigation purposes, and would currently be limited to one year. However, similar contracts for future years, beyond 2020, would be subject to reauthorization of the Reclamation States Emergency DRA of 1991, as amended. Although the authority and funding for drought relief activities is uncertain in future years, given the similar, uncertain trend in Project water supply due to drought and other causes, it is reasonable to assume that similar programs and activities may be carried out over the term 2020 – 2023.

Operation of the Project, consistent with the Interim Operating Procedures and the Refuge Water Acquisition Program, have been addressed in the 2020 EA, and discussed earlier in this EA. Areas of potential concern, such as ESA-listed species, Project water shortages and related socioeconomic effects, limited availability of water for the LKNWR, and cumulative impacts have been discussed within the 2020 EA and this EA.

The proposed UKL water acquisition, when added to other actions, would not contribute to

substantial increases or decreases in environmental conditions. The Proposed Action Alternative would occur only for one year with the potential for future years should reauthorization of the Drought Relief Act occur. The Proposed Action Alternative would not be precedent setting. As such, the Proposed Action Alternative would not contribute to cumulative impacts on water resources, biological resources, recreations, land use, socioeconomics, air quality, Indian trust resources, environmental justice, cultural resources, Indian Trust Assets, or climate change and GHG emissions.

Section 4 Consultation and Coordination

This section presents the agencies and parties that had been consulted during development of the EA.

4.1 Persons or Agencies Consulted During EA Development

- District entities and individual water users within the Project
- Klamath Water Users Association
- USFWS (Klamath Falls Fish and Wildlife Office and Klamath Basin Refuge Complex)
- Project DRA
- NMFS

Section 5 References

NMFS and USFWS. 2013. Biological Opinions on the Effects of Proposed Klamath Project Operations from May 31, 2013 through March 31, 2013, on Five Federally Listed Threatened and Endangered Species.

NMFS. 2019. Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for Klamath Project Operations from April 1, 2019 through March 31, 2024.

U.S. Department of Agriculture Natural Resources Conservation Service. 2018. Oregon Basin Outlook Report. June 1, 2018.

USFWS. 2018. CLNWR. About the Refuge. Website: https://www.fws.gov/refuge/Clear_Lake/about.html

USFWS. 2018. Information Resources: Listed, proposed, and Candidate Species Lists (Klamath County, Oregon, Modoc and Siskiyou counties, California). Website: http://www.fws.gov/klamathfallsfwo/es/es.html

USFWS. 2018. LKNWR. About the Refuge. Website: https://www.fws.gov/refuge/Lower_Klamath/about.html

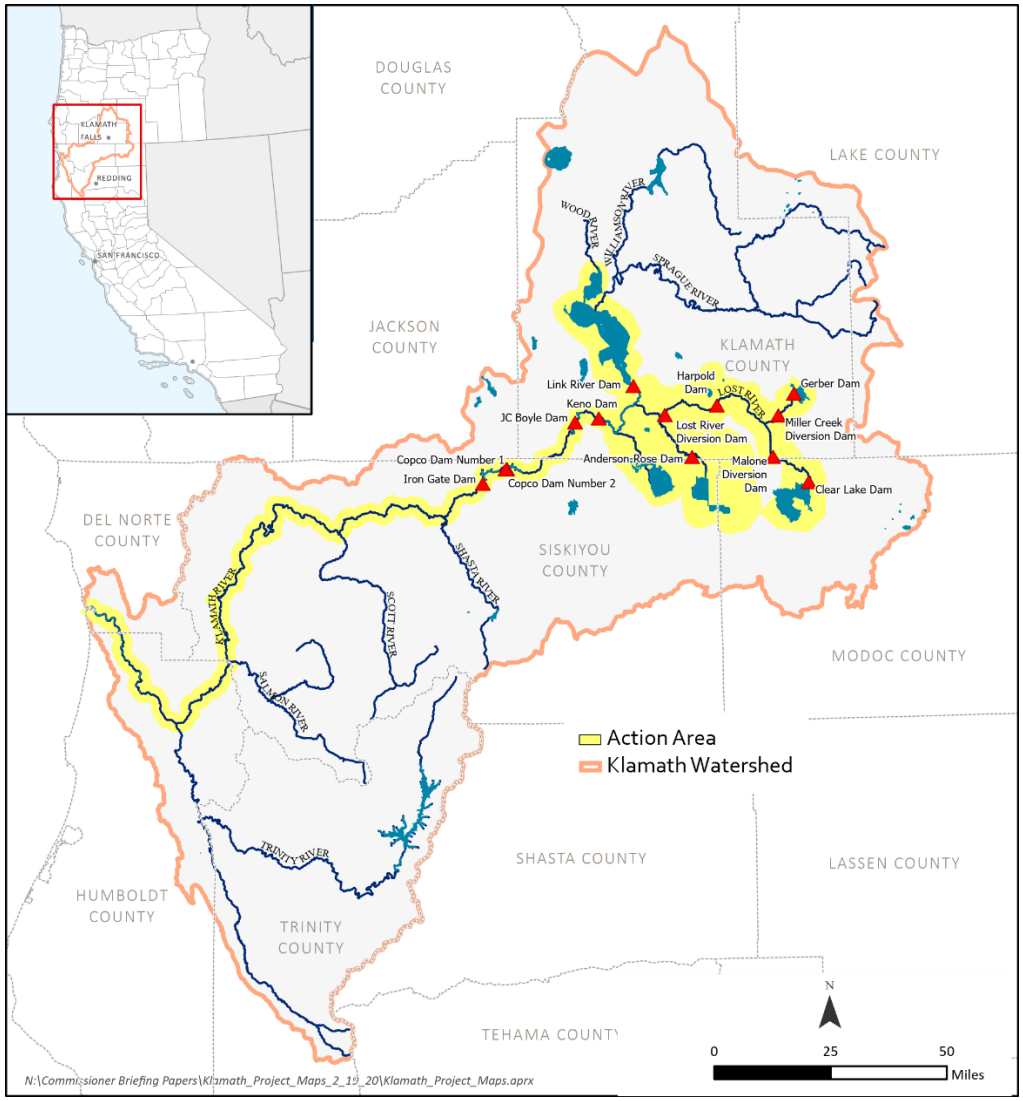
USFWS. 2018. TLNWR. About the Refuge. Website: https://www.fws.gov/refuge/Tule_Lake/about.html

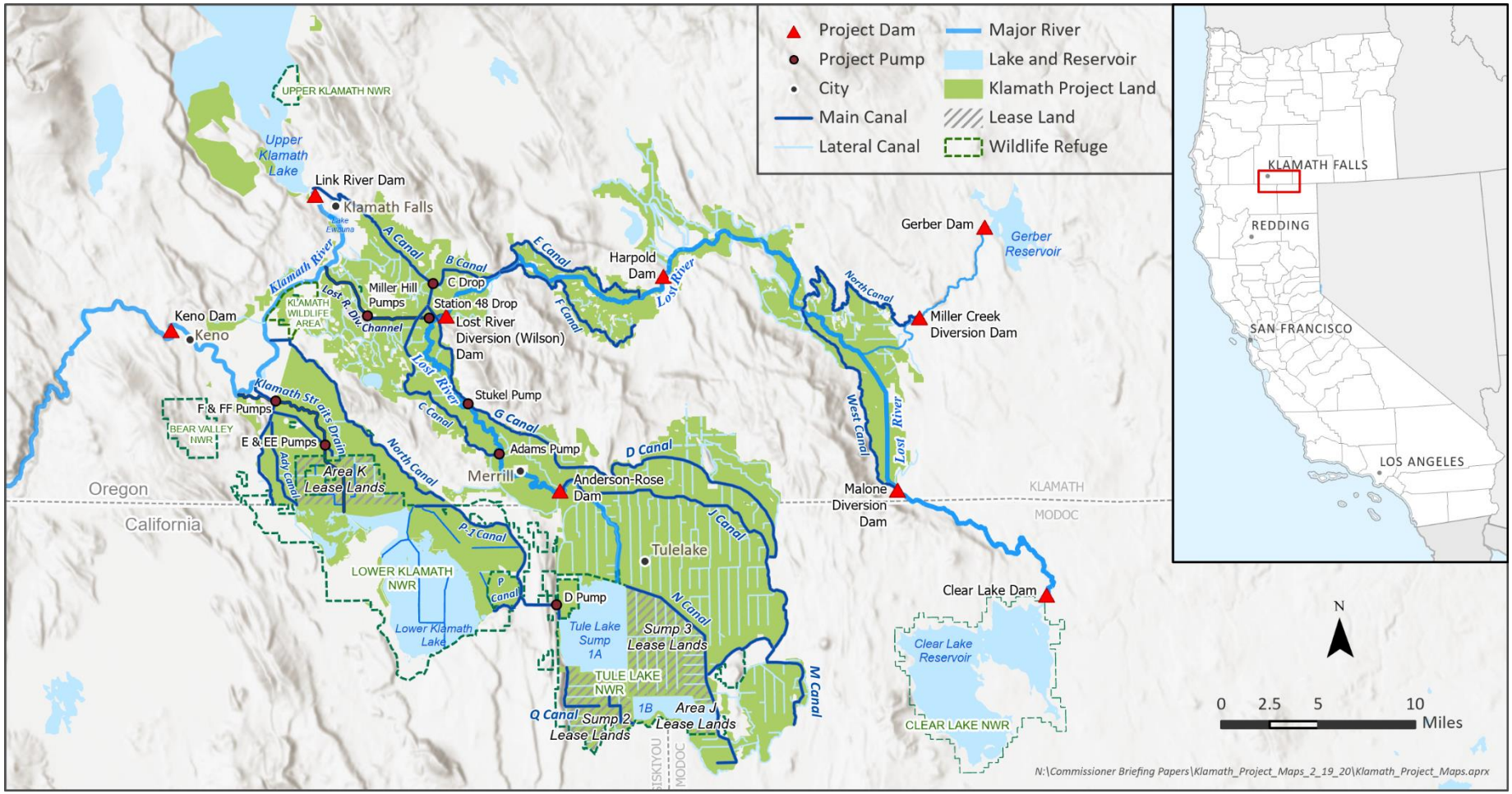
USFWS. 2020. Biological Opinion on the Effects of the Proposed Interim Klamath Project Operations Plan, effective April 1, 2020, through September 30, 2022, on the Lost River Sucker and the Shortnose Sucker. Klamath Falls, Oregon

USGS. 2018. Upper Klamath Basin Groundwater Studies. Website: https://www.usgs.gov/centers/or-water/science/upper-klamath-basin-groundwater-studies?qt-science_center_objects=0#qt-science_center_objects

Section 6 Appendices

Appendix A: Maps – Klamath Basin and Project and Relevant National Wildlife Refuges




Project Dam
Project Pump
City
Main Canal
Lateral Canal
Major River
Lake and Reservoir
Klamath Project Land
Lease Land
Wildlife Refuge
UPPER KLAMATH NWR
Upper Klamath Lake
Link River Dam
Klamath Falls
Lake Ewauna
Klamath River
A Canal
B Canal
C Drop
Miller Hill Pumps
Station 48 Drop
Lost R. Div. Channel
KLAMATH WILDLIFE AREA
Lost River Diversion (Wilson) Dam
Keno Dam
Keno
E Canal
F Canal
Harpold Dam
Lost River
Gerber Dam
Gerber Reservoir
North Canal
Miller Creek Diversion Dam
West Canal
Lost River
Malone Diversion Dam
Klamath Straits Drain
F & FF Pumps
BEAR VALLEY NWR
E & EE Pumps
Ady Canal
North Canal
Area K Lease Lands
C Canal
Stukel Pump
G Canal
Adams Pump
Merrill
D Canal
Anderson-Rose Dam
J Canal
Tulelake
Oregon
California
KLAMATH
MODOC
P-J Canal
LOWER KLAMATH NWR
P Canal
D Pump
Lower Klamath Lake
N Canal
Tule Lake Sump 1A
Sump 3 Lease Lands
TULE LAKE NWR
1B
Area J Lease Lands
Q Canal
Sump 2 Lease Lands
M Canal
Clear Lake Dam
Clear Lake Reservoir
CLEAR LAKE NWR
SISKIYOU
MODOC
KLAMATH FALLS
REDDING
SAN FRANCISCO
LOS ANGELES
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Miles
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Appendix B: Cultural Resources Coordination and Consultation

CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (CGB-153)

CGB-153 Tracking Number: 20-KBAO-178

Project Name: Water Acquisitions for Upper Klamath Lake Fish and Wildlife Purposes

NEPA Document: CGB-EA-2020-019

NEPA Contact: Amanda Babcock, Natural Resources Specialist

CGB 153 Cultural Resources Reviewer: Melissa Ivie, Regional Cultural Resources Officer MI

Date: June 19, 2020

The Bureau of Reclamation is proposing to acquire Klamath Project water from the Drought Response Agency (DRA) and use it for maintaining water surface elevations in Upper Klamath Lake (UKL) for the benefit of endangered Lost River and shortnose suckers through the summer and early fall. Reclamation determined the proposed action constitutes a Federal undertaking, as defined at 36 CFR § 800.16(y), that has no potential to cause effects on historic properties pursuant to 36 CFR § 800.3(a)(1). As such, Reclamation has no further obligations under Title 54 U.S.C. 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA).

Under the Proposed Action, Reclamation would acquire up to 20,000 acre-feet of water under Contract No. 20-WC-20-5651 with the DRA, for use for fish and wildlife purposes in UKL. The DRA would make this water available to Reclamation by foregoing diversions of water discharged from the Lost River Diversion Channel (LRDC) and Klamath Straits Drain (KSD). Water in the LRDC and KSD is otherwise available for diversion for irrigation use within the Klamath Project between March 1 and September 30, consistent with the Interim Operating Procedures described and analyzed in the *Implementation of Klamath Project Interim Operating Procedures 2020-2023* Environmental Assessment. Reclamation's action is administrative in nature and there will be no change to historic operations in UKL. No new construction or modification of existing facilities would occur in order to complete the Proposed Action. The proposed action will have no impacts on cultural resources. I have reviewed the draft environmental assessment CGB-EA-2020-019 and based on analysis of the project activities, I concur that the proposed action would have no significant impacts on properties listed, or eligible for listing on the National Register of Historic Places.

This document conveys the completion of the NHPA Section 106 process and cultural resources review for this undertaking. Please retain a copy in the administrative record for this action. Should the proposed action change, additional NHPA Section 106 review, possibly including consultation with the California and/or Oregon State Historic Preservation Officer, may be necessary.

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Appendix C: Indian Trust Asset Coordination and Consultation

Indian Trust Assets Request Form
(Interior Region 10 – California Great Basin)

Submit your request to your office's ITA designee or to CGB-400, attention Deputy Regional Resources Manager.

Date: 6/17/2020

Requested by (office/program)	Amanda Babcock, Natural Resource Specialist Student Trainee, Klamath Basin Area Office
Fund	20XR0680A1
WBS	RX.001261M0.2000000
Fund Cost Center	25320000
Region # (if other than IR10-CGB)	
Project Name	Water Acquisitions for Upper Klamath Lake Fish and Wildlife Purposes
CEC or EA Number	KBAO-2020-EA-008
Project Description	The Klamath Basin is currently experiencing severe drought conditions, according to the United States Drought Monitor. Precipitation since October 1, 2019 has been 67 percent of average. The forecasted June through September inflow to UKL, the largest water source for the Klamath Project, is 82,000 acre-feet (AF), which is approximately 50 percent of average. Due to the severe drought conditions, the anticipated water supply available to the Klamath Project from UKL during the spring/summer irrigation season is 140,000 AF, approximately one-third historical irrigation demand. Additionally, flows in the Klamath River for threatened coho salmon (*Oncorhynchus kisutch*) are anticipated to require approximately 423,000 AF to be released from UKL between March 1 and September 30. These demands, combined with low inflows, are expected to result in water surface elevations in UKL being at or near levels that the U.S. Fish and Wildlife Service (USFWS) has designated as critical to the continued existence of suckers. By letters dated March 10 and April 1, 2020 respectively, the Governors of the States of Oregon and California requested that Reclamation provide temporary drought assistance for the Klamath Basin in accordance with the Drought Relief Act. The Commissioner of Reclamation approved these requests on April 13, 2020.

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	Title I of the Drought Relief Act (43 U.S.C. §§2211-2215) authorizes Reclamation to purchase water from willing sellers and make water available for the purposes of protecting and restoring fish and wildlife resources, including mitigation losses, that occur as a result of drought conditions or the operation of a federal reclamation project during drought conditions. Given the current drought conditions and projected UKL elevations, Reclamation is proposing to acquire Project water from the DRA and use it for maintaining water surface elevations in UKL for the benefit of endangered Lost River and shortnose suckers through the summer and early fall. The purpose of increased water levels (above levels designated as critical by USFWS) is to provide benefits to suckers by providing additional wetland habitat and access to refugia during the late summer and early fall, when water quality in UKL will likely be impaired. Poor water quality and lack of access to refugia in the late summer and early fall period frequently results in localized fish mortality, including for suckers. Higher water levels in UKL also inundate additional wetland and riparian areas within Upper Klamath National Wildlife Refuge, providing additional benefits for other fish and wildlife. Under the Proposed Action, Reclamation would acquire up to 20,000 AF of water under Contract No. 20-WC-20-5651 with the DRA, for use for fish and wildlife purposes in UKL. The DRA would make this water available to Reclamation by foregoing diversions of water discharged from the Lost River Diversion Channel (LRDC) and Klamath Straits Drain (KSD). Water in the LRDC and KSD is otherwise available for diversion for irrigation use within the Klamath Project between March 1 and September 30, consistent with the Interim Operating Procedures described and analyzed in the Implementation of Klamath Project Interim Operating Procedures 2020-2023 Environmental Assessment. Under the Interim Operating Procedures, the effect of bypassing diversion of water discharged from the LRDC and KSD between March 1 and September 30 is that a comparable volume of water is not released from UKL. UKL water surface elevations are higher as a result of this additional water being retained in UKL. The mechanism for this operation is called the "UKL Credit" under the Interim Operating Procedures (see 2020 EA, Section 2.2.4) and ensures that a volume equal to the amount not diverted from the LRDC and KSD is retained in UKL through September 30. The additional water retained in UKL results in water surface elevations being higher than would otherwise occur. Since March 1 to present, the DRA's member districts have intentionally bypassed 9,013 AF of water from LRDC and KSD that was otherwise available for their diversion, resulting in water surface elevations presently being approximately 0.1 feet (ft) higher than would have otherwise occurred. If the full 20,000 AF is made available from the DRA and acquired by Reclamation and retained in UKL, the water surface elevation would be approximately 0.25 ft higher at the end of September than would

	otherwise occur. Based on current projections, the full 20,000 AF being retained in UKL through the UKL Credit mechanism would result in the lake being at 4,138.35 ft on September 30. According to USFWS, water surface elevations greater than or equal to 4,138.3 ft at the end of September provide some protection for adult suckers against hazardous water quality condition, by providing the fish access to Pelican Bay, where they can seek water quality refugia and better avoid predators. When water quality conditions become especially stressful, adult suckers have been documented seeking refuge in or near Pelican Bay, where springs provide cooler water and higher dissolved oxygen concentrations. Water acquired and initially used for fish and wildlife purposes in UKL may subsequently be delivered to the Refuges. This operation could occur with the stored water being released from UKL and re-diverted downstream at existing diversion works (i.e., Ady Canal and Lost River Diversion Channel). No new construction or modification of existing facilities would occur in order to complete the Proposed Action. Reclamation's action is administrative in nature and serves to optimize and provide operational flexibility with the use of limited water supplies in the Klamath Basin, given the severe drought conditions and current environmental concerns, interests, and resources values.
***Project Location (Township, Range, Section, e.g., T12 R5E S10, or Lat/Long cords, DD-MM-SS or decimal degrees). Include map(s)**	**Project Location**: The geographic scope of the Proposed Action is the Upper Klamath Basin starting at UKL, in Klamath County, Oregon, and Siskiyou and Modoc counties, California (see map in Exhibit B).

AMANDA BABCOCK Digitally signed by AMANDA BABCOCK Date: 2020.06.17 13:56:51 -07'00'

Signature

Amanda Babcock

Printed Name of Preparer

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ITA Determination:

As a portion of Reclamation's Klamath Project (Upper Klamath Lake as it relates to Reclamations proposed action) extends into the Klamath Tribal Designated Statistical Area of the Klamath Indian Tribe of Oregon, the proposed **Water Acquisitions for Upper Klamath Lake Fish and Wildlife Purposes** activity is also located within the **Klamath Tribal Designated Statistical Area (TDSA)** of the Klamath Indian Tribe of Oregon (see attached image in Exhibit A).

As the proposed action is administrative in nature and includes the acquisition of Klamath Project water from the Drought Response Agency for use in maintaining water surface elevations in Upper Klamath Lake for the benefit of endangered Lost River and shortnose suckers through the summer and early fall, no impacts to Indian hunting or fishing resources or water rights are anticipated, and it is reasonable to assume that the proposed activity **will not** have any impacts on ITAs.

KRISTEN HIATT Digitally signed by KRISTEN HIATT Date: 2020.06.17 14:43:38 -07'00'	Kristen Hiatt
Signature	Printed Name of Approver

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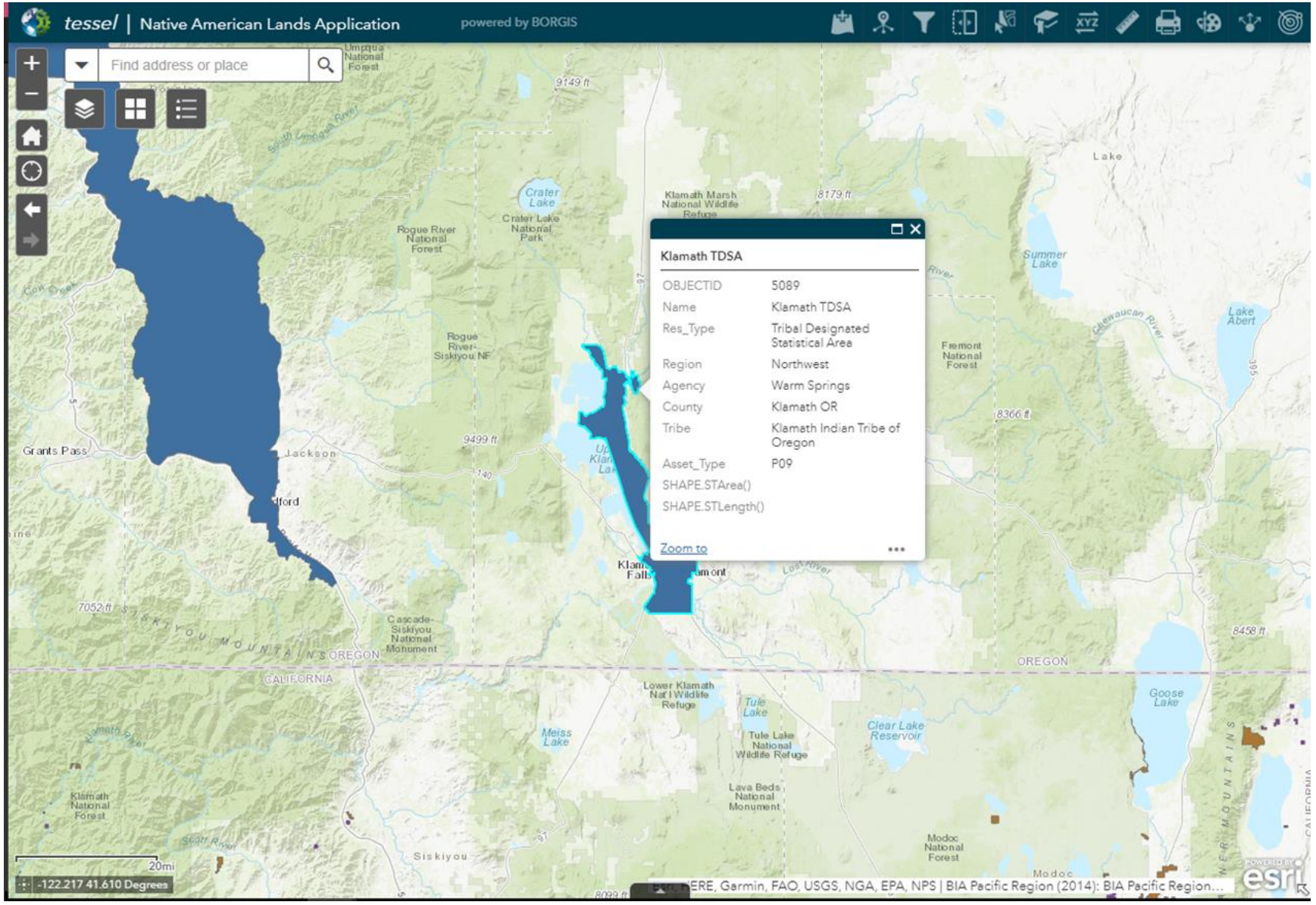
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Klamath Marsh National Wildlife Refuge
Fremont National Forest
Summer Lake
Lake Abert
Cascade-Siskiyou National Monument
Lower Klamath Nat'l Wildlife Refuge
Tule Lake National Wildlife Refuge
Clear Lake Reservoir
Goose Lake
Lava Beds National Monument
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