Draft Supplemental EIR

for the

Extension of the Yuba Accord Long-Term Water Transfer Program

State Clearinghouse No. 200506211

YUBA WATER AGENCY

April 2024

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EXECUTIVE SUMMARY

ES 1 INTRODUCTION

This executive summary is provided in accordance with the State CEQA Guidelines Section 15123. As stated in Section 15123(a), "an EIR [environmental impact report] shall contain a brief summary of the proposed action and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required, this chapter includes (1) a summary description of the previously approved Lower Yuba River Accord (Yuba Accord) and the Proposed Extension of the Yuba Accord Long-term Water Transfer Program (Proposed Extension), (2) a synopsis of environmental impacts (Table ES-1), (3) identification of the alternatives evaluated and of the environmentally superior alternative, and (4) a discussion of the areas of controversy associated with the Proposed Extension.

ES 2 SUMMARY DESCRIPTION OF THE PROPOSED PROJECT

The Yuba County Water Agency (Yuba Water) proposes to continue the Yuba Accord Long-term Water Transfer Program (Water Transfer Program) beyond its current expiration date of December 31, 2025.

ES 2.1 Background

LOWER YUBA RIVER ACCORD

The Yuba Accord is a comprehensive settlement that implements a set of collaboratively developed, science-based instream flow requirements which protect and enhance fisheries and aquatic resources and enhance local and state-wide water supply reliability. Yuba Water certified a detailed EIR (State Clearinghouse No. 200506211; Yuba Water et al. 2007) analyzing the environmental effects of the Yuba Accord in 2007 and implemented the Yuba Accord in 2008.

The Yuba Accord originally consisted of three separate but related agreements: (1) the Agreement for Long-Term Purchase of Water from Yuba Water by the Department of Water Resources (DWR), dated December 4, 2007, as amended by Amendment Nos. 1-7 (the Yuba Water/DWR Water Purchase Agreement [Water Purchase Agreement]); (2) the Lower Yuba River Agreement for the Conjunctive Use of Surface and Groundwater Supplies between Yuba Water and each of the Yuba Water Member Units (water and irrigation districts and companies), as amended by Amendment Nos. 1-7 (the Yuba Water/Member Units Conjunctive Use Agreements [Conjunctive Use Agreements]); and (3) the Lower Yuba River Fisheries Agreement dated November 5, 2007 (effective March 18, 2008) among Yuba Water, California Department of Fish and Game (now California Department of Fish and Wildlife [CDFW]), South Yuba River Citizens League, Friends of the River, Trout Unlimited, and The Bay Institute (the Fisheries Agreement).

The 2007 Yuba Accord agreements as well as other elements of the Yuba Accord are summarized in Chapter 2, "Description of the Proposed Project."

EXISTING YUBA ACCORD LONG-TERM WATER TRANSFER PROGRAM

The existing Water Transfer Program consists of (1) storage water transfers of up to 200,000 acre-feet per year; (2) groundwater substitution water transfers of up to 90,000 acre-feet per year and up to 180,000 acre-feet in a three-year period; (3) rediversion of transfer water at authorized points of rediversion (PORDs) (State Water Project [SWP] and Central Valley Project [CVP] Delta export facilities, San Luis Dam at San Luis Reservoir, Freeport Regional Water Facility, and (as approved in the last three years for one-year transfers) Contra Costa Water District [CCWD] intakes); (4) use of transfer water within the SWP and CVP service areas; and (5) use of transfer water for authorized purposes of use (irrigation and municipal uses). The existing Water Transfer Program is operated through: (1) the Water Purchase Agreement; (2) the Conjunctive Use Agreements; and (3) the Yuba Water/CCWD/East Bay Municipal Utilities

District (EBMUD) Water Transfer Option Agreement (Water Transfer Option Agreement), and will expire on December 31, 2025, consistent with Corrected Order WR 2008-0014.

ES 2.2 Previous CEQA Documentation

The Lower Yuba River Accord EIR, first approved in 2007, has been updated and amended through five addenda adopted in 2014, 2016, and 2022. A summary of these documents is provided in Chapter 1, "Introduction," and they are incorporated by reference into this supplemental environmental impact report (SEIR), consistent with State CEQA Guidelines Section 15150 (see Section 1.8, "Incorporation by Reference").

ES 2.3 Project Objectives

The objectives of the Proposed Extension are to:

1. continue to support the existing level of water supply reliability throughout the state provided by the supplemental water for contractors of the CVP and the SWP, and other potential transferees consistent with the Water Purchase Agreement;
2. continue to facilitate responsible management of groundwater supplies consistent with the *Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan* (Yuba Water et al. 2019) through active coordination under the Conjunctive Use Agreements; and
3. continue to generate long-term, predictable revenue for Yuba Water's various projects and programs, such as its programs to replace aging wastewater infrastructure in Yuba County's Disadvantaged Communities.

ES 2.4 Description of the Proposed Extension

Yuba Water proposes to extend the Water Transfer Program beyond December 31, 2025, with comparable terms as the existing agreements, which include: (1) the Water Purchase Agreement; (2) the Yuba Water/CCWD/EBMUD Water Transfer Option Agreement; (3) the Conjunctive Use Agreements; and (4) the terms and conditions imposed in SWRCB Corrected Order WR 2008-0014 and subsequent Yuba Accord water transfer change petitions approved by the State Water Resources Control Board (SWRCB).

The Proposed Extension will include the following components:

- an agreement between Yuba Water and DWR to extend the term of the Water Purchase Agreement through 2050;
- an agreement among Yuba Water, CCWD, and EBMUD to extend the term of the Water Transfer Option Agreement through 2050;
- agreements among Yuba Water and its Member Units to extend the term of the Conjunctive Use Agreements through 2050; and
- petitioning the SWRCB to extend approval of the existing places of use, purposes of use, and points of rediversion, including the three CCWD Delta intakes as long-term places of use and PORDs, respectively, for the Water Transfer Program through 2050.

As reflected by this list, the Proposed Extension is a continuation of the Water Transfer Program, beyond December 31, 2025, under its existing provisions. Although no substantial changes to the Water Transfer Program are proposed, Yuba Water, as lead agency, has chosen to prepare this SEIR to evaluate the potential environmental effects of the Proposed Extension.

LOCATION AND PLACE OF USE UNDER THE PROPOSED EXTENSION

The Proposed Extension would not result in any changes to the areas encompassed by the Yuba Accord, as modified to date. The Water Transfer Program would continue to encompass the same area as the Yuba Accord's original Water Purchase Agreement, as modified by subsequent addenda adopted by Yuba Water and change petitions approved by the SWRCB.

OTHER COMMITMENTS AS FEATURES OF THE PROPOSED EXTENSION

With certification of the 2007 EIR, approval of the Yuba Accord, and execution of the Water Purchase Agreement and Conjunctive Use Agreements, Yuba Water adopted mitigation measures and made other project commitments to minimize potential impacts associated with implementation of the Yuba Accord. These mitigation measures and project commitments, which are listed below and described in Chapter 2, "Description of the Proposed Project," have been implemented under the Yuba Accord since its inception and in some cases, well before the Yuba Accord was established, and they will be included as part of the agreements and petition to the SWRCB for continued implementation under the Proposed Extension of the Water Transfer Program. These include:

- carriage water,
- New Bullards Bar Reservoir refill,
- Yuba Subbasins groundwater monitoring and adaptive management,
- Third-Party Impacts Action Plan, and
- certification of no net impact to air quality from groundwater substitution transfers.

In addition, the application of a streamflow depletion factor to offset the potential effects of streamflow depletion on downstream water supplies due to groundwater substitution transfer pumping has been applied as part of groundwater substitution transfers throughout the Sacramento Valley for the past several years and will also be included as part of the agreements and petition to the SWRCB for implementation under the Proposed Extension of the Water Transfer Program.

ES 3 ENVIRONMENTAL IMPACTS

CEQA allows a lead agency to limit the detail of discussion of the environmental effects that are not considered potentially significant (PRC Section 21100, CCR Sections 15126.2[a] and 15128). CEQA requires that the discussion of any significant effect on the environment be limited to substantial, or potentially substantial, adverse changes in physical conditions that exist within the affected area, as defined in PRC Section 21060.5 (statutory definition of "environment"). The Draft SEIR evaluates the potential impacts of the Proposed Extension in the following environmental impact areas:

- Surface Water Supply and Management
- Groundwater Resources
- Fisheries and Aquatic Resources
- Surface Water Quality

As described in Section 3.1, "Approach to the Environmental Analysis," other resource areas were determined not to result in significant effects on the environment. Table ES-1, presented at the end of this chapter, provides a summary of the environmental impacts of the Proposed Extension. As shown in the table, there would be no significant or potentially significant impacts associated with the Proposed Extension.

ES 4 ALTERNATIVES

The State CEQA Guidelines Section 15126.6 mandates that all EIRs include a comparative evaluation of the proposed project with alternatives to the project that are capable of attaining most of the project's basic objectives but that would avoid or substantially lessen any of the significant effects of the project. CEQA requires an evaluation of a "range of reasonable" alternatives, including the "no project" alternative.

Sections 3.2 through 3.5 of this Draft SEIR address the potential environmental impacts of implementation of the Proposed Extension. As described in Chapter 5, "Alternatives," potentially feasible alternatives are typically developed with consideration of avoiding or lessening the significant, and potentially significant, adverse impacts of a proposed project. However, as described in this SEIR, there would be no significant impacts associated with the Proposed Extension. Therefore, there would be no such impacts to avoid or lessen through implementation of alternatives.

ES 4.1 Update to Alternatives Addressed in the 2007 EIR

The 2007 EIR evaluated four alternatives: the Yuba Accord Alternative (Proposed Project/Proposed Action), Modified Flow Alternative, No Project Alternative (as defined by CEQA), and No Action Alternative (as defined by NEPA). At the conclusion of the environmental review process, the Yuba Accord Alternative was approved and has been implemented by Yuba Water since 2008 (see Chapter 2, "Description of the Proposed Project," for additional details regarding the background and elements of the Yuba Accord).

As evaluated in the 2007 EIR, the No Project Alternative represented then-current (2007) environmental conditions as well as potential operational and environmental conditions that may have occurred in the near-term foreseeable future (2007 through 2025) if the Yuba Accord had not been implemented. Consistent with the State CEQA Guidelines Sections 15163(a)(2) and 15163(b), this SEIR updates the No Project Alternative, which assumes that the Water Transfer Program is not extended beyond December 31, 2025, to address existing, baseline conditions (2023) and reasonably foreseeable future conditions to make the 2007 EIR adequate to address the proposed extension. (This SEIR is not a NEPA document and, thus, does not include a NEPA No Action Alternative.)

ES 4.2 No Project Alternative

Under the State CEQA Guidelines, the No Project Alternative includes the existing conditions at the time the Notice of Preparation (NOP) is published together with reasonably expected conditions in the foreseeable future if the proposed project were not approved. Here, if the Proposed Extension is not approved, Yuba Water would continue to operate in the same way under the terms of its water rights permits and Federal Energy Regulatory Commission (FERC) annual licenses (until the Yuba River Development Project [YRDP] relicensing is completed) and would continue to have water available for transfer under certain conditions. Consequently, the only possible differences between the existing conditions and the No Project Alternative would likely be minor and would include: (1) ability to convey Yuba Accord transfer water through Delta Export facilities, (2) potential buyers receiving the transfer water, and (3) points of rediversion used to deliver the transfer water.

As explained in Section 5.4.1, "Consideration of a No-Transfer Alternative," an additional no-project scenario, in which the Water Board would not approve one-year Yuba Accord water transfers, was briefly considered but ultimately determined not to be reasonably foreseeable.

ES 4.3 Environmentally Superior Alternative

As discussed throughout this SEIR, the Proposed Extension is not a new project. Rather, it is a continuation of a component of an existing program that was approved based on the 2007 EIR. The Yuba Accord has been implemented since 2008 and is part of the existing (2023) baseline. See Section 3.1.2, "Baseline," for a description of the existing environmental conditions as they relate to this SEIR. Further, as described in this SEIR, there would be no

significant impacts associated with the Proposed Extension, so there would be no significant adverse impacts to avoid or lessen through implementation of alternatives.

The Proposed Extension would result in no impact or less-than-significant impacts to all resources evaluated and discussed in this SEIR, and the No Project Alternative would result in substantially similar impacts to the Proposed Extension, for the reasons discussed above. The No Project Alternative would not avoid or reduce any significant impacts of the Proposed Extension because, as described in this SEIR, none would result. Additionally, although the No Project Alternative would achieve most of the basic objectives of the project, the No Project Alternative would result in a less reliable revenue stream for Yuba Water which may constrain Yuba Water's ability to support its flood risk reduction, habitat enhancement, water supply, and other projects critical to achieving the agency's mission. Conversely, the Proposed Extension for the Water Transfer Program would result in a substantially more predictable revenue stream that would enable Yuba Water to plan for capital expenditures with greater certainty than under the No Project Alternative.

Because the Proposed Extension would not result in any worse or additional significant or potentially significant impacts compared to the No Project Alternative and in fact would result in additional environmental benefits that the No Project Alternative would not achieve, the Proposed Extension is the environmentally superior alternative.

ES 5 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

An NOP was distributed for the Proposed Extension on January 12, 2023, to responsible agencies, interested parties, and organizations, as well as private organizations and individuals that may have an interest in the Proposed Extension. Two public scoping meetings were held on February 7, 2023 (in person) and February 9, 2023 (virtual). Additionally, a copy of the NOP was provided to the Delta Stewardship Council on August 18, 2023 because they were not previously included in the NOP distribution by the State Clearinghouse. The purpose of the NOP and the scoping meetings was to provide notification that an SEIR for was being prepared for the Proposed Extension and to solicit input on the scope and content of the environmental document. The NOP and comments received on the NOP are included in Appendix A. Key concerns and issues that were expressed during the scoping process, included the following:

- type of CEQA document to prepare for the Proposed Extension (e.g., SEIR or new EIR),
- changed regulatory and physical conditions since certification of the 2007 EIR,
- alternatives to the Proposed Extension,
- potential effects of the Proposed Extension on surface water and groundwater,
- potential effects of the Proposed Extension on fish and wildlife species, and
- potential cumulative effects of the Proposed Extension.

The substantive environmental issues raised in the NOP comment letters and the scoping meetings have been addressed or otherwise considered during preparation of this Draft SEIR.

Table ES-1 Summary of Environmental Impact Analysis of the Proposed Extension

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Surface Water Supply and Management			
Impact 3.2-1: Have a substantial adverse effect on surface water allocations to Yuba Water Member Units due to decreases in annual water supply or increases in flow requirements in the lower Yuba River	LTS	No mitigation is required for this impact.	LTS
Impact 3.2-2: Result in a substantial reduction in combined deliveries to south-of-Delta SWP (Table A) contractors due to decreases in the annual supply of available water to the SWP	LTS	No mitigation is required for this impact.	LTS
Impact 3.2-3: Result in a substantial reduction in combined deliveries to south-of-Delta CVP water service contractors and refuges due to decreases in the annual supply of available water to the CVP	LTS	No mitigation is required for this impact.	LTS
Impact 3.2-4: Have a substantial adverse effect on CCWD's ability to fill Los Vaqueros Reservoir due to increases in the movement of X2 location west of: (1) Chipps Island from February through May; and (2) Collinsville during December, January, and June	LTS	No mitigation is required for this impact.	LTS
Impact 3.2-5: Result in a substantial reduction in the duration of Delta excess conditions during the November to June period that adversely affects CCWD's ability to fill Los Vaqueros Reservoir	LTS	No mitigation is required for this impact.	LTS
Impact 3.2-6: Have a substantial adverse effect on south Delta water users' abilities to divert water due to reductions in water levels in the South Delta (e.g., Old River and Middle River), relative to the baseline	LTS	No mitigation is required for this impact.	LTS
Impact 3.2-7: Result in a substantial reduction in reservoir levels that may adversely affect water deliveries to the San Felipe Division or impact allocations to SWP and CVP contractors	LTS	No mitigation is required for this impact.	LTS
Groundwater Resources			
Impact 3.3-1: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in chronic lowering of groundwater levels, indicating a significant and unreasonable depletion of supply	LTS	No mitigation is required for this impact.	LTS
Impact 3.3-2: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact 3.3-3: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in significant and unreasonable land subsidence that substantially interferes with surface land uses	LTS	No mitigation is required for this impact.	LTS
Impact 3.3-4: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water	LTS	No mitigation is required for this impact.	LTS
Fisheries and Aquatic Resources			
Impact 3.4-1: Have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS or USFWS	LTS	No mitigation is required for this impact.	LTS
Impact 3.4-2: Interfere substantially with the movement of any native resident or migratory fish species, or impede the use of native nursery sites	LTS	No mitigation is required for this impact.	LTS
Impact 3.4-3: Substantially reduce the habitat of a fish species; cause a fish population to drop below self-sustaining levels; threaten to eliminate a fish community; or substantially reduce the number or restrict the range of special-status fish species	LTS	No mitigation is required for this impact.	LTS
Impact 3.4-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan	LTS	No mitigation is required for this impact.	LTS
Surface Water Quality			
Impact 3.5-1: Violate any water quality standards or waste discharge requirements, degrade existing water quality such that beneficial use impairment would be made discernibly worse, or otherwise substantially degrade surface water quality	LTS	No mitigation is required for this impact.	LTS
Impact 3.5-2: Conflict with or obstruct implementation of a water quality control plan	LTS	No mitigation is required for this impact.	LTS
Impact 3.5-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces	LTS	No mitigation is required for this impact.	LTS
Impact 3.5-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant PS = Potentially significant S = Significant SU = Significant and unavoidable

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TABLE OF CONTENTS

Appendices

Figures

Tables

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LIST OF ABBREVIATIONS

8RI	January Eight River Index
AFB	Airforce Base
ATL	Advisory Tissue Level
Bay-Delta Plan	1995 Bay-Delta Water Quality Control Plan
Bay-Delta	Sacramento-San Joaquin Rivers Delta and San Francisco Bay
BO	Biological Opinion
BVID	Browns Valley Irrigation District
BWD	Brophy Water District
CCR	California Code of Regulations
CCWD	Contra Costa Water District
CDFW	California Department of Fish and Wildlife
CDHS	California Department of Health and Safety
cfs	cubic feet per second
CID	Cordua Irrigation District
COA	Coordinated Operation Agreement
CRHR	California Register of Historic Resources
CVP	Central Valley Project
CWA	Clean Water Act
DBP	disinfection byproduct
DCMWC	Dry Creek Mutual Water Company
Delta	Sacramento-San Joaquin Delta
DWR	California Department of Water Resources
E/I	export/inflow
EBMUD	East Bay Municipal Utilities District
EPA	U.S. Environmental Protection Agency
ESA	California Endangered Species Act
Estuary	San Francisco Bay/Sacramento-San Joaquin River Delta Estuary
FEIR	Final Environmental Impact Report
FERC	Federal Energy Regulatory Commission
FRWA	Freeport Regional Water Authority
GDE	groundwater dependent ecosystem
GHG	greenhouse gas

gpm	gallons per minute
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
GWUDI	groundwater under the direct influence of surface water
HCP	habitat conservation plan
HIC	Hallwood Irrigation Company
HUR	Hydrogeologic Understanding Report
ITP	incidental take permit
LCWD	Linda County Water District
LOS	level of service
LSZ	low salinity zone
MCL	maximum contaminant level
mg/L	milligrams per liter
MRZ	Mineral Resources Zone
NCCAG	Natural Communities Commonly Associated with Groundwater
NCCP	natural community conservation plan
NGO	non-governmental organization
NGS	National Oceanic and Atmospheric Administration's National Geodetic Survey
NMFS	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NOP	notice of preparation
NRHP	National Register of Historic Places
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
OPUD	Olivehurst Public Utility District
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
PORD	point of rediversion
PRC	Public Resources Code
Proposed Extension	proposal to extend the Yuba Accord Long-Term Water Transfer Program
RD	Reclamation District
RD-1644	Revised Water Right Decision 1644
Reclamation	US Bureau of Reclamation
RMT	Yuba Accord River Management Team
RPA	Reasonable and Prudent Alternative
RWD	Ramirez Water District

RWQCB	regional water quality control board
SDWA	Safe Drinking Water Act
SEIR	supplemental environmental impact report
SGMA	Sustainable Groundwater Management Act
SLDMWA	San Luis & Delta-Mendota Water Authority
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWTR	Surface Water Treatment Rule
SYWD	South Yuba Water District
TAF	thousand acre-feet
THM	trihalomethane
TMDL	total maximum daily load
USFWS	U.S. Department of Fish and Wildlife
VMT	vehicle miles traveled
WWD	Wheatland Water District
X2	distance in kilometers from the Golden Gate, where salinity concentration in the Delta is 2 parts per thousand
YRDP	Yuba River Development Project
Yuba Accord	the existing approved Lower Yuba River Accord and related agreements and SWRCB orders
Yuba Subbasins GSP	*Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan*
Yuba Water	Yuba County Water Agency

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1 INTRODUCTION

1.1 BASIS OF ENVIRONMENTAL ANALYSIS

The Yuba County Water Agency (Yuba Water) proposes to continue the Water Transfer Program of the Lower Yuba River Accord (Yuba Accord) beyond its current expiration date of December 31, 2025 (Proposed Extension). In 2007, the Final EIR for the Yuba Accord (hereafter referred to as the "2007 EIR") was certified and the Yuba Accord was adopted by Yuba Water (Yuba Water et al. 2007).[1] Although no substantial changes to the Yuba Long-Term Accord Water Transfer Program (Water Transfer Program) (described in Chapter 2, "Description of the Proposed Project") are proposed, Yuba Water, as lead agency, has chosen to prepare a supplemental environmental impact report (SEIR) pursuant to the California Environmental Quality Act (CEQA, Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq.) to evaluate the potential environmental effects of the Proposed Extension.

1.2 PREVIOUS CEQA DOCUMENTATION

The Lower Yuba River Accord EIR, first approved in 2007, has been updated and amended through five addenda adopted in 2014, 2016, and 2022. The full content of the 2007 EIR and all addenda, summarized below, are hereby incorporated by reference into this SEIR, consistent with State CEQA Guidelines Section 15150 (see Section 1.8, "Incorporation by Reference").

1.2.1 Summary of Project Analyzed in 2007 EIR

The 2007 EIR analyzed environmental effects of the proposed Yuba Accord with the stated project purpose:

> …to resolve instream flow issues associated with operation of the Yuba River Development Project (Yuba Project) in a way that protects and enhances lower Yuba River fisheries and local water supply reliability. Additionally, YCWA has a goal to provide revenues for local flood control and water supply projects. and Reclamation and the California Department of Water Resources (DWR) have a goal to obtain water for the CALFED Bay/Delta Program (CALFED) to use for protection and restoration of Sacramento-San Joaquin Delta (Delta) fisheries and for improvements in statewide water supply reliability, including supplemental water for the Central Valley Project (CVP) and the State Water Project (SWP).

The 2007 EIR analyzed the then-proposed fishery flows and related activities, which were made permanent provisions of Yuba Water's water right permits by the State Water Resources Control Board (SWRCB) when it adopted Corrected Order WR 2008-0014, and these requirements remain in effect.

The 2007 EIR also analyzed actions specifically related to the Water Transfer Program, including: (1) storage water transfers of up to 200,000 acre-feet per year; (2) groundwater substitution water transfers of up to 90,000 acre-feet per year and up to 180,000 acre-feet in a three-year period; (3) rediversion of transfer water at the State Water Project (SWP) and Central Valley Project (CVP) Delta export facilities; (4) use of transfer water within the SWP and CVP service areas; and (5) use of transfer water for municipal use (in addition to other uses already authorized under Yuba Water's water right permits). Corrected Order WR 2008-0014 approved the Water Transfer Program through December 31, 2025.

The Storage Component Water of the Water Transfer Program is generated by three elements of the Yuba Accord: (1) the fishery flows, which are now permanently part of Yuba Water's water rights; (2) the Yuba Accord end-of-

[1] The 2007 document was prepared as an EIR/EIS pursuant to CEQA and the National Environmental Policy Act, with Yuba Water and the US Bureau of Reclamation (Reclamation) as lead state and federal agencies, respectively. However, a Record of Decision was never issued by Reclamation. Therefore, this Draft SEIR uses "2007 EIR" to refer to the original environmental document.

September target storage in New Bullards Bar Reservoir of 650,000 acre-feet; and (3) supplemental surface water transfers. The Groundwater Substitution Component Water of the Water Transfer Program is provided through a conjunctive use program of the Yuba Water Member Units[2].

The 2007 EIR analyzed the environmental effects of each of these transfer elements and included measures to reduce potential impacts to less than significant for: (1) groundwater substitution transfers; (2) changes in Yuba River outflow due to refilling of New Bullards Bar Reservoir after the release of transfer water; (3) applying a carriage water factor to address effects of exporting transfer water from the Delta; and (4) use of electric pumps for and certification of no net impact to air quality from groundwater substitution transfers. With the inclusion of these measures, all transfer-related environmental effects were identified as less than significant, except for an increase in electric power consumption due to increased pumping of groundwater for local supply and for transfer. The Yuba Water Board of Directors made a finding in support of a statement of an overriding consideration for the increase in electric power consumption, because in Yuba Water's view, "the environmental benefits of the Project will render the significant impacts acceptable."

Subsequently, as described below, the SWRCB approved adding the Freeport Regional Water Authority's (FRWA) intake on the Sacramento River at Freeport, San Luis Dam at San Luis Reservoir, and Contra Costa Water District's (CCWD's) Delta intakes as authorized points of rediversion (PORDs) for Yuba Accord transfer water.

1.2.2 Addendum No. 1

In 2014, Yuba Water adopted Addendum No. 1 to the 2007 EIR to support adding FRWA's Sacramento River intake at Freeport to Yuba Water's Water Right Permit 15026 as an additional PORD to enable transfers of Yuba Accord water to the East Bay Municipal Utility District (EBMUD). Addendum No. 1 analyzed transfers through the Freeport Regional Water Facility intake of up to 34,000 acre-feet of water per year, and up to 9,600 acre-feet per month. This is water that the California Department of Water Resources (DWR) could either not divert or not "back up" into Oroville Reservoir storage. DWR is precluded from exporting transfer water outside of the permitted period identified in biological opinions of the US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). Currently the "transfer window" is July through November. Normally, when Balanced Conditions exist in the Delta in the springtime, DWR reduces releases from Oroville Reservoir to "back up" the Yuba Accord transfer water into Oroville Reservoir. DWR is then able to reduce releases from Oroville Reservoir by taking advantage of the transfer water to meet Delta water quality requirements, resulting in a net gain in storage equal to the volume of transfer water from the Yuba River. Water backed into a CVP or SWP reservoir is defined as "Stored Released Transfer Water" in the Yuba Accord Water Purchase Agreement accounting. Historically, this has generally occurred in April, May, and June.

On June 9, 2014, SWRCB issued a Corrected Order Approving Yuba Water's Petition for Change on the Long-Term Transfer, which approved the addition of the Freeport Regional Water Facility intake as a PORD of Yuba Accord transfer water on Yuba Water's Permit 15026.

In its June 9, 2014 Corrected Order, SWRCB reiterated that "all existing terms and conditions of the subject permit remain in effect, as modified by … [RD 1644] and Corrected Order WR 2008-0014, except as temporarily amended by the following provisions." (Corrected Order Approving Petition for Change on Long-Term Transfer [June 9, 2014], p. 3.) These provisions added the FRWA point of diversion (Freeport Regional Water Facility Intake) as a PORD (through December 31, 2025) for the Water Transfer Program up to the specified limits. (*Id*., at pp. 3-4.)

[2] As described in Yuba Water et al. (2007), a Member Unit is any municipality, town, or district wholly or partially within or contiguous to Yuba Water that is empowered to appropriate and deliver water and which contracts with the agency for payment of construction costs or for delivery of water, as defined in Section 2(g) of the Yuba County Water Agency Act. Yuba Water provides surface water to eight Member Units, including: Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Dry Creek Mutual Water Company, Hallwood Irrigation Company, Ramirez Water District, South Yuba Water District, and Wheatland Water District.

1.2.3 Addendum No. 2

Addendum No. 2 to the 2007 EIR, adopted in January 2014, evaluated the addition of San Luis Dam at San Luis Reservoir as a temporary PORD to allow members of the San Luis & Delta-Mendota Water Authority (SLDMWA) to carry over Yuba Accord water that they purchased in 2013 into the 2014-2015 CVP contract year to augment their CVP water supplies during the drought. (Yuba Accord EIR Addendum No. 2, p. 2, section 1.1.)

Consistent with this Addendum, Yuba Water filed a temporary urgency change petition to implement the change. On February 14, 2014, SWRCB approved a temporary urgency change petition to temporarily add a PORD at San Luis Dam and storage of up to 7,400 acre-feet in San Luis Reservoir under Water Right Permit 15026. (Order Approving Temporary Urgency Change [February 14, 2014], p. 4.) The temporary order expired by its own terms after 180 days. (*Id*., p. 5.) Included within the ordering provisions was the language reflected in previous change orders, that "all existing terms and conditions of the subject permit remain in effect, as modified by … [RD 1644] and Corrected Order WR 2008-0014." (*Id*., p. 4.)

1.2.4 Addendum No. 3

Addendum No. 3 to the 2007 EIR, adopted in October 2014, evaluated the long-term addition of San Luis Dam as an authorized PORD for the Water Transfer Program. This addition was evaluated at the request of the US Bureau of Reclamation (Reclamation) because Reclamation determined that the change was necessary to allow CVP contractors to carry over Yuba Accord water to augment their CVP water supplies. (Yuba Accord EIR Addendum No. 3, p. 5, section 1.1.)

On February 25, 2015, SWRCB approved the petition for change on the Long-Term Transfer. The approval authorized a PORD at San Luis Dam under Water Right Permit 15026 until December 31, 2025. This approval also permits storage in the reservoir of up to 70,000 acre-feet by virtue of one or more Warren Act contracts between CVP contractors and Reclamation. (Order Approving Petition for Change on Long-Term Transfer (February 25, 2015), p. 4.) Similar to the other orders approving changes, this Order also expressly states that Yuba Water is to comply with all other requirements in RD 1644 and Corrected Order WR 2008-0014. (*Ibid*.)

1.2.5 Addendum No. 4

On December 5, 2014, Yuba Water and DWR executed Amendment No. 5[3] to the Yuba Accord Water Purchase Agreement. Under Amendment No. 5, Yuba Water can transfer up to 10,000 acre-feet per year of Yuba Accord transfer water to buyers other than participating CVP and SWP contractors. The transfer was inclusive of, not additive to, the total rediversion of Yuba Accord water addressed in Addendum No. 1. (Addendum No. 4, p. 7, section 3, fn. 2.)

Amendment No. 5 to the Yuba Accord Water Purchase Agreement calls this water the "Second Type of Third-Party Transfer." (Addendum No. 4, p. 2, section 1.1.) Addendum No. 4 to the 2007 EIR evaluated the impacts of water that could be the Second Type of Third-Party Transfer flowing to the FRWA intake and, if not rediverted there, being rediverted at the CVP's or the SWP's south Delta export diversions during the July-September period. (*Ibid*.)

In 2016, Yuba Water approved Addendum No. 4 to the 2007 EIR for the long-term transfer of up to 10,000 acre-feet of the Second Type of Third-Party Transfer to EBMUD at the Freeport Intake on the lower Sacramento River during the July-September period. (Addendum No. 4, p. 7, section 3, fn. 2.) EBMUD is a CVP contractor, and, thus, its service area is within the CVP's Place of Use, which is an authorized PORD for Yuba Accord transfer water.

This Addendum was prompted by EBMUD's interest in becoming a buyer of Yuba Accord transfer water. EBMUD is a member of the FRWA, which, as explained above, was added to Yuba Water's Water Right Permit 15026 in 2014 as a PORD to facilitate Yuba Accord transfers. (Addendum No. 4, p. 2, section 1.1.)

[3] The parties involved have previously amended the Water Purchase Agreement in 2009 (Amendment No. 1 and Amendment No. 2), 2010 (Amendment No. 3), and 2012 (Amendment No. 4). Each of these amendments were exempt from CEQA pursuant to State CEQA Guidelines Section 15301 (operation of existing facilities) and other applicable provisions of law.

1.2.6 Addendum No. 5

In 2020, California again began to experience severely dry conditions. Consequently, in water year 2022, Yuba Water entered into a one-year agreement with CCWD and EBMUD for the transfer of Yuba Accord water: (1) during the spring, to the extent that DWR determined it could not be used by the SWP and CVP participating contractors, and (2) up to 10,000 acre-feet of summer water. CCWD and EBMUD are both CVP contractors and, thus, their service areas are within the CVP's Place of Use, which is an authorized PORD for Yuba Accord transfer water.

Consistent with Amendment 5 to the Yuba Accord Water Purchase Agreement, spring transfer water would be made available only if DWR determined it could not be used by the SWP and CVP participating contractors. In spring 2022, the SWRCB issued an order authorizing CCWD's Delta Intakes as additional PORDs for Accord transfer water through December 31, 2022.

Due to continued dry conditions, Yuba Water, CCWD, and EBMUD decided to extend their 2021 transfer agreement, which would require extending the SWRCB's approval of CCWD's Delta Intakes as PORDs for Accord transfer water under Permit 15026, through December 31, 2025. In 2022, Yuba Water approved Addendum No. 5 to the 2007 EIR, which analyzed the potential environmental impacts associated with the extension.

On December 21, 2022, SWRCB approved the petition for temporary change involving the transfer of up to 25,000 acre-feet of water to CCWD. The approval authorized three PORDs—at the Rock Slough Intake, Old River Intake, and Middle River Intake—under Water Right Permit 15026 until December 31, 2025. Similar to the other orders approving changes, this Order also expressly states that Yuba Water is to comply with all other requirements in RD 1644 and Corrected Order WR 2008-0014.

1.3 PURPOSE AND INTENDED USES OF THIS DRAFT SUPPLEMENTAL EIR

As previously stated, Yuba Water certified the Final EIR for the Yuba Accord in 2007 and updated and amended it through five addenda adopted in 2014, 2016, and 2022. CEQA and the State CEQA Guidelines describe the conditions under which a lead agency must prepare additional documentation for a project after certifying the initial EIR. State CEQA Guidelines Sections 15162 and 15163 provide criteria for determining whether a subsequent or supplemental EIR should be prepared when there are modifications to a project and Section 15164 provides criteria for determining when an addendum to an EIR is appropriate to address modifications to a project.

A lead agency may choose to prepare a supplement to a previously certified EIR when any of the conditions calling for preparation of a subsequent EIR (State CEQA Guidelines Section 15162) are met, but "[o]nly minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation" (State CEQA Guidelines Section 15163[a]). The conditions described in Section 15162 are:

(1) Substantial changes are proposed to the project which require major revisions to the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which require major revisions to the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete was adopted, shows any of the following:

   (A) The project will have one or more significant effects not discussed in the previous EIR;

   (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

An addendum is appropriate when some changes or additions to a previously certified EIR are needed but none of the conditions above calling for preparation of a subsequent EIR have occurred (State CEQA Guidelines Section 15164[b]).

Authorizing the extension of the Water Transfer Program past December 31, 2025, does not involve any substantial changes to the project analyzed in the 2007 EIR, as revised through the succeeding five addenda. The Proposed Extension would involve no substantial changes to: (1) operation of New Bullards Bay Dam; (2) the ranges of annual volumes of transfer water; (2) authorized PORDs; (3) authorized places of use; or (4) authorized purposes of use, that were analyzed in the 2007 EIR and succeeding addenda. Thus, no significant adverse environmental effects that were outside of the scope of the 2007 EIR or subsequent addenda would occur as a result of the Proposed Extension.

The rediversion of transfer water under the Proposed Extension would continue to be subject to all applicable federal and California Endangered Species Act (ESA) requirements, including applicable biological opinions, incidental take permits and court orders, and any other conditions imposed by regulatory agencies applicable to rediversion of water at the authorized PORDs and use of water in authorized places of use.

Although the Proposed Extension of the Water Transfer Program would not result in any new significant effects or substantially more severe previously identified environmental effects, and only minor modifications to the 2007 EIR are needed to address changed conditions since the 2007 EIR was certified and the succeeding addenda adopted and the change to the project (i.e., extending past December 31, 2025), Yuba Water has decided to prepare this SEIR (supplement to the 2007 EIR) rather than an addendum to allow analysis in the context of changed conditions and to provide for public and agency input. Pursuant to State CEQA Guidelines Section 15087, a supplement to an EIR is required to be given the same kind of notice and public review as given to a draft EIR, whereas an addendum is not required to be circulated for public review (State CEQA Guidelines Section 15164[c]).

1.4 AGENCY ROLES AND RESPONSIBILITIES

Because it has the principal authority over approval or denial of the Proposed Extension, Yuba Water is the lead agency, as defined by CEQA, for this SEIR. Yuba Water has prepared this SEIR to provide the Yuba Water Board of Directors and management staff, public, responsible agencies, and trustee agencies with information about the potential environmental effects of the Proposed Extension. The SEIR examines potential impacts based on current conditions, as compared to the Yuba Accord that was approved and evaluated in the 2007 EIR and updated and amended by the five succeeding addenda. The SEIR is an informational document to be considered by Yuba Water, responsible and trustee agencies, and interested parties in evaluating the environmental impacts of the Proposed Extension and making informed decisions with respect to the permits and approvals required to approve and implement the Proposed Extension. Other public agencies with jurisdiction over the Proposed Extension are listed below. Changed conditions and new information that has become available since certification of the 2007 EIR are addressed in this SEIR in the analysis for each impact area.

This Draft SEIR will be used by Yuba Water and CEQA responsible and trustee agencies to ensure that they have met their requirements under CEQA before deciding whether to approve or permit elements over which they have jurisdiction. It may also be used by other state and local agencies that may have an interest in resources that could be affected by the Proposed Extension, or that have jurisdiction over portions of the Proposed Extension.

As the lead agency pursuant to CEQA, Yuba Water is responsible for considering the adequacy of the SEIR and determining whether or not to approve the Proposed Extension.

Under CEQA, a responsible agency is a public agency, other than the lead agency, that has responsibility to carry out or approve a project (PRC Section 21069). A trustee agency is a state agency that has jurisdiction by law over natural resources affected by a project, that are held in trust for the people of the State of California (PRC Section 21070). The following agencies may serve as responsible and trustee agencies for the Proposed Extension:

STATE

- California Department of Water Resources
- State Water Resources Control Board

LOCAL

- Contra Costa Water District
- East Bay Municipal Utility District
- Yuba Water Member Units that are public agencies (Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Ramirez Water District, South Yuba Water District, and Wheatland Water District)[4]

1.5 PUBLIC REVIEW PROCESS

1.5.1 Notice of Preparation

In accordance with PRC Section 21092 and CCR Section 15082, Yuba Water issued a Notice of Preparation (NOP) on January 12, 2023, to inform agencies and the general public that an SEIR was being prepared and to invite comments on the scope and content of the document (Appendix A). The NOP was submitted to the State Clearinghouse, which then distributed the NOP to potential responsible and trustee agencies; posted to Yuba Water's website (https://www.yubawater.org/157/Lower-Yuba-River-Accord); and posted with the applicable County Clerks. In addition, the NOP was distributed directly to public agencies (including potential responsible and trustee agencies), interested Native American Tribes, and individuals requesting to be notified. The NOP was circulated for a 45-day review period, with comments accepted through February 27, 2023.

In accordance with CCR Section 15082(c), two noticed scoping meetings for the SEIR occurred: an in-person meeting in Marysville on February 7, 2023 and a virtual meeting on February 9, 2023.

Additionally, a copy of the NOP was provided to the Delta Stewardship Council on August 18, 2023 because they were not previously included in the NOP distribution by the State Clearinghouse.

The purpose of an NOP is to provide sufficient information about a project and its potential environmental impacts to allow agencies, non-governmental organizations (NGOs), and interested parties the opportunity to provide a meaningful response related to the scope and content of the SEIR, including mitigation measures that should be considered and alternatives that should be addressed (CCR Section 15082[b]). Comments submitted in response to the NOP are used by the lead agency to identify broad topics to be addressed in the SEIR. Comments on environmental issues received during the NOP public comment period are considered and addressed in this Draft SEIR. Appendix A contains the NOP and comment letters submitted during the NOP public comment period.

[4] Dry Creek Mutual Water Company and Hallwood Irrigation District, which are also Yuba Water Member Units, are private corporations, not public agencies.

1.5.2 Public Review of this Draft Supplemental EIR

This Draft SEIR is being circulated for public review and comment for a period of 45 days, from April 5, 2024 to May 20, 2024.

During the public comment period, written comments from the public as well as organizations and agencies on the Draft SEIR's accuracy and completeness may be submitted to Yuba Water. Written and/or email comments should be provided at the earliest possible date but must be received by no later than 5:00 p.m. on May 20, 2024. Comments should be addressed to:

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F St, Marysville, CA 95901
Email: jlessard@yubawater.org

Agencies that will need to use the SEIR when considering permits or other approvals for the Proposed Extension should provide the name, phone number, and email address of a contact person.

The Draft SEIR is available for review during normal business hours at Yuba Water's office (1220 F St, Marysville, CA 95901) and is also available online at: https://www.yubawater.org/157/Lower-Yuba-River-Accord.

1.5.3 Final Supplemental EIR

Following public review of the Draft SEIR, a Final SEIR will be prepared that will include both written and oral comments on the Draft SEIR received during the public review period, responses to those comments, and any revisions to the Draft SEIR. The Final SEIR will consist of Draft SEIR and compendium of comments, responses, and revisions to the Draft SEIR.

Before taking action on the Proposed Extension, the lead agency is required to certify that the SEIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the SEIR, and that the SEIR reflects the independent judgment of the lead agency.

1.6 DRAFT SUPPLEMENTAL EIR ORGANIZATION

This Draft SEIR is organized as follows:

- The "Executive Summary" summarizes the contents and findings contained in this SEIR. It also presents a brief description of the Proposed Extension and alternatives, the public review procedures, the areas of known controversy, the issues to be resolved, and a summary of potential impacts, mitigation measures to reduce significant impacts, and the level of significance of each impact following mitigation (if any). The environmentally superior alternative is also identified.
- Chapter 1, "Introduction," provides an introduction and overview describing the intended use of the SEIR and the environmental review and certification process.
- Chapter 2, "Description of the Proposed Project," describes the background and elements of the Yuba Accord and the attributes of the Water Transfer Program extension, its objectives, location, and potential approvals and permits required.
- Chapter 3, "Environmental Impacts and Mitigation Measures," evaluates the expected environmental impacts generated by the Proposed Extension, arranged by subject area (i.e., Surface Water Supply and Management, Groundwater Resources, Fisheries and Aquatic Resources, and Surface Water Quality). Within each subsection of Chapter 3, the regulatory setting, environmental setting, thresholds of significance, and methodology are described. The anticipated changes to the existing conditions that occur as a result of implementing the

Proposed Extension are then evaluated for each subject area. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.2-1, Impact 3.2-2, etc.).

- Chapter 4, "Cumulative Impacts," provides information regarding potential cumulative impacts that would result from implementation of the Proposed Extension together with other past, present, and reasonably foreseeable probable future projects.
- Chapter 5, "Alternatives," evaluates alternatives to the Proposed Extension. The environmentally superior alternative is identified.
- Chapter 6, "Other CEQA Sections," provides a discussion of potential growth-inducing impacts, significant and unavoidable impacts, and significant and irreversible environmental changes.
- Chapter 7, "Report Preparers," identifies the individuals who contributed to preparation of this Draft SEIR.
- Chapter 8, "References," identifies the references used in preparation of this Draft SEIR.

1.7 STANDARD TERMINOLOGY

This Draft SEIR uses the following standard terminology:

- "No impact" means no change from existing conditions (no mitigation is needed).
- "Less-than-significant impact" means no substantial adverse change in the physical environment (no mitigation is needed).
- "Potentially significant impact" means an impact that might cause a substantial adverse change in the environment (mitigation is recommended because potentially significant impacts are treated as significant).
- "Significant impact" means an impact that would cause a substantial adverse change in the physical environment (mitigation is recommended).
- "Significant and unavoidable impact" means an impact that would cause a substantial adverse change in the physical environment and that cannot be avoided, even with the implementation of all feasible mitigation.
- "Mitigation Measure" means a measure that could feasibly avoid, minimize, or compensate for a significant impact. Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Compliance with adopted codes, state and federal laws, or other regulations, including potential actions to achieve such compliance, may be sufficient mitigation in instances in which compliance would be reasonably expected to avoid, minimize, or compensate for the environmental impact.

1.8 INCORPORATION BY REFERENCE

In accordance with Section 15150 of the State CEQA Guidelines, this Draft SEIR incorporates the following documents by reference:

Yuba County Water Agency, California Department of Water Resources, and Bureau of Reclamation. 2007a (June). *Draft Environmental Impact Report/Environmental Impact Statement for the Proposed Lower Yuba River Accord*. State Clearinghouse No. 2005062111. Marysville, CA. Prepared by HDR | Surface Water Resources, Inc., Sacramento, CA.

———. 2007b (October). *Final Environmental Impact Report/Environmental Impact Statement for the Proposed Lower Yuba River Accord*. State Clearinghouse No. 2005062111. Marysville, CA. Prepared by HDR | Surface Water Resources, Inc., Sacramento, CA.

Yuba County Water Agency. 2014a (January). *Lower Yuba River Accord Environmental Impact Report Addendum No. 1*. State Clearinghouse No. 2005062111. Marysville, CA. Prepared by HDR, Sacramento, CA.

———. 2014b (January). *Lower Yuba River Accord Environmental Impact Report Addendum No. 2*. State Clearinghouse No. 2005062111. Marysville, CA. Prepared by HDR, Sacramento, CA.

———. 2014c (October). *Lower Yuba River Accord Environmental Impact Report Addendum No. 3*. State Clearinghouse No. 2005062111. Marysville, CA. Prepared by HDR, Sacramento, CA.

———. 2016 (January). *Lower Yuba River Accord Environmental Impact Report Addendum No. 4*. State Clearinghouse No. 2005062111. Marysville, CA. Prepared by HDR, Sacramento, CA.

———. 2022 (October). *Addendum No. 5 to Lower Yuba River Accord Environmental Impact Report*. State Clearinghouse No. 2005062111. Marysville, CA. Prepared by HDR, Sacramento, CA.

These documents are referenced, and elements are discussed and summarized throughout this Draft SEIR. Copies of each of these documents are available online at Yuba Water's website (https://www.yubawater.org/157/Lower-Yuba-River-Accord).

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2 DESCRIPTION OF THE PROPOSED PROJECT

The Yuba County Water Agency (Yuba Water) is proposing to continue the Lower Yuba River Accord (Yuba Accord) Long-Term Water Transfer Program (Water Transfer Program) beyond its current expiration date of December 31, 2025 (Proposed Extension). Although no substantial changes to the Water Transfer Program are proposed by Yuba Water, the agency has chosen to prepare a supplemental environmental impact report (SEIR) pursuant to the California Environmental Quality Act (CEQA, Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq.) to evaluate the potential environmental effects of the Proposed Extension.

This chapter describes the background and elements of the Yuba Accord, the elements of the Yuba Accord that comprise the Water Transfer Program, and the attributes of the Proposed Extension, including its objectives, location, and potential approvals and permits required.

2.1 BACKGROUND

2.1.1 Lower Yuba River Accord

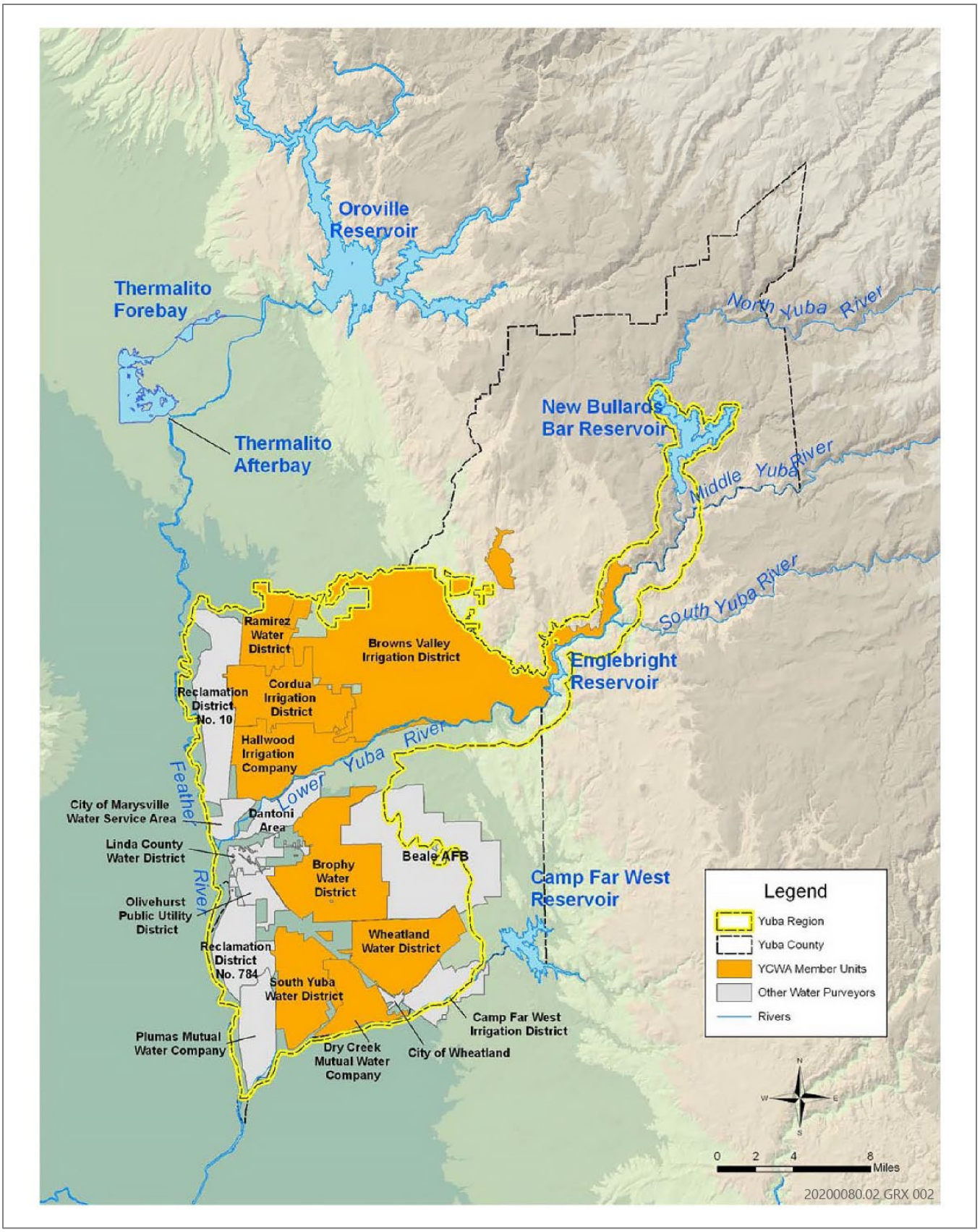
The Yuba Accord is a comprehensive settlement that implements a set of collaboratively developed, science-based instream flow requirements to protect and enhance fisheries and aquatic resources, and improve local and state-wide water supply reliability. Yuba Water spent years developing the Yuba Accord in coordination with federal, state, and local agencies; non-governmental organizations (NGOs); and other interested parties. Yuba Water certified a detailed EIR (State Clearinghouse No. 2005062111) analyzing the environmental effects of the Yuba Accord in 2007 and implemented the Yuba Accord in 2008.[1]

The Yuba Accord originally consisted of three separate but related agreements: (1) the Agreement for Long-Term Purchase of Water from Yuba Water by the Department of Water Resources (DWR), dated December 4, 2007, as amended by Amendment Nos. 1-7 (the Yuba Water/DWR Water Purchase Agreement [Water Purchase Agreement]); (2) the Lower Yuba River Agreement for the Conjunctive Use of Surface and Groundwater Supplies between Yuba Water and each of the Yuba Water Member Units (water and irrigation districts and companies, Figure 2-1)[2], as amended by Amendment Nos. 1-7 (the Yuba Water/Member Unit Conjunctive Use Agreements [Conjunctive Use Agreements]); and (3) the Lower Yuba River Fisheries Agreement dated November 5, 2007 (effective March 18, 2008) among Yuba Water, California Department of Fish and Game (now California Department of Fish and Wildlife [CDFW]), South Yuba River Citizens League (SYRCL), Friends of the River, Trout Unlimited, and The Bay Institute (the Fisheries Agreement).

The 2007 Yuba Accord related agreements may be found at https://www.yubawater.org/157/Lower-Yuba-River-Accord.

[1] Prior to implementation of the Yuba Accord, Yuba Water conducted two pilot programs, including petitions to modify the terms of Yuba Water's water right permits to change the effective date of the SWRCB's Revised Water Right Decision 1644's long-term instream flow requirements from April 21, 2006 to April 1, 2008, and individual one-year water transfers to DWR (pursuant to Water Code §1725). As such, the substantive elements of the Yuba Accord have been in place since 2006.

[2] The Member Units are Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Dry Creek Mutual Water Company, Hallwood Irrigation Company, Ramirez Water District, South Yuba Water District, and Wheatland Water District. Seven of the Member Units approved the Conjunctive Use Agreement in 2007. Cordua Irrigation District approved a Conjunctive Use Agreement with Yuba Water in 2021.



Source: Provided by Yuba Water in 2022; adapted by Ascent Environmental in 2022.

Figure 2-1 Yuba Water Member Units and Other Water Purveyors

SUMMARY OF THE YUBA WATER/DWR WATER PURCHASE AGREEMENT

The Yuba Water/DWR Water Purchase Agreement (Water Purchase Agreement) establishes the terms and conditions under which Yuba Water transfers and sells, to DWR and others, (1) stored water that is being released from New Bullards Bar Reservoir that is being released for instream flows on the lower Yuba River and (2) water from New Bullards Bar Reservoir made available through groundwater pumping by the Member Units in lieu of surface water diversions. Yuba Accord transfer water is provided from both storage releases of surface water from the reservoir and foregone surface water diversions resulting from groundwater substitution (referred to as conjunctive use). The transfers improve the water supply reliability for contractors of DWR and Reclamation, and for fish and wildlife purposes. The Water Purchase Agreement allows Yuba Water to transfer up to 200,000 acre-feet/year of Yuba Accord transfer water under Permit 15026 (Application 5632). The amount of annual transfer water made available by Yuba Water is based on hydrology, Bay-Delta conditions, the availability of capacity in SWP and CVP export facilities, water year type, groundwater conditions, scope of Member Unit participation, applicable flow schedules (specified by the Fisheries Agreement and the State Water Resources Control Board (SWRCB) Corrected Order WR 2008-0014), and anticipated SWP and CVP delivery allocations. DWR and Reclamation have separate agreements regarding allocation of these transfer supplies and other related matters, and each has separate individual agreements with their respective contractors regarding water allocation and delivery.

Yuba Accord transfer water includes stored surface water released from New Bullards Bar Reservoir every year to support instream flows on the lower Yuba River for fish and wildlife purposes, but that may also subsequently be transferred to buyers downstream of the Marysville Gage for municipal, industrial, or irrigation use (Storage Component Water). The Yuba Accord transfer water also includes surface water made available to buyers for municipal, industrial, or irrigation use through pumping of groundwater in lieu of surface water (consistent with the sustainable yield of the Yuba groundwater basin), in coordination with the Member Units under the Conjunctive Use Agreements (Groundwater Substitution Component Water). Groundwater Substitution Component Water, also referred to as groundwater substitution transfer water, can be up to 90,000 acre-feet in a dry year. These water transfer quantities are available consistent with the terms of the Water Purchase Agreement.

The Water Purchase Agreement also allows Yuba Water to transfer and sell up to 10,000 acre-feet/year of Yuba Accord transfer water to a third party (i.e., an agency, entity, or individual other than DWR, a participating SWP or CVP contractor, or a contractor's Member Unit, customer, or landowner) under certain circumstances. Yuba Water also may transfer and sell Yuba Accord water in excess of 10,000 acre-feet/year to a third party when DWR does not elect to take delivery of that water.

The Water Purchase Agreement includes detailed provisions about water delivery scheduling, monitoring, measuring, and accounting. The provisions govern the determination and measurement of the amount of Yuba Accord transfer water. They also provide that water is delivered only when it may be used by the SWP or CVP for beneficial uses. The water accounting provisions also ensure that refilling of Yuba Water reservoir storage, which is required following the delivery of Yuba Accord transfer water, will not adversely affect the SWP or CVP.

The Water Purchase Agreement expires on December 31, 2025, and thus, as discussed further below, is included in the Proposed Extension.

SUMMARY OF CONJUNCTIVE USE AGREEMENTS

The Conjunctive Use Agreements integrate operations of the Yuba River Development Project (YRDP)[3] and local groundwater supplies. The agreements enable the Member Units to pump groundwater as a substitute supply for Yuba Water surface water deliveries in dry years, which allows surface water to stay in New Bullards Bar Reservoir

[3] The YRDP consists of: (1) New Bullards Bar Dam and Reservoir; (2) Our House Diversion Dam; (3) Log Cabin Diversion Dam; (4) Lohman Ridge Diversion Tunnel; (5) Camptonville Diversion Tunnel; (6) New Colegate Powerhouse; (7) Narrows 2 Powerhouse; and (8) several recreational facilities; and serves multiple uses including hydropower, flood control, water supply, and environmental resources. The YRDP currently operates pursuant to the provisions of Federal Power Act License 2246 administered by the Federal Energy Regulatory Commission (FERC) issued May 16, 1963, and amended May 6, 1966.

during those years. Substitution of groundwater for surface water deliveries from New Bullards Bar Reservoir provides a supplemental dry year water supply to meet local irrigation needs and facilitates the release of stored surface water to meet instream flow requirements in the lower Yuba River. In Schedule 6 (very dry) years (as defined in the Fisheries Agreement), participating Member Units substitute 30,000 acre-feet of groundwater in place of surface water diversions to bolster surface water releases from New Bullards Bar Reservoir to meet the instream flow requirements.

The conjunctive use program also generates Groundwater Substitution Component Water for transfer under the Water Purchase Agreement. In dry and critical years, DWR and participating contractors will purchase from Yuba Water the surface water made available by the Member Units' use of groundwater as a substitute supply, and Yuba Water will compensate the participating Member Units from the water transfer revenues received from DWR. Pricing is negotiated and determined on a year-to-year basis (in years when there is a groundwater substitution transfer). The Conjunctive Use Agreements also provide for other compensation to and financial support of the participating Member Units.

The Conjunctive Use Agreements require that conjunctive use operations will be consistent with Yuba Water's groundwater management plan and ensure that groundwater pumping associated with the Yuba Accord will be within the sustainable yield of the groundwater aquifer to safeguard local agricultural, domestic, and municipal wells and groundwater dependent ecosystems and avoid undesirable results under the Sustainable Groundwater Management Act.

The Conjunctive Use Agreements expire on December 31, 2025, and thus, as discussed further below, are included in the Proposed Extension.

SUMMARY OF FISHERIES AGREEMENT

The Fisheries Agreement is a key component of the Yuba Accord. The Fisheries Agreement was developed and approved in collaboration with governmental fisheries agencies and environmental groups (the parties to the agreement are listed above in Section 2.1.1). The Fisheries Agreement requires Yuba Water to operate the YRDP in a manner that maintains instream flows in the lower Yuba River as specified in seven different flow schedules based on different water year types. These flows are designed to protect anadromous fish in the river. The instream flow requirements are based on the North Yuba Index, a water year index created by the agreement that is specific to the Yuba Accord. The agreement establishes six flow schedules and a seventh "conference year" schedule (for 1-in-100 critically dry years) to ensure appropriate river flows for the various hydrologic year classes. Yuba Water provides an additional 30,000 acre-feet of water during Schedule 6 (very dry) years through the Conjunctive Use Agreements. In a conference year, Yuba Water is required to provide instream flows consistent with requirements of its FERC license and water right permits, limit diversions to the Member Units to 250,000 acre-feet per year, prepare and submit a strategic management plan to the River Management Team (RMT), described below, with measures to ensure total diversions do not exceed that amount, and manage the YRDP consistent with the strategic plan.

The Fisheries Agreement also established the RMT, which is a collaborative body that includes representatives of the Fisheries Agreement parties and other federal and state agencies. The RMT provides Yuba Water with input on lower Yuba River operations, flow release scheduling, and expenditures for fisheries studies and other related activities. The principal purposes of the RMT are to monitor and evaluate the effectiveness of implementing the Yuba Accord (including flow schedules, conference year flows, and water transfers), evaluate fish resource conditions in the lower Yuba River, implement and participate in fish habitat restoration and improvement projects, purchase water for instream flows above the flows specified in the agreement, and retain experts for advice on technical issues. The Fisheries Agreement authorizes the RMT to set the flow schedule for the 30,000 acre-feet of water provided in Schedule 6 years; temporarily alter the applicable instream flow requirements in Schedule 1-6 years, subject to certain conditions; schedule additional instream flows during conference years; schedule any water made available for supplemental instream flows in connection with a supplemental surface water transfer and a portion of groundwater substitution transfers ; and develop and implement fish habitat and monitoring studies. Using revenues generated by the Water Transfer Program, Yuba Water funds a River Management Fund to financially support the RMT.

Unlike the Water Purchase Agreement and the Conjunctive Use Agreements, the Fisheries Agreement does not expire in 2025. Rather, the agreement will remain in effect until FERC issues a new long-term license for the YRDP. The instream flows of the Fisheries Agreement also have been incorporated into Yuba Water's water rights by SWRCB Corrected Order WR 2008-0014. Accordingly, the instream flow requirements outlined in the Fisheries Agreement will remain in place unless and until the SWRCB acts to adjust them. The Proposed Extension does not include any proposed change to the Fisheries Agreement.

2.1.2 SWRCB Corrected Order WR 2008-0014

In 2003, the SWRCB adopted Revised Water Right Decision 1644 (RD-1644) that addressed fishery protection and water right issues involving the diversion and use of water from the Yuba River and established revised instream flow requirements. In 2007, Yuba Water filed a water right change petition to modify its water rights and implement the Yuba Accord. In 2008, the SWRCB approved the petition through Corrected Order WR 2008-0014. The order approved the long-term water transfer petition and made related changes to RD-1644, subject to the terms and conditions in the order.

Corrected Order WR 2008-0014 approved and incorporated the Fisheries Agreement flow schedules and the then-new North Yuba Index. The order found that the approved Yuba Accord water-rights change petition "will provide a level of protection for fisheries resources in the lower Yuba River during the term of the Yuba Accord Fisheries Agreement that is equivalent to, or better than, that which is provided by RD-1644." The order also made other changes to RD-1644, including modification to the water temperature-related conditions.

Corrected Order WR 2008-0014 authorized delivery of up to 200,000 acre-feet/year of transfer water consistent with the provisions of the Yuba Accord. The approval included adding the SWP and CVP service areas as places of use and the Clifton Court Forebay and Jones Pumping Plant as points of rediversion (PORDs) under the Yuba Water water rights. Municipal use was added as an authorized purpose of use, as well.

Corrected Order WR 2008-0014[4] provides that the approval for the transfer of water "is limited to the period from April 1, 2008 through December 31, 2025." Accordingly, extending water transfers beyond 2025 will require a new discretionary approval from the SWRCB. The other parts of the order do not expire in 2025.

2.1.3 2008 Yuba Accord Long-Term Water Transfer Program

The Water Transfer Program was originally comprised of the Water Purchase Agreement and the Conjunctive Use Agreements (both summarized above). Accordingly, the 2007 EIR's analysis of the Water Transfer Program included: (1) storage water transfers of up to 200,000 acre-feet per year; (2) groundwater substitution water transfers of up to 90,000 acre-feet per year and up to 180,000 acre-feet in a three-year period; (3) rediversion of transfer water at the SWP and CVP Delta export facilities; (4) use of transfer water within the SWP and CVP service areas; and (5) use of transfer water for municipal use (in addition to other uses already authorized under Yuba Water's water right permits). As noted above, Corrected Order WR 2008-0014 approved the Water Transfer Program through December 31, 2025, and thus, the Water Transfer Program is included in the Proposed Extension.

2.1.4 Authorized Changes to 2008 Long-Term Water Transfer Program

Since approval of Corrected Order WR 2008-0014 in 2008 authorizing implementation of the Yuba Accord, the Water Transfer Program has been modified several times.[5] These changes are summarized below.

[4] Corrected Order WR 2008-0014 may be found at https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2008/wro2008_0014corrected.pdf.

[5] Five addenda to the 2007 EIR were prepared to analyze these minor changes. See Section 1.3, "Previous Environmental Documentation," of this SEIR for additional detail about these addenda.

2014 ADDITION OF FREEPORT REGIONAL WATER FACILITY AS AUTHORIZED PORD

In 2014, the SWRCB approved a Yuba Water petition for change to add the Freeport Regional Water Facility intake as an additional Water Transfer PORD (Corrected Order Approving Petition for Change on Long-Term Transfer [June 9, 2014]) under Water Right Permit 15026, enabling the delivery of up to 34,000 acre-feet per year of Yuba Accord transfer water to EBMUD. Consistent with Corrected Order WR 2008-0014, the 2014 SWRCB water transfer order expires at the end of 2025.

2015 ADDITION OF SAN LUIS DAM AS AUTHORIZED PORD

In 2015, the SWRCB approved a Yuba Water petition for change on the Yuba Accord Long-Term Transfer authorizing a PORD at San Luis Dam under Water Right Permit 15026. This approval also permits storage in the reservoir of up to 70,000 acre-feet by virtue of one or more Warren Act contracts between CVP contractors and Reclamation. (Order Approving Petition for Change on Long-Term Transfer [February 25, 2015], p. 4.) Similar to the other orders approving changes, this 2015 Order also expires at the end of 2025 consistent with Corrected Order WR 2008-0014.

2022 ADDITION OF CCWD INTAKES AS TEMPORARY AUTHORIZED PORDS

In 2022, Yuba Water, CCWD, and EBMUD approved the Temporary Water Transfer Option Agreement Between Contra Costa Water District, East Bay Municipal Utility District, and Yuba Water Agency (Water Transfer Option Agreement). The agreement provided for the one-year transfer of up to 25,000 acre-feet of water under the Yuba Accord. The SWRCB approved related water right temporary change petitions in 2022, 2023, and 2024, all of which authorized one-year transfers under Water Right Permit 15026 (Order Approving Petition for Temporary Change Involving the Transfer of Up to 25,000 Acre-Feet of Water to Contra Costa Water District and East Bay Municipal Utility District [April 1, 2022]; Order Approving Petition for Temporary Change Involving the Transfer of Up to 25,000 Acre-Feet of Water to Contra Costa Water District and East Bay Municipal Utility District [December 21, 2022]; Order Approving Temporary Changes – Petition For Temporary Change Involving The Transfer Of Up To 25,000 Acre-Feet Of Water To Contra Costa Water District [January 19, 2024]). Yuba Water intends to submit petitions for such transfers in 2024 and 2025. The SWRCB approvals also temporarily added three CCWD intakes (Rock Slough Intake, Old River Intake, and Middle River Intake) as additional PORDs of Yuba Accord transfer water. It should be noted that CCWD and EBMUD service areas are included in the CVP service area (an already approved place of use of transfer water).

In November 2022, Yuba Water, CCWD, and EBMUD each approved Amendment 1 to the Water Transfer Option Agreement for a term through December 2025.

2.1.5 Existing Yuba Accord Long-Term Water Transfer Program

The existing Water Transfer Program therefore consists of (1) storage water transfers of up to 200,000 acre-feet per year; (2) groundwater substitution water transfers of up to 90,000 acre-feet per year and up to 180,000 acre-feet in a three-year period; (3) rediversion of transfer water at authorized PORDs (SWP and CVP Delta export facilities, San Luis Dam at San Luis Reservoir, Freeport Regional Water Facility, and [as approved in the last three years for one-year transfers] CCWD intakes); (4) use of transfer water within the SWP and CVP service areas; and (5) use of transfer water for authorized purposes of use (irrigation and municipal uses). The existing Program is operated through: (1) the Water Purchase Agreement; (2) the Conjunctive Use Agreements; and (3) the Water Transfer Option Agreement, and will expire on December 31, 2025, consistent with Corrected Order WR 2008-0014.

2.2 PROJECT OBJECTIVES

The objectives of the Proposed Extension to the Water Transfer Program are to:

(1) continue to support the existing level of water supply reliability throughout the state provided by the supplemental water for contractors of the CVP and the SWP, and other potential transferees consistent with the Water Purchase Agreement;

(2) continue to facilitate responsible management of groundwater supplies consistent with the *Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan* (Yuba Water et al. 2019) through active coordination under the Conjunctive Use Agreements; and

(3) continue to generate long-term, predictable revenue for Yuba Water's various projects and programs, such as its programs to replace aging wastewater infrastructure in Yuba County's Disadvantaged Communities.

2.3 DESCRIPTION OF THE PROPOSED EXTENSION

Yuba Water proposes to extend the Water Transfer Program beyond December 31, 2025, with comparable terms as the existing agreements described above which include: (1) the Water Purchase Agreement; (2) the Water Transfer Option Agreement; (3) the Conjunctive Use Agreements; and (4) the terms and conditions imposed in SWRCB Corrected Order WR 2008-0014 and subsequent Yuba Accord water transfer change petitions approved by the SWRCB.

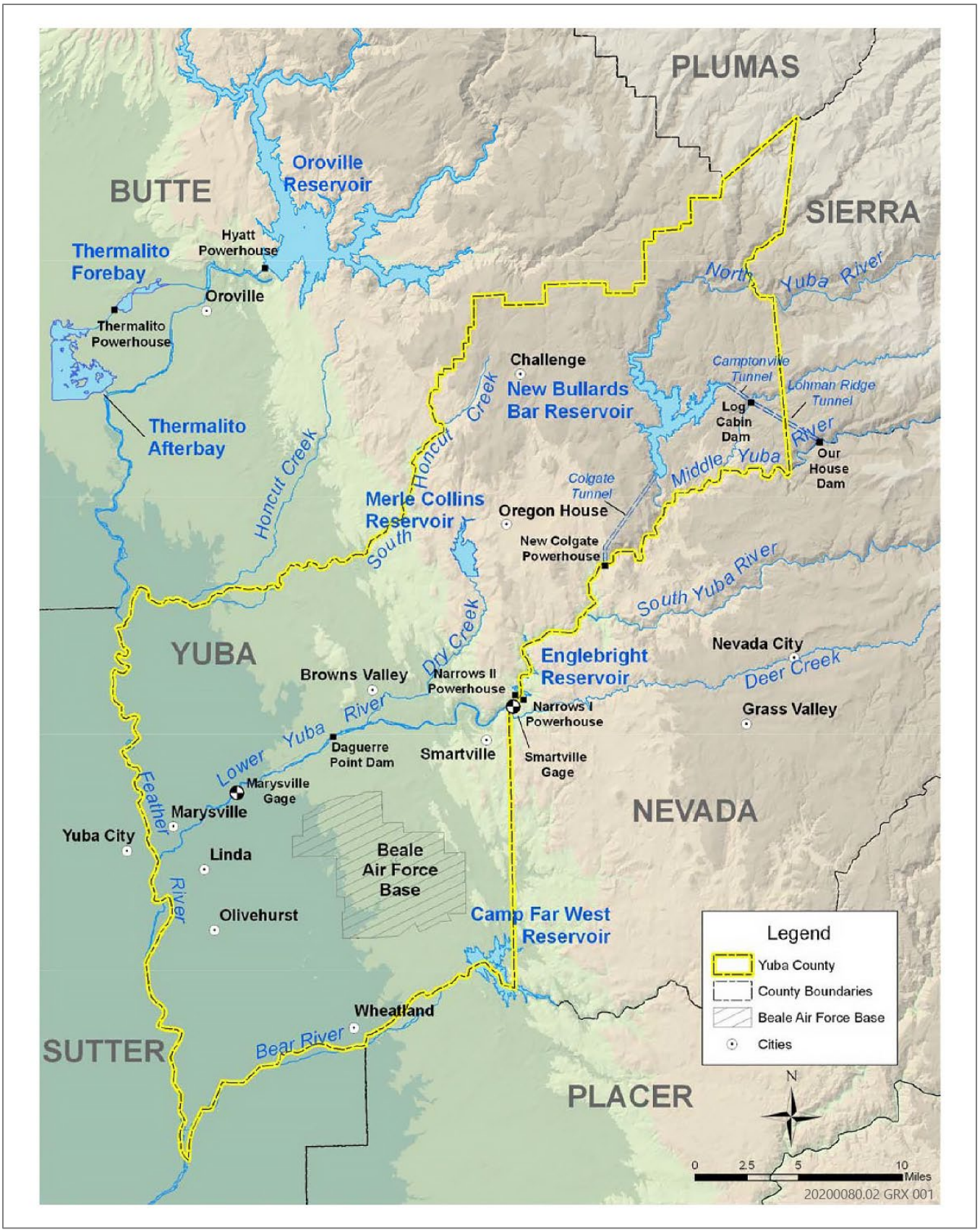
The Proposed Extension will include the following components:

- an agreement between Yuba Water and DWR to extend the term of the Water Purchase Agreement through 2050;
- an agreement among Yuba Water, CCWD, and EBMUD to extend the term of the Water Transfer Option Agreement through 2050;
- agreements among Yuba Water and its Member Units to extend the term of the Conjunctive Use Agreements through 2050; and
- petitioning the SWRCB to extend approval of the existing places of use, purposes of use, and points of rediversion, including the three CCWD Delta intakes as long-term places of use and PORDs, respectively, for the Water Transfer Program through 2050.

As reflected by this list, the Proposed Extension is a continuation of the Water Transfer Program beyond December 31, 2025, under its existing provisions. The characteristics of the Proposed Extension are described in more detail, below.

2.3.1 Location and Place of Use Under the Proposed Extension

The Proposed Extension would not result in any changes to the areas encompassed by the Yuba Accord, as modified to date. The Water Transfer Program would continue to encompass the same area as the Yuba Accord's original Water Purchase Agreement, as modified by subsequent addenda adopted by Yuba Water and change petitions approved by the SWRCB. Figure 2-2 illustrates the major water development facilities in the Lower Yuba River Basin. Places of storage, rediversion, and potential use areas for Yuba Accord transfer water are shown in Figure 2-3.



Source: Provided by Yuba Water in 2022; adapted by Ascent Environmental in 2022.

Figure 2-2 Major Water Development Facilities in the Lower Yuba River Basin

Sources: DWR and Reclamation 2016; DWR 2019; adapted by Ascent Environmental in 2023.

Figure 2-3 Places of Storage and Potential Points of Rediversion and Places of Use for Yuba Accord Transfer Water Under the Proposed Extension

2.3.2 Water-Rights Change Petition

Yuba Water plans to prepare and file a water right change petition with the SWRCB. The petition would request the SWRCB's approval of a long-term water transfer of up to 200,000 acre-feet per year (the same volume of water now authorized under Corrected Order WR 2008-0014). The petition would request continuation of the same points of rediversion for Yuba Accord water transfers (i.e., Clifton Court Forebay, Jones Pumping Plant, EBMUD Freeport Regional Water Facility intake, and San Luis Dam at San Luis Reservoir) and addition of three of CCWD's Delta intakes (Rock Slough, Old River, Middle River intakes) as PORDs (which have been approved in 2022, 2023, and 2024 as temporary PORDs for Yuba Accord transfer water); continuation of San Luis Dam at San Luis Reservoir for potential storage of Yuba Accord transfer water; and continuation of the same places of use for Yuba Accord transfer water (i.e., SWP and CVP service areas); (i.e., SWP and CVP service areas) ; and continued authorization of municipal, industrial, and irrigation use of Yuba Accord transfer water.

The petition would propose terms and conditions substantially the same as incorporated into Corrected Order WR 2008-0014 (see Section 2.3.4 below for further information on the changes to terms and conditions), the 2014 SWRCB order approving the Freeport Regional Water Facility intake as an authorized PORD, the 2015 SWRCB order approving San Luis at San Luis Reservoir as an authorized PORD, and the 2022 and 2023 SWRCB orders approving the three CCWD intakes as temporary authorized PORDs.

Approval of these changes would allow Yuba Water to continue to transfer Yuba Accord transfer water under the extended Water Purchase Agreement, the extended Water Transfer Option Agreement, and the extended Conjunctive Use Agreements (all are part of the Proposed Extension, as discussed below). The petition would request a change of Yuba Water's water rights to implement these proposed agreements though 2050.

2.3.3 DWR Water Purchase Agreement Extension

Yuba Water and DWR plan to prepare and approve an extended Water Purchase Agreement. The extended Water Purchase Agreement terms would be substantially the same as the 2007 Water Purchase Agreement, as amended, except for these modifications:

- The agreement would be extended to December 31, 2050 (i.e., a 25-year term), with options for the parties to agree to extend the agreement for additional terms.
- The original agreements identified four components of Yuba Accord transfer water for purposes of pricing structures, payment provisions, and water transfer accounting; however, segregation into the four components is no longer necessary. Accordingly, these components of transfer water would be consolidated in the extended Water Purchase Agreement as Storage Component Water and Groundwater Substitution Component Water, without changing the aggregate amounts and conditions for providing Yuba Accord transfer water.

2.3.4 EBMUD and CCWD Water Transfer Option Agreement Extension

Yuba Water, EBMUD, and CCWD plan to prepare and approve an extended Yuba Water/EBMUD/CCWD Water Transfer Option Agreement. The extended Water Transfer Option Agreement would be substantially the same as the November 2022 Water Transfer Option Agreement, except for these modifications:

- The agreement would extend to December 31, 2050 (i.e., a 25-year term), with options for the parties to agree to extend the agreements for additional terms.
- The agreement would include provisions for periodic water transfer price adjustments based on market conditions and other factors. Any changes in price would not change the aggregate amounts and conditions for providing Yuba Accord transfer water.

2.3.5 Conjunctive Use Agreements Extension

Yuba Water and the participating Member Units plan to prepare and approve extended Yuba Water/Member Unit Conjunctive Use Agreements; there would be a separate agreement with each Member Unit. The extended Conjunctive Use Agreement terms would be substantially the same as the 2007 Conjunctive Use Agreements, as amended, except for these modifications:

- The agreements would be extended to December 31, 2050 (i.e., a 25-year term), with options for the parties to agree to extend the agreements for additional terms.
- The agreements would include provisions for periodic water transfer price adjustments based on market conditions and other factors. Any changes in price will not increase the aggregate amounts of water transferred or change the conditions for providing Yuba Accord transfer water.

2.3.6 Other Commitments as Features of the Proposed Extension

With certification of the 2007 EIR, approval of the Yuba Accord, and execution of the Water Purchase Agreement and Conjunctive Use Agreements, Yuba Water adopted mitigation measures and made other project commitments to minimize potential impacts associated with implementation of the Yuba Accord. These mitigation measures and project commitments, which are described below, have already been implemented under the Yuba Accord since its inception and in some cases, well before the Yuba Accord was established, and they will continue to be included in the agreements and petition to the SWRCB for continued implementation under the Proposed Extension of the Water Transfer Program.

- Carriage Water: Carriage water is additional water included as part of a water transfer to users in and south of the Delta that is allocated to increase Delta outflow for the purposes of protecting Delta water quality and maintaining chloride concentrations during CVP/SWP export operations at levels that would be equivalent to those that would occur in the absence of such export operations. Reclamation and DWR use Delta Simulation Model II (DSM2) with actual hydrological and operational data at the conclusion of a transfer season to estimate the amount of carriage water needed in that year to pump transfer water to SWP water users, the CVP, and other entities purchasing water upstream of the Delta without causing an increase in electrical conductivity or chloride concentration in the Delta. The carriage water percentage required to maintain Delta water quality can range from 0 to 35 percent, or more. During past water transfers involving changes in the timing of CVP/SWP exports, carriage water has provided the mechanism necessary to maintain water quality in the Delta.

  For every acre-foot of Yuba Accord transfer water purchased, 0 to 35 percent or more of that acre-foot, determined based on DSM2 modeling at the conclusion of a transfer season, will be dedicated to increase Delta outflow. The remainder will be available for rediversion by Reclamation, DWR, EBMUD, or CCWD, without causing any increase in chloride concentrations within the Delta.

  For additional information, see Mitigation Measure 9-1 of the 2007 EIR, "Carriage water will be used to maintain salinity and chloride concentrations in the Delta."

- New Bullards Bar Reservoir Refill: Refill conditions in New Bullards Bar Reservoir generally occur during wet conditions. During this time, Yuba Water has the operational flexibility to ensure that refilling of the reservoir will not adversely affect water quality in a manner that could potentially impact beneficial uses in the Delta and export service areas south of the Delta. The refilling of New Bullards Bar Reservoir is a continuous process for the current water year. If it is anticipated that reductions in lower Yuba River flow during the refill period would impact water quality conditions in the Delta, then Yuba Water will apply a water accounting procedure to determine the volume of water that would have been stored in the reservoir during the winter refill period. The amount of water foregone will be accounted for and repaid by Yuba Water via the refill accounting mechanisms described in Appendix E2, Exhibit 5 of the 2007 EIR.

For additional information, see Mitigation Measure 9-2 of the 2007 EIR, "YCWA operational flexibility will be utilized to ensure that refilling of the reservoir will not adversely affect water quality in the Delta and export service areas south of the Delta."

- Yuba Subbasins Groundwater Monitoring and Adaptive Management: Yuba Water conducts extensive groundwater monitoring as part of the Yuba Accord and Yuba Water's groundwater sustainability plan. Information gathered through Yuba Water's Measurement and Monitoring Program (MMP) is used to guide operation of groundwater wells for local use and external groundwater substitution transfers to limit potential impacts on domestic wells, agricultural and municipal wells, and surface water bodies. Objectives of the MMP are to:
  - Monitor any lowering of groundwater surface elevations that may occur as a result of groundwater extraction to meet local demands in drier years;
  - Avoid potential unreasonable impacts that may occur from changes in groundwater surface elevations because of external transfers;
  - Maintain and improve groundwater quality in the Yuba Subbasins for the benefit of groundwater users;
  - Protect against potential inelastic land surface subsidence; and
  - Protect against adverse impacts to surface water flows.

  Yuba Water and the Member Units have implemented a monitoring plan for groundwater substitution transfers. This plan includes monitoring groundwater levels in participating transfer wells and groundwater quality (electrical conductivity [EC]) in selected participating transfer wells during water transfer years. The monitoring plan requires that Member Units perform groundwater level monitoring activities until the following April. However, the Member Units typically continue groundwater level monitoring on a monthly basis from year to year.

  During the implementation of groundwater substitution transfers under the Proposed Extension of the Water Transfer Program, Yuba Water will continue to implement this monitoring plan. Yuba Water also will continue to implement its adaptive management program, referred to as the "Groundwater Pumping Operations Plan" in the Water Purchase Agreement, for future planning of transfers based on the changing conditions of the basin during previous transfers. The adaptive management program changes the location and volume of transfer pumping to avoid adverse effects to the basin and other groundwater users in the basin.

- Third-Party Impacts Action Plan: For more than a decade prior to implementation of the Yuba Accord and included in the Conjunctive Use Agreements between Yuba Water and its Member Units under the Yuba Accord, the Third-Party Impacts Action Plan has been implemented to respond to impacts to Third Parties that occur because of groundwater substitution pumping. Third Parties include local groundwater users that could be affected by fluctuations in groundwater levels because of a groundwater substitution transfer. The Action Plan provides a process for responding to concerns expressed by local groundwater users who believe that their water production facilities are being or will be affected by groundwater substitution pumping. Under the Action Plan, groundwater substitution pumping must not produce adverse effects on Third Parties; such effects must be identified and addressed as quickly as possible; and there must be on-going open communications with affected Third Parties.

  Historically, a Third Party Action Plan was introduced to Yuba Water transfers in the early 2000's and was integrated into the Yuba Accord in 2007 though the Conjunctive Use Agreements with Member Units. Actions taken by Member Units to address third party impacts and concerns of well owners in the area include responding to well owners that believed their well was being impacted by groundwater substitution pumping. In these cases, remedial measures were undertaken by the local Member Unit to implement corrective measures, such as deepening wells or replacing pumps. Most notably, in 2009 several farmers in the Reclamation District 10 area (RD-10) voiced concern about lower groundwater levels during groundwater substitution years. Yuba Water and the Member Units responded by inviting the local farmers to the groundwater management and planning meetings so they could observe and participate in the discussion and consideration of groundwater substitution planning activities. Working with RD-10, Yuba Water and the Member Units initiated and continue the following activities; added monitoring wells in the RD-10 area, monitor farmer wells that are voluntarily added to the

monitoring network, shifting of groundwater substitution pumping away from RD-10 wells when analysis suggests that lowered levels may occur, and shifting in time groundwater substitution pumping in some years to reduce the cumulative effects of multiple wells pumping at the same time which otherwise could result in reduced water levels in areas of concern for mid-summer water levels.

- Certification of No Net Impact to Air Quality from Groundwater Substitution Transfers: Pursuant to the agreements, all wells developed for use in the groundwater substitution transfer program use electric motors and any new wells will also be required to use electric motors. Furthermore, Yuba Water and the Member Units have been engaged in a groundwater pumping air quality monitoring and improvement program with the purpose of both continuing to improve air quality in Yuba County as well as meet the practical requirement of transferring water without impacting air quality. To ensure that pumping for groundwater substitution transfers would result in no net impact to air quality, during each year that a groundwater substitution transfer occurs, Yuba Water will continue to provide to Reclamation and DWR a statement, with appropriate supporting documentation demonstrating that the total volume of groundwater to be pumped within Yuba County can be conducted using pumping sources that will not contribute to air quality impacts.

  For additional information, see Mitigation Measure 15-1 of the 2007 EIR, "Provide certification documentation to Reclamation and DWR indicating that groundwater pumping sources would not increase emissions, to ensure that no net impacts to air quality would occur."

- Application of Streamflow Depletion Factor to Groundwater Substitution Transfers: The application of a streamflow depletion factor (SDF) to offset the potential effects of streamflow depletion on downstream water supplies due to groundwater substitution transfer pumping is being included as part of the Water Purchase Agreement and petition to the SWRCB for implementation under the Proposed Extension of the Water Transfer Program. Addition of an SDF in the groundwater substitution transfer accounting is a measure being implemented under the adaptive management features of the original Yuba Accord conjunctive use program which was addressed in the 2007 EIR at Section 6.2.6.2. This project feature is described below.

  Section 3 of DWR's 2019 Draft Water Transfer White Paper (DWR and Reclamation 2019) states:

  > Flow reduction in a river, stream, canal, or drain could injure other legal users of water if it occurs when the Delta is in balanced conditions (see Section 1.1)[6] or there is limited streamflow in the channel from which the water is being transferred. However, if transfer-related streamflow losses occur when the Delta is in excess conditions and there is sufficient flow in the stream channel from which the water is being transferred, the streamflow depletions should not impact the water supply available to other legal users of water.

  Throughout the Sacramento Valley, groundwater substitution transfers include a Streamflow Depletion Factor (SDF) to account for and offset (by leave-behind) any stream depletion effects of the transfer. The SDF applied to a groundwater substitution transfer is a percentage of the transfer volume that would be left in the stream during balanced conditions and not transferred so this volume of water is available to the CVP and SWP. Because the SDF is applied to the transfer itself, the leave-behind occurs in the year of the transfer, though it is deemed to offset streamflow depletion that could occur many years in the future. For the past several years the SDF for most groundwater substitution transfers in the Sacramento Valley has been set at 13 percent.

  Just as groundwater substitution transfers throughout the Sacramento Valley have applied an SDF to account for a percentage of the total groundwater substitution transfers that is not available to downstream water supplies that otherwise would be future streamflow contributing to these supplies, as an added project feature this accounting factor will be appropriately applied to groundwater substitution transfers under the Proposed Extension. Like carriage water and refill accounting, the appropriate SDF will be determined through an informed process between Yuba Water, its Member Units, and DWR, with DWR coordinating with Reclamation. Determination of an

[6] Under the terms of the Coordinated Operation Agreement through which the federal and state water projects coordinate their operations, "Balanced Conditions" occur when DWR and Reclamation agree that releases from upstream reservoirs plus unregulated flow into the Delta approximately equal the water supply needed to meet Sacramento Valley in basin uses, plus exports. During Balanced Conditions, inflow is not sufficient to meet any applicable water quality requirements and releases must be made from storage.

appropriate SDF will be informed by modeling of groundwater substitution transfers in the Yuba Subbasins and consideration of all the factors discussed in Section 3.2 and discussed in detail in Appendix B.

The exact percentage of the streamflow depletion factor will be assessed and determined by DWR in consultation with Reclamation and Yuba Water, and will depend upon future offset projects, recognition of the ongoing Wheatland In-Lieu Recharge Project[7], continued examination of relevant information and modeling, and consideration of other factors, such as hydrogeologic properties of the groundwater basin and location of pumping wells, and local as well as Delta hydrologic conditions. This process and inclusion of an SDF to be applied to groundwater substitution transfers will be included as part of the Water Purchase Agreement and Conjunctive Use Agreements. For additional information on streamflow depletion and development of an appropriate SDF, see Appendix B.

2.4 POTENTIAL APPROVALS AND PERMITS REQUIRED

Yuba Water anticipates that the process to review and approve the Proposed Extension and the required approvals and permits will include the following:

- Yuba Water and DWR will prepare and approve an extended Water Purchase Agreement.
- Yuba Water, EBMUD, and CCWD will prepare and approve an extended Water Transfer Option Agreement.
- Yuba Water and each of the Member Units will prepare and approve extended Conjunctive Use Agreements.
- Yuba Water will petition the SWRCB to extend approval of the place of use, purposes of use, and points of rediversion for transfer water under the Water Transfer Program.

[7] In-lieu recharge is the practice of providing surplus surface water to historical groundwater users, thereby leaving groundwater in storage for later use.

3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This Draft SEIR evaluates and discloses the environmental impacts associated with the Proposed Extension, in accordance with CEQA (Public Resources Code [PRC] Section 21000, et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Chapter 3, Section 1500, et seq.).

3.1 APPROACH TO THE ENVIRONMENTAL ANALYSIS

This section describes the scope and extent of the environmental analyses for this SEIR. Specifically, this section describes the framework for the impact analyses and explains why some resource areas have been dismissed from further evaluation.

3.1.1 Framework for Environmental Impact Analysis

Pursuant to PRC Section 21166 and State CEQA Guidelines Section 15163, when a lead agency concludes that only minor additions or changes would be necessary to make the previous EIR adequately apply to the project, the lead agency may choose to prepare an SEIR. The 2007 EIR comprehensively analyzed potential impacts related to implementation of the Yuba Accord, and subsequent addenda analyzed minor changes to the Yuba Accord in 2014, 2016, and 2022. As described in Chapter 1, "Introduction," no substantial changes to the substantive terms of the Water Transfer Program are proposed; however, its extension beyond December 31, 2025 constitutes a change to the project analyzed in the 2007 EIR and, thus, requires analysis pursuant to CEQA. Consequently, the focus of this SEIR is to analyze the potential environmental impacts that may result from the Proposed Extension of the Water Transfer Program beyond its original expiration date of December 31, 2025.

Pursuant to CEQA and the State CEQA Guidelines, a lead agency shall focus an EIR's discussion on significant environmental effects and may limit discussion on other effects to brief explanations about why they are not significant (PRC Section 21002.1, CCR Section 15128). A determination of which impacts would be potentially significant was made based on a review of the description of the Proposed Extension of the Water Transfer Program as presented in Chapter 2 of this Draft SEIR; review of applicable planning documents and CEQA documentation; comments received as part of the public scoping process (Appendix A); and additional research and analysis of relevant data during preparation of this Draft SEIR.

Yuba Water has analyzed the potential environmental impacts of the Proposed Extension on surface water supply and management, groundwater resources, fisheries and aquatic resources, and surface water quality, which are addressed in detail in Sections 3.2 through 3.5 of this Draft SEIR, respectively. Each section presents a discussion of the regulatory setting, the environmental setting (i.e., existing conditions), potential environmental impacts associated with the Proposed Extension, mitigation measures, if any, to reduce the level of impact, and residual level of significance (i.e., after application of mitigation, including impacts that would remain significant and unavoidable after application of all feasible mitigation measures).

Chapter 4 of this Draft SEIR, "Cumulative Impacts," presents an analysis of the impacts of the Proposed Extension considered together with other past, present, and reasonably foreseeable probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. Chapter 5, "Alternatives," evaluates alternatives to the Proposed Extension, including the No Project Alternative, as required by Section 15126.6 of the State CEQA Guidelines. Chapter 6, "Other CEQA Sections," includes an analysis of the growth-inducing impacts associated with the Proposed Extension, as required by Section 21100(b)(5) of CEQA.

Sections 3.2 through 3.5 of this Draft SEIR each include the following components.

- Regulatory Setting: This subsection presents information on the laws, regulations, plans, and policies from the federal, state, and local level that relate to the issue area being discussed. Where the regulatory background

provided in the 2007 EIR remains applicable to the analysis of the Proposed Extension, it is incorporated by reference. Where regulatory changes subsequent to the certification of the 2007 EIR and adoption of the Yuba Accord are relevant to understanding the Proposed Extension's potential impacts, additional background information is provided.

- **Environmental Setting:** This subsection presents the existing environmental conditions in the area affected by the project and in the surrounding area as appropriate, in accordance with State CEQA Guidelines Section 15125. The discussions of the environmental setting focus on information relevant to the issue under evaluation. The extent of the environmental setting area evaluated (the project study area) differs among resources, depending on the locations where impacts would be expected. For example, groundwater impacts are assessed for the North Yuba and South Yuba Groundwater Subbasins, whereas surface water impacts are assessed for the lower Yuba River and affected downstream watersheds. As noted above for the regulatory setting, the environmental setting information provided in the 2007 EIR is incorporated by reference where this information remains applicable to the analysis of the project. Where changes to the existing conditions subsequent to the certification of the 2007 EIR and adoption of the Yuba Accord are relevant to understanding the Proposed Extension's potential impacts, additional background information is provided.
- **Impact Analysis:** This subsection presents thresholds of significance and discusses potentially significant effects of the Proposed Extension on the existing environment in the study area, in accordance with State CEQA Guidelines Section 15126.2. The methodology for the impact analysis is described, including technical studies upon which the analyses rely. The thresholds of significance are defined and thresholds for which the Proposed Extension would have no impact are disclosed. Impacts are numbered sequentially in each subsection (Impact 3.2-1, Impact 3.2-2, Impact 3.2-3, etc.). The discussion includes the analysis, rationale, and substantial evidence upon which conclusions are drawn. The determination of level of significance of the impact is defined in bold text. A "less-than-significant" impact is one that would not result in a substantial adverse change in the physical environment. A "potentially significant" impact or "significant" impact is one that would result in a substantial adverse change in the physical environment; both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation.

  This subsection also describes whether mitigation measures would reduce impacts of the Proposed Extension to less-than-significant levels. Significant and unavoidable impacts are identified as appropriate in accordance with State CEQA Guidelines Section 15126.2(b). Significant and unavoidable impacts are also summarized in Chapter 6, "Other CEQA Sections."
- **References:** The full references associated with the parenthetical references found throughout Sections 3.2 through 3.5 can be found in Chapter 8, "References," organized by section number.

3.1.2 Baseline

The State CEQA Guidelines (CCR Section 15125[a]) define baseline as existing physical conditions as they exist at the time the notice of preparation (NOP) is published. (*Communities for a Better Environment v. South Coast Air Quality Management Dist*. (2010) 48 Cal.4th 310, 320.) The environmental review "must focus on impacts to the existing environment, not hypothetical situations." (*Id*. at p. 322.) As described in Chapter 1, "Introduction," Yuba Water issued an NOP for the Proposed Extension on January 12, 2023 and initiated the CEQA environmental review process.

Under *Communities for a Better Environment*, and subsequent case law, this baseline is appropriate when the project is the extension of an existing approval or permit. (*North Coast Rivers Alliance v. Westlands Water Dist.* (2014) 227 Cal.App.4th 832, 872 [when a project involves ongoing operations or a continuation of past activity, the established levels of a particular use and the physical impacts thereof are part of the existing environmental baseline].)

The Proposed Extension is not a new project. Rather, it is a continuation of a component of an existing program that was adopted by Yuba Water in 2007 and approved by the State Water Resources Control Board (SWRCB) in 2008. Both the Water Purchase Agreement and the authorization for water transfers under the Agreement expire on December 31, 2025. (See Water Purchase Agreement; SWRCB's Water Right Order, "Corrected Order WR 2008-0014,"

at p. 59.) Other parts of the Yuba Accord, however, like the Fisheries Agreement, and the instream flow schedule in that agreement, which was incorporated into Yuba Water's water rights permits through Corrected Order WR 2018-0014, remain in effect (subject to SWRCB's continuing jurisdiction).[1] Corrected Order WR 20018-0014 expressly indicates the flows in the Fisheries Agreement must be maintained until SWRCB takes further action to amend the water right order. (Corrected Order WR 2008-0014, p.56.) Although the Fisheries Agreement will expire by its own terms once a new Federal Energy Regulatory Commission (FERC) license is issued for the Yuba River Development Project, the instream flow requirements will continue to be a term of Yuba Water's water rights permits until such time as SWRCB acts to change them.

Because the Yuba Accord is and has been implemented since its approval in 2008, the water transfers occurring under the terms of the Yuba Accord Water Purchase Agreement reflect existing physical conditions in the watershed. Accordingly, the proper CEQA baseline consists of environmental conditions as they exist now, with the transfers occurring. It is against this baseline that the Proposed Extension SEIR will evaluate potential environmental impacts associated with the continuance of the transfers.

The baseline environmental conditions thus include the existing Yuba Water operations and resulting conditions under SWRCB's Corrected Order WR 2008-0014, which approved the long-term Yuba Accord transfer, subject to certain enumerated conditions. (Corrected Order WR 2008-0014, p.59.) Consistent with the Yuba Accord Water Purchase Agreement, Corrected Order WR 2008-0014 authorized a long-term transfer of up to 200,000 acre-feet per calendar year under Water Right Permit 15026 until expiration of the Water Purchase Agreement on December 31, 2025. Corrected Order WR 2008-0014 also added the service areas of the State Water Project (SWP) and the Central Valley Project (CVP) to the place of use in Water Right Permit 15026 for the duration of the long-term transfer and approved the SWP and CVP southern Delta export diversion facilities as points of rediversion in Permit 15026 for the term of the Water Purchase Agreement. (Corrected Order WR 2008-0014, pp. 58-61.)

Likewise, the baseline environmental conditions include the instream flow requirements (to the Marysville Gage upstream from the mouth of the Yuba River) imposed under Reclamation District (RD) 1644, as subsequently amended by Corrected Order WR 20018-0014 issued by SWRCB on May 20, 2008. The effect of Corrected Order WR 20018-0014 (pp. 56-58) was to amend the instream flow requirements that RD 1644 had imposed on Yuba Water's Water Right Permits 15026, 15027, and 15030 to make the instream flow schedules consistent with the Yuba Accord.

To represent baseline conditions, Yuba River Development Project Model and CalSim modeling runs have been conducted for the Proposed Extension. These modeling runs identify the volumes of water that are being moved, and the timing of the movements, under existing regulatory conditions. See Section 3.2, "Surface Water Supply and Management," and 3.3, "Groundwater Resources," for additional discussion of the modeling approach and methodology.

Future changes to the watershed may occur due to the Voluntary Agreements, the future adoption of an updated Bay-Delta Water Quality Control Plan (Bay-Delta Plan), the outcome of the Biological Opinions (BOs) for the Long-Term Operations of the CVP and SWP, and the anticipated terms of a FERC license renewal and associated Water Quality Control Plan conditions. Each of these long-term processes are currently incomplete, with timelines for resolution that are wholly uncertain, and likely years away. Each process is related to some extent to the Yuba Accord, but at this point have only hypothetical outcomes that could resolve in myriad unknown ways. Therefore, incorporating these processes into the baseline would require speculation. These processes, however, are considered as appropriate in the discussion of cumulative impacts in Chapter 4, "Cumulative Impacts."

[1] SWRCB specifically reserved jurisdiction to modify conditions of the long-term transfer approval under the following circumstances:
- issuance of new BOs;
- issuance of a new FERC license;
- at any time in which the groundwater levels in the South Yuba Basin fall below 1991 levels or on showing of substantial injury or threat of injury to legal North Yuba Basin groundwater users;
- upon a change in listing status of any species in the Delta; or
- when "appropriate" to coordinate the operations of the Yuba Accord with water quality objectives in the Bay-Delta Water Quality Control Plan or water right decisions or orders implementing the Bay-Delta plan.

(Corrected Order WR 2008-0014, pp. 62-63.)

3.1.3 Effects Found Not to Be Significant

CEQA allows a lead agency to limit the detail of discussion of the environmental effects that are not considered potentially significant (PRC Section 21100, CCR Sections 15126.2[a] and 15128). CEQA requires that the discussion of any significant effect on the environment be limited to substantial, or potentially substantial, adverse changes in physical conditions that exist within the affected area, as defined in PRC Section 21060.5 (statutory definition of "environment").

ISSUES DISMISSED FROM ANALYSIS IN THE 2007 EIR

Section 4.7, "Resource Topics Dismissed from Further Evaluation," in the 2007 EIR identifies the environmental resources for which no impacts were expected to result from implementation of the Yuba Accord. Accordingly, as required by CEQA, the 2007 EIR presented a brief explanation as to why impacts on each resource were not anticipated, and these resource categories were not addressed further. The Proposed Extension of the Water Transfer Program addressed by this SEIR also would not cause potentially significant impacts in these resource categories, for the reasons provided below.

Noise

As described in the 2007 EIR, the Yuba Accord did not involve construction, and nor would the Proposed Extension. Implementation of the Yuba Accord involved substituting new electric pumps for then-existing diesel pumps, eliminating the potential for any noise impacts, because electric pumps produce less noise than diesel pumps. Electric irrigation pumps are a relatively low and highly dispersed source of noise. While the 2007 EIR acknowledged that implementation of the Yuba Accord would result in some additional noise from additional pumping by electric pumps, the increment of such additional noise was determined to be insignificant. Noise impacts, therefore, were not further evaluated in the 2007 EIR.

The Proposed Extension would not involve any changes in the Yuba Accord except for an extension of the Water Transfer Program beyond December 31, 2025. No noise-generating construction or operational activities would occur and no facilities that generate noise would be added. There are no changed circumstances or new information that would alter the previous significance conclusion. Therefore, the Proposed Extension would not result in impacts related to noise and this issue is not discussed further in this SEIR.

Geology and Soils

As described in the 2007 EIR, the Yuba Accord did not include new construction of water facilities, infrastructure, or any other type of construction or land disturbance. Water transfers associated with the Yuba Accord do not exceed typical releases from the reservoirs. Therefore, geomorphological effects to riverbanks and levee systems due to actions associated with the Yuba Accord would not occur and were not calculated, and the 2007 EIR did not include additional analysis of geology and soils.

The Proposed Extension would not involve any changes in the Yuba Accord except to extend the Water Transfer Program beyond December 31, 2025. No construction or ground disturbance would occur. There are no changed circumstances or new information that would alter the previous significance conclusion. Therefore, the Proposed Extension would not result in impacts to geology and soils resources and this issue is not discussed further in this SEIR.

Transportation and Circulation

The 2007 EIR was certified before the amendment to the CEQA Guidelines adding vehicle miles traveled (VMT) as the primary measure of transportation impacts, so it considered the level of service (LOS) threshold of significance for traffic impacts. As described in the 2007 EIR, the Yuba Accord did not include new construction of water facilities, infrastructure, or any other type of construction activities that may increase traffic congestion or decrease the level of service standards. Therefore, the Yuba Accord had no impact on transportation and circulation and these topics were not evaluated in the 2007 EIR.

Because the Proposed Extension would not involve any changes to the Yuba Accord, such as requiring additional employees or new construction, it would not result in impacts related to transportation, circulation, or VMT. There are no changed circumstances or new information that would alter the previous significance conclusion. Therefore, the Proposed Extension would not result in impacts to transportation and circulation and this issue is not discussed further in this SEIR.

Public Health and Worker Safety

As described in the 2007 EIR, the Yuba Accord did not involve construction or disturbances in water bodies that would contribute to conditions that might cause mudflows or other water-related hazards. Therefore, the Yuba Accord would not have an impact on public health or worker safety and these topics were not evaluated in the 2007 EIR.

The Proposed Extension would not involve any changes in the Yuba Accord except to extend the Water Transfer Program beyond December 31, 2025. No construction or operational activities would occur that would affect public health or worker safety. There are no changed circumstances or new information that would alter the previous significance conclusion. Therefore, the Proposed Extension would not result in impacts related to public health or worker safety and this issue is not discussed further in this SEIR.

Hazards and Hazardous Materials

As described in the 2007 EIR, the Yuba Accord did not involve construction or disturbances in water bodies that would result in fill or discharge of pollutants. The Yuba Accord would not create hazards or hazardous conditions or include use of hazardous materials. Therefore, the 2007 EIR did not include an analysis of hazards or hazardous materials.

The Proposed Extension would not involve any changes in the Yuba Accord except to extend the Water Transfer Program beyond December 31, 2025. No construction or operational activities would occur that would create hazards or hazardous conditions or use hazardous materials. There are no changed circumstances or new information that would alter the previous significance conclusion. Therefore, the Proposed Extension would not result in impacts related to hazards or hazardous materials and this issue is not evaluated further in this SEIR.

Public Services (including Utilities)

As described in the 2007 EIR, the Yuba Accord did not include new construction of water facilities, infrastructure, or any other type of construction activities. No road closures would be required; therefore, no interruptions to emergency access would occur. No public utilities or infrastructure would be affected and no additional demands on public services or utilities would be required. Therefore, the 2007 EIR did not include an analysis of public services or utilities.

The Proposed Extension would not involve any changes in the Yuba Accord except to extend the Water Transfer Program beyond December 31, 2025. No interruptions to emergency access would occur, no public utilities or infrastructure would be affected, and no additional demands on public services or utilities would be required. There are no changed circumstances or new information that would alter the previous significance conclusion. Therefore, the Proposed Extension would not result in impacts to public services and utilities and this issue is not discussed further in this SEIR.

Mineral Resources

While not included in the 2007 EIR, implementation of the Yuba Accord was determined not to result in impacts to mineral resources. According to the *Yuba County General Plan*, the County contains many areas that produce mineral resources, including sand and gravel, clay, stone products, silica, silver, and gold. There are several quarries, mines, and pits where mineral resources are extracted and most of the gravel and sand extraction areas are located along the lower Yuba River. Mines and dredge tailings from historic mining activities along the lower Yuba River also produce gold and silver (Yuba County Community Development & Services Agency 2011). A portion of Yuba County falls within the Mineral Resources Zone (MRZ) described in California Department of Conservation Mineral Land Classification Special Report 132 and includes MRZ-2 lands (areas that contain identified mineral resources) primarily along the lower Yuba River extending from Marysville on the west to Smartsville on the east (Yuba County Planning Department 2011). Construction of new water facilities or infrastructure or any type of construction or land disturbance did not occur with implementation of the Yuba Accord (and would not occur with implementation of the Proposed Extension) that would

affect, preclude, or prevent access to known mineral resources. Additionally, the Yuba Accord and the Proposed Extension represent compatible uses (Yuba County Community Development and Services Agency 2011) and would not conflict with *Yuba County General Plan* goals and policies to protect mineral resources. Therefore, the Proposed Extension would not result in the loss of availability of a known or locally important mineral resource known to be of value to the region or delineated on a local general plan, specific plan, or other land use plan. The Proposed Extension would be a continuation of the existing program and no changes would occur that would affect the availability or access to mineral resources; therefore, this issue is not discussed further in this SEIR.

Population and Housing

Growth-inducing impacts from implementation of the Yuba Accord were analyzed in Chapter 18, "Growth Inducement," of the 2007 EIR. Specifically, the 2007 EIR analyzed the potential for the Yuba Accord to cause or contribute directly or indirectly to economic growth, population growth, or an increase in population density. For operational impacts, the analysis considered increases in water availability created by the Yuba Accord and whether they would have a significant impact on decisions related to permitting of land use changes; that is, whether the supplemental water supply created by the Yuba Accord would remove an impediment to growth. The 2007 EIR found that long-term water deliveries to CVP and SWP contractor service areas would be relatively small and last only for the duration of the Yuba Accord and would not be of sufficient quantity to remove an impediment to growth or contribute to growth inducement in the Export Service Area. Therefore, the 2007 EIR concluded that potential growth-inducing impacts would be less than significant. Thus, because it was determined that implementation of the Yuba Accord would not induce substantial population growth, it would not result in significant impacts related to population and housing. Also, due to the nature of the project and that it would not construct additional housing units or remove any existing housing units from the available supply, it was determined that the Yuba Accord would not displace substantial numbers of people or housing necessitating the construction of replacement housing elsewhere.

The Proposed Extension would not involve any changes in the Yuba Accord except to extend the Water Transfer Program beyond December 31, 2025. There are no changed circumstances or new information that would alter the previous significance conclusion. Therefore, the Proposed Extension would not result in impacts on population and housing and this issue is not discussed further in this SEIR. Growth-inducing impacts resulting from implementation of the Proposed Extension, however, are addressed in Chapter 6, "Other CEQA Sections."

ISSUES ANALYZED IN THE 2007 EIR BUT NOT EVALUATED IN DETAIL IN THIS SEIR

Based on a review of the information presented in the 2007 EIR, the notice of preparation (NOP) prepared for the Proposed Extension, comments received as part of the public scoping process (Appendix A), and additional research and analysis of relevant data during preparation of this Draft SEIR, the following resources previously analyzed in the 2007 EIR were identified as resource areas for which no significant environmental impacts would result from the Proposed Extension. Accordingly, the evaluations of these resources from the 2007 EIR are summarized below with a brief explanation as to why significant impacts to each resource are not anticipated. These resources are not addressed further in this Draft SEIR.

- power production and energy consumption,
- flood control,
- terrestrial resources,
- recreation,
- visual resources,
- cultural resources,
- air quality, and
- land use and agricultural resources.

Power Production and Energy Consumption

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in impacts on power production and energy consumption. Specifically, the 2007 EIR evaluated changes in long-term average monthly and annual hydropower generation at New Colgate, Narrows 1, and Narrows 2 powerhouses; at the Oroville-Thermalito Complex, and at the San Luis Pumping-Generating Plant; increases in long-term average annual power consumption for groundwater pumping within the Yuba Water Member Unit service areas; and increases in long-term average annual power consumption at the Banks Pumping Plant, the Jones Pumping Plant, the O'Neill Forebay Pumping Plant, and the San Luis Pumping-Generating Plant.

The 2007 EIR concluded that impacts would be less than significant for long-term average annual hydropower generation, long-term average monthly hydropower generation, and annual power consumption. However, impacts were determined to be significant and unavoidable for annual increases in long-term power consumption for groundwater pumping within Yuba Water Member Unit service areas. No mitigation measures were identified to reduce these impacts.

There would be no adverse change in hydropower generation or energy consumption from existing conditions under the Proposed Extension because no new facilities would be constructed or operated and no changes in groundwater pumping would occur. Existing facilities would continue to operate and energy consumption would continue to be necessary for facility operations and maintenance. Wasteful, inefficient, or unnecessary energy consumption would therefore not occur under the Proposed Extension. Further, no conflicts with or obstruction of a state or local plan for renewable energy or energy efficiency would occur under the Proposed Extension. As described in Section 3.3, "Groundwater Resources," in 2010, following completion of the Yuba Wheatland Canal Project, Yuba Water began delivering surface water to Wheatland Water District (WWD) WWD, which allowed WWD to reduce its groundwater pumping. These changed operations resulted in a benefit to the 2007 baseline because reduced groundwater pumping has and will continue to result in reduced energy consumption.

Because the Proposed Extension would not result in any new potentially significant impacts to power production or energy consumption that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

Flood Control

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in impacts to flood control operations in the study area. Specifically, the 2007 EIR evaluated potential impacts to existing drainage patterns, surface runoff, flood hazard areas, and channel carrying capacities as well as increases in end-of-month storage volumes at New Bullards Bar Reservoir and Oroville Reservoir that could affect flood control releases. The 2007 EIR concluded that no significant impacts would occur and no mitigation measures were required.

The 2007 EIR concluded that the Yuba Accord would not: (1) involve the construction or modification of any infrastructure that would alter existing drainage patterns; (2) substantially increase surface runoff conditions on land areas within the study region; (3) result in surface runoff conditions that would exceed existing or planned drainage systems; (4) contribute substantial levels of polluted runoff to the system; or (5) place housing or other structures within the 100-year flood hazard area. In addition, the Yuba Accord would not affect channel carrying capacities, nor would modifications of any existing flood control diagrams be required.

The Proposed Extension represents the continuation of the existing conditions in the study area. Current flood control infrastructure, as well as existing routine operations and maintenance activities would continue, and there would be no change in the flood control regimes. The Proposed Extension would not result in substantial increases in the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite because no new facilities would be constructed and operated. Additionally, the Proposed Extension would not result in the impediment or redirection of flood flows.

Because the Proposed Extension would not result in any new potentially significant impacts to flood operations that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

Terrestrial Resources

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in impacts on terrestrial biological resources. Specifically, the 2007 EIR evaluated the potential impacts to special-status species, riparian habitat or other sensitive natural communities, federally protected wetlands, wildlife movement and wildlife corridors, as well as impacts resulting from conflicts with local policies or ordinances protecting terrestrial biological resources and resulting from conflicts with the provisions of an adopted habitat conservation plan (HCP), natural community conservation plan (NCCP), or other approved local, regional, or statewide HCP. The 2007 EIR concluded that no significant impacts would occur and no mitigation measures were required.

The 2007 EIR concluded that there would be no impact to wildlife movement or conflicts with existing HCPs/NCCPs because the actions associated with the Yuba Accord would be confined to hydrologic systems and no construction would occur. The 2007 EIR concluded that there would be less-than-significant impacts to special-status species, riparian habitat and other sensitive natural communities, and wetlands. However, it was concluded that the Yuba Accord, in combination with other future projects, may result in a potentially significant unavoidable cumulative impact on terrestrial resources in the CVP/SWP Upstream of the Delta Region due to the combined effects of multiple projects on river stage in the lower Feather and Sacramento rivers.

Under the Proposed Extension, no new facilities would be constructed or operated. Because there would be no construction or operation of new facilities, there would be no temporary or permanent impacts on special-status plants, wildlife, or their habitats, or on sensitive natural communities; wetlands and non-wetland waters; wildlife movement, wildlife corridors, or use of wildlife nursery sites. There would be no conflict with local policies or ordinances that protect terrestrial biological resources or an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. Under the Proposed Extension, the operation of existing facilities would continue. The owners/operators of these facilities would operate within the conditions and requirements of existing permits and agreements meant to protect terrestrial biological resources. Activities that currently occur within the study area such as grazing or other rural agricultural activities would continue and may result in effects on terrestrial biological resources but would do so in the context of existing regulations, requirements, and activities.

Because the Proposed Extension would not result in any new potentially significant impacts to terrestrial biological resources that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

Recreation

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in impacts on recreational resources. Specifically, the 2007 EIR evaluated the potential impacts related to changes in water surface elevations and river flows that could affect water-enhanced and water-dependent recreational opportunities such as wildlife viewing, fishing, waterfowl hunting, swimming, motor boating, and rafting at recreational resources (lakes, waterways, and reservoirs) within the four study area regions. The 2007 EIR concluded that there would be less-than-significant impacts to water surface elevations, river flows, and consistency with applicable recreation policies at recreational resources within the four study area regions, and no mitigation measures were required. However, it was concluded that the Yuba Accord, in combination with other future projects, may result in a potentially significant unavoidable cumulative impact on recreation in the CVP/SWP Upstream of the Delta Region due to the combined effects of multiple projects on river flow in the lower Feather and Sacramento rivers, and in the Delta Region.

The Proposed Extension would not alter water surface elevations or river flows, relative to the range of conditions that were previously evaluated in the 2007 EIR and that occur under the existing condition, and it would not result in increased use of existing neighborhood and regional parks or other recreational facilities that would cause new or accelerated substantial physical deterioration of those facilities. Further, the Proposed Extension would not include recreational facilities or require the construction or expansion of recreational facilities.

Because the Proposed Extension would not result in any new potentially significant impacts to recreational resources that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

Visual Resources

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in impacts on visual resources. Specifically, the 2007 EIR evaluated changes in monthly mean water surface elevations that could result in adverse impacts to the visual character of the landscape and the attractiveness of Class A and B resources[2]. The 2007 EIR concluded that these impacts would be less than significant, and no mitigation measures were required.

Under the Proposed Extension, no new facilities would be constructed or operated that would adversely affect a scenic vista or substantially damage scenic resources within a state scenic highway. No changes in water surface elevations would occur, relative to the range of conditions that were previously evaluated in the 2007 EIR and that occur under the existing condition. The existing landscape of the study area would not be modified and, as such, there would be no substantial degradation of the existing visual character or quality of public views. Further, the Proposed Extension would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Because the Proposed Extension would not result in any new potentially significant impacts to visual resources that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

Cultural Resources

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in impacts to cultural resources. Specifically, the 2007 EIR evaluated the potential for direct impacts to historic and archaeological resources, as well as indirect impacts through alteration of the character of a site setting and introduction of visual, audible, or atmospheric elements, which might affect the eligibility of the site for inclusion in the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). The 2007 EIR concluded that these impacts would be less than significant, and no mitigation measures were required.

Under the Proposed Extension, no new facilities would be constructed or operated. Any historic built resources present in the study area would not be affected. Existing facilities would continue to operate and perform their existing functions. It is expected they would be operated and maintained by existing practices. Ground disturbing activities, which are not related to the Proposed Extension, could occur within the study area associated with existing land use practices that are already occurring (e.g., agricultural practices). Any human remains present in the study area would not be affected. Therefore, the Proposed Extension would not cause a substantial adverse change in the significance of a historical or archaeological resource and would not disturb human remains.

Because the Proposed Extension would not result in any new potentially significant impacts to cultural resources that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

Air Quality

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in impacts to air quality. Specifically, the 2007 EIR evaluated the potential for the Yuba Accord to produce pollutants that would, on their own or combined with baseline conditions, cause a lowering of attainment status; conflict with an adopted air quality management plan, policy, or program; or violate air quality standards or contribute to an existing or projected air quality violation. The 2007 EIR concluded that these impacts in the Export Service Area would be less than significant, and no mitigation measures were required. The 2007 EIR determined that activities (i.e., groundwater extraction operations that generate emissions due to the fuel and energy required for pumping and transporting groundwater, and groundwater well pump conversions from diesel to electric motors) associated with the Yuba Accord would not

[2] Class A and B resources are defined by the US Forest Service in their Scenery Management System. Class A resources are "distinctive," and include areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide unusual, unique, or outstanding scenic quality. These landscapes have strong positive attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance. Class B resources are "typical," and include areas where landform, vegetation pattern, water characteristics, and cultural features combine to provide ordinary or common scenic quality. These landscapes generally have positive, yet common, attributes of variety, unity, vividness, mystery, intactness, order, harmony, uniqueness, pattern, and balance.

cause air quality impacts of measurable or detectable quantities in the CVP/SWP Upstream of the Delta Region. The 2007 EIR also determined that localized changes and potential air quality impacts in Yuba County would not be transferred to the Delta Region. For these reasons, the 2007 EIR concluded that detailed evaluation of air quality considerations in the CVP/SWP Upstream of the Delta Region and the Delta Region was not warranted.

For the Yuba Region, the 2007 EIR concluded that increases in emissions associated with groundwater pumping could result in potential impacts to air quality by lowering the attainment status, conflicting with adopted air quality policies and programs, or violating approved standards. These impacts were determined to be less than significant with mitigation. Mitigation Measure 15-1 required Yuba Water to provide certification documentation to the Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) indicating that groundwater pumping sources would not increase emissions, to ensure that no net impacts to air quality would occur. This mitigation measure has been and will continue to be implemented as part of the Proposed Extension, as described in Section 2.3.7, "Other Commitments as Features of the Proposed Extension."

The Proposed Extension would not cause a change in pollutant concentrations or emissions that lead to odors, because no facilities would be constructed or operated. Construction and operation of other unrelated projects and other existing sources in the Yuba Region would still occur and would generate emissions from sources such as wind-blown dust, vehicle traffic, construction and agricultural equipment, demolition of structures, soil movement, and ground disturbance. Additionally, odors would continue to be generated by existing sources, such as vehicle and equipment exhaust and agricultural activities. These sources of emissions and odors are part of the existing conditions. Therefore, the Proposed Extension would not expose sensitive receptors to substantial pollutant concentrations or generate emissions that lead to odors affecting a substantial number of people. Additionally, the Proposed Extension would not conflict with or obstruct implementation of applicable air quality plans or result in a cumulatively considerable net increase of any criteria pollutant for which the region is non-attainment.

Because the Proposed Extension would not result in any new potentially significant impacts to air quality that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

Land Use

The 2007 EIR evaluated the potential for implementation of the Yuba Accord to result in changes to land use within the Yuba Region, including conversion of farmland; consistency with general plans and policies; compatibility with adjacent existing land uses; and changes in water temperature, which could affect agricultural production. The 2007 EIR concluded that these impacts would be less than significant, and no mitigation measures were required.

Because the Proposed Extension would not construct or operate new facilities, it would not alter the existing or planned land uses of an area; convert agricultural land to non-agricultural uses; or physically divide established communities. Further, the Proposed Extension would not result in changes to water deliveries, instream flow conditions, or water temperatures that could result in compatibility with surrounding land uses, affect agricultural production, or conflict with land use plans, policies, or regulations.

Because the Proposed Extension would not result in any new potentially significant impacts to land use, including agricultural resources, that were not previously identified and there is no substantial change from the conclusions in the 2007 EIR, this issue is not discussed further in this SEIR.

ADDITIONAL ISSUE AREAS FOUND NOT TO BE SIGNIFICANT

The State CEQA Guidelines have undergone updates since the 2007 EIR was certified. These updates have addressed legislative changes to the CEQA statute, clarified certain portions of the State CEQA Guidelines, and updated the State CEQA Guidelines to be consistent with recent court decisions. The most recent update became effective on December 28, 2018. The Proposed Extension is not anticipated to result in significant impacts to the following resource categories now included in the Appendix G checklist of the State CEQA Guidelines for the reasons discussed below.

Greenhouse Gas Emissions

The 2007 EIR did not assess impacts related to greenhouse gas (GHG) emissions because CEQA did not require such an analysis at that time. SB 97, enacted in 2007, required the Governor's Office of Planning and Research (OPR) to develop, and the California Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions. On March 18, 2010, subsequent to certification of the 2007 EIR, the amendments to the State CEQA Guidelines went into effect.

In late 2018, the California Natural Resources Agency finalized amendments to the CEQA Guidelines, including changes to CEQA Guidelines Section 15064.4, which addresses the analysis of GHG emissions. The amendments were approved by the Office of Administrative Law and filed with the Secretary of State and became effective on December 28, 2018.

Although new information about the science of climate change has become available and the relationship between GHG emissions and land use planning has become better understood since the 2007 EIR was certified, impacts associated with GHGs were known at the time of certification of the 2007 EIR, and new information concerning GHGs does not constitute new significant information under CEQA (PRC Section 21166) or the CEQA Guidelines (Section 15162) because it does not constitute a new impact caused by the changes proposed in the project, as discussed below.

The Proposed Extension addressed by this Draft SEIR would not cause potentially significant impacts in this resource category because the Proposed Extension would be a continuation of the existing Water Transfer Program and would not involve physical changes to existing facilities or operations that would generate new or increased GHG emissions compared to existing conditions. Groundwater pumping would continue, as it does under existing conditions, and would not be increased under the Proposed Extension. Pumps used for groundwater pumping and water transfers are electric and, therefore, produce fewer emissions than diesel pumps. Construction and operation of other unrelated projects and other existing sources in the Yuba Region and the Export Service Area, including those associated with existing facilities, would also still occur. Emissions would be generated from sources such as vehicle traffic, construction and agricultural equipment, and operation of various facilities, but these sources of emissions are part of the existing conditions. The Proposed Extension would not generate new or increased GHG emissions relative to existing conditions that would have a significant impact on the environment. Therefore, this issue is not discussed further in this SEIR.

Forestry Resources

The 2007 EIR did not assess impacts related to conflicts with existing zoning related to, or loss or conversion of forestry resources, including timberland. The 2009 update to the State CEQA Guidelines added consideration of forestry resources to the Appendix G Checklist. The Proposed Extension addressed by this Draft SEIR would not cause potentially significant impacts in this resource category because the Proposed Extension would be a continuation of the existing Water Transfer Program, which does not involve any land-based development activities that could affect any forestry resources, including timberland. For this reason, this issue is not discussed further in this SEIR.

Tribal Cultural Resources

The 2007 EIR did not assess impacts related to tribal cultural resources because CEQA did not require such an analysis at that time. Assembly Bill No. 52 (AB 52), which became effective on July 1, 2015, established a consultation process with California Native American tribes, and established tribal cultural resources as a new class of resources to be considered in the determination of project impacts and mitigation under CEQA. AB 52 applies only to projects that have a notice of preparation or a notice of intent to adopt a negative declaration or mitigated negative declaration filed on or after July 1, 2015.

The NOP for the 2007 EIR was issued on June 20, 2005 (State Clearinghouse No. 2005062111). Because the NOP was released before AB 52 went into effect, the 2007 EIR was not required to address tribal cultural resources. Yuba Water issued an NOP for the Proposed Extension on January 12, 2023 (Appendix A). The NOP was distributed to the State Clearinghouse, county clerks, public agencies, interested Native American Tribes, and individuals requesting to be notified. In addition, on January 10, 2023, Yuba Water sent AB 52 notification letters to the following tribal representatives: Matthew Moore, Tribal Historic Preservation Officer and Chair of the Tribal Historic Preservation Committee, United Auburn Indian Community; and Regina Cuellar, Chairwoman, Shingle Springs Bank of Miwok Indians. No responses were received. The Proposed Extension addressed by this Draft SEIR would not cause potentially significant impacts to tribal cultural resources because it would be a continuation of the existing Water Transfer Program, which does not involve any ground-disturbing or other activities that could cause a substantial adverse change in the significance of a tribal cultural resource. For these reasons, this issue is not discussed further in this SEIR.

Because Reclamation was involved as a federal lead agency for NEPA compliance, the 2007 EIR evaluated the potential for implementation of the Yuba Accord to adversely affect Indian Trust Assets. Indian Trust Assets are legal interests in property held in trust by the United States for federally recognized Indian tribes or individual Indians. An Indian Trust has three components: (1) the trustee; (2) the beneficiary; and (3) the trust asset. Indian Trust Assets can include land, minerals, federally reserved hunting and fishing rights, federally reserved water rights, and instream flows associated with trust land. Beneficiaries of the Indian Trust relationship are federally recognized Indian tribes with trust land; the United States is the trustee. The 2007 EIR concluded that the Yuba Accord would not affect Indian Trust Assets, and no mitigation measures were required. Therefore, this issue is not discussed further in this SEIR.

Wildfire

The 2007 EIR did not assess impacts related to wildfire in or near a state responsibility area or lands classified as very high fire hazard severity zone because CEQA did not require such an analysis at that time. The 2018 update to the State CEQA Guidelines added the resource category of wildfire to the Appendix G Checklist. The Proposed Extension addressed by this Draft SEIR would not cause potentially significant impacts in this resource category because the Proposed Extension would be a continuation of the existing Water Transfer Program, which does not involve any land-based development activities that could affect lands within or near a state responsibility area or lands classified as very high fire hazard severity zone. For this reason, this issue is not discussed further in this SEIR.

3.2 SURFACE WATER SUPPLY AND MANAGEMENT

This section identifies the existing regulatory context and policies related to surface water supply and management, describes the existing conditions in the study area, and evaluates potential surface water supply and management impacts of the Proposed Extension.

3.2.1 Regulatory Setting

Yuba Water's activities in the Yuba Region are regulated through a series of agreements, contracts, and laws. The primary focus of these regulations is on flows in the lower Yuba River, but reservoir and powerhouse operations are also subject to control by these various regulatory requirements and related documents. With regard to the Central Valley Project (CVP)/State Water Project (SWP) Upstream of the Delta Region and the Delta Region, the US Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) must operate the CVP/SWP system in accordance with similar regulations and laws. These regulations include laws passed by the federal and state government, as well as agreements with federal and state agencies.

FEDERAL

Federal Power Act

The Federal Power Act (FPA) (16 U.S.C. Section 791 et seq.) is the primary federal statute governing the wholesale transmission and sale of electric power, as well as the regulation of hydroelectric power. Under the authority of the FPA, the Federal Energy Regulatory Commission (FERC) licenses and oversees the construction and operation of non-federal hydroelectric projects in the United States. With respect to the Accord Extension and Yuba Water operations in the project area, there are two non-federal hydroelectric projects (Yuba River Development Project [YRDP] and the Narrows Hydroelectric Project) licensed by FERC under the FPA in the Yuba Region that provide managed flow releases into the lower Yuba River downstream of Englebright Dam. With respect to SWP operations in the CVP/SWP Upstream of the Delta Region, there is one non-federal hydroelectric project (Oroville Facilities) licensed by FERC under the FPA.

FERC License for the Yuba River Development Project

FERC originally issued a license under the FPA for the YRDP (FERC Project No. 2246) on May 16, 1963. Instream flow requirements for the YRDP were originally specified in a September 2, 1965 agreement between Yuba Water and the California Department of Fish and Game (CDFG). On May 6, 1966, FERC issued an order amending the FERC license to incorporate the water release and instream flow requirements in the 1965 Stream Flow Release Agreement between Yuba Water and CDFG. Yuba Water is obligated to operate in such a way as to meet minimum instream flows throughout the year below New Bullards Bar Dam, Englebright Dam, and Daguerre Point Dam. The State Water Resources Control Board (SWRCB) approved the Yuba Accord in Corrected Order WR 2008-0014, containing required flows and other conditions through permanent changes to Yuba Water's consumptive water rights resulting in required flows that almost always are higher than required instream flows of the existing YRDP FERC license. The existing FERC license includes required flow fluctuation criteria that are almost identical to those requirements in Yuba Water's water rights. The initial 50-year FERC license expired in 2016 and since that time Yuba Water has operated under annual FERC licenses that are identical to the initial 50-year license. Yuba Water is currently in the process of obtaining a new FERC license for the YRDP.

FERC License for the Narrows Hydroelectric Project

In 1993, FERC issued a new license to PG&E for the continued operation of the Narrows Hydroelectric Project (FERC Project No. 1403), located below the left abutment of Englebright Dam. The existing FERC project consists of one development that includes the Narrows 1 Powerhouse, the Narrows tunnel, the Narrows penstock and a powerhouse access tram. The 1993 FERC license imposed new instream flow requirements for fisheries resources in the lower Yuba River, and requires minimum flows to be measured at the Smartsville Gage (approximately 15 miles northeast of Marysville in Yuba County) on the lower Yuba River. Table 3.2-1 lists the required minimum flow requirements currently in place for the Narrows Hydroelectric Project.

Table 3.2-1 Narrows 1 FERC License Lower Yuba River Instream Flow Requirements at Smartsville

Period	Flow (cfs)
October 1 to April 30	450
May 1 to June 30	700
July 1 to September 30	450

Notes: cfs = cubic feet per second.
Source: FERC 1993.

Historically, PG&E owned and operated the Narrows 1 Powerhouse. During 2019, FERC approved the transfer of the Narrows Hydroelectric Project FERC license from PG&E to Yuba Water. PG&E sold the Narrows Hydroelectric Project to Yuba Water on March 31, 2020, and Yuba Water began operating the project on April 1, 2020. Yuba Water coordinates releases from the YRDP facilities downstream of Englebright Dam (i.e., Narrows 2 Powerhouse, Narrows 2 Partial Bypass and Narrows 2 Full Bypass) and the Narrows Project (Narrows 1 Powerhouse) based on regulatory requirements, water demands, inflows from releases from New Bullards Bar Reservoir, uncontrolled inflows, management of storage levels in Englebright Reservoir and capacity of the generators and bypasses.

Because the existing FERC license for the Narrows Project expires on January 31, 2026, Yuba Water filed with FERC a Notice of Intent to Apply for a New License for the Narrows Hydroelectric Project in 2021. On June 6, 2023, Yuba Water made available to stakeholders a draft of the Application (DLA) for a 90-day review and written comment period ending on September 4, 2023 (Yuba Water 2023). Yuba Water is currently in the process of preparing a final license application (FLA) which will be submitted to FERC as part of the process for obtaining a new FERC license for the Narrows Hydroelectric Project.

FERC License for the Oroville Facilities

The Oroville Facilities (FERC Project No. 2100-052) were developed as part of the SWP. DWR is in the process of seeking a new FERC license to continue generating hydroelectric power while continuing to meet existing commitments and comply with regulations pertaining to water supply, flood control, the environment, and recreational opportunities. The original FERC license (issued on February 11, 1957) to operate the Oroville Facilities expired on January 31, 2007. Since 2007, DWR has operated under annual licenses reflecting the original FERC license conditions. In 2010, the SWRCB approved issuance of a water quality certification for the Oroville Facilities relicensing with FERC. The new FERC license for the Oroville Facilities has not yet been adopted by FERC. Until a new license for the Oroville Facilities is issued by FERC, DWR will continue to operate the Oroville Facilities in accordance with the current (original) license conditions.

Flood Control Act of 1944

The Flood Control Act of 1944 (P.L. 78–534) authorized the construction of numerous public works on rivers and harbors for flood control, and for other purposes. Per Section 7 of the Flood Control Act of 1944, the US Army Corps of Engineers (USACE) is responsible for prescribing regulations for the use of storage allocated for flood control or navigation at all reservoirs constructed wholly or in part with Federal funds provided for those purposes.

Yuba River Flood Control Regulations (Yuba Region)

New Bullards Bar Reservoir must be operated from September 16 to May 31 to comply with Part 208 "*Flood Control Regulations, New Bullards Bar Dam and Reservoir, North Yuba River, California,*" pursuant to Section 7 of the Flood Control Act of 1944 (58 Stat. 890). Under the contract between the United States and Yuba Water, entered into on May 9, 1966, Yuba Water agreed to reserve 170 thousand acre-feet (TAF) of storage space for flood control in accordance with rules and regulations enumerated in Appendix A of the Report on Reservoir Regulation for Flood Control (USACE 1972). The seasonal flood storage space allocation schedule is presented in Table 3.2-2.

Table 3.2-2 New Bullards Bar Reservoir Flood Storage Space Allocation

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Storage (TAF)	170	170	170	170	170	170	70	0	0	0	0	56

Notes: TAF = thousand acre-feet.

Source: USACE 1972.

During flood control operations, the seasonal flood pool specified in USACE's flood operation manual for New Bullards Bar Reservoir is kept evacuated for flood protection, and to avoid unnecessary flood control releases. Reservoir releases may be required to maintain flood control space between September 15 and June 1.

Feather River Flood Control Regulations (CVP/SWP Upstream of the Delta Region)

DWR has described the Oroville Facilities as an integral component of the Sacramento River Flood Control Project, the flood management system for areas along the Feather and Sacramento Rivers. From September to June, the Oroville Facilities are operated under flood control requirements specified by USACE (1970). USACE requires Oroville Reservoir to be operated to maintain up to 750 TAF of storage space to capture significant inflows for flood control. Among other flood management operating rules, USACE (1970) also requires that: (1) flow in the Feather River upstream of the Yuba-Feather River confluence cannot exceed 180,000 cfs, unless specified by the Emergency Spillway Release Diagram (ESRD); and (2) flow in the Feather River downstream of the Yuba-Feather River confluence cannot exceed 300,000 cfs, unless specified by the ESRD. In general, DWR's operations at Oroville Dam and Reservoir usually result in the following: (1) lower reservoir levels in the late winter and early spring for flood control purposes, (2) higher levels in the late spring and early summer when higher flows may be captured without affecting flood protection, and (3) declining reservoir levels in the late summer and fall as the stored water is used (FERC 2007).

Central Valley Project Improvement Act

The Central Valley Project Improvement Act (CVPIA) authorized the CVP to include fish and wildlife protection as a project purpose, equal in priority to water supply for agricultural and urban uses. CVPIA Section 3406(b)(2) authorized and directed the Secretary of the Interior, among other actions, to dedicate and manage 800 TAF of CVP yield annually for the primary purpose of implementing the fish, wildlife, and habitat restoration purposes and measures authorized in the CVPIA, to assist the State of California in its efforts to protect the waters of the San Francisco Bay-Delta estuary, and to help meet obligations legally imposed on the CVP under federal or state law following the date of enactment of the CVPIA. Dedication of CVPIA 3406(b)(2) water occurs when Reclamation takes a fish and wildlife habitat restoration action based on recommendations of USFWS (and in consultation with NMFS and CDFW), pursuant to Section 3406(b)(2). The CVPIA affects water exports from the Delta to San Luis Reservoir and increases operational pressures on the reservoir to meet south of Delta water demands. For example, water exports at the CVP pumping facilities have been reduced using Section 3406(b)(2) water to decrease the risk of fish entrainment at the salvage facilities and to augment river flows.

CVPIA sections 3406(d)(1) and 3406(d)(2) dedicate two water supplies to refuges - Level 2 water and Level 4 water. The CVPIA requires delivery of Level 2 water in all year types except critically dry water year conditions, when Level 2 water can be reduced by 25 percent. Level 4 water amounts to about 163 TAF and are in addition to Level 2 water supplies. The availability of Level 4 water is influenced by the availability of water for transfer from willing sellers, which varies from year to year (DWR 2018a).

Clean Water Act

The Clean Water Act (CWA) (33 United States Code Section 1251 et seq.) establishes the institutional structure for the Environmental Protection Agency (EPA) to regulate point and nonpoint discharges of pollutants into the waters of the United States, establish water quality standards, and implement pollution control programs. The CWA authorizes the EPA to delegate many permitting, administrative, and enforcement aspects of the law to state governments. In California, the SWRCB has been designated by EPA to develop and enforce water quality objectives and implementation plans. The preparation and adoption of water quality control plans (i.e., basin plans) is required by

the California Water Code (Section 13240) and supported by the federal CWA. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the basin plans are regulatory references for meeting the state and federal requirements for water quality control (40 CFR 131.20). Water operations in the Yuba Region, the CVP/SWP Upstream of the Delta Region and the Delta Region must comply with the CWA by meeting water quality objectives and protecting beneficial uses of water. For additional information, see Chapter 3.5, Surface Water Quality.

Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. For additional information on the ESA, see Section 3.4.1 (Regulatory Setting) of the fisheries chapter of this SEIR.

Biological Opinions on Effects of Coordinated CVP and SWP Operations

Several fish species listed as threatened or endangered under the federal ESA, as well as their designated critical habitat, are found in the CVP/SWP Upstream of the Delta Region and in the Delta Region. The health and the viability of these fish populations can be affected by various factors, including CVP and SWP operations, among others.

Since the 1990s, the USFWS and NMFS have issued several biological opinions (BOs) on the effects of coordinated CVP/SWP operations on ESA-listed species and their designated critical habitat. Among other requirements, the BOs have contained operational requirements (e.g., flow, water temperature) for the Feather and Sacramento rivers, as well as requirements (e.g., Delta inflow, Delta outflow, salinity, total Delta exports, other export pumping restrictions, etc.) for the Delta to protect listed species. Many of the initial requirements were incorporated into the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta[2], which is described in Section 3.5 of this SEIR. Over time, changes to the USFWS and NMFS BO requirements have imposed substantial constraints on the CVP/SWP system, and in particular Delta water supply operations.

The terms of the USFWS and NMFS BOs have become increasingly restrictive over the years. For example, the 2008 USFWS BO included requirements on operations in all but 2 months of the year, and called for "adaptively managed" (adjusted as necessary based on the results of monitoring) flow restrictions in the Delta intended to protect various lifestages of delta smelt. USFWS determines the required target flow with the reductions accomplished primarily by reducing CVP and SWP exports. Because this flow restriction is determined based upon fish location and decisions by USFWS staff, predicting the flow restriction and corresponding effects on export pumping with any great certainty poses a challenge. The 2008 USFWS BO also included an additional salinity requirement in the Delta for September and October during wet and above-normal water years, calling for increased releases from SWP and CVP reservoirs to reduce salinity. Among other provisions included in the 2009 NMFS BO, limits on total Delta exports were established for the months of April and May. These limits are mandated for all but extremely wet years. The 2008 USFWS BO and the 2009 NMFS BO were respectively issued shortly before and after the Governor of California proclaimed a statewide water shortage state of emergency in February 2009, amid the threat of a third consecutive dry year. NMFS calculated that implementing its BO would reduce SWP and CVP Delta exports by a combined 5 percent to 7 percent, but DWR's initial estimates showed an impact on exports closer to 10 percent in average years, combined with the effects of pumping restrictions imposed by the BOs to protect delta smelt and other species (DWR 2018b).

In 2016, Reclamation and DWR jointly requested reinitiated consultation with NMFS and USFWS on the long-term operation of the CVP and SWP due to new information related to multiple years of drought and new data demonstrating declining population levels for winter-run Chinook salmon. USFWS and NMFS released new BOs in 2019. Reclamation released its *Reinitiation of Consultation on the Coordinated Long-Term Modified Operations of the Central Valley Project and State Water Project Final EIR* in December 2019 and approved a Record of Decision that finalized the environmental review in February 2020. DWR issued its *Final Environmental Impact Report for Long-Term Operation of the California State Water Project* in March 2020. Reclamation (and DWR) then began to operate according to the new operations plan in early 2020.

Most recently, conditions in the CVP/SWP system and the Delta since 2020 have been substantially influenced as a result of implementing the operational changes associated with the updated NMFS (2019) and USFWS (2019) BOs on the long-term operations of the CVP and the SWP. Among the suite of changed operational conditions, CVP/SWP operations: (1) result in the total amount of SWP water exported from the Delta to generally be expected to remain the same as under existing conditions; (2) provide CDFW with authority in the real-time decision making process; (3) provide new protections for salmon to minimize emigrating juvenile Chinook salmon entrance into the Central Delta; (4) include spring-run Chinook salmon loss thresholds to manage flows at Old and Middle rivers and minimize entrainment at the SWP export facilities; and (5) include adaptive management actions (DWR 2020a). Reclamation and DWR's operations include a dedicated "block" of water for summer or fall Delta outflow and spring maintenance flows, which through the adaptive management plan could be shifted for use in the summer-fall period of the current year or spring-fall of the subsequent year.

Overall, implementation of the 2019 USFWS and NMFS BOs have affected the CVP's and the SWP's water delivery capability in two ways. Most notably, the BOs include terms that restrict CVP and SWP exports in the Delta to specific amounts at certain times under certain conditions. The recent BOs also include Delta outflow requirements during certain times of the year thus reducing the available supply for export or storage.

2021 Reinitiation of ESA Consultation for Long-Term CVP/SWP Operations

On September 30, 2021, Reclamation and DWR requested reinitiation of consultation with USFWS and NMFS on long-term operations of the CVP and SWP. The request was based on anticipated modifications to the Proposed Action that may cause effects to listed species or designated critical habitats not analyzed in the 2019 USFWS and NMFS BOs. Reclamation and DWR anticipate that new BOs for the CVP and SWP may be issued in 2024.

2016 NMFS Biological Opinion on the Oroville Facilities FERC Relicensing and Feather River SWP Operations

DWR operates the Oroville Facilities Project (including Oroville Reservoir) to meet the needs of the SWP (i.e., water delivery to meet urban and irrigation demands, flood control, power generation, recreation, SWRCB Decision D-1641 for flow and water quality standards for the Sacramento-San Joaquin Delta, and fish and wildlife protection). In 2016, NMFS issued a BO that concluded that the Oroville Facilities (also known as the Feather River Division of the SWP) operations would not jeopardize the continued existence of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, or the Southern DPS of North American green sturgeon. As they relate to conveyance of SWP water through the Sacramento River and the Delta, NMFS (2016d) stated that: (1) "*the Oroville Facilities water management operations are such a large component of the SWP water management operations that they are inextricably linked to the coordinated operation of OCAP"; (2) the effects of the co-mingled flows of the CVP and SWP in the lower Sacramento River, downstream from the confluence of the Feather River with the Sacramento River, through the Sacramento-San Joaquin River Delta… to the Pacific Ocean"; and (3) "The effects of the broad, coordinated operations of the SWP and the CVP were considered in a separate biological opinion…*" titled "*Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project*" (NMFS 2009). With respect to operations affecting flows and water temperatures in the Sacramento River and the Delta, NMFS (2009) BO on CVP/SWP operations was superseded by NMFS (2019) BO described above.

STATE

California Water Rights

A water right is a legally granted and protected right to take possession of water and put it to beneficial use. As authorized by the California Water Code, the SWRCB allocates surface water rights and permits the diversion and use of water throughout the State. The SWRCB issues permits to divert water for new appropriations and approves changes to existing water right permits and licenses. The SWRCB attaches conditions to these permits to ensure that the water user prevents waste, conserves water, does not infringe on the rights of others, and puts the State's water resources to the beneficial use in the best interest of the public (DWR 2018a).

SWRCB Decision 1644 (Yuba Region)

The SWRCB conducted hearings in 1992 and 2000 that led to the adoption of Water Right Decision 1644 (Decision-1644 or D-1644) on March 1, 2001. Yuba Water, several local water districts in Yuba County, and a coalition of conservation nongovernmental organizations (NGOs) all initiated legal actions challenging D-1644 on a variety of grounds. After considering new evidence, the court remanded D-1644 to the SWRCB for reconsideration. Following a two-day hearing, the SWRCB issued RD-1644 on July 16, 2003 (Yuba Water et al. 2007).

SWRCB Revised Decision 1644 (Yuba Region)

Revised Decision 1644 (RD-1644), adopted by the SWRCB on July 16, 2003, specified both long-term and interim instream flow requirements for the lower Yuba River. The long-term flow requirements established in RD-1644 were scheduled to come into effect on April 1, 2008. Minimum instream flow requirements were to be measured by a 5-day running average of average daily stream flows. In 2008, based on the evidence in the record, the SWRCB concluded that it was appropriate to approve Yuba Water's petition for modification of water rights by making changes to the conditions of RD-1644 and to approve the Yuba Water petition for long-term transfer of water in SWRCB Corrected Order WR 2008-0014. Consequently, RD-1644 was modified by the SWRCB in 2008 to implement new instream flows and other elements of the Lower Yuba River Accord (Yuba Accord), replacing the interim and long-term flow requirements of RD-1644.

Lower Yuba River Accord (Yuba Region)

Yuba Water has been operating the YRDP to implement the Yuba Accord since 2006. The 2006, 2007, and early 2008 operations were under 1-year pilot programs that were approved by the SWRCB through its Orders WR 2006-0009, WR 2006-0010, WR 2007-0002 and WR 2007-0012-DWR. Implementation of the Yuba Accord began in 2008 following the certification of the Final EIR for the Yuba Accord in 2007 and the issuance by the SWRCB of Corrected Water Right Order 2008-14 in 2008, approving the addition of the SWP and CVP service areas as places of use and the Delta export pumps as points of re-diversion to Yuba Water's water rights permits through the year 2025. Since 2008, Yuba Water has been operating the YRDP to implement the Yuba Accord according to the authorizations and requirements in SWRCB Corrected Water Right Order WR 2008-0014.

The SWRCB's Corrected Water Right Order WR 2008-0014, and its approval of the Yuba Accord, was implemented directly and in some instances, by reference to several conditions of the Yuba Accord Fisheries Agreement. The SWRCB's Corrected Order WR 2008-0014 revised the required instream flows of D-1644 (and RD-1644) and added other requirements included in the Fisheries Agreement. The Fisheries Agreement established new instream flow schedules for the lower Yuba River Chinook salmon, steelhead, and other fish species, which would provide protection equivalent or greater than the protection provided by the instream flow requirements in RD-1644. A suite of six flow schedules for specific water year type, plus Conference Year rules for 1-in-100 critically dry years, had been developed for the Fisheries Agreement. The flow schedules are based on water availability, including inflow into New Bullards Bar Reservoir and reservoir carry-over storage.

The flow schedules were developed by biologists representing Yuba Water, the non-governmental organizations (NGOs), CDFW, National Marine Fisheries Service (NMFS), and US Fish and Wildlife Service (USFWS) with the express goal of optimizing fisheries conditions in the lower Yuba River, given existing operational and physical constraints on the river. During development of the flow regime for the Fisheries Agreement, extensive stressor analyses were undertaken, and several dozen flow combinations were analyzed (see Yuba Water et al. 2007 for additional details).

The six flow schedules for specific types of water years are based on hydrologic conditions represented by the North Yuba Index (NYI). The NYI is an indicator of the amount of water available in the North Yuba River at New Bullards Bar Reservoir that could be used to achieve proposed project flow schedules on the lower Yuba River through operations of the reservoir. The estimated frequencies of occurrence of year-type designations under the NYI are shown in Table 3.2-3.

Table 3.2-3 Instream Flow Schedule Occurrence

Schedule	North Yuba Index (TAF)	Percent Occurrence (%)	Cumulative (%)
1	≥ 1,400	56	56
2	1,040 – 1,399	22	78
3	920 – 1,039	7	85
4	820 – 919	5	90
5	693 – 819	5	95
6	500 – 692	4	99
Conference	< 500	1	100

Notes: TAF = thousand acre-feet.

Source: Yuba Water et al. 2007.

In addition to the six types of water years for the flow schedules, Conference Years are expected to occur at a frequency of one percent or less (during the driest years). Conference Years are defined as water years for which the NYI is less than 500 TAF. The Yuba Accord includes provisions for the management and operation of the YRDP in Conference Years. In such years, Yuba Water would meet with the parties to the Fisheries, Conjunctive Use, and the Water Purchase agreements to develop a strategic management plan to balance water supply and lower Yuba River instream flow needs for that year. Yuba Water also would notify the SWRCB of the Conference Year conditions and the SWRCB could potentially take action under Corrected Order WR 2008-0014.

As part of the Yuba Accord, Yuba Water operates the YRDP and manages lower Yuba River instream flows according to the revised instream flow requirements of the Yuba Accord, and according to specific flow schedules, numbered 1 through 6 (measured at the Marysville Gage) and lettered A and B (measured at the Smartsville Gage), based on water availability (see Table 3.2-4 for Schedules 1 through 6 and Table 3.2-5 for Schedules A and B). The specific flow schedule that is implemented at any time is determined by the value of the NYI and the rules described in the Fisheries Agreement.

In Schedule 6 water years, an additional 30 TAF of water is made available through groundwater substitution programs during the portions of such water years when this water would be transferable under provisions of the Water Purchase Agreement. This groundwater component is managed by the River Management Team (RMT) to achieve maximum fisheries resource benefits during the transfer period (i.e., June 16 to August 31). Additionally, pursuant to specific rules, minor modifications to the applicable instream flow requirements in Schedules 1 through 6 may be agreed to by the RMT.

Table 3.2-4 Yuba Accord – Lower Yuba River Minimum Instream Flows (cfs) for Schedules 1 through 6, Measured at the Marysville Gage

Schedule [a]	Oct 1-31	Nov 1-30	Dec 1-31	Jan 1-31	Feb 1-29	Mar 1-31	Apr 1-15	Apr 16-30	May 1-15	May 16-31	Jun 1-15	Jun 16-30	Jul 1-31	Aug 1-31	Sep 1-30
1	500	500	500	500	500	700	1,000	1,000	2,000	2,000	1,500	1500	700	600	500
2	500	500	500	500	500	700	700	800	1,000	1,000	800	500	500	500	500
3	500	500	500	500	500	500	700	700	900	900	500	500	500	500	500
4	400	500	500	500	500	500	600	900	900	600	400	400	400	400	400
5	400	500	500	500	500	500	500	600	600	400	400	400	400	400	400
6 [b, c]	350	350	350	350	350	350	350	500	500	400	300	150	150	150	350

Notes:

[a] Under the Yuba Accord (using the NYI), Schedule 1 years are years with the NYI ≥ 1,400 TAF, Schedule 2 are years with NYI 1,040 to 1,399 TAF, Schedule 3 are years with NYI 920 to 1,039 TAF, Schedule 4 are years with NYI 820 to 919 TAF, Schedule 5 are years with NYI 693 to 819 TAF, Schedule 6 are years with NYI 500 to 692 TAF, and Conference Years are years with NYI < 500 TAF.

[b] Indicated flows represent the average flow rate at the Marysville Gage for the specified time periods listed above. Actual flows may vary from the indicated flows according to established criteria.

[c] Indicated Schedule 6 flows do not include an additional 30 TAF available from groundwater substitution to be allocated according to the criteria established in the Fisheries Agreement.

Source: Yuba Water et al. 2007.

Table 3.2-5 Yuba Accord – Lower Yuba River Minimum Instream Flows (cfs) for Schedules A and B, Measured at the Smartsville Gage

Schedule [a]	Oct 1-31	Nov 1-30	Dec 1-31	Jan 1-31	Feb 1-29	Mar 1-31	Apr 1-15	Apr 16-30	May 1-15	May 16-31	Jun 1-15	Jun 16-30	Jul 1-31	Aug 1-31	Sep 1-30
Aa	700	700	700	700	700	700	700	c	c	c	c	c	c	c	700
Bb	600	600	550	550	550	550	600	c	c	c	c	c	c	c	500

Notes:

[a] Schedule A flows are to be used concurrently with Schedules 1, 2, 3, and 4 at Marysville.

[b] Schedule B flows are to be used concurrently with Schedules 5 and 6 at Marysville.

[c] During the summer months, flow requirements at the downstream Marysville Gage always will control, and thus, Schedule A and Schedule B flows were not developed for the May through August period. Flows at the Smartsville Gage will equal or exceed flows at Marysville.

Source: Yuba Water et al. 2007.

In Conference Years, the strategic management plan would identify the steps that Yuba Water and the Member Units would undertake to ensure that total water diversions at Daguerre Point Dam would not exceed 250 AF per year. Groundwater pumping practices are implemented to meet irrigation demand. Minimum instream flow requirements in Conference Year conditions are the existing FERC license requirements with some modifications. The RMT also may determine and advise Yuba Water to make additional instream flows depending on water availability for the purposes of meeting fisheries resources needs. Other flow elements in the Fisheries Agreement include rules regarding shifting flow releases to achieve specific biological objectives as directed by the RMT, and rules for supplemental surface and groundwater transfers.

State Water Project (CVP/SWP Upstream of the Delta Region and Delta Region)

DWR has water rights to store, divert, and use water from the Feather River and its tributaries for the production of power, water supply, recreation, and fish and wildlife protection and mitigation (FERC 2007). The SWP (and CVP) water rights allow appropriation of water by directly using and/or diverting water to storage for later withdrawal and use, or use and re-diversion to storage further downstream for later consumptive use. Among the conditions of those water rights are requirements for projects either to bypass or withdraw water from storage and to help satisfy specific water quality, quantity, and operations criteria in source rivers (e.g., Feather, Sacramento) and within the Delta (DWR 2019). The diversion and storage of water by the SWP in Oroville Reservoir, and diversion and export of water from the Delta, are authorized by the SWRCB as follows.

SWRCB Decisions 1275 and 1291

The SWRCB first issued permits to DWR for operation of the SWP in 1967 (D-1275 and D-1291).

SWRCB Water Right Decision 1641

Decision 1641 (or D-1641) and Order WR 2001-05 contain the current water right requirements to implement the 1995 Water Quality Control Plan (WQCP)[1]. The requirements in D-1641 address the objectives for fish and wildlife

[1] Reclamation and DWR's operation of the CVP and SWP changed significantly in 1978 with the issuance of the Water Quality Control Plan (WQCP) under the SWRCB Water Rights Decision 1485 (D-1485). D-1485 imposed on the water rights for the CVP and SWP new terms and conditions that required Reclamation and DWR to meet certain standards for water quality protection for agricultural, municipal and industrial (M&I), and fish and wildlife purposes, incorporated a variety of Delta flow actions, and set salinity standards in the Delta while allowing the

protection, water supply water quality, and Suisun Marsh salinity. Key features of the 1995 WQCP include estuarine habitat objectives for Suisun Bay and the western Delta (consisting of a salinity measurement [i.e., X2] at several locations), export to inflow [E/I] ratios intended to reduce entrainment of fish at the export pumps, Delta Cross Channel gate closures, and San Joaquin River electrical conductivity (EC) and flow standards. These objectives include specific Delta outflow requirements throughout the year, specific export limits in the spring, and export limits based on a percentage of estuary inflow throughout the year.

D-1641 also incorporates water right settlement agreements between Reclamation and DWR and certain water users in the Delta and upstream watersheds regarding contributions of flows to meet water quality objectives. The SWRCB imposed terms and conditions on the water rights held by Reclamation and DWR that require them, in some circumstances, to meet many of the water quality objectives established in the 1995 WQCP. D-1641 also authorizes the CVP and SWP to use joint points of diversion in the south Delta, and recognizes the CALFED Operations Coordination Group process for operational flexibility in applying or relaxing certain protective standards.

1983 DWR-CDFW Agreement

DWR maintains a minimum flow of 600 cubic feet per second (cfs) within the Feather River low flow channel (LFC), as required by the 1983 CDFW Agreement (except during flood events when minimum flows are governed by the USACE (1970) Water Control Manual and under certain other conditions as described in the 1984 FERC order). Downstream of the Thermalito Afterbay Outlet, in the high flow channel (HFC), per the license and the 1983 CDFW Agreement, minimum releases for flows in the Feather River are 1,000 cfs from April through September and 1,700 cfs from October through March, when the April-to-July unimpaired runoff in the Feather River is greater than 55 percent of normal. When the April-to-July unimpaired runoff is less than 55 percent of normal, the minimum flow requirements are 1,000 cfs from March to September and 1,200 cfs from October to February. The 1983 CDFW Agreement also states that if the April 1 runoff forecast in a given year indicates that the reservoir level would be drawn down to 733 feet, water releases for fish may be reduced, but not by more than 25 percent.

Central Valley Project – Sacramento River Division (CVP/SWP Upstream of the Delta Region and Delta Region)

Reclamation operates the Shasta, Sacramento River, and Trinity River divisions of the CVP to meet (to the extent possible) the provisions of SWRCB Order 90-05. An April 5, 1960 Memorandum of Agreement between Reclamation and CDFW originally established flow objectives in the Sacramento River for the protection and preservation of fish and wildlife resources. The agreement provided for minimum releases into the natural channel of the Sacramento River at Keswick Dam for normal and critically dry years. Since October 1981, Keswick Dam has operated based on a minimum release of 3,250 cfs for normal years from September 1 through the end of February, in accordance with an agreement between Reclamation and CDFW. This release schedule was included in SWRCB Order 90-05, which maintains a minimum release of 3,250 cfs at Keswick Dam and a bypass flow criteria of 3,250 cfs downstream from the Red Bluff Diversion Dam from September through the end of February in all water years except critically dry years.

In 1990 and 1991, SWRCB issued Water Rights Orders 90-05 and 91-01 modifying Reclamation's water rights for the Sacramento River. The orders stated that Reclamation shall operate Keswick and Shasta Dams and the Spring Creek Power Plant to meet a daily average water temperature of 56°F as far downstream in the Sacramento River as practicable during periods when higher temperature would be harmful to fisheries. The optimal control point is the Red Bluff Diversion Dam.

SWRCB orders also required Reclamation to establish the Sacramento River Temperature Task Group (SRTTG) to formulate, monitor, and coordinate temperature control plans for the upper Sacramento and Trinity Rivers. This

diversion of flows into the Delta during the winter/spring. Generally, during the time D-1485 was in effect, natural flows met water supply needs in normal and wetter years and reservoir releases generally served to meet export needs in drier years (Reclamation 2019).

The 1995 WQCP established water quality control objectives for the protection of beneficial uses in the Delta. The 1995 WQCP identified (1) beneficial uses of the Delta to be protected; (2) water quality objectives for the reasonable protection of beneficial uses; and (3) a program of implementation for achieving the water quality objectives. Because these beneficial objectives and water quality standards were more protective than those of the previous D-1485, the new objectives were adopted in 1995 through a water rights order for the operation of the CVP and SWP.

group consists of representatives from Reclamation, SWRCB, NMFS, USFWS, CDFW, Western, DWR, and the Hoopa Valley Indian Tribe. Each year, with finite cold-water resources and competing demands usually an issue, the SRTTG devise operation plans with the flexibility to provide the best protection consistent with the CVP's temperature control capabilities and considering the annual needs and seasonal spawning distribution monitoring information for winter-run and fall-run Chinook Salmon. In every year since SWRCB issued the orders, those plans have included modifying the Red Bluff Diversion Dam compliance point to make best use of the cold-water resources based on the location of spawning Chinook Salmon. The SWRCB has overall authority to determine if the plan is sufficient to meet water right permit requirements.

Coordinated Operation Agreement

The Coordinated Operation Agreement (COA) is an agreement between DWR and Reclamation that governs the coordinated operations of the CVP and the SWP in the CVP/SWP Upstream of the Delta Region and the Delta Region. The D-1485 requirements (see footnote 1, above) applied jointly to both the CVP and SWP, requiring a joint understanding between the two water projects of how to share responsibilities for meeting water quality standards. To ensure operations of the CVP and SWP were coordinated, the *Agreement between the United States of America and the State of California for Coordinated Operation of the Central Valley Project and the State Water Project* was negotiated by the United States and the State of California and approved by Congress in 1986 (Public Law 99-546), establishing terms and conditions by which Reclamation and DWR would coordinate operation of the CVP and SWP. It includes CVP and SWP project responsibilities for meeting in-basin water uses including diversions and instream requirements for environmental flows and water quality. The COA also allows shared use of export facilities and regulates rights to un-stored water. Some of these responsibilities depend on conditions in the Delta and CVP and SWP Delta exports (Reclamation and SPA 2023).

2018 Coordinated Operation Agreement Addendum

As discussed above, the 1986 COA established the shared responsibility for each of the SWP and CVP to meet water quality and regulatory standards. The 1986 COA envisioned Delta salinity requirements but did not address export restrictions during excess conditions (Reclamation 2019a). Between 1986 and 2018, the SWRCB imposed additional restrictions, including new Delta outflow requirements, which further restricted Delta exports and affect CVP and SWP operations. In response to these changes, a joint review of the 1986 agreement was conducted by both DWR and Reclamation. The COA was amended in 2018 and addresses export restrictions (Reclamation 2019a). Modifications to the COA stipulated in the most recent 2018 addendum include the following (DWR 2020b):

- Meeting In-Basin Requirements: When water supply is in balance (i.e., not in excess), the percent of water required to be released from storage by each project to meet in-basin uses depends on water year type, with the CVP percent ranging from 80 percent during wet and above normal years to 60 percent during critical years.
- SWP Conveyance of CVP Water: The SWP may export up to 195 TAF of CVP water at the SWP Harvey Banks Pumping Plant as long as this conveyance does not interfere with SWP exports.
- Dividing Export Pumping when Exports are Limited by Delta Regulations. In the past, when Delta exports were constrained, the CVP and SWP divided allowable exports equally based on informal agreement. With the 2018 addendum, the division has become dependent on whether the Delta is in balanced or excess conditions. Under balanced conditions, the CVP can pump 65 percent of what is allowed and under excess conditions, the CVP can pump 60 percent of what is allowed.
- Periodic COA Review. COA review will occur every 5 years, after changes in export-related requirements imposed on both the CVP and SWP, or after construction of a new or substantially modified state or federal facility.
- The new or modified facility would need to be compatible with the requirements of this agreement.

At the conclusion of the joint review, DWR and Reclamation agreed to the COA Addendum to reflect the current regulatory environment and operations of the projects. The adoption of this Addendum was challenged under CEQA and litigation is pending.

Sacramento-San Joaquin Delta Reform Act

In 2009, the Sacramento-San Joaquin Delta Reform Act was passed, which established two 'coequal goals' of: (1) securing a reliable water supply for California; and (2) protecting, restoring, and enhancing the Sacramento-San Joaquin Delta ecosystem. The Delta Reform Act also created the Delta Stewardship Council as a new, independent state agency that will delineate how to meet these goals through development and implementation of the Delta Plan. The Delta Plan contains a set of regulatory policies that are to be enforced by the Delta Stewardship Council. It also contains priority recommendations, which are nonregulatory but identify actions essential to achieving the coequal goals of the Delta Reform Act. The Delta Stewardship Council adopted the Delta Plan and implementing regulations in May 2013. The Delta Plan and implementing regulations address water supply in the Delta directly and indirectly (Delta Stewardship Council 2016, 2018).

The Delta Plan recognizes that north-to-south water transfers across the Delta can be an important tool for improving water supply reliability. Policies and recommendations relevant to the Proposed Extension may include:

- *Identify Near-term Opportunities for Storage, Use, and Water Transfer Projects (WR R14)* – DWR, in coordination with Reclamation, SWRCB, the California Water Commission, the Delta Stewardship Council, and others, should identify projects throughout California that could be implemented within the next 5 to 10 years to enhance opportunities for conjunctive use programs and water transfers, among others.
- *Improve Water Transfer Procedures (WR R15)* – DWR and the SWRCB should work with stakeholders to identify and recommend measures to reduce procedural and administrative impediments to water transfers and protect water rights and environmental resources. These recommendations should include measures to address potential issues with recurring transfers of up to 1 year in duration and improved public notification for proposed water transfers.
- *Transparency in Water Contracting (WR P2; 23 CCR section 5004)* – (a) The contracting process for water from the SWP and/or the CVP must be done in a publicly transparent manner consistent with applicable policies of DWR and Reclamation. (b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E), this policy covers the following:

    (1) With regard to water from the SWP, a proposed action to enter into or amend a water supply or water transfer contract subject to California Department of Water Resources Guidelines 03-09 and/or 03-10 (each dated July 3, 2003), which are attached as Appendix 2A; and

    (2) With regard to water from the CVP, a proposed action to enter into or amend a water supply or water transfer contract subject to section 226 of P.L. 97-293, as amended or section 3405(a)(2)(B) of the CVPIA, Title XXXIV of Public Law 102-575, as amended, which are attached as Appendix 2B, and Rules and Regulations promulgated by the Secretary of the Interior to implement these laws.

The Delta Reform Act requires any State or local agency proposing to undertake a qualifying action (i.e., "covered action") to submit to the Delta Stewardship Council a written certification of consistency with detailed findings as to whether the covered action is consistent with the Delta Plan (Water Code Section 85225). A "covered action" is defined as a plan, program, or project as defined pursuant to Section 21065 of the Public Resources Code that: (1) will occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh; (2) will be carried out, approved, or funded by the state or a local public agency; (3) is covered by one or more provisions of the Delta Plan; (4) will have a significant impact on achievement of one or both of the coequal goals or the implementation of government-sponsored flood control programs to reduce risks to people, property, and state interests in the Delta; and (5) is not otherwise exempt from the definition of a "covered action" (Water Code Section 85057.5). Any person who claims that a proposed covered action is inconsistent with the Delta Plan and, as a result of that inconsistency, the action will have significant adverse impact on the achievement of one or both of the coequal goals or implementation of government sponsored flood control programs to reduce risks to people and property in the Delta, may appeal a certification of consistency to the Council. (Water Code Section 85225.10). The Delta Reform Act requires that the appeal is filed with the Council no later than 30 days after the submission of the certification of consistency (Water

Code Section 85225.15). If there are no appeals, the state or local public agency may proceed to implement the covered action (Delta Stewardship Council 2023).

Extending the Yuba Accord Water Transfer Program through 2050 does not meet the definition of "covered action" under the Delta Reform Act. The Proposed Extension would merely extend the existing provisions of the current Water Transfer Program. The Proposed Extension would not have any significant adverse impacts on the achievement of one or both of the Delta Plan's coequal goals or implementation of government sponsored flood control programs to reduce risks to people and property in the Delta.

This conclusion is further supported by a recent Third District Court of Appeals order in which the court upheld DWR's determination that its amendment to long-term water supply contracts was not a "covered "action." Through a separate process for a project similar in nature, but independent and unrelated to the Proposed Extension, DWR recently approved amendments to long-term water supply contracts with local water agencies receiving SWP water that extended the terms of the SWP water supply contracts to 2085. For that process, DWR determined that the amendments were not a "covered action" as defined by the Delta Reform Act and, therefore, did not prepare a certification of consistency with the Delta Plan. DWR's determination that the contract amendments were not a "covered action" was affirmed by the Third District Court of Appeals. The January 2024 Court of Appeals order[2] concluded that that contract amendments do not qualify as a "covered action" for several reasons, including: (1) the amendments do not physically occur in the Delta; (2) amendments do not change the developed uses of the SWP; and (3) the extension amendment does not expand the existing operations of the SWP. Similar to DWR's recently approved amendments to long-term water supply contracts, the Proposed Extension would not physically take place in the Delta, modify the developed uses of the CVP and SWP, or expand the existing operations of the CVP and SWP.

Applying the Delta Reform Act criteria to the Proposed Extension, as informed by the Court of Appeal's decision, Yuba Water has determined that the Proposed Extension also does not qualify as a "covered action" requiring a written certification of consistency.

LOCAL

Yuba County 2030 General Plan

One of the public health and safety goals of the Yuba County General Plan is to preserve, protect and improve the quality of regional water supplies (Yuba County 2011). The General Plan also includes a natural resource goal to reduce water consumption and ensure reliable water supply in normal years and during times of drought.

Yuba County Water Agency Act

Yuba Water was created by the Yuba County Water Agency Act (California Water Code Appendix, Sections 84-1 to 84-28). This act authorizes Yuba Water to develop and promote the beneficial use and regulation of the Yuba River water resources. The act provides for development of water conservation facilities, flood control, hydroelectric power generation, water supply, fisheries protection and enhancement, and related recreation. Yuba Water also may enter into long-term contracts for the sale of water, for use outside the boundaries of the agency by other than a member unit, if the board of directors determines that the transferred water is surplus to the amount of water available to meet the contractual requirements of member units (Water Code Appendix Section 84-5.2).

Yuba Water releases water for power generation at the New Colgate Powerhouse and at the Narrows 1 and 2 powerhouses. Hydroelectric power is generated at these locations under Yuba Water's FERC license and eight water right licenses issued by the SWRCB.

Yuba Water is a major water right holder on the Yuba River. Yuba Water diverts water for consumptive uses under Permits 15026, 15027, and 15030. Yuba Water 's permits authorize direct diversion up to a total rate of 1,593 cfs from

[2] *Planning and Conservation League, et al. v. Department of Water Resources, et al., etc.* (2024) 98 Cal.App.5th 726 (Ct. App. Nos. C096304, C096316, C096384).

the lower Yuba River from September 1 to June 30 for irrigation and other uses, and diversion of up to 1,250,000 AF from October 1 to June 30 to storage in New Bullards Bar Reservoir.

Various water districts, irrigation districts, and mutual water companies have contracts with Yuba Water for delivery of water. Some of the parties that receive water from Yuba Water also have their own appropriative rights for diversion of water from the Yuba River. Other agencies and districts providing surface water for irrigation in Yuba County independently include the North Yuba Water District, Camp Far West Irrigation District, and Plumas Mutual Water Company.

Surface Water Demands

Water Supply Agreements

The 2007 EIR described the water supply agreements between Yuba Water and its eight Member Units for irrigation water supplies. In 2016, new agreements were signed that changed some of the volumes, timing, and conditions for providing water supplies from the YRDP.

Downstream of the YRDP, water is diverted under Yuba Water's consumptive-use water-right permits to the Member Units. The volumes and type of supply of water delivery to Yuba Water's Member Units are listed in Table 3.2-6.

Browns Valley Irrigation District (BVID) receives water at the Pumpline Diversion Facility, located 1 mile upstream of Daguerre Point Dam. Brophy Water District (BWD), South Yuba Water District (SYWD), Dry Creek Mutual Water Company (DCMWC), and Wheatland Water District (WWD) receive water from the South Yuba Canal (South Canal), which begins on the south side of the Yuba River slightly upstream of the south abutment of Daguerre Point Dam. Cordua Irrigation District (CID), Hallwood Irrigation Company (HIC), and Ramirez Water District (RWD) receive water through the Hallwood-Cordua Canal (North Canal), located on the north abutment of Daguerre Point Dam. None of these facilities are under FERC's jurisdiction.

Table 3.2-6 Yuba Water's Annual Contract Amounts and Place of Delivery

Member Unit	Water Right Based Supply (acre-feet)	Project Based Supply (acre-feet)	Total Contract (acre-feet)
Browns Valley Irrigation District Pumpline Diversion Facility			
Browns Valley Irrigation District	24,505	9,500	34,005
South Yuba Canal			
Brophy Water District	--	86,870	86,870
South Yuba Water District	--	54,307	54,307
Dry Creek Mutual Water Company	--	17,751	17,751
Wheatland Water District	--	40,230	40,230
Hallwood-Cordua Canal			
Cordua Irrigation District	60,000	24,000	84,000
Hallwood Irrigation Company	78,000	11,208	89,208
Ramirez Water District	--	30,389	30,389
Total	**162,505**	**274,255**	**436,760**

Source: Yuba Water 2017.

BVID, CID, and HIC have their own water rights on the Yuba River. Under settlement contracts with Yuba Water, CID and HIC receive surface water supplies as part of YRDP operations that are based on these Member Units' water rights. All eight of the Member 1Units receive some of their water as contracted supplies that are not water right based. Dry year deficiency criteria in these contracts are different from the deficiency criteria in Yuba Water's contracts with other Member Units. Provisions in Yuba Water's water-right settlement contracts preclude deficiencies in water-right based supplies unless DWR April forecast of unimpaired runoff as measured at the Smartsville Gage is

less than 40 percent of average. No deficiencies in such deliveries may be imposed on BVID. Contract shortage provisions are presented in Table 3.2-7.

Table 3.2-7 Yuba Water's Water Supply Contract Shortage Provisions

Category	Unimpaired Runoff Forecast	Percentage of Settlement/ Contract Allocation Available
Pre-1914 Rights Settlement Water Right Based Supply		
Browns Valley Irrigation District	All	100%
Cordua Irrigation District	f [1] ≥ 40%	100%
Hallwood Irrigation Company	f < 40%	80%
Yuba Water Contract Supply		
Base Project Water (All Member Units with these supplies)	f > 85%	100%
	40% < f ≤ 85%	75%
	f < 40%	Determined annually by Licensee in its reasonable discretion considering forecasted runoff and operational conditions.

Notes:

[1] f is the April 1 DWR forecast of unimpaired Yuba River runoff near Smartsville in percentage of 50-year average.

Source: Yuba Water 2017.

Yuba County Water Agency Transfers - Yuba Water-DWR Water Purchase Agreement

Historically, prior to implementation of the Yuba Accord, Yuba Water implemented individual 1-year stored water transfers when the projected end-of-September storage in New Bullards Bar Reservoir was sufficient for Yuba Water to reasonably ensure full local water supplies in the following year. In addition, for cross-Delta water transfers to Participating Contractor's service areas south of the Delta, the Delta must be in balanced water conditions[3] and available conveyance capacity must exist at SWP's Harvey O. Banks Pumping Plant or CVP's C.W. Jones Pumping Plant, both near Tracy, California, to convey the transfer water. Through-Delta water transfers typically occur from July through September although in more recent years the transfer period has been extended through November. Under the Yuba Accord, transfer releases can occur throughout the year as part of the releases to the Yuba Accord flow requirements and end-of-September target storage in New Bullards Bar Reservoir. Through re-operation of the CVP and the SWP, transfer water is only delivered across the Delta in the summer and fall months during the allowed transfer window specified in the controlling BiOps of USFWS and NMFS.

Table 3.2-8 lists the transfers that have occurred as a result of the Accord Water Purchase Agreement (WPA) since 2007 or that have been operated for Member Unit separate water transfers conforming to the requirements of the Accord Fisheries Agreement.

Table 3.2-8 Yuba Water Historical Sales From 2007 to 2022

Year	Water Year Type (Sacramento Valley 40-30-30 Index) [4]	Buyer	Stored Water Transfer (acre-feet)	Groundwater Substitution Transfer (acre-feet)
2007	Dry	Yuba Accord Water Purchase Participants	125,000[1,2,3]	--
2008	Critical	Yuba Accord Water Purchase Participants	117,211[1]	48,875
2009	Dry	Yuba Accord Water Purchase Participants	91,100[1,2]	88,900[5]
2010	Below Normal	Yuba Accord Water Purchase Participants	74,179[1,2]	66,211

[3] Balanced water conditions are periods when it is agreed that releases from upstream reservoirs plus unregulated flows approximately equal the water supply needed to meet Sacramento Valley in-basin uses plus required Delta outflows and exports (Reclamation and DWR 1986).

Year	Water Year Type (Sacramento Valley 40-30-30 Index) [4]	Buyer	Stored Water Transfer (acre-feet)	Groundwater Substitution Transfer (acre-feet)
2012	Below Normal	Yuba Accord Water Purchase Participants	86,618[1,2]	--
2013	Dry	Yuba Accord Water Purchase Participants	112,544[1,2]	64,730[6]
2014	Critical	Yuba Accord Water Purchase Participants	104,663[1,2]	56,984[7]
2015	Critical	Yuba Accord Water Purchase Participants	59,131	30,000
2016	Below Normal	Yuba Accord Water Purchase Participants	60,000	--
2018	Below Normal	Yuba Accord Water Purchase Participants	76,576	16,411
2020	Dry	Yuba Accord Water Purchase Participants	43,538	77,000
2021	Critical	Yuba Accord Water Purchase Participants	130,090	--
2022	Critical	Yuba Accord Water Purchase Participants	15,077	62,400
Total			**1,096,596**	**511,511**
Average per Year			**78,328**	**56,835**

Notes:

[1] In 2007, 2008, 2009, 2010, 2012, 2013, 2014, and 2015 BVID transferred an additional 3,100 acre-feet to the Santa Clara Valley Water District through conservation.

[2] Transfers to the Yuba Accord Water Purchase Participants include 60,000 acre-feet of stored water for the Environmental Water Account (EWA).

[3] The 2007 transfer was under Yuba Accord Pilot Program. It also included 60,000 acre-feet of transfer to the EWA purchased in 2006.

[4] Sacramento Valley Index as defined in SWRCB RD-1641.

[5] In 2009, Cordua Irrigation District transferred an additional 8,322 acre-feet of groundwater substitution transfer to the DWR Drought Water Bank.

[6] In 2013, Cordua Irrigation District transferred an additional 7,774 acre-feet of groundwater substitution transfer to the DWR Drought Water Bank.

[7] In 2014, Cordua Irrigation District transferred an additional 1,976 acre-feet of groundwater substitution transfer to the DWR Drought Water Bank.

Source: Yuba Water 2017.

Groundwater substitution transfers are implemented as part of Yuba Accord operations and through agreements between Yuba Water and its Member Units. Member Units forego parts of their surface water deliveries at Daguerre Point Dam; irrigation needs are met through additional groundwater pumping. Water not delivered at Daguerre Point Dam is temporarily stored in New Bullards Bar Reservoir, and subsequently released to meet transfer demand. Transfer water may also be pre-delivered from New Bullards Bar Reservoir and replaced by groundwater substitution pumping later in the year. Groundwater substitution transfer pumping and related effects are discussed in more detail in Section 3.3, "Groundwater Resources."

1966 Power Purchase Contract

As described in the 2007 EIR, Yuba Water executed a Power Purchase Contract with PG&E on May 13, 1966. The Power Purchase Contract, which allowed financing the construction of the YRDP, specified conditions of PG&E's power purchase from Yuba Water and PG&E's rights to require releases of water from New Bullards Bar Reservoir for power production. To implement the operations of the Accord and minimize water supply shortages Yuba Water entered into an agreement with PG&E to amend the Power Purchase Contract changing the conditions under which PG&E could require releases of water from New Bullards Bar Reservoir for power generation in the winter. The Power Purchase Contract, as amended, was in force for 50 years and terminated in April 2016. Yuba Water now operates the YRDP's power operations and contracts with a scheduler to sell generation and other ancillary services from the YRDP to the California power market.

3.2.2 Environmental Setting

YUBA REGION

The Yuba Region, which is one of the four regions that make up the project study area, is shown in Figure 3.2-1. It encompasses storage and hydropower facilities of the YRDP, the Yuba River downstream from New Bullards Bar Reservoir, the lower Yuba River downstream from Englebright Reservoir to the confluence with the Feather River, the Yuba Water Member Unit service areas, the local groundwater basins, and lands overlying the groundwater basins. The principle streams and facilities located in the Yuba Region are shown in Figure 3.2-1.

The Yuba Region is part of the larger Yuba River Basin that drains approximately 1,339 square miles of the western slope of the Sierra Nevada Mountains, including portions of Sierra, Placer, Yuba, and Nevada counties. The Yuba River is a tributary of the Feather River, which in turn is a tributary of the Sacramento River. The basin rises from an elevation of about 88 feet to about 8,590 feet above mean sea level (msl). The annual unimpaired flow at the Smartsville Gage on the lower Yuba River has ranged from a high of 4.93 million acre-feet (MAF) in 1982 to a low of 0.37 MAF in 1977, with an average of about 2.37 MAF per year (1901 to 2005). In general, runoff is nearly equally divided between runoff from rainfall during October through March and runoff from snowmelt during April through September.

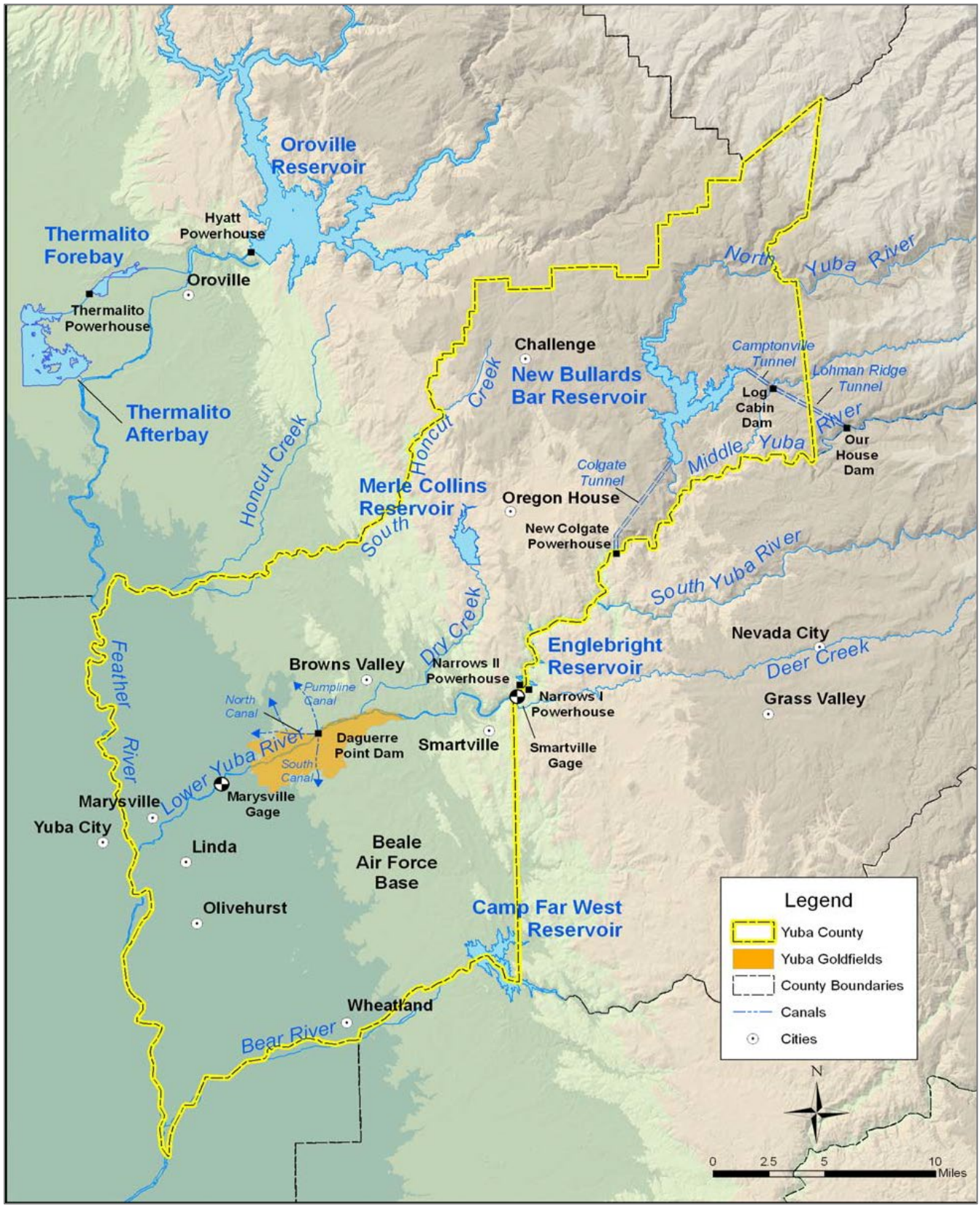
The upper basins of the Middle Yuba and South Yuba rivers have been extensively developed for hydroelectric power generation and consumptive uses by Nevada Irrigation District (NID) and PG&E. Total storage capacity of about 307 TAF on the Middle Yuba and South Yuba rivers and associated diversion facilities enable both NID and PG&E to export an average of approximately 410 TAF per year from the Yuba River Basin to the Bear River and American River basins. In addition, the South Feather Water and Power Agency exports an average of about 70 TAF per year from Slate Creek (a tributary to the North Yuba River) to the Feather River Basin. While these upper basins lie outside of the project study area, the described operations can significantly reduce the water supply available to the lower Yuba River, particularly during dry and critical water years.

USACE and Yuba Water own storage facilities in the Yuba Region. Englebright Dam and Daguerre Point Dam were originally constructed by the California Debris Commission, a unit of USACE, for debris control and now are owned and maintained by USACE. The YRDP, constructed and operated by Yuba Water, is a multiple-use project that provides flood control, power generation, irrigation, recreation, and protection and enhancement of fish and wildlife. It includes New Bullards Bar Reservoir, New Colgate Powerhouse, and Narrows 2 Powerhouse. Englebright Dam and Reservoir and Daguerre Point Dam are not part of the YRDP. However, Englebright Dam and Reservoir are used to regulate power peaking releases from the New Colgate Powerhouse, and Daguerre Point Dam is used by Yuba Water to divert water to its Member Units. The elements of the YRDP are described in more detail in the following subsections.

New Bullards Bar Reservoir

New Bullards Bar Reservoir, located on the North Yuba River, is the principal storage facility of the YRDP. The reservoir has a total storage capacity of 966 TAF with a minimum pool of 230 TAF (as required by Yuba Water's FERC license), thus leaving 732 TAF of capacity that can be regulated. As previously discussed, a portion (170 TAF) of this regulated capacity normally must be held empty from September through April for flood control.

The North Yuba River inflow to New Bullards Bar Reservoir is augmented by diversions from the Middle Yuba River to Oregon Creek through the Lohmann Ridge Tunnel, and by diversions from Oregon Creek into the reservoir through the Camptonville Tunnel. The average total inflow to New Bullards Bar Reservoir from the North Yuba River and diversions from the Middle Yuba River and Oregon Creek is about 1.2 MAF per year. Releases from New Bullards Bar Reservoir are made through the New Colgate Powerhouse, which has a capacity of 3,400 cfs, or through the dam's bottom outlet, or gated spillway.



Source: Yuba Water et al. 2007.

Figure 3.2-1 Yuba River Basin in Yuba County

Operations of New Bullards Bar Reservoir can be described in terms of (1) water management operations (i.e., baseflow operations), (2) storm runoff operations, and (3) flood control operations.

Baseflow operations describe normal reservoir operations when system flows are controlled through storage regulation. These operations occur outside periods of flood control operations, spilling, bypassing uncontrolled flows into Englebright Reservoir, or outside periods of high unregulated inflows from tributary streams downstream from Englebright Dam.

Storm runoff operations occur during the storm season, typically between October and May. Storm runoff operations target Englebright Reservoir operations, because it is the downstream control point for releasing water into the lower Yuba River. Storm runoff operations guidelines for Englebright Reservoir specify target storage levels and release rates.

Englebright Reservoir

The United States built Englebright Dam and Reservoir in 1941 to capture sediment produced by upstream hydraulic mining activities. The reservoir is situated downstream of New Bullards Bar Dam, at the confluence of the Middle and South Yuba rivers. The average annual inflow to Englebright Reservoir, excluding releases from New Bullards Bar Reservoir, is approximately 400 TAF. Englebright Reservoir has a total storage capacity of approximately 70 TAF, but provides limited conservation storage. Englebright Reservoir is used extensively for recreation.

Englebright Dam has no low-level outlet. Water from Englebright Reservoir is released for power generation at the Narrows 1 and Narrows 2 powerhouses, or spilled over the top of the dam. Narrows 1 Powerhouse, owned by Yuba Water since 2020, is a 12 megawatts (MW) facility, with a discharge capacity of approximately 730 cfs and a bypass flow capacity (when the generator is not operating) of 540 cfs. Narrows 2, which is part of the YRDP, is a 50 MW facility, with a discharge capacity of approximately 3,400 cfs and a bypass flow capacity of 3,000 cfs. Yuba Water coordinates the operations of Narrows 1 and 2 for hydropower efficiency and to maintain relatively constant flows in the lower Yuba River. The Narrows 1 Powerhouse typically is used for low-flow reservoir releases (less than 730 cfs), or to supplement the Narrows 2 Powerhouse capacity during high flow reservoir releases.

Annual maintenance requires the Narrows 2 Powerhouse to be shut down for a two- to three- week period, or longer if major maintenance is performed. Maintenance is typically scheduled for the beginning of September, or during the winter months. The Narrows 2 Bypass Project provides a 3,000 cfs bypass to Narrows 2 that can be used during maintenance and emergency shutdowns.

Under existing water rights and agreements, Yuba Water may release up to 45 TAF from Englebright Reservoir storage, although only about 10 TAF of storage normally are used. Fluctuations in Englebright Reservoir storage principally occur for daily or weekly regulation of winter inflows and New Colgate Powerhouse releases. Because of the recreational and power generation needs, the storage level within the reservoir seldom drops below 50 TAF.

Lower Yuba River

The lower Yuba River refers to the 24-mile section of the river between Englebright Dam and the confluence with the Feather River southwest of Marysville (Figure 3.2-1). Instream flow requirements are specified for the lower Yuba River at the Smartsville Gage (river mile [RM] 23.6), located approximately 2,000 feet downstream from Englebright Dam, and at the Marysville Gage (RM 6.2). Below the Smartsville Gage, accretions, local inflow, and runoff contribute, on average, approximately 200 TAF per year to the lower Yuba River. Deer Creek flows into the Yuba River at approximately RM 22.7. Dry Creek flows into the Yuba River at RM 13.6, approximately two miles upstream of Daguerre Point Dam. The flow in Dry Creek is regulated by BVID's operation of Merle Collins Reservoir, located on Dry Creek about 8 miles upstream from its confluence with the Yuba River. In recent years, irrigation diversions from the lower Yuba River at Daguerre Point Dam and upstream at BVID's Pumpline diversion facility have totaled approximately 300 TAF per year.

CVP/SWP UPSTREAM OF THE DELTA REGION

The area of analysis for the surface water resources impact assessment includes streams, water bodies, and facilities that could be affected by changes in Yuba River outflow to the Feather River, and the transfer of Yuba River water across the Delta for export at Banks and Jones pumping plants. Waterbodies and facilities identified as part of the CVP/SWP Upstream of the Delta Region that are addressed in the surface water supply impact assessment include: (1) the SWP Oroville-Thermalito Complex and the Feather River downstream of Oroville Reservoir; and (2) the Sacramento River downstream of its confluence with the Feather River.

The Oroville-Thermalito Complex is included in the CVP/SWP Upstream of the Delta Region because Oroville Dam and Reservoir could be used to reregulate released transfer water from the lower Yuba River. Releases from Oroville Dam also may need to be adjusted to maintain minimum flows in the lower Feather River and water supplies to Feather River water right holders.

DELTA REGION

The San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (Estuary) is the largest intact estuary on the west coast of the United States. The upstream portion of this Estuary, the Sacramento-San Joaquin Delta, is a triangular area comprising 700 miles of sloughs, waterways, and islands located near the confluence of the Sacramento and San Joaquin rivers (Water Education Foundation 2016). The Delta was formally defined in the Delta Protection Act of 1959 (California Water Code Section 12220). The legal Delta encompasses an area of approximately 851,000 acres (of which approximately 135,000 acres consist of waterway, marshland, or other water surfaces) bordered by the cities of Sacramento, Stockton, Tracy, and Pittsburg.

The Delta has been reclaimed into more than 60 islands and tracts, interlaced with about 700 miles of waterways. About 520,000 acres are devoted to farming. An approximate 1,100-mile network of levees protects the reclaimed land, most of which lies near or below sea level, from flooding. Some of the island interiors are as much as 25 feet below sea level (Yuba Water et al. 2007). Water flowing into the Delta is used for urban and agricultural use, recreation, navigation, and wildlife and fisheries. The Delta provides water to about 30 million Californians and more than 6 million acres of farmland (PPIC 2022).

Delta Hydraulics

Water movement in the Delta responds to four primary forcing mechanisms: (1) freshwater inflows, (2) Delta exports and diversions, (3) operation of water control facilities such as flow barriers, and (4) tidal movement of brackish water into and out of the Delta. Other meteorological factors, such as wind and barometric pressure, may at times, also affect Delta water levels. In addition, tidal and salinity behavior within the Delta generate a number of secondary currents, which while of low velocity, are of considerable significance with respect to transporting contaminants and mixing different sources of water.

CVP Facilities and Operations

The CVP Delta Division facilities include the Delta Cross Channel, the Contra Costa Canal, the Jones Pumping Plant and associated fish collection facility, and the Delta-Mendota Canal.

The Delta Cross Channel is a gated diversion channel off the Sacramento River near Walnut Grove. When the gates are open, water flows from the Sacramento River through the Delta Cross Channel to the lower Mokelumne River and San Joaquin River. The Delta Cross Channel is operated to improve water quality in the interior and southern Delta and to improve the transfer of water from the Sacramento River to the CVP and SWP export facilities in the south Delta.

The Jones Pumping Plant, located in the south Delta about 5 miles from the City of Tracy, is used to lift water from the Delta into the Delta-Mendota Canal. The pumping plant is located at the end of a 2.5-mile intake channel. At the head of the intake channel, louver screens intercept fish, which are collected and transported by tanker to release sites away from the pumps. Jones Pumping Plant consists of six pumps with a maximum rated capacity of about 5,100 cfs, although the permitted capacity is 4,600 cfs. When irrigation demands in the upper reaches of the Delta-Mendota Canal are low, pumping is constrained by the capacity of the Delta-Mendota Canal (Reaches 11 to 13) to 4,200 cfs.

Water exported at the Jones pumps is conveyed via the Delta-Mendota Canal and via the joint reach of the California Aqueduct (San Luis Canal) to municipal and industrial (M&I) and agricultural contractors in the San Joaquin Valley. Water from the Delta-Mendota Canal also is pumped into San Luis Reservoir, where the water commingles with SWP water exported at Banks Pumping Plant. CVP water in San Luis Reservoir is subsequently either diverted to M&I and agricultural water users in Santa Clara and San Benito counties or released back into the Delta-Mendota Canal or the San Luis Canal.

CVP demands typically exceed Jones pumping capacity in the spring and summer months. During this period, the CVP depends on releases from San Luis Reservoir to augment pumping at Jones. In wet and above normal years, and years of high allocations, there is limited or no spare capacity at Jones. When the water supply is available and exports are not limited by standards, the Jones Pumping Plant operates continuously at the Delta-Mendota Canal capacity limits. However, Jones exports are typically reduced during the spring to meet endangered fish requirements. For example, VAMP[4] operations, typically from April 15 through May 15, limited combined CVP and SWP exports to about 1,500 to 3,000 cfs depending on San Joaquin River flow at Vernalis. This 12-year program ended in 2011, and new regulatory constraints apply in the springtime, including a 2019 BO. In most years the CVP depends on the wheeling capacity at Banks Pumping Plant to deliver federal water.

SWP Facilities and Operations

SWP facilities in the southern Delta include Clifton Court Forebay, John E. Skinner Delta Fish Protective Facility (Skinner Fish Facility), and the Banks Pumping Plant. Clifton Court Forebay is a 31,000 AF reservoir located in the southwestern edge of the Delta, about 10 miles northwest of the City of Tracy. Clifton Court Forebay provides storage for off-peak pumping, moderates the effect of the pumps on the fluctuation of flow and stage in adjacent Delta channels, and collects sediment before it enters the California Aqueduct. Diversions from Old River into Clifton Court Forebay are regulated by five radial gates.

The Skinner Fish Facility is located west of the Forebay, two miles upstream of the Banks Pumping Plant. The Skinner Fish Facility screens fish away from the pumps that lift water into the California Aqueduct. Large fish and debris are directed away from the facility by a 388-foot-long trash boom. Smaller fish are diverted from the intake channel into bypasses by a series of metal louvers, while the main flow of water continues through the louvers and toward the pumps. These fish pass through a secondary system of screens and pipes into seven holding tanks, where they are later counted and recorded. The salvaged fish are then returned to the Delta in oxygenated tank trucks.

The Banks Pumping Plant is in the south Delta, about 8 miles northwest of Tracy, and marks the beginning of the California Aqueduct. By means of 11 pumps, including two rated at 375 cfs capacity, five at 1,130 cfs capacity, and four at 1,067 cfs capacity, the plant provides the initial lift of water 244 feet into the aqueduct. The Banks Pumping Plant has an installed capacity of 10,300 cfs, and supplies water for the South Bay Aqueduct and the California Aqueduct. Under current operational constraints, inflow to Clifton Court is generally limited to a maximum 3-day average of 6,680 cfs, except between December 15 and March 15, when exports can be increased by 33 percent of the San Joaquin River inflow, if greater than 1,000 cfs. The SWP also pumps water from Barker Slough into the North Bay Aqueduct for use in the North Bay Region. Combined water deliveries from these two facilities have ranged from 1.4 MAF in dry years to nearly 4.0 MAF in wet years.

Cross-Delta Water Transfers

California's water market developed as a result of the major 1987–1992 drought in California and has been facilitated by changes in federal and state legislation pertaining to water rights and entitlements. The California Legislature passed several laws in the 1980s and 1990s making it easier to transfer water beyond the boundaries of historical water service areas. These laws developed an expedited process for the SWRCB to temporarily change the water rights (i.e., point of diversion and place of use) of those conducting a short-term (i.e., one-year) water transfer. Passage of the CVPIA in 1992 changed operating rules of the CVP to allow water transfers among CVP contractors in prescribed situations. In 1994, DWR and 27 of its 29 contractors negotiated a series of principles to resolve issues regarding long-term water supply contracts. In 1995, the Monterey Agreement was signed by those 27 contractors,

[4] The Vernalis Adaptive Management Plan (VAMP) was a 12-year experiment to examine the fishery benefits of increased pulse flows in the lower San Joaquin River combined with CVP/SWP export restrictions. VAMP flow and export requirements are incorporated in D-1641.

changing some aspects of water management and formalizing others, such as storage outside a contractor's service area, and facilitating a limited water market between SWP contractors. Water transfers occur both within the CVP and SWP and with external water agencies. Transfers of water across the Delta have occurred in most years when Delta conditions allow and when CVP and SWP export capacity is available. Water Code provisions grant other parties access to unused SWP conveyance capacity, although SWP contractors have priority access to capacity not used by DWR to meet SWP allocations.

Initially in the first 8 years of the Yuba Accord, the WPA included a purchase of water for the Environmental Water Account (EWA). The EWA Program was a cooperative management program designed to provide protection to the at-risk native fish species of the Bay–Delta estuary through environmentally beneficial changes in the operations of the CVP and SWP, and to provide water supply reliability to CVP and SWP water users. The State purchased the first 60 TAF of transfer water produced through the Yuba Accord during the first eight years of the Accord program, for a total of 480 TAF of water. Delivery of the EWA water was completed in 2018, two years later than planned due to unavailability of Delta export opportunities in 2 years. During this time an additional 500 cfs of dedicated export capacity was permitted by USACE to provide added capacity for the delivery of EWA water. Once the EWA water delivery was completed in 20182017 the additional export capacity has been used to first deliver SWP water and then if available is used to export transfer water.

Another change to the regulations on cross-Delta transfer water export operations was initiated in 2019 where the previously permitted transfer export period (the "transfer window") was expanded from July 1 to September 30 to July 1 to November 30 pursuant to the 2019 USFWS and NMFS BOs for the coordinated long-term operation of the CVP and SWP. It is uncertain if this expanded transfer window will remain in effect into the future.

Los Vaqueros Reservoir

The Los Vaqueros Reservoir is an off-stream reservoir located in southeastern Contra Costa County that is owned and operated by CCWD and currently has a capacity to store 160 TAF of water. Reclamation and CCWD are currently evaluating expansion up to the 275-TAF capacity (Reclamation and CCWD 2020). CCWD diverts unregulated flows and regulated flows from CVP storage facilities releases as a contractor of Reclamation's CVP. CCWD can divert and re-divert up to 195 TAF per year of water from its Rock Slough and Old River intakes for direct use or to storage in Los Vaqueros Reservoir. As part of long-term CVP/SWP operations, Reclamation and DWR requested incidental take coverage for all water diverted at the Rock Slough Intake up to the maximum capacity of the intake (350 cfs) for the maximum annual diversion of 195 TAF (Reclamation 2019b). CCWD also diverts from Old River to storage in the reservoir under its own Los Vaqueros water right permit (Reclamation and CCWD 2009).

CCWD operates the Rock Slough Intake together with its other intakes and the Los Vaqueros Reservoir to meet its delivered water quality goals and to protect listed species. The choice of which intake to use at any given time is based in large part upon salinity at the intakes, consistent with fish protection requirements specified in separate BOs (USFWS 1993; NMFS 2007; NMFS 2017) that govern operation of CCWD's intakes and Los Vaqueros Reservoir, as well as an incidental take permit from CDFW (2009) – all of which are separate from the 2019 USFWS and NMFS BOs for the coordinated long-term operation of the CVP and SWP (NMFS 2019). Los Vaqueros Reservoir is operated in a manner consistent with USFWS and NMFS BOs that require numerous fish protection measures, including an annual 75-day "no-fill" period and a concurrent 30-day "no-diversion" period. The default dates for the no-fill and no-diversion periods are March 15 through May 31 and April 1 through April 30, respectively. USFWS, NMFS, and CDFW can change these dates to best protect covered species. Customer demand during the no-diversion period is met through releases from the reservoir. CCWD also preferentially uses the screened Old River Intake over unscreened Rock Slough from January through August to further protect fish (Reclamation and CCWD 2009).

CCWD operates Los Vaqueros Reservoir together with its intakes to provide high quality, low-salinity water to its customers. In winter and spring, when the Delta is relatively fresh (generally January through July), customer demand is supplied by direct diversion from the Delta. In the late summer and fall months, CCWD releases water from the Los Vaqueros Reservoir to blend with higher-salinity direct diversions from the Delta to meet CCWD water quality goals. The reservoir is re-filled during winter and spring, when chloride concentrations at Old River are low, generally less than 50 milligrams per liter (mg/L) (Reclamation and CCWD 2009).

South Delta Temporary Barrier Project

DWR's South Delta Temporary Barriers Project provides adequate water levels for South Delta water users to allow agricultural activities to continue without interruption due to impacts associated with export operations at the CVP's Jones Pumping Plant and the SWP's Banks Pumping Plant in the south Delta. DWR constructs three barriers in the south Delta each spring to provide water surface elevation protection for south Delta agricultural diverters (NMFS 2019). The existing SWP consists of installation and removal of temporary rock barriers at the following locations:

- Middle River near the Victoria Canal, about 0.5 mile south of the confluence of Middle River, Trapper Slough, and the North Canal.
- Old River near Tracy, approximately 0.5 mile east of the Delta-Mendota Canal intake.
- Grant Line Canal, approximately 400 feet east of the Tracy Boulevard Bridge.

Tidal flows in the south Delta have a major influence on Delta surface water circulation. The objectives of the temporary barriers are to increase water levels, circulation patterns, and water quality in the southern Delta area for local agricultural diversions. The rock barriers are designed to act as flow control structures, trapping tidal waters behind them after a high tide. These barriers improve water levels and circulation for local south Delta farmers and are collectively referred to as agricultural barriers (DWR 2019).

EXPORT SERVICE AREA

Yuba Accord water is delivered to participating purchasers south of the Delta and often stored in San Luis Reservoir. Therefore, San Luis Reservoir has been included in the study area for surface water supply and management.

SAN LUIS RESERVOIR

San Luis Reservoir is a storage facility south of the Delta, operated jointly by the CVP and SWP. San Luis Reservoir is used by both the SWP and CVP to meet deliveries to their contractors during periods when Delta pumping is insufficient to meet demands. San Luis Reservoir is also operated to supply water to the CVP San Felipe Division in San Benito and Santa Clara counties (DWR 2019). Water is stored during the fall and winter months when Delta pumps can export more water than is needed for scheduled water demands. Similarly, water is released from San Luis Reservoir during spring and summer months when water demands are greater than the project's Delta export capacity. The total storage of San Luis Reservoir is 2,041 TAF, 968 TAF of which is dedicated to the CVP, and 1,123 TAF of which is dedicated to the SWP. San Luis Reservoir receives water from, and releases water to, O'Neill Forebay through the Gianelli Pumping-Generating Plant. The O'Neill Forebay, in turn, receives CVP supplies from the Delta-Mendota Canal via the federal O'Neill Pump-Generating Plant, and SWP supplies from the California Aqueduct.

3.2.3 Impact Analysis

THRESHOLDS OF SIGNIFICANCE

Impact indicators and significance criteria to evaluate potential surface water supply and management impacts resulting from the Yuba Accord were developed by Yuba Water and presented in the 2007 EIR. To be consistent with the 2007 EIR, and because the environmental checklist in Appendix G to the State CEQA Guidelines, as amended, does not identify specific significance criteria for water supply and management in the study area, the environmental analysis conducted in this SEIR will apply the following significance thresholds identified below to determine whether the potential impacts of the Proposed Extension, relative to Existing Conditions, are within the range of effects that were previously evaluated in the 2007 EIR.

An impact on water supply and management is considered significant if implementation of the Proposed Extension would do any of the following:

- have a substantial adverse effect on surface water allocations to Yuba Water Member Units due to decreases in annual water supply or increases in flow requirements in the lower Yuba River;
- result in a substantial reduction in combined deliveries to south-of-Delta CVP water service contractors and refuges due to decreases in the annual supply of available water to the CVP;
- result in a substantial reduction in combined deliveries to south-of-Delta SWP (Table A[5]) contractors due to decreases in the annual supply of available water to the SWP;
- have a substantial adverse effect on CCWD's ability to fill Los Vaqueros Reservoir due to increases in the movement of X2 location west of: (1) Chipps Island from February through May; and (2) Collinsville during December, January and June;
- result in a substantial reduction in the duration of Delta excess conditions during the November to June period that adversely affects CCWD's ability to fill Los Vaqueros Reservoir;
- have a substantial adverse effect on south Delta water users' abilities to divert water due to reductions in water levels in the South Delta (e.g., Old River and Middle River), relative to the baseline; or
- result in a substantial reduction in reservoir levels that may adversely affect water deliveries to the San Felipe Division or impact allocations to SWP and CVP contractors.

METHODOLOGY

Potential impacts to water supply and management are considered in the context of whether the Proposed Extension, relative to the baseline, changes the frequency, magnitude, or duration of reservoir storage or flows in a way that substantially affects water supply and management in the Yuba Region, the CVP/SWP Upstream of the Delta Region (i.e., the lower Feather River and the Sacramento River), the Delta Region, or the Export Service Area (i.e., San Luis Reservoir and Los Vaqueros Reservoir). Analytical considerations related to water supply and management for this SEIR are consistent with those that were used in the previously conducted impact assessment for the Yuba Accord (Yuba Water et al. 2007). Specific local and regional considerations related to water supply and management described in the 2007 EIR are identified below.

Analytical Water Supply and Management Considerations by Geographic Region in the 2007 EIR

Yuba Region

- Surface water allocations and deliveries to Yuba Water Member Units

Sacramento-San Joaquin Delta Region

- Deliveries to south-of-Delta CVP contractors
- Deliveries to south-of-Delta SWP contractors
- X2 location
- Delta excess water conditions
- South Delta water levels

[5] DWR and the public water agencies and local water districts in California developed the SWP's long-term water supply contracts in the 1960s. As described in the 2007 EIR, the SWP contracts between DWR and individual state water contractors define several classifications of water available for delivery under specific circumstances. All classifications are considered "project water." Table A is an exhibit to the SWP long-term water supply contracts. Table A amounts are used to define each contractor's proportion of the available water supply that DWR will allocate and deliver to that contractor. Table A water is water delivered according to this apportionment methodology and is given first priority for delivery (DWR 2005). Each year, individual contractors may request an amount not to exceed its Table A amount. The Table A amounts are used as a basis for allocations to contractors, but the actual annual supply to contractors is variable and depends on the amount of water that is available. Water delivery capabilities are frequently lower than Table A amounts (Reclamation and DWR 2005).

CVP/SWP Export Service Area

- San Luis Reservoir storage

Geographic Areas Not Evaluated in Detail in the 2007 EIR

During development of the 2007 Draft EIR analyses, certain geographic areas were not evaluated for water supply purposes because it was determined that they would not be affected by the Yuba Accord. Consistent with the approach taken in the 2007 EIR, this SEIR has eliminated certain areas in the CVP/SWP Upstream of the Delta Region from detailed evaluation based upon the rationale previously applied to the 2007 EIR, as summarized below.

The 2007 Draft EIR (p. 2-16) explained that the geographic setting for the area referred to as the CVP/SWP Upstream of the Delta Region included the reservoirs, rivers, and components of the CVP and SWP that may be affected by integrated operation of the CVP/SWP system under the Yuba Accord. Several areas of the CVP and SWP were not evaluated in the 2007 EIR for the following reasons.

CVP/SWP Upstream of the Delta Region

CVP divisions upstream of the Delta include the Shasta, Sacramento River, and American River divisions. The CVP Shasta Division includes Shasta Dam, Reservoir and Power Plant, and Keswick Dam, Reservoir and Power Plant. The CVP American River Division includes Folsom Dam, Reservoir, and Power Plant; Nimbus Dam; Lake Natoma; Nimbus Power Plant; and the Folsom South Canal. The Yuba Accord did not modify Shasta Reservoir, Shasta Dam, or upper Sacramento River operations, and neither would the Proposed Extension. Similarly, the Yuba Accord did not modify Folsom Reservoir, Folsom Dam, or lower American River operations, and neither would the Proposed Extension. Therefore, Shasta Reservoir and the Upper Sacramento River, Folsom Reservoir, and the lower American River are not included in the study area that is evaluated for surface water supply and management in this SEIR.

The SWP, operated by DWR, is the largest state-built, multipurpose water project in the country and spans more than 705 miles from Northern California to Southern California (DWR 2023). Within the SWP, there are five divisions: (1) Oroville; (2) Delta; (3) San Luis; (4) San Joaquin; and (5) Southern Field. Each division contains water control facilities that may include dams, pumping plants, canals, power plants, lakes, and reservoirs. The area of analysis for the surface water resources impact assessment includes waterbodies and facilities that could be affected by changes in Yuba River outflow to the Feather River, and the transfer of Yuba River water across the Delta for export at the Banks and Jones pumping plants. Waterbodies and facilities identified as part of the CVP/SWP Upstream of the Delta Region that were considered in the 2007 surface water supply impact assessment included: (1) the SWP Oroville-Thermalito Complex and the Feather River downstream of Oroville Reservoir; and (2) the Sacramento River downstream of its confluence with the Feather River. For the purposes of the 2007 EIR, the SWP facilities of primary focus were the Oroville-Thermalito complex on the Feather River, the Harvey O. Banks Pumping Plant in the south Delta, the California Aqueduct, and the San Luis Reservoir, which is a joint federal-state facility. The Oroville-Thermalito Complex was included in the CVP/SWP Upstream of the Delta Region for the 2007 EIR because releases from Oroville Dam could be used to reregulate released transfer water from the lower Yuba River.

The Yuba Accord involved, and the 2007 EIR evaluated, the potential impacts associated with this "backing up" of Yuba Accord water into Oroville Reservoir storage (Yuba Water et al. 2007). However, as a result of regulatory changes that applied to the CVP and SWP and occurred after the Yuba Accord EIR's certification, it was found that more Yuba Accord water was being backed into Oroville Reservoir storage than was anticipated when the 2007 EIR was certified.

The 2013 Addendum No. 1 to the 2007 EIR evaluated the potential for the re-diversion of Yuba Accord water at Freeport, and further evaluated the potential for changes in Feather River flows as a result of operations that backed-up water into Oroville Reservoir. The re-diversion of Yuba Accord water demonstrated by the analysis conducted in the 2013 Addendum 1 to the 2007 EIR resulted in DWR only releasing an amount of water from Oroville Dam to meet Delta requirements similar to what was assumed in the 2007 EIR. Model output in the 2013 Addendum 1 to the 2007 EIR demonstrated that either no change or relatively minor changes in long-term average monthly flow would occur in the Feather River at the mouth during all months of the year.

For this SEIR, other than streamflow depletion effects, which are addressed later in this section and in Appendix B, the potential for water supply impacts to occur in the lower Feather River are not evaluated because: (1) only minor changes in lower Feather River flows occurred under the Yuba Accord evaluated in the 2007 EIR (see 2007 Draft EIR p. 9-114 to 9-115); (2) lower Yuba River flows into the Feather River would not change under the Proposed Extension, relative to the baseline; and (3) operations related to the "backing-up" of water into Oroville Reservoir storage and flow releases into the lower Feather River as a result of the Proposed Extension, relative to the baseline, also would not change.

Summary Characterization of Surface Water Supply and Management Impact Determinations in the 2007 EIR

The 2007 EIR analyzed the impacts of the Yuba Accord, including the Water Transfer Program, and made the following conclusions regarding the Yuba Accord's impacts to water supply and management:

Yuba Region

- *Surface water allocations and deliveries to* Yuba Water *Member Units* - Reductions in surface water allocations to Yuba Water Member Units under the Yuba Accord would result in less-than-significant impacts to Member Units.

Sacramento-San Joaquin Delta Region

- *Deliveries to south-of-Delta CVP contractors* - Reductions in water deliveries to south-of-Delta CVP water service contractors and refuges under the Yuba Accord would result in less-than-significant impacts to south-of-Delta CVP water service contractors and refuges because decreases in base deliveries would be more than offset by water made available to the CVP under the Water Purchase Agreement.
- *Deliveries to south-of-Delta SWP contractors* -Reductions in water deliveries to south-of-Delta SWP contractors under the Yuba Accord would result in less-than-significant impacts to SWP contractors because decreases in base deliveries would be more than offset by water made available to the SWP under the Water Purchase Agreement.
- *X2 location* - Changes in Los Vaqueros Reservoir operations due to changes in the X2 location under the Yuba Accord would result in less-than-significant impacts to CCWD's Los Vaqueros Reservoir operations.
- *Delta excess water conditions*[6] - Changes in Los Vaqueros Reservoir operations due to changes in Delta conditions under the Yuba Accord would result in no impacts to CCWD's Los Vaqueros Reservoir operations.
- *South Delta water levels* - Reductions in south Delta water elevations under the Yuba Accord as would result in no impacts to south Delta water users.

CVP/SWP Export Service Area

- *San Luis Reservoir* - Reductions in San Luis Reservoir storage under the Yuba Accord would result in less-than-significant impacts to reservoir water quality or the CVP or SWP's water supplies.

In recognition of the impact conclusions described above, YRDP operations conforming with the Yuba Accord were initially implemented during 2006, and the Yuba Accord was approved during 2008 in SWRCB Corrected Order WR-2008-0014. For this SEIR, the Existing Condition includes continued implementation of the Yuba Accord, including the Water Transfer Program.

[6] During excess water conditions, sufficient water is available to meet all beneficial needs, and the CVP and SWP are not required to make additional releases. In excess water conditions, water accounting is not required and some of the excess water is available to CVP water contractors, SWP water contractors, and users located upstream of the Delta; Reclamation and DWR are obligated to export and store as much water as possible within their physical and contractual limits. However, during balanced water conditions, CVP and SWP share responsibility in meeting in-basin uses. Balanced water conditions are defined as periods when it is mutually agreed that releases from upstream reservoirs plus unregulated flows approximately equal the water supply needed to meet Sacramento Valley in-basin uses plus exports. Excess water conditions are periods when it is mutually agreed that releases from upstream reservoirs plus unregulated flow exceed Sacramento Valley in-basin uses plus exports. When exports are constrained and the Delta is in balanced conditions, Reclamation may pump up to 65 percent of the allowable total exports with DWR pumping the remaining capacity. In excess conditions, these percentages change to 60/40 (Reclamation 2019).

Supplemental EIR Water Supply and Management Analytical Approach

As described in Chapter 2, "Description of the Proposed Project," the Proposed Extension evaluated in this SEIR is the continuation of the Water Transfer Program that was approved by the SWRCB in 2007 and that is currently being implemented. Therefore, the Proposed Extension, relative to the existing condition, will be analyzed within the context of the evaluations and conclusions presented in the 2007 EIR, as described above.

IMPACT ANALYSIS

Impact 3.2-1: Have a substantial adverse effect on surface water allocations to Yuba Water Member Units due to decreases in annual water supply or increases in flow requirements in the lower Yuba River.

The Water Transfer Program is a component of the Yuba Accord. The Yuba Accord was approved by Yuba Water and the SWRCB more than 15 years ago, is being implemented, and is reflected in the existing conditions of the lower Yuba River, the lower Feather River, the lower Sacramento River, the Bay-Delta and the export service area. The Proposed Extension does not include any changes to YRDP operations as the Yuba Accord flow requirements and all other existing regulatory requirements remain in place. The Proposed Extension is simply a continuation of the existing Water Transfer Program. No new facilities would be constructed or operated.

Water transfers have historically been an important component of YRDP operations. Under the Yuba Accord, stored water transfers are accounted for within releases to meet Yuba Accord flow schedules, or to meet the end-of-September storage target in New Bullards Bar Reservoir. Groundwater substitution transfers are made by Yuba Water in coordination with its Member Units, whereby the member units would pump groundwater rather than divert surface water for a portion of their demand. The 2007 Draft EIR (p. 5-60) described that surface water demands were about 41 TAF per year higher under the Yuba Accord, relative to the existing condition, due to the completion of the Wheatland Project in 2007. Because irrigation demands increased due to implementation of the Wheatland Project in 2007, annual water allocations to Member Until under the Yuba Accord were determined to be about 1.0 percent per year lower (Yuba Water et al. 2007). The 2007 Draft EIR concluded that reductions in surface water allocations under the Yuba Accord would result in less-than-significant impacts to Member Units.

In the Yuba Region, the Proposed Extension would not result in any changes to reservoir storage levels (e.g., New Bullards Bar Reservoir, Englebright Reservoir) or to flow releases into the lower Yuba River, relative to the range of operations that may occur under the CEQA baseline (i.e., existing conditions). To provide a representation of the types of hydrologic changes that occur under existing conditions, Yuba Water modeled a simulation of existing environmental conditions, and modeling results are included in Appendix C. Yuba Water's Yuba River Development Project Model (YRDPM) simulates YRDP operations, including operations involving the existing Water Transfer Program, on a daily timestep for a 52-year period of record (water years 1970 through 2021). The YRDPM represents groundwater substitution transfers with a pattern for diversion reductions, and a pattern for release of the groundwater substitution transfer volume from New Bullards Bar Reservoir. The Proposed Extension will not change hydrology or flows in any modeled reaches. The results of the Proposed Extension will be the same as indicated in the model simulation of the YRDP. No additional modeling of the CVP or SWP was completed for this SEIR because there are no changes in conditions compared to the CEQA baseline to analyze. The modeling approach for the YRDP is described in Appendix C.

Because operations of the YRDP would be the same for the Proposed Extension as those that currently occur under the CEQA baseline (i.e., existing conditions), environmental conditions related to hydrology would not change as a result of the Proposed Extension. As described in the 2007 EIR, the differences in demand and surface water deliveries would be offset by differences in groundwater pumping, resulting in no changes in Member Unit water supplies. Effects of the greater volume of groundwater pumping are discussed in Section 3.3.

Because the Proposed Extension would continue the existing Water Transfer Program, it would not change the baseline condition and would have no physical impact on the environment. Consequently, reductions in surface water allocations to Yuba Water Member Units under the Proposed Extension would result in less-than-significant impacts to Member Units.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-2: Result in a substantial reduction in combined deliveries to south-of-Delta SWP (Table A) contractors due to decreases in the annual supply of available water to the SWP.

As previously discussed, the Water Transfer Program is a component of the Yuba Accord, which is being implemented and is reflected in the existing conditions of the lower Yuba River, the lower Feather River, the lower Sacramento River, the Bay-Delta and the export service area. The points of diversion and places of use for the SWP contractors who have agreements to purchase Yuba Accord transfer water are all permitted places of use and points of rediversion under existing conditions. The Proposed Extension would extend these existing points of diversion and places of use for Accord transfer water in perpetuity. The Proposed Extension also includes extending the WPA with DWR. Neither of these actions include any changes to SWP operations as the Yuba Accord flow requirements and all other existing regulatory requirements remain in place. The Proposed Extension is simply a continuation of the existing Water Transfer Program.

The 2007 Draft EIR (p. 5-61) concluded that reductions in water deliveries to south-of-Delta SWP contractors under the Yuba Accord would result in less-than-significant impacts to SWP contractors because decreases in base deliveries would be more than offset by water made available to the SWP under the Water Purchase Agreement. Changes in conditions since the 2007 Draft EIR are summarized below.

The Yuba Accord (including the operations that would occur with the Proposed Extension) is integrated into CVP/SWP operations. The Yuba Accord is included as part of the integrated CVP/SWP operations that were evaluated by the USFWS and NMFS in their respective 2008/2009 and the 2019 BOs for long-term operation of the CVP and the SWP. DWR's (2019) EIR analyzed the potential water supply impacts associated with the 2019 re-initiation of consultation on the coordinated long-term operation of the CVP and SWP. As part of DWR's proposed project, DWR and Reclamation will continue facilitating transfers of SWP water and other water supplies through CVP and SWP facilities, including north-to-south transfers. Water transfers would occur through various methods, including, but not limited to, groundwater substitution and release from storage, and would include individual and multi-year transfers (DWR 2019). To increase SWP operational flexibility, water transfers under long-term SWP operations could occur during an expanded water transfer window, between July through November, with volumes up to 600 TAF (DWR 2019). DWR's analysis of potential water supply impacts showed that actual SWP historical water deliveries between 1996 and 2018 ranged from less than 500 TAF to more than 3,500 TAF in 2005 and 2006 (DWR 2019). Modeling results indicate that SWP water deliveries would increase with implementation of long-term SWP operations. However, in many years, SWP deliveries would continue to be limited by drier hydrologic conditions and continuing regulatory restrictions (DWR 2019). In most years, the additional Yuba water supply would augment existing limited supplies that routinely are reduced by drier hydrologic conditions or regulatory restrictions. The total south-of-Delta SWP deliveries would not exceed the contracted maximum water volume of the individual public water agencies. In addition, under long-term SWP operations, water deliveries are projected to remain within the range of historical deliveries (DWR 2019). Overall, DWR's (2019) analysis demonstrated that, although long-term SWP operations have the potential to increase average annual water supply yields, any potential additional water supply would be within the historic range of water supply deliveries. In addition, any increase in water would be allocated between the 24 SWP water agencies south of the Delta and would not significantly increase water deliveries within areas serviced by these agencies (DWR 2019).

Streamflow Depletion Affecting Downstream Water Supplies of the SWP[7]

Yuba Water and its Member Units have been implementing groundwater substitution transfers from the Yuba River watershed since 1991. Because Yuba Water and its Member Units have been implementing groundwater substitution transfers for many years prior to the Yuba Accord, the 2007 EIR included examination of the effects of streamflow depletion (referred to in the 2007 EIR as groundwater surface water interaction) and assessed the likelihood of impacts to local rivers and streams and provided an adaptive management program pursuant to which groundwater-

[7] This section discusses streamflow depletion effects on both the SWP and CVP to avoid repetition.

surface water interaction issues could be identified and mitigated if needed. Actions under the Proposed Extension to address streamflow depletion are consistent with the adaptive management program provided for in the 2007 EIR.

The 2007 EIR addressed streamflow depletion and analyzed the effects of streamflow depletion. At the time of development of the Yuba Accord WPA and drafting of the 2007 EIR, available information suggested that (1) streamflow depletion in any one year (at that time this was the period assumed for streamflow depletion impacts on downstream water supplies) was a relatively small percentage of the groundwater substitution transfer pumping, and (2) most of the streamflow depletion occurred on the Yuba River and mostly affected YRDP operations. Also, at this time water supplies of the CVP and SWP were more reliable than current conditions. Given the assumed small amount of streamflow depletion occurring below the Yuba River on the Feather River, DWR and Reclamation were willing to accept the limited effect of streamflow depletion on their operations. Therefore, in the Yuba Accord WPA accounting, no provision was made for an accounting for streamflow depletion as an impact to downstream supplies or applying a streamflow depletion factor (SDF) to the Yuba Accord groundwater substitution transfers.

The 2007 EIR Impact 6.2.6-2 stated,

> Impact 6.2.6-2: Changes in groundwater pumping that could affect groundwater and surface water interactions and result in reduced instream flows in local rivers and streams
>
> Anticipated groundwater pumping under the CEQA Yuba Accord Alternative and the CEQA No Project Alternative would be similar, both within historical transfer volumes. Because no long- or short-term significant impacts on surface hydrology have occurred during the past groundwater substitution transfers, impacts on groundwater and surface water interactions would be less than significant, as discussed earlier in Section 6.2.3.2. While impacts on groundwater and surface water interactions and on instream flows in local rivers and streams from both alternatives would be less than significant, the CEQA Yuba Accord Alternative would be preferred because it would include self-mitigating measures and the adaptive management program that would be implemented to identify and mitigate any local impacts on groundwater and surface water interactions that might occur.

The 2007 EIR further concluded that "Downstream users would not be affected by any potential changes in groundwater surface water interactions along the Yuba River because YCWA would meet instream flow requirements at the Marysville gage." Thus, because these effects were determined to be small and not likely to affect downstream water users, the 2007 EIR did not have any mitigation measures related to streamflow depletion. The 2007 EIR did provide for an adaptive management program for addressing streamflow depletion effects should they occur,

> During the past transfers, no long- and short term significant impacts on surface hydrology have occurred. Because anticipated groundwater pumping under the alternatives evaluated in this EIR… would be within historical transfer volumes, no significant long-term impacts on groundwater and surface water interactions are anticipated. During the implementation of the Yuba Accord groundwater transfers, YCWA will identify and mitigate local impacts, including those related to groundwater and surface water interactions, if they occur as part of the adaptive management program.

And, as explained in Impact 6.2.6-2 "the CEQA Yuba Accord Alternative would be preferred because it would include self-mitigating measures and the adaptive management program that would be implemented to identify and mitigate any local impacts on groundwater and surface water interactions that might occur.

Since the SWRCB issued Corrected Order WR 2008-0014 approving the Yuba Accord long-term transfer petition in 2008, nine groundwater substitution transfers have been completed, more than one transfer every other year on average. The frequency of these transfers is dictated by the demand for water transfers, basin conditions and local farmers' willingness to support the transfers by forgoing their surface water deliveries and instead pumping groundwater. Streamflow depletion attributable to transfer-based groundwater pumping has been occurring throughout the period of the Yuba Accord transfers and with the Proposed Extension these effects would continue to occur.

As described in more detail in Section 3.3, the 2007 EIR was correct that much of the streamflow depletion occurs on the Yuba River and only affects YRDP operations, however, with new information showing more effect of streamflow

depletion on streams below the Yuba River as summarized in Appendix B, and a shift in approach by DWR and Reclamation because of dwindling water supplies due to increased regulatory constraints and climate change effects, an SDF is being included in the Yuba Accord accounting of groundwater substitution transfers. The inclusion of an SDF is being added as an adaptive management measure to adjust the net volume of transfer water that is delivered to participating contractors. With the inclusion of an SDF in the accounting, some transfer water will be made available to the CVP and SWP for their water supplies to offset streamflow depletion impacts. The SDF will compensate the CVP and SWP for the streamflow depletion effects that are the residual effects of streamflow depletion propagating below the Yuba River. Adjusting the Accord accounting principles to add an SDF to the calculation of delivered transfer water will ensure the CVP and SWP, as legal users of water are not injured by the groundwater substitution transfers of the Yuba Accord. The addition of an SDF to the Yuba Accord accounting to the Proposed Extension is therefore an adaptive management measure consistent with the 2007 EIR Impact 6.2.6-2, which is shown above.

Process for Determining a Streamflow Depletion Factor as an Adaptive Management Measure

As described in Section 3.3, "Groundwater Resources," and in Appendix B, determining an SDF to account for the reduction in flows from the Yuba River due to streamflow depletion attributable to groundwater substitution transfer pumping is a complex issue and requires examination of hydrogeologic conditions, the varying hydrology of streams and consideration of operational conditions of the CVP and SWP in the Delta, with close attention to these project's operations for water supply and complying with regulatory requirements. DWR and Reclamation, being among the last downstream diverters in the Bay-Delta system, have required that surface water transfers include terms that protect their water supplies, generally in agreements with transferors that are relying upon DWR and Reclamation facilities to move transfer water to the buyer. Two examples of these terms are carriage water requirements and refill criteria. Both terms are intended to reduce or eliminate potential impacts to DWR and Reclamation water supplies. Refill accounting is usually a negotiated set of criteria based on technical analysis of the seller's reservoir operations while carriage water costs applied to the transfer is analyzed by DWR and Reclamation and often is set by them. These terms are also sometimes included in State Water Resources Control Board (SWRCB) transfer orders. Streamflow depletion effects due to groundwater substitution transfers on DWR and Reclamation water supplies are handled in much the same way. DWR and Reclamation require that streamflow depletion effects are sufficiently offset to alleviate their concerns of potential injury to their water rights, and this is typically accomplished with an agreement term applying an SDF to the transfer.

The Yuba Water -DWR amended WPA will include application of an SDF to Yuba Accord groundwater substitution transfers. The WPA will state that DWR is the final decision maker on the SDF value and would consult with Yuba Water and Reclamation on the development of the SDF to be applied. Yuba Water is currently working cooperatively with DWR developing the information needed to determine a technically supported assessment of streamflow depletion effects that would support the decision process. Appendix B provides a summary of technical information developed to date to support the process for determining an SDF and includes a description of various factors that should be considered to determine a technically supported SDF decision.

Flow Changes Due to Instituting a Streamflow Depletion Factor in Groundwater Substitution Transfer Accounting

Based on new information regarding streamflow depletion effects and the ability to model these effects, as well as a re-examination of the magnitude of reduced stream flow from groundwater substitution transfer pumping, Chapter 2, "Description of the Proposed Project," incorporates terms concerning an SDF. Refer to Section 2.3.6, "Other Commitments as Features of the Proposed Extension," for that discussion. The following discussion focuses on the changes in flows that would occur due to including an SDF in the accounting and possible operations of the SWP or CVP for Yuba Accord groundwater substitution transfers.

Inclusion of an SDF in the Yuba Accord accounting principles (Exhibit 1 to the WPA) does not change the amount of groundwater pumping or reservoir operations on the Yuba River to release the groundwater substitution transfer volume from New Bullards Bar Reservoir. With respect to Yuba Water, the only change to the transfer of water and payment provisions under the WPA between Yuba Water and DWR with the inclusion of an SDF is a reduction in the volume used to calculate the payment for the groundwater substitution transfer. For these reasons, adding an SDF

term into the Accord accounting does not affect flows on the Yuba River. For the rest of the system outside the Yuba River watershed, there would potentially only be a small change in flows on the Feather River and Sacramento River below the Feather River and in the Delta if DWR were to only export the groundwater substitution transfer volume minus the SDF volume (while also accounting for carriage water for only the volume that is to be exported). If DWR does not export the SDF portion of the groundwater substitution transfer, then the change from current conditions without an SDF would be that exports would be reduced by this amount minus the carriage water cost and releases from Oroville Reservoir would be reduced by the SDF volume amount.

Groundwater substitution transfer water is released from New Bullards Bar Reservoir primarily in the months of July and August, with either 10 percent or 20 percent of the total volume released in June according to terms of the Yuba Accord Fisheries Agreement. With an estimated maximum 90,000 acre-ft groundwater substitution transfer the total transfer volume each month of July and August would be about 45 percent of the total transfer amount, or a maximum of 40,000 acre-ft per month released from the Yuba River at an even flow rate. Even with an example SDF of 20 percent, the reduction in Feather River flow (compared to without and SDF applied) in July and August would be 8,000 acre-ft per month or a flow rate of 130 cfs. The average flow in the reach of the Feather River below the Yuba River is over 8,000 cfs in July and over 5,000 cfs in August so the reduction in Feather River flow due to applying an SDF of 20 percent (a 20 percent SDF is for illustration and assumed to be a maximum or near maximum SDF) to the groundwater substitution transfer would average less than 3 percent of the Feather River flow in August. If DWR were to export the full amount of the SDF portion of the groundwater substitution transfer (after carriage water is applied), instead of reducing releases from Oroville and using the SDF portion for Delta water quality, there would be no changes to flows compared to what would occur without an SDF applied to the transfer in any of these rivers or the Delta because no additional water is released from the Yuba River for this purpose, and the Projects will still operate to balanced conditions. Even with application of an SDF and DWR not exporting this volume of the groundwater substitution transfer release from the Yuba River, because of the very small relative change in Feather River flow, and even smaller change on a percentage basis for flows in the Sacramento River below the Feather River and into the Delta, application of an SDF would not be a significant change to flow conditions downstream of the Yuba River and are not discussed further in this SEIR.

The changes in CVP/SWP operations that have occurred as a result of the 2019 USFWS and NMFS BOs implementation are part of the current baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Extension of the Water Transfer Program will continue to be subject to all applicable federal and state ESA requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies applicable to SWP operations. For the Project Extension, streamflow depletion effects are being addressed with an SDF added to the transfer accounting. This added accounting term is developed as part of the adaptive management of groundwater substitution transfers which has been a part of the original Yuba Acord and is discussed in the 2007 EIR. Adding an SDF to the accounting of groundwater substitution transfers does not result in significant changes to the flows analyzed in the 2007 EIR. Therefore, the Proposed Extension would have a **less-than-significant** impact on water deliveries to the south-of-Delta SWP (Table A) water service contractors.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-3: Result in a substantial reduction in combined deliveries to south-of-Delta CVP water service contractors and refuges due to decreases in the annual supply of available water to the CVP.

The Water Transfer Program is a component of the Yuba Accord. The Yuba Accord was approved more than 15 years ago, is being implemented, and is reflected in the existing conditions of the lower Yuba River, the lower Feather River, the lower Sacramento River, the Bay-Delta and the export service area. The points of diversion and places of use for the CVP contractors who have agreements to purchase Accord transfer water, including EBMUD and CCWD, are all permitted places of use and points of rediversion under existing conditions. The Proposed Extension would extend

these existing points of diversion and places of use for Yuba Accord transfer water through 2050. The Proposed Extension does not include any changes to CVP operations as the Yuba Accord flow requirements and all other existing regulatory requirements remain in place. The Proposed Extension is simply a continuation of the existing Water Transfer Program.

The 2007 Draft EIR (p. 5-60) concluded that reductions in water deliveries to south-of-Delta CVP water service contractors and refuges under the Yuba Accord would result in less-than-significant impacts to south-of-Delta CVP water service contractors and refuges because decreases in base deliveries would be more than offset by water made available to the CVP under the Water Purchase Agreement. Changes in conditions since the 2007 Draft EIR are summarized below.

The Yuba Accord (including the operations that would occur with the Proposed Extension) is integrated into CVP/SWP operations. The Yuba Accord is included as part of the integrated CVP/SWP operations that were evaluated by the USFWS and NMFS in their respective 2008/2009 and the 2019 BOs for long-term operation of the CVP and the SWP. The 2019 EIS analyzed the potential water supply impacts associated with the 2019 re-initiation of consultation on the coordinated long-term operation of the CVP and SWP (Reclamation 2019a). As described in the 2019 EIS, under the long-term operation of the CVP and SWP, Reclamation and DWR will continue to transfer CVP/SWP project and non-project water supplies through CVP and SWP facilities, including north-to-south transfers. The 2019 EIS determined that the long-term operation of the CVP and SWP included the same volume of transfers as was included in the baseline, but the transfer window was extended from July 1 through November 30. Allowing fall transfers was expected to result in water supply benefits and provide flexibility to improve Sacramento River temperature operations during dry conditions (e.g., those that occurred during the 2014–2015 drought) (Reclamation 2019a). The 2019 EIS demonstrated that none of the action alternatives would negatively affect water transfers. The 2019 EIS concluded that, under with the long-term operation of the CVP and SWP, CVP and SWP contract deliveries on the Sacramento, Feather, and American Rivers would have either minor changes (less than 5 percent) or increased deliveries compared to the baseline, and there would be no measurable change in CVP deliveries to exchange contractors, refuge deliveries, and CVP and SWP M&I deliveries under all alternatives. Overall, the approved long-term operation of the CVP and SWP would increase water supply deliveries to north-of-Delta and south-of-Delta agricultural contractors in all year types, reducing reliance on groundwater supplies and lowering operation costs (Reclamation 2019a).

The changes in CVP/SWP operations that have occurred as a result of the 2019 USFWS and NMFS BOs implementation are part of the current baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Extension of the Water Transfer Program will continue to be subject to all applicable federal and state ESA requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies applicable to CVP operations. As described in the discussion of Impact 3.2.2, streamflow depletion effects are being addressed through adaptive management which was included as a project feature analyzed in the 2007 EIR. Adding an SDF to the accounting of groundwater substitution transfers does not result in significant changes to the flows analyzed in the 2007 EIR. Therefore, the Proposed Extension would have a **less-than-significant** impact on water deliveries to the south-of-Delta CVP water service contractors and refuges.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-4: Have a substantial adverse effect on CCWD's ability to fill Los Vaqueros Reservoir due to increases in the movement of X2 location west of: (1) Chipps Island from February through May; and (2) Collinsville during December, January, and June.

As previously discussed, the Proposed Extension is a continuation of the existing Water Transfer Program that is currently being implemented. The Proposed Extension would not change water flows compared to baseline conditions and no new facilities would be constructed or operated.

The 2007 Draft EIR (p. 5-61) found that the constraints on filling Los Vaqueros Reservoir during particular months and years would be similar under implementation of the Yuba Accord, relative to the existing condition, but in no case would filling of the reservoir be affected. Therefore, the 2007 EIR concluded that changes in Los Vaqueros Reservoir operations due to changes in the X2 location under the Yuba Accord would result in less-than-significant impacts to CCWD's Los Vaqueros Reservoir operations. Changes in conditions since the 2007 Draft EIR are summarized below.

As previously discussed, the Yuba Accord (including the operations that would occur with the Proposed Extension) is included as part of the integrated CVP/SWP operations that were evaluated by the USFWS and NMFS in their respective 2008/2009 and the 2019 BOs for long-term operation of the CVP and the SWP. According to Reclamation (2019a), CCWD facilities would continue to be operated and maintained under applicable permits, and CCWD's operations as part of long-term CVP/SWP operations are consistent with the operational criteria specified in the separate BOs and permits that govern operations at CCWD's intakes and Los Vaqueros Reservoir (Reclamation 2019b; NMFS 2019). As described in DWR (2019) and Reclamation (2019a), all Joint Point of Diversion[8] (JPOD) diversions under excess conditions in the Delta are junior to CCWD water right permits for the Los Vaqueros Project and must have an X2 location west of certain compliance locations consistent with the *1993 Los Vaqueros Biological Opinion for Delta Smelt* (USFWS 1993). Under Alternative 1 (i.e., the preferred alternative), Reclamation will work with CCWD to ensure that implementation of long-term CVP operations will not restrict CCWD operations beyond the restrictions of the separate BOs (e.g., USFWS 1993; NMFS 2007; NMFS 2017) that apply to CCWD's operations. Reclamation (2019a) agrees to ensure that the implementation of the approved long-term operation of the CVP and SWP will not create new or additional restrictions on CCWD's ability to fill its Los Vaqueros Reservoir beyond the restrictions of the separate BOs that apply to CCWD's operations, thereby ensuring that CCWD will have opportunities to fill Los Vaqueros Reservoir that are at least comparable to the current conditions.

The changes in CVP/SWP operations that have occurred as a result of the 2019 USFWS and NMFS BOs implementation are part of the current baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Extension of the Water Transfer Program will continue to be subject to all applicable federal and state ESA requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies applicable to CVP/SVP and CCWD operations. Therefore, the Proposed Extension would have a **less-than-significant** impact on CCWD's ability to fill Los Vaqueros Reservoir.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-5: Result in a substantial reduction in the duration of Delta excess conditions during the November to June period that adversely affects CCWD's ability to fill Los Vaqueros Reservoir.

As previously discussed, the Proposed Extension is a continuation of the existing Water Transfer Program that is currently being implemented. The Proposed Extension would not change water flows compared to baseline conditions and no new facilities would be constructed or operated.

The 2007 Draft EIR (p. 5-61) model results showed that, although the Yuba Accord would change the timing and amount of surplus Delta outflow, differences in Delta outflow would never be sufficient to move the Delta from excess into balanced water conditions and potentially prevent filling of Los Vaqueros Reservoir. Therefore, the 2007 EIR concluded that changes in Los Vaqueros Reservoir operations due to changes in Delta conditions under the Yuba Accord would result in no impacts to CCWD's Los Vaqueros Reservoir operations. Changes in conditions since the 2007 Draft EIR are summarized below.

[8] D-1641 authorized the SWP and CVP to jointly use both Jones Pumping Plant and Banks Pumping Plant in the south Delta, with conditional limitations and required response coordination plans (referred to as Joint Point of Diversion) (Reclamation 2019a).

As previously discussed, the Yuba Accord (including the operations that would occur with the Proposed Extension) is included as part of the integrated CVP/SWP operations that were evaluated by the USFWS and NMFS in their respective 2008/2009 and the 2019 BOs for long-term operation of the CVP and the SWP. With respect to long-term CVP/SWP operations, CCWD's diversions would continue to be operated and maintained under applicable permits (Reclamation 2019a). As described in DWR (2019) and Reclamation (2019a), all JPOD diversions under excess conditions in the Delta are junior to CCWD water right permits for the Los Vaqueros Project and must have an X2 location west of certain compliance locations consistent with USFWS (1993). Under the long-term operation of the CVP and the SWP, Reclamation will work with CCWD to ensure that implementation of long-term operations will not restrict CCWD operations beyond the restrictions of the separate BOs. Reclamation (2019a) agreed to ensure that the implementation of the long-term operation of the CVP and the SWP will not create new or additional restrictions on CCWD's ability to fill Los Vaqueros Reservoir beyond the restrictions of the separate BOs (e.g., USFWS 1993; NMFS 2007; NMFS 2017) that apply to CCWD's operations, thereby ensuring that CCWD will have opportunities to fill Los Vaqueros Reservoir that are at least comparable to the current conditions.

The changes in CVP/SWP operations that have occurred as a result of the 2019 USFWS and NMFS BOs implementation are part of the current baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Water supplies would be similar to those under existing conditions and continued operations of the existing water supply/conveyance facilities would not change water supplies. Extension of the Water Transfer Program will continue to be subject to all applicable federal and state ESA requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies applicable to CVP/SVP and CCWD operations. Therefore, because a substantial reduction in the duration of Delta excess conditions would not occur under the Proposed Extension, there would be a **less-than-significant** impact on CCWD's ability to fill Los Vaqueros Reservoir.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-6: Have a substantial adverse effect on south Delta water users' abilities to divert water due to reductions in water levels in the South Delta (e.g., Old River and Middle River), relative to the baseline.

As previously discussed, the Proposed Extension is a continuation of the existing Water Transfer Program that is currently being implemented. The Proposed Extension would not change water flows compared to baseline conditions and no new facilities would be constructed or operated.

The 2007 Draft EIR (p. 5-61 to 5-62) concluded that reductions in south Delta water elevations under the Yuba Accord would result in no impacts to south Delta water users. Changes in conditions since the 2007 Draft EIR are summarized below.

As previously discussed, the Yuba Accord (including the operations that would occur with the Proposed Extension) is included as part of the integrated CVP/SWP operations that were evaluated by the USFWS and NMFS in their respective 2008/2009 and the 2019 BOs for long-term operation of the CVP and the SWP. As part of long-term CVP/SWP operations, DWR (2019) will continue to operate the three temporary barriers at the Old River at Tracy, Middle River, and Grant Line Canal each year, when necessary to maintain operations of agricultural water users. The three rock barriers are designed to act as flow control structures, trapping tidal waters behind them after a high tide. The agricultural barriers will continue to be installed under existing permits starting in May provided San Joaquin River flow at Vernalis is low enough to enable installation, typically less than 5,000 cfs. All three agricultural barriers operate until the fall and must be completed removed by November 30 of each year (DWR 2019).

As another part of long-term CVP/SWP operations, Reclamation and DWR use the JPOD, which is based on staged implementation and conditional requirements for each stage of implementation (Reclamation 2019a). Each JPOD stage has regulatory terms and conditions that must be satisfied to implement JPOD. All stages require a response plan (i.e., water level response plan) to ensure water elevations in the south Delta will not be lowered to the injury of

local riparian water users and a response plan to ensure the water quality in the south and central Delta will not be substantially degraded through operations of the JPOD to the injury of water users in the south and central Delta. Stage 3 has an additional requirement to protect water levels in the south Delta (NMFS 2019).

The changes in CVP/SWP operations that have occurred as a result of the 2019 USFWS and NMFS BOs implementation are part of the current baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Water supplies would be similar to those under existing conditions and continued operations of the existing water supply/conveyance facilities would not change water supplies. Extension of the Water Transfer Program will continue to be subject to all applicable federal and state ESA requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies applicable to CVP/SVP operations, including those related to the south Delta water users' abilities to divert water. Therefore, the Proposed Extension would result in a **less-than-significant** impact to south Delta water users.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.2-7: Result in a substantial reduction in reservoir levels that may adversely affect water deliveries to the San Felipe Division or impact allocations to SWP and CVP contractors.

As previously discussed, the Proposed Extension is a continuation of the existing Water Transfer Program that is currently being implemented. The Proposed Extension would not change water flows compared to baseline conditions and no new facilities would be constructed or operated.

The 2007 Draft EIR (p. 5-62) concluded that reductions in San Luis Reservoir storage under the Yuba Accord would result in less-than-significant impacts to reservoir water quality or the CVP or SWP's water supplies. Changes in conditions since the 2007 Draft EIR are summarized below.

Based on the impact analysis in the 2007 Draft EIR, changes in regulatory conditions and existing water quality conditions (see Chapter 3.5 of this SEIR), the less-than-significant impacts to water quality and designated beneficial uses identified for the San Luis Reservoir in the Draft EIR would still be applicable. Because the Proposed Extension would continue the existing Water Transfer Program, it would not change the baseline condition and would not have a significant physical impact on the environment. Extension of the Water Transfer Program will be subject to all applicable federal and state requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies applicable to operations of San Luis Reservoir. Therefore, existing beneficial uses and concentrations of existing water quality impairments (e.g., pesticides, mercury, PCBs, pH, total DDT) in San Luis Reservoir would not be substantially affected by the Proposed Extension (for additional information on water quality, see Section 3.5).

Overall, the changes in CVP/SWP operations that have occurred as a result of implementing the 2019 USFWS and NMFS BOs are part of the current baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord.

Compared to the range of San Luis Reservoir storage operations that occur under the baseline, the Proposed Extension would not cause reductions in San Luis Reservoir storage (or impact reservoir water quality) that would affect water allocations to CVP or SWP's contractors. Therefore, the Proposed Extension would result in **less-than-significant** impacts to water deliveries to the San Felipe Division and water allocations to SWP and CVP contractors.

Mitigation Measures

No mitigation is required for this impact.

3.3 GROUNDWATER RESOURCES

This section identifies the regulatory context and policies related to groundwater resources, describes the existing groundwater conditions in the study area, and evaluates potential groundwater impacts of the Proposed Extension.

3.3.1 Regulatory Setting

FEDERAL

There are no federal laws or regulations addressing groundwater resources that are relevant to the analysis of the Proposed Extension.

STATE

Sustainable Groundwater Management Act of 2014

In 2014, in response to continued overdraft of many of California's groundwater basins, the State of California enacted the Sustainable Groundwater Management Act (SGMA), which took effect January 1, 2015. The purpose of SGMA is to help protect groundwater resources and provide local and regional agencies the authority to manage groundwater in a sustainable manner. SGMA requires local agencies to form groundwater sustainability agencies (GSAs) for high and medium priority basins, as defined under the SGMA 2019 Basin Prioritization (DWR 2020). For such basins, SGMA requires preparation of a groundwater sustainability plan (GSP) by overlying GSAs to reach sustainability within 20 years of implementing their GSPs.

The California Department of Water Resources (DWR) has the authority to provide regulatory oversight through the evaluation and assessment of GSPs. DWR is also charged with providing on-going assistance to GSAs through development of best management practices and guidance, planning assistance, technical assistance, and financial assistance.

DWR has identified the North Yuba Subbasin as a medium-priority subbasin and the South Yuba Subbasin as a high-priority subbasin that is not critically overdrafted (DWR 2020). These categorizations triggered SGMA requirements for both subbasins to develop their GSPs by January 31, 2022.

The goal of the GSPs is to establish a plan for sustainable management of the groundwater basins. SGMA defines sustainable groundwater management as the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing one or more of the following undesirable results:

(1) Chronic lowering of groundwater levels, indicating a significant and unreasonable depletion of supply

(2) Significant and unreasonable reduction of groundwater storage

(3) Significant and unreasonable seawater intrusion

(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies

(5) Significant and unreasonable land subsidence that substantially interferes with surface land uses

(6) Depletions of surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

If the local groundwater agency's management of the basin causes or fails to correct any of these undesirable results, the State could intervene in the management of groundwater in the Subbasin (Yuba Water et al. 2019).

LOCAL

Yuba County Water Agency Groundwater Sustainability Plan

The *Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan* (Yuba Subbasins GSP) was adopted by Yuba Water on January 20, 2020. Yuba County Water Agency GSA is one of three GSAs, along with City of Marysville GSA and Cordua Irrigation District GSA, responsible for development and implementation of the GSP. The purpose of the GSP is to verify and maintain sustainable groundwater management in the North Yuba and South Yuba Subbasins (Bulletin 118 Basin Numbers 5-021.60 and 5-021.61, respectively), collectively referred to as the Yuba Subbasins, by meeting the regulatory requirements set forth in SGMA (California Water Code Sections 10720 – 10737.8). Among other things, the Yuba Subbasins GSP includes identification of the Plan area, a hydrogeologic conceptual model, a description of existing groundwater conditions, water budgets, sustainable management criteria, and identification of monitoring networks, projects and other management actions for implementation of the GSP.

Since adoption of the Yuba Subbasins GSP, Yuba County Water Agency GSA, City of Marysville GSA, and Cordua Irrigation District GSA have worked to collaboratively implement the GSP in order to achieve the sustainability goal for the Yuba Subbasins, which is "to maintain a locally managed, economically viable, sustainable groundwater resource for existing and future beneficial use in Yuba County by continuing existing management to maintain operation within the sustainable yield or by modification of existing management to address unforeseen future conditions" (Yuba Water et al. 2019). The Yuba Subbasins GSP was approved by DWR on November 18, 2021 with recommended corrective actions that will be addressed in the next Periodic Evaluation of the GSP, which must be submitted to DWR by January 31, 2025. Yuba Water continues to implement the GSP through monitoring of conditions, comparing those monitoring results with the sustainable management criteria, reporting the conditions annually to DWR, evaluating the GSP, implementing adaptive management strategies, and funding these activities.

3.3.2 Environmental Setting

The information provided below reflects the current environmental setting and affected environment in the North Yuba and South Yuba Subbasins (Yuba Subbasins) of the Sacramento Valley Groundwater Basin that may be influenced by implementation of the Proposed Extension.[1]

YUBA SUBBASINS

This section describes the boundaries of the Yuba Subbasins for groundwater resources and the environmental setting/affected environment. Information specific to the Yuba Subbasins includes: regional geologic settings; groundwater flow, levels, and storage conditions; groundwater and surface water interactions; groundwater quality; and land subsidence. More detailed information on the environmental setting can be found in the Yuba Subbasins GSP (Yuba Water et al. 2019) as well as *Hydrogeologic Understanding of the Yuba Basin* (Hydrogeologic Understanding Report [HUR]) (Yuba Water 2008) and *Groundwater Management Plan* (Yuba Water 2010).

The Yuba Subbasins are the groundwater subbasins underlying part of Yuba County. The main surface water features are the Yuba, Feather, and Bear Rivers. The Yuba River runs through the Yuba Subbasins, dividing the groundwater basin underlying Yuba County into the North Yuba and South Yuba Subbasins. The GSP defines these two subbasins as follows (Yuba Water et al. 2019):

> *North Yuba Subbasin (Basin Number 5-021.60) encompasses approximately 94 square miles (60,323 acres) in the eastern central portion of the Sacramento Valley Groundwater Basin. It is bounded on the west by the Yuba-Sutter County line, on the south by the Yuba River, on the east by the Sierra Nevada foothills, and on the north by the boundary between Butte-Yuba County line, except where Ramirez*

[1] For historical context, the environmental setting provided on pages 6-1 through 6-26 of the 2007 EIR discusses the potential groundwater resources impacts of the Yuba Accord.

Water District's northern boundary is located north of the Butte-Yuba County line, in which case the northern boundary of Ramirez Water District is the subbasin's northern boundary.

South Yuba Subbasin (Basin Number 5-021.61) encompasses approximately 170 square miles (108,886 acres) directly south of the North Yuba Subbasin. It is bounded on the west by the Yuba-Sutter County line, on the north by the Yuba River, on the east by the Sierra Nevada foothills, and on the south by the boundary between Yuba County and both Sutter County and Placer County, except where Dry Creek Mutual Water Company's southern boundary is located south of the Sutter-Yuba County line, in which case the southern boundary of Dry Creek Mutual Water Company is the subbasin's southern boundary.

The North and South Yuba Subbasins form a portion of the larger Sacramento Valley Groundwater Basin (Sacramento Basin). However, the two subbasins are partially hydraulically separated from the rest of the Sacramento Basin by the surface streams that surround the subbasins. The North Yuba and South Yuba Subbasins are believed to not be hydraulically isolated from each other by the Yuba River except near the surface. Since the underlying geology of the two subbasins is similar, the description of the geologic setting below treats the North Yuba Subbasin and South Yuba Subbasin as if they were one basin.

For many years, groundwater has been an important source of water supply to Yuba Water Member Units and other local water purveyors. The boundaries of the eight Member Units (Brophy Water District [BWD], Browns Valley Irrigation District [BVID], Cordua Irrigation District [CID], Dry Creek Mutual Water Company [DCMWC], Hallwood Irrigation Company [HIC], Ramirez Water District [RWD], South Yuba Water District [SYWD], and Wheatland Water District [WWD]) and five water purveyors (California Water Service, serving the City of Marysville, Olivehurst Public Utility District [OPUD], Linda County Water District, City of Wheatland, and Beale Airforce Base [AFB]) are depicted in Figure 3.3-1.

Hydrogeology of the Yuba Subbasins

This section presents a brief overview on geology and hydrology of the North and South Yuba Subbasins. Information in this section was primarily taken from the Yuba Subbasins GSP (Yuba Water et al. 2019), HUR (Yuba Water 2008), and *Groundwater Management Plan* (Yuba Water 2010) which can be referred to for more detailed information.

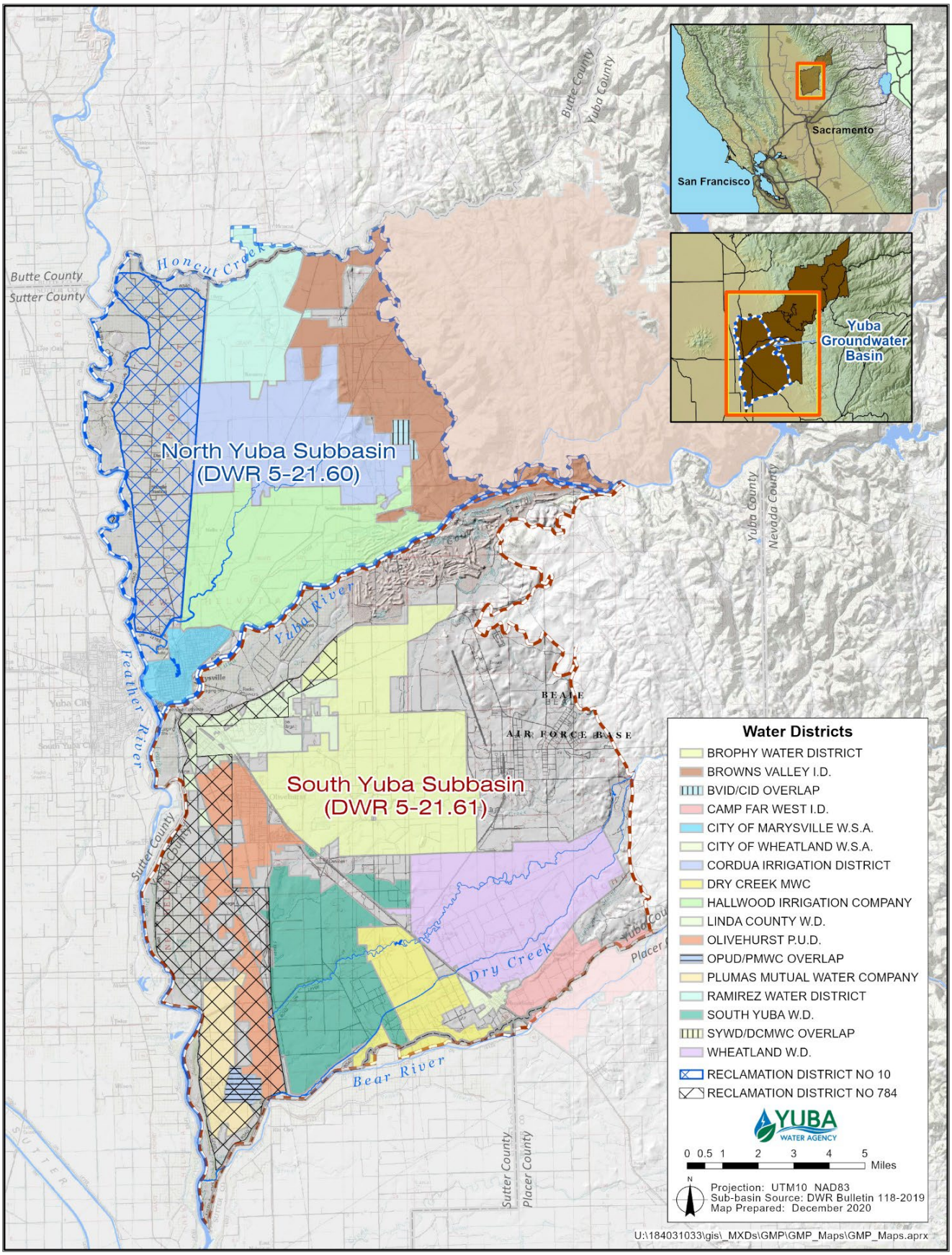
The Yuba Subbasins lie at the base of the Sierra Nevada Foothills and comprise a portion of the Sacramento Valley Groundwater Basin. Sources used to describe the geology of the Yuba Subbasins are the *Hydrogeologic Understanding of the Yuba Basin* Yuba Water 2008); DWR's Bulletin 118 (1975 and 2003 Update) (DWR 2003); the California Department of Conservation, Division of Mines and Geology, Chico Quadrangle Topology Map (Saucedo and Wagner 1992); and several US Geological Survey publications (Harwood and Helley 1987; Olmstead and Davis 1961; and Page 1974, 1980, and 1986). The geologic setting in Yuba County ranges from young alluvial deposits that store and transmit groundwater to underlying continental formations that do not store or yield a significant amount of groundwater.

Primary Groundwater-bearing Formations

Primary water-bearing formations include surface basin deposits and the Older Alluvium (Modesto/Riverbank), Laguna, and Mehrten formations, which comprise the majority of the Yuba Subbasin alluvial aquifer system.

Surface Basin Deposits

Surface deposits occur at or near the ground surface and are composed of stream channel and floodplain deposits, and dredger tailings, along the present-day stream channels of the Yuba, Bear, and Feather Rivers and Honcut Creek, and within the incised channels of the smaller drainages. Surface geology for the Yuba Subbasins consists mainly of alluvial valley sediments that gradually increase in thickness toward the west. The recent alluvial deposits are mainly highly permeable, coarse-grained gravels containing boulders and rounded cobbles as well as sands, and can be up to 110 feet thick. The high permeability of these stream channel deposits allows them to act as a large recharge area. Reported well yields within these deposits are from 2,000 to 4,000 gallons per minute (gpm) (DWR 2003).



Source: Yuba Water 2023.

Figure 3.3-1 North Yuba and South Yuba Groundwater Subbasins and Local Water Purveyors

The dredger tailings extend downstream from the Sierra Nevada Foothills along the Yuba River for 15 miles and are large piles of very coarse gravels and cobbles. These piles have been dredged for gold and range in thickness between 60 feet to 80 feet in the eastern area, and 100 feet to 125 feet in the west (DWR 2003). These materials are highly permeable.

Modesto/Riverbank Formations

The older floodplain deposits of the Modesto Formation lie above the recent alluvium and create a 1- to 2-mile-wide band of terraces on both sides of the Feather River. The Modesto Formation and the older Riverbank Formation also form terraces along the banks of the smaller drainages, including Reeds Creek, Dry Creek, and Jack Slough, which are filled with recent alluvium (Saucedo and Wagner 1992).

Laguna Formation

Compared to the other formations located in the Yuba Subbasins, the Laguna Formation is the thickest and most extensive water-bearing formation (Yuba Water 2008). This formation is exposed along the eastern boundary. It is also exposed in isolated hills between Beale AFB and WWD, where thin, surrounding younger sediments allow the Laguna Formation to be exposed in "windows." Farther west, the formation is found only in deep wells. This formation consists of a heterogeneous mix of generally poorly sorted clay, silt, sand, and gravel. Specifically, in the Sacramento Valley, the Laguna Formation contains abundant beds of somewhat clayey silt to silty fine sand, some well-sorted sand in relatively thin zones, and scarce, poorly sorted gravel beds (Page 1986).

Mehrten Formation

The Mehrten Formation is an important source of fresh groundwater in the Central Valley. This sequence of volcanic rocks was deposited in the late Miocene through Pliocene ages. In the Sacramento Valley, the formation consists of two general units: (1) an overlying unit composed of unconsolidated black sands interbedded with blue-to-brown clay and (2) an underlying unit of hard, very dense tuff-breccia. The black sands are well-sorted, commonly found in beds of about 6 feet to as much as 20 feet thick, and yield good volumes of water. The tuff-breccias yield little water, although large yields have been obtained beneath the unit from partially confined systems (DWR 1978).

The Mehrten Formation ranges from 190 feet to 500 feet thick (Page 1986; Helley and Harwood 1985). Surficial exposures of this unit are limited to a few square miles in the northeast corner of the Yuba Subbasins, dipping to the west and extending to great depths (Saucedo and Wagner 1992). Generally, the Mehrten Formation yields large quantities of water to wells, although hydraulic conductivity in the Mehrten (the ease with which water moves through pore spaces) varies from place to place (Page 1986).

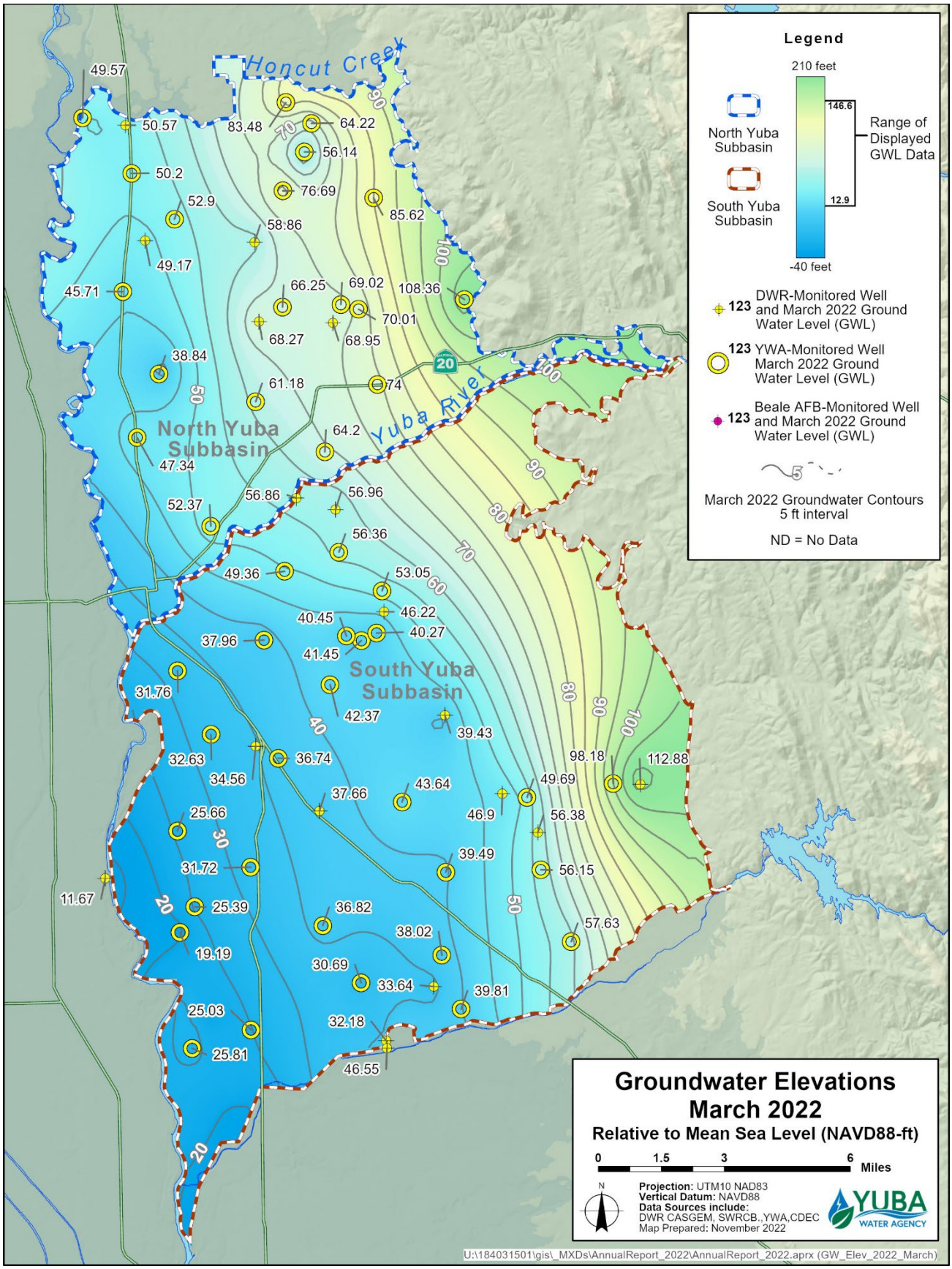
Non-groundwater-bearing Deposits/Formations

Geologic deposits and formations that do not store or produce groundwater include Eocene and Cretaceous Rocks and Sierra Nevada Basement Rocks, and are briefly described below.

Groundwater Flow Conditions, Recharge, and Discharge

Groundwater occurs within unconfined, semi-confined, or confined conditions throughout the Yuba Subbasins. Well drillers' reports for deeper wells show changes in groundwater levels with depth, suggesting that groundwater is possibly confined or semi-confined by overlying clay layers. The degree of confinement appears to increase with depth based on drillers' logs and water level data. Aquifer tests suggest semi-confined or confined conditions at depths exceeding approximately 100 feet (Woodard & Curran 2022).

Figure 3.3-2 shows a recent interpretation of groundwater elevations in the Yuba Subbasins based on groundwater elevation data collected by Yuba Water and DWR in March 2022, representing spring or seasonal high conditions (Yuba Water 2023). Based on the interpreted spring 2022 groundwater elevation conditions shown, the general flow of groundwater in the Yuba Subbasin is in a southwesterly direction from the Sierra Nevada foothills in the east, and it either flows into the Sutter Subbasin to the west, discharges to the Feather River, or flows toward small pumping depressions west of Highway 70, with a groundwater surface that is a subdued representation of topography. The hydraulic gradient is steep in eastern Yuba County and gradually flattens out toward the west.



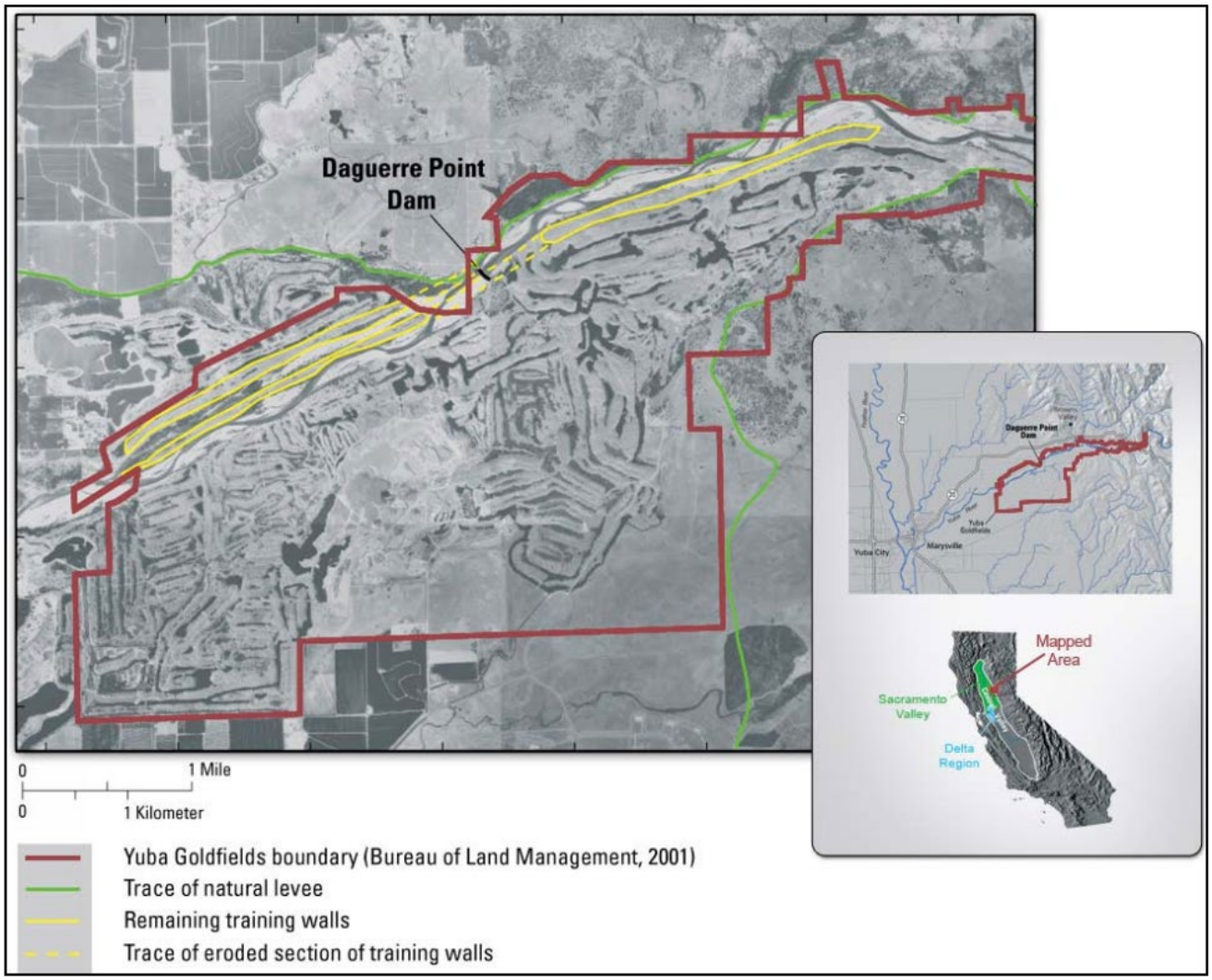
Source: Yuba Water 2023.

Figure 3.3-2 Spring 2022 Groundwater Elevations in the North and South Yuba Subbasins

As a result of hydraulic mining between 1852 and 1884, the Yuba River was filled with more debris than all the other tributaries of the Sacramento River combined. The 684 million cubic yards of gold-bearing material that washed into the Yuba River represent more than triple the volume of earth excavated during the construction of the Panama Canal (Bezerra and West 2005). Efforts to manage the debris included the 1899 Project, which included, among other components, the storage of mining debris in the Yuba River and the construction of training walls to confine the river channel within well-defined limits (USACE 1981). These century-old training walls continue to confine the river channel and, while not designed for flood control and degraded over time, provide some level of flood protection today (MBK Engineers 2018).

The Yuba Goldfields is a location of substantial groundwater recharge in the Yuba Subbasins (Figure 3.3-3). This recharge is attributed to several mechanisms, including the following:

- large piles of coarse gravels and cobbles with high transmissivity and capacity for storage in the present Yuba River channel and Yuba Goldfields;
- the deep original river channel in the metavolcanic bedrock and groundwater flow occurrence between the bedrock and coarse gravel lenses; and
- the occurrence of continuous high winter flow in the Yuba River, recharging groundwater in the Yuba Goldfields.



Source: Yuba Water et al. 2019.

Figure 3.3-3 Location of Yuba Goldfields

Groundwater Storage Conditions

The total volume of freshwater within the Yuba Subbasins is estimated to be 5 million acre-feet down to depths between 200 to 900 feet below ground surface (Yuba Water et al. 2019).

The estimated volume of freshwater in the Yuba Subbasins should be interpreted cautiously because the volume does not represent the usable amount of groundwater. The usable volume of groundwater in the Yuba Subbasins is generally assumed to extend to 200 feet below ground surface, even though some wells extend to much greater depth. Groundwater levels within the basin are managed within a safe range well within the upper extents of usable groundwater to avoid negative impacts such as dewatering existing productions wells, significantly increasing operational cost of groundwater extraction, and significantly decreasing groundwater quality or quantity. Groundwater storage conditions are managed through the Yuba Subbasins GSP's sustainable management criteria for groundwater levels. The sustainable management criteria include minimum thresholds for 31 representative monitoring wells in the Yuba Subbasins. Exceedance of the minimum threshold at more than 25 percent of the representative monitoring wells for two consecutive years is considered an undesirable result. Yuba Water, as the implementing GSA, must avoid undesirable results. 26 of the 31 representative monitoring wells have minimum thresholds of 75 feet below ground surface. The remaining 5 representative monitoring wells have minimum thresholds of between 84 and 132 feet below ground surface. Therefore, it is unlikely that groundwater will be lowered to depths below the minimum thresholds.

Groundwater Well Yields

Available information on well yields and the thickness of the primary groundwater-bearing formations is summarized below:

- Surface Basin Deposits: The thickness ranges from 60 feet to 80 feet in the eastern area and 100 feet to 125 feet in the west. Well yields range from 2,000 to 4,000 gpm.
- Modesto/Riverbank Formation: The thickness ranges from 100 feet in the south to 150 feet in the vicinity of the Yuba River. Well yields range from 1,000 gpm to 1,200 gpm.
- Laguna Formation: The thickness ranges up to 180 feet near the eastern margin of the Yuba Subbasins to 400 feet near the Yuba River. Wells screened in this formation are capable of producing up to 2,000 gpm.
- Mehrten Formation: The thickness ranges from 190 feet to 500 feet. Information on the yield of wells screened in the Mehrten Formation within western Yuba County is not currently available. It is likely that production wells screened in the Mehrten Formation are also screened within the overlying Laguna Formation.

In general, irrigation wells in the Yuba Subbasins commonly produce between 1,000 gpm to 2,000 gpm and range in depth from a few hundred feet to 700 feet. Wells with depths of 200 feet to 400 feet can yield 2,000 gpm to 4,000 gpm, with most of the yield derived from the upper 100 feet or more of sand and gravel. The area with the lowest yield can be found on Beale AFB property. Wells on and near Beale AFB range in depth from 264 feet to 354 feet and supply an average of 1,000 gpm per well. In a previous study, 92 driller reports were reviewed, and well yield data were reported in Ground Water Resources and Management in Yuba County (Yuba Water 2008). The average well yield ranged from 1,000 gpm to 2,300 gpm, and the average specific capacity ranged from 16 gpm to 74 gpm per foot, where specific capacity is a relative measure of the rate at which a well produces water for each foot of drawdown.[2]

Local Groundwater Usage

Use of groundwater for irrigation and municipal supplies in the Yuba Subbasins has developed gradually as the need for water has increased. Currently, Yuba Water has water service agreements to deliver surface water to its Member Units from the lower Yuba River as part of the Yuba River Development Project. Landowners within the Member Units have existing capacity to pump groundwater to meet a portion of their demands. More than 200 production wells are located within the Member Units' service areas. Five municipal purveyors located within the Yuba Subbasins (California Water Service (serving the City of Marysville), OPUD, Linda County WD, City of Wheatland, and Beale AFB)

[2] The specific capacity of a well is the well yield (water flow from the well in gpm that the well produces) divided by the measured drawdown in the pumping well (measured in feet as the distance from the water surface in the well from static to the pumping level).

rely on groundwater to meet their municipal and industrial water demands. Currently, 33 production wells are operated by these municipal purveyors. Other water purveyors in Yuba County use combinations of groundwater and surface water supplies to meet their demands.

Historically, irrigation demands in the North Yuba Subbasin, except in RWD, have been sufficiently supplied by the Yuba Project with diversions from the Yuba River. In addition to the surface water received from Yuba Water under its water rights, HIC, CID, and BVID also divert water supplies under their own water rights on the lower Yuba River. Farmers in Reclamation District 10 in the western portion of the North Yuba Subbasin use groundwater as their primary source of water for irrigation.

In the South Yuba Subbasin, surface water supplies were historically limited. Agricultural and urban water users in this area relied heavily on groundwater supply until 1983 when Yuba Water began to provide Yuba River water, through the South Yuba Canal, to BWD and SYWD. In 1998, DCMWC started receiving surface water from Yuba Water. In 2010, following completion of the Yuba Wheatland Canal Project, Yuba Water began delivering surface water to WWD, which allowed WWD to reduce its groundwater pumping, thereby providing in lieu recharge of the Subbasin t. Plumas MWC diverts water from the Feather River under a settlement agreement with DWR. BWD, SYWD, DCMWC, and WWD currently receive surface water from the Yuba River, while areas not served by agricultural water purveyors rely fully on groundwater Figures 3.3-4 and 3.3-5 show historical groundwater elevation data (hydrographs) for the North Yuba and South Yuba Subbasins, respectively.

Figure 3.3-4 for the North Yuba Subbasin show that, in general, this subbasin was not drawn down extensively because of the historical surface water supply to the Member Units in this area.

Figure 3.3-5 suggests that, prior to the delivery of surface water to the Member Units, groundwater pumping resulted in declining groundwater levels throughout the South Yuba Subbasin, and in some areas, groundwater depressions were evident. Since the delivery of surface water to the Member Units began in 1983, groundwater elevations have risen to historical high levels in some areas and have exceeded historical high levels in other areas. Surface water deliveries appear to have a significant effect on groundwater levels. Since the early 1980s, groundwater levels have increased by approximately 100 feet in some areas.

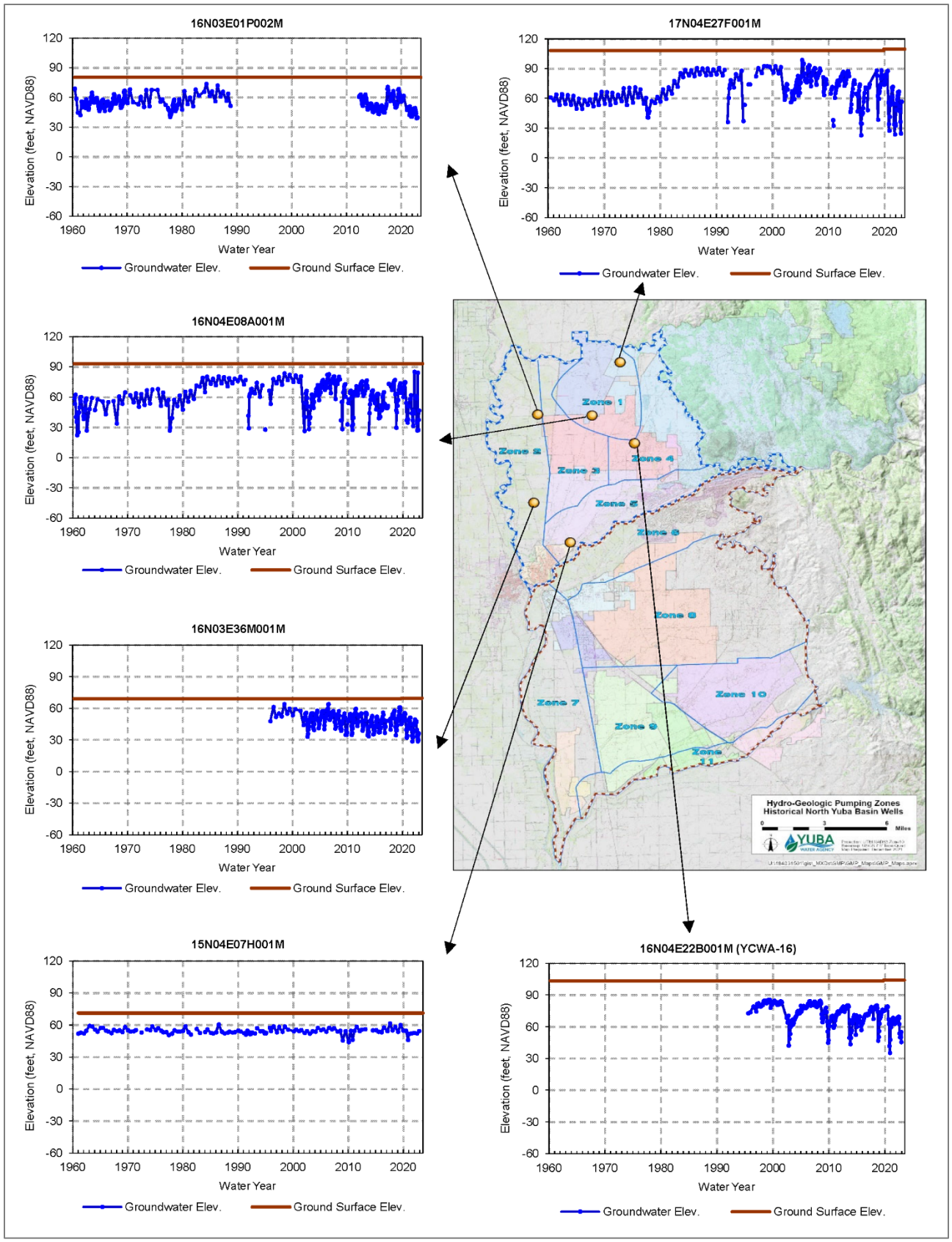
Historical Groundwater Substitution Transfers

Yuba Water Member Units participated in four historical groundwater substitution transfer programs during 1991, 1994, 2001, and 2002 and completed eight additional transfers under the Lower Yuba River Accord in 2008, 2009, 2010, 2013, 2014, 2018, 2020, and 2022 (Yuba Water 2023).

Figure 3.3-6 shows the volumes of groundwater pumped within the North Yuba and South Yuba Subbasins during each transfer year. Figure 3.3-7 and Figure 3.3-8 show the total volume of substitution water pumped during each of the eight transfer years since 2008 within each Member Unit in the North and South Yuba Subbasins, respectively.

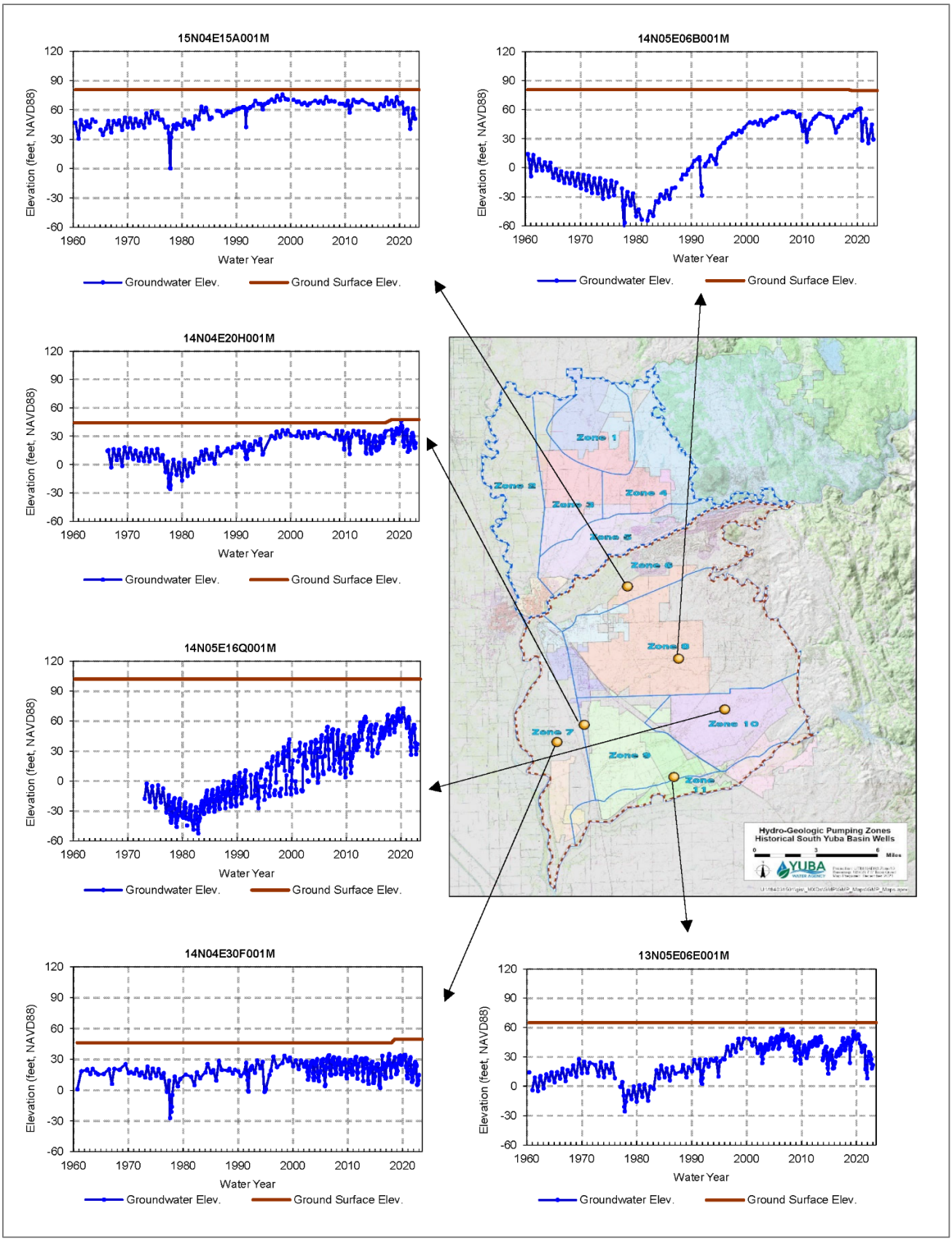
The first groundwater substitution transfer, in 1991, occurred in response to a call from the Governor of California. The state was in a major drought due to five years of very dry conditions which had taken their toll on California water supplies. Yuba Water, together with its Member Units, developed a groundwater substitution transfer program to pump over 82 thousand acre-feet (TAF) of water for use on local lands for irrigation. This allowed for the release of an equal amount of water from New Bullards Bar Reservoir for use in other parts of the state. This type of groundwater substitution transfer also occurred in 1994, 2001, and 2002.

As described under the heading "Third Party Impacts Action Plan" in Section 2.3.6, "Other Commitments as Features of the Proposed Extension" of this SEIR, during each transfer year of the Yuba Accord, Yuba Water and its Member Units have undertaken various actions to respond to and ensure impacts to Third Parties, local groundwater users that could be affected by fluctuations in groundwater levels because of groundwater substitution pumping for transfers, are identified and mitigated as quickly as possible. This Action Plan would continue to be implemented under the Proposed Extension.



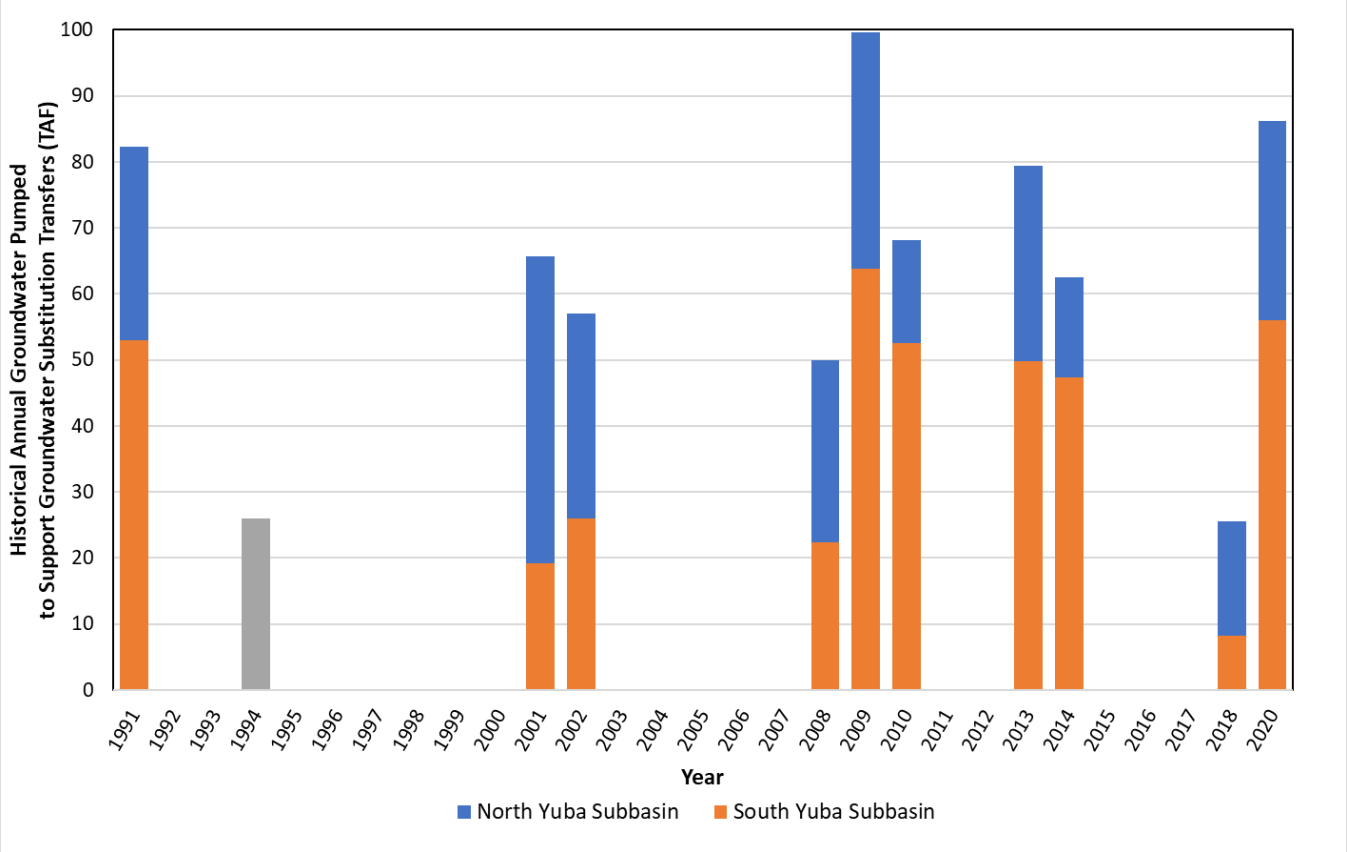
Source: Yuba Water 2023.

Figure 3.3-4 Historical Groundwater Elevations for Select Monitoring Wells in the North Yuba Subbasin



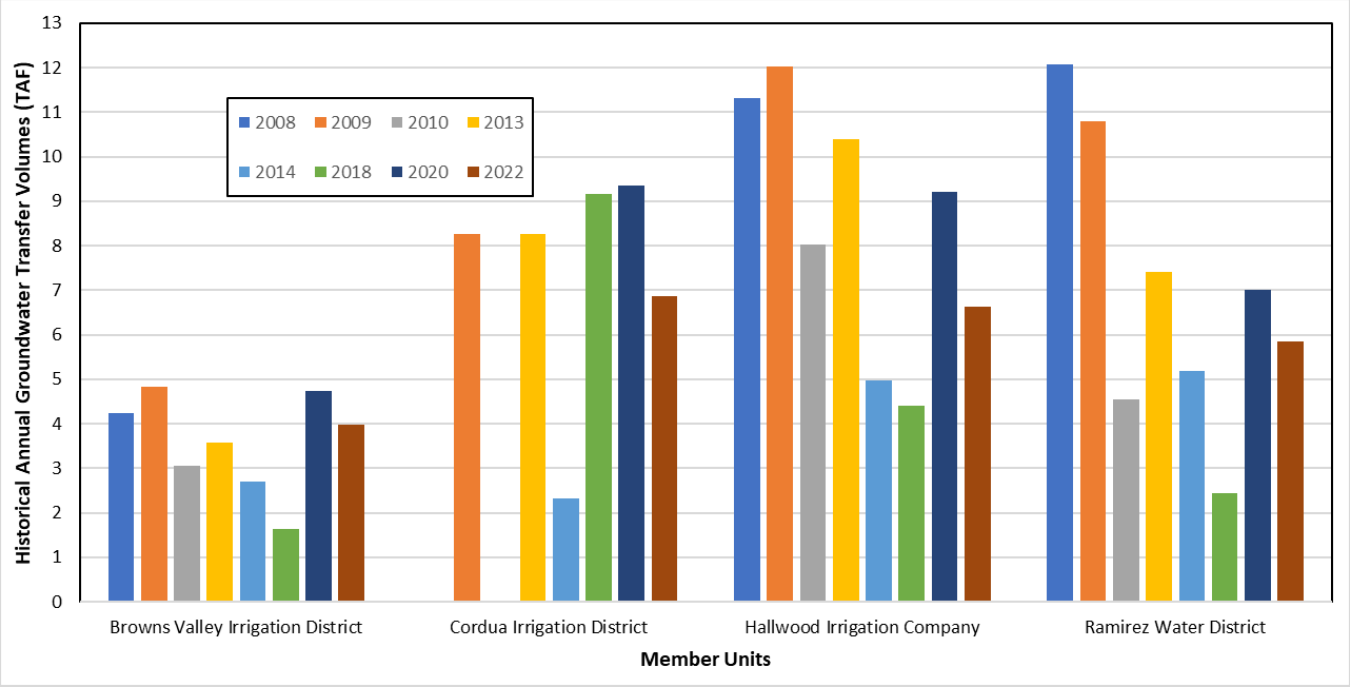
Source: Yuba Water 2023.

Figure 3.3-5 Historical Groundwater Elevations for Select Monitoring Wells in the South Yuba Subbasin



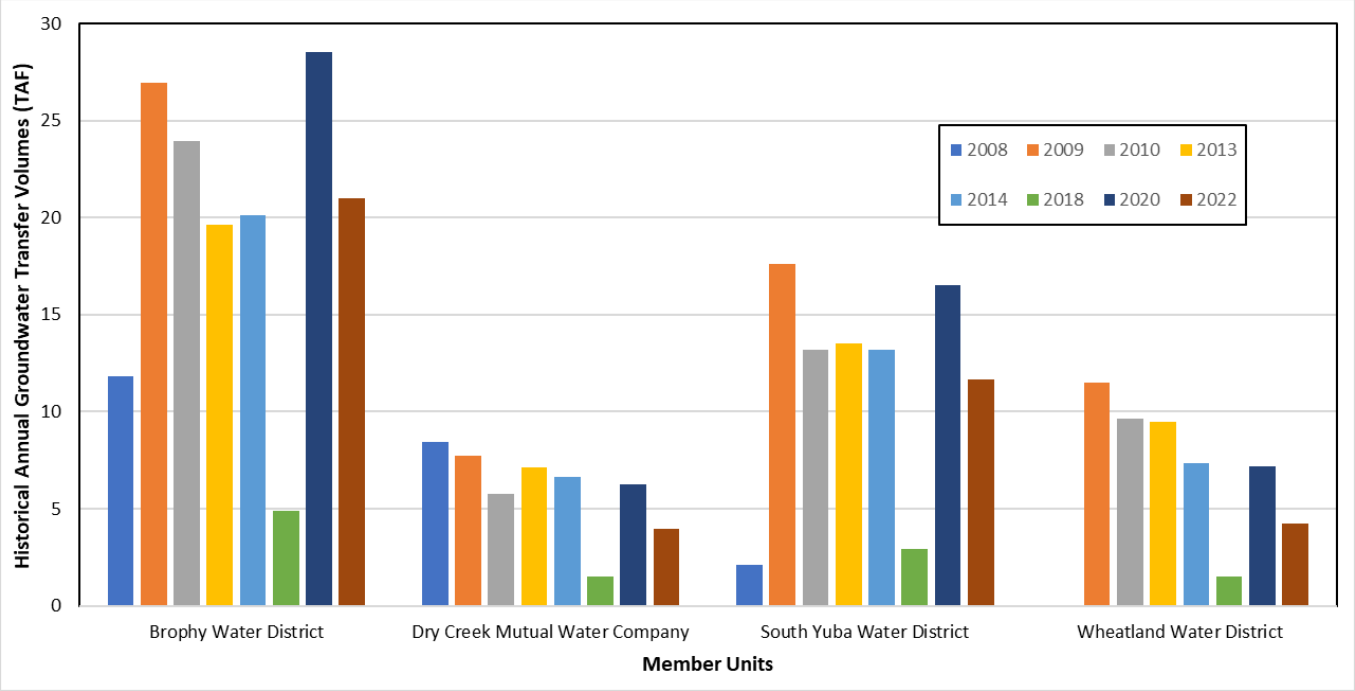
(* The split of pumping between the two subbasins for the 1994 transfer is unknown)
Source: Yuba Water 2023.

Figure 3.3-6 Volume of Groundwater Substitution Transfers from the North Yuba and South Yuba Subbasins



Note: Pumping by Member Unit from 1991, 1994, 2001, and 2022 is unknown.
Source: Yuba Water 2023.

Figure 3.3-7 Volume of Groundwater Substitution Transfers by Member Units in the North Yuba Subbasin



Note: Pumping by Member Unit from 1991, 1994, 2001, and 2022 is unknown.
Source: Yuba Water 2023.

Figure 3.3-8 Volume of Groundwater Substitution Transfers by Member Units in the South Yuba Subbasin

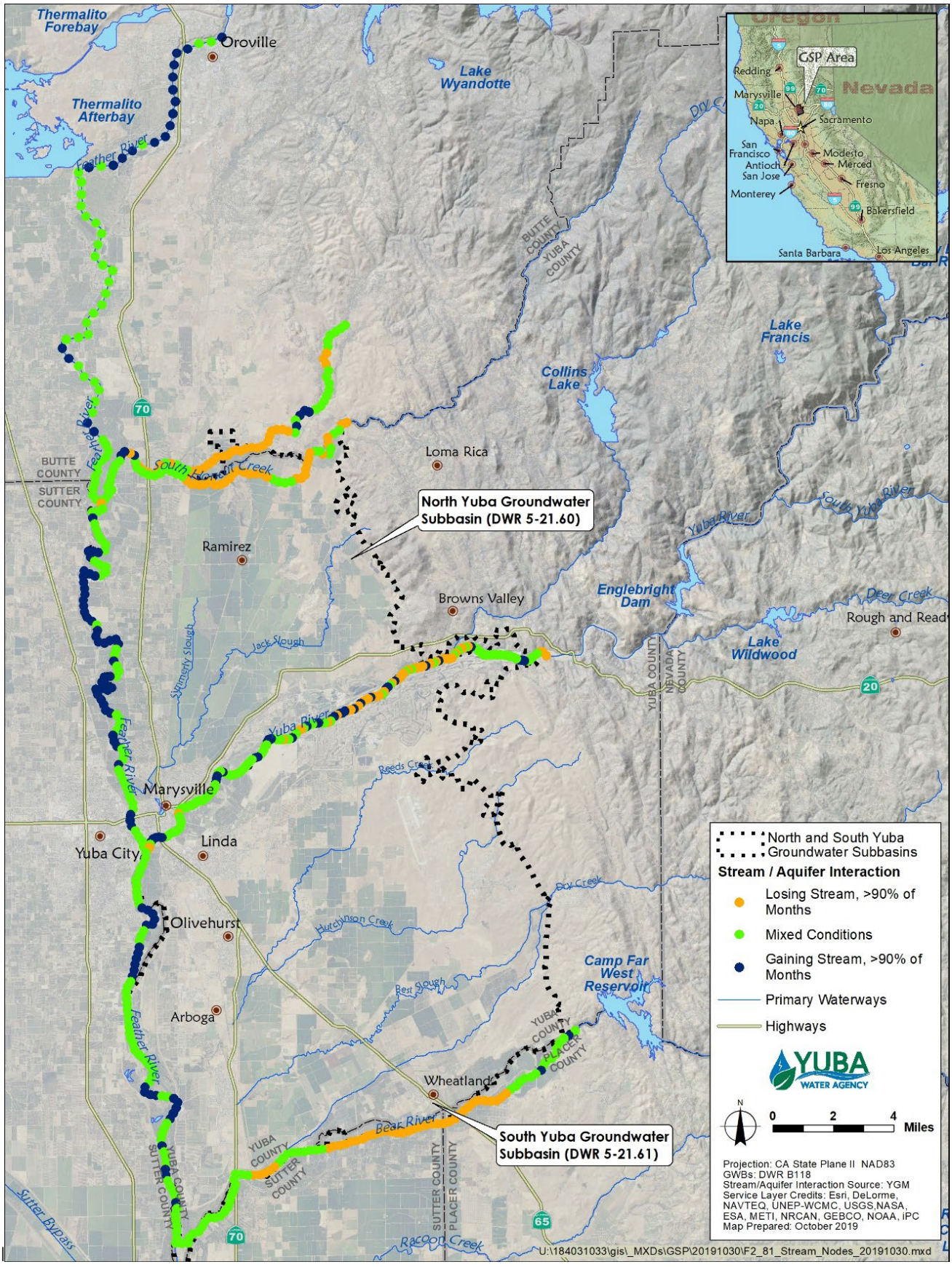
Local Groundwater and Surface Water Interactions

The main surface water features in the Yuba Subbasins are the Yuba, Feather, and Bear Rivers. The North Yuba Subbasin is bounded on the north by a smaller surface water feature, Honcut Creek. Other surface water bodies and wetland communities, such as surface-ponding vernal pools and groundwater dependent ecosystems (GDEs), are present in the Yuba Subbasins (CDFW 2024 and Yuba Water et al. 2019, respectively), as described below.

The Yuba River running between the North Yuba and South Yuba Subbasins plays an important role in resource management and planning, including flood management, power generation, water quality, fisheries, and recreation. The upper reach of the lower Yuba River is the primary recharge zone for the Yuba Subbasins. The Feather River is a principal tributary of the Sacramento River, flowing through Butte County and between Yuba and Sutter counties. It drains part of the northern Sierra Nevada Mountains and a small portion of the middle part of the Sacramento Valley. Honcut Creek is a major tributary to the lower Feather River, flowing between Butte and Yuba Counties. Downstream from the confluence with Honcut Creek, the lower Feather River meets with the Yuba River at Marysville. Further downstream, the lower Feather River meets with the Bear River along the southern boundary of the South Yuba Subbasin.

Interconnected surface waters are surface water features that are hydraulically connected by a continuous saturated zone to the underlying aquifer. In other words, interconnected surface waters exist where water table elevations and surface water features intersect at the same elevations and locations. Within the Yuba Subbasins, all surface water systems are thought to be interconnected with at least shallow groundwater (Yuba Water et al. 2019). Interconnected surface waters are classified as either gaining or losing, meaning the surface water feature is either gaining water from groundwater or losing water into groundwater.

The interaction between groundwater and surface water within the Yuba Subbasins is analyzed through use of the YGM. As in most of California, the direct measurement of the gain or loss to groundwater from surface water bodies is not feasible in the Yuba Subbasins. The YGM provides information to characterize the interconnected surface water system. Each stream node in the YGM is characterized by model output as either gaining, losing, or mixed, as shown in Figure 3.3-9 (Yuba Water et al. 2019).



Source: Yuba Water et al. 2019.

Figure 3.3-9 Gaining and Losing Portions of Major Rivers, Based on YGM Output

The node is considered gaining if model output indicates that the reach experiences net gaining conditions during 90 percent of all modeled simulated months under historical conditions, and considered losing if model output indicates net losing conditions during 90 percent of all months. All other nodes are classified as mixed. Details on inflows, losses, and gains from each major river in the Yuba Subbasins are provided below, with values presented as average annual volumes based on YGM output reported in the Yuba Subbasins GSP (Yuba Water et al. 2019).

Surface Water-Ponding Vernal Pools

Refer to the 2007 EIR, Section 6.1.1.7, "Local Groundwater and Surface Water Interactions," for information on surface-water ponding vernal pools located in the local study area. As discussed in the 2007 EIR, because vernal pools in the Yuba Subbasins do not depend on groundwater and are recharged by direct precipitation and surface water flows, groundwater pumping associated with implementation of the Proposed Extension would not affect these resources.

Groundwater Dependent Ecosystems

GDEs are defined in the GSP Emergency Regulations as "ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" (California Code of Regulations, Title 23, Section 351(m)). The identification of GDEs was performed as part of the Yuba Subbasins GSP (Yuba Water et al. 2019) using the Natural Communities Commonly Associated with Groundwater (NCCAG) database. The NCCAG database was developed by a working group composed of DWR, California Department of Fish and Wildlife, and The Nature Conservancy by reviewing publicly available state and federal agency datasets that mapped California vegetation, wetlands, springs, and seeps and by conducting a screening process to retain types and locations commonly associated with groundwater. The results were compiled into the NCCAG database with two habitat classes defined. The first class includes wetland features commonly associated with the surface expression of groundwater under natural, unmodified conditions. The second class includes vegetation types commonly associated with the surface presence of groundwater (i.e., phreatophytes). Steps taken to identify GDEs from the NCCAG dataset are detailed in the Yuba Subbasins GSP (Yuba Water et al. 2019).

The Yuba GSP includes a detailed examination of GDEs and the potential for groundwater pumping within the basin, including pumping to support groundwater substitution transfers. The GSP concluded that groundwater pumping for all purposes would be unlikely to affect GDEs primarily because wells in the basin are generally pumping the deeper aquifer, GDEs are supported by shallow groundwater, and "deep pumping" does not impact shallow groundwater conditions. The GSP determined the shallow groundwater system is mostly driven by river stage and likely with some contributions from nearby irrigated agriculture" (Yuba Water et al. 2019: 2-143).

Local Groundwater Quality

Groundwater throughout the Yuba Subbasins has relatively consistent water quality characteristics and meets local needs for municipal, domestic, and agricultural uses (Yuba Water et al. 2019). While small drinking water systems or large public drinking water systems in Yuba County are able to meet regulatory requirements for water quality, system operators often have to plan or manage around a few water quality issues. There is naturally occurring arsenic, iron, and manganese in some areas that may exceed the Maximum Contaminant Level or Secondary Maximum Contaminant Levels. Such concentrations may be addressed through filtration, reverse osmosis, or blending, or may not be used for potable uses. Exceedances may be caused by localized conditions and may not be reflective of regional water quality. As an alternative to treatment or blending, wells can be drilled to different depths or at different locations to avoid lower quality water. Further, like most of the Central Valley, the Yuba Subbasins are at risk of increasing salt and nutrient conditions largely due to agricultural and urban uses of water. Currently, salt and nutrient concentrations are good across the majority of the Yuba Subbasins, although shallow groundwater conditions and isolated areas may have higher concentrations.

Local Land Subsidence

To date, inelastic land subsidence has not been observed within the Yuba Subbasins. Yuba Water actively coordinates with DWR to monitor potential land subsidence within the Yuba Subbasins. Subsidence has been measured two different ways: monument surveys and Interferometric Synthetic Aperture Radar (InSAR).

The National Oceanic and Atmospheric Administration's National Geodetic Survey (NGS) established a subsidence monitoring network that includes 19 NGS monuments in or near Yuba County. This network was increased in size by

Yuba Water to add three additional monuments in 2007. The network was intended to be monitored by DWR on a 5-year schedule (Yuba Water 2010) and was initially surveyed in 2007. DWR was unable to survey the monuments in 2013 due to budgetary limitations but surveyed the monuments in 2018, though surveys have since been discontinued as of 2022. Results from the 2018 monitoring, shown in Figure 3.3-10, indicate little to no statistically significant land subsidence for the Yuba Subbasin, with all monitored locations in and near the subbasins having subsidence in the lowest category of less than 0.20 feet since 2008 (DWR 2018).

3.3.3 Impact Analysis

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance for impacts are based on the environmental checklist in Appendix G to the State CEQA Guidelines, as amended, and were refined to address potential impacts specific to groundwater resources in the study area. The environmental analysis conducted in this SEIR will apply the following significance thresholds to determine whether the potential impacts of the Proposed Extension, relative to existing conditions, are within the range of effects that were previously evaluated in the 2007 EIR.

An impact on groundwater resources would be considered significant if implementation of the Proposed Extension would do any of the following:

- conflict with or obstruct implementation of the sustainable groundwater management plan by resulting in any of the following undesirable results:
  - chronic lowering of groundwater levels, indicating a significant and unreasonable depletion of supply;
  - significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;
  - significant and unreasonable land subsidence that substantially interferes with surface land uses; or
  - depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

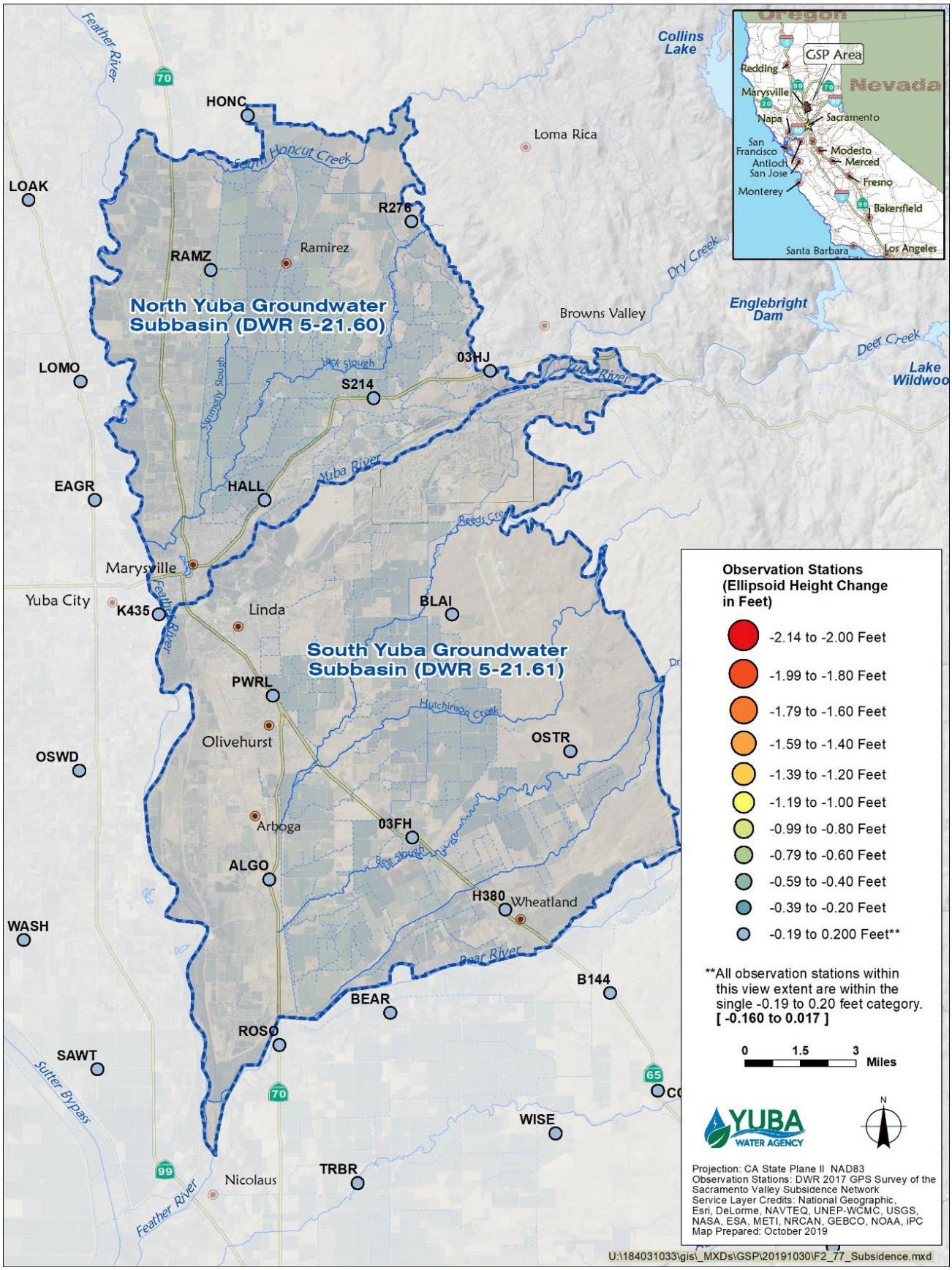
METHODOLOGY

Potential impacts to groundwater resources are considered in the context of whether the Proposed Extension changes the frequency, magnitude, or duration of groundwater storages and groundwater level fluctuations, in a way that substantially affects groundwater use and availability. Groundwater-related analytical considerations for this SEIR are consistent with those that were used in the previously conducted impact assessment for the Yuba Accord (Yuba Water et al. 2007). Specific groundwater-related regional considerations described in the 2007 EIR are identified below.

Analytical Groundwater Considerations by Geographic Region in the 2007 EIR

<u>Yuba Region</u>

- Reductions in local groundwater levels and storage were evaluated to identify whether the Yuba Accord would affect long-term overdraft conditions in the basin or result in short-term adverse third-party impacts.
- Changes in groundwater pumping were evaluated to identify whether the Yuba Accord would affect groundwater and surface water interactions and result in reduced instream flows in local rivers and streams.
- Changes in groundwater quality were evaluated to identify whether the Yuba Accord would degrade conditions and result in exceedance of drinking water or agricultural water quality standards, or result in adverse effects to designated beneficial uses of groundwater.
- Increases in groundwater pumping were evaluated to identify whether the Yuba Accord would cause groundwater level reductions that result in permanent land subsidence.



Source: Yuba Water et al. 2019.

Figure 3.3-10 Subsidence within Yuba Subbasins Based on DWR Surveying

Geographic Areas Not Evaluated in Detail in the 2007 EIR

During development of the 2007 Draft EIR analyses, certain areas within the Yuba Accord project area were not evaluated in detail because it was determined that they would not be affected by the project. Consistent with the approach taken in the 2007 EIR, this SEIR has eliminated certain areas in the Yuba Region from detailed evaluation based upon the rationale previously provided in the 2007 EIR, which is summarized below.

The 2007 Draft EIR (p. 6-1) explained that the geographic setting for implementation of the Yuba Accord as it relates to the analysis of groundwater resources mainly focused on groundwater resources within the Yuba Basin. A brief discussion of groundwater resources in the Export Service Area was also included, but the analysis determined that the Yuba Accord would have a beneficial, albeit limited, effect by reducing reliance on groundwater resources in the Export Service Area. Groundwater impacts in the CVP/SWP service area Upstream of the Delta Region and the Delta Region were not evaluated in the 2007 EIR because implementation of the Yuba Accord would not change management of groundwater resources in these regions. Therefore, this analysis focuses on impacts to groundwater resources in the Yuba Region.

Supplemental EIR Groundwater Analytical Approach

As described in Section 3.2, "Surface Water Supply and Management," the Proposed Extension evaluated in this SEIR is the continuation of the Water Transfer Program, which is currently being implemented and is reflected in the modeling of existing environmental conditions. The Proposed Extension, relative to the existing condition, is analyzed in this SEIR within the context of the evaluations and conclusions presented in the 2007 EIR (described above), and in consideration of changed regulatory conditions, new technical information and existing groundwater conditions in the study area.

The 2007 EIR used several methods to analyze impacts on groundwater supply and quality associated with Yuba Accord groundwater substitution transfers and in-lieu groundwater pumping for local water supply to make up for deficiencies in surface water deliveries. Since 2008, the Yuba Accord has been fully implemented, such that the Yuba Accord's flows and its Water Transfer Program are now part of the existing baseline condition.

SGMA was adopted after the Yuba Accord was approved. As previously described, SGMA requires that GSAs demonstrate sustainable groundwater use through the avoidance of undesirable results. Consistent with SGMA, the YGM was developed for the Yuba Subbasins, and the Yuba Subbasins GSP was adopted by the GSAs and approved by DWR to guide management of basin activities. This SEIR considers the four SGMA sustainability criteria that apply to the Yuba Subbasins[3] as thresholds of significance for purposes of this analysis.

Groundwater levels are used as a proxy to determine whether depletion of interconnected surface waters is occurring and as a proxy for chronic lower of groundwater levels. By avoiding undesirable results related to groundwater levels, it is anticipated that undesirable results related to the sustainability indicators of depletion of interconnected surface waters and chronic lower of groundwater levels will also be avoided. The Water Purchase Agreement signed in 2008 included monitoring and evaluation of groundwater levels and a "Groundwater Operations Plan" that included specific limitations on pumping for groundwater substitution transfers which would cause groundwater levels to fall below historical 1991 levels in the South Subbasin and included procedures to avoid impacts to third parties. With the initiation of SGMA, the Groundwater Monitoring and Reporting Program has been revised in the Draft WPA for extension of the Water Transfer Program to include more specific minimum threshold water levels documented in the Yuba GSP that will be used to assure avoidance of potentially significant impacts associated with lowered groundwater levels. The revisions also include an updated set of procedures and reporting to DWR for planning groundwater substitution transfers each year. These new procedures include use of the YGM to forecast future water levels under proposed pumping plans to ensure minimum threshold water levels are not violated. The Yuba GSP includes a detailed description of the development of the minimum threshold water levels and how monitoring is done to verify compliance.

[3] As described on pages 4-2, 4-3 and 4-5 of the Yuba Subbasins GSP, groundwater storage (banking) and seawater intrusion are not present in the Yuba Subbasins and are not likely to occur.

Sustainable Yield of the Yuba Subbasins

Under the Yuba Subbasins GSP, sustainable yield was defined as the amount of groundwater that can be withdrawn on a long-term average basis without causing undesirable results (Yuba Water et al. 2019). Based on the methodology described in the Yuba Subbasins GSP, sustainable yield is estimated as 239,000 AFY, split as 93,000 AFY in the North Yuba Subbasin and 146,000 AFY in the South Yuba Subbasin (Yuba Water et al. 2019). Because the Yuba Subbasins are operated under conjunctive water management, it is important to understand that the sustainable yield is a long-term value. Thus, groundwater pumping may exceed these values during certain years, balanced by other years with reduced pumping, so that the long-term average level of pumping remains at or below the sustainable yield. It should also be noted that these estimates are provided as a reference to assist in achieving sustainability when identifying future projects and management actions. SGMA does not incorporate these estimates directly into the sustainable management criteria. Rather, sustainability under SGMA is demonstrated simply by avoiding the undesirable results (as set forth in the sustainability indicators). [4]

Criteria to Assist in Adaptive Management of the Yuba Subbasins

To capture the full range of desired groundwater conditions within the Yuba Subbasins specific to the groundwater levels sustainability indicator, two additional non-regulatory levels were developed:

- *Historically full aquifer level*: The historically full aquifer level is a non-regulatory value that indicates historically high groundwater levels, representing the typical upper bound of groundwater levels during conjunctive water management operations.
- *Local management level*: The local management level represents the lowest groundwater levels that are locally desired. Distinct from the minimum threshold, these non-regulatory levels may be higher than levels that would constitute "significant and unreasonable results" under SGMA (i.e., the regulatory "floor" established under SGMA). These local management levels guide adaptive management in the Yuba Subbasins and provide a level of protection to help avoid undesirable results.

The quantitative nature of these criteria allows the GSP to demonstrate sustainability.

Analysis of Groundwater Levels

Groundwater substitution transfers generally implicate two of SGMA's sustainability indicators, groundwater storage and groundwater levels. For the Yuba Subbasins, the GSP found that undesirable results related to groundwater storage are not present and are not likely to occur. Therefore, this analysis focuses on the Proposed Extension's potential to cause chronic lowering of groundwater levels, which is the driving factor in maintaining sustainability in the Yuba Subbasins. Groundwater levels also reflect the ability of infrastructure to economically access groundwater and the sustainability of GDEs, to the extent they are connected to the aquifer that is being accessed for water supplies.

Chronic Lowering of Groundwater Levels

Minimum thresholds for chronic lowering of groundwater levels were selected in the GSP to represent conditions that are just above conditions that could collectively (cumulatively) generate undesirable results in the Yuba Subbasins. These minimum thresholds were developed by selecting the deeper of (1) the bottom of the shallowest domestic well near a monitoring well, adjusted for March measurements, (2) the historical low March groundwater level from 1985 to present (incorporating recent monitoring and HUR [Yuba Water 2008] interpolated values) at the monitoring well, or (3) 75 feet.

The minimum thresholds are based on each representative monitoring well's proximity to shallow wells and on historical groundwater levels at the representative monitoring well. Domestic wells were used for this threshold, as

[4] For details on quantitative threshold values associated with each of the four Yuba sustainability indicators and the two additional non-regulatory levels, see Section 4.4 (Quantitative Sustainable Management Criteria) in the Yuba GSP, including:
- Table 4-1: Minimum Thresholds, Measurable Objectives, and Historically-Full Aquifer Levels for Chronic Lowering of Groundwater Levels
- Table 4-2: Minimum Thresholds and Measurable Objectives for Degraded Water Quality (Electrical Conductivity)
- P. 4-26 – Minimum thresholds for land subsidence

they are generally shallower than agricultural and municipal wells and thus considered more conservative for setting thresholds. Additionally, the loss of a domestic well usually results in a loss of water for consumption, cooking, and sanitary purposes, which can often have substantial impacts on the users of the water and can be financially difficult for the well owner to replace.

Historical low groundwater levels at each representative monitoring well were also incorporated into the analysis. Groundwater levels have fluctuated over time in the Yuba Subbasins, notably in the South Yuba Subbasin (as discussed in detail in Section 2.2.2.1 of the GSP). The GSP determined that historical conditions were not significant and unreasonable, thus this analysis considers those historical levels as being appropriate levels for future operations. The use of historical low groundwater levels also addresses a shortcoming in the domestic well database. The DWR Well Completion Report Map Application database that was used in development of the minimum thresholds includes domestic wells that are potentially not in use, due to age or other factors. And, like most databases, the dataset may contain errors that can be difficult to identify and rectify. Domestic wells that are shallower than the historical low groundwater level at the well would likely have run dry and either been abandoned or deepened since that time or may be due to an error in the dataset. Future installed domestic wells would be informed by the GSP and, potentially, updated county construction standards.

The minimum thresholds were developed for March groundwater level data to limit impacts of active groundwater pumping resulting in localized drawdowns that are most likely to occur in late summer or fall, which can cause erratic measurements that may not be indicative of regional conditions. A March monitoring period is thus considered a more reliable and consistent indicator of regional groundwater level conditions. To use March data, the annual change in groundwater level between the annual low groundwater level data and the average March groundwater level was identified. The depth of the shallowest domestic well was then adjusted upward (to the higher elevation) by the average of the three largest March-to-annual-low changes to reflect March elevations that would be reasonably expected to result in groundwater levels near the bottom of the well during late summer or early fall, when groundwater levels are typically at their lowest (Yuba Water et al. 2019: Figure 4-4). This process is explained in Appendix J of the Yuba Subbasins GSP.

A minimum depth of 75 feet bgs was incorporated to represent economically accessible water that is also similar to historical lows in the South Yuba Subbasin that were reached without significant and unreasonable results. The 75-foot depth is also consistent within domestic well construction requirements in many other Central Valley counties, which incorporate minimum sanitary seal depths of up to 50 to 100 feet bgs, making the total well depths deeper than that level (see, for example, San Joaquin County 2005; Sacramento County Code Section 6.28.040[A][2]; Merced County Code Section 9.28.060[C][5][a]).[5]

Monitoring wells to determine changes in groundwater levels are located throughout the Yuba Subbasins (Yuba Water et al. 2019: Table 4-1). The Yuba Subbasins GSP identifies the minimum threshold elevations for each representative monitoring well in the Yuba Subbasins (Yuba Subbasins GSP, Figure 4-6). The Yuba Subbasins GSP also includes hydrographs for each representative monitoring well, including the ground surface elevation, historical groundwater levels, minimum threshold, and other Sustainable Management Criteria and measurable objectives developed in the GSP for each representative monitoring well in the Yuba Subbasins (Yuba Water et al. 2019). All available annual reports (Yuba Water 2020, 2021, 2022, and 2023) show all representative monitoring wells with groundwater levels above minimum thresholds. The time period covered by the annual reports included periods of drought, with shortages for agricultural surface water deliveries and groundwater substitution transfers.

Sustainability through Groundwater Substitution Transfer Planning

The Yuba Accord's existing Groundwater Substitution Transfer Program has a foundation in sustainability and in data-driven analysis of appropriate transfer volumes. This includes the use of a multivariate-regression-based tool, which was later replaced with a numerically integrated groundwater-surface water model (the YGM). These tools allow for the estimation of future groundwater levels under different levels of groundwater substitution transfers. The Member Units and Yuba Water developed thresholds to guide the decision process, termed Transfer Objectives, that are

[5] Within the Yuba Subbasins, it was assumed that future domestic wells would have a 50-foot minimum seal (see Section 5.1.5.3 of the GSP), which leads to typical well depths of more than 75 feet.

protective of long-term sustainability of the groundwater resource. While often located at different wells, these Transfer Objectives are higher than the minimum of the Yuba GSP, highlighting the conservative, sustainability-focused nature of the groundwater substitution transfer program.

The YGM is used to estimate pumping volumes that will maintain Transfer Objective levels in the future. Together with analysis considering past transfers and similarities to the current conditions, this analysis is used to drive a science-based decision-making process that maintains sustainable groundwater conditions.

IMPACT ANALYSIS

Impact 3.3-1: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in chronic lowering of groundwater levels, indicating a significant and unreasonable depletion of supply.

The Proposed Extension is a continuation of the existing Water Transfer Program. Because the Water Transfer Program is being implemented and has been ever since the Yuba Accord was approved more than 15 years ago, it is encompassed in the baseline conditions. Groundwater storage capacity and groundwater levels remain above historical lows in the Yuba subbasins and minimum thresholds have been set for management of the Yuba Subbasins to ensure chronic lowering of groundwater levels does not occur. Groundwater substitution transfers that are implemented under the Water Transfer Program include transfer objectives that are at higher levels than minimum thresholds and the transfers are managed to those objectives. With these thresholds and a pumping program that is managed adaptively to maintain higher groundwater levels through transfer objectives, ground water substitution transfers have not resulted in the chronic lowering of groundwater levels. There are no changes resulting in new or more severe significant impacts beyond what was analyzed in the 2007 EIR. Because implementation of the Proposed Extension would not affect groundwater substitution transfers occurring under the Water Transfer Program, and the anticipated groundwater pumping associated with the Proposed Extension would continue to be within historical ranges, the Proposed Extension would have a **less-than-significant** impact on groundwater levels in the Yuba Subbasins and would not obstruct implementation of the approved sustainable groundwater management plan.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.3-2: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

The Proposed Extension is a continuation of the existing Water Transfer Program. Because the Water Transfer Program is being implemented and has been ever since the Yuba Accord was approved more than 15 years ago, it is encompassed in the baseline conditions. The Yuba Basin is in healthy condition with respect to water quality. During the past groundwater substitution transfers, no long-term significant impacts on groundwater quality conditions have occurred. As part of the monitoring plan for groundwater substitution transfer electric conductivity measurements are collected to monitor trends in salinity, the groundwater quality constituent of concern associated with pumping. These measurements are reported each year a groundwater substitution transfer is performed. The measurements over the past fifteen years of the Yuba Accord have not shown degradation of water quality (Yuba Water 2023). As noted in the 2007 EIR:

> …the Yuba Basin is in healthy condition with respect to water quality. During the past groundwater substitution transfers, no long-term significant impacts on groundwater quality conditions have occurred. One potential adverse impact associated with lowering groundwater levels below the range of historical low levels would be the potential mobilization of saline water from deeper zones to shallower zones. However, because anticipated future pumping with implementation of the alternatives evaluated in this EIR/EIS would be within historical pumping volumes, impacts to groundwater quality would be less than significant.

There are no changes resulting in new or more severe significant impacts beyond what was analyzed in the 2007 EIR. Because implementation of the Proposed Extension would not include any discharges to groundwater; would not affect groundwater substitution transfers occurring under the Water Transfer Program, and the anticipated groundwater pumping associated with the Proposed Extension would continue to be within historical ranges, the Proposed Extension would have a **less-than-significant** impact on groundwater quality in the Yuba Subbasins, including on the migration of contaminant plumes, and would not obstruct implementation of the approved sustainable groundwater management plan.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.3-3: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in significant and unreasonable land subsidence that substantially interferes with surface land uses.

The Proposed Extension is a continuation of the existing Water Transfer Program. Because the Water Transfer Program is being implemented and has been ever since the Yuba Accord was approved more than 15 years ago, it is encompassed in the baseline conditions. The Yuba Subbasins GSP described the potential causes of land subsidence requiring compressible clays within the basin and substantial lowering of groundwater levels (Yuba Water et al. 2019). The Yuba Subbasins GSP (Yuba Water et al. 2019: Section 4.3.5.2, page 4-6) states, "Based on the historical experience of no known subsidence in the South Yuba Subbasin even when groundwater levels declined through the early 1980s (see Section 2.2.2.5), it is thought that there are not significant quantities of compressible clays in the upper portions of the aquifer in the Yuba Subbasins, limiting the risk of subsidence should those materials dewater." The GSP identifies wells and criteria for monitored water levels to identify the potential for lower groundwater levels that could indicate conditions for land subsidence. These levels are the same as the minimum thresholds described in the GSP for chronic lowering of groundwater levels described in Impact indicator 3.4.3. There are no changes resulting in new or more severe significant impacts beyond what was analyzed in the 2007 EIR. Because basin management would maintain groundwater levels above the minimum thresholds, which are also levels above which land subsidence would not occur, the potential for land subsidence under the Proposed Extension would be **less than significant**, and the Proposed Extension would not obstruct implementation of the approved sustainable groundwater management plan.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.3-4: Conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

For more than fifteen years, groundwater substitution transfers throughout the Sacramento Valley have generally used a streamflow depletion factor (SDF) to calculate the amount of surface water that can be made available for transfer as a result of groundwater substitutions. Specifically, the SDF accounts for reductions in streamflow over time from seepage back to groundwater that may occur when additional groundwater is pumped. As a result, when an SDF is used, the amount of surface water made available to the transferee is less than the amount of surface water the transferor foregoes by pumping groundwater. The difference is water left in the system to address streamflow depletion and ensure other surface water users are not adversely affected.

Because groundwater pumping under the Proposed Extension would continue to be within historical ranges, the Proposed Extension would not result in any significant changes from the baseline with respect to streamflow depletion. Nevertheless, as described in Section 2.3.6, "Other Commitments as Features of the Proposed Project," Yuba Water proposes to apply an SDF to groundwater substitution transfers under the Proposed Extension, consistent with the now-prevailing practice for water transfers within the region. As described more fully in Appendix B and in Section 3.2, "Surface Water Supply and Management," an SDF is being included in the amended Water Purchase Agreement Accounting Exhibit for the Proposed Extension. Refer to these portions of the SEIR for a detailed

description of streamflow depletion attributable to groundwater substitution transfers and how an SDF will be developed and implemented. Section 3.2 explains that implementing an SDF in the transfer accounting is consistent with the 2007 EIR Project features for monitoring and adaptive management. Modeling of groundwater substitution transfers in the Yuba Subbasins and consideration of other dynamic factors would be used to calculate the appropriate SDF. Appendix B provides detailed technical information on the elements that should be considered in formulating an SDF, and like carriage water and refill accounting, a determination of a specific SDF would be made by DWR in consultation with Reclamation and Yuba Water.

Depletions of interconnected surface water from groundwater pumping also generally may lead to impacts on groundwater-dependent ecosystems (GDEs). The Yuba Subbasins GSP identifies GDEs within the region that depend on groundwater emerging from aquifers or occurring on or near the ground surface. As explained in Impact 3.3-1, above, groundwater levels (which are used as a proxy to determine whether depletion of interconnected surface waters is occurring) are above historical lows and are actively managed to avoid chronic lowering. Groundwater pumping under the Proposed Extension would continue to be within historical ranges. For these reasons, the Proposed Extension would not result in any changes from the baseline with respect to depletion of interconnected surface water.

There are no changes resulting in new or more severe significant impacts beyond what was analyzed in the 2007 EIR. Because groundwater pumping under the Proposed Extension would remain within historical ranges, the Proposed Extension would not conflict with or obstruct implementation of a sustainable groundwater management plan by resulting in depletions of interconnected surface water that would significantly and unreasonably adversely impact beneficial uses of the surface water. Accordingly, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.4 FISHERIES AND AQUATIC RESOURCES

This section identifies the existing regulatory context and policies related to fisheries and aquatic resources, describes the existing conditions in the study area, and evaluates potential fisheries-related impacts of the Proposed Extension.

3.4.1 Regulatory Setting

This section includes applicable laws, regulations, plans and other programs relevant to fisheries and aquatic resources in the study area which focuses on regulatory updates since the EIR was completed in 2007.

FEDERAL

Endangered Species Act

Under the Endangered Species Act (ESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as threatened or endangered (16 U.S.C. Section 1533(c)). Pursuant to ESA requirements, a Federal agency proposing to implement or approve a project within its jurisdiction must determine whether any Federally listed threatened or endangered species may be present in the project area and determine whether the project would result in "take" of any such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the ESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 U.S.C. Sections 1536(3), (4)). Section 7 of the ESA provides a means for authorizing incidental take of Federally endangered or threatened species that result from Federally conducted, permitted, or funded projects.

ESA Regulation Changes

In recent years, the Services (NMFS, USFWS) have proposed several revisions to the regulations for listing, delisting, and re-classifying species, designation of critical habitat, and interagency cooperation under the ESA. On June 22, 2023, the Services proposed to revise the 2019 final rule regarding the regulations governing Section 7 ESA consultation. The proposed revisions include clarifying the definition of "effects of the action" and "environmental baseline," clarifying the Services' responsibilities regarding reinitiating consultation, and revising the provisions related to reasonable and prudent measures in an incidental take statement. Also on June 22, 2023, the Services proposed a separate rule to revise the 2019 final rule regarding listing and reclassification of species and designation of critical habitat. The revisions propose to reinstate prior language affirming that listing determinations are made "without reference to possible economic or other impacts of such determination;" revise the foreseeable future framework; clarify the standards for delisting species; and revise when and how critical habitat is designated through revisions to the criteria for when critical habitat may be not prudent and criteria for designation of unoccupied critical habitat. The public comment period for both of the rules proposed on June 22, 2023 closed on August 21, 2023 and final rules are pending.

Evolutionarily Significant Unit/Distinct Population Segment Status Updates

Section 4(c)(2) of the ESA requires that NMFS review the status of listed species under its authority at least every five years and determine whether any species should be removed from the list or have its listing status changed. Prior to making a determination on whether the listing status of the evolutionarily significant unit (ESU) should be "uplisted" (i.e., threatened to endangered), "downlisted," or remain unchanged, NMFS: (1) considered new and substantial scientific information that had become available since the previous status review, and used this information to produce an updated biological status summary report (SWFSC 2022, which is referred to as the "viability assessment"); (2) considered whether five ESA listing factors (threats) changed substantially since the previous status review; (3) considered the current threats to the species; (4) considered recovery action implementation; and (5) considered relevant ongoing and future conservation measures and programs.

NMFS's Southwest Fisheries Science Center (SWFSC) issued an updated viability assessment for Pacific salmon and steelhead in California (SWFSC 2022). In light of new information since 2015, the Central Valley (CV) spring-run

Chinook salmon ESU was concluded to be at a moderate to high risk of extinction (Johnson et al. 2022) and the largest impacts to the ESU are likely due to the freshwater drought conditions and unusually warm ocean conditions experienced by cohorts since 2015 (Johnson et al. 2022). The overall viability of the Sacramento River winter-run Chinook salmon ESU has continued to decline, with the single spawning population on the mainstem Sacramento River no longer at a low/moderate risk of extinction and now considered to be at a high biological extinction risk (SWFSC 2022). SWFSC (2022) also found that, based upon the limited information available, the viability of the CV steelhead distinct population segment (DPS) remains unchanged since the 2015 assessment and the biological extinction risk is considered "stable" and in the species remains in "moderate" risk category.

In 2021, NMFS completed a 5-year status review of the Southern DPS of the North American green sturgeon. NMFS (2021) reports the recent confirmation of spawning in the Feather and Yuba rivers, and changed conditions (e.g., the decommissioning of RBDD and the breach of Shanghai Bend) in the Feather River that make spawning conditions more favorable. With respect to threats, the available information indicates that some threats have been eliminated (e.g., retention in commercial and recreational fisheries) and others have been reduced (e.g., impassable barriers). However, green sturgeon still encounter impassable barriers in the Sacramento, Feather, and Yuba rivers that limit their spawning range (NMFS 2021). Because many of the threats cited in the original listing remain unchanged, NMFS (2021) concluded that the "threatened" status continues to be applicable for the Southern DPS green sturgeon.

ESA Biological Opinions on Central Valley Project and State Water Project System-wide Operations that Influence ESU/DPS Status in the Central Valley

The first addendum to the Lower Yuba River Accord EIR (Yuba Water 2014) assessed changed conditions in the lower Feather River, and in the Sacramento River downstream of the Feather River, resulting from CVP and SWP regulatory updates issued since 2008. More recently, conditions in the lower Feather River and in the Sacramento River downstream of the Feather River have been influenced by subsequent changes as a result of implementing the operational changes associated with the updated NMFS (2019) and USFWS (2019) biological opinions (BOs) on the long-term operations of the CVP and the SWP.

2019 USFWS Biological Opinion on CVP/SWP Long-term Operations

During 2016, the United States Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) requested the reinitiation of consultation for the CVP and SWP. The USFWS evaluated potential impacts on Delta smelt and 15 land-based species associated with the proposed operations. This included habitat-management measures and steps to prevent water-pumping operations from catching or diverting Delta smelt, also known as "entraining" them. The USFWS finalized a BO Oct. 21, 2019. Taking into account factors such as water salinity, water clarity and entrainment, the USFWS worked with Reclamation to modify the proposed operations and reduce or offset their negative impacts. With these modifications, the USFWS concluded that Reclamation's operations would not jeopardize at-risk species or their critical habitats.

2019 NMFS Biological Opinion on CVP/SWP Long-term Operations

Implementation of the NMFS (2019) BO included the following actions for the Sacramento River and northern Delta.

- Year-round storage and water temperature management program for Shasta Reservoir and the upper Sacramento River to improve thermal conditions for anadromous fish species.
- Short-term and long-term actions to improve juvenile salmonid rearing habitat in the lower Sacramento River and northern Delta.
    - Changes in Delta outflow, Old and Middle River reverse flows, Delta Cross Channel gates operation, and Suisun Marsh Salinity Control Gate operation to improve conditions for juvenile salmonids.
    - Implementation of the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project, which increases the frequency with which Yolo Bypass provides inundated habitat for juvenile fish species and improves passage conditions between Yolo Bypass and the Sacramento River.

2016 NMFS Biological Opinion on the Oroville Facilities FERC Relicensing and Feather River SWP Operations

DWR requested initiation of consultation on the FERC relicensing of the Oroville Facilities Hydroelectric Project (FERC Project No. 2100-134) on the Feather River in July 2007. NMFS issued its BO on December 5, 2016 and concluded that Oroville Facilities (also known as the Feather River Division of the SWP) operations would not jeopardize the continued existence of winter-run Chinook salmon, CV spring-run Chinook salmon, CV steelhead, or the Southern DPS of North American green sturgeon.

DWR operates the Oroville Facilities Project (including Oroville Reservoir) to meet the needs of the SWP (i.e., water delivery to irrigation districts, flood control, power generation, recreation, SWRCB Decision D-1641 for flow and water quality standards for the Sacramento-San Joaquin Delta, and fish and wildlife protection). The action area associated with the Oroville Facilities Project encompasses much of the anadromous fish habitat in the Central Valley, including the Feather River, the Sacramento River and its major tributaries, and the Delta, among others. However, NMFS (2016d) focused its analyses on effects of Oroville Facilities operations within the Feather River Basin. As a term and condition of the 2016 BO, DWR was required to create a Feather River Operations Group (FROG) that oversees several actions to avoid or minimize Oroville Facilities operational impacts. Provide recommendations for coordination of Feather River flows, flows with fish releases, including the effects of flows and temperatures on fish migration. DWR and the FROG shall consider how to coordinate Feather River flows with Yuba River flows to minimize straying and benefit Federal ESA listed anadromous fish species.

As they relate to conveyance of SWP water through the Sacramento River and the Delta, NMFS (2016d) stated that: (1) "*the Oroville Facilities water management operations are such a large component of the SWP water management operations that they are inextricably linked to the coordinated operation of OCAP*"; (2) *the effects of the co-mingled flows of the CVP and SWP in the lower Sacramento River, downstream from the confluence of the Feather River with the Sacramento River, through the Sacramento-San Joaquin River Delta… to the Pacific Ocean"*; and (3) "*The effects of the broad, coordinated operations of the SWP and the CVP were considered in a separate biological opinion…*" titled "*Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project*" (NMFS 2009). With respect to operations affecting flows and water temperatures in the Sacramento River and the Delta, NMFS (2009) BO on CVP/SWP operations was superseded by NMFS (2019) BO described above.

ESA Recovery Planning

The ESA requires that recovery plans be developed by the USFWS and NMFS that evaluate the current status of the listed population or species, assess the factors affecting the species, identify recovery (delisting) goals, identify the entire suite of actions necessary to achieve these goals, and estimate the cost and time required to carry out those actions. With respect to fisheries resources within the project area, three recovery plans have been developed and include the following.

- NMFS (2018) *Recovery Plan for the Southern Distinct Population Segment of North American Green Sturgeon (Acipenser medirostris).*
- NMFS (2014) *Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead.*
- USFWS (1996) *Sacramento-San Joaquin Delta Native Fishes Recovery Plan.*

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation Management Act (MSA), as amended (1996) by the Sustainable Fisheries Act (Public Law 104-297), was enacted primarily to establish a management system for conserving and managing commercial fisheries within the 200-mile Federal waters boundary of the U.S. The act also requires that all Federal agencies consult with NMFS on activities or proposed activities authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH) of commercially managed marine and anadromous fish species. EFH includes specifically identified waters and substrate necessary for fish spawning, breeding, feeding, or growing to maturity. EFH also includes all habitats necessary to allow the production of commercially valuable aquatic species, to support a long-term sustainable fishery, and to contribute to a healthy ecosystem (16 U.S.C. Section

1802(10)). Because EFH only applies to commercial fisheries, all Chinook salmon habitats are included, but not steelhead habitat.

Federal Salmon Regulations for Overfished Species Rebuilding Plans

In 2018, NMFS determined that the Sacramento River fall-run Chinook salmon (SRFC) stock (which includes fish in the Yuba and Feather rivers) was overfished under the MSA. In addition to recommendations on a harvest control rule that were applied to setting annual ocean salmon fishery management measures that impact the SRFC stock, a rebuilding plan was developed by the Pacific Fishery Management Council (PFMC) and approved and implemented by NMFS through rulemaking (50 CFR 660.413(b)) in 2020 (85 FR 75920; November 27, 2020). The rebuilding plan recommended work with Federal, state, and local habitat experts to review the status of the EFH affecting SRFC and, as appropriate, provided recommendations for habitat restoration and enhancement within a suitable time frame. During 2021, NMFS declared that the SRFC stock has been rebuilt and is no longer required to be managed under a rebuilding plan (88 FR 30237, May 11, 2023). Consequently, NMFS revised the regulations that implement the PFMC's Pacific Coast Salmon Fishery Management Plan, and this action removed the rebuilding plan for SRFC from regulation (87 FR 25429, April 29, 2022).

Ocean Harvest Rules

Extensive ocean recreational and commercial troll fisheries for Chinook salmon exist along the Northern and Central California coast, and an inland recreational fishery exists in the Central Valley for Chinook salmon and steelhead. NMFS has taken several in-season management actions, including temporary closure, that have modified the commercial and recreational fishing seasons and quotas for salmon fisheries along the west coast of the United States (NMFS 2022). For example, as a result of very low returns to the Central Valley in 2007, there was a complete closure of the commercial and recreational ocean Chinook salmon fishery in 2008 and 2009. Due to improved ocean salmon numbers, a severely restricted commercial season and short recreational season opened in 2010 (Bacher 2011). Since 2011, ocean salmon fisheries in California have had more typical levels of fishing opportunity. Most recently in 2023, NMFS issued a final rule to establish fishery management measures for the 2023 ocean salmon fisheries off Washington, Oregon, and California and the 2024 salmon seasons under the authority of the MSA. Specific fishery management measures vary by fishery and by area and establish fishing areas, seasons, quotas, legal gear, recreational fishing days and catch limits, possession and landing restrictions, and minimum lengths for salmon caught off Washington, Oregon, and California.

The recommended 2023 management measures close Chinook salmon directed commercial and recreational fisheries off the California coast, among other areas. Although there were several years of higher SRFC escapements, low flows and high water temperatures in the Sacramento River associated with drought in recent years have adversely affected the SRFC stock and the 2023 forecast is one of the lowest on record (88 FR 30237, May 11, 2023). The low forecast for 2023 (combined with the recent significant overforecasts) suggest an increased risk that SRFC could become overfished again. Taking these factors into consideration, the PFMC recommended management measures are forecast to result in a spawning escapement of 165,000 SRFC natural spawners, which is above the escapement goal of 122,000 fish. The current management measures are intended to prevent overfishing and to apportion the ocean harvest equitably among treaty Indian, non-Indian commercial, and recreational fisheries (88 FR 30235, May 11, 2023).

Designation of a Nonessential Experimental Population of Central Valley Spring-Run Chinook Salmon in the Upper Yuba River Upstream of Englebright Dam, Authorization for Release, and Adoption of Limited Protective Regulations Under the ESA

Section 10(j) of the ESA allows the Secretary of Commerce to authorize the release of any population of a listed species outside their current range if the release "furthers their conservation." An experimental population is a population that is geographically separate from nonexperimental populations of the same species (87 FR 79808, December 28, 2022). In 2023, NMFS designated and authorized the release of a nonessential experimental population (NEP) of CV spring-run Chinook salmon in the upper Yuba River Watershed upstream of Englebright Dam pursuant to Section 10(j) of the ESA. NMFS also established take prohibitions for the experimental population and a limited set of take exceptions for particular activities under Section 4(d) of the ESA. The designated NEP Area extends

upstream from Englebright Dam and includes the North, Middle, and South Yuba Rivers and their tributaries up to the ridgeline (87 FR 79812, December 28, 2022).

If fish are introduced into the NEP Area at a future point in time, then the experimental population would be geographically separated from the extant ESU of CV spring-run Chinook salmon while in the NEP Area but would intermingle with other Chinook salmon populations as they migrate downstream of the NEP Area, while in the ocean, and on part of their upstream spawning migration. The ''experimental'' population designation is geographically based and does not travel with the fish outside the NEP Area. Outside of the NEP Area (e.g., downstream of Englebright Dam in the lower Yuba, lower Feather and Sacramento Rivers, or in the ocean), any fish (juveniles and adults) would not be considered members of the experimental population, and would be considered part of the CV spring-run Chinook salmon ESU currently listed under the ESA (87 FR 79808, December 28, 2022).

STATE

California Endangered Species Act

Under the California Environmental Species Act (CESA, California Fish and Game Code Sections 2050, et seq.), CDFW has the responsibility for maintaining a list of threatened and endangered species designated under State law (see FGC Section 2070). Pursuant to CESA requirements, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project area and determine whether the proposed project would result in take of any such species. Under CESA, "take" is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill." CDFW may authorize the incidental take of a State-listed species under Section 2081 of the California Fish and Game Code. For species that are listed as threatened or endangered under both ESA and CESA, and for which an incidental take permit has been issued in accordance with Section 7 or Section 10 of the ESA, CDFW may authorize take after certifying that the Federal incidental take permit is consistent with CESA, pursuant to Section 2080.1 of the California Fish and Game Code.

New State of California Fishing Regulations for 2021

Inland sportfishing in California is regulated by CDFW. In 2020, the California Fish and Game Commission adopted the largest regulatory inland sportfishing package in its 150-year history, and the new regulations became effective on March 1, 2021 (CDFW 2023a). Among the changes, special fishing regulations for inland trout (non-anadromous waters) are separated from regulations for hatchery trout, hatchery steelhead and salmon (anadromous waters) to make it easier to understand bag and possession limits.

Angling regulations on the lower Yuba River are intended to protect sensitive species, in particular spring-run Chinook salmon (and wild steelhead). CDFW angling regulations 2023-24 (CDFW 2023a) state that the lower Yuba River from its confluence with the lower Feather River up to Englebright Dam is closed year-round to salmon fishing, and no take or possession of salmon is allowed. Fishing for hatchery trout or hatchery steelhead is allowed on the lower Yuba River from its confluence with the lower Feather River up to the Highway 20 Bridge year-round. The lower Yuba River, between the Highway 20 Bridge and Englebright Dam, is closed to fishing from September through November to protect spring-run Chinook salmon spawning activity and egg incubation. Possession of wild steelhead (characterized by an intact adipose fin) is prohibited (CDFW 2023b).

Sport Fish Restoration Act and CDFW Hatchery and Fish Stocking Program Operations

The state has been operating fish hatcheries for more than 100 years, and in the process has supported fishing as a significant recreational opportunity for residents and visitors to California (CDFW and USFWS 2010). Since 1945, CDFW has assumed responsibility for the rearing and stocking of both inland and anadromous fish species at 21 hatcheries and planting bases located throughout the state. Salmon have been planted mostly in rivers and direct tributaries to the Pacific Ocean, with the exception of inland kokanee, coho, and Chinook salmon populations that have been planted in reservoirs for recreational fishing. In 2007, CDFW was ordered by the Sacramento Superior Court[1] to comply with CEQA regarding its fish stocking operations. The USFWS was a co-lead agency for NEPA

[1] *Pacific Rivers Council, et al., v. California Department of Fish and Game (Case No. 06 CS 01451)*

purposes because of its decision-making about funding of certain elements of the hatchery operation and stocking activities of CDFW under the Sport Fish Restoration Act (SFRA). CDFW and USFWS completed a joint EIR/EIS in 2010.

There are two distinct elements to CDFW hatchery operations and stocking - the trout hatchery program and the salmon and steelhead hatchery program. The trout hatchery program rears and stocks trout and some salmon species in California's inland waters to provide recreational opportunities for California's anglers, and for conservation and restoration of native fish species. In the Yuba Region, CDFW regularly plants trout in watershed reservoirs as part of its trout hatchery program. In 2023, rainbow trout were planted in New Bullards Bar Reservoir and Sly Creek Reservoir (CDFW 2023c). Additionally, as a condition of the FERC license for the Narrows Hydropower Project (FERC Project No. 1403), YCWA annually stocks up to 5,000 hatchery-reared rainbow trout (half pound each) in Englebright Reservoir. The number of fish to be stocked, the timing of release and location of fish stocking are coordinated with CDFW.

The salmon and steelhead hatchery program exists to provide mitigation for loss of anadromous fish habitat and blocked access to upstream spawning areas due to dam construction, to provide mitigation for fish lost due to operation of state-owned Sacramento-San Joaquin Delta pumps, and to enhance native anadromous fish populations for recreational and commercial fishing (CDFW and USFWS 2010). The salmon and steelhead hatchery program rears and stocks several species of salmon and steelhead trout in anadromous waters (i.e., waterbodies typically accessible to fish migrating from the ocean). Although fish from this program are not released into the lower Yuba River, artificial propagation practices at the Feather River Fish Hatchery (FRFH) have contributed to the current introgression between fall- and spring-run Chinook salmon in the FRFH breeding program and straying of FRFH spring-run Chinook salmon to other spring-run populations (i.e., Yuba River) where genetic introgression would be possible is unfavorable and reduces population viability (SWFSC 2022).

Sacramento Valley Salmon Resiliency Strategy

The California Natural Resources Agency released a plan in June 2017 to address near-term and long-term needs of Sacramento River winter-run Chinook salmon, CV spring-run Chinook salmon and California CV steelhead. The plan relies on the NMFS (2014) Central Valley recovery plan and incorporates conceptual models of factors affecting Chinook salmon population dynamics. Goals and objectives of the plan relate to the Central Valley Project Improvement Act (CVPIA) salmonid doubling goals and NMFS ESU/DPS recovery criteria. Recommended actions to improve the viability and resiliency of listed salmonid species in the Central Valley include the following.

- Restoration actions in Battle Creek.
- Implementation of the McCloud River reintroduction pilot plan in the upper Sacramento River Watershed.
- Increasing flows in Mill, Deer, Antelope and Butte creeks.
- Restoring fish passage and habitat in Mill and Deer creeks.
- Restoration of instream habitats in the upper Sacramento River.
- Improving fish passage at Sunset Pumps Rock Dam on the Feather River.
- Restoration of rearing and migratory habitats in the Sacramento River.
- Completion of fish screen construction on major diversions along the Sacramento River.
- Improvement of Sutter Bypass and associated infrastructure to facilitate adult fish passage and improvement of stream flow monitoring.
- Improvement of Yolo Bypass adult fish passage.
- Increase juvenile salmonid access to Yolo Bypass and increase duration and frequency of Yolo Bypass floodplain inundation.
- Construction of a permanent Georgiana Slough non-physical barrier.
- Restoration of tidal habitat in the Delta.

Sacramento-San Joaquin Basin Delta Reform Act

The Sacramento-San Joaquin Basin Delta Reform Act of 2009 (Delta Reform Act) requires the State of California to manage the Delta for the "coequal goals" of providing a more reliable water supply for California and improving the health of the Delta ecosystem, while also protecting it as a unique and evolving cultural, recreational, natural, and agricultural place. The Delta Reform Act established the Delta Stewardship Council (DSC) which was required to develop and adopt the Delta Plan, a legally enforceable, comprehensive, long-term management plan for the Sacramento–San Joaquin Delta and the Suisun Marsh to achieve the two coequal goals. Adopted in 2013, the Delta Plan includes regulations, non-regulatory recommendations, and performance measures to further the water supply reliability, ecosystem resiliency, and unique values of the Delta. The Delta Plan includes 14 regulatory policies and 95 recommendations. Collectively, these policies and recommendations address current and predicted challenges related to the Delta's ecology, flood management, land use, water quality, and water supply reliability. The Delta Reform Act requires State and local actions that fit the legal definition of a covered action to be consistent with the policies included in the Delta Plan (Water Code section 85057.5(a)).

LOCAL

Yuba County Integrated Regional Water Management Plan – 2018 Update

The 2018 Update to the 2015 Integrated Regional Water Management (IRWM) plan provides the framework to address the complexities of managing water supply and quality in the Yuba Region, as well as addressing the needs of disadvantaged communities, under-represented communities, and Tribal organizations, and focuses on identifying resources to ensure a more sustainable water management future (Yuba County 2018). Identified goals, and supporting objectives pertinent to fisheries resources include:

- Ensure adequate and reliable water supply that meets the diverse needs of the region.
- Protect, restore, and enhance water quality for water users and in support of healthy watersheds.
  - Maintain and improve water quality required to restore and protect freshwater ecosystems and fisheries.
- Preserve and restore watershed health and promote environmental stewardship.
  - Recover endangered and threatened fish species through habitat restoration and by providing access to historic habitat, wherever feasible.
  - Enhance floodplain function and wildlife habitat while achieving multiple flood management benefits and maintaining public safety.
  - Steward the region's biodiversity and ecological resources that directly provide opportunities for public access, recreation, and education.

Key aquatic-related regional issues identified in the 2018 Update include: (1) environmental flows to maintain (at a minimum) the quantity, timing and quality of stream flows required to restore and protect freshwater ecosystems; and (2) fisheries resources, primarily with respect to recovering endangered and threatened anadromous fish species, and restoring access to historical habitat, wherever feasible (Yuba County 2018). Resource management and adaptation strategies incorporated into the 2018 Update include managing for ecosystem structures and processes, providing off-channel salmon habitat, and providing habitat requirements for fish, especially species of concern.

In addition to ensuring consistency with California plans, policies, and regulations, the 2018 Update aligned its goals and objectives with local and regional planning documents, including the *Yuba County General Plan* (2011), the *Yuba County Parks Master Plan* (2008), the *Yuba County Water Agency Groundwater Management Plan* (2010), the *Yuba County Water Agency Agricultural Water Management Plan* (2021), and the *Feather River Regional Flood Management Plan* (Sutter Butte Flood Control Agency et al. 2014).

Yuba County 2030 General Plan

Most of the policies included in the Natural Resources Element of the Yuba County 2030 General Plan (Yuba County 2011) apply exclusively to development projects. However, the following policy addressed public investments and therefore applies to the proposed project:

- Policy NR 5.7. New developments and public investments near Yuba County's streams and rivers shall be designed to avoid tree removal, erosion, or other modifications that would adversely affect salmonid habitat.

REGIONAL PLANS

A habitat conservation plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the ESA that allows for the incidental take of species and habitat within a defined plan area that are otherwise protected under ESA. A natural community conservation plan (NCCP) is a State planning document administered by CDFW that allows for the incidental take of species and habitat within a defined plan area that are otherwise protected under CESA. Although there are no approved conservation plans within the Yuba Region, there are approved or in-progress HCP/NCCPs within the CVP/SWP Upstream of the Delta Region and in the Delta Region, which are briefly described below.

Although still in the planning phase by the Butte County Association of Governments, the Butte Regional Conservation Plan is a joint HCP/NCCP that covers the lower Feather River below Fish Barrier Dam downstream to near Live Oak. The plan addresses fish species of focused evaluation including fall-run/late fall-run and spring-run Chinook salmon, steelhead, green sturgeon, river lamprey, and Sacramento splittail.

The Yolo Habitat Conservancy, consisting of the County of Yolo and the cities of Davis, West Sacramento, Winters, and Woodland, developed an HCP/NCCP to cover a wide range of public and private activities in Yolo County. Although the plan does not directly address fish species, it does include goals and policies relating to protecting and improving habitat conditions in the Yolo Bypass and Delta which could indirectly benefit fisheries resources.

The East Contra Costa County HCP/NCCP covers portions of the south Delta. Although fish species are not explicitly covered in the plan, the plan includes goals and policies to improve and protect Delta riverine and tidal habitats which could indirectly benefit fisheries habitat in the Delta. The Antioch HCP/NCCP is currently in the planning phase by the City of Antioch, East Contra Costa County Habitat Conservancy, USFWS and CDFW, and is intended to be entirely consistent with the approved East Contra Costa County HCP/NCCP.

3.4.1 Environmental Setting

The following sections describe the legal status, life histories, and habitat requirements of fish species of focused evaluation within the Yuba Region, CVP/SWP Upstream of the Delta Region, the Delta Region, and the Export Service Area. Description of the fish species of focused evaluation in this SEIR builds upon the information provided in the 2007 EIR, which is incorporated by reference. The major points regarding the species descriptions are briefly provided in this SEIR, and emphasis is placed on new information that has been developed since the 2007 EIR reflecting advancements in the state of knowledge of the individual species and their habitat requirements.

OVERVIEW OF FISH SPECIES

Fish species of focused evaluation in this SEIR include those that are Federally or State of California (State)-listed as threatened or endangered, species that are proposed for Federal or State listing as threatened or endangered, species classified as candidates for future Federal or State listing, Federal species of concern, State species of special concern, and fish species of commercial or recreational importance. Fish species of focused evaluation potentially occurring in the study area were identified by using USFWS' and NMFS' online database and recovery plans, the California Natural Diversity Database (CNDDB) special animals list (CNDDB 2023), and fisheries surveys conducted by YCWA (2017).

The following sections provide an overview of the status, life histories, and habitat requirements of fish species of focused evaluation in the study area, followed by region-specific characterization of species' life histories. General life history and habitat requirement discussions for most of these species are included in the 2007 Draft EIR (p.10-1 through 10-4).

Sacramento River Winter-run Chinook Salmon Evolutionarily Significant Unit

The Sacramento River winter-run Chinook salmon ESU is listed as endangered under both the Federal ESA and CESA. Critical habitat was designed in 1993 in the Sacramento River and San Francisco Bay-Delta region (58 Federal Register [FR] 33212). NMFS' 2016 five-year status review of winter-run Chinook salmon concluded that the overall viability of the ESU had worsened since the 2010 assessment. Specifically, a reduction in the population growth rate over the past ten years (2005-2014) and an increase in the proportion of hatchery fish comprising the spawning population have increased the risk of extinction of the ESU (NMFS 2016a).

Primary spawning and rearing habitats for winter-run Chinook salmon are confined to the coldwater areas between Keswick Dam and RBDD (NMFS 2014) upstream of the study area. The lower reaches of the Sacramento River, the Delta, and San Francisco Bay serve as migration corridors for the upstream migration of adult and downstream migration of juvenile winter-run Chinook salmon. Adult winter-run Chinook salmon immigration and holding in the Sacramento River occurs from November through July. Juvenile emigration past Knights Landing occurs primarily between September and March and peaks during December and January (Snider and Titus 2000) during and shortly after the first large Fall storm event (del Rosario et al. 2013).

Central Valley Spring-run Chinook Salmon ESU

The Central Valley spring-run Chinook salmon ESU was listed as a threatened species under the ESA because of the reduced range and small size of remaining populations (64 FR 50393). Critical habitat was designated in 2005 and includes the mainstem Sacramento River and tributary reaches, including the Feather and Yuba rivers; Big Chico, Butte, Deer, Mill, Battle, Antelope, and Clear creeks; and portions of the northern Delta (70 FR 52488). Central Valley spring-run Chinook salmon also was listed as a threatened species under the CESA during 1999. NMFS' 5-year status review for spring-run Chinook salmon in 2016 (NMFS 2016b) recommended that the ESU remain classified as a threatened species. Since the 2015 NMFS viability assessment, the viability of the Central Valley spring-run Chinook salmon ESU has declined with an increased risk of extinction for all independent populations (Johnson et al. 2022). Overall, the Central Valley spring-run Chinook salmon ESU was concluded to be at a moderate to high risk of extinction (Johnson et al. 2022).

Spring-run Chinook salmon are known to use the Sacramento River as a migratory corridor to spawning areas primarily in upstream tributaries, but spawning has been reported to occur upstream from the Red Bluff Diversion Dam (RBDD) (CDFG 1998) upstream of the study area. Spring-run Chinook salmon adult immigration and holding in the Sacramento River and its tributaries occurs between late March through August, and adults hold in deep cold pools in proximity to spawning areas until they are sexually mature and ready to spawn during September and October (Peterson and Duarte 2020). Spring-run Chinook salmon fry emerge from the gravel from November to March (Moyle 2002), and downstream migration of juveniles occurs from November through May in the lower Sacramento River, particularly during March and April (NMFS 2019).

Central Valley Fall-/Late Fall-run Chinook Salmon ESU

The Central Valley fall-run and late fall-run Chinook salmon ESU is classified by NMFS as a species of concern (69 FR 19975) and is a State species of special concern (CNDDB 2023). Adult fall-run Chinook salmon immigration in the Sacramento River Basin reportedly begins in July, peaks in October, and ends in December (Vogel 2011). Unlike spring-run Chinook salmon, adult fall-run Chinook salmon do not exhibit an extended over-summer holding period. Rather, they stage for a relatively short period before spawning. Fall-run Chinook salmon generally spawn from October through December (Vogel 2011). Fall-run Chinook salmon juvenile emigration typically occurs from January through June (Moyle 2002; Vogel 2011; Vogel and Marine 1991).

Central Valley late fall-run Chinook salmon spawn in the upper Sacramento River and its tributaries near and upstream of Red Bluff (CDFW 2023d). Adult immigration of late fall-run Chinook salmon in the Sacramento River generally begins in late October and extends through March (USFWS and CDFG 2012). Late fall-run Chinook salmon

embryo incubation can extend from January through June (USFWS and CDFG 2012; Vogel and Marine 1991). Post-emergent fry and juveniles rear and disperse from their spawning and rearing grounds in the upper Sacramento River and its tributaries during April through December (Vogel 2011; Vogel and Marine 1991).

Central Valley Steelhead Distinct Population Segment

NMFS listed the California Central Valley steelhead DPS as threatened under the ESA in 1998 (63 FR 13347), which was reaffirmed in 2006 (71 FR 834). Designated critical habitat for the Central Valley steelhead DPS includes all river reaches accessible to steelhead in the Sacramento and San Joaquin rivers and their tributaries in California (70 FR 52488). NMFS' 5-year status review recommended that the Central Valley steelhead DPS remain classified as a threatened species (NMFS 2016c). NMFS (2016c) suggested that the DPS is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. SWFSC (2022) found that, based upon the limited information available, the viability of the CV steelhead DPS remains unchanged since the 2015 assessment and the biological extinction risk is considered "stable" and in the species remains in "moderate" risk category. The Central Valley steelhead DPS is not listed under CESA.

Adult steelhead immigration into Central Valley streams typically begins in August, continues into March or April (McEwan 2001; NMFS 2014), and generally peaks during January and February (Moyle 2002). Steelhead adults typically spawn from December through April with peaks from January through March in small streams and tributaries where cool, well oxygenated water is available year-round (Hallock et al. 1961; McEwan 2001). McEwan (2001) reports that steelhead fry and fingerlings rear and move downstream in the Sacramento River year-round. Most juvenile steelhead appear to move downstream from spawning areas as YOY during Spring into Summer in the upper Sacramento Rive (Poytress et al. 2014), the Feather River (Seesholtz et al. 2004), lower American River (Snider and Titus 2002; PSMFC 2014), Clear Creek (Schraml et al. 2018), and in the lower Yuba River (RMT 2013). A very low proportion of juvenile steelhead captured in RST surveys have been identified as large juveniles or smolts in the upper Sacramento River, Clear Creek, lower American River, and lower Yuba River, indicating more extended rearing occurring in the lower portions of the Feather and Sacramento rivers prior to emigrating to the ocean as smolts. Most steelhead smolts have been observed emigrating through the lower Sacramento River and Delta from January through June (McEwan 2001; Interagency Ecological Program et al. 2019).

Southern DPS of North American Green Sturgeon

NMFS listed the southern DPS of North American green sturgeon as threatened in 2006 (71 FR 17757), and designated critical habitat in 2009. Critical habitat for green sturgeon includes the Sacramento River downstream of Keswick Dam, the Feather River downstream of Oroville Dam, the Yuba River downstream of DPD, portions of the Sutter and Yolo bypasses, the Sacramento-San Joaquin Delta, and the San Francisco Estuary (74 FR 52300). NMFS (2021) reaffirmed the threatened status of the Southern DPS of North American green sturgeon under the ESA. NMFS (2021) reports the recent confirmation of spawning in the Feather and Yuba rivers, and changed conditions (e.g., the decommissioning of RBDD and the breach of Shanghai Bend) that make spawning conditions more favorable. However, green sturgeon still encounter impassable barriers in the Sacramento, Feather, and Yuba rivers (DPD) that limit their spawning range (NMFS 2021). The southern DPS North American green sturgeon is not listed under CESA.

Adult green sturgeon begin to enter the Bay-Delta in late February and early March during the initiation of their upstream spawning migration (Heublein et al. 2009; Moyle et al. 1995). Adult and subadult green sturgeon frequently congregate in the Estuary during Summer and Fall (Lindley et al. 2008). Spawning occurs primarily in cool sections of the upper Sacramento River in deep pools that are typically at least 10 ft deep (NMFS 2018; Wyman et al. 2017; Thomas et al. 2014) with small to medium-sized sand, gravel, cobble or boulder substrate (NMFS 2018). Spawning areas in the Sacramento River are located from the Glenn Colusa Irrigation District (GCID) Hamilton City Pumping Plant upstream to near Battle Creek (NMFS 2018), which is upstream of the study area on the Sacramento River. Post-spawn adults may move out of the river quickly during the Spring, but most apparently hold for several months in the Sacramento River and outmigrate during Fall or Winter (Heublein et al. 2009; Colborne et al. 2022).

Juvenile green sturgeon are taken in traps at the RBDD and the GCID diversion in Hamilton City, primarily in the months of May through August. Peak counts occur in the months of June and July (68 FR 4433), but emigration may extend through September (Environmental Protection Information Center et al. 2001). At day 110 to 118, juvenile green

sturgeon move downstream at night, and habitat preference suggests that juveniles prefer deep pools with low light and some rock structure (Kynard et. al. 2005). It is unknown how long juveniles remain in upriver rearing habitats after metamorphosis, but they likely spend the first several months in freshwater (NMFS 2018).

Delta Smelt

USFWS listed delta smelt as a threatened species under the ESA in March 1993 (58 Code of Federal Regulations [CFR] 12854), and critical habitat for delta smelt was designated throughout the Delta, Suisun Bay, and in Goodyear, Suisun, Cutoff, First Mallard and Montezuma sloughs (59 FR 65256). On June 27, 2023, USFWS recommended uplisting the delta smelt to an endangered species based on the imminent, high magnitude threats faced by the species. Delta smelt was listed as a threatened species under the CESA in 1993, but its CESA listing status was elevated to endangered in 2009.

Delta smelt are found primarily in open-water habitats in the Delta, Suisun Bay and Suisun Marsh. Delta smelt complete their entire life cycle within the low-salinity zone of the upper Bay-Delta Estuary, in the tidal freshwater region of the Cache Slough Complex, or move between the two regions (Bennett 2005; Sommer and Mejia 2013). The low-salinity zone is often defined as waters with a salinity range of about 0.5 to 6 parts per thousand (ppt) (Kimmerer 2004). The downstream location of the low-salinity habitat for delta smelt is typically located in Suisun Bay but extends farther to the west in response to high Delta outflows and farther to the east in response to low Delta outflows.

Delta smelt abundance appears to be reduced during years characterized by either unusually dry years with exceptionally low Delta outflow or unusually wet years with exceptionally high Delta outflow. Trawl abundance indices show that the relative abundance of delta smelt has recently declined substantially. Although they do not support statistically reliable abundance estimates, the Fall Midwater Trawl surveys are used to assess interannual trends in delta smelt abundance. The Fall Midwater Trawl indices have ranged from 1,673 in 1970 to 0 in 2018-2021 (DWR 2022). The Summer Townet Survey index was 0 in all but one year (2017) during 2015-2021 (DWR 2022). The Spring Kodiak Trawl surveys are used to monitor the adult spawning stock of delta smelt, and have shown substantial declines since 2016, with record low abundances in recent years, including abundance indices of 2.1, 0.4, 0.3, 0.0, and 1.7 for 2018, 2019, 2020, 2021 and 2022, respectively (CDFW 2023e).

Longfin Smelt (Bay-Delta DPS)

Longfin smelt is not listed under the ESA, but listing has been found to be warranted for the San Francisco Bay/Sacramento–San Joaquin Delta (Bay-Delta) DPS (77 FR 19756). On October 7, 2022, USFWS issued a proposed rule to list the San Francisco Bay-Delta DPS of longfin smelt (*Spirinchus thaleichthys*) (Bay-Delta longfin smelt) as an endangered species under the Endangered Species Act (87 FR 60957). The California Fish and Game Commission ruled to list the status of longfin smelt as threatened under the CESA in 2009.

Longfin smelt is a euryhaline species that is believed to live for 1-2 years in the coastal Pacific Ocean or San Francisco Bay before returning to tidal low-salinity or freshwater habitats of the Delta to spawn (Moyle 2002; Rosenfield and Baxter 2007; Grimaldo et al. 2020). Longfin smelt are anadromous and primarily semelparous, moving from saline to brackish or fresh water to spawn from November to May (DWR 2022). Abundance indices for longfin smelt have declined substantially in the Fall Midwater Trawl index since the early to mid-1980s (Stompe et al. 2020). Kimmerer and Gross (2022) found that although the annual population size index of larvae was positively related to the subsequent Fall index of juvenile abundance, the larval population index was unrelated to flow conditions as represented by X2 for January-March. Therefore, the strong relationship of longfin smelt population size to X2 would have to arise after spawning and early larval development (i.e., after March) (Kimmerer and Gross 2022). Record low Fall Midwater Trawl indices were observed in 2015 and 2016, but the abundance index increased to its highest levels since 2011 during 2021 and 2022 (CDFW 2023f). The UC Davis Suisun Marsh Study observed an increase in longfin smelt CPUE relative to past years in 2020 and 2021, reaching the highest level in 2021 since 2003. Notably, springtime (April and May) catches of age-0 longfin smelt were very high in Suisun Marsh for the second year in a row (O'Rear et al. 2022). The 2021 and 2022 Spring Kodiak Trawl survey captured the 2nd and 4th highest abundances of longfin smelt, respectively, since the start of the survey in 2002 (Mora 2022).

Sacramento Splittail

Sacramento splittail, a California species of special concern (CNDDB 2023), occur in the Sacramento River and its major tributaries, with a range that centers on the San Francisco Bay Estuary. Sacramento splittail spawning can occur anytime between late February and early July, but peak spawning occurs in March (Feyrer et al. 2006). DWR (2004) reported that Sacramento splittail spawning, egg incubation, and initial rearing in the Feather River occurs primarily during February through May. Spawning generally occurs in water with depths of three to six feet over submerged vegetation where eggs adhere to vegetation or debris until hatching (Moyle 2002; Wang 1986). Floodplain inundation in the Yolo Bypass during March and April appears to be the primary factor contributing to Sacramento splittail abundance (Sommer et al. 1997; Moyle et al. 2004). The UC Davis Suisun Marsh Study splittail catch data show an overall increasing trend in annual abundance since 1994, including the highest CPUE ever recorded in the Suisun Marsh Study's history (starting in 1980) in 2018 (O'Rear et al. 2022).

White Sturgeon

White sturgeon (*Acipenser transmontanus*) are not Federally or State listed, but they are categorized as a California Species of Special Concern (CNDDB 2023). Adults migrate upstream from the San Francisco Estuary during the winter, spawn from February to June, and return to the Delta after spawning. Some mature adult white sturgeon move up the Sacramento River until they are concentrated near Colusa from March through May (Kohlhorst et al. 1991). In the Central Valley, CDFW (2022) reports that white sturgeon primarily spawn in a short reach of the middle Sacramento River between Knights Landing and Colusa (Schaffter 1997), although spawning may occur in tributaries including the Feather and Yuba rivers. In the Sacramento River system, spawning success appears to be related to high outflows during the spring (CDFW 2019). Juveniles move rapidly down-river during their first year, taking up residence in the freshwater region of the estuary (CDFW 2022).

Pacific Lamprey

The Pacific lamprey (*Lampetra tridentata*) is not listed under the ESA or CESA. However, the species is a California Species of Special Concern and is designated as a Species of Concern by the USFWS (CNDDB 2023; Moyle et al. 2015). The adult migration into freshwater towards upstream spawning areas primarily begins between early March and late June (Moyle 2002). Adult Pacific lamprey requires clean, gravel-rich riffles in perennial streams to spawn successfully; these requirements are thought to be similar to those of salmonids. Following ammocoete metamorphosis, downstream migration coincides with high flow events in late-winter and early spring (Moyle 2002).

River Lamprey

The river lamprey (*Lampetra ayresii*) is not listed under the ESA or CESA. However, the species is designated as a California Fish Species of Special Concern (CNDDB 2023). Little information is available on river lamprey life history, but it is similar to that of Pacific lamprey. Adults migrate back into freshwater in the fall and spawn from April to June in small tributary streams (Wang 1986). Metamorphosis from the ammocoete to macropthalmia lifestage occurs between July and April.

Central California Roach

The Central California roach is part of the California roach complex, which is composed of various subspecies. The Central California roach, a California species of special concern (CNDDB 2023), is generally found in small, warm intermittent streams, and is most abundant in mid-elevation streams in the Sierra foothills and in the lower reaches of some coastal streams (Moyle 2002). Reproduction occurs from March through early July, with spawning typically initiating after water temperatures reach approximately 61°F (Moyle 2002). The eggs hatch within two to three days, and fry remain in the substrate interstices or among emergent vegetation until they are free-swimming (Moyle 2002).

Hardhead

Hardhead is designated as a California Species of Special Concern (CNDDB 2023). In the Sacramento River drainage, hardhead is present in most of the larger tributary streams as well as in the Sacramento River. Hardhead is typically found within larger mid- and low-elevation streams where summer mean daily water temperatures exceed 68°F (Moyle 2002). Adult hardhead generally rear in clear, deep (>3 ft) pools with sand-gravel-boulder substrates and slow

water velocities (Moyle 2002). Spawning occurs during the spring (March-May), when hardhead migrate upstream to gravel riffles, often within tributary streams (Moyle 2002). Although considered a riverine species, hardhead has become well established in some mid-elevation reservoirs.

Sacramento Hitch

Sacramento hitch, a California species of special concern (CNDDB 2023), were historically found throughout the Sacramento and San Joaquin valleys in low elevation streams and rivers, as well as in the Delta (Brown 2000; CDFG 2007). Sacramento hitch have high temperature tolerances and most commonly inhabit warm, lowland waters including clear streams, turbid sloughs, reservoirs (Moyle et al. 2015). Spawning takes place over gravel riffles or on aquatic vegetation (Moyle 2002). Spawning may occur between February and July (Moyle et al. 2015). Hatching takes place in 3-7 days and larvae become free-swimming in another 3-4 days (Moyle et al. 2015).

Starry Flounder

Starry flounder is managed under the Pacific Coast Groundfish Fishery Management Plan (FMP) (PFMC 2023). Although adults primarily inhabit coastal marine waters, YOY juveniles are distributed within the Estuary, particularly in Suisun and San Pablo bays, with relatively lower abundances in the west Delta (Baxter 1999). There is a significant correlation between Delta outflow (X2) and indices of starry flounder abundance in the Estuary and Delta, although the mechanism underlying the correlation may be related to enhanced transport to estuarine rearing grounds (Kimmerer et al. 2009).

California Bay Shrimp

Although not managed by a federal FMP, bay shrimp species (*Crangon*) are fished commercially by trawlers in the Estuary and Delta. Bay shrimp initiate seasonal migrations, with post-larvae and juveniles moving upstream of coastal waters or the Bay to lower salinity and warmer waters in San Pablo and Suisun bays during Summer, followed by migrating downstream during Fall or Winter (DWR 2022). A statistically significant negative correlation was found between a bay shrimp abundance index and X2, which may be related to improved circulation in the Estuary with increasing flow (Kimmerer et al. 2009).

Southern Resident Killer Whale DPS

The southern resident killer whale DPS was listed by NMFS as endangered under the ESA in 2005 (70 FR 69903). Southern resident killer whales target Chinook salmon as their preferred prey. Although southern resident killer whales are not present in the study area, due to their dependence on Chinook salmon as a critical food resource, including Central Valley runs (DWR 2022), indirect impacts to southern resident killer whales are considered based on whether potential impacts occur to their prey base. Therefore, if potential impacts are identified for any of the Chinook salmon runs, potential impacts would be further evaluated for the southern resident killer whale DPS.

Striped Bass

Adult striped bass are present in Central Valley rivers throughout the year, with peak abundance occurring during the spring months (CDFG 1971; DeHaven 1979; DeHaven 1977). Spawning may begin in April, but peaks in May and early June (Moyle 2002). In the Sacramento River, most striped bass spawning is believed to occur between Colusa and the mouth of the Feather River. Sacramento River currents carry striped bass embryos and larvae to rearing habitats in the Delta. Fisheries surveys in the Bay-Delta indicate that the abundance of juvenile (age 0) striped bass has declined since the 1970s and 1980s, and has remained relatively low since 2002 (CDFW 2023f).

American Shad

American shad (*Alosa sapidissima*) is a recreationally important anadromous fish species introduced into the Sacramento River Basin in the 1870s (Moyle 2002). American shad occur in the Sacramento River, its major tributaries, and the Delta. Adult American shad typically enter Central Valley rivers from April through early July (CDFG 1986), with the majority of immigration and spawning occurring from mid-May through June (Urquhart 1987).

In the following geographic region-specific environmental setting descriptions of fish resources, information that slightly deviates or is more specific to a geographic region is provided, and general information presented in the overview is not repeated.

YUBA REGION

The Yuba Region study area includes New Bullards Bar and Englebright reservoirs, the North Yuba River below New Bullards Bar Dam, the upper Yuba River above Englebright Reservoir, and the lower Yuba River from Englebright Dam to the confluence with the Feather River.

New Bullards Bar Reservoir

New Bullards Bar Reservoir supports both coldwater and warmwater fisheries and has a long history of fish stocking activities by CDFW dating back to 1959 (see Yuba Water 2017). Although warmwater fish species (centrarchids and ictalurids) have historically been reported to occur in New Bullards Bar Reservoir, limited recreational fisheries exist for these warmwater fish species (Yuba Water et al. 2007). However, New Bullards Bar Reservoir supports a very significant salmonid fishery emphasizing kokanee salmon (Yuba Water et al. 2007).

Englebright Reservoir

Englebright Reservoir supports warmwater and coldwater fish species, including include rainbow trout, brown trout, catfish, crappie, smallmouth bass, green sunfish and bluegill. Because Englebright Reservoir serves as a re-regulating afterbay, reservoir volumes and water surface elevations do not substantially change with changes in upstream operations. Therefore, warmwater and coldwater fisheries resources in Englebright Reservoir are not further discussed in this analysis (Yuba Water et al. 2007).

North Yuba River below NBBD

The North Yuba River below NBBD extends for about 2.3 miles downstream to its confluence with the Middle Yuba River. The channel of the North Yuba River (New Bullards Bar Dam Reach) is dominated by gradients below 3 percent. Most of the reach is composed of bedrock, car- and house-sized boulders that separate large mid-channel pools (Yuba Water 2013). There are very short and infrequent areas of cobble-size deposits, but most of the substrate is large and immobile. Potential natural barriers to resident trout upstream movement likely are very common in the confined, steep channel. Bank erosion also was rare, given the bedrock/boulder channel margins (Yuba Water 2013). During 2012 and 2013 fish population surveys, Sacramento sucker and rainbow trout dominated the species composition in this reach (Yuba Water 2017).

Upper Yuba River

The upper Yuba River extends approximately 8 miles from the confluence of the North Yuba River and the Middle Yuba River to the normal maximum water surface elevation of Englebright Reservoir. As described by YCWA (2013), the upper Yuba River is bedrock-controlled, with only very short boulder/cobble sections. Pools are large and deep, and separated by long sections of pocket water that runs through and under very large boulders. Habitat is dominated by mid-channel pools and pocket water formed between large boulders. Large woody debris was not found, and trout spawning-sized gravel accumulations were uncommon (Yuba Water 2013). During fisheries surveys conducted during 2012 and 2013 at two sites in the reach upstream of New Colgate Powerhouse, smallmouth bass was the most abundant fish species observed, followed by rainbow trout, with relatively few Sacramento pikeminnow and Sacramento sucker observed (Yuba Water 2017). In the reach downstream of New Colgate Powerhouse, rainbow trout was the primary fish species observed during surveys in both 2012 and 2013 (Yuba Water 2017).

Lower Yuba River

Overview

The following geomorphic reaches of the lower Yuba River were delineated by Wyrick and Pasternack (2012) into eight segments based on the longitudinal profile and associated geomorphic variables. Tributary junctions form the

upstream boundary of two reaches and dams form the boundary for two more reaches. The other reach boundaries are formed by hydro-geomorphic variables such as the onset of emergent floodplain gravel, transition from confined bedrock valley to wider, meandering system, and decreases in bed channel slope.

- Englebright Dam Reach - Confluence with Deer Creek to Englebright Dam
- Narrows Reach - Deer Creek to emergent gravel at canyon mouth
- Timbuctoo Bend Reach - Upstream of Hwy 20 Bridge to end of emergent gravel bar by Blue Point Mine
- Parks Bar Reach - Dry Creek to 0.35 mi upstream of Hwy 20 Bridge
- Dry Creek Reach - Daguerre Point Dam to Dry Creek
- Daguerre Point Dam Reach - RM 8.3 to Daguerre Point Dam
- Hallwood Reach - RM 3.3 to slope break near Eddie Drive at RM 8.3
- Marysville Reach - Junction with Feather River to RM 3.3

Physical Habitat Conditions

Large floods on the lower Yuba River tend to be about 70,600 cfs to 177,000 cfs (Pasternack and Wyrick 2016). Most recently, instantaneous flows exceeded 80,000 cfs during January-February 2017, with a peak instantaneous flow of 87,100 cfs on January 9 at the Marysville Gage 11421000. The high flows that occurred during the Winter of 2017 significantly altered the planform geometry in some areas and changed the channel alignment and configuration throughout much of the lower Yuba River.

Topographic change detection (TCD) analyses were conducted based on DEM differencing for years where DEMs were produced for the lower Yuba River (2017, 2014, 2008 and 1999). For many dammed rivers, the downstream bankfull channels incise and become disconnected from their floodplains. However, due to the extensive amount of hydraulic mining alluvium present on the valley floor (on the order of ~ 140 million yd3 [Gilbert 1917; James et al. 2009]), the lower Yuba River is overall net erosional and its large floods effectively evacuate sediment from the full width of the river corridor (Pasternack and Wyrick 2016). At the segment scale, TCD analyses demonstrated that the bankfull channel was net depositional for all survey epochs, while the overbank area was net erosional (Gervasi and Pasternack 2019). During Epoch 3 (2014-2017), scour and fill occurred over 36.4 percent and 29.7 percent of the area of the lower Yuba River region, respectively, with the remaining 33.9 percent of the area exhibiting no detectable change (Gervasi and Pasternack 2019). Volumetric analysis, accounting for the depth of scour and fill, found that scour was much more dominant by volume in Epoch 3 than in past epochs.

These results indicate that the bankfull channel is not incising, and is actually well-connected to its floodplains, with the channel scouring laterally and filling in the old channel as it migrates (Gervasi and Pasternack 2019). The active river valley (between hillslopes upstream of Highway 20 Bridge and between berms that separate the river from mining lands downstream of the Highway 20 Bridge) overall is downcutting due to various processes that allow preferential scour of floodplains and terraces instead of the channel. Such processes include avulsion, lateral channel migration, and floodplain vertical denudation (Gervasi and Pasternack 2019).

Below the DPD Reach, the valley substantially widens, allowing excess sediment to deposit. However, scour occurred over a slightly greater area than fill in the two reaches below the DPD Reach (Hallwood and Marysville) during Epoch 3. This was likely at least partially due to the collapse of a very large terrace in the Hallwood Reach, which represented the largest localized volume of scour for a given location along the entire river.

Overall, the lower Yuba River remains very dynamic and is not close to a stable equilibrium. Gilbert (1917) estimated that there was 327 million yd^3 of remnant mining sediment in the lower Yuba River. Over the course of the full 18-year period from 1999 to 2017, the net volume of 55.35×10^6 ft^3 of sediment exported from the river represents about 0.64 percent of the estimated amount of remnant mining sediment. Therefore, as a very rough estimate, at the net rate of export seen over the 18-year period (3.07×10^6 ft^3/year), it would take an additional 2,800 years to remove the remaining volume of mining sediment (Gervasi and Pasternack 2019).

Recent or ongoing habitat enhancement projects to improve fisheries habitat conditions in the lower Yuba River are briefly summarized below.

- Hallwood Side Channel and Floodplain Restoration Project
  - The Hallwood Side Channel and Floodplain Restoration Project is enhancing up to 157 acres of seasonally inundated riparian floodplain, approximately 1.7 miles of perennial side channels, and approximately 6.1 miles of seasonally inundated side channels, alcoves, and swales. Phase 1 and 2 enhancements (123 acres) have been made through land surface changes (e.g., removal of the Middle Training Wall), riparian planting, and placement of large woody material (LWM) embedded to simulate a more natural river channel at key locations. Phases 3 and 4, which are anticipated to be complete in November 2023, will be comprised of an additional 34 acres of habitat enhancement.
- Lower Long Bar Restoration Project
  - The Lower Long Bar Restoration Project is enhancing about 43 acres of habitat by topographically modifying a large gravel bar in a 6,929-ft-long segment along the lower Yuba River near the area referred to as Long Bar. The habitat restoration project consists of removing approximately 350,000 cubic yards of hydraulic mining debris in order to enhance juvenile rearing conditions for spring- and fall-run Chinook salmon and steelhead. It is estimated that lowering about 27 acres of floodplain will result in about 6 acres of seasonally or perennially inundated side channels, 2.4 acres of backwaters, 1.9 acres of flood runner channels, and a 5.4-acre backwater channel (USFWS and Yuba County 2021). Construction began in June 2020 and about 29,000 cubic yards of material have been removed as of July 15, 2022 (SYRCL 2022).
- Hammon Bar Riparian Enhancement Project
  - Funded by the AFRP and others, the Hammon Bar Riparian Enhancement Project was designed to evaluate methods and demonstrate benefits of planting large cuttings of cottonwood and willow trees in the floodplain of the lower Yuba River. The project also was intended to create new stands of structurally and biologically diverse riparian vegetation that would enhance fish habitat through additional shading, cover, food supply, and geomorphic and hydraulic complexity. Over 6,000 cuttings of native species (i.e., Fremont cottonwood, Gooddings black willow, red willow, and arroyo willow) were planted in about a 5-acre area of Hammon Bar (SYRCL 2013).
- Yuba River Canyon Salmon Habitat Restoration Project
  - The project was designed to improve about 8.5 acres of spawning habitat and juvenile rearing habitat in the lower Yuba River just above the confluence with Deer Creek. The restoration included excavating, grading and sorting the alluvial bar and enhancing existing in-river topography, while reducing the amount of armoring on the adjacent alluvial bar. Construction was completed in the fall of 2018 (USFWS and Yuba County 2016).
- USACE Lower Yuba River Large Woody Material Management Program
  - USACE developed a Lower Yuba River Large Woody Material Management Plan (LWMMP) in 2012 and began implementing a LWMMP pilot program in 2013 to determine an effective method of replenishing the supply of large woody material (LWM) in the lower Yuba River to increase juvenile rearing habitat during winter and spring flows. From 2014 through 2022, USACE collected LWM from various sources and placed approximately 3,870 cubic yards of LWM on Lower Gilt Edge Bar or Upper Gilt Edge Bar, or both. In 2021, USACE developed a Long-Term Large Woody Material Management Plan, which takes into account the data gathered by USACE during seven years of LWMMP pilot program implementation, and which provides a detailed methodology by which USACE will effectively supply and manage LWM in the lower Yuba River for the benefit of juvenile salmonids and their rearing habitat.

- USACE Englebright Dam Reach Gravel Augmentation
  - USACE has been injecting a mixture of coarse sediment (2-64 mm) and cobble (64-256 mm) into the lower Yuba River as part of their voluntary conservation measures associated USACE's ESA consultations with NMFS regarding DPD. The site of USACE's gravel injection is within an approximately 400-ft-long area starting at approximately 115 ft downstream of the Narrows 1 Powerhouse. Since USACE began to implement its gravel augmentation project in 2007, 13 separate gravel injection efforts have been undertaken (2007, 2010/2011, and 2012 through 2022), with approximately 78,000 tons of gravel/cobble placed into the EDR. Gravel injections from USACE's program appear to have mobilized sufficiently downstream of the injection area to accumulate in the upstream portion of the Timbuctoo Bend Reach. USACE continues to annually inject approximately 5,000 short tons of salmonid spawning gravel into the river downstream of the powerhouse.
- Narrows 2 Large Woody Material Mitigation Plan
  - As mitigation for a February 8, 2015, YRDP temporary flow deviation event, YCWA installed 30 pieces of LWM distributed among three locations along the lower Yuba River (RM 20, RM18.4) during September 2019. The locations were selected based on their suitability to retain LWM and ability to provide benefits to a variety of salmonid lifestages.

Fish Species of Focused Evaluation

In addition to the ESA- and CESA-listed species, YCWA searched several additional sources including the CNDDB, the 2023 California Special Animals List, NMFS and USFWS online databases, and environmental documents to identify other special-status fish species that may occur within the study area.

No ESA or CESA-listed fish species occur in the upper Yuba River Watershed of the Yuba Region study area. However, hardhead and the Central California roach subspecies have been reported to occur in portions of the upper Yuba River Watershed and are both designated as a California Species of Special Concern. Additional species considered for evaluation include recreationally important coldwater and warmwater fish species including kokanee, rainbow trout and black bass species.

Fish species of focused evaluation in the lower Yuba River include spring-run Chinook salmon, fall and late fall-run Chinook salmon, steelhead, green sturgeon, white sturgeon, Pacific lamprey, river lamprey, Central California roach, hardhead, striped bass and American shad. Special-status fish species considered but dismissed for evaluation in the lower Yuba River include Sacramento hitch[2], chum salmon[3], pink salmon[4], and Sacramento splittail[5]. Life history information for special-status fish species in the lower Yuba River is included in the 2007 Draft EIR (p.10-16 through 10-23). Updated region-specific or unique life history or distribution information is discussed below.

[2] Although there were some reported observations of Sacramento hitch (*Lavinia exilicauda*) during RST surveys conducted over 20 years ago, they have not been reported in the lower Yuba River during any other surveys, including CDFG (1991) snorkeling and electrofishing surveys, RST surveys after about 2001, Kozlowski (2004) snorkeling and electrofishing surveys, VAKI Riverwatcher™ data from 2004 through 2017, and RMT snorkeling surveys during 2012, 2014 and 2015. Hitch prefer warm, slow-moving waters and have shown a preference for water temperatures of 81-84°F (Knight 1985, cited in Moyle 2002). Additionally, the lower Yuba River is located outside of the identified range of Sacramento hitch in the CNDDB. For these reasons, Yuba Water has eliminated Sacramento hitch from further consideration in this EIR.

[3] Although chum salmon (*O. keta*) reportedly have been observed in the lower Yuba River in the past, more recent VAKI Riverwatcher™ data indicate that chum salmon observations are rare (2 records during 2013, 1 record during 2017, 2 records during 2018, and 1 record during 2020). Yuba Water (2017) also reports that "*Pink and chum salmon are unique visitors to Central Valley streams and have not sustained a viable population in California for over 70 years*." For these reasons, Yuba Water has eliminated chum salmon from further consideration in this SEIR.

[4] Although two rare observations (9 records during 2011, 2 records during 2013) of pink salmon (*O. gorbuscha*) in the lower Yuba River have been reported, there have been no observations of pink salmon in the VAKI Riverwatcher™ data from 2014 through February 2022. Hence, Yuba Water has eliminated pink salmon from further consideration in this SEIR.

[5] CDFW (2015) reports that Sacramento splittail (*Pogonichthys macrolepidotus*) only rarely enter the lower reaches of the Feather River. Although UC Davis (2012) lists the Yuba River downstream of Englebright Dam among the watersheds where splittail occurs, no reference is provided for this determination, and Yuba Water could not find any verified observations of splittail nor was it found during Yuba Water's relicensing studies for the YRDP (Yuba Water 2017). Recent review of VAKI Riverwatcher™ data indicates that no Sacramento splittail have been observed in the lower Yuba River from January 2004 through February 2022. Consequently, Yuba Water has eliminated Sacramento splittail from further consideration in this SEIR.

Spring-run Chinook Salmon

Studies conducted as part of the RMT's M&E Program (RMT 2013) found that phenotypic adult spring-run Chinook salmon in the lower Yuba River migrated upstream of DPD from May through September and utilized a broad expanse of the lower Yuba River during the summer holding period, particularly immediately downstream of DPD. In general, acoustically-tagged spring-run Chinook salmon exhibited an extended holding period, followed by a rapid movement into upstream areas (upper Timbuctoo Reach, Narrows Reach, and Englebright Dam Reach) during September. Observations of acoustically-tagged spring-run Chinook salmon, combined with early redd detections and initial carcasses appearing in carcass surveys suggest that the spring-run Chinook salmon spawning period in the lower Yuba River extends from September 1 through mid-October (RMT 2013). The vast majority of spring-run Chinook salmon spawning occurs upstream of DPD, particularly in the Parks Bar and Timbuctoo reaches (RMT 2013). Based on 2012, 2014 and 2015 RMT snorkel surveys, Chinook salmon fry and juveniles were observed in greatest numbers in the Timbuctoo Bend, Parks Bar and Dry Creek reaches upstream of DPD (RMT, unpublished data). Rotary screw trap (RST) monitoring data indicate that the vast majority of spring-run Chinook salmon emigrate as post-emergent fry during late November and December.

Fall- and Late Fall-run Chinook Salmon

Adult fall-run Chinook salmon immigration and staging generally occurs in the lower Yuba River from mid-July through December (Poxon and Bratovich 2020). The lower Yuba River fall-run Chinook salmon spawning period has been reported to extend from October through December (RMT 2013; CALFED and Yuba Water 2005). Escapement surveys suggest that approximately three-fourths of fall-run Chinook salmon spawning in the lower Yuba River occurs above DPD (Yuba Water, unpublished data). In the lower Yuba River, most fall-run Chinook salmon exhibit downstream movement as fry shortly after emergence from gravels, although some individuals rear in the river for a period up to several months and move downstream as juveniles. Thus, the fry rearing lifestage is considered to extend from mid-December through April, the juvenile rearing lifestage extends from mid-January through June, and the fry and juvenile downstream movement lifestage generally extends from mid-December through June (RMT 2013).

Although late fall-run Chinook salmon populations occur primarily in the Sacramento River, incidental observations of late fall-run Chinook salmon have been reported to occur in the lower Yuba River (RMT 2013). In the lower Yuba River, relatively low numbers of Chinook salmon have been observed passing upstream of Daguerre Point Dam during January and February. However, available information suggests that at least some of these fish, potentially characterized as late fall-run Chinook salmon, may represent strays from the Coleman National Fish Hatchery on Battle Creek.

Steelhead

Based on VAKI Riverwatcher™ data at DPD extending from January 2004 through February 2022, the majority of the upstream migration of adult steelhead extends from September through March. Steelhead spawning occurs primarily upstream of DPD, particularly in the Timbuctoo Bend and Parks Bar reaches (RMT 2013). In the lower Yuba River, juvenile steelhead exhibit variable durations of rearing, ranging from a few months to 3 years (RMT 2013). However, based on RST surveys and snorkel surveys, the majority of steelhead juveniles appear to leave the lower Yuba River as YOY during the Spring to continue rearing in downstream areas. During RMT snorkel surveys in 2014, the vast majority of steelhead fry observed were located in the Timbuctoo Bend Reach, followed by the Englebright Dam Reach (RMT, unpublished data). Steelhead juvenile observations also were primarily in the Timbuctoo Bend and Englebright Dam reaches, with fewer observations in the remaining reaches.

Green Sturgeon

Limited information regarding green sturgeon distribution, movement, and behavioral patterns, as well as lifestage-specific habitat utilization preferences is available for the lower Yuba River. CDFW initiated green sturgeon spawning (egg mat) surveys during 2017 immediately downstream of DPD (Beccio 2018). Although adults were observed between mid-June and early August 2017, no eggs were collected, potentially due to the limited number of egg mats deployed (Beccio 2018). During 2018, egg mats were deployed from May 1 through June 27. At least 2-6 adult green sturgeon were observed by CDFW during each site visit of the survey period. On June 15, 2018, CDFW observed about 270 sturgeon eggs, 30 of which were examined to identify the species. Physical characteristics of the eggs indicated that they

were green sturgeon eggs (Beccio 2018). No green sturgeon eggs were observed during similar egg mat surveys in 2019. However, one early-stage juvenile green sturgeon (40 mm FL) was captured by hand in an edgewater habitat about 200 m downstream of DPD on August 19, 2019, providing evidence that spawning recently occurred (Beccio 2019). CDFW also observed between one and at least 10 adult green sturgeon holding below DPD during each site visit.

CDFW also conducted green sturgeon egg mat surveys during 2020 and 2021. Although no eggs were observed during 2020 or 2021, six green sturgeon adults were observed below DPD and were tagged by PSMFC for tracking. Between June 1 and June 4 of 2021, 5 of the 6 fish tagged during 2020 were detected by CDFW in the DPD plunge pool (Beccio 2022). Adults were observed holding primarily in the north part of the plunge pool. During the 2021 egg mat surveys, CDFW staff made visual observations of between two and five adult green sturgeon holding in the DPD pool during most site visits (Beccio 2022).

Pacific Lamprey and River Lamprey

Snorkel and electrofishing surveys have shown that Pacific lamprey is abundant and well distributed within the lower Yuba River (Yuba Water 2017). Juvenile Pacific lamprey was the fourth most abundant species (out of 25 species) captured during downstream migration surveys conducted at RM 7.2 from 1999 through 2010. River lampreys were consistently observed emigrating past the RST survey sites near Hallwood Boulevard (RM 7.2) in the lower Yuba River between 1999 and 2010 (Yuba Water 2017). A total of 340 juvenile river lampreys were counted at the RST sites during the survey period. Although lamprey were most recently observed in the VAKI Riverwatcher™ fish monitoring system at DPD during 2016 and 2017, lamprey were not categorized to species. No lamprey were observed in the VAKI Riverwatcher™ from 2018 through February 2022.

Striped Bass

CDFG (1991) reported that striped bass are unable to access the lower Yuba River upstream of DPD, but they have occasionally accessed the fish ladders at DPD and have been identified in the lower Yuba River downstream of DPD during snorkel surveys and other fisheries studies (RMT 2013). However, striped bass were not observed in the lower Yuba River during the most recent snorkel surveys conducted during 2012, 2014 and 2015 (RMT, unpublished data).

American Shad

In 2018, American shad fish eggs were collected from several of the egg mats placed below DPD as part of CDFW's lower Yuba River sturgeon spawning study (Beccio 2018). American shad have primarily been observed downstream of DPD during snorkel and RST surveys, but also have been observed accessing the fish ladders at DPD (RMT 2013). American shad were not observed in the lower Yuba River during the most recent snorkel surveys conducted during 2012, 2014 and 2015 (RMT, unpublished data).

CVP/SWP UPSTREAM OF THE DELTA REGION

Feather River Basin

Oroville Reservoir

Oroville Reservoir supports both coldwater and warmwater fisheries that are thermally segregated for most of the year. Oroville Reservoir's coldwater fishery is primarily composed of coho salmon and brown trout, although rainbow trout and lake trout are periodically caught. The coldwater fisheries for coho salmon and brown trout are sustained by hatchery stocking (Yuba Water et al. 2007). The warmwater fishery is a regionally important self-sustaining fishery and supports both centrarchids and ictalurids. The black bass fishery is the most significant, both in terms of angler effort and economic impact on the area. Spotted bass are the most abundant bass species in Oroville Reservoir, followed by largemouth, redeye and smallmouth bass, respectively (Yuba Water et al. 2007).

Lower Feather River

Overview

The lower Feather River commences at the Low Flow Channel, which extends eight miles from the Fish Barrier Dam (RM 67) to the Thermalito Afterbay Outlet (RM 59). Most of the Low Flow Channel flows through a single channel contained by stabilized levees. The channel banks and streambed consist of armored cobble as a result of periodic flood flows and the absence of gravel recruitment. DWR has recently improved spawning habitat in the upper part of the Low Flow Channel with gravel augmentation and breaking up consolidated riverbed (NMFS 2016d). The lower reach (High Flow Channel) extends from the Thermalito Afterbay Outlet (RM 59) to Verona (RM 0). The Low Flow Channel is far more likely to contain both spawning adult and juvenile salmonids than the High Flow Channel, which has less habitat complexity and is heavily channelized (NMFS 2016d).

Fish Species of Focused Evaluation

No ESA or CESA-listed fish species occur in Oroville Reservoir. However, species considered for evaluation include recreationally-important coldwater and warmwater fish species.

Fish species of focused evaluation in the lower Feather River include spring-run Chinook salmon, fall and late fall-run Chinook salmon, steelhead, green sturgeon, white sturgeon, Pacific lamprey, river lamprey, Sacramento splittail, Central California roach, hardhead, striped bass and American shad. Life history information for special-status fish species in the lower Feather River is included in the 2007 Draft EIR (p.10-24 through 10-26). Updated region-specific or unique life history or distribution information is discussed below.

Spring-run and Fall-run Chinook Salmon

As summarized by NMFS (2016d), spring-run Chinook salmon adults enter the Feather River during March to June, and spawn during September and October. Fall-run Chinook salmon enter the lower Feather River and spawn during September into December (NMFS 2016d). Juvenile Chinook salmon in the Feather River have been reported to emigrate as YOY (Seesholtz et al. 2004), and most appear to emigrate from the Feather River within days of emergence from mid-November through June (NMFS 2016d).

Steelhead

Adult steelhead typically ascend the Feather River from September through April (Yuba Water et al. 2007). Steelhead spawning in the lower Feather River occurs from December through March, peaking in late January (DWR 2007, cited in NMFS 2016d). Most spawning occurs in the Low Flow Channel, particularly in its upper reaches, with limited spawning observed below the Thermalito Afterbay Outlet (NMFS 2016d). Although juveniles can emigrate year-round, they typically emigrate from February through September, with peak emigration during March through mid-April (NMFS 2016d). Nearly all steelhead that return to the FRFH are hatchery-origin fish (NMFS 2016d).

Green Sturgeon

Although the main population of green sturgeon spawn in the Sacramento River, occasional spawning occurs in the lower Feather River (NMFS 2016d). Green sturgeon spawning in the lower Feather was confirmed in 2011 at the Thermalito Afterbay Outlet (Seesholtz et al. 2014). Consistent with other green sturgeon spawning observations, green sturgeon in the Feather River appear to prefer large, deep pools featuring a cobble or mixed substrate, and turbulent flows (NMFS 2016d). Green sturgeon distribution in the Feather River appears to be heavily influenced by flow rates – high flows are necessary to achieve passage at Sunset Pumps where a manmade rock weir stretches across the river (NMFS 2016d). Based on larval catch in the Low Flow Channel in 2017 and the High Flow Channel during 2018 (NMFS 2021), juvenile green sturgeon could be found throughout the Feather River.

Sacramento River

Overview

The upper Sacramento River is often defined as the portion of the river from Princeton (RM 163) (the downstream extent of salmonid spawning in the Sacramento River to Keswick Dam (the upstream extent of anadromous fish migration and spawning). The upper Sacramento River provides a diversity of aquatic habitats, including fast water

riffles and shallow glides, slow water deep glides and pools, and off channel backwater habitats. Consequently, this section of the river is of primary importance to native anadromous species, and is presently utilized for spawning and early life stage rearing, to some degree, by all four runs of Chinook salmon (fall, late fall, winter, and spring runs), steelhead and green sturgeon.

The lower Sacramento River is generally defined as the portion of the river from Princeton to the Delta at approximately Chipps Island (near Pittsburg), which includes the study area for this SEIR. The lower Sacramento River is predominantly channelized, leveed and bordered by agricultural lands. Aquatic habitat in the lower Sacramento River is characterized primarily by slow water glides and pools, is depositional in nature, and has lower water clarity and habitat diversity, relative to the upper portion of the river.

Fish Species of Focused Evaluation

The Sacramento River within the study area is restricted to the reaches downstream of the confluence with the lower Feather River. Therefore, this SEIR only considers migration-related lifestages of fish species of focused evaluation that only spawn in the upper Sacramento River, such as winter-run, spring-run, fall-run and late fall-run Chinook salmon, steelhead, green sturgeon and lamprey. Species for which spawning and rearing occur in the lower Sacramento River area include white sturgeon, Sacramento splittail, American shad, and striped bass. Life history information for special-status fish species in the lower Sacramento River is included in the 2007 Draft EIR (p.10-26 through 10-28). Updated region-specific or unique life history or distribution information was provided above (*Overview of Fish Species*).

DELTA REGION

Overview

The San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (Estuary) is the largest intact estuary on the west coast of the United States. The upstream portion of this Estuary, the Sacramento-San Joaquin Delta, is a triangular area comprising 700 miles of sloughs, waterways, and islands located near the confluence of the Sacramento and San Joaquin rivers (Water Education Foundation 2016). The Delta covers a surface area of about 75 square miles. Relatively high-salinity waters of the San Joaquin River dominate the southern Delta, whereas the lower-salinity waters of the Sacramento River dominate the northern Delta. Delta hydrology is driven primarily by tides, river inflows, in-Delta agricultural diversions, and water export operations of the Central Valley Project (CVP) and the State Water Project (SWP) (Delta Stewardship Council 2013).

Special-status fish species occurring in the Delta include estuarine resident fishes (delta smelt and longfin smelt), Sacramento splittail, and anadromous fish species (Chinook salmon, steelhead, green and white sturgeon and Pacific and river lamprey). Additional special-status species that may occur in the Delta include Sacramento hitch and hardhead. Non-native fish species of focused evaluation that occur in the Delta include American shad and striped bass. Life history and habitat-related information for fish species in the Delta is included in the 2007 Draft EIR (p.10-28 through 10-36). Updated or unique life history or distribution information specific to the Delta is provided below.

Fish Species of Focused Evaluation

Delta Smelt

During the Fall or early Winter adults migrate upstream from the brackish-water estuarine areas into river channels and tidally-influenced backwater sloughs and channel edgewaters (Wang 1986). Recent information suggests that most of the movement of juvenile and subadult delta smelt to spawning areas occurs by January (Polansky et al. 2018), and that the migration is initiated after the first major precipitation event of the season (Kurobe et al. 2022). Female delta smelt are found in progressively lower salinity water as they sexually mature, such that most fully mature and post-spawning fish are found in fresh water (<0.5 ppt) (Kurobe et al. 2022). The primary spawning locations are within the lower Sacramento and San Joaquin Rivers and in the north Delta, including the Cache Slough Complex and the Sacramento Deep Water Ship Channel (Polansky et al. 2018). Delta smelt spawning has been reported to occur between February and July but appears to be most common during mid-April and May (Bennett 2005). Suitable

thermal conditions for spawning occur most frequently during March to May, but ripe females have been observed as early as January and larvae have been collected as late as July (Damon et al. 2016).

Longfin Smelt

Peak spawning occurs during January and February of most years (DWR 2022). The CDFW Smelt Larval Survey data show that spawning is centered in brackish water (2-4 ppt), and recent studies have found newly-hatched larvae in salinities of up to 12 ppt (Hobbs et al. 2010; Grimaldo et al. 2020). During the spawning period in late Fall and early Winter, adults are primarily found in San Francisco Bay tributaries and marshes (Lewis et al. 2020; Grimaldo et al. 2020), Suisun Bay and the Delta (Rosenfield and Baxter 2007). Young juvenile longfin smelt are found in salinities up to 30 ppt but most are found in salinities from 2-18 ppt (MacWilliams et al. 2016). By late summer, larger juveniles can tolerate full-strength seawater (DWR 2022). During late Summer and early Fall, juvenile and adult longfin smelt are more common throughout San Francisco Bay than in other landward areas (Rosenfield and Baxter 2007; MacWilliams et al. 2016). During high flow years, water quality data suggest that salinity may be suitable for longfin smelt throughout the Estuary, particularly in San Francisco Bay (Grimaldo et al. 2020).

Sacramento Splittail

Splittail spend most of their life in the Estuary throughout the Delta, Suisun Bay, and Suisun Marsh (Moyle 2002). Adults are typically found in relatively shallow water (less than 12 feet deep) in brackish tidal sloughs, such as Suisun Marsh, but can also occur in freshwater areas with either tidal or riverine flows (Moyle et al. 2004). After hatching, Sacramento splittail larvae remain in shallow weedy areas until water recedes, then they migrate downstream (Meng and Moyle 1995).

Winter-run Chinook Salmon

Juvenile winter-run Chinook salmon juveniles can begin to enter the Delta in October and smolt outmigration continues until April (DWR 2022). Based on Delta fisheries surveys and salvage data from the Tracy and Skinner fish collection facilities in the South Delta, juvenile winter-run Chinook salmon are in the Delta from October through June, particularly during February and March (NMFS 2019).

Spring-run Chinook Salmon

The emigration period for spring-run Chinook salmon extends from November to early May, with up to 69 percent of the YOY fish outmigrating through the lower Sacramento River and Delta during this period (CDFG 1998). Based on Delta fisheries surveys and salvage data from the Tracy and Skinner fish collection facilities in the South Delta, juvenile spring-run Chinook salmon may be in the Delta during December through May, particularly during March through May (NMFS 2019).

Fall- and Late Fall-run Chinook Salmon

Fall-run Chinook salmon juvenile emigration through the Delta occurs from January through June, particularly following high winter flows (Moyle 2002; Vogel 2011; Vogel and Marine 1991). Juvenile late fall-run Chinook salmon rear in the upper Sacramento River from late April through the following winter before emigrating to the Estuary (USFWS and CDFG 2012). Late fall-run Chinook salmon smolts emigrate through the Delta from October through February (Snider and Titus 2000).

Steelhead

Hallock et al. (1961) found that juvenile steelhead in the Sacramento River Basin migrate downstream during most months of the year, but the peak emigration period occurred during the Spring, with a smaller peak during the Fall. Captures of natural origin steelhead in the lower Sacramento River and Chipps Island trawl surveys indicate that most steelhead smolts are emigrating at sizes exceeding 200 mm through the lower Sacramento River and Delta during January through June, with about 90 percent of the annual catch from 1997-2021 occurring from February into late May or June (Interagency Ecological Program et al. 2019; Columbia Basin Research, University of Washington 2022). Similarly, as stated by NMFS (2017), most steelhead smolts enter the northern Delta from the Sacramento River starting during February and March.

Green Sturgeon

Adult green sturgeon begin to enter the Bay-Delta in late February and early March during the initiation of their upstream spawning migration (Heublein et al. 2009; Moyle et al. 1995). Adult and subadult green sturgeon frequently congregate in the Estuary during Summer and Fall (Lindley et al. 2008). Specifically, adults and subadults may reside for extended periods in the central Delta as well as in Suisun and San Pablo Bays, presumably for feeding on benthic invertebrates (e.g., amphipods, bivalves, and insect larvae) (DWR 2022).

Although little is known about the distribution of and movement of YOY and juvenile green sturgeon, observations suggest that they are in fresh and brackish portions of the north and interior Delta (Israel and Klimley 2008). Juveniles are believed to use the Delta for rearing for the first 1 to 3 years of their lives before moving out to the ocean and are likely to be found in the main channels of the Delta and the larger interconnecting sloughs and waterways, particularly within the central Delta and Suisun Bay and Suisun Marsh (DWR 2022). The greatest number of detections of acoustically-tagged juvenile green sturgeon occurred in the central Delta, with relatively few occurring in the Sacramento River mainstem and in Sutter, Steamboat and Miner sloughs in the north Delta (Miller et al. 2020, cited in DWR 2022).

White Sturgeon

Detections of acoustically-tagged adult white sturgeon occurred year-round in central and south San Francisco Bay, but notably more individuals were detected year-round in San Pablo Bay, Suisun Bay, and the Delta (DWR 2022). Juvenile white sturgeon also can be present in the Delta year-round.

Pacific Lamprey and River Lamprey

Pacific lamprey and river lamprey use the Delta for upstream migration as adults, downstream migration as juveniles and for rearing as ammocoetes. Adult lamprey may migrate upstream through the Delta during the Spring, and downstream migration of juveniles in the Delta can occur during the Winter through Spring. In the Estuary and Delta, juvenile lamprey have been found in greatest abundances in the north and central Delta, with no to low occupancy in the south Delta, San Joaquin River and San Francisco Bay (Goertler et al. 2020).

Sacramento Hitch

Relatively small numbers of hitch have been captured in the Delta (Brown and May 2006) and Yolo Bypass (Reclamation and DWR 2017). Within the Delta, Brown and May (2006) concluded that hitch are primarily confined to the northern Delta region.

American Shad

Adult sexually mature American shad migrate from the ocean through the Delta to freshwater rivers to spawn during late Winter through Spring. Newly-hatched larvae drift downstream of spawning areas, and American shad juveniles appear to rear upstream of or within the Delta for up to a year before emigrating to the ocean during late Spring through Fall (Painter et al. 1979).

Stiped Bass

Adult striped bass generally move downstream to the Bays or ocean during Summer or Fall. Acoustically-tagged striped bass from the Sacramento River primarily resided in the Delta relative to the Bay and river during the Spring, but spent more time in the Bay and Delta relative to the river during the Summer and Fall; during the Winter, a higher percentage of Sacramento River striped bass were detected in the Delta compared to the Bay and river (Sabal et al. 2018).

After fertilization, eggs hatch within two to three days, followed by a net movement of the larval fish to downstream, tidal portions of the river (Moyle 2002). Striped bass egg and larval lifestages can occur in the Delta during April through June. Striped bass larvae are generally distributed in the Delta or Suisun Bay, depending on flow through the Estuary. During lower-flow years, striped bass eggs and larvae are generally found in the Delta, whereas during higher-flow years, eggs and larvae are transported downstream into Suisun Bay (Hassler 1988). Juvenile and adult striped bass occur in the Bay-Delta year-round.

EXPORT SERVICE AREA

San Luis Reservoir

San Luis Reservoir was constructed as a storage reservoir for the integrated operations of the CVP/SWP system. Water flows from the Delta to San Luis Reservoir via the California Aqueduct and the Delta-Mendota Canal. Water is then pumped from the O'Neil Forebay into San Luis Reservoir during the winter and spring. During normal CVP/SWP operations the reservoir is drawn down by 100 feet or more during the late-summer and early-fall. San Luis Reservoir provides habitat for both coldwater and warmwater fish species which include largemouth bass, striped bass, crappie, shad, perch and occasionally salmonids and white sturgeon (California State Parks 2017). Fish production in San Luis Reservoir is generally limited by changes in water elevations during critical spawning periods, overall reservoir levels, and the availability of shallow near-shore rearing habitat.

3.4.2 Impact Analysis

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance for impacts are based on the environmental checklist in Appendix G to the State CEQA Guidelines, as amended, and were refined to address potential impacts specific to fisheries resources in the study area. The environmental analysis conducted in this SEIR will apply the following significance thresholds to determine whether the potential impacts of the Proposed Extension, relative to Existing Conditions, are within the range of effects that were previously evaluated in the 2007 EIR.

An impact on fisheries is considered significant if implementation of the Proposed Extension would do any of the following:

- have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS or USFWS;
- interfere substantially with the movement of any native resident or migratory fish species, or impede the use of native nursery sites;
- substantially reduce the habitat of a fish species; cause a fish population to drop below self-sustaining levels; threaten to eliminate a fish community; or substantially reduce the number or restrict the range of an endangered or threatened fish species; or
- conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

METHODOLOGY

Potential impacts to fisheries resources are considered in the context of whether the Proposed Extension changes the frequency, magnitude, or duration of flows or water temperatures in a way that substantially affects fisheries or their habitats. Fisheries-related analytical considerations for this SEIR are consistent with those that were used in the previously conducted impact assessment for the Yuba Accord (Yuba Water et al. 2007). For example, the potential for impacts is evaluated and presented by resource category, including fisheries resources for the Yuba Region, the CVP/SWP Upstream of the Delta Region (i.e., the lower Feather River and the Sacramento River), the Sacramento-San Joaquin Delta Region, and the CVP/SWP export service areas. Specific fisheries-related regional considerations described in the 2007 EIR are identified below.

Analytical Fisheries Considerations by Geographic Region in the 2007 EIR

Yuba Region

- New Bullards Bar Reservoir water surface elevations, storage, and coldwater pool were evaluated to identify potential effects on warmwater and coldwater fishes.
- Lower Yuba River flows (and associated physical habitats) and water temperatures were evaluated to identify potential effects on spring-run Chinook salmon, fall-run Chinook salmon, steelhead, green sturgeon, American shad, and striped bass[6].

CVP/SWP Upstream of the Delta Region (i.e., Oroville Reservoir, the lower Feather River, and the Sacramento River)

- Oroville Reservoir water surface elevations, storage, and coldwater pool were evaluated to identify potential effects on warmwater and coldwater fishes.
- Lower Feather River flows (and associated physical habitats) and water temperatures were evaluated to identify potential effects on spring-run Chinook salmon, fall-run Chinook salmon, steelhead, green sturgeon, American shad, and striped bass, and Sacramento splittail.
- Lower Sacramento River flows (and associated physical habitats) and water temperatures were evaluated to identify potential effects on winter-run Chinook salmon, spring-run Chinook salmon, fall-run Chinook salmon, late fall-run Chinook salmon, steelhead, green sturgeon, American shad, and striped bass, and Sacramento splittail.

Sacramento-San Joaquin Delta Region

- Delta habitat evaluation parameters and salvage estimates were evaluated to identify potential effects on winter-run Chinook salmon, spring-run Chinook salmon, steelhead, striped bass, delta smelt, and other Delta fisheries resources.

Export Service Area

- San Luis Reservoir water surface elevations, storage, and coldwater pool were evaluated to identify potential effects on warmwater and coldwater fishes.

Geographic Areas and Species Not Evaluated in Detail in the 2007 EIR

During development of the 2007 Draft EIR analyses, certain areas and fish species/habitats within the Yuba Accord project area were not evaluated in detail because it was determined that they would not be affected by the project. Consistent with the approach taken in the 2007 EIR, this SEIR has eliminated certain areas in the Yuba Region and species/habitats (Delta Region) from detailed evaluation based upon the rationale previously provided in the 2007 EIR, which is summarized below.

The 2007 Draft EIR (p. 4-2) explained that the geographic setting for implementation of the Yuba Accord included New Bullards Bar Reservoir, the Yuba River between New Bullards Bar and Englebright reservoirs, or the lower Yuba River downstream of Englebright Dam. However, Englebright Reservoir and the river reaches between New Bullards Bar Dam and Englebright Reservoir were not evaluated in the 2007 EIR for the following reasons.

River Reaches Between New Bullards Bar Dam and Englebright Reservoir

These reaches in the upper Yuba River and species contained therein were not included in detailed evaluation in the 2007 EIR in consideration of water temperatures and flows. Based on monthly mean modeled water temperatures in the lower Yuba River at Smartsville (2007 Draft EIR, p. 174 of Appendix F4, Scenario 3 v 1), implementation of the Yuba

[6] The 2007 Draft EIR (p. 10-79, 10-84, 10-87) recognized that fish species other than the fish species and runs identified above fill important ecological niches and have intrinsic value including hardhead, river lamprey, Sacramento perch, and roach. These other fish species of management concern are generally able to tolerate a wider range of environmental conditions than those identified for anadromous salmonids. Thus, for impact assessment purposes, potential impacts to these other fish species of management concern were indirectly evaluated through the year-round analysis of Chinook salmon lifestages because impacts that are less than significant to Chinook salmon also would be less than significant to these other (more tolerant) fish species. If potentially significant impacts were identified for Chinook salmon, then additional species-specific evaluations were conducted.

Accord resulted in average water temperatures at Smartsville at or below 56^{0}F during all months of the year. Given that water temperatures in the upper Yuba River below New Colgate Powerhouse are equal to or less than those at Smartsville, it was reasonable to conclude that they would have remained thermally suitable for fish species of focused evaluation, as well as coldwater fish species including rainbow trout and kokanee. Based on differences in modeled flows at Smartsville under the Yuba Accord relative to the Existing Condition provided in the 2007 Draft EIR (p. 100-148 of Appendix F4, Scenario 3 v 1), upper Yuba River flows in the reaches upstream of Englebright Reservoir would have been somewhat lower during February, March, July and August, and somewhat higher during April, June, and September through November. However, flow reductions typically occurred during relatively higher flow conditions relative to the year-round flow range, and flow increases typically occurred when flows were relatively lower under the Existing Condition, including during critical water year types. Therefore, flow conditions would not have adversely impacted habitat and migration conditions or resulted in significant impacts to fish species or their habitat in the upper Yuba River above Englebright Reservoir.

Between the New Colgate Powerhouse outlet and Englebright Reservoir, there was a paucity of information regarding presence of resident or special status species at the time the 2007 EIR was prepared. Information collected during the FERC relicensing studies between 2012 and 2013 demonstrated that species of focused evaluation including hardhead and Central California roach, as well as recreationally important species such as rainbow trout and kokanee have the potential to occur in the reach extending from the New Colgate Powerhouse outlet to Englebright Reservoir. Because of this additional information, fish species in these reaches of the upper Yuba River are included in the potential impact evaluation in this SEIR.

Englebright Reservoir

As described in the 2007 EIR, Englebright Reservoir has limited regulating capability and fluctuates on a frequent basis because its active storage (about 70 TAF) is small compared to stream inflow. Storage targets for Englebright Reservoir are used to provide space for attenuating power peaking releases from New Colgate Powerhouse and tributary inflows. Fluctuations in Englebright Reservoir storage principally occur for daily or weekly regulation of winter inflows and New Colgate Powerhouse releases. Because of the recreational and power generation needs, the storage level within the reservoir seldom drops below 50 TAF, and water surface elevation fluctuations are very limited and rarely exceed about 10 feet (ranging from about 520 feet msl to 530 feet msl) year-round. Transfer water that is released from New Bullards Bar Reservoir generally passes through Englebright Reservoir without modifying Englebright Reservoir elevations (Yuba Water and SWRCB 2001). Consequently, and consistent with the 2007 EIR, potential effects on Englebright Reservoir fisheries resources are not included in this analysis because Englebright Reservoir serves as a re-regulating afterbay and serves as a flow-through facility for Yuba Accord water and has limited storage and water surface elevation fluctuations. Therefore, because warmwater and coldwater fisheries resources in Englebright Reservoir were not affected by implementation of the Yuba Accord, it is not anticipated that they would be negatively affected by implementation of the Proposed Extension.

Delta Habitats for Species of Primary Management Concern

Northern Anchovy EFH – Northern Anchovy generally occur well downstream of the Delta. Because Northern Anchovy indices of abundance and habitat are not related to X2 (Kimmerer et al. 2009), any minor changes in Delta outflow or salinity are unlikely to adversely affect Northern Anchovy or their habitat (DWR 2022). The 2007 EIR found that implementation of the Yuba Accord or alternatives analyzed in the EIR would not substantially (or even measurably) change Delta conditions, and Northern Anchovy EFH was not included in detailed evaluation. For these reasons, Northern Anchovy EFH also is not included in detailed evaluation for this SEIR.

Starry Flounder EFH – The 2007 Draft EIR (p. 10-57 to 10-58) refers to the NMFS OCAP BO (NMFS 2004), and describes NMFS's statement that the measures recommended for improving screening and salvage efforts for fall-/late fall-run Chinook salmon also would benefit starry flounder. Due to the implementation of these measures and the limited impacts to starry founder habitat as a whole resulting from changes in CVP/SWP operations, it was assumed that the changes to the integrated CVP/SWP operations resulting from the Proposed Project/Action and alternatives would not affect the EFH of starry flounder and, thus, no further analysis was made in the 2007 Draft EIR.

Although NMFS (2020) EFH consultation determined that long-term operations of the CVP and SWP would adversely affect Pacific coast groundfish (e.g., starry flounder), NMFS (2020) identified EFH conservation recommendations to avoid, minimize and/or otherwise mitigate for CVP/SWP effects in the Delta. Most of the conservation recommendations address CVP/SWP construction-related effects (e.g., turbidity) on habitat areas of particular concern (HAPCs), which are unrelated to the Proposed Extension. Starry flounder is managed under the Pacific Coast Groundfish Fishery Management Plan (FMP) (PFMC 2023). Although adults primarily inhabit coastal marine waters, YOY juveniles are distributed within the Estuary, particularly in Suisun and San Pablo bays, with relatively lower abundances in the west Delta (Baxter 1999). A significant correlation between Delta outflow during the Spring and indices of starry flounder abundance have been reported for the Estuary and Delta, although the mechanism underlying the correlation may be related to enhanced transport to estuarine rearing grounds (Kimmerer et al. 2009). Delta inflows and outflows reportedly affect the rearing and distribution of Pacific coast groundfish within the Delta and San Francisco Bay estuary through changes in the location of the low salinity mixing zones of the Delta and estuary and the resulting changes in the areas of primary and secondary productivity that support these species (NMFS 2020). Determination of potential impacts to starry flounder EFH resulting from implementation of the Proposed Extension will be addressed in this SEIR by considering potential changes in Delta outflow during the spring. Consistent with the 2007 EIR, additional Delta fisheries resources not explicitly identified also are addressed in this SEIR through consideration of Delta outflow and salinity conditions.

Summary Characterization of Fisheries Impact Determinations in the 2007 EIR

The 2007 EIR analyzed the impacts of the Yuba Accord, including the Water Transfer Program, and made the following conclusions regarding the Yuba Accord's impacts to fisheries:

Yuba Region

- New Bullards Bar Reservoir
  - Less-than-significant impacts to warm- and coldwater fishes
- Lower Yuba River
  - Beneficial impacts to spring-run Chinook salmon, fall-run Chinook salmon, and steelhead
  - Less-than-significant impacts to green sturgeon, American shad, and striped bass

CVP/SWP Upstream of the Delta Region (i.e., Oroville Reservoir, the lower Feather River, and the Sacramento River)

- Oroville Reservoir
  - Less-than-significant and potentially beneficial impacts to warm- and coldwater fishes
- Lower Feather River
  - Less-than-significant impacts to spring-run Chinook salmon, fall-run Chinook salmon, steelhead, green sturgeon, American shad, striped bass, and Sacramento splittail
- Sacramento River
  - Less-than-significant impacts to winter-run Chinook salmon, spring-run Chinook salmon, fall-run Chinook salmon, late fall-run Chinook salmon, steelhead, green sturgeon, American shad, striped bass, and Sacramento splittail

Sacramento-San Joaquin Delta Region

- Less-than-significant impacts to delta smelt, winter-run Chinook salmon, spring-run Chinook salmon, steelhead, striped bass, and other Delta fisheries resources

CVP/SWP Export Service Area

- San Luis Reservoir
  - Less-than-significant impacts to warm- and coldwater fishes

In recognition of the impact conclusions described above, YRDP operations conforming with the Yuba Accord were initially implemented during 2006, and the Yuba Accord was codified during 2008 in SWRCB Corrected Order WR-2008-0014. For this SEIR, the Existing Condition includes continued implementation of the Yuba Accord, including the Water Transfer Program.

Supplemental EIR Fisheries Analytical Approach

As described in Section 3.2, "Surface Water Supply and Management," the Proposed Extension evaluated in this Supplemental EIR is the continuation of the Water Transfer Program, which is currently being implemented and is reflected in the modeling of existing environmental conditions. The results of the Proposed Extension will be the same as indicated in the model simulation of the YRDP and the Calsim 3 model simulation of the CVP and SWP upstream facilities and Delta export facilities described in Section 3.2. Therefore, the Proposed Extension, relative to the existing condition, will be analyzed within the context of the evaluations and conclusions presented in the 2007 EIR, as described above.

IMPACT ANALYSIS

Impact 3.4-1: Have a substantial adverse effect, either directly or through habitat modifications, on any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS.

The Water Transfer Program is a component of the Yuba Accord. The Yuba Accord was approved more than 15 years ago, is being implemented, and is reflected in the existing conditions of the lower Yuba River, the lower Feather River, the lower Sacramento River, the Bay-Delta and the export service area. The Yuba Accord also is included as part of the integrated CVP/SWP operations that were evaluated by the USFWS and NMFS in their respective 2008/2009 and the 2019 BOs for long-term operation of the CVP and the SWP. The Proposed Extension is simply a continuation of the existing Water Transfer Program.

No new facilities would be constructed or operated as part of the Proposed Extension. Therefore, there would be no construction or operations-related facility effects on special-status fish or aquatic biological resources.

Yuba Region

Reservoir operations associated with implementation of the Yuba Accord since 2007 have not resulted in adverse effects to either coldwater or warmwater reservoir fish species. As described in the 2007 EIR, New Bullards Bar Reservoir[7] is a deep, steep-sloped reservoir with ample coldwater pool reserves. New Bullards Bar Reservoir thermally stratifies in the spring, destratifies in the fall, and remains destratified throughout the winter. Due to the stratification, the reservoir contains a "two-story" fishery, supporting both coldwater and warmwater fisheries that are thermally segregated for much of the year. Because fluctuations in reservoir storage and water surface elevations due to the Proposed Extension would not change under the Proposed Extension, less-than-significant impacts to the coldwater fisheries (April through November) would occur. Similarly, additional reductions in water surface elevations would not be expected to occur in New Bullards Bar Reservoir and therefore would not significantly affect warmwater fish spawning success (e.g., March through June, with peak months of April and May).

Implementation of the Yuba Accord would not have had flow-related or water temperature-related impacts to fish species of focused evaluation or other recreationally important species or their habitats in the North Yuba River downstream of New Bullards Bar Dam or in the upper Yuba River. Because the Proposed Extension would not involve any changes to Yuba Water's current operation of the YRDP, implementation of the Proposed Extension would not change habitat conditions in these areas and therefore result in less-than-significant impacts to fish species of focused evaluation and recreationally-important species that have the potential to occur in these reaches, including hardhead, Central California roach, rainbow trout, and kokanee. The Proposed Extension also would result in less-than-significant impacts to Chinook salmon EFH in these reaches above Englebright Reservoir.

[7] The reservoir has a total storage capacity of 966 TAF with a minimum pool of 234 TAF (as required by YCWA's FERC license), thus leaving 732 TAF of capacity that can be regulated (Yuba Water et al. 2007).

Because the Proposed Extension would not involve any changes to Yuba Water's current operation of the YRDP, including flows releases into the lower Yuba River, the Proposed Extension would not alter the timing, magnitude, frequency, rate or duration of flows or water temperatures compared to those that occur interannually, interannually, seasonally or even daily experienced under the baseline (i.e., existing condition).

The Proposed Extension would involve no changes whatsoever to Yuba River flows experienced under existing regulatory requirements, including SWRCB Corrected Order WR 2008-0014. Extension of the Water Transfer Program will be subject to all applicable federal and state requirements, including applicable BO, Incidental Take Permits, court orders, and any other conditions imposed by other regulatory agencies applicable to YRDP operations in the Yuba Region. Additionally, implementation of the Proposed Extension would be consistent with the fisheries-related goals and objectives that are described in local and regional plans and policies. Consequently, the Proposed Extension would continue to comply with all applicable environmental laws and regulations.

Therefore, the Proposed Extension would not result in substantial adverse impacts, either directly or through habitat modifications, to any of the fish species of focused evaluation, designated critical habitat or EFH in the Yuba Region.

CVP/SWP Upstream of the Delta Region

Like many other California foothill reservoirs, Oroville Reservoir[8] is steep-sided, with large surface-elevation fluctuations and a low surface-to-volume ratio. Oroville Reservoir thermally stratifies in the spring, destratifies in the fall, and remains destratified throughout the winter. Due to the stratification, Oroville Reservoir supports both coldwater and warmwater fisheries that are thermally segregated for much of the year. Once the reservoir destratifies in the fall, the two fishery components mix in their habitat utilization (e.g., see 2007 Draft EIR, p. 10-23). Because fluctuations in reservoir storage and water surface elevations due to the Proposed Extension would not change due to the Proposed Extension, less-than-significant impacts to the coldwater fisheries (April through November) would occur. Similarly, additional reductions in water surface elevations in Oroville Reservoir would not be expected to occur and therefore would not significantly affect warmwater fish spawning success (e.g., March through June, with peak months of April and May).

The Yuba Accord (including the operations that would occur with the Proposed Extension) is integrated into CVP/SWP operations by the SWP releasing less water (relative to releases prior to the Yuba Accord) to meet regulatory requirements downstream of the lower Yuba River and relying on Yuba Accord releases to ensure compliance with those requirements. The Yuba Accord involved, and the 2007 EIR evaluated, the potential impacts associated with this "backing up" of Yuba Accord water into Oroville Reservoir storage (Yuba Water et al. 2007). As a result of 2008/2009 and 2019 regulatory changes that apply to the CVP and SWP and occurred after the Yuba Accord EIR's certification, more Yuba Accord water currently is backed up into Oroville Reservoir storage than was anticipated when the 2007 EIR was certified, and the SWP and CVP have reduced capacity to take delivery of Yuba Accord transfer water. Accordingly, Yuba Water modified the Yuba Accord in 2014 to add the Freeport Regional Water Authority (FRWA) intake as a point of rediversion (PORD) of Yuba Accord transfer water to enable transfers to back-up purchasers, allowing diversion of that transfer water on a pattern more similar to that which was anticipated in the 2007 EIR. Yuba Water prepared Addendum No. 1 to the 2007 EIR to (2013; 2014) analyze the potential environmental impacts of the proposed change to the Yuba Accord in the stream reaches where that proposed change could affect flows and water temperatures and, therefore, fisheries resources. Yuba Water's (2013) analysis concluded that the addition of Freeport as a PORD of Yuba Accord water would not change, in any way, Yuba River flows. Similarly, Yuba Water's (2013) analysis also concluded that, relative to the basis of comparison, the addition of Freeport as a PORD of Yuba Accord water would not result in fisheries impacts in the Feather River upstream or downstream of the Yuba River, the Sacramento River or the Delta. Accordingly, with the addition of the FRWA intake, the Yuba Accord flow contribution that is made to current CVP/SWP operations (as described in the Reclamation's 2018 OCAP BA) in the Feather and Sacramento rivers and the Delta with the constraints imposed by the 2019 NMFS and USFWS OCAP BOs are representative of the existing conditions that were characterized at the time of the 2007 EIR, as updated by Addendum No. 1 (Yuba Water 2014) to the 2007 EIR. Incorporation of the FRWA intake PORD as part of the Yuba Accord in 2014 currently results in DWR releasing an amount of water from Oroville Dam to meet

[8] Oroville Reservoir is the second largest reservoir in California, with a storage capacity of 3.5 MAF (Yuba Water et al. 2007).

Delta requirements similar to what was assumed in the 2007 EIR. The Proposed Extension, relative to existing conditions, would not cause any changes to lower Feather River flows, lower Sacramento River flows, or Delta inflows and outflows resulting in new or exacerbated impacts to fisheries resources.

If the Proposed Extension is approved, it would be implemented concurrently with existing regulatory criteria, including relevant BOs and Incidental Take Permits, etc. Diversions and reservoir operations would continue as they do under existing conditions. Since Yuba Water certified the Yuba Accord EIR in 2007, changed conditions associated with new regulatory requirements designed to be more protective of federally listed fish species have resulted in substantial effects to the system-wide integrated operations of the CVP and the SWP throughout the Central Valley of California. For example, these new regulatory requirements have consisted of implementation of Reasonable and Prudent Alternatives (RPAs) described in the 2008 United States Fish and Wildlife Service (USFWS) and 2009 National Marine Fisheries Service (NMFS) Biological Opinions (BOs) for the U.S. Bureau of Reclamation's (Reclamation) and the DWR's Long-term Operation Criteria and Plan (OCAP) of the CVP and the SWP. More recently, Reclamation and DWR reinitiated consultation on long-term CVP/SWP operations and new BOs were issued by both the USFWS and NMFS in 2019. Many of the actions described in the 2008/2009 RPAs have been incorporated into the proposed action that was evaluated in the 2019 USFWS and NMFS BOs. These new regulatory requirements also consist of protective actions described in the 2019 USFWS BO and implementation of terms and conditions described in the 2019 NMFS BO for Reclamation and DWR's long-term operations of the CVP and the SWP. The outcome of the ESA consultation process between Reclamation, DWR, NMFS and USFWS consequently resulted in system-wide CVP/SWP operational changes that affect reservoir storages and flows. As an example of the regulatory changes that have occurred under the baseline, the time period for conducting water transfers was expanded from July 1 to September 30 to July 1 to November 30, which could result in additional pumping of approximately 50 TAF per year in most water year types (USFWS 2019; Reclamation 2019). Because those hydrologic conditions represent the environmental existing condition, they form the analytical baseline used to evaluate potential hydrologic changes associated with the water transfers that could occur with the Proposed Extension (See CEQA Guideline Section 15126.2[a]). Although the NMFS (2019) BO is under litigation and long-term operations of the CVP/SWP is under reconsultation, in the interim the 2019 BO remains in effect.

Provided below is a summary of effects associated with water transfer operations in the CVP/SWP Upstream of the Delta Region described in NMFS (2019) BO.

- NMFS (2019: 455) - "*During the period of the water transfer extension (October 1 through November 30), some incubating winter-run Chinook salmon eggs are still in the gravel from late spawning adults, and may remain in the gravel until November until they hatch. The majority of eggs should have hatched by the beginning to middle of October and alevins are either still in the gravel or have emerged as fry to rear in the nearshore areas of the Sacramento River. During October and November, older fry are moving downstream and are observed at the Red Bluff Diversion Dam rotary screw traps*."
- NMFS (2019: 456) - "*From July 1 to September 30, adult CV spring-run Chinook salmon are present. CV spring-run Chinook salmon spawning occurs during the first half of September and thus some eggs are present in the gravel during this earlier portion of the water transfer window… During the period of the water transfer extension (October and November) the majority of spring-run will still be found as incubating eggs in the gravel in the river reaches below Keswick, although some fish have already hatched and emerged from the gravel during the later portion of this transfer window extension*."
- NMFS (2019: 457) - "*In contrast to the negative effects of increased export levels upon fish in the vicinity of the CVP and SWP export facilities in the south Delta, changes in flows in the Sacramento and San Joaquin rivers will be generally beneficial to listed fish present during the water transfers. Water released for transfers will augment flows coming into the Delta, providing a shorter transit time in riverine sections of the river channels due to higher flows and velocities. This will decrease the exposure to predators by decreasing the time exposed to the ambient predator field. In addition, higher flows may increase the probability of staying in the "better route" for migration rather than diverting into channels that lead into the Delta interior with their associated lower survival rates. This can be accomplished by offsetting tidal influence in the transition areas between riverine and tidal habitat. Furthermore, additional flows are expected to enhance water quality in the lower reaches of the Sacramento and San Joaquin rivers prior to entering the Delta. Finally, increased flows due to water being released for transfers can provide better*

migratory cues for adult fish returning on their spawning migrations. These higher flows from tributary watersheds may reduce straying by providing stronger olfactory cues for returning salmonids to find their natal rivers."

- NMFS (2019: 458) - "*Adult CCV steelhead should experience positive effects of increased flows for attracting fish upstream on their migratory spawning runs. During the period from August through November when Sacramento River basin CCV steelhead are moving upstream into the Sacramento River basin, typical river flows are low. Increasing flows will provide stronger migratory cues and stronger olfactory signals to fish moving upriver.*"
- NMFS (2019: 456) - "*…adult and juvenile sDPS green sturgeon would be present in the upper Sacramento and potentially the lower Feather River during the July through November period*."
- NMFS (2019: 460) – "*Migratory behavior in adult and sub adult sDPS green sturgeon is typically stimulated by fall and early winter precipitation events that substantially increase the river flows and decrease ambient water temperatures. It is unlikely that the release of transfer water will be of sufficient volume to increase flows and reduce water temperatures to the degree necessary to stimulate migratory behavior. Furthermore, early movement of adult or sub adult sDPS green sturgeon downstream into the Delta due to augmented flows from water transfers is not anticipated to cause any negative effects to these fish. Juvenile sturgeon typically hold in upriver locations during their first year before migrating downstream into the Delta. These fish hold in upriver locations during flows of much higher magnitude than would be anticipated from the water transfer releases. Thus, there is no anticipated negative impacts from the water transfer releases during the extension period*."

In its 2019 OCAP BO, the USFWS concluded that the coordinated operations of the CVP and SWP are not likely to jeopardize the continued existence of the federally threatened delta smelt and are not likely to destroy or adversely modify delta smelt critical habitat (for additional information, see the Delta Region described below).

Similarly, NMFS (2019) concluded that the coordinated operations of the CVP and SWP were not likely to jeopardize the continued existence of federally-listed winter-run Chinook salmon, spring-run Chinook salmon, steelhead, and green sturgeon. NMFS also concluded that Reclamation's proposed action was not likely to destroy or adversely modify critical habitats designated for the above species. NMFS (2019) developed non-discretionary "reasonable and prudent measures" (RPMs) that are necessary or appropriate to minimize the impact of the amount or extent of incidental take of winter-run Chinook salmon, spring-run Chinook salmon, steelhead, green sturgeon and Southern resident killer whales (50 CFR 402.02). NMFS (2019) also identified non-discretionary terms and conditions that Reclamation and DWR must comply with in order to implement the RPMs (50 CFR 402.14). In a companion document (NMFS 2020), NMFS also provided a determination for Essential Fish Habitat (EFH) consultation for Pacific Coast salmon, including fall-run Chinook salmon. Because NMFS (2020) determined that long-term CVP/SWP operations would adversely affect EFH for Pacific coast salmon, Pacific coast groundfish (e.g. starry flounder) and coastal pelagic species (e.g., Northern anchovy), conservation recommendations to avoid, minimize and/or otherwise mitigate for operations-related impacts were identified for the Sacramento River and the Delta, among other areas of the CVP/SWP.

Since the USFWS and NMFS OCAP BOs were issued in 2019, respectively, the CVP and the SWP have been operating according to many of the provisions specified in the USFWS and NMFS 2008 RPAs as well as to the RPMs and terms and conditions specified by NMFS and the protective measures identified by USFWS in 2019. By adopting those RPAs, RPMs and terms and conditions over the period extending from 2008 to 2019 under the baseline, USFWS and NMFS determined that they are protective of the listed species by either improving aquatic habitat conditions and/or reducing the effects of individual stressors to the species (See 50 CFR Section 402.02 [defining RPAs]).

Regulatory criteria would also include a continuation of the SWRCB water rights and water quality criteria related to the CVP and SWP operations. Yuba Water continues to implement the Yuba Accord (Corrected Order WR 2008-0014) streamflow requirements independently of changes in CVP and SWP operations that have occurred due to the 2008/2009 and 2019 USFWS/NMFS BOs. As stated above, the Proposed Extension would involve no changes whatsoever to Yuba River streamflows under Corrected Order WR 2008-0014.

Overall, ESA biological opinions that apply to the CVP and the SWP and that were issued after approval of the Yuba Accord have limited those projects' capacity to take delivery of Yuba Accord transfer water. As also discussed above, these limits have caused DWR to "back up" Yuba Accord transfer water into Oroville Reservoir storage. This operation

has affected flows in the Feather River below Oroville Reservoir and the Sacramento River below its confluence with the Feather River. The changes in fishery conditions that have occurred as a result of the 2008/2009 USFWS and NMFS BOs and the most recent 2019 BOs implementation under the baseline do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension. The changed conditions and any consequent effects on fisheries as part of the baseline result from the determinations of USFWS and NMFS that implementation of changes to the CVP's and the SWP's operations (including water transfers) was necessary in order to protect fish species listed under the ESA. By law, implementation of the 2019 USFWS and NMFS BOs, therefore, is considered to be protective overall of the relevant species – which include winter-run Chinook salmon, spring-run Chinook salmon, steelhead, green sturgeon and delta smelt – and does not result in significant effects on those species. Similarly, NMFS (2020) completed EFH consultation and made a determination under the Magnuson-Stevens Fishery Conservation and Management Act (16 USC Sections 1801-1891d) that the long-term operation of the CVP and SWP implementation would adversely affect EFH for Pacific coast salmon (including fall-run Chinook salmon), resulting in NMFS providing conservation recommendations.

The changes in CVP/SWP operations (including water transfers pursuant to the Yuba Accord) that have occurred as a result of the 2019 USFWS and NMFS BOs implementation are part of the current baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Extension of the Water Transfer Program will continue to be subject to all applicable federal and California Endangered Species Act requirements, including applicable BOs, Incidental Take Permits, court orders, and any other conditions imposed by other regulatory agencies applicable to YRDP operations and CVP/SWP operations in the CVP/SWP Upstream of the Delta Region. Additionally, implementation of the Proposed Extension would be consistent with the fisheries-related goals and objectives that are described in local and regional plans and policies. Consequently, as the Yuba Accord currently complies with, the Proposed Extension would continue to comply with, all applicable environmental laws and regulations.

Therefore, the Proposed Extension would not be expected to result in substantial adverse impacts, either directly or through habitat modifications, to any of the fish species of focused evaluation, designated critical habitat or EFH in the CVP/SWP Upstream of the Delta Region.

Delta Region

Since the USFWS and NMFS OCAP BOs were issued in 2019, respectively, the CVP and the SWP have been operating according to many of the provisions specified in the USFWS and NMFS 2008 RPAs. By adopting those RPAs, USFWS and NMFS determined that they are protective of the listed species by either improving aquatic habitat conditions and/or reducing the effects of individual stressors to the species (See 50 CFR Section 402.02 [defining RPAs]).

From July to November, most delta smelt are rearing juveniles and are no longer distributed in habitats from which they can be entrained in exported water (Nobriga et al. 2008, cited in USFWS 2019). USFWS (2019) believes this is due to a combination of better Old and Middle River management in the spring and changing habitat conditions in the south Delta. In addition, water transfers are associated with 'carriage water' which are (relatively) small quantities of freshwater in addition to the transfer amount that are delivered to the Delta to help ensure that salinity standards continue to be met as the water is moved through the system. Thus, the export of transfer water in long-term CVP/SWP operations, which include water transfers pursuant to the Yuba Accord and the Proposed Extension, should also not impact habitat suitability by lowering Delta outflow or changing the location of X2 (USFWS 2019).

All CCWD facilities (e.g., Los Vaqueros Reservoir, Rock Slough, Old River, and Middle River diversion intakes) in the Delta, which could be used to transfer Yuba Accord water, are subject to no-fill and no-diversion periods identified as March 15 through May 31 and April 1 through April 30, respectively, for fisheries protection. The no-fill and no-diversion periods may be modified with approval from the USFWS, NMFS, and CDFW. On average, CCWD diverts approximately 127 TAF per year and approximately 110 TAF is CVP contract supply (USFWS 2019). CCWD's average annual diversions are not expected to increase as a result of long-term CVP/SWP operations, which may include water transfers pursuant to the Yuba Accord and the Proposed Extension. CCWD's operation of the diversion, storage, and

conveyance facilities are covered under a separate USFWS BO (USFWS file number: 1-1-93-F-35 and 1-1-07-F-0179). CCWD's operations (including water transfers) addressed as part of long-term CVP/SWP operations are consistent with the separate USFWS BO and remain unchanged from current long-term CVP/SWP operations (USFWS 2019).

In its 2019 OCAP BO, the USFWS concluded that the coordinated operations of the CVP and SWP (including water transfers) are not likely to jeopardize the continued existence of the federally threatened delta smelt and are not likely to destroy or adversely modify delta smelt critical habitat. The USFWS (2019) BO's Proposed Action also identified protective actions (e.g., Old and Middle River management actions to minimize entrainment, a summer-fall habitat action, and habitat restoration, etc.) designed to minimize impacts to delta smelt and its critical habitat. The 2008 USFWS BO's RPA included actions to reduce entrainment, provide for increased high quality low-salinity habitat in certain year types, create additional subtidal habitat and monitor ongoing operations. The current USFWS (2019) BO includes similar actions to the 2008 RPA to address entrainment risk, reduced habitat quality, and habitat restoration. Therefore, the USFWS (2019) BO concluded that Reclamation and DWR's Proposed Action addresses the stressors identified in 2008 RPA in a manner that is protective of delta smelt.

NMFS (2019) BO acknowledged the expansion of the water transfer window to July through November, and explained that this change can provide additional flexibility in meeting water temperature requirements in drought years. As described in NMFS (2019), extending the length of the transfer window will enhance the reliability of the water supply by providing greater flexibility to move water through the system when capacity is available at the export facilities. This may provide additional benefits in upstream actions such as improving Sacramento River temperature operations or providing for pulse flows in river reaches below dams when they would be beneficial to tailwater river reaches. Impacts from the proposed changes to the water transfer window include additional flows in Central Valley waterways and increased export levels over current operating conditions in October and November due to diverting transfer water when no additional pumping would have occurred without such transfers being made (i.e., the available capacity). Real-time operations may restrict water transfers within the transfer window so that Reclamation and DWR can meet other authorized project purposes (e.g., when pumping capacity is needed for CVP or SWP water) (NMFS 2019). NMFS (2019) also reaffirmed that maximum water transfer volumes remain the same as under current operations, and that water transfers include north to south transfers. Provided below is a summary of effects associated with water transfer operations in the Delta Region described in NMFS (2019) BO.

Response of Species to the Expanded Water Transfer Window

- NMFS (2019: 456–457) - "*For those fish present in the Delta during the water transfer window extension, there will be an increase in altered hydrodynamics in waters adjacent to the export facilities as a result of any additional exports to implement a water transfer. The risk of entrainment into the export facilities, coupled with alterations in routing probabilities within the waterways of the central and southern Delta will become more pronounced. The additional level of exports required to divert water for transfer are over and above that which would be normally present without the extended transfer window, as the transfer of water can only occur when there is available export capacity that is not needed for authorized SWP or CVP purposes at the facilities*."

Risk to Listed Salmonids

- NMFS (2019: 458) - "*For Sacramento River winter-run Chinook salmon and CV spring-run Chinook salmon, the overall risk of additional mortality associated with entrainment at the fish salvage facilities or routing into inferior migratory routes due to the water transfer window extension is low. This is primarily due to the lack of temporal overlap with the period of water transfers for most of their life history phases in the Delta (i.e., migrating adult and juvenile life stages…). For those winter-run Chinook salmon and CV spring-run Chinook salmon that are present in the Delta during the water transfer window, they are expected to see some benefit from the increased in-river flows created by the release of water for transfer*."
- NMFS (2019: 458) - "*Juvenile CCV steelhead, if present, will have a greater risk of entrainment and re-routing into different migratory paths due to export actions. This has the potential to increase mortality within the Delta waterways*."

Risk to Southern DPS Green Sturgeon

- NMFS (2019: 458) - "*…adult, sub-adult, and juvenile sDPS green sturgeon are found within the waters of the Delta year-round. Juvenile sDPS green sturgeon have been observed in salvage at both the Tracy Fish Collection Facility and the Skinner Delta Fish Protective Facility during most months of the year… and would overlap with the proposed period of water transfers (July through November). Increased levels of exports to accommodate water transfers would elevate the risk of entraining juvenile sDPS green sturgeon present in the channels of Old and Middle rivers leading to the export facilities*."
- NMFS (2019: 459) - "*It is unlikely that the levels of increased exports would increase the risk of entrainment of sub-adult or adult sDPS green sturgeon into the facilities due to the physical barrier created by the trash racks entering the primary louver bays, however, sturgeon may be temporarily detained in front of the trash racks due to the velocity of the water flowing into the facility*."
- NMFS (2019: 460) – "*In other parts of the Delta, adult, sub-adult, and juvenile sDPS green sturgeon may benefit from the increased flow of water into the Delta from upstream releases for water transfers. Higher flows will help transport adults downstream after spawning in the upstream Sacramento River reaches. Likewise, juvenile sDPS green sturgeon migrating downstream will benefit from the enhanced flows. Water quality conditions in the lower river reaches should improve with the additional flow, increasing circulation in these areas and also improving water quality conditions within the Delta.*"

As shown on pages 1005 – 1102 of Appendix F4 (Scenario 3 v 1) of the 2007 Draft EIR, modeled flows and water temperatures in the Sacramento River at Freeport under the Yuba Accord relative to the CEQA Existing Condition are typically essentially equivalent or very similar nearly all of the time. Updated modeling results for Addendum No. 4 (see Tech Memo (p. 17) attached to Yuba Water 2016) to the 2007 EIR also show essentially equivalent monthly flows in the Sacramento River at Freeport under the Accord + EBMUD (2015 Delta) scenario relative to the Accord (2015 Delta) scenario. Similarly, Delta inflow also is essentially equivalent or very similar under the Yuba Accord relative to the CEQA Existing Condition in the 2007 Draft EIR (p. 1103 – 1139 of Appendix F4 (Scenario 3 v 1)). Due to minor differences in Delta inflow and Delta exports, Delta outflow and associated Delta salinity conditions also are typically essentially equivalent under the Yuba Accord relative to the CEQA Existing Condition in the 2007 Draft EIR (p. 1140 – 1237 in Appendix F4 (Scenario 3 v 1)) and under the Accord + EBMUD (2015 Delta) scenario relative to the Accord (2015 Delta) scenario in Addendum #4 (see Tech Memo (p. 20) attached to Yuba Water 2016). Both the 2007 EIR and Addendum #4 (Yuba Water 2016) concluded that implementation of the Yuba Accord would continue to result in minor and less-than-significant impacts to fish species of focused evaluation in the lower Sacramento River and Delta.

Overall, in the Delta Region, the changes in fishery conditions that have occurred as a result of the 2008/2009 USFWS and NMFS BOs and the most recent 2019 BOs implementation under the baseline do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Extension of the Water Transfer Program will continue to be subject to all applicable federal and California Endangered Species Act requirements, including applicable BOs, Incidental Take Permits, court orders, and any other conditions imposed by other regulatory agencies applicable to CVP/SWP operations (including water transfers) related to diversions and exports of water in the Delta Region. Consequently, the Proposed Extension would continue to comply with all applicable environmental laws and regulations.

The Proposed Extension would not result in substantial adverse impacts, either directly or through habitat modifications, to any of the fish species of focused evaluation, or to designated critical habitat or EFH in the Delta Region.

CVP/SWP Export Service Area

San Luis Reservoir has a storage capacity of approximately 2 MAF (Yuba Water et al. 2007). For the reasons described above (i.e., steep-sided, with large surface-elevation fluctuations and a low surface-to-volume ratio) changes in reservoir storage associated with the Proposed Extension would not be expected to significantly affect the coldwater fisheries (April through November) in San Luis Reservoir. Similarly, reductions in water surface elevations would not

be anticipated to significantly affect warmwater fish spawning success (e.g., March through June, with peak months of April and May). Therefore, the Proposed Extension would not result in substantial adverse impacts, either directly or through habitat modifications, to any cold water or warmwater fish species of focused evaluation in the CVP/SWP Export Service Area (i.e., San Luis Reservoir).

Conclusion

In conclusion, the Proposed Extension, relative to the baseline, would result in **less-than-significant impacts** to fisheries resources in the Yuba Region, the CVP/SWP Upstream of the Delta Region, the Delta Region, and the Export Service Area.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-2: Interfere substantially with the movement of any native resident or migratory fish species, or impede the use of native nursery sites.

Yuba Region

As described above, implementation of the Yuba Accord would not have had flow-related or water temperature-related impacts to movement or migration of fish species of focused evaluation or other recreationally important species in the North Yuba River and upper Yuba River. Because the Proposed Extension would not involve any changes to Yuba Water 's current operation of the YRDP, implementation of the Proposed Extension would not change migratory habitat conditions or access to rearing habitat in these areas and therefore result in less-than-significant impacts to fish species of focused evaluation and recreationally-important species that have the potential to occur in these reaches, including hardhead, Central California roach, rainbow trout, and kokanee. The Proposed Extension also would result in less-than-significant impacts to Chinook salmon migration and rearing EFH in these reaches above Englebright Reservoir.

Because there would be no changes to Yuba Water's current operations of the YRDP, the Proposed Extension also would result in less-than-significant impacts to migratory and rearing habitat conditions for any of the fish species of focused evaluation in the lower Yuba River, including spring-run and fall-run Chinook salmon, steelhead, green sturgeon, American shad and striped bass. For special-status fish species that may occur in the lower Yuba River that were not explicitly addressed in the 2007 Draft EIR (white sturgeon, Pacific lamprey), their temporal distributions and habitat requirements are generally encompassed by the species that were considered in the 2007 Draft EIR (including spring-run and fall-run Chinook salmon, steelhead, green sturgeon and river lamprey). Therefore, impacts to migratory and rearing habitat conditions also would be less than significant for white sturgeon and Pacific lamprey with implementation of the Proposed Extension.

CVP/SWP Upstream of the Delta Region

Lower Feather River

As shown in the 2007 Draft EIR (p. 505-553 of Appendix F4), flows under the Yuba Accord would not change relative to the CEQA Existing Condition in the Low Flow Channel below Fish Barrier Dam, which represents the reach with the most suitable spawning and rearing habitat for fish species of focused evaluation in the lower Feather River. Overall changes in flows in the lower Feather River below Thermalito Afterbay under the Yuba Accord would be similar or essentially equivalent most of the time, with generally minor (about 3 percent or less) long-term average monthly increases and decreases. Species-specific conclusions in the 2007 Draft EIR (p. 10-212 through 10-229), including less-than-significant impacts to migration and rearing habitat conditions for spring-run Chinook salmon, fall-run Chinook salmon, steelhead, green sturgeon, Sacramento splittail, American shad, and striped bass, would still be applicable for the Proposed Extension. For special-status fish species that may occur in the lower Feather River that were not explicitly addressed in the 2007 Draft EIR (white sturgeon, Pacific lamprey, Sacramento hitch), their temporal distributions and habitat requirements are generally encompassed by the species that were considered in the 2007 Draft EIR (including spring-run and fall-run Chinook salmon, Sacramento splittail and green sturgeon). Because instream conditions in the lower Feather River would not change with implementation of the Proposed Extension

relative to the baseline (existing condition), impacts to migratory and rearing habitat conditions also would be less than significant for white sturgeon, Pacific lamprey and Sacramento hitch.

Lower Sacramento River

As previously described, the study area of the Sacramento River only includes the reaches downstream of the confluence with the lower Feather River. Therefore, the lifestages considered in the 2007 Draft EIR included the adult immigration and holding and the juvenile rearing and outmigration lifestages for all runs of Chinook salmon, steelhead and green sturgeon, and the migration, spawning and rearing lifestages of Sacramento splittail, American shad and striped bass. The very minor changes in flows and water temperature suitabilities for the evaluated lifestages under the Yuba Accord relative to the CEQA Existing Condition at that time resulted in a conclusion of less-than-significant impacts to migratory lifestages (2007 Draft EIR p. 10-229 through 10-234). Because instream conditions in the Sacramento River downstream of the confluence with the lower Feather River would not change with implementation of the Proposed Extension, impact to species and their habitats evaluated in the 2007 EIR and subsequent addenda would continue to be less than significant. Moreover, due to the similarity in habitat requirements and overlapping temporal distributions of evaluated lifestages with additional special-status fish species not previously evaluated, impacts to migratory and rearing habitat conditions for white sturgeon, Pacific lamprey and Sacramento hitch in the lower Sacramento River also would be less than significant with implementation of the Proposed Extension.

Delta Region

As described in the 2007 Draft EIR, changes in Delta habitat evaluation parameters, including Delta inflow, Delta outflow, X2 location, Delta export/inflow ratios and salvage estimates, were relatively minor and infrequent under the Yuba Accord relative to the CEQA Existing Condition (p. 10-234 through 10-236). Delta outflow and associated Delta salinity conditions were essentially equivalent under the Yuba Accord relative to the CEQA Existing Condition in the 2007 Draft EIR (p. 1140 – 1237 in Appendix F4 (Scenario 3 v 1)), and under the Accord + EBMUD (2015 Delta) scenario relative to the Accord (2015 Delta) scenario in Addendum #4 (see Tech Memo (p. 20) attached to Yuba Water 2016). The 2007 EIR and Addendum #4 concluded that there would be less than significant impacts to Delta fishes and their habitat. Implementation of the Proposed Extension would not change Delta conditions and therefore would result in less-than-significant impacts to migratory and rearing habitat conditions for fish species of focused evaluation, including delta smelt, longfin smelt, Sacramento splittail, winter-run, spring-run, and fall/late fall-run Chinook salmon, steelhead, green sturgeon, white sturgeon, Pacific and river lamprey, Sacramento hitch, American shad, striped bass and other Delta fisheries resources (e.g., starry flounder, Bay shrimp).

CVP/SWP Export Service Area

For the same reasons described above under Impact 3.4-1, impacts to potential migration and rearing habitat conditions for coldwater and warmwater fisheries would be less than significant.

Conclusion

In conclusion, the Proposed Extension, relative to the baseline, would result in **less-than-significant impacts** to fisheries resources in the Yuba Region, the CVP/SWP Upstream of the Delta Region, the Delta Region, and the Export Service Area.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-3: Substantially reduce the habitat of a fish species; cause a fish population to drop below self-sustaining levels; threaten to eliminate a fish community; or substantially reduce the number or restrict the range of special-status fish species.

The previous impact analyses (Impact 3.4-1 and Impact 3.4-2) identified less-than-significant impacts to fish species of focused evaluation, either directly or through habitat modifications, and in consideration of the potential for impacts to migratory and rearing habitat conditions. Based on these impact analyses and in consideration of life history and habitat requirements described in the 2007 EIR and in this SEIR, the Proposed Extension would not substantially reduce the habitat of a fish species, cause a fish population to drop below self-sustaining levels, threaten to eliminate a fish community, or substantially reduce the number or restrict the range of an endangered or threatened fish species.

Therefore, less-than-significant impacts pertinent to impact statement 3.4-3 would occur to fish species of focused evaluation or their range in the Yuba Region, CVP/SWP Upstream of the Delta Region, the Delta Region and the CVP/SWP Export Service Area. In addition, because no significant impacts were identified to species of Chinook salmon evaluated, impacts on the Southern Resident killer whale DPS also would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.4-4: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Because the previous impact analyses (Impact 3.4-1, Impact 3.4-2 and Impact 3.4-3) identified less-than-significant impacts to fish species of focused evaluation and their habitat in the Yuba Region, CVP/SWP Upstream of the Delta Region, the Delta Region, and the CVP/SWP Export Service Area, the Proposed Extension would not conflict with the provision of any relevant adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan in the study area. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.5 SURFACE WATER QUALITY

This section identifies the existing regulatory context and policies related to surface water quality, describes the existing conditions in the study area, and evaluates potential water quality impacts of the Proposed Extension.

3.5.1 Regulatory Setting

This section includes applicable laws, regulations, plans and other programs relevant to water quality in the study area which focuses on regulatory updates since the EIR was completed in 2007.

FEDERAL

Clean Water Act

The Clean Water Act (CWA) is a comprehensive set of statutes aimed at restoring and maintaining the chemical, physical and biological integrity of the nation's waters. The CWA is the foundation of surface water quality protection in the United States. The CWA does not directly address groundwater or water quantity issues.

Initial authority for the implementation and enforcement of the CWA rests with the U.S. Environmental Protection Agency (EPA); however, this authority can be exercised by states with approved regulatory programs, and, in California, this authority is exercised by the State Water Resources Control Board (SWRCB) and the regional water quality control boards (RWQCBs). The CWA contains a variety of regulatory and non-regulatory tools to significantly reduce direct pollutant discharges into waters of the United States, to finance municipal wastewater treatment facilities, and to manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water. Section 303 of the CWA requires states to adopt water quality standards which consist of the designated uses of the navigable waters involved and associated water quality criteria.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was passed in 1974 to regulate the nation’s drinking water supply. Amended in 1986 and 1996, the federal law requires many actions to protect drinking water and its sources (e.g., rivers, reservoirs and groundwater). The SDWA (40 CFR 141-143) only applies to surface water if the water is to be used for human consumption.

The SDWA authorizes the EPA to set and implement national health-based standards to protect against both naturally occurring and man-made contaminants that may be found in drinking water. These National Primary Drinking Water Regulations set enforceable maximum contaminant levels (MCLs) for particular contaminants in drinking water, or required ways to treat water to remove contaminants. Both “primary” and “secondary” drinking water standards have been developed. Defined as the "highest level of a contaminant permissible in water in a public water system,” primary MCLs address health concerns, while secondary MCLs address esthetics, such as taste and odor. Primary MCLs have been set for over 90 potential drinking water contaminants. Secondary standards are not federally enforceable, but are guidelines for state use.

Amendments to the SDWA in 1996 require the EPA to develop rules to balance the risks between microbial pathogens and disinfection byproducts (DBPs). The Stage 1 Disinfectants and Disinfection Byproducts Rule, announced in December 1998, was the first of a set of rules under the 1996 SDWA amendments. The Stage 1 Disinfectants and Disinfection Byproducts Rule applies to all community and nontransient noncommunity water systems that treat their water with a chemical disinfectant for either primary or residual treatment. The rule establishes maximum residual disinfectant level goals and maximum residual disinfectant levels for three chemical disinfectants, including chlorine, chloramine and chlorine dioxide. It also establishes maximum contaminant level goals and MCLs for total THMs, haloacetic acids, chlorite and bromate (Sacramento County Water Agency 2003).

Surface Water Treatment Rule

In 1989, the Surface Water Treatment Rule (SWTR) was adopted in response to concerns over the presence of high concentrations of pathogenic organisms in source surface waters (US EPA 1989, Final Surface Water Treatment Rule, Federal Register 54, 124, 27486). The California SWTR, which implements the federal SWTR within California, became effective in June 1991 (see California Safe Drinking Water Act discussion below).

Amendments to the SDWA in 1996 require the EPA to develop rules to balance the risks between microbial pathogens and DBPs. The Interim Enhanced Surface Water Treatment Rule amends the existing Surface Water Treatment Rule to strengthen microbial protection, including provisions specifically to address Cryptosporidium, and to address risk trade-offs with DBPs. The Interim Enhanced Surface Water Treatment Rule applies to public water systems that use surface water or groundwater under the direct influence of surface water (GWUDI) and serve at least 10,000 people. In addition, states are required to conduct sanitary surveys for all surface water and GWUDI systems, including those that serve fewer than 10,000 people. The final rule includes treatment requirements for waterborne pathogens (e.g., Cryptosporidium). In addition, systems must continue to meet existing requirements for Giardia lamblia and viruses.

A second phase of rule amendments included the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) (71 FR 654 (January 5, 2006)) and the Stage 2 Disinfection Byproduct Rule (71 FR 388 (January 4, 2006)). The LT2 rule supplements existing regulations by targeting additional Cryptosporidium treatment requirements to higher risk systems. This rule also contains provisions to reduce risks from uncovered finished water reservoirs and to ensure that systems maintain microbial protection when they take steps to decrease the formation of DBPs that result from chemical water treatment. The Stage 2 DBP rule is one part of the Microbial and Disinfection Byproducts Rules, which are a set of interrelated regulations that address risks from microbial pathogens and disinfectants/disinfection byproducts. The Stage 2 DBP rule focuses on public health protection by limiting exposure to DBPs, specifically total THMs and five haloacetic acids, which can form in water through disinfectants used to control microbial pathogens.

California Toxics Rule

In response to a California court overturning of the state's water quality control plans containing water quality criteria for toxic pollutants, in 2000 the EPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards to be applied in waters of the State of California (40 CFR Section 131.38). Criteria were identified for various pollutants such as arsenic, cadmium, chromium, copper, lead, nickel, selenium, silver, zinc, cyanide and others.

STATE

Porter-Cologne Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), enacted in 1969 and amended in 2005, specifies requirements for water quality protection in California. Under the Porter-Cologne Act, the SWRCB is required to adopt water quality policies, plans, and objectives that protect state waters for public use and enjoyment. State agencies charged with the primary responsibilities of water quality protection and CWA implementation under the Porter-Cologne Act include the SWRCB and the RWQCBs. In their respective regions, the RWQCBs engage in several water quality functions. One of the most important is preparing and periodically updating water quality control plans, which specify the beneficial uses to be protected within a particular region. RWQCBs also regulate all pollutant or nuisance discharges that may affect either surface water or groundwater, including non-point source discharges to surface water. Additionally, the SWRCB, in acting on water rights applications, may establish terms and conditions in water rights permits to help implement water quality control plans.

California Safe Drinking Water Act

The California Department of Health and Safety (CDHS) is designated by the EPA as the primary agency to administer and enforce the requirements of the federal SDWA in California. Public water systems are required to monitor for regulated contaminants in their drinking water supply. California's drinking water standards (e.g., MCLs) are the same or more stringent than the federal standards, and include additional contaminants not regulated by the EPA. Like the

federal MCLs, California's primary MCLs address health concerns, while secondary MCLs address esthetics, such as taste and odor. The California SDWA is administered by CDHS primarily through a permit system.

Water Quality Control Plans

The preparation and adoption of water quality control plans (Basin Plans) are regulatory references for meeting state and federal requirements for water quality control (40 CFR 131.20). Basin Plans are adopted and amended by RWQCBs. The Central Valley RWQCB Basin Plan (2019) identifies designated beneficial uses applicable to each water body within the Sacramento River and San Joaquin River basins, including the Delta. State law defines beneficial uses of California's waters that may be protected against quality degradation to include (but not limited to) "*...domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves*" (Water Code Section 13050(f)). The beneficial uses designated by the Central Valley RWQCB (2019) for waters within the study area are presented in Table 3.5-1.

Table 3.5-1 Beneficial Uses of Water Bodies in the Study Area

Beneficial Use Designation	Englebright Reservoir & Upstream	Lower Yuba River	Oroville Reservoir	Lower Feather River	Lower Sacramento River	Delta	San Luis Reservoir
Municipal and Domestic Supply	✓		✓	✓	✓	✓	✓
Irrigation Watering	✓	✓	✓	✓	✓	✓	✓
Stock Watering	✓	✓				✓	✓
Industrial Process						✓	
Service Supply						✓	
Power Generation	✓	✓	✓				
Water Contact Recreation	✓	✓	✓	✓	✓	✓	✓
Canoeing and Rafting Recreation	✓	✓		✓	✓		
Other Non-contact Water Recreation	✓	✓	✓	✓	✓	✓	✓
Warm Freshwater Habitat		✓	✓	✓	✓	✓	✓
Cold Freshwater Habitat	✓	✓	✓	✓	✓	✓	
Fish Migration		✓		✓	✓	✓	
Warm Spawning Habitat		✓	✓	✓	✓	✓	
Cold Spawning Habitat	✓	✓	✓	✓	✓		
Wildlife Habitat	✓	✓	✓	✓	✓	✓	✓
Navigation					✓	✓	

Source: Central Valley RWQCB 2019.

Section 303(d) of the federal CWA requires states to identify water bodies that do not meet water quality standards and are not supporting their designated beneficial uses. These waters are placed on the Section 303(d) List of Impaired Water Bodies. The 303(d) list must identify the pollutants causing lack of attainment of water quality standards and include a priority ranking of the water quality-limited segments considering the severity of the pollution and the uses to be made of the waters (40 C.F.R. Section 130.7(b)(4)). Placement on this list can result in the development of a total maximum daily load (TMDL) or other control action as needed to address the impairment. The SWRCB submits a biennial report (California Integrated Report) to the EPA for three of the nine RWQCBs such that each RWQCB region is fully assessed every six years.

A RWQCB has discretion in its response to a listing and can prioritize or de-prioritize TMDL development. The Central Valley RWQCB is responsible for implementing the TMDL program for both the regional and local study areas.

SWRCB Decision 1641 and Bay-Delta Water Quality Objectives

In the 1995 Bay-Delta Water Quality Control Plan (Bay-Delta Plan), the SWRCB set water quality objectives to protect beneficial uses of water in the Delta and Suisun Bay. The objectives must be met by the State Water Project (SWP) and federal Central Valley Project (CVP) as specified in the water right permits issued to the California Department of Water Resources (DWR) and U.S. Bureau of Reclamation (Reclamation), respectively. These objectives—minimum Delta outflows, limits on SWP and CVP Delta exports, and maximum allowable salinity levels—are enforced through the provisions of the State Water Board's Water Right D-1641, issued in December 1999 and updated in March 2000, which officially instated the 1995 Bay-Delta Plan. Both DWR and Reclamation must monitor the effects of their respective diversions and project operations to ensure compliance with existing water quality objectives.

Among the objectives established in the Bay-Delta Plan and D-1641 are the "X2" objectives. X2 is defined as the distance in kilometers from the Golden Gate, where salinity concentration in the Delta is 2 parts per thousand. The location of X2 is used as a surrogate measure of Delta ecosystem health. For the X2 objective to be achieved, the X2 position must remain downstream of Collinsville in the Delta during February through June, and downstream of other specific locations in the Delta on a certain number of days each month from February through June. This means that Delta outflow, which among other factors controls the location of X2, must be at certain specified levels at certain times. This can limit the amount of water the SWP may pump at those times at its Harvey O. Banks Pumping Plant in the Delta.

Because of the relationship between seawater intrusion and interior Delta water quality, meeting the X2 objective can also improve water quality at Delta drinking water intakes, however, meeting the X2 objectives can require a relatively large volume of water for outflow during dry months that follow months with large storms.

The Bay-Delta Plan and D-1641 also established an export/inflow (E/I) ratio. The E/I ratio is designed to provide protection for the fish and wildlife beneficial uses in the estuary. The E/I ratio limits the fraction of Delta inflows that are exported. When other restrictions are not controlling, Delta exports are limited to 35 percent of total Delta inflow from March through June and 65 percent of inflow from July through January. The February E/I ratio can vary from 35 percent to 45 percent depending on the January Eight River Index (8RI). The 8RI is the sum of the Sacramento River and San Joaquin River Runoff. This index is used from December through May to set flow objectives as implemented in SWRCB D-1641.

In December 2018 the SWRCB approved the Bay-Delta Plan regarding San Joaquin River flows and southern Delta Salinity. However, a Decision similar to Decision-1641 will be required by the SWRCB that amends the water rights license and permits for the SWP and CVP to require them and others to meet the Bay-Delta Plan before the SWP operates to the approved San Joquin River portion of the update. The SWRCB is in the process of updating the Bay-Delta Plan for Sacramento River/Delta Flows and Cold Water, Delta Outflows, and Interior Delta Flows.

Additional Delta salinity objectives were introduced by the US Department of Fish and Wildlife (USFWS) (2019) and the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NMFS) (2019) biological opinions (BOs) on the CVP and SWP system-wide operations to improve fisheries habitat conditions. These included an X2 objective during September and October at less than or equal to 80 km upstream of the Golden Gate Bridge during wet and above normal water years. CDFW (2020) issued an incidental take permit (ITP) to DWR for the SWP that included a

30-day average X2 objective of less than or equal to 80 km during wet and above normal years and an additional 100,000 acre-feet of water to supplement Delta outflow from June-October during wet and above normal years.

On September 30, 2021, Reclamation requested reinitiation of consultation on the long-term operations of the CVP and SWP due to anticipated modifications to the long-term operations that may cause effects to listed species or designated critical habitats not analyzed in the 2019 USFWS and NMFS BOs. Reclamation and DWR anticipate new BOs for the CVP and SWP. DWR also will be an applicant in the consultation and CDFW will facilitate the process of DWR updating their Incidental Take Permit for SWP operations.

2018 Coordinated Operation Agreement Addendum

The 1986 Coordinated Operation Agreement (COA) establishes the shared responsibility for each of the SWP and CVP to meet water quality and regulatory standards. Between 1986 and 2018, the SWRCB imposed additional restrictions, including new Delta outflow requirements, which further restricted Delta exports and affect CVP and SWP operations. In response to these changes, a joint review of the 1986 agreement was conducted by both projects. At the conclusion, DWR and Reclamation agreed to the COA Addendum to reflect the current regulatory environment and operations of the projects. The adoption of this Addendum was challenged under CEQA and litigation is pending.

Sacramento-San Joaquin Basin Delta Reform Act

The Sacramento-San Joaquin Basin Delta Reform Act of 2009 (Delta Reform Act) requires the State of California to manage the Delta for the "coequal goals" of providing a more reliable water supply for California and improving the health of the Delta ecosystem, while also protecting it as a unique and evolving cultural, recreational, natural, and agricultural place. The Delta Reform Act established the Delta Stewardship Council (DSC) which was required to develop and adopt the Delta Plan, a legally enforceable, comprehensive, long-term management plan for the Sacramento–San Joaquin Delta and the Suisun Marsh to achieve the two coequal goals. Adopted in 2013, the Delta Plan includes regulations, non-regulatory recommendations, and performance measures to further the water supply reliability, ecosystem resiliency, and unique values of the Delta. The Delta Plan includes 14 regulatory policies and 95 recommendations. Collectively, these policies and recommendations address current and predicted challenges related to the Delta's ecology, flood management, land use, water quality, and water supply reliability. The Delta Reform Act requires State and local actions that fit the legal definition of a covered action to be consistent with the policies included in the Delta Plan (Water Code section 85057.5(a)).

A key goal of the Delta Plan is to maintain water quality in the Delta Region at a level that supports and enhances designated beneficial uses. The Delta Plan identified several performance measure targets related to water quality in the Delta, including but not limited to the following (DSC 2018).

- A reduction of 40 percent of the waterbody-contaminant combinations in the 303(d) list by 2034.
- Compliance with SWRCB objectives for salinity for D-1641 and X2 99 percent of the time.
- Meet dissolved oxygen standards in the Delta by 2020.
- Achieve less than 1 percent toxicity in sediment samples from pesticides and other contaminants using invertebrate testing by 2034.
- Reduce spatial coverage of harmful algal blooms, with zero acres of waterbodies in the Delta with densities of 100,000 cells/ml.
- Reduce number of critical pesticides in waters and sediments of the Delta and Suisun Marsh, such that zero Delta Watershed waterbody-pesticide combinations on the 303(d) list by 2034.
- Reduce concentrations and/or loads of bio-stimulatory substances in Delta waters, such that limits and targets identified by the Delta Nutrient Science and Research Program by 2034.
- Various targets for completing study plans, water quality objectives, TMDLs and Basin Plan amendments for specific water quality constituents.

LOCAL

Yuba County 2030 General Plan

One of the of the public health and safety goals of the Yuba County General Plan is to preserve, protect and improve the quality of regional water supplies. Policies included in the General Plan to protect and improve water quality relate to meeting MCLs, monitoring and proactively addressing water quality problems, achieving water quality for beneficial uses, regulation of new developments, remediation of groundwater contamination, and stormwater runoff mitigation strategies (Yuba County 2011).

Yuba County Water Agency Act

Yuba Water was created by the Yuba County Water Agency Act (California Water Code Appendix, Sections 84-1 to 84-28). This act authorizes Yuba Water to develop and promote the beneficial use and regulation of the Yuba River water resources. The act provides for development of water conservation facilities, flood control, hydroelectric power generation, water supply, fisheries protection and enhancement, and related recreation. Yuba Water releases water for power generation at the New Colgate Powerhouse and at the Narrows I and II powerhouses. Hydroelectric power is generated at these locations under Yuba Water's FERC license and eight water right licenses issued by the SWRCB.

3.5.2 Environmental Setting

The following sections describe water quality conditions within the Yuba Region, CVP/SWP Upstream of the Delta Region, the Delta Region, and the Export Service Area. Description of water quality in this SEIR builds upon the information provided in the 2007 EIR, which is incorporated by reference. The major points regarding water quality conditions are briefly provided in this SEIR, and emphasis is placed on new information that has been developed since the 2007 EIR reflecting advancements in the state of knowledge.

The most recent 303(d) list for the Central Valley RWQCB is provided in the 2020-2022 California Integrated Report (SWRCB and CEPA 2022), which was approved by the EPA in 2022. Information on the constituents of concern for listed water bodies, potential sources for each constituent, and proposed TMDL completion dates are presented in Table 3.5-2.

Table 3.5-2 Constituents of Concern for 303(d) Listed Water Bodies in the Study Area

Name	Constituent	Potential Sources	Proposed TMDL Completion Year
New Bullards Bar Reservoir	Mercury	Source Unknown	2027
Upper Yuba River	Chromium Mercury	Source Unknown Source Unknown	2027 2021
Englebright Reservoir	Mercury	Source Unknown	2027
Lower Yuba River	Copper Mercury	Source Unknown Source Unknown	2027 2027
Oroville Reservoir	Mercury Polychlorinated biphenyls (PCBs)	Source Unknown Source Unknown	2027 2021
Lower Feather River	Aluminum Chlorpyrifos Group A Pesticides Mercury Dissolved Oxygen PCBs Toxicity	Source Unknown Agriculture Source Unknown Source Unknown Source Unknown Source Unknown Source Unknown	2035 2016 (Approved) 2011 2027 2023 2021 2027

Name	Constituent	Potential Sources	Proposed TMDL Completion Year
Sacramento River (Knights Landing to the Delta)	Chlordane	Source Unknown	2021
	Dichlorodiphenyltrichloroethane (DDT)	Source Unknown	2027
	Dieldrin	Source Unknown	2022
	Mercury	Source Unknown	2012
	PCBs	Source Unknown	2021
	Water Temperature	Source Unknown	2033
	Toxicity	Source Unknown	2027
Delta (northern)	Chlordane	Source Unknown	2029
	Chlorpyrifos	Source Unknown	2007 (Approved)
	DDT	Source Unknown	2011
	Diazinon	Source Unknown	2007 (Approved)
	Dieldrin	Source Unknown	2011
	Group A Pesticides	Source Unknown	2011
	Invasive Species	Source Unknown	2019
	Mercury	Ag. Return Flows, Atmospheric Deposition, Roadway Runoff, Industrial, Municipal & Natural Sources, Resource Extraction, Urban Runoff / Sewers	2011 (Approved)
	PCBs	Source Unknown	2019
	Toxicity	Source Unknown	2027
Delta (western)	Arsenic	Source Unknown	2027
	Chlordane	Source Unknown	2027
	Chlorpyrifos	Agriculture, Urban Runoff / Sewers	2007 (Approved)
	DDT	Source Unknown	2027
	Diazinon	Source Unknown	2007 (Approved)
	Dieldrin	Source Unknown	2027
	Elec. Conductivity	Source Unknown	2027
	Group A Pesticides	Source Unknown	2011
	Invasive Species	Source Unknown	2019
	Mercury	See Sources above for northern Delta	2011 (Approved)
	Polycyclic Aromatic Hydrocarbons	Source Unknown	2027
	PCBs	Source Unknown	2027
	Total DDT	Source Unknown	2035
	Toxicity	Source Unknown	2019
Delta (central)	Chlorpyrifos	Source Unknown	2007 (Approved)
	DDT	Source Unknown	2011
	Diazinon	Source Unknown	2007 (Approved)
	Group A Pesticides	Source Unknown	2011
	Invasive Species	Source Unknown	2019
	Mercury	See Sources above for northern Delta	2011 (Approved)
	Toxicity	Source Unknown	2019
San Luis Reservoir	Chlordane	Source Unknown	2027
	Mercury	Source Unknown	2027
	PCBs	Source Unknown	2027
	pH	Source Unknown	2035
	Total DDT	Source Unknown	2027

Source: SWRCB and CEPA 2022.

Due to the many reservoirs in California that are listed as impaired for mercury, including all four reservoirs in the study area, and the harmful effects of human exposure to contaminated fish, the SWRCB and RWQCBs are developing a statewide water quality control program for mercury in reservoirs. Mercury (inorganic mercury) is toxic in all of its forms, but methylmercury is highly toxic and available to bioaccumulate in fish, birds and humans. Methylmercury is formed from inorganic mercury where sediments are low in oxygen and bacteria are present, such as at the bottom of reservoirs and in wetland habitats.

YUBA REGION

Although gold mining activities have left a legacy of mercury contamination, the Yuba River has excellent water quality by most measures (Yuba County 2011). Yuba Water (2013a) conducted water quality sampling during 2012 in waterbodies within the Yuba Region of the study area and evaluated consistency with applicable Basin Plan water quality objectives and other relevant guidelines and benchmarks, including EPA's California Toxics Rule. Sampling was conducted at locations within New Bullards Bar Reservoir, North Yuba River below New Bullards Bar Reservoir, the upper Yuba River upstream of Englebright Reservoir, Englebright Reservoir and the lower Yuba River. Yuba Water (2013b) concluded that water quality is high, with most analytes reported at non-detect to just above reporting limit concentrations, with no apparent pattern of increasing chemical concentrations from upstream to downstream of impoundments. During Spring of 2012, Yuba Water found no inconsistencies with the Basin Plan water quality objectives except for the Dissolved Oxygen Objective at two locations in New Bullards Bar Reservoir and the Toxicity Objective in Englebright Reservoir (i.e., dissolved copper, silver and nickel concentrations were occasionally greater than California Toxic Rule guidelines. Similarly, during Summer of 2012 Yuba Water found no inconsistencies with the Basin Plan water quality objectives except for the Dissolved Oxygen Objective at three hypolimnion locations and the Toxicity Objective at all six hypolimnion samples (i.e., dissolved copper found at greater than California Toxics Rule guidelines). No inconsistencies with the Basin Plan were identified during the Fall 2012 sampling (Yuba Water 2013a).

Yuba Water (2017) found that water temperatures in both New Bullards Bar and Englebright reservoirs exhibited water temperatures that remained below 20°C throughout most of the reservoirs, exceeding this threshold only during the Summer near the surface. Dissolved oxygen concentrations in both reservoirs are consistently above the Basin Plan objective of 7 milligrams per liter (mg/L), with the exception of areas near the bottom of the reservoirs where limited biological activity occurs (Yuba Water 2017). Dissolved oxygen monitoring from 2008-2014 showed that levels in the lower Yuba River at Marysville were greater than the 7 mg/L threshold for cold freshwater habitat (DWR 2017).

In September of 2011, Yuba Water (2012) collected fish of edible size from New Bullards Bar Reservoir to analyze for mercury, selenium, copper, arsenic and silver relative to California Office of Environmental Health Hazard Assessment's (OEHHA) Advisory Tissue Levels (ATLs). Fish species collected and analyzed included Kokanee, rainbow trout and smallmouth bass. Consistent with previous studies in the area, mercury concentrations were greater than OEHHA's ATLs. Due to fish tissue mercury concentrations, the OEHHA has developed advisories for New Bullards Bar Reservoir (OEHHA 2017a), Englebright Reservoir (OEHHA 2009), and for the North Yuba River, upper Yuba River and lower Yuba River (OEHHA 2018). Serving recommendations are identified in the reservoirs for black bass, carp, Kokanee, rainbow trout, and sunfish species, and in the rivers for rainbow trout, Sacramento sucker, black bass and Sacramento pikeminnow.

CVP/SWP UPSTREAM OF THE DELTA REGION

Based on monitoring from 2011-2014, dissolved oxygen in tributary sources to Oroville Reservoir were almost always greater than the 5 mg/L threshold for warm freshwater habitat, and greater than the 7 mg/L threshold for cold freshwater habitat most of the time for most locations (DWR 2017). Monitoring from 2008-2014 in the Feather River at Verona and in the Sacramento River below Knights Landing showed that dissolved oxygen was maintained above 7 mg/L (DWR 2017).

Water chemistry monitoring within tributaries to Oroville Reservoir found that at most stations, at least one collection event was above the California secondary MCLs for aluminum, iron and manganese (DWR 2017). Nearly every collection event at all stations was above the EPA recommended and/or California Toxics Rule fish consumption

criteria for arsenic, and two stations were also above fish consumption criteria for manganese (DWR 2017). Relatively high concentrations of aluminum, iron, manganese and arsenic in the upper Feather River Subregion are reported to most likely be a result of the local geology rather than anthropogenic sources (DWR 2017).

During 2008-2014 in the Feather River at Verona and Sacramento River below Knights Landing, some samples exceeded the drinking water primary MCLs for aluminum, and for secondary MCLs for aluminum, iron and manganese. Every collection event from 2008-2014 exceeded the California Toxics Rule Criteria for Fish Consumption for arsenic in the Feather River at Verona and in the Sacramento River below Knights Landing (DWR 2017). Some samples in the Feather and Sacramento rivers also exceeded the California Toxics Rule criteria for total copper (DWR 2017). Relatively high concentrations of aluminum, arsenic, iron, and manganese are mostly a result of natural weathering of minerals present in the surrounding watershed (DWR 2017). Elevated results for specific conductance, total dissolved solids, and arsenic at some stations in the Sacramento River Watershed could be due to natural sources or the intensive agricultural activities surrounding some of the monitoring stations (DWR 2017).

Due to fish tissue mercury or polychlorinated biphenyls (PCBs) concentrations, the OEHHA has developed advisories for Oroville Reservoir (OEHHA 2013), Thermalito Afterbay (OEHHA 2014), and for the lower Feather River (OEHHA 2022a). Serving recommendations are identified in the reservoirs for sunfish species, common carp, coho salmon, black bass, catfish species, Sacramento pikeminnow and crayfish, and in the river for American shad, Chinook salmon, steelhead, common carp, hardhead, Sacramento sucker, sunfish species, black bass, catfish species, Sacramento pikeminnow, striped bass, and white sturgeon. Due to fish tissue concentrations of mercury, polybrominated diphenyl ethers (PBDEs) or PCBs, the OEHHA has developed an advisory for the Sacramento River and northern Delta (OEHHA 2022b), including serving suggestions for small baitfish and shrimp, rainbow trout, American shad, bullhead species, Chinook salmon, steelhead, common carp, crappie species, goldfish, hardhead, Sacramento sucker, sunfish species, black bass, catfish species, Sacramento pikeminnow, striped bass and white sturgeon.

DELTA REGION

The San Francisco Bay/Sacramento-San Joaquin River Delta Estuary (Estuary) is the largest intact estuary on the west coast of the United States. The upstream portion of this Estuary, the Sacramento-San Joaquin Delta, is a triangular area comprising 700 miles of sloughs, waterways, and islands located near the confluence of the Sacramento and San Joaquin rivers (Water Education Foundation 2016). The legal Delta covers a surface area of about 75 square miles, and is bordered by the cities of Sacramento, Stockton, Tracy, and Pittsburg. The Delta has been reclaimed into more than 60 islands and tracts, interlaced with about 700 miles of waterways. About 520,000 acres are devoted to farming. An approximate 1,100-mile network of levees protects the reclaimed land, most of which lies near or below sea level, from flooding. Due to land subsidence from agricultural activities much of the central Delta is below sea level, with some islands 12 to 15 feet below sea level (DSC 2018). Water flowing into the Delta is used for urban and agricultural use, recreation, navigation, and fisheries and wildlife habitat.

The existing water quality constituents of concern in the Delta can be categorized broadly as salinity, metals, pesticides, nutrient enrichment and associated eutrophication, constituents associated with suspended sediments and turbidity, bromide, and organic carbon. Delta water quality is broadly affected by point and non-point sources and tributary inflow rates from the Sacramento River, San Joaquin River and eastside tributaries (i.e., Cosumnes, Mokelumne and Calaveras rivers) and the tides. Water quality in the Delta is governed in part by Delta hydrodynamics, which are highly complex. Water movement in the Delta responds to four primary forcing mechanisms: (1) freshwater inflows from the Sacramento River, San Joaquin River and eastside tributaries; (2) tidal movement of brackish water into and out of the Delta; (3) Delta exports and diversions in the south Delta; and (4) operation of water control facilities such as flow barriers.

The Sacramento River is the dominant source of freshwater inflow to the Delta, contributing about 74 percent of total inflow, followed by the San Joaquin River (14 percent), Yolo Bypass (8 percent) and the eastside tributaries (4 percent) (DSC 2018). In addition to freshwater inflows, the tidal flows that move through the combined Sacramento and San Joaquin rivers at Chipps Island can have a substantial influence on Delta hydraulics. For example, tidal flows can be as high as 16,000 cubic feet per second (cfs) in Old River in the central Delta, and at a daily average flow of 15,000 cfs in

the Sacramento River at Freeport, instantaneous flows can vary by 4,000 – 10,000 cfs due to tidal flows (DWR 2022). Water export operations at the south Delta CVP and SWP intakes also influence Delta hydraulics and can slow or reverse the direction of flow in the south Delta. Flows moving downstream toward the western Delta are considered positive flows, and flows moving upstream toward the San Joaquin River at Vernalis are considered reverse or negative flows – the waterways most affected by reverse flows due to export operations are Old and Middle rivers. Localized hydraulics and water quality in the south Delta are also modified by DWR's Temporary Barriers Project, which install and operate several flow control barriers in south Delta waterways to allow in-Delta agricultural diversions during the irrigation season. Additional seasonal barrier installations (e.g., Head of Old River barrier) and channel gate closures (e.g., Delta Cross Channel gates) have been operated to increase survival of emigrating juvenile salmonids that can also alter hydraulics in the south Delta and north Delta.

In addition to flow-related and upstream water quality conditions, water quality in the Delta also is affected by in-Delta land use, dredging, the levee system, and point and non-point pollutant inputs within the Delta (DSC 2018). Tidal and salinity behavior within the Delta also generate secondary currents, which also influence the transportation of contaminants and mixing of different water sources. Future climate change could exacerbate water quality conditions in the Delta due to increases in saltwater intrusion associated with sea level rise, increased air and water temperatures, which could alter precipitation patterns that affect seasonal pollutant concentrations and direct effects on aquatic life and algae blooms (DSC 2018). Important water quality conditions in the Delta, categorized by salinity, drinking water quality and environmental water quality are summarized below.

Salinity

Over the past 150 years, the Delta's freshwater-saltwater gradient has shifted due to landscape modification, water management infrastructure, channel dredging and climate change. Salinity is generally considered to be the most important water quality variable in the Delta due to its effects on both the aquatic ecosystem and agricultural and municipal water uses. The northern Delta is dominated by the waters of the Sacramento River, which are of relatively low salinity, whereas the relatively higher salinity waters of the San Joaquin River dominate the southern Delta. The location, extent and dynamics of the freshwater-saltwater interface is an important determinant of the distribution and abundance of many fish, invertebrate and plant species, which is typically controlled by the amount of freshwater flowing from the Delta west to Suisun Bay (DSC 2018). The low salinity zone (LSZ) of the Bay-Delta is typically the area with salinity ranging from freshwater up to about 5 ppt, and the location of X2 (i.e., the distance in km upstream from the Golden Gate Bridge where tidally-averaged salinity at 1 meter from the bottom is 2 ppt) serves as a key water quality objective to regulate Delta outflow for environmental and drinking water quality. Delta smelt have shown a preference for the LSZ, and the position of X2 has been found to be correlated with the abundance of several estuarine fish and invertebrates such as longfin smelt and bay shrimp (DSC 2018).

Agricultural water use in the Delta is a significant factor in the health of the Delta's economy. The salinity objective for agricultural water use is intended to protect the most sensitive crops based on salinity in southern Delta channels. Water quality for agricultural use in the southern Delta is controlled by a combination of San Joaquin River inflow, export pumping, operation of flow barriers and Delta outflow. Water quality at the SWP and CVP export pumps in the southern Delta, while typically meeting all applicable standards for municipal and agricultural use, is characterized by substantially higher salinity than Sacramento River inflow to the north Delta (DSC 2018).

Impacts of salinity contamination of municipal water supplies can make drinking water unpalatable, can increase corrosion of pipes and equipment, and can contribute to the formation of harmful disinfection byproducts. The existing water quality objectives for the protection of municipal and industrial water uses in the southern Delta, expressed as limits on concentration of chloride, were developed to protect former industrial uses but have been retained because they also protect drinking water quality. Under current operations, municipal and industrial water supplies typically meet all salinity objectives. However, sea level rise, Delta levee failures, and increasing salt form upstream all threaten Delta water supplies. Moving Delta export intakes upstream and away from the influence of saltwater intrusion and San Joaquin River flow, could substantially reduce these water supply threats (DSC 2018).

Drinking Water Quality

Water that moves through the Delta is a critical source of drinking water for over 25 million Californians and is extensively used for contact and non-contact recreational activities. At the current locations of water diversion and export in the south Delta the water sometimes contains elevated concentrations of bromide, organic carbon, nutrients and dissolved solids (salinity). Although these constituents are not harmful to water quality, they can lead to the formation of harmful chemicals during drinking water treatment or contribute to taste, odor or other municipal water supply problems. Because water quality regulations and policies for surface waters did not directly apply to many of the water constituents of concern for drinking water, the Central Valley RWQCB adopted a Basin Plan Amendment in 2013 to establish a Drinking Water Policy for surface waters of the Delta and its upstream tributaries (Central Valley RWQCB 2013). Among other actions, the amendment established a new narrative water quality objective for pathogens (*Cryptosporidium* and *Giardia*) at existing and new public water system intakes, clarified the existing Water Quality Objective for Chemical Constituents to include drinking water chemical constituents (e.g., organic carbon), and included for consideration the monitoring of organic carbon, salinity and nutrients in waste discharge permits. Key issues related to drinking water constituents in the Delta are summarized from DSC (2018) below.

Disinfection Byproducts

Bromide and organic carbon in municipal water supplies can lead to the formation of disinfection byproducts such as trihalomethanes (THMs), haloacetic acids, and bromates during water treatment. These byproducts are carcinogenic and subject to strict public health standards. Elevated levels of bromide and organic carbon make the treatment of Delta water particularly demanding, increasing the cost and complexity of reducing disinfection byproducts. Organic carbon represents an aggregate measure of the amount of a variety of organic compounds in water, typically from decaying plant material. The amount of disinfection byproduct can vary with the type and source or organic carbon, but total organic carbon concentration is generally correlated with disinfection byproduct formation (DSC 2018).

Salinity

Salinity in drinking water sources is typically measured as electrical conductivity or total dissolved solids. High salinity levels can make water unpalatable and increase treatment costs due to corrosion and other factors. The California secondary drinking water standards recommend a maximum level of total dissolved solids to address salinity issues. Bromide, a component of seawater, is a disinfection byproduct precursor that forms THMs and haloacetic acids with chlorine or chloramine disinfection, and forms bromate with ozone disinfection (DSC 2018).

Pathogens

Common pathogens found in surface waters include *Giardia lamblia* and *Cryptosporidium parvum*, which pose health risks for drinking water sources and recreational activities. Although exceeding certain levels of *Cryptosporidium* in source waters triggers additional pathogen removal measures, available data do not demonstrate that such conditions currently exist at Delta municipal water supply intakes. However, pathogen indicators (fecal coliforms) are frequently at levels of concern in urban stormwater runoff (DSC 2018).

Nutrients

Excessive levels of nutrients in municipal water supplies can stimulate algae growth in the Delta (and reservoirs), which can disrupt water treatment processes and cause taste and odor issues in drinking water supplies. Taste and odor complaints have been attributed to algae growth in reservoirs or in the Delta (DWR 2007, cited in DSC 2018).

Environmental Water Quality

As shown in Table 3.5-2, Delta waterways are considered impaired according to water quality criteria for many constituents including salinity, pathogens, pesticides, metals, mercury, nutrients, and invasive species. The 2020-2022 update to the 303(d) list showed a 30-percent net increase of waterbody-contaminant combinations in the Delta and Suisun Marsh since the 2014-2016 update. Pollutants of concern include insecticides, herbicides, mercury, selenium, nutrients, and legacy organic pollutants such as DDT and PCBs. Additional environmental water quality issues in the Delta include water temperature, salinity, turbidity, dissolved oxygen and harmful algal blooms (HABs). Amounts of these constituents that are too high (or in some cases too low) can impair the ability of these waters to support

beneficial uses, such as municipal water supply, recreational use, agricultural water supply, and habitat that supports fish and wildlife populations. An overview of key pollutants of concern in the Delta Region including nutrients, pesticides, mercury, selenium, and emerging contaminants of concern is taken from or summarized from DSC (2018) below.

Nutrients

Plant nutrients of concern are primarily nitrogen and phosphorus compounds including ammonia, ammonium, nitrite, nitrate and phosphate. Changes in the types or ratios of algae can have various effects on the aquatic food web, including growth of toxic algae or algae die-offs that deplete dissolved oxygen. Ammonium concentrations, which have been increasing in the Delta and Suisun Bay (DSC 2013), may be having a substantial impact on phytoplankton composition and open-water food webs due to suppression of diatom blooms in the Bay-Delta (Dugdale et al. 2007). Ratios of nutrients in the Delta have been hypothesized to be a primary driver in the composition of aquatic food webs (Glibert et al. 2011). The emergence of harmful algal blooms (HABs) in the Delta has occurred due to a shift toward greater abundance of cyanobacteria including *Microcystis aeruginosa*, which has become a common component of blooms during the Summer and early Fall months (Lehman et al. 2005; 2008). Nutrient conditions also can affect the productivity of aquatic macrophytes and the structure of the plant community. Two non-native aquatic plants that have become particularly problematic in the Delta include Brazilian waterweed and water hyacinth, although the role of nutrient enrichment in the distribution of these plants is unknown. Due to nutrient enrichment, in combination with reduced turbidity and warming water temperatures, there have been increases in dissolved oxygen depletion in Delta channels associated with the stimulation of plant growth and subsequent death and decay (DSC 2013).

Pesticides

Pesticides include insecticides, herbicides, fungicides and other substances used to control pests. The primary pesticides of concern in the Bay-Delta include the organophosphorus pesticides (e.g., diazinon and chlorpyrifos), pyrethroid insecticides, and the legacy organochlorine pesticides (e.g., DDT, chlordane and dieldrin). These substances are known to have adverse effects on aquatic organisms and in some cases (with organochlorine pesticides), birds and mammals. The Sacramento, San Joaquin and Feather rivers, the Delta and numerous agriculturally-dominated streams in the Central Valley are either listed as impaired or are covered by a TMDL for pesticides. Although agriculture is considered the primary source of pesticide impairment in the Central Valley and Delta, urban sources are also implicated in surface water toxicity. Pyrethroid insecticides, which are common replacements for the organophosphorus pesticides, have been implicated as the primary pesticides causing toxicity in surface water samples throughout California (Anderson et al. 2010).

Aquatic invertebrates are the organisms most affected by chlorpyrifos and diazinon exposure (EPA 2015), but pyrethroids can also affect sediment-dwelling organisms (Werner and Oram 2008; Weston et al. 2004) and cause toxicity to aquatic invertebrates and fish species (Werner and Young 2018). Pesticide mixtures may be impacting pelagic fish species in the Bay-Delta directly, which has been documented for juvenile salmonids (Laetz et al. 2009) or due to sublethal effects on contaminants on prey organisms (Baxter et al. 2010).

Mercury

Mercury is present throughout the Central Valley and Bay-Delta due to historical mercury mining in California's Coast Ranges and due to mercury use during gold mining in the Sierra Nevada over a century ago. A mercury TMDL was adopted by the San Francisco Bay RWQCB in 2006 and the Delta methylmercury TMDL was adopted by the Central Valley RWQCB in 2011. Methylmercury, initially present at very low concentrations, enters the aquatic food web and can accumulate to levels of concern in longer living predatory fish species in the Delta such as striped bass and largemouth bass. Because mercury can be abundant in wetland soils, restoration of wetland and floodplain habitats in the Delta has the potential to exacerbate the production of methylmercury. The flooding of wetlands or uplands or increases in fluctuating water surface elevations also could stimulate methylmercury production and transport (DSC 2018).

Due to fish tissue concentrations of mercury or PCBs, the OEHHA has developed an advisory for the Central and South Delta (OEHHA 2022c), including serving suggestions for small baitfish species, bullhead species, American shad, steelhead, sunfish species, black bass species, catfish species, common carp, crappie species, goldfish, Sacramento sucker, striped bass, white sturgeon, and all fish and shellfish from Port of Stockton.

Selenium

Selenium is a naturally-occurring element that is essential at low concentrations for humans and other organisms, but can be toxic to fish and wildlife at elevated concentrations as it has a higher potential to bioaccumulate in zooplankton and benthic invertebrates and subsequently accumulate in top-level predators. Selenium sources are primarily agricultural drainage waters from the western San Joaquin Valley as well as oil refineries, wastewater, runoff, atmospheric deposition and erosion and sediment transport from within the north San Francisco Bay. Selenium has been identified as a potential contributing factor to declines in some fish species, such as white sturgeon, Sacramento splittail and starry flounder (DSC 2018).

Contaminants of Emerging Concern

Contaminants of emerging concern include a broad class of largely unregulated compounds for which there is concern that adverse effects may occur at environmentally significant concentrations, including manufactured chemicals such as flame retardants, pesticides, human and veterinary pharmaceuticals, and personal care product ingredients. The primary sources of manufactured contaminants of concern include effluent from wastewater treatment plants, agricultural fields and stormwater runoff. The SWRCB established a Science Advisory Panel in 2011 to develop recommendations to monitor and address contaminants of emerging concern in aquatic ecosystems (DSC 2018).

EXPORT SERVICE AREA

San Luis Reservoir

San Luis Reservoir is a storage facility south of the Delta, operated jointly by the CVP and SWP. Water is stored during the fall and winter months when Delta pumps can export more water than is needed for scheduled water demands. Similarly, water is released from San Luis Reservoir during spring and summer months when water demands are greater than the project's Delta export capacity. The total storage of San Luis Reservoir is 2,041 thousand acre-feet (TAF), 918 TAF of which is dedicated to the CVP, and 1,123 TAF of which is dedicated to the SWP. San Luis Reservoir receives water from, and releases water to, O'Neil Forebay through the Gianelli Pumping-Generating Plant. The O'Neil Forebay, in turn, receives CVP supplies from the Delta-Mendota Canal via the federal O'Neill Pump-Generating Plant, and SWP supplies from the California Aqueduct.

During recent years HABs (blue-green algae) have been observed in San Luis Reservoir its forebay (O'Neil Forebay) during primarily spring or summer that resulted in advisories that restricted water-contact recreation activities and consumption of shellfish and fish (DWR 2023). Due to fish tissue mercury and PCBs concentrations, the OEHHA has developed an advisory for San Luis Reservoir (OEHHA 2017b), including serving suggestions for tule perch, American shad, striped bass, common carp and black bass species.

3.5.3 Impact Analysis

THRESHOLDS OF SIGNIFICANCE

The thresholds of significance for impacts are based on the environmental checklist in Appendix G to the State CEQA Guidelines, as amended, and were refined to address potential impacts specific to water quality and designated beneficial uses in the study area. The environmental analysis conducted in this SEIR will apply the following significance thresholds to determine whether the potential impacts of the Proposed Extension, relative to Existing Conditions, are within the range of effects that were previously evaluated in the 2007 EIR.

An impact on water quality is considered significant if implementation of the Proposed Extension would do any of the following:

- violate any water quality standards or waste discharge requirements, degrade existing water quality such that beneficial use impairment would be made discernibly worse, or otherwise substantially degrade surface water quality;

- conflict with or obstruct implementation of a water quality control plan;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (1) result in a substantial erosion or siltation on- or off-site; (2) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (3) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (4) impede or redirect flood flows; or
- in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

METHODOLOGY

Potential impacts to surface water quality are considered in the context of whether the Proposed Extension changes the frequency, magnitude, or duration of reservoir storages and water surface elevation fluctuations, flows or water temperatures in a way that substantially affects water quality conditions. Water quality-related analytical considerations for this SEIR are consistent with those that were used in the previously conducted impact assessment for the Yuba Accord (Yuba Water et al. 2007). For example, the potential for impacts is evaluated and presented by resource category for the Yuba Region, the CVP/SWP Upstream of the Delta Region (i.e., Oroville Reservoir, lower Feather River and the lower Sacramento River), the Sacramento-San Joaquin Delta Region, and the CVP/SWP export service area (San Luis Reservoir). Specific water quality-related regional considerations described in the 2007 EIR are identified below.

Analytical Water Quality Considerations by Geographic Region in the 2007 EIR

Yuba Region

- New Bullards Bar Reservoir storage was evaluated to identify potential effects on water quality or adverse effects to designated beneficial uses.
- Lower Yuba River flows and water temperatures were evaluated to identify potential effects on water quality or adverse effects to designated beneficial uses.

CVP/SWP Upstream of the Delta Region

- Oroville Reservoir storage was evaluated to identify potential effects on water quality or adverse effects to designated beneficial uses.
- Lower Feather River flows and water temperatures were evaluated to identify potential effects on water quality or adverse effects to designated beneficial uses.
- Lower Sacramento River flows and water temperatures were evaluated to identify potential effects on water quality or adverse effects to designated beneficial uses.

Sacramento-San Joaquin Delta Region

- X2 location, Delta outflow, Old and Middle River flows, Export/Inflow ratio, salinity, chloride concentrations, and dissolved organic carbon concentrations were evaluated to identify potential effects on water quality or adverse effects to designated beneficial uses in the Delta.

Export Service Area

- San Luis Reservoir storage was evaluated to identify potential effects on water quality or adverse effects to designated beneficial uses.

Geographic Areas Not Evaluated in Detail in the 2007 EIR

During development of the 2007 Draft EIR analyses, certain areas within the Yuba Accord project area were not evaluated in detail because it was determined that they would not be affected by the project. Consistent with the approach taken in the 2007 EIR, this SEIR has eliminated certain areas in the Yuba Region from detailed evaluation based upon the rationale previously provided in the 2007 EIR, which is summarized below.

The 2007 Draft EIR (p. 4-2) explained that the geographic setting for implementation of the Yuba Accord included New Bullards Bar Reservoir, the Yuba River between New Bullards Bar and Englebright reservoirs, and the lower Yuba River downstream of Englebright Dam. However, Englebright Reservoir and the river reaches between New Bullards Bar Dam and Englebright Reservoir were not evaluated in the 2007 EIR for the following reasons.

Englebright Reservoir

As described in the 2007 EIR, Englebright Reservoir seldom drops below 50 TAF, and water surface elevation fluctuations are very limited and rarely exceed about 10 feet (ranging from about 520 feet msl to 530 feet msl) year-round. Transfer water that is released from New Bullards Bar Reservoir generally passes through Englebright Reservoir without modifying Englebright Reservoir elevations (Yuba Water and SWRCB 2001). Consequently, and consistent with the 2007 EIR, hydrologic and associated water quality conditions would not be negatively affected by implementation of the Proposed Extension.

River Reaches Between New Bullards Bar Dam and Englebright Reservoir

These reaches in the upper Yuba River were not included in detailed evaluation in the 2007 EIR in consideration of flows and water temperatures. The 2007 EIR concluded that under the Yuba Accord, upper Yuba River flows in the reaches upstream of Englebright Reservoir would have been somewhat lower during February, March, July and August, and somewhat higher during April, June, and September through November (2007 Draft EIR p. 100-148 of Appendix F4, Scenario 3 v 1). However, flow reductions typically occurred during relatively higher flow conditions relative to the year-round flow range, and flow increases typically occurred when flows were relatively lower, including during critical water year types. Therefore, flow conditions would not have adversely impacted water quality conditions, existing impairments, or beneficial uses in the upper Yuba River above Englebright Reservoir. Based on monthly mean modeled water temperatures in the lower Yuba River at Smartsville (2007 Draft EIR, p. 174 of Appendix F4, Scenario 3 v 1), implementation of the Yuba Accord resulted in average water temperatures at Smartsville at or below 56^0F during all months of the year. Given that water temperatures in the upper Yuba River below New Colgate Powerhouse are equal to or less than those at Smartsville, it was reasonable to conclude that they would have remained thermally suitable for beneficial uses, including for coldwater fish species.

Summary Characterization of Surface Water Quality Impact Determinations in the 2007 EIR

The 2007 EIR analyzed the impacts of the Yuba Accord, including the Water Transfer Program, and made the following conclusions regarding the Yuba Accord's impacts to surface water quality:

Yuba Region

- Less-than-significant impact to water quality in New Bullards Bar Reservoir associated with changes in storage.
- Less-than-significant impacts to water quality associated with changes in flows and water temperatures in the lower Yuba River.

CVP/SWP Upstream of the Delta Region

- Less-than-significant impact to water quality in Oroville Reservoir associated with changes in storage.
- Less-than-significant impacts to water quality associated with changes in flows and water temperatures in the lower Feather River.
- Less-than-significant impacts to water quality associated with changes in flows and water temperatures in the lower Sacramento River.

Sacramento-San Joaquin Delta Region

- Less-than-significant impacts to Delta water quality associated with changes in X2 location, Delta outflow, Export/Inflow ratio, Old and Middle River flows, salinity, chloride concentrations, and dissolved organic carbon concentrations.

CVP/SWP Export Service Area

- Less-than-significant impact to water quality in San Luis Reservoir associated with changes in storage.

In recognition of the impact conclusions described above, YRDP operations conforming with the Yuba Accord were initially implemented during 2006, and the Yuba Accord was codified during 2008 in SWRCB Corrected Order WR-2008-0014. For this SEIR, the Existing Condition includes continued implementation of the Yuba Accord, including the Water Transfer Program.

Supplemental EIR Fisheries Analytical Approach

As described in Section 3.2, "Surface Water Supply and Management," the Proposed Extension evaluated in this SEIR is the continuation of the Water Transfer Program, which is currently being implemented and is reflected in the modeling of existing environmental conditions. The Proposed Extension, relative to the existing condition, will be analyzed within the context of the evaluations and conclusions presented in the 2007 EIR (described above), and in consideration of changed regulatory conditions and existing water quality beneficial uses and impairments and in the study area.

IMPACT ANALYSIS

Impact 3.5-1: Violate any water quality standards or waste discharge requirements, degrade existing water quality such that beneficial use impairment would be made discernibly worse, or otherwise substantially degrade surface water quality.

The Water Transfer Program is a component of the Yuba Accord. The Yuba Accord was approved more than 15 years ago, is being implemented, and is reflected in the existing conditions of the lower Yuba River, the lower Feather River, the lower Sacramento River, the Bay-Delta and the export service area. The Yuba Accord also is included as part of the integrated CVP/SWP operations that were evaluated by the USFWS and NMFS in their respective 2008/2009 and the 2019 BOs for long-term operation of the CVP and the SWP, which also underwent NEPA compliance review (Reclamation 2019, 2020) and CEQA compliance review (DWR 2020). The Proposed Extension is simply a continuation of the existing Water Transfer Program.

Yuba Region

Changes in storage in New Bullards Bar Reservoir were determined to have a less-than-significant impact on water quality under the Yuba Accord (2007 Draft EIR p. 9-111). Because flow differences would have been relatively minor in the upstream reaches under the Yuba Accord, implementation of the Yuba Accord also would not have had water quality-related impacts associated with changes in flow and water temperature in the North Yuba River downstream of New Bullards Bar Dam or in the upper Yuba River. Due to relatively minor changes in flows and water temperatures in the lower Yuba River under the Yuba Accord (2007 Draft EIR p. 9-112 to 9-113), impacts to water quality in the lower Yuba River also were less than significant. None of the regulatory or environmental changes that have occurred since 2007 alter the analysis or conclusions contained in the 2007 EIR regarding potential water quality impacts in the Yuba Region. Nor would the Proposed Extension result in any new or more severe significant impacts to water quality beyond those assessed in the 2007 EIR for the duration of the original Yuba Accord. Extension of the Water Transfer Program will continue to be subject to all applicable federal and state ESA requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies.

Because the Proposed Extension would not involve any changes to Yuba Water's current operation of the YRDP, including flow releases into the lower Yuba River under the Yuba Accord, the Proposed Extension would not change

existing water quality conditions, including beneficial uses and existing impairments. Therefore, potential impacts to water quality in the Yuba Region would remain less than significant.

CVP/SWP Upstream of the Delta Region

Changes in storage in Oroville Reservoir were determined to have a less-than-significant impact on water quality under the Yuba Accord (2007 Draft EIR p. 9-113). Due to minor changes in flows and water temperatures in the lower Feather River under the Yuba Accord (2007 Draft EIR p. 9-114 to 9-115), impacts to water quality also were less than significant in the lower Feather River. Relevant changes in conditions and changes to the Yuba Accord since the 2007 EIR are summarized below.

The Yuba Accord (including the operations that would occur with the Proposed Extension) is integrated into CVP/SWP operations by the SWP releasing less water (relative to releases prior to the Yuba Accord) to meet regulatory requirements downstream of the lower Yuba River and relying instead on Yuba Accord releases to ensure compliance with those requirements. The 2007 EIR assumed that the Yuba Accord would involve a certain amount of this "backing up" of Yuba Accord water into Oroville Reservoir storage (Yuba Water et al. 2007). Since Yuba Water certified the Yuba Accord EIR in 2007, however, new regulatory requirements designed to be more protective of federally listed fish species have resulted in substantial effects to the system-wide integrated operations of the CVP and the SWP throughout the Central Valley of California. These new regulatory requirements have consisted of implementation of Reasonable and Prudent Alternatives (RPAs) described in the 2008 USFWS and 2009 NMFS BOs and subsequently in the 2019 USFWS and NMFS BOs for the long-term operation of the CVP and SWP.

As a result of the 2008/2009 regulatory changes to the CVP and the SWP, the SWP and CVP were not able to take delivery of as much Yuba Accord transfer water as the 2007 EIR had projected. DWR attempted to "back up" additional Yuba Accord transfer water into storage in Oroville Reservoir to the extent possible, but its ability to do so was limited.

In response to these changes, Yuba Water modified the Yuba Accord in 2013 to add the Freeport Regional Water Authority (FRWA) intake as a PORD of Yuba Accord transfer water. The addition of the FRWA intake PORD was intended to enable purchases of Yuba Accord transfer water by back-up buyers in the event that the SWP and CVP had less capacity to take delivery of Yuba Accord transfer water than was originally anticipated in the 2007 EIR. In connection with this change, Yuba Water adopted Addendum No. 1 to the 2007 EIR, which analyzed the new PORD and determined that it would not result in: (1) new significant environmental impacts not analyzed in the 2007 EIR; (2) substantial increases in the severity of significant impacts analyzed in the Final EIR; or (3) any other conditions or circumstances that would require preparation of a subsequent or supplemental EIR under Public Resources Code Section 21166 and CEQA Guideline Section 15162.

An additional regulatory change under the baseline is that the time period for conducting water transfers was expanded from July 1 to September 30 to July 1 to November 30, which could result in additional flow into the Delta and pumping of approximately 50 TAF per year in the Delta during October and November (USFWS 2019; Reclamation 2019). Real-time operations may restrict transfers within the transfer window so that Reclamation and DWR can meet other authorized project purposes (e.g., when pumping capacity is needed for CVP or SWP water) (DWR 2019a). The CVP and SWP also must manage export operations to comply with applicable regulatory requirements, including Delta salinity standards (see Delta Region discussed below). Therefore, the expansion of the transfer window from three months to five months increases the operational flexibility of the CVP and SWP by providing greater opportunity to move non-CVP/SWP water, including Yuba Accord transfer water. Additionally, allowing fall transfers is expected to have water supply benefits and may provide flexibility to improve Sacramento River temperature operations during dry conditions, such as those that occurred during the 2014–2015 drought conditions (Reclamation 2019).

Overall, as described above, ESA BOs that apply to the CVP and the SWP and that were issued after approval of the Yuba Accord have limited those projects' capacity to take delivery of Yuba Accord transfer water. As also discussed above, these limits have caused DWR to "back up" Yuba Accord transfer water into Oroville Reservoir storage. These operations have affected flows in the Feather River below Oroville Reservoir and the Sacramento River below its confluence with the Feather River. However, the operational constraints described in the 2008/2009 USFWS and

NMFS BOs and in the implementation of the most recent 2019 BOs as part of the baseline do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented. Yuba Water's operation of the YRDP, including flow releases into the lower Yuba River, is not governed by the regulatory requirements of the USFWS and NMFS BOs that affect Reclamation and DWR's operation of the CVP and SWP, respectively. The expansion of the water transfer window provides greater flexibility in flow releases from Oroville Reservoir, as well as other system-wide water supply benefits (see above) and would not be expected to substantially alter water quality conditions in the lower Feather or Sacramento rivers relative to those described in the 2007 Draft EIR. In fact, the minor changes in flows and water temperatures previously analyzed in the 2007 Draft EIR could become relatively smaller on a monthly basis given the extended window of water transfer operations. NMFS (2019) stated that the expanded water transfer window may provide benefits such as improving Sacramento River temperature operations or providing for pulse flows in river reaches below dams. Therefore, based on impact analyses in the 2007 Draft EIR, changes in regulatory conditions and existing water quality conditions, the less-than-significant impacts to water quality and designated beneficial uses identified for Oroville Reservoir, the lower Feather River and lower Sacramento River in the 2007 Draft EIR (p. 9-113 to 9-115) would still be applicable.

None of the regulatory or environmental changes that have occurred since the 2007 EIR was certified and the 2013 Addendum was adopted alter the analysis or conclusions contained in those environmental documents regarding potential water quality impacts in the CVP/SWP Upstream of the Delta Region or result in new or exacerbated impacts as a result of the Proposed Extension beyond those assessed in the 2007 EIR and the 2013 Addendum for the duration of the original Yuba Accord.

Because these updated hydrologic conditions represent the environmental existing condition for the purposes of this SEIR, they form the analytical baseline used to evaluate potential hydrologic changes associated with the water transfers that could occur with the Proposed Extension (See CEQA Guideline §15126.2(a)). If the Proposed Extension is approved, it would continue to be subject to all applicable federal and state ESA requirements, including applicable BOs, Incidental Take Permits, water quality control planning, and any other conditions imposed by other regulatory agencies applicable to CVP and SWP operations. Diversions and reservoir operations throughout the CVP/SWP Upstream of the Delta Region would continue as they do under existing conditions.

Relative to existing conditions, the Proposed Extension would not result in changes to storage in Oroville Reservoir, lower Feather River flows and water temperatures, or lower Sacramento River flows and water temperatures. Taking into consideration the expanded July through November transfer window, the range of relatively minor flow and water temperature changes previously identified in the 2007 EIR would not only remain at less than significant levels, but may even be slightly reduced in comparison to those assessed in the 2007 EIR due to attenuation over a longer time period (e.g., 5 months). E Beneficial uses and concentrations of existing water quality impairments (e.g., mercury, pesticides, dissolved oxygen, water temperature) in these geographic areas also would not be affected by the Proposed Extension, relative to existing conditions. Therefore, potential impacts to water quality in the CVP/SWP Upstream of the Delta Region would remain less than significant.

Delta Region

As described in the 2007 EIR, the principal factors affecting Delta hydrodynamic conditions are: (1) river inflows from the San Joaquin and Sacramento River systems; (2) daily tidal inflows and outflows through the San Francisco Bay; and (3) export pumping from the south Delta through the Banks Pumping and Jones Pumping Plants. Because tidal inflows are approximately equivalent to tidal outflows during each daily tidal cycle, tributary inflows and export pumping are the principal variables that define the range of hydrodynamic conditions in the Delta.

Previous hydrologic modeling conducted for the 2007 Draft EIR (see p. 1103 – 1139 of Appendix F4 (Scenario 3 v 1)) determined that monthly mean Delta inflow would not change significantly as a result of the Yuba Accord. The 2007 Draft EIR (see p. 1140 – 1237 in Appendix F4 [Scenario 3 v 1]) also demonstrated that, due to minor differences in Delta inflow and Delta exports, changes in Delta outflow and associated Delta salinity conditions also were typically essentially equivalent under the Yuba Accord. Similar results of Delta conditions were demonstrated in Yuba Water's analysis of the FRWA PORD (see modeling results for the "Accord + EBMUD (2015 Delta)" scenario relative to the "Accord (2015 Delta)" scenario in Addendum #4 (p. 20 of the Tech Memo attached to Yuba Water 2016) to the 2007

EIR. Given that only minor changes in Delta hydrologic conditions were detected in the previous modeling analyses conducted for both the Yuba Accord (2007 EIR) and Addendum No. 1 (Yuba Water 2014), changes to drinking water and environmental water quality constituents of concern also were determined to be minimal. Based upon the modeled results, the 2007 Draft EIR (see p. 9-115 9-141) concluded that there would be less-than-significant impacts on all indicators of water quality in the Delta. Changes in conditions affecting the Delta since the 2007 Draft EIR are summarized below.

As described above, since the USFWS and NMFS operations criteria and plan BOs were issued in 2019, respectively, the CVP and the SWP have been operating according to many of the provisions specified in the USFWS and NMFS 2008 RPAs, including actions that affect Delta hydrology and water quality. Additionally, CVP/SWP operations must comply with D-1641, which implements the Bay-Delta Plan and assigns to the CVP and the SWP the responsibility for meeting flow and water quality objectives, including Delta salinity standards (DWR 2019b). The CVP and SWP export water to serve their water supply contractors south and west of the Delta at the SWP Banks Pumping Plant and the CVP Jones Pumping Plant. These exports alter flow patterns in Delta channels and at times induce more saline ocean water to enter the Delta from the Bay (DWR 2019b). If the CVP and SWP were to export all transfer water south of the Delta that third parties make available, then there may be incremental impacts to Delta water quality due to increased disruption to natural flow conditions. To mitigate the potential for increased salinity, an additional water quantity is required to carry a unit of water across the Delta to the CVP/SWP export facilities to maintain a constant salinity level at a given location or provide the additional outflow needed to offset the degradation to water quality as a result from the increased exports for transfers (DWR 2019b). Thus, water transfers are associated with 'carriage water' which are (relatively) small quantities of freshwater in addition to the transfer amount that are delivered to the Delta to help ensure that salinity standards continue to be met as the water is moved through the system.

In practice, carriage water is assessed by dedicating a portion of the transfer water as Delta outflow to keep Delta salinity at the same level as it would have been in the baseline (or without-transfer) conditions. Thus, carriage water is the additional water needed for Delta outflow to compensate for the additional exports made on behalf of a transfer to assure compliance with the water quality requirements of the SWP and CVP. Carriage water is expressed as a percentage of the amount of transfer water. For example, if a transferor provides 100 AF as Delta inflow from the Sacramento River at Freeport, and 30 AF is needed to offset the incremental increase in Delta salinity, then the remaining 70 AF of the transfer water is available for export. The assessment of carriage water would be 30 percent. In other words, 30 percent of the transfer would be used to maintain Delta salinity conditions as it would have been absent the 100-AF transfer (DWR 2019b).

In their evaluation of effects to delta smelt, USFWS (2019) indicated that the export of transfer water during the extended window through November would not lower Delta outflow or change the location of X2. In general, impacts from the extended water transfer window include additional flows in Central Valley waterways and increased export levels over current operating conditions in October and November due to diverting transfer water when no additional pumping would have occurred without such transfers being made (i.e., the available capacity) (NMFS 2019). NMFS (2019) also reaffirmed that maximum water transfer volumes remain the same as under current operations, and that water transfers include north to south transfers. The expansion of the water transfer window would provide greater flexibility in flow releases into the Delta and could result in water transfers (e.g., Yuba Accord) through the Delta occurring over a longer time period which could represent even smaller differences in flows on a monthly basis relative to those evaluated in the 2007 Draft EIR. Therefore, based on impact analyses in the 2007 Draft EIR, changes in regulatory conditions and existing water quality conditions, and Yuba Water's ongoing commitment to use carriage water to maintain salinity and chloride concentrations in the Delta (see Chapter 2 of this SEIR and Mitigation Measure 9-1 of the 2007 EIR), the less-than-significant impacts to water quality and designated beneficial uses identified for the Delta Region in the Draft EIR (p. 9-115 to 9-141) would still be applicable.

Overall, in the Delta Region, the changes in Delta operations that have occurred as a result of the 2008/2009 USFWS and NMFS BOs and the most recent 2019 BOs implementation are part of the baseline and do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension. As previously discussed, Yuba Water's operation of the YRDP, including flow releases into the lower Yuba River, is not governed by the regulatory requirements of the

USFWS and NMFS BOs that affect Reclamation and DWR's operation of the CVP and the SWP, respectively. Extension of the Water Transfer Program will be subject to all applicable federal and California Endangered Species Act requirements, including applicable BOs, Incidental Take Permits, water quality control planning, court orders, and any other conditions imposed by other regulatory agencies applicable to diversions and exports of water in the Delta Region. Beneficial uses and concentrations of existing water quality impairments (e.g., pesticides, metals, salinity, PCBs, invasive species) in the Delta would not be substantially affected by the Proposed Extension. Therefore, potential impacts to water quality in the Delta Region would remain less than significant.

CVP/SWP Export Service Area

San Luis Reservoir storage was essentially equivalent or very similar under the Yuba Accord in the 2007 Draft EIR, resulting in less-than-significant impacts to water quality conditions (p. 9-140 to 9-141). Based on the impact analysis in the 2007 Draft EIR, changes in regulatory conditions and existing water quality conditions, the less-than-significant impacts to water quality and designated beneficial uses identified for the San Luis Reservoir in the Draft EIR would still be applicable.

Overall, in the CVP/SWP Export Service Area, the changes in Delta operations that have occurred as a result of the 2008/2009 USFWS and NMFS BOs and the most recent 2019 BOs implementation under the baseline do not involve any changed circumstances that would alter the manner in which the Yuba Accord would be implemented or result in new or exacerbated impacts as a result of the Proposed Extension. Extension of the Water Transfer Program will be subject to all applicable federal and California Endangered Species Act requirements, including applicable BOs, Incidental Take Permits, water quality control planning, court orders, and any other conditions imposed by other regulatory agencies applicable to operations of San Luis Reservoir. Therefore, existing beneficial uses and concentrations of existing water quality impairments (e.g., pesticides, mercury, PCBs, pH, total DDT) in San Luis Reservoir would not be substantially affected by the Proposed Extension. Therefore, the Proposed Extension would not violate water quality standards, substantially degrade water quality beneficial uses or exacerbate existing impairments, or otherwise substantially degrade water quality in the CVP/SWP Export Service Area. Therefore, potential impacts to water quality in the CVP/SWP Export Service Area would remain less than significant.

Conclusion

Overall, based on evaluation of impacts to water quality standards, beneficial uses, and existing impairments in the Yuba Region, CVP/SWP Upstream of the Delta Region, Delta Region and CVP/SWP Export Service Area, potential impacts to water quality under the Proposed Extension would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-2: Conflict with or obstruct implementation of a water quality control plan.

As described above under Impact 3.5-1, in consideration of the 2007 Draft EIR impact analyses, changed regulatory conditions, and existing beneficial uses and impairments designated by water quality control plans in the study area, the Proposed Extension would result in less-than-significant impacts to water quality conditions. Therefore, because the Proposed Extension would not exacerbate existing impairments or conflict with existing water quality control plans, this impact would be **less than significant** in all regions of the study area.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces.

The Proposed Extension is a continuation of the existing Water Transfer Program of the Yuba Accord. No new facilities or impervious surfaces would be constructed or operated as part of the Proposed Extension. Therefore, impacts to existing drainage patterns would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact 3.5-4: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

The Proposed Extension is a continuation of the existing Water Transfer Program. The Proposed Extension would not construct new facilities in a flood hazard, tsunami, or seiche zone. Therefore, the Proposed Extension would not introduce the risk of releasing pollutants from project inundation in a flood hazard, tsunami, or seiche zone, resulting in a **less-than-significant** impact.

Mitigation Measures

No mitigation is required for this impact.

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4 CUMULATIVE IMPACTS

4.1 INTRODUCTION TO THE CUMULATIVE ANALYSIS

This Draft SEIR provides an analysis of cumulative impacts of the Proposed Extension taken together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such projects would be cumulatively significant; and second, to determine whether the incremental contribution to any such cumulatively significant impacts by the project would be "cumulatively considerable" (and thus significant). (See State CEQA Guidelines Sections 15130[a]–[b], Section 15355[b], Section 15064[h], and Section 15065[c]; and *Communities for a Better Environment v. California Resources Agency* [2002] 103 Cal. App. 4th 98, 120.) In other words, the required analysis intends first to create a broad context in which to assess cumulative impacts, viewed on a geographic scale beyond the project site itself, and then to determine whether the project's incremental contribution to any significant cumulative impacts from all projects is itself significant (i.e., "cumulatively considerable").

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Consistent with State CEQA Guidelines Section 15130, the discussion of cumulative impacts in this Draft SEIR focuses on significant and potentially significant cumulative impacts. Section 15130(b) of the State CEQA Guidelines provides, in part, the following:

> [t]he discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

This chapter analyzes potentially significant impacts that could result from the Proposed Extension, in combination with related past, present, and future projects. The Proposed Extension would have a significant impact if: (1) a significant cumulative impact exists or would occur, and (2) the incremental contribution of the Proposed Extension to such an impact would be cumulatively considerable.

4.2 CUMULATIVE CONTEXT AND APPROACH

4.2.1 Geographic Scope

The geographic area that could be affected by the Proposed Extension and is appropriate for a cumulative impact analysis includes the Yuba River Watershed, and the streams, water bodies, groundwater basins, and facilities that could be affected by changes in Yuba River outflow to the Feather River (see Figures 2-1, 2-2, and 2-3 in Chapter 2, "Description of the Proposed Project"). Additionally, the geographic area for cumulative impacts related to transfer water includes the Bay area, the Delta , and the export service areas that could receive transfer water. This includes:

- New Bullards Bar Reservoir;
- North Yuba River and Yuba River downstream of New Bullards Bar Dam, including Englebright Reservoir, to the confluence with the Feather River;

- North Yuba and South Yuba Groundwater Subbasins (Yuba Subbasins) of the Sacramento Valley Groundwater Basin;
- Sacramento River downstream of its confluence with the Feather River;
- water bodies and facilities identified as part of the Central Valley Project (CVP)/State Water Project (SWP) upstream of the Delta region, including the SWP Oroville-Thermalito Complex and the Feather River downstream of Oroville Reservoir;
- waterways, including sloughs and channels, and CVP/SWP facilities in the Delta, including the Cross Channel Gates, temporary barriers, etc.;
- water bodies and facilities identified as part of the CVP/SWP downstream of the Delta region, including Clifton Court Forebay, John E. Skinner Delta Fish Protective Facility (Skinner Fish Facility), Banks Pumping Plant, Delta Cross Channel, Jones Pumping Plant and associated fish collection facility; and
- export service areas and facilities, including the Contra Costa Water District (CCWD), East Bay Municipal Utilities District (EBMUD), SWP Contractors, CVP Contractors, and Exchange Contractors service areas, Freeport Intake, Mokelumne Aqueduct, Rock Slough Intake, North Bay Aqueduct, Contra Costa Canal, Bethany Reservoir, South Bay Aqueduct, Delta-Mendota Canal, San Luis Reservoir, O'Neil Forebay, Gianelli Pumping-Generating Plant, and California Aqueduct.

4.2.2 Related Projects

Section 15130(b)(1) of the State CEQA Guidelines identifies two approaches to analyzing cumulative impacts. The first is a summary approach (also known as the "plan" approach), wherein the relevant projections, as contained in an adopted planning document that evaluates regional or area-wide conditions, are summarized. The second is the "list" approach, by which a defined set of past, present, and reasonably anticipated future projects producing related or cumulative impacts is considered for analysis.

The cumulative analysis in this Draft SEIR uses the "list" approach. Table 4-1 shows known past, present, and reasonably foreseeable future projects that may affect similar environmental resources as the Proposed Extension, the impacts of which may combine with impacts from the Proposed Extension to cause cumulative impacts. The table is organized by geographic region and includes the name of the project, the project status (i.e., past, present, or future), lead agency(ies), and summary descriptions of the scope of the project. The projects listed in Table 4-1 serve as the foundational information for conducting the cumulative impact assessments for the resources addressed in the Draft SEIR.

Not all of the projects included in Table 4-1 are considered for the cumulative assessment of each resource topic analyzed in the Draft SEIR. For each resource topic, the geographic and temporal context for cumulative analysis was considered, and the list of projects in Table 4-1 was screened against these contexts to identify only those projects that have the potential to combine with impacts from the Proposed Extension to cause a cumulative impact.

The only resource areas determined to be potentially affected by the proposed project are Surface Water Supply and Management, Groundwater Resources, Fisheries and Aquatic Resources, and Surface Water Quality. The Proposed Extension is not anticipated to have significant impacts on other resources topics (see Section 3.1.3, "Effects Found Not to Be Significant"). Thus, the cumulative impacts analysis in this Draft SEIR is limited to the potential of the Proposed Extension to contribute to potentially significant cumulative impacts related to the topics of surface water supply and management, groundwater resources, and fisheries and aquatic resources.

Table 4-1 Cumulative Project List

Project	Status	Primary Agencies	Description
Yuba Region (i.e., Yuba River)			
Yuba River Development Project (YRDP) Federal Energy Regulatory Commission (FERC) Project No. 2246 Relicensing	Present	Yuba Water, FERC	Yuba Water owns and operates the multipurpose YRDP under FERC License No. 2246. The YRDP includes three developments located on the main stem of the Yuba River; Middle Yuba River; North Yuba River; and Oregon Creek, a tributary to the Middle Yuba River, in Yuba, Sierra, and Nevada Counties, California. In addition to various recreational facilities and appurtenant facilities, the project's three developments include: (1) the New Colgate Development located on the North Yuba River, Middle Yuba River, Yuba River, and Oregon Creek; (2) the New Bullards Bar Minimum Flow Development, located on the North Yuba River; and (3) the Narrows 2 Development, located on the lower Yuba River. New Bullards Bar Reservoir has a capacity of 969,600 AF. In general, Yuba Water proposes to continue to operate the YRDP essentially as it has since 2006 when it started test flows associated with the Yuba Accord. Yuba Water started the FERC application process in 2010 and applied for a new license in 2014, which was amended by the Amended Final License Application (AFLA) subsequently filed with FERC in 2017. The FERC license application filed by Yuba Water would allow for continued operation of the YRDP for 30 to 50 years. FERC License No. 2246 expired in 2016. Following expiration of the original license, and pending completion of the relicensing process, FERC began issuing annual, interim licenses to Yuba Water in 2016. In 2021, FERC announced its intent to prepare a Supplemental EIS and Yuba Water is currently preparing a CEQA supplement to FERC's EIS in accordance with CEQA Guidelines Section 15221. Following completion of the NEPA process, FERC and National Marine Fisheries Service (NMFS) will initiate ESA Section 7 consultation. NMFS (2020) has indicated that it intends to conduct one ESA consultation for the five hydroelectric projects[1] located within the Yuba River Watershed that are under FERC's regulatory jurisdiction. In consideration of the time that it will take FERC and NMFS to complete the ESA process, it will likely be several years before FERC is ready to issue a new license to Yuba Water for the YRDP. Yuba Water is awaiting the FERC license renewal.
Yuba-Bear Hydroelectric Project (FERC No. 2266), Upper Drum-Spaulding Hydroelectric Projects (FERC No. 2310) and the Lower Drum Hydroelectric Project (FERC No. 14531) Relicensing	Present	FERC, Nevada Irrigation District, Pacific Gas and Electric Company (PG&E)	The Nevada Irrigation District (NID) is applying for a new license for the Yuba-Bear Project (FERC Project No. 2266), and PG&E is applying for the Drum-Spaulding Project (FERC Project Nos. 2310 and 14531). The Yuba-Bear Project is located on the Middle and South Yuba rivers, Bear River, and Jackson and Canyon creeks. Concurrently, PG&E is applying for a license renewal for the Drum-Spaulding Project. The Upper Drum-Spaulding Project is located in Nevada and Placer counties, and consists of 24 dams and reservoirs, 7 powerhouses, 4 overhead transmission lines, 1 diversion dam, and various water conduits, recreation facilities, and other associated facilities and structures. The Upper Drum-Spaulding Hydroelectric Project's dams are located on the South Yuba River, Bear River, Fordyce Creek, North Fork of the North Fork American River, and associated tributaries. The Lower Drum Project facilities are in Placer County and consist of 5 dams and reservoirs, 4 powerhouses, and various water conduits, recreation facilities, and other associated facilities and structures. The Lower Drum Project dams are located on the Bear River, Dry

[1] YRDP (FERC No. P-2246), Upper Drum-Spaulding (FERC No. P-2310), Lower Drum (FERC No. P-14531), Yuba-Bear (FERC No. P-2266), and Deer Creek (FERC No. P-14530) Hydroelectric Projects.

Project	Status	Primary Agencies	Description
			Creek, Rock Creek, Auburn Ravine, Mormon Ravine, and associated tributaries. PG&E closely coordinates the operations of the Drum-Spaulding Project with NID's Yuba-Bear Project. The two projects overlap in part in the Yuba River and Bear River basins, and many of the facilities are hydraulically interconnected, including facilities that are used to meet water supply demands in Nevada and Placer counties. The FERC relicensing processes for these two projects is underway. Final Water Quality Certification was issued by SWRCB in 2021. NID and PG&E are awaiting the FERC license renewal.
Narrows Hydroelectric Project (FERC No. 1403) Relicensing	Present	Yuba Water, FERC	Yuba Water owns and operates the Narrows Hydroelectric Project under FERC License No. 1403. Located on the south bank of the lower Yuba River immediately downstream of Englebright Dam and Reservoir, the Narrows Project consists of one development that include: (1) the Narrows Tunnel, a 1,077-ft-long tunnel that connects a USACE tunnel to the Narrows Project's penstock; (2) the Narrows Penstock, a 266-ft-long steel pipe penstock with a standpipe that connects the Narrows Tunnel to the Narrows 1 Powerhouse; (3) the Narrows 1 Powerhouse (12 MW); and (4) a powerhouse access tram. The Project does not include Englebright Dam and Reservoir or any open water conveyance facilities, switchyards, transmission lines, roads, streamflow gages, recreation facilities, or active borrow or spoil areas. Yuba Water is not proposing any operational or structural modifications to the project. The Narrows 1 Powerhouse is operated in conjunction with the Narrows 2 Powerhouse and/or the Narrows 2 Full Bypass on the lower Yuba River. Yuba Water filed its Final Application for a New License Major Project – Existing Dam for the Narrows Project on November 14, 2023. Yuba Water is requesting a new license term that would end concurrent with the term of the new license that FERC issues for Yuba Water's YRDP (FERC Project No. 2246) (Yuba Water 2023). Although Yuba Water is not proposing changes to the Narrows 1 Project, it is in the public interest, and consistent with FERC's 2017 Policy Statement (82 FR 49501) on establishing license terms to relicense the two projects at the same time in the future. Yuba Water is awaiting the FERC license renewal.
Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan (GSP) Implementation	Present	Yuba Water, Cordua Irrigation District (CID), City of Marysville	In 2014, the State of California enacted the Sustainable Groundwater Management Act (SGMA) to provide local and regional agencies the authority to sustainably manage groundwater. SGMA required the preparation of a Groundwater Sustainability Plan (GSP) for medium- or high-priority basins/subbasins to reach sustainability within 20 years of implementing their sustainability plans. DWR, which oversees SGMA, approved the GSP for the North and South Yuba groundwater subbasins in 2021. Sustainable groundwater management criteria were developed with measurable objectives that allow for changes in the subbasin to the extent they are not significant and unreasonable. The components of the GSP are focused on the four sustainability indicators defined through SGMA that are relevant to the Yuba Subbasin, including: (1) chronic lowering of groundwater levels; (2) depletion of interconnected surface water; (3) significant and unreasonable degraded water quality; and (4) significant and unreasonable land subsidence. The GSP concluded that because the Yuba Subbasins are sustainable under historical, current, and projected conditions (including incorporating the effects of climate change), no projects or management actions are required to achieve sustainability. However, even with the existing sustainable conditions, the GSP includes projects and management actions to assist in enhancing management capability and improve the understanding of the groundwater system. Further, an adaptive management approach was developed to allow for response to unanticipated conditions. (Yuba Water 2019)

Project	Status	Primary Agencies	Description
Yuba County Integrated Regional Water Management Plan (IRWMP) Implementation	Present	Yuba County, Yuba Water, Regional Water Management Group (RWMG)	In 2002, the State Legislature passed the Integrated Regional Water Management (IRWM) Planning Act (SB 1672) to encourage local entities to improve water quality and water supply reliability to meet the state's agricultural, domestic, industrial and environmental water needs. The Yuba County IRWM region encompasses Yuba County and extends from the Sierra Nevada foothills to the confluence of the lower Yuba River and the Feather River near Marysville. The Yuba County IRWMP was initially developed and adopted by 12 agencies in Yuba County in 2008. The IRWMP was updated in 2015 and again in 2018. The 2018 Update identifies seven goals: ▶ Ensure adequate and reliable water supply that meets the diverse needs of the region ▶ Protect, restore, and enhance water quality for water users and in support of healthy watersheds ▶ Preserve and restore watershed health and promote environmental stewardship ▶ Enhance regional economic development ▶ Support efforts to improve public safety ▶ Address climate vulnerabilities and reduce greenhouse gas emissions ▶ Promote equitable distribution of resources to disadvantaged communities and Tribes across the region. The Yuba County IRWMP has developed objectives that include both quantitative or qualitative measures, as required by DWR's guidelines. The RWMG is responsible for evaluating IRWMP implementation actions and performance (YCRWMG 2018).
Hallwood Side Channel and Floodplain Restoration Project	Present	Yuba Water, Yuba County, USFWS, South Yuba River Citizens League (SYRCL), California Natural Resources Agency Wildlife Conservation Board, Teichert, Western Aggregates	The Hallwood Project is designed to enhance habitat in the lower Yuba River by increasing the extent and duration during which juvenile Chinook salmon and steelhead are able to access the floodplain over a range of flows, as well as create and enhance perennial and seasonal side channel habitat. Project improvements have enhanced up to 157 acres of seasonally inundated riparian floodplain, approximately 1.7 miles of perennial side channels, and approximately 6.1 miles of seasonally inundated side channels, alcoves, and swales. Enhancements were made through land surface changes (e.g., removal of the Middle Training Wall), riparian planting, and placement of large woody material embedded to simulate a more natural river channel at key locations. The project also reduces flood risk by improving the lower Yuba River's ability to withstand floods. About 3.2 million cubic yards of sediment were removed throughout the project area, reducing flood risk for local communities by lowering water surface elevations during large storms. Project construction was completed in November 2023.
Wheatland Water District In-Lieu Recharge Project	Present	Wheatland Water District and Yuba Water	The Wheatland Project was implemented in the mid 2000's with the construction of canals and pumping stations to deliver surface water to WWD. The project was a Proposition 13 Conjunctive Use Storage Project, with 50% of the cost of construction funded through a Proposition 13 grant. This project was funded to improve basin storage in the area, providing greater conjunctive use opportunities and increasing the volume of GWS transfers from the Yuba Subbasins. The Wheatland Project is described in Appendix B and Section 3.3, "Groundwater Resources."

Project	Status	Primary Agencies	Description
New Bullards Bar Dam Atmospheric River Control (ARC) Spillway Project	Future	Yuba Water	Yuba Water proposes to construct, operate, and maintain a second spillway (i.e., the ARC Spillway) at New Bullards Bar Dam. The ARC Spillway Project would be operated conjunctively with the existing Primary Spillway at the dam to efficiently release flows downstream, including earlier passage of flows during large storm events. The existing concrete dam and Primary Spillway would not be altered by the ARC Spillway Project. Flood control in the Yuba River is mainly provided by 170,000 AF of seasonally dedicated storage in New Bullards Bar Reservoir. Yuba Water provides overall reservoir operations although USACE flood management operations are directed through its *1959 Master Manual of Reservoir Regulation, Sacramento River Basin, California*, and, specifically, by the *New Bullards Bar Reservoir Water Control Manual* (USACE 1972). Operational flood rules dictate the amount of variable flood space made available seasonally. No flood space is required from June 1 to September 15. During the peak flood season (November 1 – March 31), the flood control space is a USACE-mandated 170,000 AF. The primary benefit of the ARC Spillway Project is operational flexibility for managing outflow at the dam, significantly reducing flood risk downstream at Marysville and the Feather-Yuba River confluence and providing public safety benefits. Yuba Water released a Draft EIR for the ARC Spillway Project for a 60-day public review period that closed on August 20, 2023. Yuba Water is in the process of preparing a Final EIR, and then will decide whether to approve the ARC Spillway Project following completion of the CEQA process. (Yuba Water 2023a)
USACE New Bullards Bar Dam and Reservoir Water Control Manual (WCM) Update	Future	USACE	Flood management operations in the Yuba River Watershed are controlled by USACE's 1959 Master Manual of Reservoir Regulation, Sacramento River Basin, California, and, more specifically, by the New Bullards Bar Reservoir Water Control Manual (USACE 1972). As discussed above, Yuba Water manages water releases from New Bullards Bar (NBB) Dam and Reservoir during flood-related operations according to the WCM, which includes a guide curve (or rule curve) that governs the water storage and release schedule based on past weather patterns. USACE is in the process of updating the NBB WCM to reflect changed circumstances, new technology, and improved practices. The updated NBB WCM is expected to implement forecast-informed reservoir operations (FIRO), which is a flexible water management approach that uses watershed monitoring data and improved weather forecasting to help water managers selectively retain or release water from a reservoir for increased resilience to droughts and floods and to better manage releases before and during a storm. When the revised WCM is completed (anticipated 2024/2025), it will govern water releases during, and in anticipation of, floods, major storms, and high-water events.
Timbuctoo Acquisition and Restoration Project	Future	Bear-Yuba Land Trust (BYLT)	The project includes protection of three miles of the lower Yuba River containing Chinook salmon and steelhead spawning habitat and 700 acres of surrounding lands with intact blue oak woodlands. The property is currently privately owned and under threat of subdivision and conversion to a housing development project. BYLT is seeking funding to cover part of the property acquisition and to passively restore three miles of lower Yuba River for aquatic habitat through revegetation. This project supports the Yuba IRWMP by encouraging groundwater recharge and protecting existing groundwater levels through preventing home construction and well drilling on 700-acres. It will protect surface water quality of tributaries flowing directly into the lower Yuba River and protect river flows and river surface water quality. It also supports the Lower Yuba River Accord through protection of Chinook salmon and steelhead spawning areas and habitat improvements along the lower Yuba River. In addition to salmonid species, the federally-listed foothill yellow legged frog is also documented in this reach of the river. Public access to the

Project	Status	Primary Agencies	Description
			property will likely be limited, however, there will still be opportunities for education and recreation (YCRWMG 2023).
Upper Long Bar Habitat Restoration Project	Future	USFWS South Yuba River Citizens League (SYRCL)	The project will restore at least 40 acres of floodplain habitat and nearly one mile of off-channel habitat at the downstream end of Long Bar in the Parks Bar to Marysville section of the lower Yuba River. The habitat enhancements will include floodplain lowering, side channel enhancement, riparian planting, and large woody material placement. The completed Upper Long Bar project will reconnect flood flows with restored floodplains. Lateral reconnection will increase habitat availability as well as enhanced hydraulic complexity and quality of available flow for the benefit of spring- and fall-run Chinook salmon and steelhead. Additionally, this project supports the population doubling goals of the USFWS' Anadromous Fish Restoration Program (YCRWMG 2023). The project is funded by the California Wildlife Conservation Board's 2020 (Prop 1) Stream Flow Enhancement Program.
Upper Rose Bar Habitat Restoration Project	Future	Yuba Water, SYRCL, Yuba County, USFWS, and Wildlife Conservation Board	Located about 9 miles downstream of Englebright Dam, the project will restore about 43 acres to increase Chinook salmon and steelhead spawning habitat (about 5 acres), create backwater habitat and reduce bank erosion on the lower Yuba River. The project is intended to: ▶ Increase the amount of high-quality spawning habitat by modifying hydraulic (i.e., depth and velocity) and substrate conditions to within the ranges preferred by Chinook salmon and steelhead during typical spawning periods. ▶ Create a design that mimics natural morphological features (e.g., riffle, pool) that would not erode significantly through typical non-flood control related operations. ▶ Reduce bank erosion that may be contributing mercury contaminated soil to the Yuba River. Land-side construction began in 2023, with in-water work anticipated to occur in 2024.
Hallwood/Cordua Canal – Fish Screen Return Line Replacement	Future	Hallwood Irrigation Company (HIC), CID	HIC and CID have a canal that diverts water from the lower Yuba River near Daguerre Point Dam for irrigating their districts along with the Ramirez Water District. The diversion is the main source of irrigation for 24,500 acres of prime farmland. A fish screen was installed downstream in the district canal and a 24" return line that transports fish back to the lower Yuba River. However, the return line to the river has had issues over the years due to extreme flows changing the river alignment and depth of the riverbed. These conditions have made maintaining the flow in the line for fish returning to the river difficult. The return line has become deep in the current river channel and becomes blocked by large rocks and debris during high water events. The districts cannot divert water from the river without this return line. The districts' fish screen return pipe is being inundated with large amounts of gravel and the districts are collaborating to replace the pipe at a straighter alignment to the river. This new alignment would allow for better flow and maintenance as well as a secondary discharge point during high water events (YCRWMG 2023).
Cordua Groundwater Monitoring Well	Future	CID	Cordua regularly participated in Groundwater Substitution Transfers in coordination with DWR and Yuba Water and as of 2020 has signed a Yuba Accord Conjunctive Use agreement with Yuba Water. New requirements set by DWR for the 2020 transfer required that all participating transfer wells have a corresponding monitoring well within a 2-mile radius. The monitoring well must not be used for the transfer and must have the same depth as the related transfer wells. The district has been monitoring 50+

Project	Status	Primary Agencies	Description
			wells since 1991 and the accumulation of data is used to monitor groundwater conditions over time and prevent any third-party impacts to surrounding water users. CID is proposing the installation of a new monitoring well to improve the accuracy and reliability of its monitoring well network (YCRWMG 2023).
Various Water Supply Improvement Projects	Future	HIC, CID, Camptonville Community Services District Linda County Water District, North Yuba Water District, City of Wheatland, City of Marysville, Yuba County, and Yuba Water	The identified agencies are proposing various water supply improvement projects, including diversion structure replacements, ditch lining, ditch undergrounding to pipelines, flume capacity expansions, groundwater well replacement, new groundwater monitoring well installation, SCADA system upgrades, and other water infrastructure upgrades to allow for remote operation, provide real-time flow rate data acquisition and automated data sharing, achieve more precise water application, reduce seepage and overtopping losses, improve water supply reliability, and enable "smarter" operation to increase overall water use efficiency. The water savings and resiliency would also allow for continued avoidance of "deficit pumping." Furthermore, the water savings from these projects would improve water supply conditions that would allow the Yuba Subbasins water suppliers to implement their groundwater substitution transfer program which provides benefits during dry years to water suppliers throughout the state (YCRWMG 2023).
CVP/SWP Upstream of the Delta Region (i.e., Feather River and Sacramento Rivers)			
Feather River Levee Setback Project	Past	Three Rivers Levee Improvement Authority	The Feather River Setback Levee was completed in 2009. Improvements to the levees were broken up into three separate segments Bear River to Star Bend, Star Bend to Shanghai Bend, and Shanghai Bend to the Yuba River. The Feather River Setback Levee improves local and regional flood protection by widening the floodway, which will help lower surface levels in addition to eliminating areas where water can back up. The new levee also created nearly 1,500 acres of riparian flood plain habitat for fish and wildlife species. (Yuba Water 2023b)
Feather River Wildlife Area, Riparian Habitat Restoration, Abbott Lake Unit	Past	River Partners, CDFW, and Wildlife Conservation Board	The project involved restoration of approximately 150 acres of riparian habitat and enhancement of remnant riparian forest habitat on the Abbott Lake Unit of the Feather River Wildlife Area, located approximately seven miles south of Yuba City on the west bank of the Feather River in Sutter County. (CNRA 2015a)
Bear River Levee Setback Project	Past	Three Rivers Levee Improvement Authority	The Bear River Levee Setback Project was completed in 2007. The project includes a two-mile-long levee and soil-bentonite foundation cutoff wall; a relief well system; two detention basins; and riparian restoration of more than 600 acres of land in the new floodplain for additional overbank channel capacity and improved habitat for fish and wildlife species. (TRLIA 2009)
State Water Project (SWP) Oroville Project FERC Relicensing	Present	FERC, DWR	The Oroville Facilities, as part of the SWP, also are operated for flood management, power generation, water quality improvement in the Delta, recreation, and fish and wildlife enhancement. The objective of the relicensing process is to continue operation and maintenance of the Oroville facilities for electric power generation, along with implementation of any terms and conditions to be considered for inclusion in a new FERC hydroelectric license. The initial FERC license for the Oroville Facilities, issued on February 11, 1957, expired on January 31, 2007. DWR published the Final EIR in June 2008 and the Notice of Determination (NOD) in July 2008 (DWR 2008). Final Water Quality Certification was issued by SWRCB in 2010. DWR is awaiting the FERC license renewal.

Project	Status	Primary Agencies	Description
South Fork Feather Project FERC Relicensing (FERC Project No. 2088)	Present	FERC, South Feather Water and Power Agency (SFWPA)	The South Fork Feather Project is a water supply/power project composed of four hydroelectric developments (Sly Creek, Woodleaf, Forbestown, and Kelly Ridge) located on the South Fork Feather River, Lost Creek (tributary to the South Fork Feather River), and Slate Creek (tributary to the North Yuba River). The Project stores 171,986 AF of water and generates an average of 514.1 gigawatt hours of power annually. In 2012, SFWPA, DWR, and the State Water Contractors entered into the Settlement Agreement that allows DWR to request that SFWPA temporarily cease discharges from the Kelly Ridge Powerhouse into the Thermalito Diversion Pool and release an equivalent amount of water into Oroville Reservoir. Final Water Quality Certification was issued by SWRCB in November 2018. SFWPA is awaiting the FERC license renewal.
Davis-Woodland Water Supply Project	Present	Woodland-Davis Clean Water Agency (WDCWA)	The Davis-Woodland Water Supply Project included constructing a jointly owned and operated intake on the Sacramento River (WDCWA in partnership with Reclamation District 2035), a raw water pipeline connecting the intake to a regional water treatment facility, and separate pipelines (large diameter transmission mains) to deliver treated water to Woodland, Davis, and the University of California, Davis. Woodland and Davis each made improvements to their respective water supply infrastructure, including distribution pipelines, water storage tanks and booster pump stations. Project objectives include providing a sustainable, high-quality water supply to help meet existing and future needs; improving drinking water quality; and improving the quality of treated wastewater. Construction of the Regional Water Treatment facilities (RWTF) began in April 2014, and were completed in July 2016. WDCWA currently relies on the Sacramento River for all of its water supply of 55,000 acre-feet per year (AFY). The 55,000 AFY of total water rights include: ▶ rights to divert up to 45,000 AFY from the Sacramento River (subject to Term 91 curtailments) under water right Permit 20281 (primary water right) ▶ rights to divert up to 10,000 AFY from the Sacramento River (subject to Lake Shasta curtailments) under water right Licenses 904A and 5487A and WDCWA's Sacramento River Water Rights Settlement Contract (secondary water right) To reliably meet current and future water demands, WDCWA has tentative future plans to expand the RWTF as described in the January 2021 draft Alternatives Evaluation. (WDCWA 2021)
Coordinated Long-term Operation of the Central Valley Project (CVP) and the State Water Project (SWP)	Past and Present	US Bureau of Reclamation (Reclamation), California Department of Water Resources (DWR), US Fish and Wildlife Service (USFWS), NMFS	Reclamation and DWR reinitiated consultation on the Coordinated Long-Term Operation of the Central Valley Project (CVP) and State Water Project (SWP). Reclamation completed a biological assessment to support consultation under Section 7 of the Endangered Species Act (ESA) of 1973, as amended, that documents the potential effects of the proposed action on federally listed endangered and threatened species that have the potential to occur in the project area and critical habitat for these species. The USFWS and NMFS will be issuing biological opinions that may contain Reasonable and Prudent Actions that limit the operations of the CVP and SWP for protecting federally listed endangered and threatened species. For additional information, please refer to the detailed discussion of the USFWS and NMFS BOs on the long-term CVP/SWP operations in Section 3.2, "Surface Water Supply and Management," and Section 3.4, "Fisheries and Aquatic Resources."

Project	Status	Primary Agencies	Description
Long-term and Short-term Water Transfers	Present	Reclamation, San Luis and Delta–Mendota Water Authority (SLDMWA), Biggs–West Gridley Water District, Browns Valley Irrigation District	These projects provide water to municipal, agricultural, and ecosystem water users, including wildlife refuges with programs that transfer water from Northern California to the San Joaquin Valley and Southern California across the Delta (Reclamation and SLDMWA 2019; Biggs–West Gridley Water District 2021; Browns Valley Irrigation District 2009).
Shasta Lake Water Resources Investigation	Future	Reclamation	Reclamation undertook the Shasta Lake Water Resources Investigation to determine the type and extent of federal interest in a multiple purpose plan to modify Shasta Dam and Reservoir, to: (1) increase survival of anadromous fish populations in the upper Sacramento River; (2) increase water supplies and water supply reliability to agricultural, municipal and industrial users, and environmental purposes; and (3) to the extent possible through meeting these objectives, include features to benefit other identified ecosystem, flood damage reduction, and related water resources needs, consistent with the objectives of the CALFED Bay-Delta Program. The alternatives for expansion of Shasta Lake include, among other features, raising the dam from 6.5 to 18.5 ft above current elevation, which would result in additional storage capacity of 256,000 to 634,000 AF, respectively (Reclamation 2015). The increased capacity is expected to improve water supply reliability and increase the cold-water pool, which would provide improved water temperature conditions for anadromous fish in the Sacramento River downstream from the dam. The final EIS was released in 2014, and the final feasibility study was released in 2015. No Record of Decision (ROD) has been issued. However, in March 2018, Congress appropriated $20 million for Shasta pre-construction activities. (Reclamation 2019)
Sites Reservoir Project	Present and Future	Reclamation, Sites Project Authority	The Sites Reservoir Project would involve the construction and operation of an offstream surface water reservoir to provide direct and real benefits to instream flows, the Delta ecosystem, and water supply reliability. The reservoir inundation area would be in rural, unincorporated areas of Glenn and Colusa Counties, and project components would be located in Tehama County, Glenn County, Colusa County, and Yolo County. The project would use existing infrastructure to divert unregulated and unappropriated flow from the Sacramento River at Red Bluff and Hamilton City and convey the water to a new offstream reservoir west of the community of Maxwell, California. New and existing facilities would move water into and out of the reservoir, with ultimate release back to the Sacramento River system via existing canals and a new pipeline located near Dunnigan. Water released from Sites Reservoir would be used to benefit local, state, and federal water use needs, including public water agencies, anadromous fish species in the Sacramento River watershed, wildlife refuges and habitats, and the Yolo Bypass to help supply food for delta smelt. A Final EIR/EIS was published in November 2023.
Anadromous Fish Screen Program	Present	Reclamation US Fish and Wildlife Service (USFWS)	The primary objective of the AFSP is to protect juvenile Chinook salmon (all runs), steelhead, green and white sturgeon, striped bass, and American shad from entrainment at priority diversions throughout the Central Valley. Section 3406 (b)(21) of the CVPIA requires the Secretary of the Interior to assist the State of California in developing and implementing measures to avoid losses of juvenile anadromous fish resulting

Project	Status	Primary Agencies	Description
			from unscreened or inadequately screened diversions on the Sacramento and San Joaquin Rivers, their tributaries, the Delta, and the Suisun Marsh. Additionally, all AFSP projects meet Goal 3 of the CALFED Ecosystem Restoration Program's Draft Stage 1 Implementation Plan (Reclamation 2013).
Delta Region			
Contra Costa Canal Fish Screen Project	Past	CCWD	CCWD diversion of water from the Delta at Rock Slough serves as a major component of its water supply. Between 120,000 and 130,000 AF of water per year is diverted by the canal for irrigation and municipal and industrial uses. The diversion at Rock Slough is one of the largest unscreened Delta sites. The project involved installing fish screens at the Rock Slough diversion to minimize the entrainment losses of sensitive fish species. It included flow control and transition structures necessary to reduce tidal influences and maintain flow rates to help the screen perform properly and allow fish to pass by it easily. Improvements at the diversion site were also needed to reduce potential predation on target species, fulfill legal requirements of the U.S. Fish and Wildlife Service's 2008 Biological Opinion for the threatened delta smelt, complete the mitigation for the Los Vaqueros Biological Opinion, and complete CVPIA requirements in Section 3406(b)(5). Construction was completed in 2012. (Reclamation 2012)
Alternative Intake Project	Past	CCWD	The Alternative Intake Project was completed in 2010. The project located a new drinking water intake at Victoria Canal, about 2.5 miles east of CCWD's existing intake on the Old River, which allows CCWD to divert higher quality water when it is available. The Alternative Intake is a screened intake that includes a 2.5-mile pipeline extension and pump plant that tie into CCWD's existing conveyance system. The Alternative Intake has the same capacity and similar design as the Old River Intake (250 cfs). (CCWD 2007)
Restoring Ecosystem Integrity in the Northwest Delta Phase II	Past	CDFW	This project proposes to acquire conservation easements within the Cache Slough complex, along the Barker, Lindsey and Calhoun Sloughs, north Delta tidal channels located west of the Yolo Bypass. Acquisition of conservation easements on 978 acres of existing riparian and wetland lands has occurred. (EcoAtlas 2023)
San Joaquin River Restoration Program	Past and Present	Reclamation, USFWS, NMFS, DWR, CDFW	Reclamation, USFWS, NMFS, DWR, and CDFW are implementing the Stipulation of Settlement (Settlement) in NRDC et al. v. Kirk Rodgers et al., consistent with the San Joaquin River Restoration Settlement Act in Public Law 111-11. The San Joaquin River Restoration Program is a comprehensive, long-term effort to restore flows to the San Joaquin River from Friant Dam to the confluence with the Merced River, restoring a self-sustaining Chinook salmon population in the river while reducing or avoiding adverse water supply impacts from Restoration Flows. The Settlement calls for the restoration of flows to the San Joaquin River, improvements to the San Joaquin River channel and construction of structures (fish bypasses, fish screens, and similar) to improve fish habitat and provide for fish passage, and the reintroduction of spring-run and fall-run Chinook salmon. The Settlement also calls for a number of activities to reduce the water supply impacts to the Friant Division Central Valley Project Contractors, including restoration the capacity of the Friant-Kern and Madera canals, considering the possibility to reverse the flow in sections of the Friant-Kern Canal, and providing financial assistance for groundwater banking. (State and Federal Implementing Agencies of the San Joaquin River Restoration Program 2023)

Project	Status	Primary Agencies	Description
Liberty Island Conservation Bank	Past and Present	CDFW, USFWS, NMFS	The Liberty Island Conservation Bank (Bank) is located in the southern Yolo Bypass in Yolo County, CA. The Bank is centrally located at the lower end of the Yolo Bypass just west of the Port of Sacramento Deepwater Shipping Channel in the tidal Delta, approximately five miles west of the Community of Courtland and 10 miles north of the City of Rio Vista. The Bank consists of 186 acres located on the still leveed northernmost tip of Liberty Island. Approved in July 2010 by NMFS, USFWS, and CDFW, the Bank provides compensatory mitigation for permitted projects affecting special-status Delta fish species within the region. The Bank provides habitat for all Delta fish species including: the federally endangered Sacramento River winter-run Chinook salmon; the federally threatened Central Valley spring-run Chinook salmon, California Central Valley Steelhead, delta smelt, and Central Valley fall- and late fall-run Chinook salmon, federal species of concern. (Wildlands 2023)
Central Valley Project and State Water Project Coordinated Operation Agreement (COA), including 2018 Addendum	Past and Present	Reclamation and DWR	Reclamation and DWR operate their respective facilities in accordance with the COA. The COA defines the project facilities and their water supplies, sets forth procedures for coordinating operations, and identifies formulas for sharing joint responsibilities for meeting Delta standards and other legal uses of water. The COA further identifies how un-stored flow is shared, sets up a framework for exchange of water and services between the projects, and provides for periodic review of the agreement. In 2018, Reclamation and DWR amended four key elements of the COA to address changes since the COA originally was signed: (1) in-basin uses; (2) export restrictions; (3) CVP use of Banks Pumping Plant up to 195,000 AFY; and (4) periodic review. The COA sharing percentages for meeting Sacramento Valley in-basin uses now vary from 80% responsibility of the CVP and 20% responsibility of the SWP in wet year types to 60% responsibility of the CVP and 40% responsibility of the SWP in critical year types.
Delta-Mendota Canal/California Aqueduct Intertie	Past and Present	Reclamation	The Delta-Mendota Canal (DMC)/California Aqueduct Intertie consists of constructing and operating a pumping plant and pipeline connection between the DMC and the California Aqueduct. The Intertie, which is now operational, is used to achieve multiple benefits, including meeting current water supply demands, allowing the maintenance and repair of the CVP Delta export and conveyance facilities, and providing operational flexibility to respond to emergencies related to both the CVP and the SWP. The Intertie includes a 450-cfs pumping plant at the DMC that allows up to 400 cfs to be pumped from the DMC to the California Aqueduct via an underground pipeline. The additional 400 cfs allows the Jones Pumping Plant to pump to its authorized amount of 4,600 cfs. Because the California Aqueduct is approximately 50 ft. higher in elevation than the DMC, up to 900 cfs flow can be conveyed from the California Aqueduct to the DMC using gravity flow. The Intertie is owned by the federal government and operated by SLDMWA. An agreement among Reclamation, DWR, and SLDMWA identifies the responsibilities and procedures for operating the Intertie.
Eastern San Joaquin Integrated Conjunctive Use Program	Past and Present	Northeastern San Joaquin County Groundwater Banking Authority (NSJCGBA)	The Integrated Conjunctive Use Program is to develop approximately 140,000 to 160,000 AF per year of new surface water supply for the basin that will be used to directly and indirectly support conjunctive use by the Northeastern San Joaquin County Groundwater Banking Authority (NSJCGBA) member agencies. This amount of water would support groundwater recharge at a level consistent with the NSJCGBA's objectives for conjunctive use and the underlying groundwater basin. Within this framework, the program

Project	Status	Primary Agencies	Description
			would implement the following categories of conjunctive use projects and actions: water conservation measures; water recycling; groundwater banking; water transfers; development of surface storage facilities; groundwater recharge; river withdrawals; and construction of pipelines and other facilities. To enable and facilitate sustainable and reliable management of San Joaquin County's water resources, NSJCGBA developed a series of Basin Management Objectives to support conjunctive use and address a variety of water resources issues, including groundwater overdraft, saline groundwater intrusion, degradation of groundwater quality, environmental quality, land subsidence, supply reliability, water demand, urban growth, recreation, agriculture, flood protection, and other issues. The purpose of the Basin Management Objectives is to ensure the long-term sustainability of water resources in the San Joaquin Region. A Final Environmental Impact Report (EIR) for the program was released in February 2011. (NSJCGBA 2011)
Del Puerto Canyon Reservoir	Present	Del Puerto Water District and San Joaquin River Exchange Contractors Water Authority	Del Puerto Water District and the Exchange Contractors would construct and operate the Dl Puerto Canyon Reservoir. The project would deliver existing contracted water from the Delta-Mendota Canal into the new 80,000 AF reservoir. The reservoir would allow water to be delivered into storage during wetter periods until it is needed in drier periods for irrigation, groundwater recharge, or wildlife beneficial uses. The reservoir would be located in Del Puerto Canyon in the Coast Range foothills west of Patterson and south of the Delta, just west of Interstate 5. The Draft EIR was released in December 2019 and the FEIR was completed in October 2020. Construction began in 2022 and is expected to be completed by 2028. (DPWD and SJREC 2023)
Contra Costa Canal Replacement Project	Past, Present, and Future	CCWD	CCWD's Canal Replacement Project will ultimately replace approximately 4 miles of unlined canal with a pipeline near Oakley. Since 2009, approximately 14,000 feet of the unlined Canal have been replaced. The Contra Costa Canal is being encased to reduce salinity and water quality impacts of groundwater seepage from adjacent agricultural areas, as well as to increase public safety and flood protection. CCWD has initiated plans for the remaining sections, which are anticipated to be constructed between 2024 and 2027. (CCWD 2023)
Ecosystem Restoration Program Conservation Strategy Implementation	Present	CDFW	The Ecosystem Restoration Program (ERP) is a multi-agency effort aimed at improving and increasing aquatic and terrestrial habitats and ecological function in the Delta and its tributaries. The ERP Focus Area (JPG) includes the Sacramento-San Joaquin Delta, Suisun Bay, the Sacramento River below Shasta Dam, the San Joaquin River below the confluence with the Merced River, and their major tributary watersheds directly connected to the Bay-Delta system below major dams and reservoirs. Principal participants overseeing the ERP are CDFW, the USFWS, and NMFS, collectively known as the ERP Implementing Agencies. The ERP implements restoration projects through grants administered by the ERP Grants Program. The vast majority of these projects focus on fish passage issues, species assessment, ecological processes, environmental water quality, or habitat restoration. The ERP is guided by the following six strategic goals: ▶ Recover endangered and other at-risk species and native biotic communities; ▶ Rehabilitate ecological processes; ▶ Maintain or enhance harvested species populations;

Project	Status	Primary Agencies	Description
			▶ Protect and restore habitats; ▶ Prevent the establishment of and reduce impacts from non-native invasive species; and ▶ Improve or maintain water and sediment quality (CDFW 2023).
Franks Tract Futures Project	Present	CDFW	Franks Tract Futures Project involves redesigning and enhancing the 3,000-acre flooded island, and the smaller adjacent Little Franks Tract located about 40 miles south of Sacramento in the Delta. The landscape redesign includes the addition of new land masses, tidal marshes, navigation channels, beaches and other amenities. The design addresses deteriorating environmental, safety, and water quality conditions in the area. Among diverse benefits, it would: improve recreational boating and navigation (through dredging and reduction in aquatic weeds); create beaches, mooring sites, sheltered coves, day-use areas, and other amenities within the state recreation area; improve remnant levees that provide wave sheltering adjacent to Bethel Island and Little Franks Tract while maintaining open water views and marina access; create large areas of tidal marsh, riparian channel edge, and ecologically valuable features that provide habitat for a variety of species, including species of concern, sport fish and waterfowl; improve water quality for human use by reducing salinity in the central and south Delta; and help Franks Tract and local communities adapt to sea level rise (CDFW 2020).
North Delta Flood Control and Ecosystem Restoration Project	Present	DWR	The North Delta Flood Control and Ecosystem Restoration Project is proposed near the confluence of the Cosumnes and Mokelumne rivers by DWR and encompasses approximately 197 square miles. The project is intended to improve flood management and provide ecosystem benefits in the North Delta area through actions such as construction of setback levees and configuration of flood bypass areas to create quality habitat for species of concern. These actions are focused on McCormack- Williamson Tract and Staten Island. The project would implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes. Flood control improvements are needed to reduce damage to land uses, infrastructure, and the Bay-Delta ecosystem resulting from overflows caused by insufficient channel capacities and catastrophic levee failures in the 197 square-mile project study area. The Project as described in the Final EIR included levee modifications to allow controlled flow across McCormack-Williamson Tract and to mitigate hydraulic impacts; channel dredging to increase flood conveyance capacity; an off-channel detention basin on Staten Island; ecosystem restoration where floodplain forests and marshes would be developed at McCormack-Williamson Tract and the Grizzly Slough property; setback levee on Staten Island to expand the floodway conveyance; opening up the southern portion of McCormack-Williamson Tract to boating; improving the Delta Meadows property; providing access and interpretive kiosks for wildlife viewing; and providing restroom, circulation, parking, and signage infrastructure to support such uses (DWR 2010; CNRA 2015b).
South Delta Temporary Barriers Project	Present	DWR	The South Delta Temporary Barriers Project mitigates water level impacts associated with export operations at the CVP's Jones Pumping Plant and SWP's Banks Pumping Plant in the South Delta. As conditions warrant and in coordination with the South Delta Water Agency, three temporary rock barriers are built across the South Delta channels listed below beginning as soon as May 1 and then removed by November 30 each year. The temporary barriers maintain water levels and improve water circulation patterns and water quality in the South Delta. Installation and removal dates are based on conditions of DWR's USACE

Project	Status	Primary Agencies	Description
			404 Permit, CDFW Lake and Streambed Alteration Agreement and Incidental Take Permit, other regulatory permits, and various Temporary Entry Permits required from landowners and local reclamation districts (SLDMWA and Reclamation 2020).
Los Vaqueros Reservoir Expansion Phase 2	Present	Reclamation, Contra Costa Water District (CCWD), DWR	Los Vaqueros Reservoir is an off-stream reservoir in the Kellogg Creek watershed west of the Delta. The Los Vaqueros Reservoir initial construction was completed in 1997 as a 100,000 AF off-stream storage reservoir, owned and operated by CCWD to improve delivered water quality and emergency storage reliability to its customers. In 2012, the Los Vaqueros Reservoir was expanded to a total storage capacity of 160,000 AF (Phase 1), to provide additional water quality and supply reliability benefits, and to adjust the timing of its Delta water diversions to accommodate the life cycles of Delta aquatic species, thus reducing species' impacts and providing a net benefit to the Delta environment. As part of the Storage Investigation Program described in the CALFED Bay Delta Program Record of Decision (ROD), additional expansion up to 275,000 AF (Phase 2) is being evaluated by CCWD, DWR, and Reclamation. The alternatives considered in the evaluation also consider methods to convey water from Los Vaqueros Reservoir to the South Bay Aqueduct, to provide water to the Zone 7 Water Agency, Alameda County Water District, and Santa Clara Valley Water District. The Final EIS/EIR was released by Reclamation and CCWD on March 15, 2010. In 2020, a Final Feasibility Report and Final Supplement to the Final EIS/EIR were released (Reclamation 2023).
Bay-Delta Water Quality Control Plan Update	Past, Present, and Future	SWRCB, CVRWQCB, San Francisco RWQCB	Water quality and flow objectives to meet water quality criteria are included in the *Water Quality Control Plan for the San Francisco Bay/Sacramento–San Joaquin Delta Estuary* (Bay-Delta Plan) (SWRCB 2006). The SWRCB is actively engaged in the process of updating the Bay-Delta Plan through two separate processes (Plan amendments) – first (Phase 1) efforts focusing on the lower San Joaquin River flows and Southern Delta salinity, and later (Phase 2) efforts focusing on the Sacramento River and its tributaries, Delta eastside tributaries, Delta outflows, and interior Delta inflows. In 2018, the SWRCB completed the Phase 1 efforts by adopting Bay-Delta Plan amendments focused on flows in the Lower San Joaquin River and its three major tributaries (the Stanislaus, Tuolumne, and Merced Rivers) for the protection of fish and wildlife, and establishing a new salinity objective for the reasonable protection of agricultural uses in the southern Delta. The SWRCB has initiated Phase 2 to evaluate updating portions of the Bay-Delta Plan including criteria for Delta outflow, Sacramento and non-San Joaquin River tributaries inflow, Suisun Marsh salinity, Delta Cross Channel Gate closure, Delta export limits, and reverse flows in Old and Middle River. In 2016, the SWRCB issued a working Draft Scientific Basis Report, which was finalized during October 2017, to evaluate possible Sacramento/Delta updates to the Bay-Delta Plan. Subsequently in 2018, the SWRCB released a Framework for Sacramento/Delta updates to the Bay-Delta Plan. In 2022, the SWRCB received a Memorandum of Understanding (MOU) proposing VAs as an alternative to updating and implementing the Bay-Delta Plan, and most recently, during September 2023, the SWRCB released a draft Staff Report for potential Sacramento/Delta updates to the Bay-Delta Plan for public review and comment. The draft Staff Report, serving as an environmental document for CEQA compliance, also includes a Final Draft Scientific

Project	Status	Primary Agencies	Description
			Basis Report Supplement in support of the proposed VAs. The draft Staff Report evaluates potential economic, environmental, and other impacts, and associated mitigation measures, of a range of alternatives for updating the Bay-Delta Plan, including what is referred to as the proposed Plan amendments alternative that is based on the 2018 Framework, the proposed VAs alternative, along with other alternatives.
Voluntary Agreements	Future	SWRCB, California Natural Resources Agency (CNRA), Water Rights Holders	The California Natural Resources Agency (CNRA) has been leading an effort to negotiate voluntary agreements with water users, to support environmental objectives through a broad set of tools while protecting water supply reliability. In 2018, in addition to a Framework for the Sacramento/Delta Update to the Bay-Delta Plan, DWR and CDFW submitted to the SWRCB a Framework Proposal for VAs which would improve conditions for fish through targeted river flows and a suite of habitat-enhancing projects, including floodplain inundation and physical improvement of spawning and rearing areas. During March 2022, CNRA, California EPA, DWR, and CDFW signed with the VA Parties a MOU Advancing a Term Sheet for the VAs. In September 2023, the SWRCB issued a draft Staff Report which evaluated the VAs as an alternative to implementing updates to the Bay-Delta Plan. Yuba Water has developed a VA project consisting of a proposed flow contribution and construction of habitat enhancements, though the VA project is still in formulation stage. The flow contribution includes two components of water to be dedicated to Delta outflow. First, all Yuba Accord Released Transfer Water (as that term is defined in the WPA), from stored water releases that occurs during April, May, and June in Above Normal, Below Normal, and Dry years that DWR cannot export or back into Oroville Reservoir would be contributed to the VA project (Component A in the Yuba Water VA proposal). The second component (Component B in the Yuba Water VA proposal) is an additional release of stored water from New Bullards Bar Reservoir, reducing end of water year (September 30) storage by as much as 50,000 acre-ft, to be released during the months of April, May, or June in Above Normal, Below Normal, Dry years.
Delta Conveyance Project	Future	DWR, Delta Conveyance Design and Construction Authority	The project would develop a new diversion and conveyance facilities in the Delta to restore and protect the reliability of SWP water deliveries, and potentially CVP water deliveries south of the Delta, consistent with the state's Water Resilience Portfolio. DWR selected the Bethany Reservoir alignment at 6,000 cfs conveyance capacity as the proposed project, which is presented as Alternative 5 in this 2022 Draft EIR. The Bethany Reservoir alignment consists of the construction, operation, and maintenance of new SWP water diversion and conveyance facilities in the Delta that would be operated in coordination with the existing SWP facilities. The new water conveyance facilities would divert up to 6,000 cfs of water from two new north Delta intakes through state-of-the-art fish screens and convey it via a single tunnel on an eastern alignment directly to a new pumping plant and aqueduct complex between Byron Highway and Mountain House Road near Mountain House in the south Delta, discharging it to the Bethany Reservoir for delivery to existing SWP export facilities. A Draft EIR was issued by DWR in 2022 and a Final EIR was issued in December 2023 (DWR 2023). A Draft EIS was issued by USACE in December 2022 and a Final EIS has not yet been issued (USACE 2023).

Project	Status	Primary Agencies	Description
North Bay Aqueduct Alternative Intake Project	On Hold (as of June 2021)	Solano County Water Agency (SCWA)	The North Bay Aqueduct (NBA) Alternate Intake Project calls for the construction of a new pumping station on the Sacramento River south of West Sacramento and pipeline to connect to the existing North Bay Aqueduct. Operating in conjunction with the existing NBA pumping plant in the Cache Slough area, the Alternate Intake will provide a second source of drinking water supply for the NBA when endangered fish are present in Cache Slough and when Cache Slough water quality is poor. A feasibility study has been completed, and DWR is currently preparing an EIR and obtaining permits for the project. The EIR and permitting is funded by a Prop 84 grant and SCWA and Napa County contributions (SCWA 2023).
CVP/SWP Export Service Area			
San Luis Reservoir Low Point Improvement Project	Present	Reclamation, Santa Clara Valley Water District, and San Luis and Delta Mendota Water Authority	Reclamation and DWR jointly manage San Luis Reservoir for the purpose of storing and reregulating CVP and SWP water from the Delta. San Luis Reservoir is an off-stream water storage facility that stores water for both projects. The San Luis Reservoir Low Point Project is designed to address water supply reliability issues in San Luis Reservoir that result when water levels fall below 369 ft above sea level (corresponding to a reservoir capacity of 300,000 AF) and create water quality degradation that has the potential to interrupt a portion of the San Felipe Division's water supply (DWR 2022). The term "low point" refers to a range of minimum pool elevations in San Luis Reservoir. During the late summer months if the reservoir elevation drops below 369 ft. above sea level, the conditions in San Luis Reservoir promote the growth of algae in the reservoir. The water quality during the algal blooms is not suitable for agricultural water users with drip irrigation systems in San Benito County or municipal and industrial water users relying on existing water treatment facilities in Santa Clara County. The low point issue increases progressively as the reservoir continues to drop below elevation 369 ft. This creates a risk for the San Felipe Division contractors because they rely on San Luis Reservoir for receiving their CVP allocation (DWR 2022). The comprehensive plan would involve increasing groundwater recharge and recovery capacity, implementing desalination measures, re-operating Valley Water's raw- and treated-water systems, and implementing institutional measures. If Pacheco Reservoir were to be enlarged, the reservoir would be filled with Delta water; thus, additional impacts on Delta aquatic species (e.g., juvenile salmonids and delta smelt) could result from an increase in Delta exports (Reclamation and Valley Water 2019).
B.F. Sisk Dam Raise and Reservoir Expansion Project	Present	SLDMWA Reclamation	As a connected action to the B.F. Sisk Safety of Dams (SOD) Modification Project, Reclamation and SLDMWA are evaluating an increase in storage capacity of the San Luis Reservoir. The increased storage capacity would be achieved by an additional 10-foot raise of the B.F. Sisk Dam embankment across the entire dam crest above the level proposed for dam safety purposes. This additional 10 feet of dam embankment could add approximately 130,000 AF of water storage to San Luis Reservoir that could be delivered to south-of-Delta water contractors and wildlife refuges. A Final EIR/EIS was released in December 2020 (SLDMWA and Reclamation 2020).

Source: Provided by Yuba Water in 2023.

4.3 ANALYSIS OF CUMULATIVE IMPACTS

The following sections contain a discussion of the cumulative effects anticipated from implementation of the Proposed Extension, together with related projects in the Yuba River Watershed and downstream waterbodies and facilities, for each of the environmental issue areas evaluated in this Draft SEIR. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the Proposed Extension alone. The discussion should be guided by the standards of practicality and reasonableness and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."

To be consistent with CEQA requirements, there are four different possible impact statement outcomes for the cumulative effects analysis:

1. **There would be no significant cumulative impact.** This conclusion is appropriate when the combined effects of the project and closely related past, present, and reasonably foreseeable probable future projects would be less than significant. This requires a discussion providing evidence to support the conclusion.
2. **There is an existing significant cumulative impact, but the project's incremental contribution would not be considerable.** This conclusion is appropriate when the combined effects of closely related past, present, and reasonably foreseeable probable future projects would be cumulatively significant, but the project's incremental contribution to the significant cumulative impact would not be considerable. This requires a discussion of why the project's incremental contribution would not be significant or cumulatively considerable. For example, there may be mitigation measures implemented to reduce/avoid/minimize the impacts of the project, or the magnitude of the incremental effect of the project may be very small, suggesting that the project's contribution to any significant cumulative effects would be minimal.
3. **There is an existing significant cumulative impact, and the project's incremental contribution would be considerable.** This conclusion is appropriate when the combined effects of closely related past, present, and reasonably foreseeable probable future projects are already cumulatively significant, and the project's incremental contribution to the significant cumulative impact would be cumulatively considerable. This requires a discussion of all feasible mitigation measures that could reduce/avoid/minimize the project's contribution to the significant cumulative effect. If no feasible mitigation measures are available, the project's contribution to the impact would remain cumulatively considerable (significant and unavoidable).
4. **There would be a new significant cumulative impact because the project's incremental contribution would be substantial when considered with other related projects.** This conclusion is appropriate when the combined effects of closely related past, present, and reasonably foreseeable probable future projects are not significant, but the project's incremental contribution is substantial enough that when added to the cumulative effects of related projects, would result in a new significant cumulative impact. This requires a discussion of all feasible mitigation measures that could reduce/avoid/minimize the project's contribution to the significant cumulative effect. If no feasible mitigation measures are available, the project's contribution to the impact would remain cumulatively considerable (significant and unavoidable).

The standards used herein to determine a considerable contribution are that either the incremental contribution to the impact by the Proposed Extension must be substantial (i.e., it would cause an otherwise less-than-significant cumulative impact to become significant, or it would substantially increase the severity of an existing significant cumulative impact) or must exceed an established threshold of significance.

This cumulative analysis assumes that mitigation measures from the 2007 EIR and other environmental commitments (see Chapter 2, "Description of the Proposed Project") are re-adopted and implemented. The analysis herein analyzes whether, after implementation of such measures and commitments, the residual impacts of the Proposed Extension would cause a significant cumulative impact or would contribute considerably to existing/anticipated (without the Proposed Extension) significant cumulative effects.

4.3.1 Surface Water Supply and Management

The evaluation of potential cumulative impacts to surface water supply and management includes the Yuba Region and other regions that are affected by CVP/SWP system-wide operations, including the CVP/SWP Upstream of the Delta Region (i.e., Oroville Reservoir, the lower Feather River, and the Sacramento River), the Delta Region, and the CVP/SWP Export Service Area.

Table 4-1 includes projects that have the potential to alter hydrologic conditions within waterbodies that contribute to the management of surface water supply availability and reliability in the Yuba Region, as well as in the other regions that are affected by CVP/SWP system-wide operations. Only projects from Table 4-1 that could affect surface water supply and management are considered in the cumulative analysis presented below. Although most of the projects described in Table 4-1 could have project-specific impacts that either have been or will be addressed in project-specific environmental documentation, future implementation of many of these projects is not expected to result in cumulative impacts to regional water supply operations, or water-related and water-dependent resources that also could be affected by the Proposed Extension. For this reason, only the projects that have the potential to cumulatively affect surface water supply and management in the project study area are considered qualitatively in the cumulative impacts analysis for surface water supply and management. Projects that could cumulatively impact the quality of surface water supplies are considered as part of the cumulative analysis conducted for surface water quality in Section 4.3.4, below.

YUBA REGION

Examples of the types of projects from Table 4-1 that could cumulatively affect surface water supplies within the Yuba Region related to the Proposed Extension are listed below.

- Yuba River Development Project FERC Relicensing (Project No. 2246)
- Narrows Hydroelectric Project FERC Relicensing (Project No. 1403)
- Yuba-Bear Hydroelectric Project FERC Relicensing (Project No. 2266)
- Upper Drum-Spaulding Hydroelectric Project FERC Relicensing (FERC No. 2310)
- Lower Drum Hydroelectric Project FERC Relicensing (FERC No. 14531)
- Yuba County IRWMP Implementation
- Various Water Supply Improvement Projects

The 2007 EIR determined that the Yuba Accord had the potential to affect local water deliveries, when considered cumulatively with other projects in the Yuba Region. Anticipated cumulative changes to local water deliveries were expected to affect downstream flows, and thus potentially affect CVP/SWP deliveries, and various Delta impact indicators. Accordingly, the 2007 EIR concluded that the Yuba Accord could have a potentially significant cumulative impact on surface water supply and management. As a result, the Yuba Accord was determined to have the potential to contribute to significant cumulative impacts, in combination with future local projects in the Yuba Region (Yuba Water et al. 2007). The 2007 EIR also concluded that the water storage and conveyance projects that could contribute to cumulative impacts were generally intended to improve water supply, reliability, and flexibility, and would not be anticipated to affect surface water allocations to the Yuba Water Member Units (Yuba Water et al. 2007). Notwithstanding these early findings, the Yuba Accord, as a comprehensive package of agreements and related actions, has resulted in higher, more protective instream flows; water supply reliability for irrigation, power generation, and recreation; and, through effective conjunctive use, higher levels of groundwater recharge in wetter years, all in the context of extensive monitoring and adaptive management. After nearly 18 years of operation under the Yuba Accord (including pilot program years), there is no evidence to suggest that the Yuba Accord has contributed considerably to any significant cumulative impacts to surface water supply and management. Moreover, the Yuba Accord is within the scope of the impacts analyzed in the 2007 EIR and, after such a lengthy period of implementation, represented in the baseline condition for purposes of CEQA analysis.

As described in Section 3.2, "Surface Water Supply and Management," the Proposed Extension would not result in any changes to reservoir storage levels (e.g., New Bullards Bar Reservoir, Englebright Reservoir) or to flow releases into the lower Yuba River, relative to the range of operations that may occur under the CEQA baseline (i.e., existing conditions). Because operations of the YRDP under the Proposed Extension would not change, as compared to those that currently occur under the CEQA baseline (i.e., existing conditions), environmental conditions related to hydrology would not change as a result of the Proposed Extension. Because the Proposed Extension would continue the existing Water Transfer Program, it would not change the baseline condition and would have no physical impact on the environment. Therefore, the Proposed Extension would not result in cumulatively considerable impacts to surface water supply and management in the Yuba Region, relative to the existing condition.

OTHER REGIONS INCLUDED IN CVP/SWP SYSTEM-WIDE OPERATIONS

Several of the projects identified in Table 4-1 could affect water supply and management either through changing CVP/SWP operations, changing the available water supply for export, or changing the allocation of exported water among CVP and SWP contractors. Examples of the types of projects (Table 4-1) that could potentially have cumulative impacts on surface water supplies and management within the CVP/SWP Upstream of the Delta Region, the Delta Region, and the CVP/SWP Export Service Area are listed below.

- Water Supply and Conveyance Projects
  - Shasta Lake Water Resources Investigation
  - Sites Reservoir Project
  - Delta Conveyance Project
  - Alternative Intake Project
  - South Delta Temporary Barriers Project
  - Los Vaqueros Reservoir Expansion Project (Phase 2)
  - Del Puerto Canyon Reservoir
  - San Luis Reservoir Low Point Improvement Project
  - B.F. Sisk Dam Raise and Reservoir Expansion Project
- Projects Related to CVP/SWP Operations
  - SWP Oroville Facilities FERC Relicensing (Project No. 2100)
  - South Fork Feather Project FERC Relicensing (Project No. 2088)
  - Coordinated Long-term Operation of the CVP and SWP
  - CVP and SWP COA, including 2018 Addendum
  - Delta-Mendota Canal/California Aqueduct Intertie
  - Central Valley Project Long-term Contract Renewals
  - Davis-Woodland Water Supply Project
- Water Transfers and Acquisition Programs
  - Long-term and Short-term Water Transfers
  - Bay-Delta Water Quality Control Plan Update – Voluntary Agreements

Overall, the 2007 EIR concluded that there were no potentially significant project-level impacts to surface water supply and management associated with the implementation of the Yuba Accord. Results from the 2007 EIR's cumulative analysis indicated that direct project-related impacts to surface water supply and management were less

than significant. Nevertheless, the potential existed for the Yuba Accord to incrementally contribute to cumulative surface water supply and management impacts within the project study area (Yuba Water et al. 2007). The 2007 EIR concluded that the water transfer and acquisition programs that had the potential to contribute to cumulative impacts would generally not be anticipated to affect Yuba Region water deliveries and would generally be anticipated to improve deliveries to CVP/SWP contractors. However, those water transfer and acquisition programs would likely entail additional pumping, cross-Delta transfer, or changing of timing of Delta outflow. Although it was unknown how the various systems operations projects may affect the cumulative condition, it was assumed that projects related to CVP/SWP operations may have some minor impacts on X2, south Delta water levels, and the duration of Delta excess water conditions. Thus, the 2007 EIR concluded that the Yuba Accord had the potential for to contribute to significant cumulative impacts on future CVP/SWP system operations. The 2007 EIR further concluded that the Yuba Accord, in combination with the impacts of other reasonably foreseeable future projects, could result in potentially significant and unavoidable cumulative impacts on surface water supply and management in the Yuba Region, the Delta Region, and the Export Service Area (San Luis Reservoir only) (Yuba Water et al. 2007).

As described in Section 3.2, the Proposed Extension would have a less-than-significant impact on: (1) water deliveries to the south-of-Delta CVP water service contractors and refuges; (2) water deliveries to the south-of-Delta SWP (Table A) water service contractors; (3) CCWD's ability to fill Los Vaqueros Reservoir; (4) south Delta water users; and (5) water deliveries to the San Felipe Division and water allocations to SWP and CVP contractors.

Consideration of CVP/SWP operations (including water transfers) as part of the cumulative condition has been evaluated in several environmental documents over the past few years. The information provided below serves as a summary of the conclusions reached by Reclamation and the California Department of Water Resources (DWR) regarding potential water supply and management impacts associated with cumulative conditions.

The cumulative analysis of long-term water transfers conducted in the *Long-Term Water Transfers Revised Draft EIR/Supplemental Draft EIS* (Reclamation and SLDMWA 2018) included all water transfers and programs that result in additional groundwater pumping in the Sacramento Valley, and considered SWP water transfers, the Lower Yuba River Accord, refuge transfers, the CVP M&I Water Shortage Policy, and the San Joaquin River Restoration Program as part of the cumulative condition. Water made available for transfer would increase Delta inflows and Delta exports. The range of potential water transfers that could occur would increase Delta outflows slightly during the transfer period because carriage water would become additional Delta outflow, which would not adversely affect Delta water quality (also see discussion below in Section 4.3.4). SWP transfers and the Yuba Accord could also decrease Delta outflow during other times of year, but these times are generally during wet parts of the year when the decrease would not affect water quality (Reclamation and SLDMWA 2018). The decreases to Delta outflow could only occur during wetter periods when the Delta is in excess conditions[2]. During balanced conditions[3], the CVP would be required to release additional flow to maintain the standards in the Central Valley Water Quality Control Plan, so the Delta outflows would not change (Reclamation and SLDMWA 2018). Changes in Delta inflows, outflows, and exports also may affect Delta salinity, which is of concern because it can adversely affect municipal, industrial, agricultural, and recreational uses. Numerous projects and operations, including CVP and SWP operations, urban discharges, and agricultural discharge affect salinity in the Delta. The combination of past, present, and future cumulative actions was considered to have significant impacts on salinity in the Delta (Reclamation and SLDMWA 2018). However, SWP transfers, refuge transfers, and the Yuba Accord would increase Sacramento River Delta inflow and increase Delta exports, which would have opposite effects on Delta salinity. Because changes in Delta outflow associated with potential water transfers are insubstantial and occur only during wetter conditions, the incremental contribution of long-term water transfers to potentially significant cumulative impacts (e.g., salinity-related water supply issues) would not be cumulatively considerable (Reclamation and SLDMWA 2018).

[2] Excess conditions are when inflows into the Delta are greater than what is required to meet in-Delta needs and Delta outflows (Reclamation and DWR 1986), so Delta outflow is greater than required by applicable standards.

[3] Balanced conditions are when inflows into the Delta are equal to the flow required to meet in-Delta needs and Delta outflows (Reclamation and DWR 1986). Typically, these conditions occur when Reclamation and/or DWR are releasing flows from upstream storage to meet standards within the Delta or for Delta outflow.

DWR (2019) also evaluated the potential cumulative impacts associated with long-term CVP/SWP operations (including water transfers) and other projects with potential to cause changes to surface water hydrology within the same waterbodies (i.e., the Sacramento River downstream from the Feather River confluence, the Delta, and San Luis Reservoir). DWR (2019) determined that direct and indirect impacts on surface water quality from SWP operations are limited to the Delta, which was the geographic focus of DWR's cumulative analysis. The cumulative impact of past and current projects has resulted in a baseline that has altered Delta outflows and degraded surface water quality in the Delta. In particular, Delta waterways are listed on Section 303(d) for impairment by electrical conductivity (EC), a measure of salinity. Several factors have contributed to this impairment, and it is difficult to quantify the proportion of salinity impairment attributable to a specific project action or event (DWR 2019). Reasonably foreseeable future projects involving water diversions or transfers (e.g., CVP long-term operations) would affect hydrology and water flow and, therefore, could have secondary impacts on salinity levels in the Delta. However, DWR operates the SWP in accordance with obligations under D-1641. D-1641 includes water right permit terms and conditions to implement water quality objectives to protect agricultural and M&I beneficial uses in the Delta, as well as water quality objectives to protect fish and wildlife beneficial uses in the Delta and Suisun Marsh. DWR and Reclamation will continue to operate the SWP and CVP in compliance with the provisions of D-1641, including maintaining salinity levels corresponding to the location of X2, as required. DWR, in coordination with Reclamation, is required to meet these standards even if other projects result in changes to salinity so that the cumulative water quality conditions are consistent with the salinity standards of D-1641 and protect the beneficial uses. Therefore, DWR (2019) concluded that the contribution of long-term SWP operations (including water transfers) to Delta water quality (including salinity-related water supply issues) would not be cumulatively considerable.

The Bay-Delta Water Quality Control Plan Update potential Voluntary Agreement project (VA project) is identified in the SWRCB (2023) draft Staff Report as a potential pathway project intended to contribute towards achieving the Bay-Delta Plan Update objectives. Yuba Water has developed a VA project consisting of a proposed flow contribution and construction of habitat enhancements. Although the VA project is still in formulation stage, Yuba Water's flow contribution operations are included for discussion in this section to inform how, if implemented, the Yuba Water VA flow contribution operations would interact with the Proposed Extension operations for water transfers.

The Yuba Water VA flow operations were formulated to (1) not significantly affect the occurrence of Yuba Accord instream flows; (2) not impact surface water deliveries to Yuba Water Member Units; (3) not interfere with other operations of the Yuba River Development Project (YRDP); and (4) work in conjunction with current and future planned habitat enhancement projects. The Yuba Water VA flow contribution includes two components of water to be dedicated to Delta outflow. First, all Yuba Accord Released Transfer Water (as that term is defined in the WPA), from stored water releases that occurs during April, May, and June in Above Normal, Below Normal, and Dry years that DWR cannot export or back into Oroville Reservoir would be contributed to the VA project (Component A in the Yuba Water VA proposal). Because this water is currently being released as part of the Yuba Accord, it would not interfere with the Proposed Extension, but also would not be available to third parties that are not a Yuba Accord participating contractor. The second component (Component B in the Yuba Water VA proposal) is an additional release of stored water from New Bullards Bar Reservoir, reducing end of water year (September 30) storage by as much as 50,000 acre-ft, to be released during the months of April, May, or June in Above Normal, Below Normal, Dry years. The added storage release would be in addition to Yuba Accord operations and would be an added flow during these months, effectively "riding on top" of the flows that would occur with the Yuba Accord operations. The Yuba Water VA proposed flow contributions have been analyzed through model simulation to ensure this added release would not significantly impact the occurrence of Yuba Accord fishery flow schedules which are the required instream flows included in Yuba Water's consumptive use water rights. The Yuba Accord instream flow schedules could be impacted by changes in end of water year storage as this is a component of the North Yuba Index, which is the index for determining the following year flow schedules. For the reasons discussed in Section 3.2, the Proposed Extension would not result in cumulatively considerable impacts to local or statewide water supplies. The Yuba Water VA, as described above, would not affect the Proposed Extension in any way that would cause the Proposed Extension to result in a cumulatively considerable impact.

Given the suite of past, present, and reasonably foreseeable probable projects, particularly those that are associated with long-term CVP/SWP operations related to surface water supply and management in the project study area, it is

reasonable to conclude that, in combination, these projects will likely result in a significant cumulative impact on future long-term surface water supply and management. However, in consideration of the less-than-significant impacts of the Proposed Extension on surface water supply and management described in Section 3.2 and the types of potential impacts on surface water supply and management associated with the other cumulative projects, the incremental contribution of the Proposed Extension would not result in cumulatively considerable impacts to surface water supply and management in the CVP/SWP Upstream of the Delta Region, the Delta Region, or the CVP/SWP Export Service Area, relative to the existing condition.

4.3.2 Groundwater Resources

The evaluation of potential cumulative impacts to groundwater resources includes the Yuba Region and other regions that are affected by CVP/SWP system-wide operations, including the CVP/SWP Upstream of the Delta Region (i.e., Oroville Reservoir, the lower Feather River, and the Sacramento River), the Delta Region, and the Export Service Area.

Table 4-1 includes projects that have the potential to alter groundwater conditions in the Yuba Region, as well as in the other regions that are affected by CVP/SWP system-wide operations. Only projects from Table 4-1 that could affect groundwater resources are considered in the cumulative analysis presented below. Although most of the projects described in Table 4-1 could have project-specific impacts that either have been or will be addressed in project-specific environmental documentation, future implementation of many of these projects is not expected to result in cumulative impacts to regional groundwater resources that also could be affected by the Proposed Extension. For this reason, only the projects that have the potential to cumulatively affect groundwater resources in the project study area are considered qualitatively in the cumulative impacts analysis for groundwater resources.

YUBA REGION

Examples of the types of projects from Table 4-1 that could cumulatively affect groundwater within the Yuba Region related to the Proposed Extension are listed below.

- Yuba Subbasins Sustainable GMP Implementation
- Yuba County IRWMP Implementation
- Timbuctoo Acquisition and Restoration Project
- Cordua Groundwater Monitoring Well
- Various Water Supply Improvement Projects

The 2007 EIR concluded that local projects in the Yuba Basin had the potential to affect water supply and management by changing the available surface water supply and in turn changing the demand on groundwater. However, the overall cumulative effects of these projects on groundwater resources in the Yuba Basin were determined to be minor. Therefore, the incremental effects of the Yuba Accord on groundwater resources were determined to be less than cumulatively considerable, resulting in a less-than-significant impact (Yuba Water et al. 2007).

As described in Section 3.3, "Groundwater Resources," the Proposed Extension would not affect groundwater substitution transfers occurring under the Water Transfer Program and anticipated groundwater pumping would continue to be within historical ranges; therefore, the Proposed Extension would have a less-than-significant impact on groundwater levels in the Yuba Subbasins, and the Proposed Extension would not obstruct implementation of the approved sustainable groundwater management plan.

Groundwater levels in the Yuba Region have been generally stable for decades. Those in the north Yuba Subbasin have fluctuated little for 70 years, and those in the South Yuba Subbasin saw a period of decline from the 1940s through the early 1980s but have since recovered after surface water deliveries to the subbasin began in 1983. Cumulative projects that could affect groundwater in the Yuba Region include groundwater management actions (e.g., Yuba Subbasins Sustainable GMP), water management plans (e.g., Yuba County IRWMP), habitat enhancement projects (e.g., Timbuctoo Acquisition and Restoration Project), and various groundwater monitoring projects and

water supply improvement projects. Collectively, these projects are generally aimed at managing, measuring, or otherwise benefitting groundwater resources, or otherwise include features that can enhance groundwater, such as ecosystem and floodplain restoration. Importantly, the Sustainable Groundwater Management Act (SGMA), adopted in 2014 after the Yuba Accord was approved, requires that groundwater sustainability agencies (GSAs) demonstrate sustainable groundwater use through the avoidance of undesirable results. Consistent with SGMA, the Yuba Subbasins Groundwater Sustainability Plan (GSP) was adopted and approved to guide management of basin activities. Yuba Water continues to implement the GSP through monitoring of conditions, comparing those monitoring results with the sustainable management criteria, reporting the conditions annually to DWR, evaluating the GSP, implementing adaptive management strategies, and funding these activities. Future projects in the Yuba Region with the potential to adversely affect groundwater resources would be subject to project-specific environmental review and mitigation of impacts, as appropriate, and would be required to demonstrate that they would not to conflict with, or obstruct implementation of the Yuba Subbasins GSP. Overall, there is no evidence to suggest that cumulative projects would result in substantial long-term adverse impacts to groundwater conditions in the Yuba Basin.

As described in Chapter 2, "Description of the Proposed Project," the Yuba Accord is designed with adaptive management as a core feature for regulating the amount and location of groundwater pumping for transfer based on the monitoring or current conditions. Should any local or regional projects result in changes to groundwater use in the Yuba Region, the adaptive management element is and would continue to be used to moderate pumping to ensure any effects continue to be less than cumulatively considerable.

In consideration of the less-than-significant impacts of the Proposed Extension on groundwater resources in the Yuba Basin and the potential types of impacts on groundwater resources associated with the cumulative projects, the Proposed Extension would not result in cumulatively considerable impacts to groundwater resources in the Yuba Basin.

OTHER REGIONS INCLUDED IN CVP/SWP SYSTEM-WIDE OPERATIONS

Several of the projects identified in Table 4-1 could affect groundwater resources by changing the available surface water supply and in turn changing the demand on groundwater. Examples of the types of projects (Table 4-1) that could potentially have cumulative impacts on groundwater resources within the CVP/SWP Upstream of the Delta Region, the Delta Region, and the CVP/SWP Export Service Area are listed below.

- Water Supply and Conveyance Projects
  - Davis-Woodland Water Supply Project
  - Del Puerto Canyon Reservoir
  - San Luis Reservoir Low Point Improvement Project
- Projects Related to Changes in CVP/SWP System Operations
  - SWP Oroville Facilities FERC Relicensing (Project No. 2100)
  - Coordinated Long-term Operation of the CVP and SWP
  - CVP and SWP COA, including 2018 Addendum
  - Delta-Mendota Canal/California Aqueduct Intertie
  - Central Valley Project Long-term Contract Renewals
- Levee Improvement Projects
  - Feather River Levee Setback Project
  - Bear River Levee Setback Project
- Ecosystem Restoration Projects
  - Voluntary Agreements

- San Joaquin River Restoration Program

- Water Transfers and Acquisition Programs
  - Long-term and Short-term Water Transfers
  - Eastern San Joaquin Integrated Conjunctive Use Program

The 2007 EIR concluded that changes in CVP/SWP system operations could potentially change water allocations and deliveries and, in turn, could result in changes in groundwater pumping in the CVP/SWP service area; however, it was determined that the Yuba Accord would not adversely affect these long-term project water supplies. Because groundwater pumping under the Yuba Accord would occur only within historical ranges, the incremental effects of the Yuba Accord were concluded to be less than cumulatively considerable when viewed in connection with the effects of CVP/SWP system operations. Future groundwater transfers and acquisitions under the Yuba Accord, including water transfers to the Environmental Water Account (EWA) program, were determined to be within the ranges of historical groundwater pumping volumes; therefore, the incremental effects of the Yuba Accord were concluded to be less than cumulatively considerable when viewed in connection with the effects of future water transfer programs. The 2007 EIR described that groundwater banking projects could change groundwater pumping operations and demand on surface water especially in the areas where groundwater banking projects take place; however, because groundwater pumping under the Yuba Accord would be within historical volumes, it was determined to be unlikely that the Yuba Accord would present a risk to groundwater resources operations under cumulative conditions. Therefore, the incremental effects of the Yuba Accord when viewed with groundwater banking projects were concluded to be less than cumulatively considerable, resulting in a less-than-significant impact on groundwater resources.

As described above, potential impacts to groundwater resources from the projects related to the CVP/SWP system operations, water transfer and acquisition programs, and groundwater banking projects were determined to be less than cumulatively considerable. The 2007 EIR determined that groundwater substitution activities associated with the Yuba Accord would occur only in the Member Unit service areas within Yuba County, and large-scale projects and programs in the CVP/SWP Upstream of the Delta Region, the Delta Region, and the Export Service Area would not affect local groundwater resources in the Yuba Region. Therefore, only the projects and actions within the Yuba Region were discussed in the 2007 EIR analysis of cumulative groundwater impacts (Yuba Water et al. 2007). Similarly, this SEIR only considers projects within the Yuba Region in the cumulative analysis of groundwater impacts because the Proposed Extension would not change management of groundwater resources in the CVP/SWP Upstream of the Delta Region, the Delta Region, or the Export Service Area.

4.3.3 Fisheries and Aquatic Resources

Evaluation of impacts to fisheries and aquatic resources includes the Yuba Region (New Bullards and Englebright reservoirs, the North Yuba River below New Bullards Bar Dam, the upper Yuba River above Englebright Reservoir, and the lower Yuba River from Englebright Dam to the confluence with the Feather River), and other regions included in CVP/SWP system-wide operations, including Oroville Reservoir and the lower Feather River, the lower Sacramento River downstream of the confluence with the Feather River, and the Delta.

Table 4-1 includes projects that will alter flows and habitat conditions for fisheries resources within all waterbodies considered in the Yuba Region, as well as in the lower Feather and Sacramento rivers and the Delta. Projects that could affect fisheries resources relate to FERC relicensing, water supply and delivery, fish screens, reservoir re-operation, levee setbacks, and physical habitat enhancement projects.

YUBA REGION

Examples of the types of projects from Table 4-1 that could cumulatively affect surface water supplies within the Yuba Region related to the Proposed Extension are listed below.

- FERC Relicensing Projects
  - Yuba River Development Project FERC Relicensing (Project No. 2246)
  - Narrows Hydroelectric Project FERC Relicensing (Project No. 1403)
  - Yuba-Bear Hydroelectric Project FERC Relicensing (Project No. 2266)
  - Upper Drum-Spaulding Hydroelectric Project FERC Relicensing (FERC No. 2310)
  - Lower Drum Hydroelectric Project FERC Relicensing (FERC No. 14531)
- Flood Management Projects
  - New Bullards Bar Dam ARC Spillway Project
  - USACE New Bullards Bar Dam and Reservoir WCM Update
- Ecosystem Restoration and Fisheries Improvement Projects
  - Hallwood Side Channel and Floodplain Restoration Project
  - Hallwood/Cordua Canal – Fish Screen Return Line Replacement
  - Timbuctoo Acquisition and Restoration Project
  - Upper Long Bar Habitat Restoration Project
  - Upper Rose Bar Habitat Restoration Project

As described in Section 3.4, "Fisheries and Aquatic Resources," the Proposed Extension would not result in significant impacts to fish species of focused evaluation or their habitats in the Yuba Region. Cumulative projects such as FERC relicensings (e.g., YRDP FERC relicensing) and flood control projects (ARC Spillway Project, WCM Update) will affect flow and habitat conditions in the Yuba Region, while habitat enhancement projects (e.g., Upper Long Bar Habitat Restoration Project, Upper Rose Bar Habitat Restoration Project) are intended to increase habitat availability and suitability for anadromous salmonid and other fish species of focused evaluation in the lower Yuba River. Proposed flow-related measures in the Yuba Region under the YRDP FERC relicensing are intended to benefit habitat conditions for salmonids and other native fish species in these areas. Overall, changes in flows under these projects are not expected to significantly adversely affect flow-related habitat conditions in the Yuba Region, and habitat enhancement and fish screening-related projects are expected to result in beneficial impacts to anadromous salmonids and potentially other fish species of focused evaluation in the lower Yuba River.

In consideration of the less-than-significant impacts of the Proposed Extension on fisheries and aquatic resources in the Yuba Region and the potential types of impacts on fisheries and aquatic resources associated with the cumulative projects, the Proposed Extension would not result in cumulatively considerable impacts to fisheries and aquatic resources in the Yuba Region.

OTHER REGIONS INCLUDED IN CVP/SWP SYSTEM-WIDE OPERATIONS

Examples of the types of projects (Table 4-1) that could potentially have cumulative impacts on fisheries and aquatic resources within the CVP/SWP Upstream of the Delta Region, the Delta Region, and the CVP/SWP Export Service Area are listed below.

- FERC Relicensing Projects
  - SWP Oroville Project FERC Relicensing (Project No. 2100)
  - South Fork Feather Project FERC Relicensing (Project No. 2088)
- Water Supply and Conveyance Projects
  - Shasta Lake Water Resources Investigation
  - Sites Reservoir Project

- Delta Conveyance Project
- Alternative Intake Project
- South Delta Temporary Barriers Project
- Los Vaqueros Reservoir Expansion Project (Phase 2)
- Del Puerto Canyon Reservoir
- San Luis Reservoir Low Point Improvement Project
- B.F. Sisk Dam Raise and Reservoir Expansion Project

- Projects Related to CVP/SWP Operations
  - Coordinated Long-term Operation of the CVP and SWP
  - CVP and SWP COA, including 2018 Addendum
  - Delta-Mendota Canal/California Aqueduct Intertie
  - Central Valley Project Long-term Contract Renewals
  - Davis-Woodland Water Supply Project
- Water Transfers and Acquisition Programs
  - Long-term and Short-term Water Transfers
- Levee Improvement Projects
  - Feather River Levee Setback Project
  - Bear River Levee Setback Project
- Ecosystem Restoration and Fisheries Improvement Projects
  - Feather River Wildlife Area, Riparian Habitat Restoration, Abbott Lake Unit
  - Anadromous Fish Screen Program
  - Liberty Island Conservation Bank
  - Ecosystem Restoration Program Conservation Strategy Implementation
  - Restoring Ecosystem Integrity in the Northwest Delta Phase II
  - Bay-Delta Water Quality Control Plan Update
  - Voluntary Agreements
  - Contra Costa Canal Fish Screen Project
  - Franks Tract Futures Project
  - San Joaquin River Restoration

Cumulative projects such as FERC relicensings (e.g., SWP Oroville Project relicensing), coordinated long-term operation of the CVP and SWP, water transfers, the Sites Reservoir Project, the Bay-Delta Water Quality Control Plan Update, and the Delta Conveyance Project involve changes in flow conditions in the lower Feather or Sacramento rivers and Delta. Overall, these projects have the potential to substantially alter habitat conditions in the lower Sacramento River and Delta. However, these projects include measures to enhance conditions for fisheries habitat or include measures to minimize or mitigate for significant impacts. Levee setback projects (e.g., Feather River Levee Setback Project) and habitat enhancement projects (e.g., Franks Tract Futures Project) are expected to improve habitat conditions for fish species of focused evaluation in these areas. Nonetheless, overall long-term impacts of these projects are uncertain and have the potential to be cumulatively significant for fish species of focused evaluation, particularly in the lower

Sacramento River and Delta. Both the 2007 EIR and Addendum No. 4 (Yuba Water 2016) concluded that implementation of the Yuba Accord would continue to result in minor and less-than-significant impacts to fish species of focused evaluation in the lower Sacramento River and Delta. As described in Section 3.4, the Proposed Extension would continue to result in less-than-significant impacts to fish species of focused evaluation and their habitats in the other regions included in CVP/SWP system-wide operations, including Oroville Reservoir, the lower Feather and Sacramento rivers, and the Delta. Also as described in Section 3.4, changes in flow-related conditions in the CVP/SWP study area since the implementation of the Yuba Accord have been driven by regulatory constraints associated with CVP/SWP operations. The combined effects on fisheries habitat conditions in the CVP/SWP study areas will be driven by continued changes in CVP/SWP operations and implementation of other potential future projects, which would not be expected to be significantly affected by implementation of the Proposed Extension.

In consideration of the less-than-significant impacts of the Proposed Extension on fisheries and aquatic resources in the other regions included in CVP/SWP system-wide operations and the potential types of impacts on fisheries and aquatic resources associated with the cumulative projects, the Proposed Extension would not result in cumulatively considerable impacts to fisheries and aquatic resources in the other regions included in CVP/SWP system-wide operations.

4.3.4 Surface Water Quality

Evaluation of impacts to surface water quality includes the Yuba Region (New Bullards and Englebright reservoirs, the North Yuba River below New Bullards Bar Dam, the upper Yuba River above Englebright Reservoir, and the lower Yuba River from Englebright Dam to the confluence with the Feather River), and other regions included in CVP/SWP system-wide operations, including Oroville Reservoir and the lower Feather River, the lower Sacramento River downstream of the confluence with the Feather River, and the Delta.

Table 4-1 includes projects that could alter water quality conditions within waterbodies considered in the Yuba Region, as well as in the lower Feather and Sacramento rivers and the Delta. Projects that could affect water quality conditions relate to FERC project relicensing, water supply and delivery, reservoir re-operation, levee setbacks, and physical habitat enhancement projects.

YUBA REGION

Examples of the types of projects from Table 4-1 that could cumulatively affect surface water quality within the Yuba Region related to the Proposed Extension are listed below.

- FERC Relicensing Projects
  - Yuba River Development Project FERC Relicensing (Project No. 2246)
  - Narrows Hydroelectric Project FERC Relicensing (Project No. 1403)
  - Yuba-Bear Hydroelectric Project FERC Relicensing (Project No. 2266)
  - Upper Drum-Spaulding Hydroelectric Project FERC Relicensing (FERC No. 2310)
  - Lower Drum Hydroelectric Project FERC Relicensing (FERC No. 14531)
- Flood Management Projects
  - New Bullards Bar Dam ARC Spillway Project
  - USACE New Bullards Bar Dam and Reservoir WCM Update
- Ecosystem Restoration and Fisheries Improvement Projects
  - Hallwood Side Channel and Floodplain Restoration Project
  - Hallwood/Cordua Canal – Fish Screen Return Line Replacement
  - Timbuctoo Acquisition and Restoration Project

- Upper Long Bar Habitat Restoration Project
- Upper Rose Bar Habitat Restoration Project

The 2007 EIR also concluded that project-specific water quality impacts (e.g., decreases in New Bullards Bar Reservoir storage, changes in lower Yuba River flows and water temperatures) in the Yuba Region associated with the Yuba Accord were less than significant. Of the cumulative projects considered and evaluated in the 2007 EIR, it was concluded that the YRDP FERC Relicensing has the potential to affect water quality conditions in the Yuba Region. However, it was not (and is not) anticipated that regulatory requirements resulting from the FERC relicensing process would contribute to potentially significant cumulative adverse impacts (Yuba Water et al. 2007). Because FERC will consider potential water quality impacts during the re-licensing process and impose conditions to mitigate them, significant cumulative impacts on water quality in the Yuba Region are not expected to occur as a result of implementing the Yuba Accord in combination with other reasonably foreseeable future local projects in the Yuba Region. In addition, reasonably foreseeable future projects outside of the Yuba Region (i.e., CVP/SWP Upstream of the Delta Region, Delta Region, and Export Service Area) were not expected to result in operational changes of the YRDP or have any other effects in the Yuba Region. The overall effects on water quality in the Yuba Region therefore would be minor, and the Yuba Accord's contribution to cumulative water quality impacts within the Yuba Region was concluded to be less than significant.

As described in Section 3.5, "Surface Water Quality," the Proposed Extension would result in less-than-significant impacts to surface water quality conditions and associated beneficial uses in the Yuba Region. Based on consideration of the impact analyses in the 2007 Draft EIR as well as updated information on existing water quality conditions and beneficial uses in the Yuba Region, the impacts to water quality previously analyzed in the 2007 Draft EIR would still be applicable, and existing water quality beneficial uses and concentrations of constituents of concern (e.g., mercury, chromium, copper) in the Yuba Region would not be substantially affected by the Accord. Cumulative projects such as FERC relicensings (e.g., YRDP FERC relicensing), groundwater management actions (e.g., Yuba Subbasins Sustainable GMP), flood control projects (ARC Spillway Project, WCM Update), and habitat enhancement projects (e.g., Upper Long Bar Habitat Restoration Project, Upper Rose Bar Habitat Restoration Project) could affect water quality conditions in the Yuba Region. However, potential adverse impacts to water quality associated with these projects, such as due to construction activities, would be primarily short-term in nature and would be minimized through project-specific impact avoidance or mitigation measures. Overall, these projects are not anticipated to result in substantial long-term adverse impacts to water quality conditions, including beneficial uses and concentrations of existing impairments in the Yuba Region waterbodies.

In consideration of the less-than-significant impacts of the Proposed Extension on water quality conditions in the Yuba Region and the potential types of impacts on water quality associated with the cumulative projects, the Proposed Extension would not result in cumulatively considerable impacts to surface water quality in the Yuba Region.

OTHER REGIONS INCLUDED IN CVP/SWP SYSTEM-WIDE OPERATIONS

Examples of the types of projects (Table 4-1) that could potentially have cumulative impacts on surface water quality within the CVP/SWP Upstream of the Delta Region, the Delta Region, and the CVP/SWP Export Service Area are essentially the same as those listed above for surface water supply and management and for fisheries and aquatic resources and are not repeated here.

Although the 2007 EIR quantitatively demonstrated that project-specific impacts of the Yuba Accord in the CVP/SWP Upstream of the Delta Region, the Delta Region, and the CVP/SWP Export Service Area were less than significant, the 2007 EIR determined that the Yuba Accord still could incrementally contribute to cumulative water quality impacts within the project study area. Based on the frequency and magnitude of the quantitative hydrologic changes associated with the Yuba Accord and the other qualitative analytical considerations that factored into the overall cumulative impact conclusions, the 2007 EIR concluded that the Yuba Accord had the potential to contribute to cumulative water quality impacts in the CVP/SWP Upstream of the Delta Region, the Delta Region, and the CVP/SWP Export Service Area (Yuba Water et al. 2007).

CVP/SWP Upstream of the Delta Region

Rationale from the cumulative analysis conducted in the 2007 EIR (p. 9-262) is provided below.

> Future levels of demand for water in California will be addressed through the implementation of numerous projects, including the previously identified general categories of: water storage and conveyance projects; projects related to CVP/SWP system operations; and water transfer and acquisition programs. Presently, it is uncertain how the implementation of the various projects within these general categories will change the timing, magnitude and frequency of flows and water temperatures in the CVP/SWP Upstream of the Delta Region. A number of these projects would be expected to result in increased water availability and therefore increased CVP/SWP operational flexibility to meet various instream beneficial uses. By contrast, some of these projects could be expected to result in decreased operational and management flexibility due to the primary purposes of increased diversions, water supplies and conveyance.
>
> It can be reasonably assumed that each of these projects will be designed to avoid or minimize the adverse impacts to water quality associated with its implementation, and therefore individually will result in less than significant impacts. It can also be reasonably assumed, however, that the combination of a number of less than significant impacts from these projects could result in cumulative potentially significant impacts. Therefore, it is concluded that implementation of the Yuba Accord Alternative in combination with other reasonably foreseeable projects could result in potentially significant and unavoidable cumulative impacts to water quality in the CVP/SWP Upstream of the Delta Region.

Delta Region

Rationale from the cumulative analysis conducted in the 2007 EIR (p. 9-263) is provided below.

> It is uncertain how the implementation of the various reasonably foreseeable projects… would change evaluated Delta water quality parameters. A number of these projects would be expected to result in increased water availability and, therefore, increased CVP/SWP operational flexibility to meet Delta water quality objectives and various instream beneficial uses. In addition, implementation of ecosystem restoration and fisheries improvement projects could result in improved water quality conditions (e.g., reduced sediment loading), although the overall effectiveness of these projects, particularly in consideration of potential future hydrologic changes, is uncertain.
>
> By contrast, some of the previously listed reasonably foreseeable projects are expected to result in decreased operational and management flexibility due to the primary purposes of increased diversions and water supplies associated with future levels of demand, which could result in reduced Delta inflows and increased exports (potentially affecting salinity and south Delta water levels).
>
> It can be assumed that each of the …reasonably foreseeable projects will be deigned to avoid or minimize adverse impacts to Delta water quality that may be associated with its implementation, and therefore individually will result in less than significant impacts. It can also be assumed, however, that the combination of a number of less than significant impacts for these projects could result in cumulative potentially significant impacts. Therefore, it is concluded that implementation of the Yuba Accord Alternative in combination with other reasonably foreseeable projects could result in potentially significant and unavoidable cumulative impacts to water quality in the Delta Region.

As described in the 2007 EIR, to address potentially significant cumulative impacts on water quality, the following two protective measures were incorporated into the Yuba Accord to continue with standard operating procedures and to improve the water quality to users in and south of the Delta pursuant to the provisions originally identified for the Environmental Water Account (EWA) Program (Reclamation et al. 2003).

- Mitigation Measure 9-1: Carriage water will be used to maintain salinity and chloride concentrations in the Delta.
- Mitigation Measure 9-2: YCWA operational flexibility will be utilized to ensure that refilling of New Bullards Bar Reservoir will not adversely affect water quality in the Delta and export service areas south of the Delta.

The complete description (e.g., action/commitment, responsible parties, location, timing, monitoring, reporting, etc.) of each of the measures listed above is provided in Chapter 6, "Mitigation, Monitoring and Reporting Program/Environmental Commitments Plan," of the 2007 Final EIR (Yuba Water et al. 2007).

Additional information is provided in Section 5.1.2 of Yuba Water's October 2007 CEQA Findings of Fact and Statement of Overriding Considerations for the Yuba Accord, which recognized that the 2007 Final EIR identified potentially significant impacts to surface water resources and that Yuba Water incorporated procedures into the Yuba Accord that will avoid or reduce potential impacts on water quality as a result of project implementation (see Chapter 6, "Mitigation, Monitoring and Reporting Program/Environmental Commitments Plan," of the 2007 Final EIR). Yuba Water's 2007 CEQA Findings further state,

> These measures ensure that the Yuba Accord Alternative will minimize or avoid potentially significant environmental impacts, to the extent feasible. These measures include YCWA monitoring commitments that were developed during the preliminary planning and design phases of the Yuba Accord, and mitigation and monitoring commitments identified by Reclamation and DWR in the EIS/EIR for the EWA Program (Reclamation et al. 2004).

With implementation of these mitigation measures, the potentially significant cumulative impacts on surface water quality were reduced to less-than-significant levels. Yuba Water adopted these measures and incorporated them into the project in compliance with applicable federal, state, and local policies and regulations that apply to Yuba Accord activities.

As described in Chapter 2 of this SEIR, the mitigation measures and project commitments to address potential cumulative water quality impacts have been implemented under the Yuba Accord since its inception and in some cases, well before the Yuba Accord was established. These measures would continue to be included as part of the agreements pertaining to the Proposed Extension, as well as in the petition to the SWRCB for continued implementation under the Proposed Extension of the Water Transfer Program.

Cumulative projects such as FERC relicensings (e.g., SWP Oroville Project relicensing), coordinated long-term operation of the CVP and SWP, water transfers, the Sites Reservoir Project, the Bay-Delta Water Quality Control Plan Update, and the Delta Conveyance Project could involve changes in water quality conditions in the lower Feather or Sacramento rivers and Delta. Overall, these projects have the potential to substantially alter flow-related conditions in the lower Sacramento River and Delta, which could alter concentrations of constituents of concern. However, these projects intend to improve water quality conditions (e.g., Bay-Delta Water Quality Control Plan Update), or include measures to minimize or mitigate impacts to water quality, such as impacts associated with short-term construction activities. Levee setback projects and habitat enhancement projects (e.g., Franks Tract Futures Project) can result in primarily short-term impacts to water quality, but these projects include impact avoidance and mitigation measures specific to water quality conditions. Nonetheless, overall long-term impacts of these projects are uncertain and have the potential to be cumulatively significant for water quality conditions, particularly in the lower Sacramento River and Delta. As described in Section 3.5, based on impact analyses in the 2007 Draft EIR, changes in regulatory conditions and existing water quality conditions, the less-than-significant impacts to water quality and designated beneficial uses identified for Oroville Reservoir, the lower Feather River and lower Sacramento River (p. 9-113 to 9-115 in the Draft EIR), and for the Delta Region (p. 9-115 to 9-141 of the Draft EIR) would still be applicable. Also as described in Section 3.5, the Proposed Extension would result in less-than-significant impacts to surface water quality in these regions included in CVP/SWP system-wide operations, including Oroville Reservoir, the lower Feather and Sacramento rivers, and the Delta. The combined effects on water quality conditions in the CVP/SWP study areas will be driven by continued changes in CVP/SWP operations and implementation of other potential future projects, which would not be expected to be significantly affected by implementation of the Proposed Extension.

In consideration of the less-than-significant impacts of the Proposed Extension on water quality conditions in the other regions included in CVP/SWP system-wide operations and the potential types of impacts on water quality associated with the cumulative projects, the Proposed Extension would not result in cumulatively considerable impacts to surface water quality in these areas, including existing beneficial uses and concentrations of existing water quality impairments (e.g., mercury, pesticides, metals, dissolved oxygen, PCBs, invasive species, water temperature).

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5 ALTERNATIVES

5.1 INTRODUCTION

The California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "… a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that a "no project" alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "…shall also identify an environmentally superior alternative among the other alternatives." (CCR Section 15126.6[e][2]).

In defining "feasibility" (e.g., "… feasibly attain most of the basic objectives of the project …"), CCR Section 15126.6(f) (1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body—here, the Yuba Water Board of Directors. (See PRC Sections 21081.5, 21081[a] [3].)

5.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

5.2.1 Attainment of Objectives

As described above, one factor that must be considered in selection of alternatives is the ability of a specific alternative to attain most of the basic objectives of the project (CCR Section 15126.6[a]). Chapter 2, "Description of the Proposed Project," articulated Yuba Water's objectives for the Proposed Extension, which are repeated below:

(1) continue to support water supply reliability throughout the state by providing supplemental water for contractors of the Central Valley Project (CVP) and the State Water Project (SWP), and other potential transferees consistent with the Water Purchase Agreement;

(2) continue to facilitate responsible management of groundwater supplies consistent with the *Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan* (Yuba Water et al. 2019) through active coordination under the Conjunctive Use Agreements; and

(3) continue to generate long-term, predictable revenue for Yuba Water's various projects and programs, such as its programs to replace aging wastewater infrastructure in Yuba County's Disadvantaged Communities.

5.2.2 Environmental Impacts of the Proposed Extension

Sections 3.1 through 3.5 of this Draft SEIR address the potential environmental impacts of implementation of the Proposed Extension. As described in Section 5.1, "Introduction," potentially feasible alternatives are typically developed with consideration of avoiding or lessening the significant, and potentially significant, adverse impacts of a proposed project. However, as described in this SEIR, there would be no significant impacts associated with the Proposed Extension. Therefore, there would be no such impacts to avoid or lessen through implementation of alternatives.

5.3 UPDATE TO ALTERNATIVES ADDRESSED IN THE 2007 EIR

As discussed in Chapter 2, "Description of the Proposed Project," the certified 2007 EIR (State Clearinghouse No. 2005062111) comprehensively analyzed potential impacts related to implementation of the Yuba Accord, and addenda analyzed minor changes to the Yuba Accord in 2014, 2016, and 2022. The 2007 EIR also included an analysis of project alternatives that could feasibly attain most of the basic objectives of the Yuba Accord while reducing or eliminating its significant environmental impacts.

The 2007 EIR evaluated four alternatives: the Yuba Accord Alternative (Proposed Project/Proposed Action), Modified Flow Alternative, No Project Alternative (as defined by CEQA), and No Action Alternative (as defined by NEPA). At the conclusion of the environmental review process, the Yuba Accord Alternative was approved and has been implemented by Yuba Water since 2008 (see Chapter 2, "Description of the Proposed Project," for additional details regarding the background and elements of the Yuba Accord).

While the No Project and No Action Alternatives included future flow regimes based on RD-1644, the Modified Flow Alternative represented a scenario in which RD-1644 flow regimes would not remain in effect. Instead, under the Modified Flow Alternative, instream flow requirements would be based on Yuba Water's voluntary implementation of the RD-1644 interim flows (which would be similar to the flows in a minimum flow proposal made by Yuba Water during the RD-1644 hearings), modified to include a Conference Year concept for the driest one percent of water years. However, the Modified Flow Alternative would not be a feasible alternative to the Proposed Extension because RD-1644 flow regimes are in effect and are expected to continue in effect into the future. Therefore, a future scenario in which RD-1644 flow regimes would not be in effect is not foreseeable.

As evaluated in the 2007 EIR, the No Project Alternative represented then-current (2007) environmental conditions as well as potential operational and environmental conditions that may have occurred in the near-term foreseeable future (2007 through 2025) if the Yuba Accord had not been implemented. Consistent with the State CEQA

Guidelines Sections 15163(a)(2) and 15163(b), this SEIR updates the No Project Alternative, which assumes that the Water Transfer Program is not extended beyond December 31, 2025, to address existing, baseline conditions (2023) and reasonably foreseeable future conditions to make the 2007 EIR adequate to address the proposed extension. (This SEIR is not a NEPA document and, thus, does not include a NEPA No Action Alternative.)

5.4 NO PROJECT ALTERNATIVE

Under the State CEQA Guidelines, Section 15126.6(e), the No Project Alternative includes the existing conditions at the time the Notice of Preparation is published together with reasonably expected conditions in the foreseeable future if the proposed project were not approved. Here, if the Proposed Extension is not approved, Yuba Water would continue to operate in the same way under the terms of its water rights permits and Federal Energy Regulatory Commission (FERC) annual licenses (until the Yuba River Development Project [YRDP] relicensing is completed), and would continue to have water available for transfer under certain conditions. Consequently, the potential differences between the existing conditions and the No Project Alternative would likely be minor and would include: (1) ability to convey Yuba Accord transfer water through Delta Export facilities, (2) the potential buyers receiving the transfer water, and (3) points of rediversion used to deliver the transfer water.

Under the No Project Alternative, New Bullards Bar Reservoir would continue to be operated to target maximum storage at 650 TAF, with up to 55 TAF being made available for potential year-to-year water transfers and transfer flows generated by operation to the Yuba Accord instream flows. Yuba Water would also still comply with the following terms and conditions of RD 1644 as modified by WR 2008-0014 and WR 2008-0025 because these would remain in effect through 2050:

- The instream flow requirements will remain in effect "unless modified under the terms and conditions contained in this permit or by a subsequent order issued by the State Water Board." (Corrected Order WR 2008-0014, p. 56.) The State Water Board explained that even though the Fisheries Agreement will expire upon issuance of a new FERC license, the flow schedule in the Corrected Order "will remain in effect until the State Water Board modifies the permit." (Corrected Order WR 2008-0014, p. 23, section 4.2.1.6.)
- The temperature control requirements imposed by RD 1644 (RD 1644, pp. 176-184), as modified by State Water Board Corrected Order WR 2008-0014 at pages 58-59, will remain in effect. Under Corrected Order WR 2008-0014, Term 2, subsection (f) suspends operation of RD 1644 Terms 2(b) and 2(c) (at RD 1644, p. 177) during the period of operation of the Yuba Accord Fisheries Agreement. (Corrected Order WR 2008-0014, p. 58.) For purposes of the No Project Alternative, it is assumed that Terms 2(b) and 2(c) do not apply because the Fisheries Agreement does not expire until FERC issues a new license, and a new FERC license will not be issued for many more years.

During the term of the Water Purchase Agreement, new Biological Opinions were issued for the CVP and SWP coordinated operations, and an Incidental Take Permit was issued to DWR under the California Endangered Species Act. These new regulatory restrictions reduced the amount of CVP and SWP water that could be delivered south of the Delta, which created strong demand among south of the Delta CVP and SWP water contractors for Yuba Accord transfer water in all year types. Under the No Project Alternative, these water users would not be able to rely on Yuba Water's long-term agreement with DWR to receive Yuba Accord transfer water and would have to rely on year-to-year transfer agreements or would have to enter into their own long-term agreements with Yuba Water.

Table 5-1 identifies annual water transfer volumes under the Yuba Accord for the years 2007 through 2022. Figure 5-1 displays these water transfer volumes in three categories: stored water (surface), groundwater substitution, and environmental flow. This last category, environmental flow, is water deemed available for transfer and released from New Bullards Bar Dam and Reservoir, but not captured by DWR due to Delta conditions or limitations on the ability of CVP and SWP operations to adjust releases or exports to make use of the transfer water and released as additional Delta outflow.

Table 5-1 Yuba Accord New Water for Transfer and the Environment

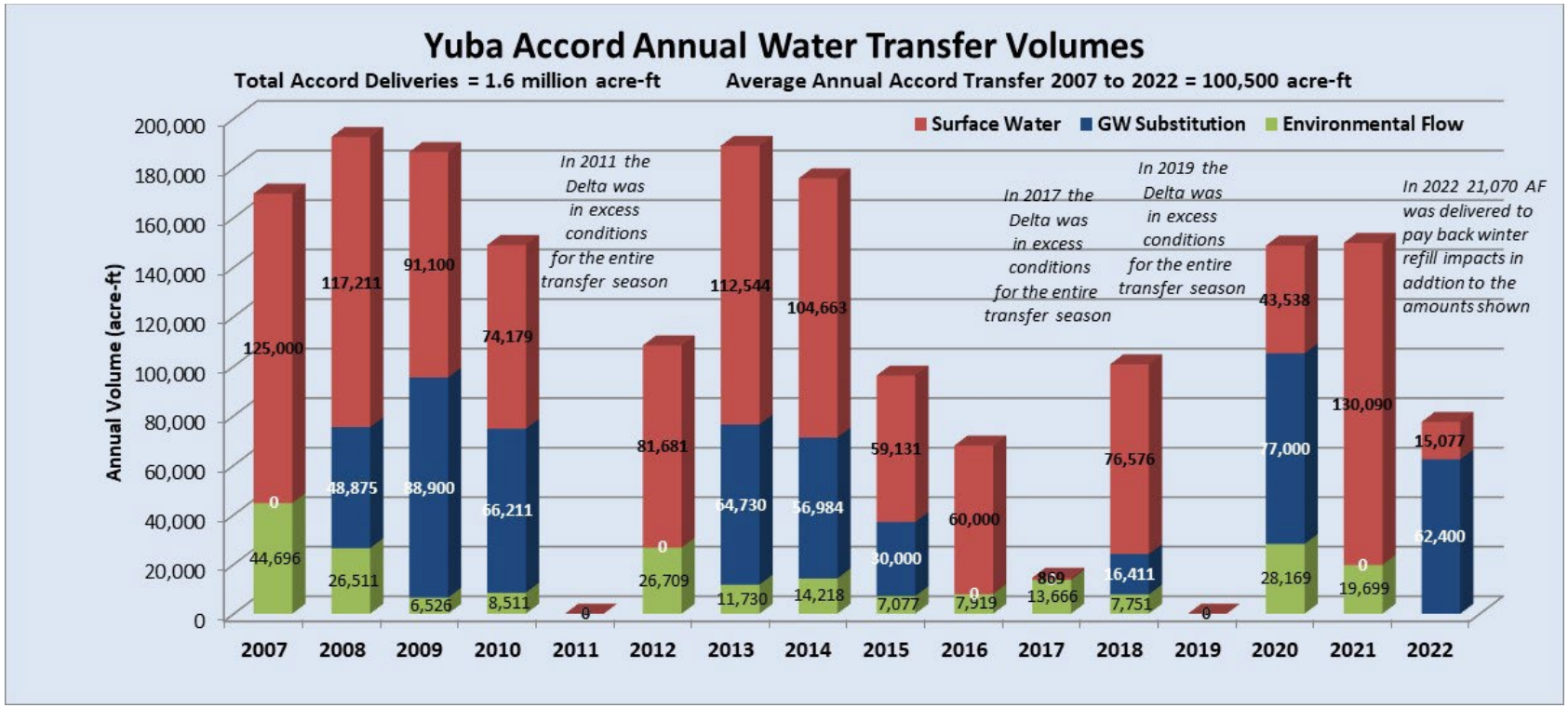
Year	Groundwater Substitution (GWS) (acre-feet)	Surface Water (acre-feet)	Total Transfer (acre-feet)	Environmental Flow (acre-feet)	Total (acre-feet)	EWA (acre-feet)
2007	-	125,000	125,000	44,696	169,696	-
2008	48,875	117,211	166,086	26,511	192,597	60,000
2009	88,900	91,100	180,000	6,526	186,526	60,000
2010	66,211	74,179	140,390	8,511	148,901	60,000
2011	-	-	-	-	-	-
2012	-	81,681	81,681	26,709	108,390	60,000
2013	64,730	112,544	177,274	11,730	189,004	60,000
2014	56,984	104,663	161,647	14,218	175,865	60,000
2015	30,000	59,131	89,131	7,077	96,208	59,131
2016	-	60,000	60,000	7,919	67,919	60,000
2017	-	869	869	13,666	14,535	869
2018	16,411	76,576	92,987	7,751	100,738	-
2019	-	-	-	-	-	-
2020	77,000	43,538	120,538	28,169	148,707	-
2021	-	130,090	130,090	19,699	149,789	-
2022	62,400	15,077	77,477	-	-	-
Totals	511,511	1,096,596	1,608,107	223,182	1,831,289	480,000
Average 2007 to 2022 (excluding 2011, 2017, and 2019)	39,347	84,287	123,634	17,460	139,750	-
Average 2007 to 2020 (all years)	31,969	68,537	100,507	14,879	114,456	-

Source: Prepared by SEG Water in 2023.

As shown in Table 5-1 and Figure 5-1, the Water Transfer Program has provided a total of 1.6 million acre-feet of transfer water since establishment of the Yuba Accord pilot program in 2007 and an average annual transfer amount of 100,507 acre-feet through 2022.

The difference between the Proposed Extension and the No Project Alternative pertains to the disposition of transfer water. If DWR elects not to extend its long-term Water Purchase Agreement with Yuba Water, it is reasonably foreseeable that DWR, or CVP and SWP contractors south of the Delta directly, would purchase transfer water from Yuba Water on a year-to-year basis, or CVP or SWP contractors could seek their own individual long-term water transfer agreements with Yuba Water. In either case, use of the DWR Delta export facilities for delivery of that transfer water is also reasonably foreseeable. Likewise, if the long-term water transfer agreement between Yuba Water and Contra Costa Water District (CCWD) and East Bay Municipal Utility District (EBMUD) is not extended, it is reasonably foreseeable that these agencies would still enter into short-term (one year or less) transfer agreements to purchase transfer water, and their intakes would be used to deliver the purchased transfer water. In addition, under the Yuba groundwater management plan, conjunctive use of groundwater would continue, making it possible for Yuba Water to continue to make groundwater substitution water available for transfer to buyers on a year-to-year basis.

These transfers would occur through water right temporary change petitions involving authorization of temporary 1-year transfers with the addition of temporary points of rediversion under Water Right Permit 15026 by SWRCB consistent with other water transfers through the Delta that have occurred in the recent past.



Source: Prepared by SEG Water in 2023.

Figure 5-1 Yuba Accord Annual Water Transfer Volumes

Under the No Project Alternative, it is also foreseeable that Yuba Water would exercise its option under the Water Code to sell its available transfer water in short-term transfers to other willing buyers that have not received Yuba Transfer water in the past but are capable of taking the water. If that occurs, it is possible that the transfer water would not ultimately be used in the same places it was in the past or as it would be under the Proposed Extension. Transfer water not delivered to existing Yuba Accord partners would be available for purchase by others.

Under the No Project Alternative, the buyers of 1-year transfers could expand to entities with access to or control over their own points of diversion. Woodland-Davis Clean Water Agency is one entity with a point of diversion on the Sacramento River downstream of the mouth of the Yuba River that has expressed interest in receiving Yuba Accord transfer water. Yuba Accord transfer water diverted at the EBMUD and CCWD intakes could also be purchased by other entities that can be served through their points of rediversion, such as Dublin-San Ramon Services District, Alameda County Water District, or Zone 7. Additionally, in future years, if releases from Shasta Reservoir are unavailable due to release restrictions imposed to benefit salmonids, it is reasonably foreseeable that Sacramento River Settlement Contractors located downstream of the Yuba River confluence would have interest in purchasing Yuba Accord transfer water. Many of these water users also operate their own diversion facilities and have the physical capability of conveying the water.

Insofar as SWRCB can approve, and for many years has approved temporary water transfers on a year-to-year basis, it would be reasonable to assume that SWRCB would continue to approve a series of temporary 1-year transfers by Yuba Water. Based on that assumption, the No Project Alternative would be substantially similar to the Proposed Extension and as such would achieve most of the basic objectives of the project. However, reliance on 1-year transfers would not provide the long-term certainty and reliability that the Proposed Extension of the Water Transfer Program would afford. Moreover, the analytical, administrative, and organizational effort that would be required to coordinate and execute 1-year transfers during multiple years to meet the project objectives would be substantial.

5.4.1 Consideration of a No-Transfer Alternative

An additional no-project scenario, in which the Water Board would not approve one-year Yuba Accord water transfers, was briefly considered but ultimately determined to be not reasonably foreseeable. In any event, under this scenario, Yuba Accord instream flow requirements would continue to be released, as explained above; and these flows would be rediverted by the SWP and CVP at the project's Delta export facilities under the Coordinated Operations Agreement between the State of California and United States for delivery to SWP and CVP contractors within the respective SWP and CVP service areas. Under this scenario, therefore, there would likely be little or no variation from the operations under an approved water transfer, except that Yuba County communities would not receive the benefit of water transfer revenues.

This scenario is not considered reasonably foreseeable for the following reasons:

(1) the State Water Board has previously determined in numerous orders (including for Yuba Accord water transfers to CCWD in 2022, 2023, and 2024) that Yuba Accord water transfers do not cause injury to legal users of water or result in unreasonable impacts to fish and wildlife (which is the standard for approving temporary water transfers under Water Code section 1725, et seq.);

(2) California water policy currently promotes water transfers between water users, such as the temporary water transfers anticipated under the no project alternative, as a means to ensure more efficient use of water and to mitigate water shortages (see, e.g., Water Code, section 475); and

(3) there is no evidence to suggest that the applicable laws, policies, and standards favoring temporary transfers of Yuba Accord water are likely to be changed (e.g., Water Code Section 1725, et seq., water transfer procedures and Water Code Section 475, favoring water transfers as a means of alleviating water shortages and directing state agencies to assist in implementing water transfers; Water Board's Draft Staff Report for the Delta Plan Update, which states that water transfers would be expected to mitigate impacts to water supplies from implementation of the Delta Plan Update).

5.5 ENVIRONMENTAL EFFECTS OF THE NO PROJECT ALTERNATIVE

The No Project Alternative would involve water transfers to willing buyers, albeit potentially different buyers than those that currently purchase Yuba Accord transfer water with potentially different PORDs and places of use, but because the transfer water would be of a similar amount, for the same purposes of use (municipal, industrial, and irrigation uses) , and would occur consistent with the same environmental and regulatory requirements as under the Proposed Extension, the impacts of the No Project Alternative to surface water supply and management, groundwater, fisheries and aquatic resources, and water quality would be substantially similar to the Proposed Extension.

5.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As discussed throughout this SEIR, the Proposed Extension is not a new project. Rather, it is a continuation of a component of an existing program that was approved based on the 2007 EIR. The Yuba Accord has been implemented since 2008 and is part of the existing (2023) baseline. See Section 3.1.2, "Baseline," for a description of the existing environmental conditions as they relate to this SEIR. Further, as described in this SEIR, there would be no significant impacts associated with the Proposed Extension, so there would be no significant adverse impacts to avoid or lessen through implementation of alternatives.

The Proposed Extension would result in no impact or less-than-significant impacts to all resources evaluated and discussed in this SEIR, and the No Project Alternative would result in substantially similar impacts to the Proposed Extension, for the reasons discussed above. The No Project Alternative would not avoid or reduce any significant impacts of the Proposed Extension because, as described in this SEIR, none would result. Additionally, although the No Project Alternative would achieve most of the basic objectives of the project, the No Project Alternative would result in a less reliable revenue stream for Yuba Water which may constrain Yuba Water's ability to support its flood risk reduction, habitat enhancement, water supply, and other projects critical to achieving the agency's mission. Conversely, the Proposed Extension for the Water Transfer Program would result in a substantially more predictable revenue stream that would enable Yuba Water to plan for capital expenditures with greater certainty than under the No Project Alternative.

Because the Proposed Extension would not result in any worse or additional significant or potentially significant impacts compared to the No Project Alternative and in fact would result in additional environmental benefits that the No Project Alternative would not achieve, the Proposed Extension is the environmentally superior alternative.

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6 OTHER CEQA SECTIONS

6.1 GROWTH INDUCEMENT

CEQA specifies that the growth-inducing impacts of a project must be addressed in an EIR (Section 21100[b][5]). Specifically, Section 15126.2(d) of the State CEQA Guidelines provides the following guidance for assessing growth-inducing impacts of a project:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can induce growth directly, indirectly, or both. Direct growth inducement would result if a project involved construction of new housing. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement itself is not an environmental effect but may foreseeably lead to environmental effects. If substantial growth inducement occurs, it can result in secondary environmental effects, such as increased demand for housing, demand for other community and public services and infrastructure capacity, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, conversion of agricultural and open-space land to urban uses, and other effects.

6.1.1 Growth-Inducing Impacts of the Proposed Extension

SUMMARY OF 2007 EIR ANALYSIS

Chapter 18, "Growth Inducement," of the 2007 EIR evaluated the potential for the Yuba Accord to result in growth-inducing impacts. Specifically, the analysis considered the potential for growth-inducing impacts in the Yuba Region and in the export service area, and for the latter, included considerations specific to Reclamation and CVP water contractor service areas and considerations specific to DWR and SWP water contractor service areas. Modeling scenarios compared the Yuba Accord Alternative to the CEQA No Project Alternative and to the CEQA Existing Condition, among others.[1]

[1] The 2007 EIR also compared the Modified Flow Alternative to both the CEQA No Project Alternative and CEQA Existing Condition and, because the document was also an EIS (and modeling runs for CEQA and NEPA required slightly different assumptions based on differing regulatory standards), modeling scenarios comparing the action alternatives to the NEPA No Action Alternative and NEPA Affected Environment were also included. While the conclusions of these comparisons were similar to those prepared for the CEQA analyses, they are irrelevant here in the context of this SEIR analysis, prepared pursuant to CEQA.

For the Yuba Region, the 2007 EIR concluded that, although growth was projected to occur in Yuba County, it would occur whether or not the Yuba Accord was implemented. Growth in Yuba County was projected and planned for in city and county general plans, and these planning documents identified water supply sources that did not include the Yuba Accord to accommodate approved levels of growth. The 2007 EIR did contemplate a potential future need (in 2016 or beyond) for an additional 30 TAF for municipal uses that would potentially be diverted from Daguerre Point Dam, but the timing and even the need for that supply was highly uncertain. While it was acknowledged that provision of this water supply could have some effect on growth in the Yuba Region, the high degree of uncertainty combined with the then-limited (8-year) duration of the Yuba Accord, resulted in the reasonable conclusion that implementation of the Yuba Accord would not result in local growth-inducing impacts.

With regard to the export service area, the 2007 EIR evaluated how annual CVP and SWP contract allocations would change as a result of the Yuba Accord, assuming Reclamation and DWR would proportionally distribute the additional water supplies to contractors according to authorized federal contracts and SWP Table A allocations (the maximum amount of water each SWP contractor can receive each year), respectively. Modeling evaluated how annual CVP and SWP contract allocations could change by contractor and water year type, compared to then-current delivery allocations to determine the percent change attributable to the project. In all scenarios, modeling demonstrated that while deliveries to CVP and SWP contractors would increase or decrease slightly depending on the water year, changes in long-term water deliveries as a result of the Yuba Accord would be relatively small (no greater than 1 percent). Based on the facts that: the change in water deliveries would be small, the transfer water was to provide a supplemental water supply during dryer years, and the program would initially last for a limited 8-year term[2], the 2007 EIR concluded that the quantity of Yuba Accord water afforded any given entity would be insufficient to remove an impediment to growth or result in growth-inducing impacts in the export service area.

GROWTH-INDUCING POTENTIAL OF PROPOSED EXTENSION

Notwithstanding the initial 8-year certain term of the Yuba Accord, the Yuba Accord has now formally been in effect since 2008, and it was in effect as a pilot project for two years before that. The new FERC license for the Yuba River Development Project has yet to be issued and the parties to the original Conjunctive Use and Water Purchase Agreements agreed to extend them. Since 2007, an average of about 123,600 acre-feet per year[3] of Yuba Accord water has been transferred throughout the export service area. Although this represents a substantial volume in absolute terms, the Yuba Accord thus far has not removed, and nor would continued implementation of the Yuba Accord under the Proposed Extension remove, an impediment to growth for several reasons. First, as evidenced by the original modeling conducted for the 2007 EIR (and which included the maximum transfer of 200,000 acre-feet per year), the changes in long-term water deliveries to CVP and SWP contractor service areas compared to the No Project Alternative are relatively small (less than 1 percent in the original analysis) and the ultimate recipients of the transfer water are numerous and located throughout the State such that the additional supply to any one user would be insufficient to remove an impediment to growth. Second, agencies and water districts that have received and would continue to receive Yuba Accord transfer water (including EBMUD and CCWD, both added since approval of the original Yuba Accord) have done so primarily to provide reliability to meet existing demands in dry years, not to provide water for growth. EBMUD, for example, in its 2020 Urban Water Management Plan (EBMUD 2020), noted that it had been working with Yuba Water to complete approvals for a long-term transfer arrangement for 10 TAF per year in preparation for continued drought conditions. It noted further that because wet weather conditions returned, EBMUD reservoir storage recovered, and EBMUD did not exercise the option to transfer water in 2016. Finally, and of particular relevance for this analysis, because the Yuba Accord has been in place and the Water Transfer Program was

[2] The initial term of the Conjunctive Use Agreements was to be approximately 8 years, until FERC issued a new license for the YRDP, assumed to be approximately 2016. However, the agreements included provisions for extension, which were exercised, with concurrence by the parties. The term of the Water Purchase Agreement extended until December 31, 2025, with the provision that water transfers would continue after 2016 if the new FERC long-term license would not affect the ability of Yuba Water to make the supplies available. While extension of these elements of the Yuba Accord beyond 2016 were contemplated, certainty could only be guaranteed through approximately 2016.

[3] This average includes only years in which transfers occurred; there were three years in which no water was transferred for agricultural or municipal purposes.

in effect at the time the notice of preparation was issued in January 2023 and has been in effect for approximately 18 years, it represents part of the baseline condition (see also Chapter 3, "Environmental Impacts and Mitigation Measures," Section 3.1.2, "Baseline"). As such, the relevant question as to growth-inducement is whether the Proposed Extension beyond December 31, 2025 has the potential to induce growth.

For the reasons cited above (i.e., the water transfers have resulted in a relatively small change in deliveries to authorized places of use, including CVP and SWP contractor service areas; end users, including CVP and SWP contractors, EBMUD, and CCWD are numerous and located throughout the state, such that deliveries to any one end user is limited; and deliveries under the Yuba Accord are primarily for purposes of supplementing dry-year supplies), the Proposed Extension would not provide sufficient water to any given area on an ongoing basis such that it would remove an obstacle to growth and result in significant growth-related impacts. Moreover, there is no evidence to suggest that past or future water transfers under the Yuba Accord have fueled or will fuel such growth. Total south-of-Delta SWP deliveries would not exceed the contracted maximum water volume of the individual public water agencies, and, under long-term SWP operations, water deliveries are projected to remain within the range of historical deliveries (DWR 2019). Overall, DWR's (2019) analysis demonstrated that, although long-term SWP operations have the potential to increase average annual water supply yields, any potential additional water supply would be within the historic range of water supply deliveries. Any increase in water would be allocated between the 24 SWP water agencies south of the Delta and would not significantly increase water deliveries within areas serviced by these agencies (DWR 2019).

CEQA recognizes a difference between projects that are growth-inducing and ones that merely accommodate growth that has already been planned (as the land use agencies are required to do by law). In the water supply context, if a project will merely accommodate the projected population growth that has been analyzed and approved under the adopted general plans for the affected cities and counties, the project is not considered growth-inducing. Consequently, projects that serve an identified need for water by filling an existing deficiency are not considered growth-inducing. In the context of transfer water that is delivered to irrigation districts, a project is considered growth-inducing if it would result in the conversion of land that was not previously farmed into irrigated acreage.

The Yuba Accord transfer water would be delivered to SWP and CVP contractors and other water purveyors, including both municipalities and irrigation districts. However, there is no evidence that the delivery of this transfer water would cause changes in land use, such as development of areas not included in general plans or conversion of previously uncultivated land to irrigated acreage. Rather, the evidence indicates that the Yuba Accord transfer water would be used to serve existing needs and fill deficits in water supply. Particularly south-of-Delta, where the 2019 USFWS and NMFS Biological Opinions have constrained the ability of the SWP and CVP to provide full supplies to their contractors since 2009 and the Sustainable Groundwater Management Act (SGMA) likely will soon restrict groundwater pumping in the critically overdrafted basins. Therefore, it is anticipated that the purchasers of transfer water would be using this water to make up for other supplies that have been lost. Because there is no reason to believe the regulatory constraints on water supplies will be removed or significantly relaxed as long as the species remain imperiled, and because implementation of SMGA is likely to involve some limitations on groundwater pumping, water supply deficits are likely to remain for the foreseeable future. Given the purchasers' existing and projected future water supply deficits, the Yuba Accord transfer water would be used to fill existing needs, not to support new, unplanned growth. Therefore, the Proposed Extension would not result in local growth-inducing impacts, cause or remove an obstacle to growth, or result in growth-inducing impacts associated with changes in water deliveries to SWP contractor service areas. The Proposed Extension would not result in any new significant impacts not previously analyzed or substantially increase the severity of a previously analyzed impact in the 2007 EIR.

6.2 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

The State CEQA Guidelines Section 15126.2(b) requires EIRs to include a discussion of the significant environmental effects that cannot be avoided if the proposed project is implemented.

6.2.1 Summary of 2007 EIR Analysis

The 2007 EIR concluded that implementation of the Yuba Accord would have a potentially significant and unavoidable energy impact due to increased power consumption from increased groundwater pumping in the Yuba Water Member Unit service areas. Even with the implementation of all feasible mitigation measures and environmental commitments, the 2007 EIR determined that the Yuba Accord's impact on energy resources in the Yuba Region would be significant and unavoidable.

Additionally, the 2007 EIR identified the following potentially significant and unavoidable cumulative impacts resulting from the Yuba Accord, in combination with other related projects:

- Surface Water Supply and Management (Yuba Region, Delta Region, and Export Service Area);
- Power Production and Energy Consumption (Yuba Region, CVP/SWP Upstream of the Delta Region, Delta Region, and Export Service Area);
- Surface Water Quality (CVP/SWP Upstream of the Delta Region and Delta Region);
- Fisheries and Aquatic Resources (CVP/SWP Upstream of the Delta Region and Delta Region);
- Terrestrial Resources (CVP/SWP Upstream of the Delta Region); and
- Recreation (CVP/SWP Upstream of the Delta Region and Delta Region).

6.2.2 Analysis of Proposed Extension

As documented throughout Chapter 3, "Environmental Impacts and Mitigation Measures," and Chapter 4, "Cumulative Impacts," of this Draft SEIR, all of the impacts associated with the Proposed Extension, project-specific impacts and contribution of the project to cumulative impacts would be less than significant. Therefore, there would be no significant and unavoidable impacts.

6.3 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines require a discussion of any significant irreversible environmental changes that would be caused by the project. Specifically, the State CEQA Guidelines section 15126.2(c) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

6.3.1 Summary of 2007 EIR Analysis

Section 4.9, "Irreversible and Irretrievable Commitments of Resources," of the 2007 EIR evaluated the potential of the Yuba Accord to result in irreversible and irretrievable commitments of resources. The 2007 EIR concluded that the Yuba Accord would not result in irreversible and irretrievable commitments of resources for the following:

- Surface Water Supply and Management
- Groundwater
- Flood Control
- Surface Water Quality
- Fisheries and Aquatic Resources
- Terrestrial Resources
- Recreation
- Visual Resources
- Cultural Resources
- Air Quality
- Land Use
- Socioeconomics
- Growth Inducement
- Environmental Justice
- Indian Trust Assets

The Yuba Accord was determined to not involve construction or the use of any resources other than water, with one exception, for power production and energy consumption because the use of fuel would be required to power generators for the extraction of groundwater in Yuba County for groundwater substitution transfers, which would result in unavoidable energy impacts (increased annual power consumption for pumping). These unavoidable impacts were determined to be potentially significant. Additional energy generation could come from a thermal generation source, such as a combined cycle natural gas fired turbine, or a coal fired power plant (see Chapter 7, "Power Production and Energy Consumption," of the 2007 EIR). The 2007 EIR concluded that the operational strategies, protective measures, and avoidance actions incorporated into the Yuba Accord would prevent any irreversible or irretrievable commitments of other nonrenewable resources. Further, there would be no other commitment of nonrenewable resources and the Yuba Accord would not commit future generations to permanent use of natural resources.

6.3.2 Analysis of Proposed Extension

The Proposed Extension would not involve construction materials, land area committed to new facilities, or the use of any resources besides water. Further, while groundwater pumping would continue under the Proposed Extension (remaining at baseline levels), the Proposed Extension would not involve the use of fuel to power generators for the extraction of groundwater in Yuba County because pumps used for groundwater substitution transfers are all now required to be electric (see Section 3.1.3, "Effects Found Not to Be Significant" for further discussion). For this reason, the 2007 EIR's prior conclusion that the Yuba Accord would require the use of nonrenewable fuels is no longer relevant as it is no longer the case.

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