THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

# Board Action

- **Board of Directors**
  ***One Water and Adaptation Committee (OWA)***

12/9/2025 Board Meeting

**7-5**

## Subject

Review and consider the Yuba County Water Agency certified Final Supplemental Environmental Impact Report; Authorize an amendment to the Dry Year Water Purchase Program Agreement with the California Department of Water Resources to purchase water supply under the Yuba Accord Long-Term Water Transfer Program

## Executive Summary

The Yuba Accord Long-Term Water Transfer Program (Program) is implemented by Yuba County Water Agency (Yuba Water) and provides benefits to agricultural, environmental, and urban interests through the creation of instream flows in the Yuba River that are sold to downstream users. Through the Program, the California Department of Water Resources (DWR) purchases supplies from Yuba Water through the Water Purchase Agreement and delivers the supplies to downstream participating contractors. As a participating State Water Project Contractor, Metropolitan is party to the Dry Year Water Purchase Program Agreement (Agreement) with DWR for the purchase of Yuba Water supplies that DWR obtains through the Water Purchase Agreement. Both the Water Purchase Agreement and Metropolitan's Dry Year Water Purchase Program Agreement with DWR expire at the end of 2025. Yuba Water and DWR are amending the Water Purchase Agreement to extend through 2050. To continue accessing Yuba transfer supplies, Metropolitan must also amend its Dry Year Water Purchase Program Agreement with DWR. The changes to the existing Program include updated pricing, which will continue to be subject to amendment at five-year intervals, a reduction to the threshold supply volume after which Yuba Water's transfer supplies can be made available to other third-party buyers, and designating responsibility to Yuba Water for streamflow depletion losses associated with Groundwater Substitution Component transfer supplies. Staff recommends Board approval of the amended agreement consistent with the terms outlined in this letter and the attachments.

## Proposed Action(s)/Recommendation(s) and Options

**Staff Recommendation: Option #1**

**Option #1**

Review and consider the Yuba County Water Agency certified Final Supplemental Environmental Impact Report, and Authorize an amendment to the Dry Year Water Purchase Program Agreement with the California Department of Water Resources to purchase water supply under the Yuba Accord Long-Term Water Transfer Program.

**Fiscal Impact:** Surface Component supplies would cost between $75 to $525 per acre-foot, and Groundwater Substitution Component supply costs would be negotiated annually. Considering Metropolitan's recent purchases of Yuba supplies, Metropolitan's cost may range up to $17,600,000 in critically dry years.
**Business Analysis:** Metropolitan can continue purchasing Yuba supplies for dry year reliability.

**Option #2**

Do not authorize an amendment to the Dry Year Water Purchase Program Agreement with the California Department of Water Resources to purchase water supply under the Yuba Accord Long-Term Water Transfer Program.

**Fiscal Impact:** No impact

**Business Analysis:** Metropolitan may need to pursue other transfer supplies in dry years when supplies are needed.

## Alternatives Considered

Not applicable

## Applicable Policy

By Minute item 47301, dated November 20, 2007, the Board adopted the CEQA determination and authorized the General Manager to enter into an agreement with the California Department of Water Resources to purchase Yuba County Water Authority Components 2, 3 and 4 Water, as set forth in the letter signed by the General Manager on November 8, 2007.

Metropolitan Water District Administrative Code Section 4203: Water Transfer Policy.

## Related Board Action(s)/Future Action(s)

Not applicable

## California Environmental Quality Act (CEQA)

**CEQA determination for Option #1:**

Acting as the Lead Agency, Yuba County Water Agency, certified a Final Supplemental Environmental Impact Report (Final SEIR) on September 17, 2024, for the Extension of the Yuba Accord Long-Term Water Transfer Program (SCH No. 2005062111). The Lead Agency also approved the Findings of Fact and the Mitigation Monitoring and Reporting Program. The Final SEIR and related CEQA documents are included in **Attachment 2**. The Board has reviewed and considered these environmental documents and adopts the findings of the Lead Agency. (State CEQA Guidelines Section 15096).

**CEQA determination for Option #2:**

None required

## Details and Background

**Background**

The Yuba Accord Long-Term Water Transfer Program is implemented by Yuba Water through multiple agreements that terminate in 2025, including an agreement between Yuba Water and DWR (Water Purchase Agreement), an agreement among Yuba Water, Contra Costa Water District, and East Bay Municipal Utility District (Water Transfer Option Agreement), agreements among Yuba Water and its Member Units for conjunctive use, and a State Water Resources Control Board (SWRCB) water rights order approving places of use and points of re-diversion for the Program. Yuba Water is in the process of extending the Program through December 31, 2050. On April 2, 2024, Yuba Water filed a petition for change with the SWRCB to implement the Program through 2050. Yuba Water also filed a separate change petition with the SWRCB to implement the Program through 2026 in the event that its petition for long-term approval is not effective before December 31, 2025. Additionally, on September 17, 2024, Yuba Water, as Lead Agency, certified a supplemental EIR (supplement to the 2007 EIR) that evaluated the potential environmental effects of the extended Program.

Metropolitan purchases Yuba transfer supplies via the Dry Year Water Purchase Program Agreement (Agreement) with DWR that tiers off the Water Purchase Agreement between Yuba Water and DWR. The Board authorized the Agreement in 2007, and approved amendments in 2009, 2010, 2011, 2014, and 2020. Under the

Agreement, DWR facilitates the conveyance of Yuba transfer supplies to participating State Water Project (SWP) contractors and the San Luis Delta Mendota Water Authority (collectively, the Buyers).

Yuba Water makes transfer supplies available to DWR by: (1) reservoir reoperation; and (2) Member Units using groundwater instead of surface water supplies (groundwater substitution). Since its inception in 2008, the Yuba Accord has provided over 1,500,000 acre-feet of supply, which includes 480,000 acre-feet to the Environmental Water Account and the remaining acre-feet shared between participating SWP contractors and San Luis Delta Mendota Water Authority through 2025. Metropolitan has benefited from participation in the Yuba Accord Long-Term Water Transfer Program, having purchased approximately 253,000 acre-feet to date.

**Amendment to the Water Purchase Agreement**

Under the current Water Purchase Agreement, which terminates in 2025, a new amendment is needed to establish fixed prices for surface water supplies purchased after December 31, 2025. Metropolitan staff worked with the Buyers, DWR, and Yuba Water to negotiate an amendment that would secure the pricing of surface water supplies for five years beginning on January 1, 2026. The key terms agreed to are outlined in greater detail in **Attachment 1** and include increasing prices for surface water supplies to reflect updated market conditions. The new prices represent a 3.25 percent annual escalation from the 2020 agreement, but these prices are fixed through 2030. The amendment retains annual negotiations for groundwater substitution supplies.

In addition to updated terms regarding pricing, the amended Water Purchase Agreement reflects revised terminology for the two types of transfer supplies made available under the Program. The supplies made available by reservoir releases are now termed Storage Component supplies instead of Components 1, 2, and 3 Water. The supplies made available by groundwater substitution are termed Groundwater Substitution Component supplies instead of Component 4 Water.

As with the existing Water Purchase Agreement, Metropolitan will only be obligated to pay DWR for Storage Component supplies if DWR can export the supplies at Banks Pumping Plant. Metropolitan will be obligated to pay for Delta carriage water losses incurred to convey the water to Banks Pumping Plant, which have historically ranged from 20 to 35 percent. Under the amended Water Purchase Agreement between DWR and Yuba Water, Yuba Water will be responsible for streamflow depletion losses for supplies made available by groundwater substitution. The existing Water Purchase Agreement did not require mitigation for streamflow depletion losses.

Under the amended Water Purchase Agreement, Yuba Water is seeking greater certainty in its ability to transfer water to third parties, including Contra Costa Water District and East Bay Municipal Utility District. Under the existing Program, Yuba Water first makes 60,000 acre-feet available to participating contractors prior to transferring up to 10,000 acre-feet of water to third parties. Under the amended Water Purchase Agreement, this threshold would be lowered from 60,000 acre-feet to 30,000 acre-feet. This could result in a reduction of available supplies to Metropolitan of up to approximately 2,500 acre-feet in years where available transfer supplies are less than 70,000 acre-feet.

**Amendment to the Dry Year Water Purchase Program Agreement between Metropolitan and DWR**

The proposed amendment to the Agreement between Metropolitan and DWR tiers off the amendment to the Water Purchase Agreement and incorporates by reference the changes described above.

Metropolitan will continue to retain some flexibility to decide on the amount of water to be purchased each year. When DWR makes Storage Component supplies available to Metropolitan based proportionately on Metropolitan's Table A share, Metropolitan has the right to refuse the supplies, and DWR would make that water available to other buyers in the Program. However, if other buyers do not purchase the water, Metropolitan will be required to pay for up to its proportion of Storage Component supplies. Metropolitan has no obligation to purchase Groundwater Component supplies.

In recent years, the maximum amount of Yuba Storage Component supplies purchased by Metropolitan was approximately 33,500 acre-feet. Assuming a maximum purchase price of $525 per acre-foot, the fiscal impact to Metropolitan for securing supplies during a critically dry year may be as high as $17,600,000.

The Program has been a vital source of supplemental supply to Metropolitan in dry years. Amending and extending the Agreement will provide Metropolitan access to dry year supplies for another twenty-five years.

12/1/2025
*Brandon J. Goshi* *Date*
*Manager, Water Resource Management*

12/1/2025
*Deven N. Upadhyay* *Date*
*General Manager*

**Attachment 1 – Yuba Amendment Key Terms**

**Attachment 2 – Supplemental Final Environmental Impact Report for the Extension of the Yuba Accord Long-Term Water Transfer Program**

Ref# wrm12705215

| Attachment 1 - Yuba Amendment Key Terms | | |
|---|---|---|
| **Contract Provisions** | **Existing** | **With Amendment** |
| **Term** | Through December 31, 2025 | Through December 31, 2050 |
| **Price for Surface Water Supplies**<br><br>Component 1 Surface Water<br>• Wet Year<br>• Above Normal Year<br>• Below Normal Year<br>• Dry Year<br>• Critical Year<br>• Consecutive Dry or Critical Years<br><br>Component 2 Surface Water<br>• Dry Year<br>• Critical Year<br>• Consecutive Dry or Critical Years<br><br>Component 3 Surface Water<br>• Wet Year<br>• Above Normal Year<br>• Below Normal Year<br>• Dry Year<br>• Critical Year<br>• Consecutive Dry or Critical Years | <br><br><br>• $64/AF<br>• $128/AF<br>• $191/AF<br>• $255/AF<br>• $383/AF<br>• $447/AF<br><br><br>• $204/AF<br>• $306.40/AF<br>• $357.60/AF<br><br><br>• $64/AF<br>• $128/AF<br>• $191/AF<br>• $255/AF<br>• $383/AF<br>• $447/AF<br><br>Subject to 5-year Negotiation | **Storage Component Supply**<br><br>• $75/AF<br>• $150/AF<br>• $225/AF<br>• $300/AF<br>• $450/AF<br>• $525/AF<br><br>First 15 TAF in Dry Years and First 30 TAF in Critical Years<br>• $240/AF<br>• $360/AF<br>• $420/AF<br><br>Subject to 5-year Negotiation |
| **Price for Groundwater Substitution Supplies** | Annual Negotiation | Annual Negotiation |
| **Streamflow Depletion Losses associated with Groundwater Substitution supplies** | No required mitigation | Responsibility of Yuba Water; Based on future discussions between Yuba Water, DWR, and USBR |
| **Third-Party Transfer Threshold** Storage Component Supply Made Available to Participating Contractors (inc. Metropolitan) Prior to Third-Party Transfers | 60 TAF | 30 TAF |

# Notice of Determination

**To:**
☒ Office of Planning and Research
*U.S. Mail:* P.O. Box 3044, Sacramento, CA 95812-3044
*Street Address* 1400 Tenth St., Rm 113, Sacramento, CA 95814

☒ County Clerk
County of: Various (see attached)

**From:**
Public Agency: Yuba County Water Agency
Address: 1220 F Street
Marysville, CA 95901-4740
Contact: Jacob Vander Meulen
Phone: (530) 443-7412

Lead Agency (if different from above):
Same as above

***SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resource Code.***

ENDORSED FILED
YUBA COUNTY CLERK/RECORDER
SEP 17 2024
DONNA HILLEGASS, Clerk
BY BRIDGETTE EVANS
DEPUTY CLERK

**State Clearinghouse Number (if submitted to State Clearinghouse):** 2005062111

**Project Title:** Extension of the Yuba Accord Long-Term Water Transfer Program

**Project Applicant:** Yuba County Water Agency

**Project Location (include county):** Yuba and other counties (see Figures 1 and 2)

**Project Description:** The Lower Yuba River Accord (Yuba Accord), implemented by Yuba County Water Agency (Yuba Water) since 2008, is a comprehensive settlement resolving issues regarding instream flow requirements for the lower Yuba River, water transfers, conjunctive use of surface water and groundwater, and fisheries management. The environmental effects of the Yuba Accord were evaluated in an EIR, which was certified in 2007 (State Clearinghouse No. 2005062111). Yuba Water proposes to extend the Accord's Water Transfer Program beyond its current expiration date of December 31, 2025 through December 31, 2050 (Proposed Extension). The Fisheries Agreement component of the Yuba Accord is not set to expire at the end of 2025 and therefore the Proposed Extension does not include any changes to the Fisheries Agreement. The existing Water Transfer Program is operated through: (1) Yuba Water's Water Purchase Agreement with the Department of Water Resources (DWR); (2) Yuba Water's Conjunctive Use Agreements with its member units; and (3) the Yuba Water/CCWD/EBMUD Water Transfer Option Agreement. Without the Proposed Extension, the program would expire on December 31, 2025, consistent with the State Water Resources Control Board's Corrected Order WR 2008-0014. The Proposed Extension will: (A) extend the expiration date 25 years, with a maximum transfer of 200,000 acre-feet per year from all sources, including reservoir storage releases and groundwater substitution; and (B) authorize extensions of the DWR Water Purchase Agreement (as amended), the Conjunctive Use Agreements (as amended), and the Water Transfer Option Agreement Between Contra Costa Water District, East Bay Municipal Utility District, and Yuba Water. Although no substantial changes to the Water Transfer Program are proposed other than its extension, Yuba Water, as lead agency, has chosen to prepare a supplemental EIR (supplement to the 2007 EIR) to evaluate the potential environmental effects of the Proposed Extension.

This is to advise that the Yuba County Water Agency Board of Directors has approved the above described

(☒ Lead Agency or ☐ Responsible Agency)

project on September 17, 2024 and has made the following determinations regarding the above described project.

1. The Proposed Extension (project), as analyzed in the Supplemental EIR, will not result in any new or substantially more severe significant environmental impacts beyond those described in the certified 2007 EIR.
2. A Supplemental EIR was prepared for the project and certified pursuant to the provisions of CEQA.
3. Mitigation measures from the certified 2007 EIR were made a condition of the approval of the project; no new project-specific mitigation measures are required.
4. The implementation of applicable mitigation measures from the certified 2007 EIR will be monitored and reported pursuant to the existing Yuba Accord Mitigation Monitoring and Reporting Program.
5. A Statement of Overriding Considerations was not required or adopted for this project.
6. Findings were made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:

https://www.yubawater.org/157/Lower-Yuba-River-Accord or 1220 F Street, Marysville, CA 95901-4740

Signature (Public Agency): Jacob Vander Meulen Title: : Environmental Manager

Date: 09-17-2024 Date Received for filing at OPR:

2024FG-00046

Authority cited: Sections 21083, Public Resources Code.
Reference Section: 21000-21174, Public Resources Code.Revised 2011

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

**Figure 1 Lower Yuba River Basin**

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

**Figure 2 Places of Storage, Points of Rediversion, and Places of Use**

# County List

**Notice of Determination: Extension of the Yuba Accord Long-Term Water Transfer Program**

**Project Applicant: Yuba County Water Agency**

County Clerk - Alameda County
County Clerk - Butte County
County Clerk - Colusa County
County Clerk - Contra Costa County
County Clerk - Fresno County
County Clerk - Glenn County
County Clerk - Imperial County
County Clerk - Kern County
County Clerk - Kings County
County Clerk - Lassen County
County Clerk - Los Angeles County
County Clerk - Madera County
County Clerk - Marin County
County Clerk - Mariposa County
County Clerk - Merced County
County Clerk - Monterey County
County Clerk - Nevada County
County Clerk - Placer County
County Clerk - Plumas County
County Clerk - Sacramento County
County Clerk - San Benito County
County Clerk - San Bernardino County
County Clerk - San Francisco County
County Clerk - San Joaquin County
County Clerk - San Luis Obispo County
County Clerk - San Mateo County
County Clerk - Santa Barbara County
County Clerk - Santa Clara County
County Clerk - Santa Cruz County
County Clerk - Sierra County
County Clerk - Solano County
County Clerk - Stanislaus County
County Clerk - Sutter County
County Clerk - Tehama County
County Clerk - Tulare County
County Clerk - Ventura County
County Clerk - Yuba County

State of California - Department of Fish and Wildlife

# 2024 ENVIRONMENTAL DOCUMENT FILING FEE CASH RECEIPT

DFW 753.5a (REV. 01/01/24) Previously DFG 753.5a

RECEIPT NUMBER: 58 - 09172024 - 46

STATE CLEARINGHOUSE NUMBER *(If applicable)*: 2005062111

**SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.**

| LEAD AGENCY | LEAD AGENCY EMAIL | DATE |
|---|---|---|
| YUBA COUNTY WATER AGENCY | | 09/17/2024 |

| COUNTY/STATE AGENCY OF FILING | DOCUMENT NUMBER |
|---|---|
| YUBA | 2024FG-00046 |

PROJECT TITLE

EXTENSION OF THE YUBA ACCORD LONG-TERM WATER TRANSFER PROGRAM

| PROJECT APPLICANT NAME | PROJECT APPLICANT EMAIL | | PHONE NUMBER |
|---|---|---|---|
| YUBA COUNTY WATER AGENCY | | | (530) 443-7412 |
| **PROJECT APPLICANT ADDRESS** | **CITY** | **STATE** | **ZIP CODE** |
| 1220 F STREET | MARYSVILLE | CA | 95901 |

**PROJECT APPLICANT** *(Check appropriate box)*

☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

**CHECK APPLICABLE FEES:**

| | | | |
|---|---|---|---|
| ☒ Environmental Impact Report (EIR) | $4,051.25 | $ | $4,051.25 |
| ☐ Mitigated/Negative Declaration (MND)(ND) | $2,916.75 | $ | |
| ☐ Certified Regulatory Program (CRP) document - payment due directly to CDFW | $1,377.25 | $ | |

☐ Exempt from fee

- ☐ Notice of Exemption (attach)
- ☐ CDFW No Effect Determination (attach)

☐ Fee previously paid (attach previously issued cash receipt copy)

| | | | |
|---|---|---|---|
| ☐ Water Right Application or Petition Fee (State Water Resources Control Board only) | $850.00 | $ | |
| ☒ County documentary handling fee | | $ | $50.00 |
| ☐ Other 0.00 | | $ | |

**PAYMENT METHOD:**

☐ Cash ☐ Credit ☒ Check ☐ Other **TOTAL RECEIVED** $ $4,101.25

| SIGNATURE | AGENCY OF FILING PRINTED NAME AND TITLE |
|---|---|
| X Bridgette Evans | Bridgette Evans Deputy |

Yuba County
Donna Hillegass, County Clerk
and Recorder
915 8th Street, Suite 107
Marysville, CA 95901
(530) 749-7850

Receipt: 24-11803

| ProductName | | Extended |
|---|---|---|
| FG | CLERK FISH AND GAME FILINGS | $4,101.25 |
| Document # | 2024FG-00046 | |
| Filing Type | ENV IMPACT REPORT (STATE) | |
| Comment | COUNTER | |
| Total | | $4,101.25 |
| Tender (Check) | | $4,101.25 |
| Check# 108963 | | |
| Paid By | YUBA COUNTY WATER AGENCY | |

Thank You for Your Business

9/17/24 10:28 AM PST
counterclerk1
Workstation: REC123

7-5

**YUBA COUNTY WATER AGENCY** **GENERAL FUND** 108963

**Vendor ID** 00342 **Vendor** County of Yuba, Clerk/Recorder 09/12/2024 **Check #** 108963

| Invoice Number | Date | Invoice Amount | Amount Paid | Discount Taken | Write Off | Net Amount |
|---|---|---|---|---|---|---|
| PID30910-P | 09/10/2024 | $ 4,101.25 | $ 4,101.25 | $ 0.00 | $ 0.00 | $ 4,101.25 |
| **TOTALS:** | | $ 4,101.25 | $ 4,101.25 | $ 0.00 | $ 0.00 | $ 4,101.25 |

# Draft Supplemental EIR

## for the

# Extension of the Yuba Accord Long-Term Water Transfer Program

**State Clearinghouse No. 200506211**

YUBA WATER AGENCY

April 2024

# Draft Supplemental EIR

## for the

# Extension of the Yuba Accord Water Transfer Program

### State Clearinghouse No. 200506211

Yuba County Water Agency
1220 F St, Marysville, CA 95901

Contact:
JoAnna Lessard
Project Manager

20200080.02

April 2024

# 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


| Section | | Page |
|---|---|---|
| LIST OF ABBREVIATIONS | | IV |
| EXECUTIVE SUMMARY | | ES-1 |
| ES 1 | Introduction | ES-1 |
| ES 2 | Summary Description of the Proposed Project | ES-1 |
| ES 3 | Environmental Impacts | ES-3 |
| ES 4 | Alternatives | ES-4 |
| ES 5 | Areas of Controversy and Issues to Be Resolved | ES-5 |
| 1 | INTRODUCTION | 1-1 |
| 1.1 | Basis of Environmental Analysis | 1-1 |
| 1.2 | Previous CEQA Documentation | 1-1 |
| 1.3 | Purpose and Intended Uses of this Draft Supplemental EIR | 1-4 |
| 1.4 | Agency Roles and Responsibilities | 1-5 |
| 1.5 | Public Review Process | 1-6 |
| 1.6 | Draft Supplemental EIR Organization | 1-7 |
| 1.7 | Standard Terminology | 1-8 |
| 1.8 | Incorporation by Reference | 1-8 |
| 2 | DESCRIPTION OF THE PROPOSED PROJECT | 2-1 |
| 2.1 | Background | 2-1 |
| 2.2 | Project Objectives | 2-7 |
| 2.3 | Description of the Proposed Extension | 2-7 |
| 2.4 | Potential Approvals and Permits Required | 2-14 |
| 3 | ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES | 3.1-1 |
| 3.1 | Approach to the Environmental Analysis | 3.1-1 |
| 3.2 | Surface Water Supply and Management | 3.2-1 |
| 3.3 | Groundwater Resources | 3.3-1 |
| 3.4 | Fisheries and Aquatic Resources | 3.4-1 |
| 3.5 | Surface Water Quality | 3.5-1 |
| 4 | CUMULATIVE IMPACTS | 4-1 |
| 4.1 | Introduction to the Cumulative Analysis | 4-1 |
| 4.2 | Cumulative Context and Approach | 4-1 |
| 4.3 | Analysis of Cumulative Impacts | 4-18 |
| 5 | ALTERNATIVES | 5-1 |
| 5.1 | Introduction | 5-1 |
| 5.2 | Considerations for Selection of Alternatives | 5-2 |
| 5.3 | Update To Alternatives Addressed in the 2007 EIR | 5-2 |
| 5.4 | No Project Alternative | 5-3 |
| 5.5 | Environmental Effects of the No Project Alternative | 5-7 |
| 5.6 | Environmentally Superior Alternative | 5-7 |

6 OTHER CEQA SECTIONS....6-1
6.1 Growth Inducement....6-1
6.2 Significant and Unavoidable Adverse Impacts....6-4
6.3 Significant and Irreversible Environmental Changes....6-4

7 REPORT PREPARERS....7-1

8 REFERENCES....8-1

## Appendices

A Notice of Preparation and Scoping Comments
B Streamflow Depletion Effects on Downstream Water Supplies
C Modeling Data
C1 Yuba River Development Project Water Balance/Operations Model Documentation
C2 Yuba River Development Project Model YRDPM Hydrology Report
C3 Modeling Data

## Figures

Figure 2-1 Yuba Water Member Units and Other Water Purveyors....2-2
Figure 2-2 Major Water Development Facilities in the Lower Yuba River Basin....2-8
Figure 2-3 Places of Storage and Potential Points of Rediversion and Places of Use for Yuba Accord Transfer Water Under the Proposed Extension....2-9
Figure 3.2-1 Yuba River Basin in Yuba County....3.2-17
Figure 3.3-1 North Yuba and South Yuba Groundwater Subbasins and Local Water Purveyors....3.3-4
Figure 3.3-2 Spring 2022 Groundwater Elevations in the North and South Yuba Subbasins....3.3-6
Figure 3.3-3 Location of Yuba Goldfields....3.3-7
Figure 3.3-4 Historical Groundwater Elevations for Select Monitoring Wells in the North Yuba Subbasin....3.3-10
Figure 3.3-5 Historical Groundwater Elevations for Select Monitoring Wells in the South Yuba Subbasin....3.3-11
Figure 3.3-6 Volume of Groundwater Substitution Transfers from the North Yuba and South Yuba Subbasins....3.3-12
Figure 3.3-7 Volume of Groundwater Substitution Transfers by Member Units in the North Yuba Subbasin....3.3-12
Figure 3.3-8 Volume of Groundwater Substitution Transfers by Member Units in the South Yuba Subbasin....3.3-13
Figure 3.3-9 Gaining and Losing Portions of Major Rivers, Based on YGM Output....3.3-14
Figure 3.3-10 Subsidence within Yuba Subbasins Based on DWR Surveying....3.3-17
Figure 5-1 Yuba Accord Annual Water Transfer Volumes....5-5

## Tables

Table ES-1 Summary of Environmental Impact Analysis of the Proposed Extension ..... ES-6
Table 3.2-1 Narrows 1 FERC License Lower Yuba River Instream Flow Requirements at Smartsville ..... 3.2-2
Table 3.2-2 New Bullards Bar Reservoir Flood Storage Space Allocation ..... 3.2-3
Table 3.2-3 Instream Flow Schedule Occurrence ..... 3.2-7
Table 3.2-4 Yuba Accord – Lower Yuba River Minimum Instream Flows (cfs) for Schedules 1 through 6, Measured at the Marysville Gage ..... 3.2-7
Table 3.2-5 Yuba Accord – Lower Yuba River Minimum Instream Flows (cfs) for Schedules A and B, Measured at the Smartsville Gage ..... 3.2-8
Table 3.2-6 Yuba Water's Annual Contract Amounts and Place of Delivery ..... 3.2-13
Table 3.2-7 Yuba Water's Water Supply Contract Shortage Provisions ..... 3.2-14
Table 3.2-8 Yuba Water Historical Sales From 2007 to 2022 ..... 3.2-14
Table 3.5-1 Beneficial Uses of Water Bodies in the Study Area ..... 3.5-3
Table 3.5-2 Constituents of Concern for 303(d) Listed Water Bodies in the Study Area ..... 3.5-6
Table 4-1 Cumulative Project List ..... 4-3
Table 5-1 Yuba Accord New Water for Transfer and the Environment ..... 5-4

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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

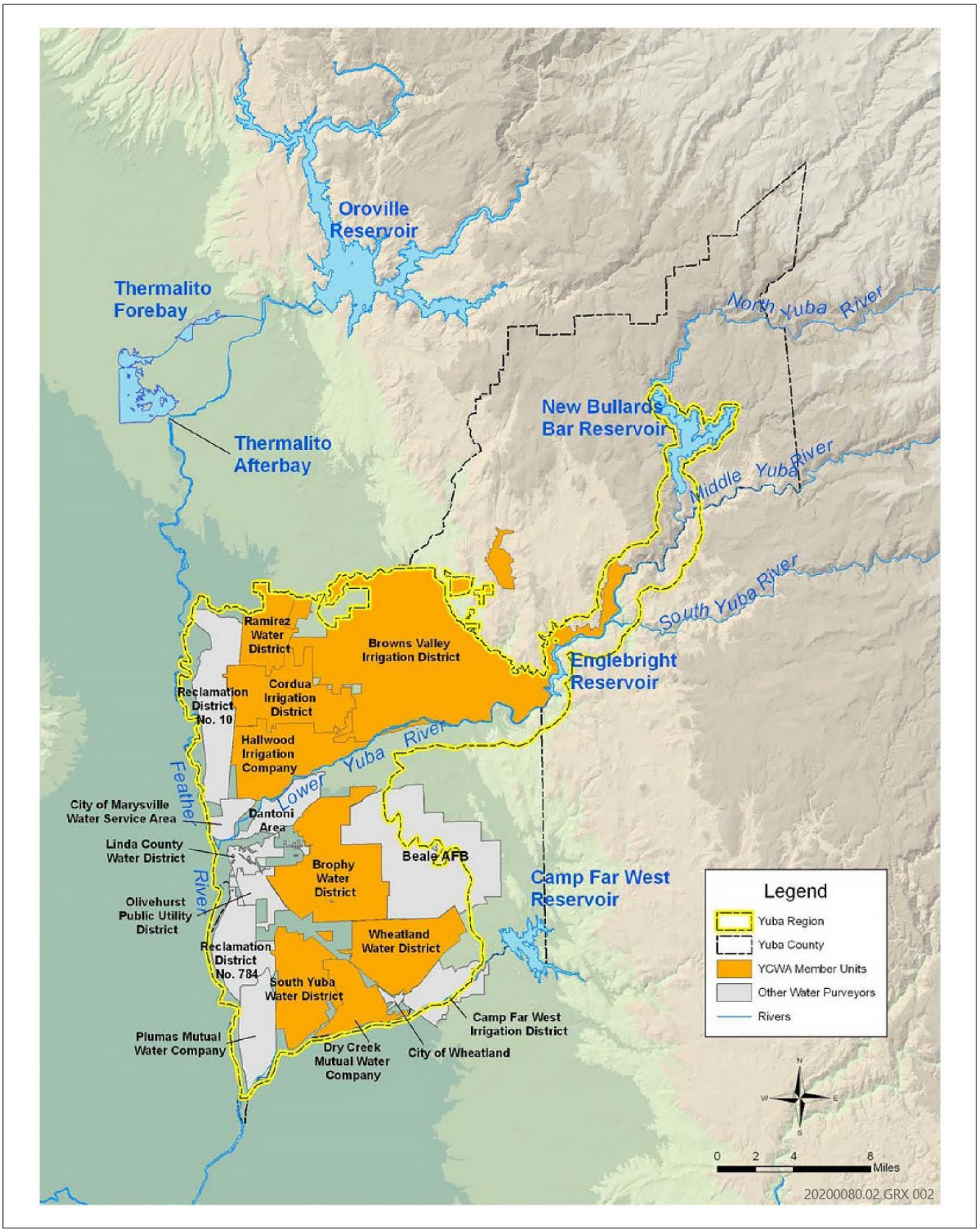
The Yuba Accord is a comprehensive settlement that implements a set of collaboratively developed, science-based instream flow requirements to protect and enhance fisheries and aquatic resources, and improve local and state-wide water supply reliability. Yuba Water spent years developing the Yuba Accord 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.

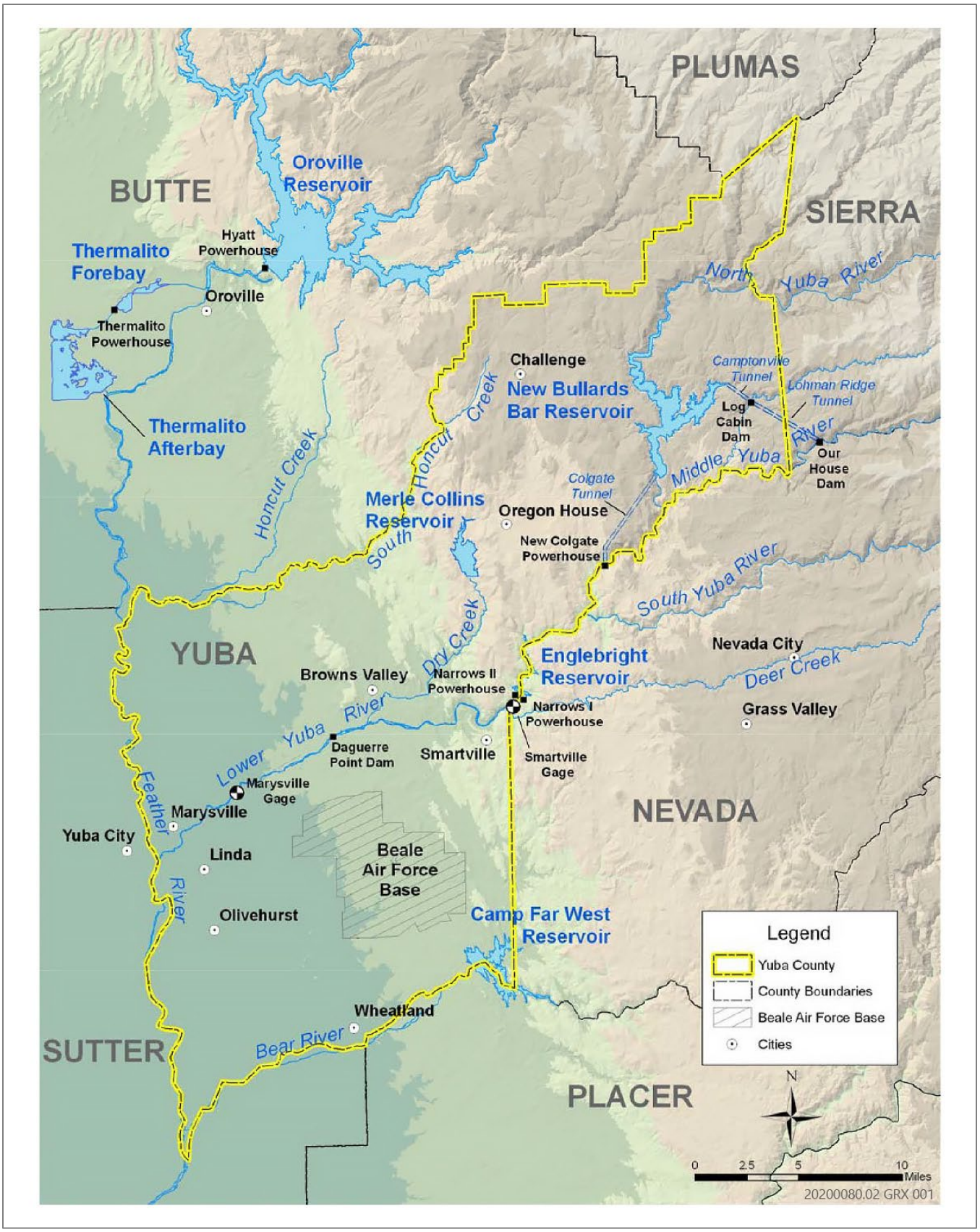
The Proposed Extension will include the following components:

- 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.

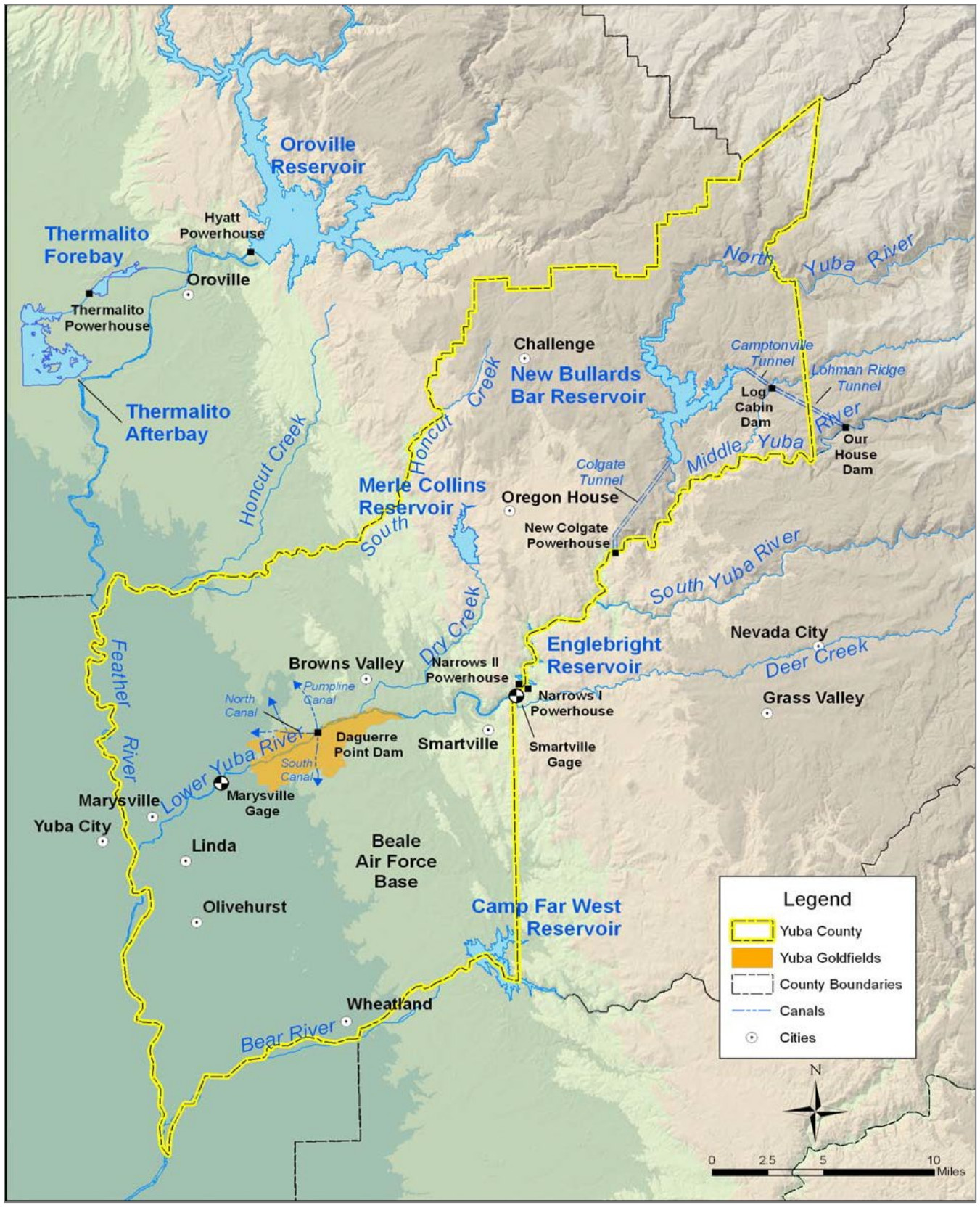
The upper basins of the Middle Yuba and South Yuba rivers have been extensively developed for hydroelectric power generation and consumptive uses by Nevada Irrigation District (NID) and PG&E. Total storage capacity of about 307 TAF on the Middle Yuba and South Yuba rivers and associated diversion facilities 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.

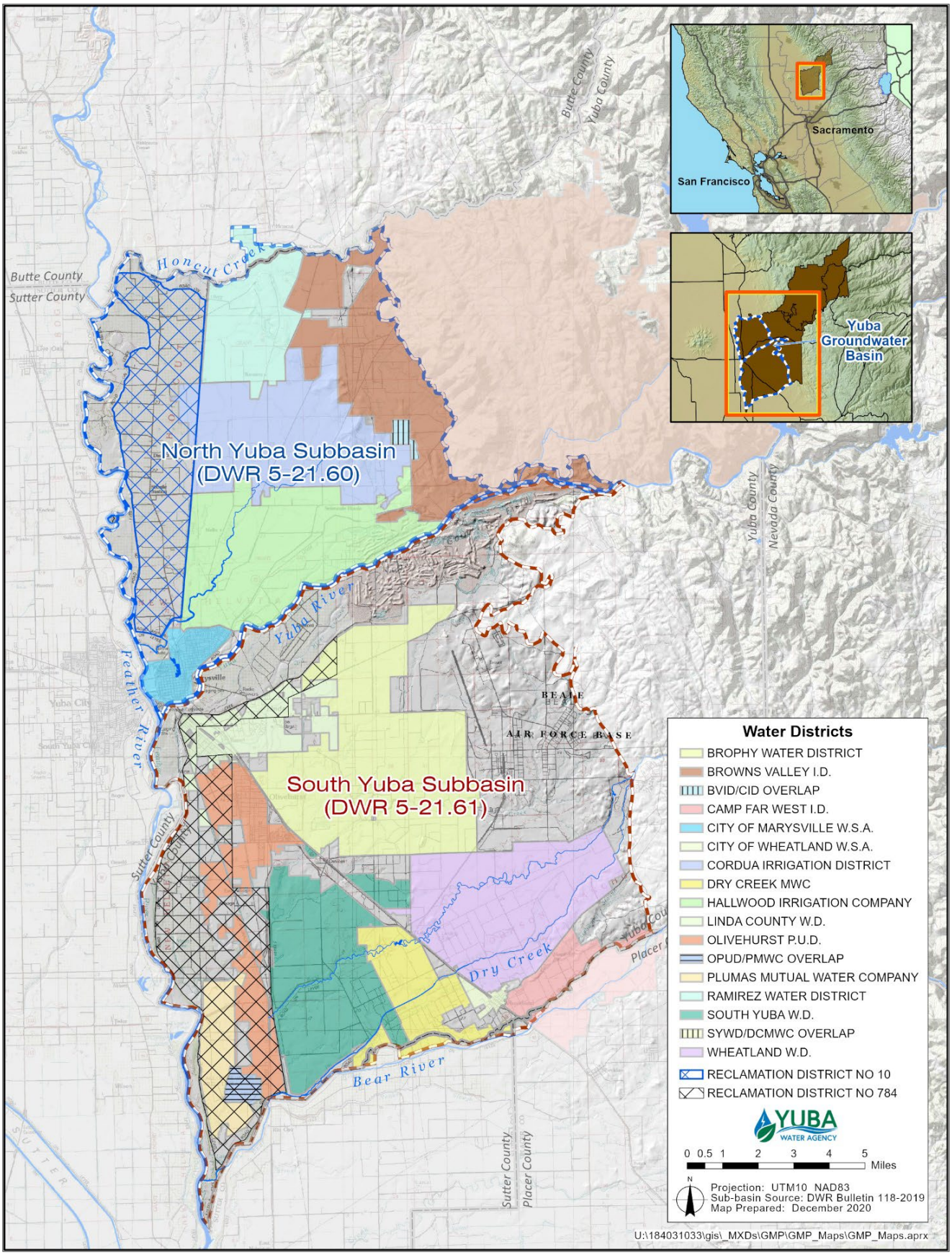
The Yuba Subbasins lie at the base of the Sierra Nevada Foothills and comprise a portion of the Sacramento Valley Groundwater Basin. Sources used to describe the geology of the Yuba Subbasins are the *Hydrogeologic Understanding of the Yuba Basin* Yuba Water 2008); DWR's Bulletin 118 (1975 and 2003 Update) (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).

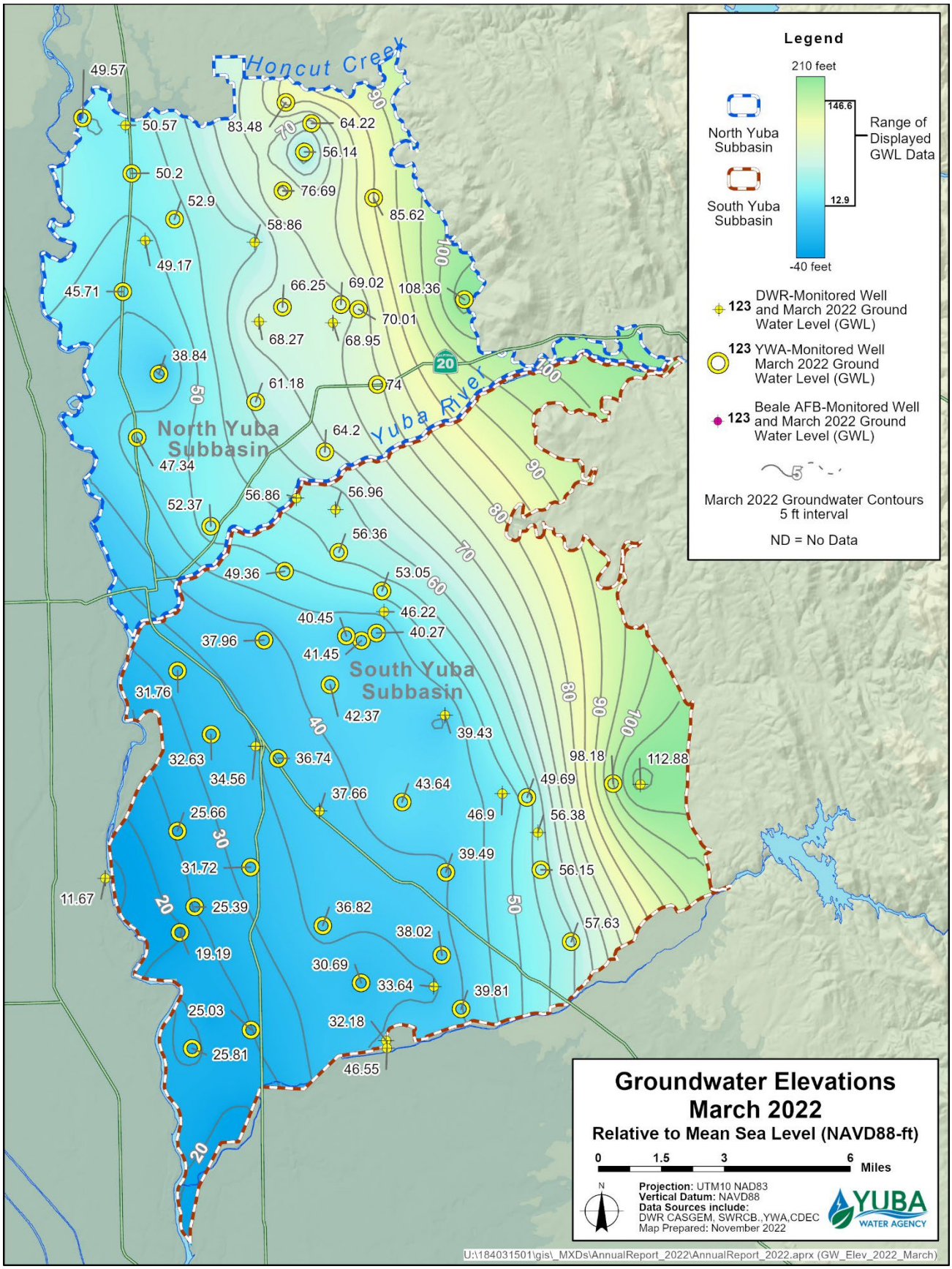
### Non-groundwater-bearing Deposits/Formations

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.



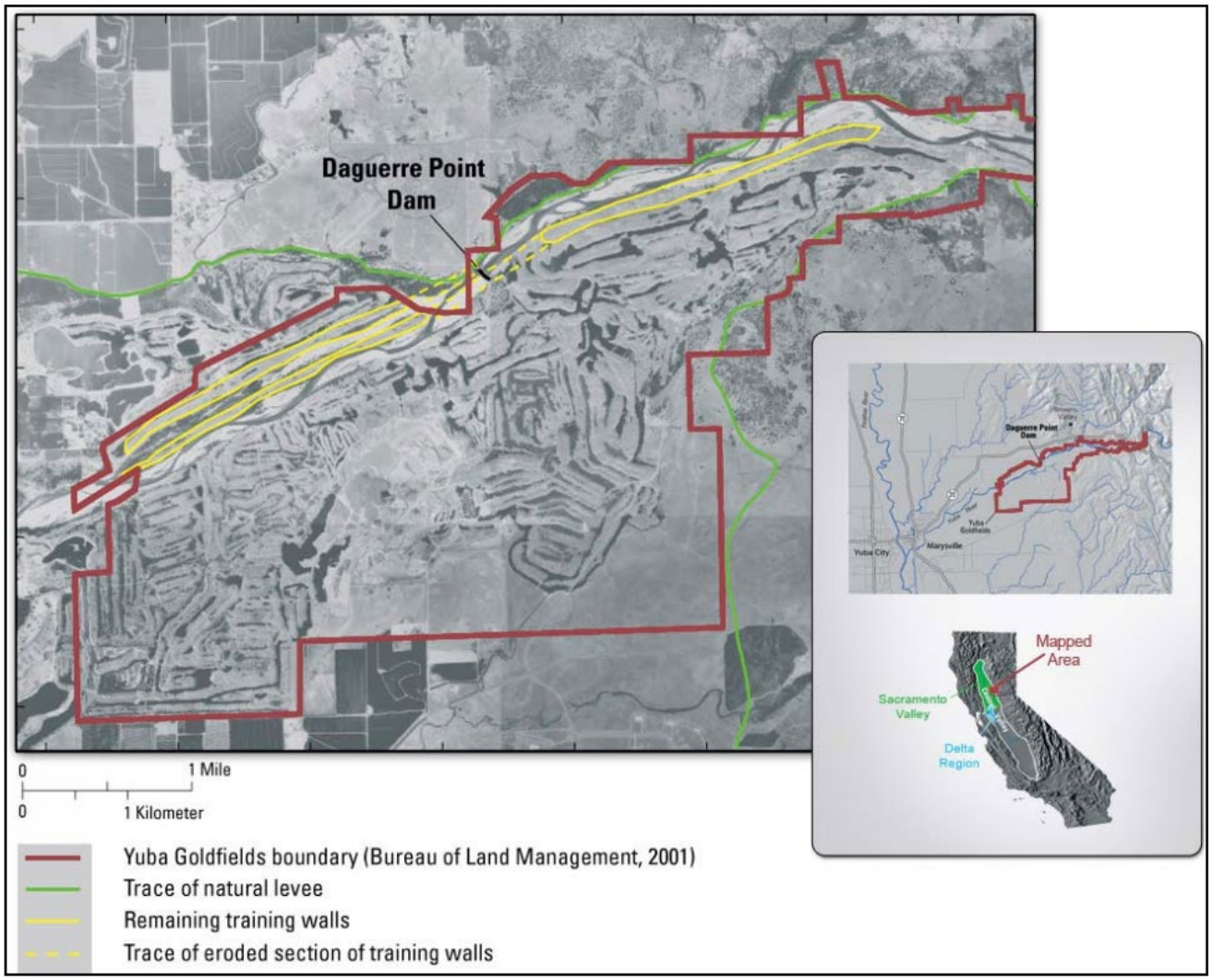

Source: Yuba Water 2023.

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.

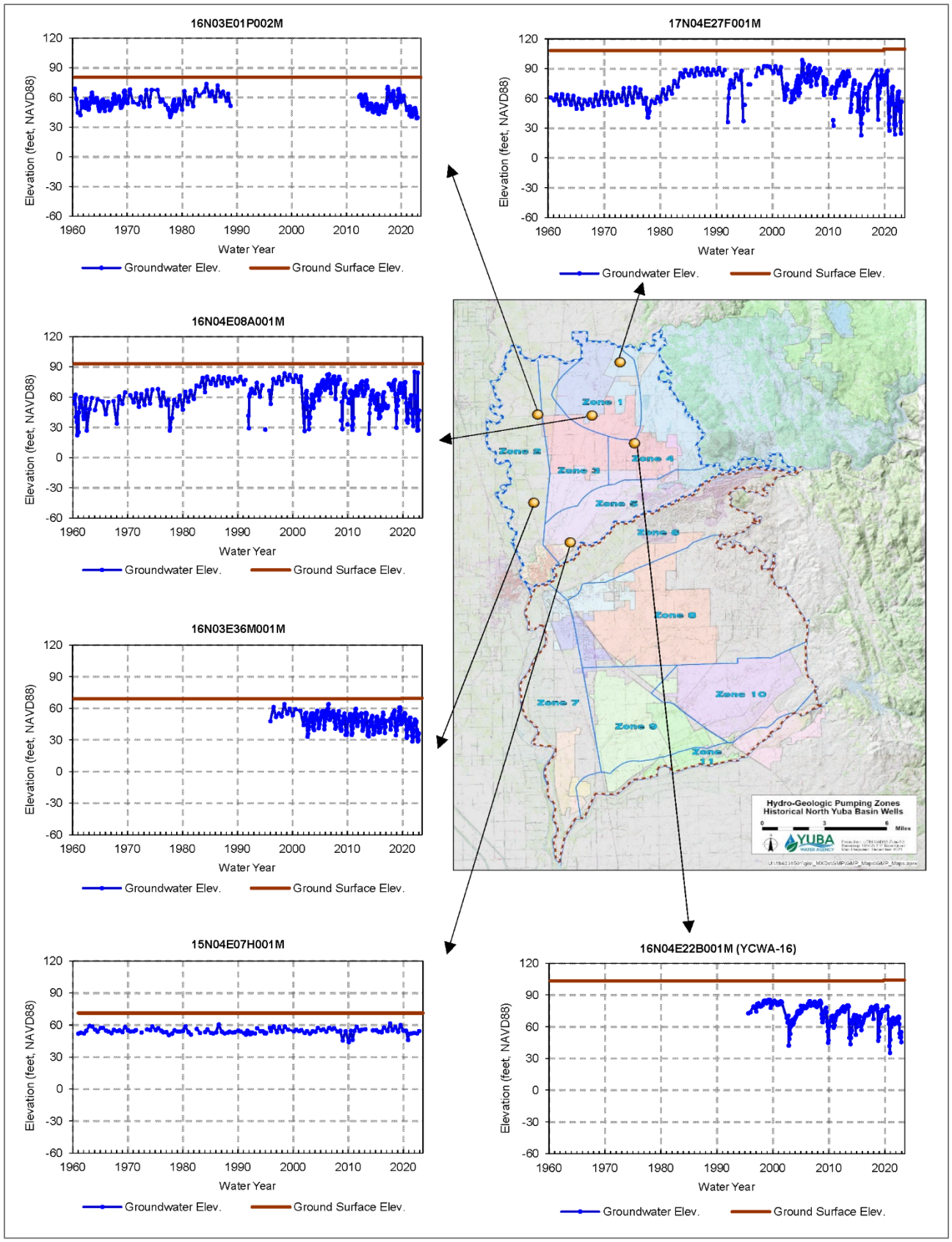
## Historical Groundwater Substitution Transfers

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.

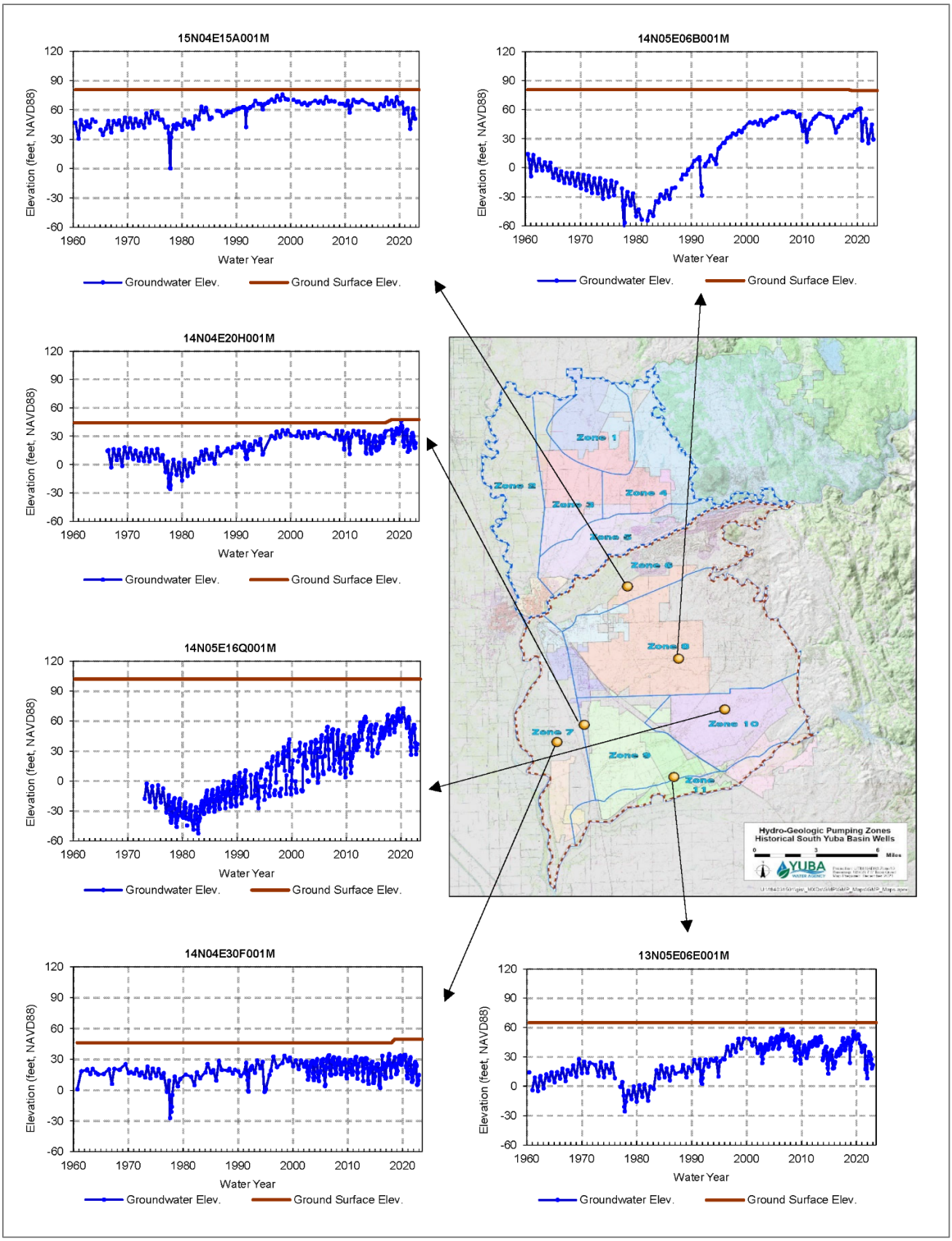
The first groundwater substitution transfer, in 1991, occurred in response to a call from the Governor of California. The state was in a major drought due to five years of very dry conditions which had taken their toll on California water supplies. Yuba Water, together with its Member Units, developed 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.



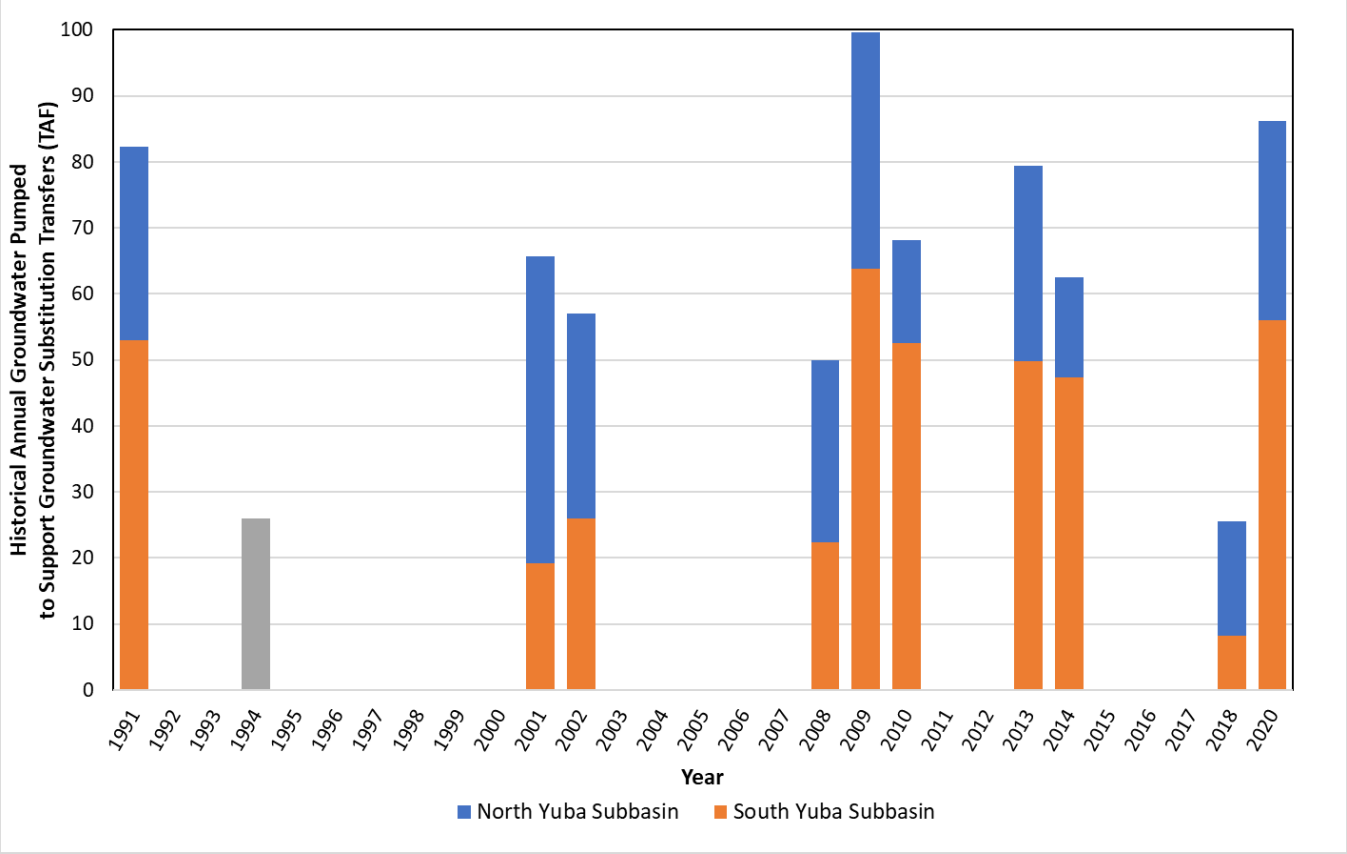

Source: Yuba Water 2023.

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



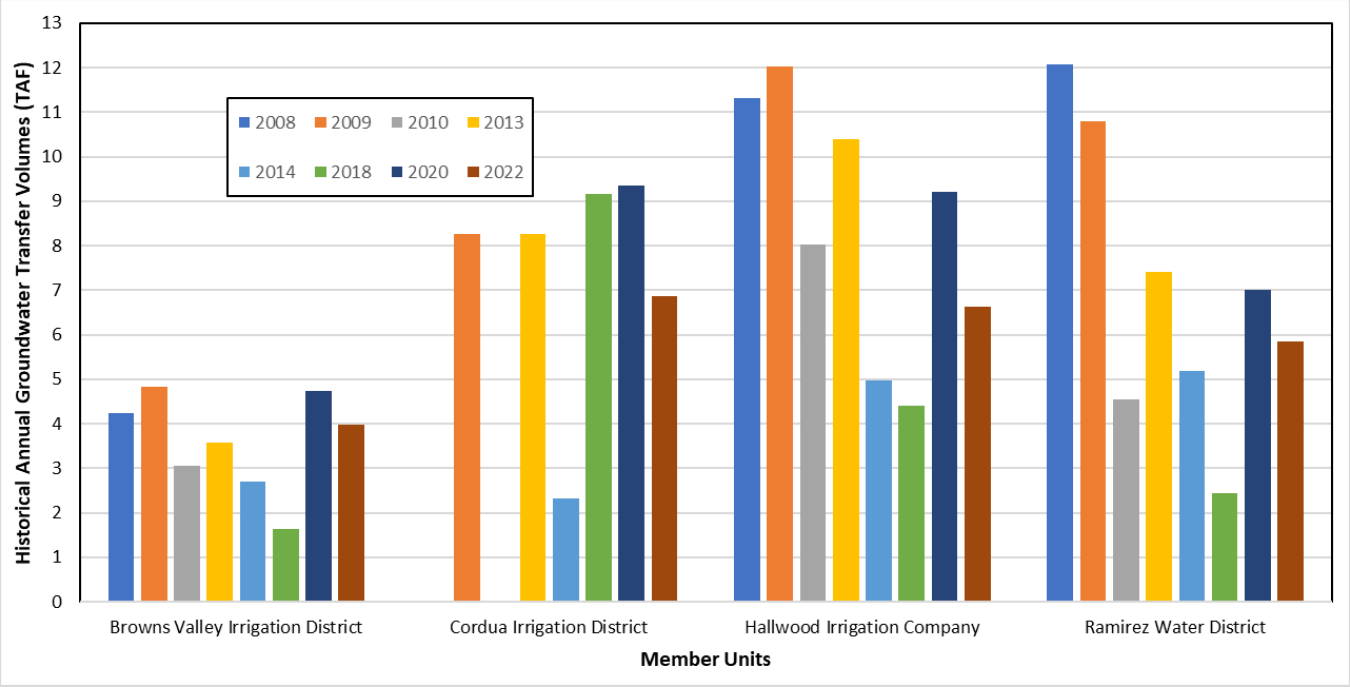

Source: Yuba Water 2023.

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



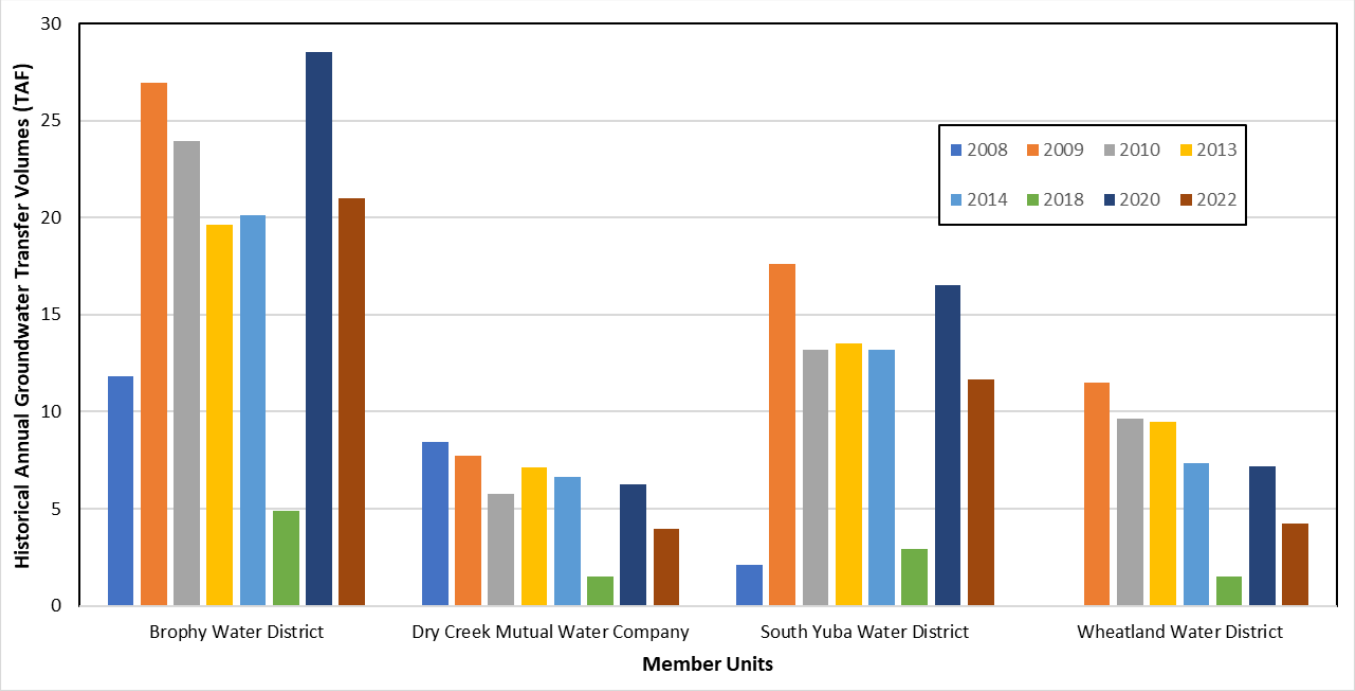

(* The split of pumping between the two subbasins for the 1994 transfer is unknown)
Source: Yuba Water 2023.

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

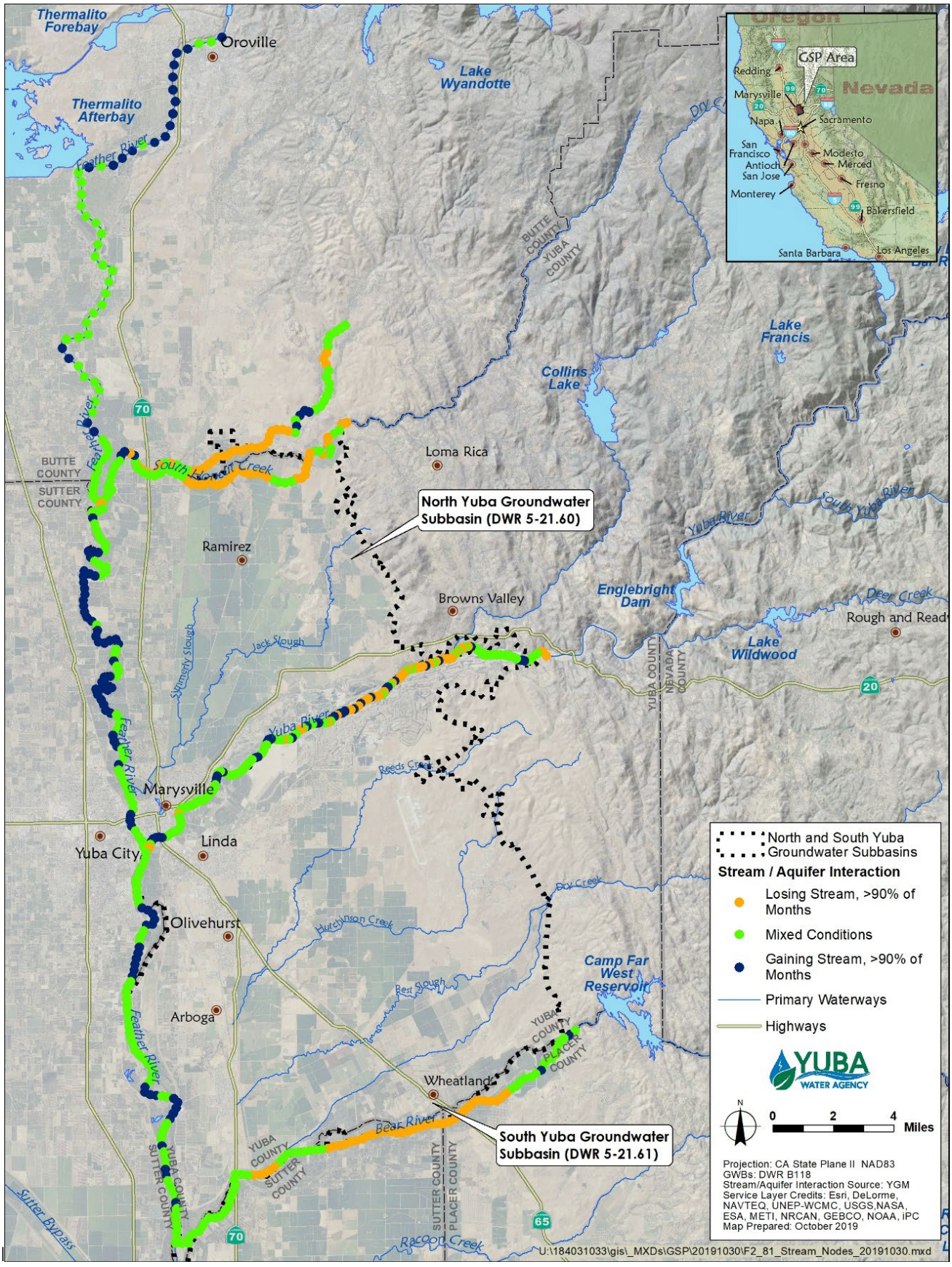
## Local Groundwater and Surface Water Interactions

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.

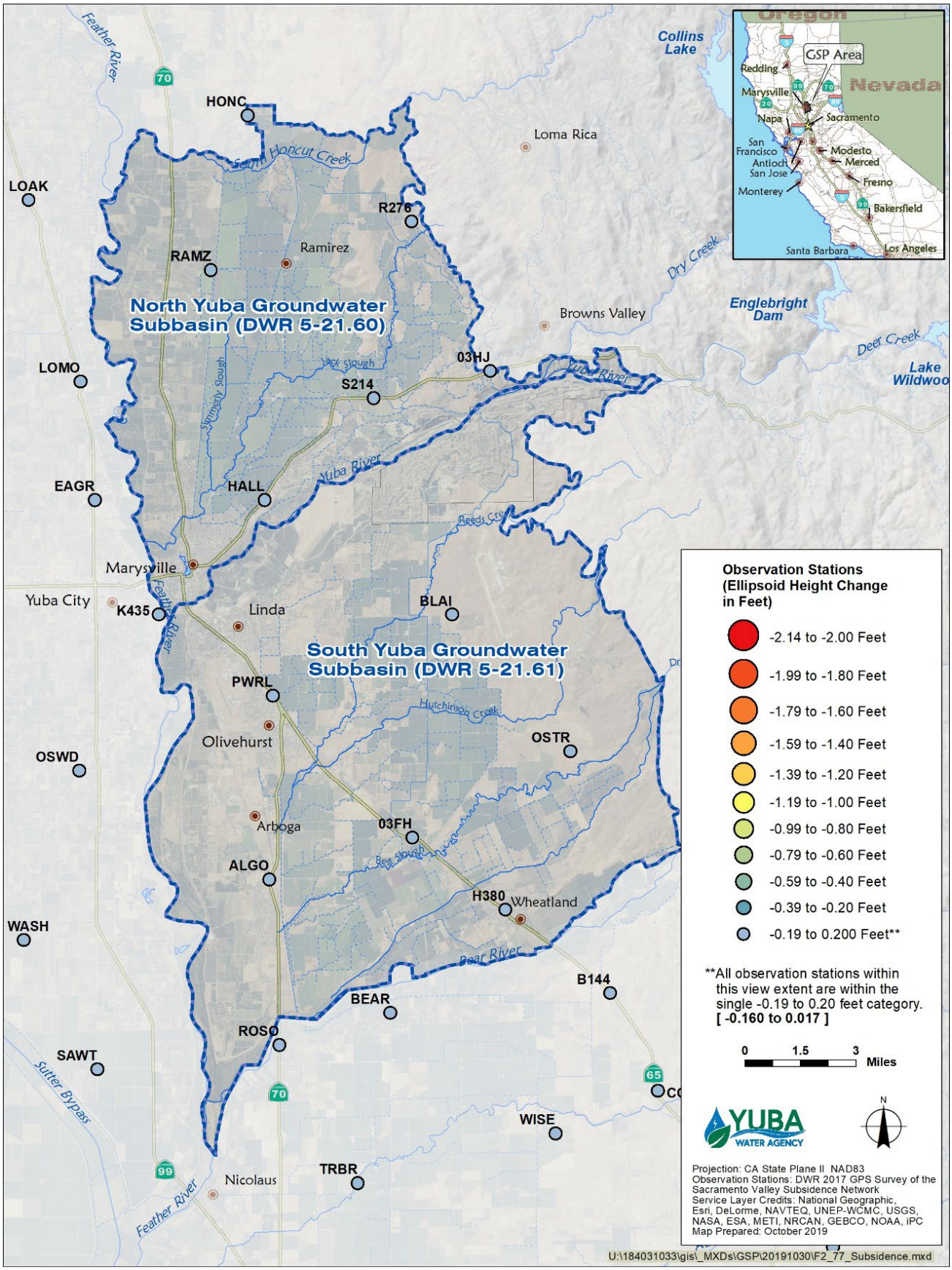
### METHODOLOGY

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 2$^{nd}$ and 4$^{th}$ 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 $55.35 \times 10^6$ $ft^3$ 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 ($3.07 \times 10^6$ $ft^3$/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<br>Mercury | Source Unknown<br>Source Unknown | 2027<br>2021 |
| Englebright Reservoir | Mercury | Source Unknown | 2027 |
| Lower Yuba River | Copper<br>Mercury | Source Unknown<br>Source Unknown | 2027<br>2027 |
| Oroville Reservoir | Mercury<br>Polychlorinated biphenyls (PCBs) | Source Unknown<br>Source Unknown | 2027<br>2021 |
| Lower Feather River | Aluminum<br>Chlorpyrifos<br>Group A Pesticides<br>Mercury<br>Dissolved Oxygen<br>PCBs<br>Toxicity | Source Unknown<br>Agriculture<br>Source Unknown<br>Source Unknown<br>Source Unknown<br>Source Unknown<br>Source Unknown | 2035<br>2016 (Approved)<br>2011<br>2027<br>2023<br>2021<br>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 $56^0$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 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.<br><br>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 |
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| | | | 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.<br><br>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 |
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| 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:<br>▶ Ensure adequate and reliable water supply that meets the diverse needs of the region<br>▶ Protect, restore, and enhance water quality for water users and in support of healthy watersheds<br>▶ Preserve and restore watershed health and promote environmental stewardship<br>▶ Enhance regional economic development<br>▶ Support efforts to improve public safety<br>▶ Address climate vulnerabilities and reduce greenhouse gas emissions<br>▶ Promote equitable distribution of resources to disadvantaged communities and Tribes across the region.<br>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 |
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| 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 |
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| | | | 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<br>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:<br>▶ 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.<br>▶ Create a design that mimics natural morphological features (e.g., riffle, pool) that would not erode significantly through typical non-flood control related operations.<br>▶ Reduce bank erosion that may be contributing mercury contaminated soil to the Yuba River.<br>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 |
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| | | | 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 |
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| 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.<br><br>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:<br>▶ 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)<br>▶ 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)<br>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 |
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| 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 |
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| | | | 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 |
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| 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.<br><br>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 |
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| | | | 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:<br>▶ Recover endangered and other at-risk species and native biotic communities;<br>▶ Rehabilitate ecological processes;<br>▶ Maintain or enhance harvested species populations; |

| Project | Status | Primary Agencies | Description |
|---|---|---|---|
| | | | ▶ Protect and restore habitats;<br>▶ Prevent the establishment of and reduce impacts from non-native invasive species; and<br>▶ 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.<br><br>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.<br><br>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.<br><br>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.<br><br>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.<br><br>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 |
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| 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).<br><br>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).<br><br>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**

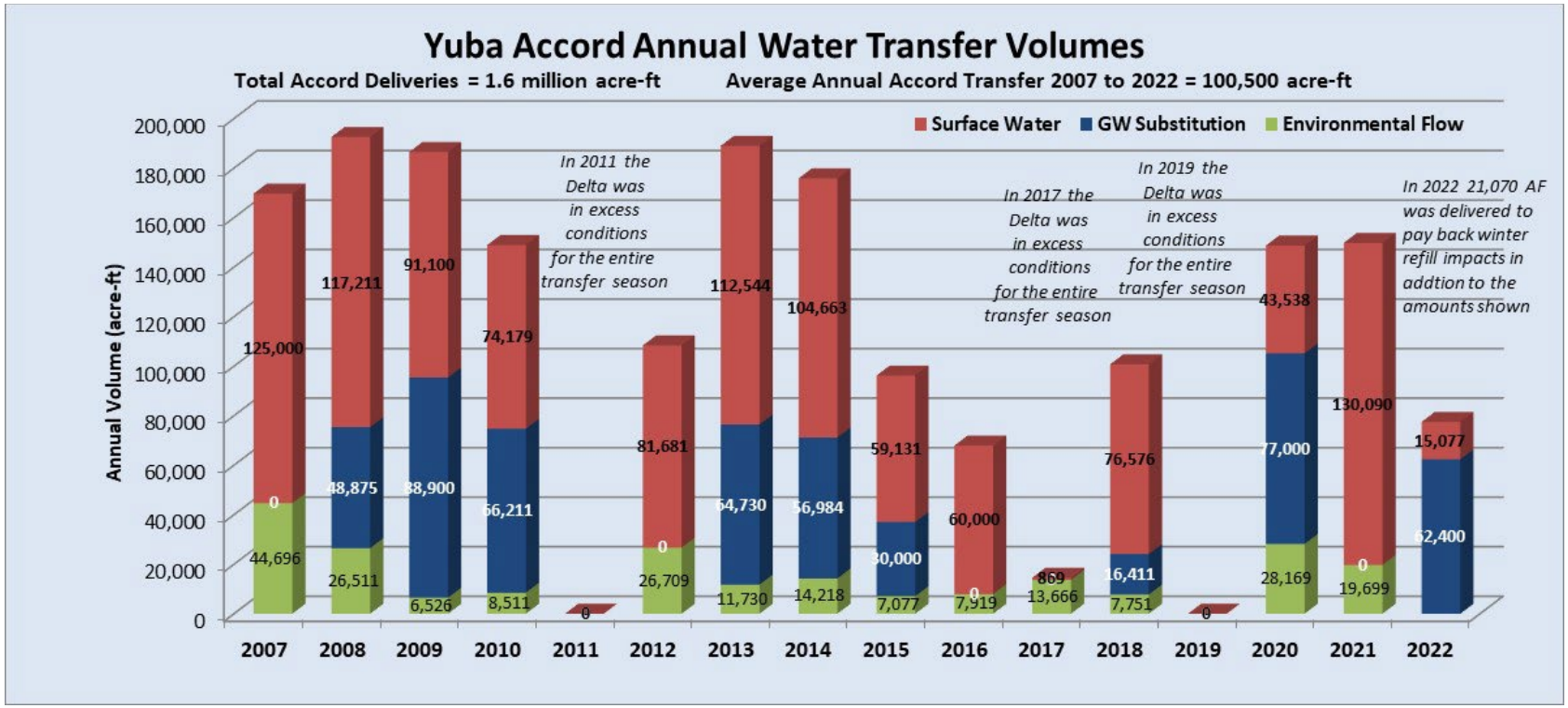
| Year | Groundwater Substitution (GWS) (acre-feet) | Surface Water (acre-feet) | Total Transfer (acre-feet) | Environmental Flow (acre-feet) | Total (acre-feet) | EWA (acre-feet) |
|---|---|---|---|---|---|---|
| 2007 | - | 125,000 | 125,000 | 44,696 | 169,696 | - |
| 2008 | 48,875 | 117,211 | 166,086 | 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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## Chapter 6 Other CEQA Sections

No references were cited in this chapter.

# Final Supplemental EIR

## for the

# Extension of the Yuba Accord Long-Term Water Transfer Program

**State Clearinghouse No. 200506211**

YUBA WATER AGENCY

September 2024

# Final Supplemental EIR

## for the

# Extension of the Yuba Accord Water Transfer Program

## State Clearinghouse No. 200506211

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September 2024

# TABLE OF CONTENTS


| Section | | Page |
|---|---|---|
| LIST OF ABBREVIATIONS | | ii |
| 1 | INTRODUCTION | 1-1 |
| 1.1 | Purpose and Intended Uses of this Final SEIR | 1-1 |
| 1.2 | Background | 1-1 |
| 1.3 | Proposed Extension | 1-2 |
| 1.4 | Major Conclusions of the Environmental Analysis | 1-2 |
| 1.5 | CEQA Public Review Process | 1-3 |
| 1.6 | Organization of the Final SEIR | 1-4 |
| 2 | RESPONSES TO COMMENTS | 2-1 |
| 2.1 | List of Commenters on the Draft SEIR | 2-1 |
| 2.2 | Comments and Responses | 2-2 |
| 3 | REVISIONS TO THE DRAFT SEIR | 3-1 |
| 3.1 | Revisions to Chapter 2, "Description of the Proposed Project" | 3-1 |
| 3.2 | Revisions to Section 3.2, "Surface Water Supply and Management" | 3-1 |
| 3.3 | Revisions to Section 3.3, "Groundwater Resources" | 3-2 |
| 3.4 | Revisions to Section 3.4, "Fisheries and Aquatic Resources" | 3-3 |
| 3.5 | Revisions to Chapter 4, "Cumulative Impacts" | 3-3 |
| 3.6 | Revisions to Appendices | 3-10 |
| 4 | REFERENCES | 4-1 |
| 5 | LIST OF PREPARERS | 5-1 |

## Appendices

C Modeling Data
- C3 Modeling Data – Proposed Extension [Supplemental Material for Draft SEIR Appendix C3]
- C4 Modeling Data – Proposed Extension with Healthy River and Landscapes Flow Contribution (Bay-Delta) [New Appendix C4]

## Figures

Figure 2-1 Plot of 2021 Transfer Accounting Taken from the Yuba Water-DWR Accounting Spreadsheet Used for 2021 2-31

## Tables

Table 2-1 List of Commenters 2-1

Table 2-2 YGM simulation results of Average Stream Depletion Rates as a Percentage of Streamflow by Month for Yuba River and Feather River Stream Segments 2-35

Table 2-3 YGM simulation results of Maximum Stream Depletion Rates as a Percentage of Streamflow by Month for Yuba River and Feather River Stream Segments 2-35

Table 2-4 Percent Occurrence of Yuba Accord Flow Schedules 2-47

# LIST OF ABBREVIATIONS

| | |
|---|---|
| AEM | Airborne Electromagnetic |
| af | acre-feet |
| CCWD | Contra Costa Water District |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CNDDB | California Natural Diversity Database |
| COA | Coordinated Operations Agreement |
| CVP | Central Valley Project |
| Draft SEIR | draft supplemental environmental impact report |
| DSR | draft staff report |
| DWR | Department of Water Resources |
| EBMUD | East Bay Municipal Utilities District |
| EC | electric conductivity |
| ESA | Endangered Species Act |
| EWA | Environmental Water Account |
| FERC | Federal Energy Regulatory Commission |
| FPA | Federal Power Act |
| GDE | groundwater dependent ecosystem |
| GHG | greenhouse gas |
| GSP | groundwater sustainability plan |
| HR&L Program | Healthy Rivers and Landscapes Program |
| MMRP | mitigation monitoring and reporting program |
| NEPA | National Environmental Policy Act |
| NOA | notice of availability |
| NOD | notice of determination |
| NOP | notice of preparation |
| PORD | point of rediversion |
| PRC | Public Resources Code |
| SDF | streamflow depletion factor |
| SGMA | Sustainable Groundwater Management Act |
| SVSDFMG | Sacramento Valley Streamflow Depletion Factor Management Group |
| SWP | State Water Project |
| SWRCB | State Water Resources Control Board |
| TAF | thousand acre-feet |
| VA | Voluntary Agreement |
| WWD Project | Wheatland Water District In-Lieu Recharge Project |
| YGM | Yuba Groundwater Model |
| YRDP | Yuba River Development Project |
| Yuba Water | Yuba County Water Agency |

# 1 INTRODUCTION

This final supplemental environmental impact report (Final SEIR) has been prepared by the Yuba County Water Agency (Yuba Water), as lead agency, in accordance with the requirements of the California Environmental Quality Act (CEQA) and the State CEQA Guidelines (CCR Section 15132). This Final SEIR contains responses to comments received on the draft supplemental environmental impact report (Draft SEIR) for the Proposed Extension of the Yuba Accord Long-Term Water Transfer Program (Proposed Extension). The Final SEIR consists of the Draft SEIR and this document (response to comments document), which includes comments on the Draft SEIR, responses to those comments, and revisions to the Draft SEIR.

## 1.1 PURPOSE AND INTENDED USES OF THIS FINAL SEIR

CEQA requires a lead agency that has prepared a Draft EIR (or SEIR) to consult with and obtain comments from responsible and trustee agencies that have jurisdiction by law with respect to the project, and to provide the public with an opportunity to comment on the Draft EIR (or SEIR). The Final EIR (or SEIR) is the mechanism for responding to these comments. This Final SEIR has been prepared to respond to comments received on the Draft SEIR, which are reproduced in this document; and to present corrections, revisions, and other clarifications and amplifications to the Draft SEIR made in response to these comments. The Final SEIR will be used to support Yuba Water's decision regarding whether to approve the Proposed Extension.

This Final SEIR will also be used by CEQA responsible and trustee agencies to ensure that they have met their requirements under CEQA before deciding whether to approve or permit elements of the Proposed Extension over which they have jurisdiction. It may also be used by other state, regional, 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.

Responsible agencies may include the Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), Contra Costa Water District (CCWD), East Bay Municipal Utilities District (EBMUD), and six of the eight member units (Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Ramirez Water District, South Yuba Water District, and Wheatland Water District[1]).

## 1.2 BACKGROUND

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 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).

[1] Dry Creek Mutual Water Company and Hallwood Irrigation Company are private companies that are not subject to CEQA.

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

## 1.3 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 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, chose to prepare an SEIR to evaluate the potential environmental effects of 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.

## 1.4 MAJOR CONCLUSIONS OF THE ENVIRONMENTAL ANALYSIS

The Draft SEIR evaluated the potential impacts of the Proposed Extension in the following environmental impact areas: Surface Water Supply and Management, Groundwater Resources, Fisheries and Aquatic Resources, and Surface Water Quality. There would be no significant or potentially significant impacts associated with the Proposed Extension.

Public Resources Code (PRC) Section 21081.6(a)(1) requires lead agencies to "adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." A mitigation monitoring and reporting program (MMRP) has not been prepared for the Proposed Extension because no mitigation measures are required.

# 1.5 CEQA 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. The NOP was submitted to the State Clearinghouse, which then distributed the NOP to potential responsible and trustee agencies; posted on 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.

## 1.5.2 Draft SEIR

In accordance with the State CEQA Guidelines Section 15087 and 15105, the Draft SEIR was circulated for public review and comment for a period of 45 days, from April 5, 2024 to May 20, 2024. The Draft SEIR was submitted to the State Clearinghouse, which then distributed the Draft SEIR to potential responsible and trustee agencies; posted on Yuba Water's website (https://www.yubawater.org/157/Lower-Yuba-River-Accord); and made available for review during normal business hours at Yuba Water Headquarters (1220 F Street, Marysville, CA 95901-4740). In addition, a notice of availability (NOA) of the Draft SEIR was posted with the applicable County Clerks; distributed directly to public agencies (including potential responsible and trustee agencies), interested Native American Tribes, and individuals requesting to be notified; and made available on Yuba Water's website. Additionally, the NOA was published in the *Sacramento Bee* and the *Appeal Democrat*.

## 1.5.3 Final SEIR

As a result of these notification efforts, written comments were received from 10 agencies, 2 organizations, and 1 Tribe on the content of the Draft SEIR. Chapter 3, "Responses to Comments," identifies these commenting parties, their respective comments, and responses to these comments. None of the comments received, or the responses provided, constitute "significant new information" by CEQA standards (State CEQA Guidelines CCR Section 15088.5).

As required by State CEQA Guidelines Section 15088(b), Yuba Water has provided a printed or electronic copy to each public agency that submitted written comments on the Draft SEIR with written responses to that public agency's comments at least 10 days prior to certifying the Final SEIR.

# 1.6 ORGANIZATION OF THE FINAL SEIR

This Final SEIR is organized as follows:

- **Chapter 1, "Introduction,"** describes the purpose of the Final SEIR, summarizes the Proposed Extension and the major conclusions of the Draft SEIR, provides an overview of the CEQA public review process, and describes the content of the Final SEIR.
- **Chapter 2, "Responses to Comments,"** contains a list of all parties who submitted comments on the Draft SEIR during the public review period, copies of the comment letters received, and responses to the comments.
- **Chapter 3, "Revisions to the Draft SEIR,"** presents revisions to the Draft SEIR text made in response to comments, or to amplify, clarify or make minor modifications or corrections. Changes in the text are signified by ~~strikeouts~~ where text is removed and by underline where text is added.
- **Chapter 4, "References,"** identifies the documents used as sources for the analysis.
- **Chapter 5, "List of Preparers,"** identifies the lead agency contacts as well as the preparers of this Final SEIR.

# 2 RESPONSES TO COMMENTS

This chapter contains comment letters received during the public review period for the Draft SEIR, which concluded on May 20, 2024. In conformance with Section 15088(a) of the State CEQA Guidelines, written responses were prepared addressing comments on environmental issues received from reviewers of the Draft SEIR.

## 2.1 LIST OF COMMENTERS ON THE DRAFT SEIR

Table 2-1 presents the list of commenters, including the numerical designation for each comment letter received, the author of the comment letter, and the date of the comment letter.

**Table 2-1 List of Commenters**

| Letter No. | Commenter | Date |
|---|---|---|
| | TRIBES | |
| T1 | Shingle Springs Band of Miwok Indians<br>Kara Perry, Director of Site Protection | May 20, 2024 |
| | AGENCIES | |
| A1 | US Department of the Interior, Bureau of Reclamation<br>Robert Ward, Acting Regional Resources Manager | May 20, 2024 |
| A2 | California Department of Fish and Wildlife, North Central Region<br>Morgan Kilgour, Regional Manager | May 17, 2024 |
| A3 | Delta Stewardship Council<br>Jeff Henderson, Deputy Executive Officer | May 20, 2024 |
| A4 | State Water Resources Control Board<br>Erik Ekdahl, Deputy Director, Division of Water Rights | May 20, 2024 |
| A5 | State Water Contractors<br>Jennifer Pierre, General Manager | May 20, 2024 |
| A6 | Contra Costa Water District<br>Kyle Ochenduszko, Assistant General Manager | May 17, 2024 |
| A7 | East Bay Municipal Utility District<br>Michael T. Tognolini, Director of Water and Natural Resources | May 17, 2024 |
| A8 | Metropolitan Water District of Southern California<br>Jennifer Harriger, Manager, Environmental Planning Section | May 20, 2024 |
| A9 | Nevada Irrigation District<br>Jennifer Hanson, General Manager | May 16, 2024 |
| A10 | San Luis & Delta-Mendota Water Authority<br>Pablo Arroyave, Chief Operating Officer | May 20, 2024 |
| | ORGANIZATIONS | |
| O1 | American Rivers, California Sportfishing Protection Alliance, Friends of the River, Northern California Council, Fly Fishers International, and the South Yuba River Citizens League<br>Meghan Quinn, Director, California Hydropower and Dam Removal, American Rivers<br>Chris Shutes, Executive Director, California Sportfishing Protection Alliance<br>Keiko Mertz, Policy Director, Friends of the River<br>Jann Dorman, Executive Director, Friends of the River<br>Mark Rockwell, President & VP Conservation, Northern California Council, Fly Fishers International<br>Aaron Zettler-Mann, Executive Director, South Yuba River Citizens League | May 20, 2024 |
| O2 | AquAlliance<br>Barbara Vlamis, Executive Director | May 20, 2024 |

# 2.2 COMMENTS AND RESPONSES

The individual comments received on the Draft SEIR and the responses to those comments are provided below. The comment letters are reproduced in their entirety and are followed by the response(s). Where a commenter has provided multiple comments, each comment is indicated by a line bracket and an identifying number in the margin of the comment letter.

## 2.2.1 Tribes

Letter T1 Shingle Springs Band of Miwok Indians
Kara Perry, Director of Site Protection
May 20, 2024

**Shingle Springs Band of Miwok Ind**
Shingle Springs Rancheria (Verona Tract), Califor

Letter T1

5281 Honpie Road • Placerville, CA 95667
(530) 698-1400 • shinglespringsrancheria.com

CULTURAL RESOURCES

May 20, 2024

Ascent Environmental

RE: Extension of the Yuba Accord Long-Term Water Transfer Program

Dear Joanna Lessard,

Thank you for your letter dated April 5, 2024 in regard to the above mentioned project. Based on the information provided, the Shingle Springs Band Of Miwok Indians is not aware of any known cultural resources on this site. However, SSR would like to have continued consultation through updates, as the project progresses. This will foster a greater communication between the Tribe and your agency.

SSR would also like to request any and all completed record searches and or surveys that were done in or around the project area up to and including environmental, archaeological and cultural reports. If during the progress of the project new information or human remains are found, we would like to be able to go over our process with you to protect such important and sacred artifacts (especially near rivers and streams). T1-1

If such finds are made, please contact Kara Perry, Director of Site Protection, at (530) 488-4049 or kperry@ssband.org.

Thank you for providing us with this notice and opportunity to comment.

Sincerely,

Kara Perry
Director of Site Protection

### Response T1-1

The comment states that the Shingle Springs Band of Miwok Indians is not aware of any known cultural resources on the project site and requests copies of any completed record searches or surveys that were conducted in the project area. Yuba Water replied to this letter via email on May 23, 2024, and noted that no cultural searches or surveys were conducted for the SEIR.

For reference, Yuba Water sent a letter to the Shingle Springs Band of Miwok Indians on January 10, 2023 notifying the Tribe of the Proposed Extension and inviting the Tribe to consult under Assembly Bill (AB) 52. No response was received from the Tribe; therefore, Yuba Water's obligations under AB 52 are complete.

## 2.2.2 Agencies

Letter A1 US Department of the Interior, Bureau of Reclamation
Robert Ward, Acting Regional Resources Manager
May 20, 2024

United States Department of the Interior

BUREAU OF RECLAMATION
2800 Cottage Way
Sacramento, CA 95825-1898

Letter A1

IN REPLY REFER TO:

CGB-400
2.2.4.21

JoAnna Lessard
Watershed Manager
Yuba Water Agency
1220 F Street
Marysville, CA, 95901-4740

Subject: Comments on the Draft Supplemental Environmental Impact Report (EIR) for the

Extension of the Yuba Accord Long-Term Water Transfer Program (State Clearinghouse No. 200506211)

Dear Ms. Lessard:

Reclamation received and reviewed the Draft Supplemental EIR for the Extension of the Yuba Accord Long-Term Water Transfer Program. Thank you for the opportunity to provide comments. Attached are our comments and suggested revisions. Please contact me at rward@usbr.gov or 916-978-5359 if you have any questions. A1-1

Respectfully,

ROBERT WARD

Digitally signed by ROBERT WARD
Date: 2024.05.20 15:35:22 -07'00'

Robert Ward
Acting Regional Resources Manager

Attachments – 1

cc: CVO, BDO, CCAO, SCCAO

INTERIOR REGION 10 • CALIFORNIA–GREAT BASIN
CALIFORNIA*, NEVADA*, OREGON*
* PARTIAL

1

Attachment -1

Brief History of Reclamation's Involvement

The original Yuba Accord in 2008, resolved disputes for minimum instream flows downstream of New Bullards Bar Reservoir which were accounted for against the prior water rights. The additional instream flow above prior instream flows were viewed as transferable to help support and pay for needed local flood control projects that have now been built. It is Reclamation's understanding that these minimum flows have now been permitted by the State Water Resources Control Board (SWRCB) and are part of the operational baseline in the Yuba River.

Currently, Reclamation is not a signatory to the formal Yuba Accord but is formally implicated through the 1986 Coordinated Operations Agreement as amended (COA) between DWR and Reclamation which provides the basis for water transfers. The COA recognizes the supplies produced under the Yuba Accord as third-party water. The transferable third-party water supplies contemplated in the Yuba Accord extension rely on COA coordination with Reclamation and DWR. This should be described and analyzed in the Supplemental EIR for the Yuba Accord extension.

A1-2

Overall Needs for the EIR

The Yuba Accord extension should acknowledge the following baseline operations and new operational considerations now facing the CVP-SWP system:

1. The conditions in which the CVP-SWP system operates today is vastly different under ESA regulations than analyzed under the original Yuba Accord.
    a. Winter and Springtime exports from the CVP-SWP system are limited due to ESA take management i.e., Old and Middle River (OMR) limitations.
    b. Coldwater availability and management via temperature control devices during summer months in the CVP presents challenging operations.
    c. The current water transfer window starts in July and goes through November. Transfer of water pre-July 1 could negatively impact cold water pool operations for the CVP.
2. The EIR should acknowledge that CVP contractors (including Contra Costa Water District and East Bay Municipal Utility District) and SWP contractors south of the Delta are considered exporters from the Delta.

In order to evaluate the proposed extension, the above statements should be evaluated for their impacts on operations by Reclamation and DWR. Reclamation cannot be considered a cooperator through the EIR without consultation or doing further analysis to ensure no harm to CVP water rights, ESA regulations, or other party authorizations.

A1-3

2

Additionally, Reclamation suggests the following revisions to the Draft Supplemental EIR:

1. Page 3.2-21, Los Vaqueros Reservoir, 2nd paragraph, 3rd and 4th sentences. Incidental Take Permit No. 2081-2023-036-03 issued 03/01/2024 by California Department of Fish and Wildlife, removes the restrictions.

2. Page 3.2-21, Los Vaqueros Reservoir, 2nd paragraph, last sentence. Reclamation and CCWD partnered in implementing the Rock Slough Fish Screen Project. Construction on the Rock Slough Fish Screen Project was completed in 2011.

3. Page 3.2-29, Impact 3.2-2, paragraph beginning bottom of page 3.2-28, 3rd sentence. Reclamation is unclear on the offset to SDF statement. Please consider language to clarify: "With the inclusion of an Streamflow Depletion Factor (SDF) in the accounting, some transfer water will be made available to the CVP and SWP for their water supplies to offset streamflow depletion impact."

4. Page 3.2-29, Impact 3.2-2, paragraph beginning bottom of page 3.2-28, 4th sentence. Revise the sentence to read "The SDF will offset the streamflow depletion effects caused by groundwater substitution transfer pumping."

5. Page 3.2-29, Impact 3.2-2. Flow Changes Due to Instituting a SDF in Groundwater Substitution Transfer Accounting, 3rd paragraph. Please revise for clarity.

> "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."

A1-4

6. Page 3.4-32, Impact 3.4-1, Delta Region, 3rd paragraph, 1st and 2nd sentences. Incidental Take Permit No. 2081-2023-036-03 issued 03/01/2024 by California Department of Fish and Wildlife, removes the restrictions.

7. Page 3.3-22, Impact 3.3-4, 1st sentence. Revise sentence to read: "Specifically, SDF accounts for reductions in streamflow over time due to 1) captured groundwater discharge (groundwater that otherwise would have discharged to a connected stream absent the pumping), and 2) induce infiltration (water drawn into the aquifer because of pumping)."

8. Page 3.3-22, Impact 3.3-4, last sentence. Revise sentence to read: "The difference is water left in the system to offset streamflow depletion and ensure other surface water users are not adversely affected."

### Response A1-1
The comment is an introductory statement and does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response A1-2
The comment summarizes Reclamation's involvement in the Yuba Accord and states that the transferable third-party water supplies contemplated in the Yuba Accord extension rely on coordination with US Department of the Interior, Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR) under the 1986 Coordinated Operations Agreement as amended (COA) and suggests that this be described and analyzed in the Supplemental EIR for the Yuba Accord. The 2007 EIR and the Draft SEIR describe the Water Purchase Agreement and associated Exhibit 1 Accounting Principles. In 2007, Reclamation provided signed concurrence with the accounting principles, which stated in part, "We ask that your organization recognize the released transfer flows on the Yuba River as outlined in the accounting exhibit in the context of the Coordinated Operations Agreement. We request that your agency participate in the review and approval process as set forth in the Yuba Accord accounting document and agree to accounting adjustments to the Coordinated Operations Agreement accounting as appropriate." Chapter 2, "Description of the Proposed Project," of the Draft SEIR explains that the Proposed Extension is a continuation of the Yuba Accord water transfer program and the Water Purchase Agreement. The accounting principles are the mechanism that protects the Central Valley Project (CVP) and State Water Project (SWP) water rights, ensuring that the transfer will not injure legal users of the water. DWR and Reclamation have cooperated with Yuba Water in preparing and agreeing on the final accounting of transfer water and refill conditions each year of the Accord since 2008 and the Draft SEIR describes these provisions (Draft SEIR p. 2-3).

### Response A1-3
The comment states that the SEIR should acknowledge the baseline operations and new operational considerations facing the CVP/SWP system. Section 3.2, "Surace Water Supply and Management," of the Draft SEIR describes the progression of the Endangered Species Act (ESA) regulations affecting CVP and SWP operations in the Delta Region (pp. 3.2-4 and 3.2-5) and describes CVP Facilities and Operations (pp. 3.2-19 and 3.2-20). Section 3.2 includes discussion of the relevant changes in regulatory conditions affecting Delta operations including facilitating transfers and acknowledges the effects the changed regulatory conditions have on transfers. The impact analysis portion of Section 3.2 includes detailed discussion of effects on south-of-Delta CVP and SWP contractors as these are impact indicators included in the Draft SEIR. Impact 3.2-3 addresses impacts to south of Delta CVP contractors and concludes:

> 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.

In addition to the discussion in Section 3.2, Chapter 4, "Cumulative Impacts," of the Draft SEIR summarizes information from Reclamation's "Long-Term Water Transfers Revised Draft EIR/Supplemental Draft EIS" (Reclamation and SLDMWA 2018) and DWR's Draft Environmental Impact Report for Long-Term Operation of the California State Water Project (DWR 2019) which provides extensive discussion and review of CVP and SWP operations and transfers. Chapter 4 examines the Proposed Extension in combination with the changes that have occurred since the 2007 EIR, which the Draft SEIR describes as included in the baseline conditions used for analysis of the Proposed Extension.

### Response A1-4
The comment provides suggested revisions to the Draft SEIR. See Chapter 3, "Revisions to the Draft SEIR," for the specific text changes made to the Draft SEIR since its publication and public review.

Regarding items #3 and #5 in the comment, Yuba Water has reviewed the Draft SEIR text and determined that no clarifications are necessary. Also, see response to comment A2-6 regarding streamflow depletion factor (SDF) effects, as well as responses to comments A2-7, A2-8, and O2-4.

Letter A2 California Department of Fish and Wildlife, North Central Region
Morgan Kilgour, Regional Manager
May 17, 2024

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
916-358-2900
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

Letter A2

May 17, 2024

JoAnna Lessard
Watershed Manager
Yuba Water Agency
1220 F Street
Marysville, CA 95901-4740
jlessard@yubawater.org

Subject: Extension of the Yuba Accord Long-Term Water Transfer Program
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (DSEIR)
SCH No. 2005062111

Dear JoAnna Lessard:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Availability of a DSEIR from Yuba Water Agency (YWA) for the proposed Extension of the Yuba Accord Long-Term Water Transfer Program (Project) pursuant the California Environmental Quality Act (CEQA) statute and guidelines[1].

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, native plants, and their habitat. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code.

A2-1

**CDFW ROLE**

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Fish & G. Code, § 1802). Similarly for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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CDFW may also act as a Responsible Agency under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. To the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code. A2-1 cont.

**PROJECT DESCRIPTION SUMMARY**

YWA proposes to extend the Yuba Accord Long-Term Water Transfer Program for an additional 25 years past its current expiration date of December 31, 2025 through 2050. 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; (4) use of transfer water within the State Water Project and Central Valley Water Project service areas; and (5) use of transfer water for authorized purposes of use, including irrigation and municipal uses. A2-2

YWA proposes that the extension Project contain comparable terms as the existing agreements, which include: (1) the Water Purchase Agreement; (2) the YWA/Contra Costa Water District/East Bay Municipal Utilities District Water Transfer Option Agreement; (3) the Conjunctive Use agreements; and (4) the terms and conditions imposed in State Water Resources Control Board (SWRCB) Corrected Order WR 2008-0014 and subsequent Yuba Accord water transfer change petitions approved by the SWRCB.

**COMMENTS AND RECOMMENDATIONS**

CDFW offers the comments and recommendations below to assist YWA in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. A2-3

**COMMENT 1: Impacts of Transfer Timing and Flow Fluctuations**
*Section 3.4.2 Fisheries and Aquatic Resources*

**Issue:** The DSEIR does not adequately consider the potential impacts of water transfer timing, resulting instream flows, and flow fluctuations on aquatic species, including Central Valley spring-run Chinook salmon (*Oncorhyncus tshawytscha;* SRCS), a threatened species under the California Endangered Species Act (CESA). Neither the DSEIR nor the 2007 Yuba Accord EIR includes sufficient analysis of Project flow patterns and their potential impact on SRCS, particularly during the spawning and incubation life stages. Further, since the 2007 EIR was finalized, water transfer conditions have changed, as the water transfer window for the State Water Project was A2-4

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extended from September 30 to November 30 in the Incidental Take Permit issued by CDFW to the Department of Water Resources in March 2020.

SRCS occur in the Project area and typically spawn in September and October, and egg incubation may last through January. Should water transfers for the Project take place during September through November, it is possible that spawning SRCS will construct redds within transfer-water inundated areas that are then exposed and desiccated when transfer releases end and the river stage decreases. Conversely, should SRCS spawn prior to a water transfer, the pulse of released water may scour existing redds. Substantial or rapid flow fluctuations may also lead to stranding of emerging SRCS fry and rearing SRCS yearlings in shallow areas that may become disconnected from the active river channel. The DSEIR does not contain sufficient discussion, nor does it demonstrate through modeling of Project operations and instream flows, that the ramp-up and ramp-down periods of the water transfers would avoid impacts to salmonid redds under the existing regulatory flow regime. A2-4 cont.

**Recommendation:** CDFW recommends that the SEIR include additional, focused discussion of the potential impacts to salmonids, including SRCS, and other aquatic species that may result from flow fluctuations caused by the proposed Project. The SEIR should clearly identify the likely timing of transfer releases in relation to aquatic species' life stages, and as needed, refer to specific operational model runs to illustrate the range of potential flow fluctuations and associated impacts.

If transfers are likely to occur during September through November, the SEIR should identify specific actions that will be taken to avoid redd dewatering or scouring below Englebright Dam, including early notification of planned transfer operations, pre-transfer monitoring, post-transfer monitoring, and protective ramping rates.

**COMMENT 2: Impacts to Groundwater Dependent Ecosystems**
*Section 3.3.2 Groundwater Resources, page 3.3-15*

**Issue:** The DSEIR does not adequately consider impacts to groundwater dependent ecosystems (GDEs). The DSEIR discussion of GDEs (page 3.3-15) states that the Yuba Groundwater Sustainability Plan (GSP) concluded that groundwater pumping would be unlikely to affect GDEs. However, CDFW review and comment of the Yuba GSP, as submitted to the GSA and DWR in 2020 (Attachment A), found contradictory evidence as to the impact of pumping on shallow groundwater, as indicated by the following statement: A2-5

> "[T]he GSP: 1) identifies shallow groundwater elevations in the principal aquifer (pages 2-94, 2-95); 2) shows shallow groundwater elevation trends that, although muted, parallel seasonal pumping trends of groundwater elevations in deeper wells, particularly along the Feather River (page 2-104); and 3) acknowledges that shallow groundwater monitoring data is limited (page 4-8). The GSP limits oversight over shallow subsurface water by distinguishing it from the 'principal

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> aquifer' (page 2-70) but develops SMC [sustainable management criteria] for depletions of interconnected surface water by way of groundwater elevation proxy (see Comment #4). Absent a better understanding of shallow groundwater systems and their relationship to deeper, 'principal' groundwater reservoirs, it is contradictory to abdicate oversight of shallow groundwater as a non-principal aquifer while identifying shallow groundwater as the primary subsurface influence on surface water interconnectivity, for which the GSP proposes SMC by way of groundwater elevation proxy."

Additionally, comment was provided as to the methods used to identify GDEs:

> "Methods applied to the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset to eliminate potential GDEs may exclude ecosystems that rely on groundwater during specific seasons, water years, or life stages. The litmus test question proffered by the GSP to determine the validity of a potential GDE in the NCCAG – 'would the ecosystem not exist if groundwater levels were deeper?' (page 2-140) – assumes a false dichotomy between both ecosystem existence and non-existence, as well surface water-dependence and groundwater dependence. Groundwater dependent vegetation or interconnected surface waters may be able to sustain existence/flow during temporary, or even extended, groundwater elevation reductions (Naumburg et al., 2005), and these GDEs may oscillate between surface water reliance and groundwater reliance. In short, GDEs may be opportunistic, and the GSP assessment of GDEs is based on overly simplistic determination criteria that do not account for GDE adaptability."

A2-5 cont.

As a result of the potential connectivity of pumped groundwater and shallow aquifer conditions, groundwater pumping could potentially result in lowering of shallow groundwater levels and the capillary fringe to deeper than groundwater dependent vegetation rooting depths. As of the date of the GSP comment letter, assessment of GDEs is incomplete and ongoing.

**Recommendation:** CDFW recommends that the SEIR incorporate information from the most recent survey(s) of GDEs in the groundwater extraction area to determine the locations of concern and their species assemblages. If additional surveys have not yet occurred following submittal of the Yuba GSP, the SEIR should include any available supplemental information that identifies other known or suspected GDE in the project area. The requirements of these species with respect to groundwater levels, such as rooting zones or seasonal pooling, should be described in the SEIR. Additionally, the SEIR should characterize groundwater monitoring, either by YWA or a subbasin Groundwater Sustainability Agency, that will actively monitor groundwater depths in the areas of concern and adapt groundwater pumping to avoid negatively impacting these ecosystems during groundwater transfer periods. Monitoring results should inform the Project's operations to avoid both chronic long-term lowering and acute seasonal

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impacts resulting from the lowering of groundwater levels to below key ecological thresholds. A2-5 cont.

**COMMENT 3: Analysis of Streamflow Depletion Effects**
*Appendix B: Streamflow Depletion Effects on Downstream Water Supplies*

**Issue 3.1:** The DSEIR does not adequately consider the seasonal variation of streamflow depletion impacts. A given amount of depletion may have a greater impact on the function of stream ecosystems at different times of year. For example, a fixed volume or rate of depletion in early spring, when flows are comparatively high and temperatures are relatively cold, may be a small percentage of flow with less significant impacts on aquatic habitat and water quality. That same volume/rate of depletion in late summer could be a significant percentage of the streamflow, reducing the stream's ability to oxygenate, buffer against temperature fluctuations and dilute contaminants, and reduce physical aquatic habitat availability; or, the depletion could dewater the stream completely. With the exception of stream segment Yuba River 2 (YR2), the Project does not appear to have the ability to mitigate for depleted streamflow in tributary stream reaches in the Project area. A2-6

**Recommendation 3.1:** CDFW recommends monitoring of instream habitat conditions, with increased frequency during identified periods of ecosystem vulnerability. Ecologically relevant streamflow thresholds should be identified, and pumping operations of near-stream wells should undergo adaptive management before flows approach these thresholds. The SEIR should further evaluate the relationship between groundwater levels and tributary streamflow. Depending on hydrogeological characteristics, key relationship(s) for maintaining adequate summer streamflow may include the groundwater levels of upgradient monitoring wells in preceding months. Well operations should adapt to maintain these key seasonal groundwater levels that support critical instream flows.

**Issue 3.2:** While the inclusion of the Wheatland Water District In-Lieu Recharge Project (WWD Project) is helpful contextually, the analysis of stream depletion reduction resulting from the WWD Project is confusing, the quantifiable benefits to flow overall are not clear, and the differential offsetting of stream depletion in individual tributaries are not addressed.

**Recommendation 3.2:** No reduction in the streamflow depletion factor (SDF) should occur as a result of WWD Project operations unless a more robust analysis of the spatial and temporal benefits of recharge is conducted. The analysis should include an evaluation of projected recharge operations under a range of future climate change conditions influencing recharge water availability, and an evaluation of the zone of beneficial influence of recharge relative to the depletion of groundwater levels and streamflow in the greater zone of pumping. The analysis should also consider whether it is necessary for recharge to occur in close temporal proximity to the groundwater substitution pumping in order to mitigate the acute streamflow depletion. It is possible A2-7

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that this analysis is present in the grant proposal, but it is not available as part of the DSEIR. A2-7 cont.

**Issue 3.3:** The Department of Water Resource (DWR) has convened multi-stakeholder advisory groups to develop a framework for developing SDF for groundwater substitution water transfers. It is unknown whether the suggested approach in the SEIR will be consistent with this upcoming guidance.

**Recommendation 3.3:** While it is appreciated that the permittee is pro-active in considering a possible SDF approach, any SDF adopted for this project should be subject to change given the evolving standards. Regardless of the eventual guidance of the multi-stakeholder advisory groups, due to the long-term nature of the proposed Project and uncertainty surrounding future climatic and hydrologic conditions, it is recommended that the SDF be subject to review and revision at regular intervals. A2-8

**COMMENT 4: Cumulative Impacts Analysis**
*Section 4.3 Analysis of Cumulative Impacts, page 4-18*

**Issue:** The cumulative effects analysis in the DSEIR does not provide sufficient information for meaningful review of potential significant cumulative effects of the proposed Project and other reasonably foreseeable probable projects. While the DSEIR is thorough in its identification of other reasonably foreseeable projects, the subsequent discussion of cumulative impacts and the Project's incremental contribution lacks specificity and metrics to support its conclusions.

In its evaluation of cumulative impacts to both surface waters and fisheries and aquatic resources, the DSEIR does not adequately discuss and incorporate changes to environmental baseline conditions that occurred during previous implementation of the Water Transfer Program, including population trends for salmonids and other fisheries that occur in the Project area and Bay-Delta. A2-9

**Recommendation:** CDFW recommends the SEIR incorporate an evaluation of cumulative impacts to address the changed environmental baseline conditions related to trends in fisheries populations, instream flows, and Delta outflows and water quality. Inclusion of specific metrics, and modeling to the extent available, will support a more nuanced evaluation of how surface waters or aquatic resources may have been impacted by the previous Water Transfer Program in combination with other related projects, and it will better contextualize a consideration of how conditions may continue to evolve with the proposed Project and other reasonably foreseeable probable projects.

**ENVIRONMENTAL DATA**

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § A2-10

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21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. **A2-10 cont.**

**FILING FEES**

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.) **A2-11**

**CONCLUSION**

Pursuant to Public Resources Code § 21092 and § 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov.

CDFW appreciates the opportunity to comment on the DSEIR for the Extension of the Yuba Accord Long-Term Water Transfer Program to assist Yuba Water Agency in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Bridget Gibbons, Environmental Scientist, at bridget.gibbons@wildlife.ca.gov. **A2-12**

Sincerely,

DocuSigned by:
Morgan Kilgour
C3A86764C0AD4F6...

Morgan Kilgour
Regional Manager

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Attachment A: CDFW Yuba Subbasins Final GSP Comment Letter to DWR

ec: Jennifer Garcia, Environmental Program Manager
Colin Purdy, Environmental Program Manager
Bridget Gibbons, Senior Environmental Scientist (Supervisory)
Beth Lawson, Senior Hydraulic Engineer
Anna Allison, Senior Environmental Scientist (Supervisory)
Tracy McReynolds, Senior Environmental Scientist (Specialist)
Adam Weinberg, Senior Environmental Scientist (Specialist)
*Department of Fish and Wildlife*

Office of Planning and Research, State Clearinghouse, Sacramento

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**Attachment A**

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Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road,
Rancho Cordova, CA 95670
www.wildlife.ca.gov

*GAVIN NEWSOM, Governor*
*CHARLTON H. BONHAM, Director*

June 1, 2020

Via Electronic Mail and Online Submission

Craig Altare
Supervising Engineering Geologist
California Department of Water Resources
901 P Street, Room 213
Sacramento, CA 94236

**Email:** Craig.Altare@water.ca.gov
**Portal Submission:** https://sgma.water.ca.gov/portal/#gsp

Dear Mr. Altare:

**Subject: COMMENTS ON THE FINAL YUBA SUBBASINS GROUNDWATER SUSTAINABILITY PLAN**

The California Department of Fish and Wildlife (Department) North Central Region is providing comments on the Final Yuba Subbasins Groundwater Sustainability Plan (GSP) prepared by Yuba Water Agency, City of Marysville, and Cordua Irrigation District Groundwater Sustainability Agencies (GSAs) pursuant to the Sustainable Groundwater Management Act (SGMA). As trustee agency for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species (Fish & Game Code §§ 711.7 and 1802).

Development and implementation of GSPs under SGMA represents a new era of California groundwater management. The Department has an interest in the sustainable management of groundwater, as many sensitive ecosystems and species depend on groundwater and interconnected surface waters, including ecosystems on Department-owned and -managed lands within SGMA-regulated basins. SGMA and its implementing regulations afford ecosystems and species specific statutory and regulatory consideration, including the following as pertinent to Groundwater Sustainability Plans:

- Groundwater Sustainability Plans must **identify and consider impacts to groundwater dependent ecosystems (GDEs)** [23 CCR § 354.16(g) and Water Code § 10727.4(l)];
- Groundwater Sustainability Agencies must **consider all beneficial uses and users of groundwater**, including environmental users of groundwater [Water Code §10723.2 (e)]; and Groundwater Sustainability Plans must **identify and**

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**consider potential effects on all beneficial uses and users of groundwater** [23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3)];

- Groundwater Sustainability Plans must **establish sustainable management criteria that avoid undesirable results** within 20 years of the applicable statutory deadline, including **depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water** [23 CCR § 354.22 *et seq.* and Water Code §§ 10721(x)(6) and 10727.2(b)] and **describe monitoring networks** that can identify adverse impacts to beneficial uses of interconnected surface waters [23 CCR § 354.34(c)(6)(D)]; and
- Groundwater Sustainability Plans must **account for groundwater extraction for all water use sectors** including managed wetlands, managed recharge, and native vegetation [23 CCR §§ 351(al) and 354.18(b)(3)].

Furthermore, the Public Trust Doctrine imposes a related but distinct obligation to consider how groundwater management affects public trust resources, including navigable surface waters and fisheries. Groundwater hydrologically connected to navigable surface waters or surface waters supporting fisheries, and surface waters tributary to navigable surface waters or surface waters supporting fisheries, are also subject to the Public Trust Doctrine to the extent that groundwater extractions or diversions affect or may affect public trust uses (*Environmental Law Foundation v. State Water Resources Control Board* (2018), 26 Cal. App. 5th 844; *National Audubon Society v. Superior Court* (1983), 33 Cal. 3d 419). Accordingly, groundwater plans should consider potential impacts to and appropriate protections for interconnected surface waters and their tributaries, and interconnected surface waters that support fisheries, including the level of groundwater contribution to those waters.

In the context of SGMA statutes and regulations, and Public Trust Doctrine considerations, the Department values groundwater planning that carefully considers and protects environmental beneficial uses and users of groundwater including fish and wildlife and their habitats: groundwater dependent ecosystems and interconnected surface waters.

**COMMENT OVERVIEW**

The Department supports ecosystem preservation and enhancement in compliance with SGMA and its implementing regulations based on Department expertise and best available information and science. Consistent with comments previously submitted to the GSA on December 9, 2019, the Department recommends the GSP provide additional information and analysis that considers all environmental beneficial uses and users of groundwater and that better characterizes surface water-groundwater connectivity. The Department appreciates The GSAs' consideration and integration of many of the Department's original comments. Where the Department's initial comments have not been addressed, they are restated in this letter with updated page citations.

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Where the GSAs have since responded to the Department's comments, the Department has updated the comments and provided additional context in *italicized text*.

**COMMENTS AND RECOMMENDATIONS**

The Department comments are as follows:

1. **Comment #1 Interconnected Surface Waters** (Basin Setting, 2.2.2.6 Interconnected Surface Water Systems, starting page 2-136): The GSP identifies a high degree of interconnectivity between shallow groundwater and surface water in the basin but limits management oversight of shallow groundwater – and therefore over interconnected surface waters – on account of limited hydraulic connectivity between the shallow groundwater and the 'principal aquifer.'
    a. *Issue*: The GSP notes in several places that there are significant clays and restrictive units in the shallow subsurface that support shallow groundwater contributions to interconnected surface waters and that limit hydraulic connectivity between shallow groundwater and the 'principal aquifer' (Section 2.2.2.1.3, Section 2.2.2.6). In its analysis of pumping-induced groundwater level impacts, the GSP suggests that groundwater within the upper 20 to 30 feet of the subsurface would show heavily muted responses to groundwater pumping in deeper strata (page 2-143). Simultaneously, the GSP: 1) identifies shallow groundwater elevations in the principal aquifer (pages 2-94, 2-95); 2) shows shallow groundwater elevation trends that, although muted, parallel seasonal pumping trends of groundwater elevations in deeper wells, particularly along the Feather River (page 2-104); and 3) acknowledges that shallow groundwater monitoring data is limited (page 4-8). The GSP limits oversight over shallow subsurface water by distinguishing it from the 'principal aquifer' (page 2-70) but develops SMC for depletions of interconnected surface water by way of groundwater elevation proxy (see Comment #4). Absent a better understanding of shallow groundwater systems and their relationship to deeper, 'principal' groundwater reservoirs, it is contradictory to abdicate oversight of shallow groundwater as a non-principal aquifer while identifying shallow groundwater as the primary subsurface influence on surface water interconnectivity, for which the GSP proposes SMC by way of groundwater elevation proxy.
    b. *Recommendation*: The Department supports the proposed expansion of shallow groundwater monitoring in the Yuba Subbasins to better understand the hydraulic relationship between shallow groundwater, interconnected surface waters, and pumping within the 'principal aquifer'

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(Section 5). The Department also recommends the GSAs consider treating the shallow groundwater system as a 'principal aquifer' to ensure shallow groundwater levels and depletions of interconnected surface water will be managed to the extent possible with accountability to relevant SMC (e.g., near-stream hydraulic gradients). There is no specific reason why a shallow aquifer cannot comprise a 'principal aquifer,' particularly where shallow aquifers are overlain by GDEs or support interconnected surface waters with special status species. Where a shallow groundwater system stores and yields quantities of water that are 'significant' to surface water beneficial users, including environmental beneficial users and GDE beneficial users, this shallow aquifer may be considered a 'principal aquifer' [23 CCR § 351(aa)]. Shallow groundwater systems are arguably the *most* significant aquifers for environmental beneficial uses and users of groundwater, because they are the aquifers directly accessible to and supportive of the terrestrial and aquatic habitat. Therefore, the Department recommends identifying the shallow groundwater network in the Yuba Subbasins as a 'principal aquifer.'

**GSA Response to Comments:** *Comment noted. The shallow groundwater system was not identified a principal aquifer as defined under SGMA. Quoted directly, 23 CCR § 351(aa) reads "'Principal aquifers' refer to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems." Based on the analysis performed in the GSP, the shallow groundwater system was not considered to meet the definition of a principal aquifer: "that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems." This discussion is included in Section 2.2.1.9.*

*Section 2.2.2.1.3 provides a description of groundwater conditions in the shallow aquifer and in the principal aquifer. The presence of clays in the subsurface is the driver for the use of land for rice cultivation and also limits the percolation of water into the deeper subsurface. These clays allow some level of percolation, as shown through groundwater modeling and the water budget analysis. However, the recharge from applied water and natural sources occur in volumes that result in stable groundwater levels or muted summer declines in groundwater levels in shallower monitoring wells.*

*The management presented does not "de facto dismiss "oversight of shallow groundwater. The shallow groundwater is not used for water supply purposes. Management of the shallow groundwater system is best performed through improved understanding of the shallow system (included in the GSP as additional monitoring) and monitoring and management of what can be*

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*managed under SGMA - the deeper aquifer (Appendix D: Responses to Public Comments, PDF page 396)*

**Department Response:** *The above comment remains relevant for several reasons: 1) shallow groundwater supply may be developed for consumptive use in the future; 2) shallow groundwater elevations demonstrate trends that correlate with deeper groundwater pumping patterns and accordingly may be hydrologically connected; 3) shallow groundwater may store, transmit, or yield volumes of water significant to surface water systems critical to environmental beneficial users of groundwater, and therefore may be considered a principal aquifer; and 4) interconnected surface waters and other GDEs rely on shallow groundwater. The Department supports expanded monitoring of shallow groundwater to understand how pumping in the principal aquifer impacts shallow groundwater and interconnected surface water.*

2. **Comment #2 Groundwater Dependent Ecosystems** (Basin Setting, 2.2.2.7 Groundwater Dependent Ecosystems, starting page 2-140): GDE identification, required by 23 CCR § 354.16(g), is based on methods that risk exclusion of ecosystems that may depend on groundwater.
    a. *Issue*: Methods applied to the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset to eliminate potential GDEs may exclude ecosystems that rely on groundwater during specific seasons, water years, or life stages. The litmus test question proffered by the GSP to determine the validity of a potential GDE in the NCCAG – 'would the ecosystem not exist if groundwater levels were deeper?' (page 2-140) – assumes a false dichotomy between both ecosystem existence and non-existence, as well surface water-dependence and groundwater dependence. Groundwater dependent vegetation or interconnected surface waters may be able to sustain existence/flow during temporary, or even extended, groundwater elevation reductions (Naumburg et al., 2005), and these GDEs may oscillate between surface water reliance and groundwater reliance. In short, GDEs may be opportunistic, and the GSP assessment of GDEs is based on overly simplistic determination criteria that do not account for GDE adaptability.
    b. *Recommendations*: The Department recommends the GSP include potential GDEs until there is evidence that the overlying ecosystem has no significant dependence on groundwater across seasons and water year types. The Department advises that riparian GDE beneficial users of groundwater and surface water are also carefully considered in the analysis of undesirable results and minimum thresholds for depletions of interconnected surface waters (see Comment #4).

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**GSA Response to Comments:** *Added text noting that the depth to water values that were compared to the 30' criteria were based on the minimum depth to water (shallowest conditions) over the August 2014 - September 2018 time period: "The comparison with the 30-foot criterion was made using the minimum depth to water measurement (shallowest measured conditions) over the period August 2014 to September 2018 for wells with a total depth of than 100 feet."*

*This is considered to be a representative period, as it includes the very wet winter of 2016-2017. By including wet conditions, the shallowest-measured conditions criteria will be able to address the adaptability of GDEs mentioned in the comment.*

*Comment noted. Flows are maintained in the Yuba River year-round, in part to meet flow requirements at the Marysville gage. Additionally, irrigation occurs throughout the growing season as a necessity of farming. These sources provide water for nearby ecosystems. Further, no potential GDEs were removed during the analysis. DWR provides guidance on use of the NCCAG dataset in GSP development, stating that "[t]he Natural Communities dataset is provided by DWR as a reference dataset and potential starting point for the identification of GDEs in groundwater basins. The Natural Communities dataset and its source data can be reviewed by GSAs, stakeholders, and their consultants using local information and experience related to the validity of mapped features and understanding of local surface water hydrology, groundwater conditions, and geology..."*

*This DWR guidance resulted in the methodology used for this GSP which was to identify likely GDEs in the subbasin by combining the NCCAG database with additional local data and knowledge. The database was a starting point to identify areas dependent on groundwater. Areas identified in the NCCAG dataset were further analyzed to assess the features as discussed in the GSP. Continued work to refine this process is discussed in the projects and management actions section (Appendix D: Responses to Public Comments, PDF page 397-398).*

**Department Response:** *The Department revised the above comment and supports on-going GDE evaluation efforts (pages 5-7, 5-8).*

3. **Comment #3 Monitoring Networks** (Monitoring Networks, 3.2 Monitoring Networks, starting page 3-1): Number and distribution of shallow groundwater monitoring wells are insufficient for analysis of impacts to interconnected surface water and GDEs.
   a. *Issue*: Existing shallow groundwater monitoring wells may not be sufficient to characterize surface water-groundwater interactions along the course of

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the main waterways in the Yuba Subbasins or to monitor impacts to environmental beneficial uses and users of groundwater and interconnected surface waters [23 CCR § 354.34(2)]. Few shallow monitoring wells are located along interconnected surface waters or concentrations of potential GDEs; and therefore, there are few data points on shallow groundwater level trends as they related to environmental users of groundwater. These data are critical to understanding groundwater management impacts on fish and wildlife beneficial uses and users of groundwater, including GDEs and interconnected surface water habitats, which are impacted disproportionately by shallow groundwater trends.

b. *Recommendation*: Consistent with the GSPs acknowledgement of the need for additional shallow groundwater monitoring (page 4-8), the Department supports installing additional shallow groundwater monitoring wells near streamflow gages along interconnected surface waters and GDEs, potentially pairing multiple-completion wells with streamflow gauges for improved understanding of surface water-groundwater interconnectivity.

**GSA Response to Comments:** *Comment noted. CDFW is encouraged to continue to participate in implementation if there are priority areas for well installation activities described in Section 5 of the GSP, or if the GSP can benefit from monitoring activities that CDFW may perform on their lands (Appendix D: Responses to Public Comments, PDF page 398).*

**Department Response:** *The above comment remains relevant, and the Department appreciates the invitation to participate in GSP/monitoring implementation.*

4. **Comment #4 Sustainable Management Criteria** (Sustainable Management Criteria; 4.3.1, 4.4.1 Groundwater Levels and 4.3.6, 4.4.6 Depletions of Interconnected Surface Water; starting page 4-4): Groundwater level and interconnected surface water SMC may not protect against undesirable results for fish and wildlife beneficial uses and users of groundwater and interconnected surface waters.
   a. *Issues*:
      i. Proxy Metric: The GSP does not provide evidence that a "significant correlation exists between groundwater elevations" and Depletions of Interconnected Surface Water [23 CCR § 354.36(b)(1)]. Conversely, the GSP identifies shallow groundwater as a primary influence on interconnected surface waters and

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suggests there is limited hydraulic connectivity between the shallow groundwater and the deeper 'principal aquifer' (page 4-8), but then uses deep groundwater elevations from the 'principal aquifer' as a proxy metric for surface water depletions (page 4-8). The GSP justifies the proxy metric by modeling minimum threshold pumping impacts on the Yuba, Feather, and Bear Rivers and concluding that simulated depletions associated with the increased pumping would not be significant and unreasonable (page 4-10). These modeling efforts are presumably not based on robust shallow groundwater data (see Comment #3), therefore the estimated surface water depletion results are subject to uncertainty. If shallow groundwater monitoring data is limited and a significant correlation is lacking between principal groundwater elevations and depletions of interconnected surface water, then groundwater elevations used as a proxy for surface water depletions may misinform groundwater management activities and poorly predict instream habitat conditions for fish and wildlife species. Accordingly, the application of groundwater level sustainable management criteria to depletions of interconnected surface water is inappropriate, as it is not grounded in a quantifiable and site-specific understanding of surface water-groundwater connectivity as required by 23 CCR § 354.28 (c)(6)(A).

ii. Undesirable Results**:** Besides mentioning potential adverse impacts on GDEs under 'potential effects of undesirable results' (page 4-7), groundwater level minimum thresholds, exceedances of which indicate undesirable results, are applied to the identification of undesirable results for the depletions of interconnected surface water without a reasonable justification (see 'Proxy Metric' comment above). Specifically, for the Yuba, Feather and Bear Rivers, undesirable results are defined by modeling analysis outputs that "indicated that the groundwater level sustainability indicator would prevent additional depletions" (page 4-10). The modeled additional depletions are then compared to total annual flow in these river systems. This coarse annual evaluation does not consider how groundwater contributions may benefit river base flows and groundwater-dependent riparian communities during dry years, or during seasonal summer low-flow months. Furthermore, given that "minimum thresholds for chronic declines of groundwater levels are considered sufficiently protective" (page 4-10) for the

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larger rivers in the GSP, it is not an appropriate assumption that the smaller streams in the subbasins would "experience similar responses to hypothetically lower groundwater conditions" (page 4-9). These smaller streams generally have no upstream reservoir that stores seasonal water, and therefore no Federal Energy Regulatory Commission-required instream base flows. In these streams, depleted shallow groundwater conditions could reduce base flows or extend the duration of dry periods, causing an undesirable result for fish and wildlife beneficial users.

iii. Minimum Thresholds: Minimum thresholds for groundwater levels, and by proxy, for depletions of interconnected surface water, are not likely to prevent undesirable results for environmental beneficial uses and users of groundwater and interconnected surface water. For representative monitoring sites, minimum thresholds allow for a decrease of groundwater elevation from historic lows to groundwater elevations of 75 feet below-ground-surface, or deeper (page 4-21). According to Table 4-1, representative monitoring sites that have historically demonstrated shallow groundwater accessible to GDEs and interconnected surface waters, could demonstrate a 70+ foot drop in groundwater elevations before undesirable results are experienced (page 4-21). Under these minimum thresholds, the Department expects that fish and wildlife beneficial uses and users of groundwater and interconnected surface water that rely on shallow groundwater could lose access to shallow water supplies and experience significant and unreasonable impacts far before the proposed minimum thresholds are reached.

b. *Recommendation*:

i. Proxy Metrics: To justify use of groundwater elevations as a proxy metric for depletions of interconnected surface water, the GSP should specify how groundwater elevations from the 'principal aquifer' are significantly correlated to surface water depletions. If there is no significant correlation, the GSP recommends that the GSA determine an expeditious path to gathering additional shallow groundwater data and establishing SMC for interconnected surface waters based on the rate or volume of surface water depletions caused by groundwater use, per 23 CCR § 354.28(c)(6).

ii. Undesirable Results: The Department recommends the GSP specify groundwater level 'undesirable results' and 'effects of undesirable results' for environmental beneficial users of

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groundwater and interconnected surface water identified in Appendix C. The Department also recommends analyzing interconnected surface water 'undesirable results' by either looking at seasonal accretion/depletions along the full stream courses or using comparisons of near-surface groundwater gradients throughout the length of the river. A more robust shallow groundwater monitoring well network (See Comment #3) will help the GSAs determine more clearly how changes in shallow groundwater may affect interconnected surface waters. Additionally, the seasonal and interannual impacts of surface water depletions should be separately analyzed for small, unmanaged streams.

iii. Minimum Thresholds: The Department recommends the GSP reconsider minimum thresholds at representative monitoring sites with historically shallow groundwater, accounting for the effects of undesirable results on fish and wildlife beneficial uses and users of groundwater and interconnected surface water.

**GSA Response to Comments:** *Modified text in Section 4.3.6.4 to further explain the correlation between depletions of interconnected surface water and groundwater levels in the principal aquifer.*

*Comment noted. The analysis of undesirable results for depletions of interconnected surface water was performed using the best available science. Data are not available for the requested analyses, which would require comprehensive data on every stream in the Yuba Subbasins and is not practical. Data of this nature is not available for the vast majority of rivers and streams in the state. Additional shallow groundwater monitoring facilities are a noted data gap and practical additions are included in the projects and management actions section of the GSP.*

*Section 2.2.2.1.3 provides a description of groundwater conditions in the shallow aquifer and in the principal aquifer. The presence of clays in the subsurface is the driver for the use of land for rice cultivation and also limits the percolation of water into the deeper subsurface. These clays allow some level of percolation, as shown through groundwater modeling and the water budget analysis. However, the recharge from applied water and natural sources occurs in volumes that result in stable groundwater levels or muted summer declines in groundwater levels in shallower monitoring wells.*

*Groundwater levels associated with minimum thresholds are based on the best available science and are considered protective of fish and wildlife beneficial users and users of groundwater and interconnected surface water*

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*based on the analysis contained in the GSP. Specifically, this is based on the presence of abundant natural and applied surface water recharge combined with the presence of shallow clays that limit deep percolation of groundwater.*

*It is noted that the Yuba Basins have not operated at these levels historically and the functioning of the basin cannot be fully understood at this time. The adaptive management strategy and the plan for annual reporting and 5-year evaluations allow for further refinement of the GSP to incorporate new knowledge and understanding of the Yuba Subbasins. Additional monitoring wells are proposed under Section 5 to improve the understanding of shallow groundwater (Appendix D: Responses to Public Comments, PDF page 399-401).*

**Department Response:** *The above comment remains relevant.*

**CONCLUSION**

In conclusion, the Department appreciates that the Final Yuba Subbasins GSP addressed many of the Department's original comments, but the Department remains concerned for the GSP's consideration of environmental beneficial uses and users of groundwater, including fish and wildlife and their habitats: GDEs and ISW.

The Department appreciates the opportunity to provide comments on the Final Yuba Subbasins GSP. If you have any further questions, please contact Briana Seapy, Senior Environmental Scientist, Supervisor, by email at Briana.Seapy@wildlife.ca.gov or at (916) 508-3345.

Sincerely,

DocuSigned by:
Kevin Thomas
A2A0A9C574C3445...

Kevin Thomas
Regional Manager, North Central Region

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*Conserving California's Wildlife Since 1870*

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**Literature Cited**

Naumburg E, Mata-Gonzalez R, Hunter R.G., McLendon T, Martin D.W. 2005. "*Phreatophytic vegetation and groundwater fluctuations: a review of current research and application of ecosystem response modeling with an emphasis on great basin vegetation*". Environmental Management. 35(6):726-40.

*Conserving California's Wildlife Since 1870*

### Response A2-1
The comment is an introductory statement and does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response A2-2
The comment summarizes the project description from the Draft SEIR and does not otherwise address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response A2-3
The comment provides a summary of detailed comments provided below. See responses to the detailed comments below.

### Response A2-4
The comment states that the SEIR should include additional discussion of the potential impacts to salmonids, including Central Valley spring-run Chinook salmon (*Oncorhyncus tshawytscha*), and other aquatic species that may result from flow fluctuations caused by the Proposed Extension. The comment further states that the SEIR should identify the likely timing of transfer releases in relation to aquatic species' life stages, and as needed, refer to specific operational model runs to illustrate the range of potential flow fluctuations and associated impacts. Lastly, the comment states that if transfers are likely to occur during September through November, the SEIR should identify specific actions that will be taken to avoid redd dewatering or scouring below Englebright Dam, including early notification of planned transfer operations, pre-transfer monitoring, post-transfer monitoring, and protective ramping rates.

The comment regarding potential impacts of water transfer timing on aquatic species reflects a misunderstanding of how Yuba Accord transfer water is generated and released from Yuba Water's facilities. The comment assumes that Yuba Accord transfer water is released as a single block of water specifically for transfer purposes and could be released in this manner during periods in which potential impacts on aquatic species, including Central Valley spring-run Chinook salmon, could occur. As described here and discussed in more detail below, however, Yuba Accord transfer water is generated and released in the following three different ways, none of which have the potential to adversely affect spring-run Chinook salmon during spawning and incubation:

1. Releases from New Bullards Bar Reservoir to meet year-round minimum streamflows under the Yuba Accord Fisheries Agreement, to which the California Department of Fish and Wildlife (CDFW) is a signatory and which the State Water Resources Control Board (SWRCB) incorporated into Yuba Water's consumptive water-right permits in Corrected Order WR 2008-0014. Those minimum streamflow requirements include terms for flows at both the Marysville gage, which represents the Yuba River's mouth, and the upstream Smartsville gage. The potentially transferable water is the increment of flow by which the current minimum streamflows exceed pre-Accord minimum streamflows (which were "Interim" streamflows established by the SWRCB in its Revised Water-Right Decision 1644 (RD-1644) in 2003). This component of Yuba Accord transfer water is by far the largest component.
2. Releases from New Bullards Bar Reservoir primarily in July and August of each year to enable Yuba Water to reduce the reservoir's end-of-September storage to its annual target of 650,000 acre-feet (af) to make space for potential flood flows in the following wet season, consistent with Yuba Water's statutory flood-control mission.[1]
3. In some years, farmers within Yuba Water's member units pump groundwater in lieu of receiving available surface-water supplies from Yuba Water and apply that groundwater for agricultural irrigation. Yuba Water then coordinates transfer of the resulting increment of surface water in New Bullards Bar Reservoir to water users downstream of the Yuba River. Yuba Water releases this water only in July and August and only under strict scheduling rules that are reviewed and approved by the Yuba Accord River Management Team, of which CDFW is a member.

While the comment assumes that Yuba Water releases Yuba Accord transfer water via releases of specific blocks of "transfer water," only category #3 groundwater-substitution transfers potentially involve transfer-specific releases. By

[1] In 1959, the Legislature enacted a special act to create Yuba Water to address the "water problems in the County of Yuba [including] countywide water conservation, flood control and development of water resources…." (Cal. Stats. 1959, ch. 788, p. 2798, § 26.)

contrast, the Yuba Accord transfers in categories #1 and #2 involve water released for Yuba Water operations that would occur with or without transfers to water users downstream of the Yuba River, with the transfers occurring or not occurring depending on independent conditions and operations in those downstream areas. Transfers in categories #1 and #2, therefore, result largely from downstream accounting of water supplies and not from transfer-specific operations as the comment assumes.

As described in the 2007 EIR, Yuba Water accounts for water released in categories #1 and #2 as potentially transferable year-round and the 2007 EIR analyzed it that way. The 2007 EIR, therefore, analyzed the export of Yuba Accord transfer water from the Delta for environmental impacts as a year-round operation. Based on analysis for the 2007 EIR, to avoid fishery impacts, the export of Accord transfer water is restricted in the month of June.

The Delta "transfer window" that the comment references took effect only as a restriction on CVP/SWP in-Delta operations in 2009, with the issuance of biological opinions for the CVP/SWP by the US Fish and Wildlife Service in 2008 and the National Marine Fisheries Service in 2009. Based on those biological opinions, DWR—the buyer of Yuba Accord transfer water under the Water Purchase Agreement—decided to limit export of that transfer water to the July-September window, even though Accord transfer water was analyzed as a year-round operation. DWR's decision, however, does not change Yuba Water's operations that generate Yuba Accord transfer water in categories #1 and #2 because, notwithstanding DWR's decision, Yuba Water still complies with its minimum streamflow requirements and its statutory flood-control mission year-round.

Consistent with these key facts, the following discussion describes why Yuba Water makes essentially no discretionary releases for transfer during the September to November period identified by the comment, other than small amounts of water released to maintain stable flows in this period to benefit fish. Through the above-referenced transfer accounting based on downstream conditions and operations, a minor portion of this water may be accounted as transfer water.

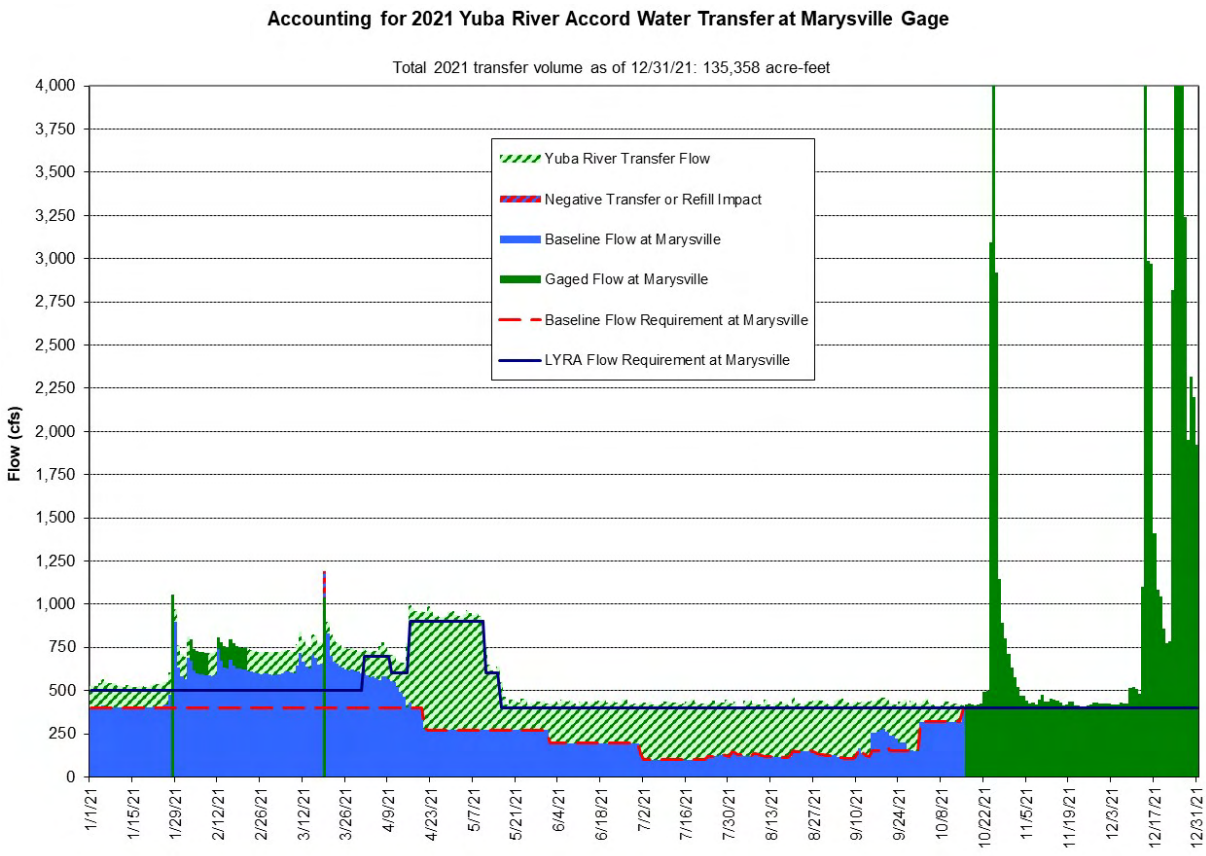
### Overview of the Accord Transfer

As discussed above, with category #1 of Yuba Accord transfers, Yuba Water does not have discretion in releasing these flows because the minimum streamflow requirements in Yuba Water's consumptive water-right permits require them. For category #2, releases of stored water are made in the months of July and August with only a small portion of stored water that is occasionally accounted for transfer being released in September and then only to provide stable flows for fishery benefit. The reasons for releasing this type of transfer water in July and August are because this is the time with the greatest chance of DWR being able to export the water and because, if any significant amount is released after September 1, flow fluctuation requirements in Yuba Water's Federal Energy Regulatory Commission (FERC) license severely restrict lower flows after any transfer release. For category # 3, groundwater substitution transfer water is only released in July and August and is subject to strict scheduling rules which are reviewed and approved by the Accord River Management Team, of which CDFW is a participant. For the same reasons as #2, groundwater substitution transfer releases are made in July and August (with some water released in May or June to comply with Yuba Accord Fishery Agreement requirements) to ensure export of the water.

As an example of how category #1 of the Yuba Accord transfers work, Figure 2-1 displays how Yuba Water operations generated that category of water in 2021 and reflects data taken directly from the transfer accounting data sheet for that year. Figure 2-1 shows the required Accord minimum streamflows under Yuba Water's consumptive water-right permits as a blue line. The red dashed line reflects the pre-Accord Interim minimum streamflow requirements in SWRCB's RD-1644. The flows required to meet pre-Accord Interim requirements are depicted as a solid blue area. Flows in excess of the pre-Accord requirements (depicted as a green hatched area) are available for transfer.

In late January through April, the solid blue baseline flow is higher than the red dashed line of the pre-Accord required streamflows, and the green hatched transfer flow area is higher than the solid blue line of the Accord minimum flow requirement. That is because Yuba Water is also operating to the Smartsville gage flow requirement, which is higher than the Marysville gage flow requirement under both the Yuba Accord and RD-1644 during that time.

In the September-October period with which the comment is concerned, Figure 2-1 shows that Yuba Water is releasing transferable water (the green hatched area), but only because it is releasing flow to meet the Accord minimum streamflow requirements, which CDFW biologists helped to develop.




Source: Data provided by Stephen Grinnell in 2024.

**Figure 2-1 Plot of 2021 Transfer Accounting Taken from the Yuba Water-DWR Accounting Spreadsheet Used for 2021**

The comment also does not account for the flow-fluctuation requirements that apply to all Yuba Water operations through the Federal Power Act (FPA) license for the Yuba River Development Project (YRDP) issued by FERC and through Yuba Water's consumptive water-right permits. In 2005, Yuba Water sought and received from FERC an amendment to the YRDP's FPA license to authorize Yuba Water to construct and operate a Full Flow Bypass at the YRDP's Narrows 2 Powerhouse. That bypass's purpose is to minimize sudden reductions in Yuba River flows, and therefore potential effects on salmonids in the lower Yuba River, from "trips" in Narrows 2 operations during which that powerhouse must cease generating electricity for operational safety.[2] In the license amendment authorizing the Full Flow Bypass, FERC included new license terms that adopted more stringent limits on flow fluctuations downstream of Narrows 2 for the protection of fish in the lower Yuba River. In all operations, including releases for Yuba Accord transfers, Yuba Water complies with those flow-fluctuation limits. As amended by RD-1644, Yuba Water's consumptive water-right permits contain similar terms. These FPA license and water-right terms limit project-driven flow fluctuations from September through March of the following year and therefore indicate that the sort of transfer-related fluctuations described by the comment will not occur.

In summary, the timing of Yuba Accord water transfers does not have the potential to adversely impact spring run chinook salmon during spawning and incubation. For transfers in category #1, Yuba Water releases that transfer water

[2] Historically, these "trips" have occurred primarily when transmission lines that carry electricity generated at Narrows 2 suddenly cease operating, such as when birds fly into those lines. In such circumstances, Narrows 2 must stop generating because the electricity it otherwise would generate would have nowhere to go and major problems could occur at that powerhouse.

year-round to meet minimum flow requirements and operational needs and does not make discrete releases for transfers. For transfers under category #2 and #3 (operation to the 650,000 af target and groundwater-substitution transfers), Yuba Water releases that water primarily in July and August, outside of the sensitive September-October period identified by the comment. The only Yuba Accord transfer water that Yuba Water releases in September and October is water necessary to meet minimum streamflow requirements or small portions of flow that are used to provide stable flows for fishery benefit. In addition, the flow-fluctuation requirements that apply to all of Yuba Water's operations of the YRDP protect fish in the lower Yuba River.

### Response A2-5

The comment states that the SEIR should incorporate information from the most recent survey(s) of groundwater dependent ecosystems (GDEs) in the groundwater extraction area to determine the locations of concern and their species assemblages. The comment further states that if additional surveys have not yet occurred, the SEIR should include available supplemental information that identifies other known or suspected GDEs in the project area. Additionally, comment states that the SEIR should characterize groundwater monitoring that will actively monitor groundwater depths in the areas of concern and adapt groundwater pumping to avoid negatively affecting these ecosystems during groundwater transfer periods.

The comment regarding potential impacts on GDEs reflects an incomplete understanding of: (1) the hydrogeology of the Yuba Subbasins from which groundwater-substitution pumping under the Yuba Accord occurs; and (2) the primary sources of recharge to the aquifers in those Subbasins that may interact with GDEs. As explained in more detail below, in the Yuba Subbasins, there are essentially two aquifers that are separated by relatively impermeable shallow clays and hardpans. GDEs interact with groundwater in the shallow aquifer above those shallow clays and hardpans and that shallow aquifer largely is recharged by water applied to irrigated fields. In contrast, groundwater-substitution pumping under the Yuba Accord is from the principal aquifer below the shallow clays and hardpans, such that pumping has little to no effect on the shallow aquifer on which GDEs may depend. That groundwater-substitution pumping, therefore, will not result in potentially significant adverse impacts on GDEs in the Yuba Subbasins. Moreover, by supporting continued agricultural irrigation at levels similar, if not identical, to the levels that would occur without groundwater-substitution pumping, that pumping actually will support GDEs by maintaining a similar degree of shallow aquifer recharge from irrigation water.

As explained in Yuba Water's groundwater sustainability plan (GSP) approved by DWR, GDEs in the Yuba Subbasins depend on a shallow aquifer that is primarily recharged through percolation from agricultural irrigation and that is substantially separated from the deeper principal aquifer, where pumping occurs, by shallow clays and hardpans. (GSP Section 2.2.19 [p. 2-70].) The existence of the shallow clays and hardpans that cause the shallow aquifer to exist also are the primary reason for the prevalence of rice farming in the region. The shallow clays and hardpans prevent most water from seeping deeper into the subsurface. This creates a perfect environment for ponding water and growing rice, and also creates a shallow aquifer that supports GDEs through recharge from irrigation water while limiting the impacts of pumping deeper in the subsurface.

#### The Nature of the Subsurface Limits the Impacts of Pumping in the Principal Aquifer on Groundwater Levels in the Shallow Aquifer

As the GSP explains in more detail, groundwater pumping occurs in the Yuba Subbasins within the principal aquifer, at depths below shallow clays and hardpans. (GSP Section 2.2.1.9 [p. 2-70].) Shallower wells, screened above the shallow clays and hardpans, are not feasible due to Yuba County's sanitary seal requirements and due to difficulty obtaining a viable quantity and reliability of water supply for beneficial uses. (GSP Section 2.2.1.9 [page 2-70]; Yuba County Code of Ordinances Section 7.03.040; DWR, Bulletin 74-81, Part II Section 9.) However, largely through recharge by irrigated agriculture, there is groundwater present above the shallow clays and hardpans (i.e., the shallow aquifer), which is often accessed by GDEs. (GSP Section 2.2.2.7 [pp. 2-142 – 2-143].)

Pumping in the Yuba Subbasins, like any groundwater pumping, lowers groundwater levels in the nearby area. In the Yuba Subbasins, however, pumping that occurs in the principal aquifer lowers groundwater levels in the principal aquifer and does not significantly lower levels in the shallow aquifer because the shallow clays and hardpans significantly limit hydraulic interaction between that principal aquifer and the shallow aquifer that may interact with

GDEs. Absent the shallow clays and hardpans, drawing down groundwater levels in the principal aquifer could result in greater flow from the shallow aquifer to the principal aquifer. However, the very low permeability of the clays and hardpans separating the two aquifers greatly inhibits any such flow, which means that pumping from the principal aquifer does not significantly draw on the shallow aquifer—and does not significantly draw water away from any GDEs—despite the resulting lowered groundwater levels in the principal aquifer.

Instead, over time, the lowered groundwater levels in the principal aquifer can extend laterally—rather than vertically into the shallow aquifer—towards the major rivers, the Yuba and Feather, and also towards the Bear River and Honcut Creek. The beds and banks of these larger rivers and creeks typically have less clay in the subsurface, as shown through soils data, well boring logs, and Airborne Electromagnetic (AEM) data. (GSP Section 2.2.1.10.2 [pp. 2-79 – 2-82]; DWR, 2023, California Airborne Electromagnetic Surveys for the Solano, South American, North American, Yolo, Sutter, South Yuba, and North Yuba Groundwater Subbasins. Appendix 6.)[3] The areas in the Yuba Subbasins along these larger rivers and streams can have coarser soils due to the geologic history of sediment deposition as those major rivers and creeks migrated over geologic time.

With less clay in the subsurface, these larger rivers and streams connect more to both the shallow aquifer and the principal aquifer. The potential effects on major streams are discussed in the Draft SEIR and are further discussed in response to comment A2-6, below.

In addition, Yuba Water's and DWR's certification process for new wells to enter the Yuba Accord groundwater-substitution transfer program helps to ensure that aspect of the Accord does not adversely affect GDEs (Yuba Water 2008). The certification process has special requirements for wells within two miles of the Yuba, Feather, and Bear Rivers, and even more restrictive requirements for wells within one mile (Yuba Water 2008). These requirements require deeper screen intervals and/or evidence of the presence of thicker clays in the upper subsurface. Because these certification requirements address the areas where wells involved in the Yuba Accord groundwater-substitution transfers could have potential impacts on surface rivers and streams due to the relative lack of shallow clays and hardpans in the upper subsurface, these requirements add protections for GDEs to that aspect of the Yuba Accord.

### GDEs are Supported by Recharge from Applied Irrigation Water that Occurs Regardless of Groundwater Substitution Transfers

In addition to the nature of the subsurface, the physical mechanisms by which the shallow aquifer in the Yuba Subbasins is recharged are important in understanding GDEs' relationship to groundwater pumping in these Subbasins. The primary land use in these Subbasins is irrigated agriculture (GSP Section 2.1.3), with areas participating in groundwater-substitution transfers otherwise irrigating with large volumes of surface water that originate in Yuba Water's operation of the YRDP. The shallow aquifer is primarily recharged by surface water applied to irrigate agricultural crops, along with precipitation. (GSP Section 2.2.3.4, Tables 2-14 and 2-16.) The groundwater substitution program does not change the volume of water applied and precipitation continues to recharge in the same volume; therefore, recharge to the shallow aquifer would not significantly change under the Proposed Extension.

### Conclusion

The groundwater-substitution program does not change the volume of applied irrigation water that recharges the shallow aquifer that interacts with GDEs in the Yuba Subbasins. Because that applied water is the primary source of recharge to the shallow aquifer, the groundwater-substitution transfer program will not affect the recharge that supports GDEs in the Subbasins. In addition, the shallow clays and hardpans that separate the shallow aquifer from the principal aquifer significantly limit any vertical movement of water from the shallow aquifer to the principal aquifer as a result of the groundwater-substitution pumping. With continued substantial recharge to the shallow aquifer resulting from continued irrigation—including irrigation with groundwater pumped from the principal aquifer as part of the groundwater-substitution program—and with minimal loss of water from the shallow aquifer to the principal aquifer, the groundwater substitution transfer program will not have a significant impact on GDEs in the Yuba Subbasins.

[3] The main text associated with the AEM is available at https://data.cnra.ca.gov/dataset/aem/resource/a88d98c3-c304-4309-ab18-271bbb74aa4c. The appendix information is available at https://data.cnra.ca.gov/dataset/aem/resource/348ff9b3-0974-485a-9d9d-13b025cb6825 and https://data.cnra.ca.gov/dataset/aem/resource/fcc8749a-a1d0-41c7-864c-d807d26f5b11.

### Response A2-6

The comment states that Yuba Water should monitor instream habitat conditions, with increased frequency during identified periods of ecosystem vulnerability. The comment further states that the SEIR should identify ecologically relevant streamflow thresholds, and pumping operations of near-stream wells should undergo adaptive management before flows approach these thresholds, and that the SEIR should further evaluate the relationship between groundwater levels and tributary streamflow.

The comment does not identify any potentially significant impacts from seasonal variations in streamflow depletion, or streamflow depletion more generally, that could result from the Proposed Extension. To assess whether the Proposed Extension could cause significant environmental impacts through streamflow depletion, Yuba Water has conducted updated groundwater modeling using the Yuba Groundwater Model (YGM) that Yuba Water used to prepare the December 2019 GSP that DWR has approved under the Sustainable Groundwater Management Act (SGMA). Yuba Water compared the model's results against the 2007 EIR's criteria for identifying the Yuba Accord's potentially significant environmental impacts due to streamflow depletions. As discussed in more detail below, the updated YGM results demonstrate that the Proposed Extension would not generate any streamflow depletions that require further analysis to determine whether they would result in any potential significant environmental impacts.

The Draft SEIR employs the same criteria as the 2007 EIR for assessing the significance of streamflow changes that could result from implementation of the Yuba Accord. Specifically, those criteria are: a one percent or greater change in flow to identify a "measurable" difference; and a ten percent or greater change as triggering further analysis of the physical effect on environmental resources. (2007 EIR, Chapter 10, Section 10.2.1.2). The 2007 EIR used these analytical criteria based on numerous published sources cited in the 2007 EIR's relevant discussion. That analysis did not identify streamflow depletion from the planned Yuba Accord groundwater substitution transfers exceeding the 10 percent threshold for further environmental analysis.

In preparation for this SEIR, Yuba Water employed the YGM that it used in preparing the approved GSP following SGMA's enactment in 2014. Yuba Water conducted this analysis for this SEIR to assess whether any new information, or new analytical tools, would indicate an impact resulting from streamflow depletion that the 2007 EIR did not identify.

As discussed below, this updated analysis did not indicate that continuation of Yuba Accord groundwater-substitution transfers, or other Yuba Accord operations, could cause environmental impacts through streamflow depletion that the 2007 EIR did not identify.

#### Analysis of Stream Depletion Effects on the Aquatic Environment – Results

A simulation of historical groundwater substitution transfer pumping volume and timing for the period of 1990 to 2021 was conducted using the YGM to examine streamflow depletion effects from pumping groundwater as part of a Yuba Accord transfer. The YGM simulation results of streamflow depletion, when calculated as percentage of streamflow for the Feather and Yuba Rivers, show small percentages of streamflow reduction, even in the most affected low flow summer months just after significant pumping has occurred. Specifically, these results indicate that the comment's concern—that streamflow depletion could cause significant impacts in low flow periods that might not be significant in higher flow periods—is not supported by the applicable technical analysis.

As indicated in Tables 2-2 and 2-3, Yuba Water's YGM modeling indicates that the Yuba Accord's streamflow depletion effects are seen more rapidly in the Yuba River than in the Feather River after groundwater-substitution pumping begins. In the Yuba River, the peak stream depletion rate, although small compared to river flow, occurs in the late summer and early fall of a year with a groundwater substitution transfer.

Table 2-2 lists the results for average stream depletion rates as a percentage of streamflow by month for stream segments on the Yuba River and Feather River from the YGM simulation of historical groundwater substitution transfer pumping volume and timing. The table shows that average monthly streamflow depletion rates are a small percentage of streamflow in and around the Yuba Subbasins, with the largest average percentages less than 1 percent. The table also demonstrates that on average, streamflow depletion does not exhibit large variation across seasons or month to month. Over a multi-year period, streamflow depletions from the Yuba Accord's implementation, therefore, would be minimal.

Table 2-3 lists the YGM simulation results for maximum stream depletion rates as a percentage of streamflow by month for stream segments on the Yuba River and Feather River. No stream depletion rate percentage exceeds the threshold of 10 percent for further environmental analysis, with the maximum rate of 7.2 percent occurring on the Yuba River in September. For the rate of 7.2 percent occurring in September, examination of the full simulation period of transfers from 1990 to 2021 showed that, in September of 2002, the percentage of streamflow depletion occurring was 6.5 percent in the Yuba River below Daguerre Point Dam to Marysville and 7.2 percent from Marysville to the mouth of the river. Other than in this single modeled month of September 2002 and the month prior, the greatest percentage flow reduction due to streamflow depletion in the Yuba River was 3.7 percent. Further examination of the occurrence of 7.2 percent reduction in the modeled September 2002 showed that, during this month, flows in the Yuba River were above the Yuba Accord minimum streamflow requirement. In other words, notwithstanding the modeled reduction of flow of 7.2 percent—2.8 percent below the threshold for further environmental analysis—resources dependent on Yuba River flows received the anticipated benefits for which flows stated in the Yuba Accord Fisheries Agreement were developed by Yuba Water, CDFW, and other signatories to that agreement. Moreover, if the 7.2 percent of modeled streamflow depletion in that month were to have caused streamflows to drop below the Yuba Accord minimum streamflow requirements, Yuba Water would still have released more water to comply with that minimum requirement to maintain compliance.

Thus, Yuba Water's application of the YGM model that it developed pursuant to SGMA after its certification of the 2007 EIR demonstrates that any streamflow depletion would not cause a significant impact on an environmental resource.

**Table 2-2 YGM simulation results of Average Stream Depletion Rates as a Percentage of Streamflow by Month for Yuba River and Feather River Stream Segments**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yuba River SMV to Daguerre | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Yuba River Below Daguerre to MRY | 0.1% | 0.1% | 0.4% | 0.4% | 0.4% | 0.4% | 0.2% | 0.1% | 0.1% | 0.2% | 0.4% | 0.4% |
| Yuba River Below Marysville Gage | 0.6% | 0.6% | 0.8% | 0.6% | 0.6% | 0.6% | 0.4% | 0.2% | 0.3% | 0.5% | 0.7% | 0.9% |
| Feather River Below Yuba | 0.6% | 0.6% | 0.5% | 0.5% | 0.4% | 0.4% | 0.4% | 0.3% | 0.3% | 0.3% | 0.4% | 0.5% |
| Feather River Above Yuba | 0.2% | 0.2% | 0.3% | 0.3% | 0.3% | 0.3% | 0.3% | 0.2% | 0.1% | 0.1% | 0.1% | 0.1% |
| Feather River Downstream of Bear | 0.7% | 0.8% | 0.6% | 0.6% | 0.5% | 0.5% | 0.5% | 0.4% | 0.4% | 0.4% | 0.5% | 0.6% |

Source: Data provided by Woodward and Curran and Stephen Grinnell in 2024.

**Table 2-3 YGM simulation results of Maximum Stream Depletion Rates as a Percentage of Streamflow by Month for Yuba River and Feather River Stream Segments**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yuba River SMV to Daguerre | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% |
| Yuba River Below Daguerre to MRY | 0.4% | 1.9% | 1.3% | 1.2% | 2.1% | 2.8% | 1.3% | 0.3% | 0.7% | 1.9% | 3.3% | 6.5% |
| Yuba River Below Marysville Gage | 1.3% | 2.5% | 2.2% | 2.0% | 2.5% | 2.9% | 1.5% | 1.1% | 1.7% | 2.2% | 3.7% | 7.2% |
| Feather River Below Yuba | 1.8% | 1.9% | 1.3% | 2.1% | 1.7% | 2.1% | 1.6% | 1.2% | 0.9% | 0.8% | 1.2% | 1.6% |
| Feather River Above Yuba | 0.5% | 0.7% | 0.9% | 1.1% | 1.1% | 1.2% | 1.5% | 1.4% | 0.9% | 0.4% | 0.3% | 0.4% |
| Feather River Downstream of Bear | 2.0% | 2.3% | 1.6% | 2.6% | 2.1% | 2.6% | 2.0% | 1.6% | 1.1% | 1.1% | 1.6% | 2.0% |

Source: Data provided by Woodward and Curran and Stephen Grinnell in 2024.

Finally, the Proposed Extension and associated groundwater-substitution pumping would not cause streamflow depletion-based impacts in Honcut Creek or the Bear River. For Honcut Creek, the relevant reaches of this creek within the area where groundwater-substitution pumping would occur are used for irrigation water conveyance by Yuba Water member units during the irrigation season. Without these artificial streamflows, Honcut Creek would be dry during the irrigation season when groundwater-substitution pumping occurs. Irrigation water will continue to support Honcut Creek flows during the relevant time periods. The Bear River is used for water delivery from Camp Far West Reservoir to South Sutter Water District and Camp Far West Irrigation District. Minimum flow releases are made from the reservoir on a fixed pattern; however, flows in the Bear River fluctuate significantly in the irrigation season

due to irrigation drainage return flows. DWR conducted studies during groundwater substitution transfers which showed no detectable streamflow reduction. Also, a significant factor that reduces any stream depletion effects on the Bear River is the Wheatland Water District In-Lieu Recharge Project (WWD Project), which has been operating since 2010. Because of these factors, the evaluation criteria used to assess whether the Yuba Accord would cause streamflow depletions that require further analysis are not applied to Honcut Creek or the Bear River, but both streams are included in the depletion assessment of downstream water supply impacts because that assessment concerns the amount of transferable water that the Yuba Accord produces, not the Accord's environmental impacts.

### Response A2-7

The comment states that no reduction in the SDF should occur as a result of the WWD Project operations unless a more robust analysis of the spatial and temporal benefits of recharge is conducted. The comment states that such an analysis should include an evaluation of projected recharge operations under a range of future climate change conditions influencing recharge water availability, and an evaluation of the zone of beneficial influence of recharge relative to the depletion of groundwater levels and streamflow in the greater zone of pumping. The comment further states that the analysis should also consider whether it is necessary for recharge to occur in close temporal proximity to the groundwater substitution pumping to mitigate the acute streamflow depletion.

The WWD Project was funded by the State of California. DWR administered the grant funds through a competitive selection process, which identified the WWD Project as producing several benefits through in-lieu groundwater recharge. Those benefits include improving groundwater levels and storage to, among other things, reduce streamflow depletion. As the Draft SEIR Appendix B describes through a detailed analysis, the WWD Project produces quantifiable benefits that, among other things, offset Yuba Accord-related streamflow depletion in individual tributaries. The simulations of the effects of the WWD Project include two separate analyses providing quantified beneficial effects of the project on streamflow. Figure 22 of Appendix B shows the monthly reductions (as negative values) in streamflow depletion, i.e. increases in streamflow, due to the WWD Project.

In addition, Draft SEIR Appendix B's plot in Figure 21 shows the results of a long-term simulation of the WWD Project's reduction in streamflow depletion on each affected tributary, by month, for the 70-year simulation period. The same YGM that Yuba Water used in preparing the approved GSP following SGMA's enactment in 2014 was used for this work. This information is used to establish the direct and quantifiable benefits of the WWD Project to streamflow, including by reducing streamflow depletion from groundwater pumping. Yuba Water is an active participant in the multi stakeholder advisory group referred to in the CDFW comment (the Sacramento Valley Streamflow Depletion Factor Management Group [SVSDFMG]) and that group has identified recharge projects as one of the important ways streamflow depletion can be mitigated.

### Response A2-8

The comment states that any SDF adopted for the Proposed Extension should be subject to regular review and revision, given anticipated updates to the existing framework for developing SDFs for groundwater substitution transfers, the long-term nature of the Proposed Extension, and uncertainty surrounding future climatic and hydrologic conditions.

As stated above, Yuba Water is an active participant in the SVSDFMG and is providing input to this process, along with frequent technical discussions with DWR formulating an approach to developing an appropriate, scientifically supported SDF associated with groundwater pumping. As stated in Section 3.2, "Surface Water Supply and Management," in the Draft SEIR, DWR will be the final decision maker on applying an SDF to Yuba Accord groundwater substitution transfers for purposes of determining how much transferable water groundwater substitution pumping actually generates. As discussed above, this issue is one associated with the water-right aspects of such transfers, rather than their potential environmental impacts. For this purpose, should DWR determine periodic review and revision is warranted, then Yuba Water would cooperate with DWR and Reclamation in a process to examine streamflow depletion effects and potential revision to the SDF.

### Response A2-9

The comment states that the SEIR should evaluate cumulative impacts to address the changed environmental baseline conditions related to trends in fisheries populations, instream flows, Delta outflows, and water quality. The comment further states that the SEIR should include specific metrics and modeling, to the extent available, to evaluate cumulative impacts to surface waters and aquatic resources.

As discussed in Section 4.3, "Analysis of Cumulative Impacts," of the Draft SEIR, the Proposed Extension would not result in significant impacts compared to the existing conditions (discussed in Section 3.2) and "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."

Because the baseline for analyzing impacts under CEQA is the existing conditions at the time of the Notice of Preparation (NOP) (January 2023), the environmental conditions at that time, which are described in the environmental setting for each resource area, are the basis of comparison and include all of the regulatory changes and environmental changes to baseline conditions that have occurred since the 2007 EIR was prepared. Because the Proposed Extension proposes to continue the ongoing, existing elements of the Yuba Accord Transfer program, there are no significant differences in effects between the existing conditions and the Proposed Extension. While the cumulative projects listed in Section 4.2.2, "Related Projects," of the Draft SEIR, have potentially significant beneficial and adverse impacts, those impacts would not be significantly different/greater with implementation of the Proposed Extension when compared with existing conditions. Because of this, there is no additional analysis required under CEQA to assess cumulative impacts of the Proposed Extension.

Additionally, a project feature of the Yuba Accord Transfer program, described in the 2007 EIR and continuing with the Proposed Extension, is that the transfer is not a fixed operation of the CVP or SWP to capture the transfer flows and export the water, but instead, the CVP and SWP make reasonable best efforts to utilize and export the water released from the Yuba River as transfer water, while complying with all applicable requirements which were anticipated to change over time. The Yuba Accord Transfer program continues to be affected by these regulatory and other changes and transfers under the program are affected by these changes, generally shrinking in volume as the CVP and SWP are more limited in exporting transfer flows.

Lastly, for the Yuba Region, Table 4-1 in the Draft SEIR lists five regulatory actions, all of which are FERC relicensing of existing hydropower projects and include proposed conditions to benefit environmental resources, two actions that are related to flood management, and five actions that are habitat improvement projects. In the Yuba Region, the majority of projects are expected to improve fishery and aquatic conditions. For the Delta Region and CVP and SWP areas, the list of projects may include projects that have impacts, but as described above and in Section 4.3 of the Draft SEIR, the Proposed Extension would not cumulatively contribute to potential significant adverse environmental impacts.

### Response A2-10

The comment requests that Yuba Water report any special-status species and natural communities detected during project surveys to the California Natural Diversity Database (CNDDB). No biological resources surveys were conducted in support of the Proposed Extension or SEIR; therefore, no CNDDB field survey forms were submitted.

### Response A2-11

The comment states that the CDFW filing fee is due upon filing of the Notice of Determination (NOD). As required, Yuba Water will pay the fee or provide proof of payment when the NOD for the Proposed Extension is filed.

### Response A2-12

The comment requests that CDFW be notified of proposed actions and pending decisions regarding the Proposed Extension. Yuba Water will continue to notify CDFW accordingly, including notification of the Final SEIR as required by CEQA.

Letter A3 Delta Stewardship Council
Jeff Henderson, Deputy Executive Officer
May 20, 2024

Letter A3

Delta Stewardship Council
A CALIFORNIA STATE AGENCY

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Sacramento, CA 95814

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Jessica R. Pearson

May 20, 2024

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740

Delivered via email: jlessard@yubawater.org

**RE: Comments on the Draft Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program, SCH# 2005062111**

Dear JoAnna Lessard:

The Delta Stewardship Council (Council) thanks you for the opportunity to review and comment on the Draft Supplemental Environmental Impact Report (DSEIR) for the extension of the Lower Yuba River Accord Water Transfer Program (Yuba Accord Extension).

The Council is an independent state agency established by the Sacramento-San Joaquin Delta Reform Act of 2009, codified in Division 35 of the California Water Code, sections 85000-85350 (Delta Reform Act). The Delta Reform Act charges the Council with furthering California's coequal goals of providing a more reliable water supply and protecting, restoring, and enhancing the Sacramento-San Joaquin River Delta (Delta) ecosystem. (Water Code, § 85054.) The Delta Reform Act further states that the coequal goals are to be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The Council is charged with furthering California's coequal goals for the Delta through the adoption and implementation of the Delta

A3-1

1

Plan, a comprehensive long-term management plan for the Delta and Suisun Marsh that furthers the coequal goals. (Wat. Code, § 85300.)

The Delta Plan contains regulatory policies, which are set forth in California Code of Regulations, Title 23, sections 5001-5015. Through the Delta Reform Act, the Council was granted specific regulatory and appellate authority over certain actions of State or local public agencies that take place in whole or in part in the Delta. (Wat. Code, §§ 85210, 85225.30.) A state or local agency that proposes to undertake a covered action is required to prepare a written Certification of Consistency with detailed findings as to whether the covered action is consistent with the Delta Plan and submit that certification to the Council prior to implementation of the project. (Wat. Code, § 85225.)

A3-1 cont.

## Review of the Extension of the Lower Yuba River Accord Water Transfer Program

In our initial review of the Notice of Preparation, the Yuba Accord Extension appeared to meet the definition of a covered action. Council staff previously submitted comments on the NOP outlining our rationale on September 12, 2023, and subsequently met with representatives of Yuba County Water Agency (Yuba Water) to discuss the contents of our comment letter. During our discussions, Yuba Water representatives explained why Yuba Water did not find that the Yuba Accord Extension qualified as a covered action. Yuba Water's reasoning was stated in Chapter 3.2.1 of the DSEIR.

After reviewing the DSEIR, the Yuba Accord Extension does not in fact appear to meet the definition of a covered action based on its status as a continuation of an existing program.

A3-2

Water Code 85022(c)(4) states:

> *"Existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and especially persons living and working in the Delta."*

The Yuba Accord Extension represents an unchanged continuation of an existing developed use. Future developments under the Lower River Accord Water Transfer Program, however, may be covered actions if there is a change to the existing use, such as additional pumping at export facilities.

Many multi-year water transfers through the Delta that are not part of an existing program would qualify as a covered action. Temporary transfers of one year or less

are determined not to significantly impact the co-equal goals of the Delta Plan [Cal. Code Regs., tit. 23, § 5001(jj)[1]]. Single-year transfers can be used as a tool to help address acute water supply shortages in the current year as a supplemental/emergency supply, whereas multi-year transfers are a means to acquire additional water over multiple years to offset ongoing shortages. Prolonged increased pumping in the Delta may have a significant impact on the co-equal goals of the Delta Plan.

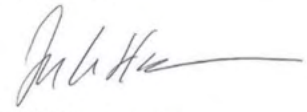
A3-2 cont.

## Closing Remarks

If there are any potential changes to the program in the future, we invite you to contact us to participate in the Council's early consultation for covered actions. If you have any questions regarding the contents of this letter, please contact James Edwards at James.Edwards@deltacouncil.ca.gov.

A3-3

Sincerely,



Jeff Henderson
Deputy Executive Officer

[1] (jj) "Significant impact" for the purpose of determining whether a project meets the definition of a "covered action" under section 5001(k)(1)(D) means a substantial positive or negative impact on the achievement of one or both of the coequal goals or the implementation of a government-sponsored flood control program to reduce risks to people, property, and State interests in the Delta, that is directly or indirectly caused by a project on its own or when the project's incremental effect is considered together with the impacts of other closely related past, present, or reasonably foreseeable future projects. The following categories of projects will not have a significant impact for this purpose:

(1) "Ministerial" projects exempted from CEQA, pursuant to Public Resources Code section 21080(b)(1);
(2) "Emergency" projects exempted from CEQA, pursuant to Public Resources Code section 21080(b)(2) through (4);
(3) Temporary water transfers of up to one year in duration.

### Response A3-1
The comment is an introductory statement and does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response A3-2
The comment states that the Proposed Extension does not appear to meet the definition of a covered action based on its status as a continuation of an existing program. This is consistent with Yuba Water's determination, as described on pages 3.2-11 and 3.2-12 of the Draft SEIR.

The comment further states that future developments under the Lower River Accord Water Transfer Program, however, may be covered actions if there is a change to the existing use, such as additional pumping at export facilities. As described in the SEIR, the Proposed Extension does not propose changes to existing uses. If changes are proposed in the future to existing uses, such changes would be subject to CEQA environmental review at that time.

### Response A3-3
The comment invites Yuba Water to contact the Delta Stewardship Council to participate in early consultation for covered actions if there are any potential changes to the Yuba Accord Long-Term Water Transfer Program in the future. The comment does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here.

Letter A4 State Water Resources Control Board
Erik Ekdahl, Deputy Director, Division of Water Rights
May 20, 2024

Letter A4

State Water Resources Control Board

May 20, 2024

**VIA ELECTRONIC MAIL**

Ms. JoAnna Lessard, Watershed Manager
Yuba Water Agency
1220 F Street
Marysville, CA 95901-4740
**Email**: jlessard@yubawater.org

Dear Ms. Lessard:

**COMMENTS ON DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT FOR EXTENSION OF THE YUBA ACCORD LONG-TERM WATER TRANSFER PROGRAM**

State Water Resources Control Board (State Water Board) staff appreciates the opportunity to provide comments on Yuba County Water Agency's (Yuba Water) *Draft Supplemental Environmental Impact Report (DSEIR) for Extension of the Yuba Accord Long-Term Water Transfer Program* (Yuba Accord Water Transfer Program). The Yuba Accord Water Transfer Program consists of: (1) a Water Purchase Agreement between Yuba Water and the California Department of Water Resources; (2) Conjunctive Use Agreements between Yuba Water and its Member Units; and (3) a Water Transfer Agreement between Yuba Water, Contra Costa Water District, and East Bay Municipal Utility District. The Yuba Accord Water Transfer Program was authorized by the State Water Board in May 2008 pursuant to Corrected Order WR 2008-0014, which authorizes Yuba Water to transfer up to 200,000 acre-feet of water annually to parties within the service areas of the State Water Project and the Central Valley Project through December 31, 2025. Yuba Water has filed a petition for long-term transfer under water right Permit 15026 (Application 5632) with the State Water Board pursuant to Water Code section 1735 et seq. in order to extend the Yuba Accord Water Transfer Program through December 31, 2050. A4-1

Pursuant to the California Environmental Quality Act (CEQA), Yuba Water is serving as lead agency and preparing the DSEIR in support of the proposed extension of the Yuba Accord Water Transfer Program. The DSEIR is intended to supplement the 2007 Lower Yuba River Accord EIR which analyzed the environmental impacts of the Lower Yuba River Accord, which was implemented by Yuba Water in 2008.

E. Joaquin Esquivel, chair | Eric Oppenheimer, executive director
1001 I Street, Sacramento, CA 95814 | Mailing Address: P.O. Box 100, Sacramento, CA 95812-0100 | www.waterboards.ca.gov

In December 2023, Yuba Water provided State Water Board staff with an administrative draft version of the Supplemental Environmental Impact Report (ADSEIR) for preliminary review and comment. State Water Board staff provided comments on the ADSEIR and met with Yuba Water staff in early 2024 to discuss the ADSEIR. State Water Board staff appreciates ongoing coordination with Yuba Water, and the opportunity to review and comment on the ADSEIR. Division staff offer the following comments on the DSEIR for Yuba Water's consideration. A4-1 cont.

Model Results

Appendix C3, *Modeling Data*, of the DSEIR presents Yuba River Development Project Modeling (YRDPM) results that are intended to support the environmental analysis contained in the DSEIR. The model results currently presented in Appendix C3 include three summary tables and twelve exceedance plots. These model results should be expanded to include modeling data to support the conclusions in the DSEIR, including characterizing the Yuba River watershed's hydrology (including New Bullards Bar Reservoir storage levels and downstream flows), water quality (including water temperatures), and the operations of the Yuba Accord Water Transfer Program (including water transfer volumes) under existing conditions and the project alternatives. In addition, the DSEIR should present a representative summary (monthly water year type) of hydrologic and water quality modeling results in Chapter 3, *Environmental Impacts and Mitigation Measures*, and Chapter 4, *Cumulative Impacts*. A4-2

Bay-Delta Water Quality Control Plan, and Proposed Voluntary Agreements

Section 4.3.1, *Surface Water Supply and Management*, of the DSEIR discusses the proposed Yuba River Voluntary Agreement (VA) and states that "Yuba Water VA flow operations were formulated to [...] not significantly affect the occurrence of Yuba Accord instream flows." Section 4.3.1 discusses that the proposed Yuba River VA includes two components of water (Component A and Component B) to be dedicated to Delta outflow, and that Component B in the Yuba Water VA proposal is an additional release of stored water from New Bullards Bar Reservoir that could reduce end of water year storage by as much as 50,000 acre-feet. Section 4.3.1 states that "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 water rights" but does not include the referenced model results. Section 4.3.1 also states that, "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". A4-3

Given that the DSEIR notes the proposed Yuba River VA could affect the Yuba Accord instream flow schedules, it should be made clear how Yuba Water concluded that the Yuba Water VA would not significantly impact the occurrence of Yuba Accord fishery flow schedules nor result in a cumulatively significant impact. Additional information supporting these conclusions should be included in the SEIR.

Change Petition for Long-Term Transfer

Before approving a petition to change the point of diversion, place of use, or purpose of use of a water right permit, the State Water Board must make the statutory and regulatory findings that the change would: (1) not operate to the injury of any legal user of the water involved; and (2) not in effect initiate a new right (Wat. Code, § 1702; Cal. Code Regs, tit. 23, § 791, subd. (a)). To approve a long-term transfer petition by a public agency under Water Code section 386, the State Water Board must find that the change would: (1) not result in substantial injury to any legal user of water; (2) not unreasonably affect fish, wildlife, or other instream beneficial uses; and (3) not unreasonably affect the overall economy of the area from which the water is to be transferred (Wat. Code, §§ 386, 1736; see also Stats. 1959, ch. 788 [Yuba County Water Agency Act], p. 2786, § 5.2, as amended, West's Wat. Code, Appen. § 84-5.2, subd. (c)).

The State Water Board must rely on information included in both Yuba Water's SEIR and documents associated with the petition for long-term transfer to evaluate potential conditions with and without the transfer and substantiate the necessary findings described above. Please note that as the State Water Board processes Yuba Water's petition, it may require information from Yuba Water in addition to the information currently included in the DSEIR to analyze the changes resulting from the proposed long-term transfer.

A4-4

Conclusion

Thank you again for the opportunity to provide comments on the DSEIR. If you have questions regarding this matter, please contact Kate Gaffney at kathryn.gaffney@waterboards.ca.gov.

A4-5

Sincerely

ORIGINAL SIGNED BY:

Erik Ekdahl
Deputy Director
Division of Water Rights

### Response A4-1
The comment is an introductory statement and does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response A4-2
The comment states that Appendix C3, "Modeling Data," of the Draft SEIR should be expanded to include modeling data to support the conclusions in the Draft SEIR, including characterizing the Yuba River watershed's hydrology (including New Bullards Bar Reservoir storage levels and downstream flows), water quality (including water temperatures), and the operations of the Yuba Accord Water Transfer Program (including water transfer volumes) under existing conditions and the project alternatives. In addition, the comment states that the Draft SEIR should present a representative summary (monthly water year type) of hydrologic and water quality modeling results. The requested modeling data has been added to Appendix C3. See Appendix C3 of this Final SEIR.

### Response A4-3
This comment summarizes the discussion of the Yuba River Voluntary Agreement (VA) (which is now known as Yuba Water's Healthy Rivers and Landscapes [HR&L] Program) in Section 4.3.1 of the Draft SEIR, and states that because the Draft SEIR notes Yuba Water's HR&L Program could affect the Yuba Accord instream flow schedules, additional information supporting the conclusions that Yuba Water's HR&L Program would not significantly impact the occurrence of Yuba Accord fishery flow schedules or result in a cumulatively significant impact should be included.

#### Background

As described in Chapter 4, "Cumulative Impacts," of this SEIR, Yuba Water's HR&L Program would improve conditions for fish through targeted river flows and a suite of habitat-enhancing projects. Yuba Water's HR&L Program includes three primary design objectives for setting proposed HR&L flow contributions:

1. Sustain water supply reliability to Yuba Water Member Units;
2. Maintain the occurrence of higher flow schedules of the Accord; and
3. Preserve the cold-water pool in New Bullards Bar Reservoir, providing cold water for the lower Yuba River, all while providing a substantial contribution to Delta inflow during the spring.

Meeting these three objectives ensures preservation of the beneficial water temperature regime of the lower Yuba River under the Accord. Irrigation water for Yuba Water Member Units is diverted at Daguerre Point Dam (about halfway down the lower Yuba River), with the most valuable habitat for lower Yuba River salmonids located upstream from Daguerre Point Dam. Along with flows based on the Accord flow schedules, irrigation water supply deliveries at the Daguerre Point Dam point of diversion during the months of April through November achieve the following:

- Provide flows to optimize flow-habitat relationships in the reach with the most valuable habitat; and
- Limit water temperature warming, providing cold water from New Bullards Bar Reservoir to the lower Yuba River.

After extensive study and analysis in the development of the HR&L Program flow contributions, Yuba Water determined that operating to an end-of-September storage of 600,000 AF (50,000 AF below the Yuba Accord target of 650,000 AF) under the HR&L Program's proposed flow contributions would contribute to higher Delta inflows without substantially affecting the benefits provided by the Accord. The results of Yuba Water's related hydrologic modeling are in Appendix C4. That technical analysis shows that, with the HR&L Program's flow contributions, Yuba Water's water supplies are protected, Accord flow schedules are not significantly modified, and the New Bullards Bar Reservoir cold water pool is not substantially reduced during the driest years when water temperature management is most critical.

#### Healthy Rivers and Landscapes Flow Contribution Modeling

The Draft SEIR concludes that Yuba Water's HR&L Program "would not affect the Proposed Extension in any way that would cause the Proposed Extension to result in a cumulatively considerable impact." (SEIR Section 4.3.1). This conclusion is based on Yuba Water's development of its proposed HR&L flow contributions, including extensive

modeling studies. Yuba Water's related modeling results in Appendix C4 to this Final SEIR reinforce and provide additional evidence in support of the Draft SEIR's conclusion. That modeling simulation uses the Proposed Extension hydrologic model with the changes to YRDP operations needed to simulate implementation of the HR&L flow contribution. The change to YRDP operations was implemented by changing the monthly target storage operations for New Bullards Bar Reservoir operations in certain months and making additional storage releases in April, May, and June to achieve the target storage of 600,000 AF at the end of September. Although this is a simplified approach to representing the HR&L flow operations, it provides a useful approximation of the changes in flow conditions expected with the HR&L operations for purposes of the SEIR's cumulative analysis.

## Results

Appendix C4 is provided as part of this Final SEIR to show how conditions would change under the HR&L flow contribution operations and the Proposed Extension, compared to the Proposed Extension alone. The cumulative effect of the HR&L flow contributions on Yuba Water's operations to meet Yuba minimum-flow schedules, New Bullards Bar Reservoir storage, and lower Yuba River flows is shown in detail in Appendix C4 and is briefly discussed below.

### Yuba Accord Schedule Occurrence

Appendix C4 confirms the Draft SEIR's conclusion that Yuba Water's HR&L Program "*would not significantly impact the occurrence of Yuba Accord fishery flow schedules*." Over the 52-year simulation period, implementing the HR&L Program and the Proposed Extension together would result in changes to three water years—one year shifts from a Schedule 1 to a Schedule 2, one year shifts from a Schedule 2 to a Schedule 3, and one year shifts from a Schedule 3 to a Schedule 4. (Compare Appendix C4, page 1, with Revised Appendix C3, page 1; see also Appendix C4, Figure C4.1.) An increase in the year type schedule number (as would occur in only three years during the 52-year simulation period) reflects a lower flow.

It is important to understand these shifts in Accord flow schedules in the context of all Accord flow schedules and how they were developed as part of the Yuba Accord generally. Appendix C to the 2007 Yuba Accord EIR describes this process in detail. The results of this process continue to apply under the Proposed Extension, which does not involve modifications to the Accord flow schedules. As discussed in the 2007 Appendix C, the technical team that developed the Accord flow schedules sought to "maximize the probability of occurrence of the higher flow schedules (1 and 2) while minimizing the probability of occurrence of the very low flow schedules (6 and Conference Year)." None of the shifts in Accord flow schedules that would result from the HR&L Program's proposed flow contributions would shift a year into Schedule 6. Instead, those shifts are one-schedule shifts that are all within Schedule years 1 through 4.

The technical team used the percent occurrence of the flow schedules as a metric to assess achieving the objective of maximizing the higher flow schedules. The predicted occurrence of flow schedules was included in the Yuba Accord Fisheries Agreement and was included in Corrected Order WR 2008-0014. Table 2-4 lists the expected percent occurrence of flow schedules from Corrected Order WR 2008-0014, the flow schedules under the modeled Proposed Extension, and the flow schedules under the Proposed Extension with HR&L Program flow contributions. Table 1 shows the combined percent occurrence of Schedules 1 and 2 years occur at about the same frequency for the Proposed Extension and Proposed Extension with HR&L flows (81 percent and 79 percent, respectively, a two percent difference), and both exceed the expected Schedule 1 and 2 occurrences identified in Corrected Order WR 2008-0014 (78 percent). Also, both the Proposed Extension and Proposed Extension with HR&L flows have the same combined percent occurrence of the lower flow schedule years 5, 6 and 7 (conference) as Corrected Order WR 2008-0014 (10 percent).

**Table 2-4 Percent Occurrence of Yuba Accord Flow Schedules**

| Yuba Accord | WRO2008-0014 | Proposed Extension | | Proposed Extension with HR&L | |
|---|---|---|---|---|---|
| Flow Schedule | % Occurrence | Years | % Occurrence | Years | % Occurrence |
| 1 | 56% | 32 | 62% | 31 | 60% |
| 2 | 22% | 10 | 19% | 10 | 19% |
| 3 | 7% | 4 | 8% | 4 | 8% |
| 4 | 5% | 1 | 2% | 2 | 4% |
| 5 | 5% | 3 | 6% | 3 | 6% |
| 6 | 4% | 1 | 2% | 1 | 2% |
| 7(conference) | 1% | 1 | 2% | 1 | 2% |

Note: The modeling used to determine the percent occurrence of flow schedule included a period of simulation of 84 years and therefore the occurrence of one conference year yields a percent occurrence of one percent, while the Proposed Extension model uses a period of simulation of 52 years and the occurrence of one conference year in 52 results in a percent occurrence of 2 percent.

Source: Appendices C3 and C4 of this Final SEIR.

The flow exceedance comparison plots in Appendix C4 show that these shifts do not significantly alter the occurrence of flows in the lower Yuba River. The exceedance figures for April, May, and June show the increased flows of the HR&L flow contribution. Accordingly, the analysis in new Appendix C4 confirms the Draft SEIR's conclusion that, while the HR&L Program's proposed flow contributions could affect flow schedules in some water years, Yuba Water's HR&L Program would not significantly affect Yuba Accord instream flows.

Moreover, the limited effect on flow schedules observed in the analysis for the combined Proposed Extension and HR&L flow contribution scenario is not attributable to the Proposed Extension. The Accord water transfers are part of the baseline and would not significantly change as a result of the Proposed Extension. By contrast, Yuba Water's HR&L Program reflects Yuba Water's effort to increase water available for Delta outflow to provide additional protection for in-Delta fish species, as well as migrating salmonids, as developed in conjunction with the California Department of Fish and Wildlife. Implementing the goal of increasing Delta outflow during the spring of many years necessarily limits the quantity of water available for other purposes. The analysis in Appendix C4 is provided in this Final SEIR at the SWRCB's request, to support the SEIR's conclusion that Yuba Water's HR&L Program would not significantly impact the Proposed Extension.[4] For purposes of CEQA, however, the relevant question is whether the Proposed Extension, combined with other related projects, will result in a cumulatively significant impact, and if so, whether the incremental contribution of the Proposed Extension would be cumulatively considerable. Here, the driving factor behind the cumulative impact is the HR&L Program's reallocation of water from storage in New Bullards Bar to Delta outflow. Accordingly, not only is the combined impact not cumulatively significant, the Proposed Extension would not result in any changes in Yuba River stream flows compared to existing conditions.

New Bullards Bar Reservoir Storage

A table of New Bullards Bar Reservoir average end-of-month storage by water year type is provided in Appendix C4, along with a table of average end-of-month storage differences under the Proposed Extension with and without the HR&L Program's flow contributions. HR&L flow contributions are made in Above Normal, Below Normal and Dry year types; these year types show the direct effect of reduced storage levels. Wet and Critical years, while not HR&L contribution years, show small storage reductions as a result of storage reductions in prior HR&L operation years. End-of-September storage in Below Normal and Dry years storage is lower by almost the full 50,000 AF. End-of-September storage in Above Normal years shows less of a reduction, at just over 37,000 AF. These variations from the 50,000 AF target in Above Normal years are typically due to limited release capacity at New Bullards Bar Reservoir in the springtime. Additionally, if under the Proposed Extension, end-of-September storage is less than 650,000 AF but

[4] Importantly, in response to the comment this focused analysis specifically assessed how the HR&L flow contributions would affect the Proposed Extension. It did not consider the full cumulative condition, which includes not only the additional components of the HR&L Program that would provide environmental benefits (e.g., habitat enhancements) but also cumulative projects that are intended to provide environmental benefits (see Chapter 4, "Cumulative Impacts," of the SEIR).

greater than 600,000 AF, the reduction in storage with HR&L flow operations to 600,000 AF would be less than 50,000 AF. Similarly, if the end-of-September storage under the Proposed Extension is less than 600,000 AF, there would not be any HR&L flow contribution.

As explained above, this analysis addresses the effect of Yuba Water's HR&L Program to allocate more water to Delta outflow without significantly disrupting its existing operations (which include the Accord transfers). As also explained above, this analysis does not indicate that the Proposed Extension would have a cumulatively considerable incremental contribution to a potential cumulative impact on reservoir storage and uses of stored water.

Lower Yuba Flows

Appendix C4 also includes tables of average monthly flows by water year type, along with tables of monthly difference in flows under the Proposed Extension with and without HR&L flow operations. Flow results are provided at Marysville Gage at river mile 6.2.

Flow exceedance plots by month provide a comparison of the Proposed Extension with and without the HR&L flow contributions. The differences in the modeled Yuba River stream flows in those scenarios are relatively few and relatively small. There are relatively small differences in the exceedance probabilities of the two simulations, except for April, May and June, when the HR&L flow contributions are made from New Bullards Bar Reservoir storage. In these three months, the Proposed Extension plus HR&L flow contributions scenario had substantial increases in flows in the 25 percent to 75 percent exceedance range compared to the Proposed Extension alone. In other words, in the Above Normal, Below Normal and Dry water year types—more or less the 25 percent to 75 percent of the exceedance of hydrology—when the HR&L Program is intended to increase Yuba River flows in order to increase Delta outflows for environmental benefit, that proposal does in fact accomplish that objective in conjunction with the Proposed Extension's implementation. The purpose of Yuba Water's HR&L Program is to improve environmental conditions, and the modeling shows that it accomplishes that objective and not that it causes the Proposed Extension to result in a significant cumulative environmental impact.

### Response A4-4

The comment summarizes the statutory and regulatory findings that the State Water Board must make before approving a petition to change the point of diversion, place of use, or purpose of use of a water right permit, and states that as the State Water Board processes Yuba Water's petition, it may require additional information from Yuba Water not currently included in the Draft SEIR or other required documents associated with the petition for long-term transfer to analyze the changes resulting from the proposed long-term transfer. Yuba Water will continue to respond to requests for information from the State Water Board, as appropriate, in compliance with the change petition process. This comment does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, no further response is provided here. Responses to specific comments concerning environmental issues are provided above.

### Response A4-5

The comment does not address the content, analysis, or conclusions in the Draft REIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided above.

Letter A5 State Water Contractors
Jennifer Pierre, General Manager
May 20, 2024

Letter A5

May 20, 2024

Sent by email: jlessard@yubawater.org

Ms. JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, California 95901-4740

Re: Draft Supplemental Environmental Impact Report for Extension of the Lower Yuba River Accord Water Transfer Program

Dear Ms. JoAnna Lessard:

The State Water Contractors (SWC) appreciate this opportunity to comment on the Draft Supplemental Environmental Impact Report for the extension of the Lower Yuba River Accord (LYRA) Water Transfer Program (SEIR). The SEIR states that the purpose and objectives of this proposed extension are to continue providing supplemental water to SWP and CVP contractors, to facilitate conjunctive use in the Yuba River watershed, and to generate revenue for the Yuba Water Agency. Therefore, Yuba Water Agency is proposing to extend the agreements comprising the LYRA Water Transfer Program through 2050.

The SWC is an organization representing 27 of the 29 public water entities[1] that hold contracts with the California Department of Water Resources (DWR) for the delivery of State Water Project (SWP) water. Collectively, the SWC members provide a portion of the water supply delivered to approximately 27 million Californians, roughly two-thirds of the State's population, and to over 750,000 acres of irrigated agriculture in the Bay Area, San Joaquin Valley, Central Coast, and Southern California.

The SWC supports the proposed extension of the LYRA Water Transfer Program. The Water Transfer Program is a key element of the LYRA that provides important benefits for fish and wildlife and contributes to water supply reliability statewide. Since its inception in 2008, the Water Transfer Program has allowed our members to secure supplemental water supply across different water year types, especially during droughts. The proposed extension of the Water Transfer Program is essential to continue this successful multi-benefit Program.

A5-1

[1] Alameda County Flood Control District Zone 7, Alameda County Water District, Antelope Valley – East Kern Water Agency, Casitas Municipal Water District, Central Coast Water Authority, City of Yuba City, Coachella Valley Water District, Crestline – Lake Arrowhead Water Agency, Desert Water Agency, Dudley Ridge Water District, Empire West Side Irrigation District, Kern County Water Agency, Kings County, Littlerock Creek Irrigation District, Metropolitan Water District of Southern California, Mojave Water Agency, Napa County Flood Control and Water Conservation District, Oak Flat Water District, Palmdale Water District, San Bernardino Valley Municipal Water District, San Gabriel Valley Municipal Water District, San Gorgonio Pass Water Agency, San Luis Obispo County Flood Control and Water Conservation District, Santa Clara Valley Water District, Santa Clarita Valley Water Agency, Solano County Water Agency, and Tulare Lake Basin Water Storage District.

1121 L Street, Suite 1050 • Sacramento, California 95814-3944 • 916.447.7357 • FAX 916.447-2734 • www.swc.org

DIRECTORS

**Laura Hidas**
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Alameda County Water District

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Tulare Lake Basin Water Storage District

**Chris Lee**
**Secretary-Treasurer**
Solano County Water Agency

**Robert Cheng**
Coachella Valley Water District

**Nina Hawk**
Metropolitan Water District of Southern California

**Ray Stokes**
Central Coast Water Authority

**Matthew Stone**
Santa Clarita Valley Water Agency

**Peter Thompson, Jr.**
Antelope Valley-East Kern Water Agency

**Craig Wallace**
Kern County Water Agency

**General Manager**
Jennifer Pierre

Thank you for the opportunity to comment on the Draft SEIR. The SWC looks forward to working with you and DWR on this proposed extension. If you have any questions or would like to discuss this, please do not hesitate to contact Mr. Chandra Chilmakuri at (916) 562-2583. The Yuba Accord Water Transfer Program has provided important benefits to the SWC members, and we appreciate the Yuba Water Agency's efforts to extend the Program. A5-1 cont.

Sincerely,

Jennifer Pierre
General Manager

### Response A5-1

The comment expresses support for the Proposed Extension of the Yuba Accord Long Term Water Transfer Program and does not address the content, analysis, or conclusions in the Draft REIR. Therefore, a response is not provided here.

Letter A6 Contra Costa Water District
Kyle Ochenduszko, Assistant General Manager
May 17, 2024

CONTRA COSTA WATER DISTRICT

Letter A6

BOARD OF D
Ernesto A
Antonio Martinez
VICE PRESIDENT
John A. Burgh
Connstance Holdaway
Patt Young

GENERAL MANAGER
Rachel Murphy, P.E.

May 17, 2024

JoAnna Lessard
Sent via Email to jlessard@yubawater.org

**Subject: Draft Supplemental Environmental Impact Report for Extension of the Yuba Accord Long-Term Water Transfer Program**

Dear Ms. Lessard:

Contra Costa Water District (CCWD) would like to express our support for Yuba Water Agency's proposed extension of the Yuba Accord Long-Term Water Transfer Program. We have reviewed the Draft Supplemental Environmental Impact Report (DSEIR) for the Extension of the Yuba Accord Long-Term Water Transfer Program (Program), and we appreciate that CCWD's participation in the Program continues to be included.

CCWD serves 550,000 customers and industries in central and eastern Contra Costa County, relying solely on surface water from the Sacramento-San Joaquin Delta to meet the needs of our customers. Climate change and the evolving Delta regulatory environment are introducing more uncertainty to CCWD's water supply planning. To achieve CCWD's mission to provide reliable and high-quality water in an environmentally responsible manner, CCWD has pursued a cooperative partnership with Yuba Water Agency to improve CCWD's water supply reliability.

The Yuba Accord Long-Term Water Transfer Program is a key element of the Lower Yuba River Accord. The Program provides a proven mechanism for CCWD to secure an important source of reliable water supply across different water year types, while the revenues generated by the Program help support Yuba Water Agency's mission areas of sustainable water management, flood risk reduction and environmental stewardship.

CCWD and Yuba Water Agency successfully demonstrated the transfer of water to CCWD in 2023 under the existing Yuba Accord Water Transfer Program and current agreements. CCWD looks forward to continuing to work with Yuba Water Agency to ensure that the Program can keep providing benefits to multiple interests into the future.

A6-1

Sincerely,

Kyle Ochenduszko
Assistant General Manager

LHS

1331 CONCORD AVE, CONCORD, CA 94520 I 925-688-8000 I CCWATER.COM

### Response A6-1

The comment expresses support for the Proposed Extension of the Yuba Accord Long Term Water Transfer Program and does not address the content, analysis, or conclusions in the Draft REIR. Therefore, a response is not provided here.

Letter A7 East Bay Municipal Utility District
Michael T. Tognolini, Director of Water and Natural Resources
May 17, 2024

EAST BAY MUNICIPAL UTILITY DISTRICT

Letter A7

May 17, 2024

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740
Email: jlessard@yubawater.org

Dear Ms. Lessard:

On behalf of East Bay Municipal Utility District (EBMUD), we would like to express our support for Yuba Water Agency's proposed extension of the Yuba Accord Long-Term Water Transfer Program.

The Yuba Accord Long-Term Water Transfer Program is a key element of the Lower Yuba River Accord, a model settlement agreement that provides important benefits for fish and wildlife and contributes to water supply reliability statewide. The Water Transfer Program provides a mechanism for EBMUD to secure an important source of reliable water supply across different water year types, while the revenues generated by the Program help support Yuba Water Agency's mission areas of sustainable water management, flood risk reduction, and environmental stewardship.

A7-1

The Yuba Accord Water Transfer Program provides important benefits for EBMUD, and we appreciate Yuba Water Agency's efforts to extend the Program.

Sincerely,

Michael T. Tognolini
Director of Water and Natural Resources

MTT:cms

375 ELEVENTH STREET . OAKLAND . CA 94607-4240 . TOLL FREE 1-866-40-EBMUD . (1-866-403-2683)

### Response A7-1

The comment expresses support for the Proposed Extension of the Yuba Accord Long Term Water Transfer Program and does not address the content, analysis, or conclusions in the Draft REIR. Therefore, a response is not provided here.

Letter A8 Metropolitan Water District of Southern California
Jennifer Harriger, Manager, Environmental Planning Section
May 20, 2024

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THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Letter A8

May 20, 2024 Via Electronic Mail

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, California 95901-4740
Email: jlessard@yubawater.org

Dear Ms. Lessard:

Draft Supplemental Environmental Impact Report for the
Extension of the Yuba Accord Long-Term Water Transfer Program

The Metropolitan Water District of Southern California (Metropolitan) reviewed the Draft Supplemental Environmental Impact Report (SEIR) for the Extension of the Yuba Accord Long-Term Water Transfer Program (Extension) prepared pursuant to the California Environmental Quality Act by Yuba Water Agency (Yuba Water) as the Lead Agency. The Extension seeks to extend the agreements comprising the Yuba Accord Long-Term Water Transfer Program (Water Transfer Program) through 2050. These agreements include: (1) the Yuba Water/Department of Water Resources (DWR) Water Purchase Agreement; (2) the Yuba Water/Member Unit Conjunctive Use Agreements, and (3) the Yuba Water/Contra Costa Water District (CCWD)/ East Bay Municipal Utilities District (EBMUD) Water Transfer Agreement. Under the Extension, Yuba Water plans to petition the State Water Resources Control Board to extend approval of the place of use, purposes of use, and points of rediversion for the Water Transfer Program. A8-1

Metropolitan supports Yuba Water's proposed extension of the Water Transfer Program. Metropolitan achieves its mission of regional water supply reliability in part by pursuing water transfers from willing sellers that protect environmental resources. The Water Transfer Program provides a proven mechanism for Metropolitan to secure an important source of reliable water supply across different water year types, while the revenues generated by the Water Transfer Program help support Yuba Water's mission areas of sustainable water management, flood risk reduction and environmental stewardship.

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*THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA*

JoAnna Lessard, Project Manager
Page 2
May 20, 2024

The Water Transfer Program has provided important benefits for Metropolitan since its implementation in 2008, and we appreciate Yuba Water's efforts to extend the program. For further assistance, please contact Ms. Sarah Bartlett at (213) 217-6166 or via email at sbartlett@mwdh2o.com.

A8-1 cont.

Very truly yours,

DocuSigned by:
Jennifer Harriger
1C5AACFD98D9493...

Jennifer Harriger
Manager, Environmental Planning Section

SB:rdl
(Comment Letters\DEIR for the Extension of the Yuba Accord Long-Term Water Transfer Program)

700 N. Alameda Street, Los Angeles, California 90012 • Mailing Address: Box 54153, Los Angeles, California 90054-0153 • Telephone (213) 217-6000

### Response A8-1

The comment expresses support for the Proposed Extension of the Yuba Accord Long Term Water Transfer Program and does not address the content, analysis, or conclusions in the Draft REIR. Therefore, a response is not provided here.

Letter A9 Nevada Irrigation District
Jennifer Hanson, General Manager
May 16, 2024

# Nevada Irrigation District

Letter A9

May 16, 2024

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

**RE: Comments of Nevada Irrigation District to Yuba Water Agency's Draft Supplemental EIR for the Extension of the Yuba Accord Long-Term Water Transfer Program.**

Dear Ms. Lessard:

Nevada Irrigation District submits these comments in response to Yuba Water Agency's Draft Supplemental Environmental Impact Report (SEIR) for the Extension of the Yuba Accord Long-Term Water Transfer Program. A9-1

1. **The Supplemental EIR is Not An Appropriate CEQA Document Because it Fails to Adequately Analyze the Significant Changes to Circumstances Impacting the Project.**

A supplement to an EIR is a document that is separate from the prior EIR and contains only those additions or changes needed to make the EIR adequate. Pursuant to CEQA, if major revisions are necessary to make a previous EIR adequate, the agency prepares a subsequent EIR. (Pub. Res. Code § 2166; 14 Cal Code Regs § 15162). In contrast, a subsequent EIR is a revised version of a prior EIR, which contains the modifications necessary to describe and analyze the project changes, changes in circumstances, or new information that triggered the need for further environmental review. At this stage of the environmental review, it is premature for YCWA to conclude that a supplemental EIR, which is legally appropriate only to address "minor additions or changes to the prior EIR" is the appropriate environmental document. A9-2

The Yuba Accord and its various components was last subject to extensive environmental review in the Lower Yuba River Accord 2007 EIR. Since that time, many significant changes to the regulatory and physical inputs affecting the California water transfer market have occurred. For example:

On December 12, 2018, the State Water Resources Control Board adopted Resolution No. 2018 – 0059 to update the Bay-Delta Plan. On March 29, 2024, draft Voluntary Agreement documents were submitted to the State Water Resources Control Board. In those materials, Yuba Water Agency tentatively agreed to implement flow and non-flow measures, under certain circumstances. Included in those materials is "flow table" in which the Yuba sub-basin commits to contribute 50 Thousand Acre Feet to Instream Flow during Dry, Below Normal, and Above

1036 West Main Street, Grass Valley, CA 95945 • (530) 273-6185 • nidwater.com

Normal hydrologic year types. Representatives of Yuba Water Agency then appeared at a State Water Board workshop and publicly endorsed these proposals and commitments.

It is therefore disingenuous for Yuba to assert in the SEIR that incorporating VA related commitments into the Project baseline evaluated in the SIER would require "speculation." The proposed VA term is 8 or 15 years. A9-2 cont.

A subsequent EIR to contemplate such changes is the appropriate environmental document.

**2. <u>The SEIR Fails to Adequately Analyze Impacts Associated with Current Transfer Periods and Evaluate Alternative Transfer Periods.</u>**

The lower Yuba River hosts Endangered Species Act listed Central Valley spring-run Chinook salmon (Oncorhynchus tshawytscha) evolutionarily significant unit, the Central Valley steelhead (O. mykiss) distinct population segment (DPS), and the North American green sturgeon (Acipenser medirostris) southern DPS, their proposed or designated critical habitat, and essential fish habitat (EFH).

Each of the identified species and associated designated critical habitat and essential fish habitat are directly impacted by the timing, quantity, and frequency of water transfers pursuant to the proposed project. Under the existing project, which YCWA proposed to extend, water transfers occurred in seven dry, critical dry, and extremely critically dry hydrologic year types that have occurred within the past seventeen years. A9-3

The timing of transfers during these year types is of significant concern to listed species. In testimony before the State Water Resources Control Board, the California Department of Water Resources, advised that "the vast majority of the Yuba River Accord water will be moved in the traditional transfer window during the summer and early fall months of July through October."

This transfer period does not align with the period of significant interest concerning water temperatures in the Lower Yuba River for the period July through November. The SEIR does not evaluate the impacts of water transfers in dry, critical dry, and extremely critically dry year types nor meaningfully evaluate the impact of the timing and schedule of such transfers to mitigate impacts, including water temperature impacts occurring in the Lower Yuba River in the July – November time period.

**3. Water Transfers During Schedule 6 Water Years.**

Pursuant to the Accord and its related water transfer programs, YCWA commits to providing 30,000-acre feet of transfer water during 'schedule 6 water years.' The Yuba Accord does not specify the timing of this water delivery, but project documents contemplate consultation with stakeholders between April 10 – May 21 to determine a schedule for such deliveries. During previous Schedule 6 water years, California DFW determined high water temperatures negatively impacted various life stages of ESA listed fishes.

A9-4

The SEIR altogether fails to analyze impacts associated with the *additional* 30 TAF of groundwater substitution transfer water made available under the Water Purchase Agreement. Vague references to a "strategic management plan" submitted to the River Management Team on an ad-hoc annual basis do not provide any meaningful analysis of the impact of such transfers. The deferral of impact analysis to the River Management Team constitutes an improper deferral or piecemealing of appropriate environmental review.

**4. The SEIR Fails to Analyze the Impact of Constructing the narrows 2 Intake Extension as Required by Revised D-1644.**

The State Water Resources Control Board's Revised Decision 1644, issued in 2003, ordered YCWA to extend the Narrows 2 Powerhouse Intake to a lower elevation in Englebright Reservoir and consult with NMFS, USFWS and California DFW regarding use of the lower intake from July through November in dry and critically dry years. As set forth in pages 176 and 177, Revised Decision 1644 clearly envisioned that the upper intake at New Bullards Bar Reservoir would be available along with the Narrows 2 Powerhouse Intake Extension to provide suitable water temperatures for ESA-listed fishes, and that YCWA would consult with NMFS, CDFW and USFWS regarding the coordinated operations of these two P-2246 facilities. YCWA has not constructed the Narrows 2 intake facilities, but nonetheless continues to make transfers that may be contributing to water temperature issues on the lower Yuba River.

A9-5

The SEIR is deficient because it fails to acknowledge this requirement or to analyze this as an alternative to impacts associated with the proposed Project.

**5. Streamflow Depletion Factors Associated with Groundwater Substitution Transfers.**

The Proposed Project contemplates the transfer of significant quantities of water through the mechanism of groundwater substitution transfers. Depending on various factors including the distance of the groundwater well(s) participating in the transfer to the Yuba River and associated tributaries, depth of the well, and local hydrogeologic conditions, the increase in groundwater pumped by entities participating in the YCWA / Accord Groundwater Substitution Transfer program to enable the proposed transfers results in a reduction in the amount of water that would otherwise have accrued to the stream due to the interconnection of surface water and

A9-6

groundwater (streamflow depletion). Consequently, YCWA's groundwater pumping program for transfer operations will provide water at the expense of current and future streamflow.

Notwithstanding the foregoing, the SEIR wholly fails to evaluate the impacts of groundwater pumping on streamflow depletion affecting the lower Yuba River both on a 'real-time' basis as well as long term impacts. The SEIR further failed to analyze appropriate mitigation measures, including at a minimum: reductions in total quantities transferred in certain impacted year types, cessation of transfers during sequence of multiple, or multiple consecutive dry year types. As a result, the SEIR is inadequate and defective.

A9-6 cont.

Very truly yours,

Nevada Irrigation District

By:

1036 West Main Street, Grass Valley, CA 95945 • (530) 273-6185 • nidwater.com

### Response A9-1
The comment is an introductory statement and does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response A9-2
The comment states it is premature to determine that a Supplemental EIR is the legally appropriate document to evaluate the Proposed Extension of the Yuba Accord Long Term Water Transfer Program because of changed circumstances. Section 1.3 of the Draft SEIR summarizes the requirements under CEQA for preparation of a Subsequent verses a Supplemental EIR and explains why Yuba Water decided to prepare a Supplemental EIR. As described therein, the Proposed Extension would not result in any new significant effects or substantially more severe significant effects compared to the environmental effects previously identified in the 2007 EIR, 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 (in 2014, 2016, and 2022). Thus, Yuba Water decided to prepare a Supplemental EIR, pursuant to CEQA. It should be further noted that the CEQA process for a Subsequent versus a Supplemental EIR would be similar, as both would be subject to public notice and public review.

The comment further states that incorporation of the VAs (now known as Yuba Water's HR&L Program) into the project baseline is not speculative given that the proposed Yuba Water's HR&L Program term is 8 or 15 years and a subsequent EIR is the appropriate document to contemplate changes from commitments in Yuba Water's HR&L Program. As Section 3.1.2, "Baseline," of the Draft SEIR, states:

> 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 LongTerm 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."

It would be inappropriate to incorporate Yuba Water's HR&L Program into the environmental baseline as suggested in the comment because it is not part of the existing conditions and will be implemented in the future; however, Yuba Water's HR&L Program is included in the cumulative projects table under its previous name, "VA" (see Table 4-1 in the Draft SEIR, as revised in this Final SEIR; see Chapter 3, "Revisions to the Draft SEIR"). As discussed in Chapter 4, "Cumulative Impacts," of the Draft SEIR, implementation of Yuba Water's HR&L Program is intended to provide environmental benefits through contributing to the achievement of the Bay-Delta Plan Update water quality objectives and enhancing habitat, and it would not affect the Proposed Extension in any way that would cause the Proposed Extension to result in a cumulatively considerable impact. For further discussion of Yuba Water's HR&L Program, see response to comment A4-3.

### Response A9-3
The comment states that the Draft SEIR fails to adequately analyze impacts to fish species and their habitat associated with current transfer periods and evaluate alternative transfer periods. See response to comment A2-4 regarding potential impacts of water transfer timing by Yuba Water on listed fish species.

### Response A9-4
The comment states that the Draft SEIR does not analyze impacts associated with the additional 30 thousand acre-feet (TAF) of 'groundwater substitution transfer water' made available during 'schedule 6 water years' under the Water Purchase Agreement and that the existing analysis of the impacts of such transfers constitutes improper deferral or piecemealing of environmental review. As an initial matter, the 30 TAF of groundwater substitution is not a Water Purchase Agreement commitment, but a term in the Fisheries Agreement and included in Corrected Order WR 2008-0014. Yuba Water's implementation of this 30 TAF, therefore, is not additional transfer water, as the comment

mischaracterizes it, but instead is a continuing element of the overall Yuba Accord project that would not change with the Proposed Extension. As explained in the Draft SEIR (p. 2-4), as part of the baseline/existing condition, and pursuant to the terms of the Yuba Accord Fisheries Agreement (which does not expire in 2025 and therefore need not be included in the Proposed Extension), Yuba Water already provides that 30 TAF of water during Schedule 6 years and will continue to do so. Under the Proposed Extension, Yuba Water would continue to transfer that water downstream of the Yuba River after it has provided fishery protection through, among other measures, coordination with relevant agencies under elements of the Yuba Accord that are independent from the Proposed Extension. These transfers accordingly are associated with Yuba Water providing instream flows consistent with the requirements of the Fisheries Agreement and SWRCB's Corrected Order WR 2008-0014 and were included in the evaluation of fishery impacts and groundwater pumping impacts in the 2007 EIR. Additionally, see response to comment A2-4 regarding water transfer timing by Yuba Water.

### Response A9-5

The comment states that the Draft SEIR does not acknowledge the requirement under the State Water Board's 2003 Revised Decision 1644 to extend the Narrows 2 Powerhouse Intake to a lower elevation in Englebright Reservoir and use this lower intake from July through November in dry and critically dry years to provide suitable water temperatures for ESA-listed fishes. The comment further states that this should be analyzed "as an alternative to impacts associated with the [Proposed Extension]." The comment misrepresents the State Water Board's 2003 Revised Decision 1644 permit requirement, which does not require Yuba Water to construct the Narrows 2 Powerhouse Intake. Potential development of the Narrows 2 Powerhouse Intake is being addressed as part of the FERC relicensing process and its potential implementation is speculative. Further, constructing the intake extension is not an element of the Proposed Extension and, thus, need not be evaluated in the SEIR. Finally, the intake extension is not needed to avoid or lessen the Proposed Extension's environmental impacts, which are all less than significant.

### Response A9-6

The comment states that the Draft SEIR does not evaluate the impacts of groundwater pumping on streamflow depletion affecting the lower Yuba River or analyze appropriate mitigation measures, including reductions in total quantities transferred in certain impacted year types, and cessation of transfers during a sequence of multiple or multiple consecutive dry year types. As an initial matter, while the comment refers to an "increase in groundwater pumped by entities participating in the Yuba Water/Accord Groundwater Substitution Transfer program," the Draft SEIR explains that the Proposed Extension includes an extension, under substantially the same terms, of the existing Conjunctive Use Agreements. (Draft SEIR, p. 2-11.) See response to comment A2-6 regarding SDF effects. Because the SEIR demonstrates that the Proposed Extension would not result in any significant environmental impacts related to streamflow depletion, no additional mitigation is required.

Letter A10 San Luis & Delta-Mendota Water Authority
Pablo Arroyave, Chief Operating Officer
May 20, 2024

Letter A10

**San Luis & Delta-Mendota Water Authority**

P.O. Box 2157
Los Banos, CA 93635
Phone: (209) 826-9696

May 20, 2024

***VIA EMAIL***

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

Re: Comments – Draft Supplemental Environmental Impact Report for the Extension of the Yuba River Accord Long-Term Water Transfer Program

Dear Ms. Lessard:

Yuba Water Agency's April 2024 Draft Supplemental Environmental Impact Report for the Extension of the Yuba River Accord Long-Term Water Transfer Program analyzes the continued benefits of the Lower Yuba River Accord ("Yuba Accord") Water Transfer Program beyond its current expiration date of December 31, 2025. Through the San Luis & Delta-Mendota Water Authority ("Water Authority"), eleven member agencies[1] participate in and benefit from the Yuba Accord Water Transfer Program. The Water Authority submits this comment letter on behalf of its participating agencies to support Yuba Water Agency's proposed extension of the Yuba Accord Water Transfer Program as well as implementation of the programs governed by the Yuba Water Agency/DWR Water Purchase Agreement, Yuba Water Agency/MOU Conjunctive Use Agreements, and Fisheries Agreement. The continued implementation of the Yuba Accord contributes to the health of the fisheries and reliability of the water supply for Water Authority member agencies, including for disadvantaged communities within their service areas. A10-1

Most of the Water Authority's member agencies depend upon the Central Valley Project ("CVP") as the principal source of water they provide to users within their service areas. And yet, in the last ten years[2], south of Delta CVP agricultural water service and repayment contractors have

[1] Broadview Water District, Byron-Bethany Irrigation District, Del Puerto Water District, Eagle Field Water District, Mercy Springs Water District, Pacheco Water District, Panoche Water District, San Benito County Water District, San Luis Water District, Santa Clara Valley Water District, and Westlands Water District

[2] 2014-2023, available at https://www.usbr.gov/mp/cvo/vungvari/water_allocations_historical.pdf

### Response A10-1

The comment expresses support for the Proposed Extension of the Yuba Accord Long Term Water Transfer Program and does not address the content, analysis, or conclusions in the Draft REIR. Therefore, a response is not provided here.

## 2.2.3 Organizations

Letter O1 American Rivers, California Sportfishing Protection Alliance, Friends of the River, Northern California Council, Fly Fishers International, and the South Yuba River Citizens League
Meghan Quinn, Director, California Hydropower and Dam Removal, American Rivers
Chris Shutes, Executive Director, California Sportfishing Protection Alliance
Keiko Mertz, Policy Director, Friends of the River
Jann Dorman, Executive Director, Friends of the River
Mark Rockwell, President & VP Conservation, Northern California Council, Fly Fishers International
Aaron Zettler-Mann, Executive Director, South Yuba River Citizens League
May 20, 2024

May 20, 2024

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740

Submitted via email: jlessard@yubawater.org

**RE: Comments on the Draft Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program**

Dear Ms. Lessard:

American Rivers, California Sportfishing Protection Alliance, Friends of the River (FOR), Northern California Council, Fly Fishers International, and the South Yuba River Citizens League (SYRCL) submit these comments regarding Yuba County Water Agency's (YCWA) Draft Supplemental Environmental Impact Report (DSEIR) for the Extension of the Lower Yuba River Accord Water Transfer Program (WTP). In addition to reviewing the DSEIR itself, we also reviewed Corrected Order WR 2008 – 0014 and the 2007 Yuba Accord Final Environmental Impact Report (2007 FEIR) upon which the Yuba Accord WTP Extension will rely during the California Environmental Quality Act (CEQA) process, as well as other relevant documents cited in this comment letter.

The DSEIR lacks substantial evidence and analysis to support the findings that the Proposed Extension will have no significant impacts. The findings are based on a CEQA argument that the impacts of the No Project and Proposed Extension alternatives are fundamentally identical. Since these are the only two projects the DSEIR analyzes, the DSEIR concludes that new issues with fisheries, substantial changes in environmental conditions, and new significant evidence not previously known are not relevant to the analysis. However, the failure of the DSEIR to analyze a reasonably foreseeable Reduced Exports alternative fatally flaws the DSEIR's conclusions. Once a Reduced Exports Project is included and analyzed, the CEQA argument at the heart of the DSEIR falls apart. O1-1

Additional analysis is required. YCWA must revise and redistribute the DSEIR, or replace it with a new draft Subsequent EIR. The new draft CEQA document must include a Reduced Exports alternative as described below. The new draft CEQA document must also analyze and disclose new issues with fisheries, substantial changes in environmental conditions, and new significant evidence not previously known when YCWA issued the 2007 FEIR.

## I. Introduction and Background

The Lower Yuba River Accord is comprised of three agreements: (1) the Fisheries Agreement, (2) the Conjunctive Use Agreement, and (3) the Water Transfer Program (WTP). The WTP allows YCWA to sell up to 200,000 AF/year of water to the Department of Water Resources.

SYRCL and FOR are signatories of the Fisheries Agreement. Both organizations have participated in its implementation for many years but were not parties to or signatories of the WTP. In addition, both organizations were clear throughout the development of the Yuba Accord that it did not address YCWA's obligations to protect water quality and habitat downstream of the Yuba and that elements of the Yuba Accord would likely need to be modified in the future to be consistent with changes in regulatory requirements relating to the ongoing species declines and habitat degradation in the Sacramento River and the San Francisco Bay-Delta estuary. O1-2

YCWA is now proposing to extend the Yuba Accord Water Transfer Program through 2050, beyond its current expiration date of December 31, 2025. On January 12, 2023, YCWA issued a Notice of Preparation (NOP) of a Draft Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program. On February 27, 2023, conservation organizations[1] submitted joint comments on the NOP. In those comments, we recommended that YCWA prepare a new subsequent EIR rather than a supplemental EIR due to substantial changes in environmental conditions and regulatory environment since the 2007 FEIR. While we still assert that a subsequent EIR is required, we acknowledge that the baseline is updated in the DSEIR. That said, the DSEIR's analysis is lacking for the reasons discussed herein, preventing a full understanding of impacts associated with the Proposed Extension. O1-3

In our NOP comments, we highlighted the need to (1) consider project impacts on the Bay-Delta estuary, (2) evaluate how significant pending changes to the Bay-Delta Water Quality Control Plan and Endangered Species Act requirements will impact Yuba Water's ability to deliver environmental flows while meeting obligations to DWR and Yuba Water member units, (3) evaluate the WTP under different flow requirements that may reasonably result from the FERC relicensing of the Yuba River Development Project, (4) ensure water delivery contracts are flexible to account for water year conditions and are reviewed consistently, and (5) carefully consider project alternatives incorporating analysis through year 2050, including a No Project/No Action alternative as required by CEQA/NEPA. We also recommended an analysis of whether extending the WTP is inconsistent with the updates to the Bay-Delta Plan and re-initiation of consultation for the NMFS 2019 Biological Opinion for Chinook salmon.

[1] Signatories of the February 27, 2023 comments on the NOP included the California Sportfishing Protection Alliance, Friends of the River, Fly Fishers International Northern California Chapter, South Yuba River Citizens League, The Bay Institute, and Trout Unlimited.

## II. Appropriate Level of CEQA Review

The proposed WTP should be evaluated in a subsequent EIR, given the presence of changed circumstances and new information that was not known at the time of the 2007 FEIR's preparation.

CEQA guidelines[2] require a subsequent EIR for certified program and project-level EIRs if the following conditions exist:

a. Substantial changes with respect to the circumstances requiring major revisions due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

b. New information of substantial importance which was not known and could not have been known with the exercise of reasonable diligence at the time of preparation of the EIR, becomes available. Such information must show either: the project will have one or more significant effects not discussed in the previous EIR; significant effects previously examined will be substantially more severe; mitigation measures or alternatives previously found to be infeasible 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 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.

O1-4

Based on the above guidelines for issuing a subsequent EIR and changed conditions since 2007, it appears that a subsequent EIR (rather than a Supplemental EIR) is required for the proposed WTP extension. As explained in more detail in our scoping comments on the Notice of Preparation, the potential effects of extending the WTP will likely be substantially more severe with regards to deteriorating conditions for endangered species and critical habitat areas downstream in the Sacramento River watershed and the Bay-Delta estuary (see Section III below), as well as in the Yuba River itself.

In addition, there are significant modifications to regulatory conditions that are anticipated in the coming months due to a variety of ongoing processes, including anticipated consultation under the Endangered Species Act for threatened and endangered salmonids in the Lower Yuba River and Delta,[3]and the ongoing update of the Bay-Delta Plan, as described in the September 28, 2023 Draft Staff Report in Support of Potential Sacramento/Delta Updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Draft Staff Report).[4]

[2] CEQA Guidelines Section 15162.

[3] Central Valley Project and California State Water Project Consultation | U.S. Fish & Wildlife Service (fws.gov)

[4] **State Water Resources Control Board (State Water Board),** Draft Staff Report in Support of Potential Sacramento/Delta Updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Sep. 28, 2023). Available at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/staff_report.html.

**III. Fish Declines in the Lower Yuba River and the Bay-Delta Estuary, and their Relation to Flow Release Patterns under the Yuba Accord**

The DSEIR fails to provide substantial evidence in support of its conclusion that the Proposed Project would have less-than-significant impacts to Lower Yuba River and Delta fisheries, and that no mitigation is required. Instead, substantial evidence indicates that the Yuba Accord's annual movement of abundant cold water flows from the winter-spring to the summer is having a significant impact on species listed under the Endangered Species Act (ESA) and the California Endangered Species Act (CESA), and on other species of importance (collectively "special status species"),[5] which have continued to decline over the 17 years since the adoption of the project evaluated in the 2007 FEIR.[6] In addition, the condition of pelagic fish species in the Delta, notably Delta smelt and longfin smelt, has declined precipitously since 2007.

The operation of New Bullards Bar Reservoir under the Yuba Accord flows and transfer program captures cold water in the spring, holding it for later release and transfer during the summer. The effect of this action is lower flows in January through June, the natural runoff/spring recession flow season, and higher flow from July to September, when flows under a more natural hydrograph would typically be low.

O1-5

Under YCWA's agreement with the Department of Water Resources (DWR), YCWA releases up to 200,000 acre-feet (AF) of water stored in New Bullards Bar Reservoir for transfer each summer. The water passes through Englebright Reservoir, the lower Yuba River, the Feather River, the Sacramento River, and finally enters the Delta. From the Delta, the export facilities of the State Water Project (SWP) or the Central Valley Project (CVP) deliver most of the water to the purchasers in their respective service areas. Some water is also sold, in some years, to East Bay Municipal Utility District (EBMUD) and Contra Costa Water District (CCWD), which take delivery through the Freeport Regional Water Intake Structure and Contra Costa's Delta points of diversion, respectively.

Some of the transferred water is offset in YCWA's service area when local irrigators pump groundwater in lieu of taking part of their surface water allocations from YCWA.

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[5] *See* 2007 FEIR, p. 3.4-17: "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."

[6] The DSEIR provides on p. 3.4-24 the following criteria for evaluation of significant impacts to fisheries:

- 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 special status fish species.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

According to the Draft Staff Report, new data shows that existing and decreasing freshwater outflows, particularly during the spring, negatively impact the survival of native fish species, including salmon. For these reasons, the Draft Staff Report's proposed updates to the Bay-Delta Plan focus on alternatives that mimic the natural hydrograph and increase winter and spring water flows:

> Total average annual unimpaired outflows from the Bay-Delta watershed are about 28.5 million acre-feet (MAF). Upstream diversions and water exports have reduced annual average outflows by a little less than half (to 15.5 MAF), and outflows during the critical January-through-June period by more than half. However, average regulatory minimum Delta outflows are only about 5 MAF—or about a third of current average outflows and less than 20 percent of average unimpaired outflows. Existing regulatory minimum Delta outflows are too low to protect the ecosystem …[7]
>
> The Draft Staff Report's proposed new flow objective for Delta inflow is thus:
>
> *Maintain inflow conditions from the Sacramento River/Delta tributaries sufficient to support and maintain the natural production of viable native fish populations and to contribute to Delta outflows. Inflow conditions that reasonably contribute toward maintaining viable native fish populations include, but may not be limited to, flows that more closely mimic the natural hydrographic conditions to which native fish species are adapted, including the relative magnitude, duration, timing, quality, and spatial extent of flows as they would naturally occur.*
>
> *Maintain inflows from the Sacramento/Delta tributaries at 55% of unimpaired flow, within an allowed adaptive range between 45 and 65% of unimpaired flow.*[8]

O1-5 cont.

The DSEIR appears to ignore this more recent data, and instead continues to rely on outdated information prepared for the 2007 FEIR in support of its conclusion that "implementation of the Proposed Extension would not change habitat conditions…and therefore result in less-than-significant impacts to fish species…"[9]

According to the DSEIR, YCWA in 2007 anticipated that the adoption of the Yuba Accord would have "[b]eneficial impacts to spring-run Chinook salmon, fall-run Chinook salmon, and steelhead" in the Lower Yuba River.[10] However, since that time, additional research regarding the status of special status species, particularly Chinook salmon and steelhead trout, has become available. As demonstrated in Figure 1, Chinook salmon in the Yuba River have not seen the rebound or benefits anticipated by the 2007 FEIR. Instead, special status species have continued to decline in number.

[7] Draft Staff Report, p. 5-10.
[8] Id., p. 5-17.
[9] DSEIR, p. 3.4-28.
[10] DSEIR, p. 3.4-27.

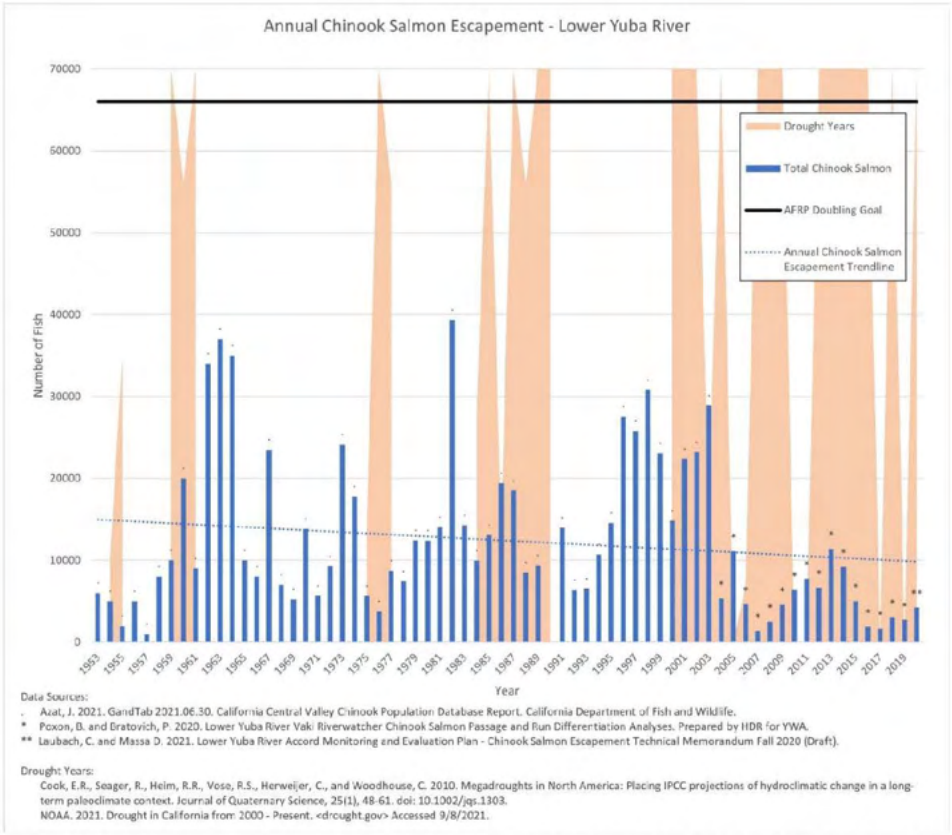


**Figure 1: Annual Chinook Salmon Escapement – Lower Yuba River (1953-2019)**. The blue dotted line shows a long-term trend of decline in the total chinook salmon population in the lower Yuba River. Escapement in years since 2007 has been significantly lower than the long-term trend.[11]

O1-5 cont.

In addition, of the total number of salmon remaining in the Lower Yuba River, a large proportion are hatchery fish (Figure 2), suggesting that the total impact of the project on wild native salmonids is far greater than the total fishery numbers indicate. Further, hatchery fish have lower fitness than wild fish[12] and have adverse impacts on populations of wild salmonids.[13] Overall, substantial evidence suggests that salmonids in the Lower Yuba River continue to decline, and the anticipated "beneficial impacts" forecasted by the 2007 FEIR have not been realized. Additional analysis is required to update the information, evaluation, and conclusions developed for the 2007 FEIR.

[11] **Plot created by Tyler Goodearly, M.S., 2021. Data sources cited in figure.**
[12] Araki H, Berejikian BA, Ford MJ, Blouin MS. Fitness of hatchery-reared salmonids in the wild. Evol Appl. 2008 May;1(2):342-55. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3352433/
[13] McMillan, J.R., Morrison, B., Chambers, N., Ruggerone, G., Bernatchez, L., Stanford, J. et al. (2023) A global synthesis of peer-reviewed research on the effects of hatchery salmonids on wild salmonids. *Fisheries Management and Ecology*, 30, 446–463. Available from: https://doi.org/10.1111/fme.12643

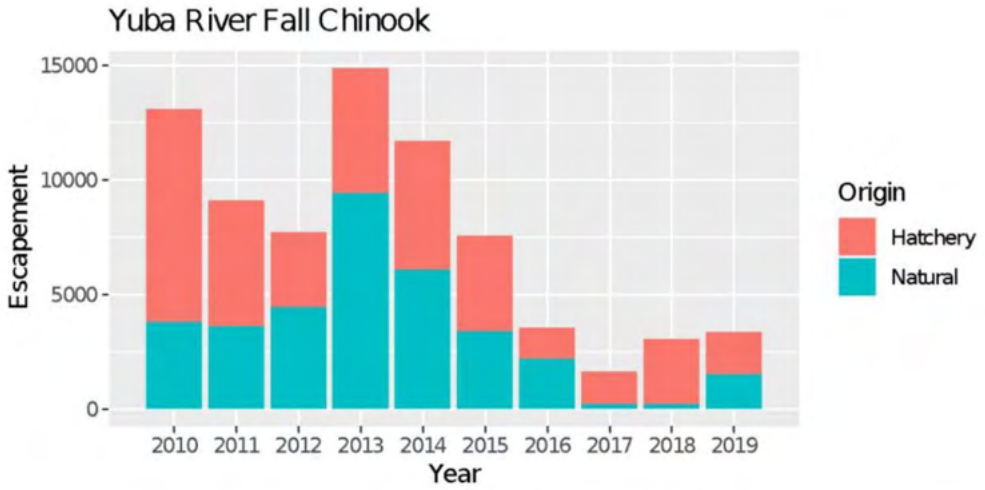


**Figure 2: Composition and abundance of hatchery-origin vs. natural-origin fall run Chinook salmon spawning in the Yuba River.** [14]

New analysis and information show that while cold-water releases from New Bullards Bar throughout the summer do produce water temperature benefits, this appears to have had limited benefits for decreasing fish populations in the Yuba River. The timing of the water releases helps very little with juvenile outmigration and juvenile rearing for salmon, in particular.

O1-5 cont.

## IV. Cumulative Impacts are Considerable and not Adequately Identified or Analyzed

The DSEIR fails to analyze closely related past and present projects which may be, "individually minor but collectively significant projects…". The DSEIR fails to fully evaluate closely related projects that together have considerable impacts. CEQA defines cumulative impacts as follows:

> "Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is 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

O1-6

[14] Pacific Fisheries Management Council, Summary of FRAM base period Round 7.1.1 updates that potentially impact the Pacific Fishery Management Council's Chinook salmon abundance threshold for Southern Resident Killer Whales, (Sep. 27, 2022), pdf p. 75. Available at: https://www.pcouncil.org/documents/2022/10/d-2-attachment-1-methodology-review-materials-electronic-only.pdf/.

can result from individually minor but collectively significant projects taking place over a period of time."

In this case, the important part of the definition is paragraph (b) which refers to "other closely related past" projects that may be "taking place over a period of time." As discussed above in section III of these comments, data readily available to YCWA (and the SEIS itself) indicates that there is a set of potentially significant cumulative impacts of closely related past and present projects that must be analyzed even if the contribution of the subject action is minimal.[15] The ongoing trend of special status species declines is a strong indicator that cumulative impacts are "Cumulatively Considerable".

Corrected Order WR 2008 – 0014 articulates some of these impacts well in section 6.2.2 Significant Unmitigable Effects and Statements of Overriding Consideration:

> *"The Project's significant unmitigable effects within the State Water Board's purview are all cumulative effects. They are the potentially significant and unavoidable cumulative effects on*
>
> *1) Surface water supply and management in the Yuba Region, the Delta Region and the Export Service Area,*
>
> *2) Surface water quality in the CVP/SWP upstream of the Delta Region and in the Delta Region,*
>
> *3) Fisheries and aquatic resources in the CVP/SWP upstream of the Delta Region and in the Delta Region, and*
>
> *4) Recreation in the CVP/SWP upstream of the Delta Region and in the Delta Region. As noted in Section 4.2.3 above, the State Water Board has imposed additional mitigation measures to help offset the potential incremental and cumulative impacts of this project on the Delta, including limiting the amount and rate of pumping during the December to June period, and allowing the State Water Board, through delegation to the Deputy Director, to immediately condition or halt pumping if it is causing or threatening to cause an unreasonable effect on Delta Fisheries. However, these additional mitigations are likely insufficient to account for all potential cumulative impacts of the project."*

Substantial evidence suggests that potential Cumulative Impacts are considerable and therefore, must be identified and appropriately analyzed in a recirculated SEIR or a new subsequent EIR.

O1-6 cont.

[15] Yuba County Water Agency Extension of the Yuba Accord Long-Term Water Transfer Program Draft Supplemental EIR 3.4-1

## V. Project Alternatives

The DSEIR analyzes two alternatives: the Proposed Extension alternative (contract renewal through 2050) and the No Project alternative. The DSEIR states that YCWA "briefly" considered a No-Transfer alternative but rejected it as "not reasonably foreseeable," arguing: "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."[16] This analysis, in combination with the analysis of the No Project and Proposed Extension alternatives, fails to consider that YCWA may have substantially less water available for transfer in the future due to the update of the Bay-Delta Plan.

Considering that the Bay-Delta Plan may allocate to Delta outflow much of the water currently available for YCWA to sell, a Yuba Accord contract extension may not be able to reliably deliver the contracted amounts. A Reduced Transfers alternative, therefore, is reasonably foreseeable. A Reduced Transfers alternative could achieve the project objectives. A Reduced Transfers alternative would also be the Environmental Superior alternative.

A Reduced Transfers alternative is reasonably foreseeable because an update of the Bay-Delta Plan that requires year-round release of a percent of unimpaired flow in the Yuba River and throughout the Sacramento River watershed and through the Delta is currently under active consideration by the State Water Board. Even though this is not the desired outcome of YCWA, the State Water Board's Draft Staff Report is substantial evidence of reasonable foreseeability. In addition, the State Water Board's adoption in 2018 of a similar approach for the lower San Joaquin River, upheld in court in 2024, is further evidence that a percent-of-unimpaired approach is reasonably foreseeable. O1-7

A Reduced Transfers alternative could still meet the project objectives. Those objectives are 1) to continue to support statewide water supply reliability; 2) to facilitate continued responsible groundwater management in the Yuba subbasin; and 3) to continue to support YCWA's programs.

Reduced transfers would still support statewide water supply reliability, but on a reduced scale. Reduced transfers could still also be part of a groundwater management strategy for the Yuba area. And reduced transfers could still also support YCWA's programs. In fact, planning now for reduced transfers and pricing those transfers accordingly would present an opportunity for a forward-looking contract and price structure. The basic assumption of less water available for transfer would likely mean reduced availability of competing transfer water, suggesting an overall greater unit cost.

Without a Reduced Transfers alternative, the DSEIR as written claims (as cited above) that Delta export operations under the No Project alternative and the Proposed Extension would be functionally identical, different only in beneficiaries: SWP and CVP contractors under the No Project Alternative, and YCWA under the Proposed Extension alternative. But a Reduced Transfers alternative founded on less water available for export would not be functionally

[16] SDEIR, p. 5-6.

identical to the No Project and Project Extension alternatives. A Reduced Transfers alternative has fewer impacts at the Delta pumps than either the No Project or Project Extension alternatives.

Under a Reduced Transfers alternative, some of the water that is transferred under current operations would instead become Delta outflow. Fewer fish would be drawn to the SWP and CVP's Delta pumps.

The Delta pumps and associated operations and infrastructure are notorious fish killers. Reduced exports, even in the summer, would save fish. Moreover, YCWA could prioritize transfers to EBMUD and CCWD, who do not use the SWP or CVP's Delta pumps; this would further reduce Delta impacts from YCWA's transfers.

In addition, a Reduced Transfers alternative founded on a Bay-Delta Plan that required release of a percent of unimpaired flow in each month would change the release patterns of flow in the lower Yuba River and provide added winter and spring flows while reducing summer flows. This would more reliably provide higher flows for the juvenile rearing and outmigration of salmon and other species in winter and spring, as discussed above.

The Reduced Transfers alternative would therefore also be the Environmentally Superior alternative.

O1-7 cont.

**Closing**

In summary, YCWA must revise and redistribute the DSEIR, or replace it with a new draft Subsequent EIR. The new draft CEQA document must include a Reduced Exports alternative as described above. The new draft CEQA document must also analyze and disclose new issues with fisheries, substantial changes in environmental conditions, and new significant evidence not previously known when YCWA issued the 2007 FEIR.

Thank you for the opportunity to comment on the Draft Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program. We look forward to continued participation in this process. If you have any questions regarding our comments, please do not hesitate to contact us.

O1-8

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11

### Response O1-1
The comment provides a summary of detailed comments provided below. See responses to the detailed comments below.

### Response O1-2
The comment summarizes the Yuba Accord and SYRCL's and FOR's role in the Fisheries Agreement. It also summarizes their concerns raised during the development of the Yuba Accord regarding protection of water quality and habitat downstream of the Yuba River and potential need for modifications to the Yuba Accord in the future to be consistent with changes in regulatory requirements. The comment does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response O1-3
The comment summarizes the Proposed Extension, and the commenters' collective comments on the NOP for the Proposed Extension. The comment does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response O1-4
The comment states that the project should be evaluated in a Subsequent EIR due to the presence of changed circumstances and new information that was not known at the time the 2007 FEIR was prepared. The comment further states that the potential effects of extending the Yuba Accord Water Transfer Program would likely be more severe with regard to deteriorating conditions for endangered species and critical habitat areas downstream in the Sacramento River watershed and the Bay-Delta estuary, as well as in the Yuba River itself. In addition, the comment suggests that significant modifications to regulatory conditions that are anticipated in the coming months due to a variety of ongoing processes, including updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento Sacramento-San Joaquin Delta Estuary, be considered.

See response to comment A9-2 regarding Yuba Water's decision to prepare a Supplemental EIR. As the commenters acknowledge, the SEIR's analysis relied on an updated baseline that considered changed conditions since the 2007 EIR was certified and concluded that the Proposed Extension would not result in any new or more severe significant environmental impacts compared to those identified in the 2007 EIR. Additionally, see response to comment A2-4 regarding potential impacts on listed fish species. See responses to comments A4-3 and A9-2 and Chapter 3, "Revisions to the Draft SEIR," in this Final SEIR regarding updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento Sacramento-San Joaquin Delta Estuary explaining that implementation of Yuba Water's HR&L Program would result in beneficial impacts and that it would not affect the Proposed Extension in any way that would cause the Proposed Extension to result in a cumulatively considerable impact.

### Response O1-5
The comment states that the Draft SEIR does not provide substantial evidence to support the conclusion that the Proposed Extension would have less-than-significant impacts to Lower Yuba River and Delta fisheries, and that no mitigation is required. The comment further states that the Draft SEIR does not consider more recent data and that additional analysis is needed to address the continued decline of salmonids since implementation of the Yuba Accord. See response to comment A2-4 regarding potential impacts on listed fish species.

### Response O1-6
The comment summarizes how CEQA defines cumulative impacts and states that ongoing trends of special-status species declines is a strong indicator that cumulative impacts exist. The comment further indicates that even if the contribution of the subject action is minimal, the potential cumulative impacts of closely related past, present, and reasonably foreseeable projects are considerable and were not identified and appropriately analyzed in the Draft SEIR. See response to comment A2-4 regarding potential impacts on listed fish species.

In addition, the long-term transfer has undergone changes since the initial SWRCB order WR2008-0014 was issued. The changes to the transfer program, which are described in the SEIR (see p. 3.2-14), include new regulatory restrictions that eliminate exporting transfer water in the period identified by SWRCB in WRO 2008-0014 that could

potentially impact special-status species in the Delta. The discussion in WR2008-0014 regarding Delta special status species concerned the potential for relatively small amounts of transfer water, less than 20,000 AF annually, that could be pumped from the Delta at the CVP/SWP export facilities in the December to June period (SWRCB WRO 2008-0014 Section 2.5). In WRO 2008-0014, SWRCB limited the amount of transfer water that could be pumped from the Delta at the CVP/SWP export facilities (WRO2008-0014 Transfer Term 1 and Term 3). However, since that time, new biological opinions have limited transfer exports to a "transfer window" of July through September and more recently July through November (SEIR p. 3.2-14). The restrictions imposed on exports of transfer water restricting those exports to the transfer window have eliminated any transfer water pumping in the December through June period and eliminated the possibility of the Proposed Extension contributing even minimally to a cumulative impact on special-status species due to this action.

### Response O1-7

The comment summarizes the alternatives that were evaluated in the Draft SEIR and states that a Reduced Transfers alternative is reasonably foreseeable because Yuba Water may have less water available for transfer in the future due to proposed updates to the Bay-Delta Plan. The comment further indicates that a Reduced Transfers alternative would have fewer impacts than the Proposed Extension.

As described in Chapter 5, "Alternatives," of the Draft SEIR, there would be no significant impacts associated with the Proposed Extension. Therefore, the Draft SEIR was not required to consider alternatives to the Proposed Extension, including the commenters' proposed "Reduced Transfers" alternative, because there would be no significant impacts to avoid or lessen through implementation of alternatives. Additionally, CEQA does not require Yuba Water to identify and analyze alternatives based on hypothetical future conditions. As explained in Section 3.1.2, "Baseline," of the Draft SEIR:

> 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." ***Emphasis added.***

Regardless, substantial evidence demonstrates that a Reduced Transfers alternative would neither achieve the project objectives nor be the environmentally superior alternative as the comment suggests. In asserting otherwise, the comment misstates how Accord water transfers would be affected if the SWRCB were to adopt new Bay-Delta water quality control plan requirements for minimum streamflows based on unimpaired flows, as described in the SWRCB's related September 2023 draft staff report (DSR) (SWRCB 2023). Additionally, the comment misstates the likely hydrologic and water-supply effects of the SWRCB adopting such requirements. As Yuba Water previously demonstrated in its technical comments on the DSR, the potential unimpaired flow-based requirements cited by the comment would result in highly adverse impacts to the lower Yuba River's sensitive fish due to changes in water temperatures.

Although the comment asserts, without evidence, that it would be feasible for Yuba Water to implement a Reduced Transfers alternative in the event that SWRCB adopts unimpaired flow-based requirements, substantial evidence suggests otherwise. In January 2024, Yuba Water submitted to the SWRCB extensive comments on the 2023 DSR. As Yuba Water explained on pages 53 to 56 of those comments and in the Technical Memorandum #2 that Yuba Water submitted with those comments, the SWRCB's imposition of unimpaired flow-based requirements on Yuba Water as

proposed in the 2023 DSR likely would terminate all Accord transfers.[5] Yuba Water's comments and Technical Memorandum #2 provide an expert hydrological review of the SACWAM hydrologic modeling on which the DSR is based and concludes that operation of Yuba Water's YRDP, according to the DSR's SACWAM modeling, would eliminate Accord water transfers, and thereby eliminate a significant source of statewide water supply in droughts.

As the Draft SEIR states at page 2-7, the Proposed Extension's project objectives are as follows:

> 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.

Because substantial evidence demonstrates that the new unimpaired flow-based requirements described in the 2023 DSR likely would terminate all Accord transfers, the comment's premise that its proposed "Reduced Transfers alternative could achieve the project objectives" is incorrect. That premise is not supported by any information or data submitted with the comment or otherwise available. Yuba Water's comments on the 2023 DSR demonstrate that exactly the opposite would likely be the case. Specifically, the SWRCB's implementation of unimpaired flow-based requirements as discussed in the 2023 DSR likely would preclude *any* of the Proposed Extension's project objectives from being met.

Moreover, to the extent that the comment's proposed "Reduced Transfers" alternative might be implemented outside of a situation in which the SWRCB had adopted unimpaired flow-based requirements as discussed in the 2023 DSR, the comment appears to assume that other water users, including Reclamation and DWR as the operators of the CVP and the SWP, respectively, would desist from exercising their own water rights with points of diversion downstream of the Yuba River to divert water that would be transferred under the Proposed Extension. There is no basis for such an assumption. Nothing in the Proposed Extension would involve the SWRCB acting to prevent the CVP and the SWP from exercising their own water rights to divert water that Yuba Water releases as part of the continuing elements of the Yuba Accord. The only water-right petition involved in the Proposed Extension involves Yuba Water's water rights. (See Draft SEIR, p. 2-7.) Contrary to the comment's assumption that a Reduced Transfers alternative would involve "some of the water that is transferred under current operations would instead become Delta outflow," the CVP and the SWP likely would simply divert that water, just without compensating Yuba Water.

In this scenario, similar to the No-Transfer scenario addressed in the Draft SEIR's discussion of the No Project Alternative (p. 5-6), the effect of the proposed "Reduced Transfers" alternative would be to limit only Yuba Water's ability to transfer Yuba River water released under the Accord and would not be to limit other water users' ability to divert that water under their downstream water rights. Any such water therefore likely would be diverted by one or more of the many downstream water-right holders (who would not compensate Yuba Water). As the Draft SEIR explains, the most likely outcome would be that the CVP and the SWP would divert that water as part of their project supplies. The proposed alternative therefore would not reduce any alleged environmental effects in the south Delta as the comment suggests.

The commenters' proposed "Reduced Transfers" alternative therefore is either infeasible (in the event that the SWRCB adopts unimpaired flow-based requirements discussed in the 2023 DSR) or is unlikely to actually reduce south Delta

[5] Yuba Water has included its comments on the DSR, and the Technical Memorandum #2 it submitted with those comments, in the administrative record for the SEIR (Yuba Water 2024a). As the SWRCB's website also states, those comments are publicly available from the SWRCB via a request sent to SacDeltaComments@waterboards.ca.gov (SWRCB 2024).

diversions or significantly reduce any existing environmental impacts, assuming the SWRCB does not adopt unimpaired flow-based requirements as discussed in the DSR.

Finally, because the commenters' proposed "Reduced Transfers" alternative is premised on the SWRCB's adoption of unimpaired flow-based requirements as discussed in the DSR, it would be associated with lower Yuba River water temperatures that would be highly adverse for the river's fish. As pages 26 through 29 of Yuba Water's comments on the DSR explained, technical analyses that Yuba Water previously had submitted to FERC demonstrated that implementing unimpaired flow-based requirements like those discussed in the DSR would increase the lower Yuba River's water temperatures up to 13º Fahrenheit in the summer and increase temperatures at other times to levels that would be highly adverse for the river's salmon and steelhead.[6] Accordingly, implementation of the SWRCB's proposals that are the premise for the comment's proposed "Reduced Transfers" alternative would have significantly worse impacts on the lower Yuba River's sensitive fish compared to the Proposed Extension. The proposed "Reduced Transfers" alternative therefore would not be the Environmentally Superior alternative, as the comment claims, or even an appropriate alternative under CEQA. (California Code of Regulations, Title 14, Section 15126.6[a], [c], [f].)

### Response O1-8

The comment states that a revised Draft SEIR needs to be prepared and recirculated or a Subsequent EIR prepared that includes evaluation of a Reduced Transfers alternative as well as analyzes and discloses new issues with fisheries, substantial changes in environmental conditions, and new significant evidence not previously known when the 2007 FEIR was issued. For the reasons described in responses to comments O1-2 through O1-7, above, neither recirculation of the Draft SEIR nor preparation of a Subsequent EIR is warranted.

[6] Yuba Water submitted with its comments to the SWRCB the relevant technical memoranda that it previously had submitted to FERC. Those memoranda were Exhibits G and H and are included in the administrative record for the SEIR. Those memoranda also are present in FERC's eLibrary at Accession Numbers 20211207-5175 and 20220307-5273. The commenters are parties to FERC's proceeding for the YRDP's relicensing and therefore should have received notice of Yuba Water's submission of those memoranda to FERC at the time of their submission. In addition, as discussed above, the SWRCB makes publicly available all comments on the DSR.

Letter O2 AquAlliance
Barbara Vlamis, Executive Director
May 20, 2024

AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATERS

Letter O2

May 20, 2024

JoAnna Lessard, Watershed Manager
Yuba Water Agency
1220 F Street
Marysville, CA 95901-4740
Email: jlessard@yubawater.org

Re: Draft Supplemental EIR for the Extension of the Yuba Accord Long-Term Water Transfer Program, State Clearinghouse No. 200506211

Dear Ms. Lessard:

AquAlliance submits the following comments and questions for the draft Supplemental Environmental Impact Report ("DSEIR") for the Extension of the Yuba Accord Long-Term Water Transfer Program ("Project") that intends to operate through 2050. The SEIR states that "[t]he 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."[1] O2-1

## A. Existing Conditions

Review of the Yuba Subbasins Water Management Plan Annual Report for 2023 indicates that groundwater levels are *beginning* to recover from drought years, the same years that water transfers take place: "Yuba Water Member Units(11) participated in GWS transfers in 2008, 2009, 2010, 2013, 2014, 2018, 2020, and 2022, pumping a total of over 540,000 AF of groundwater. Plumas Mutual Water Company, which is located within the South Yuba Subbasin and operates its own GWS transfer program independent of Yuba Water, participated in GWS transfers in 2014, 2015, 2018, 2020, 2021, and 2022 pumping a total of over 22,000 AF of groundwater."[2] Clearly, the water transfers exacerbate drought impacts, which should be thoroughly analyzed and disclosed.

The SDEIR opines that the existing conditions are the same as in 2008 because the Yuba Accord has been in operation. "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." Yikes! So much in the Yuba watershed, northern California watersheds, and the state as a whole is not the same for CEQA analysis! Some but not all possible O2-2

[1] p. ES-2.
[2] Yuba Water Agency, Et Al., 2024. Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan Water Year 2023 Annual Report. p. 3-1.

areas of change since 2006 that are involved in the proposed Project are human and species populations, climate, groundwater conditions, ground and surface water pollution, cropping patterns, urban and agricultural expansion, fires, and so much more.

Full disclosure of existing conditions is glaringly absent, which requires the withdrawal of the SDEIR and another CEQA document if the Project hopes to continue.

O2-2 cont.

**B. Groundwater**

Impacts to Well Owners

The DSEIR fails to disclose impacts associated with the Yuba River transfers, even impacts disclosed long ago. The Yuba Water Agency ("YWA", formerly YCWA) transfers encountered troubling trends for over a decade that, according to the draft Environmental Water Account's EIS/EIR, were mitigated by deepening domestic wells (2007 p. 6-56). While digging deeper wells is at least a response to an impact, it hardly serves as a proactive measure to avoid impacts. Additional information finds that it may take 3-4 years to recover from groundwater substitution in the south sub-basin although YWA's own analysis fails to determine how much river water is sacrificed to achieve the multi-year recharge rate. None of this is found in the DSEIR. What was found in the 2015-2024 Long Term Water Transfer Program's environmental review is that even the inadequate SACFEM2013 modeling reveals that it could take more than six years in the Cordua ID area to recover from multi-year transfer events, although recovery was not defined (pp, 3.3-69 to 3.3-70). This is a very significant impact that is not addressed specifically or cumulatively in the DSEIR.

AquAlliance litigation (Case No. 1:20-cv-878-DAD-EPG) contains additional details regarding impacts from groundwater substitution that are sorely absent from the DSEIR. After the defendants lost the case for Long Term Water Transfer in 2018, USBR and SLDMWA recognized in their subsequent environmental review that some impacts to groundwater users had to be disclosed.

O2-3

*While acknowledging that "[g]roundwater substitution transfers could increase costs to water users for groundwater pumping, deepening existing wells, or drilling new wells in areas where groundwater levels decline as a result of the transfer," the FEIS/R does not provide adequate measures to mitigate this significant impact. FEIS/R 3.10-37. The FEIS/R states that "[g]roundwater substitution transfers would cause groundwater levels to decline in local areas . . . . Decreased groundwater levels would increase pumping costs for nearby well owners who are not participating in groundwater substitution transfers. Increased costs would reduce net farm revenues and, subsequently, household spending in the regional economy." FEIS/R 3.10-37. The FEIS/R conceded that*

> *After a single year, pumping costs in most areas would increase about $0.64 to $1.60 per AF. In some areas in Sacramento, Glenn and Sutter counties, pumping costs could increase up to $3.20 to $4.80 per AF for nearby wells close to 0.25 miles from the transfer well. In*

> *some areas of Colusa and Yuba counties, groundwater levels could decline up to about 25 feet, which would be an increase in pumping costs between $6.40 and $8.00 per AF . . . . Reduction in groundwater levels could also result in existing wells that may not be participating in the water transfers to dry out. This would require either deepening existing wells or drilling new wells to continue to pump groundwater. Deepening or drilling new wells would result in excessive costs to third parties and would be a substantial adverse economic effect.* [emphasis added]

*FEIS/R 3.10-37 to 3.10-38.*

O2-3 cont.

Groundwater depletion may also lead to water quality impacts in wells. As well levels drop from adjacent groundwater use, the potentials for oils and metals to become mobilized is increased. How is the water quality in domestic wells, in particular, monitored during and after groundwater substitution transfers? Are health effects tracked? The North Yuba Subbasins Groundwater Sustainability Plan's 2023 annual report reveals that according to DWR's review "[d]ata gaps regarding groundwater quality monitoring exist. Department staff also find that the current groundwater monitoring network lacks spatial and temporal coverage of the entire Subbasins."[3]

AquAlliance fails to find in the DSEIR acknowledgements and mitigation for the likely life-altering and financial impacts to unsuspecting well owners near Project activities. This must be corrected in a revised and recirculated CEQA document.

Stream Depletion Factor

It is positive that YWA now includes "[d]epletion 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."[4] However, the DSEIR's reliance on DWR and USBR (Agencies") is misplaced. The Agencies may include stream depletion factor as a requirement in their White Paper, but they have little to no practice at doing more than sticking to a rigid number that was once 12 percent and is now 13 percent. The lax oversight of water transfers including, but not limited to, stream depletion, is a pattern and practice. The Agencies' behavior also flies in the face of DWR's commissioned analysis by CH2MHill, which found:

O2-4

> The effect of groundwater substitution transfer pumping on stream flow, when considered as a percent of the groundwater pumped for the program, is significant. The impacts were shown to vary as the hydrology of the periods following the transfer program varied. The three scenarios presented here estimated effects of transfer pumping on stream flow when dry, normal, and wet conditions followed transfer pumping. Estimated stream flow losses in the five-year period following

[3] Yuba Water Agency, Et Al., 2024. Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan Water Year 2023 Annual Report. p. 2-20.
[4] p. 3.2-29.

each scenario were 44, 39, and 19 percent of the amount of groundwater pumped during the four month transfer period. [5]

From the CH2MHILL analysis it is clear that the Agencies arbitrary selection of 13 percent for mitigating stream depletion is inadequate, therefore making the DSEIR's reliance on the Agencies and their White Paper inadequate under CEQA. Deferring analysis and selection of a SDF to a future date deprives the public of adequate disclosure and the ability to comment. A protocol should be established, so there is some assurance of the response during different hydrologic years and existing conditions.

The SGMA office of DWR also brings up the unpreparedness of the Yuba GSP to manage interaction between ground and surface waters:

> Department staff note that the Yuba GSP does not provide information regarding the location, quantity, and timing of depletions of interconnected surface water, as required by the regulations. It is believed the Yuba GSP does not, for the purposes of long-term compliance, effectively demonstrate with adequate evidence that minimum thresholds developed for the chronic lowering of groundwater levels are reasonable proxies for the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water. Department staff recommended that by 2025, the GSAs must provide the specific methodology to estimate the location, quantity, and timing of depletion of interconnected surface water as required by the GSP Regulations; assess and document the quantifiable change in location, quantity, and timing of depletions the GSAs consider to be significant and unreasonable, and thereby considers to be the minimum threshold(s) that could lead to an undesirable result; explore whether managing the location and quantity of pumping could be an effective proxy for depletion of interconnected surface water; and coordinate with subbasins in the Sacramento Valley to develop consistent approaches for assessing the location, quantity, timing of streamflow depletion due to groundwater use.[6]

O2-4 cont.

Groundwater Dependent Ecosystems

How are GDES being tracked, disclosed and mitigated? The Long Term Water Transfer EIS/R admitted tree and other vegetation effects could occur up to two miles away, and expert comments supported by hard data showed that effects can reach farther.

O2-5

The myriad issues raised above must be addressed in a revised and recirculated CEQA document.

O2-6

## C. Climate Change

CEQA requires that the EIR evaluate the effects of the Proposed Action on the environment. (Cal. Pub. Res. Code §§ 21100, 21061). This requirement extends to analyzing both direct and indirect

O2-7

[5] CH2MHill, 2010, Technical Memorandum - Groundwater Substitution Transfer Impact Analysis, Sacramento Valley, To: Abdul Khan/California Department of Water Resources and Bob Niblack/California Department of Water Resources, From: Peter Lawson/CH2M HILL, Redding, California, March 29, 2010' p. 8.
[6] Yuba Water Agency, Et Al., 2024. Yuba Subbasins Water Management Plan: A Groundwater Sustainability Plan Water Year 2023 Annual Report. p. 2-20. (Exhibit A)

effects, as well as how and to what extent the Proposed Action will exacerbate existing hazards or conditions that may result in significant effects to the environment. (CEQA Guidelines, § 15126.2; California Building Industry Assn. v. Bay Area Air Quality Management Dist. (2015) 62 Cal.4th 369, 392). The SDEIR impermissibly ignores climate change analysis and fails to analyze how the Proposed Action will exacerbate climate change impacts to other resources.

The Project does not analyze how or to what extent it will exacerbate the effects of climate change by transferring water resources out of the project area at times when those water resources are already stressed by climate change and needed for other resources such as aquatic species, vegetation, irrigation, or recreation. Recent studies indicate that climate change will result in increasingly sharp seasonality of the California wet season.[7] Specifically, while certain climate models project an increase in winter mean precipitation, mean precipitation during autumn (September – November) and especially spring (March – May) months is expected to decrease.[8] The general effect is a sharp decrease in mean precipitation for the months immediately prior to and following the winter wet season.

O2-7 cont.

### D. Cumulative Impacts

The DSEIR fails to address many projects that may have cumulative effects that should be assessed and disclosed. Examples include:

- The Long Term Water Transfer Program with lead agencies USBR and SLDMWA. There is an existing NEPA/CEQA document and notification for more NEPA/CEQA review later in 2024.
- The Richvale ID and Western Canal WD water transfers of 60,000 af.
- The transfer projects from the regular list of water sellers that apply to the SWRCB on an annual basis.
- The Delta Conveyance project.

Additional projects should also be considered in a recirculated CEQA document.

O2-8

As demonstrated above, the SDEIR must be withdrawn. Please keep AquAlliance apprised of your next steps.

O2-9

Sincerely,

B. Vlamis

Barbara Vlamis, Executive Director
AquAlliance
P.O. Box 4024
Chico, CA 95927

[7] Swain, D.L., Langenbrunner, B., Neelin, J.D. *et al.* Increasing precipitation volatility in twenty-first-century California. *Nature Climate Change* 8, 427–433 (2018) doi:10.1038/s41558-018-0140-y.
[8] *Id.*

### Response O2-1
The comment is an introductory statement, including a summary of the Proposed Extension, and does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided below.

### Response O2-2
The comment summarizes past groundwater substitution transfers that have occurred during implementation of the Yuba Accord and states that these transfers exacerbate drought conditions in the Yuba Subbasin and should be analyzed and disclosed. The comment further states that because existing conditions have not been fully disclosed in the Draft SEIR, additional CEQA documentation is needed. As an initial matter, the comment's assertion that the Draft SEIR "opines that the existing conditions are the same as in 2008" is inaccurate. The SEIR's analysis relies on an updated baseline that considers existing conditions as of January 2023, when Yuba Water issued the NOP for the SEIR. See responses to comments A2-4 through A2-7 regarding potential effects of groundwater substitution transfers.

### Response O2-3
The comment states that data show it may take several years for portions of the Yuba Basin to recover from groundwater substitution transfers and that groundwater depletion may result in water quality impacts in wells and these impacts are not addressed in the Draft SEIR. Therefore, the comment states that a revised and recirculated environmental document that discloses and evaluates these impacts and includes mitigation is required.

The comment fails to meaningfully acknowledge the relevant groundwater impact analyses in the 2007 Yuba Accord EIR or the Draft SEIR for the Proposed Extension. Section 3.3, "Groundwater Resources," of the Draft SEIR analyzes the potential groundwater impacts of the Proposed Extension and demonstrates that these impacts would be less than significant. The comment does not provide any evidence, or even allege, that the methodologies and conclusions in the Draft SEIR's groundwater impacts analysis are flawed.

Instead, the comment cites outdated and irrelevant information from other environmental documents. Specifically, the comment appears to cite the 2007 Draft EIS/EIR for the Environmental Water Account (EWA)[7] and a 2015 EIS/EIR prepared by the U.S. Bureau of Reclamation and San Luis & Delta-Mendota Water Authority for Long-Term Water Transfers.[8] Unlike the 2007 Yuba Accord EIR or the Draft SEIR, neither of the environmental documents cited in the comment analyzed groundwater substitution transfers under the Yuba Accord or the Proposed Extension, including the features of the Yuba Accord that have addressed, and will continue to address, the impacts raised in the comment. (See Section 2.3.6, "Other Commitments as Features of the Proposed Extension," of the Draft SEIR.) As the Draft SEIR explains (see pages 3.3-9 and 3.3-18 to 3.3-21), those features will avoid and, if necessary, mitigate any adverse impacts to groundwater levels and groundwater users associated with groundwater-substitution transfers under the Proposed Extension. The comment does not explain why these features would be inadequate to address any potential groundwater impacts under the Proposed Extension.

Since 2008, Yuba Water has implemented Mitigation Measures 6.1 and 6.2 identified in the 2007 Yuba Accord EIR, which include a monitoring and mitigation plan and a third-party action plan) to address groundwater impacts. The Proposed Extension explicitly incorporates continued implementation of those measures.

These measures reflect Yuba Water's and its Member Units' practical experiences before 2007 with pre-Accord groundwater-substitution transfers. In the early 2000s, before the Yuba Accord was implemented, some domestic wells that were not constructed to withstand the water level fluctuations of drought conditions were deepened, at the expense of Yuba Water's member units that participate in groundwater-substitution transfers and not at the expense of the well owners. Based on this experience, the 2007 Accord EIR incorporated, and Yuba Water has implemented, Mitigation Measures 6.1 and 6.2, including deepening wells that may have been affected by groundwater-substitution

[7] The Draft EIS/EIR for the EWA—a much broader program than the Yuba Accord—predated the implementation of the Yuba Accord. The 2007 Yuba Accord EIR, which this SEIR supplements, analyzed the groundwater impacts associated with Yuba Accord transfers.

[8] The EIS/EIR appears to be available as an AquAlliance hearing exhibit on the SWRCB's website at https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/CSPA%20et%20al/part2/aqua_266A.pdf.

pumping, at the expense of participating member units. The comment's assertion that the Proposed Extension would have "life-altering and financial impacts to unsuspecting well owners" is therefore unfounded.

In addition, as the Draft SEIR's section 2.3.3 states, the Proposed Extension would involve the extension of Yuba Water's Water Purchase Agreement with DWR under substantially the same terms. The existing Water Purchase Agreement includes, as its Exhibit 3, a Groundwater Monitoring and Operations Program. That plan includes specific limitations on groundwater-substitution pumping to ensure that local wells are not dewatered. (Draft SEIR, p. 3.3-18.) As the Draft SEIR states, as part of the Proposed Extension, Yuba Water will augment the existing protective measures implemented under the Accord by using its YGM to forecast groundwater levels that would occur with groundwater-substitution transfers in each year. (Draft SEIR, p. 3.3-18.)

The comment does not meaningfully acknowledge the Draft SEIR's discussion of these issues, nor does it provide any information that suggests that these existing and augmented measures will not adequately address the potential groundwater impacts cited in the comment.

The comment also fails to acknowledge the Draft SEIR's discussion about how the Proposed Extension would integrate with Yuba Water's implementation of its approved GSP under the SGMA to avoid adverse impacts to groundwater users. (See Section 3.3, "Groundwater Resources" and pages 3.3-20 to 3.3-21 [analysis of Impact 3.3-1].) As a result of Yuba Water's implementation of SGMA, and particularly through Yuba Water's use of the YGM it developed to implement SGMA, Yuba Water will be able to implement updated objectives for groundwater-substitution transfers' effects that are more protective than the GSP's thresholds for more general sustainable groundwater management. (Draft SEIR, pp. 3.3-20 to 3.3-21.)

With respect to groundwater quality, the comment quotes Yuba Water's 2023 GSP annual report and DWR's comment on groundwater quality monitoring. The comment, however, does not acknowledge or address the Draft SEIR's analysis of potential groundwater quality impacts (see pp. 3.3-21 to 3.3-22 [analysis of Impact 3.3-2]), which is based in large part on Yuba Water's long-running experience with measuring the groundwater quality impacts of existing Accord groundwater-substitution transfers, or the Draft SEIR's conclusion that continued Accord groundwater-substitution transfers under the Proposed Extension would not cause any significant groundwater quality impacts.

As explained in that analysis, Yuba Water's groundwater quality monitoring has focused on electric conductivity (EC) levels for two primary reasons. First, because EC is a measure of the changes in concentrations of dissolved solids (i.e., salts) in water, changes in EC levels indicate that basic groundwater quality is changing and that more analysis of any changes may be required. Second, DWR requires EC monitoring of all groundwater substitution projects, so the Accord water purchase agreement's Exhibit 3 Groundwater Substitution Transfer Monitoring and Operations Program requires Yuba Water to monitor EC in production wells involved in groundwater-substitution transfers. Specifically, Yuba Water (and its Member Units) must measure EC in the relevant wells "at the initiation of pumping (or as soon thereafter as practicable), two months after the initial EC measurements and at the termination of pumping" (WPA Exhibit 3 p. 2). Similar data had been collected in a number of Yuba County wells for decades before the start of the Yuba Accord. Thus, Yuba Water has a large base of data to analyze these issues.

Yuba Water's data from monitoring EC in production wells involved in Yuba Accord groundwater-substitution transfers shows generally consistent readings across most of the Yuba Subbasin. Only one well, in an area of southern Yuba County near Wheatland, has ever showed substantial long-term increasing EC trends in groundwater through Yuba Water's monitoring. Other wells have stable concentrations or have smaller increasing or decreasing trends in concentrations. At the time those trends were observed, however, the area of southern Yuba County near Wheatland was unique in southern Yuba County because Yuba Water was unable to deliver surface water for irrigation to that area before 2010. By comparison, Yuba Water began delivering surface water to most of southern Yuba County in the 1980s. The area in which EC levels in groundwater increased showed those increases from about 1980 through 2006. Since 2006, however, EC levels have been dropping (Yuba Water 2024b: 3-29 to 3-32). As Yuba Water began delivering surface water to the area in 2011, the decline in EC levels may be associated with reduced groundwater pumping as a result of the use of surface water delivered by Yuba Water.

These data contradict the comment's unsupported theory that continued groundwater-substitution pumping under the Proposed Extension could have significant adverse effects on groundwater quality. Instead, these data indicate that Yuba Water's surface-water deliveries have allowed southern Yuba County farmers to reduce their reliance on annual groundwater pumping, with resulting improvements in groundwater quality. Continued groundwater-substitution pumping under the Proposed Extension would be associated with continued Yuba Water surface-water deliveries that would occur in years with and without groundwater-substitution transfers. In addition, continued groundwater-substitution pumping under the Proposed Extension would incorporate the detailed monitoring and mitigation measures already included in the Accord, as augmented in the manner explained above and in the Draft SEIR. For these reasons, substantial evidence demonstrates that the Proposed Extension would not cause any adverse groundwater quality impacts, and the comment has failed to demonstrate otherwise. As the Draft SEIR addressed the project's potential groundwater impacts and no additional mitigation is required under CEQA, recirculation of the Draft SEIR is not warranted.

### Response O2-4

The comment applauds the inclusion of an SDF but states based on the results of DWR's commissioned analysis of SDF by CH2MHill that current application of SDFs to groundwater substitution transfers has been inadequate and that a protocol should be established for different hydrologic years and disclosed in the environmental document to allow the ability to comment.

As a threshold matter, the comment appears to assume—incorrectly—that the Draft SEIR's analysis of streamflow depletion in Section 3.2, "Surface Water Supply and Management," is intended to also address the Proposed Extension's potential effects on aquatic species and other environmental resources that depend on streamflows in streams as a result of continued groundwater-substitution pumping.

This assumption, however, is not accurate. As described in response to comment A2-6, above, this SEIR demonstrates that continued Accord groundwater-substitution transfers: (1) would not have any effect on larger streams that are hydraulically connected with aquifers from which groundwater-substitution pumping would occur (i.e., the lower Yuba River, the Feather River) that would require further environmental analysis; and (2) would not adversely affect smaller streams that may support GDEs, but that rely on Yuba County's shallower aquifer that is largely separated from the deeper production aquifer by clay layers and lenses (see response to comment A2-6 for additional discussion). The CH2MHill technical memorandum cited by the commenter is 14 years old, does not include recent improvements in data availability and conceptual understanding, and analyzes a broad area spanning the southern half of the Sacramento Valley without critical local detail. The results presented in the CH2MHill technical memorandum are no longer relevant to conditions specific to groundwater substitution transfers in the Yuba Subbasins, having been superseded by the technical analysis presented in Appendix B in the Draft SEIR. Appendix B incorporates the most recent data and conceptualization of the Yuba Subbasins and groundwater substitution transfers into a detailed, site-specific modeling and analysis approach for defining stream depletion factors. The comment, therefore, provides no basis for concluding or theorizing that any streamflow depletions that might be associated with continued Yuba Accord groundwater-substitution transfers would cause any adverse environmental effects.

The comments about the potential variability of the SDF that will be used in relation to Yuba Accord groundwater-substitution factor, and potential related impacts, ignores the reality of streamflow depletion that may occur in association with the Proposed Extension, the Draft SEIR's analysis of potential streamflow depletions, and the basic purpose of an SDF. The Draft SEIR contains, in Appendix B, a technical memorandum entitled "Streamflow Depletion Effects on Downstream Water Supplies." Appendix B describes Yuba Water's extensive analysis of streamflow depletion effects, including multiple modeling studies, and includes detailed information on a proposed process to identifying an SDF in collaboration with DWR. As Appendix B discusses at pages 2 and 11 through 13, "a significant portion of the total streamflow depletion due to [groundwater substitution] transfer pumping occurs on the Yuba River above the Marysville Gage" and, out of the necessity to comply with regulatory requirements concerning minimum lower Yuba River flows, Yuba Water would compensate for any such depletions by releasing more water from New Bullards Bar Reservoir to ensure that those depletions do not cause flows at the Marysville Gage to fall below required minimums. In addition, DWR's participation and consideration relative to the SDF is important

because, to the extent any streamflow depletions associated with Yuba Accord groundwater-substitution transfers occur downstream of the Yuba River, DWR is the primary water user that could be affected. The fact that DWR's water supplies potentially could be affected, however, does not indicate that any environmental impact would occur because there are numerous regulatory requirements that govern conditions in the Feather River, the Sacramento River, and the Delta downstream of the Yuba River. The commenter provides no comments on Appendix B. The comment, therefore, provides no basis for questioning the Draft SEIR's analysis of potential streamflow depletions.

In addition, under the applicable law and the relevant hydrologic circumstances, a potentially flexible SDF is necessary to accurately account for water supply issues associated with future transfers under the Proposed Extension. As explained above and in the Draft EIR, this process is not intended to address environmental impacts directly, but rather, to alleviate concerns about potential injuries to water rights of downstream water users. As a result, this process is typically accomplished through negotiations regarding contractual terms, rather than as part of an environmental review process requiring the "public … disclosure and the ability to comment" sought by the comment.

Specifically, for Yuba Accord transfer water to reach many of its buyers, DWR, and sometimes Reclamation, must "wheel" that water through their south Delta pumps and associated water conveyance facilities pursuant to the "wheeling statutes" (Water Code sections 1810 through 1814). Relevant here, these statutes require that a wheeling operation occur "without injuring any legal user of water" (section 1810[d]) and authorize the "owner of the conveyance facility" to set the terms under which water will be wheeled (section 1812). In the case of Yuba Accord transfers, the wheeling statutes authorize DWR and Reclamation to impose reasonable terms to prevent any legal injuries to their own water uses that might otherwise occur as a result of the transfers through DWR and U.S. Bureau of Reclamation infrastructure. Moreover, because the Proposed Extension involves a 25-year extension of the wheeling of Yuba Accord transfer water through those agencies' facilities, any appropriate SDF necessarily will account for the fluctuating hydrology within which the transfers will occur. The Draft SEIR's treatment of the SDF issue—which, again, is intended to account for water supply issues to prevent legal injury, rather than to mitigate environmental impacts—is consistent with the applicable law governing water transfers. As noted above, the Draft SEIR separately analyzed potential environmental impacts of the Proposed Extension as a result of streamflow depletion in Sections 3.2 through 3.5 and determined that the Proposed Extension would not result in any significant impacts.

Finally, the comment states that "DWR also brings up the unpreparedness of the Yuba GSP to manage interaction between ground and surface waters"; however, DWR has approved Yuba Water's GSP under SGMA, signifying that that the GSP avoids undesirable effects. To the extent that the comment concerns the adequacy of the GSP generally, that issue is beyond the scope of this SEIR. In addition, the issue that the comment raises concerns the existence of potential GDEs in Yuba County. As explained in response to comment A2-5 regarding potential impacts to GDEs, however, any such ecosystems necessarily depend on Yuba County's shallow aquifer that has limited hydraulic connection with the county's deeper aquifer that is the primary source of groundwater that the county's farmers use and, therefore, the source for groundwater-substitution pumping. As a result, the Proposed Extension would not result in significant adverse impacts to GDEs requiring further analysis or mitigation.

### Response O2-5

The comment asks how GDEs are being tracked, disclosed, and mitigated, and states that effects on GDEs can occur up to or more than two miles away. See response to comment A2-5 regarding potential impacts to GDEs. As substantial evidence demonstrates that the Proposed Extension would not result in any significant impacts to GDEs, no additional analysis or mitigation is required.

### Response O2-6

The comment states that the issues raised in the comments require a revised and recirculated CEQA document. For the reasons described in responses to comments O2-2 through O2-5, above, recirculation of the Draft SEIR is not warranted.

### Response O2-7

The comment states that the Draft SEIR does not address climate change and analyze how the Proposed Extension would exacerbate climate change impacts to other resources. As stated on page 3.1-11 under the subheading,

"Greenhouse Gas Emissions," in Section 3.1.3, "Effects Found Not to Be Significant," of Chapter 3 "Environmental Impacts and Mitigation Measures," 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 greenhouse gas (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.

As provided in CEQA Guidelines Section 15007(b), "[a]mendments to the Guidelines apply prospectively only," and if a CEQA document "meets the content requirements in effect when the document is sent out for public review, the document shall not need to be revised to conform to any new content requirements in Guideline amendments taking effect before the document is finally approved" (CEQA Guidelines Section 15007[c]).

The 2007 EIR was sent out for public review and certified before the amendment to the CEQA Guidelines adding analysis of GHG emissions. 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 or indicate that the project would have any substantially more severe environmental impacts beyond those addressed in the 2007 EIR.

As discussed on page 3.1-11 under the subheading, "Greenhouse Gas Emissions," in the Draft SEIR, the Proposed Extension 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.

As explained in response to comment A2-4, above, most of the Yuba Accord's transfer water is an increment of water between the minimum streamflow requirements for the lower Yuba River under the Accord, as approved by the SWRCB, and pre-Accord minimum streamflow requirements for the lower Yuba River. The amount of these Accord transfers is determined by downstream water accounting, not by changes in Yuba Water's operations. In other words, the Proposed Extension generally would not independently "[transfer] water resources out of the project area at times when those water resources are already stressed by climate change," as the comment incorrectly suggests. Accordingly, there is no clear mechanism by which most of the water transfers under the Proposed Extension would contribute to, or exacerbate the effects of, climate change. To the extent that climate change might be relevant, it would only be because changes in the relevant hydrology might affect the minimum streamflow requirements Yuba Water needs to implement in a given year, the downstream water accounting, or both. The comment provides no information that affects the Draft SEIR's analysis of the effects of the majority of Yuba Accord transfer water.

With respect to groundwater-substitution transfers "out of the project area," to the extent that climate change may affect Yuba County's water resources, those effects will be addressed through Yuba Water's ongoing Groundwater Substitution Transfer Monitoring and Operations Program and the various features of the Proposed Extension that have and will continue to protect groundwater supplies and quality as discussed in response to comment O2-3 above and in Section 2.3.6, "Other Commitments as Features of the Proposed Extension," of the Draft SEIR.

More broadly, climate change is a trend over time in hydrologic conditions and it is uncertain to what extent hydrologic conditions will become more variable with climate change. It is important to understand that California's hydrology has always been extremely variable. For example, between 1861 and 1865, California first experienced a

flood so significant that it inundated the City of Sacramento and much of the Central Valley and then a drought so significant that it essentially destroyed southern California's cattle ranching economy (Guinn 1890: 33-39). Consistent with the high variability of California's climate, the 2007 EIR and the Draft SEIR analyze the year-to-year variability of the hydrologic cycle to assess the range of effects of the Proposed Extension against that hydrology, the variation of which is much more variable from year to year than the projected long-term trend of climate change. Further, as the Draft SEIR states, as part of the Proposed Extension, Yuba Water will augment the existing protective measures implemented under the Accord by using its YGM to forecast groundwater levels that would occur with groundwater-substitution transfers in each year (Draft SEIR, p. 3.3-18). These measures are responsive to all causes of changes in groundwater levels, including climate change. The comment provides no basis for concluding or speculating that the Proposed Extension would exacerbate any climate change-related effects on Yuba County's water resources.

### Response O2-8

The comment states that additional projects could contribute to cumulative impacts and provides several examples that it asserts should be disclosed and assessed in a recirculated environmental document. The comment does not provide any evidence of a potential cumulative impact or specify the types of cumulative impacts that it asserts would occur. As to the four specific projects that the comment asserts must be considered in the SEIR, substantial evidence demonstrates that these projects would not cause the Proposed Extension to have any cumulative impacts that were not considered in the Draft SEIR. Each of these projects is discussed below:

- The Long-Term Water Transfer Program with lead agencies USBR and SLDMWA: The comment states that this project was not addressed in the Draft SEIR; however, this project is included in Table 4-1 on page 4-10 of the Draft SEIR under the heading, "Long-term and Short-term Water Transfers." The Draft SEIR's cumulative impacts analysis considered this project, among others, and concluded that the incremental contribution of the Proposed Extension would not result in cumulatively considerable impacts relative to the existing condition. (Draft SEIR, pp. 4-20 to 4-23 [surface water supply and management], 4-24 to 4-25 [groundwater resources], 4-26 to 4-28 [fisheries and aquatic resources], 4-29 to 4-31 [surface water quality].)
- The Richvale Irrigation District and Western Canal Water District water transfers of 60,000 af: As explained in Section 3.1, "Approach to the Environmental Analysis," of the Draft SEIR, the SEIR considers the potential environmental impacts of the Proposed Extension using the existing condition (as of January 12, 2023, when the NOP for the Proposed Extension was issued) as a baseline for the analysis. The cited Richvale Irrigation District and Western Canal Water District transfers have been implemented since 2018 and are therefore appropriately part of the baseline for the SEIR's analysis. Accordingly, the SEIR need not also include these transfers in its cumulative impacts analysis. Under existing conditions, hundreds of thousands of acre-feet of water are transferred each year from Northern California to the San Joaquin Valley and Southern California across the Delta. To the extent that new transfers beyond the baseline are proposed or will occur, the SEIR includes them in its analysis of the cumulative impacts of the Proposed Extension. (See Table 4-1 of the Draft SEIR, which includes "Long-term and Short-term Water Transfers," on page 4-10.)
- The transfer projects from the regular list of water sellers that apply to the SWRCB on an annual basis: As explained in Section 3.1, "Approach to the Environmental Analysis," of the Draft SEIR, the SEIR considers the potential environmental impacts of the Proposed Extension using the existing condition (as of January 12, 2023, when the NOP for the Proposed Extension was issued) as a baseline for the analysis. The annual water transfers cited in the comment are part of this existing condition and are already accounted for as such in the Draft SEIR's analysis of the potential impacts of the Proposed Extension. Thus, it is not required, necessary, or appropriate for the SEIR to also treat these annual transfers as separate projects in the cumulative impacts analysis.
- The Delta Conveyance Project: The comment states that this project was not addressed in the Draft SEIR; however, this project is included in Table 4-1 on page 4-16 of the Draft SEIR. The Draft SEIR's cumulative impacts analysis considered this project, among others, and concluded that the incremental contribution of the Proposed Extension would not result in cumulatively considerable impacts relative to the existing condition. (Draft SEIR, pp. 4-20 to 4-23 [surface water supply and management], 4-26 to 4-28 [fisheries and aquatic resources], 4-29 to 4-31 [surface water quality].)

For the reasons explained above, the comment does not identify any evidence of potential cumulative impacts that were not adequately addressed in the Draft SEIR. No updates to the Draft SEIR's analysis or any other revisions to the Draft SEIR are necessary to address the four projects identified in the comment.

However, Yuba Water has made slight revisions to the Draft SEIR's list of cumulative projects; these revisions are intended to ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents, but do not result in any new significant cumulative impacts or substantially more severe significant cumulative impacts in comparison to what was originally disclosed in the Draft SEIR. See Chapter 3, "Revisions to the Draft SEIR," for the specific text changes made to the Draft SEIR since its publication and public review.

### Response O2-9

The comment states that the Draft SEIR should be withdrawn. The comment does not address the content, analysis, or conclusions in the Draft SEIR. Therefore, a response is not provided here. Responses to specific comments concerning environmental issues are provided above, and AquAlliance will continue to be included on the distribution list to receive notices and environmental documents related to the Proposed Extension.

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# 3 REVISIONS TO THE DRAFT SEIR

This chapter presents specific text changes made to the Draft SEIR since its publication and public review. The changes are presented in the order in which they appear in the original Draft SEIR and are identified by the Draft SEIR page number. Text deletions are shown in ~~strikethrough~~, and text additions are shown in underline.

The information contained within this chapter clarifies and expands on information in the Draft SEIR and does not constitute "significant new information" requiring recirculation. (See Public Resources Code Section 21092.1; CEQA Guidelines Section 15088.5.)

## 3.1 REVISIONS TO CHAPTER 2, "DESCRIPTION OF THE PROPOSED PROJECT"

To provide an update regarding the authorized points of rediversion (PORDs) per current State Water Resources Control Board (SWRCB) practice and Yuba Water's discussion with SWRCB staff, the first paragraph on page 2-10 of the Draft SEIR is revised as follows:

> 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. In addition, to conform with current SWRCB practice to include terminal reservoirs as authorized PORDs, the change petition also includes these terminal reservoirs from Clifton Court Forebay: Castaic Dam, Perris Dam, and Pyramid Dam. Reference to these terminal reservoirs is an administrative action that would not change the continued operation of the Water Transfer Program.

## 3.2 REVISIONS TO SECTION 3.2, "SURFACE WATER SUPPLY AND MANAGEMENT"

To provide clarification and in response to comments from Reclamation, the 3rd and 4th full paragraphs on page 3.2-21 of the Draft SEIR is revised as follows:

> ### 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~~ the Rock Slough, ~~and~~ Old River, and Middle 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 and Middle River intakes

to storage in the reservoir under its own Los Vaqueros water right permit (~~Reclamation and CCWD 2009~~ State Water Resources Control Board Permit 20749).

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 its diversions, storage, and conveyance facilities according to operational rules designed to minimize impacts to protected aquatic species and their habitat, as required under USFWS BOs (files: 1-1-93-F-35 and 1-1-07-F-0044), NMFS BOs (files: 5004 and 2005/00122), and ITP (No. 2081-2023-036-03), collectively referred to as the CCWD-specific BOs and ITP. These operating rules include 75-day no-fill and concurrent 30-day no-diversion periods and diversion restrictions under certain hydrodynamic conditions when listed fish are near CCWD's intakes. All of CCWD's intakes are equipped with fish screens, with the Rock Slough Fish Screen completed in 2011.

To provide clarification and in response to comments from Reclamation, the last paragraph on page 3.2-28 and continuing to page 3.2-29 of the Draft SEIR is revised as follows:

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~~ offset the streamflow depletion effects caused by groundwater substitution transfer pumping. 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.

# 3.3 REVISIONS TO SECTION 3.3, "GROUNDWATER RESOURCES"

To provide clarification and in response to comments from Reclamation, the 3rd full paragraph on page 3.3-22 of the Draft SEIR is revised as follows:

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~~ due to (1) captured groundwater discharge (groundwater that otherwise would have discharged to a connected stream absent the pumping), and (2) induce infiltration (water drawn into the

aquifer because of pumping). 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~~ offset streamflow depletion and ensure other surface water users are not adversely affected.

# 3.4 REVISIONS TO SECTION 3.4, "FISHERIES AND AQUATIC RESOURCES"

To provide clarification and in response to comments from Reclamation, the last paragraph on page 3.4-32 and continuing to page 3.4-33 of the Draft SEIR is revised as follows:

~~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).~~ Up to 25 TAF of Yuba Accord water could be transferred to CCWD and would be diverted at its Rock Slough, Old River, and Middle River Intakes located in the Delta between April 1 and November 30. Operations of CCWD facilities, including diversions at the three intakes that would be used to transfer Yuba Accord water, were analyzed in the Los Vaqueros Expansion Reservoir Project Final Environmental Impact Statement/Environmental Impact Report 2010 (Final EIS/EIR, State Clearinghouse No. 2006012037, record of decision March 11, 2011, certified March 31, 2010) and 2020 Final Supplement to the Final EIS/EIR (certified May 13, 2020). All CCWD intakes are equipped with positive barrier fish screens that are effective at screening screenable-sized fish and keeping them from being diverted into CCWD's water control system. Additionally, CCWD operates its diversions, storage, and conveyance facilities according to operational rules designed to minimize impacts to protected aquatic species and their habitat, as required under USFWS BOs (files: 1-1-93-F-35 and 1-1-07-F-0044), NMFS BOs (files: 5004 and 2005/00122), and ITP (No. 2081-2023-036-03), collectively referred to as the CCWD-specific BOs and ITP. These operating rules include 75-day no-fill and concurrent 30-day no-diversion periods and diversion restrictions under certain hydrodynamic conditions when listed fish are near CCWD's intakes. Transfers of Yuba Accord water to CCWD would be subject to the requirements in CCWD-specific BOs and ITP and would not cause additional adverse impacts to fisheries and aquatic resources.

# 3.5 REVISIONS TO CHAPTER 4, "CUMULATIVE IMPACTS"

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents, Table 4-1 on pages 4-3 through 4-17 of the Draft SEIR is revised as follows:

**Table 4-1 Cumulative Project List**

| Project | Status | Primary Agencies | Description |
|---|---|---|---|
| **Yuba Region (i.e., Yuba River)** | | | |
| 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.<br><br>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~~ extend the license's current expiration on January 31, 2026 to run 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 River Watershed Habitat Restoration Plan | Future | Yuba Water, CDFW, and NMFS | In May 2023, Yuba Water, CDFW, and NMFS signed a term sheet to partner on an extension program to implement habitat restoration measures on the lower Yuba River and the North Yuba River. The Term Sheet sets forth a framework for a Settlement Agreement to implement certain restoration measures, including the potential for construction of a new fishway and modernized water diversion at Daguerre Point and initiation of a comprehensive program to reintroduce spring-run Chinook salmon to the North Yuba River. At the time this Final SEIR was prepared, negotiations for implementation of the Term Sheet have been progressing and the parties involved are seeking to resolve the remaining issues, complete CEQA review as discussed below, and execute the agreement by the end of 2024.<br><br>Yuba Water anticipates relying on the SWRCB's General Order for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Restoration Projects Statewide (SRGO), which provides a programmatic authorization for qualifying restoration projects, for construction, operation, and maintenance of the Nature-Like Fishway component of the Restoration Plan. Yuba Water is in the process of evaluating the project's consistency with the SRGO and the SWRCB's Program EIR (PEIR) for the SRGO to determine the appropriate CEQA document for the project. |

| Project | Status | Primary Agencies | Description |
|---|---|---|---|
| **CVP/SWP Upstream of the Delta Region (i.e., Feather River and Sacramento Rivers)** | | | |
| 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, various other agencies | 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). |
| **Delta Region** | | | |
| 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.<br><br>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.<br><br>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.<br><br>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 (2018 Framework). ~~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 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~~ |

| Project | Status | Primary Agencies | Description |
|---|---|---|---|
| | | | ~~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.~~ The 2018 Framework proposes amending the Bay-Delta Plan to include a number of new water quality objectives, including objectives to require between 45% and 65% of unimpaired flow to flow from the Delta's tributaries (including the Yuba River) into and through the Delta and a narrative objective that temperatures in the Delta's tributaries would be managed to support native fish. The 2018 Framework did not propose operational rules or other detailed methods for coordinated implementation of its proposed new water quality objectives.<br><br>Additionally, during 2018 DWR and CDFW submitted to the SWRCB a Framework Proposal for Voluntary Agreements (subsequently referred to as the Healthy Rivers & Landscapes [HR&L] Program) 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, the California Natural Resources Agency (CNRA), California EPA, DWR, and CDFW signed with the HR&L Parties a Memorandum of Understanding (MOU) Advancing a Term Sheet for the HR&L Program.<br><br>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 Basis Report Supplement in support of the HR&L Program. 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. Those alternatives include: (1) an alternative that is based on the 2018 Framework and that states that the SWRCB's staff would make many discretionary future decisions about how the 2018 Framework's water quality objectives would actually be implemented; (2) an alternative that would implement the proposed HR&L Program; and (3) several "modular" alternatives that might be implemented with either the 2018 Framework-based alternative or the HR&L-based alternative.<br><br>Yuba Water, as one of the HR&L Parties, has developed a HR&L Program for the Yuba River consisting of a proposed flow contribution and construction of habitat enhancements. 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 HR&L Program (Component A). The second component (Component B) 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.<br><br>Along with the other elements of the HR&L Program, it is reasonably possible to evaluate how Yuba Water's proposal would be implemented and therefore to analyze its environmental effects as a cumulative project. |

| Project | Status | Primary Agencies | Description |
|---|---|---|---|
| | | | Because the SWRCB's 2023 draft Staff Report proposes that, under a 2018 Framework-based alternative, SWRCB staff would make many discretionary future decisions about how that Framework's proposed water quality objectives would be implemented, it is not reasonably possible to evaluate how that alternative would be implemented. In January 2024, Yuba Water submitted extensive comments to the SWRCB that implementing the 2018 Framework-based alternative as modeled in the SWRCB's 2023 draft Staff Report would have numerous highly adverse environmental and other impacts, including highly adverse water temperatures for Chinook salmon and steelhead in the lower Yuba River, severe and disproportionate impacts on Yuba Water's generation of hydroelectricity, and termination of Yuba Accord water transfers (Yuba Water 2024). Based on the information available at the time this Final SEIR was prepared, if and how the SWRCB might seek to implement the 2018 Framework-based alternative would constitute speculation, so it is not currently feasible to evaluate that alternative as a cumulative project. |
| ~~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.~~<br><br>~~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.~~ |

Source: Provided by Yuba Water in 2023 and updated in 2024.

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents and to be consistent with the above revisions to Table 4-1, the bulleted list on page 4-20 of the Draft SEIR is revised as follows:

- Water Transfers and Acquisition Programs
  - Long-term and Short-term Water Transfers
  - Bay-Delta Water Quality Control Plan Update ~~– Voluntary Agreements~~

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents and to be consistent with the above revisions to Table 4-1, the second and third paragraphs on page 4-22 of the Draft SEIR are revised as follows:

> The HR&L Program is an alternative for 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~~. The HR&L Program is proposed to contribute towards achieving the Bay-Delta Plan Update objectives. Yuba Water has developed a ~~VA project~~ HR&L Program 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's HR&L Program, and its ~~VA~~ flow contribution operations, would interact with the Proposed Extension operations for water transfers.
>
> ~~The~~ Yuba Water's ~~VA~~ flow operations under its HR&L Program 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's HR&L Program ~~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~~ HR&L Program (Component A in the Yuba Water ~~VA proposal~~ HR&L Program). 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~~ HR&L Program) 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's HR&L Program ~~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's HR&L Program ~~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.

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents and to be consistent with the above revisions to Table 4-1, the bulleted list on pages 4-24 and 4-25 of the Draft SEIR is revised as follows:

- Ecosystem Restoration Projects
  - ~~Voluntary Agreements~~ Bay-Delta Water Quality Control Plan Update
  - San Joaquin River Restoration Program

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents and to be consistent with the above revisions to Table 4-1, the bulleted list and first paragraph on page 4-26 of the Draft SEIR are revised as follows:

- 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
  - Yuba River Watershed Habitat Restoration Plan

  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, Yuba River Watershed Habitat Restoration Plan) are ~~intended to~~ proposed for the express purpose of increas~~e~~ing 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.

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents and to be consistent with the above revisions to Table 4-1, the bulleted list on page 4-27 of the Draft SEIR is revised as follows:

- 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

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents and to be consistent with the above revisions to Table 4-1, the bulleted list on pages 4-28 and 4-29 of the Draft SEIR is revised as follows:

- 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
  - Yuba River Watershed Habitat Restoration Plan

To ensure the Draft SEIR's consistency with other Yuba Water CEQA/NEPA documents and to be consistent with the above revisions to Table 4-1, the second paragraph on page 4-29 of the Draft SEIR is revised as follows:

> 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, Yuba River Watershed Habitat Restoration Plan) 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.

## 3.6 REVISIONS TO APPENDICES

In response to comments from SWRCB requesting additional modeling data, Appendix C3 of the Draft SEIR is revised as follows:

> [See revised Appendix C3 of this Final SEIR]

In response to comments from SWRCB requesting additional modeling data, a new appendix is provided with this Final SEIR as follows:

> [See new Appendix C4 of this Final SEIR]

# 4 REFERENCES

## Chapter 1 Introduction

Yuba County Water Agency, California Department of Water Resources, and Bureau of Reclamation. 2007 (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

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## Chapter 2 Responses to Comments

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Yuba Water County Agency. 2024 (January 14). *SWRCB Draft Staff Report Comments – SACWAM Modeling Of Yuba Water Agency's Yuba River Development Project – Modeled Operations Under Proposed Inflow And Cold Water Habitat Objectives*.

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# Appendix C3

## Modeling Data – Proposed Extension

## [Supplemental Material for Draft SEIR Appendix C3]

# Appendix C-3 Modeling Results – Proposed Extension

**Model Version:** YRDPM Version 3.102
**Simulation Period:** Water Year 1970 to 2021

**Groundwater Substitution Transfers** (Pumping Volume in TAF)
1970 to 1994 from LYRBM Sim 19.3 Scenario 3 used in 2007 Accord EIR. 1995 to 2021 from YWA historical GWS transfers.

| Year | Year Type | Pumping Volume | Year | Year Type | Pumping Volume | Year | Year Type | Pumping Volume |
|---|---|---|---|---|---|---|---|---|
| 1971 | Wet | - | 1981 | Dry | 90 | 1991 | Critical | 60 |
| 1972 | Below Normal | - | 1982 | Wet | - | 1992 | Critical | 30 |
| 1973 | Above Normal | - | 1983 | Wet | - | 1993 | Above Normal | - |
| 1974 | Wet | - | 1984 | Wet | - | 1994 | Critical | 90 |
| 1975 | Wet | - | 1985 | Dry | 68 | 1995 | Wet | - |
| 1976 | Critical | 90 | 1986 | Wet | - | 1996 | Wet | - |
| 1977 | Critical | - | 1987 | Dry | 90 | 1997 | Wet | - |
| 1978 | Above Normal | - | 1988 | Critical | 60 | 1998 | Wet | - |
| 1979 | Below Normal | - | 1989 | Dry | 30 | 1999 | Wet | - |
| 1980 | Above Normal | - | 1990 | Critical | 90 | 2000 | Above Normal | - |

| Year | Year Type | Pumping Volume | Year | Year Type | Pumping Volume |
|---|---|---|---|---|---|
| 2001 | Dry | 62 | 2011 | Wet | - |
| 2002 | Dry | 57 | 2012 | Below Normal | - |
| 2003 | Above Normal | - | 2013 | Dry | 57 |
| 2004 | Below Normal | - | 2014 | Critical | 57 |
| 2005 | Above Normal | - | 2015 | Critical | - |
| 2006 | Wet | - | 2016 | Below Normal | - |
| 2007 | Dry | - | 2017 | Wet | - |
| 2008 | Critical | 50 | 2018 | Below Normal | 16 |
| 2009 | Dry | 100 | 2019 | Wet | - |
| 2010 | Below Normal | 68 | 2020 | Dry | 77 |

** Note – No transfer pumping occurred in 1970 or 2021. Pumping in Schedule 6 years occurs automatically if Schedule 6 results in the simulation. The Proposed Extension/Existing Condition simulation results in a Schedule 6 for 2015 – 30TAF of pumping not shown in the table*

### Resulting Yuba Accord Water Year Type Schedules

| Year Type Schedule | Count | Percent of Total |
|---|---|---|
| 1 | 32 | 62% |
| 2 | 10 | 19% |
| 3 | 4 | 8% |
| 4 | 1 | 2% |
| 5 | 3 | 6% |
| 6 | 1 | 2% |
| Conference Year | 1 | 2% |
| TOTAL | 52 | 100% |

**Existing Condition/Proposed Extension Yuba River at Marysville (Yuba River Outflow) Flow**

**Average Monthly Flow by Year Type** (Sacramento Valley Index) (CFS)

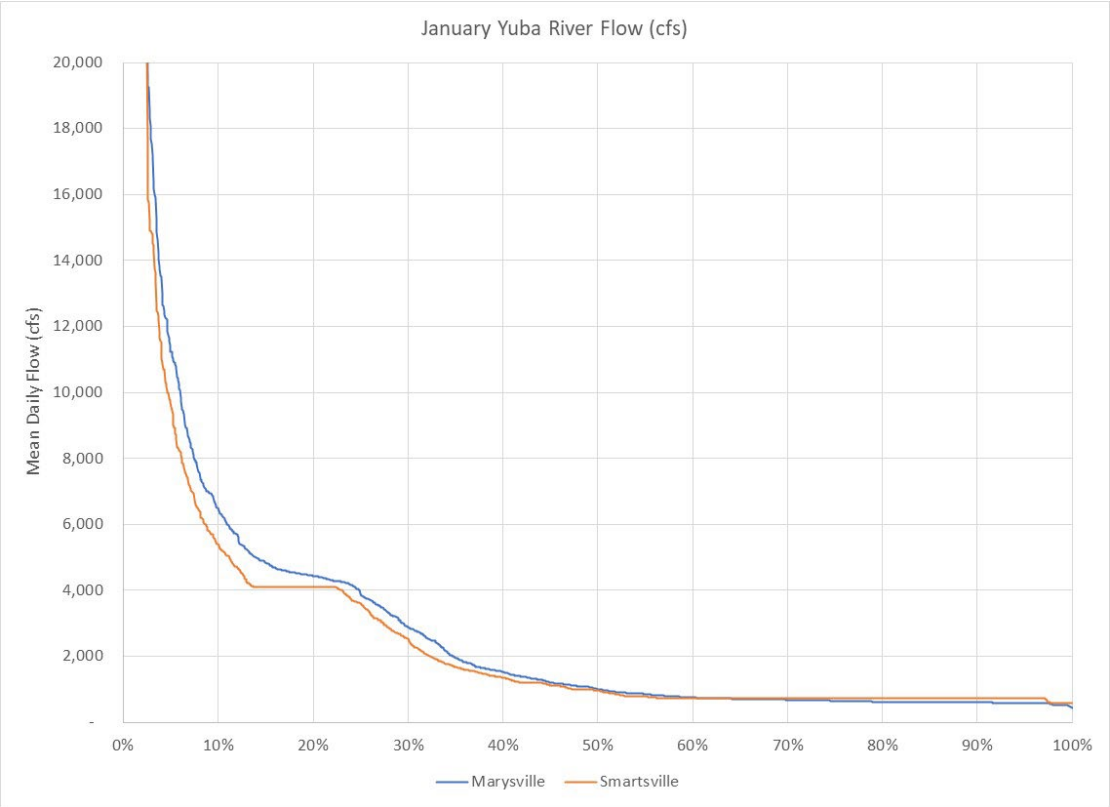
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wet** | 555 | 1,204 | 4,206 | 7,253 | 8,511 | 7,844 | 5,646 | 5,295 | 4,403 | 2,079 | 1,550 | 735 |
| **Above Normal** | 519 | 534 | 1,032 | 4,432 | 4,525 | 5,030 | 3,429 | 3,831 | 2,974 | 1,488 | 1,033 | 590 |
| **Below Normal** | 515 | 617 | 756 | 1,257 | 1,572 | 4,574 | 3,373 | 2,546 | 2,027 | 1,018 | 852 | 556 |
| **Dry** | 525 | 679 | 1,162 | 933 | 1,372 | 2,355 | 1,722 | 1,615 | 934 | 1,066 | 975 | 546 |
| **Critical** | 519 | 546 | 631 | 720 | 992 | 1,065 | 727 | 730 | 586 | 843 | 778 | 455 |

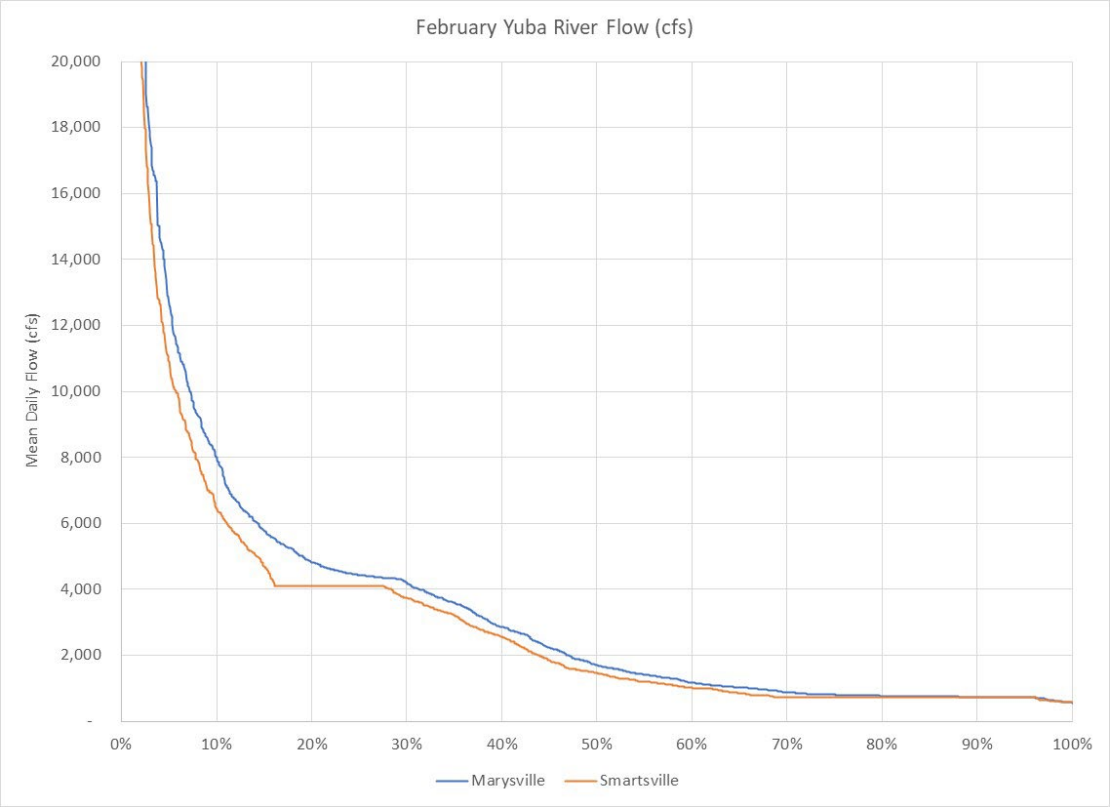
**Existing Condition/Proposed Extension Yuba River at Smartsville Flow**

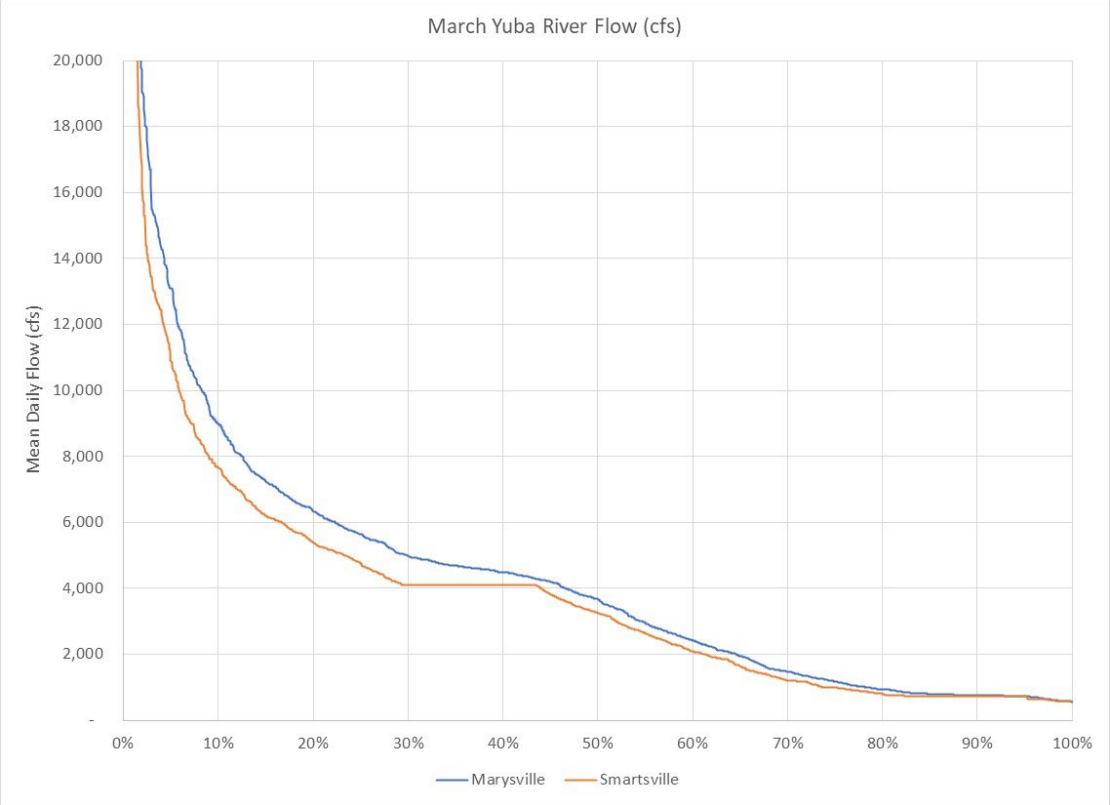
**Average Monthly Flow by Year Type** (Sacramento Valley Index) (CFS)

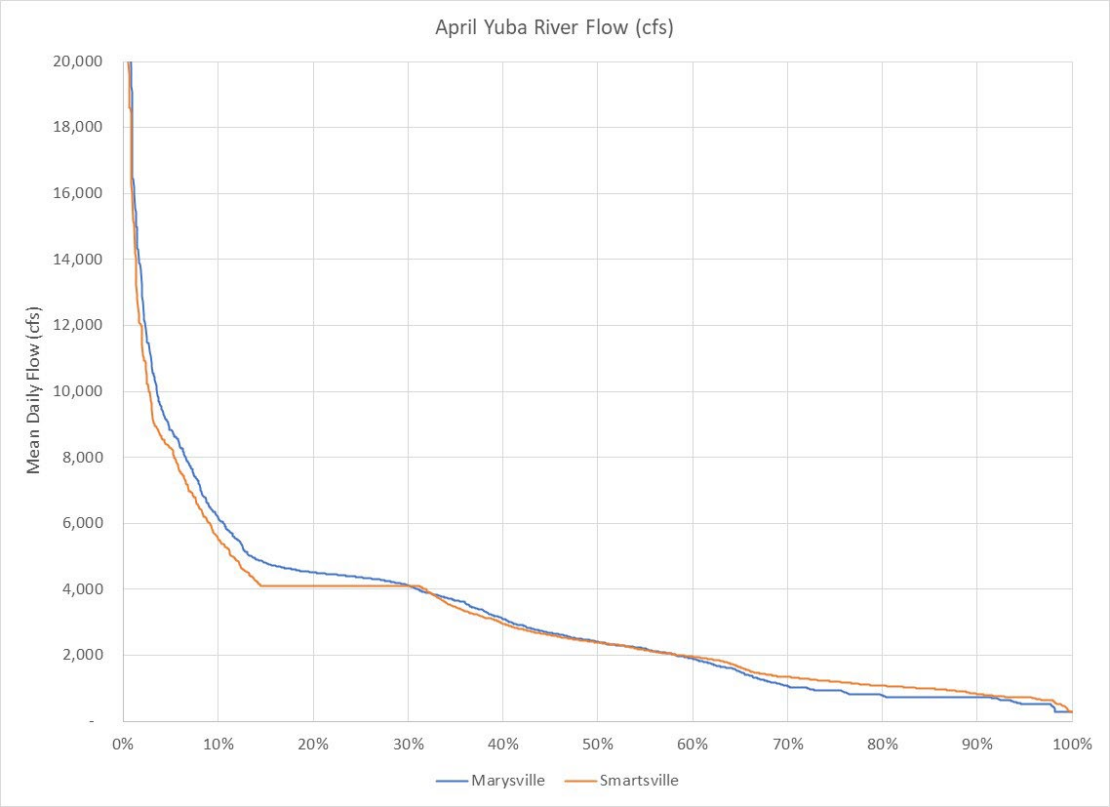
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wet** | 883 | 1,463 | 4,087 | 6,448 | 7,441 | 6,766 | 5,104 | 5,737 | 5,201 | 3,095 | 2,437 | 1,054 |
| **Above Normal** | 830 | 838 | 1,095 | 3,850 | 3,835 | 4,392 | 3,177 | 4,294 | 3,782 | 2,507 | 1,922 | 908 |
| **Below Normal** | 838 | 936 | 908 | 1,157 | 1,350 | 3,949 | 3,415 | 3,197 | 2,843 | 1,924 | 1,488 | 824 |
| **Dry** | 866 | 990 | 1,273 | 955 | 1,205 | 2,026 | 1,887 | 2,127 | 1,524 | 1,744 | 1,437 | 814 |
| **Critical** | 841 | 873 | 789 | 751 | 854 | 926 | 933 | 1,214 | 1,137 | 1,469 | 1,208 | 692 |

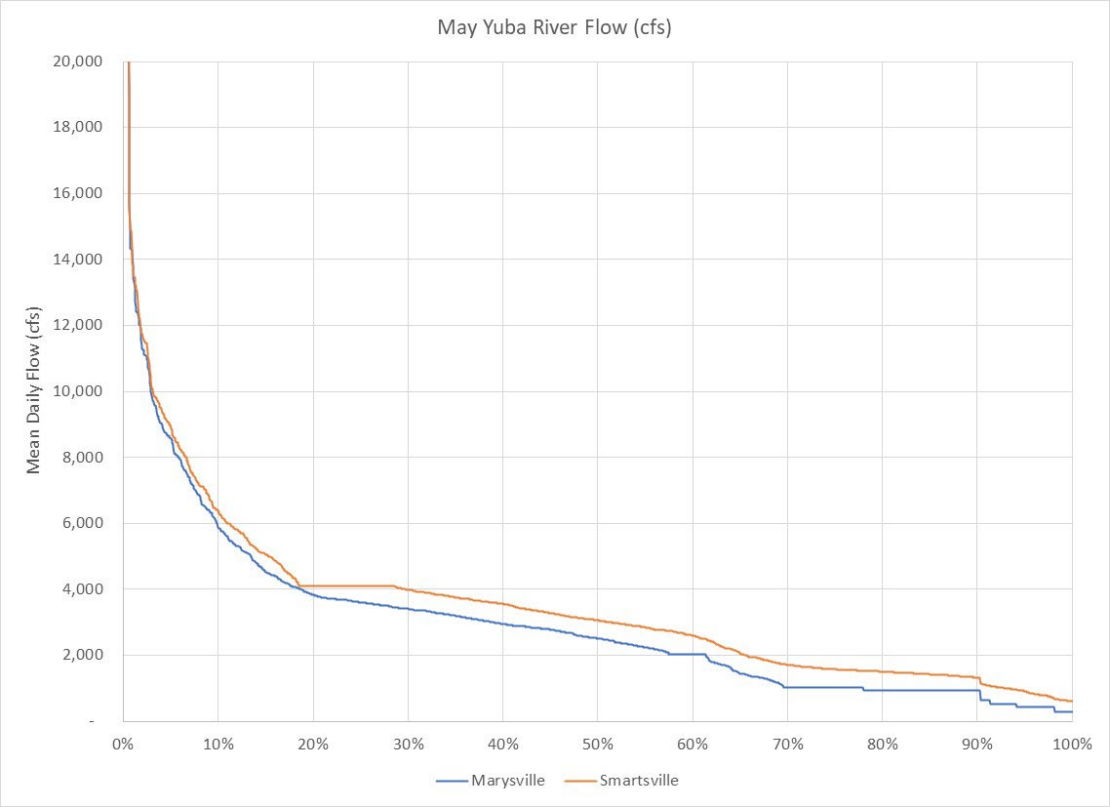
**Existing Condition/Proposed Extension Simulation Resulting lower Yuba River Flow (cfs) Exceedance Probability by Month**

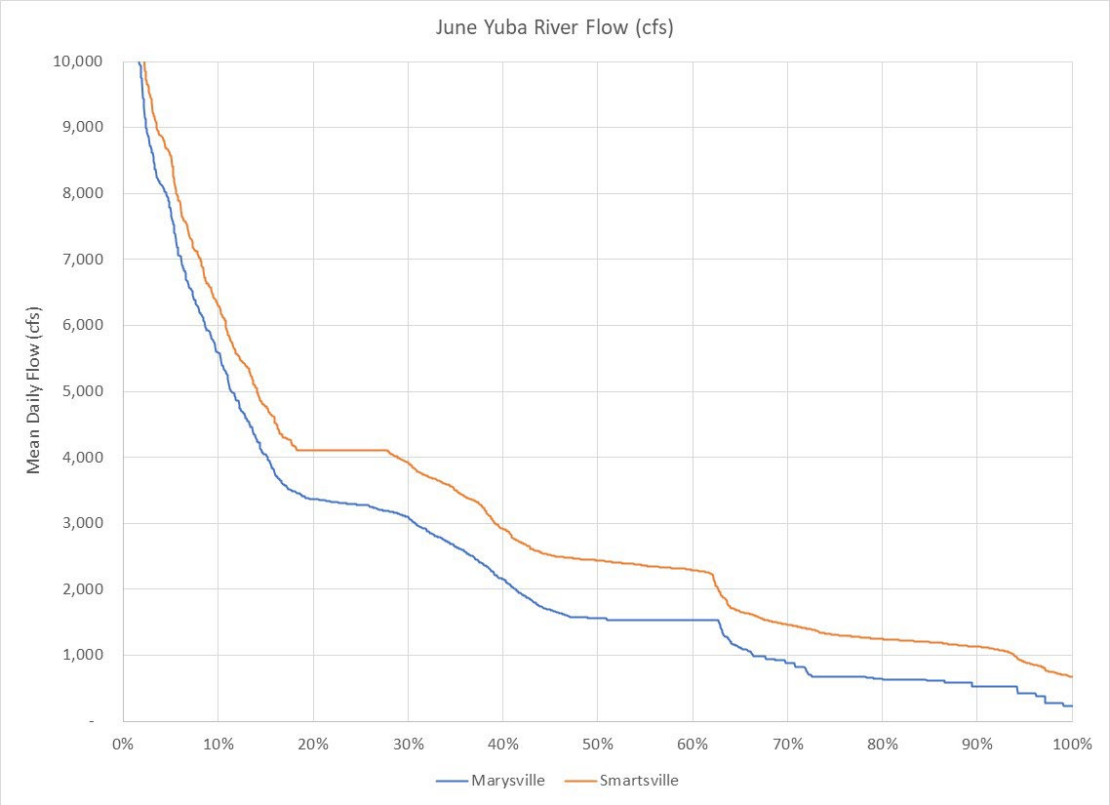


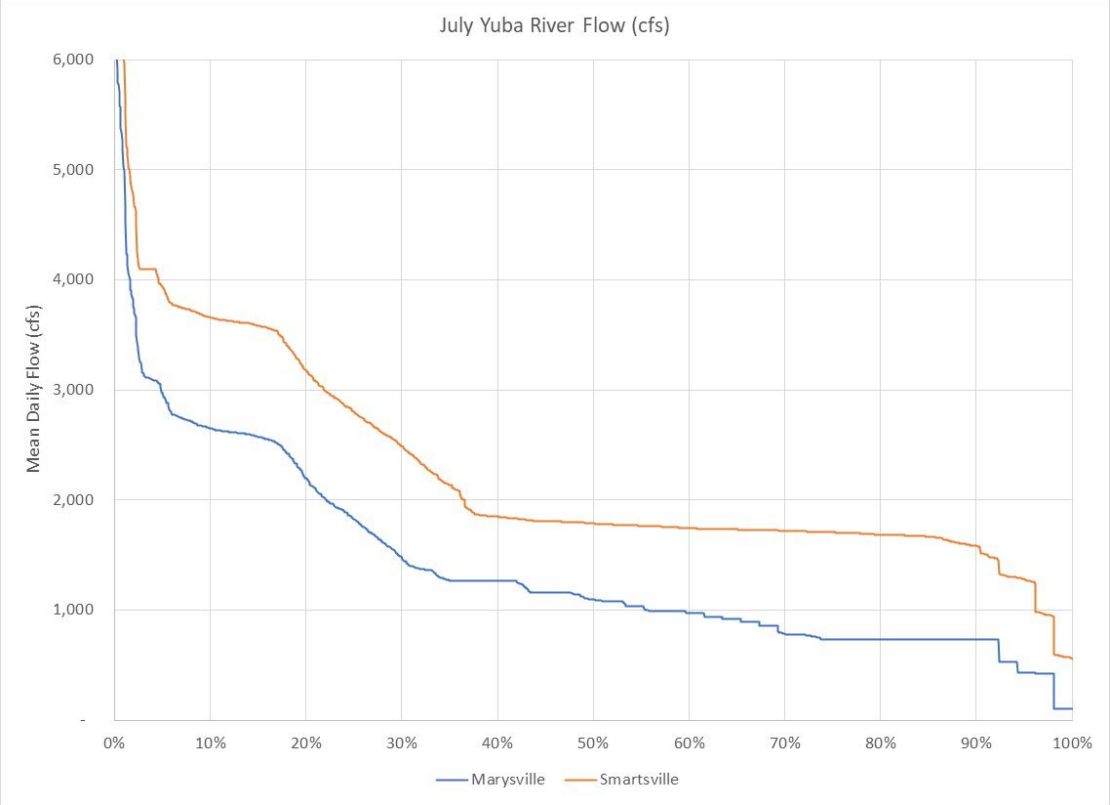

February Yuba River Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

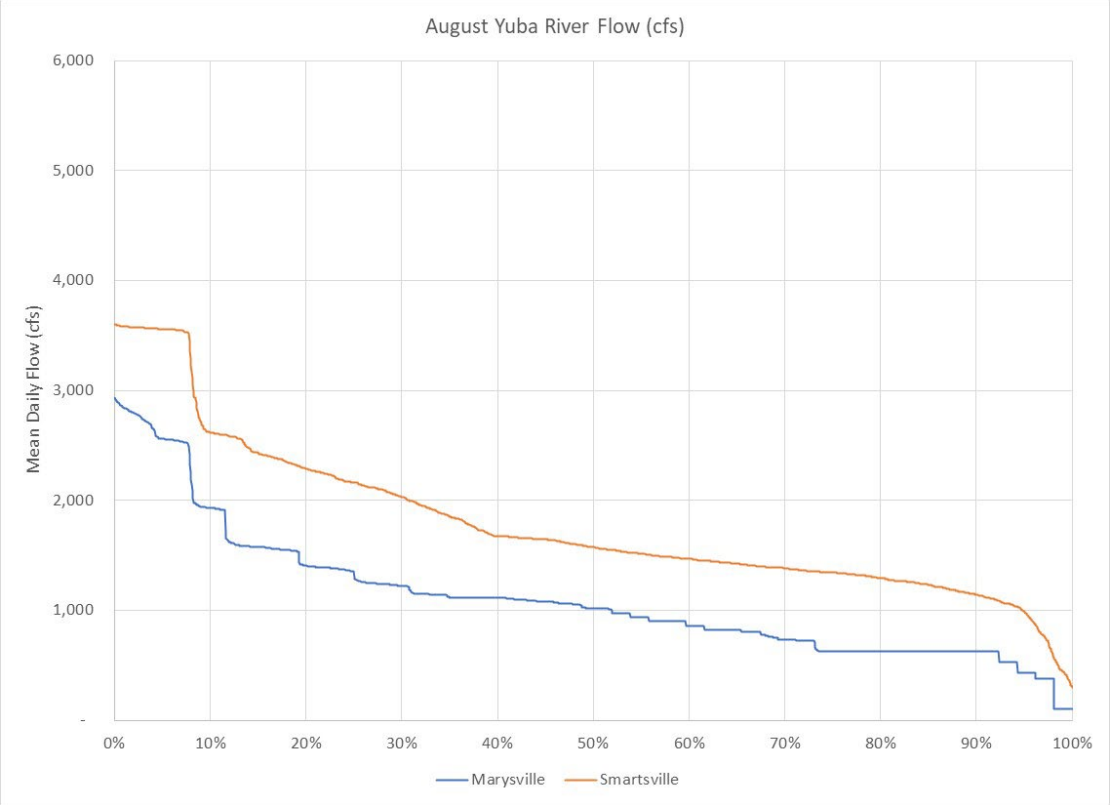

March Yuba River Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


April Yuba River Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

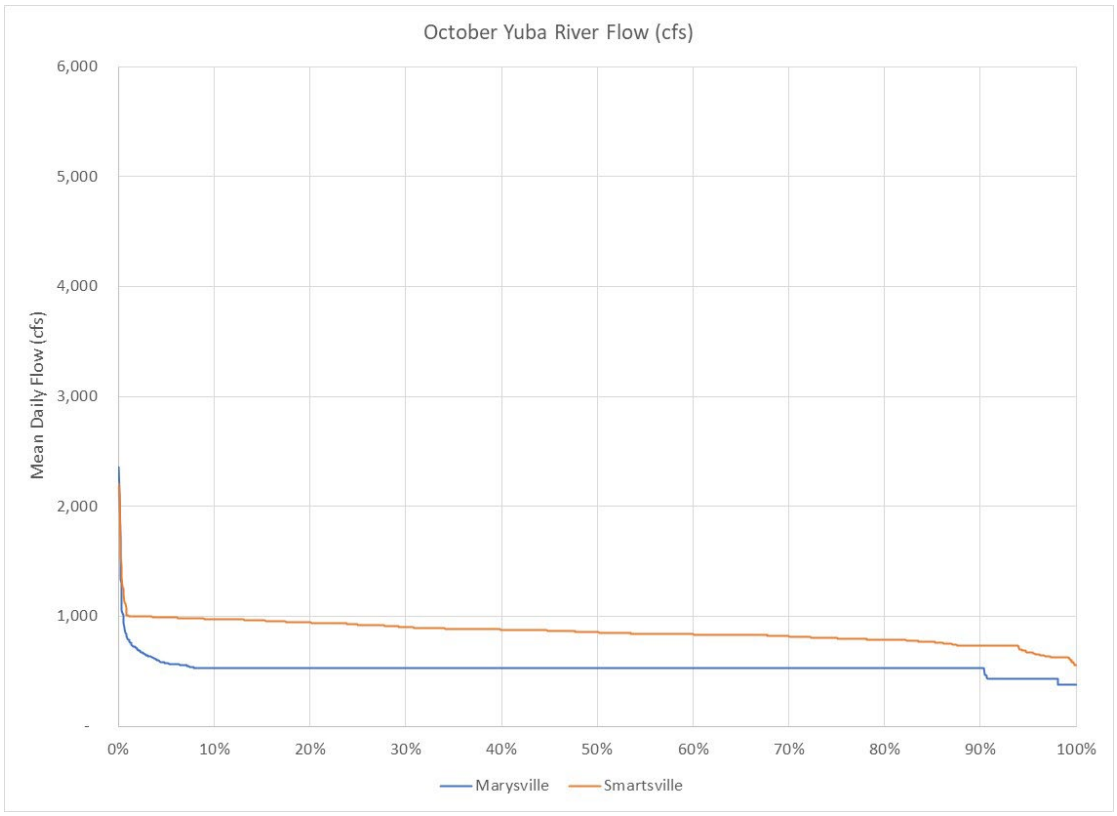

May Yuba River Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

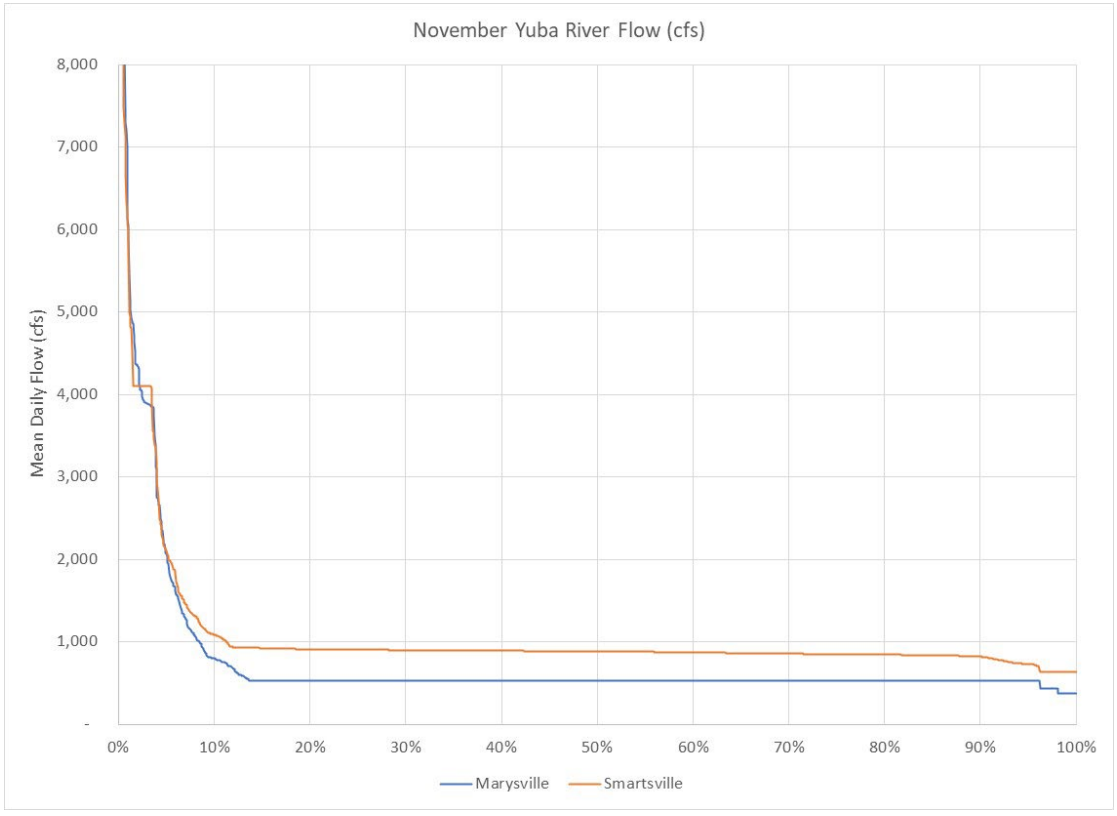

June Yuba River Flow (cfs)
Mean Daily Flow (cfs)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

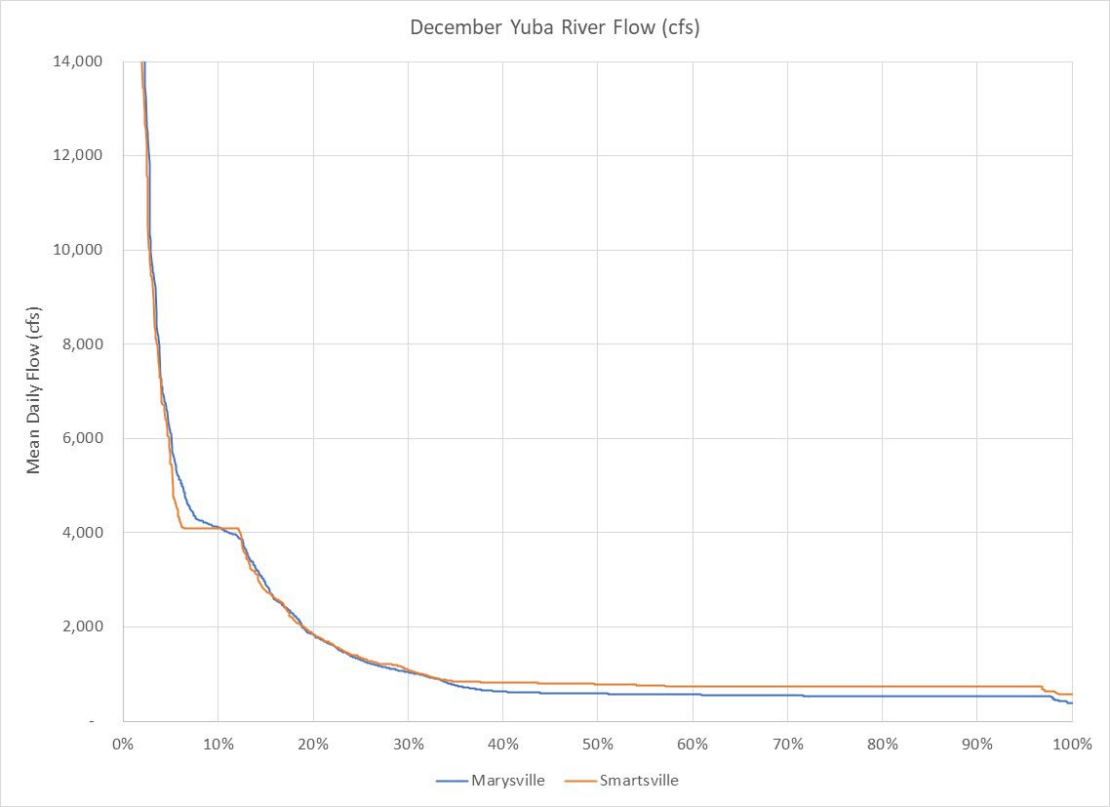

July Yuba River Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


August Yuba River Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

September Yuba River Flow (cfs)
Mean Daily Flow (cfs)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


October Yuba River Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


November Yuba River Flow (cfs)
Mean Daily Flow (cfs)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

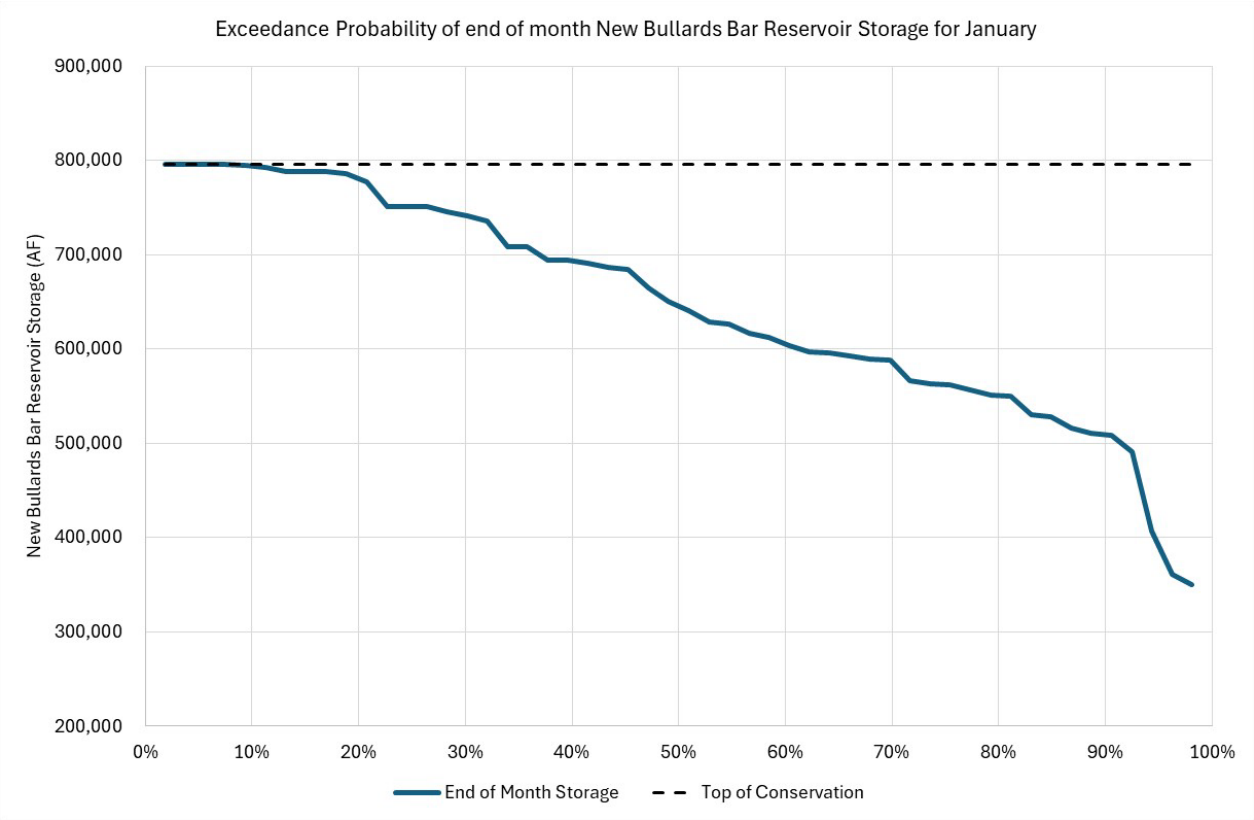

December Yuba River Flow (cfs)
Mean Daily Flow (cfs)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

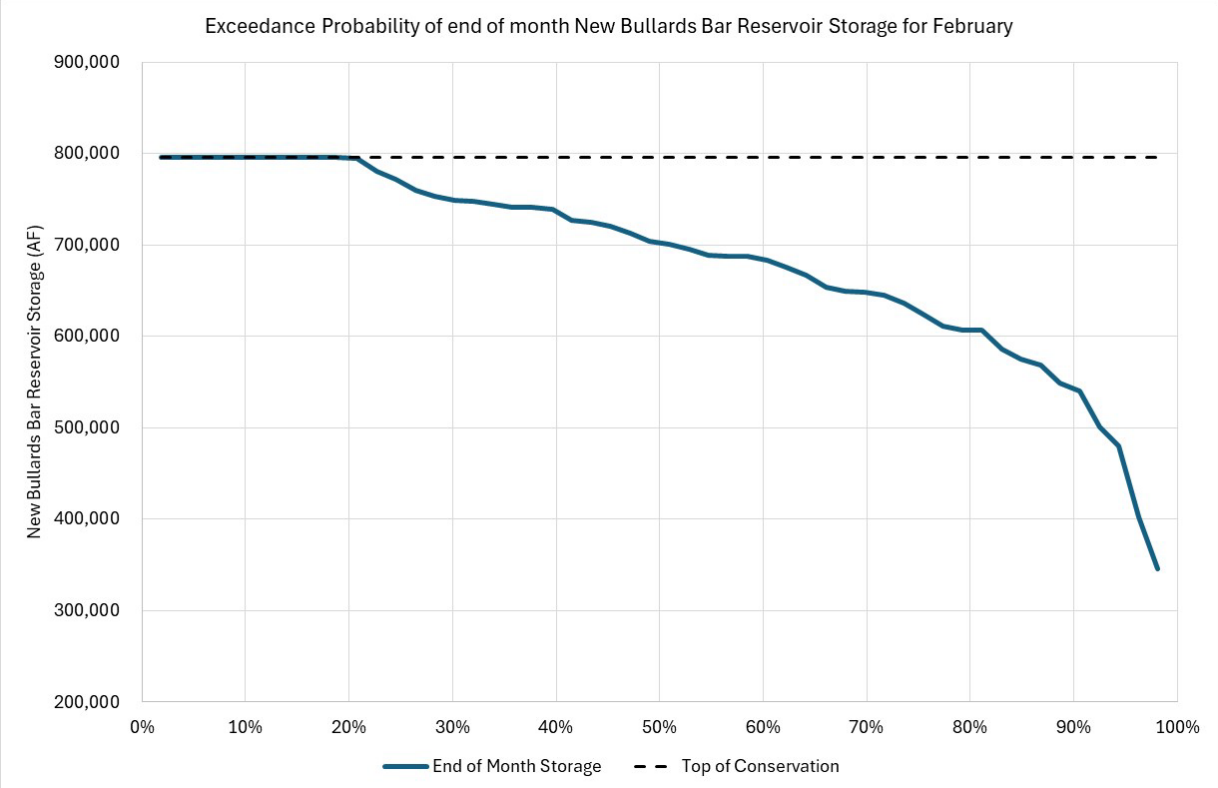
**Resulting New Bullards Bar Reservoir Storage**

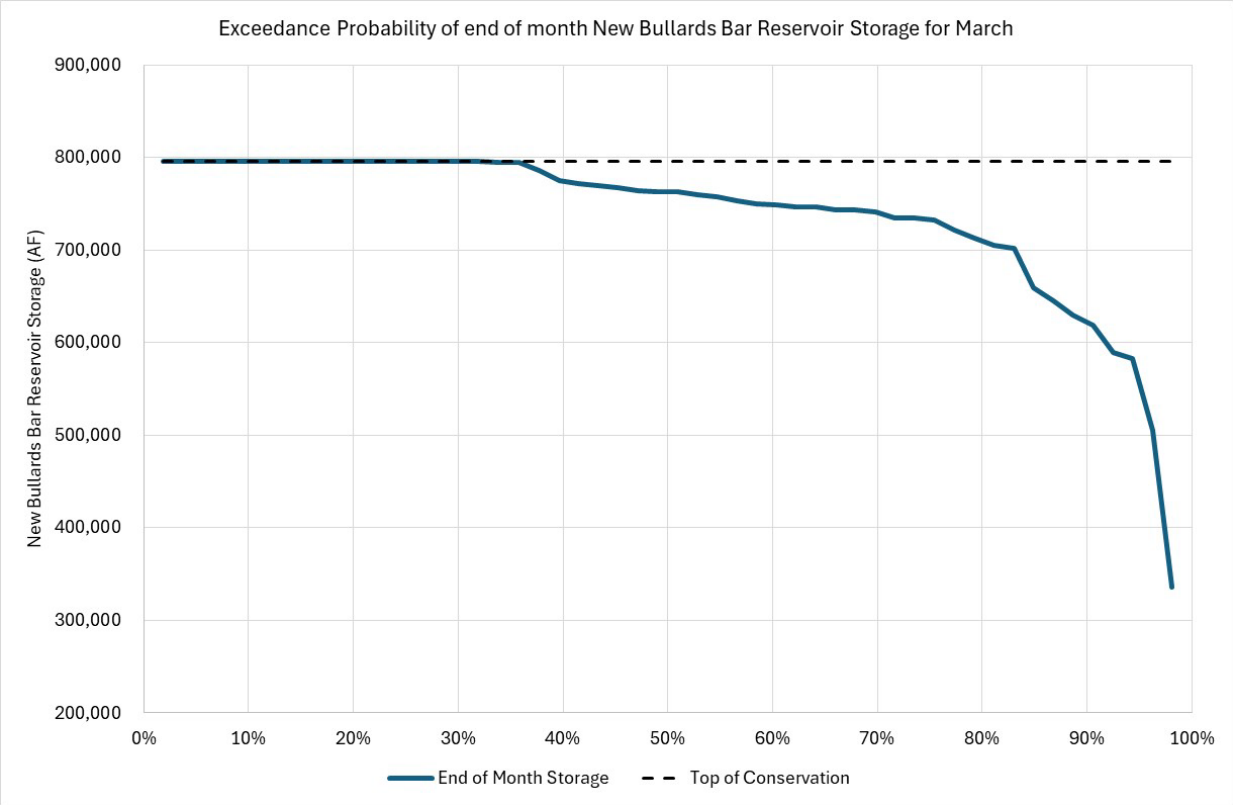
### New Bullards Bar Reservoir Mean End of Month Storage (AF) by Water Year Type (SVI)

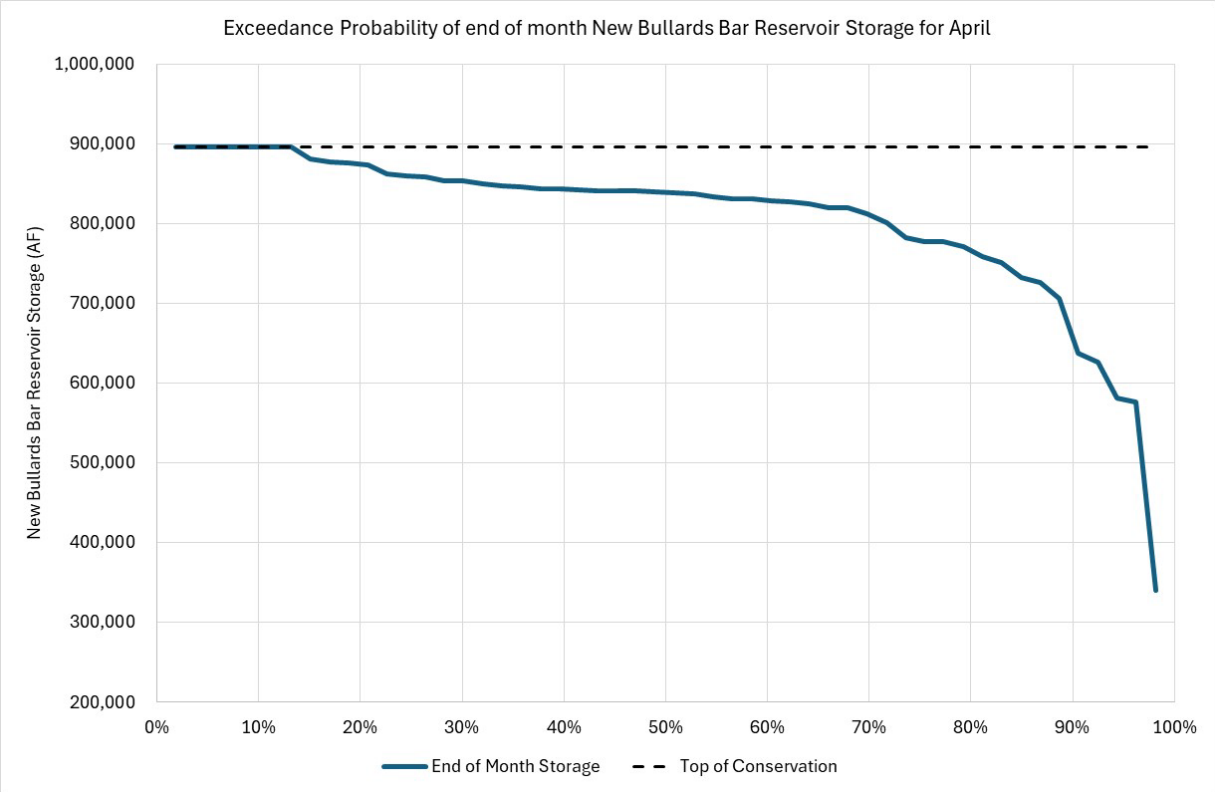
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wet** | 607,645 | 617,727 | 649,334 | 749,775 | 770,715 | 787,492 | 864,811 | 928,632 | 900,222 | 793,370 | 672,678 | 632,992 |
| **Above Normal** | 612,308 | 611,516 | 651,327 | 683,752 | 743,851 | 779,051 | 849,326 | 928,033 | 884,494 | 774,719 | 679,153 | 644,503 |
| **Below Normal** | 574,355 | 586,292 | 660,971 | 638,596 | 688,189 | 771,047 | 845,883 | 861,444 | 792,939 | 704,236 | 629,941 | 595,661 |
| **Dry** | 538,825 | 539,942 | 558,095 | 591,390 | 637,637 | 733,340 | 801,302 | 816,952 | 770,695 | 682,272 | 607,262 | 572,154 |
| **Critical** | 446,604 | 426,334 | 442,373 | 516,158 | 552,794 | 618,946 | 669,201 | 680,165 | 649,072 | 573,495 | 509,769 | 478,462 |

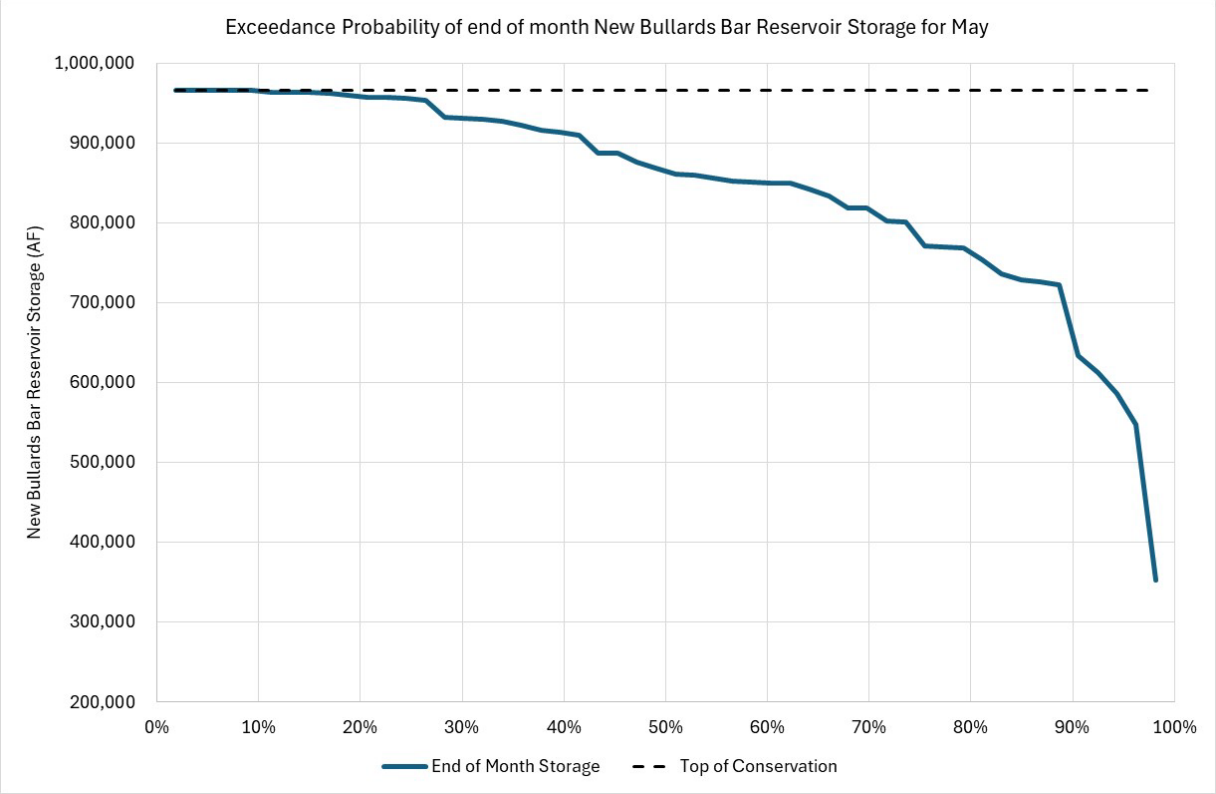
**Exceedance Probability of New Bullards Bar Reservoir Storage (AF) by Month**

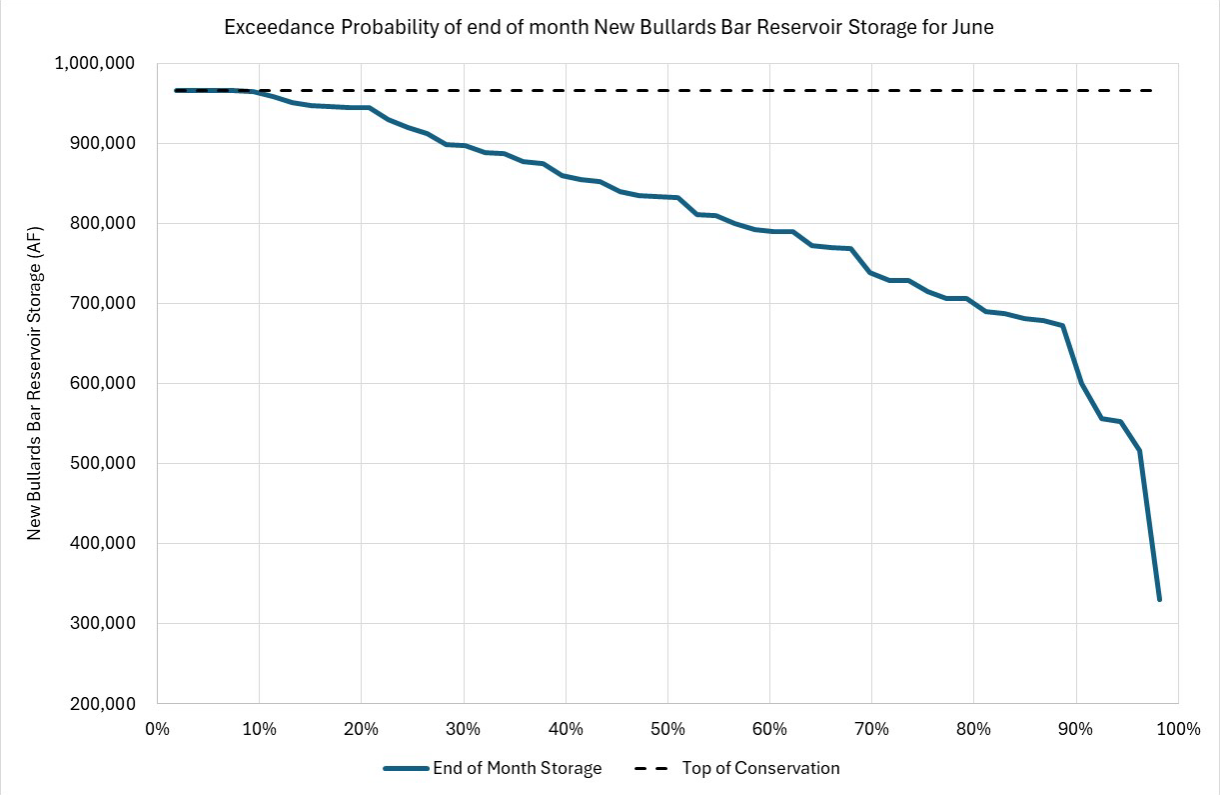


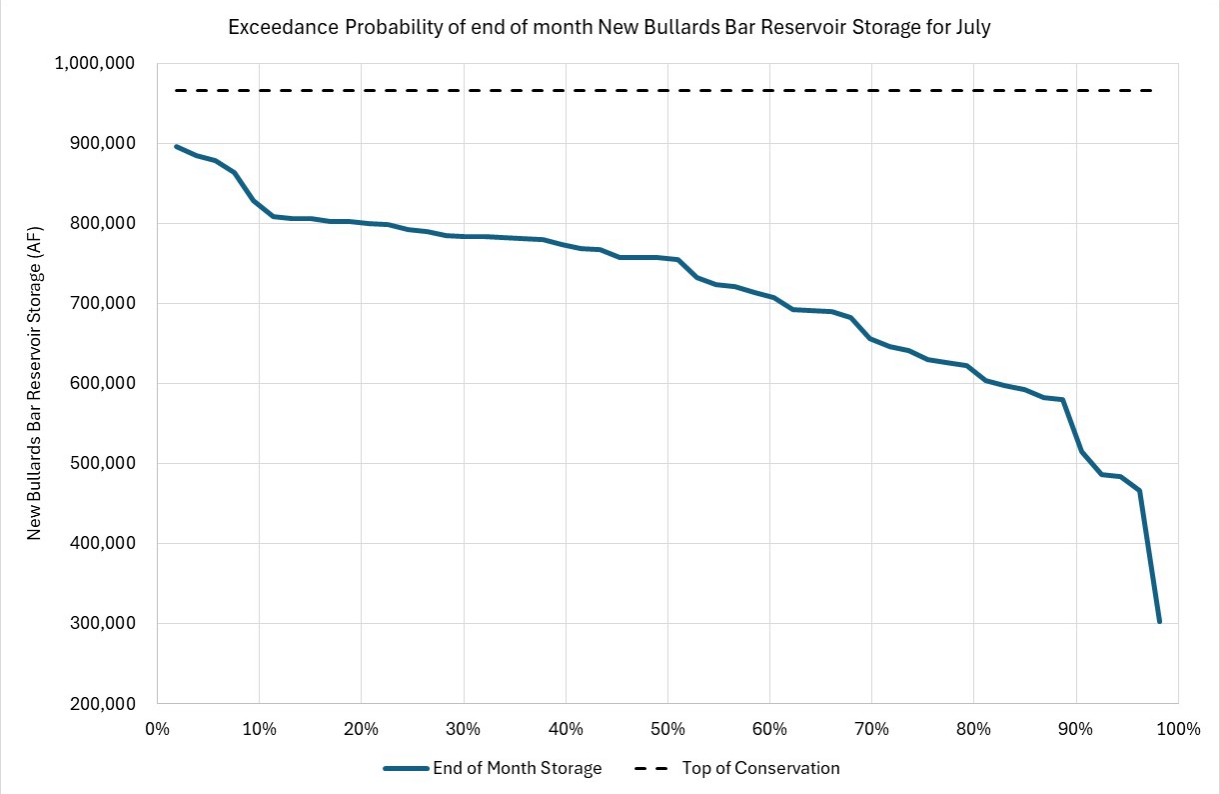



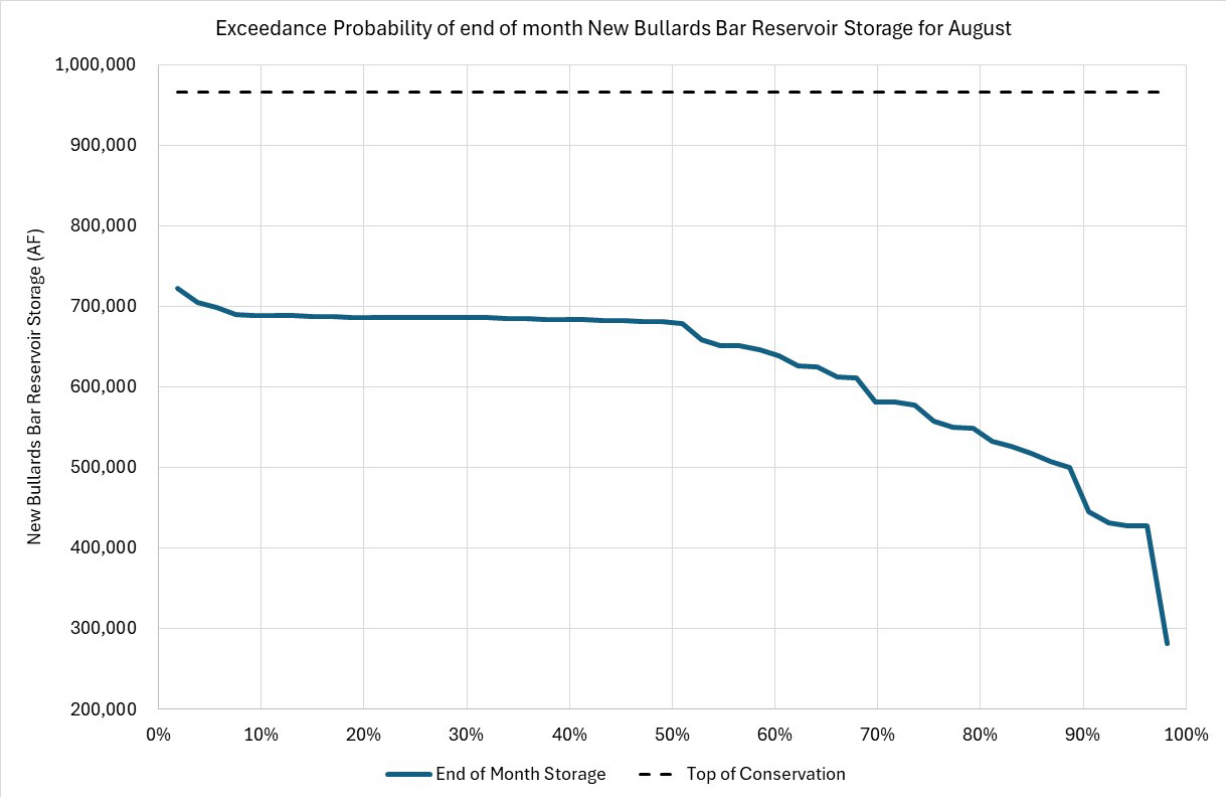

Exceedance Probability of end of month New Bullards Bar Reservoir Storage for March
New Bullards Bar Reservoir Storage (AF)
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation

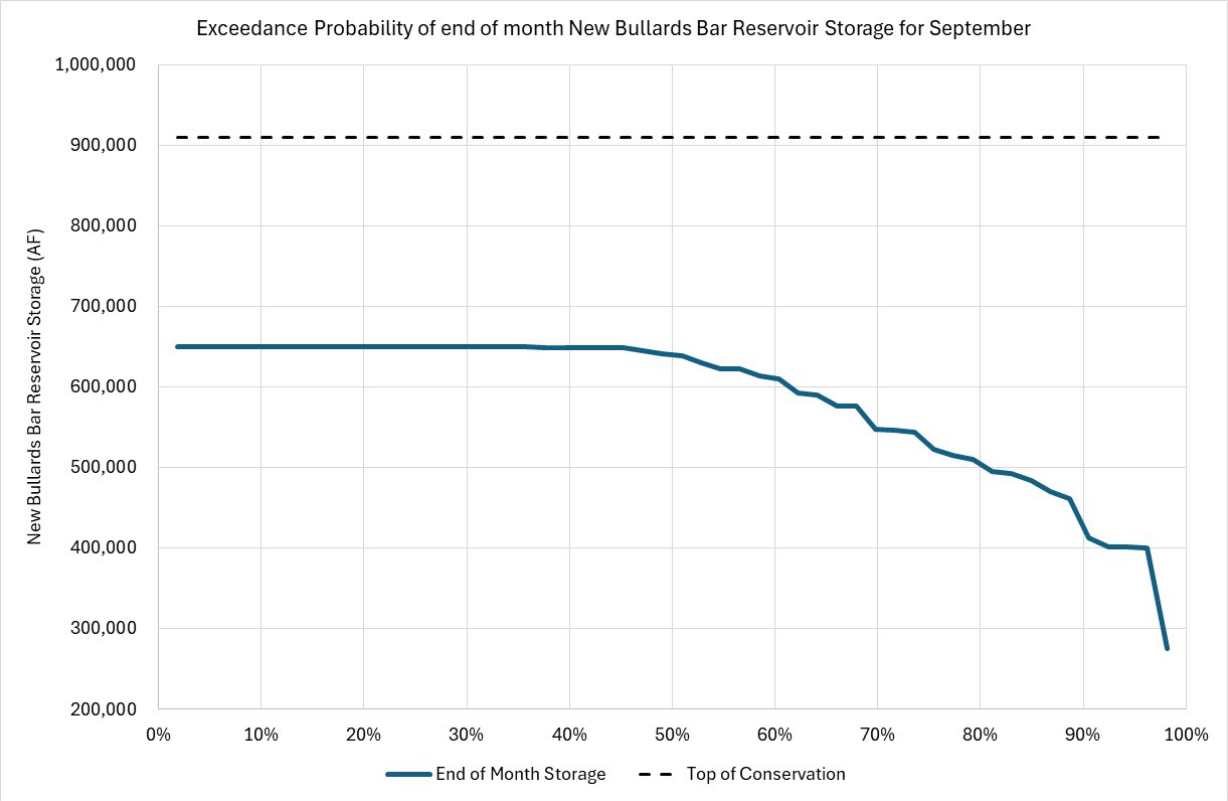

Exceedance Probability of end of month New Bullards Bar Reservoir Storage for April
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation

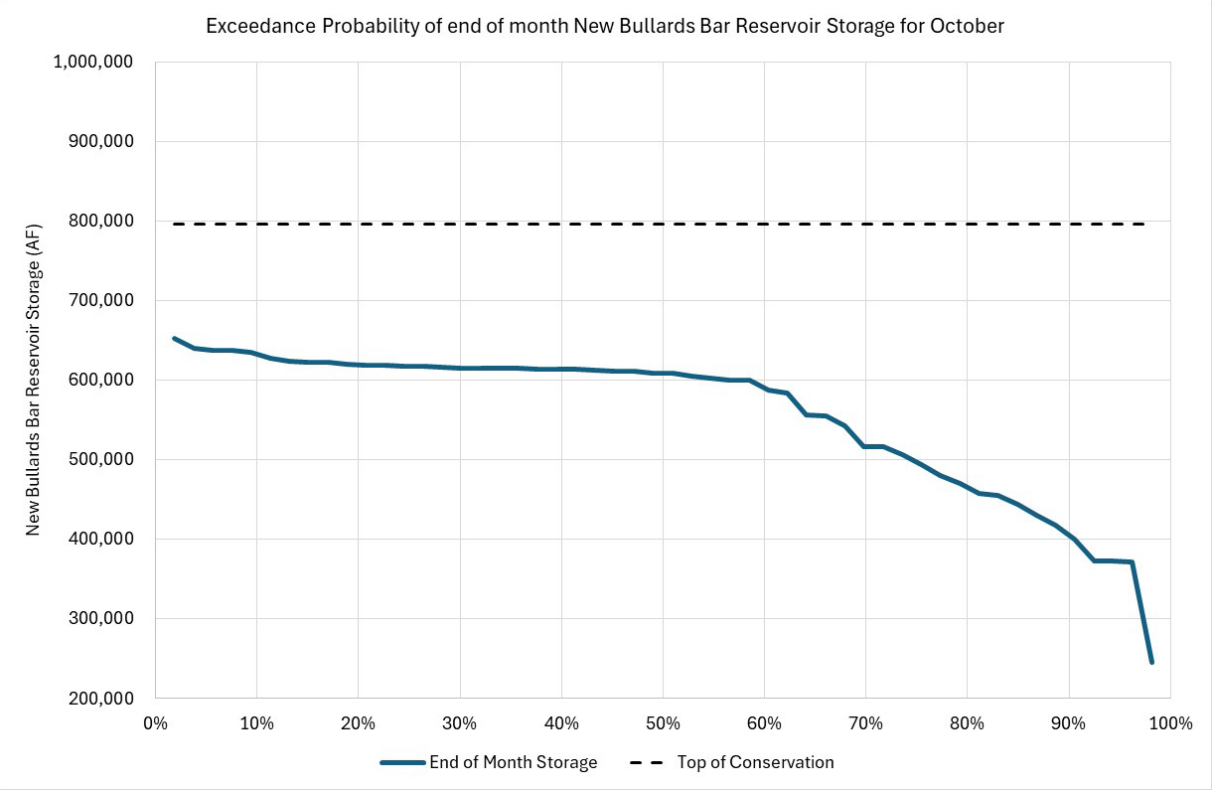

Exceedance Probability of end of month New Bullards Bar Reservoir Storage for May
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation

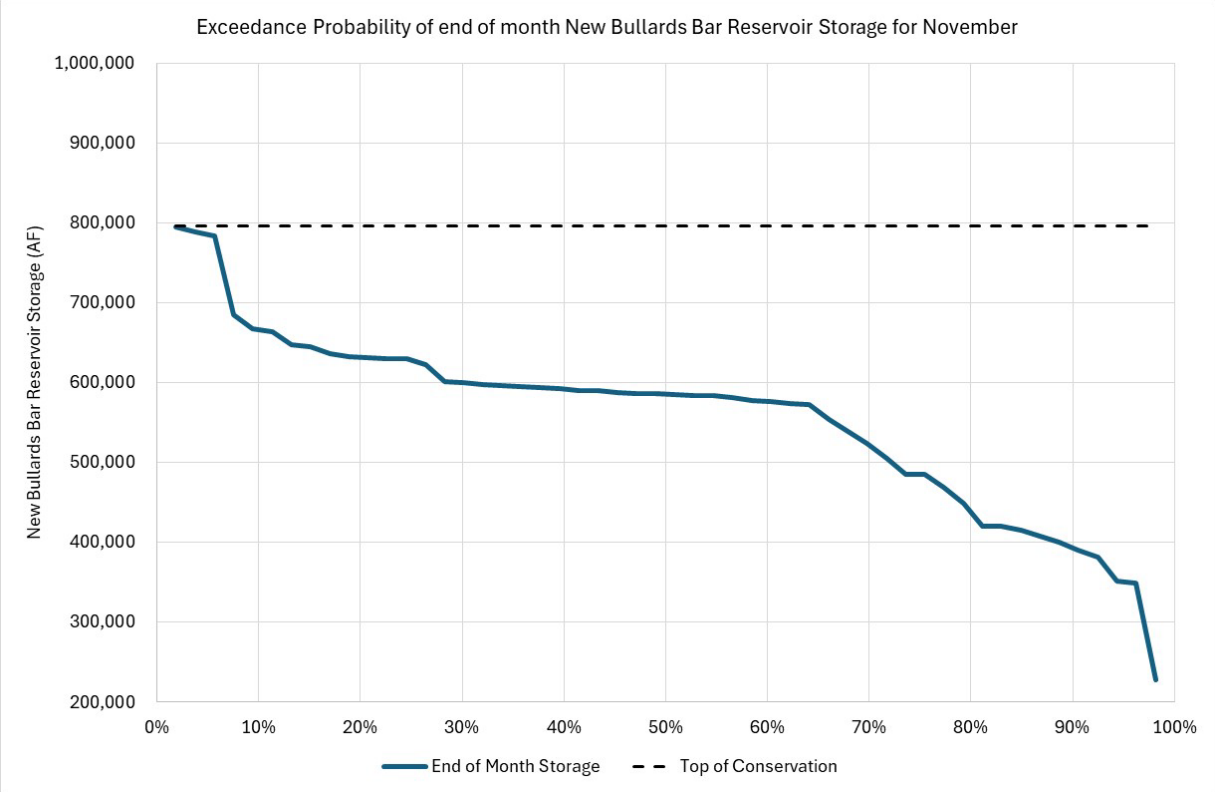

Exceedance Probability of end of month New Bullards Bar Reservoir Storage for June
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation

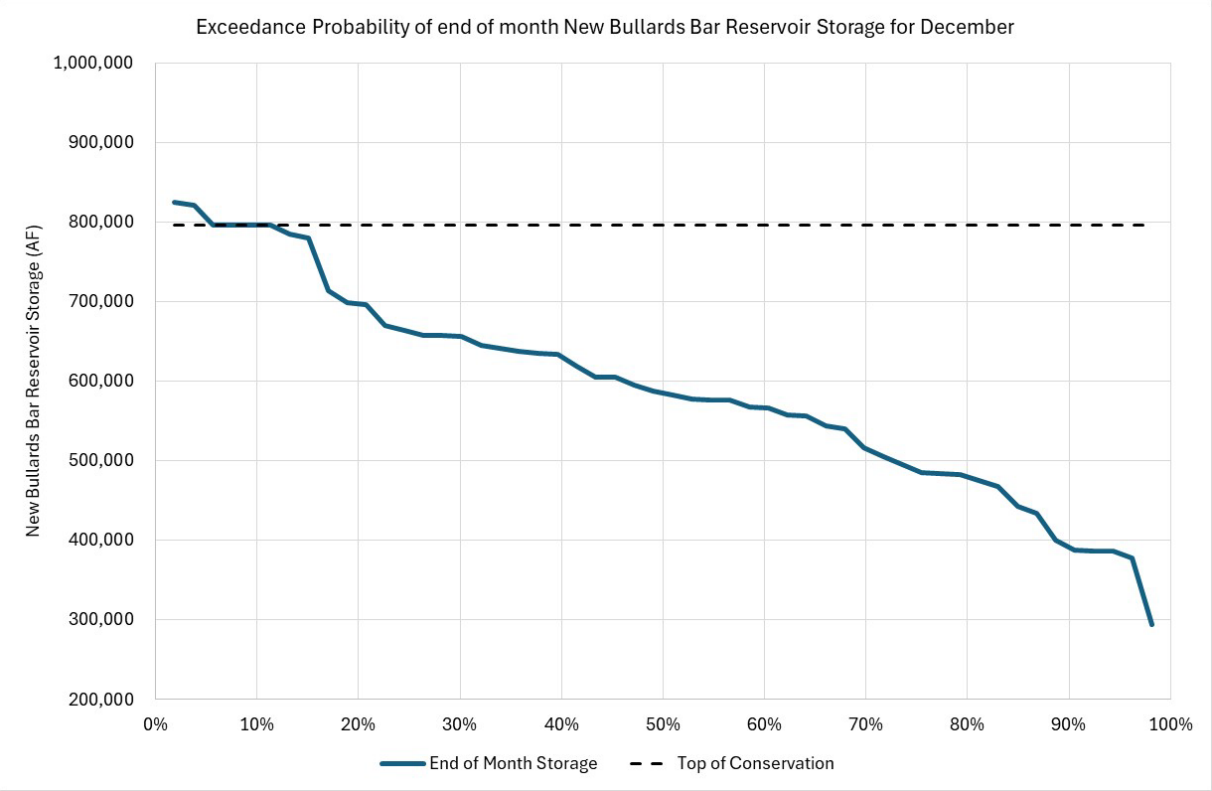

Exceedance Probability of end of month New Bullards Bar Reservoir Storage for July
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation


Exceedance Probability of end of month New Bullards Bar Reservoir Storage for August
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation


Exceedance Probability of end of month New Bullards Bar Reservoir Storage for September
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation


Exceedance Probability of end of month New Bullards Bar Reservoir Storage for October
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation


Exceedance Probability of end of month New Bullards Bar Reservoir Storage for November
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation


Exceedance Probability of end of month New Bullards Bar Reservoir Storage for December
New Bullards Bar Reservoir Storage (AF)
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
End of Month Storage
Top of Conservation

**Existing Condition/Proposed Extension Temperature Modeling Results**
**Model Version:** YRTM Version 3.5
**Simulation Period:** Water Year 1970 to 2021

**Existing Condition/Proposed Extension Yuba River at Marysville Temperatures**

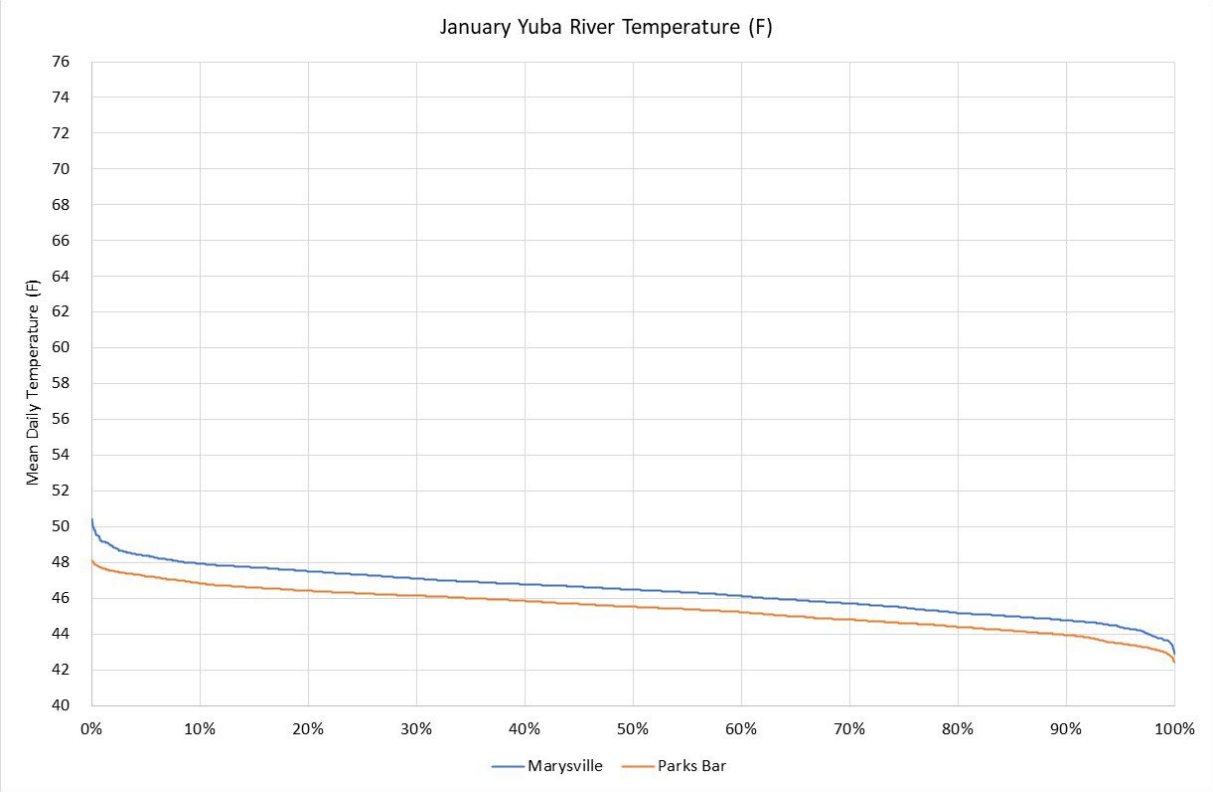
**Average Monthly Temperature by Year Type** (Sacramento Valley Index) (Degrees F)

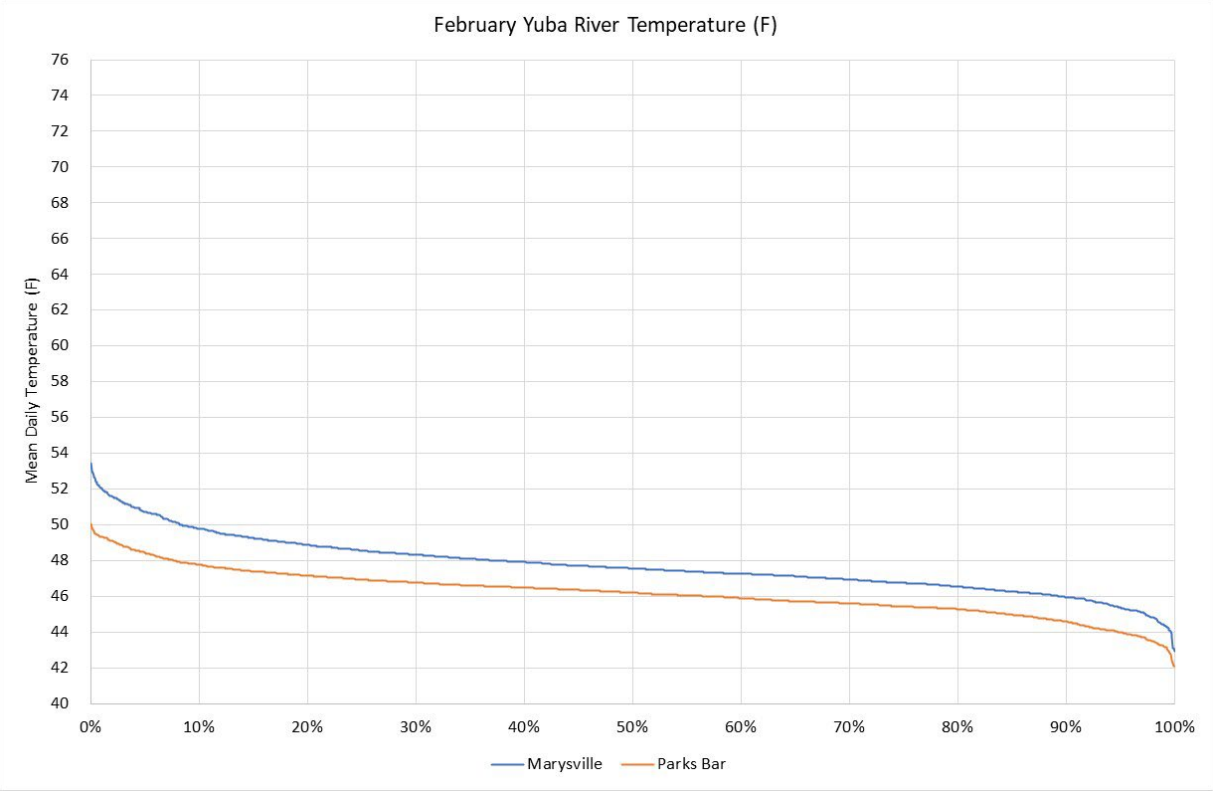
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wet** | 59.3 | 53.8 | 48.4 | 46.2 | 47.1 | 49.3 | 51.8 | 54.4 | 57.2 | 58.7 | 58.9 | 61.4 |
| **Above Normal** | 60.4 | 54.4 | 49.2 | 46.6 | 47.7 | 50.6 | 52.9 | 55.4 | 57.7 | 59.8 | 60.3 | 62.0 |
| **Below Normal** | 60.0 | 53.7 | 48.7 | 46.5 | 47.9 | 50.9 | 53.4 | 56.3 | 58.9 | 61.9 | 62.1 | 62.7 |
| **Dry** | 59.0 | 53.7 | 48.7 | 46.1 | 47.5 | 51.3 | 55.5 | 58.6 | 62.3 | 61.8 | 61.1 | 62.0 |
| **Critical** | 59.9 | 54.3 | 49.2 | 46.9 | 48.8 | 53.0 | 58.5 | 61.8 | 65.8 | 65.6 | 64.5 | 65.3 |

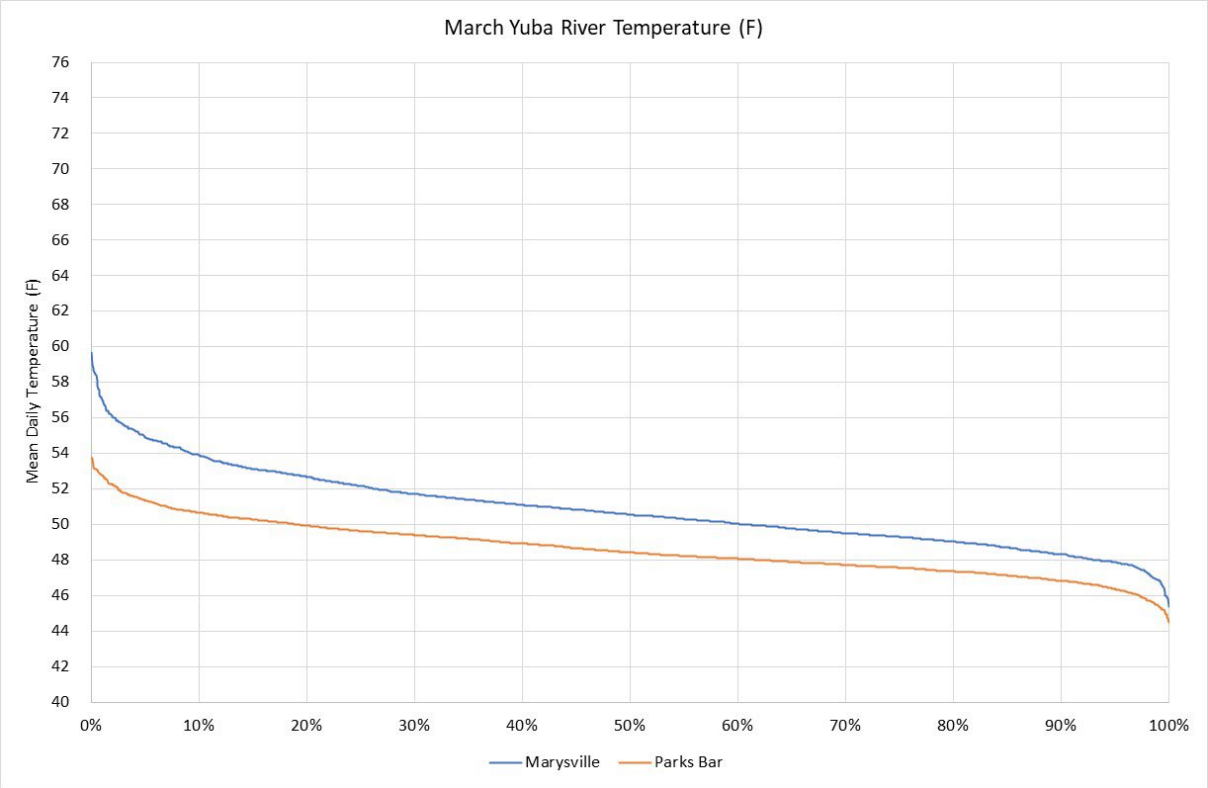
**Existing Condition/Proposed Extension Yuba River at Parks Bar Temperatures**

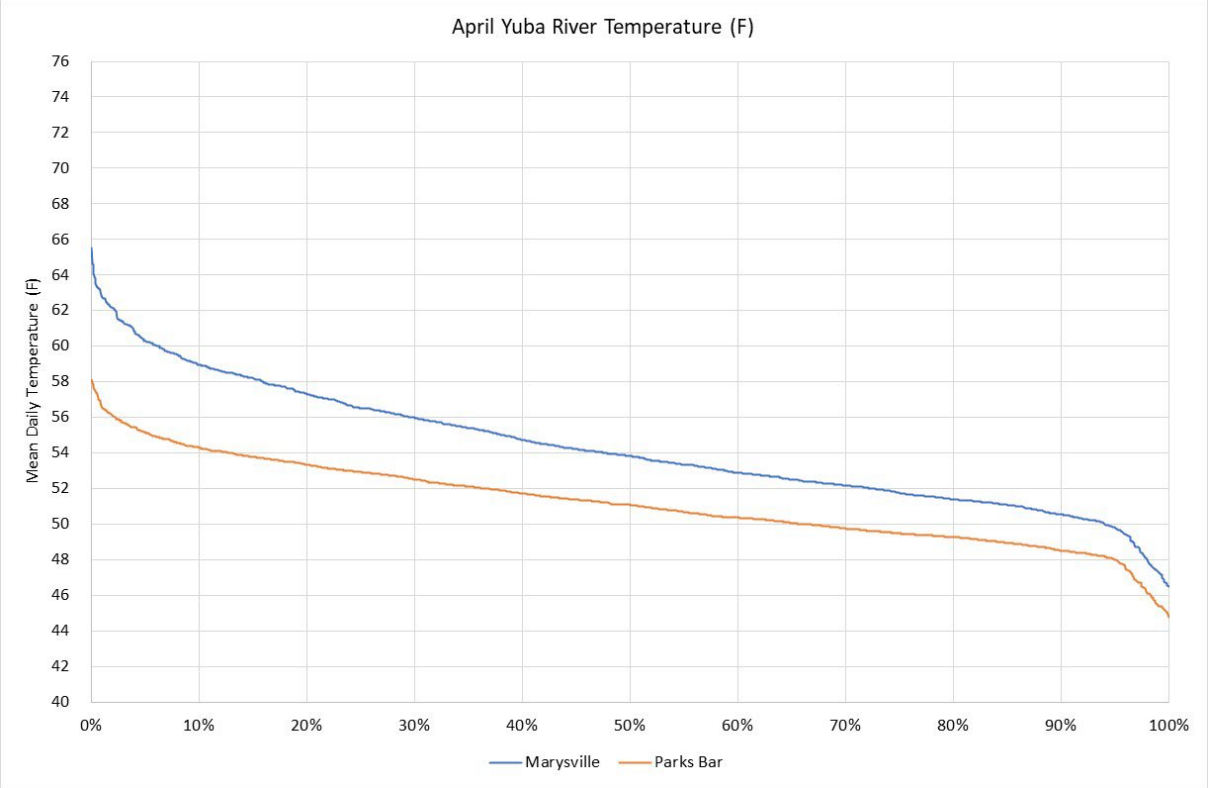
**Average Monthly Temperature by Year Type** (Sacramento Valley Index) (Degrees F)

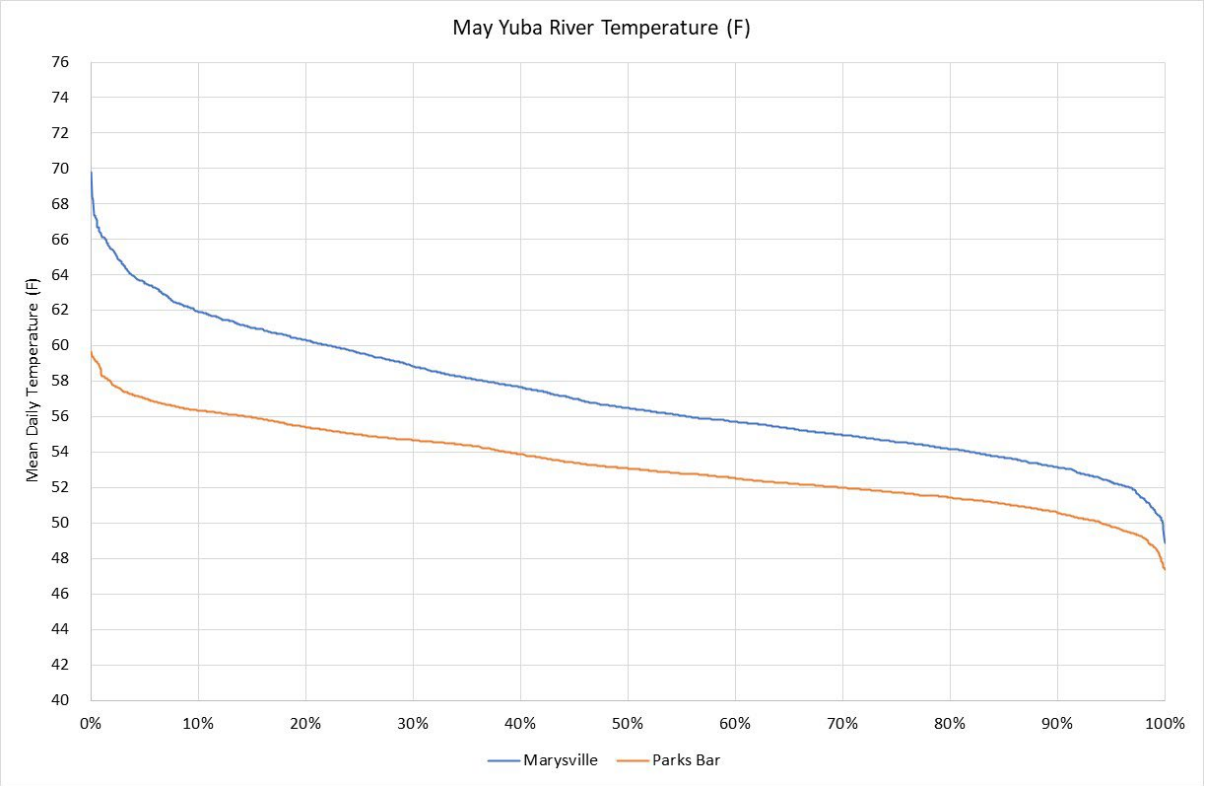
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wet** | 55.8 | 52.3 | 47.6 | 45.4 | 46.1 | 47.7 | 49.4 | 51.6 | 53.6 | 53.8 | 54.1 | 56.1 |
| **Above Normal** | 57.0 | 52.8 | 48.1 | 45.7 | 46.3 | 48.7 | 50.4 | 52.3 | 53.8 | 54.4 | 55.2 | 56.6 |
| **Below Normal** | 56.4 | 52.2 | 47.8 | 45.3 | 46.2 | 48.8 | 50.8 | 52.9 | 54.2 | 55.6 | 56.3 | 57.4 |
| **Dry** | 55.6 | 52.1 | 47.8 | 45.0 | 45.7 | 48.7 | 52.1 | 54.2 | 56.1 | 56.1 | 55.7 | 56.7 |
| **Critical** | 56.4 | 52.7 | 48.4 | 45.8 | 46.7 | 49.9 | 53.9 | 56.2 | 58.3 | 58.1 | 57.7 | 58.8 |

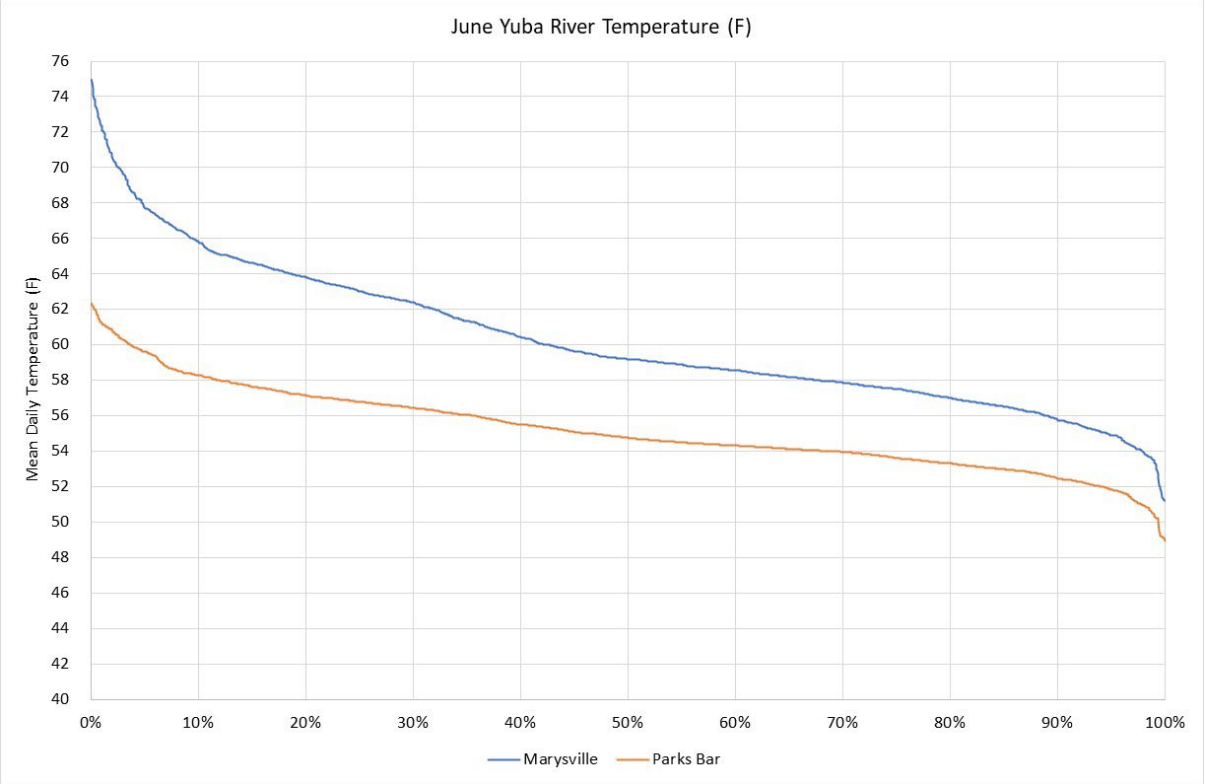

January Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar

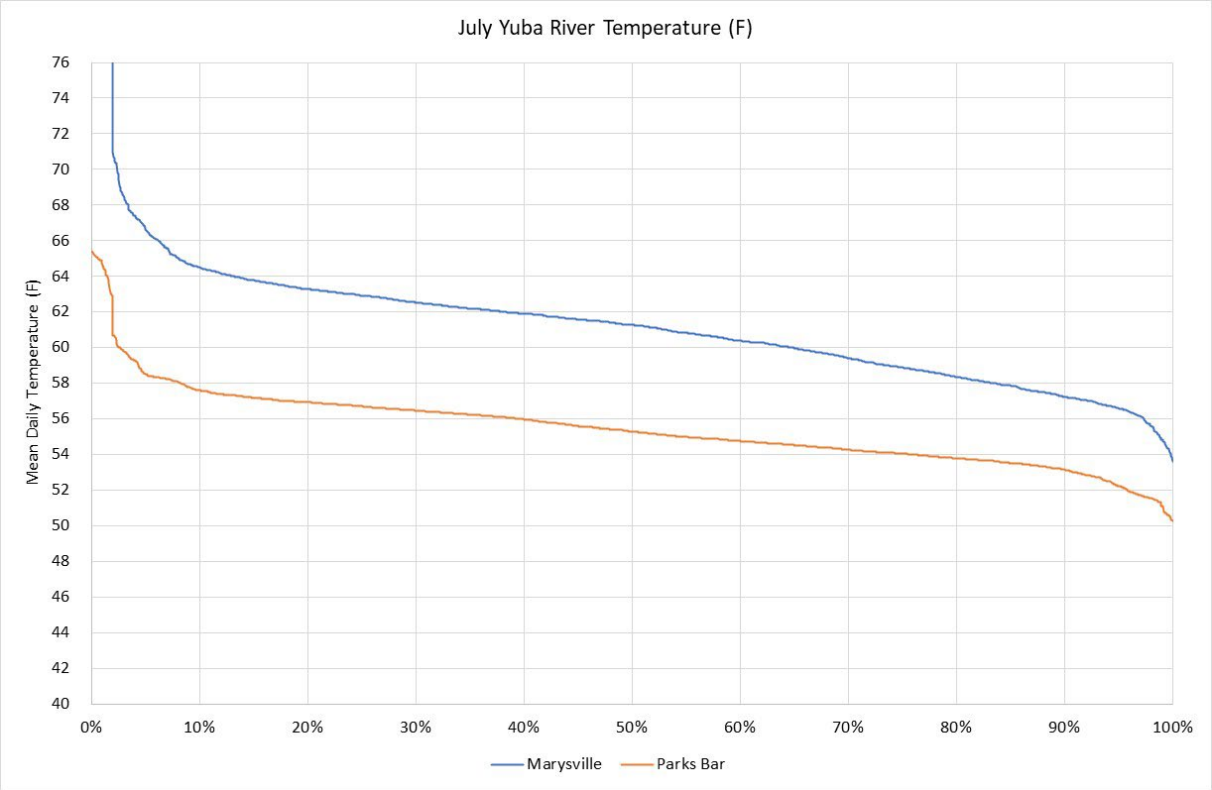

February Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar

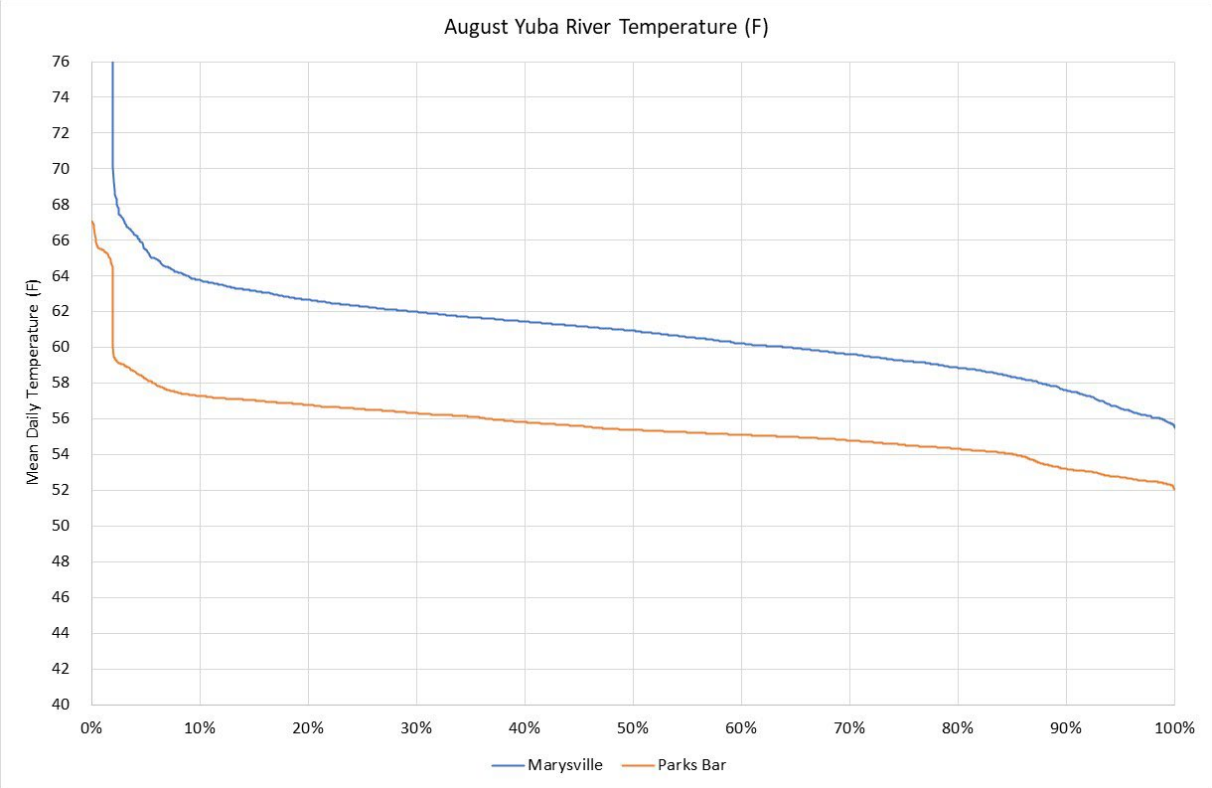

March Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar

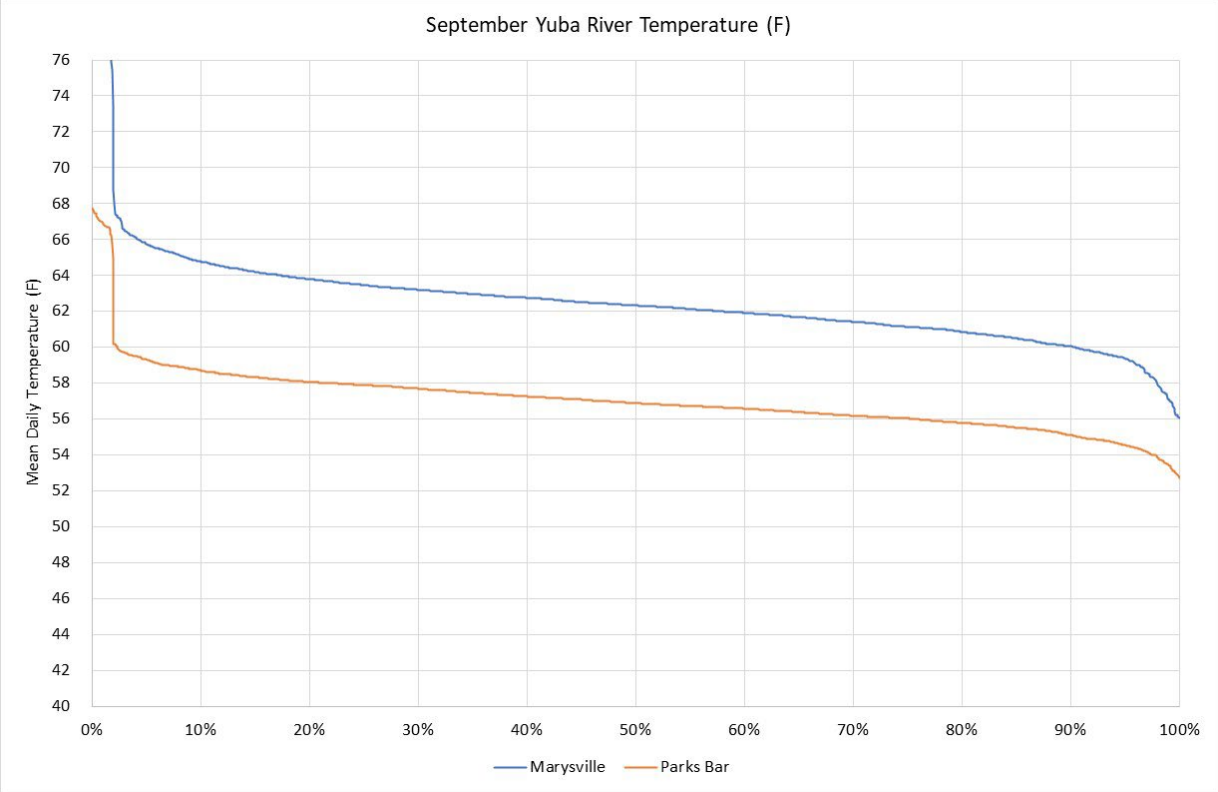

April Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar

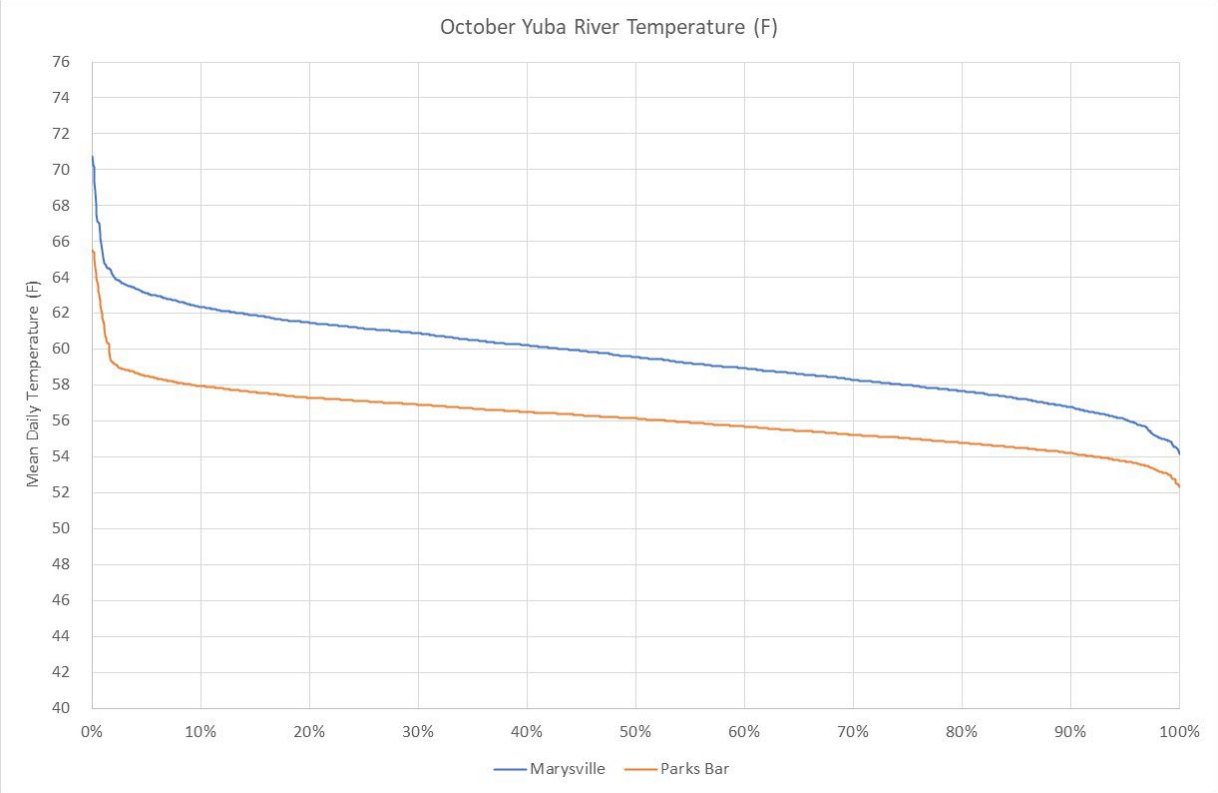

May Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar

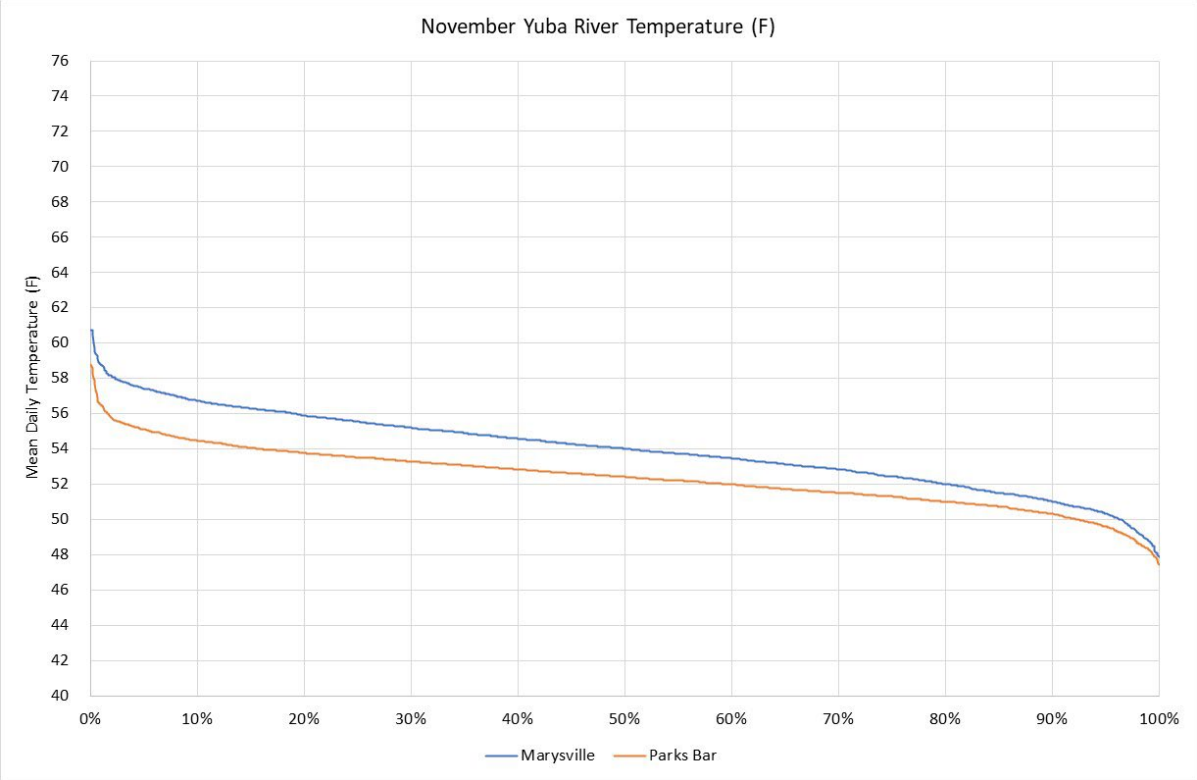

June Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar

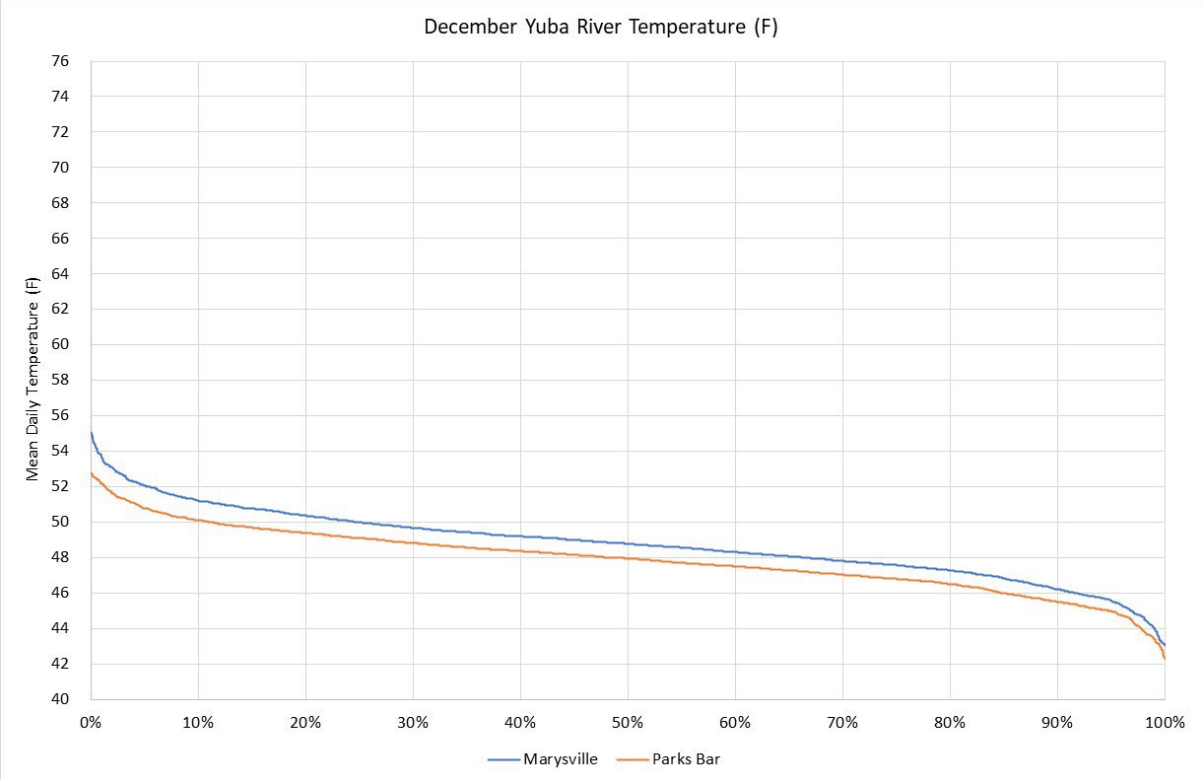

July Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar


August Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar


September Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar


October Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar


November Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar


December Yuba River Temperature (F)
Mean Daily Temperature (F)
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Parks Bar

# Appendix C4

## Modeling Data – Proposed Extension with Healthy River and Landscapes Flow Contribution (Bay-Delta)

[New Appendix C4]

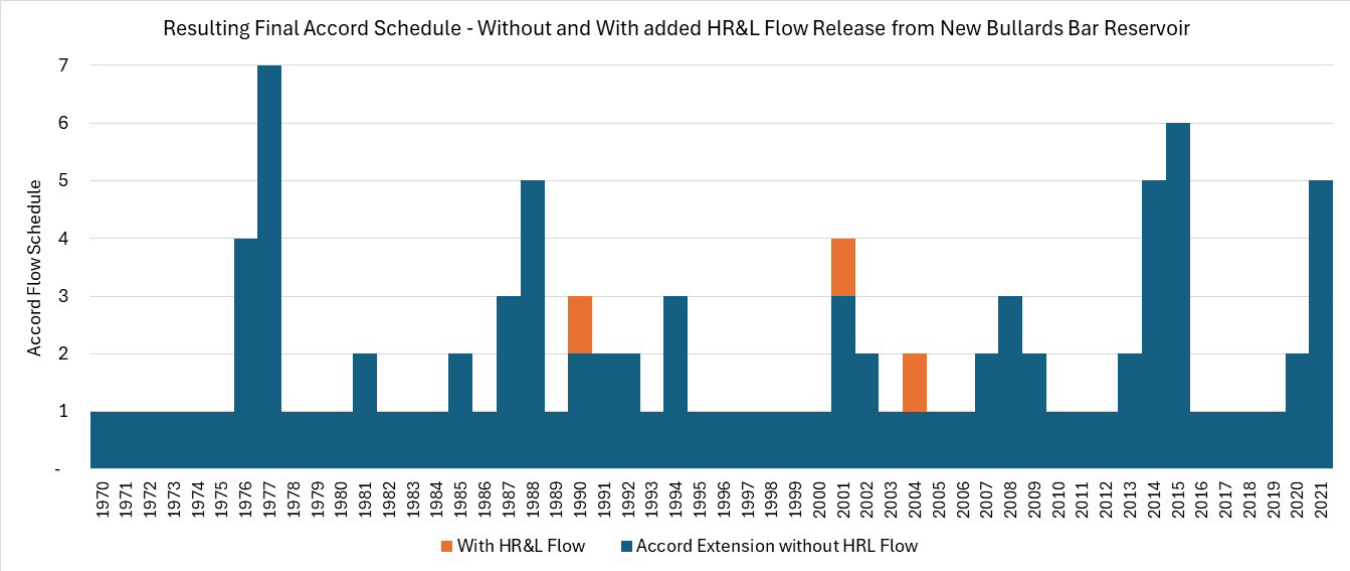
# Appendix C-4 Modeling Results – Proposed Extension with Healthy River and Landscapes Flow Contribution (Bay-Delta)

**Model Version:** YRDPM Version 3.102.1
**Simulation Period:** Water Year 1970 to 2021

### Resulting Yuba Accord Water Year Type Schedules

| Year Type Schedule | Count | Percent of Total |
|---|---|---|
| 1 | 31 | 60% |
| 2 | 10 | 19% |
| 3 | 4 | 8% |
| 4 | 2 | 4% |
| 5 | 3 | 6% |
| 6 | 1 | 2% |
| Conference Year | 1 | 2% |
| TOTAL | 52 | 100% |

Figure C-4.1 Plot of Final Accord Flow Schedule – Proposed Extension Without and with Healthy River and Landscapes Flow Contribution



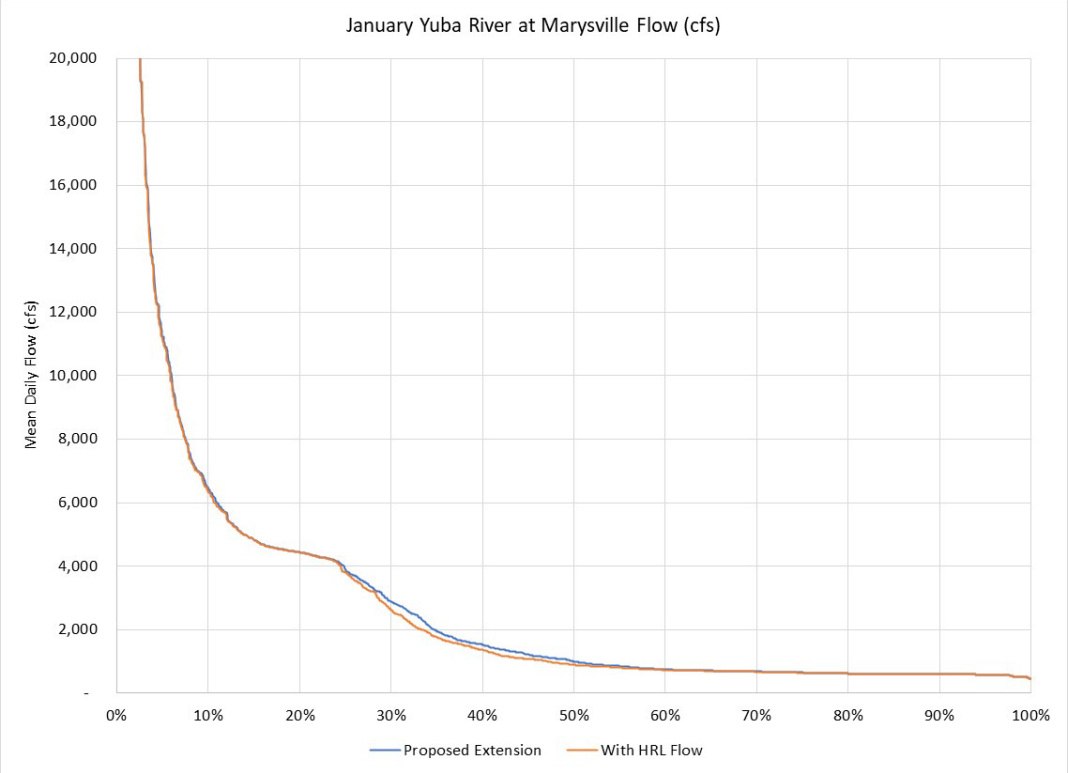
**Proposed Extension with Healthy Rivers and Landscapes Flow Contribution**
**Yuba River at Marysville (Yuba River Outflow) Flow**
**Average Monthly Flow by Year Type** (Sacramento Valley Index) (CFS)

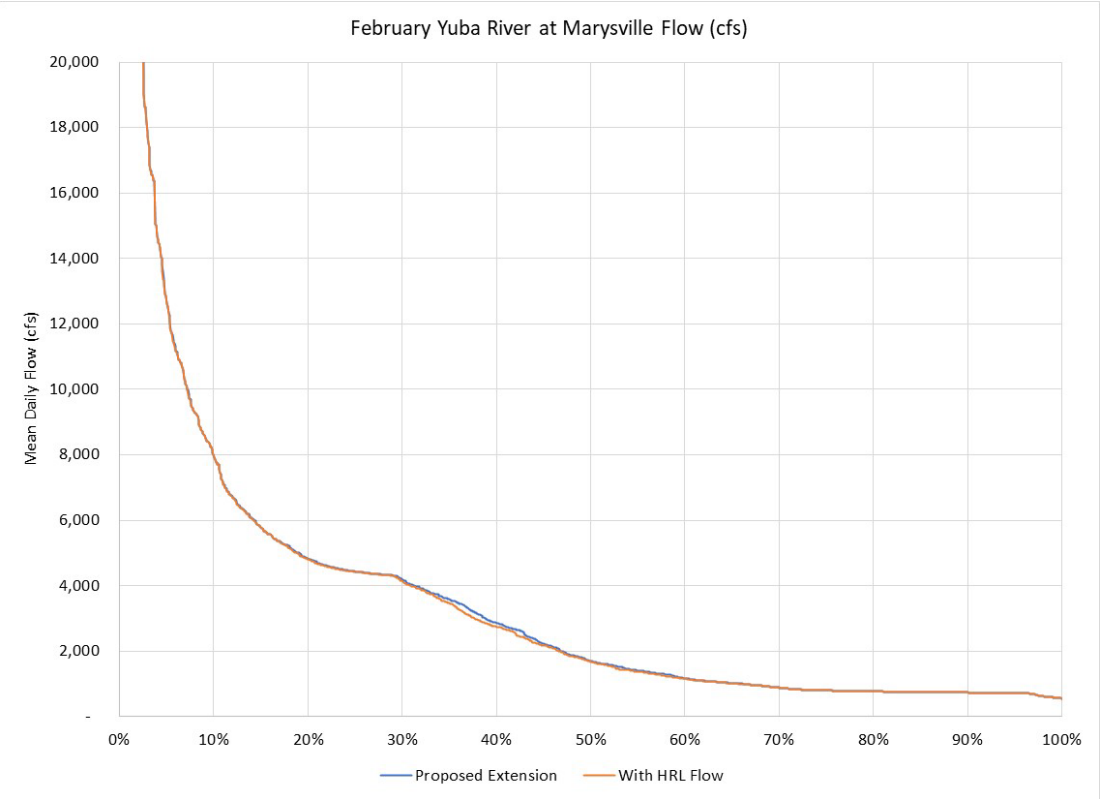
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wet** | 555 | 1,163 | 4,039 | 7,206 | 8,429 | 7,817 | 5,646 | 5,295 | 4,403 | 2,079 | 1,550 | 735 |
| **Above Normal** | 519 | 532 | 945 | 4,062 | 4,504 | 5,072 | 3,907 | 3,983 | 2,969 | 1,508 | 1,028 | 590 |
| **Below Normal** | 518 | 620 | 750 | 1,176 | 1,527 | 4,456 | 3,876 | 2,899 | 1,954 | 997 | 824 | 549 |
| **Dry** | 518 | 683 | 1,094 | 913 | 1,368 | 2,233 | 2,152 | 1,837 | 998 | 1,053 | 941 | 528 |
| **Critical** | 519 | 546 | 631 | 720 | 992 | 1,013 | 708 | 726 | 573 | 844 | 779 | 455 |

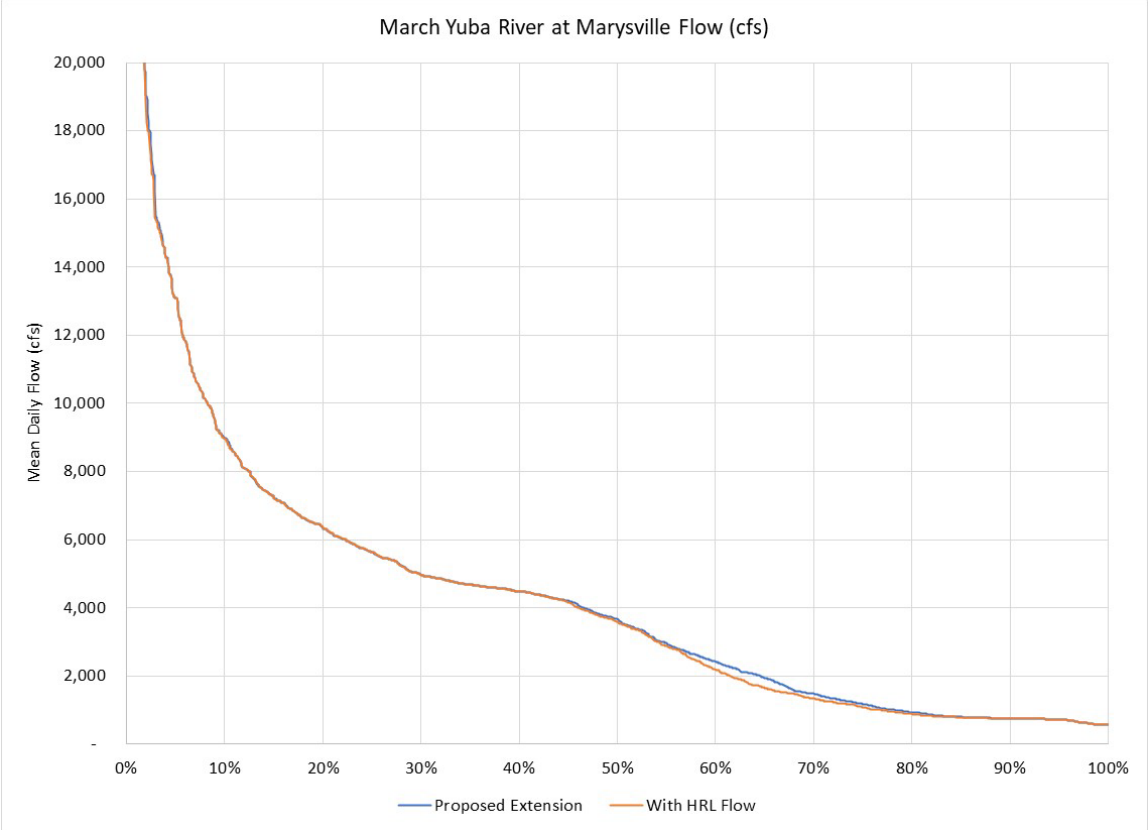
**Yuba River at Marysville (Yuba River Outflow) Average Monthly Flow Difference by Year Type**
**HRL Flow minus Proposed Extension (**Sacramento Valley Index) (CFS)

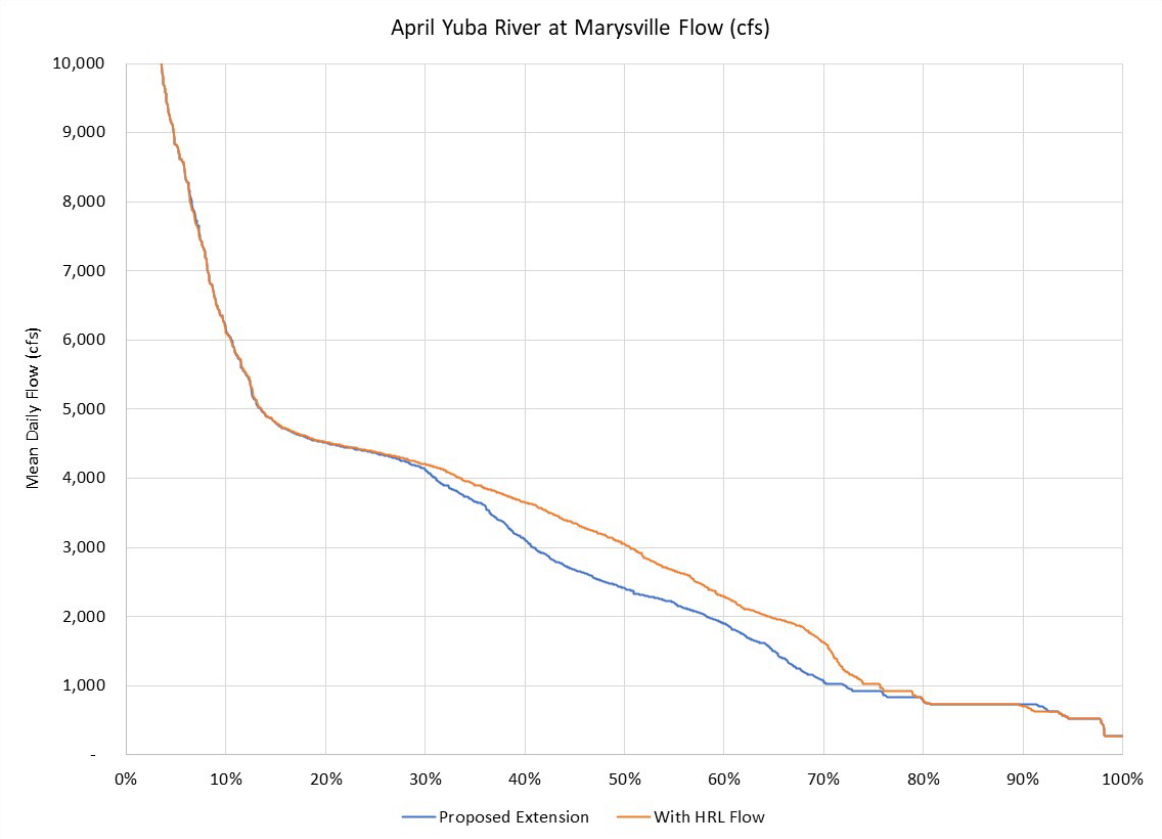
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Wet** | - | (40) | (166) | (47) | (82) | (27) | - | - | - | - | - | - |
| **Above Normal** | 0 | (1) | (88) | (369) | (21) | 41 | 478 | 153 | (5) | 20 | (5) | (0) |
| **Below Normal** | 3 | 3 | (6) | (81) | (46) | (118) | 503 | 353 | (73) | (21) | (28) | (7) |
| **Dry** | (8) | 3 | (68) | (19) | (4) | (122) | 430 | 222 | 65 | (13) | (34) | (18) |
| **Critical** | - | - | - | - | - | (52) | (19) | (4) | (13) | 1 | 1 | (0) |

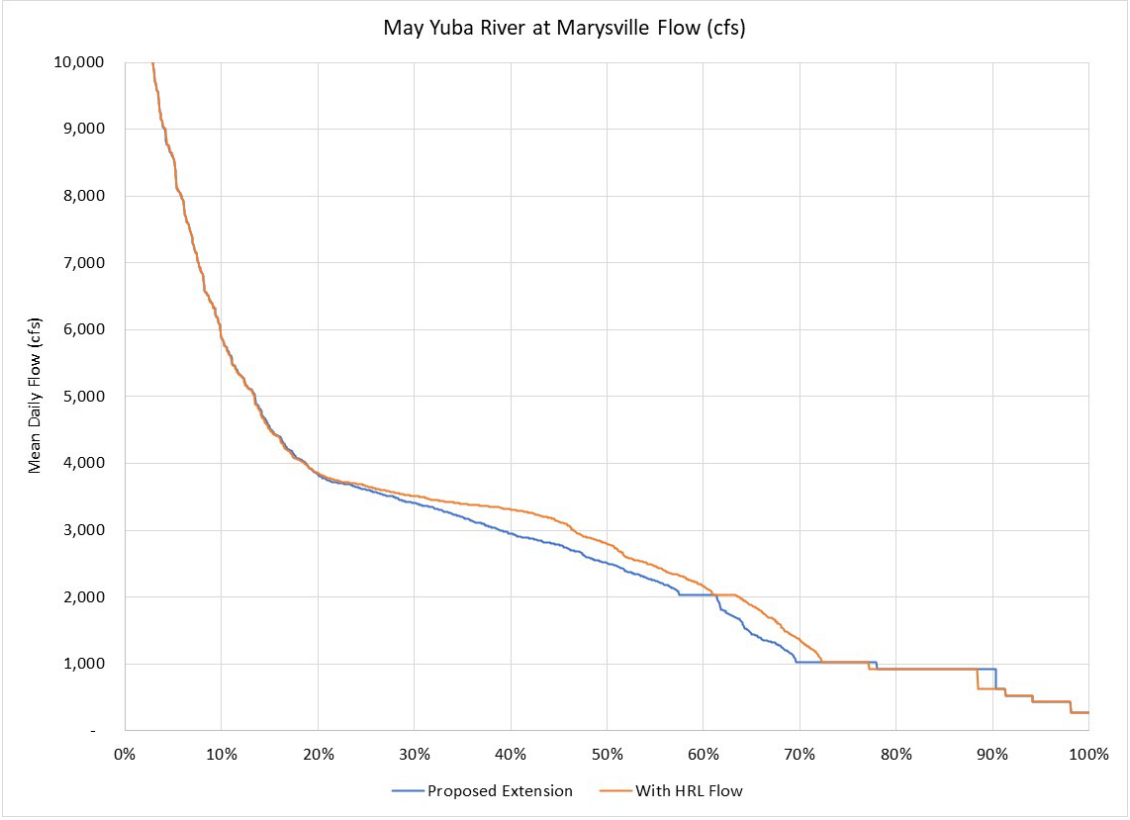
**Proposed Extension without and with HRL Flow - Resulting lower Yuba River Flow (cfs)**
**Exceedance Probability by Month**

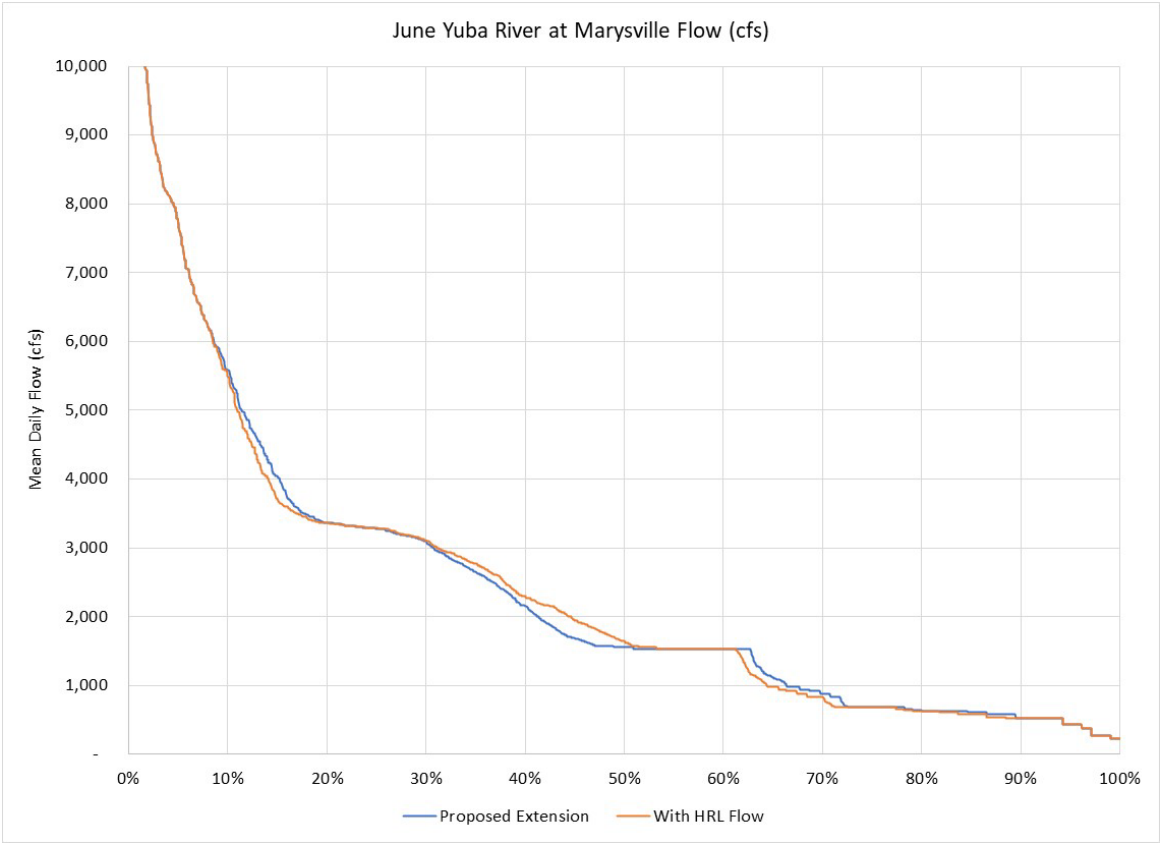


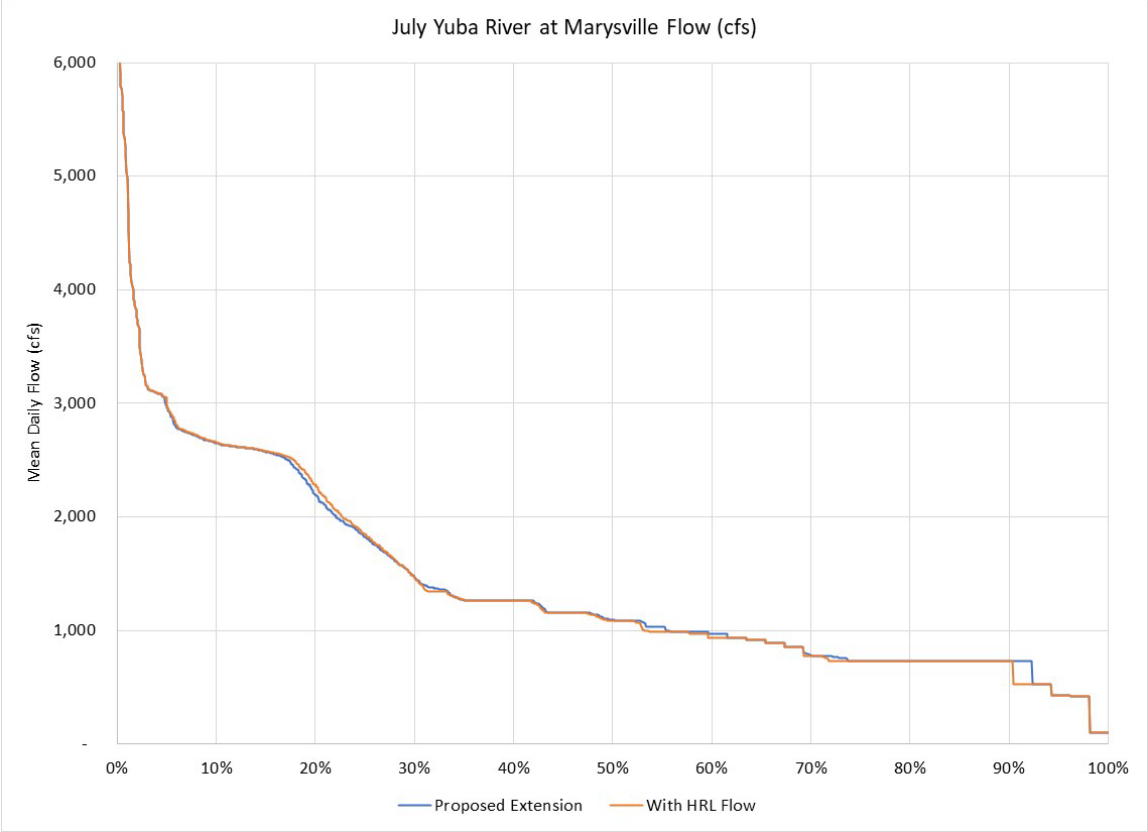



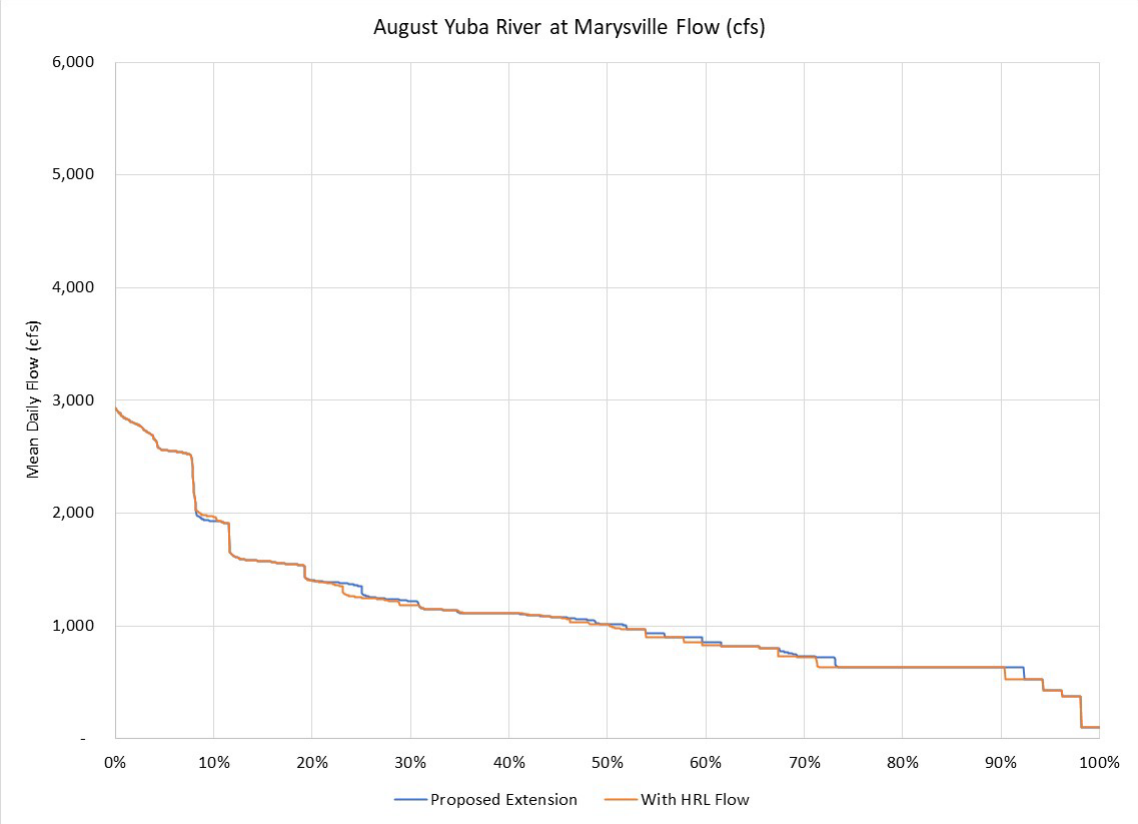

March Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow

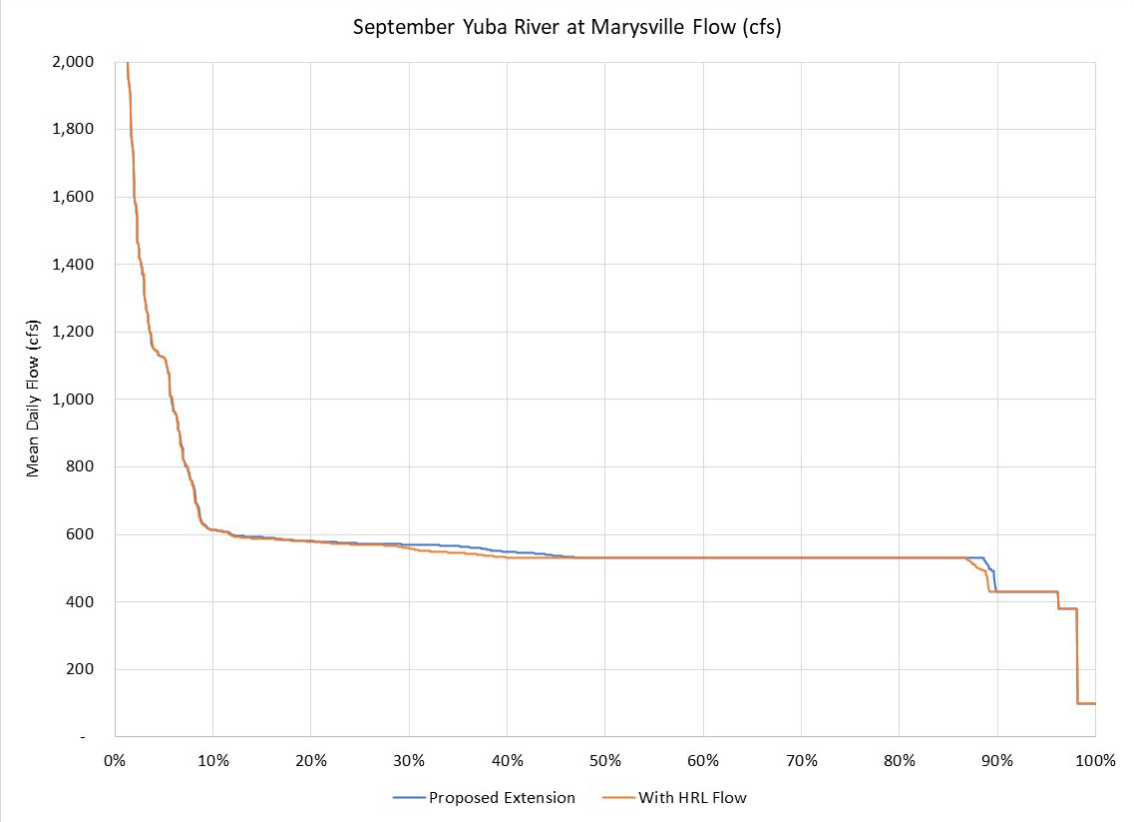

April Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow

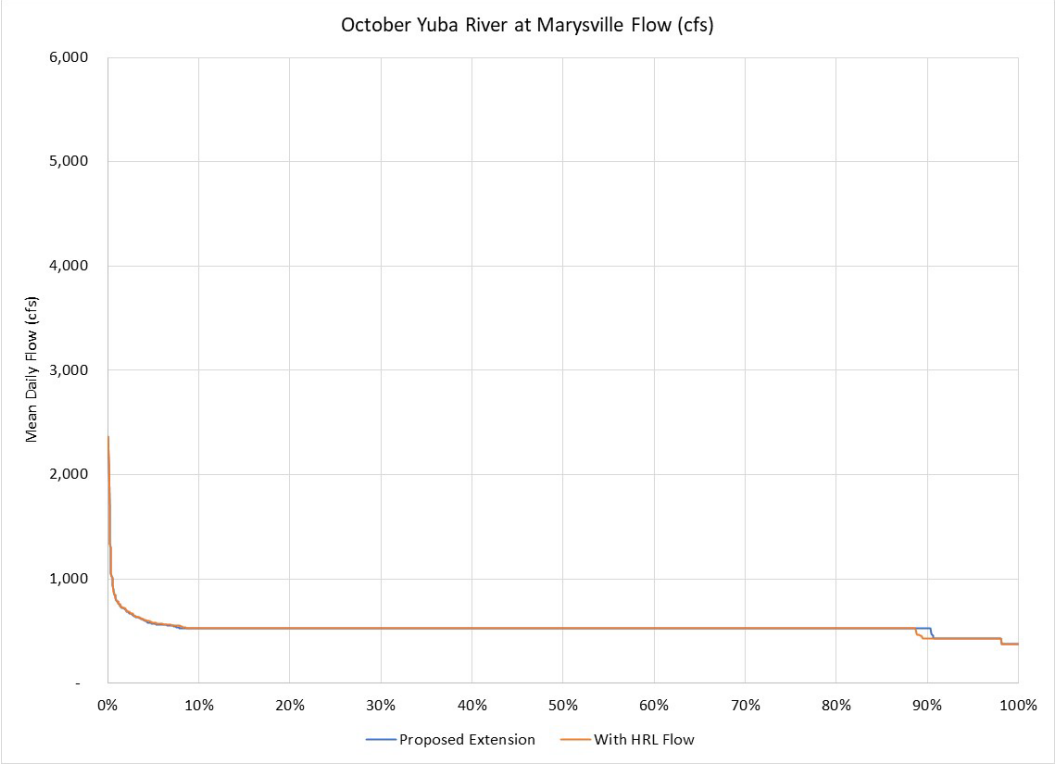

May Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow

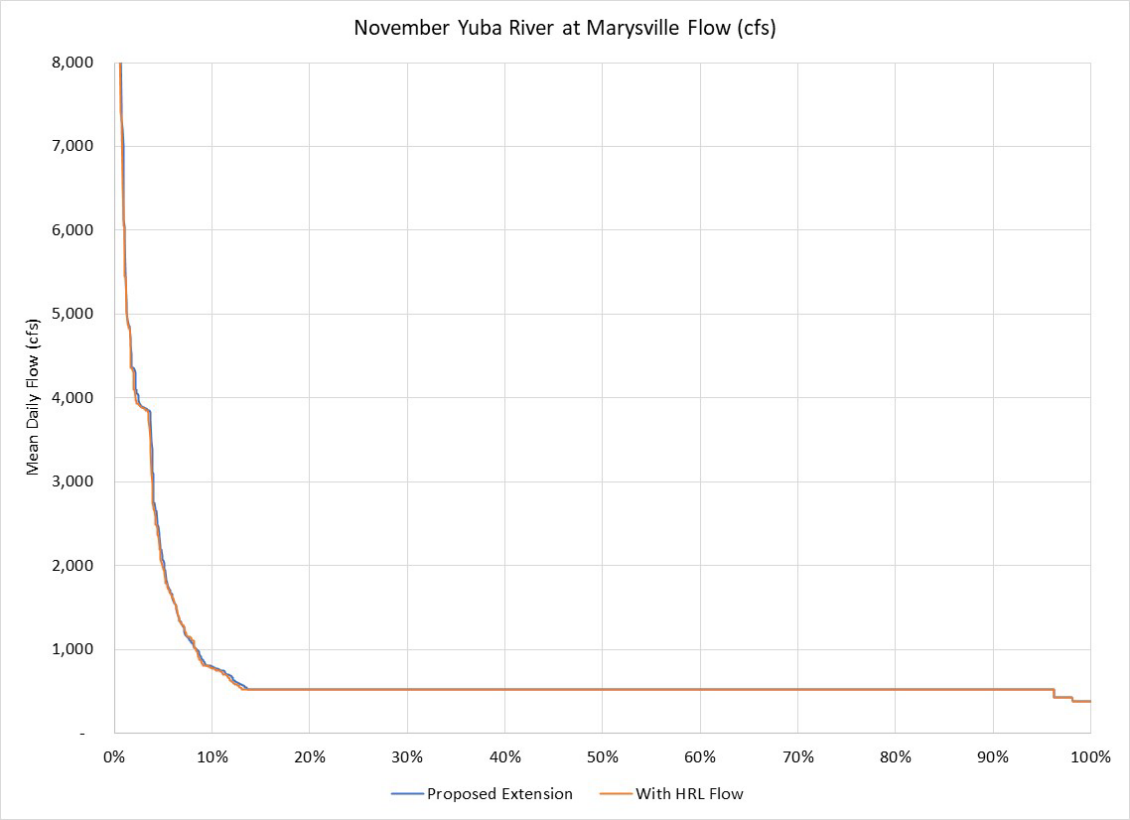

June Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow

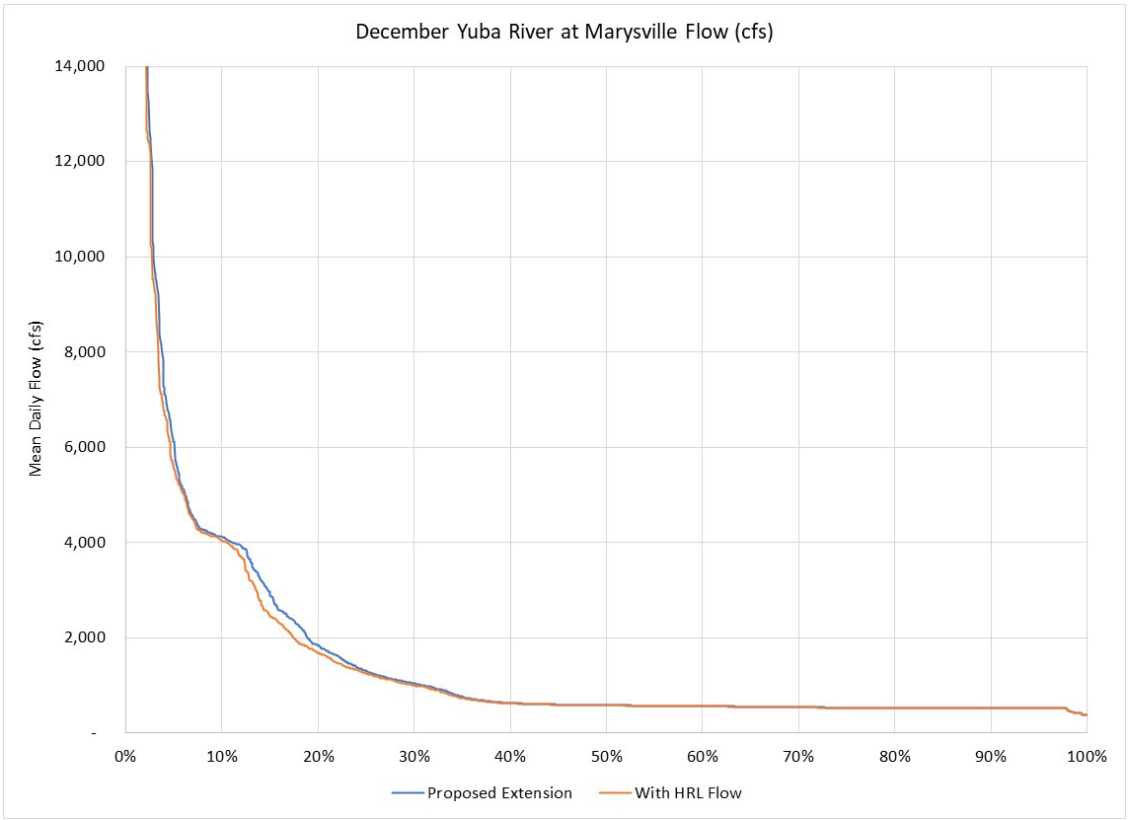

July Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow


August Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow


September Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow


October Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow


November Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow


December Yuba River at Marysville Flow (cfs)
Mean Daily Flow (cfs)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Proposed Extension
With HRL Flow

**Resulting New Bullards Bar Reservoir Storage – Proposed Extension with HR&L Flow Contribution**

**New Bullards Bar Reservoir Mean End of Month Storage (AF) by Water Year Type (SVI)**

| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wet | 607,540 | 617,431 | 649,236 | 743,586 | 769,080 | 787,492 | 864,811 | 928,632 | 900,222 | 793,370 | 672,678 | 632,992 |
| Above Normal | 575,088 | 577,081 | 625,051 | 685,971 | 747,246 | 779,121 | 821,754 | 890,996 | 847,943 | 737,008 | 641,823 | 607,239 |
| Below Normal | 530,062 | 542,818 | 638,589 | 627,835 | 679,995 | 770,136 | 815,268 | 808,949 | 744,913 | 657,631 | 585,126 | 551,317 |
| Dry | 489,953 | 492,737 | 515,859 | 572,860 | 619,335 | 722,561 | 764,964 | 767,032 | 717,035 | 629,538 | 556,732 | 522,740 |
| Critical | 442,860 | 422,768 | 438,830 | 497,998 | 534,645 | 604,001 | 656,095 | 669,045 | 640,728 | 567,406 | 505,214 | 474,553 |

**Proposed Extension with and without HR&L Flow - Flow Difference by Year Type**
**HRL Flow minus Proposed Extension (**Sacramento Valley Index) (CFS)

| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wet | (105) | (295) | (98) | (6,189) | (1,635) | - | - | - | - | - | - | - |
| Above Normal | (37,220) | (34,435) | (26,275) | 2,218 | 3,394 | 71 | (27,572) | (37,037) | (36,552) | (37,711) | (37,330) | (37,264) |
| Below Normal | (44,293) | (43,474) | (22,383) | (10,761) | (8,194) | (911) | (30,615) | (52,494) | (48,026) | (46,605) | (44,815) | (44,344) |
| Dry | (48,872) | (47,205) | (42,236) | (18,530) | (18,301) | (10,780) | (36,338) | (49,919) | (53,660) | (52,734) | (50,530) | (49,415) |
| Critical | (3,744) | (3,567) | (3,543) | (18,160) | (18,149) | (14,945) | (13,106) | (11,120) | (8,344) | (6,089) | (4,555) | (3,909) |

# Appendix A

## Notice of Preparation and Scoping Comments

# NOTICE OF PREPARATION OF A DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT AND NOTICE OF SCOPING MEETINGS

# FOR EXTENSION OF THE LOWER YUBA RIVER ACCORD WATER TRANSFER PROGRAM

**Date:** January 12, 2023

**To:** Agencies and Interested Parties

**Subject:** Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for the Extension of the Lower Yuba River Accord Water Transfer Program

**Review Period:** January 12, 2023 through February 27, 2023

## Overview

The Yuba County Water Agency, doing business as Yuba Water Agency (Yuba Water), is proposing to continue the Lower Yuba River Accord (Yuba Accord) Water Transfer Program beyond its current expiration date of December 31, 2025 (Yuba Accord Extension or Extension).

Although no substantial changes to the Yuba Accord Water Transfer Program (described below) are proposed by Yuba Water, its extension beyond December 31, 2025 requires analysis pursuant to the California Environmental Quality Act (CEQA, Public Resources Code [PRC] Section 21000 et seq.). Yuba Water will prepare a supplemental environmental impact report (SEIR) (supplement to the 2007 EIR) to satisfy the requirements of CEQA and the CEQA Guidelines (California Code of Regulations [CCR], title 14, section 15000 et seq.), and will serve as lead agency, the public agency with primary responsibility for carrying out and approving the project (CEQA Guidelines Section 15367).

## Purpose of this Notice of Preparation

In accordance with the CEQA Guidelines, Yuba Water has prepared this notice of preparation (NOP) to inform agencies and interested parties that an SEIR will be prepared for the above-referenced project. The purpose of an NOP is to provide sufficient information about the proposed Yuba Accord Extension and its potential environmental impacts to allow agencies, non-governmental organizations (NGOs), and other interested parties the opportunity to provide a meaningful response regarding the scope and content of the SEIR (CEQA Guidelines 14 CCR Section 15082(b)).

## Yuba Accord Water Transfer Program Extension Background

The Yuba Accord Water Transfer Program was adopted as part of the Yuba Accord, a comprehensive settlement that imposed 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; NGOs; and other interested parties. After Yuba Water certified a detailed EIR (State Clearinghouse No. 2005062111) analyzing its environmental effects, it began to implement the project in 2008.[1]

The Yuba Accord consists of three 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); (2) 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 1)[2], as amended by Amendment Nos. 1-7 (the Yuba Water/MU Conjunctive Use Agreements); and (3) the Lower Yuba River Fisheries Agreement dated November 5, 2007 (effective March 18, 2008)

[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 State Water Resources Control Board'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).

[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.

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 Fisheries Agreement remains in effect until the Federal Energy Regulatory Commission (FERC) issues a new long-term license for the Yuba River Development Project. The Yuba Water/DWR Water Purchase Agreement, the Yuba Water/MU Conjunctive Use Agreements, and the Yuba Water/Contra Costa Water District (CCWD)/East Bay Municipal Utilities District (EBMUD) Water Transfer Agreement expire on December 31, 2025. The proposed Extension would continue the Yuba Accord's Water Transfer Program beyond its current expiration date of December 31, 2025.

When the Yuba Accord was originally approved, the State Water Project (SWP) and Central Valley Project (CVP) export facilities were added as points of rediversion for Yuba Accord transfer water; that water was then delivered by DWR (through a separate agreement among DWR, the SWP contractors, and the San Luis & Delta-Mendota Water Authority) to SWP contractors south-of-the-Delta and CVP contractors within the San Luis Unit.

The environmental effects of the whole of the Yuba Accord were evaluated in an EIR certified in 2007. In 2008, the State Water Resources Control Board (SWRCB) adopted an order, Corrected Order WR 2008-0014, which authorized delivery of transfer water consistent with the provisions of the Yuba Accord. Yuba Water relies on this order in its implementation of the Accord's Water Transfer Program.

Since adoption of the original Yuba Accord, the Freeport Regional Water Project and the Delta intakes of the Contra Costa Water District have been added as additional authorized points of rediversion for Yuba Accord transfer water, and CCWD and EBMUD have entered into agreements with Yuba Water to receive Yuba Accord transfer water. Addenda were prepared as needed to address these minor changes to the Accord.

The Yuba Accord Water Transfer Program consists of: (1) the Yuba Water/DWR Water Purchase Agreement; (2) the YMA/Member Unit Conjunctive Use Agreements, and the (3) the Yuba Water/CCWD/EBMUD Water Transfer Agreement.

The Yuba Accord related agreements may be found at https://www.yubawater.org/157/Lower-Yuba-River-Accord and Corrected Order WR 2008-0014 may be found at https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/.

## Purpose and Objectives

The purpose and objectives of this proposed Extension are to: (1) continue to support water supply reliability throughout the state by providing supplemental water for contractors of the CVP and the SWP, and other potential transferees consistent with the Accord's Water Purchase Agreement; (2) continue to facilitate sustainable groundwater management and the conjunctive use of Yuba River surface water and groundwater; and (3) continue to generate revenue for Yuba Water 's various projects and programs, such as its programs for replacing aging wastewater infrastructure in Yuba County's Disadvantaged Communities (DACs).

## Location

The location would 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 illustrates the major water development facilities in the Yuba River Watershed. Places of storage, rediversion, and use of existing Yuba Accord water transfers would not change.

## Description of Proposal to Extend the Yuba Accord Water Transfer Program

Yuba Water proposes to continue the Yuba Accord Water Transfer Program beyond its current expiration date of December 31, 2025, with the same features, terms, and conditions, which include: (1) the Yuba Water/DWR Water Purchase Agreement; (2) the Yuba Water/CCWD/EBMUD Water Transfer Agreement; (3) the Yuba Water/MU Conjunctive Use Agreements; and (4) the terms and conditions imposed in SWRCB Corrected Order WR 2008-0014 and subsequent Accord water transfer change petitions approved by the SWRCB. These elements are collectively referred to as the Yuba Accord Water Transfer Program. The extension of the Yuba Accord Water Transfer Program will include the following components:

- an agreement between Yuba Water and DWR to extend the term of the Yuba Water/DWR Water Purchase Agreement through 2050;
- an agreement among Yuba Water, CCWD, and EBMUD to extend the term of the Yuba Water/EBMUD/CCWD Water Transfer Agreement through 2050; and
- an agreement among Yuba Water and its Member Units to extend the term of the Yuba Water/MU Conjunctive Use Agreements through 2050; and
- petitioning the SWRCB to extend approval of the place of use, purposes of use, and points of rediversion for the Yuba Accord Water Transfer Program.

As reflected by this list, the proposed Yuba Accord Water Transfer Program Extension is a continuation of the program, beyond December 31, 2025, under its existing conditions.

## Potential Approvals and Permits Required

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

- Yuba Water and DWR will prepare and approve an extended Yuba Water/DWR Water Purchase Agreement.
- Yuba Water, EBMUD, and CCWD will prepare and approve an extended Yuba Water/EBMUD/CCWD Water Transfer Agreement.
- Yuba Water and each of the Member Units will prepare and approve extended Yuba Water/MU 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 Accord transfer water under the Yuba Accord Water Transfer Program.
- If Yuba Water determines that the Extension constitutes a "Covered Action" under the Delta Reform Act of 2009, Yuba Water will make findings regarding consistency with the Delta Plan.
- If additional coverage under the California Endangered Species Act is needed, Yuba Water will apply for and obtain an incidental take permit from CDFW.

The following public agencies are expected to use the SEIR in their decision-making for the Extension: Yuba Water as CEQA lead agency, and DWR, SWRCB, CCWD, EBMUD, six of the eight member units (Brophy Water District, Browns Valley Irrigation District, Cordua Irrigation District, Ramirez Water District, South Yuba Water District, and Wheatland Water District[3]), and potentially the Delta Stewardship Council as CEQA responsible agencies; and CDFW as a CEQA trustee agency and a responsible agency if an additional CESA permit is required.

## Potential Environmental Effects

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 project in 2014, 2016, and 2022. Consequently, the focus of this SEIR will be to analyze the potential environmental impacts that may result from the proposed extension of the Yuba Accord water transfer program beyond its original expiration date of December 31, 2025.

As required by CEQA, the SEIR will describe existing conditions and evaluate the potential for significant environmental effects of the Extension and appropriate alternatives, including the No Project alternative. Because the Extension is a continuation of existing conditions, however, it is likely that the SEIR will present analyses supporting the conclusion that extension of the Yuba Accord water transfer program will not result in significant effects in many

[3] Dry Creek Mutual Water Company and Hallwood Irrigation Company are private companies that are not subject to CEQA.

environmental issue areas and will dismiss these areas from detailed analysis. Notwithstanding this context, the SEIR will address and discuss following environmental impact areas:

- Surface Water Supply and Management
- Groundwater Resources
- Power Production and Energy Consumption
- Flood Control
- Surface Water Quality
- Fisheries and Aquatic Resources
- Terrestrial Biological Resources
- Cultural Resources
- Tribal Cultural Resources
- Air Quality
- Greenhouse Gas Emissions and Climate Change
- Land Use and Agricultural Resource

## Public Review Period

This NOP is being circulated for agency and public review and comment for a period of 45 days from January 12, 2023 through February 27, 2023. Yuba Water will hold two public scoping meetings to inform interested parties about the project and to provide agencies and the public with an opportunity to provide comments on the scope and content of the SEIR. The meeting times and locations are as follows:

| | |
|---|---|
| February 7, 2023<br>3:00 p.m. to 5:00 p.m. | February 9, 2023<br>4:00 p.m. to 6:00 p.m. |
| Yuba Water Headquarters<br>1220 F Street<br>Marysville, CA 95901 | https://us06web.zoom.us/webinar/register/WN_cF2NebDiRBKpp0zNdhxY4A |

The public scoping meetings will include a brief presentation about the Yuba Accord water transfer program through the year 2025, how Yuba Water plans to continue the water transfer program after 2025, and the CEQA process, including opportunities for public and agency participation. Yuba Water will accept oral comments at the scoping meetings, and written comments at the meetings and at any time during the scoping period.

If you plan on attending one of these meetings and need a translator or for additional accessibility preferences, please contact JoAnna Lessard at the contact information below.

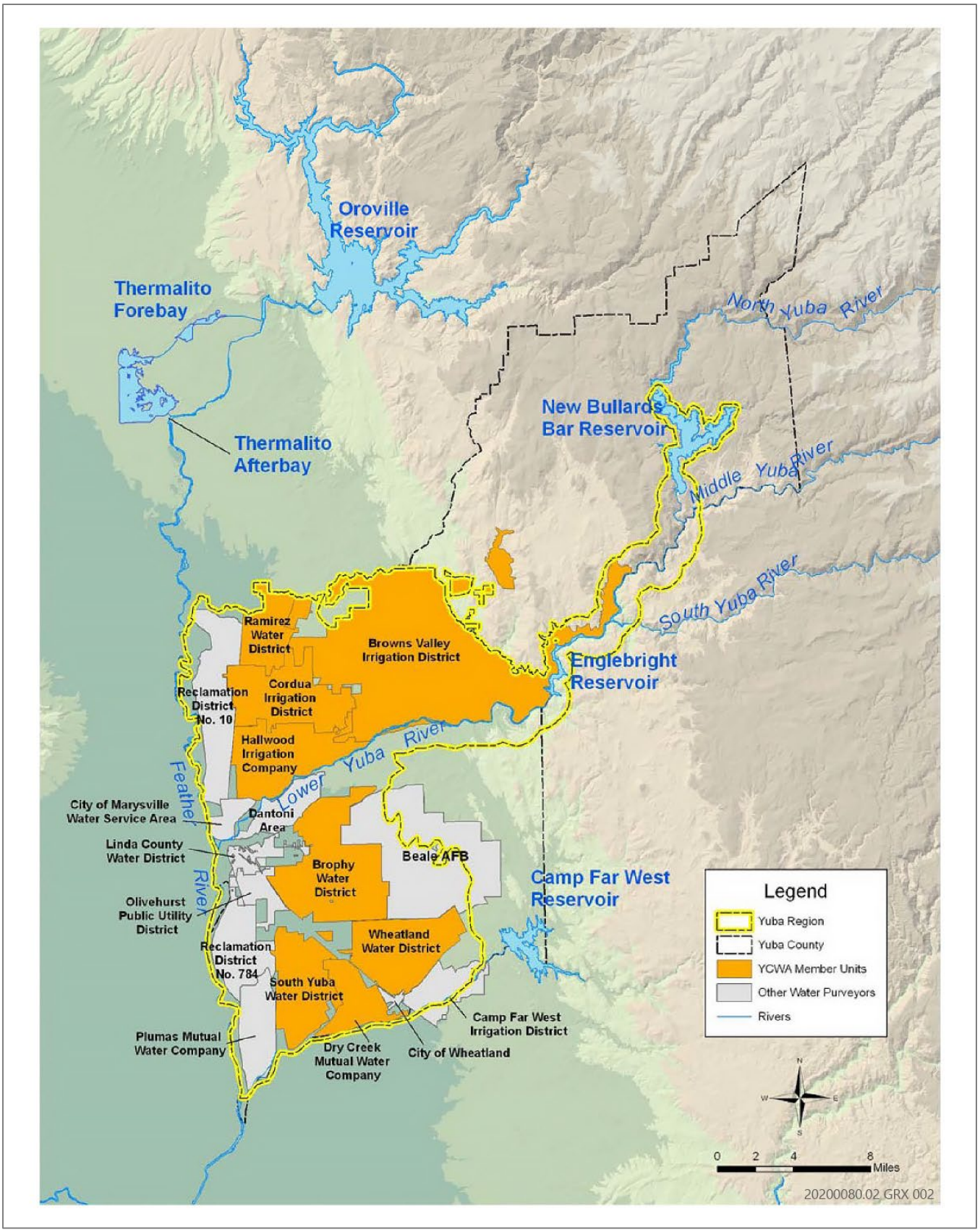
Copies of the NOP may be reviewed during normal business hours at Yuba County Water Agency, 1220 F Street, Marysville, CA 95901-4740; or online at: https://www.yubawater.org/157/Lower-Yuba-River-Accord.

## Providing Comments

Written and/or email comments on the NOP should be provided at the earliest possible date but must be received by no later than 5:00 p.m. on February 27, 2023. Please send all comments on the NOP to:

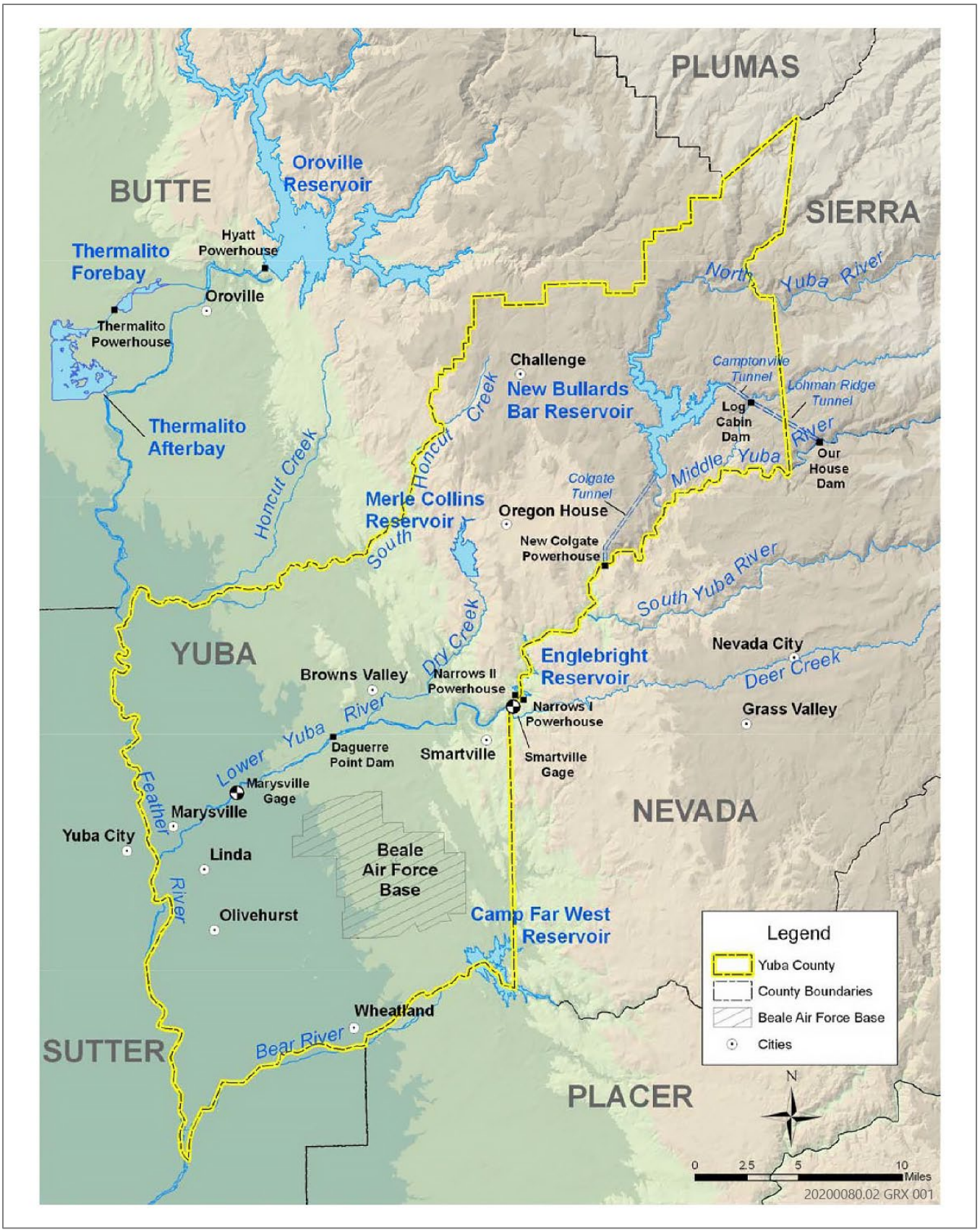
JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740
Telephone: (530) 741-5035 Email: jlessard@yubawater.org

Comments provided by email should include the name and mailing address of the commenter in the body of the email. If you are from an agency that will need to consider the SEIR when deciding whether to issue permits or other approvals for the project, please provide the name of a contact person in any comments.




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

Figure 1 Yuba Water Member Units and Service Areas of Other Water Purveyors




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

Figure 2 Major Water Development Facilities in the Yuba River Watershed and Region

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
(916) 358-2900
www.wildlife.ca.gov

***GAVIN NEWSOM, Governor***
***CHARLTON H. BONHAM, Director***

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

Subject: Extension of the Lower Yuba River Accord Water Transfer Program - Notice of Preparation of a Supplemental Environmental Impact Report
SCH# 2005062111

Dear Ms. Lessard:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Preparation of a Supplemental Environmental Impact Report (SEIR) from Yuba County Water Agency (YCWA) for the Extension of the Lower Yuba River Accord Water Transfer Program (Project) in Yuba County pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[11]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, plants, and their habitats. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code (Fish & G. Code).

**CDFW ROLE**

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802.). Similarly, for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

## PROJECT DESCRIPTION SUMMARY

The Project proposes to continue the Lower Yuba Accord Water Transfer Program beyond its current expiration date of December 31, 2025, with the same features, terms, and conditions, which include: (1) the YCWA/Department of Water Resources Water Purchase Agreement; (2) the YCWA/Contra Costa Water District /East Bay Municipal Utilities District Water Transfer Agreement; (3) the YCWA/Member Unit Conjunctive Use Agreements; and (4) the terms and conditions imposed in State Water Resources Control Board (SWRCB) Corrected Order WR 2008-0014 and subsequent Accord water transfer change petitions approved by the SWRCB. The Program also includes the Lower Yuba River Fisheries Agreement among YCWA, CDFW, South Yuba River Citizens League, Friends of the River, Trout Unlimited, and The Bay Institute. These elements are collectively referred to as the Lower Yuba Accord Water Transfer Program. The extension is proposed for a 25-year period (i.e., from 2025 to 2050).

The Lower Yuba River Accord consists of a comprehensive settlement resolving issues regarding instream flow requirements for the lower Yuba River, water transfers, conjunctive use of surface water and groundwater, and fisheries management. The environmental effects of the Lower Yuba Accord were evaluated in an Environmental Impact Report (EIR), which was certified by YCWA in 2007 (State Clearinghouse No. 2005062111). The lead agency will prepare a SEIR for the extension, although the NOP states it does not propose any substantial changes to the Lower Yuba Accord Water Transfer Program.

## COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations presented below to assist the YCWA in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources. CDFW recommends that the forthcoming SEIR address the following:

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**Project Description**

The Project description should include the whole action as defined in the CEQA Guidelines § 15378 and should include appropriate detailed exhibits disclosing the Project area including membership units and water district service locations and the locations of major water development facilities in the region.

As required by § 15126.6 of the CEQA Guidelines, the SEIR should include an appropriate range of reasonable and feasible alternatives that would attain most of the basic Project objectives and avoid or minimize significant impacts to resources under CDFW's jurisdiction.

**Environmental Setting**

The previous EIR, certified in 2007, included a description of the environmental conditions which established a baseline to assist the lead agency in determining whether impacts caused by the project would be significant. CDFW recommends the SEIR analyze the effects of water transfers on biological resources based upon a determined baseline of current conditions. Circumstances and conditions may have changed with respect to impacted biological resources within the affected area of the proposed Project since the original EIR and analyses was finalized. The SEIR should evaluate the effects of extending the current water transfers on biological resources for an additional 25 years considering drought conditions, climate change impacts, fish populations, and available habitat. If during these analyses, new information of substantial importance shows any sign of having one or more significant effects not discussed in the original EIR, a significant effect that will be more substantially severe than was determined in the original EIR, or mitigation measures or alternatives that are now feasible or would substantially reduce one or more significant effects on the environment where the lead agency declines to adopt the mitigation measure or alternative, then CDFW recommends YCWA consider developing a Subsequent EIR to address these types of major revisions.

**Water Transfer Timing**

CDFW recommends the SEIR identify what the timeframe for water transfers will be annually and whether water transfer seasonal windows will be increased or decreased. If the SEIR identifies changes to the water transfer timing, CDFW recommends the SEIR analyze the effects of the change in water transfer timing and how this may affect biological resources, especially if the seasonal window for water transfers is extended. If water transfer timing is extended beyond the original EIR’s analysis, CDFW recommends YCWA discuss how the extension will be applied through the Project’s current agreements. Additionally, CDFW has developed an analysis on the potential impacts of water transfer projects on special-status fish species that occur throughout the areas of the Sacramento River and the San Joaquin Delta and may be able to assist YCWA in evaluating the potential impacts of water transfer activities to biological

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resources when considering change in environmental conditions and altered water transfer seasonal windows.

**Groundwater Resources**

Since the original EIR and analyses were finalized, the Sustainable Groundwater Management Act (SGMA) was passed and the North and South Yuba groundwater subbasins have adopted a groundwater sustainability plan (GSP), which serves to locally govern groundwater supplies and plan for long-term sustainability. CDFW recommends that the SEIR incorporate the relevant GSP sustainable management criteria into its analysis and identification of thresholds of significance for evaluating potential impacts of the water transfer program.

CDFW also recommends that the SEIR analyze the effects of water transfers on groundwater dependent ecosystems (GDEs) as environmental users of groundwater. The SEIR should identify the locations of GDEs within the Project area and evaluate the potential for significant impacts that may result from groundwater substitution transfers, which have the potential to lower the groundwater table. CDFW recommends the analysis consider potential localized impacts near transfer pumping wells on GDEs and their ability to access groundwater supplies, including an assessment of potential cumulative impacts to GDEs that may occur after sequential years of transfers, particularly during dry or critically dry water years. The SEIR should include mitigation measures, if warranted, that would reduce the potential impact on GDEs due to groundwater pumping.

Groundwater substitution transfers have the potential to alter interactions between groundwater and surface waters, including increasing the rate of surface water depletion. CDFW recommends the SEIR identify interconnected surface waters located within the Project area and identify surface waters as likely gaining or losing to groundwater. The SEIR should analyze the potential impacts of water transfers on the rates of streamflow depletion, particularly if transfer pumping wells are located proximate to surface waters, and identify mitigation measures as warranted to reduce any impacts to less-than significant.

**California Endangered Species Act**

The NOP states “if additional coverage under the California Endangered Species Act is needed, Yuba Water will apply for and obtain an incidental take permit from CDFW.” However, the YCWA currently does not have any existing coverage for this Project under CESA. CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA. CDFW recommends that a CESA Incidental Take Permit (ITP) be obtained if the Project has the potential to result in “take” (Fish & G. Code § 86 defines “take” as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill”) of State-listed CESA species over the life of the Project.

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State-listed species with the potential to occur in the area include, but are not limited to: winter-run Chinook salmon (*Oncorhynchus tshawytscha*), spring-run Chinook salmon (*Oncorhynchus tshawytscha*), Delta smelt (*Hypomesus transpacificus*), and longfin smelt (*Spirinchus thaleichthys*).

The SEIR should disclose the potential of the Project to take State-listed species and how the impacts will be avoided, minimized, and mitigated. The analysis for potential affects to State-listed species should also consider possible extensions in water transfer seasonal windows and the environmental setting at the time of writing the SEIR. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To facilitate the issuance of an ITP, if applicable, CDFW recommends the SEIR include measures to minimize and fully mitigate the impacts to any State-listed species the Project has potential to take. CDFW encourages early consultation with staff to determine appropriate measures to facilitate future permitting processes and to engage with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service to coordinate specific measures if both State and federally listed species may be present within the Project vicinity.

**ENVIRONMENTAL DATA**

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database, which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

**FILING FEES**

The Project, as proposed, would have an effect on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code § 711.4; Pub. Resources Code, § 21089.)

**CONCLUSION**

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the Project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

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CDFW appreciates the opportunity to comment on the Notice of Preparation of the SEIR for the Extension of the Lower Yuba River Accord Water Transfer Program and recommends that the YCWA address CDFW's comments and concerns in the forthcoming SEIR. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts.

If you have any questions regarding the comments provided in this letter or wish to schedule a meeting and/or site visit, please contact Alexander Funk, Environmental Scientist at (916) 817-0434 or alexander.funk@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Tanya Sheya
1ABC45303752499...

Tanya Sheya
Environmental Program Manager

ec: Kevin Thomas, Regional Manager
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Jacob Vander Meulen, Environmental Compliance Officer
jvandermeulen@yubawater.org
*Yuba County Water Agency*

state.clearinghouse@opr.ca.gov
*Office of Planning and Research, State Clearinghouse, Sacramento*

Delta Stewardship Council
A CALIFORNIA STATE AGENCY

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Jessica R. Pearson

September 12, 2023

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740

Delivered via email: jlessard@yubawater.org

**RE: Comments on Notice of Preparation of a Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program, SCH# 2005062111**

Dear JoAnna Lessard:

Thank you for the opportunity to review and comment on the Notice of Preparation (NOP) of a draft Supplemental Environmental Impact Report (SEIR) for the extension of the Lower Yuba River Accord Water Transfer Program. The Delta Stewardship Council (Council) recognizes the objective(s) of the extension of the Lower Yuba River Accord Water Transfer Program (project), as described in the NOP, to extend the current water transfer program beyond its current expiration date of December 31, 2025, through 2050.

The Council is an independent state agency established by the Sacramento-San Joaquin Delta Reform Act of 2009, codified in Division 35 of the California Water Code, sections 85000-85350 (Delta Reform Act). The Delta Reform Act charges the Council with furthering California's coequal goals of providing a more reliable water supply and protecting, restoring, and enhancing the Sacramento-San Joaquin River

Delta (Delta) ecosystem. (Water Code, § 85054.) The Delta Reform Act further states that the coequal goals are to be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place. The Council is charged with furthering California's coequal goals for the Delta through the adoption and implementation of the Delta Plan. (Wat. Code, § 85300.)

Pursuant to the Delta Reform Act, the Council has adopted the Delta Plan, a comprehensive long-term management plan for the Delta and Suisun Marsh that furthers the coequal goals. The Delta Plan contains regulatory policies, which are set forth in California Code of Regulations, Title 23, sections 5001-5015. Through the Delta Reform Act, the Council was granted specific regulatory and appellate authority over certain actions of State or local public agencies that take place in whole or in part in the Delta. (Wat. Code, §§ 85210, 85225.30.) A state or local agency that proposes to undertake a covered action is required to prepare a written Certification of Consistency with detailed findings as to whether the covered action is consistent with the Delta Plan and submit that certification to the Council prior to implementation of the project. (Wat. Code, § 85225.)

## COVERED ACTION DETERMINATION AND CERTIFICATION OF CONSISTENCY WITH THE DELTA PLAN

Based on the project location and scope, as provided in the NOP, the project appears to meet the definition of a covered action. Water Code section 85057.5(a) states that a covered action is a plan, program, or project, as defined pursuant to Section 21065 of the Public Resources Code that meets all of the following conditions:

> *(1) Will occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh.* The project occurs within the boundaries of the Delta because the project proposes to continue a long-term water transfer through the Delta.
>
> *(2) Will be carried out, approved, or funded by a State or a local public agency.* Yuba Water, a local public agency, is proposing to continue the long-term water transfer.
>
> *(3) Is covered by one of the provisions of the Delta Plan.* Relevant provisions of the Delta Plan that may apply to this project are detailed below.

> *(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.* This project would have a significant impact on the coequal goals to provide a reliable water supply for California and to protect, restore, and enhance the Delta ecosystem.

The State or local agency approving, funding, or carrying out the project that must determine if that project is a covered action and, if so, file a Certification of Consistency with the Council prior to project implementation. (Wat. Code, § 85225; Cal. Code Regs., tit. 23, § 5001(j)(3).)

## COMMENTS REGARDING DELTA PLAN POLICIES AND POTENTIAL CONSISTENCY CERTIFICATION

The following section describes the Delta Plan regulatory policies that may apply to the project based on the available information in the NOP. This information is offered to assist Yuba County Water Agency (Yuba Water) in preparing environmental documents that could be used to support a Certification of Consistency for the project.

### *General Policy 1: Detailed Findings to Establish Consistency with the Delta Plan*

Delta Plan Policy **G P1** (Cal. Code Regs., tit. 23, § 5002) specifies what must be addressed in a Certification of Consistency by a project proponent of a project that is a covered action. The following is a subset of policy requirements which a project shall fulfill to be considered as consistent with the Delta Plan:

#### *Mitigation Measures*

Delta Plan Policy **G P1(b)(2)** (Cal. Code Regs., tit. 23, § 5002(b)(2)) requires covered actions not exempt from the California Environmental Quality Act (CEQA) must include all applicable feasible mitigation measures adopted and incorporated into the Delta Plan as amended April 26, 2018 (unless the measures are within the exclusive jurisdiction of an agency other than the agency that files the Certification of Consistency), or substitute mitigation measures that the agency finds are equally or more effective. These mitigation measures are identified in Delta Plan Appendix O and are

available at: https://deltacouncil.ca.gov/pdf/delta-plan/2018-appendix-o-mitigation-monitoring-and-reporting-program.pdf.

If the project SEIR identifies significant impacts that require mitigation, Yuba Water should review Appendix O and include all applicable feasible mitigation measures adopted and incorporated into the Delta Plan or identify substitute mitigation measures that the agency finds are equally or more effective.

### *Best Available Science*

Delta Plan Policy **G P1(b)(3)** (Cal. Code Regs., tit. 23, § 5002(b)(3)) states that actions subject to Delta Plan regulations must document use of best available science as relevant to the purpose and nature of the project. The Delta Plan defines best available science as "the best scientific information and data for informing management and policy decisions." (Cal. Code Regs, tit. 23, § 5001 (f).) Best available science is also required to be consistent with the guidelines and criteria in Appendix 1A of the Delta Plan (https://deltacouncil.ca.gov/pdf/delta-plan/2015-appendix-1a.pdf). A future certification of consistency for the project should describe how best available science was applied in project evaluations and decision making.

### *Adaptive Management*

Delta Plan Policy **G P1(b)(4)** (Cal. Code Regs., tit. 23, § 5002(b)(4)) requires that ecosystem restoration and water management covered actions include adequate provisions for continued implementation of adaptive management, appropriate to the scope of the action. This requirement is satisfied through a) the development of an adaptive management plan that is consistent with the framework described in Appendix 1 B of the Delta Plan (https://deltacouncil.ca.gov/pdf/delta-plan/2015-appendix-1b.pdf), and b) documentation of adequate resources to implement the proposed adaptive management plan. The Yuba Accord is a water management project, and as such, a future certification of consistency for the project should include an adaptive management plan that is consistent with Appendix 1 B requirements.

### *Water Resources Policy 1: Reduce Reliance on the Delta through Improved Regional Water Self-Reliance*

Delta Plan Policy **WR P1** (Cal. Code Regs, tit. 23, § 5003) provides that "[w]ater shall not be exported from, transferred through, or used in the Delta" if *all* three factors – set forth in subdivisions (a)(1), (a)(2), and (a)(3) – apply. Subdivision (a)(1) provides that a project may not proceed if one or more water suppliers that would receive water as a result of the project have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with the requirements of subdivision (c)(1). Subdivision (a)(2) specifies that the project may not proceed if the failure to reduce reliance has significantly caused the need for the export, transfer, or use. Subdivision (a)(3) specifies that the project may not proceed if the export, transfer, or use would have a significant adverse environmental impact in the Delta.

The project proposes to extend the existing water transfer program. The State Water Resources Control Board's (SWRCB) WR 2008-14 (Order) approving the existing long-term transfer in 2008 states that water reaching the Delta would be available for use by the California Department of Water Resources (DWR) to provide salinity and water quality controls within the Delta or to export from the Delta at either the Clifton Court Forebay or the Jones Pumping Plant for use within the State Water Project (SWP) or Central Valley Project (CVP) service areas. As part of a future certification of consistency for the project, Yuba Water should describe how each water supplier receiving water from the project is consistent with the requirements set forth in subdivision (c)(1) and provide quantitative data in support. (Cal. Code Regs, tit. 23, § 5003(c)(1).) Yuba Water should further address the conditions of subdivisions (a)(2) and (a)(3). Ultimately, the certification of consistency should be supported by substantial evidence in the record. Including this data within the SEIR will provide an opportunity for public review and comment regarding these matters.

### *Water Resources Policy 2: Transparency in Water Contracting*

Delta Plan Policy **WR P2** (Cal. Code Regs., tit. 23, § 5004) requires the contracting process for water from the SWP and/or the CVP be done in a publicly transparent manner consistent with applicable policies of the DWR and the Bureau of Reclamation (Reclamation). The project SEIR should document the planned contracting process and describe how Yuba Water will conduct contracting business in a transparent manner with the public. The Council would also like to receive draft

and final versions of the agreements listed as components of the project in the NOP when they are available.

### *Ecosystem Restoration Policy 1: Delta Flow Objectives*

Delta Plan Policy **ER P1** (Cal. Code Regs., tit. 23, § 5005) requires the SWRCB's Bay Delta Water Quality Control Plan flow objectives to be used to determine consistency with the Delta Plan. The project would continue a long-term water transfer program, extending the timeframe of pumping through the Delta. The SEIR should analyze and document how the project may impact or alter Delta flows that are subject to meeting the Bay Delta Water Quality Control Plan flow objectives.

## CEQA REGULATORY SETTING

For each resource section in which a Delta Plan policy is applicable, the SEIR's description of the regulatory setting should include the Delta Plan and a reference to the specific applicable regulatory policy or policies.

## CLOSING COMMENTS

As Yuba Water proceeds with design, development, and environmental impact analysis of the project, the Council invites Yuba Water to engage Council staff in early consultation (prior to submittal of a Certification of Consistency) to discuss project features and mitigation measures that would promote consistency with the Delta Plan.

More information on covered actions, early consultation, and the certification process can be found on the Council website, https://coveredactions.deltacouncil.ca.gov. Council staff are available to discuss issues outlined in this letter as the Yuba Water proceeds in the next stages of its project and approval processes. Please contact James Edwards at James.Edwards@deltacouncil.ca.gov with any questions.

Sincerely,

Jeff Henderson, AICP
Deputy Executive Officer

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY **GAVIN NEWSOM**, *Governor*

**DEPARTMENT OF WATER RESOURCES**
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

**VIA-EMAIL**

Date: February 27, 2023

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street, Marysville, CA 95901-4740
Telephone: (530) 741-5035
Email: jlessard@yubawater.org

Subject: Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program

Dear Ms. Lessard,

The Department of Water Resources (DWR) appreciates the opportunity to comment on the January 12, 2023, Notice of Preparation (NOP) of a Draft Supplemental Environmental Impact Report (SEIR) for extension of the Lower Yuba River Accord (Yuba Accord) Water Transfer Program. DWR highly values the partnership it has had with the Yuba Water Agency in implementing the Yuba Accord's Water Purchase Agreement for the past 15 years. Water purchased under the Agreement has been used to help meet fishery flows and water supply demands south and west of the Delta, especially in dry years when it is needed most. The Yuba Accord and its water transfer program have been successful and remain a great example of how water can be effectively and efficiently used to meet multiple demands and needs.

In light of the above and considering DWR's role as a responsible agency, DWR offers its assistance and coordination as Yuba Water Agency analyzes the long-term extension of the Yuba Accord water transfer program.

I and my staff are happy to make ourselves available to have discussions on the extension of the water transfer program and offer to meet regularly for the purpose of maintaining our strong partnership in implementing this valuable program.

If you have any questions on these comments or would like further information, please feel to contact me at (916) 651-2447 or john.leahigh@water.ca.gov.

Sincerely,

John Leahigh

John Leahigh
Assistant Division Manager, Water Management
Division of Operations and Maintenance

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THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

February 27, 2023

Ms. JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, California 95901-4740
Email: jlessard@yubawater.org

**Via Electronic Mail**

Dear Ms. Lessard:

Notice of Preparation of a Draft Supplemental Environmental Impact Report for Extension of the Lower Yuba River Accord Water Transfer Program

The Metropolitan Water District of Southern California (Metropolitan) reviewed the Notice of Preparation of a Draft Supplemental Environmental Impact Report (SEIR) for Extension of the Lower Yuba River Accord Water Transfer Program (Extension) beyond its current expiration date of December 31, 2025. The SEIR will be prepared pursuant to the California Environmental Quality Act (CEQA) by Yuba Water Agency (Yuba Water) as the Lead Agency. The Extension seeks to extend the agreements comprising the Lower Yuba River Accord Water Transfer Program (Yuba Accord Water Transfer Program) through 2050. These agreements include: (1) the Yuba Water/Department of Water Resources (DWR) Water Purchase Agreement; (2) the Yuba Water/Member Unit Conjunctive Use Agreements, and (3) the Yuba Water/Contra Costa Water District (CCWD)/East Bay Municipal Utilities District (EBMUD) Water Transfer Agreement. Under the Extension, Yuba Water plans to petition the SWRCB to extend approval of the place of use, purposes of use, and points of rediversion for the Yuba Accord Water Transfer Program.

Metropolitan is a public agency and regional water wholesaler, comprised of 26-member public agencies serving approximately 19 million people in portions of six counties in Southern California. Metropolitan's mission is to provide its 5,200 square mile service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Metropolitan achieves its mission of regional water supply reliability in part by pursuing water transfers from willing sellers that protect environmental resources. The Yuba Accord Water Transfer Program is a key part of Metropolitan's water transfer portfolio on the State Water Project. Metropolitan has secured over 250,000 acre-feet of water through this partnership since entering into an agreement with DWR in November 2007 to purchase transfers from Yuba

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Water. Access to this supplemental water has been instrumental to managing recent droughts. In 2022, nearly 15,000 acre-feet of Yuba transfer supplies were delivered to help meet the minimum human health and safety needs of Metropolitan's service area during the recent historic drought.

Purchase of Yuba transfer supplies provides water reliability for Metropolitan's service area while at the same time generating revenues to help support Yuba Water's mission areas of sustainable water management, flood risk reduction, and environmental stewardship. Through this agreement, Yuba River surface water is transferred to Metropolitan and other agencies across the state in almost all water year types, after the water has benefited critical fisheries in the lower Yuba River. The Yuba Accord is widely considered a model for balancing competing interests in water management, allowing Yuba Water to maintain sustainable surface and groundwater supplies while contributing to fishery enhancement and statewide water supply reliability. Metropolitan also recognizes Yuba Water's statewide leadership in accelerating the pace and scale of forest management and its efforts to protect the Yuba River watershed from catastrophic fire through innovative programs that will ensure the longevity of Yuba Water's statewide partnerships. This leadership to pursue multi-benefit and innovative action will help protect headwaters, combat the effects of climate change, and embodies watershed-wide approaches that are commensurate with the Metropolitan Board's Bay-Delta policies.

The Yuba Accord Water Transfer Program has provided important benefits for Metropolitan over the past fifteen years, and we appreciate Yuba Water's efforts to extend the program. For further assistance, please contact Ms. Sarah Bartlett (213) 217-6166 or sbartlett@mwdh2o.com.

Very truly yours,

DocuSigned by:
Jennifer Harriger
1C5AACFD98D9493...

Jennifer Harriger
Manager, Environmental Planning Section

SB:rdl
Comment Letter_Yuba Transfer Program Extension

STATE OF CALIFORNIA Gavin Newsom, Governor

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NAHC.ca.gov

January 18, 2023

Jacob Vander Meulen
Yuba County Water Agency
1220 F Street
Marysville, CA 95901

**Re: 2005062111, Extension of the Lower Yuba River Accord Water Transfer Programs Project, Alameda, Butte, Colusa, Contra Costa, Fresno, Glenn, Imperial, Kern, Kings, Lassen, Los Angeles, Madera, Marin, Mariposa, Merced, Monterey, Nevada, Placer, Plumas, Sacramento, San Benito, San Bernardino, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Sierra, Solano, Stanislaus, Sutter, Tehama, Tulare, Ventura, and Yuba Counties**

Dear Mr. Vander Meulen:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

**Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

**1.** Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

**2.** Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

**3.** Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

**4.** Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

**5.** Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

**6.** Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.

**b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

**7.** Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

**a.** The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

**b.** A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

**8.** Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

**9.** Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

**10.** Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

**a.** Avoidance and preservation of the resources in place, including, but not limited to:

**i.** Planning and construction to avoid the resources and protect the cultural and natural context.

**ii.** Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

**b.** Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

**i.** Protecting the cultural character and integrity of the resource.

**ii.** Protecting the traditional use of the resource.

**iii.** Protecting the confidentiality of the resource.

**c.** Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

**d.** Protecting the resource. (Pub. Resource Code §21084.3 (b)).

**e.** Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

**f.** Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

**11.** Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

**a.** The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

**b.** The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

**c.** The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

**1.** Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).

**2.** No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.

**3.** Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).

**4.** Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:

**a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or

**b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

**1.** Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:

**a.** If part or all of the APE has been previously surveyed for cultural resources.

**b.** If any known cultural resources have already been recorded on or adjacent to the APE.

**c.** If the probability is low, moderate, or high that cultural resources are located in the APE.

**d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

**2.** If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

**a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
**b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

**3.** Contact the NAHC for:
**a.** A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
**b.** A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

**4.** Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
**a.** Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
**b.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
**c.** Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Pricilla.Torres-Fuentes@nahc.ca.gov.

Sincerely,

*Pricilla Torres-Fuentes*

Pricilla Torres-Fuentes
Cultural Resources Analyst

cc: State Clearinghouse

# Nevada Irrigation District

Water for Life

February 6, 2023

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740
Telephone: (530) 741-5035
Email: jlessard@yubawater.org

Re: Comments of Nevada Irrigation District Concerning Yuba County Water Agency's (YCWA) Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for the Extension of the Lower Yuba River Accord Water Transfer Program.

Dear Ms. Lessard:

Nevada Irrigation District (NID) received Yuba County Water Agency's January 13, 2023, Notice of Intent to Prepare Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program (NOP). NID is the licensee of the Yuba – Bear Hydroelectric Project, consisting of approximately 79 MW of developed power utilizing the South Fork Yuba River, Middle Fork Yuba River, Bear River, and associated tributaries. NID additionally provides domestic and irrigation water supplies to approximately 25, 000 accounts in Placer and Nevada Counties, California. A significant portion of NID's water supply is from sources on the South Fork and Middle Fork of the Yuba River.

To assist in the scoping process, NID has identified several issues for YCWA's attention in the preparation of the proposed Environmental Review to address NID's concerns:

a. The Presumption that the Extension of the Yuba Accord Water Transfer program will not result in significant effects to multiple resource areas, and that a Supplemental EIR is an Appropriate Environmental Document is Premature.

YCWA states in its NOP that: "Yuba Water will prepare a supplemental environmental impact report (SEIR) (Supplement to the 2007 EIR) to satisfy the requirements of CEQA and the CEQA Guidelines." YCWA's NOP further states,

> [b]ecause the Extension is a continuation of existing conditions, however, it is likely that the SEIR will present analyses supporting the conclusion that extension of the Yuba Accord water transfer program will not result in significant effects in many environmental issue areas and will dismiss these areas from detailed analyses.

Yuba's determination to prepare an SEIR, as opposed to a subsequent EIR is entirely premature, as is the conclusion that "the extension of the Yuba Accord water transfer program will not result in significant effects in many environmental issue areas."

A supplement to an EIR is a document that is separate from the prior EIR and contains only those additions or changes needed to make the EIR adequate. Pursuant to CEQA, if major revisions are necessary to make a previous EIR adequate, the agency prepares a subsequent EIR. (Pub. Res. Code § 2166; 14 Cal Code Regs § 15162). In contrast, a subsequent EIR is a revised version of a prior EIR which contains the modifications necessary to describe and analyze the project changes, changes in circumstances, or new information that triggered the need for further environmental review. At this stage of the environmental review, it is premature for YCWA to conclude that a supplemental EIR, which is legally appropriate only to address "minor additions or changes to the prior EIR" is the appropriate environmental document.

The Yuba Accord and its various components was last subject to extensive environmental review in the Lower Yuba River Accord 2007 EIR. Since that time, many significant changes to the regulatory and physical inputs affecting the California water transfer market have occurred. Each one of these changes individually, and certainly on a cumulative basis, merit review in a Subsequent EIR:

- On December 12, 2018, the State Water Resources Control Board adopted Resolution No. 2018 – 0059 to update the Bay-Delta Plan. On March 29, 2022, Yuba Water Agency signed a Memorandum of Understanding, pursuant to which it agreed to support a Voluntary Agreements Program to implement flow and non-flow measures, as reflected in a Term Sheet appended to MOU. The Term Sheet included, among other measures, commitments of "New Contributions to Tributary Flow and Delta Outflows in Thousands of Acre Feet." In Certain Year Types, the Yuba Basin would provide up to 60 TAF of new flows. The Yuba River basin also committed to significant habitat improvement measures pursuant to the Term Sheet. The Subsequent EIR should evaluate the impact of the proposed flow and non-flow measures in the context of the proposed transfer program.

- In 2020 the U.S. Fish and Wildlife Services and National Marine Fisheries Service issued a no jeopardy biological opinion concerning operations of the Central Valley

Project. That determination was challenged by multiple groups, and the United States Bureau of Reclamation subsequently requested a reinitiation of consultation under the Endangered Species Act concerning operation of the Central Valley Project. During the pendency of the litigation, Project operations are governed by an Interim Operations Plan (IOP). The IOP and any biological opinions issued as a result of the reinitiation of consultation is likely to impact, at a minimum, the ability to utilize delta pumps for water exports (transfers) in terms of timing, quantity, and duration. These constraints may, in turn, impact YCWA's proposed project. The Subsequent EIR should evaluate these impacts, among others on its proposed Project.

- In January 2019, the Federal Energy Regulatory Commission issued its Final Environmental Impact Statement for the Yuba River Development Project. The Staff Recommendations set forth in the FEIS included significant changes to operation of the Yuba River Development Project, including revisions to the drought management plan to change the definition of drought, and proposed revisions to minimum flows below New Bullards Bar Dam.

Any one of these changes independently, and certainly any combination of these changes cumulatively, will constitute a significant change in the circumstances evaluated in the 2007 Final EIR, and merit review in a Subsequent, and not Supplemental, EIR.

b. The Environmental Document Should Analyze Impacts Associated with Current Transfer Periods and Evaluate Alternative Transfer Periods.

The lower Yuba River hosts Endangered Species Act listed Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) evolutionarily significant unit, the Central Valley steelhead *(O. mykiss*) distinct population segment (DPS), and the North American green sturgeon (*Acipenser medirostris*) southern DPS, their proposed or designated critical habitat, and essential fish habitat (EFH).

Each of the identified species and associated designated critical habitat and essential fish habitat are directly impacted by the timing, quantity, and frequency of water transfers pursuant to the proposed project. Under the existing project, which YCWA proposed to extend, water transfers occurred in seven dry, critical dry, and extremely critically dry hydrologic year types that have occurred within the past seventeen years.

The timing of transfers during these year types is of significant concern to listed species. In testimony before the State Water Resources Control Board, the California Department of Water Resources, advised that "the vast majority of the Yuba River Accord water will be moved in the traditional transfer window during the summer and early fall months of July through October."

This transfer period does not align with the period of significant interest concerning water temperatures in the Lower Yuba River for the period July through November. The environmental document should evaluate the impacts of water transfers in dry, critical dry, and extremely critically dry year types and further evaluate the impact of the timing and schedule of such transfers to mitigate impacts, including water temperature impacts occurring in the Lower Yuba River in the July – November time period.

c. Water Transfers During Schedule 6 Water Years.

Pursuant to the Accord and its related water transfer programs, YCWA commits to providing 30,000-acre feet of transfer water during 'schedule 6 water years.'. The Yuba Accord does not specify the timing of this water delivery, but project documents contemplate consultation with stakeholders between April 10 – May 21 to determine a schedule for such deliveries. During previous Schedule 6 water years, California DFW determined high water temperatures negatively impacted various life stages of ESA listed fishes.

The Environmental Document should evaluate the benefit of limiting transfers during Schedule 6 water years to the July – November period to benefit cold water for ESA listed species in the lower Yuba River.

d. Narrows 2 Intake Extension.

The State Water Resources Control Board's Revised Decision 1644, issued in 2003, ordered YCWA to extend the Narrows 2 Powerhouse Intake to a lower elevation in Englebright Reservoir and consult with NMFS, USFWS and California DFW regarding use of the lower intake from July through November in dry and critically dry years. Specifically, pages 176 and 177 of the 2003 Revised Decision 1644 orders in part:

JoAnna Lessard, Project Manager
Yuba County Water Agency
Re: Comments of Nevada Irrigation District Concerning Yuba County Water Agency's (YCWA) Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for the Extension of the Lower Yuba River Accord Water Transfer Program.
February 6, 2023


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2. To minimize water temperature impacts on anadromous fish and other public trust resources in the lower Yuba River, permittee [YCWA] shall comply with the following terms and conditions:

a. Permittee shall diligently pursue development of the Narrows II Powerhouse Intake Extension Project at Englebright Dam, in coordination with the Department of Fish and Game, the United States Fish and Wildlife Service and the National Marine Fisheries Service. Permittee shall submit proposals for project funding and prepare all appropriate CEQA documentation for project development in a timely manner. Permittee shall submit a report to the Chief of the Division of Water Rights on the status of its application for funding and the progress of project development every six months from the date of this Order through the completion of project construction.

b. Permittee shall coordinate operation of available temperature control devices to minimize temperature impacts on anadromous fishery resources in the lower Yuba River. Permittee shall consult with the Temperature Advisory Committee (composed of representatives from the SWRCB, the Department of Fish and Game, the United States Fish and Wildlife Service, the National Marine Fisheries Service, the California Sportfishing Protection Alliance and the South Yuba River Citizens League) on a regular basis during the temperature control season (May through October). Permittee shall monitor water temperature effects of project operations and report to the Advisory Committee on a regular basis. Permittee shall discuss with the Committee current operations for temperature control and variances from the temperatures needed to provide suitable habitat for anadromous fish. Permittee shall make changes to project operations for temperature control as recommended by the Temperature Advisory Committee on a real-time basis, unless Permittee informs the Chief of the Division of Water Rights within 14 days that the Committee recommendation is infeasible and explains the basis for that conclusion.

Revised Decision 1644 clearly envisioned that the upper intake at New Bullards Bar Reservoir would be available along with the Narrows 2 Powerhouse Intake Extension to provide suitable water temperatures for ESA-listed fishes, and that YCWA would consult with NMFS, CDFW and USFWS regarding the coordinated operations of these two P-2246 facilities. YCWA has not constructed the Narrows 2 intake facilities, but nonetheless continues to make transfers that may be contributing to water temperature issues on the lower Yuba River.

The Environmental Document should evaluate the benefits of constructing and operating the Narrows 2 Intake Extension, as required by Revised D-1644.

e. Streamflow Depletion Factors Associated with Groundwater Substitution Transfers.

The Proposed Project contemplates the transfer of significant quantities of water through the mechanism of groundwater substitution transfers. Depending on various factors including the distance of the groundwater well(s) participating in the transfer to the Yuba River and associated tributaries, depth of the well, and local hydrogeologic conditions, the increase in groundwater pumped by entities participating in the YCWA / Accord Groundwater Substitution Transfer program to enable the proposed transfers results in a reduction in the amount of water that would otherwise have accrued to the stream due to the interconnection of surface water and groundwater (streamflow depletion). Consequently, YCWA's groundwater pumping program for transfer operations will provide water at the expense of current and future streamflow.

The Environmental Document must evaluate the impacts of groundwater pumping on streamflow depletion affecting the lower Yuba River both on a 'real-time' basis as well as long term impacts. Mitigation measures evaluated in the Environmental Document should include, at a minimum: reductions in total quantities transferred in certain impacted year types, cessation of transfers during sequence of multiple, or multiple consecutive dry year types. These results must also be harmonized with requirements of the Sustainable Groundwater Management Act (SGMA) and any Groundwater Sustainability Plans adopted for the basin affected by the proposed Groundwater Substitution Water Transfers.

JoAnna Lessard, Project Manager
Yuba County Water Agency
Re: Comments of Nevada Irrigation District Concerning Yuba County Water Agency's (YCWA) Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for the Extension of the Lower Yuba River Accord Water Transfer Program.
February 6, 2023


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Thank you for the opportunity to provide these comments. Should you have further questions please do not hesitate to contact me at: (530) 273-6185 or hansonj@nidwater.com.

Very truly yours,

NEVADA IRRIGATION DISTRICT

By _____
JENNIFER HANSON, General Manager

February 27, 2023

***VIA EMAIL***

Joanna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740
Email: jlessard@yubawater.org

**Re: Comments – Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program**

Dear Ms. Lessard:

The Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program ("NOP") describes an important opportunity for the Yuba County Water Agency ("Yuba Water") to analyze the continued benefits of the Lower Yuba River Accord ("Yuba Accord") Water Transfer Program beyond its current expiration date of December 31, 2025 ("Yuba Accord Extension"). Through the San Luis & Delta-Mendota Water Authority's ("Water Authority"), eleven member agencies participate in and benefit from the Yuba Accord Water Transfer Program. The Water Authority, Del Puerto Water District, Eagle Field Water District, Mercy Springs Water District, Pacheco Water District, Panoche Water District, San Benito County Water District, San Luis Water District, and Westlands Water District submit this comments to support Yuba Water's proposed extension of the Lower Yuba River Accord Water Transfer Program as well as implementation of the programs governed by the Yuba Water/DWR Water Purchase Agreement, Yuba Water/MU Conjunctive Use Agreements, and Fisheries Agreement. The continued implementation of the Yuba Accord contributes to the health of the fisheries and the reliability of the water supply for Water Authority member agencies, including for disadvantaged communities within their service areas.

Most of the Water Authority's member agencies depend upon the CVP as the principal source of water they provide to users within their service areas. And yet, in the last ten years[1], south of Delta Central Valley Project ("CVP") agricultural water service and repayment contractors have averaged just a 27% allocation, and south of Delta CVP municipal and industrial (M&I) contractors have averaged an approximate 62% allocation. Because of unreliable CVP supplies, Water Authority member agencies have needed to purchase supplemental water, which itself is

[1] 2022-2013, available at https://www.usbr.gov/mp/cvo/vungvari/water_allocations_historical.pdf.

uncertain, both in amount and availability. In recent years, as in 2022, supplemental water was *only* available through the Yuba Accord Water Transfer Program. The importance of the Yuba Accord Water Transfer Program to Water Authority member agencies cannot be overstated.

**Conclusion**

The Water Authority, Del Puerto Water District, Eagle Field Water District, Mercy Springs Water District, Pacheco Water District, Panoche Water District, San Benito County Water District, San Luis Water District, and Westlands Water District appreciate the opportunity to submit these comments. If you have any questions regarding these comments, please contact Pablo Arroyave, Water Authority Chief Operating Officer, at (209) 832-6230.

Regards,

Federico Barajas, Executive Director
San Luis & Delta-Mendota Water Authority

David Parreira, Board President
Pacheco Water District

Lon Martin, General Manager
San Luis Water District

Steve Wittry, General Manager
San Benito County Water District

Anthea Hansen, General Manager
Del Puerto Water District

Ara Azhderian, General Manager
Mercy Springs Water District

Ara Azhderian, General Manager
Panoche Water District

Hugh Bennett, Board President
Eagle Field Water District

Jose Gutierrez, Interim General Manager and Chief Operating Officer
Westlands Water District

**Bill Diedrich**
*President*

**Mike Wood**
*Vice President*

**Mitch Coit**
*Tax Assessor/Collector*

**Tom Teixeira**
*Secretary/Treasurer*

**Jon E. Maring**
*Director*

**Lon Martin**
*General Manager*

***VIA EMAIL***

February 27, 2023

Joanna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740
Email: jlessard@yubawater.org

**Re: Comments – Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program**

Dear Ms. Lessard:

Through its membership with the San Luis & Delta-Mendota Water Authority, the San Luis Water District receives water from the Yuba Accord Water Transfer Program. As you describe, the Yuba Accord provides benefit to the environment and water contractors throughout the State of California. The Yuba Accord water is one of the most reliable sources of water in the State making its extension of the utmost importance.

San Luis Water District appreciates the effort Yuba County Water Agency is making to ensure this water supply remains accessible the environment and water users across the State of California. Please commit this comment letter to the record in response to the Notice of Preparation.

Sincerely,

Lon Martin
General Manager
San Luis Water District

February 27, 2023

Sent by email: jlessard@yubawater.org

Ms. JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, California 95901-4740

Re: Notice of Preparation of a Draft Supplemental Environmental Impact Report for Extension of the Lower Yuba River Accord Water Transfer Program

Dear Ms. JoAnna Lessard:

The State Water Contractors (SWC) appreciate this opportunity to comment on the CEQA Notice of Preparation (NOP) for the extension of the Lower Yuba River Accord (LYRA) Water Transfer Program. The NOP states that the purpose and objectives of this proposed extension are to continue providing supplemental water for SWP and CVP contractors, to facilitate conjunctive use in the Yuba River watershed, and to generate revenue for the Yuba Water Agency. Therefore, Yuba Water Agency is proposing to extend the agreements comprising the LYRA Water Transfer Program through 2050.

The SWC is an organization representing 27 of the 29 public water entities[1] that hold contracts with the California Department of Water Resources (DWR) for the delivery of State Water Project (SWP) water. Collectively, the SWC members provide a portion of the water supply delivered to approximately 27 million Californians, roughly two-thirds of the State's population, and to over 750,000 acres of irrigated agriculture in the Bay Area, San Joaquin Valley, Central Coast, and Southern California.

The SWC supports the proposed extension of the LYRA Water Transfer Program. The Water Transfer Program is a key element of the LYRA that provides important benefits for fish and wildlife and contributes to water supply reliability statewide. Since its inception in 2008, the Water Transfer Program has allowed our members to secure supplemental water supply across different water year types, especially during droughts. The proposed extension of the Water Transfer Program is essential to continue this successful multi-benefit Program.

**DIRECTORS**

**Craig Wallace**
**President**
Kern County Water Agency

**Robert Cheng**
**Vice President**
Coachella Valley Water District

**Laura Hidas**
**Secretary-Treasurer**
Alameda County Water District

**Brad Coffey**
Metropolitan Water District of Southern California

**Thomas Pate**
Solano County Water Agency

**Ray Stokes**
Central Coast Water Authority

**Matthew Stone**
Santa Clarita Valley Water Agency

**Peter Thompson, Jr.**
Palmdale Water District

**Jacob Westra**
Tulare Lake Basin Water Storage District

**General Manager**
Jennifer Pierre

[1] Alameda County Flood Control & Water Conservation District, Zone 7; Alameda County Water District; Antelope Valley East Kern Water Agency; Central Coast Water Authority; City of Yuba City; Coachella Valley Water District; County of Kings; Crestline-Lake Arrowhead Water Agency; Desert Water Agency; Dudley Ridge Water District; Empire-West Side Irrigation District; Kern County Water Agency; Littlerock Creek Irrigation District; Metropolitan Water District of Southern California; Mojave Water Agency; Napa County Flood Control & Water Conservation District; Oak Flat Water District; Palmdale Water District; San Bernardino Valley Municipal Water District; San Gabriel Valley Municipal Water District; San Gorgonio Pass Water Agency; San Luis Obispo County Flood Control & Water Conservation District; Santa Clara Valley Water District; Santa Clarita Valley Water Agency; Solano County Water Agency; and Tulare Lake Basin Water Storage District.

Thank you for the opportunity to comment on the NOP. The SWC looks forward to working with you and DWR on this proposed extension. If you have any questions or would like to discuss this, please do not hesitate to contact Mr. Chandra Chilmakuri at (916) 562-2583. The Yuba Accord Water Transfer Program has provided important benefits for the SWC members, and we appreciate Yuba Water Agency's efforts to extend the Program.

Sincerely,

Jennifer Pierre
General Manager

CALIFORNIA Water Boards

GAVIN NEWSOM GOVERNOR

YANA GARCIA SECRETARY FOR ENVIRONMENTAL PROTECTION

State Water Resources Control Board

February 27, 2023

**VIA ELECTRONIC MAIL**

Ms. JoAnna Lessard
Yuba County Water Agency
1220 F Street
Marysville, CA 95901
**Email:** jlessard@yubawater.org

Dear Ms. Lessard:

**COMMENTS ON NOTICE OF PREPARATION OF DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT AND NOTICE OF SCOPING MEETINGS FOR EXTENSION OF THE LOWER YUBA RIVER ACCORD WATER TRANSFER PROGRAM (STATE CLEARINGHOUSE NO. 2005062111)**

State Water Resources Control Board (State Water Board) staff appreciates the opportunity to provide comments on Yuba County Water Agency's (Yuba Water) *Notice of Preparation (NOP) of a Draft Supplemental Environmental Impact Report (SEIR) and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program*. Yuba Water is proposing to continue the Lower Yuba River Accord (Yuba Accord) Water Transfer Program beyond its current expiration date of December 31, 2025, through December 31, 2050. The Yuba Accord Water Transfer Program consists of: (1) a Water Purchase Agreement between Yuba Water and the California Department of Water Resources; (2) Conjunctive Use Agreements between Yuba Water and its Member Units; and (3) a Water Transfer Agreement between Yuba Water, Contra Costa Water District, and East Bay Municipal Utility District. The NOP also states that extension of approval of the places of use, purposes of use, and points of rediversion for Yuba Accord transfer water would be needed. Accordingly, as noted in the NOP, the State Water Board is a responsible agency for this project. State Water Board staff comments are provided in Attachment A of this letter.

Thank you again for the opportunity to provide comments on the NOP. If you have questions regarding this matter, please contact Jose Ayala by phone at (916) 327-8590, or by email to Jose.Ayala@waterboards.ca.gov. Written correspondence or inquiries should be addressed as follows:

State Water Resources Control Board
Division of Water Rights
Attn: Jose Ayala
P.O. Box 2000
Sacramento, CA 95812-2000

Sincerely,

Erik Ekdahl
Deputy Director
Division of Water Rights

Attachment A: State Water Board Staff Comments on NOP of Draft SEIR and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program (State Clearinghouse No. 2005062111)

Attachment A:
State Water Board Staff Comments on NOP of Draft SEIR and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program
(State Clearinghouse No. 2005062111)

The following comments are provided by State Water Resources Control Board (State Water Board) staff on Yuba County Water Agency's (Yuba Water) *Notice of Preparation (NOP) of a Draft Supplemental Environmental Impact Report (SEIR) and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program*.

**Water Rights Change Petition**

The Lower Yuba River Accord Water Transfer Program is in part operated pursuant to State Water Board Corrected Order WR 2008–0014,[1] which approved Yuba Water's April 2007 petition for modification of Permits 15026, 15027, and 15030 and long-term transfer under water right Permit 15026 through December 31, 2025. A long-term transfer of water or water rights involves a change of point of diversion, place of use, or purpose of use for any period in excess of one year; following expiration of the long-term transfer period, all rights automatically revert to the original holders of the water right(s) without any action by the State Water Board (Wat. Code, §§ 1735, 1737). Therefore, in order for Yuba Water to continue water transfers beyond December 31, 2025, a new petition for long-term transfer under Permit 15026 must be approved by the State Water Board.

Before approving a petition to change the point of diversion, place of use, or purpose of use of a water right permit, the State Water Board must make the statutory and regulatory findings that the change would: (1) not operate to the injury of any legal user of the water involved; and (2) not in effect initiate a new right (Wat. Code, § 1702; Cal. Code Regs, tit. 23, § 791, subd. (a)). For a long-term transfer petition by a public agency under Water Code section 386, the State Water Board must find that the change would: (1) not result in substantial injury to any legal user of water; (2) not unreasonably affect fish, wildlife, or other instream beneficial uses; and (3) not unreasonably affect the overall economy of the area from which the water is to be transferred (Wat. Code, §§ 386, 1736; see also Stats. 1959, ch. 788 [Yuba County Water Agency Act], p. 2786, § 5.2, as amended, West's Wat. Code, Appen. § 84-5.2, subd. (c)).

The SEIR should provide adequate documentation to substantiate the State Water Board's required findings, and should ensure that the SEIR considers all potentially significant direct, indirect, and cumulative impacts associated with the transfer of water; a range of project alternatives that reduce or avoid flow-related impacts on terrestrial and aquatic species; any economic effects in the area that are linked to potentially significant environmental impacts; and any injury to other legal users of water that is linked to potentially significant environmental impacts. An analysis that identifies the extent to which additional water is made available for transfer relative to a clearly

[1] Available at: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2008/wro2008_0014corrected.pdf.

defined baseline of existing authorized releases and obligations to release flows will assist the State Water Board in analyzing how the proposed changes petitioned by Yuba Water will affect other legal users of water and fish, wildlife, and other instream beneficial uses. The SEIR should describe and consider release obligations that may result from updates and implementation of the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Bay-Delta Plan) or other federal or State Water Board actions (e.g., license or water quality certification for the Yuba River Development Project (YRDP)).

*Groundwater Substitution Transfers*

As described in Corrected Order WR 2008-0014, up to 120,000 acre-feet of water annually may be transferred to downstream parties made available by groundwater substitution. Groundwater substitution transfers have the potential to result in surface water flow reductions, affect fish and wildlife, and injure other legal users of water. These effects should be evaluated in the SEIR. The 2007 Yuba Accord EIR discussed potential impacts to groundwater and surface water interactions from the groundwater substitution pumping under the proposed long-term transfer, but an analytical evaluation of groundwater and surface water interactions was not conducted as it was not considered feasible based on the information available in the Yuba Basin at that time.

The Yuba Subbasins Groundwater Sustainability Agencies (GSAs)[2] have subsequently developed the Yuba Groundwater Model, a numerical groundwater and surface water model that estimates surface water and groundwater entering and leaving the North and South Yuba Subbasins under historical, current, future, and future with climate change conditions. Also, the California Department of Water Resources has developed the Sacramento Valley Groundwater-Surface Water Simulation Model (SVSim) that assesses streamflow depletions due to groundwater pumping. The State Water Board encourages Yuba Water to use the appropriate model(s) to analyze and discuss in the SEIR local and regional effects that increased pumping due to long-term groundwater substitution transfers will have on stream flows.

**Federal Energy Regulatory Commission (FERC) Water Quality Certifications**

The authority of the State Water Board to issue, condition, or deny a water quality certification for the purposes of section 401 of the federal Clean Water Act (33 U.S.C. § 1341) in association with a federally licensed or permitted activity pursuant to Water Code section 13160 is separate and independent from the State Water Board's authority over water rights (Wat. Code, § 1000 et seq.). Accordingly, decisions regarding Yuba Water's water rights are independent actions, separate from any future

[2] The Yuba Subbasins GSAs consist of the Yuba Water GSA, the Cordua Irrigation District GSA, and the City of Marysville GSA.

or ongoing water quality certification actions associated with the YRDP or Narrows 1 Hydroelectric Project.

Yuba Water's NOP states in part: "The Fisheries Agreement remains in effect until the Federal Energy Regulatory Commission (FERC) issues a new long-term license for the Yuba River Development Project." Corrected Order WR 2008-0014 incorporated the flow schedules specified by the Lower Yuba Accord Fisheries Agreement. Absent an order amending Corrected Order WR 2008-0014 or otherwise modifying Yuba Water's permits for consumptive use, the minimum instream flow requirements of Corrected Order WR 2008-0014, as well as other requirements set forth in State Water Board Revised Water Right Decision 1644 (2003)[3] and Corrected Order WR 2008-0014, remain in effect. According to Yuba Water's NOP, Yuba Water's proposed extension of the Lower Yuba River Accord Water Transfer Program does not include modifications to flow requirements included in Revised Water Right Decision 1644 or Corrected Order WR 2008-0014. Where the flows required by Revised Water Right Decision 1644 or Corrected Order WR 2008-0014 differ from those required by a water quality certification or FERC license, Yuba Water is obligated to implement the greater of the flow requirements to remain in compliance with both requirements.

The water quality certification issued by the State Water Board on July 17, 2020, as well as the staff alternative in FERC's 2019 Final Environmental Impact Statement for the YRDP, included minimum instream flow releases from the YRDP greater than those required by Revised Water Right Decision 1644 or Corrected Order WR 2008-0014. Additionally, as part of the FERC relicensing process, Yuba Water has proposed modifications to water year schedule determinations below Englebright Dam. While the FERC relicensing process has not concluded and a new license has not been issued for the YRDP, it is likely that this relicensing process will result in seasonal increases to minimum instream flows, and it may result in modifications to water year schedule determinations. Accordingly, State Water Board staff request that Yuba Water analyze the potentially significant direct, indirect, and cumulative impacts of increased minimum flows and water year schedule determinations to proposed water transfers.

**Modeling of the Proposed Project**

The SEIR should evaluate the effects the proposed project would have on stream flows in and downstream of the Yuba River, including the Feather River, Sacramento River, and Sacramento-San Joaquin Delta (Delta), and any associated impacts on water temperature, water quality, and fish and wildlife species. Hydrologic modeling of the proposed project should incorporate the flow schedules required under Yuba Water's water right Permits 15026, 15027, and 15030. In addition, the SEIR should evaluate the effects the proposed project would have on diversions from the Delta, and any

[3] Available at: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1644revised.pdf.

associated impacts to fish and wildlife species in the Delta and propose appropriate mitigation for any impacts, including cumulative impacts.

**Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary**

The SEIR should evaluate the proposed project in the context of the State Water Board's current efforts to update and implement the Bay-Delta Plan. In particular, as you are aware, the State Water Board is considering amendments to the Bay-Delta Plan focused on the Sacramento River and its tributaries, Delta eastside tributaries, Delta outflows, and interior Delta flows (referred to as the Sacramento/Delta Update to the Bay-Delta Plan). In July 2018, State Water Board staff released a Framework for a possible Sacramento/Delta Update to the Bay-Delta Plan[4] (Framework) that identifies a possible new Delta inflow objective of 55% of unimpaired flow with an adaptive range of 45%-65% of unimpaired flow and a possible new inflow-based Delta outflow objective that would specify that required inflows from the Sacramento/Delta tributaries and the San Joaquin River be provided as outflow. (More information about the State Water Board's current efforts to update and implement the Bay-Delta Plan is available online.[5]) In addition, in 2022, the State Water Board received a Memorandum of Understanding Advancing a Term Sheet for Voluntary Agreements[6] (VAs) proposing voluntary measures for the update and implementation of the Bay-Delta Plan.

The SEIR should evaluate alternatives consistent with the Sacramento/Delta Update to the Bay-Delta Plan, including the Framework and VAs. Specifically, in evaluating the amount of water that would be available for transfer and the environmental impacts of those transfers, the SEIR should also consider Yuba River inflows and contributions to Delta outflow that would be required under the Framework and VAs. Additionally, the SEIR should evaluate the effects of the proposed project on surface water and groundwater resources and the cumulative impacts of the proposed project in the context of the Sacramento/Delta Update to the Bay-Delta Plan.

[4] Available at: https://waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/sed/sac_delta_framework_070618%20.pdf.
[5] Available at: https://waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/.
[6] Available at: https://waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/proposed_voluntary_agreements.html.

February 27, 2023

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740

Submitted via email: jlessard@yubawater.org

**RE: Notice of Preparation of a Draft Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program**

Dear Ms. Lessard:

This letter is submitted as the comments of the South Yuba River Citizens League (SYRCL), The Bay Institute, Friends of the River, Trout Unlimited, California Sportfishing Protection Alliance and Northern California Council, Fly Fishers International, regarding Yuba Water Agency's (Yuba Water) January 12, 2023, Notice of Preparation (NOP) of a Draft Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord (Yuba Accord) Water Transfer Program (WTP). In addition to reviewing the NOP itself, we also reviewed Corrected Order WR 2008 – 0014, and the 2007 Yuba Accord FEIR upon which the Yuba Accord Extension will rely on during the California Environmental Quality Act (CEQA) process, as well as other relevant documents cited in this comment letter.

## I. Introduction

Yuba Water is proposing to extend the Yuba Accord WTP through 2050, beyond its current expiration date of December 31, 2025.

SYRCL, Friends of the River, Trout Unlimited and the Bay Institute were involved in the development of the Yuba Accord's Lower Yuba River Fisheries Agreement (Fisheries Agreement) and have participated in its implementation for many years. These organizations were not involved in the development of the WTP and were not signatories to it. They were clear during the entire process that the Yuba Accord did not address Yuba Water's obligations to protect water quality and habitat downstream of the Yuba, and that the other elements of the Yuba Accord would likely need to be modified in the future to be consistent with needed changes in regulatory requirements relating to the ongoing species declines and habitat degradation occurring in the Sacramento River and the San Francisco Bay-Delta estuary.

Before extending the WTP, Yuba Water must consider:

- how extending the WTP will affect ongoing degradation of the Bay-Delta and its Sacramento River watershed, which will only be exacerbated by climate change;
- whether extending the WTP is inconsistent with the pending update of Sacramento River and re-initiation of consultation for the NMFS 2019 Biological Opinion for Chinook salmon;
- how extending the WTP's transfer schedule will affect the ability to improve flow regimes in the Yuba watershed itself to protect and restore salmonids and other native fishes;
- whether the WTP is necessary to achieve Yuba Water's project purposes; and
- evaluating alternatives that may be more environmentally benign and economically efficient than the proposed extension.

## II. Project Purpose

Three of the project objectives cited in the NOP require re-examination. First, providing supplemental water for Central Valley Project (CVP) and State Water Project (SWP) contractors may no longer be consistent with necessary and pending new protections for the Bay-Delta estuary, including more stringent controls on Delta export pumping (*see* IV, below). Second, the stated project purpose of providing environmental benefits in the Delta through the Environmental Water Account (EWA) or equivalent has not been achieved and may no longer be viable (*see* VI, below). Third, Yuba Water could potentially generate revenue for its projects, no matter how laudable these projects may be, using different mechanisms (*see* VII, below).

## III. Appropriate Level of CEQA Review

The proposed WTP necessitates a new review under CEQA, due to the extension of the program beyond its original project timeline end date of December 31, 2025. The NOP proposes to prepare a supplemental environmental impact report (SEIR) to satisfy the requirements of CEQA. The NOP states that there will be no substantial changes to the WTP. The supplemental environmental review will cover the proposed extension of the project to 2050.

CEQA guidelines[1] require a subsequent EIR for certified program and project-level EIRs if the following conditions exist:

a. Substantial changes with respect to the circumstances requiring major revisions due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

b. New information of substantial importance which was not known and could not have been known with the exercise of reasonable diligence at the time of preparation of the EIR, becomes available. Such information must show either: the project will have one or more significant effects not discussed in the previous EIR; significant effects previously examined will be substantially more severe; mitigation measures or alternatives previously found to be infeasible would in fact be feasible and would substantially reduce

[1] CEQA Guidelines Section 15162

> one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or 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.

Based on the above guidelines for issuing a new EIR and changed conditions since 2007, it appears that a new EIR (rather than a SEIR) is required for the proposed WTP extension. The potential effects of extending the WTP will be substantially more severe with regards to deteriorating conditions for endangered species and critical habitat areas downstream in the Sacramento River watershed and the Bay-Delta estuary (see IV below), as well as in the Yuba River itself (see V below). There are also pending changes to regulatory requirements in the Delta (especially, pending litigation and the re-initiation of consultation for the 2019 NMFS Biological Opinion, and the in-progress update of the Bay-Delta Water Quality Control Plan and subsequent water rights proceedings). In any case, it is unlikely that Yuba Water will be able to complete a new EIR or a new SEIR in a timeframe commensurate with the timeline for ratification of the proposed project.

The 2007 EIR was certified despite the lack of a complete Endangered Species Act (ESA) consultation by the U.S. Bureau of Reclamation (USBR) related to pelagic fish in the Delta at the time. In a 2005 lawsuit, the Natural Resources Defense Council (NRDC) alleged that USBR and the U.S. Fish and Wildlife Service (USFWS) "acted unlawfully by renewing and implementing and approving of the renewal and implementation of certain long-term water contracts in reliance on a 2005 Biological Opinion issued pursuant to the Endangered Species Act (ESA) the agencies knew, or should have known, was inadequate to protect the ESA-listed delta smelt."[2] Due to interim remedies ordered in *NRDC v. Kempthorne*, USBR delayed completion of its ESA compliance for the Proposed Project/Action, and opted to wait to complete its Record of Decision (ROD) until the ESA re-consultations for Operating Criteria and Procedures (OCAP) were completed.[3]

Despite the ongoing ESA consultation in 2007, Yuba Water moved forward with implementing the Water Purchase Agreement between Yuba Water and the Department of Water Resources (DWR), without USBR as a party to the agreement. Yuba Water also made no changes to its FEIS/FEIR following interim remedy orders outlined in *NRDC v. Kempthorne*, contending that any changes made to USFWS Biological Opinion the project would not result in any new significant environmental impacts not already analyzed.

In 2008, USFWS issued a new OCAP Biological Opinion (BiOp) for pelagic Delta fish species. In 2009, the National Marine Fisheries Service (NMFS) issued a new OCAP BiOp for salmonids and green sturgeon. Those BiOps had effect until 2019, when they were superseded by BiOps for the "long-term operation" of the CVP and SWP. In 2021, DWR and USBR reinitiated consultation with USFWS and NMFS; new BiOps are expected in 2023.

[2] *Natural Res. Def. Council v. Kempthorne*, Case No. 1:05-cv-01207 LJO-GSA (E.D. Cal. Jun. 15, 2015)
[3] Final EIR/EIS Proposed Lower Yuba River Accord, Chapter 5, p. 3

Yuba Water's new CEQA document will have to consider this changing regulatory setting. In particular, the 2019 BiOps expanded the Delta export and transfer "window" to include October and November, as well as July, August, and September. That expansion is likely, but not certain, to remain in the new BiOps.

## IV. Bay-Delta Fish Declines, Habitat Degradation, and WTP-related Delta Exports

Pursuant to Yuba Water's purchase agreement with DWR, Yuba Water transfers up to 200,000 AF of water annually to DWR. In the first 8 years of the agreement, approved recipients of part of the annual transfer also included the EWA or other water supply reliability projects.

Water released into Englebright Reservoir for transfer to the Yuba River would then flow to the Feather River, Sacramento and finally the Delta. Water transferred to the Delta was intended to be available either for water quality and salinity control, or to export within the SWP or CVP service areas. The additional surface water released from New Bullards Bar Reservoir is made available for purchase by DWR through increasing groundwater pumping by Yuba Water member irrigators.

The 2007 DEIR noted several significant mitigable effects of the Project, including 1) a change in groundwater pumping that could impact local groundwater users in the Yuba Region; 2) a change in salinity and chloride concentrations that could degrade water quality conditions in the Delta; and 3) a change in reservoir refilling that could impact water quality in the Delta or in the export service areas south of the Delta. Corrected Order 2008-20014 required that mitigation measures be incorporated into the project to reduce the impact to a less than significant level, as well as requires monitoring and reporting of compliance.[4]

Environmental conditions in the Bay-Delta are substantially worse than they were in 2007, due in large part to hydrologic alteration, *i.e.*, the reduction in volume and change in timing of freshwater flows. The State Water Resources Control Board (SWRCB) has repeatedly determined that the existing flow requirements in the Bay-Delta are inadequate. The Bay-Delta Water Quality Control Plan and Water Rights Decision 1641 (D-1641), which implements the plan, fail to adequately protect fish and wildlife beneficial uses and the Public Trust. They are insufficient to prevent decline and extinction of native fish and wildlife in the estuary.

The SWRCB made explicit findings in 2010 (SWRCB, *Development of Flow Criteria for the Sacramento-San Joaquin Delta*) and 2017 (SWRCB, *Scientific Basis Report in Support of New and Modified Requirements for Inflows from the Sacramento River and its Tributaries and Eastside Tributaries to the Delta, Delta Outflows, Cold Water Habitat, and Interior Delta Flows*). These findings included the inadequacy of existing criteria controlling Delta export pumping and its effects on in-Delta hydrodynamics and fish habitat. In recent years, populations of numerous native flow-dependent estuarine fish species experienced record or near record low levels, and entire year classes of endangered Chinook salmon have been decimated. This situation is only exacerbated by climate change.

[4] Corrected Order 2008-20014, p. 48-49

According to California's Fourth Climate Change Assessment, the Delta is particularly vulnerable to several impacts including infrastructure collapse due to earthquakes, increased contamination, saltwater intrusion from sea-level rise, flooding due to extreme weather events, and water temperature disturbances that impact native fish species. The assessment also finds that "under current emissions trajectories, 82 percent of native fishes have an increased probability of becoming extinct by 2100 (Moyle et al., 2013). Many of these species, including iconic salmon and steelhead trout, are already at risk and listed as species of special concern or endangered, even without climate change impacts. (Quiñones & Moyle, 2015)."[5]

Further, the Delta Stewardship Council's 2022 End of Year Review found that water quality in the Delta is declining. Continued drought conditions in 2022 reduced freshwater entering the Delta allowing salinity levels to increase. The impacts and threats of Harmful Algal Blooms are becoming more frequent and severe.[6]

Put simply, the Bay-Delta estuary is an incredibly important ecosystem that is increasingly susceptible to ongoing impacts of altered freshwater flow and the growing impacts of climate change. In this light, the impacts of Delta exports associated with the extension of the WTP will be far more damaging today than they were in 2007.

## V. Yuba Accord Flow Schedule and FERC Relicensing

The WTP was developed to be implemented consistent with the Yuba Accord's flow schedule as described in the Fisheries Agreement.

The Fisheries Agreement sets minimum instream flows in the lower Yuba River, providing different guidance above Daguerre Point Dam (Smartsville gauge) and below Daguerre Point Dam (Marysville gauge). The stated purposes of the Fisheries Agreement included fisheries enhancement and protection and ensuring that water transfers occur in an environmentally sound manner. The implementation of the environmental flows in the Fisheries Agreement are intrinsically linked to how Yuba Water manages and operates its facilities. Extending the WTP means that flows in the Yuba River will continue to be managed as much to implement the WTP as to implement the Fisheries Agreement. The NOP says that a new CEQA document will not directly address the flow schedule in the Fisheries Agreement. However, extending the WTP may constrain opportunities to modify flow requirements in the lower Yuba River. Additional constraints on Yuba flow management are of particular concern given the continued decline in the condition of Yuba fish populations, even under the Fisheries Agreement and the historic pattern of Fisheries Agreement flow requirements being waved in dry years.

In 2010, Yuba Water began relicensing its hydroelectric project, Yuba River Development Project (YRDP) in a proceeding before the Federal Energy Regulatory Commission (FERC). The Yuba Accord Fisheries Agreement explicitly contemplated re-evaluating lower Yuba River flows in relicensing. New flows in the FERC license will supersede the flows in the Fisheries Agreement. If the new FERC license (including any required in a Clean Water Act Section 401 water quality certification for the new license) substantially increases flow requirements in the

[5] California's Fourth Climate Change Assessment
[6] Year in Review - 2022 Performance Measures | Delta Stewardship Council (ca.gov)

lower Yuba River, Yuba Water may need to perform additional evaluations. These may include water reliably available to the WTP and changes in carryover storage targets in New Bullards Bar Reservoir. Yuba Water may also need to re-evaluate related additional impacts, such as impacts to local water supply and groundwater. An alternatives matrix that treats these elements as variables may be the most efficient way to set up these evaluations.

## VI. Water Delivery Contracts with DWR and other Partners

The Water Purchase Agreement executed in December 2007 between Yuba Water and DWR established the terms and conditions under which Yuba Water and its local irrigation districts/mutual water companies will provide water supplies for DWR and USBR, including water for water supply reliability purposes.

The agreement provides for DWR to pay for 8 years of transfers to the EWA Program and for certain dry-year supplies for SWP and CVP contractors until 2025.[7] Specifically, the components of the agreement are as follows:

a. Component 1 – For the first 8 years of the agreement, DWR will purchase 60,000 AF to be used for the EWA.

b. Component 2 – Yuba Water will provide DWR 15,000 AF of water in any dry year and 30,000 AF of water in any critical year.

c. Component 3 – Under certain SWP and CVP delivery allocation scenarios, Yuba Water will make available for sale a total of 40,000 AF to DWR.

d. Component 4 – In all water year types, Yuba Water will inform DWR of the quantity of any additional transfer water available from surface and groundwater supplies. DWR will then notify YCWA if DWR will opt to take delivery of any or all Component 4 water.

The 2007 EIS/EIR evaluated water sales to DWR through the EWA as an environmental benefit.[8] It also evaluated the EWA as fulfilling a project purpose for DWR and providing Delta inflows that served a mitigation or enhancement function in the Delta.[9] . There is no substantial evidence that water sales through the WTP performed its purported Delta mitigation or environmental enhancement function. There is at present also no clear functional successor to the EWA. Therefore, it appears to be necessary to issue a new EIS/EIR that both removes Delta mitigation or enhancement as project purpose and that deletes the analysis that considers the WTP as performing Delta mitigation or enhancement.

The NOP proposes to add water sales to the East Bay Municipal Utility District (EBMUD) and to Contra Costa Water District (CCWD) as part of the proposed project. As a general matter, water sales to EBMUD and CCWD have fewer impacts on Delta fisheries than water sales that

[7] Corrected Order WR 2008-0014, p. 9
[8] *See* Yuba Accord 2007 DEIS/DEIR, p. ES-4. The DEIS/DEIR with additions was adopted as the FEIS/FEIR.
[9] *Id.*

must be executed using the Delta pumps. The new CEQA document should analyze deliveries of different amounts or percentages of WTP water to CVP and SWP Delta pumps and to other destinations. Setting these as CEQA alternatives and evaluating the associated impacts would provide a clear analytical framework.

Climate change is leaving California extremely vulnerable to extreme weather patterns and presents significant challenges when it comes to planning for and managing future water supply. As purchase agreements are considered pursuant to the Yuba Accord extension, we recommend that contracted water amounts not establish acre-foot per year allocations but rather set up a conditional schedule based on operational constraints and annual hydrology. This modification in water purchase agreements would allow for flexibility in a changing and unpredictable climate.

Further, purchase agreements should be reviewed annually or on a regularly scheduled basis to ensure that contractually obligated water allocations are not outpacing the water reality in California. We recommend a process be put in place that allows for water purchase agreements to be modified or cut back if any given water year circumstances necessitate doing so. We believe that this can be done with public need, economic efficiency, and environmental sustainability in mind.

## VII. Project Alternatives

As outlined in the 2023 NOP, the Supplemental EIR will describe existing conditions and evaluate the potential for significant environmental effects of the WTP Extension and appropriate alternatives, including a No Project alternative.

The 2007 Yuba Accord DEIR described and evaluated the Proposed Project and alternatives as follows: 1) Yuba Accord Alternative (Proposed Project/Action Alternative); 2) Modified Flow Alternative; 3) No Project Alternative and 3) No Action Alternative.[10] CEQA and NEPA require an analysis of a "No Project" alternative and a "No Action" alternative, respectively.[11] CEQA guidelines state that "the 'no project' analysis shall discuss the existing *conditions at the time the notice of preparation is published*, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the *foreseeable future* if the project were not approved, based on current plans and consistent with available infrastructure and community services."[12]

The 2007 Yuba Accord DEIR outlines environmental conditions and potential operational and environmental conditions that may occur in the near-term foreseeable future (2007 through 2025) if the Proposed Project/Action or other alternative were not implemented. Yuba Water explains that the two primary differences between the Existing Condition and the No Project Alternative are as follows:

[10] Draft EIR-EIS for the Proposed Accord, Chapter 3-Proposed Project Action and Alternatives, p.1
[11] CEQA Guidelines Section 15126.6
[12] CEQA Guidelines Section 15126.6 (e)(2)

a. "The instream flow schedules would be the RD-1644 Long-term requirements rather than the RD-1644 Interim requirements.

b. The Wheatland Canal would be operational, increasing diversions at Daguerre Point Dam by approximately 40 TAF, thereby increasing in-lieu groundwater recharge in Yuba County by a similar volume.

c. These two differences would affect the ability of YCWA to continue to transfer stored surface water and therefore to generate a revenue stream for continued investment in flood control and water supply projects."[13]

It may be that a No Project/No Action alternative would significantly alter the ability of Yuba Water to deliver water and generate revenue. However, proceeding with the proposed WTP extension will not necessarily provide the anticipated benefits, given greatly changed circumstances and the prospect of even more drastic climate change impacts on the ability to transfer water. As noted above, the last analysis of project alternatives was completed for the years 2007 – 2025.

Therefore, according to CEQA/NEPA guidelines, it is incumbent upon Yuba Water to analyze a full range of project alternatives as it considers the Yuba Accord Extension, particularly due to the drastic change in conditions both in the present and into the "foreseeable future," which in this case would be through the year 2050. We have suggested some specific potential alternatives or series of alternatives above. In addition, the alternatives analysis should consider not only modifications to the WTP transfer schedules and related actions, but also alternatives to generate revenue for Yuba Water that do not involve water transfers using CVP and SWP Delta pumps.

**Closing**

In summary, we strongly recommend that if Yuba Water proceeds with the proposed extension of the WTP, it must:

1) produce a new EIR that fully accounts for the numerous changes that have occurred since the 2007 EIR was first certified and extends the analysis into projected 2050 conditions;
2) consider project impacts to the Bay-Delta estuary;
3) evaluate how significant pending changes to WQCP and ESA requirements will impact Yuba Water's ability to deliver environmental flows while meeting obligations to DWR and Yuba Water member units;
4) evaluate the WTP under different flow requirements that may reasonably result from the FERC relicensing of the YRDP;
5) ensure water delivery contracts are flexible to account for water year conditions and are reviewed consistently; and

[13] Draft EIR-EIS for the Proposed Accord, Chapter 3-Proposed Project Action and Alternatives, p. 29

6) carefully consider project alternatives incorporating analysis through year 2050, including a No Project/No Action alternative as required by CEQA/NEPA.

Thank you for the opportunity to provide comments on the Notice of Preparation of a Draft Supplemental Environmental Impact Report for the Extension of the Lower Yuba River Accord Water Transfer Program. We look forward to continued participation in this process. If you have any questions regarding our comments, please do not hesitate to contact us.

Respectfully submitted,

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February 27, 2023

By Electronic Mail

JoAnna Lessard, Project Manager
Yuba County Water Agency
1220 F Street
Marysville, CA 95901-4740
jlessard@yubawater.org

Subject: Notice of Preparation of a Draft Supplemental Environmental Impact Report and Notice of Scoping Meetings for Extension of the Lower Yuba River Accord Water Transfer Program

Ms. Lessard,

On behalf of Westlands Water District, I write to express the District's support for Yuba Water Agency's proposed extension of the Lower Yuba River Accord Water Transfer Program.

The Yuba Accord Water Transfer Program is a key element of the Lower Yuba River Accord, a model settlement agreement that provides important benefits for fish and wildlife and contributes to water supply reliability statewide. The Water Transfer Program provides a proven mechanism for the District to secure an important source of reliable water supply across different water year types, while the revenues generated by the Program help support Yuba Water's mission areas of sustainable water management, flood risk reduction and environmental stewardship.

The Yuba Accord Water Transfer Program has provided important benefits for the District, and it appreciates Yuba Water Agency's efforts to extend the Program.

Sincerely,

Jose Gutierrez
Interim General Manager

# Appendix B

## Streamflow Depletion Effects on Downstream Water Supplies

# APPENDIX B - TECHNICAL MEMORANDUM, STREAMFLOW DEPLETION EFFECTS ON DOWNSTREAM WATER SUPPLIES

## Introduction

This technical memorandum describes the fundamental elements of streamflow depletion due to the pumping of groundwater to support a groundwater substitution transfer (GWS transfer) and describes the approach to determining a streamflow depletion factor (SDF) that would be applied to a GWS transfer to compensate the Central Valley Project (CVP) and State Water Project (SWP) for this effect on their water supplies). This technical memorandum also provides results of analysis that can be used in identifying the appropriate SDF for the accounting of Yuba Accord groundwater substitution transfers. Much of the analysis and results presented in this memorandum are specific to the Yuba Accord and Yuba Subbasins. In the description of technical analyses, some of the sections indicate that more analysis may be needed. Because the California Department of Water Resources (DWR) is the decision maker on a final approach to accounting for streamflow depletion effects from Yuba Accord GWS transfers (with Yuba Water Agency [Yuba Water] and Member Unit concurrence), DWR may wish to augment or revise portions of the analysis before a final accounting is agreed upon. Therefore, while this technical memorandum identifies a statistical representation of a range of SDF values that can be used in accounting, more work will likely be needed.

DWR's 2019 Draft Water Transfer White Paper (DWR and United States Bureau of Reclamation [Reclamation] 2019) Section 3 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)*[1] *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.*

In recent years DWR and Reclamation have intensified efforts to understand long-term streamflow depletion effects and concerns related to their water supplies. For the past several years throughout the Sacramento Valley, GWS transfers have included an SDF to offset (by leave-behind[2]) streamflow depletion impacts 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, resulting in this volume of water being 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.

Since the inception of the transfer program 15 years ago, the Yuba Accord did not have an SDF applied to Accord groundwater substitution transfers, relying instead on other components of the Accord to meet the needs of fisheries and downstream users during the driest years. Now, with the Sustainable Groundwater

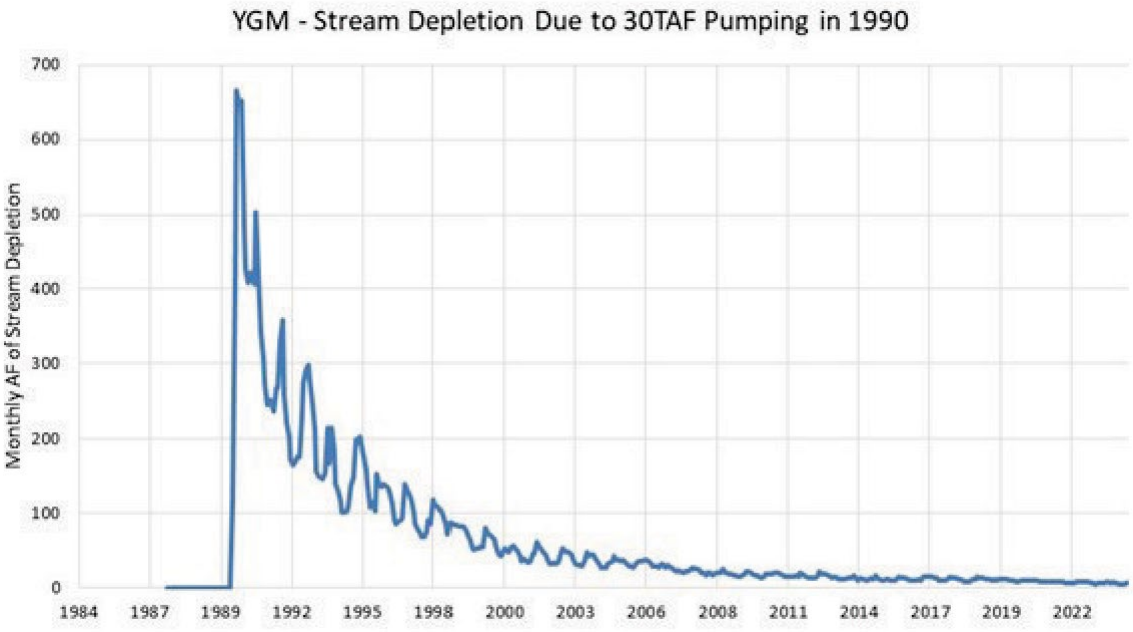
[1] Under the terms of the Coordinated Operation Agreement through which the federal and state water projects coordinate their operations, "Balanced Conditions" occur when DWR and the Reclamation agree that releases from upstream reservoirs plus unregulated flow into the Delta approximately equal the 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.

[2] Application of an SDF, which is a percentage value, to a transfer volume results in the SDF percent volume of the transfer being made available to DWR and Reclamation and not transferred/delivered to the buyer. The SDF percent volume of the transfer is used by DWR and Reclamation to add to their water supplies in the current year and potentially future years if the SDF volume can be stored in CVP and SWP reservoirs.

Management Act (SGMA), streamflow depletion effects are under greater scrutiny, but when the Yuba Accord was being negotiated less was known about this issue. Regardless, Yuba Water GWS transfers under the Accord did incorporate special conditions that largely offset these effects. During the drier years when groundwater substitutions take place, the Accord's Fisheries Agreement requires minimum instream flow requirements be met at the Marysville Gage. Because most of the streamflow depletion that occurs on the Yuba River happens upstream of the Marysville Gage, streamflow depletion effects on the Yuba River are effectively supplied through releases from New Bullards Bar Reservoir as the amount of streamflow depletion in the Yuba River mostly results in an increased volume of releases Yuba Water must make from storage to comply with the instream flow requirements. With this combination of factors, Yuba Water effectively offsets much of the streamflow depletion that may have otherwise occurred on the Yuba River. Further offset was not required because, under the Accord, it was recognized that operations of the Yuba River Development Project (YRDP) in most years provide storage (also referred to as surface water) transfer water that cannot be transferred and delivered to a buyer, and this component of transfer water left instream was considered to offset any remaining streamflow depletion, such as any diminishment of Feather River and Bear River flows due to pumping in the adjacent Yuba Subbasin that could impact DWR and Reclamation water supplies.

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 and are negotiated terms between the transferor and DWR and Reclamation in conveyance agreements to use DWR and Reclamation facilities. These terms are also sometimes included in State Water Resources Control Board (SWRCB) transfer orders. Streamflow depletion effects due to GWS transfers on DWR and Reclamation water supplies are handled in much the same way. DWR and Reclamation must be satisfied that streamflow depletion effects are being 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 GWS transfer.

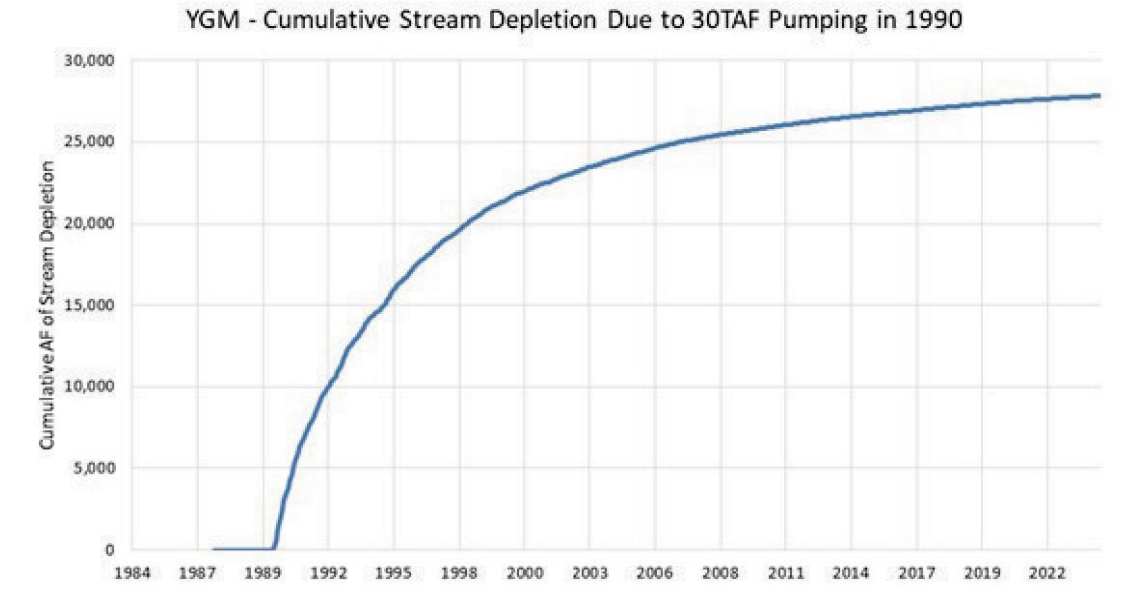
Unlike reservoir reoperation transfers that consist of releases from storage in one year and then refilling that evacuated storage the next winter or within a few years, streamflow depletion affecting downstream water supplies occurs over many years; only after decades does the accumulated volume of reduced streamflow typically approach the volume of groundwater pumped for transfer. Figure 1 shows the total streamflow depletion resulting from a GWS transfer as acre-feet of monthly streamflow depletion from all modeled streams interconnected to the Yuba Subbasins represented in the Yuba Groundwater Model (YGM). The model simulation is of a 30,000 acre-ft groundwater substitution transfer. The simulated GWS transfer pumping occurs in 1990 and the x-axis scale extends to 2024, 34 years after the pumping occurs.




Source: Prepared by S. Grinnell in 2023.

Figure 1 Monthly Volume of Total Streamflow Depletion for a YGM Simulated 30,000 acre-ft Groundwater Substitution Transfer in 1990

Figure 2 shows the cumulative monthly depletion volumes shown in Figure 1 for the simulation of the same 30,000 acre-ft pumping event in 1990. As seen in the figure, by 2024, 34 years after the pumping occurs, most of the streamflow depletion has occurred, 28,000 acre-ft of depletion compared to 30,000 acre-ft of pumping (93 percent). Further, as seen in the figure, most of the streamflow depletion – about 75 percent (22,000 acre-ft) – has recharged by 2000, the first ten years after pumping takes place.




Source: Prepared by S. Grinnell in 2023.

Figure 2. Cumulative Total Streamflow Depletion for a YGM Simulated 30,000 acre-ft Groundwater Substitution Transfer in 1990

Hydrogeologic properties of the pumped basin; timing, location, and depth of GWS transfer pumping; future hydrology of the affected streams that provide recharge to the pumped groundwater basin; and future hydrology of the Bay Delta system all contribute to a range of streamflow depletion volumes affecting Project water supplies. Assigning an SDF to a GWS transfer or transfer program requires making assumptions about future hydrology, determining a reasonable period into the future that should be used to compensate the CVP and SWP for these effects, accounting for the effects of projects that reduce or ameliorate streamflow depletion, and special conditions such as those described above regarding YRDP operations that offset streamflow depletion effects. In addition, models used to attempt to quantify streamflow depletion are invariably a simplification of the complex system of integrated surface water and groundwater, therefore, some approach to quantifying model limitations is also appropriate when determining an SDF. Finally, because the application of an SDF results in GWS transfer water being provided in the current transfer year to offset the effects of future years with unknown conditions, some assessment of the relative value of the leave behind volume versus the potential impact is warranted. Because each of the major factors has a range of assumptions that can be applied to determining streamflow depletion amounts, there is no single SDF that can be determined through analysis and policy decisions are needed to come to an agreement on the appropriate SDF for a project. For this assessment to support the Project Extension Supplemental Environmental Impact Report (SEIR), streamflow depletion is quantified within a general range of potential effects on downstream water supplies. Ultimately policy decisions, based on sound technical information for each of the factors to be considered, will be needed to determine a final SDF value or values.

## Relevant Factors for Estimating Streamflow Depletion

The degree to which streamflow depletion due to groundwater pumping results in reducing water supplies available to DWR and Reclamation depends on many factors. These factors must be assessed to determine the appropriate SDF for a GWS transfer. To reasonably quantify or assign ranges to these factors requires making assumptions, as much of the information is not known with certainty. Using a suite of reasonable assumptions results in a range rather than a specific numerical quantification of streamflow depletion. The major factors suggested for consideration in the determination of an SDF include the following.

- Hydrogeologic properties of the groundwater basin and the location and depth of pumping wells – These properties determine the timing and rate of streamflow depletion affecting surface water. This can also be expressed as cumulative streamflow depletion over time, which is a characteristic of the groundwater and pumping system and is a way to express streamflow depletion over time.
- Local hydrologic conditions – The amount of water flowing in a stream, if highly variable, will affect the rate of streamflow depletion. In wetter times when river stages are higher and wetted areas of the streams are greater, more discharge of surface water to the groundwater system may occur.
- Bay-Delta system hydrologic conditions – DWR and Reclamation have asserted that their water supplies are impacted by streamflow depletion due to GWS transfer pumping when the Delta is in Balanced Conditions. In drier times and droughts, the Delta can remain in Balanced Conditions all year, while in wetter times Balanced Conditions may not occur at all in a year. The assumed Delta conditions for future months and years are a major factor in determining an SDF. In addition to the determination of Balanced Conditions, there are times when DWR and Reclamation water supplies may not be impacted even with Balanced Conditions. If the Projects cannot move (export) any more water due to capacity constraints, a reduction in flow due to streamflow depletion would result in more water being released from Project reservoirs to maintain regulatory flows and water quality. The added releases, compared to conditions without streamflow depletion, mean lower reservoir storage going into the winter. If this lower storage were to persist into the following year, then the following year's water supplies could be impacted. Conversely, if the lower storage is negated because of wet conditions in the winter and there are reservoir spills or flood releases then the lower storage would not continue into the following year and no impact to DWR and Reclamation waters supplies would occur. Therefore, a careful review of DWR and Reclamation operations is needed to determine the impacts from streamflow depletion.

- Period of accumulation– Absent other changes in the system, streamflow depletion of interconnected surface water bodies to a groundwater basin due to groundwater pumping will eventually accumulate to nearly 100 percent of the pumped volume but, depending upon the hydrogeology of the basin and local hydrologic conditions, this typically takes several decades. Periods of 10, 20, or even 30 years are used in model simulations to analyze streamflow depletion. The period selected should be based on the potential for far future years to have a significant impact on Project water supplies. Because most of the streamflow depletion occurs in the first few years after a transfer and because DWR and Reclamation reservoirs do not accumulate the effects of many years of streamflow depletion due to periodically filling and spilling water for flood control, 10 years or less has been used in the past as the period of accumulation to compensate the CVP and SWP with an SDF.
- Local Conditions – For the Yuba River, as discussed above, the YRDP operations for instream flows at the Marysville Gage means that in drier times and drier years, Yuba Water is releasing water from storage to make up for streamflow depletion effects on the lower Yuba River. This river segment would not be included in the determination of an SDF to protect DWR and Reclamation water supplies as the effect is on YRDP storage and operations, not on DWR and Reclamation operations.
- Relative Value of the SDF portion of the GWS transfer volume – When an SDF is applied to a transfer, the SDF percentage of the transfer volume is provided for use by the CVP and SWP to offset for future streamflow depletion effects. As described above, a pattern (or patterns) of Balanced Conditions and Project operations in future years is assumed to formulate an SDF, but many of those years are wet or not very dry where water supplies are not constrained, and the relative value of water is much less than in the transfer year. This is because GWS transfers almost always occur in the driest years and during peak summer demand periods. Providing SDF compensation water in a very dry year for effects that occur in wetter years far in the future could be inequitable and the relative value of the offset water is a factor that should be considered.
- Model Limitations – DWR and Yuba Water use the same integrated surface water and groundwater modeling platform (the Integrated Water Flow Model [IWFM]) for their models, Sacramento Valley Groundwater-Surface Water Simulation Model (SVSim), and YGM respectively. These models, although computationally complex, are simplified representations of the physical system and do not include all elements or include only simplified elements that influence the interaction of surface and groundwater. This can affect the timing and relative contribution of basin recharge. Also, there are physical processes such as interconnected flooded rice fields and unlined irrigation supply delivery canals that are not explicitly included in these models, and these processes have implications for where, when, and to what extent streamflow depletion could impact downstream water supplies.
- Affirmative Offset Projects – Streamflow depletion occurs due to lower groundwater levels in a basin, which increases the flow gradient away from a stream or decreases the flow gradient towards a stream. Physically offsetting these effects can be accomplished by increasing basin storage. Two methods are to provide direct recharge of groundwater with surface water or in-lieu recharge where groundwater pumping is reduced at non-transfer times by providing farmers with surface water to promote higher groundwater levels.

  Bracketing the range of hydrologic conditions that occur during and after groundwater substitution pumping takes place is a reasonable approach to identify the range of potential streamflow depletion impacting downstream water supplies. Besides the influence of the groundwater basin hydrogeology, hydrologic conditions have the largest influence on the magnitude of impact streamflow depletion has on DWR and Reclamation water supplies. Once a range of streamflow depletion effects is obtained from modeling, the additional factors listed above can be applied to this range to identify an SDF approach.

Affirmative Projects to Offset Potential Losses to Downstream Water Supplies

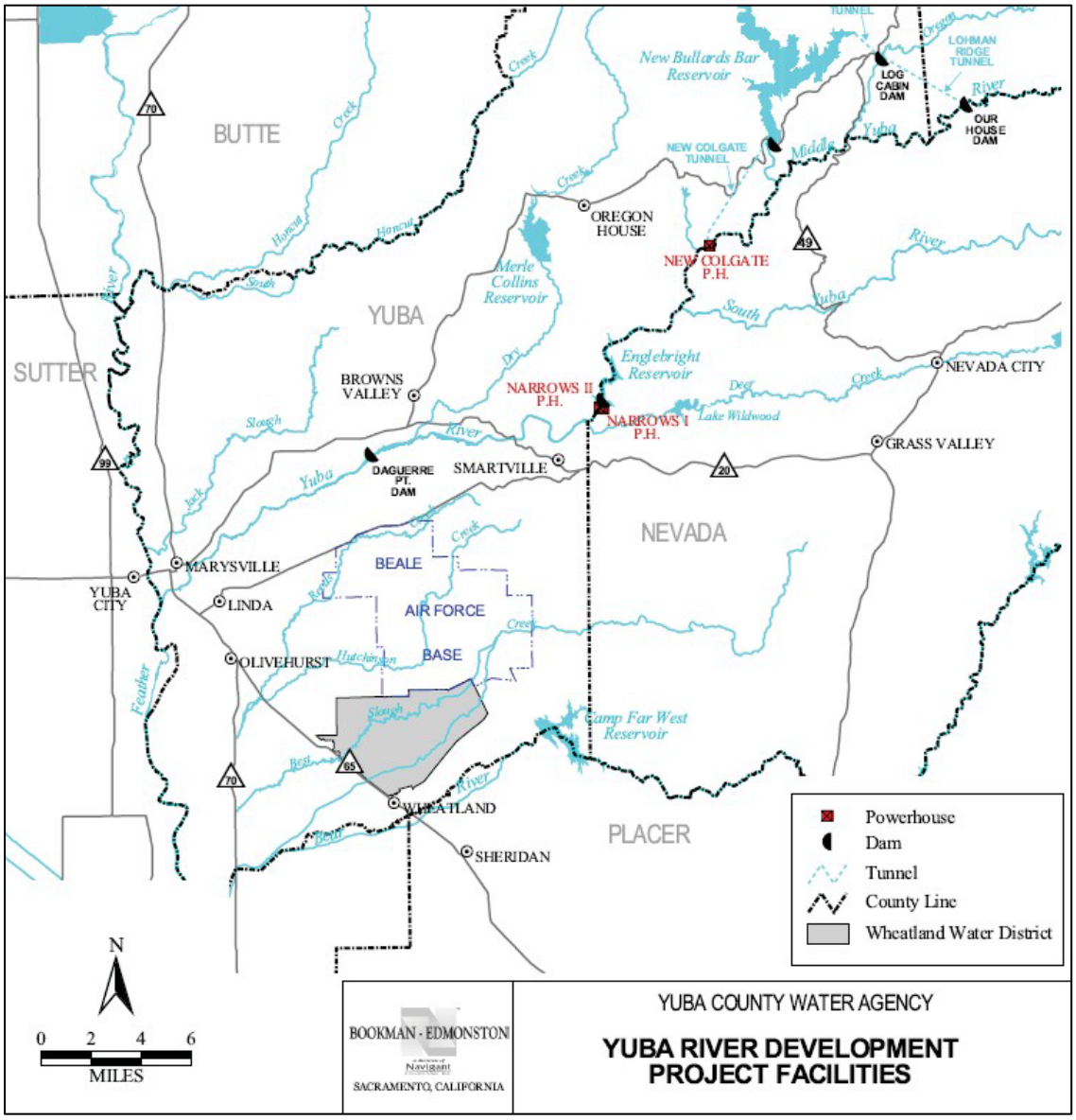
An SDF is the method of offsetting the effects of streamflow depletion on downstream water supplies by allocating a portion of the transfer water for use by the CVP and SWP. Other potential offsetting activities are projects that increase groundwater storage through direct or in-lieu recharge is another option to offset

streamflow depletion from GWS transfer pumping. Projects that increase basin storage would reduce the amount of SDF applied to the transfer by offsetting the streamflow depletion effects from GWS pumping. Yuba Water implemented a recharge project that has been in operation since 2010: the Wheatland In-Lieu Recharge Project.

The Wheatland In-Lieu Recharge Project has been operating since 2010, reducing reliance on groundwater pumping in the South Yuba Subbasin and increasing groundwater storage as compared to the conditions that would exist if the project had not been built. Figure 3 shows the western portion of Yuba County, including the North Yuba and South Yuba Subbasins, and the location of Wheatland Water District.

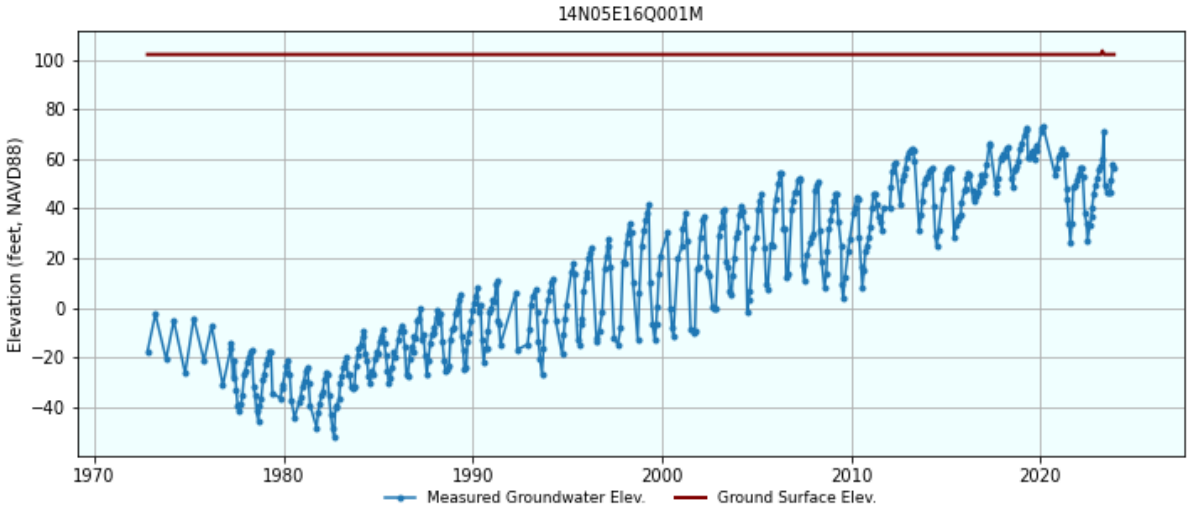
Figure 4 shows measured groundwater elevations in a well within Wheatland Water District that has been monitored since 1972. The figure shows that overall basin groundwater levels have been increasing since surface water deliveries began to much of the South Yuba Subbasin outside of Wheatland Water District in the early 1980s. Water levels then plateaued around 2007-2008. Since 2010 and the start of the Wheatland In-Lieu Recharge Project, higher groundwater levels have resulted, even with Wheatland Water District participating in Accord GWS transfers since that time. The Wheatland In-Lieu Recharge Project was constructed with funding made available through a Proposition 13 grant administered by DWR for conjunctive use and groundwater storage. The project received $3.15 million in grant funds, 50% of the total project cost. The project's ongoing benefits include increased streamflow over without-project conditions due to the higher groundwater levels and a more resilient basin, providing greater storage for conjunctive use operations.

The streamflow increase, or lower streamflow depletion, reduces GWS transfer-related streamflow depletion, is a factor to be considered when determining the amount of SDF needed to offset potential impacts to downstream water supplies.




Source: Prepared by Bookman-Edmonston Engineering in 2002

Figure 3 Western Portion of Yuba County including Yuba River Development Project Facilities and the Location of the Wheatland Water District




Source: Prepared by S. Grinnell in 2023.

Figure 4. Measured Groundwater Levels in a Well within Wheatland Water District (state well number 14N05E16Q001M).

## DEVELOPING A STREAMFLOW DEPLETION FACTOR

### 1. Streamflow changes in response to groundwater pumping

The starting point for developing an SDF is modeling of surface water-groundwater interaction in the basin. The YGM was used to simulate a GWS transfer in typical years when groundwater substitution transfers occur. Historically, Accord GWS transfers have occurred in Below Normal, Dry, and Critical years. Initially, GWS pumping was modeled as individual events and then examined through the effects of future hydrology. The first simulations were done for 1990, which was selected to represent the dry future year series, and 1994, which was selected as the wetter future year series. The resulting range of accumulated streamflow depletion volume during balanced conditions was the starting point for examining the effect of other factors leading to an applicable SDF for Yuba Accord GWS transfers.

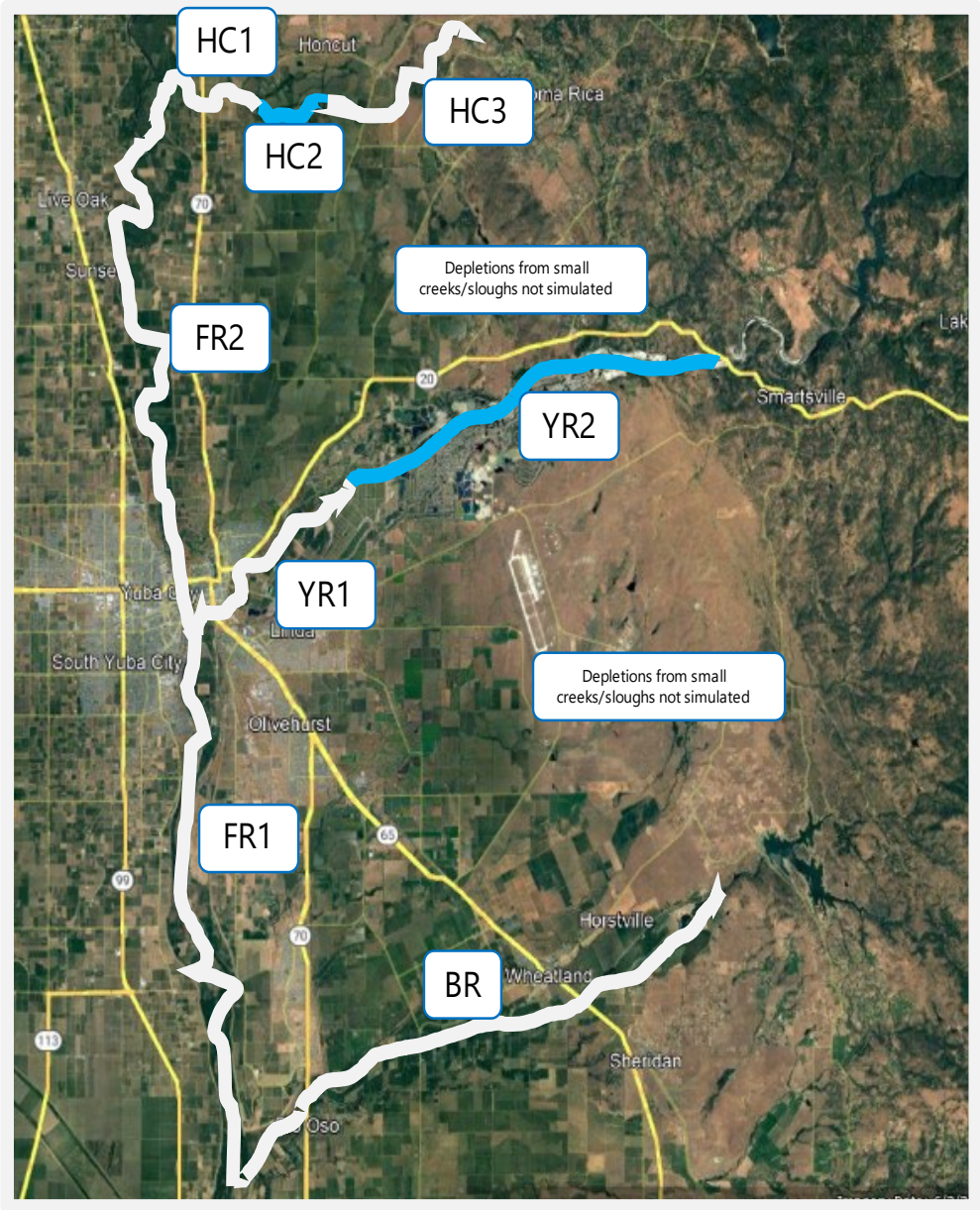
The simulations used 30,000 acre-ft transfers with pumping distributed across the eight Yuba Water Member Unit areas consistent with the historical pattern of pumping and the GWS transfer program framework. Pumping occurs in May through November with most of the pumping occurring in July and August and only a very small amount of pumping in November. Each year's GWS transfer volume depends on several factors, including basin condition and basin management objectives and limitations, willing buyers and sellers agreeing on pricing and volume, and reservoir and river conditions for delivery of surface water that would have been used by the Yuba Water Member Units in the absence of the GWS transfer.

The YGM scenario used for this analysis is derived from the scenario used in the GSP analysis. It covers the historical water years from 1988 to 2017, followed by existing conditions (represented by repeating the 21-year hydrology between the water years 1997 and 2017 three times, covering the 63-year period between 2018 and 2080). The analysis used for this document mostly utilizes the historical part of the scenario, while the existing condition extension was used to quantify the longer-term impacts such as shown in Figures 1 and 2. This scenario also assumes that there is no change in the subsurface flows across YGM boundaries as a result of the GWS transfer pumping. This assumption results in all depletions occurring within the model domain, which includes the rivers shown in Figure 5, rather than considering a smaller portion of the depletions occurring at a greater distance. This assumption likely accelerates the depletions and may result in higher SDF than if

considering a larger geographic area.

A CalSim 3 simulation of existing conditions is used to determine the months when the Delta is in Balanced Conditions from 1922 to 2015 and historical conditions are used for 2016 to 2022; from which only 2016 and 2017 are used for some of the analysis to be consistent with the YGM period of historical simulation approach.

YGM simulations are used to assess depletions in the groundwater system due to GWS transfer pumping. Streamflow depletion due to GWS transfer pumping is not a direct output of the model. Streamflow is calculated in the model and includes the calculation of stream inflow and outflow from the groundwater basin. The GWS transfer pumping simulation is compared to a baseline, non-transfer simulation to determine the change in streamflow. As the only difference between the GWS transfer pumping simulation and the baseline simulation is the GWS transfer pumping, any changes in streamflow simulated in the model are depletions. Figure 5 shows the major streams in and around the Yuba Subbasins where streamflow is modeled, and streamflow changes are calculated to determine streamflow depletion volumes. Two stream segments, YR2 and HC2, are treated differently than all other stream segments modeled as they are not included in the summation of streamflow depletion affecting downstream conditions. YR2 is the portion of the Yuba River within the basin upstream from the Marysville Gage where Yuba Water makes releases to satisfy the instream flow requirements of the Yuba Accord. Streamflow depletion in this stream segment affects YRDP operations and has a very limited effect on downstream water supplies. The section below describes the analysis of this reach of the Yuba River to determine the impact on downstream water supplies due to streamflow depletion occurring on this section of the river with Yuba Water operations of the YRDP. Stream segment HC2, a reach of Honcut Creek, is used to convey irrigation water deliveries in the irrigation season and therefore streamflow depletion in this segment mainly affects irrigation water deliveries, meaning depletion on this reach is also abated with YRDP operations.

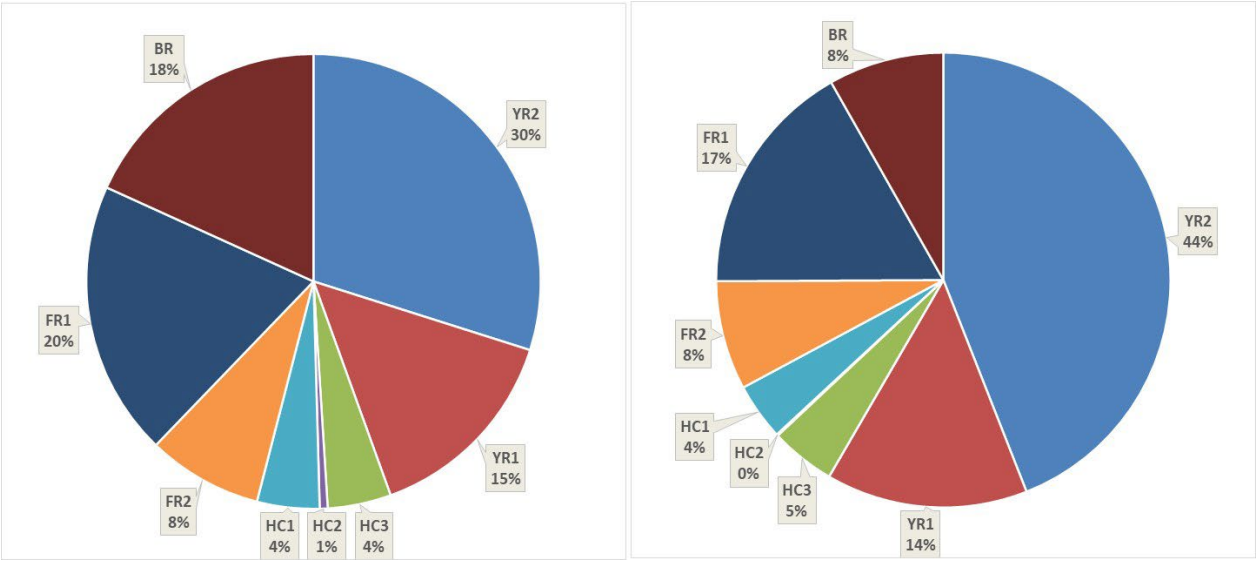



Source: Prepared by Woodard & Curran in 2023.

Figure 5 River Systems Modeled in the Yuba Groundwater Model with Model-Designated Reach Labels

## 2. Assessment of streamflow depletion on the Yuba River above the Marysville Gage

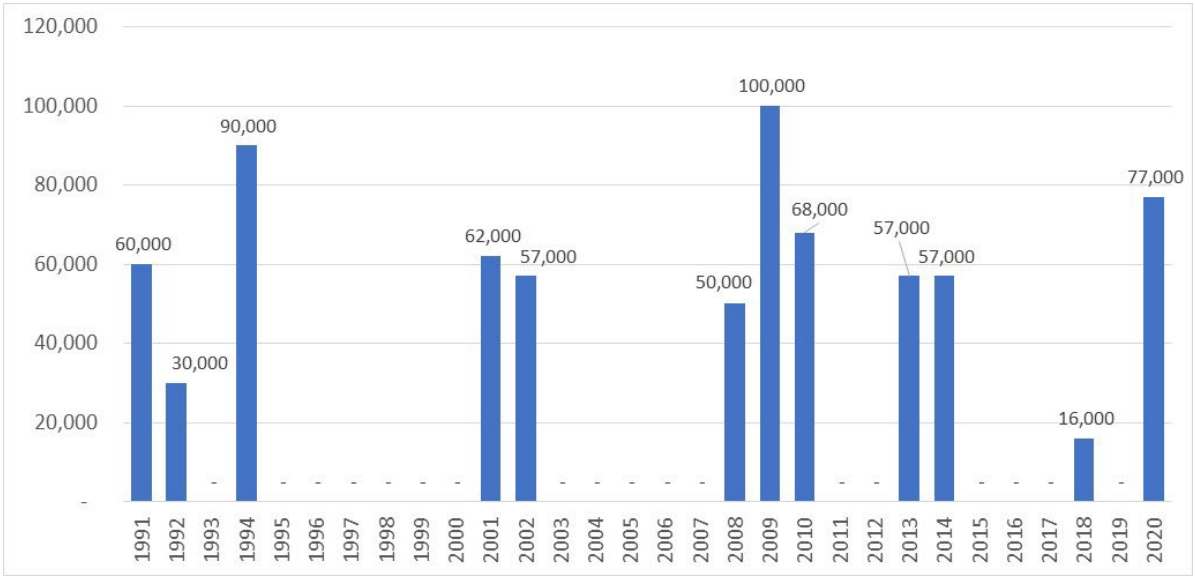
A significant portion of the total streamflow depletion due to GWS transfer pumping occurs on the Yuba River above the Marysville Gage. The reason for the large influence of the Yuba River recharging the North and South Yuba Subbasins is the proximity to many wells used in the transfers, the location in the middle of the combined Yuba Subbasins, and, most importantly, the highly transmissive sediments underlying and adjacent to the river, including the Yuba Goldfields. The left pie chart in Figure 6 shows the relative percentage of total streamflow depletion occurring on the modeled major streams in the YGM for the 1992 GWS transfer simulation over the first ten years after the start of the transfer and the right pie chart shows the same information but only for months when the Delta is in Balanced Conditions. The Yuba River above the Marysville Gage accounts for 30% of the total streamflow depletion volume overall but when examined for total streamflow depletion during Balanced Conditions the Yuba River above the Marysville Gage accounts for 44% of the total streamflow depletion volume. The 1992 simulation is used for Figure 6 as this simulation is used for most of the analysis.




Source: Prepared by S. Grinnell 2024

Figure 6: Charts of the Relative Percentage of Total Streamflow Depletion by Reach for the Ten Years after a Simulated 1992 GWS Transfer, with the Left Chart Totaling All Months and the Right Chart Totaling Only Months with Delta Balanced Conditions.

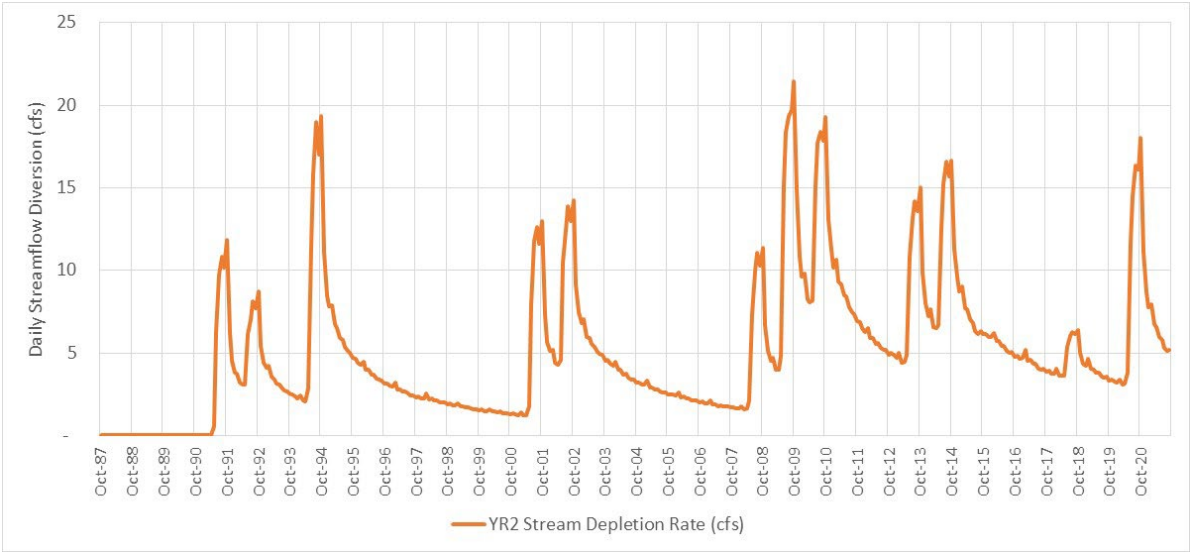
To determine to what extent operations of the YRDP nullify streamflow depletion effects on downstream water supplies, the analysis used both the YGM model and the daily time-step YRDP Water Balance and Operations model developed for Yuba Water's FERC license application and used in day-to-day operational planning for the YRDP. First, the historical GWS transfers conducted in the Yuba Subbasins from 1991 to 2020 were modeled in the YGM. Figure 7 is a plot of the annual GWS transfer volumes used in the modeling for this analysis.




Source: Prepared by S. Grinnell in 2024

Figure 7: Simulated Historical GWS Transfers in the Yuba Subbasins Used in the Analysis of Streamflow Depletion from the Yuba River above the Marysville Gage

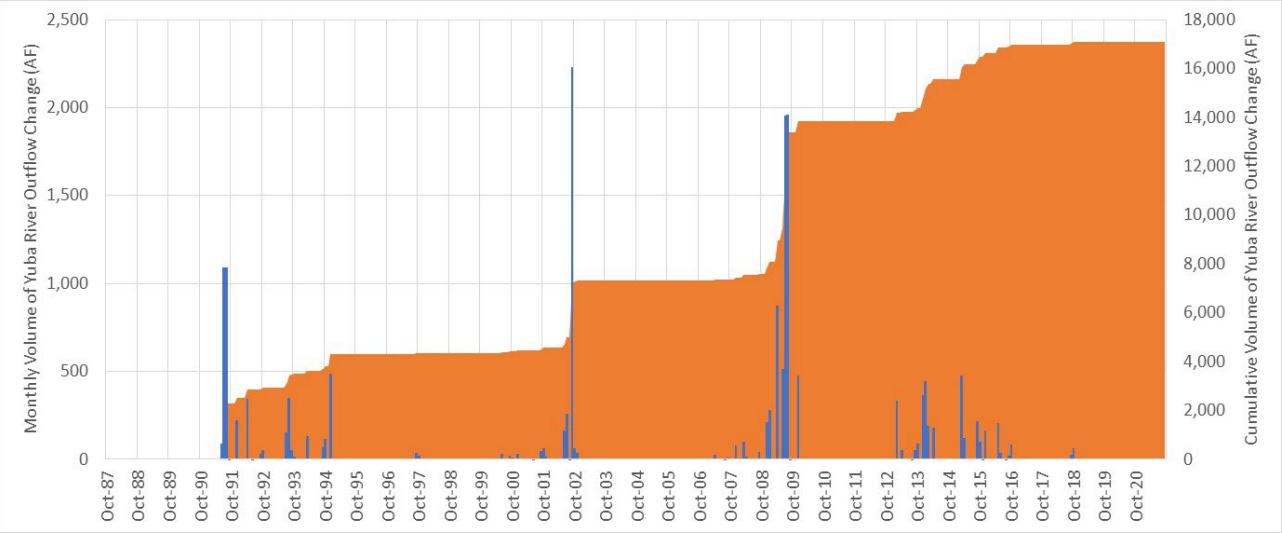
The resulting time series of monthly streamflow depletion volumes from the YC2 reach in the YGM simulation was converted into a daily time series of diversions from the Yuba River at Daguerre Point Dam and included as an added diversion from the river in the YRDP model. Figure 8 is a plot of the streamflow depletion time series converted to a daily time step diversion from the Yuba River at Daguerre Point Dam. The model was then run for the period of the water year 1970 to 2021 with and without the added diversion. The model results for the with and without added diversion time series for Yuba River outflow were compared and the time series of daily flow changes in Yuba River outflow were filtered through the monthly time series of Calsim 3 historical Balanced Conditions described above, along with an additional filter that excludes years when CVP and SWP Project water supplies would not be impacted, due to export capacity limits and following winter flood releases as described more fully below.




Source: Prepared by S. Grinnell in 2024

Figure 8: Simulated Daily Time Series of Streamflow Depletion-based Diversions from the Yuba River at Daguerre Point Dam

Unlike the analysis of streamflow depletion that uses an accumulation period of ten years, this analysis uses a streamflow depletion that accumulates throughout the entire simulation period and therefore the average volume weighted accumulation period for the modeled GWS transfer is about sixteen years. Figure 9 shows the results from the YRDP model for the Yuba River outflow difference between a baseline model run with no added depletion-based diversion and the model run with the depletion-based diversion. The figure shows monthly flow difference volumes in blue bars and a cumulative volume for the entire 31-year simulation in orange. The total cumulative volume of flow difference with the added depletion-based diversion is 17,073 acre-ft. With a total GWS transfer pumping volume of 724,000 acre-ft, the reduction in streamflow from the Yuba River above the Marysville Gage (the YR2 stream segment in the YGM model) for the entire period is 2.4% of the total pumping. The results of the analysis of the YR2 section, the Yuba River above the Marysville Gage, demonstrate that while up to 44% of the total streamflow depletion during Balanced Conditions occurs on this reach of the Yuba River, YRDP operations eliminate all but about 2% of any impact on downstream water supplies, and if a ten-year accumulation period is used the effect would be even less. Additional analysis may be warranted to further refine the understanding of the effects of YRDP operations to reduce any impact of streamflow depletion on downstream water supplies.




Source: Prepared by S. Grinnell in 2024

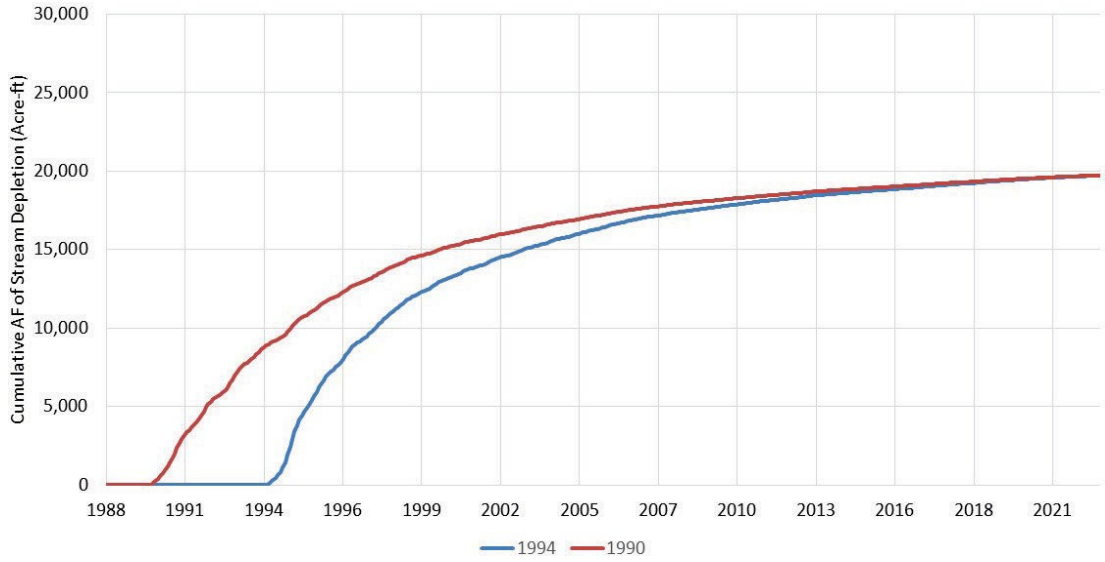
Figure 9: Yuba River Outflow Monthly Flow Reduction Volume (as a positive value) due to the Added Depletion Based Diversion from GWS Pumping (blue bars) and a Cumulative Outflow Reduction Volume for the 31 Year Simulation (orange)

## 3. Determination of a Characteristic Streamflow Depletion Curve Resulting from Yuba Accord GWS Transfer Pumping

An approach was developed to identify a characteristic depletion curve attributable to Yuba Accord GWS transfers to resolve differences between the YGM simulation period and the Calsim 3 modeling period from which information on downstream hydrologic conditions is derived. As previously described, the YGM historical period covers the water years 1988 to 2017 period (with 1988 used to initialize the model). However, the downstream hydrologic conditions data covers 1922 to 2022, including Calsim 3 modeling from 1922 to 2015 and historical conditions from 2016 to 2022. Further, the YGM modeling period is significantly drier than the 1922 to 2022 period. The characteristic streamflow depletion curve, described below, relates the streamflow depletion curve from the YGM to the significantly longer period of 1922 to 2017. As described in more detail below, the final approach used to relate a YGM derived characteristic streamflow depletion curve to future

hydrologic conditions was to first use the historical Sacramento Valley Index water year types within the 1922 to 2017 period to select the Below Normal, Dry and Critical years from that period to apply the representative 1992 GWS transfer simulated YGM streamflow depletion curve. Then, the Calsim 3 1922 to 2015 future hydrologic conditions, plus historical conditions of 2016 and 2017, repeating the 1997 to 2017 conditions three times are used to complete the time series of future hydrologic conditions, from which the resulting streamflow depletion affecting downstream water supplies is calculated.

The selection of a characteristic streamflow depletion curve for the analysis started with examining the volume of streamflow depletion for all stream segments (excluding the YR2 and HC2 segments, for the reasons discussed above) summed for each month to calculate the total cumulative reduction in streamflow downstream over time. Figure 10 shows the accumulated streamflow depletion volume for all modeled stream segments, excluding YR2 and HC2, for the 1990 and 1994 30,000-acre-ft transfer simulations. As seen in the figure, the slope of the 1994 line is greater in the early years after the transfer compared to the 1990 transfer, showing that, with wetter conditions, recharge, and streamflow depletion are more rapid, but the long-term accumulated volume of streamflow depletion is the same at just under 20,000 acre-ft by the end of the simulation, without considering Delta Balanced Conditions. Comparing this figure for the 1990 simulation that shows about 20,000 acre-ft of depletion by 2021 to Figure 2 which shows about 28,000 acre-ft by this date demonstrates the significance of the YR2 stream segment and the reduction in downstream water supply impacts due to Yuba Water's operations on the Yuba River.

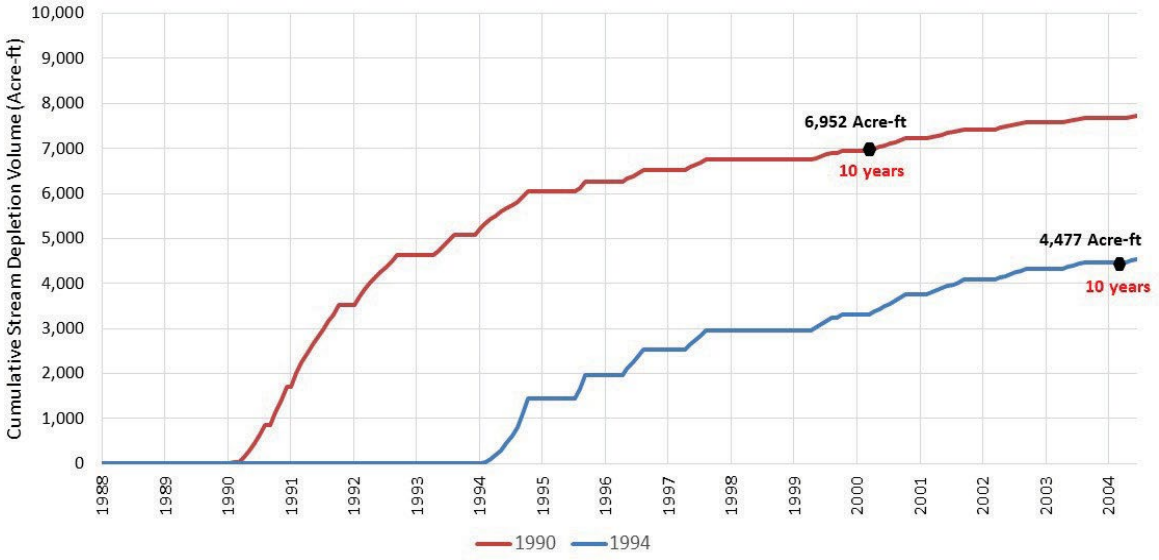



Source: Prepared by S. Grinnell in 2023.

Figure 10: YGM Simulated Results for Accumulated Streamflow Depletion Volume, Excluding YR2 and HC2, for the 1990 and 1994 GWS Transfers of 30,000 acre-ft Each.

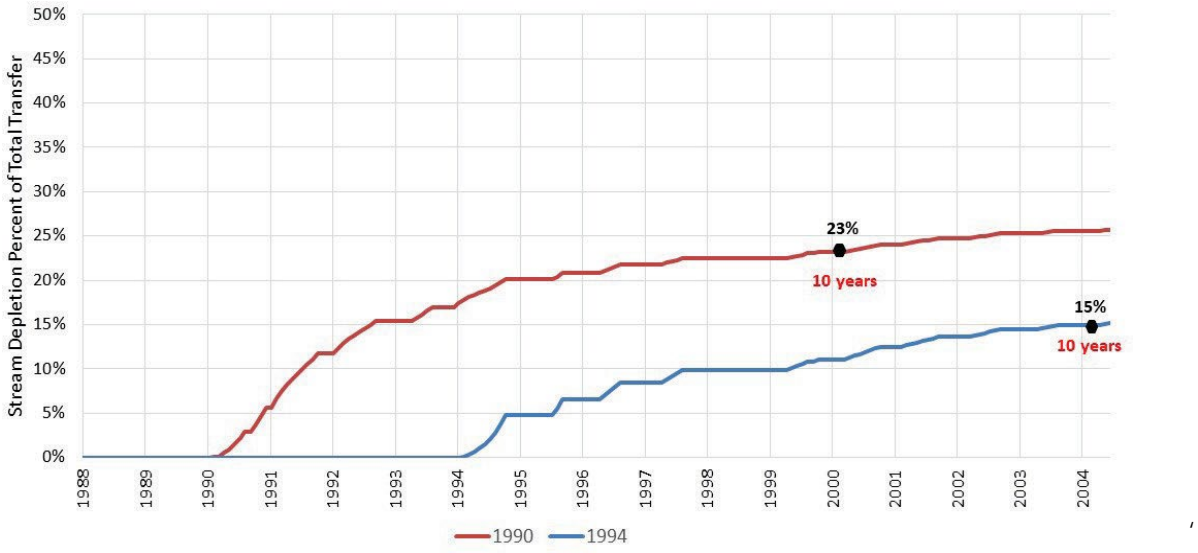
Because the accumulation of streamflow depletion is more rapid in wetter years and in wetter years Delta Balanced Conditions occurs less often, the impacts to DWR and Reclamation water supplies from a transfer with future wetter year conditions is much less than from a transfer with future dry years. Figure 11 shows the accumulated streamflow depletion volume occurring during Balanced Conditions for all modeled stream segments, excluding YR2 and HC2, for the 1990 and 1994 transfer simulations. The ten-year accumulated volume is used to illustrate the reduced flow volume to downstream over a ten-year period, the time that Reclamation has used in its analysis of GWS transfer for the Central Valley Project Long Term Water Transfers Program (2015 to 2024) (Reclamation and SLDMWA 2019). Figure 12 shows accumulated streamflow depletion as a percentage of the total pumping of 30,000 acre-ft for the same two 1990 and 1994 transfers during

Balanced Conditions. As seen in Figure 12, the ten-year accumulation of streamflow depletion affecting downstream water supplies is 23 and 15 percent, respectively, of the total pumped volume.




Source: Prepared by S. Grinnell in 2023

Figure 11: Accumulated Streamflow Depletion Volume for Simulated GWS Transfers of 30,000 acre-ft in 1990 and 1994 during Balanced Conditions



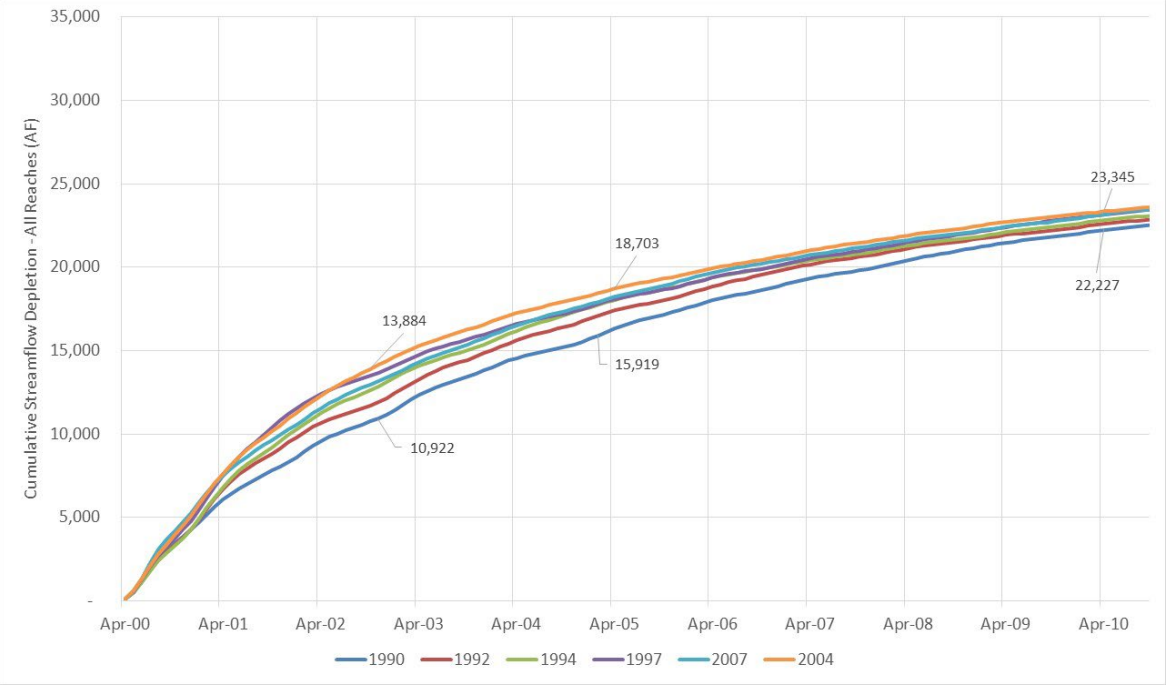

Source: Prepared by S. Grinnell in 2023.

Figure 12: Accumulated Streamflow Depletion as a Percentage of the Total Pumped Volume of 30,000 acre-ft for the 1990 and 1994 Simulated GWS Transfers during Balanced Conditions

Because of the wide range of hydrologic conditions that can occur and because simple bracketing of conditions at upper and lower levels does not provide information on the frequency of these conditions, a more extensive analysis of streamflow reduction was completed. Analyzing an extended range of historical hydrology not only

identifies the range of potential effects but also determines the frequency of occurrence across this range.

Simulation of 30,000 acre-ft GWS transfers in several years provides an indication of the variability of stream depletion rates. If the variation of stream depletion rates from year to year is not too large, a characteristic year and rate can be used to calculate the effects on downstream water supplies of future hydrologic conditions for an array of potential transfer years. Figure 13 shows the cumulative streamflow depletion of a 30,000 acre-ft groundwater substitution transfer modeled in the YGM for a ten-year period with the transfer occurring in six separate years (1990, 1992, 1994, 1997, 2004, and 2007). The figure shows the variation of streamflow depletion rates recharging the basin under differing hydrologic conditions. The 1990 curve shows the slowest streamflow depletion rate for the first three and first five years compared to the fastest rate of 2004. However, by year ten there is little difference in cumulative streamflow depletion across all the years shown. Since most of the streamflow depletion occurs in the first several years and the rate does vary within this period, a central streamflow depletion curve from the 1992 transfer simulation was selected as representative of the basin characteristics for streamflow depletion. Using a single characteristic streamflow depletion curve is a simplifying approach that may need to be assessed in future work.



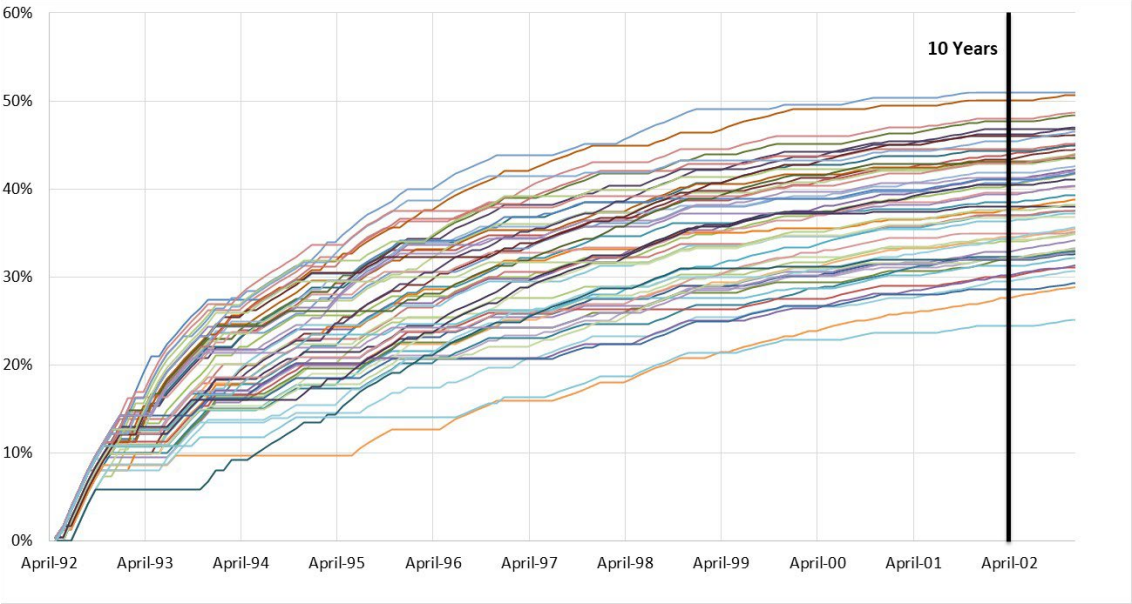

Source: Prepared by S. Grinnell in 2024

Figure 13: Cumulative streamflow depletion from a 30,000 acre-ft groundwater substitution transfer for starting in six different years (1990, 1992, 1994, 1997, 2004, and 2007)

## 4. Future Hydrologic Conditions

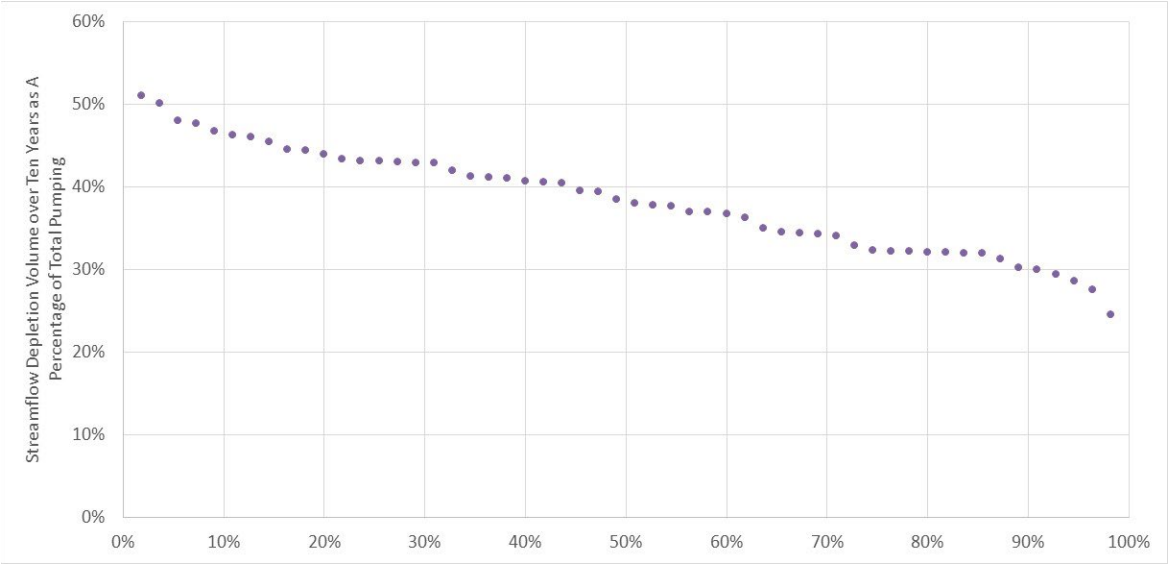
Once a representative streamflow depletion curve is selected, the associated monthly time series of depletion volumes can be applied to Delta Balanced Conditions defined by a range of different future hydrologic conditions. A review of historical Accord GWS transfers shows these transfers occur in Below Normal, Dry, and Critical year types. The time series of Balanced Conditions discussed previously in Section 3 is applied to the time series of stream depletion for all streams in the model domain for a YGM simulated 1992 GWS transfer of 30,000 acre-ft to obtain 54 separate time series There are 54 years that are either Below Normal, Dry or Critical year types in the 1922 to 2017 period. For each year, the 1992-based monthly depletions are applied to the

monthly Balanced Conditions time series starting with that year of streamflow depletion during Balanced Conditions. Figure 14 is a plot of the 54 separate time series of streamflow depletion during Balanced Conditions for all reaches (including the YR2 and HC2 reaches). Figure 15 is an exceedance probability plot of the cumulative volume of streamflow depletion after ten years for a YGM simulated 1992 GWS transfer of 30,000 acre-ft for all reaches in the YGM model for Below Normal, Dry and Critical years of the 1922 to 2017 period.




Source: Prepared by S. Grinnell in 2024

Figure 14: Streamflow Depletion Time Series of all reaches in the YGM Model as Percent of Total 1992 GWS Transfer Pumping for Below Normal, Dry and Critical Years of 1922 to 2017 During Balanced Conditions

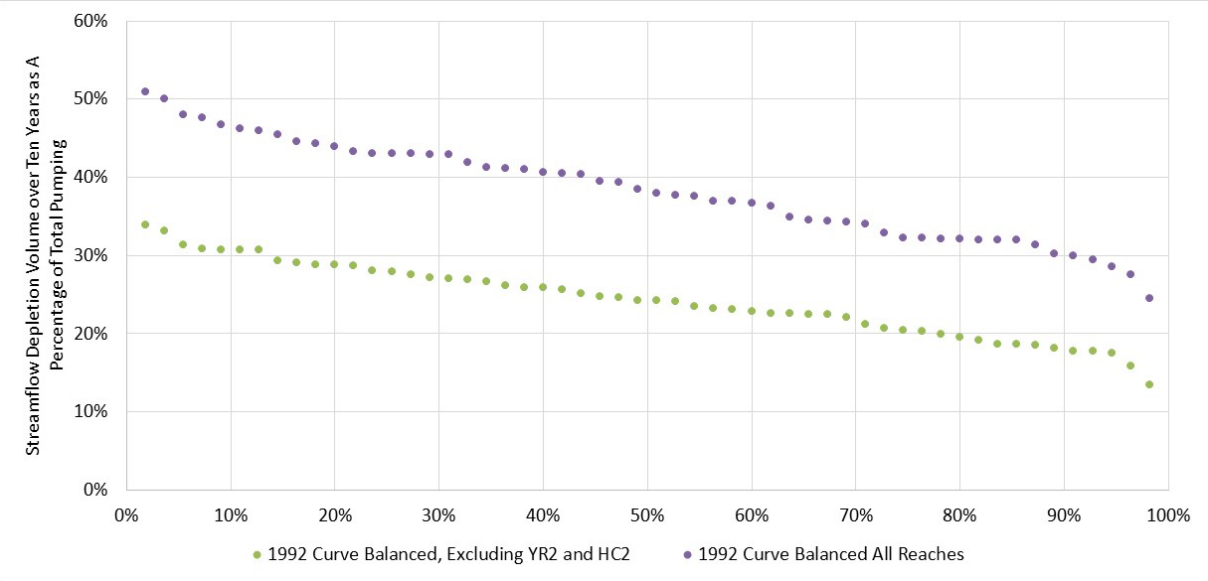



Source: Prepared by S. Grinnell in 2024

Figure 15: Exceedance probability plot of the cumulative volume of streamflow depletion after ten years for a

YGM simulated 1992 GWS Transfer of 30,000 acre-ft for all reaches in the YGM model for Below Normal, Dry, and Critical years of the 1922 to 2017 period.

As described above in the section on the effects of streamflow depletion on the Yuba River above the Marysville Gage (YR2) and the conditions on the middle Honcut Creek reach (HC2), these reaches can be excluded from the total cumulative streamflow depletion volume during Balanced Conditions as it relates to impacts to DWR and Reclamation; the resulting exceedance probability plot for depletions after ten years is shown in Figure 16. The results for cumulative streamflow depletion volume for all reaches shown in Figure 15 are included for reference.




Source: Prepared by S. Grinnell in 2024

Figure 16: Exceedance probability plot of the cumulative volume of streamflow depletion after ten years for a YGM simulated 1992 GWS Transfer of 30,000 acre-ft for all reaches in the YGM model, excluding YR2 and HC2 for Below Normal, Dry and Critical years of the 1922 to 2017 period.

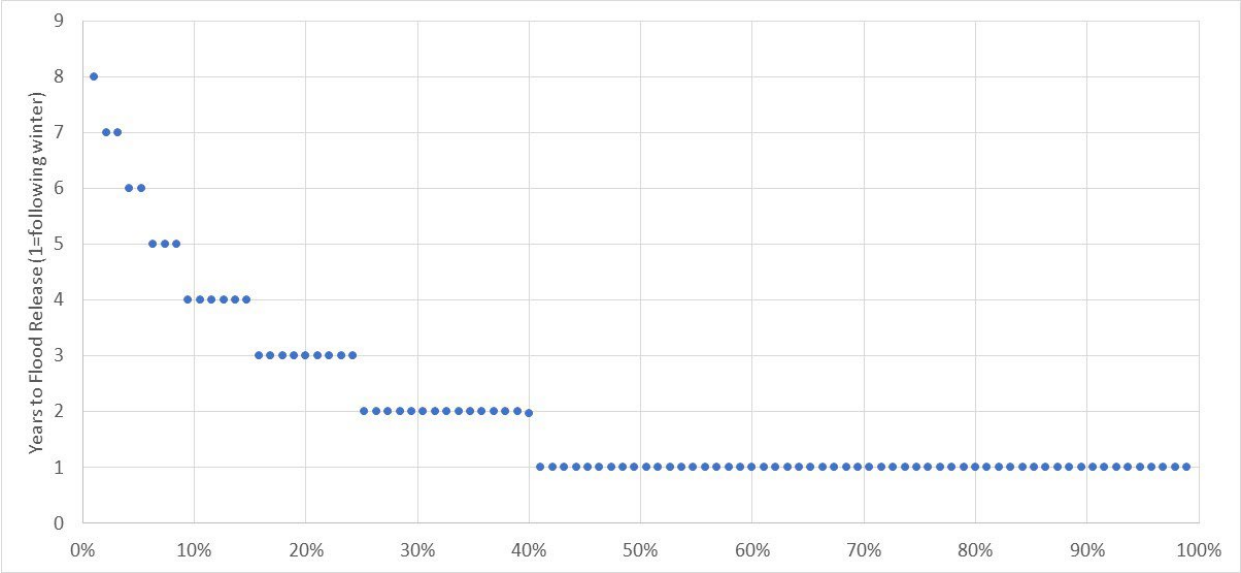
## 5. Refinement of the Conditions Used to Determine Impacts on Downstream Water Supplies

Up to this point in the analysis, Balanced Conditions have been used as the future conditions filter to determine when streamflow depletion could impact downstream water supplies. A closer examination of CVP and SWP operations suggests there are times when these projects' water supplies may not be impacted during Balanced Conditions. In some years the CVP and SWP are fully utilizing their export facilities capacity to move water south of the Delta. This occurs mostly in wetter years and Balanced Conditions generally occur only in the summer and early fall. If the CVP and SWP export facilities are operating at maximum capacity during Balanced Conditions, a relatively small reduction in Delta inflow would not affect these projects' exports but would result in an increase in reservoir releases to compensate for the reduced Delta inflow. The increased reservoir releases would mean lower storage levels going into the winter months. If the reservoir with lower storage levels must make releases to keep storage levels within the conservation space and avoid encroaching into its flood space (i.e., a flood release) the reduced storage due to streamflow depletion would be nullified. Since the export facilities generally only operate at full capacity in the summer when DWR and Reclamation reservoirs have above average storage, the likelihood of a flood release in the following winter is high.

A preliminary analysis was done to determine the years when streamflow depletion would not impact Project water supplies even when Balanced Conditions were to occur. This analysis used Calsim 3 data for the SWP to identify these years. CVP export capacity was examined for this more limited analysis, but further analysis of CVP reservoir operations would need to be completed to confirm whether this analysis of the condition of no

impact years is also valid for the CVP, or if some years should not be excluded.

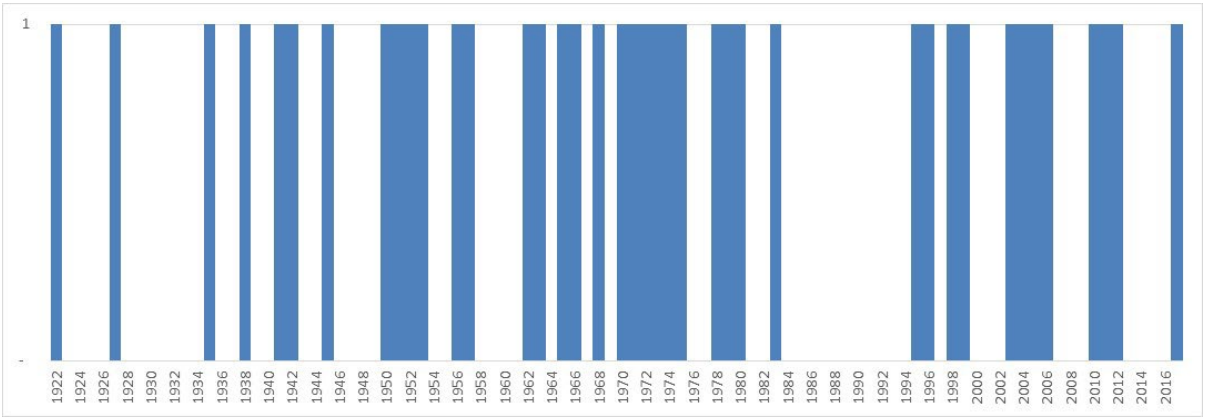
For the analysis of SWP conditions, CVP export capacity, and Oroville Reservoir storage conditions and releases, Calsim 3 output for Banks Pumping Plant operations and SACWAM WEAP model (SWRCB 2023) output for Oroville storage and flood space requirements were used. Figure 17 shows the number of years to a flood release from Oroville Reservoir from 1922 to 2015 from the WEAP model as an exceedance probability plot. 1 year means a flood release is made in the following winter, 2 is the second winter, and so on. The determination of a flood release was a simplified assumption that if storage approached the flood reservation space a flood release would be made. As shown in the plot, 60% of years result in a flood release in the following winter.




Source: Prepared by S. Grinnell in 2024

Figure 17: Exceedance Probability plot of Years to Flood Release from Oroville Reservoir (SACWAM 11/06/2023)

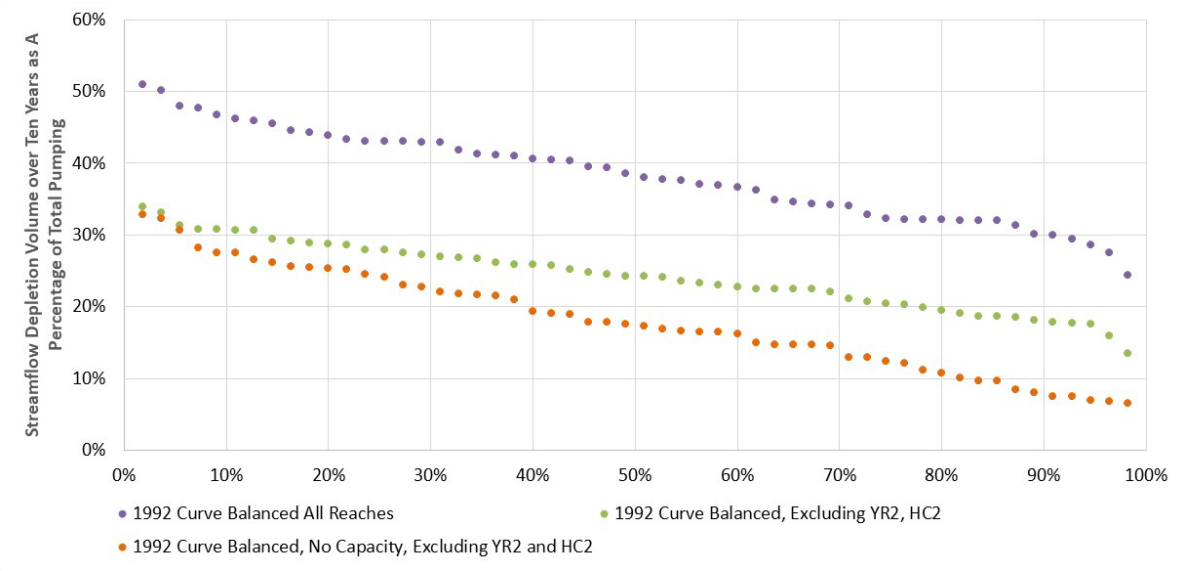
The flood release time series was combined with an examination of Banks Pumping Plant pumping and maximum allowed pumping from a Calsim 3 simulation. The result is the identification of years when these two conditions occur, and it is assumed that DWR and Reclamation water supplies would not be impacted by streamflow depletion under such conditions. As stated above, this is a simplified analysis and additional analysis is warranted.




Source: Prepared by S. Grinnell in 2024

Figure 18: Years when DWR and Reclamation Water Supplies may not be Impacted by Streamflow Depletion

Using the added time series filter of years when DWR and Reclamation water supplies may not be impacted by streamflow depletion and adding this information to the analysis of GWS transfers in Below Normal, Dry, and Critical years of the 1922 to 2017 period as shown in Figure 16 results in an exceedance probability of the cumulative volume of streamflow depletion after ten years for a YGM simulated 1992 GWS Transfer of 30,000 acre-ft for all reaches in the YGM model excluding YR2 and HC2, for Balanced Conditions in years when either export capacity exists at the Banks Pumping Plant or the following winter does not include a flood release from Oroville Reservoir, which is shown as the orange data series in Figure 19.




Source: Prepared by S. Grinnell in 2024

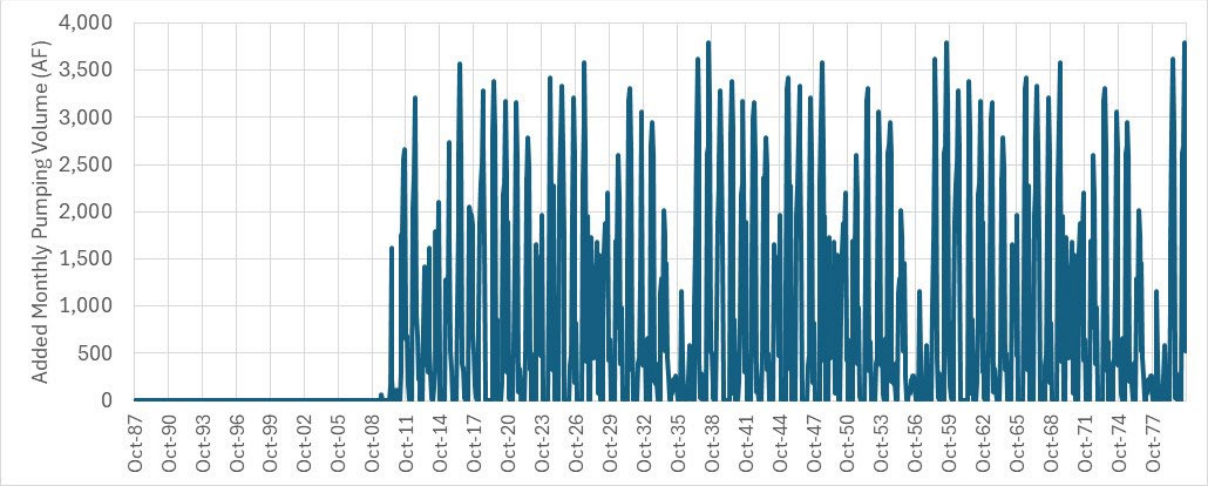
Figure 19: Exceedance probability plot of the cumulative volume of streamflow depletion after ten years for a YGM simulated 1992 GWS Transfer of 30,000 acre-ft for all reaches in the YGM model Excluding YR2 and HC2 for Below Normal, Dry, and Critical years of the 1922 to 2017 period, During Balanced Condition and Excluding Years when Banks Capacity is Full and there is a Flood Release from Oroville Reservoir the following Winter

6. Offset Projects – Wheatland Water District In-Lieu Recharge Project

As summarized above, the Wheatland Water District In-lieu Recharge Project (WWD Project) was implemented in 2011 with the construction of canals and pumping stations to deliver surface water to WWD. The project was a Proposition 13 Conjunctive Use Storage Project. As described in the DWR grant summary "*On March 7, 2000, California voters approved Proposition 13, the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act, which authorized a total of $1.97 billion in bonds and included funding for groundwater storage and recharge projects. The Proposition 13 Groundwater Storage Program authorized the California Department of Water Resources (DWR) to provide grants for feasibility studies and construction projects to facilitate conjunctive management of surface water and groundwater to improve water supply reliability.*" The WWD Project was one of 27 groundwater storage construction grants and received $3.15 million to fund 50% of the $6.3 million project to bring surface water to an area that relied solely on groundwater for irrigation supply. As a result of the project, WWD uses an average of 14,400 acre-ft of Yuba River water annually, delivered through the newly constructed project since 2011. 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, and as stated in the YWA grant application at Section C-3 "*Additional benefits not quantified in this analysis are the potential for conjunctive use management that provides for out-of-county groundwater substitution transfers in future years*" and "*As a secondary benefit to the Wheatland*

*Project, instream flows in the Bear River, Dry Creek, Best Slough, and Hutchinson Creek would be enhanced, and pumping lifts throughout the Sub-Basin would be reduced, thus reducing the cost of conjunctive use operations basin-wide*" (WWD 2001).

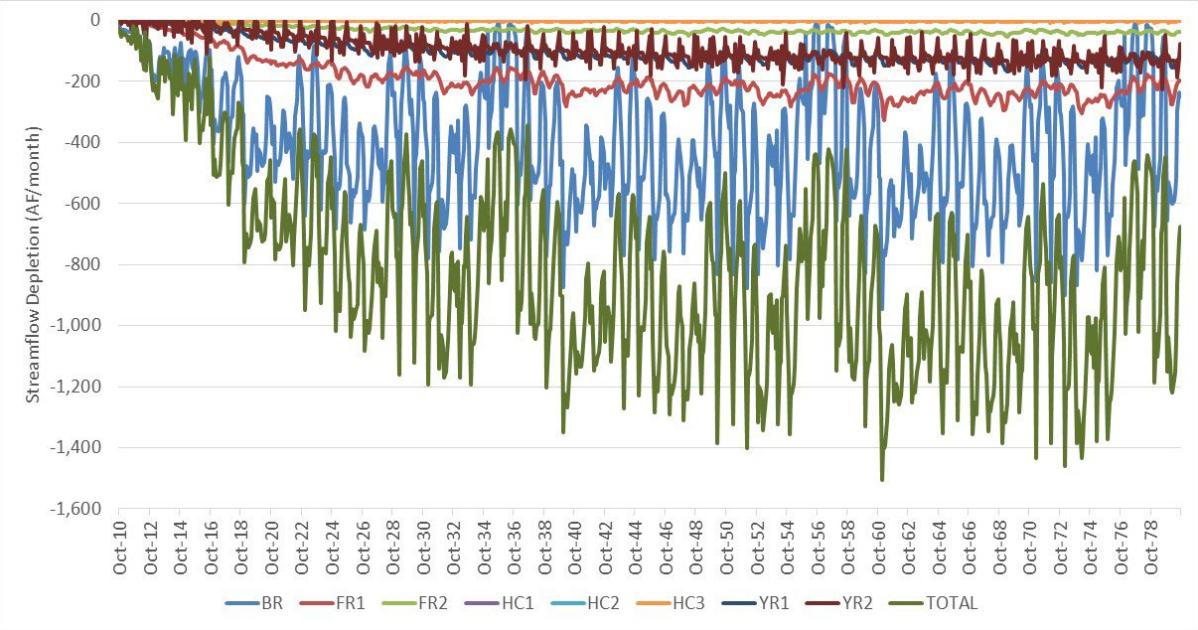
By reducing groundwater pumping by WWD for local irrigation supply, basin storage increases, and streamflow depletion decreases. Because there is less pumping each year, the basin "resets" to a new, higher level of storage equilibrium with the change from groundwater supply to surface water supply. The changes that occur are the reduction of extracted groundwater, deep percolation of applied surface water rather than groundwater, and canal losses of surface water to the groundwater basin (WWD canals are unlined). Two types of analysis were conducted to determine the streamflow depletion reduction benefit from this project. First, because the historical surface water delivery to WWD from 2011 to 2017 is included in the baseline YGM model, a simulation was constructed to replace the historical surface water use and delivery to WWD with groundwater pumping. The simulation uses the historical surface water delivery converted to groundwater pumping from 2011 to 2017 and then repeats 1997-2017 hydrology under existing conditions assumptions 3 times to complete the 2018 to 2080 time series for the full period of simulation of 1987 to 2080. Figure 20 shows the time series of groundwater pumping that is a replacement of the surface water delivery in the baseline model.




Source: Prepared by S. Grinnell in 2024

Figure 20: Simulated Groundwater Pumping in WWD as a Substitute for Surface Water Delivery to the District in the Baseline YGM Model, (AF)/month

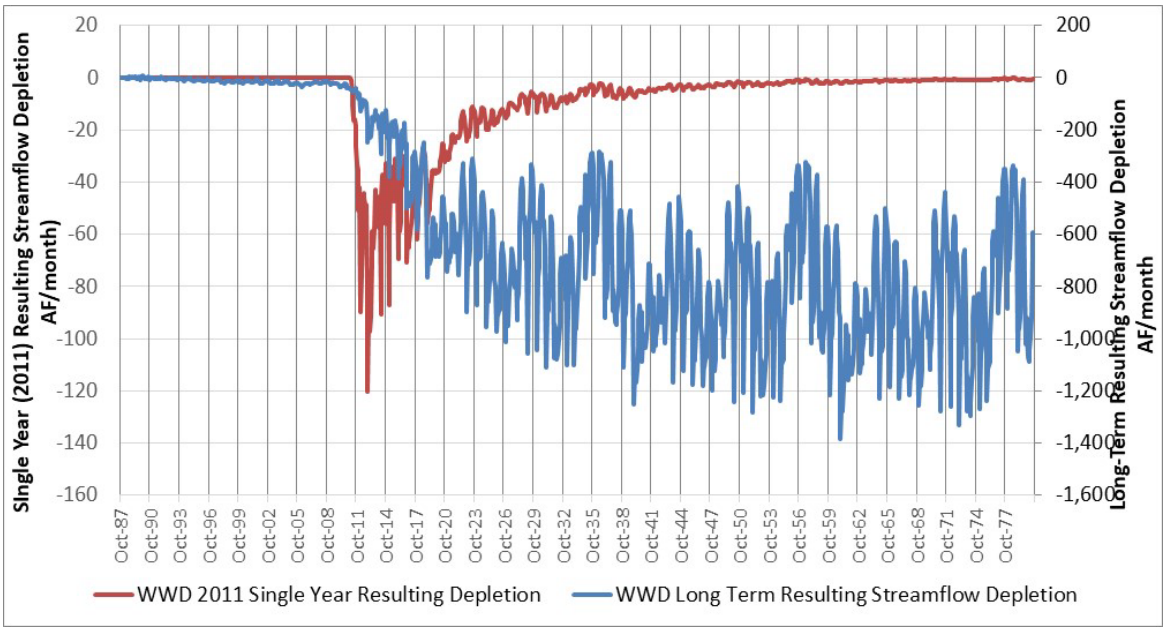
Comparison of streamflow depletion in the baseline model to the simulation of continued groundwater pumping in WWD instead of the surface water delivery results in decreasing streamflow depletion over time, with steadily reducing streamflow depletion until a new equilibrium of groundwater-surface water interaction is established. Figure 21 is a plot of the change in streamflow depletion, with a reduction in depletion shown as a negative value, for each stream segment in the model and a total. Examination of the total reduction in streamflow depletion over time shows the increasing reduction rate for the first ten to fifteen years. The plot also shows most of the reduction in streamflow depletion occurs on the Bear River (BR) followed by the portion of the Feather River from the confluence with the Yuba River to the Bear River (FR1). The time series is varied because the historical surface water deliveries to WWD were reduced in some years to support Yuba Accord GWS transfers and in 2015 and 2021 significant irrigation delivery shortages were applied to WWD contract deliveries due to extremely dry years and low storage in New Bullards Bar Reservoir. The reduction in surface water deliveries in these GWS transfer years and drought years results in a historical average annual surface water delivery to WWD of about 11,000 acre-ft, lower than the average of 14,400 acre-ft in years other than transfer and drought shortage years.




Source: Prepared by S. Grinnell in 2024

Figure 21: Simulated Change in Monthly Streamflow Depletion with WWD conversion from Groundwater Supply to Surface Water Supply, (Reduction in Depletion Shown as a Negative Value) for each Stream Segment in the YGM Model and a Total

The analysis of streamflow depletion to support the determination of an SDF utilizes a single GWS transfer of 30,000 acre-ft applied to simulated conditions representing future hydrologic conditions for Below Normal, Dry, and Critical years, the years when Yuba Accord GWS transfers take place. The long-term simulation of streamflow depletion reduction with the WWD Project cannot be readily applied to the SDF analysis. Therefore, a second simulation of the WWD Project reduction in streamflow depletion was run. This second simulation used only a single year of surface water delivery, calendar year 2011, to simulate the WWD Project effects on streamflow depletion. The year 2011 was chosen because of its similarity to the median of all years that WWD received surface water. The 2011 simulation included changing surface water deliveries to groundwater pumping, similar to the long-term simulation. The resulting streamflow reduction of the 2011 simulation and the long-term simulation (reduction shown as negative values) are shown in Figure 22. The 2011 single year pumping simulation results for total depletion from all streams in the YGM model excluding the YR2 and HC2 reaches use the left vertical axis and the long-term simulation results use the right vertical axis, which is a factor of 10 greater than the left axis. The YGM model reaches YR2 and HC2 are excluded in the total streamflow depletion for the same reasons these reaches are excluded in the 30,000 acre-ft GWS transfer analysis, which is because these reaches do not affect downstream water supplies and, in this case, do not benefit downstream water supplies.

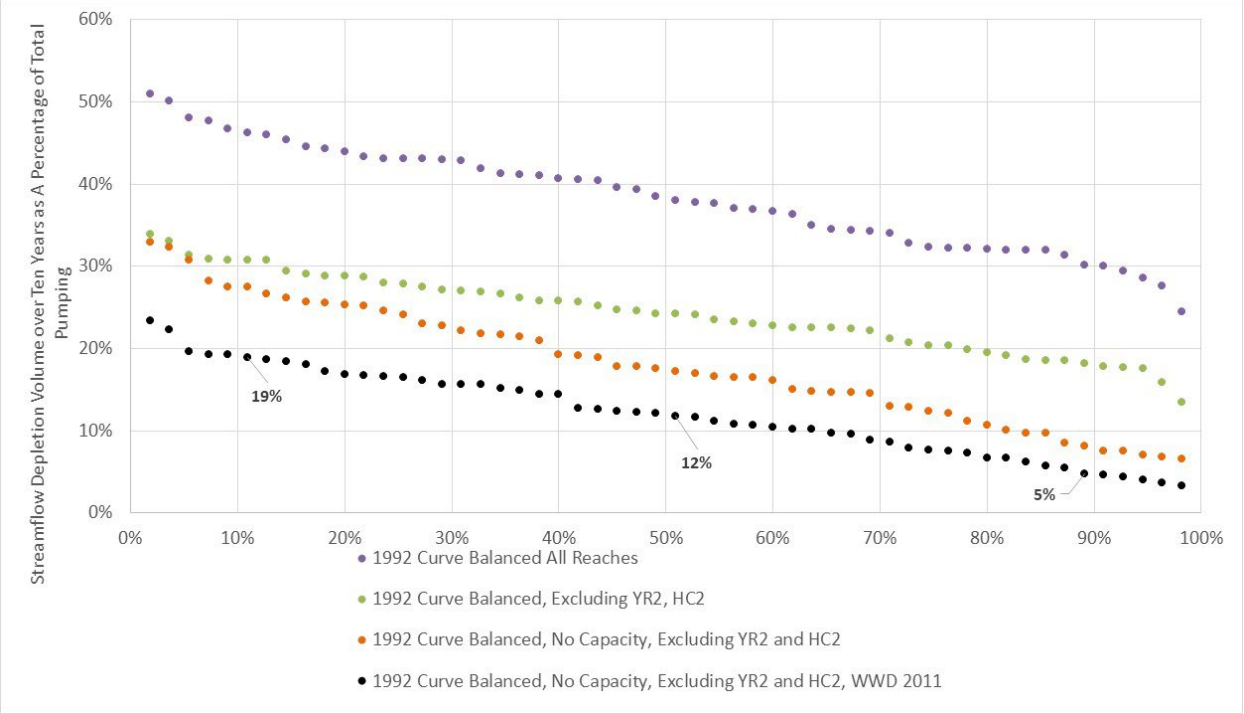



Source: Prepared by Woodard & Curran in 2024

Figure 22: Simulated Change in Monthly Streamflow Depletion, total model segment minus YR2 and HC2 with WWD conversion from Groundwater Supply to Surface Water Supply for a single year (2011) and Long Term simulation (Reduction in Depletion Shown as a Negative Value) in AF per Month

To analyze the effect of the WWD Project on an SDF, the results of the WWD Project 2011 streamflow depletion reduction are applied to the 1992 30,000 acre-ft GWS transfer streamflow depletion time series and then filtered through the time series of future conditions that include Balanced Conditions and the preliminary results of years that do not include full export capacity and flood releases in the following winter. The same approach is used for this analysis, which applies the 1992 GWS transfer streamflow depletion time series to each Below Normal, Dry, and Critical year of the 1922 to 2017 period to develop a statistical representation of the 10-year cumulative streamflow depletion volume expressed as a percent of the total GWS transfer volume. Figure 23 shows the exceedance probability plot of the results as the black data series. The plot shows the range of depletions as a percentage of a 30,000 acre-ft GWS transfer that impacts downstream water supplies over a ten-year period after accounting for the reduction in streamflow depletion of a single year of the WWD Project.

The WWD Project provides benefits to streamflow depletion each year as groundwater pumping for local supply is not occurring because of the Proposition 13 grant and construction of the surface water delivery system even accounting for GWS transfers, which do not occur each year. For the sixteen years of Yuba Accord operations from 2008 to 2023, GWS transfers have occurred in nine years with an average annual GWS transfer volume of 32,000 acre-ft. Application of one year of WWD Project to one year of 30,000 acre-ft GWS transfer and using the cumulative ten-year streamflow depletion volume affecting downstream water supplies is expected to result in reduction in streamflow depletion of a long term simulation of these projects.




Source: Prepared by S. Grinnell in 2024

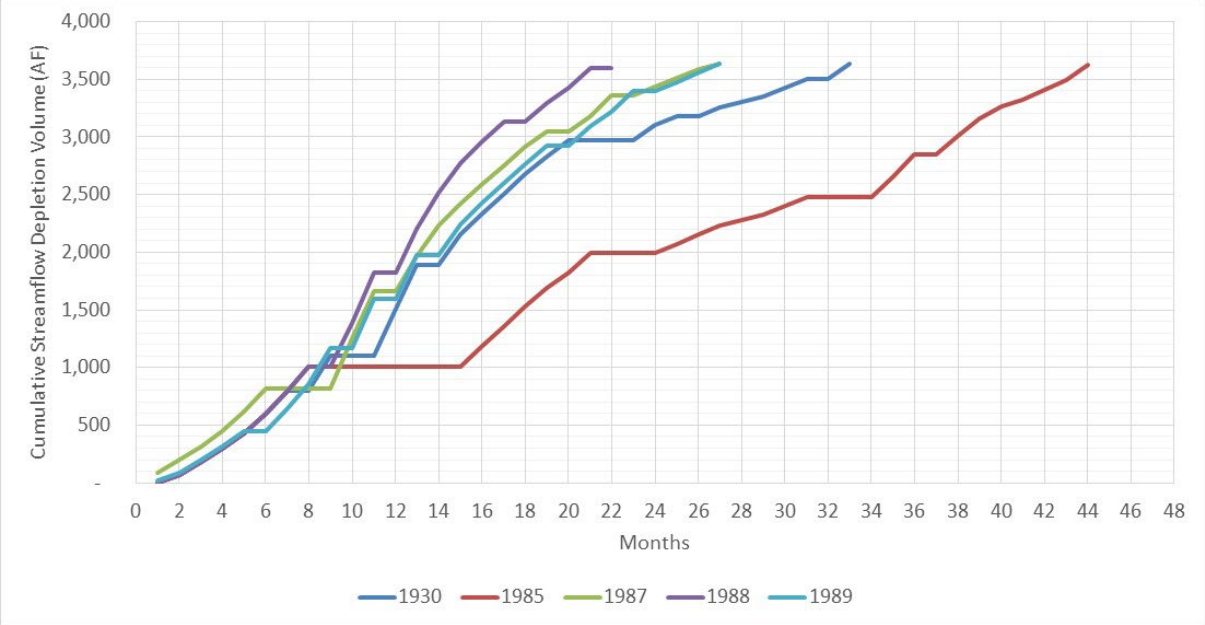
Figure 23: Exceedance probability plot of the cumulative volume of streamflow depletion after ten years for a YGM simulated 1992 GWS Transfer of 30,000 acre-ft for all reaches in the YGM model Excluding YR2 and HC2 for Below Normal, Dry and Critical years of the 1922 to 2017 period, During Balanced Condition and Excluding Years when Banks Capacity is Full and there is a Flood Release from Oroville Reservoir the following Winter and Including the Streamflow Depletion Reduction of a single year of WWD Project surface Water Deliveries

## 7. SDF Adequacy in Drought Conditions

Various strategies can be used to implement an SDF for a GWS transfer. In past years for GWS transfers throughout the Sacramento Valley, DWR and Reclamation have required a single SDF value to be applied to the transfer unless an alternative value can be supported by technical analysis. The SDF used has generally been developed by examining streamflow depletion affecting downstream water supplies over a ten-year period. The information presented in this technical memorandum shows a range of SDF depending upon future conditions, which cannot be known at the time of the transfer when the SDF is applied, and transfer water is provided to DWR and Reclamation to offset future streamflow depletion effects. The SDF median value would protect DWR and Reclamation for the future ten-year conditions in 50% of years, but in the 50% of years when future conditions are dry, such as in extended drought periods, the median value would not fully offset the impact of streamflow depletion. However, even in the most severe multi-year droughts, a median SDF would account for some of the drought year impacts.

Additional analysis was done to determine how much of the streamflow depletion impact from a GWS transfer would be offset by using a median value SDF. For demonstration purposes, an example median value SDF of 12 percent is used for the following analysis. 12 percent of a 30,000 acre-ft GWS transfer equals 3,600 acre-ft. Examining the driest 10 percent exceedance conditions (GWS transfer years that result in percent SDF values at or above the SDF value at the 10 percent exceedance of Figure 22) includes analysis of the 5 GWS transfer year hydrology's of 1930, 1985, 1987, 1988, and 1989 with SDF percentage values of 19.6, 19.3, 22.2, 23.3 and 19.3, respectively. The analysis consists of determining when the median SDF of the GWS transfer volume, in

this case 12 percent of 30,000 acre-ft or 3,600 acre-ft, is reached as a streamflow depletion affecting downstream water supplies. The assumption is that the SDF applied volume of a GWS transfer, which is provided to the Projects in the year of the GWS transfer, would fully offset the future drought year streamflow depletion for a certain time following the start of the GWS transfer. For the five highest SDF percentage years from Figure 23, examining the cumulative volume time series of streamflow depletion affecting downstream supplies until the SDF volume is met determines the number of months from the start of the transfer that is offset by the SDF volume. Figure 24 shows the cumulative volume of streamflow depletion from the start of the GWS transfer until the SDF volume of 12 percent of the 30,000 acre-ft transfer (3,600 acre-ft) is met. The number of months to reach this volume ranges from 22 months for 1988 to 42 months for 1985. Three of the five years used in the analysis, which have the highest SDF percentages in the exceedance probability plot of Figure 23, include years of the six year drought of 1987 to 1992.




Source: Prepared by S. Grinnell in 2024

Figure 24: Cumulative Volume of Streamflow Depletion from the start of the GWS Transfer until the SDF Volume of 12 Percent of the 30,000 acre-ft Transfer (3,600 acre-ft) is met for the Five largest SDF Values from Figure 23

The analysis results suggest that a possible approach for implementing an SDF to the Yuba Accord transfer program could take advantage of the multi-year aspect of the program while protecting the Projects' water supplies in multi-year droughts. For example, selecting a median SDF value would result in providing more of the GWS transfer volume than would be expected to occur over 10 years for half of all GWS transfers, and less than would be expected to occur in half of all GWS transfers. However, with a multi-year transfer program a lower SDF value could be used, and then in future years the SDF value could be adjusted higher or lower and as long as the period of time to adjust the SDF is not too long, the initial SDF value would protect the CVP's and SWP's water supplies for the interim period between the initial transfer at the beginning of a drought until a revision to the SDF is made to ensure following year SDF volumes account for past year transfer effects that may not have fully compensated the CVP and SWP with the initial SDF.

## 8. Final SDF Formulation

Figure 23 illustrates the current understanding of the range of SDF values that could be used for Yuba Accord GWS transfers. As described above, there are many factors that must be considered in determining the SDF

value to be applied to a GWS transfer.

The uncertainty of the modeling in representing streamflow depletion, further refinement of the analysis, and any ongoing or future offset projects that reduce the effects of GWS transfer pumping streamflow depletion are factors that also should be considered in formulating an SDF. These additional factors would affect the determination of a final SDF to be applied to the transfer. These additional factors can be informed to some degree with technical information but because all the factors used in the analysis are not precisely calculated and can vary depending on assumptions used, ultimately policy decisions will be needed to guide the determination of a final SDF. Additionally, DWR will need to review any analysis of an SDF and may want to augment, revise, or reconstruct some of the technical work, which may result in changes to the results described in this technical memorandum.

## Summary

As described above, for more than fifteen years, impacts to CVP and SWP downstream water supplies due to streamflow depletion caused by GWS transfer pumping throughout most of the Sacramento Valley have been compensated for by using an SDF applied to the GWS transfer. However, an SDF has never been explicitly applied to Yuba Accord groundwater substitution transfers, although the Accord incorporates other protections for surface water flows. With a greater understanding of these effects and concern for impacts on DWR and Reclamation water supplies, an SDF will be implemented in the amended Water Purchase Agreement Accounting Principles and appropriately applied to Accord transfers under the Proposed Extension, and this additional accounting element is consistent with the adaptive management actions described in the Yuba Accord 2007 EIR. Like carriage water and refill accounting, the appropriate SDF would be determined through an informed process between Yuba Water, its Member Units, and DWR, with DWR coordinating with Reclamation.

New information since the 2007 Yuba Accord EIR and considered in the Proposed Extension SEIR consists of new groundwater modeling analysis, information from the Groundwater Sustainability Plan developed under Sustainable Groundwater Management Act guidelines, a better understanding of stream-aquifer interactions, and heightened concern for impacts to downstream water supplies. This new information has led to a re-examination of streamflow depletion effects from Yuba Accord groundwater substitution transfer pumping.

Streamflow depletion effects have been examined in the context of impacts to the aquatic environment and impacts to downstream water supplies of DWR and Reclamation and are discussed in Section 3.2 of the SEIR.

# Appendix C1

## Yuba River Development Project

## Water Balance/Operations Model Documentation

# Yuba River Development Project

# Water Balance/Operations Model Documentation

# Yuba River Development Project

## Yuba Accord Water Transfer Program Extension – Supplemental Environmental Impact Report

March 2023

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# Table of Contents


| Section No. | Description | Page No. |
|---|---|---|
| 1.0 | Introduction | 1 |
| 2.0 | Operations Model Input Hydrology | 2 |
| 2.1 | Existing Condition Tributary Inflows | **Error! Bookmark not defined.** |
| 2.1.1 | North Yuba River | **Error! Bookmark not defined.** |
| 2.1.2 | Slate Creek | **Error! Bookmark not defined.** |
| 2.1.3 | Middle Yuba River | **Error! Bookmark not defined.** |
| 2.1.4 | South Yuba River | **Error! Bookmark not defined.** |
| 2.1.5 | Oregon Creek | **Error! Bookmark not defined.** |
| 2.1.6 | Deer Creek | **Error! Bookmark not defined.** |
| 2.2 | Future Condition Tributary Inflows | **Error! Bookmark not defined.** |
| 2.2.1 | Middle Yuba River | **Error! Bookmark not defined.** |
| 2.2.2 | South Yuba River | **Error! Bookmark not defined.** |
| 2.2.3 | Slate Creek | **Error! Bookmark not defined.** |
| 2.3 | Ungaged Accretions | **Error! Bookmark not defined.** |
| 2.4 | Water Year Types and Indices | 6 |
| 2.4.1 | Yuba River Index | 6 |
| 2.4.2 | North Yuba Index | 7 |
| 2.4.3 | Smartsville Index | 7 |
| 2.4.4 | Existing FERC Water Year Types | 8 |
| 3.0 | Agricultural Demands | 9 |
| 3.1 | Member Units | 9 |
| 3.1.1 | Brophy Water District | 9 |
| 3.1.2 | Browns Valley Irrigation District | 9 |
| 3.1.3 | Cordua Irrigation District | 9 |
| 3.1.4 | Dry Creek Mutual Water Company | 10 |
| 3.1.5 | Hallwood Irrigation Company | 10 |
| 3.1.6 | Ramirez Water District | 10 |
| 3.1.7 | South Yuba Water District | 10 |
| 3.1.8 | Wheatland Water District | 10 |
| 3.2 | Delivery Demands | 10 |
| 4.3 | Diversion Shortage Provisions | 11 |
| 4.0 | Model Overview | 12 |
| 4.1 | Platform Selection | **Error! Bookmark not defined.** |
| 4.2 | Modeling Basics | 12 |
| 4.2.1 | Timestep | 12 |
| 4.2.2 | YRDPM Model Coverage | 12 |



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4.2.3 Inputs....13
4.2.4 Outputs....**Error! Bookmark not defined.**
5.0 Characterization of Physical Facilities.... 21
5.1 Our House Dam and Lohman Ridge Tunnel....22
5.2 Log Cabin Dam and Camptonville Tunnel....22
5.3 Slate Creek Diversion Dam....23
5.4 New Bullards Bar Reservoir....24
5.4.1 Reservoir Releases....25
5.4.2 New Colgate Powerhouse Generation....26
5.4.3 Minimum Flow Powerhouse Generation....30
5.4.4 Dam Seepage....31
6.4.5 Evaporation....31
5.5 Englebright Reservoir....32
5.5.1 Reservoir Releases....32
5.5.2 Narrows 1 Powerhouse Generation....33
5.5.3 Narrows 2 Powerhouse Generation....34
5.5.4 Evaporation....35
5.6 Daguerre Point Dam....36
6.0 Characterization of Operational Rules.... 36
6.1 Our House Dam Operations....36
6.1.1 Instream Flow Requirements....37
6.1.2 Diversions....37
6.2 Log Cabin Dam Operations....38
6.2.1 Instream Flow Requirements....38
6.2.2 Diversions....38
6.3 Slate Creek Diversion Dam Operations....38
6.3.1 Historical Flows....38
6.3.2 Operate Slate Creek....38
6.4 New Bullards Bar Reservoir Operations....39
6.4.1 Flood Management....39
6.4.2 Target Operating Line....41
6.4.3 Carryover Storage....42
6.4.4 Inactive Pool....42
6.4.5 Englebright Storage....43
6.4.6 Power Generation....**Error! Bookmark not defined.**
6.5 Englebright Reservoir Operations....43
6.5.1 Instream Flow Requirements....44

6.5.2 Flow Fluctuation Requirements ..... 44
6.5.3 Flood Management ..... 45
6.5.4 Power Generation ..... 45
6.6 Daguerre Point Dam Deliveries ..... 46
6.7 Water Transfers ..... 47
7.0 Model Simulation Process ..... 48
8.0 References ..... 52

**List of Figures**


| Figure No. | Description | Page No. |
|---|---|---|
| 1.2-1. | Yuba River Development Project Facilities Location.A-**Error! Bookmark not defined.** | |
| 2.0-1. | Yuba River Watersheds | A-3 |
| 2.1-1. | Yuba River Watershed and Sub-Basin .....A-**Error! Bookmark not defined.** | |
| 2.3-1. | Sources of project hydrology.....A-**Error! Bookmark not defined.** | |
| 5.2-1. | Yuba River Development Project Reaches.....A-**Error! Bookmark not defined.** | |
| 6.4-1. | New Colgate Powerhouse Load-Flow Curve at Gross Head 1,396 ft | A-29 |
| 6.4-2. | New Colgate Efficiency Curve at Gross Head 1,396 ft | A-29 |
| 6.5-1. | Narrows 2 Powerhouse Load-Flow Curve at Gross Head 240 ft | A-35 |
| 6.5-2. | Narrows 2 Efficiency Curve at Gross Head 240 ft | A-35 |


**List of Tables**


| Table No. | Description | Page No. |
|---|---|---|
| 4.2-1. | Synthetic annual delivery demand for YCWA Member Units. | A-11 |
| 4.3-1. | Yuba County Water Agency Water Supply Contracts – Deficiency Provisions | A-11 |
| 5.2-1. | YRDPM Hydrologic Input Data and DSS Names | A-13 |
| 5.2-2. | Operations Inputs for the YRDPM | A-14 |


**List of Tables (continued)**


| Table No. | Description | Page No. |
|---|---|---|
| 5.2-3. | YRDPM Output and DSS Names | A-18 |
| 6.4-1. | New Bullards Bar Reservoir Maximum Release | A-25 |
| 6.4-2. | New Bullards Bar Reservoir Monthly Evaporation Factors | A-32 |
| 6.5-1. | Maximum Englebright Reservoir Release by Elevation | A-33 |
| 6.5-2. | Englebright Reservoir Monthly Evaporation Factors | A-36 |
| 7.4-1. | New Bullards Bar Reservoir Flood Reservation Storage | A-40 |
| 7.4-2. | Example New Bullards Bar Reservoir Storage Target Operating Line and Buffers | A-41 |
| 7.5-1. | Englebright Reservoir Operations Flags | A-43 |



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7.7-1. Yuba County Water Agency historical sales 1987 to 2010.A-**Error! Bookmark not defined.**

7.7-2. Yuba County Water Agency historical groundwater substitution pumping (ac-ft).A-50

7.7-3. Historical monthly release volumes of groundwater substitution transfers.... A-**Error! Bookmark not defined.**

7.7-4. Monthly pattern of historical water transfers.....A-**Error! Bookmark not defined.**

# 1.0 Introduction

Yuba County Water Agency (YCWA) owns and operates the Yuba River Development Project (YRDP or Project), located in the Yuba River basin. Project facilities are located on the main stem of the Yuba River, Middle Yuba River, and North Yuba River; and Oregon Creek, a tributary to the Middle Yuba River. The Yuba River is a tributary to the Feather River and is part of the Sacramento River Basin, which drains into the San Francisco Bay. The Project can store approximately 966,770 acre-feet (ac-ft) of water (gross storage) and can generate an average of about 1.4 million megawatt-hours of power annually. Figure 1.0-1 shows the location of Project facilities.

An operations model of the Project was developed as part of the FERC relicensing process (FERC Project No. 2246) to simulate current and future operations of the Project using historical hydrology to define a representative range of hydrological conditions, and to output resulting flows, reservoir storage and water-surface elevations, and power generation for use by the YCWA and Relicensing Participants in the relicensing process. The Yuba River Development Project Model (YRDPM or Model) is intended to be used as a comparative model rather than a predictive one to eliminate any biases or inconsistencies in upstream operations. Impacts of changes in operations are measured as the relative difference in model output as it compares to a basis of comparison.

The objective of this report is to describe the YRDPM, as used for the lower Yuba River Accord (Yuba Accord) Long Term Transfer Program extension Supplemental Environmental Impact Report (SEIR) analysis. Section 2 provides a high-level description of the watershed hydrology, and hydrologic indices used to determine water year types; Section 3 summarizes agricultural diversion demands; Section 4 presents and overview of the Model itself; Section 5 characterizes Project facilities, as they are represented in the Model; Section 6 characterized Project operations, as they are represented in the Model; Section 7 outlines the Model simulation process. This document is intended to document assumptions used in the Model.


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# 2.0 Operations Model Input Hydrology

The Yuba River watershed drains approximately 1,339 square miles (sq-mi) (United States Geologic Survey [USGS] 2004) of the western slope of the Sierra Nevada, including portions of Sierra, Placer, Yuba, and Nevada counties, as shown in Figure 2.0-1. The Yuba River is a tributary of the Feather River, which in turn is a tributary of the Sacramento River. The watershed rises from an elevation of about 60 feet (ft) to about 8,590 ft above mean sea level (ft-msl). The annual unimpaired flow below Englebright Dam, as measured by the USGS at the Smartsville Gage (USGS gage 11418000) on the 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 2.36 MAF per year (1901 to 2010).[1] 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 Pacific Gas and Electric Company (PG&E). Total storage capacity of about 307 thousand acre-feet (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 watershed to the Bear River and American River basins through the Yuba-Bear (YB) and Upper Drum-Spaulding (DS) projects, known collectively as the YB/DS project. In addition, the South Feather Water and Power Agency (SFWPA, previously known as the Oroville-Wyandotte Irrigation District) exports an average of about 70 TAF per year from Slate Creek (a tributary to the North Yuba River) to the Feather River Watershed through the South Fork Feather River Project (SFFRP). While these upper basins lie outside of the project study area, the described operations and exports can considerably reduce the water supply available to YCWA, particularly during dry and critical water years.

[1] Forecasted seasonal unimpaired flow at Smartsville is estimated each year by DWR and reported monthly in Bulletin 120, *Water Conditions in California*. Unimpaired flow at Smartsville is used in YCWA contracts for water delivery to senior water right holders on the lower Yuba River and is used in the calculation of the Yuba River Index, a hydrologic water year type index for the Yuba River, defined in State Water Resources Control Board Revised Decision 1644.

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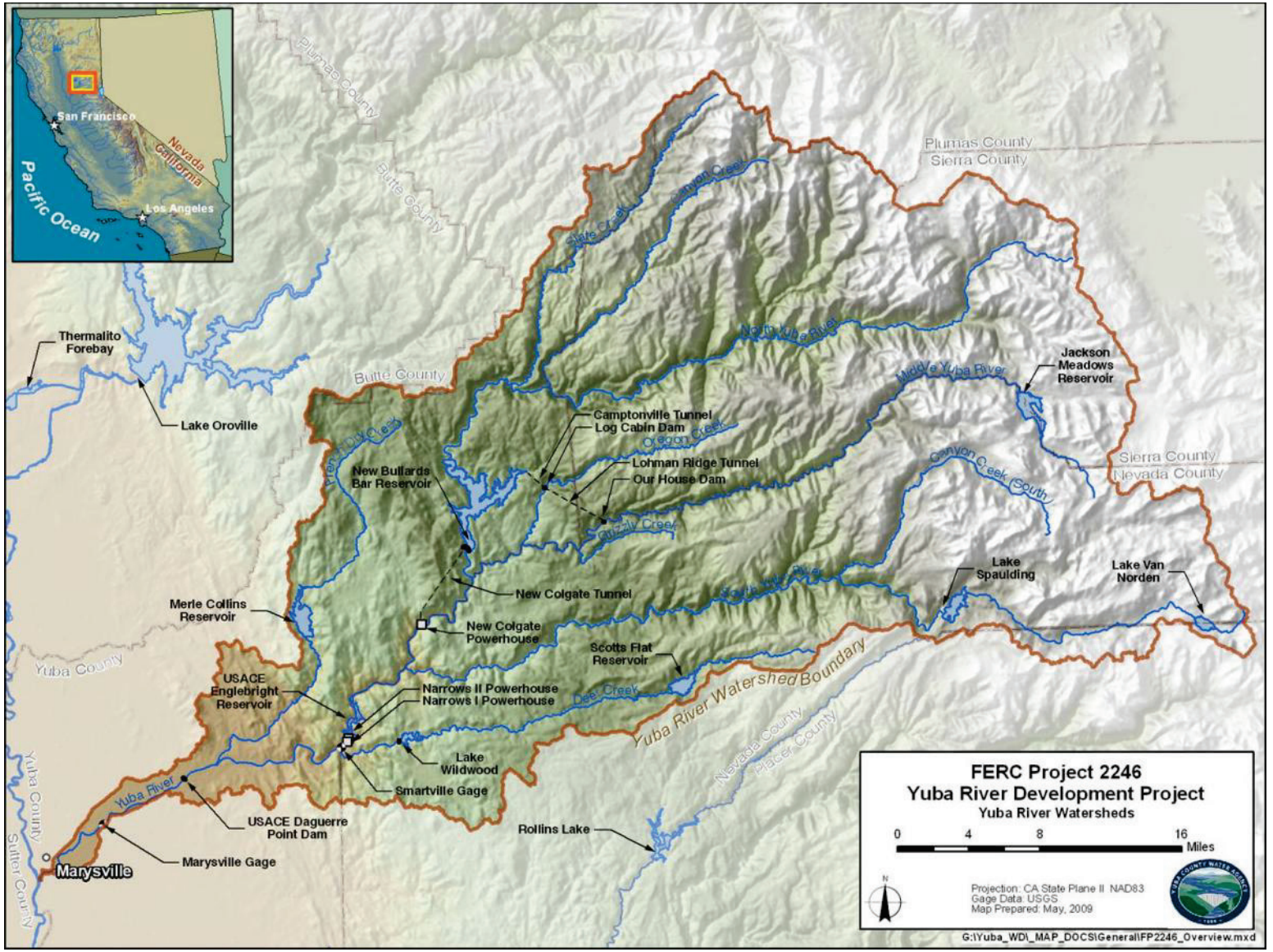


Source: MWH Americas, Inc.

**Figure 2.0-1. Yuba River Watershed.**


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YCWA has compiled an input hydrology dataset for the Operations Model. It consists of a mix of historical gage data, representing inflow of major tributaries at upstream boundary conditions, and synthesized sub-basin accretion data at intermediate points within the basin. A complete description of the hydrology development and inputs to the Model is included in Appendix A, YRDPM Hydrology Report.

Figure 2.0-2 shows locations of Operations Model tributary inflows (listed in purple boxes) and locations of tributary accretions inputs (listed in red boxes). Locations with minimum instream flow requirements are listed in green boxes. Labels shown in Figure 2.0-2 for model inputs and outputs are consistent with model timeseries data found in the model input and output files.


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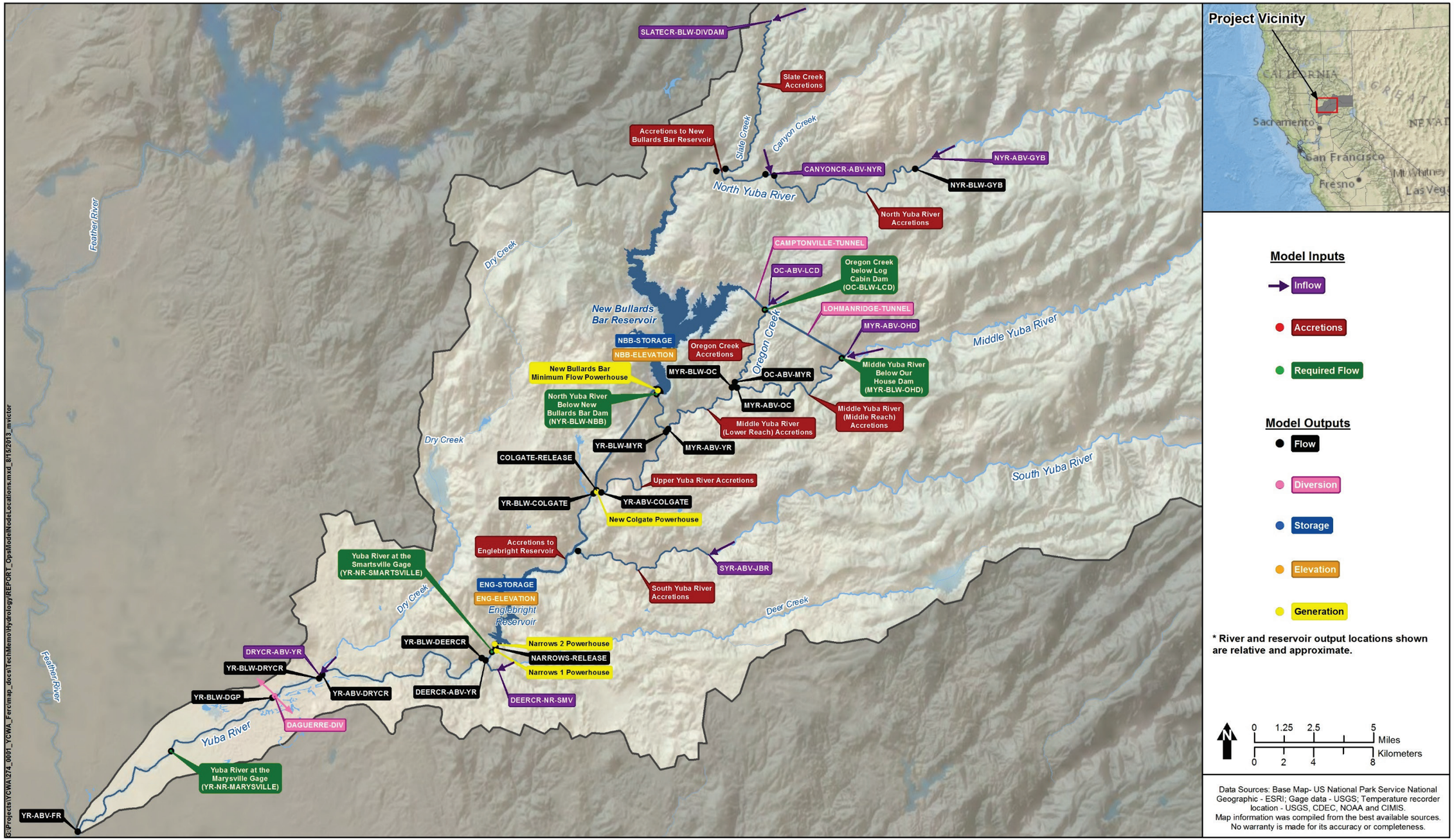


**Figure 2.0-2. Yuba River Development Project Area Tributary Reaches**


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## 2.1 Water Year Types and Indices

Several hydrologic indices are used to characterize hydrologic water year types of the Yuba River. The Yuba River Index (YRI), which is incorporated into SWRCB Order Revised Decision 1644 (RD-1644), the North Yuba Index (NYI), which is incorporated into the Lower Yuba River Accord (Yuba Accord), the Smartsville Index, which is incorporated into the Final License Application (FLA) (YCWA 2014), and the Existing FERC Index, which is included in the original FERC license, are used to determine the governing flow requirement for their respective criteria.

Hydrologic Indices are selected by the user in the Operations Model for three regions: Below Englebright, North Yuba River and Middle Yuba/Oregon Creek. The index selected for Below Englebright determines the governing flow requirements in the Yuba River at Smartsville and at Marysville. The index selected for the North Yuba River determines the governing flow requirements in the North Yuba River below New Bullards Bar Dam. The index selected for the Middle Yuba/Oregon Creek determines the governing flow requirements in the Middle Yuba River below Our House Diversion Dam and in Oregon Creek below Log Cabin Diversion Dam. Hydrologic Indices for the three regions are selected by the user on the *Scenario Builder and Control* worksheet.

### 2.1.1 Yuba River Index

The YRI was developed in 2000 to describe the hydrology of the lower Yuba River. This index is a measure of the unimpaired river flows at Smartsville. The YRI was used to determine the water year types and the corresponding in-stream flow requirements under SWRCB RD-1644 (SWRCB 2003). .

The YRI is determined by applying weighting factors to runoff from different periods of the year as follows:

$$YRI = 0.2YRI_{previous} + 0.3R_{winter} + 0.5R_{summer}$$

where:

$YRI_{previous}$ = YRI of previous year (maximum 1,400);

$R_{winter}$ = October through March unimpaired runoff at Smartsville; and

$R_{summer}$ = April through July unimpaired runoff at Smartsville.

YRI year types are determined as follows:

- Wet YRI greater than or equal to 1,230 TAF
- Above Normal YRI greater than or equal to 990 TAF
- Below Normal YRI greater than or equal to 790 TAF
- Dry YRI greater than or equal to 540 TAF
- Critical YRI less than 540 TAF


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### 2.1.2 North Yuba Index

The NYI was developed for the Yuba Accord (YCWA 2007). This index provides a measure of available water in the North Yuba River that can be used to meet instream flow requirements and delivery requirements to member units on the lower Yuba River (since the YRI is based on unimpaired flows at Smartsville, including flows from the Middle and South Yuba rivers, it does not accurately represent the water available for storage by YCWA). The NYI comprises two components: (1) active storage in NBB at the start of the current water year (October 1), and (2) total actual and projected inflow into NBB for the current water year, including diversions from the Middle Yuba River and Oregon Creek to NBB.

The NYI is determined by adding the previous year's end-of-September active storage (storage greater than the FERC license minimum pool of 234 TAF) to the sum of actual and predicted inflows to NBB for the water year. NYI schedules are numbered 1 through 6 as indicators of specific hydrologic conditions to assign a flow requirement. A seventh schedule, which applies during the driest conditions, is called a Conference Year. The NYI values corresponding to the schedules from wettest to driest are as follows:

- Schedule 1: NYI greater than 1,400 TAF
- Schedule 2: NYI greater than 1,050 TAF
- Schedule 3: NYI greater than 930 TAF
- Schedule 4: NYI greater than 825 TAF
- Schedule 5: NYI greater than 690 TAF
- Schedule 6: NYI greater than 500 TAF
- Conference Year: NYI less than 500 TAF

Conference Year conditions apply to determine the required instream flows during an extremely dry year occurrence. The Conference Year provisions of the Yuba Accord include specified minimum daily flows and a set of conditions for further determining flows in the lower Yuba River. Current project operations use the NYI to determine minimum flow requirements on the lower Yuba River.

### 2.1.3 Smartsville Index

The Smartsville Index (SVI) is defined by published forecasts of annual unimpaired Yuba River flow near Smartsville and computed unimpaired flows for previous months. DWR publishes forecasts of annual volumes of unimpaired Yuba River flow near Smartsville in its Bulletin 120, Water Conditions in California, every year in early February, March, April and May. After the end of the WY (i.e., beginning of October), YCWA will use the actual annual volume of unimpaired Yuba River flow near Smartsville for the previous WY to determine the WY type used until the next forecast is released (i.e., in early February). Table 2.4-3 shows the Smartsville Hydrological Index thresholds and associated WY types.


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SVI year types are determined as follows:

- Wet SVI greater than or equal to 3,240 TAF
- Above Normal SVI greater than or equal to 2,191 TAF
- Below Normal SVI greater than or equal to 1,461 TAF
- Dry SVI greater than or equal to 901 TAF
- Critical SVI less than 901 TAF

.

### 2.1.4 Existing FERC Water Year Types

According to the original FERC license, required minimum water releases for fishery resources are subject to reductions in critical water years, which are defined as those water years for which the April 1 forecast by DWR's Bulletin 120 predicts that the annual unimpaired flow in the Yuba River at Smartville will be 50 percent or less of the 50-year average unimpaired flow (normal). Water release curtailments for critical water years are release reductions of 15, 20, and 30 percent when Yuba River unimpaired flow forecasts are 50, 45, and 40 percent, respectively, or less of normal. The critical water year provision is effective from the time of the forecast until April 1 of the following year.

The Existing FERC Water Year Types and associated thresholds are as follows:

- A (No Curtailment) Forecasted runoff greater than 50% of normal
- B (15% Curtailment) Forecasted runoff greater than 45% of normal
- C (20% Curtailment) Forecasted runoff greater than 40% of normal
- D (30% Curtailment) Forecasted runoff less than 40% of normal

The Existing FERC water year types are applied to the North Yuba River below New Bullards Bar Dam, the Middle Yuba River below Our House Diversion Dam, and on Oregon Creek below Log Cabin Diversion Dam.


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# 3.0 Agricultural Demands

Various water districts, irrigation districts, and mutual water companies have contracts with YCWA for delivery of water. Some of the parties that receive water from YCWA also have their own appropriative rights for diversion of water from the Yuba River. This section provides an overview of the agricultural water demands met by the Project.

## 3.1 Member Units

Water diverted under YCWA's water right permits is delivered to 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). BVID receives water at the Pumpline Diversion Facility, located on the north-side of the river, approximately one mile upstream from Daguerre Point Dam. CID, HIC, and RWD receive water through the Hallwood-Cordua Canal (North Canal), located on the north abutment of Daguerre Point Dam. BWD, SYWD, DCMWC, and WWD receive water through the Yuba Main Canal (South Canal), located on the south side of the Yuba River slightly upstream of the south abutment of Daguerre Point Dam.

### 3.1.1 Brophy Water District

Since 1985, all water from the Yuba River used by BWD has been delivered through the South Canal under contract with YCWA. BWD's contract with YCWA provides for a Base Project Water allocation of 43,470 ac-ft and a Supplemental Water allocation of 32,177 ac-ft.

### 3.1.2 Browns Valley Irrigation District

BVID holds a pre-1914 appropriative water right to divert up to 47.2 cfs of water year-round from the Yuba River for agricultural use. In addition, BVID holds post-1914 appropriative water rights on Dry Creek. These post-1914 appropriative rights allow for direct diversion and storage of water in Merle Collins Reservoir. BVID also has a contract with YCWA authorizing diversions of 9.5 TAF per year at its Pumpline diversion facility on the Yuba River to supplement BVID's diversions under its pre-1914 appropriative right when North Yuba River flows decrease below 47.2 cfs.

### 3.1.3 Cordua Irrigation District

CID holds a pre-1914 appropriative right to divert up to 75 cfs from the Yuba River for agricultural use, and 1940 and 1948 appropriative rights to divert an additional 90 cfs. CID also has a contract with YCWA for 12 TAF of Base Project Water. CID diverts all of its Yuba River water from Daguerre Point Dam through the North Canal.


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### 3.1.4 Dry Creek Mutual Water Company

DCMWC receives all surface water deliveries from the South Canal under contract with YCWA. DCMWC began receiving water from YCWA in 1998; prior to 1998, the only water available to DCMWC was groundwater. DCMWC's contract with YCWA provides for a Base Project Water allocation of 13,682 ac-ft and a Supplemental Water allocation of 3,061 ac-ft.

### 3.1.5 Hallwood Irrigation Company

HIC has a pre-1914 appropriative right to divert 150 cfs from the Yuba River, and a 1940 appropriative right to divert 100 cfs from the Yuba River. In a settlement agreement with YCWA regarding its water right, HIC agreed to receive a Base Project water allocation of 78 TAF per year from YCWA from the North Canal at Daguerre Point Dam.

### 3.1.6 Ramirez Water District

RWD received water from CID from 1978 to 1992. Since 1992, RWD has received contract water from YCWA. RWD's contract with YCWA provides for a Base Project Water allocation of 14,790 ac-ft and a Supplemental Water allocation of 10,311 ac-ft. RWD receives water from the North Canal at Daguerre Point Dam.

### 3.1.7 South Yuba Water District

Areas of SYWD began receiving surface water from the South Canal in 1985 with an original contract amount of 33.9 TAF per year. Since 1992, SYWD has received all its surface water deliveries from the South Canal under contract with YCWA. Since 1996, SYWD's contract with YCWA provides for a Base Project Water allocation of 25,487 ac-ft and a Supplemental Water allocation of 18,843 ac-ft.

### 3.1.8 Wheatland Water District

WWD completed the Wheatland Project to deliver surface water to its farmers in 2009. The Wheatland Project was in two phases; the completed Phase 1 provides surface water to approximately 7,750 ac of the approximately 9,200 ac to be served upon completion of both phases. Under Phase 1, WWD's contract with YCWA provides for a total allocation (base and supplemental) of 23,092 ac-ft per year. The completion of Phase 2 will provide WWD with a total of 40,230 ac-ft per year.

## 3.2 Delivery Demands

For modeling purposes, historical land use, applied water, and delivery patterns were analyzed to develop two basin-wide daily diversion demands: a wet year demand and a dry year demand. Annual demands for two levels of development, a present and a future condition, were developed; in the present level of development case, only lands irrigable by existing infrastructure are included. For the future level of development case, the full area of WWD is considered irrigated by Yuba River water, all other district demands remain the same. Table 3.2-1 includes a summary

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of the synthetic annual delivery demands for each member unit, under present and future levels of development. The future development case is not used for the Accord extension SEIR.

**Table 3.2-1. Synthetic annual delivery demand for YCWA Member Units.**

| YCWA Member Unit | Synthetic Annual Demand (ac-ft) | | | |
|---|---|---|---|---|
| | Present Level Development | | Future Level Development | |
| | Wet Year | Dry Year | Wet Year | Dry Year |
| Brophy Water District | 67,187 | 70,413 | 67,187 | 70,413 |
| Browns Valley Irrigation District | 34,723 | 36,383 | 34,723 | 36,383 |
| Cordua Irrigation District | 55,494 | 58,398 | 55,494 | 58,398 |
| Dry Creek Mutual Water Company | 15,552 | 16,034 | 15,552 | 16,034 |
| Hallwood Irrigation Company | 47,252 | 49,394 | 47,252 | 49,394 |
| Ramirez Water District | 24,295 | 25,596 | 24,295 | 25,596 |
| South Yuba Water District | 34,860 | 36,725 | 34,860 | 36,725 |
| Wheatland Water District | 11,835 | 12,139 | 31,651 | 32,667 |
| **Totals** | **291,198** | **305,082** | **311,014** | **325,610** |

Key:
ac-ft = acre-feet

Historical daily delivery patterns for 2003 through 2007 were evaluated to develop a wet and dry year delivery pattern which was then applied to the annual volumes developed using land use and applied water rates. In simulation, daily deliveries are aggregated into a single daily value, and are diverted at Daguerre Point Dam.

## 3.3 Diversion Shortage Provisions

Because of the range of water rights and contract conditions, deficiency provisions vary by Member Unit. Base Project Water allocations are tied to unimpaired Yuba River flow at Smartsville, and Supplemental Water Supplies are tied to availability. Several Member Units have water rights in addition to their contracts with YCWA that are not subject to deficiencies except under extreme conditions. Specific contract deficiency provisions are shown in Table 3.3-1.

**Table 3.3-1. Yuba County Water Agency Water Supply Contracts – Deficiency Provisions**

| Category | Unimpaired Runoff Forecast [a] | Percentage of Settlement/ Contract Allocation Available |
|---|---|---|
| **Pre-1914 Rights Settlements:** | | |
| *[(a)] CID, HIC* | | |
| | *$f \geq 40\%$* | *100%* |
| | *$f < 40\%$* | *80%* |
| *[(b)] BVID Forecasts* | | |
| | *All* | *100%* |
| *YCWA Supply Contracts:* | | |
| *[(a)] Base Supply* | *$85\% \leq f$* | *100%* |
| | *$50\% \leq f < 85\%$* | *85%* |
| | *$40\% \leq f < 50\%$* | *70%* |
| | *$f < 40\%$* | *50%* |
| *[(b)] Supplemental Supply* | *All Forecasts* | *Determined annually by YCWA in its reasonable discretion considering forecasted runoff and operational conditions.* |

Note: [a]. April 1 DWR forecast of unimpaired Yuba River runoff near Smartsville, in percentage of 50-year average

# 4.0 Model Overview

The YRDPM simulates Project operations on a daily timestep for a user-designated period of record. Using historical and synthesized hydrology, the YRDPM simulates user-defined operations using a consistent set of operational and physical constraints to determine the Project's response to a wide range of hydrologic conditions. Since the YRDPM is simulating historical hydrology against physical and regulatory conditions that did not necessarily exist at any given time in Project history, a direct comparison of model output against historical conditions would not be practical and could be very misleading. Comparison between model runs with different physical or regulatory conditions can, however, lead to an understanding of a potential range of effects associated with specific physical or regulatory changes.

## 4.1 Modeling Basics

The YRDPM was developed in Microsoft Excel, with almost all logic and computations written in Visual Basic for Applications (VBA). The model uses Hydrologic Engineering Center Data Storage System (HEC-DSS) for input and output timeseries storage and management.

### 4.1.1 Timestep

The YRDPM utilizes a daily timestep for Project operations simulation. Some of the decisions are made using a weekly volume, as described below. The model has the capability of simulating time periods from as long as 52 years of hydrology (water years 1970 through 2021) to as short a time interval as a single day, but all simulations must run through September 30. Internally, the model reads input and writes output to simulate as much as a single year at a time. Longer durations require subsequent internal iterations of reading input and writing output; however, from a user's perspective, multiple years and single years are managed in the same way.

### 4.1.2 YRDPM Model Coverage

The YRDPM model includes the following:

- The North Yuba River below Goodyears Bar
- Slate Creek above the Slate Creek Diversion Dam
- Canyon Creek at its confluence with the North Yuba River
- New Bullards Bar Dam and Reservoir
- The Middle Yuba River from immediately above Our House Dam
- Oregon Creek from immediately above Log Cabin Dam
- Our House Dam
- Log Cabin Dam
- The Lohman Ridge Tunnel
- The Camptonville Tunnel
- The South Yuba River below Jones Bar
- Deer Creek near Smartsville
- New Colgate Powerhouse


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- New Bullards Bar Dam New Bullards Bar Minimum Flow Powerhouse
- Englebright Dam and Reservoir
- Narrows 1 and 2 powerhouses
- Daguerre Point Dam
- YCWA agricultural demands
- Smartsville gage
- Marysville gage
- Yuba River from the confluence of the North and Middle Yuba rivers to the Feather River

Figure 2.0-2 shows the hydrologic schematic for the YRDPM.

## 4.2 Inputs

YRDPM input is classified into two categories: hydrologic input and operations input.

### 4.2.1 Hydrologic Input

Hydrologic input to the YRDPM is read as a timeseries from a DSS file. Table 4.2-1 indicates the input description and its name in the input DSS file. A complete description of the hydrology development and inputs to the Model is included in Appendix A, YRDPM Hydrology Report.

**Table 4.2-1. YRDPM Hydrologic Input Data and DSS Names.**

| Description | DSS Name |
|---|---|
| *Accretions from Canyon Creek* | *CANYON_CR_ACC* |
| *Deer Creek Inflow* | *DEER_CR* |
| *Daguerre Point Agricultural Diversion Demand, Present and Future* | *DGP_DEM* |
| *Dry Creek Inflow* | *DRY_CK* |
| *Total Accretions to Englebright Reservoir* | *ENG_ACC_TOTAL* |
| *Accretions to the Englebright Reservoir Area* | *ENG_RES_ACC* |
| *Maximum Daily Pumping Volume for Groundwater Substitution Transfer, Present and Future* | *GWS_MAX_PUMP* |
| *Accretions to the Middle Yuba River below Oregon Creek* | *LOWER_M_YUBA_LOW_ACC* |
| *Accretions to the Middle Yuba River above Oregon Creek* | *LOWER_M_YUBA_MID_ACC* |
| *Accretions to the North Yuba River below Goodyears Bar* | *LOWER_N_YUBA_ACC* |
| *Accretions to Oregon Creek below Log Cabin Dam* | *LOWER_OREGON_CK_ACC* |
| *Accretions to Slate Creek below the Slate Creek Diversion Dam* | *LOWER_SLATE_CR_ACC* |
| *Accretions to the South Yuba River below Jones Bar* | *LOWER_S_YUBA_ACC* |
| *Middle Yuba River Inflow above Our House Dam* | *M_YUBA* |
| *Total Accretions to New Bullards Bar Reservoir* | *NBB_ACC_TOTAL* |
| *Accretions to the New Bullards Bar Reservoir Area* | *NBB_RES_ACC* |
| *North Yuba River Inflow above Goodyears Bar* | *N_YUBA* |
| *Oregon Creek Inflow above Log Cabin Dam* | *OREGON_CK* |
| *Slate Creek Inflow above the Slate Creek Diversion Dam* | *SLATE_CR* |
| *Slate Creek Inflow below the Slate Creek Diversion Dam* | *SLATE_CR_BLW_DD* |
| *South Yuba River Inflow at Jones Bar* | *S_YUBA* |
| *Accretions to the Yuba River above Colgate Powerhouse* | *UPPER_YUBA_ACC* |

### 4.2.2 Operations Input

Many user inputs are not timeseries and must be input by hand. Foundational parameters related to alternatives are set on the "Scenario Builder and Control" worksheet. Other variables can be set on the "Inputs-Constraints" worksheet. Timeseries inputs are either read in from the input DSS file or are specified on the "Inputs-Timeseries" worksheet.

Table 4.2-2 lists user-defined operations inputs for the YRDPM.

**Table 4.2-2. Operations Inputs for the YRDPM.**

| Operations Input | Description |
|---|---|
| **Scenario Builder and Control Variables** | |
| *Start Date* | *Initial date of simulation.* |
| *End Date* | *Final date of simulation.* |
| *Starting NBB Storage* | *Initial storage of New Bullards Bar Reservoir.* |
| *Starting Englebright Storage* | *Initial storage of Englebright Reservoir.* |
| *Starting Delivery Shortage* | *To set initial condition delivery shortage if the simulation starts after the first day of the water year.* |
| *Prev. Year 9/30 Storage (if not starting 10/1)* | *To calculate the NYI if the simulation starts after the first day of the water year.* |
| *Inflow to Date (if not starting on 10/1)* | *To calculate the NYI if the simulation starts after the first day of the water year.* |
| *Starting Maximum Flow Fluctuation Criteria* | *Initializes the previous year's flow fluctuation criteria.* |
| *Use Error Checking?* | *Yes/No switch to select whether or not all error-checking will be used.* |
| *Use Automatic Calculations Throughout?* | *Yes/No switch to select whether or not automatic calculation is used in each simulation step* |
| *Calculate Water Balance?* | *Yes/No switch to select whether or not the model does a water balance check at key locations for each time step* |
| *DSS Input File* | *Path and file name of DSS file containing hydrologic input timeseries data* |
| *DSS Output File* | *Path and file name of DSS file for the model to write output to. Can be either a new file or an existing one* |
| *Simulation Name* | *Name used as the F-Part when writing output to the DSS output file* |
| *Middle and South Yuba Timeseries:* | *Selector for various options of Middle Yuba and South Yuba rivers' inflows* |
| *Level of Development* | *Level of development for agricultural diversion demand, present or future* |
| *Primary NBB Target Operating Line* | *New Bullards Bar Reservoir target operating line* |
| *Secondary (Dry) NBB Target Operating Line* | *New Bullards Bar Reservoir target operating line when forecast is drier than trigger volume (not used for Accord CEQA)* |
| *B120 Trigger for Secondary (Less than):* | *Trigger for secondary target operating line (not used for Accord CEQA)* |
| *Instream Flow Requirements* | *Controlling minimum instream flow requirements for Below Englebright, North Yuba River and Middle Yuba/Oregon Creek* |
| *Hydrologic Index* | *Hydrologic Index used for the Instream Flow Requirements for Below Englebright, North Yuba River and Middle Yuba/Oregon Creek* |
| *Starting Year Type* | *The hydrologic year-type for the starting date for Below Englebright, North Yuba River and Middle Yuba/Oregon Creek* |
| *Inputs-Constraints Variables* | |
| *General Constraints* | |
| *Hydrologic Index Calculation* | *Perfect Foresight/Bulletin 120 switch to define how the hydrologic index is calculated, either once a year with Perfect Foresight, or monthly from February through June with Bulletin 120* |
| *Month When Water Year Type Changes, if Perfect Foresight is Selected* | *Month to change year type when using perfect foresight. Not applicable for Accord CEQA* |
| *Day of Month when Water Year Types Change, if Bulletin 120 is Selected* | *Day of month to change the year type when using Bulletin 120 to determine the year type. Set to April for Accord CEQA* |
| *GWS Pumping/Release Pattern* | *Pattern for pumping groundwater and releasing it from storage uses 2005 Accord Pattern 1970 to 2000 and historical 2001 to 2021* |
| *Groundwater Substitution for Schedule 6 Years* | *Quantity of groundwater substitution transfer in Schedule 6 years. Set by Yuba Accord as 30,000 acre-feet.* |
| *Groundwater Substitution Transfers* | *Yes/No selector to identify if additional GWS transfers are simulated. Set to "YES" for Accord CEQA.* |


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| | |
|---|---|
| *New Bullards Bar Reservoir Constraints* | |
| *New Colgate Max* | *Maximum release capacity of New Colgate Powerhouse* |
| *New Bullards Bar Reservoir Maximum Storage* | *Maximum storage of New Bullards Bar Reservoir, including surcharge space* |
| *New Bullards Bar Reservoir Normal Max Elevation* | *Normal maximum water-surface elevation in New Bullards Bar Reservoir* |
| *Colgate Turbine Elevation* | *Elevation of New Colgate Powerhouse turbines. Used to determine head differential and resulting generation.* |
| *Violate FERC Minimum Pool to Meet Flow Requirements* | *Yes/No switch to all NBB pool elevation to go lower than the FERC minimum pool in order to meet minimum flow requirements. A Yes selection does not allow for releases to Colgate Powerhouse below the FERC minimum pool.* |
| *Flood Pool Buffer* | *Buffer on flood pool, used to determine if New Colgate releases can be reduced for Englebright spill avoidance.* |
| *New Bullards Bar Reservoir Flood Operations Constraints* | |
| *Maximum Flow Below Dam:* | *Maximum release from New Bullards Bar Dam for flood management* |
| *Maximum Flow in Marysville* | *Maximum flow in Marysville for flood management* |
| *Use ARC Spillway* | *Yes/No switch to use ARC Spillway.* |
| *Use Forecast-Based Flood Releases* | *Yes/No switch to use forecast-based flood releases* |
| *Number of Days of Forecast For Forecast-Based Operations* | *Number of days of forecast if 'Use Forecast-Based Flood Releases' is turned on.* |
| *Inflow Forecast/Hindcast Exceedance:* | *Probability of forecast if "Use Forecast-Based Flood Releasees: is turned on* |
| *Maximum Yuba River Flow for Colgate Generation* | *Maximum Yuba River flow that can be used for Colgate generation. Restricts Colgate operations during high flow events.* |
| *New Colgate PH Tailwater Depression System* | *Yes/No switch to use FLA proposed tailwater depression system.* |
| *New Bullards Bar Reservoir Spill Cessation* | *Type of spill cessation mode to be implemented below NBB Dam* |
| *Use Spill Overrides?* | *Yes/No switch to trigger use of override timeseries to override normal YRDPM NBB Dam spill logic. Set to "Yes"* |
| *New Bullards Bar Reservoir Carryover Storage Constraints* | |
| *Maximum Carryover Storage* | *Greatest volume of computed minimum required end-of-September New Bullards Bar Reservoir storage* |
| *Delivery Target (for Carryover Storage)* | *Minimum allocation of agricultural deliveries for following year used to compute minimum required end-of-September New Bullards Bar Reservoir storage* |
| *Maximum Delivery Deficiency* | *Maximum deficiency of agricultural deliveries before reducing instream flows* |
| *Carryover Storage Operation Buffer:* | *Operational buffer to account for uncertainty in fall hydrology* |
| *Annual Evaporation* | *Estimate of New Bullards Bar Reservoir evaporation volume at low storage* |
| *FERC Minimum Pool* | *New Bullards Bar Reservoir FERC minimum pool storage volume. Reservoir storage will not be drawn below this storage volume.* |
| *Englebright Reservoir Constraints* | |
| *Narrows 1 Capacity* | *Maximum release capacity of Narrows 1 Powerhouse.* |
| *Narrows 2 Capacity* | *Maximum release capacity of Narrows 2 Powerhouse.* |
| *Narrows Max* | *Maximum combined flow of Narrows 1 and Narrows 2 powerhouses* |
| *Apply Narrows 1 FERC License?* | *Yes/No switch to operate Narrows 1 for Article 402 Smartsville Minimum flows. Set to "No"* |
| *Narrows 1 & 2 Flow Split* | *Defines which Powerhouse, Narrows 1 or Narrows 2, is given higher priority.* |
| *Narrows 1 Min Release* | *Minimum release from Narrows 1 Powerhouse due to efficiency limitations. Narrows 1 Powerhouse will not release lower flow.* |
| *Narrows 2 Min Release* | *Minimum release from Narrows 2 Powerhouse due to efficiency limitations. Narrows 2 Powerhouse will not release lower flow.* |
| *Narrows Tailwater Elevation* | *Assumed normal water-surface elevation of Yuba River for both Narrows 1 and Narrows 2 powerhouses. Used to determine head differential and resulting generation* |
| *Englebright Dam Crest Elevation* | *Englebright water-surface elevation at which spills will begin* |
| *Englebright Minimum Pool Elevation* | *Minimum storage target for Englebright Reservoir, currently defined by agreement with Englebright marinas.* |
| *Target Englebright Storage* | *Target storage in Englebright Reservoir – Colgate releases will either be increased or decreased to reach this storage* |
| *Elevation Trigger for Max Narrows* | *Elevation at which Narrows releases will increase to maximum to reduce storage to Target Englebright Storage* |
| *Englebright Area* | *Assumed area of Englebright Reservoir at 40,000 ac-ft of storage* |
| *Englebright Spill Avoidance Forecast* | *Number of look ahead days to see if a freshet is coming. If a storm is forecasted, Colgate releases are reduced.* |


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| | |
|---|---|
| *Englebright Inflow Threshold (for freshet avoidance)* | *A Freshet is forecasted if inflow exceeds this threshold* |
| *Maximum Colgate Release Reduction for Englebright Spill Avoidance* | *Maximum reduction in New Colgate releases to avoid spills from Englebright Reservoir due to high flows on the Middle and South Yuba rivers* |
| *Maintain Colgate Generation through Englebright Spill?* | *If "Yes," maintain Colgate generation even if Englebright would spill. If "No," reduce Colgate to avoid spill.* |
| *Maximum Colgate Reduction During Englebright Spill* | *Maximum Colgate Reduction for freshet Englebright spill avoidance.* |
| *Smartsville and Marysville Buffer* | *Release buffer above the minimum flow to avoid minimum instream flow violation.* |
| *Narrows 1 Annual Outage* | *If "Yes," include annual outage. If "No," don't include annual outage.* |
| *Narrows 1 Outage Duration* | *Duration of outage.* |
| *Narrows 1 Outage – Earliest Date* | *If no spill is forecast on this state or later, initiate outage* |
| *Narrows 2 Annual Outage* | *If "Yes," include annual outage. If "No," don't include annual outage.* |
| *Narrows 2 Outage Flow Threshold* | *Flow must be below this threshold to initiate outage.* |
| *Narrows 2 Outage Duration* | *Duration of outage.* |
| *Narrows 2 Outage – Earliest Date* | *If no spill is forecast on this state or later and flow is less than the outflow flow threshold, initiate outage* |
| *Englebright Release Flow Fluctuation Criteria* | |
| *Flow Fluctuation Criteria* | *Englebright release flow fluctuation criteria, Existing FERC or FLA-Proposed Condition AR9* |
| *Maximum September & October Release Above Minimums* | *Maximum allowable Englebright release above minimum required flow in September and October* |
| *September 15 to October 31 Flow Reduction* | *Existing FERC maximum allowable reduction of flows below Englebright between September 15 and October 31. From the Narrows 2 Bypass FERC Amendment.* |
| *November 1 to March 31 Maximum Flow Reduction* | *Existing FERC maximum allowable reduction of flows below Englebright between November 1 and March 31. From the Narrows 2 Bypass FERC Amendment.* |
| *Maximum Daily Flow Reduction* | *Existing FERC maximum daily reduction in flow below Englebright Reservoir for any time of the year. From the Narrows 2 Bypass FERC Amendment.* |
| *Maximum Daily Late Summer Flow Reduction* | *Existing FERC maximum daily flow reduction in August and September. From the Narrows 2 Bypass FERC Amendment.* |
| *Maximum September & October Release Above Minimums* | *Existing FERC Maximum release above minimum required flow in September and October. From the Narrows 2 Bypass FERC Amendment.* |
| *Amended FLA-Proposed Flow Fluctuation Criteria* | *Table with Maximum September to December, and January to May flow reductions as a function of Base Flow.* |
| *Log Cabin and Our House Dam Constraints* | |
| *Our House Release Buffer* | *Used to add a buffer to required flow below Our House Dam* |
| *Log Cabin Release Buffer* | *Used to add a buffer to required flow below Log Cabin Dam* |
| *Lohman Ridge Tunnel Capacity* | *Physical capacity of Lohman Ridge Tunnel.* |
| *Camptonville Tunnel Capacity* | *Physical capacity of Camptonville Tunnel* |
| *Our House Dam Sluice Gate Capacity* | *Physical capacity of Our House Dam Sluice Gate* |
| *Log Cabin Dam Sluice Gate Capacity* | *Physical capacity of Log Cabin Dam Sluice Gate* |
| *Sediment Transport Flow* | *Pulse flows on the Middle Yuba River and Oregon Creek for sediment transport. Set to "None" for Project Extension SEIR.* |
| *Recreational Flows* | *Implement recreation days on the Middle Yuba River for boating flow. Set to "None" for Project Extension SEIR.* |
| *Use Lohman Ridge Tunnel Flow to Meet Oregon Creek Flow Requirement* | *Use of imported flow from the Middle Yuba River to meet Oregon Creek minimum flow. Set to "No"* |
| *North Yuba River Water Rights* | |
| *Slate Creek Operations* | *Defines which method is used to determine Slate Creek flows below the Slate Creek Diversion Dam, using model logic or historical flows* |
| *YCWA North Yuba Water Right* | *YCWA's water right to North Yuba River flows* |
| *Maximum SFWPA Diversion Volume (Jan-Jul)* | *Maximum cumulative volume of South Feather Water and Power diversions from the Slate Creek Tunnel above 300 cfs between January and July per SFWPA's water right.* |
| *Meet all YCWA Water Rights Prior to Diversion?* | *Yes/No switch to specify if SFWP can divert from Slate Creek if YCWA has met its water rights? If yes, then SFWP cannot divert from Slate Creek if YCWA is operating for minimum requirements on Yuba River unless North Yuba inflow exceeds YCWA water right amount.* |
| *SFWP Flow Requirements* | *Defines if SFWP diversions and minimum flows are according to current rules, or their proposed FERC requirement.* |
| *NBB Minimum Flow Powerhouse Generation* | |


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| | |
|---|---|
| *Min Flow Powerhouse Centerline El* | *Elevation of NBB Min Flow Powerhouse turbine. Used to determine head differential and resulting generation.* |
| *Min Flow Powerhouse Efficiency* | *Constant efficiency of NBB Min Flow Powerhouse. Scales resulting generation to account for losses through the Powerhouse.* |
| *Min Flow Powerhouse Capacity* | *Maximum release and generation capacity of NBB Min Flow Powerhouse.* |
| **Inputs - Timeseries Variables** | |
| *Yuba River Flow Requirements at Smartsville* | *Daily average Yuba River flow requirement at Smartsville, as measured at the Smartsville gage, by Water Year type* |
| *Yuba River Flow Requirement at Marysville* | *Daily average Yuba River flow requirement at Marysville, measured at the Marysville gage, by Water Year type* |
| *Target Operating Line* | *Target storage in New Bullards Bar Reservoir. The model will make releases to reduce storage to this level, subject to an upper and lower buffer. Releases for target operating line are limited to non-spill releases. When New Bullards Bar Reservoir storage is between the Upper and Lower target lines, releases are linearly interpolated between maximum New Colgate capacity and releases for instream flow requirements.* |
| *Volume (AF) above Target Line* | *Added to Target Operating Line to define Upper Target Line. If New Bullards Bar Reservoir storage exceeds the Upper Target Line, releases will be made at full New Colgate Capacity* |
| *Volume (AF) below Target Line* | *Subtracted from Target Operating Line to define Lower Target Line. If New Bullards Bar Reservoir storage is less than the Lower Target Line, releases will be limited to meeting instream flow requirements.* |
| *Minimum Requirement Below Our House Dam* | *Required Middle Yuba River flow below Our House Dam by Water Year type.* |
| *Instream Flow Requirement Below Log Cabin Dam* | *Required Oregon Creek flow below Log Cabin Dam by Water Year type.* |
| *Reservoir Evaporation Factors* | *Monthly evaporation rate in inches for Englebright and NBB Reservoirs.* |
| *New Bullards Bar Dam Minimum Release Requirements* | *Release through the New Bullards Bar Minimum Flow Powerhouse at the base of New Bullards Bar Dam to meets instream flow requirements.* |
| *Flow Requirement below Slate Creek Diversion Dam* | *SFWPA monthly flow requirement on the Slate Creek below the Slate Creek Diversion Dam* |
| *Maximum SFWP Diversion* | *Monthly Values; 300 cfs except for December 1-July 1 (600 cfs)* |
| *Default Groundwater Substitution Transfer Pumping and Release Pattern* | *Pumping: Apr: 10%; May: 25%; Jun: 40%; Jul: 15%; Aug: 10%; Sep: 5%<br>Release: Jun: 10%; Jul: 45%; Aug: 45%* |
| *Narrows 1 FERC License Staff Recommendation Flow Requirements* | *Article 402 Smartsville minimum flows.* |

### 4.2.3 Outputs

The YRDPM outputs storage, flow, elevation, and generation information for all project components, as shown in Figure 2.0-2. Every simulation also includes without-Project output, representing the hydrology as if the Project had not been constructed (i.e., no Project facilities in place) but all other water projects in the basin are operating. Table 4.2-3 indicates the output description, and its name in a standard output DSS file. With-Project (W-PROJ) and without-Project (WO-PROJ) output variables are differentiated in the C Part of the DSS pathname.


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**Table 4.2-3. YRDPM Output and DSS Names. Greyed Values Indicate Variables That May not be Present in an Output File Based on Simulation Variables or Operational Parameters Chosen by the Model User.**

| Description | DSS Part B Pathname | DSS Data Type |
|---|---|---|
| Flow through the Camptonville Tunnel | CAMPTONVILLE | FLOW |
| Inflow at Canyon Creek above the North Yuba River | CANYONCR-ABV-NYR | FLOW |
| Generation from the New Colgate Powerhouse | COLGATE_GEN | ENERGY |
| Flow through the New Colgate Powerhouse | COLGATE_REL | FLOW |
| Critical recreation water-surface elevation for the Cottage Creek Boat Ramp | COTTAGE_CR_BR | ELEVATION |
| Agricultural Delivery Allocation | DAGUERRE_ALLOC | SHORTAGE |
| Agricultural Diversion Demand | DAGUERRE_DEM | FLOW |
| Agricultural Diversion | DAGUERRE_DIV | FLOW |
| Critical recreation water-surface elevation for the Dark Day Boat Ramp | DARK_DAY_BR | ELEVATION |
| Critical recreation water-surface elevation for erosion at the Dark Day Boat Ramp | DARK_DAY_BR_EROSION | ELEVATION |
| Flow at Deer Creek | DEERCR-ABV-YR | FLOW |
| Inflow at Deer Creek near Smartsville | DEERCR-NR-SMV | FLOW |
| Inflow at Dry Creek above Yuba River | DRYCR-ABV-YR | FLOW |
| Controlling flow requirement in the lower Yuba River | DS_REQ | FLOW |
| End-of-Day Water-Surface Elevation of Englebright Reservoir | ENG-ELEVATION | ELEVATION |
| Evaporation from Englebright Reservoir | ENG-EVAP | EVAPORATION |
| Inflows to Englebright Dam excluding North Yuba River above New Bullards Bar Dam | ENG-INFLOW | FLOW |
| Inflows to Englebright Reservoir excluding releases from New Bullards Bar Reservoir | ENG-INFLOW-TOTAL | FLOW |
| Operation flags providing insight into what is controlling Englebright Reservoir operations | ENG_OPFLAG | FLAG |
| Spills from Englebright Reservoir | ENG_SPILL | FLOW |
| Englebright Reservoir End-of-Day Storage | ENG_STORAGE | STORAGE |
| Water Balance Check around Englebright Reservoir | ENG-WBAL | SUM |
| Existing FERC year type | EXISTING FERC | YEARTYPE |
| Existing flow fluctuation criteria maximum flow for September 15 to October 31 | FLOW_FLUC_MAX1 | FLOW |
| Existing flow fluctuation criteria maximum flow for November through March | FLOW_FLUC_MAX2 | FLOW |
| Critical recreation water-surface elevation for the Garden Point Boat-in Campground | GARDEN_POINT_BOAT-IN | ELEVATION |
| Groundwater pumping flow to support groundwater substitution transfers. Corresponds with a decrease in Daguerre Point Dam diversions | GWS-PUMPING | FLOW |
| Release of groundwater substitution transfer flow from New Bullards Bar Reservoir. Corresponds with an increase in flow at the Marysville gage | GWS-REL | FLOW |
| Log Cabin Dam low-level outlet release | LCD_LOW_LEVEL | FLOW |
| Flow in the Lohman Ridge Tunnel | LOMANRIDGE | FLOW |
| Total low-level release from New Bullards Bar Dam (NBB-DAM SEEPAGE plus MINFLOW-PH-RELEASE) | LOW-LEVEL-REL | FLOW |
| Critical recreation water-surface elevation for the Madrone Cove Boat-in Campground | MADRONE_COVE_BOAT-IN | ELEVATION |
| Generation at the Min Flow Powerhouse | MINFLOWHYDRO-GEN | ENERGY |
| Release through the Min Flow Powerhouse | MINFLOW-PH-REL | FLOW |
| Operation flags providing insight into what is controlling Our House Diversion Dam operations | MYR_OPFLAG | FLAG |
| Flow at the Middle Yuba River above Oregon Creek | MYR-ABV-OC | FLOW |
| Inflow at the Middle Yuba River above Our House Dam | MYR-ABV-OHD | FLOW |
| Flow at the Middle Yuba above the Yuba River | MYR-ABV-YR | FLOW |
| Flow at the Middle Yuba below Oregon Creek | MYR-BLW-OC | FLOW |
| Inflow accretions for the Middle Yuba River below Oregon Creek reach. | MYR-BLW-OC-ACC | FLOW |
| Release to the Middle Yuba River from Our House Dam | MYR-BLW-OHD | FLOW |
| Accretion inflow to the Middle Yuba Ribery below Our House Dam reach | MYR-BLW-OHD-ACC | FLOW |


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| Description | DSS Part B Pathname | DSS Data Type |
|---|---|---|
| Minimum instream flow requirement at the Middle Yuba River below Our House Dam. | MYR-BLW-OHD-MIF | FLOW |
| Water Balance Check at the Marysville Gage | MRY-WBAL | SUM |
| Generation at the Narrows 1 Powerhouse | NARROWS1-GEN | ENERGY |
| Release through the Narrows 1 Powerhouse | NARROWS1-REL | FLOW |
| Bypass flow at either of the Narrows powerhouses; non-spill or generating flow | NARROWS2-BYPASS | FLOW |
| Generation at the Narrows 2 Powerhouse | NARROWS2-GEN | ENERGY |
| Release through the Narrows 2 Powerhouse | NARROWS2-REL | FLOW |
| Flag indicating what is driving the flow split between the Narrows 1 and 2 powerhouses | NARROWS-FLAG | FLAG |
| Combined generation at the Narrows 1 and 2 powerhouses | NARROWS-GEN-TOTAL | ENERGY |
| Combined flow through the Narrows 1 and 2 powerhouses | NARROWS_REL | FLOW |
| Accretion inflow to New Bullards Bar Reservoir | NBB-ACCRETIONS | FLOW |
| New Bullards Bar Reservoir water-surface area | NBB-AREA | AREA |
| Seepage flow from New Bullards Bar Dam | NBB-DAM SEEPAGE | FLOW |
| End-of-Day Water-Surface Elevation of New Bullards Bar Reservoir | NBB-ELEVATION | ELEVATION |
| Evaporation from New Bullards Bar Reservoir | NBB-EVAP | FLOW |
| End-of-Day Storage of the New Bullards Bar Reservoir Flood Pool | NBB-FLOOD-POOL | STORAGE |
| Total daily inflow into New Bullards Bar Reservoir | NBB-INFLOW-TOTAL | FLOW |
| Total North Yuba River flow above New Bullards Bar Dam | NBB-INFLOW | FLOW |
| Lower End-of-Day New Bullards Bar Reservoir Operating Line | NBB-LOWERTARGET-LINE | STORAGE |
| Total Daily Release from New Bullards Bar Reservoir | NBB-REL | FLOW |
| Spill from New Bullards Bar Reservoir | NBB-SPILL | FLOW |
| End-of-Day New Bullards Bar Storage | NBB-STORAGE | STORAGE |
| Upper End-of-Day New Bullards Bar Reservoir Operating Line | NBB-UPPERTARGET-LINE | STORAGE |
| Water Balance Check at New Bullards Bar Reservoir | NBB-WBAL | SUM |
| North Yuba Index Value | NORTH YUBA INDEX | INDEX |
| North Yuba Index year-type | NORTH YUBA INDEX | YEARTYPE |
| Flow at the North Yuba River above Canyon Creek | NYR-ABV-CANYONCR | FLOW |
| Inflow at the North Yuba River above Goodyears Bar | NYR-ABV-GYB | FLOW |
| Flow at the North Yuba River above New Bullards Bar Dam | NYR-ABV-NBB-DAM | FLOW |
| Flow at the North Yuba River below Canyon Creek | NYR-BLW-CANYONCR | FLOW |
| Flow at the North Yuba River below Goodyears Bar | NYR-BLW-GYB | FLOW |
| Accretion inflow to the North Yuba River below Goodyears Bar reach | NYR-BLW-GYB-ACC | FLOW |
| Flow at the North Yuba River below New Bullards Bar Dam | NYR-BLW-NBB | FLOW |
| Minimum instream flow requirement at the North Yuba River below New Bullards Bar Dam | NYR-BLW-NBB-MIF | FLOW |
| Flow at the North Yuba River below Slate Creek | NYR-BLW-SLATECR | FLOW |
| Flow at Oregon Creek above Log Cabin Dam | OC-ABV-LCD | FLOW |
| Flow at Oregon Creek above the Middle Yuba River | OC-ABV-MYR/OC-ABV-MYUBA | FLOW |
| Total releases to Oregon Creek from Log Cabin Dam | OC-BLW-LCD | FLOW |
| Accretion inflow to Oregon Creek below Log Cabin Dam reach | OC-BLW-LCD-ACC | FLOW |
| Minimum Instream Flow Requirement below Log Cabin Dam | OC-BLW-LCD-MIF | FLOW |
| Releases to Oregon Creek from Log Cabin Dam low-level outlet | OHD_LOW_LEVEL | FLOW |
| Critical recreation water-surface elevation for shoreline camping | SHORELINE_CAMPING | ELEVATION |
| Flow in Slate Creek above North Yuba River | SLATECR-ABV-NYR | FLOW |
| Inflow to Slate Creek from Slate Creek Diversion Dam releases | SLATECR-BLW-DIVDAM | FLOW |
| Accretion inflow to Slate Creek below Slate Creek Diversion Dam reach | SLATECR-BLW-DIVDAM-ACC | FLOW |
| Smartsville Index year-type | SMARTSVILLE INDEX | YEARTYPE |
| Inflow at the South Yuba River above Jones Bar gage | SYR-ABV-JBR | FLOW |


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| Description | DSS Part B Pathname | DSS Data Type |
|---|---|---|
| Inflow at the South Yuba River above the Yuba River (SYR-ABV-JBR plus SYR-ABV-JBR-ACC) | SYR-ABV-YR | FLOW |
| Flow at the South Yuba River below Jones Bar gage | SYR-BLW-JBR | FLOW |
| Accretion inflow to the South Yuba River below Jones Bar gage reach | SYR-BLW-JBR-ACC | FLOW |
| Flow at the Yuba River above Colgate Powerhouse | YR-ABV-COLGATE | FLOW |
| Accretion inflow to the Yuba River above Colgate Powerhouse reach | YR-ABV-COLGATE-ACC | FLOW |
| Flow at the Yuba River above Dry Creek | YR-ABV-DRYCR | FLOW |
| Accretion inflow to the Yuba River above Englebright reach | YR-ABV-ENG-ACC | FLOW |
| Flow at the Yuba River above the Feather River | YR-ABV-FR | FLOW |
| Flow at the Yuba River below Colgate Powerhouse | YR-BLW-COLGATE | FLOW |
| Flow at the Yuba River below Deer Creek | YR-BLW-DEERCR | FLOW |
| Flow at the Yuba River below Daguerre Point Diversion Dam | YR-BLW-DGP | FLOW |
| Flow at the Yuba River below Dry Creek | YR-BLW-DRYCR | FLOW |
| Flow at the Yuba River below Englebright Dam | YR-BLW-ENG | FLOW |
| Flow at the Yuba River below Marysville gage | YR-BLW-MRY | FLOW |
| Flow at the Yuba River below the Middle Yuba River | YR-BLW-MYR | FLOW |
| Yuba River Index Value | YUBA RIVER INDEX | INDEX |
| Yuba River Index Year-Type | YUBA RIVER INDEX | YEARTYPE |
| Yuba River Flow at the Marysville Gage | YR-NR-MARYSVILLE | FLOW |
| Minimum Instream Flow Requirement at the Marysville Gage | YR-NR-MARYSVILLE-MIF | FLOW |
| Yuba River Flow at Smartsville | YR-NR-SMARTSVILLE | FLOW |
| Required Minimum Instream Yuba River Flow at Smartsville | YR-NR-SMARTSVILLE-MIF | FLOW |


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# 5.0 Characterization of Physical Facilities

The Project ranges in elevation from approximately 300 ft-msl to 2,050 ft-msl. In total, the Project includes: one dam and associated storage reservoir - New Bullards Bar; two diversion dams, Our House and Log Cabin; two diversion tunnels - Lohman Ridge and Camptonville; two power tunnels - New Colgate and Narrows 2; one penstock – New Colgate; and three powerhouses - New Colgate, New Bullards Bar Minimum Flow Powerhouse, and Narrows 2.

The Project does not include USACE's Englebright Dam and Reservoir or USACE's Daguerre Point Dam. The Project also does not include the Narrows 1 Powerhouse, which is located near the USACE's Englebright Dam and is part of YWA's Narrows 1 Project (FERC Project No. 1403).[2] However, since these facilities are integral parts of operations of the Projects, these facilities are included in the Operations Model.

The model simulates operations of the Project by routing inflows to New Bullards Bar Reservoir, Our House Dam, Log Cabin Dam, Englebright Reservoir and the Yuba River through the various facilities and features in the Project Area.

Inflows to Our House Dam on the Middle Yuba River are routed either to the lower Middle Yuba River, to ensure compliance with minimum flow requirements on the Middle Yuba River below Our House Dam, or into the Lohman Ridge Tunnel, flowing to Oregon Creek. There, the flow from the Lohman Ridge Tunnel is combined with Oregon Creek inflow to be released at Log Cabin Dam to either lower Oregon Creek, to ensure compliance with minimum flow requirements for Oregon Creek below Log Cabin Dam, or into the Camptonville Tunnel. Camptonville Tunnel flows are released into New Bullards Bar Reservoir. Releases to Oregon Creek combine with Middle Yuba River flows and local accretions to flow into the Yuba River.

On the North Yuba River, inflows above Goodyears Bar combine with Slate Creek inflows and local accretions to flow into New Bullards Bar Reservoir. All inflows to New Bullards Bar Reservoir are either stored or released to the North Yuba River or Yuba River below the Dam; a portion of the New Bullards Bar Reservoir releases are made to the North Yuba River to ensure compliance with a requirement on the North Yuba River below New Bullards Bar Reservoir, the remainders are released several miles downstream from New Colgate Powerhouse to the Yuba River. Releases to the North Yuba River combine with flows from the Middle Yuba River to form the headwaters of the Yuba River.

Several miles downstream of the confluence of the North and Middle Yuba rivers, Yuba River flows combine with releases from New Colgate Powerhouse to flow into Englebright Reservoir where they are combined with inflow from the South Yuba River and from local accretions. Releases to the Yuba River from Englebright Reservoir are made through either PG&E's Narrows 1 Powerhouse, YCWA's Narrows 2 Powerhouse, or as spill.

The Smartsville gage (USGS gage 11418000), located on the Yuba River below Englebright Dam, is an important compliance location; both the Lower Yuba River Accord (Yuba Accord) (SWRCB

[2] The FERC license for PG&E Narrows 1 Project expires on January 31, 2023 (FERC 2003).


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2008) and the SWRCB Revised Decision 1644 (RD-1644) (SWRCB 2003) include minimum instream flows at this gage. Flows at the Smartsville gage combine with flows from Deer Creek and Dry Creek before flowing through the Yuba Goldfields to Daguerre Point Dam, the site for YCWA agricultural diversions. The Marysville gage (USGS gage 11421000), located approximately five miles below Daguerre Point Dam, is the other key compliance location for the Yuba Accord and RD-1644. The Yuba River meets the Feather River in the City of Marysville, six miles downstream of the Marysville gage.

## 5.1 Our House Dam and Lohman Ridge Tunnel

Our House Diversion Dam is a 130- foot-radius, double curvature, concrete arch dam located on the Middle Yuba River 12 mi upstream of its confluence with the North Yuba River. The dam is 70 ft high with a crest length of 368 ft, a crest elevation of 2,049 ft, and a drainage area of 144.8 sq-mi. The dam has an impoundment capacity of 280 ac-ft, but storage and water levels do not fluctuate under Project operations. The YRDPM operates the impoundment as daily inflow equals outflow. The diversion dam has two outlets: 1) a 5-foot diameter steel pipe controlled by a slide gate on the upstream face of the dam with a maximum capacity of 800 cfs and a centerline elevation of 1,990 ft; and 2) a 24-inch diameter release pipe, with a maximum capacity of 60 cfs and a centerline elevation of 2,000 ft. The diversion dam has a spillway capacity of 60,000 cfs.

The Lohman Ridge Diversion Tunnel is 12.5 ft high by 12.5 ft wide and conveys a maximum flow of 860 cfs through its 19,410 ft length (90% unlined and 10% lined) to Oregon Creek.

Middle Yuba River inflows are introduced to the model above Our House Dam. Our House Dam splits Middle Yuba River inflows to two paths: the Lohman Ridge Tunnel or the Middle Yuba River below Our House Dam. The Lohman Ridge Tunnel releases into Oregon Creek above Log Cabin Dam, and the Middle Yuba River joins with the North Yuba River to form the Yuba River. Maximum flow in the Lohman Ridge Tunnel is assumed to be 860 cfs. Maximum flow through the Our House Dam sluice gate is assumed to be 600 cfs. There is no limitation on maximum flow below Our House Dam.

The Lohman Ridge Tunnel and Our House Dam sluice gate maximum flow capacity are specified on the *Inputs-Constraints* worksheet.

## 5.2 Log Cabin Dam and Camptonville Tunnel

Log Cabin Diversion Dam is a 105-ft-radius, concrete arch dam on Oregon Creek that has a drainage area of 29.1 sq-mi and a maximum spillway capacity of 12,000 cfs. The dam has an impoundment capacity of 90 ac-ft, but storage and water levels do not fluctuate under Project operations. The YRDPM operates the impoundment as daily inflow equals outflow. The diversion dam has two outlets: 1) a 5-ft diameter steel pipe controlled by a slide gate on the upstream face of the dam with a maximum capacity is 540 cfs; and 2) an 18-inch diameter release pipe, with a maximum capacity of 13 cfs, located above the low-level outlet and controlled by a downstream gate valve operated by hand.


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The Camptonville Diversion Tunnel is 6,107 ft long and has the capacity to convey 1,100 cfs of water to New Bullards Bar Reservoir. The first 4,275 ft of the conduit is an unlined, horseshoe tunnel 14.5 ft wide by 14.5 ft high, becoming a lined, horseshoe tunnel 11.7 ft wide by 13 ft high for the remaining 1,832 ft.

Oregon Creek inflows are introduced to the model above Log Cabin Dam. Log Cabin Dam also receives flows from the Lohman Ridge Tunnel. Inflows to Log Cabin Dam are split to either the Camptonville Tunnel, which flows into New Bullards Bar Reservoir, or to Oregon Creek, which later joins the Middle Yuba River below Our House Dam. Maximum flow capacity of the Camptonville Tunnel is assumed to be 1,100 cfs. Maximum flow through the Log Cabin Dam sluice gate is assumed to be 540 cfs. There is no limitation on maximum flow below Log Cabin Dam.

The Camptonville Tunnel and Log Cabin Dam sluice gate maximum flow capacity are specified on the *Inputs-Constraints* worksheet.

Historically, flow from the Middle Yuba River is used to meet minimum instream flow below Log Cabin Dam when natural inflow to Log Cabin Dam is less that the minimum instream flow requirement and water is being diverted from the Middle Yuba River to Oregon Creek through the Lohman Ridge Tunnel. There is a Yes/No toggle on the *Inputs-Constraints* worksheet for the model user to select to use Lohman Ridge Tunnel flow to Meet Oregon Creek flow Requirement. The default value for this toggle is Yes.

## 5.3 Slate Creek Diversion Dam

Inflows from Slate Creek to the Slate Creek Diversion Dam are subject to diversion to the South Feather River via the Slate Creek Tunnel. YCWA's and SFWPA's water rights, and minimum instream flow requirement below the Slate Creek Diversion Dam determine how much flow is diverted versus how much flow is released to Slate Creek below the Diversion Dam. Water released to Slate Creek below the Diversion Dam is inflow to the Project. The model has two modes of simulating Slate Creek inflows to the Project, the model can use either the timeseries of historical inflows below the Slate Creek Diversion Dam; or inflows above the Slate Creek Diversion Dam are diverted according to SFWPA and YCWA water rights, and minimum flow requirements below Slate Creek Diversion Dam.

Using the "Historical Flows" option, Slate Creek flows below the Slate Creek Diversion Dam at USGS gage 11413300 are used as the inflow to the model. These inflows are added to synthetic accretions to represent inflows to the North Yuba River.

Using the "Operate Slate Creek" option, historical Slate Creek flow above the Slate Creek Diversion Dam is determined by adding USGS gage 11413300 (Slate Creek below the Slate Creek Diversion Dam) and USGS gage 11413250 (Slate Creek Tunnel below the Slate Creek Diversion Dam). The diversion amount is determined, subject to SFWP and YCWA's water rights and FERC licenses; and the maximum capacity of the Slate Creek Tunnel of 600 cfs.


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## 5.4 New Bullards Bar Reservoir

New Bullards Bar Dam is a 1,110 foot-radius, double curvature, concrete arch dam located on the North Yuba River about 2.4 mi upstream of its confluence with the Middle Yuba River. The dam is 645 ft high with a maximum elevation of 1,965 ft-msl. The dam includes one low-level outlet - a 72-inch Hollow Jet Valve, with an invert elevation of 1,395 ft-msl, has a maximum design capacity of about 3,500 cfs at full reservoir pool, and an actual capacity of 1,250 cfs (the release capacity is limited to 1,250 cfs due to valve vibrations at greater release rates).

The reservoir has a gross storage capacity of 966,103 ac-ft with a FERC minimum operating storage of 234,000 ac-ft, leaving 732,103 ac-ft of regulated capacity. YCWA typically operates New Bullards Bar Reservoir by capturing winter and spring runoff from rain and snowmelt for release later in the year. Consequently, New Bullards Bar Reservoir reaches its peak storage at the end of the spring runoff season, and then is gradually drawn down as storage is released to the Yuba River. Releases are made through both the New Bullards Bar Minimum Flow Powerhouse at the base of the dam and to the Yuba River through the New Colgate Power Tunnel and New Colgate Powerhouse on the Yuba River. The reservoir usually reaches its lowest elevation in early to mid-winter. The annual drawdown in normal water years is about 90 ft. The reservoir does not undergo significant daily changes in elevation.

New Bullards Bar Reservoir is used to provide irrigation water supply to about 90,000 ac of farmland in western Yuba County. Releases of water from storage are made through the spring and summer to provide flows diverted at USACE's Daguerre Point Dam at RM 11.6 on the Yuba River. Water is released from storage in the fall for diversion at USACE's Daguerre Point Dam for rice stubble decomposition and waterfowl habitat.

New Bullards Bar Reservoir is also the main flood control facility for the Yuba River area. 170,000 ac-ft of storage capacity, or approximately 23 percent of the usable capacity of the reservoir, is reserved from October through May for flood protection purposes.

In addition to providing flood protection, power, and downstream water supply, YCWA pumps water directly from New Bullards Bar Reservoir to supply water to the Cottage Creek Water Treatment Plant for domestic and recreation uses adjacent to the reservoir. Pumping averages approximately 6 ac-ft per year. This relatively small volume of pumping does not affect Project operations.

Simulation of New Bullards Bar Reservoir includes an elevation-storage-surface area curve defining reservoir storage and surface area for elevations ranging from 1,360 feet ft-msl to 1,965 ft-msl. Simulated inflows to New Bullards Bar Reservoir come from the following:

- The North Yuba River
- Local accretions
- The Camptonville Tunnel


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### 5.4.1 Reservoir Releases

Releases from New Bullards Bar Reservoir are made through one or more of the following outlets:

- New Colgate Powerhouse
- New Bullards Bar Minimum Flow Powerhouse
- New Bullards Bar Primary Spillway
- 
- Low-level flood control outlet (optional)

Decisions about which outlet to use are made based on reservoir storage volume relative to several operation curves described later in this report. The New Colgate Powerhouse has a maximum release capacity of 3,430 cfs, the New Bullards Bar Minimum Flow Powerhouse has a maximum capacity of 6 cfs. The Primary Spillway releases are governed by curves relating water-surface elevation to maximum release, as shown in Table 5.4-1.

**Table 5.4-1. New Bullards Bar Reservoir Maximum Release.**

| Elevation (ft-msl) | Maximum Primary Spillway and Powerhouse Release (cfs) |
|---|---|
| *1,730* | *3,430* |
| *1,870* | *3,430* |
| *1,874* | *3,430* |
| *1,878* | *3,430* |
| *1,882* | *3,430* |
| *1,886* | *3,430* |
| *1,890* | *3,430* |
| *1,895* | *3,430* |
| *1,898* | *3,430* |
| *1,902* | *3,871* |
| *1,905* | *6,993* |
| *1,910* | *12,993* |
| *1,915* | *19,918* |
| *1,920* | *27,624* |
| *1,925* | *38,794* |
| *1,930* | *50,316* |
| *1,935* | *64,714* |
| *1,940* | *79,521* |
| *1,945* | *96,748* |
| *1,950* | *114,485* |
| *1,955* | *134,333* |
| *1,960* | *153,795* |
| *1,965* | *160,840* |

Column 2 Source: USACE, New Bullards Bar Reservoir, Reservoir Regulation for Flood Control, June 1972.
.
Key:
cfs = cubic feet per second
ft-msl=feet above mean sea level

Minimum instream flow requirements below New Bullards Bar Dam are defined on the *Inputs-Timeseries* worksheet and are selected for simulation by the user on the *Scenario Builder and*

*Control* worksheet. The New Colgate Powerhouse and Minimum Flow Powerhouse maximum flow capacities are specified on the *Inputs-Constraints* worksheet. The Primary Spillway and ARC Spillway maximum flow capacities by water-surface elevation are specified on the *NBB Pool* worksheet.

### 5.4.2 New Colgate Powerhouse Generation

The New Colgate Powerhouse contains two Voith Siemens Pelton-type turbines with a total capacity of 340 MW under a design head of 1,306 ft and a rated flow of 3,430 cfs. The powerhouse receives water from the New Colgate Power Tunnel and Penstock. The New Colgate Power Tunnel and Penstock is 5.2 mi long and composed of four different types of conveyance structures: an unlined horseshoe tunnel 26 ft square; a lined horseshoe tunnel 20 ft wide and 14.5 ft high; a lined circular tunnel 14 ft in diameter; and 2,809 ft of steel penstock with a diameter ranging from 9 ft to 14.5 ft.

The model calculates New Colgate hydropower generation as a function of flow through the powerhouse and the water-surface elevation of New Bullards Bar Reservoir. Actual load-flow and efficiency curves for the powerhouse were unavailable, so empirical head, flow, and power generation data were analyzed to create both load-flow curves and the methodology for calculation of turbine performance under changing reservoir pool elevation conditions.

Observed mean daily water-surface elevations for New Bullards Bar Reservoir were available for the full POR of the Project, but to develop the best possible relationship, it was decided that hourly power generation and flow should be used; data for 2002 through 2008 were compiled and evaluated. For purposes of this evaluation, daily change in reservoir elevation is considered insignificant compared to the variability of hourly head and flow. While additional water years of data were available, it was desired to analyze a period with roughly consistent operations for the entire period of record, so hourly data from water years 2002 to 2008 for New Colgate Powerhouse was determined to provide a sufficiently large dataset.

The gross head was calculated as the difference between the respective daily observed reservoir water-surface elevation and the Pelton turbine centerline elevation at New Colgate Powerhouse. For calculation purposes, head was assumed to remain constant throughout the day.

Microsoft Excel and HEC-DSS were used to organize and group the power generation, flow, and gross head data by date and respective hour. New Colgate hourly powerhouse generation was calculated as the combined generation of both units. Efficiency was calculated for each hour by solving for efficiency in the power equation, as described below.

$$P = \frac{\eta Q H}{11.815}$$

Where:

P = Power generation (kW)
Q = flow through the powerhouse (cfs)
H = Gross head through the powerhouse (ft)
η = Total system efficiency

The efficiency is the percentage of the measured power generation to the maximum power that could be generated with 100 percent component efficiencies and zero head losses within the conveyance system. For this study, the maximum efficiency is a function of the total gross head, making this the total system efficiency, not the powerhouse or turbine unit efficiency. By using the overall system efficiency, component and conveyance headlosses were not calculated. System efficiencies are provided as check and discussion points but were not incorporated into the model directly.

Large portions of missing data for head or flow were observed within the dataset, making those hourly points unusable for analysis. Extreme outliers, or points outside of the powerhouse operating limits, were observed and were also removed from the dataset. This included hourly data with efficiencies of less than 20 percent or greater than 120 percent and New Colgate Powerhouse flows less than 100 cfs or greater than 3,500 cfs. Flows greater than 1,500 cfs with efficiencies less than 50 percent were also removed. The resulting filtered dataset had over 54,000 hours of measured generation, flow, and gross head data for New Colgate.

Affinity laws, also referred to as similarity rules or laws, express the mathematical relationship between many of the physical, hydraulic, and operational parameters of geometrically similar (homologous) pumps and turbines (Arndt and Gulliver 1991). These laws are a set of equations and assumptions derived from fluid mechanics and hydraulics principles used to estimate performance of a pump or turbine in comparison to other homologous pumps or turbines (Zipparro and Hasen 1993). These rules are most often used in physical modeling or system sizing. For this analysis, the equations were adapted to evaluate performance of a single turbine under different operating conditions.

With any known operating point for any pump or turbine, the affinity laws can be modified algebraically into the following equations that estimate the power and flow to a new head with the same efficiency as the original known operating point (Brown 1965).

Adjustment for power generation at new head (Brown 1965):

$$P_2 = P_1 \sqrt{\left(\frac{H_2}{H_1}\right)^3}$$

Adjustment for flow at new head (Brown 1965):

$$Q_2 = Q_1 \sqrt{\frac{H_2}{H_1}}$$


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Where:

$P_1$ = Known power generation at known head (MW)

$P_2$ = Adjusted power generation under new head (MW)

$H_1$ = known head (ft)

$H_2$ = New head (ft)

$Q_1$ = Known flow at known head (cfs)

$Q_2$ = Adjusted flow at new head (cfs)

Load-flow curves are based on a set static head. The above equations adjust power and flow from any single point on the load-flow curve based on changes in head with no loss in efficiency. In order to create new load-flow curves for New Colgate Powerhouse, this process was performed in reverse. The empirical power generation and flow values were adjusted based on the affinity equations to a new reference head. The resulting dataset of adjusted flow and power generation represent points on the new load-flow curve at the gross normal head of 1,390 ft for New Colgate Powerhouse.

The extremely large dataset of over 54,000 points was difficult to manage and analyze, so power generation and flow data were averaged into 10 cfs incremental ranges, from the lowest operational flow to the maximum powerhouse or tunnel rated flow. This reduced the number of points within the dataset to less than 400 while maintaining acceptable data resolution. This became the working dataset for the steps outlined below.

After plotting the averaged load-flow curve, it was observed that there were still outliers that needed to be eliminated, specifically local maximum points on the load-flow curve. In a hydropower facility, power generation increases with an increase in flow within normal operating limits. Local maximums that do not conform to these general principles prove problematic for modeling and optimization.

In order to remove these inconsistencies, a data smoothing technique using a gaussian (bell curve) weighting method was applied to create a weighted average for the values of the power generation values. This method applies a weighted average using the averaged power generation corresponding to 20 data points, or 200 cfs, above and below each point. The weights vary between one (at the hourly power generation data being analyzed) to near zero (at the upper and lower limits). The analyzed data point and those data points immediately adjacent to it have the greatest values. The weights then depreciate significantly before becoming near zero at the upper and lower limits.

The Gaussian smoothing technique better represents the empirical generation and flow data than any linear, logarithmic, or polynomial regression for the entire curve, but does not function accurately within 200 cfs of the end of the lower and upper flow limits. A linear regression was performed on the lower 300 cfs at each facility and the results were used to calculate the power generation at the lower 200 cfs of the flow limit at the New Colgate Powerhouse. For the upper flow limits, a quadratic function was fit to the upper 400 cfs for the New Colgate facility.


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The final load flow curves are the combination of the Gaussian smoothing technique results and the calculated regressions at the upper and lower 200 cfs of flow. Using this revised load-flow curve, efficiencies were calculated using the power equation described above and an efficiency-flow curve was created for each facility. The New Colgate load-flow and efficiency curves are in Figures 5.4-1 and 5.4-2 below.

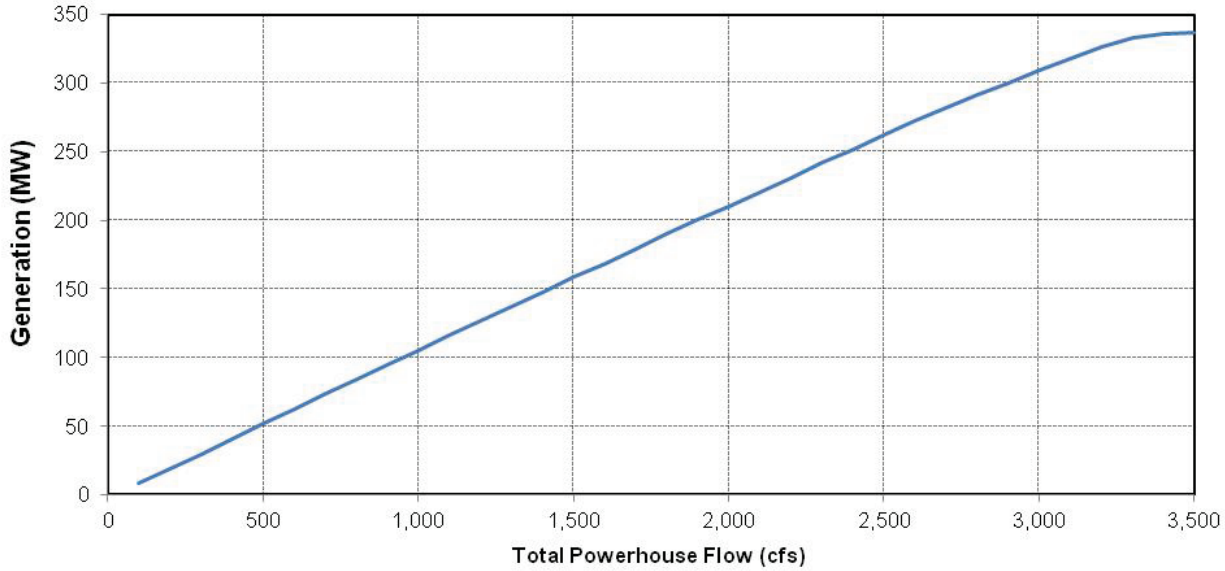


**Figure 5.4-1. New Colgate Powerhouse Load-Flow Curve at Gross Head 1,396 ft.**

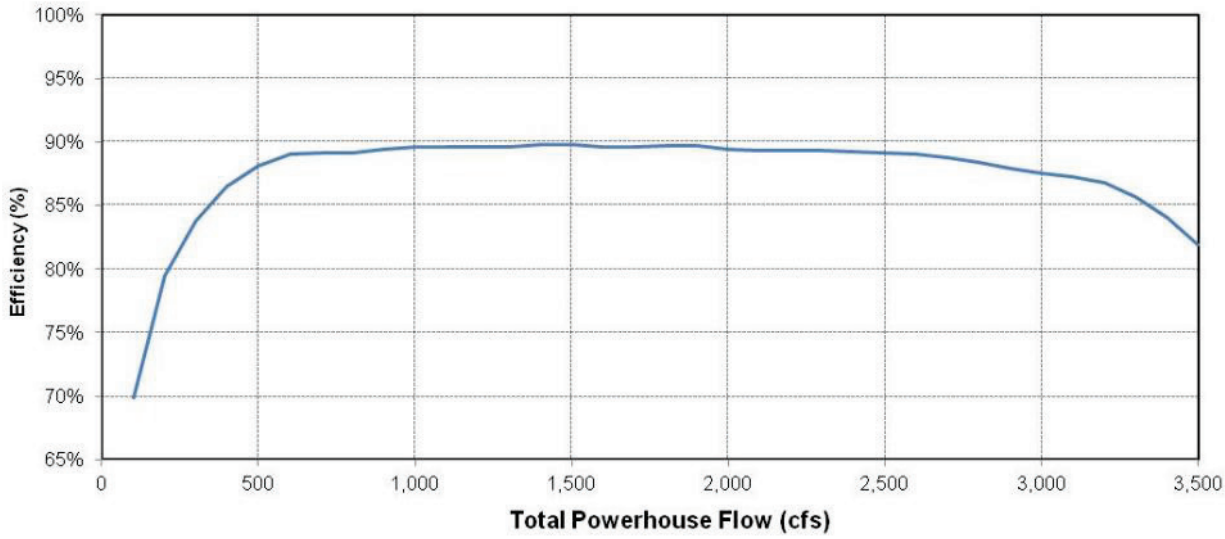


**Figure 5.4-2. New Colgate Efficiency Curve at Gross Head 1,396 ft.**

The flow-efficiency curve shown in Figure 5.4-2 is typical of Pelton turbines. The six-jet Pelton turbine design at New Colgate powerhouse allows operators to run each turbine with any number of jets to maximize efficiency. For the New Colgate powerhouse, with two six-jet Pelton units, operations could range from one jet operating at minimum flows to all six jets in both units operating at the maximum rated discharge. Each combination of jets will have its own associated efficiency curve if allowed to operate under a full range of conditions. As the flow increases or


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decreases, the number of jets in operation is changed to maximize the efficiency and power production.

The ability of the six-jet Pelton turbine to maintain a high, relatively steady efficiency curve results in a near linear load-flow curve, as shown in Figure 5.4-1. The diminishing increase in power production as the flow approaches the upper limits of discharge is attributed to the combined dip in the turbine efficiency curve and the effects of frictional head loss within the conveyance system. Head loss is a function of the flow velocity squared and becomes more pronounced when flows approach capacity.

Load-flow and flow-efficiency data for normal-gross head are in the *Power Gen* worksheet. Affinity laws are used to adjust generation rates to different head values. Generation calculations are performed in the model VBA code in the PowerGen subroutine.

When Yuba River flow upstream of the New Colgate Powerhouse reaches approximately 20,000 cfs, foam and backsplash cause uneven resistance to free rotation of the turbines which causes vibration. Consequently, the rate of powerhouse release must be reduced, and at high stages, operation of the turbines must cease.

Generation calculations are performed in the model VBA code in the PowerGen subroutine.

### 5.4.3 Minimum Flow Powerhouse Generation

Minimum flow powerhouse generation is calculated in the model using the Power equation:

$$P = \frac{\eta Q H}{11.815}$$

Where:

P = Power generation (kW)
Q = flow through the powerhouse (cfs)
H = Gross head through the powerhouse (ft)
η = Total efficiency

Flow through the powerhouse is calculated as the minimum required flow below New Bullards Bar Dam minus seepage or maximum flow capacity, whichever is less; gross head through the powerhouse is the water-surface elevation of New Bullards Bar Reservoir minus the minimum flow powerhouse centerline elevation; and total efficiency is assumed to be constant. The minimum flow powerhouse centerline elevation and the total system efficiency are specified on the *Inputs-Constraints* worksheet.

Total system efficiency is estimated at 80% based on an analysis of historical generation data. Because of the uncertainty of seepage flow through the dam, and the corresponding flow through the minimum flow powerhouse, a constant efficiency was deemed an appropriate simplification. Efficiency normally varies with flow and head.

Generation calculations are performed in the model VBA code in the PowerGen subroutine.


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### 5.4.4 Dam Seepage

Minimum flow on the North Yuba River downstream of New Bullards Bar Dam is met through a combination of releases from the New Bullards Bar Minimum Flow Powerhouse and seepage from the New Bullards Bar Dam. Seepage below the dam is measured regularly.

To represent seepage in the model, total seepage data from October 1997 through December 2012 were analyzed to generate a regression equation relating water-surface elevation to flow, shown in Figure 5.4-3. The resulting regression equation is:

$$Q = 0.002118e^{0.012988*H}$$

Where:

Q = Total New Bullards Bar Dam seepage flow (cfs)
H = Gross head through the system (ft)

Gross head is the difference between the water-surface elevation of New Bullards Bar Reservoir and the minimum flow powerhouse centerline elevation. The seepage flow regression equation can be found in the model VBA code in the Operations subroutine.

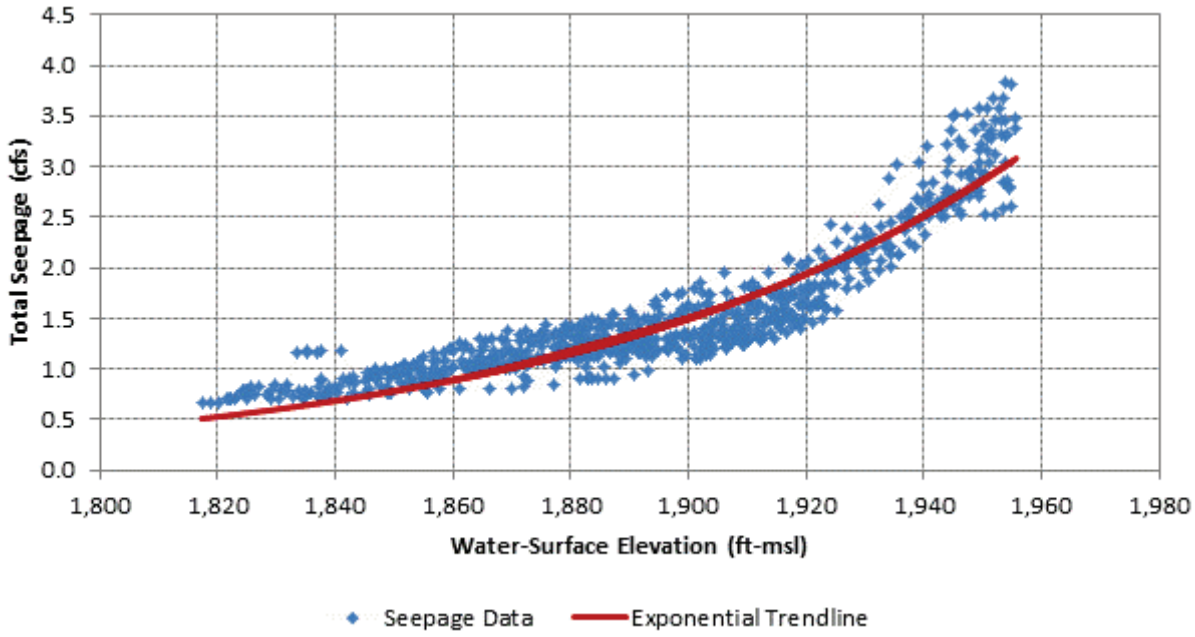


**Figure 5.4-3. New Bullards Bar Dam Seepage Data and Exponential Curve Fit to the Seepage Data.**

### 5.4.5 Evaporation

Evaporation from New Bullards Bar Reservoir is assumed to follow a monthly pattern, as shown in Table 5.4-3. YRDPM looks up New Bullards Bar Reservoir's water-surface area based on the reservoir's storage and multiplies it by the daily evaporation rate to compute a daily evaporation volume.

**Table 5.4-3. New Bullards Bar Reservoir Monthly Evaporation Factors.**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Monthly Evaporation Rate (in)* | *4.31* | *1.67* | *1.04* | *0.93* | *1.70* | *2.44* | *3.21* | *4.13* | *6.48* | *7.78* | *7.24* | *5.08* |
| *Daily Evaporation Rate (ft)* | *0.0116* | *0.0046* | *0.0028* | *0.0025* | *0.0051* | *0.0066* | *0.0089* | *0.0111* | *0.0180* | *0.0209* | *0.0195* | *0.0141* |

Source: *DWR HEC-3 Yuba River Watershed Model. January 1985*
Key:
in = inches
ft = feet

Monthly evaporation rates are defined in the model on the *Inputs-Timeseries* worksheet. Daily evaporation is calculated in the model VBA code in the Operations subroutine.

## 5.5 Englebright Reservoir

Englebright Dam and Reservoir were constructed in 1941 by the USACE to capture sediment produced by upstream hydraulic mining activities. The reservoir is situated downstream of the New Colgate Powerhouse. The average annual inflow to Englebright Reservoir, excluding releases from New Bullards Bar Reservoir, is approximately 400 TAF (thousand acre-feet). Englebright Reservoir has a total storage capacity of approximately 70 TAF but provides limited conservation storage because the reservoir is used to attenuate power-peaking releases from New Colgate Powerhouse. Englebright Reservoir is used extensively for recreation.

Simulation of Englebright Reservoir includes a stage-storage curve defined for 0.01-ft water-surface elevation increments between 500 ft-msl and 550 ft-msl. Simulated inflows come from the following:

- The Yuba River
- The South Yuba River
- Local accretions.

### 5.5.1 Reservoir Releases

Englebright Dam has no low-level outlet. Releases are made through one or more of the following outlets:

- Narrows 1 Powerhouse
- Narrows 2 Powerhouse
- Powerhouse bypasses, which are aggregated for purposes of modeling
- Spill over the dam crest

YCWA operates Narrows 1 and 2 for hydropower efficiency and to maintain relatively constant flows in the Yuba River below Englebright Dam. Spills over the dam crest are uncontrolled and are a function of reservoir water-surface elevation. Table 5.5-1 shows the maximum release from Englebright Reservoir, as a function of water-surface elevation.


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**Table 5.5-1. Maximum Englebright Reservoir Release by Elevation.**

| Elevation (ft-msl) | Maximum Spillway and Powerhouse Release (cfs) |
|---|---|
| *516* | *4,130* |
| *527* | *4,136* |
| *528* | *5,410* |
| *529* | *8,220* |
| *530* | *11,970* |
| *531* | *16,730* |
| *532* | *22,430* |
| *533* | *28,430* |
| *534* | *35,330* |
| *535* | *43,030* |
| *540* | *92,130* |
| *545* | *155,130* |
| *550* | *185,130* |

Source: Yuba County Water Agency
Key:
ft-msl = feet above mean-sea level
cfs=cubic feet per second

Englebright Reservoir's range of operable water-surface elevations is 516 ft-msl to 527 ft-msl. When water-surface levels in Englebright Reservoir reach 516 ft-msl, the launch ramps at the Skipper's Cove Marina become unusable. Englebright Dam's spillway crest is at 527 ft-msl.

Releases through the Narrows 1 Powerhouse are limited to a maximum of 730 cfs; and releases through the Narrows 2 Powerhouse are limited to 3,400 cfs, for a maximum generating flow of 4,130 cfs. Due to efficiency limitations, Narrows 2 Powerhouse is not generally operated below 900 cfs, though it has recently operated as low as 700 cfs, if needed. Decisions about which powerhouse is used for releases are made based on the desired release rate, as described later in this report. Since there are no mechanisms to control flows over the dam crest, the YRDPM includes a curve relating water-surface elevation over the dam crest to the rate of spill.

Minimum instream flow requirements below Englebright Dam are defined on the *Inputs-Timeseries* worksheet and are selected for simulation by the user on the *Scenario Builder and Control* worksheet. The Narrows 1 and Narrows 2 Powerhouse maximum flow capacities are specified on the *Inputs-Constraints* worksheet. The spillway flow capacity by reservoir elevation is specified on the *Englebright Pool* worksheet.

### 5.5.2 Narrows 1 Powerhouse Generation

Narrows 1 Powerhouse is a 12 MW facility, with a discharge capacity of approximately 730 cfs and a bypass flow capacity (when the generator is not operating) of 540 cfs.

The relationship between Englebright Reservoir elevation and Narrows 1 flow and generation are based on a 1941 flow test. The resulting Narrows 1 load-flow curve is below in Figures 5.5-1.


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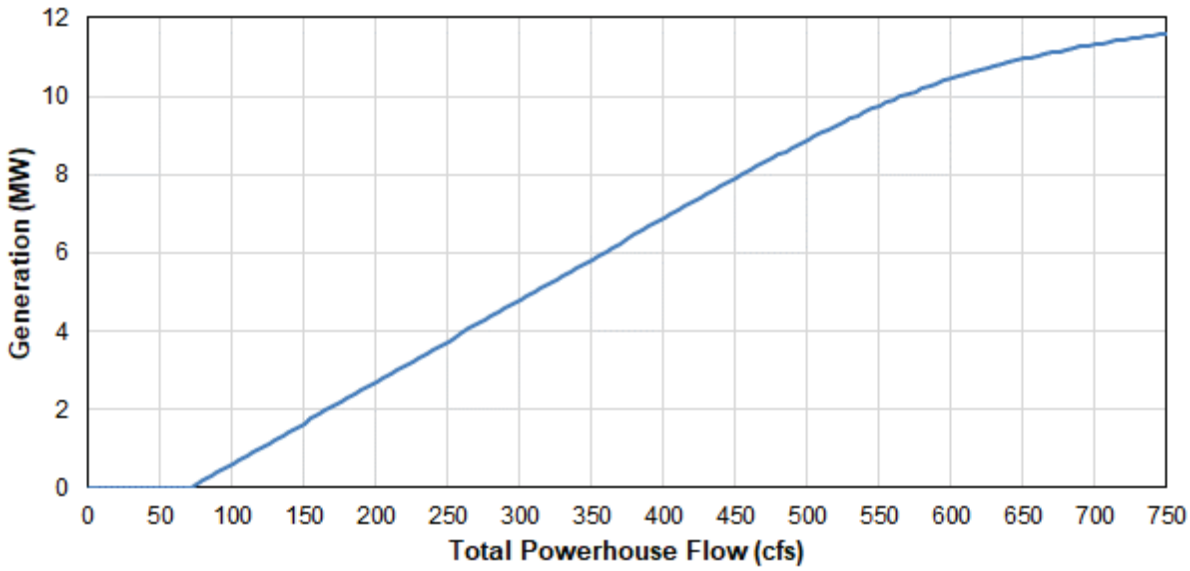


**Figure 5.5-1. Narrows 1 Powerhouse Load-Flow Curve at Static Head 235 ft.**

### 5.5.3 Narrows 2 Powerhouse Generation

Narrows 2, which is part of the Project, is a 50 MW facility, with a discharge capacity of approximately 3,400 cfs and a bypass flow capacity of 3,000 cfs.

Narrows 2 Powerhouse historical hourly generation data for 1995 through 2010 were evaluated to develop flow-head-efficiency relationships. Hourly Data were removed under the following conditions: 1) flows of less than 600 cfs; 2) flows greater than 3,600 cfs; or 3) flows greater than 1,500 cfs with efficiencies less than 50%. Additional hourly data were removed when total Englebright Dam releases exceeded 5,000 cfs to minimize the uncertainty related to tailwater affects. The final dataset included over 100,000 points, so Gaussian smoothing was used. The resulting Narrows 2 load-flow and flow-efficiency curves are below in Figures 5.5-2 and 5.5-3, respectively. Narrows 2 Powerhouse has a typical efficiency curve associated with a single Francis Turbine characterized by a single maximum efficiency point and a steady decrease in efficiency as flows increase beyond the maximum efficiency point.

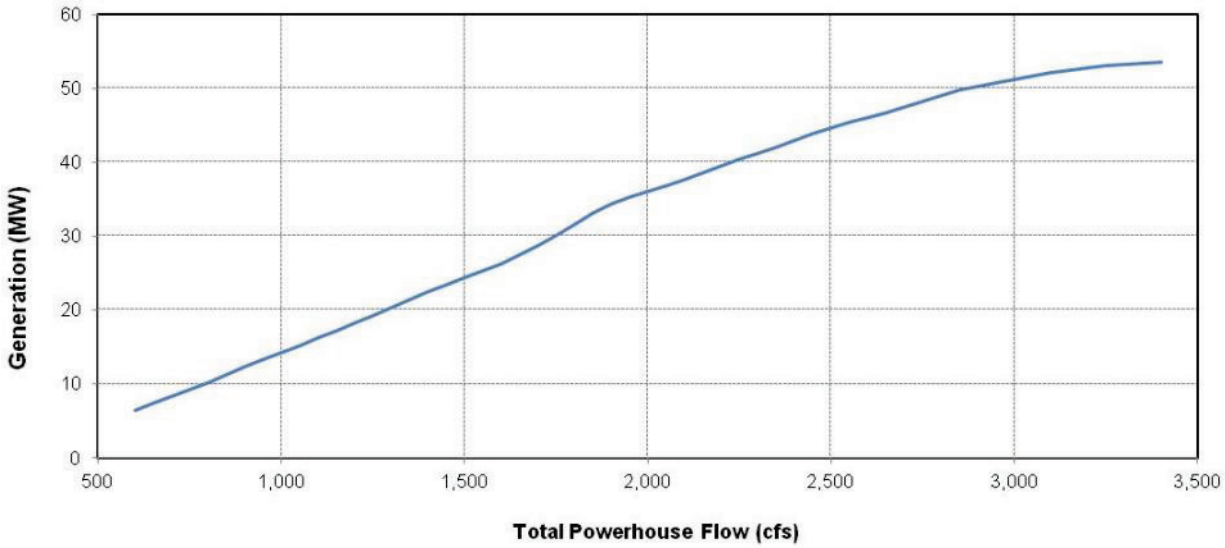


**Figure 5.5-2. Narrows 2 Powerhouse Load-Flow Curve at Gross Head 240 ft.**

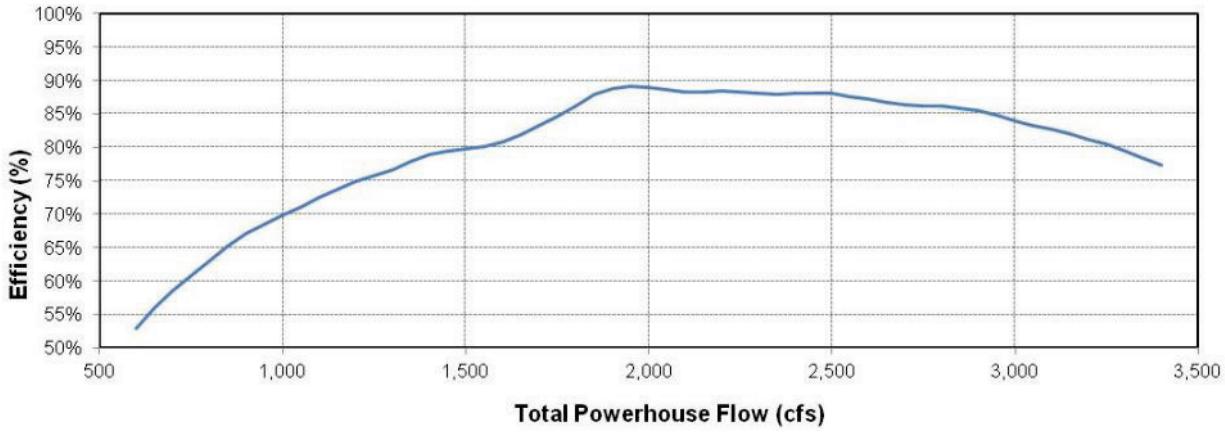


**Figure 5.5-3. Narrows 2 Efficiency Curve at Gross Head 240 ft.**

Narrows 2 load-flow and flow-efficiency data for normal-gross head are located in the *Power Gen* worksheet. Affinity laws, described in Section 5.4.2, are used to adjust generation rates to different head values. Generation calculations are performed in the model VBA code in the PowerGen subroutine.

### 5.5.4 Evaporation

Simulation of Englebright Reservoir includes flow losses due to evaporation. Since there is little variation in Englebright Reservoir water-surface area, evaporation varies only by month; it is not dependent upon reservoir storage. Table 5.5-2 shows the monthly Englebright Reservoir evaporation rates.

**Table 5.5-2. Englebright Reservoir Monthly Evaporation Factors.**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Monthly Evaporation Rate (in)* | *5.03* | *1.95* | *1.21* | *1.09* | *1.99* | *2.85* | *3.75* | *4.83* | *7.58* | *9.09* | *8.46* | *5.94* |
| *Daily Evaporation Rate (ft)* | *0.0135* | *0.0054* | *0.0033* | *0.0029* | *0.0059* | *0.0077* | *0.0104* | *0.0130* | *0.0211* | *0.0244* | *0.0227* | *0.0165* |

Source: *DWR HEC-3 Yuba River Watershed Model. January 1985*
Key:
in = inches
ft=feet

Monthly evaporation rates are defined in the model on the *Inputs-Timeseries* worksheet. Daily evaporation is calculated in the *Englebright Pool* worksheet.

## 5.6 Daguerre Point Dam

USACE's Daguerre Point Dam, a weir-type dam, was constructed by the California Debris Commission to prevent hydraulic mining debris from the Yuba River watershed from flowing into the Feather and Sacramento rivers. The dam, which was constructed in 1906 and rebuilt in 1964 following damage from floods, has no appreciable storage capacity. Daguerre Point Dam is used by YCWA to provide for gravity diversion of agricultural water supply to its Member Units. Releases to the Yuba River below the dam are made either through a fish ladder at each end of the dam or over the dam's crest. See Section 3 for discussion of agricultural demands met by YCWA at Daguerre Point Dam.

# 6.0 Characterization of Operational Rules

As a deterministic model, the YRDPM must prescribe specific actions for all observed and anticipated conditions. Much of this logic is handled through VBA scripting, while other portions are managed through Excel formulas. This section provides a narrative description of the general operational logic for each facility.

## 6.1 Our House Dam Operations

Our House Dam makes releases through a valve near its base to meet instream flow requirements in the Middle Yuba River below Our House Dam, diverts additional flows into the Lohman Ridge Tunnel and spills any additional flows over the dam to the Middle Yuba River.

Simulation of Our House Dam includes an Operations Flag indicating the controlling operation. Table 6.1-1 shows the Operations Flags at Our House Dam.


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**Table 6.1-1. Our House Dam Operations Flags.**

| Operations Flag | Description |
|---|---|
| *Releases for Flows Below Our House Dam (OpFlag)* | |
| *1* | *Minimum instream flow control* |
| *2* | *Inflow=outflow flow control (inflow<min req flow)* |
| *3* | *Spill flow control* |
| *3.5* | *spill cessation flow control* |
| *4* | *Sediment pulse flow control* |
| *4.5* | *Combined sediment pulse flow/spill flow control* |
| *5* | *Recreation flow Control* |
| *6* | *Combined sediment-pulse/recreation flow control* |
| *7* | *Natural flow control (tunnels closed)* |
| *7.4* | *Combined natural flow/sediment pulse flow control* |
| *7.5* | *Combine natural flow/recreation flow control* |
| *7.6* | *Combined natural flow/sediment pulse flow/recreation flow control* |
| *0* | *Something else* |

### 6.1.1 Instream Flow Requirements

YCWA operates to meet a minimum flow or all-natural inflow up to the minimum flow in the Middle Yuba River below Our House Dam. For each day of simulation, the YRDPM determines the appropriate flow requirement, and releases either the natural inflow or the minimum flow, whichever is less, to the Middle Yuba River. In the case that releases are made to meet the minimum flow, a buffer flow is added, if available, to emulate real-world operations ensuring sufficient flow reaches the gage.

Minimum instream flow requirements below Our House Dam are defined on the *Inputs-Timeseries* worksheet and are selected for simulation by the user on the *Scenario Builder and Control* worksheet. The buffer flow is specified on the *Inputs-Constraints* worksheet.

### 6.1.2 Diversions

Once minimum flows have been met, inflows to Our House Dam up to the tunnel capacity are diverted through the Lohman Ridge Tunnel to Oregon Creek. The Lohman Ridge Tunnel maximum capacity is specified on the *Inputs-Constraints* worksheet.

### 6.1.3 Spill Cessation

On the *Inputs-Constraints* worksheet, there is a spill cessation mode toggle button. This toggle button was added during the FERC relicensing process to activate spill cessation proposals by YCWA and relicensing participants.

The existing FERC license does not include a spill cessation schedule for Our House Dam, and while spill cessation is proposed in the new FERC license, the Accord Extension modeling assumed the existing FERC requirements remained in effect.

## 6.2 Log Cabin Dam Operations

Log Cabin Dam makes releases through a valve at its base to meet instream flow requirements in Oregon Creek below Log Cabin Dam, diverts additional flows into the Camptonville Tunnel, and spills any additional flows over the dam to Oregon Creek.

### 6.2.1 Instream Flow Requirements

A minimum flow, or all-natural inflow plus diversions from Our House Dam (up to the minimum flow) is released to Oregon Creek from Log Cabin Dam. For each day of simulation, the YRDPM determines the appropriate flow requirement, and releases either the inflow or the minimum flow, whichever is less, to Oregon Creek. In the case that releases are made to meet the minimum flow, a buffer flow is added, if available, to emulate real-world operations ensuring sufficient flow reaches the gage.

Minimum instream flow requirements below Log Cabin Dam are defined on the *Inputs-Timeseries* worksheet and are selected for simulation by the user on the *Scenario Builder and Control* worksheet. The buffer flow is specified on the *Inputs-Constraints* worksheet.

### 6.2.2 Diversions

Once minimum flows have been met, inflows to Log Cabin Dam up to the tunnel capacity of 1,100 cfs are diverted through the Camptonville Tunnel to New Bullards Bar Reservoir. The Camptonville Tunnel maximum capacity is specified on the *Inputs-Constraints* worksheet.

## 6.3 Slate Creek Diversion Dam Operations

There are two available operational modes for the Slate Creek Diversion Dam. The purpose of each operational mode is to determine how much flow from Slate Creek is released to the YRDP as opposed to diverted to South Feather Water and Power Agency (SFWPA). Since the YRDPM is intended to be used in a comparative model rather than a predictive one, inconsistencies in upstream operations would not necessarily be a problem; however, two simulation modes were added to avoid any perceived problems. For purposes of the Accord Extension analysis, Slate Creek operations were used rather than historical flows.

### 6.3.1 Historical Flows

Under the Historical Flows mode, the timeseries of historical flows below the Slate Creek Diversion Dam is input to the model as an inflow to the Project. In this case, the YRDPM does not simulate any diversions to the Slate Creek Tunnel: the Slate Creek Diversion Dam is not a part of the simulation.

### 6.3.2 Operate Slate Creek

Under the Operate Slate Creek mode, YCWA's and SFWPA's water rights, and user-defined minimum instream flow requirements below the diversion dam are used to allocate releases to


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Slate Creek and diversions to the Slate Creek Tunnel using historical inflows to the Slate Creek Diversion Dam. SFWPA water rights allow a diversion of up to 300 cfs year around, with an additional 300 cfs between January 1 and July 1, so long as the total volume diverted above the initial 300 cfs is less than 35,000 ac-ft (this volume threshold is a variable set by the model user).

The Operate Slate Creek option requires four additional user inputs. The first input, "YCWA North Yuba Water Right:" indicates the amount of initial flow on the North Yuba River above New Bullards Bar Dam that must be available to YCWA; if New Bullards Bar Reservoir inflows are less than this amount, SFWPA cannot divert at the Slate Creek Diversion Dam. The default value for this variable is 800 cfs, according to existing YCWA water rights. The second input, "Maximum SFWP Diversion Volume (Jan-Jul):" is the total allowable volume of diverted flow between January 1 and July 1, above the 300 cfs base flow diversion. The default value for this variable is 35,000 ac-ft, according to existing SFWPA water rights. The third input, "Meet All YCWA Water Rights Prior to Diversion?" further limits SFWPA diversions by precluding SFWPA diversions when YCWA is operating to meet instream flow requirements on the Yuba River. The default value for this variable is No. Historically, SFWPA has diverted water without YCWA's North Yuba water right being met first. The fourth input, "SFWP Flow Requirements" Indicates with minimum instream flow requirement time series is used to define the minimum instream flow requirement. The model come preloaded with the current FERC license minimum flows (Current) and the proposed FERC license minimum flows (SFWP FERC License). The Current FERC license minimum flows were used for the Accord Extension analysis.

The Slate Creek simulation mode is selected on the *Inputs-Constraints* worksheet, along with other Operate Slate Creek mode input variables. Time series' of monthly minimum instream flow requirements are defined on the *Inputs-Timeseries* worksheet.

## 6.4 New Bullards Bar Reservoir Operations

As the primary water supply reservoir in the Project, New Bullards Bar Reservoir operations are complex and affected by a range of constraints, both within the reservoir, and downstream of New Bullards Bar Dam. The YRDPM computes required releases, and then distributes those releases to the various outlets. Included in the simulation are the New Colgate Powerhouse, the New Bullards Bar Minimum Flow Powerhouse, the New Bullards Bar Dam spillway, and the New Bullards Bar Dam ARC Spillway. The New Bullards Bar Minimum Flow Powerhouse is operated to meet minimum instream flow requirements below NBB Dam, any additional non-spill releases are made through the New Colgate Powerhouse. The primary and ARC spillways are only used during flood management operations, and only after all other release options have been fully used.

### 6.4.1 Flood Management

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 YCWA entered on May 9, 1966, YCWA agreed to reserve 170,000 ac-ft of storage space for flood management in New Bullards Bar Reservoir in accordance with rules and regulations enumerated in the Hydrology Report on Reservoir Regulation for Flood

Control (USACE 1972). The seasonal flood storage space allocation schedule is presented in Table 6.4-1. If simulated storage at any point in the simulation exceeds the maximum allowable storage, also shown in Table 6.4-1, the YRDPM will make maximum releases from New Bullards Bar Reservoir through the New Colgate Powerhouse, New Bullards Bar Reservoir spillway, and ARC Spillway, if used, subject to downstream flow limitations and outlet capacities, to reduce storage to the maximum allowable.

**Table 6.4-1. New Bullards Bar Reservoir Flood Reservation Storage.**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *End of Month Storage Allocation (TAF)* | *170* | *170* | *170* | *170* | *170* | *170* | *70* | *0* | *0* | *0* | *0* | *56* |
| *End of Month Maximum Allowable Storage (TAF)* | *796* | *796* | *796* | *796* | *796* | *796* | *896* | *966* | *966* | *966* | *966* | *910* |

Source: United States Army Corps of Engineers, New Bullards Bar Reservoir, Reservoir Regulation for Flood Control, June 1972
Key:
TAF = Thousands of acre-feet

The release rate is determined by adding the forecasted volume of the current day's inflow to the end of the previous day's storage. If the forecasted storage exceeds the maximum allowable storage, the volume above the line is compared to the various release mechanisms, and releases are made from the reservoir. The first block of water is assumed to be released through New Colgate Powerhouse up to its full capacity of 3,430 cfs. Any remaining volume of water is assumed released through the New Bullards Bar Reservoir Spillway and/or ARC Spillway and is subject to the maximum release rates shown in Table 5.4-1. If the forecasted storage volume would not require spillway releases to reach the maximum allowable storage, and assuming no spill would occur at Englebright Reservoir, all releases would be made through the New Colgate Powerhouse down to the Target Operating Line (TOL), described below in Section 6.4.2.

In addition to reservation of flood control space in New Bullards Bar Reservoir, flood management regulations include rules governing ramping rates as well as target maximum flows in the Yuba River and the Feather River below the confluence with the Yuba River (USACE 1970; USACE 1972). New Bullards Bar Reservoir is operated for the following maximum flows:

- 50,000 cfs on the North Yuba River below New Bullards Bar Dam
- 120,000 cfs on the Yuba River at Marysville
- 300,000 cfs on the Feather River below the Yuba River
- 320,000 cfs on the Feather River below the Bear River

YCWA operates the Narrows 1 and 2 powerhouses at Englebright Dam to utilize storage in USACE's Englebright Reservoir to capture winter storm "freshets" and reduce storm flows on the Yuba River below Englebright Dam. This operation is accomplished by evacuating storage space in USACE's Englebright Reservoir in anticipation of storm peak flows.

At times when New Bullards Bar Reservoir is not threatening to encroach the flood reservation pool, the YRDPM may modify New Bullards Bar Reservoir operations to avoid spilling Englebright Reservoir. These operations are described in Section 6.5.3, Flood Management.


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Monthly flood management pool volumes are defined on the *Inputs-Timeseries* worksheet. Maximum flows in the North Yuba River below NBB Dam and in the Yuba River at Marysville are defined on the *Inputs-Constraints* worksheet. Maximum flow limitations in the Feather River are not represented in the model because flows in the Feather River are not simulated.

Pre-releases prior to large flood events using forecasts can be triggered using the "Use Forecast-Based Flood Releases" toggle on the *Inputs-Constraints* worksheet.

### 6.4.2 Target Operating Line

When hydrologic conditions are such that reservoir operations to meet minimum requirements would result in excessively high reservoir storage, New Bullards Bar Reservoir operations are governed by the TOL. Like the Flood Management Line, the YRDPM makes releases based on the previous day's storage and forecasted current day inflows to meet the TOL. Unlike the Flood Management Line, the TOL is only a target, and as such, the YRDPM utilizes a buffer to mimic the actual operations of the Project within a desired proximity to the TOL versus the more variable release pattern that is associated with strictly operating to a TOL. The YRDPM only makes releases through the New Colgate Powerhouse and the New Bullards Bar Minimum Flow Powerhouse to achieve the TOL; as long as New Bullards Bar Reservoir storage does not exceed the flood management line, the New Bullards Bar Reservoir spillway is not used. The TOL and its buffers are determined through iteration to approximate historical operations, and through discussions with project operations planners.

As previously mentioned, the TOL includes a buffer extending both above and below the TOL, as shown in Table 6.4-3. If New Bullards Bar Reservoir storage is forecasted to be at or below the lower edge of the TOL buffer, New Bullards Bar Reservoir releases are determined based wholly on meeting minimum downstream requirements. If New Bullards Bar Reservoir storage is forecasted to be at or above the upper edge of the TOL buffer, New Bullards Bar Reservoir releases are made at the maximum New Colgate Powerhouse release rate not resulting in a spill at Englebright Reservoir. For forecasted storage between the two buffer lines, a linear interpolation between releases for minimum downstream requirements and maximum release is used as the New Bullards Bar Reservoir release rate.

**Table 6.4-3. Example New Bullards Bar Reservoir Storage Target Operating Line and Buffers.**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *End of Month Upper TOL Storage (TAF)* | *680* | *730* | *730* | *730* | *750* | *780* | *880* | *966* | *920* | *835* | *725* | *850* |
| *End of Month TOL Storage (TAF)* | *660* | *660* | *660* | *660* | *680* | *750* | *850* | *940* | *920* | *825* | *715* | *650* |
| *End of Month Lower TOL Storage (TAF)* | *650* | *630* | *630* | *630* | *650* | *720* | *820* | *840* | *840* | *785* | *700* | *648* |

Source: Model iterations and through consultation with YRDP operations planners
Key:
TAF = Thousands of acre-feet

NBB TOL monthly storage is defined on the *Inputs-Timeseries* worksheet and selected for simulation on the *Scenario Builder and Control* worksheet. Monthly buffer volumes above and below the TOL are also defined on the *Inputs-Timeseries* worksheet.


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### 6.4.3 Carryover Storage

To protect against multi-year droughts, YRDPM simulation of New Bullards Bar Reservoir includes a carryover storage target for the end of September each year. Reservoir carryover storage is used to make up the difference between the available surface water supply and system demands (diversion demands, instream flow requirements and system operational losses) under dry conditions. For modeling purposes, the determination of the end-of-September carryover storage requirement is based on the current year's and the previous 4 years' water year volume of unimpaired Yuba River flow at Smartsville. If the cumulative 1-, 2-, 3-, 4-, or 5-year volume of unimpaired flow falls below a specified threshold on the Carryover Storage worksheet, the year is determined to have a reduced carryover storage requirement. The thresholds for triggering a lower carryover storage requirement are shown in Table 6.4-4.

**Table 6.4-4. Water Year Volumes for Determination of a Multi-Year Drought Based on Cumulative Water Year Yuba River Unimpaired Flow at Smartsville**

| Drought Duration (Years) | Cumulative Unimpaired Flow Volume (TAF) |
|---|---|
| *1* | *900* |
| *2* | *2,360* |
| *3* | *4,380* |
| *4* | *5,840* |
| *5* | *7,300* |

*Notes:*
*Multi-Year drought volumes based on Smartsville Index volumes defined in Section 2.1.3.*

- *1-year volume is based on a single Critical year*
- *2-year volume is based on a Critical year and a Dry year*
- *3-year volume is based on three Dry years*
- *4-year volume is based on four Dry years*
- *5-year volume is based on five Dry years*

If simulated end-of-September (EOS) New Bullards Bar reservoir storage falls below the Carryover storage target, Daguerre Point Dam diversions are reduced so that simulated EOS storage meets the carryover storage target and the New Bullards Bar Reservoir operations module is rerun. The YRDPM will iterate, modifying Daguerre Point Dam diversions, until the carryover storage target is met, as long as Daguerre Point Dam diversions do not drop to less than a specified percentage of demand (specified on the *Scenario Builder and Contro*l worksheet).

The maximum carryover storage, maximum delivery shortage, FERC minimum pool storage, carryover storage operational buffer, and NBB annual evaporation are specified on the *Inputs-Constraints* worksheet. The default maximum carryover storage 440 TAF, the default delivery target is 50%, the default FERC minimum pool volume is 234 TAF, the default carryover storage operational buffer is 151 TAF, and the default NBB annual evaporation is 15 TAF. The carryover storage requirement is 440 TAF by default but can be reduced to the sum of the FERC minimum pool + NBB evaporation + operational buffer (400 TAF) based on the criteria in Table 6.4-4. Carryover storage calculations are performed in the *Carryover Storage* worksheet.

### 6.4.4 Inactive Pool


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New Bullards Bar Reservoir's inactive pool is specified in its initial FERC license as 234 TAF. If storage drops below the inactive pool, downstream minimum flow requirement will continue to be met. All other discretionary releases cease until the reservoir storage rises above the inactive pool.

The FERC minimum pool storage is specified on the *Inputs-Constraints* worksheet.

### 6.4.5 Englebright Storage

The YRDPM operates New Bullards Bar Reservoir to maintain Englebright Reservoir within the range of elevations described in Section 6.5. Without any consideration for power generation or flood management, the YRDPM releases a sufficient volume of water from New Bullards Bar Reservoir storage to ensure the end-of-day storage at Englebright Reservoir is the same as the previous end-of-day storage, while meeting downstream flow requirements and diversion demands. New Bullards Bar Reservoir operations include some consideration for flood management at Englebright Reservoir, as discussed in Section 6.5.3.

### 6.4.6 Spill Cessation

On the *Inputs-Constraints* worksheet, there is a spill cessation mode toggle button. The existing FERC license does not include a spill cessation schedule for New Bullards Bar Dam, and while spill cessation is proposed in the new FERC license,

## 6.5 Englebright Reservoir Operations

While Englebright and New Bullards Bar reservoirs are operated conjunctively to meet downstream flow requirements and diversion demands, simulated Englebright Reservoir releases through the Narrows 1 and Narrows 2 powerhouses are operated to minimize daily fluctuations in Yuba River flows. Additionally, release decisions for downstream demands are made at Englebright Dam; New Bullards Bar Reservoir releases are generally used to maintain storage in Englebright Reservoir.

Simulation of Englebright Reservoir includes an Operations Flag indicating the controlling operation of Englebright Reservoir. Table 6.5-1 shows the Operations Flags at Englebright Reservoir.

**Table 6.5-1. Englebright Reservoir Operations Flags.**

| Operations Flag | Description |
|---|---|
| *Releases for Flows Below Englebright Dam (DS_Req)* | |
| *0* | *Englebright release control does not control due to Deer Creek and Dry Creek inflows, NBB minimum flow controls* |
| *1* | *Releases for Marysville Pulse Flows (DS_Req_Pulse)* |
| *2* | *Releases for minimum instream flows (DS_Req_MIF)* |
| *2.1* | *Marysville Control* |
| *2.2* | *Smartsville Control* |
| *2.3* | *Unimpaired Flow Control (DS_Req_Unimp)* |
| *2.4* | *Unimpaired Flow Control in excess of Narrows or Colgate release capacity (DS_Req_Unimp)* |
| *2.41* | *Unimpaired Flow Control in excess of Narrows release capacity* |
| *2.42* | *Unimpaired Flow Control in excess of Colgate release capacity* |
| *3* | *Releases for ramping rate requirements (DS_Req_RR)* |


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| | |
|---|---|
| *3.1* | *Ramping Rate Table controls* |
| *3.2* | *70% of previous days flow controls* |
| *3.3* | *Maximum August* |
| *4* | *Releases for flow fluctuation requirements (DS_Req_FF)* |
| *5* | *Englebright storage management* |
| *5.1* | *Englebright spill due to local inflows* |
| *5.2* | *Englebright storage exceeds threshold elevation* |
| *5.3* | *Englebright local inflow exceeds Narrows capacity, Colgate shut off to reduce spill* |
| *5.4* | *Englebright local inflow + NBB release exceeds Narrows capacity, Colgate backed off to eliminate spill at Englebright* |
| *5.5* | *Forecasted freshet, reduce Colgate releases to clear space ahead of event* |
| *5.6* | *Englebright storage + inflow exceeds DS_Req, No Colgate releases* |
| *Releases for New Bullards Bar Reservoir Storage Management (US_Req)* | |
| *11* | *Releases for conservation pool encroachment (US_Req_Spill)* |
| *12* | *Releases for storage above the upper target line (US_Req_MaxColg)* |
| *13* | *Releases for storage between the upper and lower target lines (US_Req_Storage)* |
| *13.1* | *Releases constrained up fall maximum flow* |
| *14* | *Releases for lower Yuba requirements (US_Req_LYR)* |
| *15* | *Releases for Forecast (US_Req_FCO)* |
| *16* | *Releases for spill cessation requirements (US_Req_SC)* |
| *17* | *Releases for NBB Dead Pool (US_Req_DP)* |
| *18* | *NBB at or below dead pool (US_Req_DP)* |
| *19* | *Spill Overrides control NBB releases* |

### 6.5.1 Instream Flow Requirements

Englebright Reservoir always makes releases to meet instream flow requirements at the Smartsville and Marysville gages, and irrigation diversions from Daguerre Point Dam. The minimum release from Englebright Reservoir is either the flow requirement at Smartsville gage, or the sum of the Marysville gage requirement and Daguerre Point Dam irrigation demands less inflows from Deer and Dry creeks, whichever is greater.

Minimum instream flow requirements below Englebright Dam at Smartsville and at Marysville are defined on the *Inputs-Timeseries* worksheet and are selected for simulation by the user on the *Scenario Builder and Control* worksheet.

### 6.5.2 Flow Fluctuation Requirements

In addition to instream flow requirements, Englebright releases are constrained by flow fluctuation requirements. Two flow fluctuation criteria are setup in the model: as defined in the Narrows 2 Bypass FERC Amendment (Existing FERC) (FERC 2005); and as proposed in the FLA (Proposed Condition AR9) (YCWA 2014). The flow fluctuation requirement is selected on the *Inputs-Constraints* worksheet.

Under the existing FERC flow fluctuation requirement, the YRDPM computes the maximum 5-day Englebright Reservoir non-spill release volume for the period of September 15-October 31 and ensures Englebright releases do not drop to less than 55% of the maximum 5-day average release. Between November 1 and March 31, the YRDPM computes the maximum 5-day average non-spill release and ensures Englebright Reservoir releases do not drop below 65% of this flow, or the flow established for September 15 through October 31. Existing FERC flow fluctuation criteria are defined on the *Inputs-Constraints* worksheet.


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New flow fluctuation criteria are proposed under the new FERC license, but Yuba Accord Extension modeling assumed the existing FERC requirements remained in effect.

### 6.5.3 Flood Management

While Englebright Reservoir has no flood management requirements, YCWA operates New Bullards Bar Reservoir to avoid spilling Englebright Reservoir. If forecasts indicate a relatively small storm, or a "freshet" is coming, New Colgate Powerhouse releases are reduced by a user-defined percentage, creating space in Englebright Reservoir for increased runoff from the Middle and South Yuba rivers.

To simulate spill avoidance operations at Englebright Reservoir, the YRDPM evaluates Englebright inflow from the South and Middle Yuba rivers and accretions each day for four subsequent days against Narrows 1 and 2 release capacities. If there is insufficient capacity to release the daily inflows New Colgate releases are reduced by a "Colgate Spill Avoidance Factor" normally set at 70%. By applying this reduction factor four days before a storm event would occur, it provides time for Englebright Reservoir storage to be reduced, creating space to capture the storm and avoid spills at Englebright dam. In some situations, spills are unavoidable, in which case application of the spill avoidance factors would reduce the volume of spill. The YRDPM always checks to make sure all Narrows 1 and 2 powerhouse capacity is used prior to releasing any spills over Englebright Dam. Maximum Colgate Powerhouse release reduction for Englebright spill avoidance is defined on the *Inputs-Constraints* worksheet.

### 6.5.4 Power Generation

Englebright Reservoir releases are set based on downstream demands in drier times of all years and most of the time in dryer years, in wetter years and the winter of most years, releases are made at relatively constant rates that are determined by the amount of uncontrolled flow into Englebright Reservoir plus planned releases from New Bullards Bar Reservoir. Since the YRDPM operates on a daily timestep rather than an hourly one, most power generation-related operations are not a part of the YRDPM. However, limited power generation operations are included.

Generating releases from Englebright Reservoir can be made through either the Narrows 1 or Narrows 2 powerhouses. The YRDPM has four simulation modes for splitting Englebright Reservoir releases into the two powerhouses: 1) Narrows 2 Preference; 2) Narrows 1 Preference, 3) 2016 Coordinated Operations Agreement, and 4) 2021 Operations. Under the Narrows 2 Preference setting, all available Narrows 2 Powerhouse capacity (3,400 cfs) is used before releases are made through the Narrows 1 Powerhouse, up to the Narrows 1 Powerhouse's full capacity (730 cfs). Under the Narrows 1 Preference setting, the order is reversed, and all Narrows 1 Powerhouse capacity is used before any releases are made through the Narrows 2 Powerhouse. Under the 2016 Coordinated Operations Agreement, the first 700 cfs of release is made through the Narrows 1 Powerhouse; when releases are between 701 cfs and 2,800 cfs, all releases are made through the Narrows 2 Powerhouse. Releases above 2,800 cfs use full Narrows 1 Powerhouse capacity, and the remainder is made through the Narrows 2 Powerhouse. Under the 2021 Operations, Narrows 1 is maximized, and the Narrows 2 Full-Flow Bypass and Narrows 2 Powerhouse are used to make


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up the remaining flow. Powerhouse preference is selected on the *Inputs-Constraints* worksheet. The 2021 Operations selection is used for the Accord Extension SEIR analysis.

Simulation of Englebright power generation includes an Operations Flag indicating the controlling operation of Narrows 1 and Narrows 2 powerhouses. Table 6.5-2 shows the Power Generation Flags for Englebright Reservoir.

**Table 6.5-2. Englebright Power Generation Flags.**

| Operations Flag | Description |
|---|---|
| *Releases for Narrows 1 and Narrows 2 Powerhouses (Flag)* | |
| *0* | *Starting condition* |
| *1* | *Total Narrows releases are less than the Narrows 1 capacity, all releases are made through Narrows 1* |
| *11* | *All Flow Above Narrows 2 Minimum Capacity Through Narrows 2* |
| *12* | *Flows in both Narrows 1 and 2, Narrows 2 filled first* |
| *22* | *Minimum flow through Narrows 2, balance through Narrows 1* |
| *23* | *Flows in both Narrows 1 and 2* |

## 6.6 Daguerre Point Dam Deliveries

Two DSS input time series of aggregated delivery demands are available in the model, representing present level of development and future level of development. Even though diversions occur from three distinct locations in the Lower Yuba River, for simulation purposes all agricultural diversions for YCWA member units are assumed to occur at Daguerre Point Dam. Development of the delivery demands time series is presented in Section 3.2.

Under normal conditions, Englebright Reservoir operations release sufficient water to meet or exceed flow requirements at Smartsville, or flow requirements at Marysville plus delivery demands at Daguerre Point Dam. Under relatively wet conditions, releases may be made from New Bullards Bar Reservoir to meet an EOS target storage; under these conditions, flows at Smartsville and Marysville will likely be in excess of the regulatory minimum, and full deliveries would be made at Daguerre Point Dam. Under extremely dry conditions, releases to meet minimum flow requirements at Marysville and diversions to meet full demands at Daguerre Point Dam could result in New Bullards Bar Reservoir dropping below the EOS carryover storage requirement.

The YRDPM meets the full diversion demand at Daguerre Point Dam if the resulting end-of-September carryover storage in New Bullards Bar Reservoir is above the delivery carryover storage required, as described in Section 6.4.3. Delivery deficiencies, up to a user-defined maximum, are allowed by the model to maintain delivery Carryover Storage requirements. The YRDPM will reduce Daguerre Point Dam diversions by a volume equivalent to the difference between the simulated EOS New Bullards Bar Reservoir storage and the carryover storage requirement and re-simulate New Bullards Bar Reservoir operations. Any reductions in Daguerre Point Dam delivery are applied only to periods when the Marysville flow requirement is controlling Englebright Reservoir operations; if Smartsville requirements are controlling Englebright Reservoir releases, no reductions in delivery can be applied. The reduction in delivery, or shortage, is computed as a percentage and applied to diversions from April 1 through

March 31. If the maximum allowable deficiency is reached, New Bullards Bar Reservoir is drawn down below the Carryover Storage requirement, as necessary.

The level of development, present or future, is selected on the *Scenario Builder and Control* worksheet. Maximum allowable deficiency (Maximum Deficiency) is defined on the *Inputs-Constraints* tab. Present and Future delivery demand time series are located in the DSS input file.

## 6.7 Water Transfers

Water transfers have historically been an important component of Project operations. Currently, under the Yuba Accord, stored water transfers are accounted for within releases to meet Yuba Accord flow schedules, or to meet the EOS storage target in New Bullards Bar Reservoir.

Groundwater substitution transfers are made by YCWA 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 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, both of which are specified on the *Inputs-Timeseries* worksheet. The Accord includes a mandatory 30 TAF of groundwater substitution transfers in Schedule 6 years, no additional groundwater substitution transfers are included under the Accord Extension SEIR modeling.


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# 7.0 Model Simulation Process

The YRDPM includes a series of routines. The primary model controls are contained on the *Scenario Builder and Control* worksheet. Most scenario-specific user inputs are managed on *Inputs-Constraints* worksheet. After ensuring all variables/inputs are correct, the user clicks the button labeled, "Run Model," on the *Scenario Builder and Control* worksheet to start the YRDPM. Starting the YRDPM triggers a series of routines described below in the order they are executed.

- RunModel – Initiated by the "Run Model" button. Collects input information, computes period of record information, determines water year, the number of days in the water year, "calls" other subroutines and passes the water year and number of days those subroutines.
- ClearYear – Initiated by the RunModel routine. Clears all of the computation data from the spreadsheet from previous simulations.
- DateSet – Initiated by the RunModel routine. Sets up the date column on each worksheet for each year of simulation.
- Load_DSS_Data_Click – Initiated by the RunModel routine. Executes the Load_DSS_Data routine.
- Load_DSS_Data – Initiated by the Load_DSS_Data_Click routine. Uses the HEC dynamic link libraries (DLL) to read information from a user-specified input DSS file and write it to locations specified on the *DSS_Index* worksheet.
- DSSFile_Open – Initiated by the Load_DSS_Data routine. Uses the HEC DLL to open the user-specified DSS file.
- StartingConditions – Initiated by the RunModel routine. Sets up conditions for subsequent routines, including carrying over information from previous years' simulation like storages or delivery allocations.
- YearType – Initiated by RunModel routine. Determines the year type index and Water Year Types for the Middle Yuba and Oregon Creek and writes it to the *WY Types* worksheet.
- LogCabin_OurHouse – Initiated by RunModel routine. Simulates operations of Log Cabin and Our House dams, allocating inflows to either meeting flow requirements below the dams or for diversion into the dams' respective tunnels. Output is written to the *Log Cabin_Our House* worksheet.
- SpillCessation – Initiated by RunModel routine. Simulates spill cessations, if activated, for Log Cabin and/or Our House dams that must occur prior to simulation of NBB Reservoir. Output is written to the *Log Cabin_Our House* worksheet.
- YearType – Initiated by RunModel routine. Determines the year type index and Water Year Type for the North Yuba River and the Yuba River below Englebright and writes it to the *WY Types* worksheet.
- LowerYubaFlowReqs – Initiated by RunModel routine. Computes the lower Yuba River flow requirements.


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- NBBReleases – Initiated by RunModel routine. Writes New Bullards Bar Reservoir operating storage lines and evaporation rates to NBB Pool worksheet.
- Operations – Initiated by RunModel routine. Makes an initial simulation of NBB and Englebright to determine periods when SFWP diversions must be curtailed.
- DiversionDef – Initiated by RunModel routine. Makes an initial simulation to compute diversion deficiencies at Daguerre Point Dam in case carryover storage targets are not met.
- SlateCreek – Initiated by RunModel routine. Simulates Slate Creek Diversion Dam operations. Ouput is written to the *Slate Creek* worksheet.
- SpillCessation – Initiated by RunModel routine. Simulates spill cessations, if activated, for Log Cabin and/or Our House dams that must occur prior to simulation of NBB Reservoir but after calculation of the NYI. Output is written to the *Log Cabin_Our House* worksheet.
- Transfers – Initiated by RunModel routine. If groundwater substitution transfers are included in the simulation, calculates changes in operations for transfers
- NoTransfers – Initiated by RunModel routine. If groundwater substitution transfers are not included in the simulation, fills in transfer output when no transfers are selected. Includes 30 TAF of groundwater substitution transfer for Schedule 6 years when running the Yuba River Accord or FLA Proposed instream flow requirement below Englebright.
- LowerYubaFlowReqs – Initiated by RunModel routine. Computes flow requirements for the Yuba River below Englebright Reservoir at Smartsville and Marysville based on the YRI or NYI year type.
- NBBReleases – Initiated by RunModel routine. Sets up the *NBB Pool* worksheet for use in later routines. Writes New Bullards Bar Reservoir operating storage lines and evaporation rates to the *NBB Pool* worksheet.
- Operations – Initiated by RunModel routine. Primary operational simulation routine. It makes almost all release decisions for New Bullards Bar and Englebright reservoirs based on rules specified within the code and user inputs, including spill cessation below New Bullards Bar Dam. After determining initial releases from New Bullards Bar Reservoir based on flow requirements below Englebright and New Bullards Bar Reservoir storage conditions, the routine makes modifications to New Bullards Bar Reservoir releases to accommodate Englebright storage fluctuations and flow fluctuation limitations below Englebright. Output is written to the *NBB Pool* and *Englebright Pool* worksheets.
- DiversionDef – Initiated by RunModel routine. Using end-of-September storage computed by Operations routine assuming full irrigation deliveries at Daguerre Point Dam, the DiversionDef routine applies a reduction in diversions to ensure New Bullards Bar Reservoir storage is at or above the carryover storage requirement. If there are any reductions in deliveries, the Operations and DiversionDef routines are rerun. Output is written to the *Diversions* and *Output* worksheets.
- SpillCessation – Initiated by RunModel routine. Simulates spill cessations, if activated, for Log Cabin and/or Our House dams that must occur after the simulation of NBB and Englebright reservoirs. Output is written to the *Log Cabin_Our House* worksheet.

- Operations – Initiated by RunModel routine. Revises release decisions for New Bullards Bar and Englebright reservoirs if spill cessation below Log Cabin and/or Our House dams is applied after the simulation of NBB and Englebright reservoirs. Output is written to the *NBB Pool* and *Englebright Pool* worksheets.
- DiversionDef – Initiated by RunModel routine. Revises water delivery deficits at Daguerre Point Dam if spill cessation below Log Cabin and/or Our House dams is applied after the simulation of NBB and Englebright reservoirs. Output is written to the *Diversions* and *Output* worksheets.
- ColgateOps – Initiated by RunModel routine. Recomputes New Colgate Powerhouse releases based on user-defined Weekly Generation Factors pattern if "Use Weekly Power Generation Factors?:" is set to yes on the *Scenario Builder and Control* worksheet. The routine re-computes Englebright Reservoir storage accordingly. Output is written to the *Colgate* worksheet.
- ColgateEngStorageCheck – Initated by RunModel. Checks Englebright Reservoir storage against water-surface elevation rules and makes additional adjustments to New Bullards Bar Reservoir releases to ensure Englebright Reservoir levels do not violate any rules if "Use Weekly Power Generation Factors?:" is set to yes on the *Scenario Builder* and *Control* worksheet. Output is written to the *Colgate* worksheet.
- LowerYubaRiverFlow – Initiated by RunModel routine. Computes Yuba River flows based on Englebright releases, Daguerre Point Dam diversions, and various inflows. Output is written to the *LYR Flows* and *Output* worksheets.
- NarrowsSplit – Initiated by RunModel routine. Splits previously-determined Englebright Reservoir power releases into Narrows 1 and Narrows 2 powerhouse releases based on user-provided information on the *Inputs-Constraints* worksheet. Output is written to the *Narrows* and *Output* worksheets.
- PowerGen – Initiated by RunModel routine. Computes power generation at New Colgate, Narrows 1 and Narrows 2 powerhouses based on head and flow using Affinity Laws and user-provided information on the *Inputs-Constraints* worksheet. Output is written to the *Power Gen* and *Output* worksheets.
- AnnualDataGrabber – Initiated by RunModel routine. Reads data from various worksheets and writes it to the *Annual Data* worksheet. WaterBalance – Initiated by RunModel routine. Checks to ensure water balance is maintained at New Bullards Bar and Englebright reservoirs and at Marysville if "Calculate Water Balance?:" is set to yes on the *Scenario Builder* and *Control* worksheet. Output is written to the *WBalance* and *Output* worksheets.
- FebMayWYInflowForecast – Initiated by RunModel routine. Computes NYI based inflow forecasts using B120 data for Feb through May. Added for informational purposes during FERC relicensing. Output is written to the *WY Types* and *Output* worksheets.
- WithoutProject – Initiated by RunModel routine. Calculates without-Project conditions. Output is written to the *Without Project* worksheet.


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- ReachOutput – Initiated by RunModel routine. Computes and writes with-Project and without-Project reach flow for all project reaches based on previously determined flows. Output is written to the *Reach Output* worksheet.
- Recreation_WSE – Initiated by RunModel routine. Writes key NBB recreation elevations to the *Output* worksheet.
- Write_DSS_Data – Initiated by RunModel routine. Opens a user-specified DSS file using the DSSFile_Open routine, writes output to the DSS file using HEC DLL information and closes the DSS file. Write_DSS_Data is called twice: first to write data from the *Reach Output* worksheet and second to write data from the *Output* worksheet. Both are written to a common output file specified on the *Scenario Builder and Control* worksheet

Except for the RunModel routine, YRDPM routines are set up to simulate up to one year at a time. Multi-year simulations are managed within the RunModel routine; it will loop one year at a time until the full simulation period has been completed.


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# Appendix C2

## Yuba River Development Project Model

## YRDPM Hydrology Report

# YUBA WATER AGENCY

# Yuba River Development Project Model
# Appendix A
# YRDPM Hydrology Report

April, 2023

# Table of Contents

| Section No. | Description | Page No. |
|---|---|---|
| List of Abbreviations and Acronyms | | 1 |
| Introduction 1 | | |
| 1.1 | The Yuba River Watershed | 1 |
| 1.2 | Summary of Hydrologic Analysis | 3 |
| Major Tributary flows | | 6 |
| 2.1 | North Yuba River | 8 |
| 2.2 | Slate Creek | 9 |
| 2.3 | Middle Yuba River | 10 |
| 2.4 | South Yuba River | 11 |
| 2.5 | Oregon Creek | 13 |
| 2.6 | Deer Creek | 15 |
| Ungaged Accretions | | 1 |
| 3.1 | Accretions to New Bullards Bar Reservoir | 4 |
| 3.1.1 | Calculation of Accretions to New Bullards Bar Reservoir Using Mass Balance Methodology | 4 |
| 3.1.2 | Estimation of Accretions to New Bullards Bar Reservoir Using Statistical Regression Methodology | 5 |
| 3.1.3 | Estimation of Accretions to New Bullards Bar Reservoir using Area-Weighted Flow Methodology | 6 |
| 3.1.4 | Comparison of Accretions Calculation and Estimations | 7 |
| 3.1.5 | Computation of Ungaged Accretions to North Yuba River above New Bullards Bar Dam Subbasins | 9 |
| 3.1.6 | Computation of New Bullards Bar Reservoir Evaporation | 13 |
| 3.2 | Accretions to Englebright Reservoir | 14 |
| 3.2.1 | Comparison of Englebright Accretions Calculation and Estimation | 16 |
| 3.2.2 | Computation of Ungaged Accretions from Subbasins to the Yuba River above Englebright Dam | 18 |
| 3.2.3 | Computation of Englebright Reservoir Evaporation | 21 |
| 3.2.4 | Accretion Correction for Large Flood Events | 21 |
| 3.3 | Lower Yuba River Accretions | 28 |
| 3.4 | Dry Creek | 30 |
| Unimpaired Flows | | 32 |
| 4.1 | North Yuba River | 32 |
| 4.2 | Middle Yuba River | 33 |
| 4.3 | South Yuba River | 35 |
| 4.4 | Unimpaired Yuba River flow at Smartsville | 37 |
| Accumulated Flows | | 1 |
| 5.1 | North Yuba River at New Bullards Bar Dam | 1 |
| 5.2 | Middle Yuba River at its Confluence with the North Yuba River | 3 |
| 5.3 | South Yuba River at its Confluence with the Yuba River | 6 |
| 5.4 | Yuba River at Smartsville | 6 |

References 1

**List of Figures**


| Figure No. | Description | Page No. |
|---|---|---|
| Figure 1.1-1. | Yuba River Watershed | 2 |
| Figure 1.2-1. | YRDP Project Area Tributary Reaches | 5 |
| Figure 2.0-1. | Schematic of Lower Yuba River USGS Gage Network | 7 |
| Figure 2.1-1. | Gage Network of the North Yuba River | 8 |
| Figure 2.2-1. | Gage Network of Slate Creek flows to New Bullards Bar | 9 |
| Figure 2.3-1. | Gage Network of Middle Yuba River around Our House Dam | 11 |
| Figure 2.4-1. | Gage Network of the Lower South Yuba River | 12 |
| Figure 2.5-1. | Gage Network of Oregon Creek above Log Cabin Dam | 13 |
| Figure 2.6-1. | Gage Network of Deer Creek Flow near Smartsville. | 15 |
| Figure 3.0-1. | Yuba River Watershed and Subbasins | 2 |
| Figure 3.0-2. | Yuba River Watershed and Subbasin Average Annual Precipitation | 3 |
| Figure 3.1-1. | Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to New Bullards Bar Reservoir | 8 |
| Figure 3.1-2. | Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to New Bullards Bar Reservoir with Colgate Powerhouse Gage Correction | 9 |
| Figure 3.1-3. | Yuba River Ungaged Accretion Subbasins | 11 |
| Figure 3.2-1. | Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to Englebright Reservoir | 17 |
| Figure 3.2-2. | Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to Englebright Reservoir with Gage Correction Factors | 18 |
| Figure 3.2-3. | Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, February 10 through 24, 1986. | 22 |
| Figure 3.2-4. | Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, March 3 through March 17, 1995. | 23 |
| Figure 3.2-5. | Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, December 25, 1996 through January 8, 1997. | 23 |
| Figure 3.2-6. | Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, December 19, 2006 through January 7, 2006. | 24 |

Figure 3.2-7. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, January 1 through February 15, 2017.....24
Figure 3.2-8. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, February 7 through February 16, 2017.....25
Figure 3.2-9. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, February 10 through 24, 1986.....25
Figure 3.2-10. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, March 3 through March 17, 1995.....26
Figure 3.2-11. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, December 25, 1996 through January 8, 1997.....26
Figure 3.2-12. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, December 19, 2006 through January 7, 2006.....27
Figure 3.2-13. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, January 2 through February 16, 2017.....27
Figure 3.2-14. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, February 2 through February 16, 2017.....28
Figure 4.2-1. Middle Yuba River Subbasin between Milton Diversion Dam and Our House Dam.....34
Figure 4.3-1. South Yuba River Subbasin between Canyon Creek, Langs Crossing, and Jones Bar.....36
Figure 4.4-1. Comparison of Historical and Synthetic Annual Volume of Unimpaired Flow at Smartsville (WY 1975-2008).....39

**List of Tables**

| Table No. | Description | Page No. |
|---|---|---|
| Table 2.0-1. | USGS Gages Used to Determine Major Tributary Flows | 6 |
| Table 2.1-1. | Historical Average Monthly North Yuba River Flow at Goodyears Bar. | 9 |
| Table 2.2-1. | Historical Average Monthly Slate Creek Flows below the Slate Creek Tunnel. | 10 |
| Table 2.3-1. | Historical Average Monthly Middle Yuba River Flows above Our House Dam. | 11 |
| Table 2.4-1. | Historical Average Monthly South Yuba River Flows at Jones Bar. | 12 |
| Table 2.5-1. | Corrections to Computed Historical Oregon Creek Flows above Log Cabin Dam. | 14 |
| Table 2.5-2. | Historical Average Monthly Oregon Creek Flows above Log Cabin Dam. | 15 |

Table 2.6-1. Historical Average Monthly Deer Creek Flows near Smartsville. ....16
Table 3.1-1. New Bullards Bar Reservoir Tributaries. ....4
Table 3.1-3. Ungaged North Yuba River above New Bullards Bar Dam Subbasins. ....10
Table 3.1-4. Monthly Average Accretions to the North Yuba River between Goodyears Bar and Slate Creek. ....12
Table 3.1-5. Monthly Average Accretions to Canyon Creek. ....12
Table 3.1-6. Monthly Average Accretions to Slate Creek between the Slate Creek Diversion Dam and Slate Creek's Confluence with the North Yuba River. ....13
Table 3.1-7. Monthly Average Accretions New Bullards Bar Reservoir. ....13
Table 3.1-8. Monthly Evaporation Rates for New Bullards Bar Reservoir. ....13
Table 3.1-9. Historical Monthly Average New Bullards Bar Reservoir Evaporation. ....14
Table 3.2-1. Sources of Inflows to Englebright Reservoir. ....15
Table 3.2-2. Applied Smartsville Gage Correction Factors ....17
Table 3.2-3. Monthly Average Accretions to the Middle Yuba River between Our House Dam and Oregon Creek. ....19
Table 3.2-4. Monthly Average Accretions to the Middle Yuba River below Oregon Creek. ....19
Table 3.2-5. Monthly Average Accretions to the Oregon Creek below Log Cabin Dam. ....20
Table 3.2-6. Monthly Average Accretions to the South Yuba River below Jones Bar. ....20
Table 3.2-7. Monthly Average Accretions to Englebright Reservoir. ....20
Table 3.2-8. Monthly Englebright Reservoir Evaporation Rates. ....21
Table 3.2-9. Monthly Englebright Reservoir Evaporation Volumes. ....21
Table 3.4-1. Monthly Coefficients for Computing Dry Creek Flow from Deer Creek Gage Data. ....31
Table 3.4-2. Monthly Average Computed Dry Creek Accretions to the Yuba River. ....31
Table 4.1-1. Computed Monthly Average Unimpaired North Yuba River Flow at New Bullards Bar Dam. ....33
Table 4.2-1. Monthly Average Unimpaired Middle Yuba River Flow at its Confluence with the North Yuba River. ....35
Table 4.3-1. Monthly Average Unimpaired South Yuba River Flow at its Confluence with the Yuba River. ....37
Table 4.4-1. Monthly Average Unimpaired Yuba River Flow at Smartsville. ....38
Table 5.1-1. Historical Monthly Average North Yuba River Flow at New Bullards Bar Dam. ....1
Table 5.1-2. Computed Monthly Average North Yuba River Flow at New Bullards Bar Dam in the Absence of the YRDP ....2
Table 5.1-3. Comparison of Monthly Average North Yuba River Flow at New Bullards Bar Dam Site under Various Developmental Conditions. ....3
Table 5.2-1. Historical Monthly Average Middle Yuba River Flow at its Confluence with the North Yuba River. ....4

Table 5.2-2. Computed Monthly Average Flow on the Middle Yuba River at its Confluence with the North Yuba River in the Absence of the YRDP. .....5
Table 5.2-3. Comparison of Monthly Average Middle Yuba River Flow at its Confluence with the North Yuba River under Various Developmental Conditions. .....5
Table 5.3-1. Historical Monthly Average South Yuba River Flow at its Confluence with the Yuba River.....6
Table 5.3-2. Comparison of Monthly Average South Yuba River Flow at its Confluence with the Yuba River under Various Developmental Conditions.....6
Table 5.4-1. Historical Monthly Average Yuba River Flow at Smartsville. .....7
Table 5.4-2. Monthly Average Yuba River Flow at Smartsville without the YRDP. .....7
Table 5.4-3. Comparison of Monthly Average Yuba River Flow at Smartsville under Various Developmental Conditions. .....8

# LIST OF ABBREVIATIONS AND ACRONYMS

| Term | Definition |
|---|---|
| AF | Acre-feet |
| cfs | cubic feet per second |
| DS | Pacific Gas & Electric Company's Upper Drum-Spaulding Project |
| DWR | California Department of Water Resources |
| FERC | Federal Energy Regulatory Commission |
| HEC | U.S. Army Corps of Engineers' Hydrology Engineering Center. |
| MAF | million acre-feet |
| msl | above mean sea level |
| NBB | New Bullards Bar Reservoir |
| NID | Nevada Irrigation District |
| PG&E | Pacific Gas and Electric Company |
| POR | period of record |
| SFFRP | South Fork Feather River Project |
| SFWPA | South Feather Water and Power Agency |
| SWRCB | State Water Resources Control Board |
| TAF | thousand acre-feet |
| USACE | U.S. Army Corps of Engineers |
| USGS | U.S. Geological Survey |
| YB | Nevada Irrigation District's Yuba-Bear Project |
| YWA | Yuba County Water Agency |
| YRDP | Yuba River Development Project |

SECTION 1

# INTRODUCTION

The purpose of this document is to describe the relevant hydrology of the Yuba River Watershed that affects, or is affected by, the Yuba River Development Project (YRDP), Federal Energy Regulatory Commission (FERC) Project No. 2246, and to describe the methodologies for compiling relevant hydrologic information into a data set that will be used by Yuba County Water District (YWA) to support modeling and environmental studies.

## 1.1 The Yuba River Watershed

The Yuba River watershed drains approximately 1,339 square miles (USGS 2004) of the western slope of the Sierra Nevada, including portions of Sierra, Placer, Yuba, and Nevada counties, as shown in Figure 1.1-1. The Yuba River is a tributary of the Feather River, which in turn is a tributary of the Sacramento River. The watershed rises from an elevation of about 60 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 5.58 million acre-feet (MAF) in 2017 to a low of 0.37 MAF in 1977, with an average of about 2.35 MAF per year (1901 to 2021).[1] In general, runoff is nearly equally divided between runoff from rainfall during October through March and runoff from snowmelt during April through September.

[1] The forecasted seasonal unimpaired flow at Smartsville is estimated each year by the California Department of Water Resources and reported monthly in Bulletin 120, *Water Conditions in California*. The unimpaired flow at Smartsville is used in Yuba County Water Agency contracts for water delivery to senior water right holders on the lower Yuba River, and is used in the calculation of the Yuba River Index, a hydrologic water year type index for the Yuba River, defined in State Water Resources Control Board Revised Decision 1644.

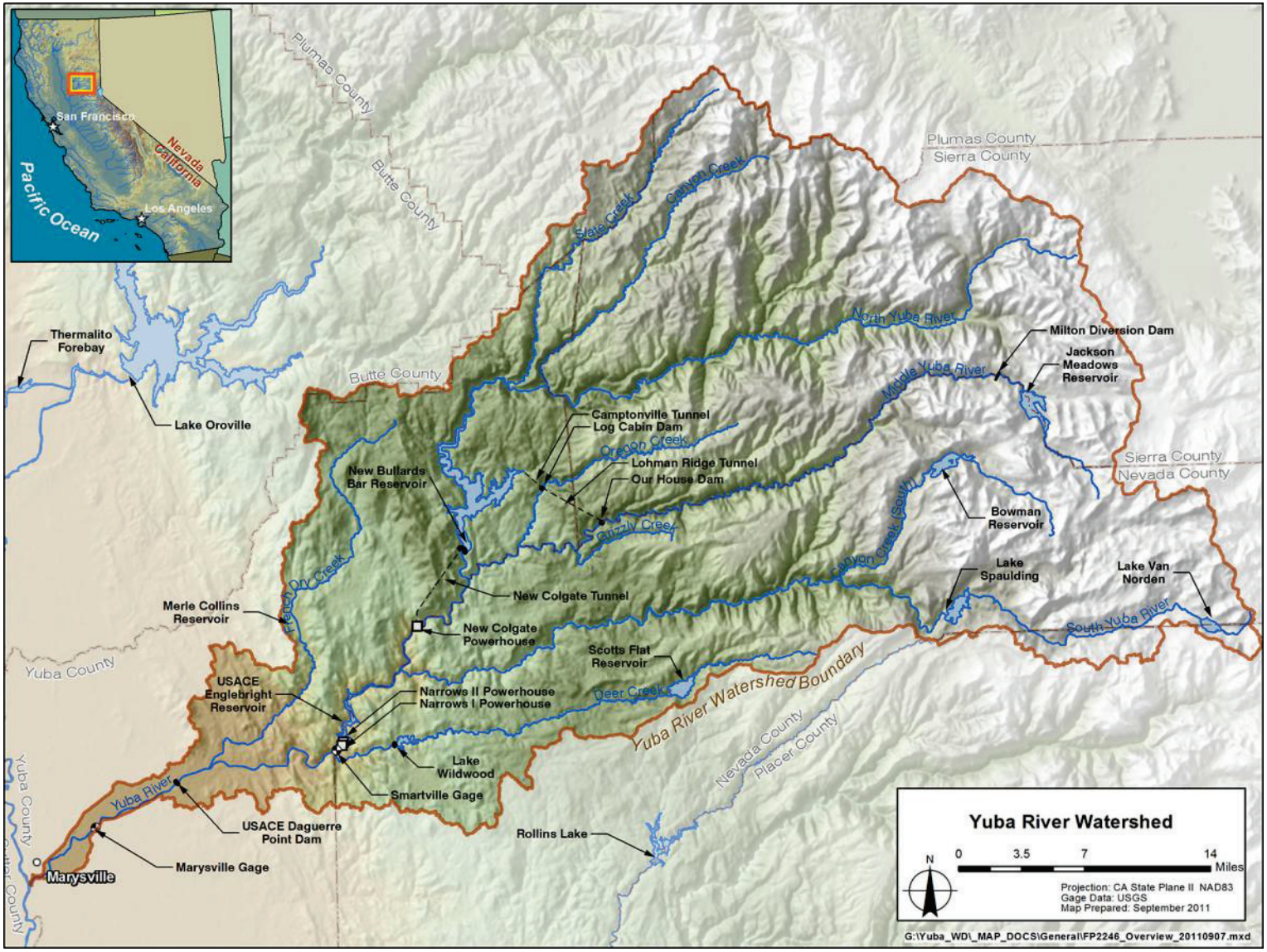


**Figure 1.1-1. Yuba River Watershed**

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 Pacific Gas and Electric Company (PG&E). Total storage capacity of about 307 thousand acre-feet (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 watershed to the Bear River and American River basins through the Yuba-Bear (YB) and Upper Drum-Spaulding (DS) projects, known collectively as the YB-DS projects. In addition, the South Feather Water and Power Agency (SFWPA, previously known as the Oroville-Wyandotte Irrigation District) exports an average of about 70 TAF per year from Slate Creek (a tributary to the North Yuba River) to the Feather River Watershed through the South Fork Feather River Project (SFFRP). While these upper basins lie outside of the project study area, the described operations and exports can considerably reduce the water supply available to the lower Yuba River, particularly during dry and critical water years.

The U.S. Army Corps of Engineers (USACE) and YWA own storage facilities in the lower reaches of the Yuba River watershed. Two of the lower Yuba River facilities, Englebright Dam and Daguerre Point Dam, were originally constructed by the California Debris Commission, a Federal and State partnership, for debris control, and now are operated and maintained by the USACE. The YRDP, constructed and operated by YWA, is a multiple-use project that provides flood control, power generation, irrigation, recreation, and protection and enhancement of fish and wildlife. It includes Our House and Log Cabin diversion dams, New Bullards Bar Dam and Reservoir, New Colgate Powerhouse, and Narrows 2 Powerhouse. Englebright Dam and Reservoir and Daguerre Point Dam are not part of the YRDP. Englebright Dam is used by YWA and PG&E to regulate releases from New Colgate Powerhouse to the lower Yuba River, and Daguerre Point Dam is used by YWA to divert water to its member units.

## 1.2 Summary of Hydrologic Analysis

YWA inflows to the Project Area[2] are a combination of both gaged tributary inflows and ungaged accretions. Gaged tributary flows are discussed in Section 2 for the following major tributaries:

- North Yuba River
- Slate Creek
- Middle Yuba River
- South Yuba River
- Oregon Creek
- Deer Creek

[2] For the purposes of this document, the Project Area is defined as the area within the FERC Project Boundary and the land immediately surrounding the FERC Project Boundary (i.e., within about 0.25 mile of the FERC Project Boundary) and includes Project-affected reaches between facilities and downstream to the next major water controlling feature or structure, USACE's Daguerre Point Dam.

Ungaged accretions and the methodologies used to compute them are discussed in Section 3. Subbasin ungaged accretions are discussed as either inflows to New Bullards Bar Reservoir (NBB), Englebright Reservoir, or the lower Yuba River and the components of flow that make up these three subbasin accretions.

Yuba River flows are affected by the upstream projects including NID's Yuba-Bear Project, PG&E's Drum-Spaulding Project, and SFWPA's South Fork Feather River Project in addition to the YRDP. Section 4 includes a discussion of the calculation of unimpaired flows throughout the basin, including from the upstream projects. Section 5 includes a discussion of hydrologic analysis at four locations for three hydrologic conditions: a natural, unimpaired condition reflecting hydrology in the watershed without any human impairments, a non-YRDP condition reflecting hydrology in the watershed without the YRDP, and a period of record (POR) condition reflecting YRDP operations and facilities since construction was completed in 1969. The hydrologic analysis is provided for the following four locations:

- North Yuba River at New Bullards Bar Dam site
- Middle Yuba River at its confluence with the North Yuba River
- South Yuba River at its confluence with the Yuba River
- Yuba River at Smartsville

Figure 1.2-1 shows the Project Area tributary reaches and the major tributary inflows (listed in blue boxes) and locations where tributary accretions are calculated (listed in black boxes) as used in hydrologic analysis.

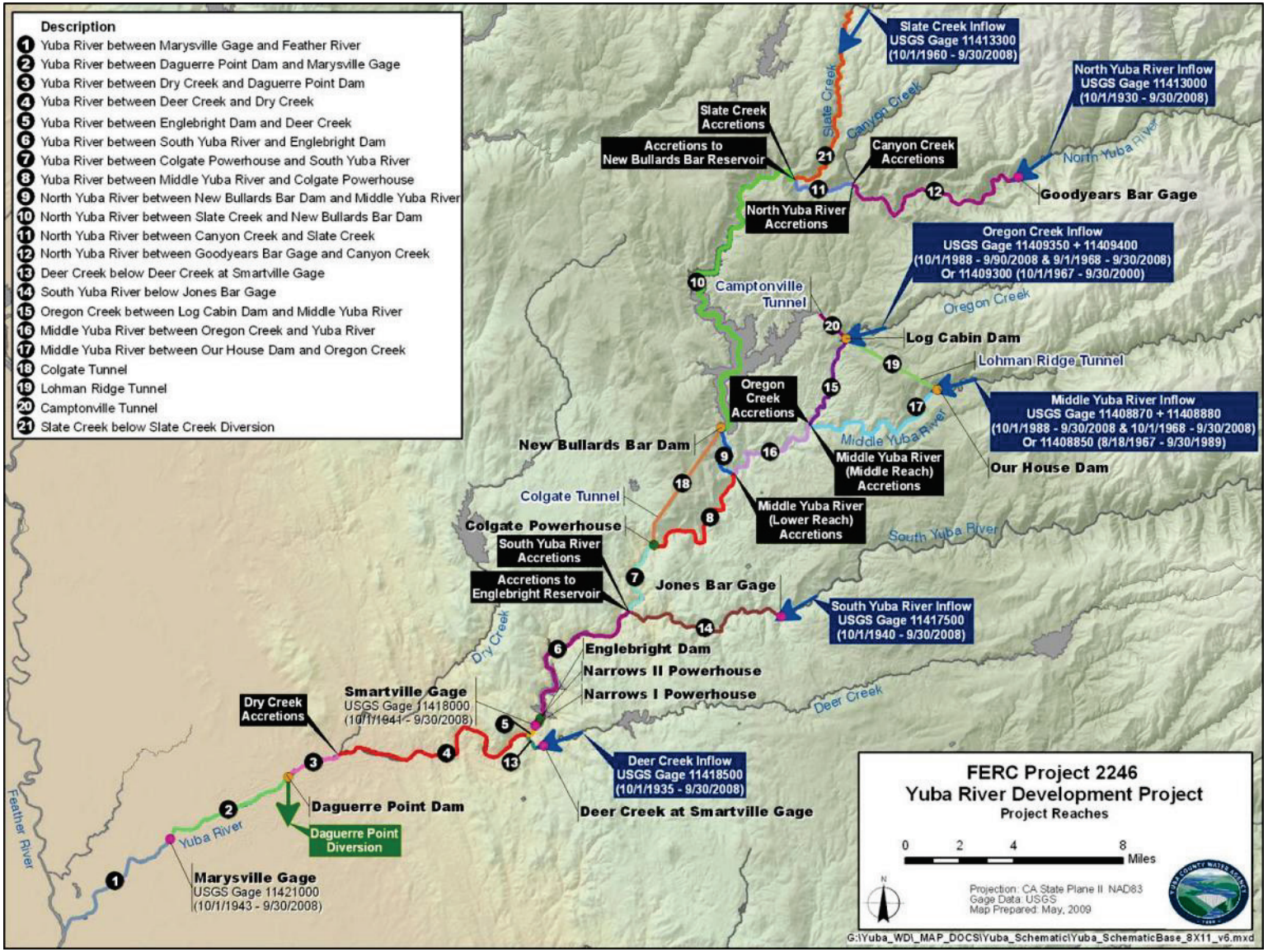


**Figure 1.2-1. YRDP Project Area Tributary Reaches**

SECTION 2

# MAJOR TRIBUTARY FLOWS

This section describes flows from the upper Yuba River watershed to gaging locations on major reaches tributary to the Project Area. Flows in the Yuba River and its tributaries have been gaged by several agencies for varying lengths of time. Generally, a reliable mean daily flow record for major watershed streams exists from 1969 to the present day. Given the availability and reliability of these gaged flow data, flow measurements for the POR of October 1969 through September 2020 were selected for inclusion in the compiled hydrologic data set for inflows to the YRDP Project Area. Since the U. S. Geological Survey (USGS) annually verifies the data recorded at its gages and USGS gage data are available throughout the selected POR, data from USGS gages on each of the major watershed tributaries were selected for the hydrologic data set. All USGS gage data was acquired from the USGS National Water Information System (USGS 2021). USGS gages used for the hydrologic data set of flows are described in Table 2.0-1. Not all listed gages are currently monitored. Figure 2.0-1 shows the network of USGS gages in the vicinity of the Project; not all gages shown were used for the hydrologic data set.

**Table 2.0-1. USGS Gages Used to Determine Major Tributary Flows**

| Gage Number | Tributary | Period of Record | Gage Name |
|---|---|---|---|
| 11413000 | North Yuba River | 10/1/30-Present | North Yuba River Below Goodyears Bar |
| 11413300 | Slate Creek | 10/1/60-Present | Slate Creek Below Diversion Dam, Near Strawberry Valley |
| 11409300 | Oregon Creek | 10/1/67-9/30/00 | Oregon Creek At Camptonville |
| 11409350 | Oregon Creek | 10/1/88-Present | Camptonville Tunnel At Intake, Near Camptonville |
| 11409400 | Oregon Creek | 9/1/68-Present | Oregon Creek Below Log Cabin Dam, Near Camptonville |
| 11408850 | Middle Yuba River | 8/18/67-9/30/89 | Middle Yuba River Near Camptonville |
| 11408870 | Middle Yuba River | 10/1/88-Present | Lohman Ridge Tunnel At Intake, Near Camptonville |
| 11408880 | Middle Yuba River | 10/1/68-Present | Middle Yuba River Below Our House Dam, Near Camptonville |
| 11417500 | South Yuba River | 10/1/40-Present | South Yuba River At Jones Bar, Near Grass Valley |
| 11418500 | Deer Creek | 10/1/35-Present | Deer Creek Near Smartsville |
| 11418000 | Yuba River | 10/1/41-Present | Yuba River Below Englebright Dam, Near Smartsville |
| 11421000 | Yuba River | 10/1/43-Present | Yuba River Near Marysville |

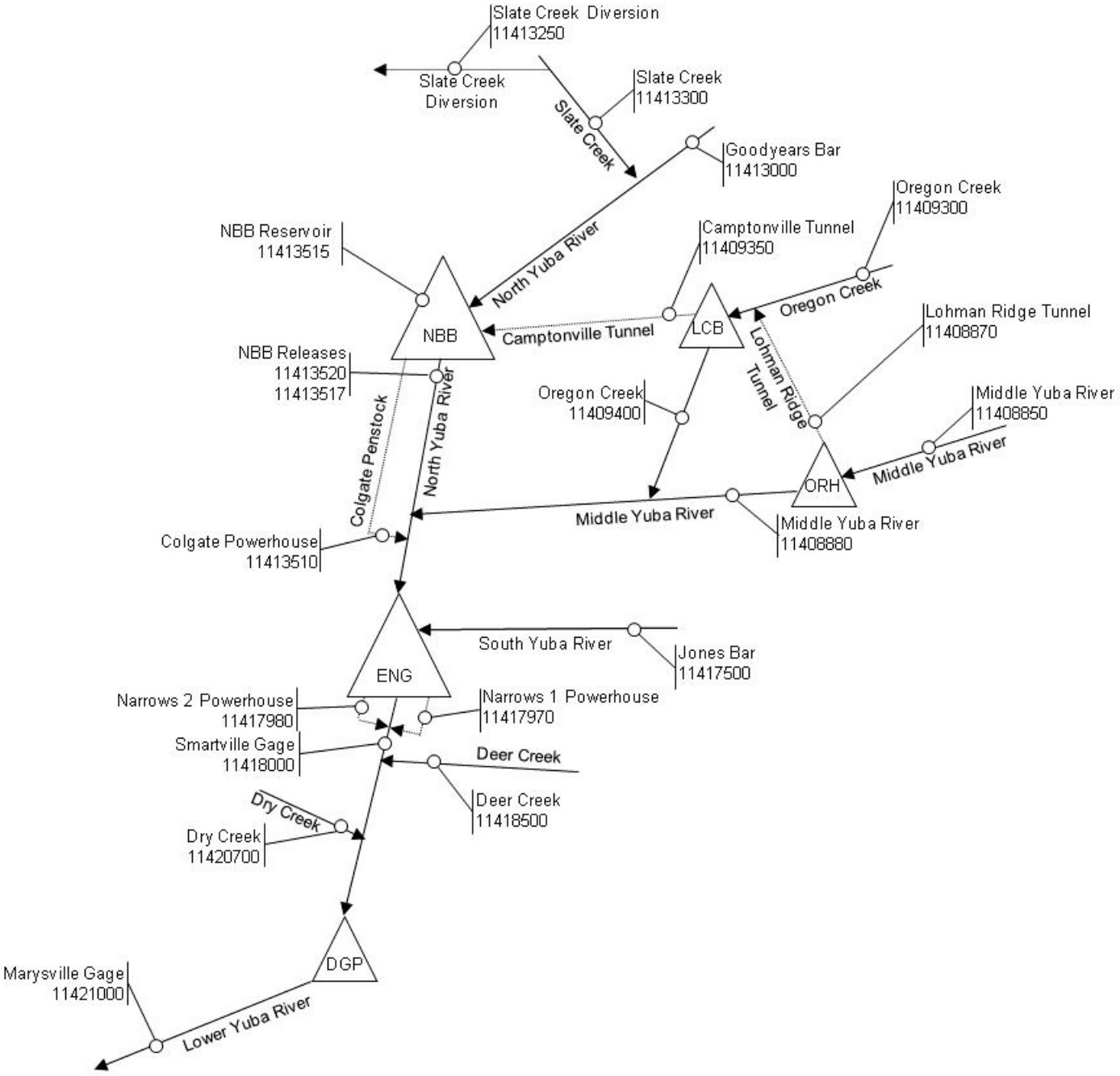


**Figure 2.0-1. Schematic of Lower Yuba River USGS Gage Network**

Hydrologic analysis relied on gages listed in Table 2.0-1 along with the synthesis of local accretions[3] to key subbasin locations from ungaged tributaries, as described in Section 3, to complete the data set. The synthesis of accretions is needed for intermediate locations within the

[3] The term accretions is used in this document to mean runoff to a stream that is below a gaging point; therefore is not directly measured and must be determined through some other hydrologic analysis method.

project area to provide a detailed, accurate flow record for YRDP facility locations. Gages were selected for this analysis based on their locations in the stream network, and the period of record of available historical data for the gage.

## 2.1 North Yuba River

The upper extent of the North Yuba River is at Yuba Pass (elevation 6,701 feet msl) near State Highway 49 in Sierra County. The river flows parallel to the state highway as far as Downieville, where it diverges from the highway and flows westward into NBB. The North Yuba River terminates at its confluence with the Middle Yuba River, approximately 2 miles downstream from New Bullards Bar Dam, at which point the combined flow of the two rivers becomes the Yuba River. The total area of the North Yuba River watershed is approximately 491 square miles and includes portions of Yuba, Sierra, and Plumas counties. The record of daily flow data from the primary gage in the watershed, Goodyears Bar (USGS Gage 11413000) at approximately 2,453 feet msl, extends from October 1, 1930 through the present and represents drainage from a watershed area of approximately 250 square miles. There are no major impairments on the North Yuba River above Goodyears Bar that substantially affect river flow. Canyon Creek, an ungaged tributary to the North Yuba River, with a subbasin of approximately 61 square miles, flows into the North Yuba River approximately 8 miles downstream from Goodyears Bar. Similar to the North Yuba River subbasin above Goodyears Bar, the Canyon Creek subbasin is predominantly snowmelt-fed and has no upstream impairments. Slate Creek, discussed in Section 2.2, flows into the North Yuba River approximately 12 miles below Goodyears Bar. A smaller tributary, Deadwood Creek, joins the North Yuba River approximately 0.5 miles below Slate Creek. The Deadwood Creek subbasin is approximately 6.7 square miles and is relatively low in elevation; accordingly, it is mainly a rainfall-fed subbasin. Flows are gaged at a small hydropower plant on the creek, the Deadwood Creek Plant (USGS Gage 11413320), which has a gage record from October 1, 1994, through the present. Figure 2.1-1 shows a schematic of the North Yuba River and its primary tributaries.

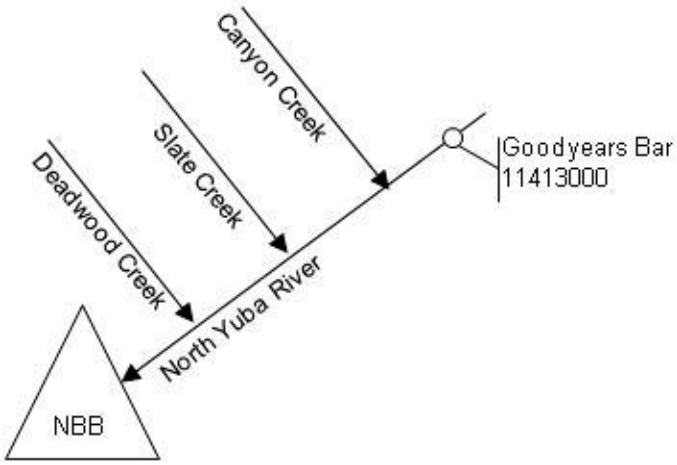


**Figure 2.1-1. Gage Network of the North Yuba River**

The North Yuba River subbasin is a predominantly snowmelt-fed stream, with peak flows occurring from March through May. On a long-term average basis, North Yuba River flows are lowest from August through October. Average monthly North Yuba River flows at Goodyears Bar are shown in Table 2.1-1.

**Table 2.1-1. Historical Average Monthly North Yuba River Flow at Goodyears Bar.**

| Location | Average[2] Monthly Inflow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| North Yuba River Inflow[1] | 174 | 355 | 672 | 941 | 998 | 1,246 | 1,385 | 1,701 | 1,046 | 362 | 183 | 150 | 555 |

Notes:
[1] North Yuba River below Goodyears Bar flow from USGS Gage 11413000
[2] Period of record is 10/1/1969-9/30/2020
Key: cfs = cubic feet per second TAF = thousand acre-feet USGS=U.S. Geological Survey

## 2.2 Slate Creek

Slate Creek originates near the town of La Porte, in the northern portion of the Yuba River watershed. The Slate Creek subbasin is approximately 61 square miles. SFWPA diverts flows from Slate Creek into the Feather River Basin near Strawberry Valley via the Slate Creek Tunnel at approximately 3,500 feet msl. Approximately 49 square miles of the Slate Creek subbasin is above the Slate Creek Tunnel. The Slate Creek Tunnel has a maximum capacity of 848 cubic feet per second (cfs), and its flow has been measured at USGS Gage 11413250 since October 1, 1962. Slate Creek joins the North Yuba River approximately 0.5 miles upstream from the normal high-water mark of NBB. Slate Creek flows have been continuously gaged below the Slate Creek Tunnel by USGS Gage 11413300 since October 1, 1960. Figure 2.2-1 shows the gage network on Slate Creek.

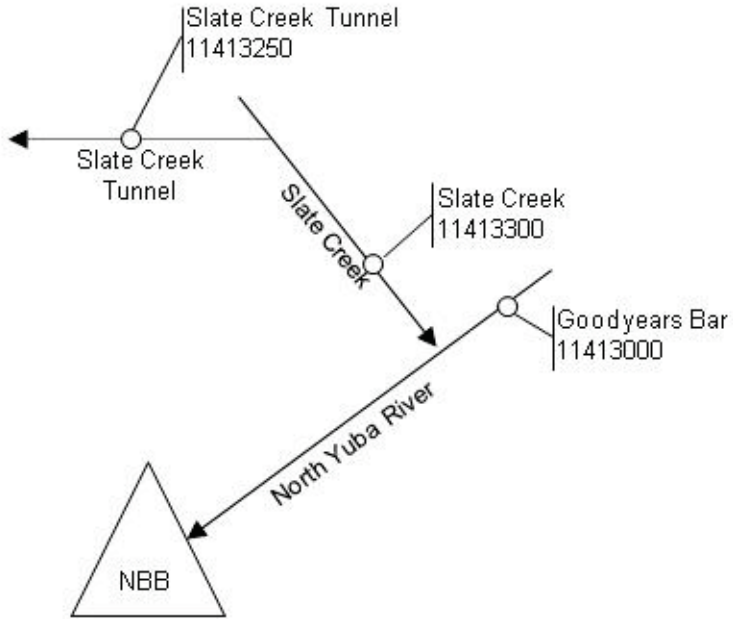


**Figure 2.2-1. Gage Network of Slate Creek flows to New Bullards Bar**

Like the North Yuba River subbasin, the Slate Creek subbasin above the Slate Creek Tunnel, as measured at USGS Gage 11413300, is predominantly snowmelt-fed. Peak flows on Slate Creek generally occur from January through March, and low flows generally occur between July and September. Peak diversions to the Feather River Basin through the Slate Creek Tunnel typically occur in March and May, before 1985, SFWPA diverted Slate Creek flows year around, but diversions since 1985 have typically been limited to December through June.

Slate Creek flows below the Slate Creek Diversion Dam are determined from the historical records at the Slate Creek gage, USGS Gage 11413300. Average monthly flows at this gage are shown in Table 2.2-1.

**Table 2.2-1. Historical Average Monthly Slate Creek Flows below the Slate Creek Tunnel.**

| Location | Average[1] Monthly Inflow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Slate Creek Inflow[2] | 16 | 54 | 133 | 181 | 194 | 233 | 187 | 173 | 53 | 14 | 11 | 10 | 76 |

Notes:
[1] Period of record: 10/1/1969-9/30/2020
[2] Slate Creek below Diversion Dam flow from USGS Gage 11413300
Key: cfs=cubic feet per second TAF = Thousand acre-feet USGS=U.S. Geological Survey

## 2.3 Middle Yuba River

Flows in the Middle Yuba originate from snowmelt and rainfall runoffs above the largest upper watershed impoundment, Jackson Meadows Reservoir, with a dam crest of elevation 6,044.5 feet msl, in Sierra County. Most of the upper Middle Yuba River is confined by narrow, steep canyons which continue downstream to the 75-foot-high Our House Dam, the upper extent of the YRDP on the Middle Yuba River, located southwest of Camptonville near the Sierra/Nevada County line. Approximately 12 miles below Our House Dam, the Middle Yuba River joins the North Yuba River to form the Yuba River.

The Middle Yuba River watershed, including its major tributary Oregon Creek, covers approximately 210 square miles, with elevations ranging from 1,120 feet msl to 7,200 feet msl. There are several impairments on the upper Middle Yuba River that are part of the NID Yuba-Bear Project (FERC Project No. 2266). A portion of Middle Yuba River flows are diverted into the South Yuba River subbasin through the Yuba-Bear Project's Milton-Bowman Tunnel at NID's Milton Diversion Dam. The Yuba-Bear Project is operated to meet minimum Middle Yuba River in-stream flow requirements below the Milton Diversion Dam. Releases from the Milton Diversion Dam and runoff from the area below the dam flow to Our House Dam at crest elevation 2,030 feet msl. Inflow at Our House Dam is partially diverted to Oregon Creek through the Lohman Ridge Tunnel. Oregon Creek joins the Middle Yuba River approximately 8.5 miles below Our House Dam, and the Middle Yuba River joins the North Yuba River below NBB to form the Yuba River. Approximately 23 square miles of the Middle Yuba River watershed lie below Our House Dam.

Inflow to Our House Dam from the Middle Yuba River is determined from three gages. Before 1989, USGS Gage 11408850 recorded Middle Yuba River flows approximately 3.25 miles above

the Dam, near Camptonville. Since 1989, Middle Yuba inflows to the Our House Dam are determined by adding the flow below Our House Dam, measured at USGS Gage 11408880, to Lohman Ridge Tunnel flows, measured at USGS Gage 11408870. Figure 2.3-1 shows the gage network for the Middle Yuba River around Our House Dam.

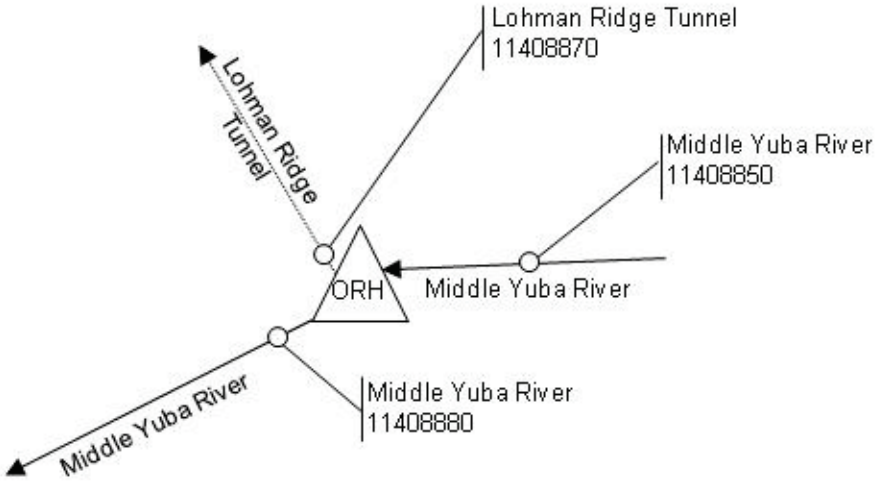


**Figure 2.3-1. Gage Network of Middle Yuba River around Our House Dam**

Using the methodology described above to compute the inflow to this location, a continuous record of daily data from October 1, 1969 to September 30, 2020 was computed. Since the watershed contributing to USGS Gage 11408850 is slightly smaller than USGS Gage 11408880 (136 square miles for USGS Gage 11508850 compared to 145 square miles for USGS Gage 11408880), flows were assumed to be directly proportional to the size of the watershed so flows from USGS Gage 11408850 were increased by the factor of 145/136. Computed average monthly inflows to Our House Dam are shown in Table 2.3-1.

**Table 2.3-1. Historical Average Monthly Middle Yuba River Flows above Our House Dam.**

| Location | Average Monthly Inflow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Middle Yuba River Inflow[1] | 49 | 144 | 335 | 516 | 542 | 635 | 616 | 602 | 327 | 92 | 42 | 36 | 237 |

Notes:
[1] Middle Yuba River above Our House Dam flow from:
USGS Gage 11408850 * 145/136 (10/1/1969 through 9/30/1989)
USGS Gages 11408870+11408880 (10/1/1989 through 9/30/2020)
Key: cfs = cubic feet per second TAF = Thousand acre-feet USGS=U.S. Geological Survey

## 2.4 South Yuba River

The headwaters of the South Yuba River originate at elevation 9,000 feet msl in Placer County near Castle Peak and Donner Lake. The South Yuba River is subject to multiple upstream impairments before it joins the Yuba River in Englebright Reservoir. Primary upstream impairments are NID's Yuba-Bear Project (FERC Project No. 2266), and PG&E's Drum-Spaulding Project (FERC Project No. 2310). Flow from the Middle Yuba River is diverted to

the South Yuba River via the Milton-Bowman Tunnel to Bowman Reservoir and then through the Bowman-Spaulding Tunnel to Lake Spaulding, and flow from the South Yuba River is diverted into the Bear and American river basins via the Drum Canal and South Yuba Canal. Remaining South Yuba River flow joins the Yuba River in Englebright Reservoir. Flows on the lower South Yuba River have been continuously measured at Jones Bar gage (USGS Gage 11417500), located approximately 7 miles upstream from the confluence of the Yuba River and South Yuba River, since April 1, 1959. Of the approximately 352-square-mile South Yuba River watershed, approximately 42 square miles lie below Jones Bar gage. Figure 2.4-1 shows the gage network of the lower South Yuba River.

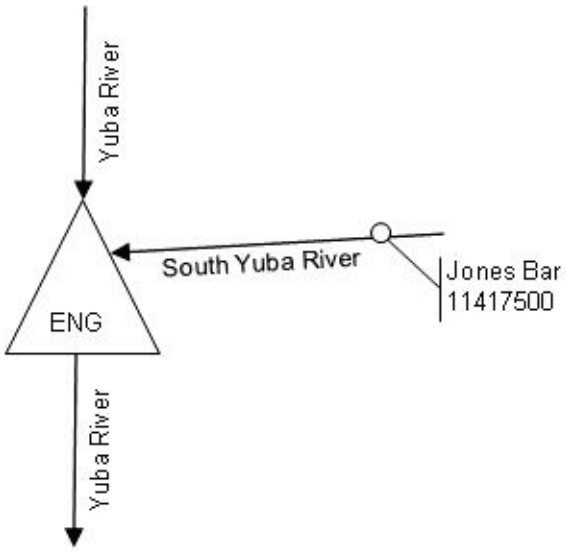


**Figure 2.4-1. Gage Network of the Lower South Yuba River**

Flows from the upper reaches of the South Yuba River are determined from historical daily flow data measured at Jones Bar gage (USGS Gage 11417500) from October 1, 1969 through September 30, 2020. Average annual South Yuba River flow at this location is approximately 312 TAF, with peak flows occurring from April through June, corresponding to the snowmelt season. Low flows on the South Yuba River generally occur from July through mid-December. Table 2.4-1 shows the historical average monthly flow from the South Yuba River, measured at Jones Bar gage.

**Table 2.4-1. Historical Average Monthly South Yuba River Flows at Jones Bar.**

| Location | Average[1] Monthly Inflow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| South Yuba River Inflow 2 | 65 | 187 | 473 | 721 | 783 | 858 | 749 | 831 | 628 | 132 | 47 | 47 | 332 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] South Yuba River at Jones Bar flow from USGS Gage 11417500
Key: cfs = cubic feet per second TAF = Thousand acre-feet USGS=U.S. Geological Survey

## 2.5 Oregon Creek

Oregon Creek is entirely contained within the Middle Yuba River watershed and originates near elevation 4,455 feet msl. Log Cabin Dam, a 55-foot-high dam, diverts flows from Oregon Creek to NBB through the Camptonville Tunnel. Log Cabin Dam is approximately 4 miles upstream from Oregon Creek's confluence with the Middle Yuba River. Oregon Creek flow above Log Cabin Dam is a combination of outflow from the Lohman Ridge Tunnel, originating at Our House Dam on the Middle Yuba River, and Oregon Creek flow. Above the outfall of the Lohman Ridge Tunnel, Oregon Creek is free of impairments. As a result, it is a useful index watershed for characterizing rainfall runoff to compute accretions in other similar watersheds. Of the approximately 35 square miles of the Oregon Creek watershed, about 6 square miles lie below Log Cabin Dam.

Between October 1, 1921 and September 30, 1969, Oregon Creek flows to Log Cabin Dam were gaged by USGS Gage 11409500, located approximately 3.5 miles downstream of the Log Cabin Diversion Dam. Between October 1, 1968 and September 30, 2000, Oregon Creek flows to Log Cabin Dam were gaged by USGS Gage 11409300, located approximately 1.5 miles upstream of the Lohman Ridge Tunnel outfall. Since September 2000, Oregon Creek flows to Log Cabin Dam are calculated by adding flows below Log Cabin Dam, measured by USGS Gage 11409400, to Camptonville Tunnel flows, measured by USGS Gage 11409350, and subtracting Lohman Ridge Tunnel flows, measured at USGS Gage 11408870. Figure 2.5-1 shows the gage network for Oregon Creek.

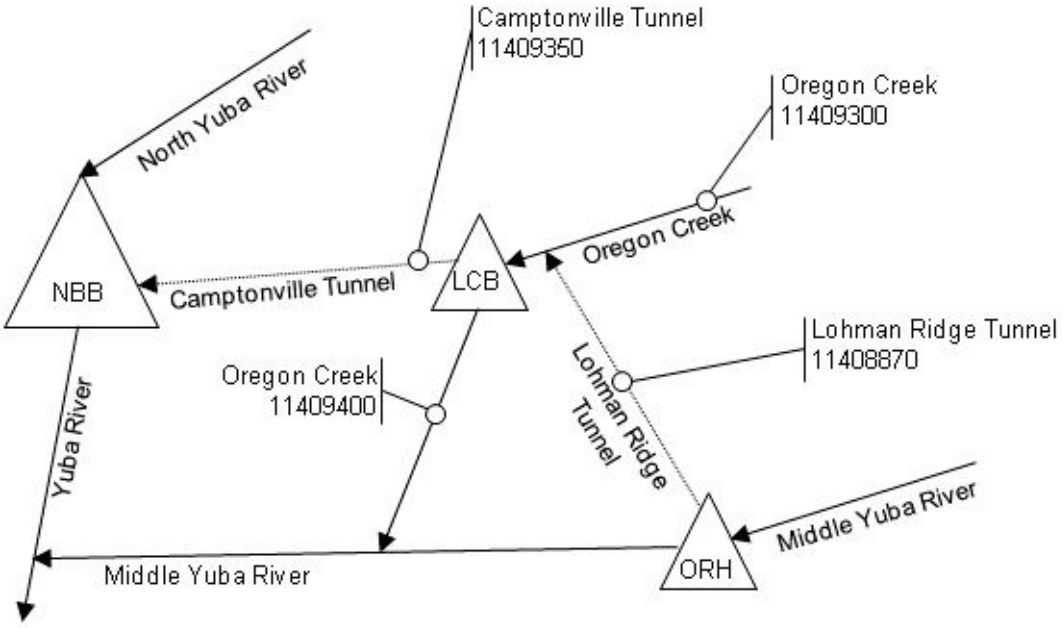


**Figure 2.5-1. Gage Network of Oregon Creek above Log Cabin Dam**

Using the methodology described above, Oregon Creek flows from October 1, 1969 through September 30, 2020 were computed; however, in some periods, gaging errors resulted in

obviously incorrect values, such as negative or very large values. These errors were manually corrected for periods shown in Table 2.5-1. Since the watershed contributing to USGS Gage 11409300 is slightly smaller than USGS Gage 11409400 (23 square miles for USGS Gage 11509000 compared to 29.1 square miles for USGS Gage 11409400), flows were assumed to be directly proportional to the size of the watershed so flows from USGS Gage 11409300 were increased by the factor of 29.1/23.

**Table 2.5-1. Corrections to Computed Historical Oregon Creek Flows above Log Cabin Dam.**

| Date | Original Value (cfs) | Revised Value (cfs) | Rationale |
|---|---|---|---|
| 11/21/2001 | -1.4 | 4.0 | Replaced with previous day's value |
| 11/28/2001 | -1.0 | 3.0 | Replaced with previous day's value |
| 11/29/2001 | 0.0 | 3.0 | Replaced with previous day's value |
| 11/07/2002 | -0.5 | 3.0 | Replaced with previous day's value |
| 06/30/2003 | -0.2 | 0.8 | Replaced with previous day's value |
| 07/01/2003 | -0.2 | 0.8 | Replaced with previous day's value |
| 7/15-8/2/2003 | Varied | 2.0 | Used previous year's corresponding flow |
| 6/1-6/4/2004 | Varied | 9.0 | Used previous year's corresponding base flow |
| 10/17/2004 | -2.3 | 2.0 | Replaced with previous day's value |
| 10/19/2004 | -2.0 | 4.0 | Replaced with previous day's value |
| 11/03/2004 | -1.1 | 1.0 | Replaced with previous day's value |
| 01/14/2005 | -34.0 | 45.0 | Replace with average of surrounding days |
| 5/19/2005 | 1,017 | 617.0 | Corrected obvious Lohman Ridge Tunnel flow error |
| 6/19-7/18/2006 | Varied | Varied | Replaced with historic 2000 receding flows |
| 4/3-4/21/2007 | Varied | Varied | Replaced with historic 1989 receding flows |
| 5/15-5/29/2007 | Varied | Varied | Replaced with historic 1991 receding flows |
| 5/27/2008 | -1.0 | 5.0 | Replaced with previous day's value |
| 5/30-6/8/2008 | Varied | 4.00 | Replaced with recent flow trend |
| 9/30/2008 | -7.2 | 1.7 | Replaced with previous day's value |
| 10/14/2009 | -3.2 | 3.0 | Slight increase over previous day |
| 10/21/2009 | -7.9 | 7.0 | Average of surrounding days |

Key: cfs = cubic feet per second

Oregon Creek is a rainfall-dominated basin: peak flows occur from January through May, and low flows occur from June through November. Table 2.5-2 shows the historical average monthly Oregon Creek inflow.

**Table 2.5-2. Historical Average Monthly Oregon Creek Flows above Log Cabin Dam.**

| Location | Average Monthly Inflow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Oregon Creek Inflow[1] | 6 | 32 | 97 | 160 | 177 | 191 | 129 | 71 | 25 | 7 | 3 | 3 | 54 |

Notes:
[1] Oregon Creek above Log Cabin Dam flow from:
USGS Gage 11409300 * 29.1/23 (10/1/1969 through 9/30/2000)
USGS Gages 11409350+11409400-11408870 (10/1/2000 through 9/30/2020)
Key: cfs = cubic feet per second TAF = Thousand acre-feet USGS=U.S. Geological Survey

# 2.6 Deer Creek

Deer Creek originates in Nevada County, and in addition to natural runoff, receives flows from the South Yuba River by way of PG&E's Drum-Spaulding Project. The approximately 89-square-mile Deer Creek watershed is primarily rainfall-fed; its natural flows are augmented by diversions from the South Yuba River via the South Yuba Canal. Several canals divert flow from Deer Creek to the Bear River watershed. Deer Creek is subject to impoundment in NID's Scotts Flat Reservoir and in Lake Wildwood before it flows into the Yuba River near Smartsville, below Englebright Reservoir. Historical Deer Creek flows near Smartsville have been measured since October 1, 1935 at USGS Gage 11418500, approximately 1 mile upstream from the confluence of Deer Creek with the Yuba River. The watershed contributing to Deer Creek flow below the Deer Creek gage is approximately 5 square miles, and is discussed in Section 3.3. Figure 2.6-1 shows the gage network for Deer Creek near Smartsville.

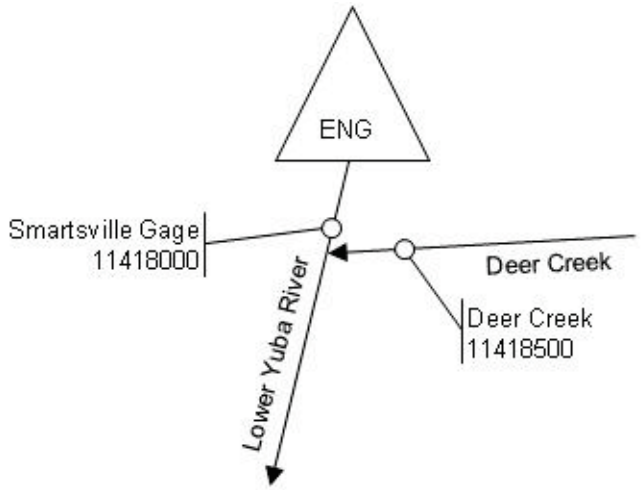


**Figure 2.6-1. Gage Network of Deer Creek Flow near Smartsville.**

As a result of upstream impairments to Deer Creek, its inflows to the Yuba River do not follow a natural streamflow hydrograph. Peak flows typically occur from December through April, and low flows typically occur from June through October. Table 2.6-1 shows average historical monthly Deer Creek flow at the Deer Creek gage.

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**Table 2.6-1. Historical Average Monthly Deer Creek Flows near Smartsville.**

| Location | Average[1] Monthly Inflow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Deer Creek Inflow[2] | 35 | 47 | 146 | 261 | 321 | 317 | 165 | 62 | 16 | 6 | 4 | 6 | 83 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] Deer Creek near Smartsville flow from USGS Gage 11418500
Key: cfs=cubic feet per second TAF=thousand acre-feet USGS=U.S. Geological Survey

**SECTION 3**

# UNGAGED ACCRETIONS

This section describes accretions to New Bullards Bar Reservoir, Englebright Reservoir, the lower Yuba River, and Dry Creek below the locations described in Section 2 to complete the calculation of inflows to the Project Area. While the majority of the tributaries to the Yuba River are gaged, there is a considerable amount of inflow to the Yuba River not directly gaged by streamflow measurement. Using the methodologies discussed below, ungaged accretions are computed for all Project Reaches below the major tributary inflows discussed in Section 2.

Without direct streamflow gage data, several methods were examined to estimate accretions. Methodologies examined to compute accretions included the following:

1. Computation of accretions using a simple mass balance equation. This method consists of subtracting the volume of periodic flow at a measured upstream location from a measured downstream location to determine the volume of intervening additional flow.
2. Computation of accretions using statistical regressions. This method consists of using statistical methods to determine a numerical relationship between a watershed with known characteristics and measured flows and the area of interest.
3. Computation of accretions using an area-weighted scaling of a known, comparable watershed flow and applying a precipitation-based adjustment. This method consists of multiplying known flows of one watershed with similar physical characteristics by the ratio of the area and precipitation of the watershed with measured flows to the area and precipitation of the watershed of interest.

After an analysis of the accuracy of the three methods for computation of inflows to New Bullards Bar Reservoir, the area-weighted scaling methodology was determined to be the most applicable to the Yuba River subbasin accretions, except for large flood event when mass balance was used. Figure 3.0-1 shows the Yuba River watershed and the subbasins included in analysis. Similarly, Figure 3.0-2 shows the Yuba River watershed and the average annual precipitation for each subbasin based on a 30-year average, computed on a 4-kilometer grid by the Parameter-Elevation Regressions on Independent Slopes Model. Subbasin accretions are described based on their location within the subbasin; North Yuba River, Slate Creek, and Canyon Creek accretions are included in the discussion of NBB accretions; Oregon Creek, Middle Yuba River, South Yuba River, and Yuba River accretions are included in the discussion of Englebright accretions; and Dry and Deer Creek and lower Yuba River accretions are included in the lower Yuba River accretions discussion.

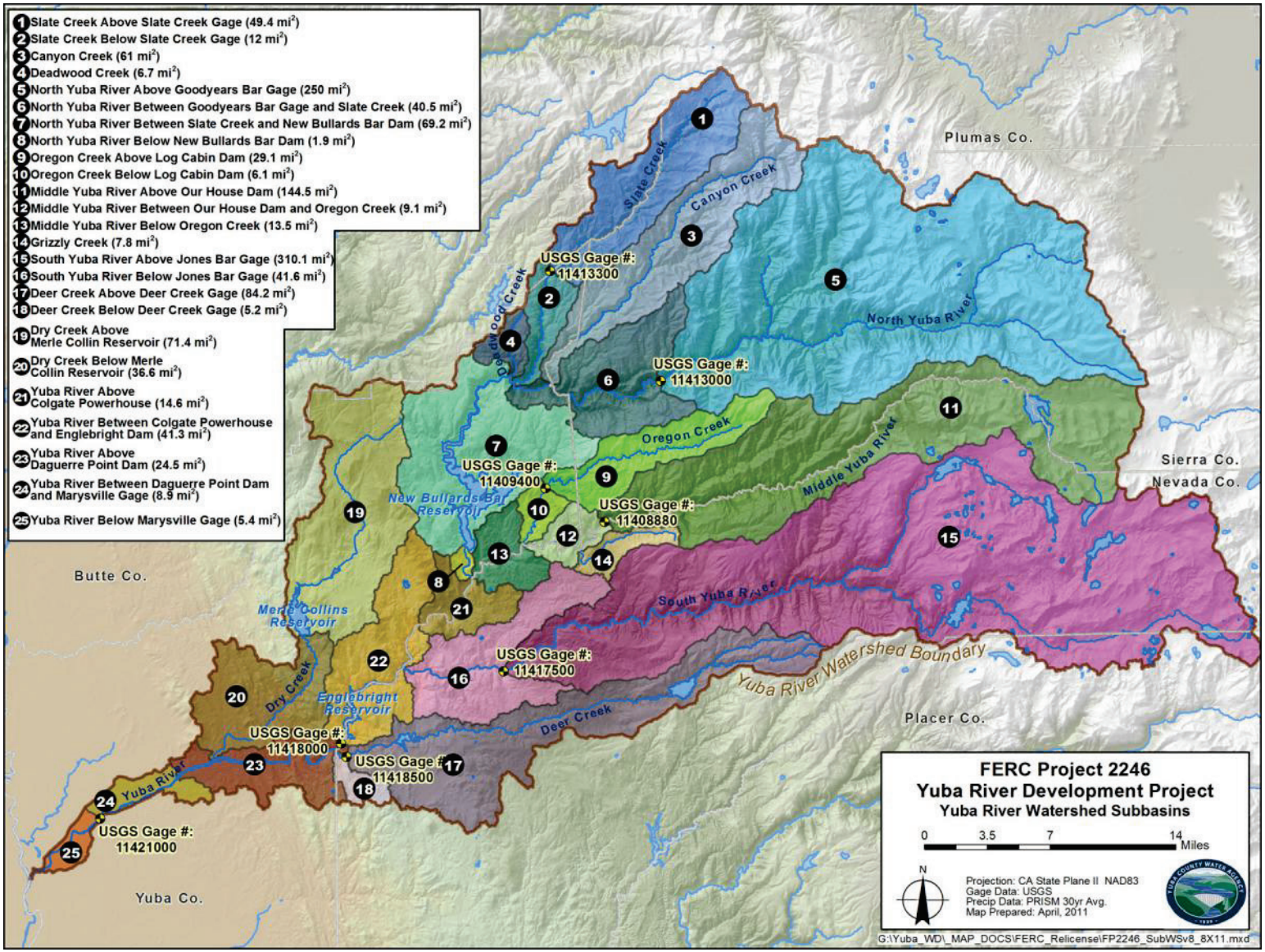


**Figure 3.0-1. Yuba River Watershed and Subbasins**

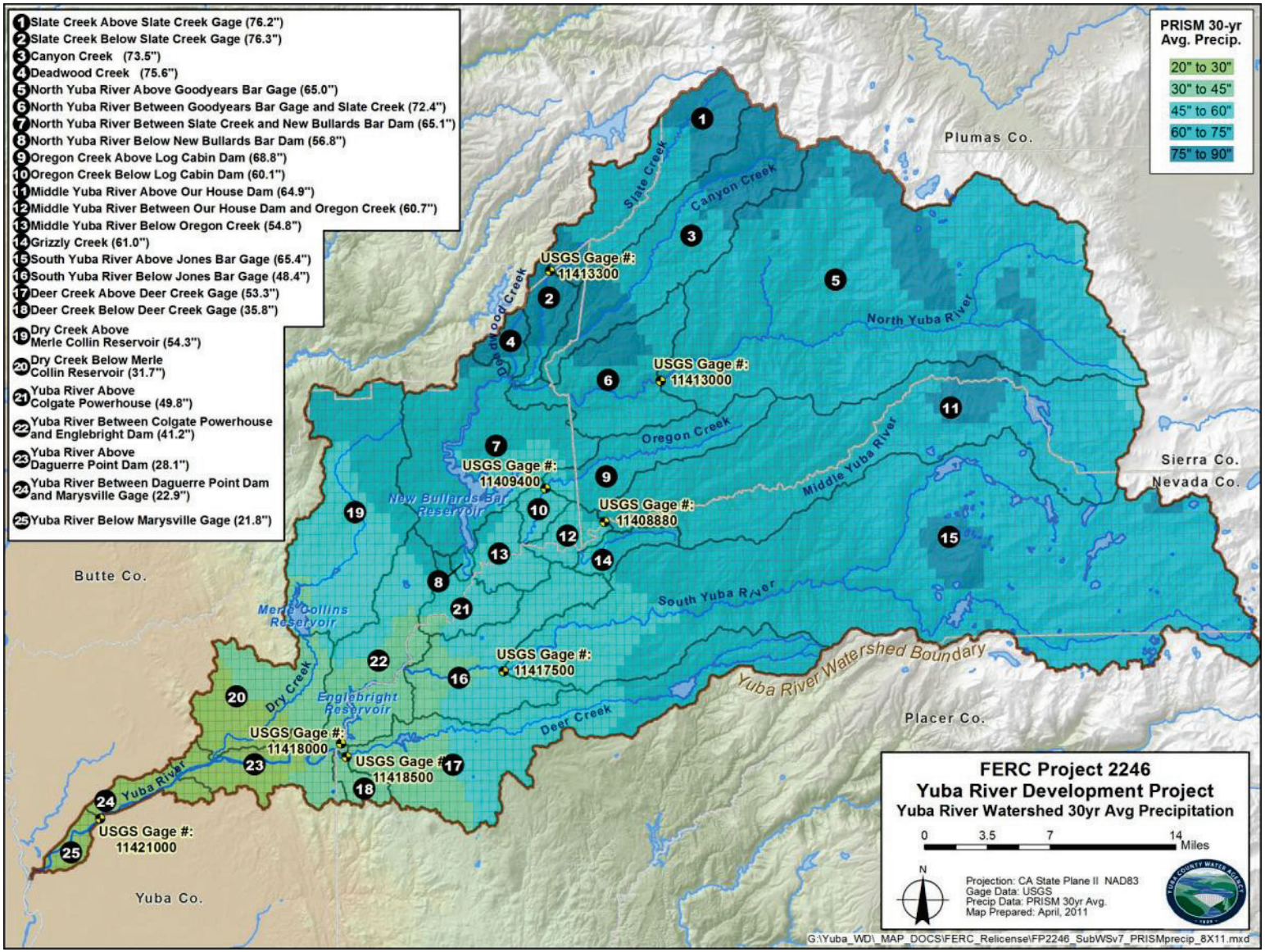


**Figure 3.0-2. Yuba River Watershed and Subbasin Average Annual Precipitation**

# 3.1 Accretions to New Bullards Bar Reservoir

As previously discussed, New Bullards Bar Reservoir receives inflows from several tributaries, including the largely unimpaired mainstem North Yuba River as well as its primary tributaries, Slate Creek, Canyon Creek, and Deadwood Creek. While Canyon Creek and Deadwood Creek are essentially unimpaired, SFWPA diverts from Slate Creek into the Feather River watershed. The North Yuba River watershed is generally snowmelt-dominated at higher elevations and rainfall-dominated at lower elevations, as shown in Table 3.1-1.

**Table 3.1-1. New Bullards Bar Reservoir Tributaries.**

| Subbasin | Area (square miles) | Average Annual Precipitation (inches) | Major Source |
|---|---|---|---|
| North Yuba River above Goodyears Bar | 250 | 65.0 | snow |
| Slate Creek above the Slate Creek gage | 49.4 | 76.2 | snow |
| Canyon Creek | 61 | 73.5 | snow |
| North Yuba River between Goodyears Bar and Slate Creek | 40.5 | 72.4 | rain |
| North Yuba River between Slate Creek and New Bullards Bar Dam | 69.2 | 65.1 | rain |
| Slate Creek below Slate Creek gage | 12 | 76.3 | rain |
| Deadwood Creek | 6.7 | 75.6 | rain |
| Total | 488.8 | 68.3 | -- |

Although there are gages on the upper North Yuba River and upper Slate Creek, the lower reaches of these two tributaries, Canyon Creek, and Deadwood Creek, are ungaged. Table 3.1-1 includes some information about NBB tributaries.

As shown in Table 3.1-1, the total area of watershed above NBB is 488.8 square miles. Of this area, 190 square miles or 39 percent is not directly measured by streamflow gage and makes up the accretion area to be synthesized. Three methods of calculating the accretions to NBB were completed. These methods are described in the following sections. One of these methods, the area-weighted scaling method was selected as the best method for accurately calculating daily flow for the POR.

## 3.1.1 Calculation of Accretions to New Bullards Bar Reservoir Using Mass Balance Methodology

Total daily accretion flow to NBB is calculated using a simple reservoir mass balance equation:

$$NBB\ accretions = NBB\ storage + NBB\ releases - NBB\ gaged\ inflows$$

The components of this equation were defined as follows:

- NBB storage = daily New Bullards Bar Reservoir storage change (USGS Gage 11413515)
- NBB releases = sum of the following daily flows:

  - NBB releases to the Colgate Tunnel (USGS Gage 11413510)
  - NBB minimum flow releases, spills and other releases (USGS Gage 11413520 and data from YWA gages)
- NBB gaged inflows = sum of the following daily flows:
  - North Yuba River above Goodyears Bar (USGS Gage 11413000)
  - Slate Creek above Slate Creek gage (USGS Gage 11413300)
  - Camptonville Tunnel (USGS Gage 11408870 from 1988 to present; calculated using USGS Gages 11409300 and 11409400 on Oregon Creek, 11408850 on the Lohman Ridge Tunnel, and 11408850 and 11408880 on the Middle Yuba River from 1969 to 1988)

Storage in NBB is calculated by measuring the water-surface elevation in the reservoir and converting this to a storage value by using an elevation-versus-storage table that has been established for the reservoir. Although the elevation measurement is made to within one hundredth of a foot, the large surface area of the reservoir makes the daily variation of this measurement rather large and results in a highly variable accretion flow value. To facilitate accretions calculations, total daily accretions were smoothed using 7-day average data for reservoir storage, total inflows, and total releases.[4] However, even using the centered 7-day average data resulted in the calculation of many accretions that were below zero. Given that the Yuba River above the Reservoir and its tributaries are believed to comprise of mostly accretions, it is not likely that seepage losses to groundwater have a large influence on ungaged flows above New Bullards Bar which would be the mechanism that could result in negative values. Therefore, the result of negative accretions is most likely due to the accumulation of data errors. Possible data errors used in accretion calculations include:

- Error in the reservoir stage data used to calculate reservoir storage due to wind or other factors that make the stage measurement inconsistent;
- Measurement error of NBB non-spill releases due to location of the NBB gage close to the dam outlet, where turbulent flow may occur;
- Measurement error of NBB spill releases; and/or
- Measurement error at each USGS gage.

### 3.1.2 Estimation of Accretions to New Bullards Bar Reservoir Using Statistical Regression Methodology

NBB accretions were also estimated using the following linear regression, including terms for both snowmelt- and rainfall-dominated watersheds:

[4] Smoothing was also attempted using a running 7-day average, but it did not smooth as well as the centered average.

$$Q_{ungaged} = xQ_{snow,index\ flow} + yQ_{rain,index\ flow}$$

In this regression, the snow and rain index flows were the daily flows on the North Yuba River at Goodyears Bar and on Oregon Creek above Log Cabin Dam, respectively. Using the Solver tool in Microsoft Excel, the coefficients *x* and *y* were computed to minimize the difference between the calculated NBB accretions and the NBB accretions estimated by the linear regression. The coefficients were optimized as the following:

- $x = 0.26$; and
- $y = 4.39$.

These coefficients suggest that NBB accretions consist of one part snow to 16 parts rain, which is in agreement with the fact that most ungaged flows above the reservoir occur at relatively lower elevations in the watershed, which are typically rainfall-driven. This method provided reasonable results for all time periods.

### 3.1.3 Estimation of Accretions to New Bullards Bar Reservoir using Area-Weighted Flow Methodology

The USGS proposes the following area-weighted relationship between ungaged and gaged flows (Q), drainage areas (A), and Precipitation (P) within a single watershed (USGS 2007):

$$Q_{ungaged} = \left(\frac{A_{ungaged}}{A_{gaged}}\right) \times \left(\frac{P_{ungaged}}{P_{gaged}}\right) \times Q_{gaged}$$

This equation is applied to the North Yuba River watershed by including components for both the snowmelt- and rainfall-dominated parts of the watershed:

$$Q_{ungaged} = \left(\frac{A_{ungaged,snow}}{A_{gaged,snow}}\right) \times \left(\frac{P_{ungaged,snow}}{P_{gaged,snow}}\right) \times Q_{gaged,snow} + \left(\frac{A_{ungaged,rain}}{A_{gaged,rain}}\right) \times \left(\frac{P_{ungaged,rain}}{P_{gaged,rain}}\right) \times Q_{gaged,rain}$$

To solve for accretions to NBB ($Q_{ungaged}$), the upper North Yuba River watershed, described in Section 2.1, was chosen as the index snowmelt-dominated gaged watershed because of the following:

- The majority of its annual flow volume originates as snowmelt;
- Its flows are unimpaired by storage reservoirs or diversion dams;
- It is the largest unimpaired watershed above NBB; and
- Its gage has a long POR (1930 to present).

Although it is not part of the North Yuba River watershed and its flows do not contribute to NBB storage, the upper Oregon Creek watershed, described in Section2.5, was chosen as the index rainfall-dominated gaged watershed for the following reasons:

- Its flows are rainfall-dominated (most of the watershed is below 5,000 feet msl);
- It is unimpaired by upstream dams or reservoirs; and
- Flow data is available for the POR of analysis (1969 to present).

The total gaged and ungaged snowmelt- and rainfall-dominated areas and precipitations are shown in Table 3.1-1. The total ungaged snowmelt-dominated area above NBB ($A_{ungaged,snow}$) is defined as the area of the Canyon Creek watershed. The total ungaged rainfall-dominated area above NBB ($A_{ungaged,rain}$) is defined as the sum of the following watershed areas:

- North Yuba River between Slate Creek and Goodyears Bar (USGS Gage 11413000);
- North Yuba River between Slate Creek and New Bullards Bar Dam;
- Slate Creek below Slate Creek gage (USGS Gage 11413300); and
- Deadwood Creek.

The ratio of the area and precipitation of the Canyon Creek subbasin to the area and precipitation of the North Yuba River above Goodyears Bar is 0.28. The ratio of the area and precipitation of ungaged rainfall-dominated basins to the area and precipitation of the Oregon Creek above Log Cabin Dam subbasin is 4.42. These two ratios were multiplied by the daily flows from the Goodyears Bar gage and Oregon Creek above Log Cabin Dam, respectively, to compute accretions to the subbasin above New Bullards Bar Dam for the POR.

### 3.1.4 Comparison of Accretions Calculation and Estimations

Comparing accretions from the statistical regression and area-weighted flow methodologies with those from the mass balance methodology showed the two estimation methods were well correlated with the mass balance method. A comparison of the coefficients for North Yuba River flow at Goodyears Bar and Oregon Creek above Log Cabin indicate the area-weighted methodology yields very similar values to those determined through a statistical analysis. Comparing the accumulated flow volumes of the area-weighted flow method and the mass balance method indicates a consistent comparison of the two methods through time. Figure 3.1-1 shows the accumulated mass plot comparing the two methods. Since the area-weighted flow methodology is a published approach, and represents hydrologic processes rather than a mathematical solution, it was selected as the most appropriate methodology to estimate accretions to the North Yuba River above New Bullards Bar Dam.

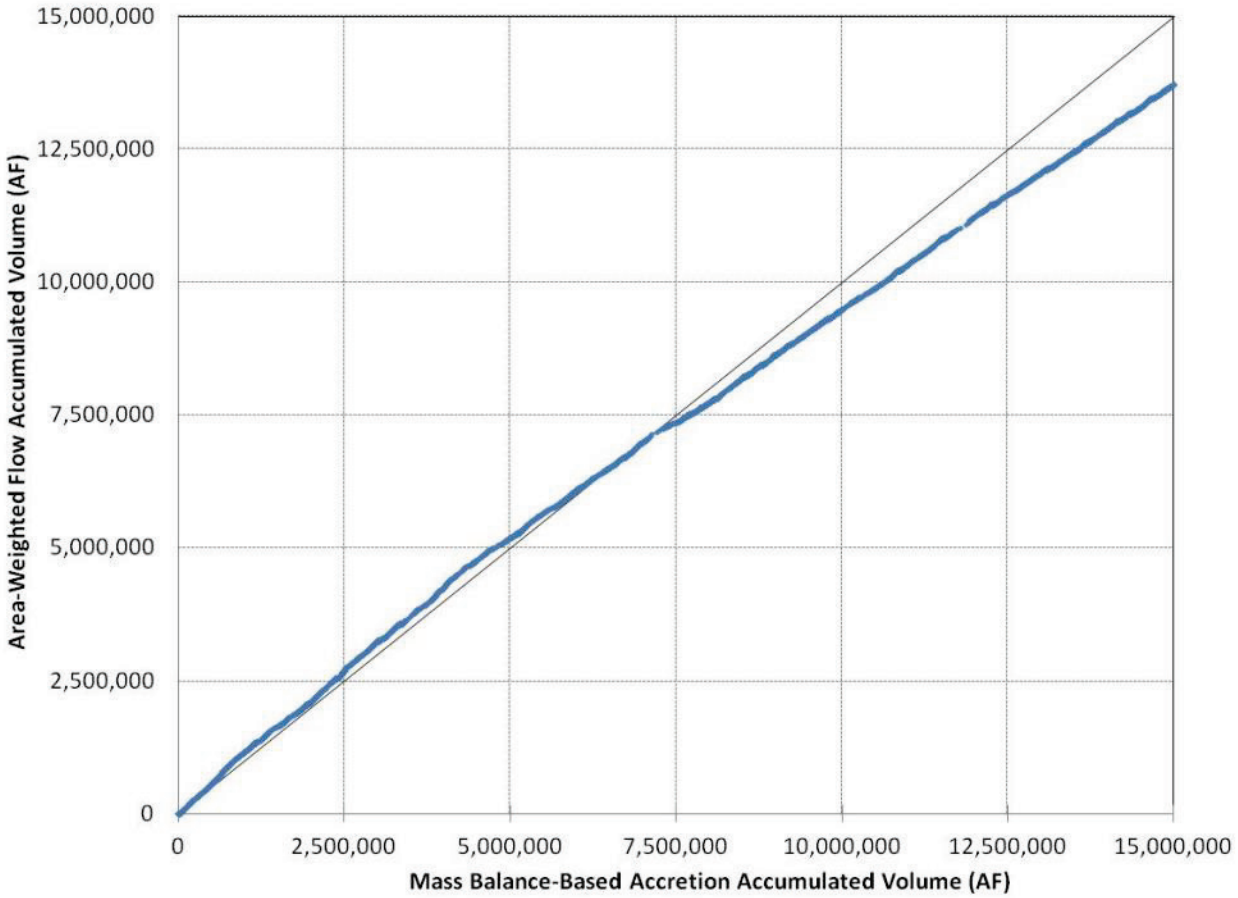


**Figure 3.1-1. Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to New Bullards Bar Reservoir**

An assessment of potential gaging error showed that application of a small variance in the Colgate Powerhouse gage (USGS 11413510) readings, as shown in Table 3.1-2, would improve the overall alignment of the area-weighted flow accumulated volume with the mass balance-based approach. Figure 3.1-2 shows the comparison of the accumulated volumes with the adjustment to the Colgate Powerhouse gage.

**Table 3.1-2. Applied Colgate Powerhouse Gage Correction Factors**

| Period (Water Year) | Factor |
|---|---|
| 1971-1980 | 101% |
| 1981-1994 | 95% |
| 1995-2002 | 94% |
| 2003-2010 | 97% |

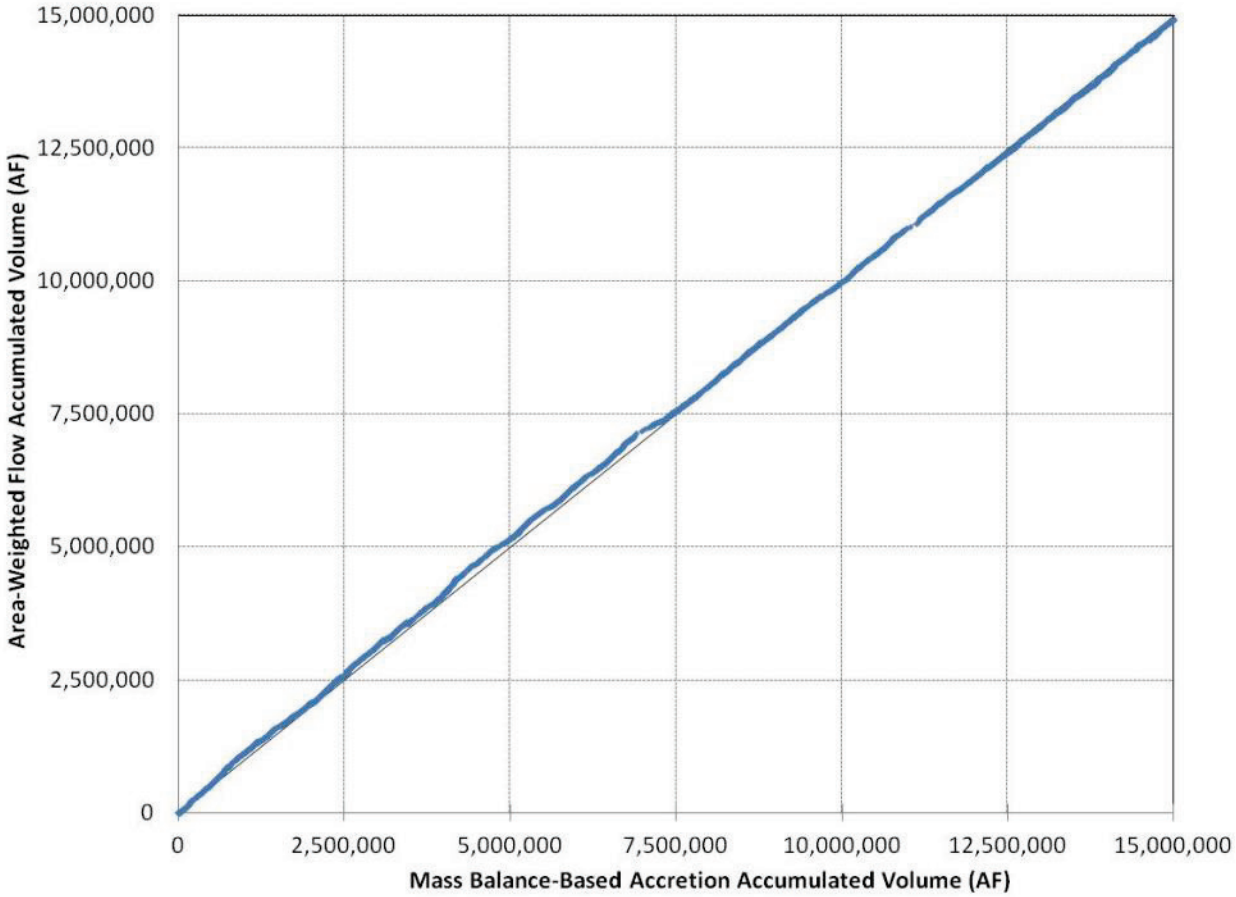


**Figure 3.1-2. Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to New Bullards Bar Reservoir with Colgate Powerhouse Gage Correction**

This correction suggests differences between methods for computing accretions can be explained by potential small gaging errors. Similarly, this indicates the area-weighted flow method described in Section 3.1.3 can successfully be used to compute accretions within acceptable ranges of gaging error. It should be noted that the review of gage error is used to demonstrate the area-weighted flow method attains similar results as the mass-balance method, as shown in Figure 3.1.2, when a small gage correction factor is applied. It is not implied that there is error in the USGS gages, rather that differences between the two methodologies are within reasonable amounts. No adjustments are proposed to the area-weighed method results to compute the final accretions beyond the calculation described in Section 3.1.3.

### 3.1.5 Computation of Ungaged Accretions to North Yuba River above New Bullards Bar Dam Subbasins

Using the area-weighted flow methodology described above, accretions to the North Yuba River above New Bullards Bar Dam can be computed at a subbasin scale. The watershed of the North Yuba River above New Bullards Bar Dam can be divided into several smaller ungaged subbasins. Comparing the areas of the subbasins with an index watershed and multiplying the index watershed flow by the ratio of their areas and precipitations yields the contribution of that

subbasin to the total ungaged accretions from the North Yuba River above New Bullards Bar Dam. Since it is so small, Deadwood Creek is included in the North Yuba River between Slate Creek and New Bullards Bar Dam calculation. Table 3.1-3 shows these subbasins, their areas, average annual precipitations, and their index watersheds.

**Table 3.1-3. Ungaged North Yuba River above New Bullards Bar Dam Subbasins.**

| Subbasin | Area (Square Miles) | Average Annual Precipitation (inches) | Index Watershed | Area-Weighting Ratio |
|---|---|---|---|---|
| North Yuba River between Goodyears Bar and Slate Creek | 40.5 | 72.4 | Oregon Creek above Log Cabin Dam | 1.46 |
| Canyon Creek | 61 | 73.5 | North Yuba River above Goodyears Bar | 0.28 |
| Slate Creek Below Slate Creek Gage | 12 | 76.3 | Oregon Creek above Log Cabin Dam | 0.45 |
| North Yuba River between Slate Creek and New Bullards Bar Dam | 76 | 66.0 | Oregon Creek above Log Cabin Dam | 2.50 |
| Total Area Indexing Oregon Creek | 128.5 | 69.0 | -- | 4.42 |
| Total Area Indexing North Yuba River | 61 | 73.5 | -- | 0.28 |
| Total Ungaged Area | 189.5 | 70.4 | -- | -- |

To confirm all areas were accounted for, subbasin accretions were compared with total ungaged North Yuba River accretions above New Bullards Bar Dam. The total accretion value for all subbasins agreed with the North Yuba River accretion value. Figure 3.1-3 shows the subbasins used to determine ungaged accretions.

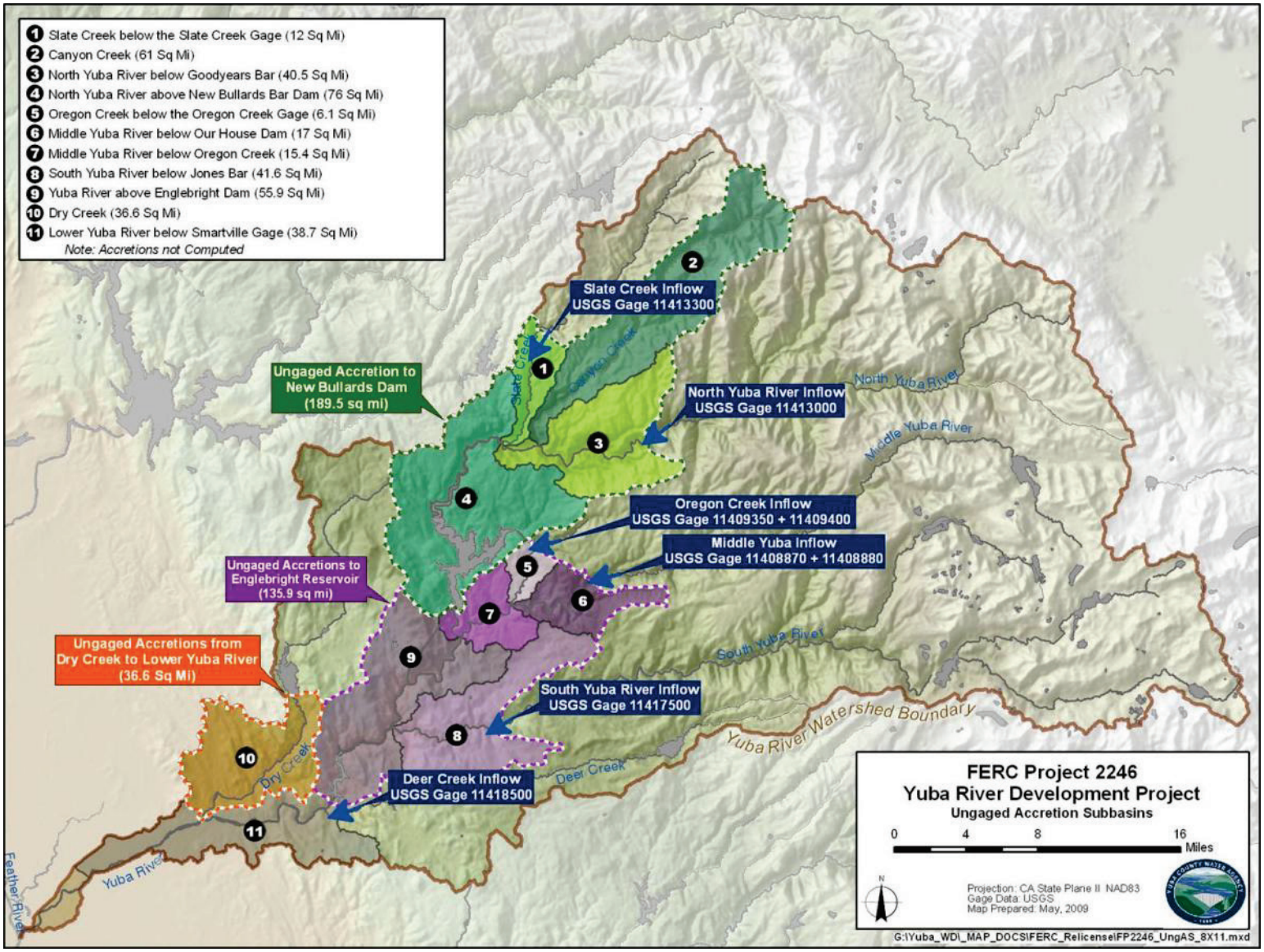


**Figure 3.1-3. Yuba River Ungaged Accretion Subbasins**

## North Yuba River Accretions

Accretions were computed for the North Yuba River between Goodyears Bar and Slate Creek using the methodology described above, comparing the area and precipitation of the North Yuba River subbasin between Goodyears Bar and Slate Creek with the area, precipitation and flow of Oregon Creek above Log Cabin Dam. Table 3.1-4 shows the computed monthly average accretions to the North Yuba River between Goodyears Bar and Slate Creek.

**Table 3.1-4. Monthly Average Accretions to the North Yuba River between Goodyears Bar and Slate Creek.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| North Yuba River Accretions[2] | 5 | 9 | 47 | 142 | 239 | 262 | 280 | 189 | 105 | 37 | 11 | 5 | 80 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] North Yuba River below Goodyears Bar accretions computed for the reach between Goodyears Bar and Slate Creek using methodology described in Section 3.1.5.
Key: cfs=cubic feet per second TAF=thousand acre-feet

## Canyon Creek Accretions

Accretions were computed for Canyon Creek using the methodology described above, comparing the area of the Canyon Creek subbasin with the area and flow of the North Yuba River above Goodyears Bar. Table 3.1-5 shows the computed monthly average accretions to the Canyon Creek.

**Table 3.1-5. Monthly Average Accretions to Canyon Creek.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Canyon Creek Accretions[2] | 42 | 48 | 98 | 185 | 271 | 281 | 344 | 382 | 469 | 289 | 100 | 50 | 154 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] Canyon Creek accretions computed using methodology described in Section 3.1.5.
Key: cfs=cubic feet per second TAF=thousand acre-feet

## Slate Creek Accretions

Accretions were computed for Slate Creek for the reach between the Slate Creek Diversion Dam and Slate Creek's confluence with the North Yuba River using the methodology described above, comparing the area of the subbasin contributing to Slate Creek between the Slate Creek Diversion Dam and Slate Creek's confluence with the North Yuba River with the area and flow of Oregon Creek above Log Cabin Dam. Table 3.1-6 shows the computed monthly average accretions to Slate Creek between the Slate Creek Diversion Dam and the Slate Creek's confluence with the North Yuba River.

**Table 3.1-6. Monthly Average Accretions to Slate Creek between the Slate Creek Diversion Dam and Slate Creek's Confluence with the North Yuba River.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Slate Creek Accretions[2] | 2 | 3 | 15 | 44 | 75 | 82 | 87 | 59 | 33 | 12 | 3 | 2 | 25 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] Slate Creek below Slate Creek Diversion Dam accretions computed for the reach between the Slate Creek Diversion Dam and Slate Creek's confluence with the North Yuba River using methodology described in Section 3.1.5.
Key: cfs=cubic feet per second TAF=thousand acre-feet

### Accretions to New Bullards Bar Reservoir

Accretions were computed for the subbasin contributing to inflows directly to NBB and the North Yuba River below the Slate Creek confluence using the methodology described above, comparing the area of the subbasin contributing to NBB with the area and flow of Oregon Creek above Log Cabin Dam. Table 3.1-7 shows the computed monthly average accretions to NBB.

**Table 3.1-7. Monthly Average Accretions New Bullards Bar Reservoir.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Accretions to New Bullards Bar Reservoir[2] | 8 | 16 | 80 | 243 | 409 | 447 | 478 | 322 | 179 | 63 | 18 | 9 | 136 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] New Bullards Bar Reservoir accretions computed for the area between the confluence of the North Yuba River and Slate Creek and New Bullards Bar Dam using methodology described in Section 3.1.5.
Key: cfs=cubic feet per second TAF=thousand acre-feet

## 3.1.6 Computation of New Bullards Bar Reservoir Evaporation

Evaporation from NBB is a notable factor in Yuba River hydrologic analysis. Since direct measurement of evaporation is impractical, quantification of evaporative losses from the reservoir relies upon previous analyses. As a part of the development of a USACE Hydrologic Engineering Center (HEC)-3 model, the California Department of Water Resources (DWR) developed a monthly pattern of evaporation for NBB. Table 3.1.8 has the monthly evaporation rates from the HEC-3 model.

**Table 3.1-8. Monthly Evaporation Rates for New Bullards Bar Reservoir.**

| Location | Monthly Evaporation Rate (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| New Bullards Bar Reservoir | 4.31 | 1.67 | 1.04 | 0.93 | 1.7 | 2.44 | 3.21 | 4.13 | 6.48 | 7.78 | 7.24 | 5.08 |

Notes: From DWR HEC-3 Yuba River Watershed Model. January 1985

Applying these reservoir evaporation rates to historical daily NBB water surface areas yields historical evaporation volumes. Table 3.1-9 shows historical monthly average NBB evaporation, based on published evaporation rates.

**Table 3.1-9. Historical Monthly Average New Bullards Bar Reservoir Evaporation.**

| Location | Average[1] Monthly Evaporation (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| New Bullards Bar Reservoir[2] | 20 | 8 | 5 | 4 | 9 | 12 | 18 | 24 | 39 | 44 | 37 | 25 | 15 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] New Bullards Bar Reservoir evaporation computed by multiplying reservoir evaporation rates from Table 3.1-7 with historical reservoir water surface areas.
Key: cfs = cubic feet per second TAF= thousand acre-feet

# 3.2 Accretions to Englebright Reservoir

Accretions to Englebright Reservoir and the Yuba River below New Bullards Bar Dam contribute to the operations of Englebright Dam. Therefore, they need to be accounted for when determining flows within the Project Area. In a similar process to the one used to determine North Yuba River accretions to NBB, accretions to Englebright Reservoir were computed using a mass balance methodology, using change in storage and releases from Englebright Dam to compute total inflow to the reservoir. Local accretions were computed by subtracting known inflows from Oregon Creek and the Middle and South Yuba rivers. . Changes in Englebright Reservoir elevation and storage are highly variable, since Englebright Reservoir is used as a regulating afterbay to NBB and the surface area of Englebright Reservoir is relatively small compared with flows from NBB releases.. During normal operations, releases from Englebright Dam to the lower Yuba River are kept at a relatively consistent rate throughout a week, but releases from NBB are highly variable, reflecting changing release rates for power generation. Due to the high degree of daily and hourly variation of Englebright Reservoir storage, using daily storage values to compute accretions to Englebright Reservoir leads to extremely inconsistent values. In an effort to smooth accretions, a 7-day average storage, release, and gaged inflow was used to compute accretions to Englebright Reservoir:

$$\textit{Englebright accretions} = \textit{Englebright storage} + \textit{Englebright releases} - \textit{Englebright gaged inflows}$$

The components of the mass balance were defined as follows:

- Englebright storage = daily storage Reservoir change data (data from YWA)
- Englebright Dam releases = flow below Englebright Dam at Smartsville (data from USGS Gage 11418000)
- Englebright Dam gaged inflows = sum of the following daily flows:
    - NBB minimum flow releases, spills and other releases (data from USGS Gage 11418000 and YWA gages)
    - NBB releases to the Colgate Tunnel (data from USGS Gage 11413510)

- Oregon Creek above Log Cabin Dam (data from USGS Gage 11409300 from 1969 to 2000; calculated using USGS Gages 11409350, 11409400, and 11408870 from 2000 to present)
- Middle Yuba River above Our House Dam (data from USGS Gage 11413000)
- South Yuba River at Jones Bar (data from USGS Gage 11413300)

Despite the use of the 7-day average for flows and storage, resulting accretions remain more variable than would be expected in a natural system. Accordingly, the area-weighted flow methodology validated for computing accretions to the North Yuba River above New Bullards Bar Dam is applied to compute Yuba River accretions above Englebright Dam. Due to the lower elevations of the ungaged basins tributary to the Yuba River above Englebright Dam, no snowmelt component is included; instead, only the rain-fall aspect of the methodology for the North Yuba River tributaries is used.

$$Q_{ungaged} = \left(\frac{A_{ungaged,rain}}{A_{gaged,rain}}\right) \times \left(\frac{P_{ungaged,rain}}{P_{gaged,rain}}\right) \times Q_{gaged,rain}$$

Since NBB accretions estimated using an Oregon Creek index correlate well with the mass-balance calculated NBB accretions, a similar assumption is used to compute accretions to Englebright Reservoir and the Oregon Creek watershed above Log Cabin Dam is used as the gaged index area having representative rainfall-dominated unimpaired flows. The ungaged area is defined as the sum of the areas summarized in Table 3.2-1.

**Table 3.2-1. Sources of Inflows to Englebright Reservoir.**

| Subbasin | Area (square miles) | Average Annual Precipitation (inches) | Area-Weighting Ratio |
|---|---|---|---|
| North Yuba River below NBB | 2 | 56.8 | 0.054 |
| Oregon Creek above Log Cabin Dam | 29 | 68.8 | Gaged |
| Oregon Creek below Log Cabin Dam | 6 | 60.1 | 0.183 |
| Middle Yuba River above Our House Dam | 144 | 64.9 | Gaged |
| Middle Yuba River between Our House Dam and Oregon Creek | 9 | 60.7 | 0.276 |
| Middle Yuba River below Oregon Creek | 14 | 54.8 | 0.369 |
| South Yuba River above Jones Bar Gage | 310 | 65.4 | Gaged |
| South Yuba River below Jones Bar Gage | 42 | 48.4 | 1.006 |
| Yuba River above Colgate Powerhouse | 15 | 49.8 | 0.363 |
| Yuba River between Colgate Powerhouse and Englebright Dam | 41 | 41.2 | 0.850 |
| Total Ungaged Area | 136 | 49.2 | 3.339 |

### 3.2.1 Comparison of Englebright Accretions Calculation and Estimation

The lack of correlation between the two timeseries is likely due primarily to errors in the data used in the summation methodology as described above. Possible sources of error include:

- Error in the reservoir stage data used to calculate reservoir storage due to wind or other factors that make the stage measurement inconsistent;
- Measurement error of Englebright Dam non-spill releases due to location of the Englebright Dam gage close to the dam outlet, where turbulent flow may occur;
- Inaccurate gaging of Englebright Dam spill releases, especially because Englebright Dam spills often; and/or
- Measurement error of at each USGS gage, particularly the Colgate Powerhouse releases and the Smartsville gage.

When comparing accretions determined through the mass-balance methodology with those determined using the area-weighted flow methodology, there is a notable disparity in accumulated volume. As shown in Figure 3.2-1, the difference in rate of accumulated volume between the two methodologies varies greatly in total and through time. This suggests a variable gage error through time. The assumed source of most of the differences between these two methods are gage errors associated with the Colgate Powerhouse and Smartsville gages used in the mass balance calculation. Since the volume of flow measured by these gages is significantly greater than the volume of flow otherwise calculated as an accretion, these two gages are the likely source of differences. For example, while the accumulated flow of the mass balance accretion totals approximately 3 MAF, the total flow measured at the Smartsville gage is about 67 MAF, or more than 20 times the amount of flow that is being evaluated. Therefore, an error in gage measurement of 5% at the Smartsville gage, considered by the USGS to have a “good” stream gage rating, would result in as much as 3.35 MAF (5% of 67 MAF) of accumulated error.

Using the Colgate Powerhouse correction factors described in Section 3.1.4 and identifying approximate errors of Smartsville gage flows according to obvious breakpoints, a substantially improved agreement between the two methodologies was reached. Figure 3.2-2 shows the comparison of accumulated volume after applying the gage correction factors shown in Table 3.2-2.

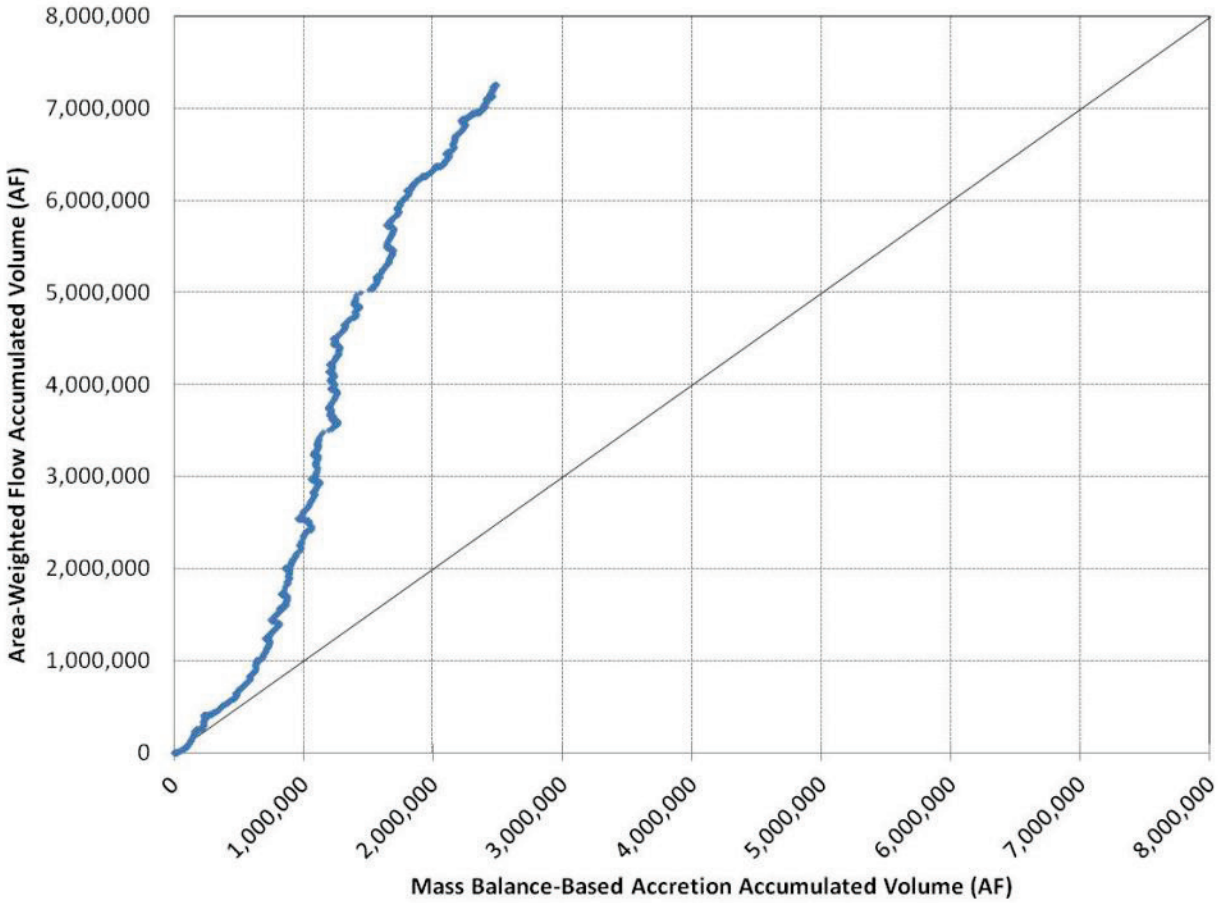


**Figure 3.2-1. Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to Englebright Reservoir**

**Table 3.2-2. Applied Smartsville Gage Correction Factors**

| Period (Water Year) | Correction |
|---|---|
| 1971-1977 | 106% |
| 1978-1994 | 108% |
| 1995-2010 | 102% |

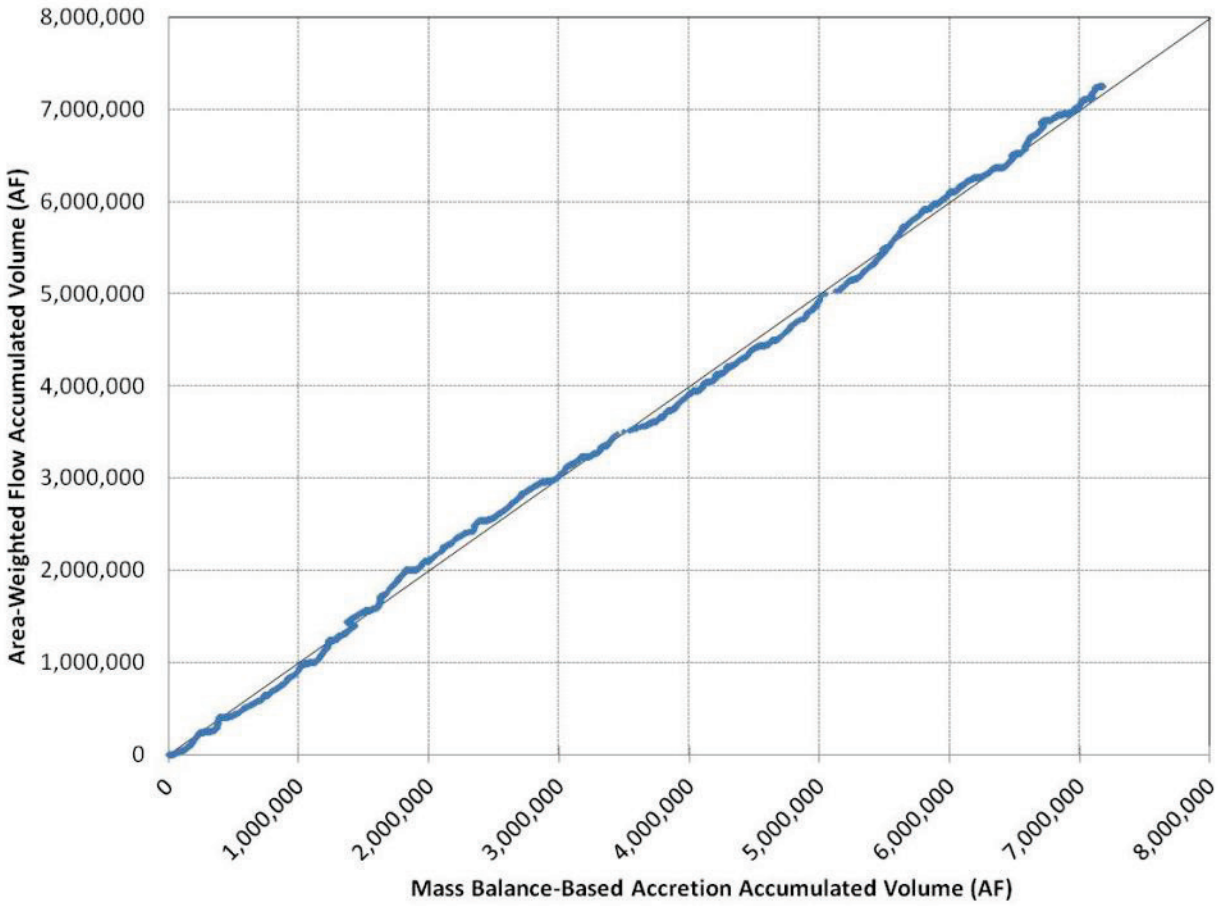


**Figure 3.2-2. Comparison of Accumulated Volumes for Various Methodologies of Estimating Accretions to Englebright Reservoir with Gage Correction Factors**

As described in Section 3.1.4, this correction suggests differences between methods for computing accretions can be explained by potential small gaging errors. It is also reasonable to assume gage accuracy can be affected by hydrologic events. This also indicates the area-weighted flow method described in Section 3.2.1 can successfully be used to compute accretions within acceptable ranges of gaging error.

## 3.2.2 Computation of Ungaged Accretions from Subbasins to the Yuba River above Englebright Dam

As described in Section 3.1.5, using the area-weighted flow methodology, ungaged Yuba River accretions above Englebright Dam can be allocated to individual subbasins. Table 3.2-1 shows the ungaged subbasins contributing to total ungaged Yuba River accretions above Englebright Dam. Oregon Creek above Log Cabin Dam is used as the index watershed for all subbasins.

As computed for the ungaged North Yuba River accretions above New Bullards Bar Dam, ungaged Yuba River accretions above Englebright Dam from the individual subbasins are added together and compared to the total Yuba River accretions above Englebright Dam to ensure all areas have been included.

## Middle Yuba River (Middle Reach) Accretions

Accretions were computed for the Middle Yuba River between Our House Dam and Oregon Creek using the methodology described above, comparing the area of the Middle Yuba River between Our House Dam and Oregon Creek with the area and flow of Oregon Creek above Log Cabin Dam. Table 3.2-3 shows the computed monthly average accretions to the Middle Yuba River between Our House Dam and Oregon Creek.

**Table 3.2-3. Monthly Average Accretions to the Middle Yuba River between Our House Dam and Oregon Creek.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Middle Yuba River (Middle Reach) Accretions[2] | 2 | 3 | 16 | 50 | 85 | 95 | 98 | 66 | 37 | 13 | 4 | 2 | 28 |

Notes:
1 Period of Record: 10/1/1969 through 9/30/2020
2 Middle Yuba River below Our House Dam accretions computed for the reach between Our House Dam and Oregon Creek using methodology described in Section 3.2.2.
Key: cfs=cubic feet per second TAF=thousand acre-feet

## Middle Yuba River (Lower Reach) Accretions

Accretions were computed for the Middle Yuba River below Oregon Creek using the methodology described above, comparing the area of the Middle Yuba River below Oregon Creek with the area and flow of Oregon Creek above Log Cabin Dam. Table 3.2-4 shows the computed monthly average accretions to the Middle Yuba River below Oregon Creek.

**Table 3.2-4. Monthly Average Accretions to the Middle Yuba River below Oregon Creek.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Middle Yuba River (Lower Reach) Accretions | 1 | 2 | 12 | 36 | 61 | 68 | 71 | 48 | 26 | 9 | 3 | 1 | 20 |

Notes:
1 Period of Record: 10/1/1969 through 9/30/2020
2 Middle Yuba River below Oregon Creek accretions computed for reach between Oregon Creek and the confluence of the Middle Yuba River and the North Yuba River using methodology described in Section 3.2.2.
Key: cfs=cubic feet per second TAF=thousand acre-feet

## Oregon Creek Accretions

Accretions were computed for Oregon Creek below Log Cabin Dam using the methodology described above, comparing the area of Oregon Creek below Log Cabin Dam with the area and flow of Oregon Creek above Log Cabin Dam. Table 3.2-5 shows the computed monthly average accretions to Oregon Creek below Log Cabin Dam.

**Table 3.2-5. Monthly Average Accretions to the Oregon Creek below Log Cabin Dam.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Oregon Creek Accretions[2] | 1 | 1 | 6 | 18 | 30 | 34 | 35 | 24 | 13 | 5 | 1 | 1 | 10 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] Oregon Creek below Log Cabin accretions computed for the reach between Log Cabin and the confluence of the Oregon Creek and the Middle Yuba River using methodology described in Section 3.2.2.
Key: cfs=cubic feet per second TAF=thousand acre-feet

## South Yuba River Accretions

Accretions were computed for the South Yuba River below Jones Bar using the methodology described above, comparing the area of the South Yuba River below Jones Bar with the area and flow of Oregon Creek above Log Cabin Dam. Table 3.2-6 shows the computed monthly average accretions to the South Yuba River below Jones Bar.

**Table 3.2-6. Monthly Average Accretions to the South Yuba River below Jones Bar.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| South Yuba River Accretions[2] | 3 | 6 | 32 | 98 | 166 | 185 | 192 | 130 | 72 | 25 | 7 | 3 | 55 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] South Yuba River below Jones Bar accretions computed for Oregon Creek between Jones Bar and the confluence of the South Yuba River and the Yuba River using methodology described in Section 3.2.2.
Key: cfs=cubic feet per second TAF=thousand acre-feet

## Accretions to Englebright Reservoir

Accretions were computed the subbasin contributing to inflows directly to Englebright Reservoir below the Middle Yuba River using the methodology described above, comparing the area of the subbasin contributing to Englebright Reservoir with the area and flow of Oregon Creek above Log Cabin Dam. Table 3.2-7 shows the computed monthly average accretions to Englebright Reservoir.

**Table 3.2-7. Monthly Average Accretions to Englebright Reservoir.**

| Location | Average[1] Monthly Accretions (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Accretions to Englebright Reservoir[2] | 4 | 7 | 39 | 115 | 199 | 219 | 229 | 155 | 88 | 30 | 9 | 4 | 66 |

Notes:
[1] Period of Record: 10/1/1969 through 9/30/2020
[2] Englebright Reservoir accretions computed for the area between the Middle Yuba River and Englebright Dam using methodology described in Section 3.2.2.
Key: cfs=cubic feet per second TAF=thousand acre-feet

### 3.2.3 Computation of Englebright Reservoir Evaporation

Similar to NBB, Englebright Reservoir evaporation can play a substantial role in the hydrologic analysis of the watershed. Since Englebright Reservoir's water surface elevation does not have a dramatic seasonal or monthly change, a constant water surface area of 810 acres is used for analysis. Monthly evaporation rates for Englebright Reservoir, published by DWR as part of the HEC-3 model of the Yuba River watershed, are shown in Table 3.2-8.

**Table 3.2-8. Monthly Englebright Reservoir Evaporation Rates.**

| Location | Monthly Evaporation Rate (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
| Englebright Reservoir | 5.03 | 1.95 | 1.21 | 1.09 | 1.99 | 2.85 | 3.75 | 4.83 | 7.58 | 9.09 | 8.46 | 5.94 |

Source: From DWR HEC-3 Yuba River Watershed Model. January 1985

Applying the monthly evaporation rates to the constant reservoir surface area yields average monthly evaporation volumes, as shown in Table 3.2-9.

**Table 3.2-9. Monthly Englebright Reservoir Evaporation Volumes.**

| Location | Monthly Evaporation (AF) | | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Englebright Reservoir[1] | 401 | 340 | 132 | 82 | 74 | 134 | 192 | 253 | 326 | 512 | 614 | 571 | 3,629 |

Notes:
[1] Englebright Reservoir evaporation computed by multiplying reservoir evaporation rates from Table 3.2-7 with reservoir surface area of 810 acres.
Key: AF= acre-feet

### 3.2.4 Accretion Correction for Large Flood Events

The area-weighted scaling method used to calculate reservoir accretion was validated using gage summation. Gage summation is the sum of the change in reservoir storage plus gaged outflows minus gage inflow. The remainder of this calculation is the ungaged accretion. A comparison of daily average accretion values calculated by gage summation and by area-weighted scaling showed that the area-weighted scaling method characterized accretion well overall, except during large flood events resulting in an underestimation of local reservoir accretion. Accretion values for large flood events were corrected to represent the gage summation accretion values rather than the area-weighted scaling accretion values. The corrections were applied for at least 1 week prior to the peak inflow and 1 week after the peak inflow unless additional days were needed for both accretion methods to converge. Dates where corrections were applied include:

- February 10, 1986 – February 24, 1986;
- March 3, 1995 – March 17, 1995;
- December 25, 1996 – January 8, 1997;
- December 19, 2005 – January 7, 2006;
- January 1, 2017 – January 15, 2017; and
- February 2, 2017 – February 16, 2017.

For each reservoir, multiple sub-basins contribute to ungaged accretion. Gage summation accretion was distributed between sub-basins by using their relative contribution to the total area-weighted scaling reservoir accretion.

Figures 3.2-3 through 3.2-8 show a comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir for the storms listed above. Figures 3.2-9 through 3.2-14 show a comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir for the storms listed above.

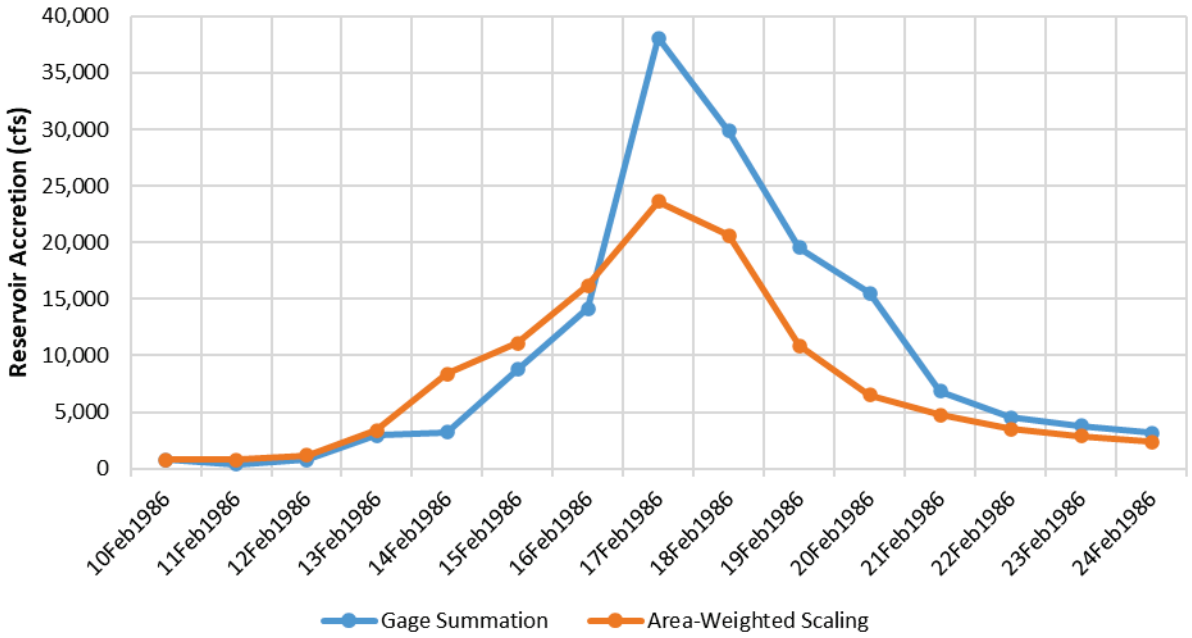


**Figure 3.2-3. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, February 10 through 24, 1986.**

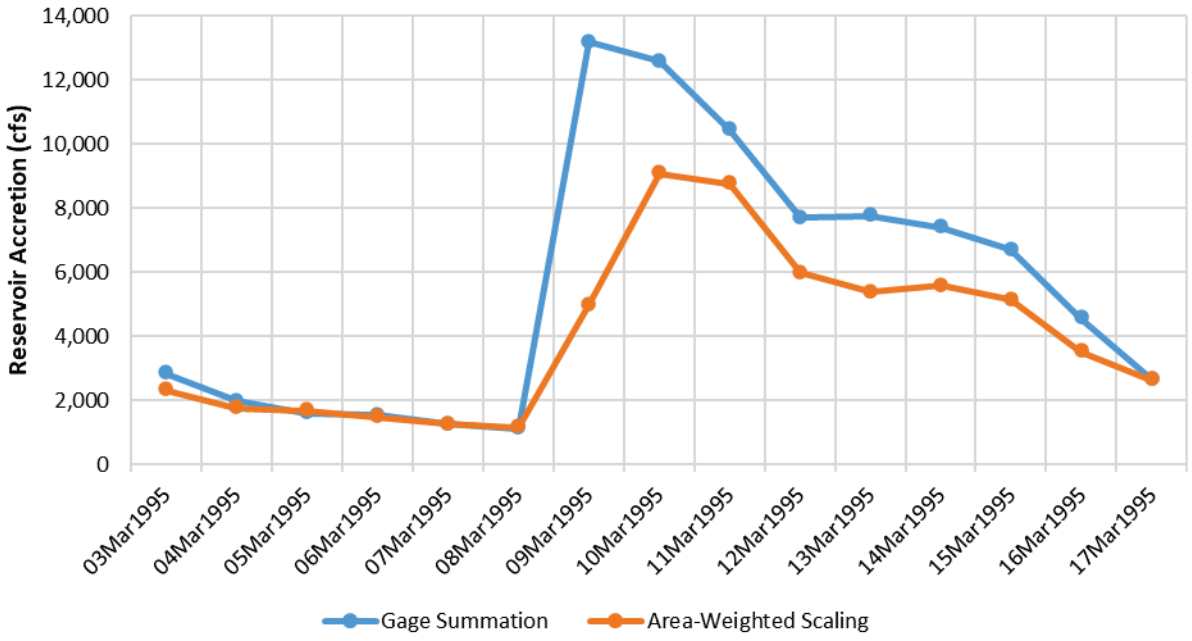


**Figure 3.2-4. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, March 3 through March 17, 1995.**

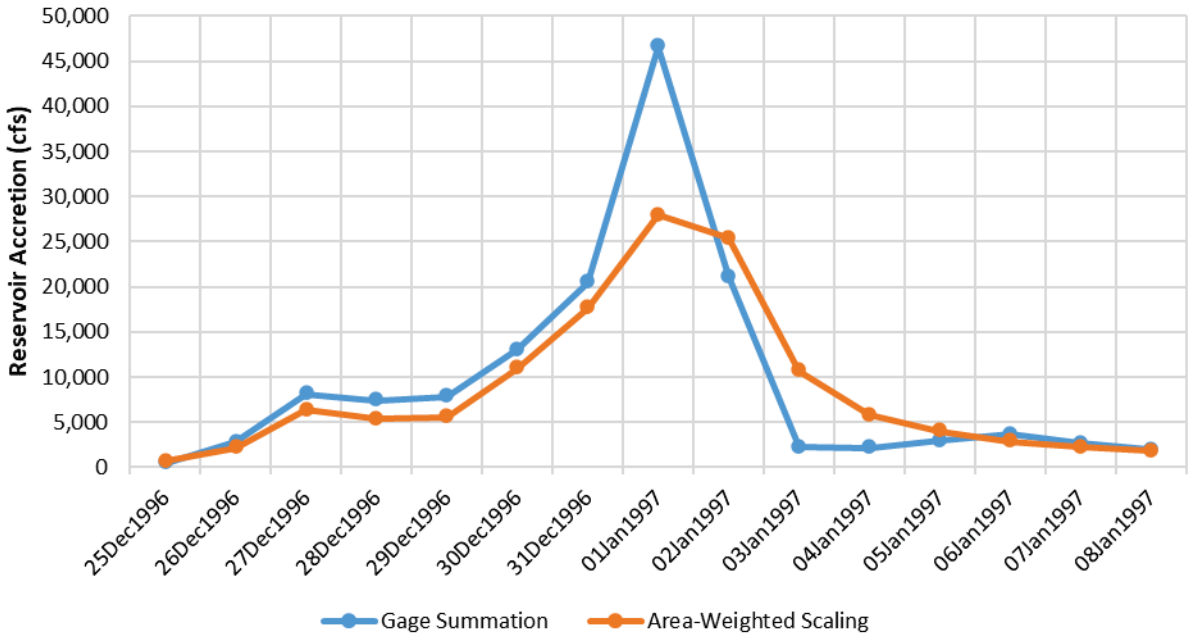


**Figure 3.2-5. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, December 25, 1996 through January 8, 1997.**

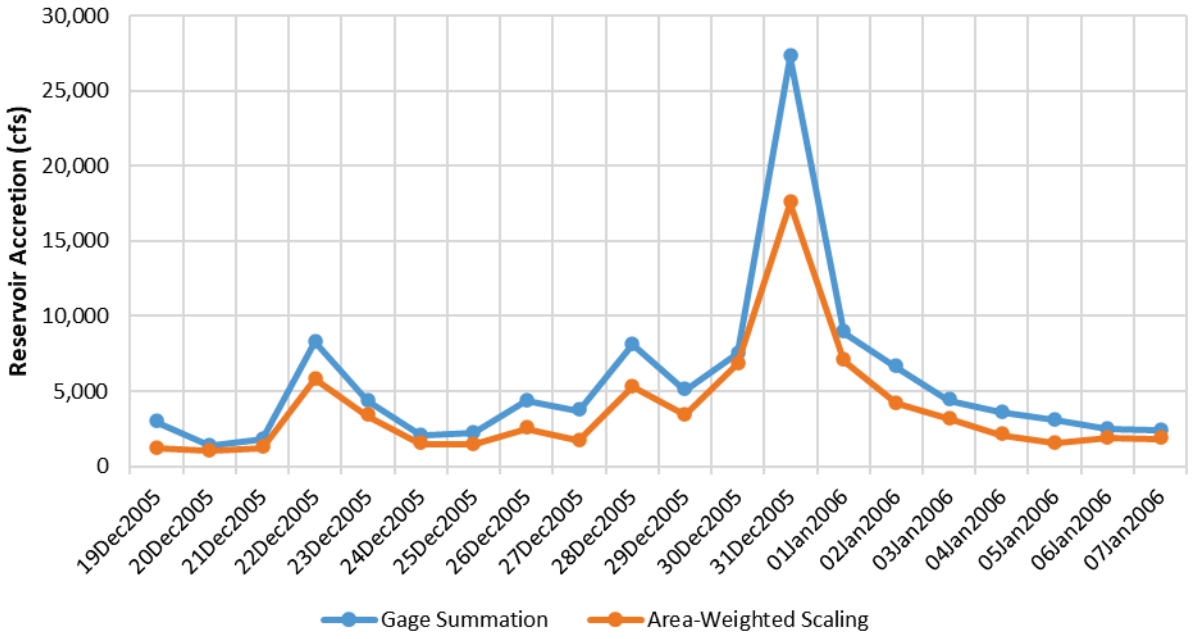


**Figure 3.2-6. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, December 19, 2006 through January 7, 2006.**

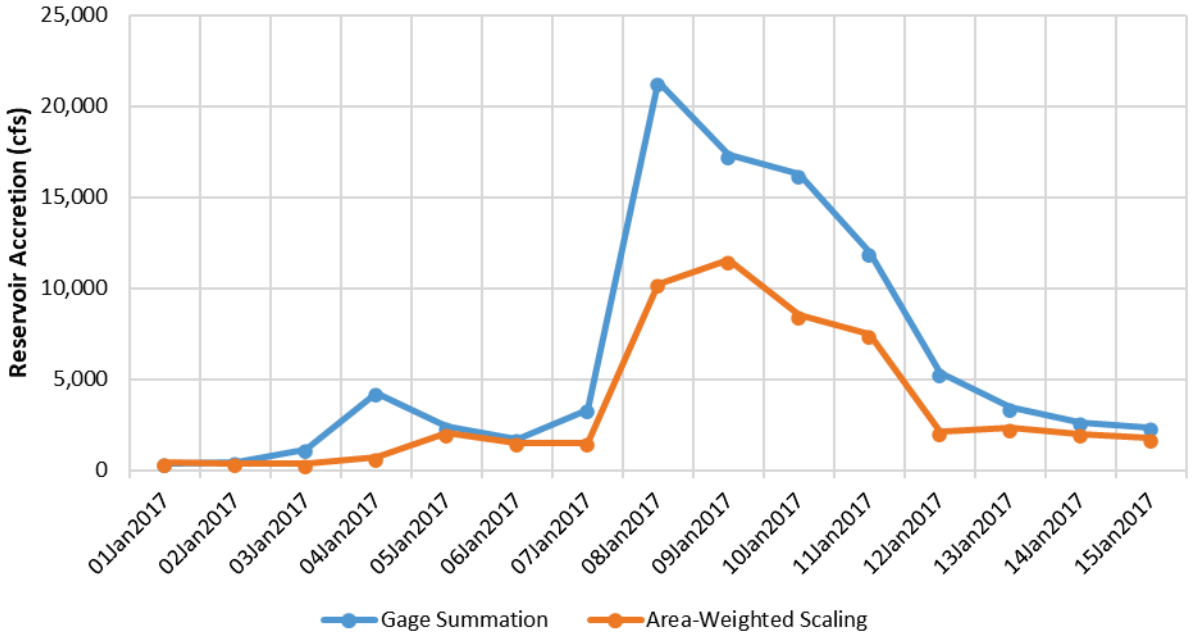


**Figure 3.2-7. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, January 1 through February 15, 2017.**

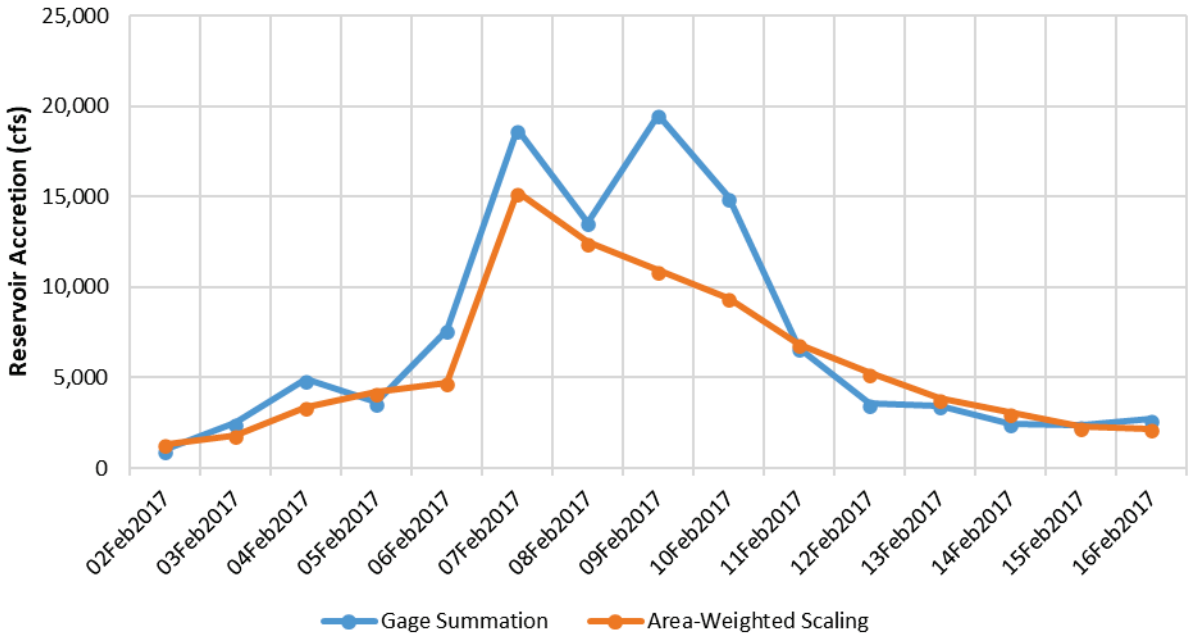


**Figure 3.2-8. Comparison of calculated accretion using gage summation and area-weighted scaling for New Bullard Bar Reservoir, February 7 through February 16, 2017.**

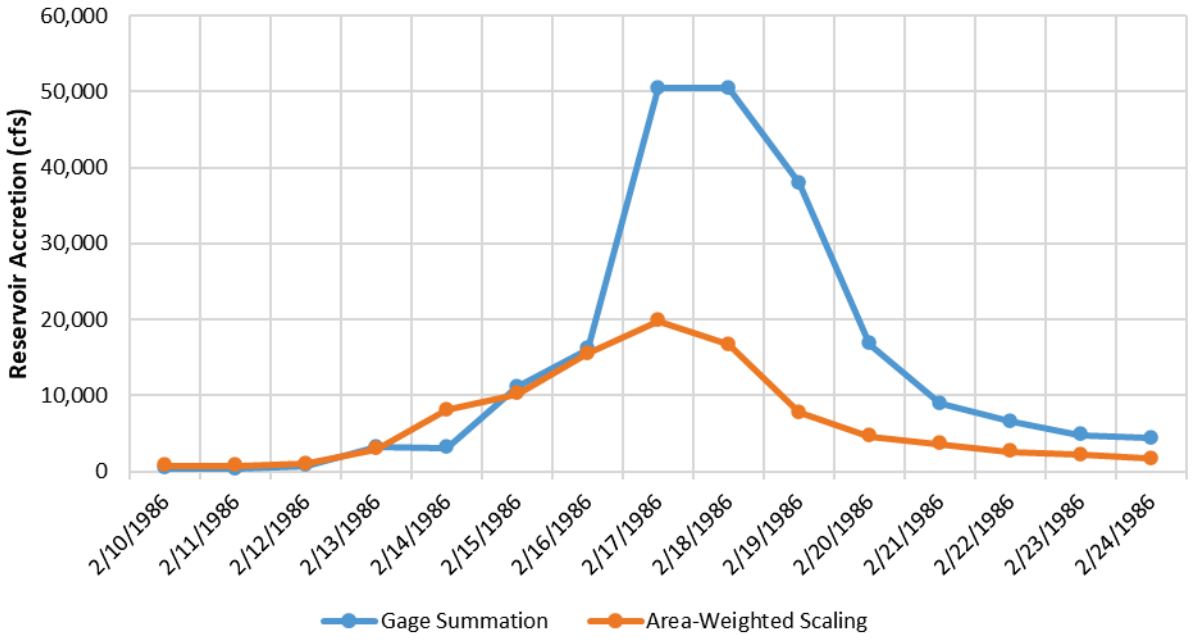


**Figure 3.2-9. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, February 10 through 24, 1986.**

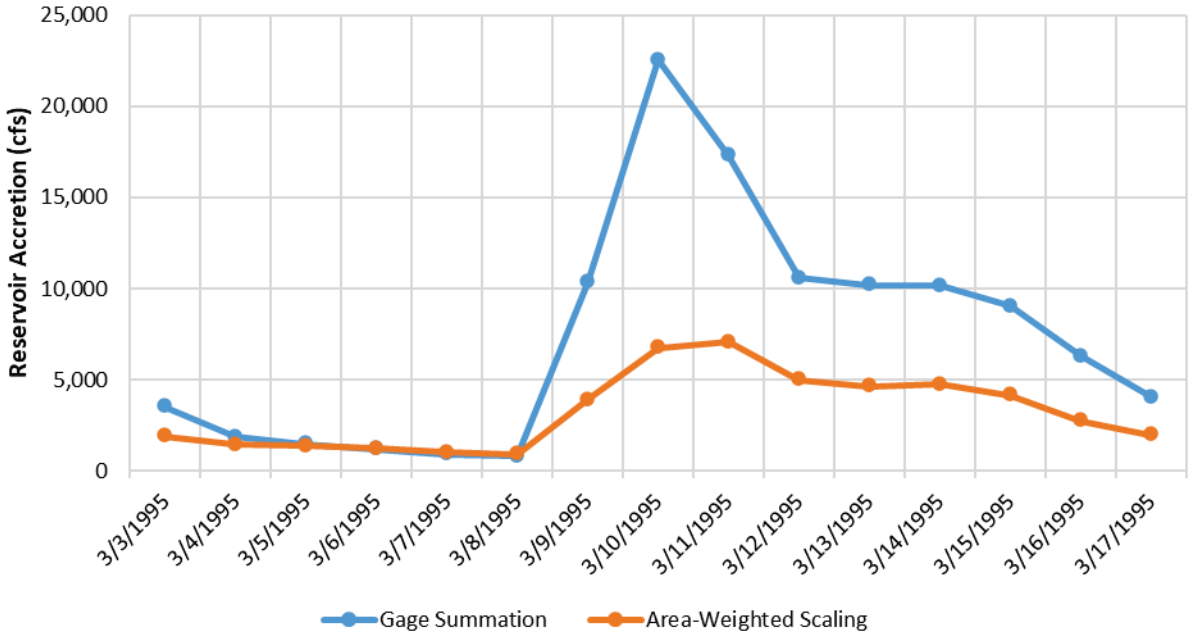


**Figure 3.2-10. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, March 3 through March 17, 1995.**

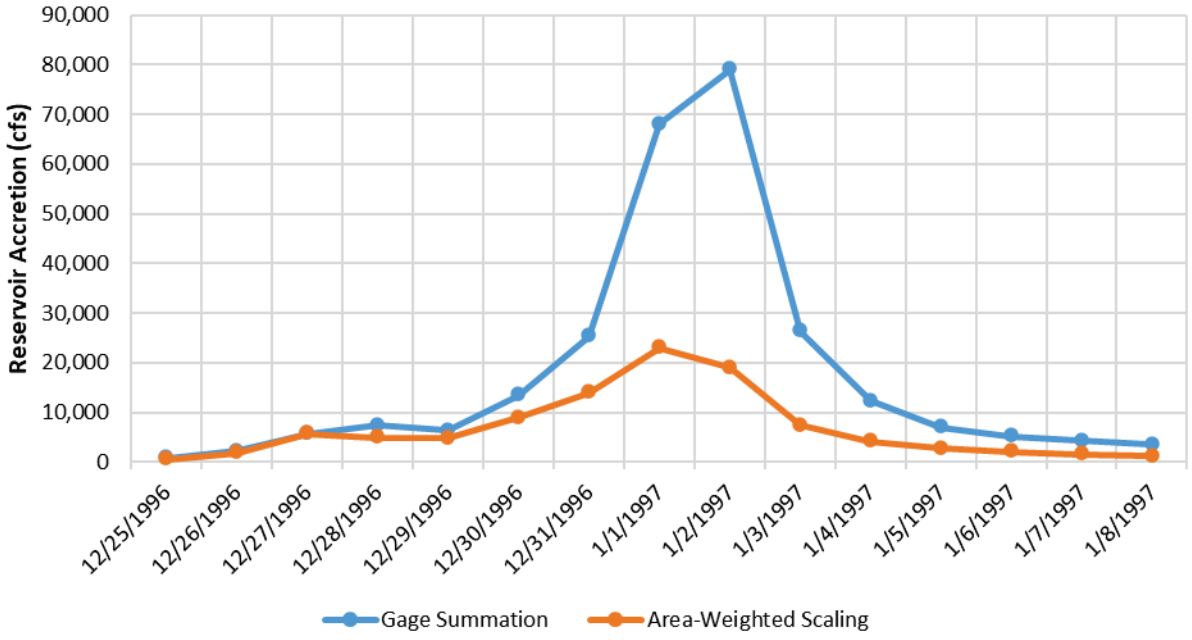


**Figure 3.2-11. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, December 25, 1996 through January 8, 1997.**

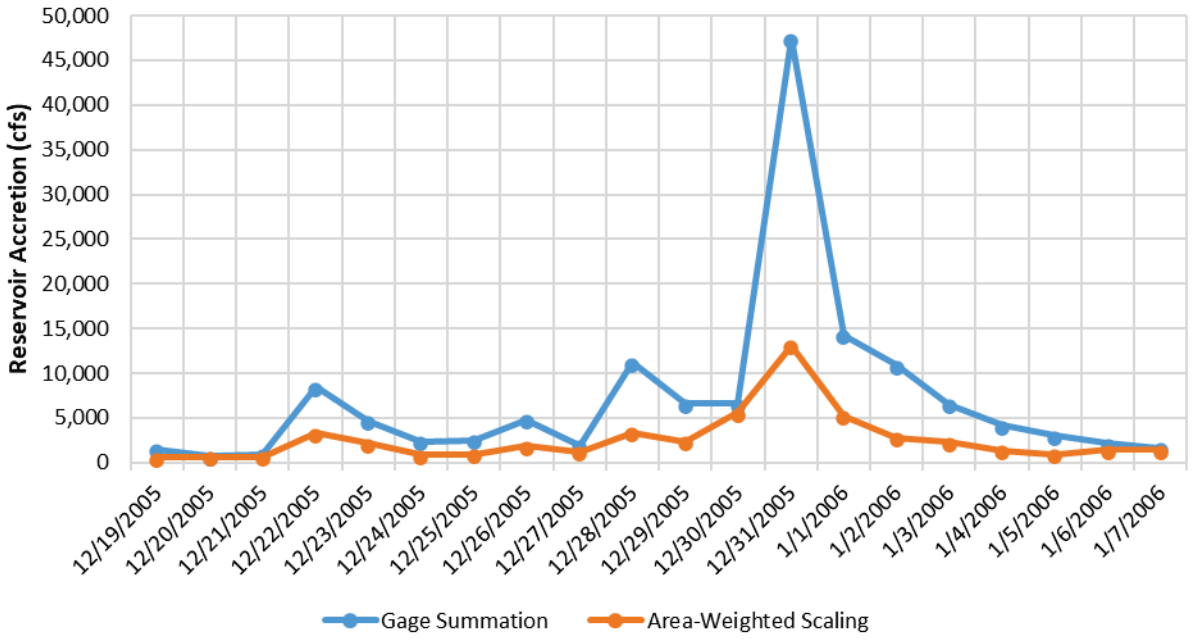


**Figure 3.2-12. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, December 19, 2006 through January 7, 2006.**

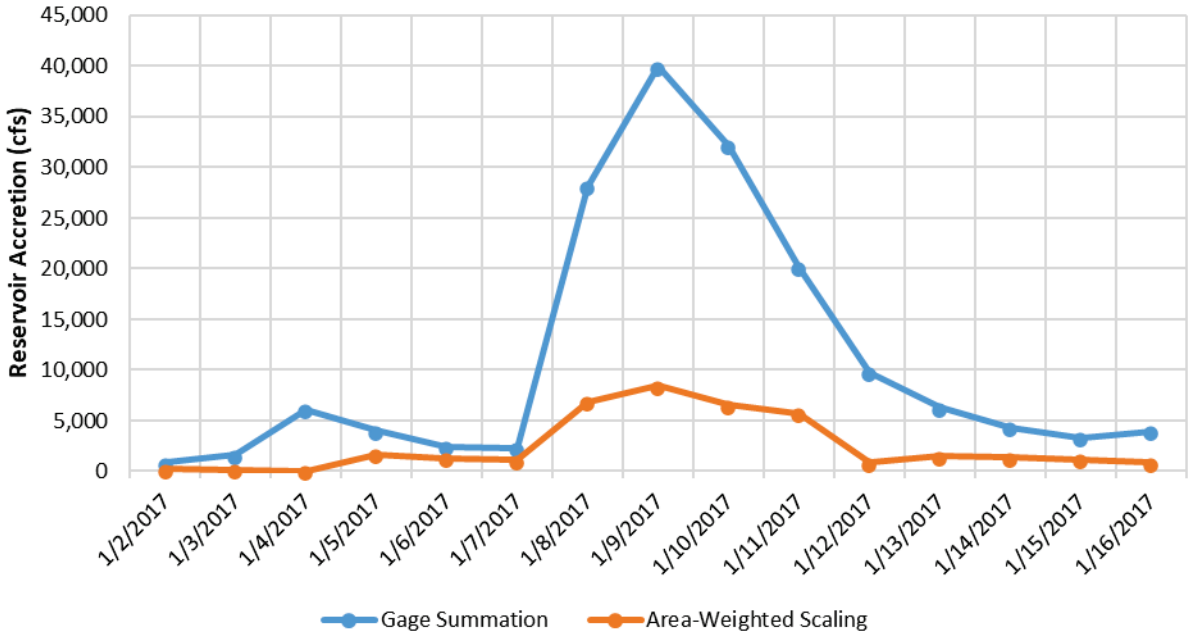


**Figure 3.2-13. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, January 2 through February 16, 2017.**

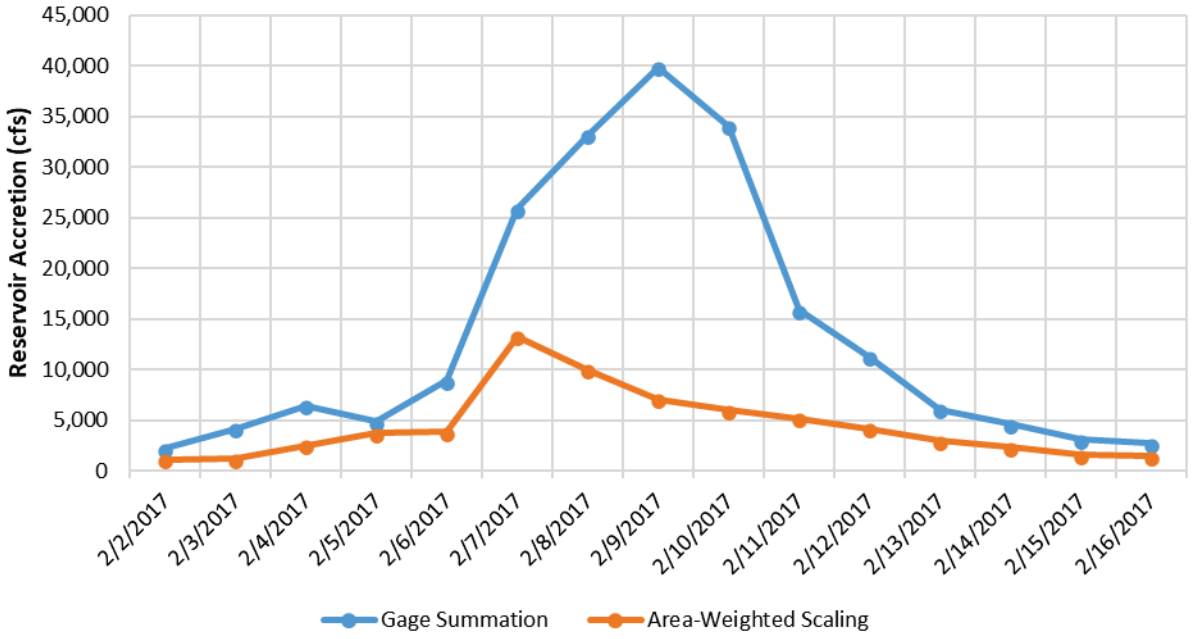


**Figure 3.2-14. Comparison of calculated accretion using gage summation and area-weighted scaling for Englebright Reservoir, February 2 through February 16, 2017.**

## 3.3 Lower Yuba River Accretions

This section describes accretions to the lower Yuba River. The Lower Yuba River is defined as the reach between Englebright Dam and the confluence of the Yuba River and the Feather River. Lower Yuba River accretions and depletions were calculated using the mass balance approach discussed in the NBB and Englebright Reservoir sections above. The positive ungaged flows calculated using this mass balance are considered to be accretions, and the negative ungaged flows as depletions.

$$MRY_{accretions} = (MRY_{gage} + DGP) - (DC_{gage} + SM_{gage})$$ where

$MRY_{accretions}$= lower Yuba River accretions;

$MRY_{gage}$ = Marysville gage flows;

$DGP$ = Daguerre Point Dam diversions;

$DC_{gage}$ = Deer Creek gage flows; and

$SM_{gage}$ = Smartsville gage flows.

The Marysville, Deer Creek and Smartsville flows are from USGS gages 11421000, 11418500, and 11418000, respectively. Daguerre Point Dam diversions are from YWA records of daily deliveries to YWA's member units. While there are USGS gages on the three YWA Daguerre Point Dam diversions (Hallwood-Cordua Canal, Pumpline Diversion and Brophy-South Yuba Canal), the USGS gage period of record is less complete and shorter than YWA's diversion records, so diversion records were used in this analysis instead.

Accretions in the lower Yuba River watershed are dependent on several factors including the following:

- Precipitation;
- The Yuba Goldfields;
- Seepage losses; and
- Inflows from the Dry Creek watershed.

While precipitation would be expected to have a noticeable effect, there is no clear correlation between precipitation and increased accretions. While Yuba River flows are typically higher immediately following precipitation events, this is most likely due to accumulated inflows from the upper basin. Within the lower basin, however, accretions do not generally reflect precipitation events.

The Yuba Goldfields are an approximately 8-mile-long reach of the river, distinguished by large mounds of cobbled rock. The Yuba Goldfields have been subject to more than 100 years of dredging and the result is a reservoir, of sorts, with an estimated 500 TAF of storage. Based on anecdotal evidence, the Yuba Goldfields fill during high-flow periods, and discharge to the river during low-flow periods. While there is some correlation between flow at Smartsville and the amount of accretions or depletions in the lower Yuba River, the correlation is relatively weak and is not reliable for the observed range of conditions of the lower Yuba River. In addition, river depletions due to the Yuba Goldfields during high-flow periods are of less concern than would be if they occurred during low-flow periods, when flow contributions are more critical.

Accretions and depletions in the lower Yuba River due to seepage losses are similarly difficult to quantify. While it is well known that there is interaction between the surface water and groundwater resources of Yuba County, no quantifiable relationship has yet been determined.

While inflows from Dry Creek are discussed in Section 3.4, within the context of the computed lower Yuba River accretions described above, there is no clear relationship between gaged Dry Creek flows and the computed lower Yuba River accretions for the available POR.

Despite application of several methods of analysis of lower Yuba River accretions, no reasonable results were achieved. As part of the analysis process, estimates of lower Yuba River accretion rates were compared to historic flow in the river and were generally found to be less than 5 percent of the river flow. Since the actual contribution to Yuba River flows from these accretions is minimal, the effect of these accretions on operations of the YRDP was examined. Releases from New Bullards Bar and Englebright reservoirs overwhelm computed accretions and depletions of the lower Yuba River. Accordingly, although project operations may include some minimal buffering for accretions and depletions in the lower Yuba River, the actual volume of accretions and depletions is within the gage error and can thus be ignored in analysis of the basin.

## 3.4 Dry Creek

Dry Creek flows near the western edge of Yuba County; its watershed is approximately 108 square miles, with its headwaters near the town of Challenge at elevation 3,155 feet msl. Flowing generally southward, Dry Creek flows are captured by Merle Collins Reservoir, a 57 TAF reservoir at approximately 1,160 feet msl formed by Virginia Ranch Dam. Merle Collins Reservoir is owned and operated by Browns Valley Irrigation District. Dry Creek is approximately 12 miles long from Virginia Ranch Dam to the confluence with the Yuba River. Dry Creek releases from Merle Collins Reservoir are augmented by accretions from local runoff and agricultural return flows, flowing into the Yuba River approximately 10 miles below Englebright Dam. Thirty-seven square miles of the Dry Creek watershed lie below Merle Collins Reservoir. Available flow records from 1964 through 1980 indicate Dry Creek flows to the Yuba River are about 55 TAF per year, with peak flows occurring from January through April and low flows occurring from June through October.

Dry Creek flows below Merle Collins Reservoir were measured by USGS Gage 11420700, approximately 5 miles upstream from Dry Creek's confluence with the Yuba River, from August 1, 1964 through October 3, 1980, but since 1980, no flow records exist. As a result of this limited POR, it has been determined that Dry Creek flows to the Yuba River must be calculated by synthesis of data from a similar watershed. Several methods for deriving Dry Creek flows were examined, including the area-weighted flow methodology described in Section 3.1.3, an area-precipitation-based methodology, and a statistical correlation using existing gage data. The area-weighted flow methodology using the Oregon Creek watershed used for other sub-watershed areas was attempted, but it was abandoned due to a lack of correlation with available data. Although the area-weighted flow methodology using the Oregon Creek watershed worked well in other parts of the Yuba River Basin, there are considerable differences in watershed characteristics between Oregon Creek and Dry Creek, invalidating a comparison between the two. The area-precipitation method, which was also examined, did not adequately characterize local runoff from Dry Creek due to the complex nature of its watershed at lower elevations. Historical records indicate year-around flow in Dry Creek, whereas the area-precipitation method only yields flow during precipitation events.

Due to its watershed's similarity to Dry Creek's watershed, Deer Creek was selected as a representative watershed for Dry Creek; both watersheds are subject to multiple impairments, the impairments and watersheds have similar characteristics. Both receive runoff from elevations ranging from 140 feet msl to 1,208 feet msl, and both creeks receive considerable local runoff from agricultural or other non-precipitation-based sources.

A comparison of data from the available POR of Dry Creek with the same POR of Deer Creek near Smartsville gage (USGS Gage 11418500) indicates similar flow patterns. A correlation of all daily flows from the Deer Creek gage with flows from the Dry Creek gage yields a relationship indicating Dry Creek flows are approximately 68 percent of Deer Creek flows, and developing monthly coefficients slightly improved the accuracy of the relationship. The resulting equation is the following:

$$A \times Deer\ Creek\ Flow + B = Dry\ Creek\ Flow$$

Table 3.4-1 includes the monthly coefficients, A and B. From January through May, the Deer Creek coefficient dominates the relationship, corresponding to periods of rainfall runoff. From June through December, flows in Dry Creek are essentially the same from year to year, with little correlation to Deer Creek flows. During this period, Dry Creek flows are primarily composed of releases from Merle Collins Reservoir.

**Table 3.4-1. Monthly Coefficients for Computing Dry Creek Flow from Deer Creek Gage Data.**

| Coefficient | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.70 | 0.73 | 1.02 | 0.84 | 0.33 | 0.06 | 0.18 | -0.08 | 0.01 | 0.08 | 0.15 | 0.19 |
| B | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6.69 | 6.23 | 7.20 | 6.38 | 5.15 | 1.30 | 12.51 |

Table 3.4-2 shows the monthly average computed accretions from Dry Creek.

**Table 3.4-2. Monthly Average Computed Dry Creek Accretions to the Yuba River.**

| Location | Average[2] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Dry Creek Accretions[1] | 6 | 8 | 8 | 40 | 184 | 235 | 323 | 139 | 20 | 8 | 7 | 7 | 59 |

Notes:
[1] Dry Creek accretions to the Yuba River computed using methodology described in Section 3.4
[2] Period of record is 10/1/1969-9/30/2020
Key: cfs = cubic feet per second TAF = thousand acre-feet

**SECTION 4**

# UNIMPAIRED FLOWS

As previously described, flows on the Yuba River are impaired by the YRDP, the SFFRP, the YB and the DS projects. Unimpaired flow would be the flow if neither those projects, nor any other artificial impoundments or diversions were present in the basin. This section describes the computation of unimpaired flows from the North, Middle, and South Yuba rivers and the total Yuba River flow at Smartsville.

## 4.1 North Yuba River

Determination of unimpaired flows from the North Yuba River is relatively straightforward due to the Goodyears Bar gage (USGS 11413000), the two gages on Slate Creek and the Slate Creek Diversion (USGS 11413300 and 11413250, respectively), and the computation of accretions as described in Section 3.1.

Unimpaired North Yuba River flow at the New Bullards Bar Dam site is computed by adding Goodyears Bar gaged flow, Slate Creek and Slate Creek Diversion gaged flows, and accretions from Canyon Creek, Slate Creek, the North Yuba River, and to the New Bullards Bar Reservoir area. Since the Middle and South Yuba rivers only have unimpaired data available for the period of 10/1/1975 through 9/30/2008, unimpaired North Yuba River flows are computed for a similar POR. Table 4.1-1 shows the computed monthly average unimpaired Yuba River flow at the New Bullards Bar Dam site.

**Table 4.1-1. Computed Monthly Average Unimpaired North Yuba River Flow at New Bullards Bar Dam.**

| Location | Average[9] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| North Yuba River Inflow[1] | 171 | 338 | 656 | 907 | 1,015 | 1,218 | 1,330 | 1,704 | 984 | 350 | 181 | 152 | 543 |
| Slate Creek Inflow[2] | 15 | 42 | 133 | 161 | 200 | 198 | 156 | 159 | 34 | 12 | 11 | 10 | 68 |
| North Yuba River Accretions[3] | 5 | 9 | 43 | 138 | 234 | 278 | 280 | 195 | 116 | 38 | 10 | 5 | 81 |
| Canyon Creek Accretions[4] | 43 | 47 | 93 | 181 | 250 | 280 | 336 | 367 | 470 | 272 | 97 | 50 | 150 |
| Slate Creek Accretions[5] | 2 | 3 | 13 | 43 | 73 | 87 | 87 | 61 | 36 | 12 | 3 | 2 | 25 |
| Accretions to New Bullards Bar Reservoir[6] | 8 | 15 | 74 | 236 | 400 | 475 | 477 | 333 | 197 | 64 | 17 | 8 | 138 |
| Slate Creek Diversion[7] | 7 | 48 | 84 | 138 | 161 | 234 | 231 | 186 | 94 | 20 | 2 | 1 | 73 |
| Total Inflow[8] | 251 | 501 | 1,096 | 1,806 | 2,333 | 2,770 | 2,897 | 3,006 | 1,932 | 767 | 321 | 228 | 1,078 |

Notes:
1 North Yuba River at Goodyears Bar flow from USGS Gage 11413000
2 Slate Creek flow from USGS Gage 11413300
3 North Yuba River accretions between Goodyears Bar and the confluence of the North Yuba River and Slate Creek as described in Section 3.1.5.
4 Canyon Creek accretions as described in Section 3.1.5.
5 Slate Creek accretions between USGS Gage 11413300 and the confluence of Slate Creek and the North Yuba River as described in Section 3.1.5.
6 North Yuba River accretions to the New Bullards Bar Reservoir area as described in Section 3.1.5.
7 Slate Creek Diversion flow from USGS Gage 11413250
8 Total Inflow is the sum of gaged flows and accretions
9 Period of record is 10/1/1975-9/30/2008
Key: cfs = cubic feet per second TAF = thousand acre-feet USGS=U.S. Geological Survey

## 4.2 Middle Yuba River

Unimpaired Middle Yuba River flow requires analysis of unimpaired Middle Yuba River flow from the upper watershed to the Milton Diversion Dam plus accretions between the Milton Diversion Dam and Our House Dam, shown in Figure 4.2-1. Unimpaired Middle Yuba River flow at the Milton Diversion Dam was obtained through data prepared by NID for the Yuba-Bear Project FERC relicensing. The POR of data provided by NID for these flows is October 1, 1975 through September 30, 2008.

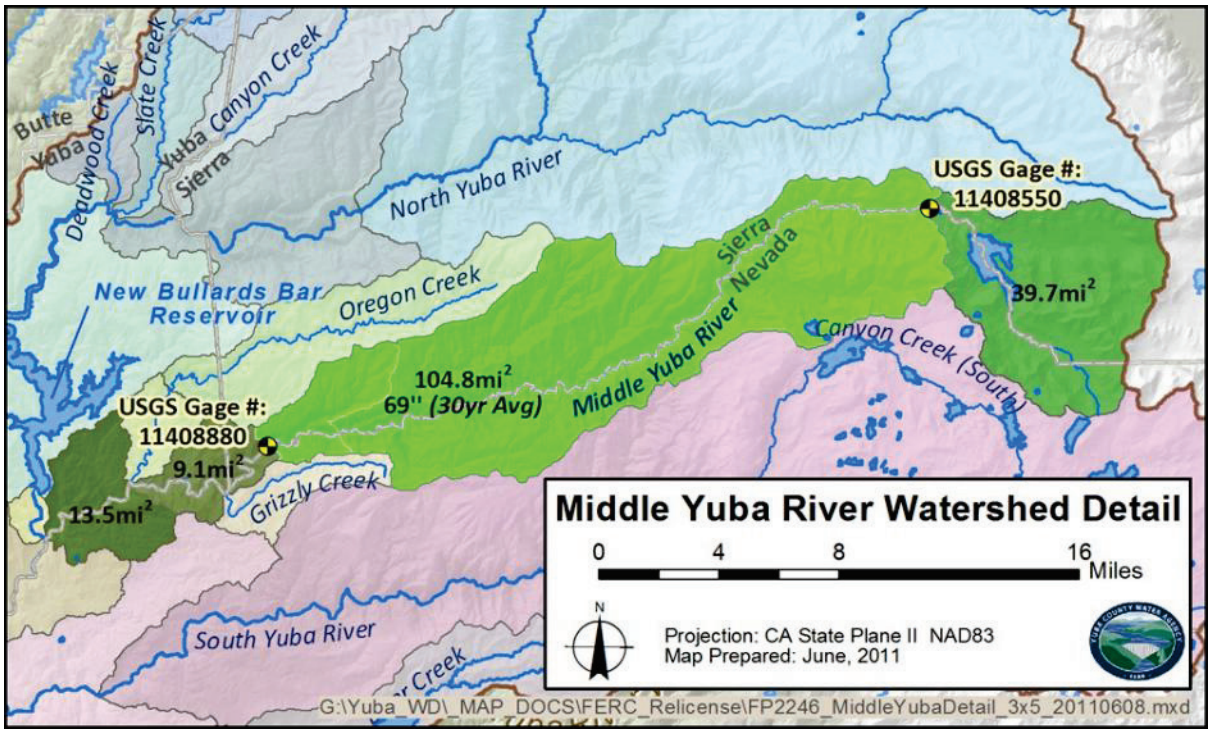


**Figure 4.2-1. Middle Yuba River Subbasin between Milton Diversion Dam and Our House Dam**

Middle Yuba River accretions between Milton Diversion Dam and Our House Dam were computed using gage data from below Milton Diversion Dam (USGS 11408550) and the computed inflows to Our House Dam, as described in Section 2.3. Gage data at Milton Diversion Dam was only available for the POR of October 1, 1987 through September 30, 2007. Based on the POR collected, Middle Yuba River accretions between the Milton Diversion Dam and Our House Dam were determined for the full POR through the area-weighted flow approach described in Section 3.1.5, using Oregon Creek as a representative watershed. The watershed area between the Milton Diversion Dam and Our House Dam is 104.8 square miles and has an average annual precipitation of 69 inches. When compared to Oregon Creek's watershed above Log Cabin Dam, the ratio of flow is 3.612. The synthesized inflows compared very well with those computed using available gage data.

Since there are no impairments to Oregon Creek upstream of Log Cabin Dam; Oregon Creek inflows to Log Cabin Dam can be considered unimpaired flows. Adding the unimpaired flow of the Middle Yuba River at Our House Dam, unimpaired Oregon Creek flow, calculated Middle Yuba River accretions below Our House Dam, and calculated Oregon Creek accretions below Log Cabin yields the unimpaired Middle Yuba River flow at its confluence with the North Yuba River. Table 4.2-1 shows the monthly average unimpaired Middle Yuba River flow at its confluence with the North Yuba River.

**Table 4.2-1. Monthly Average Unimpaired Middle Yuba River Flow at its Confluence with the North Yuba River.**

| Location | Average[8] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Middle Yuba River above Milton Diversion Dam[1] | 12 | 44 | 82 | 88 | 103 | 144 | 259 | 434 | 224 | 46 | 9 | 8 | 88 |
| Middle Yuba River (Upper Reach) Accretions[2] | 21 | 106 | 341 | 577 | 685 | 689 | 481 | 285 | 92 | 25 | 12 | 12 | 200 |
| Oregon Creek Inflow[3] | 6 | 29 | 94 | 160 | 190 | 191 | 133 | 79 | 26 | 7 | 3 | 3 | 55 |
| Middle Yuba River (Middle Reach) Accretions[4] | 2 | 3 | 15 | 49 | 82 | 97 | 98 | 68 | 40 | 13 | 4 | 2 | 28 |
| Middle Yuba River (Lower Reach) Accretions[5] | 1 | 2 | 11 | 35 | 59 | 70 | 70 | 49 | 29 | 9 | 3 | 1 | 20 |
| Oregon Creek Accretions[6] | 1 | 1 | 5 | 17 | 29 | 35 | 35 | 24 | 14 | 5 | 1 | 1 | 10 |
| Total Inflow[7] | 42 | 186 | 549 | 925 | 1,148 | 1,226 | 1,077 | 940 | 426 | 105 | 32 | 27 | 402 |

Notes:
1 Unimpaired Middle Yuba River flow at Milton Diversion Dam from NID Yuba-Bear Project Relicensing
2 Middle Yuba River accretions between Milton Diversion Dam and Our House Dam computed using the methodology described in Section 3.1.5.
3 Oregon Creek flow above Log Cabin Dam from USGS Gages 11409300, 11408870, 11409350, and 11409400 as described in Section 2.5
4 Middle Yuba River accretions between Our House Dam and the confluence of the Middle Yuba River and Oregon Creek, as shown in Table 3.2-2
5 Middle Yuba River accretions between the confluence of the Middle Yuba River and Oregon Creek and the confluence of the Middle Yuba River and the Yuba River, as described shown in Table 3.2-3
6 Oregon Creek accretions between Log Cabin Dam and the confluence of the Middle Yuba River and Oregon Creek, as shown in Table 3.2-4
7 Total inflow is the sum of gaged flows and accretions
8 Period of record is 10/1/1975-9/30/2008
Key: cfs = cubic feet per second TAF = thousand acre-feet USGS=U.S. Geological Survey

# 4.3 South Yuba River

Historical unimpaired South Yuba River flow is computed by adding the unimpaired South Yuba River flow at Langs Crossing and Canyon Creek below Bowman Lake, as reported by PG&E in their FERC relicensing of the Drum-Spaulding Project, with South Yuba River and Canyon Creek accretions above Jones Bar. Unimpaired South Yuba River flow at Langs Crossing and Canyon Creek flow below Bowman Lake was provided for the period of October 1, 1975 through September 30, 2008. Accretions between the upstream locations and Jones Bar were computed using historical gage information from South Yuba River at Langs Crossing (USGS 11414250), Canyon Creek below Bowman Reservoir (USGS 11416500) and South Yuba River at Jones Bar (11417500) for the full period of record. Figure 4.3-1 shows the subbasin between Bowman Lake, Langs Crossing, and Jones Bar.

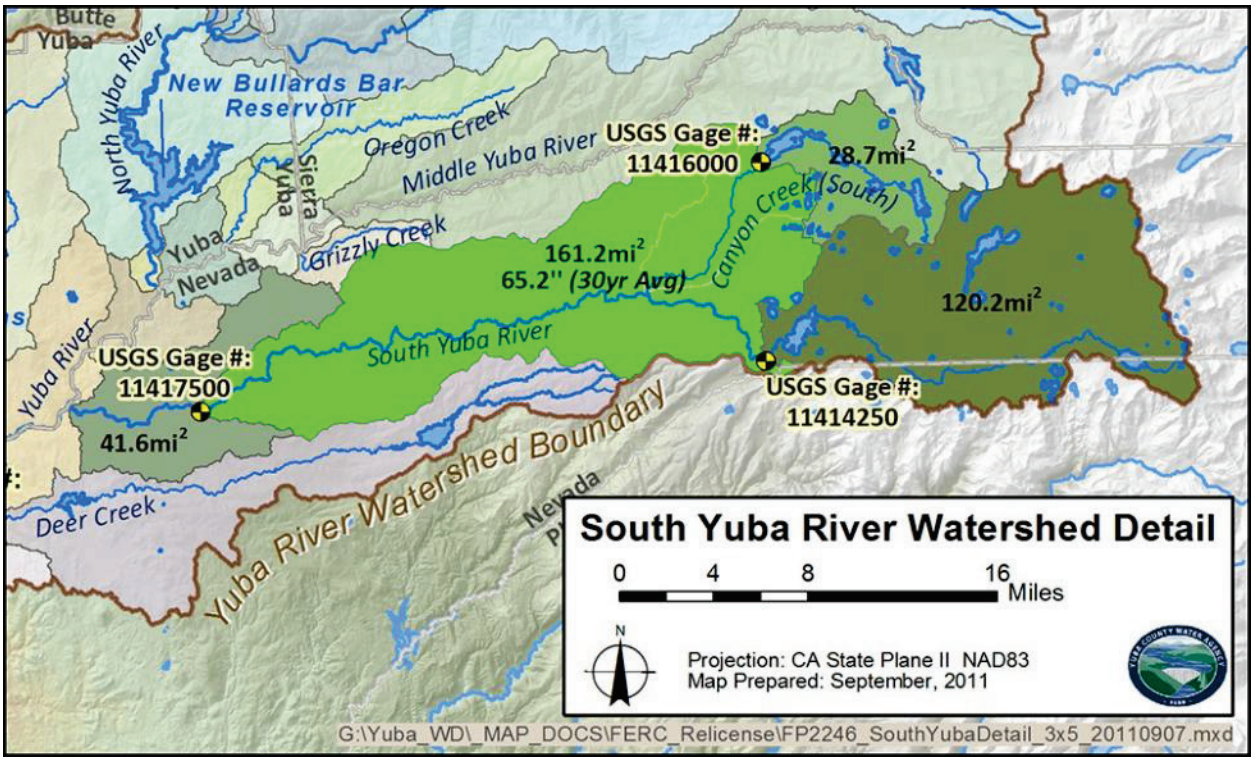


**Figure 4.3-1. South Yuba River Subbasin between Canyon Creek, Langs Crossing, and Jones Bar**

South Yuba River accretions below Jones Bar were computed using the process described in Section 3.2-2. Table 4.3-1 shows the monthly average unimpaired South Yuba River flow at its confluence with the Yuba River.

**Table 4.3-1. Monthly Average Unimpaired South Yuba River Flow at its Confluence with the Yuba River.**

| Location | Average[4] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| South Yuba River at Langs Crossing[1] | 45 | 182 | 333 | 363 | 430 | 677 | 1,152 | 1,757 | 922 | 199 | 20 | 15 | 368 |
| Canyon Creek at Bowman Reservoir[2] | 11 | 47 | 86 | 94 | 111 | 177 | 294 | 414 | 202 | 39 | 4 | 4 | 90 |
| South Yuba River (Upper) Accretions[3] | 48 | 128 | 342 | 541 | 662 | 682 | 500 | 351 | 147 | 61 | 36 | 35 | 212 |
| South Yuba River (Lower) Accretions[3] | 3 | 6 | 30 | 95 | 161 | 191 | 192 | 134 | 79 | 26 | 7 | 3 | 56 |
| Total Inflow[4] | 107 | 363 | 791 | 1,093 | 1,364 | 1,727 | 2,138 | 2,656 | 1,350 | 325 | 67 | 57 | 726 |

Notes:
1 South Yuba River at Langs Crossing from PG&E Drum Spaulding FERC relicensing
2 Canyon Creek at Bowman Reservoir from PG&E Drum Spaulding FERC relicensing
3 Accretions on the South Yuba River between Jones Bar and the confluence of the South Yuba River and the Yuba River as shown in Table 3.2-5.
4 Total inflow is the sum of gaged flows and accretions
5 Period of record is 10/1/1975-9/30/2008
Key: YRDP = Yuba River Development Project cfs = cubic feet per second TAF = thousand acre-feet

## 4.4 Unimpaired Yuba River flow at Smartsville

Adding unimpaired flows from the North Yuba, Middle Yuba, and South Yuba rivers with the computed accretions to the Yuba River above Englebright Dam and to Englebright Reservoir yields unimpaired Yuba River flows at Smartsville. Also, DWR has computed monthly unimpaired flows for the Yuba River at Smartsville for each month from October 1901 through the present date. Table 4.4-1 shows the computed and DWR published monthly average unimpaired Yuba River flow at Smartsville. Figure 4.4-1 shows a comparison of the annual volumes for the synthesized and DWR-Published unimpaired Yuba River flow at Smartsville.

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**Table 4.4-1. Monthly Average Unimpaired Yuba River Flow at Smartsville.**

| Location | Average[7] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| North Yuba River[1] | 251 | 501 | 1,096 | 1,806 | 2,333 | 2,770 | 2,897 | 3,006 | 1,932 | 767 | 321 | 228 | 1,078 |
| Middle Yuba River[2] | 42 | 186 | 549 | 925 | 1,148 | 1,226 | 1,077 | 940 | 426 | 105 | 32 | 27 | 402 |
| South Yuba River[3] | 110 | 387 | 856 | 1,159 | 1,394 | 1,727 | 2,080 | 2,601 | 1,297 | 306 | 63 | 57 | 726 |
| Accretions to Englebright Reservoir[4] | 4 | 7 | 37 | 120 | 202 | 240 | 242 | 169 | 100 | 32 | 9 | 4 | 70 |
| Total Unimpaired Flow[5] | 405 | 1,057 | 2,473 | 3,944 | 5,048 | 5,963 | 6,354 | 6,771 | 3,807 | 1,229 | 429 | 316 | 2,275 |
| DWR Unimpaired Flow[6] | 479 | 1,470 | 3,236 | 4,672 | 5,537 | 5,984 | 5,640 | 6,123 | 2,997 | 907 | 329 | 304 | 2,266 |

Notes:
1 North Yuba River at New Bullards Bar Dam Site, as shown in Table 4.1-1
2 Middle Yuba River at its Confluence with North Yuba River, as shown in Table 4.2-1
3 South Yuba River at its Confluence with Yuba River as shown in Table 4.3-1
4 Accretions to Englebright Reservoir area as shown in Table 3.2-6
5 Total Inflow is the summation of tributary flow and accretions
6 DWR Unimpaired Flow is the full-natural Yuba River flow at Smartsville, as published by DWR Snow Surveys Section.
7 Period of record is 10/1/1975-9/30/2008
Key: cfs = cubic feet per second TAF = thousand acre-feet

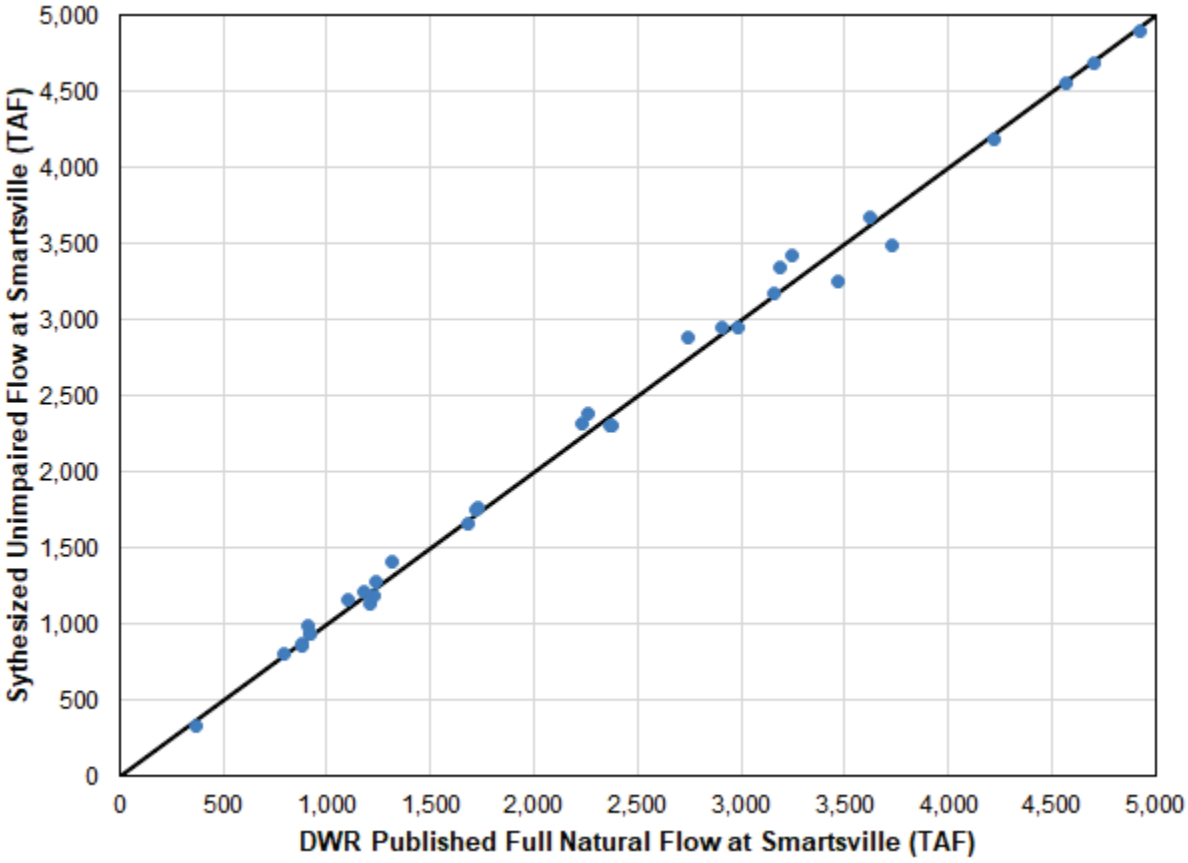


**Figure 4.4-1. Comparison of Historical and Synthetic Annual Volume of Unimpaired Flow at Smartsville (WY 1975-2008).**

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SECTION 5

# ACCUMULATED FLOWS

Yuba River flows are affected by operation of the upstream projects (PG&E's DS Project, NID's YB Project, and SFWPA's SFFRP), and operation of the YRDP. Each project affects both the timing and the volume of flow in the Yuba River. The following three conditions are compared:

- Historical flows with all YRDP features in place
- Calculated flows occurring without YRDP facilities
- Unimpaired flows occurring under natural conditions

Summaries of monthly average flows under each condition at the following key locations are described below:

- The North Yuba River at the New Bullards Bar Dam Site
- The Middle Yuba River at its confluence with the North Yuba River
- The South Yuba River at its confluence with the Yuba River

Yuba River tributary flows after the construction of the YRDP are easily determined through a summation of historical gage data and computed accretions. An estimation of Yuba River tributary flows that would have occurred without the construction of the YRDP can be computed by adding the tributary inflows described above with computed accretions. The estimation of Yuba River tributary flows without any projects, also known as unimpaired flow, is computed as described in Section 4. The unimpaired flow calculation uses a shorter POR than is used for analysis of the YRDP; this difference in POR can result in minor flow average differences described in the following sections.

## 5.1 North Yuba River at New Bullards Bar Dam

Yuba River flow at New Bullards Bar Dam is a combination of gaged flows on the North Yuba River at Goodyears Bar and on Slate Creek below the Slate Creek Diversion Dam, and accretions from Canyon Creek, the North Yuba River, and lower Slate Creek. Historical monthly average North Yuba River at the New Bullards Bar Dam site flows are computed as inflows to NBB.

**Table 5.1-1. Historical Monthly Average North Yuba River Flow at New Bullards Bar Dam.**

| Location | Average[2] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| New Bullards Bar Reservoir Inflow[1] | 274 | 805 | 1,766 | 2,469 | 2,794 | 3,381 | 3,108 | 2,887 | 1,613 | 543 | 263 | 207 | 1,210 |

Notes:
[1] New Bullards Bar Reservoir inflow is computed as reservoir releases plus change in storage. Historical New Bullards Bar Reservoir storage and releases from YWA
[2] Period of record is 10/1/1969-9/30/2020
Key: cfs = cubic feet per second TAF = thousand acre-feet

In the absence of the YRDP, flow in the North Yuba River at the New Bullards Bar Dam site would be a combination of flow at Goodyears Bar, accretions to the North Yuba River between Goodyears Bar and Canyon Creek, Canyon Creek accretions, accretions to the North Yuba River between Canyon Creek and Slate Creek, Slate Creek flow below the Slate Creek Diversion Dam, accretions to Slate Creek below the Slate Creek Diversion Dam, and accretions to NBB area below Slate Creek. The difference between the historical condition and the non-YRDP condition would be the absence of flow from the Camptonville Tunnel into NBB without the YRDP. Table 5.1-2 shows the computed monthly average North Yuba River flow at the New Bullards Bar Dam site without the YRDP.

**Table 5.1-2. Computed Monthly Average North Yuba River Flow at New Bullards Bar Dam in the Absence of the YRDP.**

| Location | Average[8] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| North Yuba River Inflow[1] | 174 | 355 | 672 | 941 | 999 | 1,246 | 1,385 | 1,701 | 1,046 | 362 | 183 | 150 | 555 |
| Slate Creek Inflow[2] | 16 | 54 | 133 | 181 | 194 | 233 | 187 | 173 | 53 | 14 | 11 | 10 | 76 |
| North Yuba River Accretions[3] | 5 | 9 | 47 | 142 | 239 | 262 | 280 | 189 | 105 | 37 | 11 | 5 | 80 |
| Canyon Creek Accretions[4] | 42 | 48 | 98 | 185 | 271 | 281 | 344 | 382 | 469 | 289 | 100 | 50 | 154 |
| Slate Creek Accretions[5] | 2 | 3 | 15 | 44 | 75 | 82 | 87 | 59 | 33 | 12 | 3 | 2 | 25 |
| Accretions to New Bullards Bar Reservoir[6] | 8 | 16 | 80 | 243 | 409 | 447 | 478 | 322 | 179 | 63 | 18 | 9 | 136 |
| Total Inflow[7] | 247 | 485 | 1,044 | 1,737 | 2,188 | 2,551 | 2,761 | 2,826 | 1,884 | 777 | 326 | 226 | 1,026 |

Notes:
1 North Yuba River below Goodyears Bar flow from USGS Gage 11413000 as shown in Table 2.1-1
2 Slate Creek below Slate Creek Diversion flow from USGS Gage 11413300 as shown in Table 2.1-2
3 North Yuba River accretions between Goodyears Bar and the confluence of the North Yuba River and Slate Creek as shown in Table 3.1-4.
4 Canyon Creek accretions as shown in Table 3.1-5.
5 Slate Creek accretions between the Slate Creek Diversion Dam and the confluence of Slate Creek and the North Yuba River as shown in Table 3.1-6.
6 Accretions to the New Bullards Bar Reservoir area as shown in Table 3.1-7.
7 Total Inflow is the sum of gaged flows and accretions
8 Period of record is 10/1/1969-9/30/2020
Key: cfs = cubic feet per second TAF = thousand acre-feet USGS=U.S. Geological Survey

Table 5.1-3 shows a comparison of monthly average North Yuba River flow at the New Bullards Bar Dam site under historical conditions, under a non-YRDP condition, and under an unimpaired condition.

**Table 5.1-3. Comparison of Monthly Average North Yuba River Flow at New Bullards Bar Dam Site under Various Developmental Conditions.**

| Location | Average[4] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Historical Conditions[1] | 274 | 805 | 1,766 | 2,469 | 2,794 | 3,381 | 3,108 | 2,887 | 1,613 | 543 | 263 | 207 | 1,210 |
| Non-YRDP Conditions[2] | 247 | 485 | 1,044 | 1,737 | 2,188 | 2,551 | 2,761 | 2,826 | 1,884 | 777 | 326 | 226 | 1,026 |
| Unimpaired Condition[3] | 251 | 501 | 1,096 | 1,806 | 2,333 | 2,770 | 2,897 | 3,006 | 1,932 | 767 | 321 | 228 | 1,078 |

Notes:
[1] Historical Conditions reflect historical reservoir inflows as observed and described in Table 5.1-1
[2] Non-YRDP Conditions reflects computed inflow consisting of gaged flows and computed accretions, as computed in Table 5.1-2
[3] Unimpaired Condition reflects computed inflow consisting of gaged flows and computed accretions, as computed in Table 4.1-1
[4] Period of record is 10/1/1969-9/30/2020 for the Current and Non-YRDP conditions and 10/1/1975-9/30/2008 for the Unimpaired Condition
Key: YRDP = Yuba River Development Project cfs = cubic feet per second TAF = thousand acre-feet

## 5.2 Middle Yuba River at its Confluence with the North Yuba River

Middle Yuba River flow at its confluence with the North Yuba River reflects flows from both the Middle Yuba River and Oregon Creek. Historical flows, reflecting operations of the YRDP and diversions through the Lohman Ridge and Camptonville tunnels to New Bullards Bar Reservoir, are computed by adding gaged Middle Yuba River and Oregon Creek flows below Our House and Log Cabin dams, respectively, with computed accretions to the Middle Yuba River and Oregon Creek. Table 5.2-1 shows historical monthly average Middle Yuba River flow at its confluence with the North Yuba River.

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**Table 5.2-1. Historical Monthly Average Middle Yuba River Flow at its Confluence with the North Yuba River.**

| Location | Average[7] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Middle Yuba River Below Our House Dam[1] | 31 | 66 | 155 | 276 | 204 | 198 | 149 | 208 | 106 | 34 | 31 | 30 | 89 |
| Oregon Creek Below Log Cabin Dam[2] | 6 | 14 | 44 | 69 | 46 | 35 | 26 | 17 | 21 | 8 | 6 | 5 | 18 |
| Middle Yuba River (Middle Reach) Accretions[3] | 2 | 3 | 16 | 50 | 85 | 95 | 98 | 66 | 37 | 13 | 4 | 2 | 28 |
| Middle Yuba River (Lower Reach) Accretions[4] | 1 | 2 | 12 | 36 | 61 | 68 | 71 | 48 | 26 | 9 | 3 | 1 | 20 |
| Oregon Creek Accretions[5] | 1 | 1 | 6 | 18 | 30 | 34 | 35 | 24 | 13 | 5 | 1 | 1 | 10 |
| Total Inflow[6] | 41 | 87 | 233 | 449 | 426 | 430 | 379 | 363 | 203 | 69 | 45 | 39 | 166 |

Notes:
1 Middle Yuba River below Our House Dam flow from USGS Gage 11408880
2 Oregon Creek below Log Cabin Dam flow from USGS Gage 11409400
3 Middle Yuba River above Oregon Creek accretions computed for reach between Our House Dam and Oregon Creek as shown in Table 3.2-3
4 Middle Yuba River below Oregon Creek accretions computed for reach between Oregon Creek and confluence with North Yuba River as shown in Table 3.2-4
5 Oregon Creek accretions computed for Oregon Creek between Log Cabin Dam and confluence with Middle Yuba River as shown in Table 3.2-5
6 Total Inflow is the sum of gaged flows and accretions
7 Period of record is 10/1/1969-9/30/2020
Key: USGS = U.S. Geologic Survey cfs = cubic feet per second TAF = thousand acre-feet

Without the YRDP, flows that are otherwise diverted from the Middle Yuba River through the Lohman Ridge Tunnel to Oregon Creek and from Oregon Creek through the Camptonville Tunnel to New Bullards Bar Reservoir would remain in Middle Yuba River subbasin. Flows diverted from the Middle Yuba River upstream of Our House Dam would remain unavailable to the lower Middle Yuba River. Middle Yuba River flows at its confluence with the North Yuba River would be the sum of the flow from the Middle Yuba River above Our House Dam and Oregon Creek above Log Cabin Dam with accretions to the Middle Yuba River and Oregon Creek below Our House and Log Cabin dams, respectively. Table 5.2-2 shows the monthly average flow in the Middle Yuba River at its confluence with the North Yuba River if the YRDP had not been constructed.

**Table 5.2-2. Computed Monthly Average Flow on the Middle Yuba River at its Confluence with the North Yuba River in the Absence of the YRDP.**

| Location | Average[7] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Middle Yuba River Inflow[1] | 49 | 144 | 335 | 516 | 542 | 635 | 616 | 602 | 327 | 92 | 42 | 36 | 237 |
| Oregon Creek Inflow[2] | 6 | 32 | 97 | 160 | 177 | 191 | 129 | 71 | 25 | 7 | 3 | 3 | 54 |
| Middle Yuba River (Middle Reach) Accretions[3] | 2 | 3 | 16 | 50 | 85 | 95 | 98 | 66 | 37 | 13 | 4 | 2 | 28 |
| Middle Yuba River (Lower Reach) Accretions[4] | 1 | 2 | 12 | 36 | 61 | 68 | 71 | 48 | 26 | 9 | 3 | 1 | 20 |
| Oregon Creek Accretions[5] | 1 | 1 | 6 | 18 | 30 | 34 | 35 | 24 | 13 | 5 | 1 | 1 | 10 |
| Total Inflow[6] | 59 | 183 | 466 | 780 | 895 | 1,022 | 948 | 811 | 428 | 126 | 53 | 43 | 349 |

Notes:
1 Middle Yuba River flow above Our House Dam from USGS Gages 11408850, 11408870, and 44108880 as described in Section 2.3
2 Oregon Creek flow above Log Cabin Dam from USGS Gages 11409300, 11408870, 11409350, and 11409400 as described in Section 2.5
3 Middle Yuba River accretions between Our House Dam and the confluence of the Middle Yuba River and Oregon Creek, as shown in Table 3.2-3
4 Middle Yuba River accretions between the confluence of the Middle Yuba River and Oregon Creek and the confluence of the Middle Yuba River and the Yuba River, as described shown in Table 3.2-4
5 Oregon Creek accretions between Log Cabin Dam and the confluence of the Middle Yuba River and Oregon Creek, as shown in Table 3.2-5
6 Total Inflow is the sum of gaged flows and accretions
7 Period of record is 10/1/1969-9/30/2020
Key: cfs = cubic feet per second TAF = thousand acre-feet USGS=U.S. Geological Survey

Table 5.2-3 shows a comparison of the total inflows from Tables 5.2-1 through 5.2-3. The periods of record of the unimpaired flow is different from the other two flows, however, since all three are long-term averages, the information in the tables remains illustrative of relative flows under each condition.

**Table 5.2-3. Comparison of Monthly Average Middle Yuba River Flow at its Confluence with the North Yuba River under Various Developmental Conditions.**

| Location | Average[4] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Historical Conditions[1] | 41 | 87 | 233 | 449 | 426 | 430 | 379 | 363 | 203 | 69 | 45 | 39 | 166 |
| Non-YRDP Conditions[2] | 59 | 183 | 466 | 780 | 895 | 1,022 | 948 | 811 | 428 | 126 | 53 | 43 | 349 |
| Unimpaired Condition[3] | 42 | 186 | 549 | 925 | 1,148 | 1,226 | 1,077 | 940 | 426 | 105 | 32 | 27 | 402 |

Notes:
1 Historical Conditions reflect historical reservoir inflows as observed and described in Table 5.2-1
2 Non-YRDP Conditions reflects computed inflow consisting of gaged flows and computed accretions, as computed in Table 5.2-2
3 Unimpaired Condition reflects computed inflow consisting of gaged flows and computed accretions, as computed in Table 4.2-1
4 Period of record is 10/1/1969-9/30/2020 for the Current and Non-YRDP conditions and 10/1/1975-9/30/2008 for the Unimpaired Condition
Key: YRDP = Yuba River Development Project cfs = cubic feet per second TAF = thousand acre-feet

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Yuba Accord

## 5.3 South Yuba River at its Confluence with the Yuba River

Since the YRDP does not affect flows in the South Yuba River, historical flows would be the same as those without the YRDP. Those flows would be the sum of the historical flow at Jones Bar and accretions between Jones Bar and the confluence of the South Yuba River and the Yuba River. Unimpaired flows would differ through the inclusion of flows otherwise diverted out of the South Yuba River subbasin by PG&E's Drum-Spaulding Project. Table 5.3-1 shows the historical monthly average flow on the South Yuba River at its confluence with the Yuba River.

**Table 5.3-1. Historical Monthly Average South Yuba River Flow at its Confluence with the Yuba River.**

| Location | Average[4] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| South Yuba River Inflow[1] | 65 | 187 | 473 | 721 | 783 | 858 | 749 | 831 | 628 | 132 | 47 | 47 | 332 |
| South Yuba River Accretions[2] | 3 | 6 | 32 | 98 | 166 | 185 | 192 | 130 | 72 | 25 | 7 | 3 | 55 |
| Total Inflow[3] | 68 | 194 | 505 | 819 | 949 | 1,043 | 941 | 961 | 700 | 158 | 55 | 50 | 387 |

Notes:
[1] South Yuba River flow at Jones Bar from USGS Gage 11417500 as described in Section 2.4
[2] Accretions on the South Yuba River between Jones Bar and the confluence of the South Yuba River and the Yuba River as shown in Table 3.2-5.
[3] Total inflow is the sum of gaged flows and accretions
[4] Period of record is 10/1/1969-9/30/2020
Key: YRDP = Yuba River Development Project cfs = cubic feet per second TAF = thousand acre-feet

Table 5.3-2 shows a comparison of the historical and unimpaired South Yuba River flows at its confluence with the Yuba River. The periods of record of the unimpaired flow is different from the historical flow, however, since both are long-term averages, the information in the tables remains illustrative of relative flows under each condition.

**Table 5.3-2. Comparison of Monthly Average South Yuba River Flow at its Confluence with the Yuba River under Various Developmental Conditions.**

| Location | Average[3] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Historical Conditions[1] | 68 | 194 | 505 | 819 | 949 | 1,043 | 941 | 961 | 700 | 158 | 55 | 50 | 387 |
| Unimpaired Condition[2] | 107 | 363 | 791 | 1,093 | 1,364 | 1,727 | 2,138 | 2,656 | 1,350 | 325 | 67 | 57 | 726 |

Notes:
[1] Historical Conditions reflect historical reservoir inflows as observed and described in Table 5.3-1
[2] Unimpaired Condition reflects computed inflow consisting of gaged flows and computed accretions, as computed in Table 4.3-1
[3] Period of record is 10/1/1969-9/30/2020 for the Historical Conditions and 10/1/1975-9/30/2008for the Unimpaired Condition
Key: cfs = cubic feet per second TAF = thousand acre-feet

## 5.4 Yuba River at Smartsville

Yuba River flow at Smartsville is regarded by several agencies, including YWA, PG&E, and DWR, as the key indicator of Yuba River Watershed flow. The USGS has published daily gage

data at USGS Gage 11418000 since October 1941. Table 5.4-1 shows the historical monthly average Yuba River flow at Smartsville for the POR.

**Table 5.4-1. Historical Monthly Average Yuba River Flow at Smartsville.**

| Location | Average[2] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Yuba River at Smartsville[1] | 1,288 | 1,479 | 2,333 | 3,574 | 3,495 | 3,585 | 2,919 | 3,182 | 2,637 | 2,048 | 2,022 | 1,419 | 1,790 |

Notes:
[1] Yuba River at Smartsville flow from USGS Gage 11418000
[2] Period of record is 10/1/1969-9/30/2020
Key: cfs = cubic feet per second TAF = thousand acre-feet

Adding flows from the North Yuba, Middle Yuba, and South Yuba rivers with the computed accretions to the Yuba River above Englebright Reservoir and to Englebright Reservoir yields Yuba River flows without the YRDP. Table 5.4-2 shows the computed monthly average Yuba River flow at Smartsville without the YRDP.

**Table 5.4-2. Monthly Average Yuba River Flow at Smartsville without the YRDP.**

| Location | Average[6] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| North Yuba River[1] | 247 | 485 | 1,044 | 1,737 | 2,188 | 2,551 | 2,761 | 2,826 | 1,884 | 777 | 326 | 226 | 1,026 |
| Middle Yuba River[2] | 59 | 183 | 466 | 780 | 895 | 1,022 | 948 | 811 | 428 | 126 | 53 | 43 | 349 |
| South Yuba River[3] | 68 | 194 | 505 | 819 | 949 | 1,043 | 941 | 961 | 700 | 158 | 55 | 50 | 387 |
| Accretions to Englebright Reservoir[4] | 4 | 7 | 39 | 115 | 199 | 219 | 229 | 155 | 88 | 30 | 9 | 4 | 66 |
| Total Flow[5] | 377 | 869 | 2,055 | 3,451 | 4,231 | 4,835 | 4,880 | 4,753 | 3,100 | 1,091 | 443 | 323 | 1,828 |

Notes:
[1] North Yuba River at New Bullards Bar Dam Site, as shown in Table 5.1-2
[2] Middle Yuba River at its Confluence with North Yuba River, as shown in Table 5.2-2
[3] South Yuba River at its Confluence with Yuba River as shown in Table 5.3-1
[4] Accretions to Englebright Reservoir area as shown in Table 3.2-6
[5] Total Inflow is the summation of tributary flow and accretions
[6] Period of record is 10/1/1969-9/30/2020
Key: cfs = cubic feet per second TAF = thousand acre-feet

Table 5.4-3 shows a comparison of the total Yuba River flows at Smartsville from Tables 5.4-1 and 5.4-2. The periods of record of the unimpaired flow is different from the other two flows, however, since all three are long-term averages, the information in the tables remains illustrative of relative flows under each condition. Since the YRDP does not divert water out of the basin above Smartsville, differences between the annual flow volume with and without the YRDP are reflective of several factors including gage error and evaporation. The average annual difference in flow between Historical Conditions and Non-YRDP Conditions is approximately 38 TAF. USGS acknowledges its gages have a margin of error of 5 to 10 percent (USGS 1992); the 38 TAF difference mentioned above would represent a 2 percent error in average annual Yuba River flow volume at Smartsville.

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Yuba Accord

**Table 5.4-3. Comparison of Monthly Average Yuba River Flow at Smartsville under Various Developmental Conditions.**

| Location | Average[4] Monthly Flow (cfs) | | | | | | | | | | | | Total (TAF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | |
| Historical Conditions[1] | 1,288 | 1,479 | 2,333 | 3,574 | 3,495 | 3,585 | 2,919 | 3,182 | 2,637 | 2,048 | 2,022 | 1,419 | 1,790 |
| Non-YRDP Conditions[2] | 377 | 869 | 2,055 | 3,451 | 4,231 | 4,835 | 4,880 | 4,753 | 3,100 | 1,091 | 443 | 323 | 1,828 |
| Unimpaired Condition[3] | 403 | 1,057 | 2,473 | 3,944 | 5,048 | 5,963 | 6,354 | 6,771 | 3,807 | 1,229 | 429 | 316 | 2,275 |

Notes:
1 Historical Conditions reflect historical reservoir inflows as observed and described in Table 5.4-1
2 Non-YRDP Conditions reflects computed inflow consisting of gaged flows and computed accretions, as computed in Table 5.4-2
3 Unimpaired Condition reflects computed inflow consisting of gaged flows and computed accretions, as computed in Table 4.4-1
4 Period of record is 10/1/1969-9/30/2010 for the Current and Non-YRDP conditions and 10/1/1975-9/30/2008 for the Unimpaired Condition
Key: YRDP = Yuba River Development Project cfs = cubic feet per second TAF = thousand acre-feet

**SECTION 6**

# REFERENCES

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# Appendix C3

## Modeling Data

# Appendix C3

Model Version: YRDPM Version 3.102
Simulation Period: Water Year 1970 to 2021

Groundwater Substitution Transfers (Pumping Volume in TAF)

1970 to 1994 from LYRBM Sim 19.3 Scenario 3 used in 2007 Accord EIR. 1995 to 2021 from YWA historical GWS transfers.

| Year | Year Type | Pumping Volume | Year | Year Type | Pumping Volume | Year | Year Type | Pumping Volume |
|---|---|---|---|---|---|---|---|---|
| 1971 | Wet | - | 1981 | Dry | 90 | 1991 | Critical | 60 |
| 1972 | Below Normal | - | 1982 | Wet | - | 1992 | Critical | 30 |
| 1973 | Above Normal | - | 1983 | Wet | - | 1993 | Above Normal | - |
| 1974 | Wet | - | 1984 | Wet | - | 1994 | Critical | 90 |
| 1975 | Wet | - | 1985 | Dry | 68 | 1995 | Wet | - |
| 1976 | Critical | 90 | 1986 | Wet | - | 1996 | Wet | - |
| 1977 | Critical | - | 1987 | Dry | 90 | 1997 | Wet | - |
| 1978 | Above Normal | - | 1988 | Critical | 60 | 1998 | Wet | - |
| 1979 | Below Normal | - | 1989 | Dry | 30 | 1999 | Wet | - |
| 1980 | Above Normal | - | 1990 | Critical | 90 | 2000 | Above Normal | - |

| Year | Year Type | Pumping Volume | Year | Year Type | Pumping Volume |
|---|---|---|---|---|---|
| 2001 | Dry | 62 | 2011 | Wet | - |
| 2002 | Dry | 57 | 2012 | Below Normal | - |
| 2003 | Above Normal | - | 2013 | Dry | 57 |
| 2004 | Below Normal | - | 2014 | Critical | 57 |
| 2005 | Above Normal | - | 2015 | Critical | - |
| 2006 | Wet | - | 2016 | Below Normal | - |
| 2007 | Dry | - | 2017 | Wet | - |
| 2008 | Critical | 50 | 2018 | Below Normal | 16 |
| 2009 | Dry | 100 | 2019 | Wet | - |
| 2010 | Below Normal | 68 | 2020 | Dry | 77 |

** Note – No transfer pumping occurred in 1970 or 2021. Pumping in Schedule 6 years occurs automatically if Schedule 6 results in the simulation. The Proposed Extension/Existing Condition simulation results in a Schedule 6 for 2015 – 30TAF of pumping not shown in the table*

Resulting Yuba Accord Water Year Type Schedules

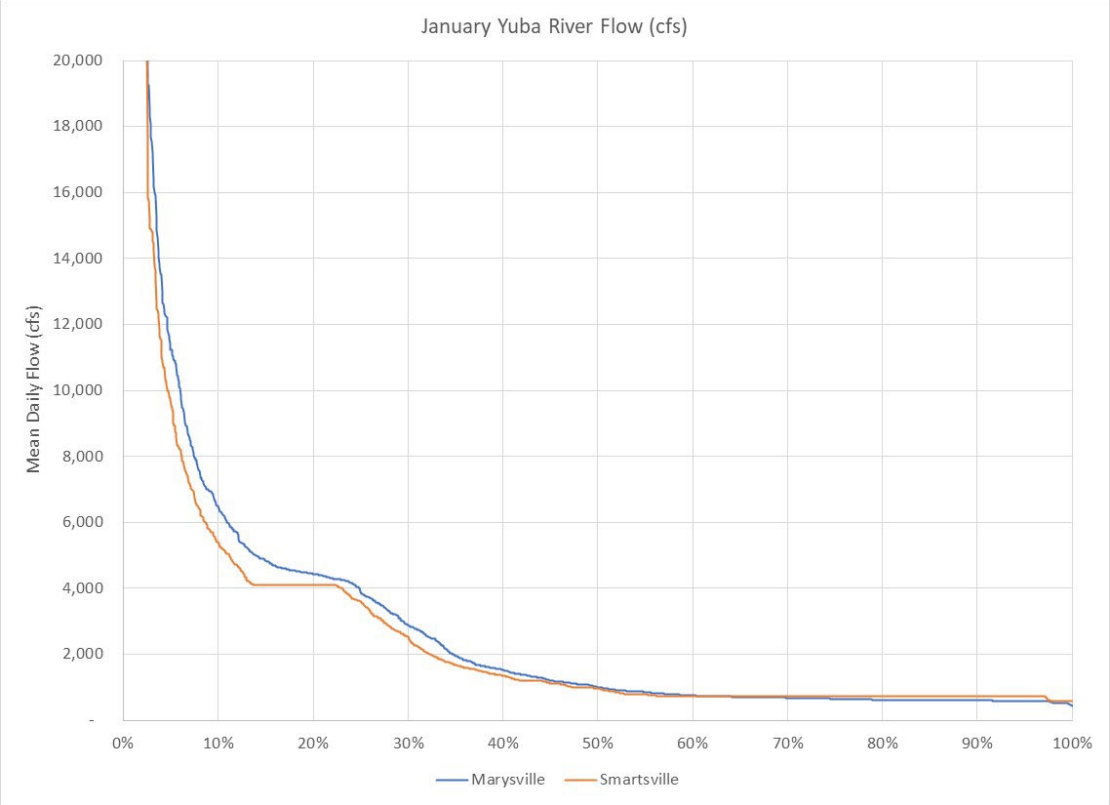
| Year Type Schedule | Count | Percent of Total |
|---|---|---|
| 1 | 32 | 62% |
| 2 | 10 | 19% |
| 3 | 4 | 8% |
| 4 | 1 | 2% |
| 5 | 3 | 6% |
| 6 | 1 | 2% |
| Conference Year | 1 | 2% |
| TOTAL | 52 | 100% |

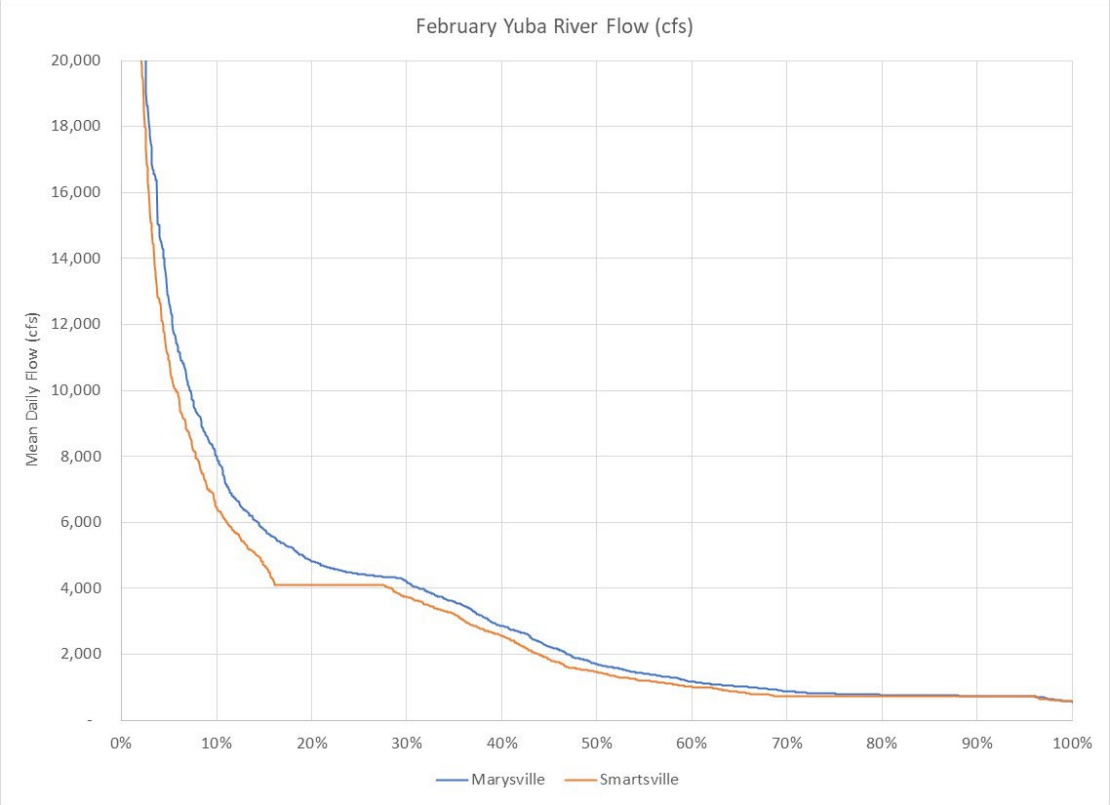
Existing Condition/Proposed Extension Yuba River at Marysville (Yuba River Outflow) Flow

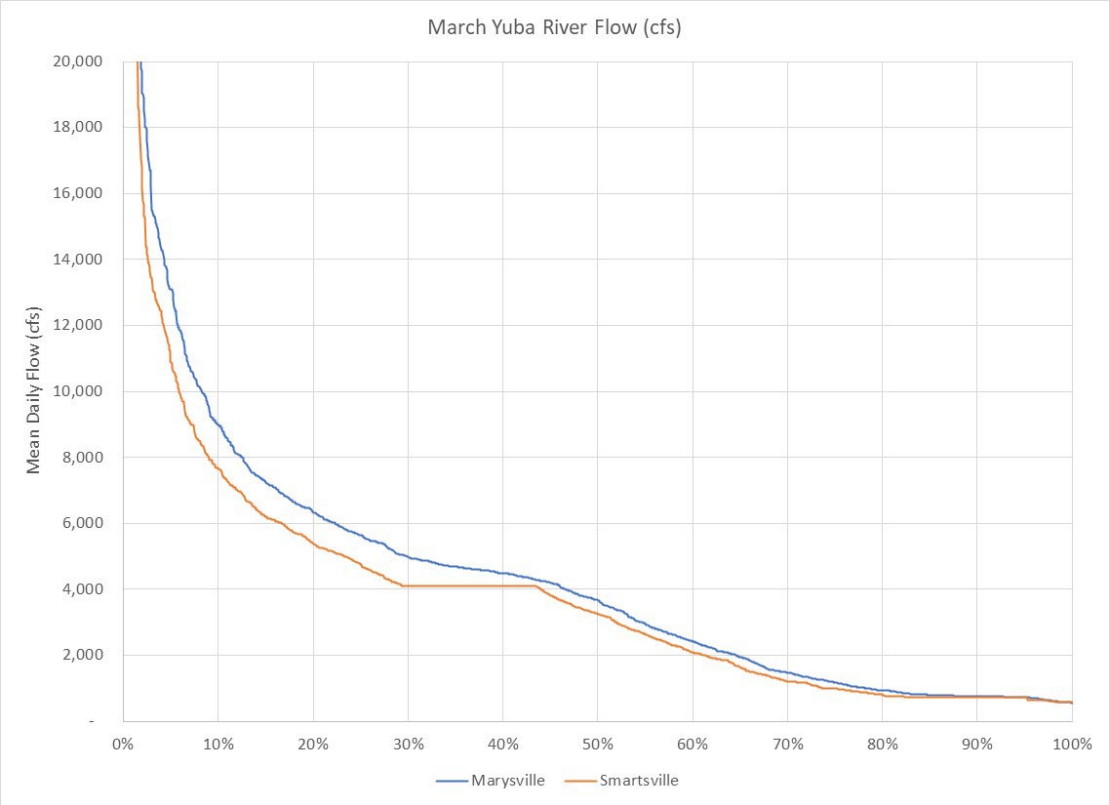
Average Monthly Flow by Year Type (Sacramento Valley Index) (CFS)

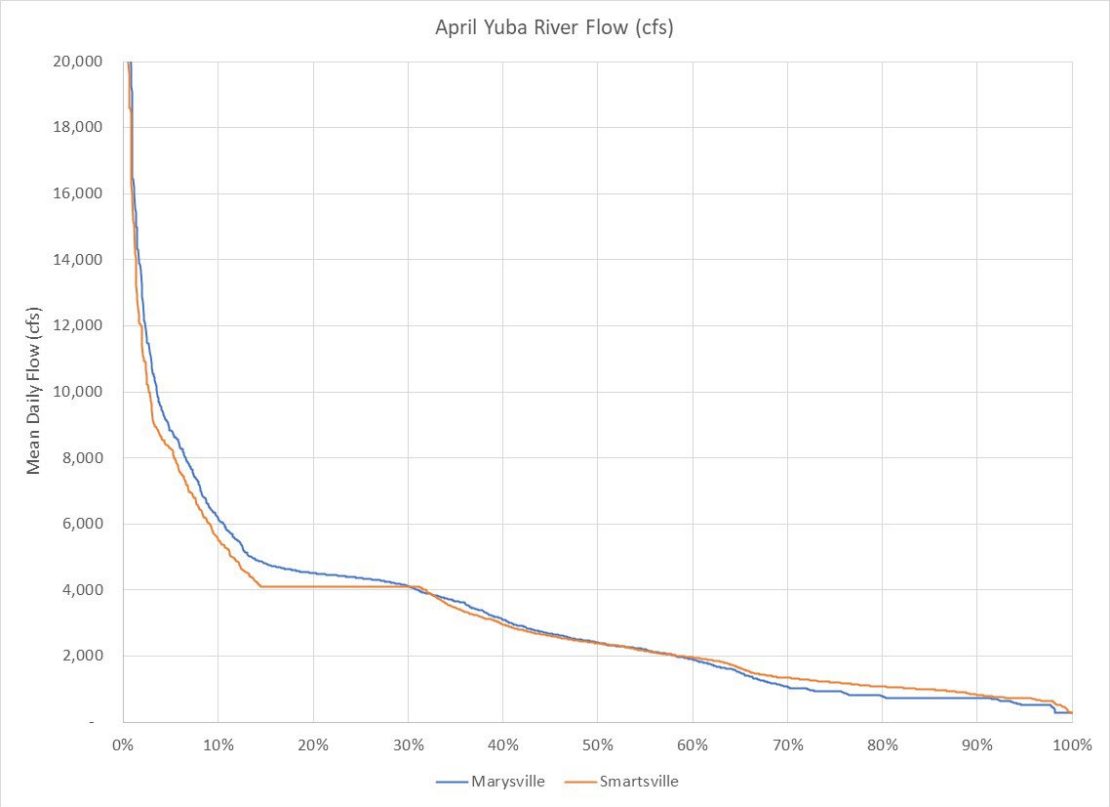
| Water Year Type | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wet | 555 | 1,204 | 4,206 | 7,253 | 8,511 | 7,844 | 5,646 | 5,295 | 4,403 | 2,079 | 1,550 | 735 |
| Above Normal | 519 | 534 | 1,032 | 4,432 | 4,525 | 5,030 | 3,429 | 3,831 | 2,974 | 1,488 | 1,033 | 590 |
| Below Normal | 515 | 617 | 756 | 1,257 | 1,572 | 4,574 | 3,373 | 2,546 | 2,027 | 1,018 | 852 | 556 |
| Dry | 525 | 679 | 1,162 | 933 | 1,372 | 2,355 | 1,722 | 1,615 | 934 | 1,066 | 975 | 546 |
| Critical | 519 | 546 | 631 | 720 | 992 | 1,065 | 727 | 730 | 586 | 843 | 778 | 455 |

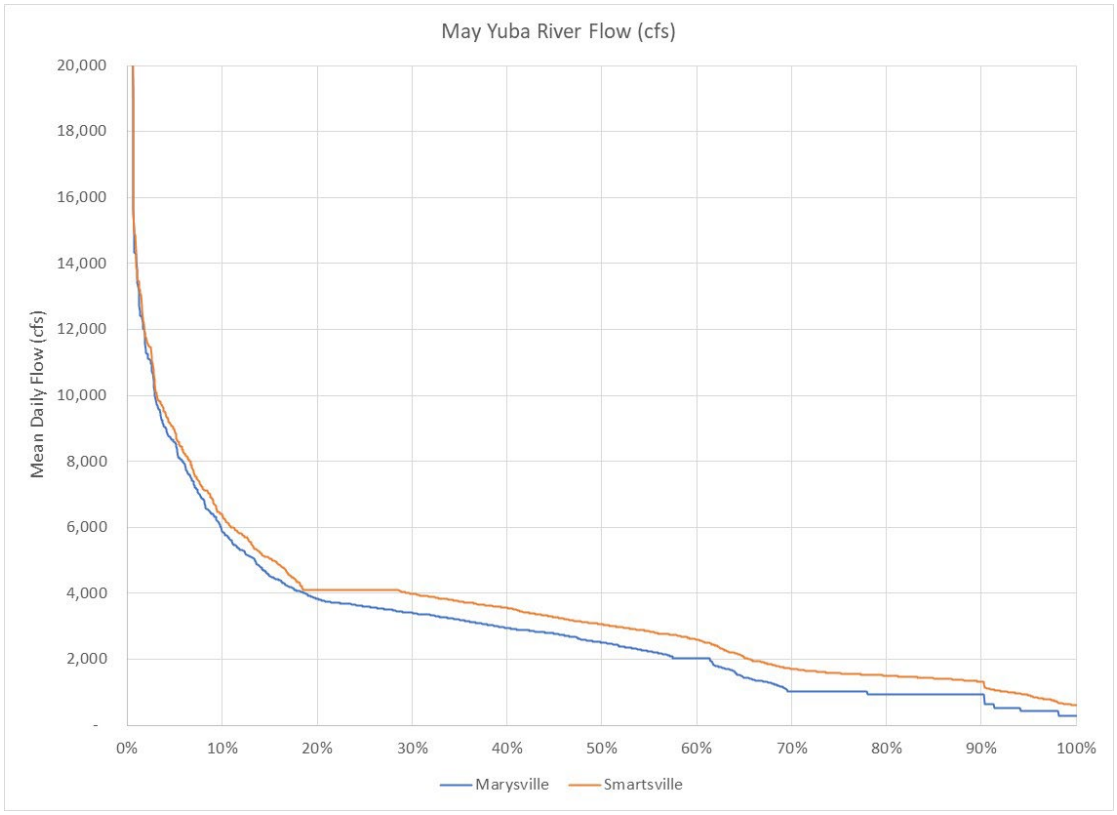
Existing Condition/Proposed Extension Simulation Resulting lower Yuba River Flow (cfs) Exceedance Probability by Month

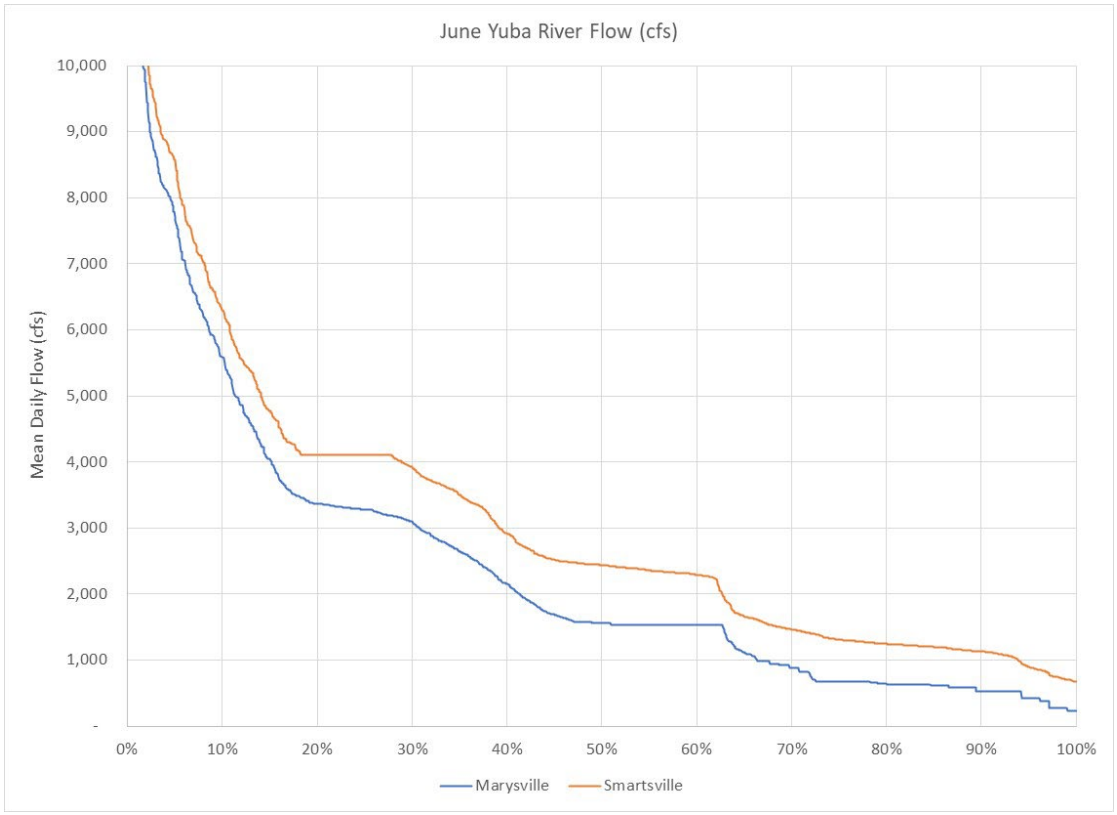


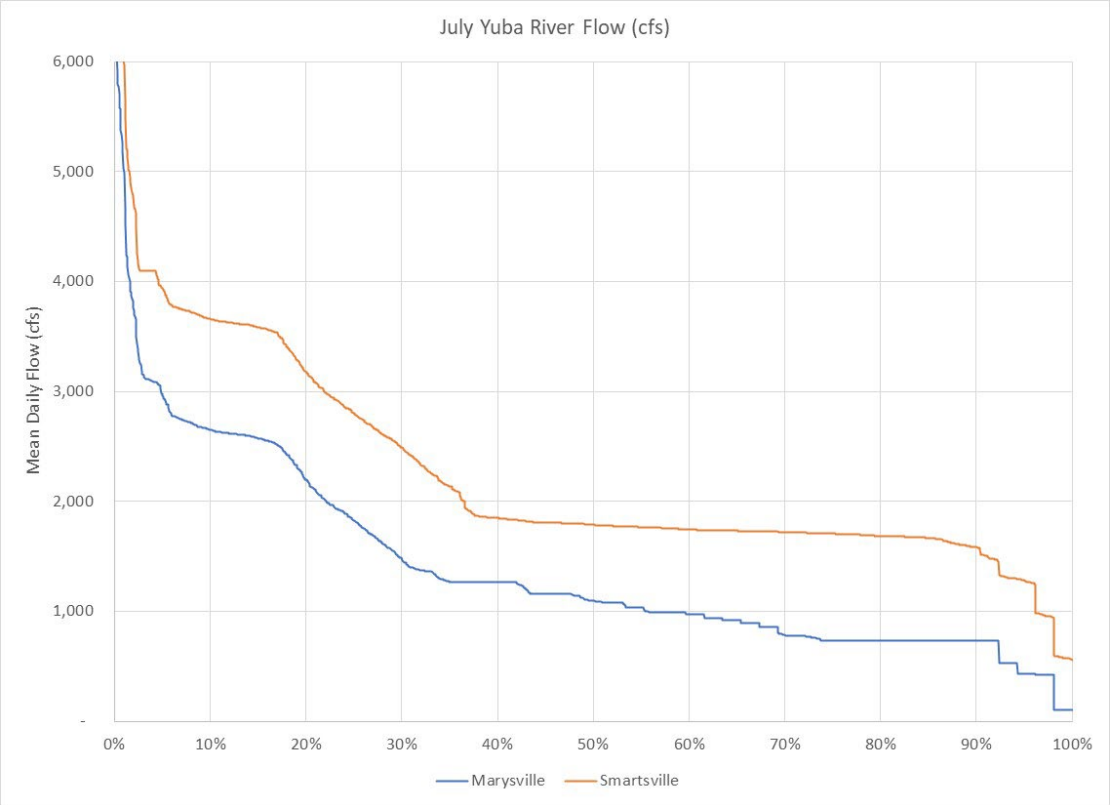



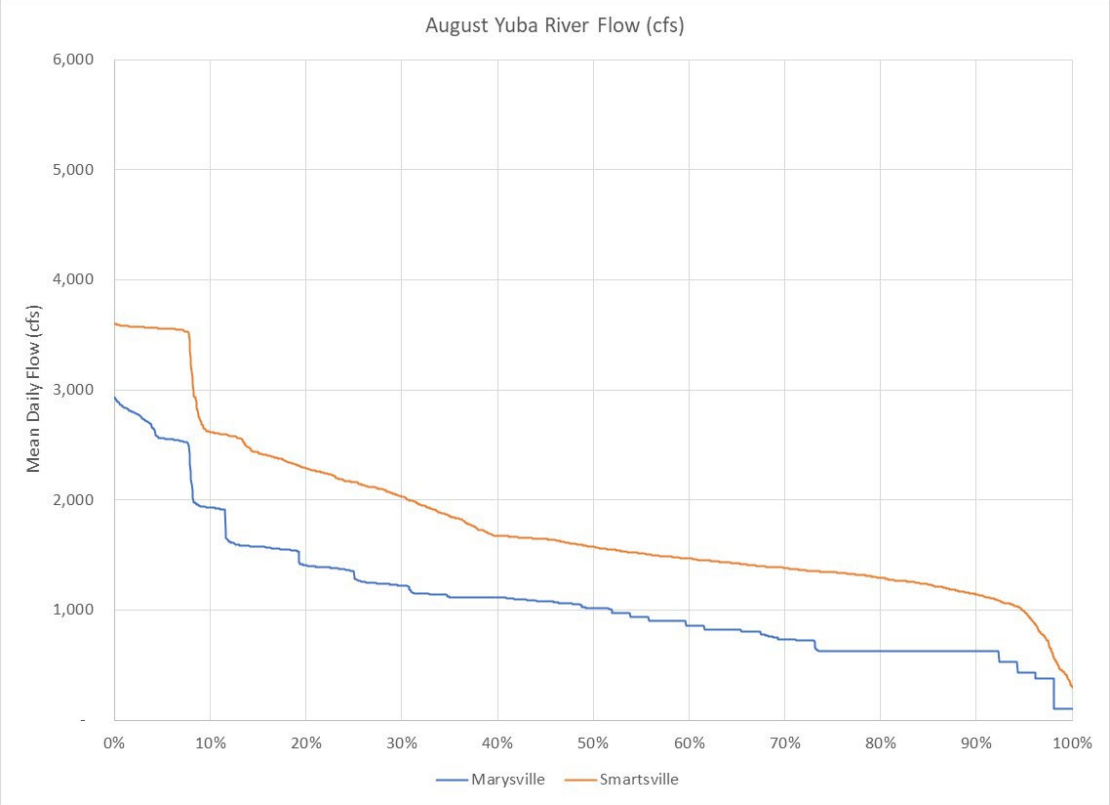

March Yuba River Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

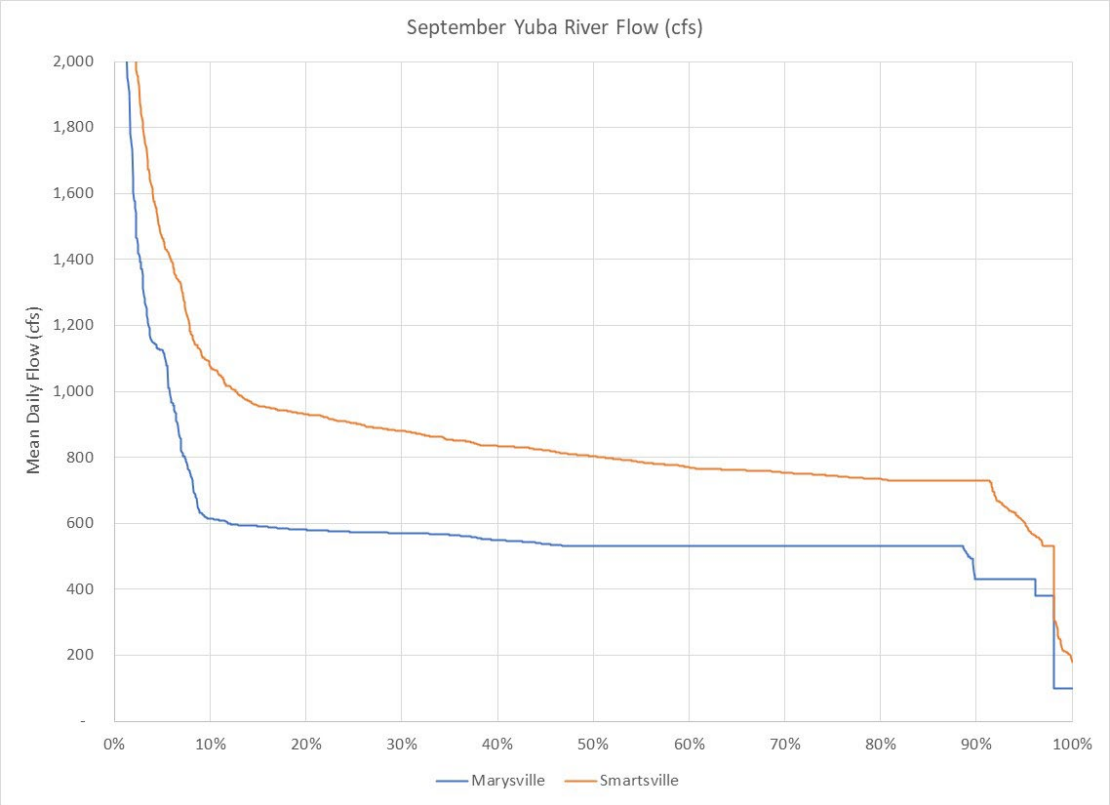

April Yuba River Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

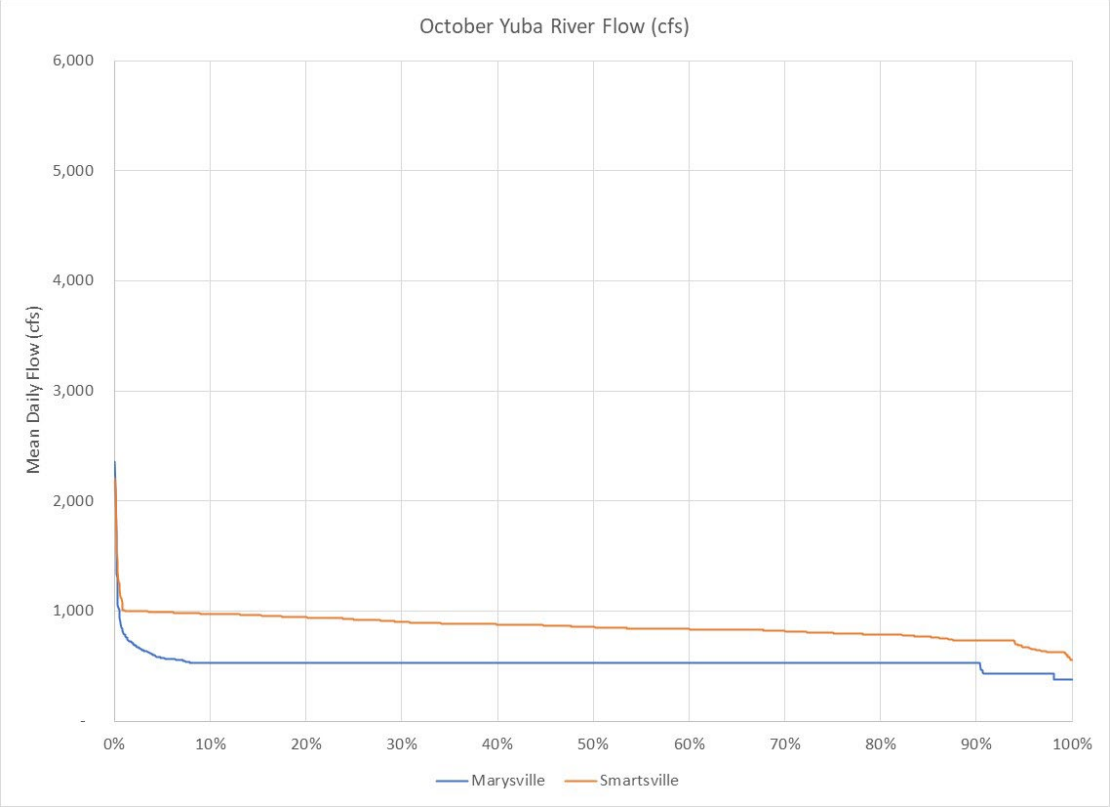

May Yuba River Flow (cfs)
Mean Daily Flow (cfs)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

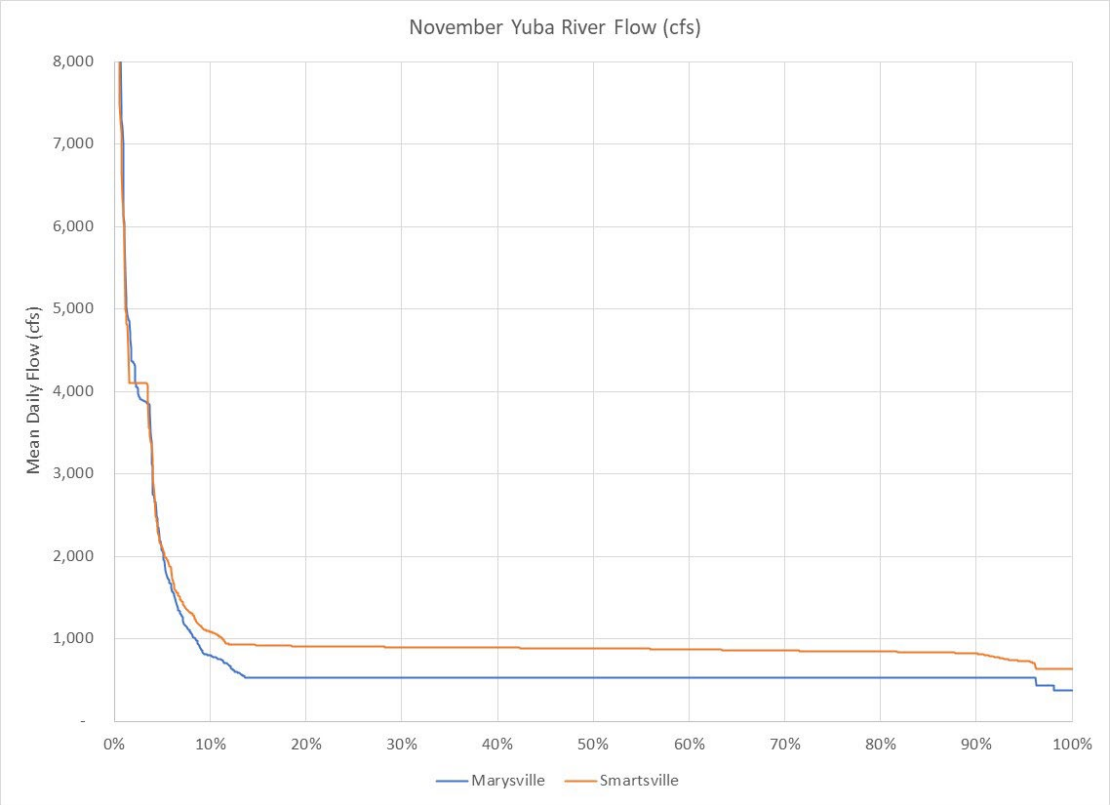

June Yuba River Flow (cfs)
Mean Daily Flow (cfs)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville

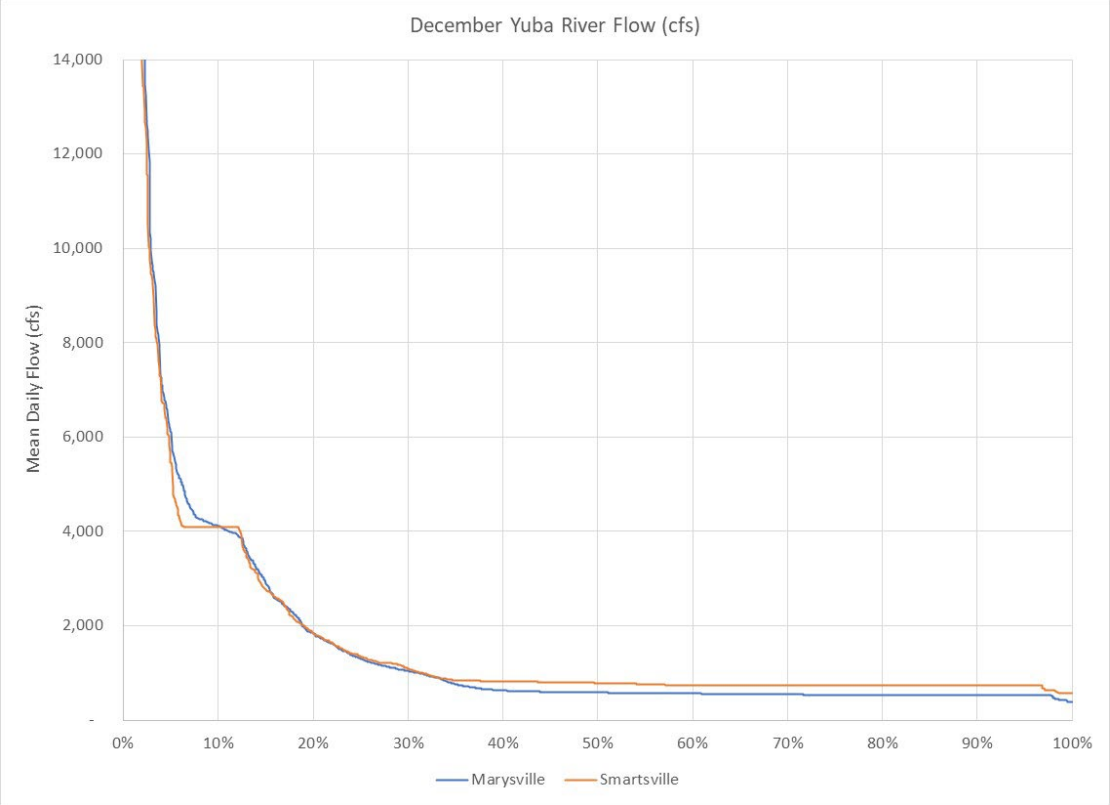

July Yuba River Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


August Yuba River Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


September Yuba River Flow (cfs)
Mean Daily Flow (cfs)
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


October Yuba River Flow (cfs)
Mean Daily Flow (cfs)
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


November Yuba River Flow (cfs)
Mean Daily Flow (cfs)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville


December Yuba River Flow (cfs)
Mean Daily Flow (cfs)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Marysville
Smartsville