Draft
Environmental Impact Report/
Environmental Impact Statement
for the
Proposed Lower Yuba River Accord

PREPARED FOR:

DEPARTMENT OF WATER RESOURCES · STATE OF CALIFORNIA

YUBA COUNTY WATER AGENCY · 1959

U.S. DEPARTMENT OF THE INTERIOR · BUREAU OF RECLAMATION

PREPARED BY:

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JUNE 2007

EXECUTIVE SUMMARY

INTRODUCTION

The Yuba River Basin drains approximately 1,339 square miles of the western Sierra Nevada slope, including portions of Sierra, Placer, Yuba, and Nevada counties. The Yuba River has been the subject of controversy since the 1850s, when hydraulic mining and other destructive mining techniques during the Gold Rush took a significant toll on the river. Debris from these activities clogged the river, damaged salmon and steelhead spawning beds, and led to later flooding in nearby communities. In the late 1960s, to reduce the risk of flooding in Yuba County, the Yuba County Water Agency (YCWA) financed and built the Yuba River Development Project (Yuba Project), which includes New Bullards Bar Dam and Reservoir, several small dams, diversion tunnels, and hydroelectric generating facilities located above and below Englebright Dam. Today, the Yuba River is one of California's most important rivers because it provides habitat for some of the Central Valley's last wild, native Chinook salmon and steelhead runs. Conflicting roles related to fisheries resources, water supply reliability, flood concerns, and surface and groundwater management associated with the Yuba River have resulted in ongoing water rights litigation between environmental and water supply interests.

YCWA and the United States Department of the Interior (Interior) Bureau of Reclamation (Reclamation), as lead agencies under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), respectively, have jointly prepared this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for implementation of the Proposed Lower Yuba River Accord (Proposed Yuba Accord or Yuba Accord Alternative). The Proposed Yuba Accord represents an effort on the part of Yuba River stakeholders to find a solution to the challenges of competing interests by providing water for fisheries, developing new tools to ensure local water supply reliability, crafting a revenue stream to pay for the Yuba Accord Alternative, and providing additional water for out-of-county environmental and consumptive uses.

The Yuba Accord Alternative (also referred to as the "Proposed Project/Action") includes three separate but interrelated proposed agreements that would protect and enhance fisheries resources in the lower Yuba River, increase local supply reliability, and provide Reclamation and the California Department of Water Resources (DWR) with increased operational flexibility for protection of Sacramento-San Joaquin Delta (Delta) fisheries resources through the Environmental Water Account (EWA) Program, and provision of supplemental dry-year water supplies to state and federal water contractors. These proposed agreements, which are in Appendix B and discussed in detail in Chapter 3 are the:

- *Principles of Agreement for Proposed Lower Yuba River Fisheries Agreement* (Fisheries Agreement);
- *Principles of Agreement for Proposed Conjunctive Use Agreements* (Conjunctive Use Agreements); and
- *Principles of Agreement for Proposed Long-term Transfer Agreement* (Water Purchase Agreement).

The Fisheries Agreement was developed by state, federal, and consulting fisheries biologists, fisheries advocates, and policy representatives. Compared to the interim flow requirements of the State Water Resources Control Board (SWRCB) Revised Water Right Decision 1644

(RD-1644), the Fisheries Agreement would establish higher minimum instream flows during most months of most water years.

To assure that YCWA's water supply reliability would not be reduced by the higher minimum instream flows, YCWA and its participating Member Units[1] would implement the Conjunctive Use Agreements. These agreements would establish a comprehensive conjunctive use program that would integrate the surface water and groundwater supplies of the local irrigation districts and mutual water companies that YCWA serves in Yuba County. Integration of surface water and groundwater would allow YCWA to increase the efficiency of its water management.

Under the Water Purchase Agreement, Reclamation and DWR would enter into an agreement with YCWA to purchase water from YCWA for use in the EWA Program or an equivalent program as long as operational and hydrological conditions allow. Additional water purchased by Reclamation and DWR would be available for the Central Valley Project (CVP) and the State Water Project (SWP) in drier years. The EWA Program would take delivery of water in every year; the CVP/SWP would receive additional water in the drier years.

The Fisheries Agreement is the cornerstone of the Yuba Accord Alternative. To become effective, however, all three agreements (Fisheries, Conjunctive Use, and Water Purchase) must undergo CEQA and NEPA review and be fully approved and executed by the individual parties to each agreement. Also, implementation of the Yuba Accord Alternative would require appropriate SWRCB amendments of YCWA's water-right permits and RD-1644.

PROJECT STUDY AREA

The project study area includes those regions that might benefit from or potentially be affected by implementation of a project that changes water management of the lower Yuba River. The study area includes: (1) Yuba Project facilities and the lower Yuba River; (2) the YCWA Member Units and their service areas; (3) local groundwater basins; (4) CVP and SWP storage reservoirs and rivers downstream of these reservoirs; and (5) the Delta. Additionally, San Luis Reservoir and areas served by downstream CVP/SWP water users (the Export Service Area) are considered. Therefore, the geographic areas influenced by implementation of the Proposed Project/Action or an alternative are described and evaluated in the following four primary regions:

- Yuba Region
- CVP/SWP Upstream of the Delta Region
- Delta Region
- Export Service Area

A general overview of the four regions evaluated in this EIR/EIS is provided below; detailed descriptions are included in Section 2.1, Project Study Area.

[1] The Member Units are the water districts, irrigation districts, and mutual water companies that obtain water from YCWA for deliveries to end-users.

YUBA REGION

The Yuba Region encompasses the lower Yuba River Basin, including: storage and hydropower facilities located in the basin; the riparian corridor along the North Yuba River downstream of New Bullards Bar Dam; the lower Yuba River downstream of Englebright Dam to the confluence with the Feather River; the YCWA Member Unit water service areas; the local groundwater basin; and lands overlying the groundwater basin. Waterbodies, water supply facilities, and associated land areas in this region include the following:

- Reservoirs, including instream and riparian areas
  - New Bullards Bar Reservoir
- Yuba River, including instream and riparian areas
- YCWA Member Unit service areas
  - 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
  - Wheatland Water District
- Yuba Groundwater Basin
  - North Yuba Subbasin
  - South Yuba Subbasin

CVP/SWP UPSTREAM OF THE DELTA REGION

The CVP/SWP Upstream of the Delta Region includes the reservoirs, rivers, and components of the CVP and SWP that may be affected by integrated operation of the CVP/SWP system under the Proposed Project/Action or an alternative. These facilities include the following:

- Reservoirs, including instream and riparian areas
  - Oroville Reservoir
- River systems below reservoirs, including instream and riparian areas
  - Sacramento River (from the confluence with the Feather River downstream to the Delta)
  - Feather River (from Oroville Dam to the confluence with the Sacramento River)

Several features and facilities (e.g., Shasta and Folsom reservoirs) within the project study area have been eliminated from further analytical consideration because the Proposed Project/Action and alternatives would not affect these water bodies (see Section 4.2).

SACRAMENTO/SAN JOAQUIN DELTA REGION (DELTA REGION)

This region is defined as the Delta at and in the vicinity of the confluence of the Sacramento River and San Joaquin River and includes the CVP Jones Pumping Plant and the SWP Banks Pumping Plant in the south Delta (export pumps).

EXPORT SERVICE AREA

The Export Service Area is defined as those lands that receive, store or use CVP and SWP water pumped from the Delta. For the purposes of this EIR/EIS, this area includes San Luis Reservoir, the San Joaquin Valley and CVP/SWP customers in the Bay Area, south central California Coast, and southern California.

OVERVIEW OF THE PROJECT OBJECTIVES AND PURPOSE AND NEED

The purpose of the Proposed Yuba Accord is to resolve instream flow issues associated with operation of the Yuba Project in a way that protects and enhances lower Yuba River fisheries and local water supply reliability. Also, YCWA has a goal to provide revenues for local flood control and water supply projects. Reclamation and DWR have a goal to obtain water for the CALFED Bay/Delta Program (CALFED) to use for protection and restoration of Delta fisheries and for improvements in statewide water supply reliability, including supplemental water for the CVP and SWP. As a state agency party to the Proposed Yuba Accord, DWR also would be involved in the purchase of Yuba Project water for use in the EWA Program or an equivalent program[2] and for SWP contractor supplies. Along with the lead agencies, DWR representatives participated in the oversight, development, and review of project documentation to ensure that this EIR/EIS satisfies DWR's CEQA requirements.

Related to the purpose and need for this project, the Proposed Project/Action or an alternative is intended to accomplish the following objectives:

Yuba County (Yuba Region)

- Implement a level of protection for lower Yuba River fisheries equivalent to or greater than the level of protection under SWRCB RD-1644.
- Improve Yuba County water supply management and reliability to meet local service area needs.
- Provide revenue to YCWA to fund: (1) a comprehensive conjunctive use program; (2) Yuba County flood control improvements; and (3) implementation of the Yuba Accord, including long-term fisheries monitoring, studies, and enhancement programs and other YCWA activities.

[2] The purposes of the existing EWA Program are to: (1) protect the at-risk fish species affected by SWP/CVP operations and facilities, (2) contribute to the recovery of these species, (3) allow timely water-management responses to changing environmental conditions and changing fish protection needs, (4) provide reliable water supplies to water users in CVP/SWP export areas, and (5) not result in uncompensated water loss to users (Reclamation 2003). In the future, a long-term EWA Program or a program equivalent to the EWA may be implemented. Although future operations associated with an equivalent program may or may not be similar to those under the existing EWA Program, it is assumed that such a program in the future would provide a level of protection equivalent to that which is provided by the existing EWA Program.

CVP/SWP System (CVP/SWP Upstream of the Delta Region, Delta Region and Export Service Area)

- Continue to provide water for use by the EWA Program or an equivalent program.
- Improve CVP and SWP water supply reliability.

Meeting the objectives of protecting and enhancing the Yuba River fisheries also is intended to resolve all or almost all of the pending litigation challenging RD-1644.

Various signatories and participants in the Proposed Yuba Accord, as a consequence of their various authorities, may prioritize the above objectives differently. For example, Reclamation and DWR are seeking to enable a long-term acquisition of water for the Delta, for use in the EWA Program or an equivalent program, and to improve water supply reliability for state and federal water contractors. The National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) are seeking to protect and enhance lower Yuba River fisheries resources and aquatic habitat. YCWA and its participating Member Units are seeking to: (1) protect local water supply reliability; (2) protect the Yuba River fisheries in a way that will settle the litigation challenging RD-1644; and (3) provide a revenue stream to support needed flood control and water-resource improvements in Yuba County.

PROPOSED PROJECT/ACTION AND ALTERNATIVES

Under CEQA and NEPA, an EIR/EIS should consider a range of reasonable alternatives that could feasibly attain the purpose and need and most of the basic objectives of the project, but would avoid or substantially lessen any of the significant impacts of the project. CEQA and NEPA also require analysis of a "No Project" alternative and a "No Action" alternative, respectively.

Potential alternatives were considered in two forums. First, a wide variety of alternatives were considered during the collaborative development of the Proposed Project/Action Alternative, as described in Section 3.4, Alternatives Considered and Eliminated from Detailed Evaluation. Second, variations on the Proposed Project/Action Alternative were considered during the public scoping process for this EIR/EIS. Reasons describing why these variations on the Proposed Project/Action Alternative are not analyzed in this EIR/EIS are presented in Section 3.4.

The EIR/EIS evaluates four alternatives:

- Yuba Accord Alternative (Proposed Project/Action)
- Modified Flow Alternative
- No Project Alternative (as defined by CEQA)
- No Action Alternative (as defined by NEPA)

The Proposed Project/Action would implement the Yuba Accord Alternative, including its three primary proposed elements: (1) Fisheries Agreement; (2) Conjunctive Use Agreements; and (3) Water Purchase Agreement.

YUBA ACCORD ALTERNATIVE

The Yuba Accord Alternative is the result of over two years of work and discussions by Yuba River stakeholders to resolve the controversy regarding RD-1644. The comprehensive proposal contained in the Fisheries Agreement, which is the cornerstone of the Yuba Accord Alternative, was developed by YCWA, South Yuba River Citizens League, Trout Unlimited, The Bay Institute, Friends of the River, CDFG, USFWS, and NMFS. The Fisheries Agreement contains proposed new minimum instream flows for the lower Yuba River that are intended to maintain or increase protection of the river's fisheries resources. In addition to the best available science and data, the comments of the participating state, federal, and local fisheries biologists, fisheries advocates, and policy representatives were considered during development of the Yuba Accord Alternative. A fundamental precept of the Yuba Accord Alternative is the provision of instream flows during specified periods of the year that are higher than the interim instream flow requirements of RD-1644.

To help provide these flows, YCWA proposes to implement the Conjunctive Use Agreements, which would establish a comprehensive conjunctive use program that would provide for comprehensive management of the surface water and groundwater supplies within Yuba County, in coordination with the local irrigation districts and mutual water companies that YCWA serves in the county and that agree to participate in the program.

MODIFIED FLOW ALTERNATIVE

While the No Project and No Action alternatives (described below) include future flow regimes based on RD-1644, the Modified Flow Alternative represents a scenario in which RD-1644 would not remain in effect. Instead, instream flow requirements would be based on YCWA's voluntary implementation of the RD-1644 Interim flows (which are similar to the flows in a minimum flow proposal made by YCWA during the RD-1644 hearings), modified to include a Conference Year concept for the driest one percent of water years.

NO PROJECT ALTERNATIVE

The No Project Alternative describes current environmental conditions plus 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 is not implemented. For CEQA purposes, the No Project Alternative is characterized by conditions that would be different from the Existing Condition.

The two primary differences between the Existing Condition and the No Project Alternative are:

- The instream flow schedule of the No Project Alternative would be the RD-1644 Long-term requirements rather than the RD-1644 Interim requirements, which are included in the Existing Condition.
- The Wheatland Canal would be operational under the No Project Alternative, increasing annual diversions at Daguerre Point Dam by approximately 40 thousand acre-feet (TAF) over the amounts in the Existing Condition, thereby increasing annual in-lieu groundwater recharge in Yuba County by a similar volume.

These two changes would significantly 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 and for projects to protect and enhance lower Yuba River fisheries.

NO ACTION ALTERNATIVE

The key elements and activities (e.g., implementation of the RD-1644 Long-term instream flow requirements and implementation of the Wheatland Project) described above for the No Project Alternative also are included in the No Action Alternative. However, as required by NEPA, the No Action Alternative assumes that 2025 conditions would be in place, which would be different from the 2007 conditions assumed for the CEQA No Project Alternative. Although implementation of the RD-1644 Long-term instream flow requirements would occur under both the No Project and No Action alternatives, the resultant model outputs for both scenarios are different because of variations in the way existing and future YCWA, Reclamation, and DWR operations are characterized (see Appendix D for further information). Additional differences between the No Project Alternative and the No Action Alternative involve the number of other reasonably foreseeable future projects that are on the planning horizon, which are included in the analytical assumptions used for modeling purposes in the No Action Alternative, but not in the No Project Alternative.

ENVIRONMENTAL IMPACTS/CONSEQUENCES

This EIR/EIS presents information pertinent to, and describes, the potential impacts of the Proposed Project/Action and alternatives on the environment, in accordance with CEQA and NEPA. This EIR/EIS includes analytical sections for the following 17 resource categories: surface water supply and management, groundwater resources, power production and energy consumption, 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, and Indian Trust Assets.

To address the analytical requirements of CEQA and NEPA, as well as those of interest to the SWRCB, a suite of comparative scenarios has been developed to characterize the modeling assumptions used to represent conditions under the Proposed Project/Action and alternatives, relative to the bases of comparison. For CEQA impact assessment purposes, the alternatives (i.e., Yuba Accord, Modified Flow, and No Project) are compared to the Existing Condition. For NEPA impact assessment purposes, the alternatives (i.e., Yuba Accord, Modified Flow) are compared to the No Action Alternative. Although not required by CEQA or NEPA, the alternatives (i.e., Yuba Accord and Modified Flow) also are compared to the No Project Alternative. These latter two comparisons are made to provide the SWRCB and interested parties with additional information that is relevant to water-rights issues.

CEQA and NEPA have different legal and regulatory standards that require slightly different assumptions in the modeling runs used to compare the Proposed Project/Action and alternatives to the appropriate CEQA and NEPA bases of comparison in the impact assessments. Although only one project (the Yuba Accord Alternative) and one other action alternative (the Modified Flow Alternative) are evaluated in this EIR/EIS, it is necessary to use separate NEPA and CEQA modeling scenarios for the Proposed Project/Action, alternatives and bases of comparisons to make the appropriate comparisons. As a result, the scenarios compared in the impact assessments have either a "CEQA" or a "NEPA" prefix before the name of the alternative being evaluated. Additional details regarding specific modeling assumptions for each simulation are presented in Appendix D.

While the CEQA and NEPA analyses in this EIR/EIS refer to "potentially significant," "less than significant," "no", and "beneficial" impacts, the first two comparisons (CEQA Yuba Accord Alternative compared to the CEQA No Project Alternative and CEQA Modified Flow Alternative compared to the CEQA No Project Alternative) presented in the columns in Table ES-1 below instead refer to whether or not the proposed change would "unreasonably affect" the evaluated parameter. This is because these first two comparisons are made to determine whether the action alternative would satisfy the requirement of Water Code Section 1736 that the proposed change associated with the action alternative "*would not unreasonably affect fish, wildlife, or other instream beneficial uses*."

Table ES-1 presents a summary of how the Proposed Project/Action and alternatives could affect the natural, physical, and social environments. The table describes each effect and states whether the effect would be potentially significant or less than significant. For the water-rights comparisons, the table states whether or not the Proposed Project/Action and other action alternatives would unreasonably affect these environments.

Table ES-2 presents a qualitative overview and comparison of the alternatives evaluated to satisfy NEPA requirements. Based on the effects assessments presented in each of the resource chapters, and based on the level of significance (i.e., significance determination) presented in the resource chapters and summarized in Table ES-1, it was determined that several types of resources would not be significantly affected by any of the action alternatives and, thus, are not summarized in Table ES-2. These resources are: flood control, terrestrial, recreation, visual, cultural, land use, growth inducement, environmental justice, and Indian trust assets. Table ES-2 contains brief discussions and summaries for the following resources: surface water supply and management, groundwater, power production and energy consumption, surface water quality, fisheries, air quality and socioeconomics. For full evaluations and descriptions of the alternatives' effects on these resources, please refer to the analyses presented in the individual resource chapters (Chapters 5 through 20).

Table ES-3 presents a summary of how the Proposed Project/Action and other action alternatives could cumulatively affect the natural, physical, and social environments. The table describes each potential cumulative impact and states whether the effect would be potentially significant or less than significant.

The following tables describe the level of effect (for the water-rights comparisons) and the level of significance (for the CEQA/NEPA comparisons) that the Proposed Project/Action and alternatives could be expected to have on the natural, physical, and social environments. In Table ES-1, the levels of effect/significance are described as:

- Not Unreasonably Affect (NUA)
- Unreasonably Affect (UA)
- Beneficial (B)
- No Impact (NI)
- Not Applicable (NA)
- Less Than Significant Impact (LTS)
- Less Than Significant Impact with Mitigation Measures Incorporated (LSM)
- Potentially Significant Impact (PS)
- Significant Unavoidable Impact (SU)

The level of significance terminology described above also generally applies to the results of the cumulative analyses, which are presented in Table ES-3 (e.g., less than significant [LTS] would represent a less than significant cumulative impact), with the additional level-of-significance determination of:

- Potentially Significant Unavoidable Cumulative Impact (PSU)

Table ES-1. Summary of Potential Impacts for the Proposed Lower Yuba River Accord

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
Surface Water Supply and Management (Chapter 5)								
Yuba Region	Surface water allocations and deliveries to YCWA Member Units	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Sacramento-San Joaquin Delta Region	Deliveries to CVP Contractors	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Deliveries to SWP Contractors	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	YCWA Sales to EWA	B	B	B	LTS	LTS	B	B
Sacramento-San Joaquin Delta Region	X2 Location	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Delta Excess Water Conditions	NUA	NUA	NI	LTS	NI	LTS	LTS
	South Delta Water Levels	NUA	NUA	NI	NI	NI	NI	NI
Export Service Area	San Luis Reservoir Storage	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Groundwater Resources (Chapter 6)								
Yuba Region	Reductions in local groundwater levels and storage to either affect long-term overdraft conditions in the basin or result in short-term adverse third party impacts	B	NUA	B	LTS	LTS	B	LTS
	Changes in groundwater pumping that could affect surface water and groundwater interactions and result in reduced instream flows in local rivers and streams	B	NUA	B	LTS	LTS	B	LTS
	Changes in groundwater quality that could degrade conditions and result in exceedance of regulatory or agricultural water quality standards, or result in adverse effects to designated beneficial uses of groundwater	B	NUA	B	LTS	LTS	B	LTS
	Increases in groundwater pumping to cause groundwater level reductions that result in permanent land subsidence	B	NUA	B	LTS	LTS	B	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
Power Production and Energy Consumption (Chapter 7)								
Yuba Region	Decreases in long-term average annual hydropower generation at New Colgate, Narrows I and Narrows II powerhouses; at the Oroville-Thermalito Complex, or at the San Luis Pumping-Generating Plant	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Shift in long-term average monthly hydropower generation at New Colgate, Narrows I and II powerhouses	NUA	NUA	LTS	PS	PS	LTS	LTS
	Increases in long-term average annual power consumption for groundwater pumping within YCWA Member Units service areas	UA	NUA	PS	PS	PS	PS	LTS
CVP/SWP Upstream of the Delta Region	Decreases in long-term average annual hydropower generation at New Colgate, Narrows I and Narrows II powerhouses; at the Oroville-Thermalito Complex, or at the San Luis Pumping-Generating Plant	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Decreases in long-term average annual or shift in long-term average monthly hydropower generation at the Oroville-Thermalito Complex	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Sacramento-San Joaquin Delta Region	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	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
Export Service Area	Decreases in long-term average annual or shift in long-term average monthly hydropower generation at the San Luis Pumping-Generating Plant	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	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	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Flood Control (Chapter 8)								
Yuba Region	Increases in New Bullards Bar Reservoir end-of-month storage volumes that could affect flood control releases	NUA	NUA	LTS	LTS	LTS	LTS	LTS
CVP/SWP Upstream of the Delta Region	Increases in Oroville Reservoir end-of-month storage volumes that could affect flood control releases	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Surface Water Quality (Chapter 9)								
Yuba Region	Decreases in New Bullards Bar Reservoir storage that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Yuba River that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean water temperatures in the lower Yuba River that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
CVP/SWP Upstream of the Delta Region	Decreases in Oroville Reservoir storage that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Feather River that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean water temperatures in the Feather River that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean water temperatures in the Sacramento River that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Sacramento-San Joaquin Delta Region	Changes to the monthly mean location of X2 that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes to monthly mean Delta outflow that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes to monthly mean E/I ratios that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Salinity changes in the Sacramento River at Emmaton that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in the San Joaquin River at Jersey Point that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in the San Joaquin River at Airport Way Bridge (Vernalis) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in the San Joaquin River at Brandt Bridge that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in Middle River near Old River that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in Old River at Tracy Road Bridge that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in Old River at Highway 4 (CCWD Los Vaqueros Intake) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Salinity changes at CCWD Pumping Plant #1 that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in the West Canal at the mouth of Clifton Court Forebay (SWP Banks Pumping Plant) that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes in the Delta-Mendota Canal at the Jones Pumping Plant (CVP Jones Pumping Plant) that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes at Middle River at Victoria Canal that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Salinity changes at the Stockton Intake that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in chloride concentrations in Old River at Highway 4 (CCWD Los Vaqueros Intake) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in chloride concentrations in CCWD Pumping Plant #1 (Rock Slough) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Changes in chloride concentrations in Old River at Rock Slough (CCWD Intake) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in chloride concentrations in West Canal at the mouth of Clifton Court Forebay (SWP Banks Pumping Plant) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in chloride concentrations in Delta Mendota Canal at the Jones Pumping Plant (CVP Jones Pumping Plant) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in chloride concentrations in Middle River at Victoria Canal that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in chloride concentrations at the Stockton Intake that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in DOC concentrations at Old River at Highway 4 (CCWD Los Vaqueros Intake) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Changes in DOC concentrations at Old River at Rock Slough (CCWD Intake) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in DOC concentrations at West Canal at the mouth of Clifton Court Forebay (SWP Banks Pumping Plant) that could result in degraded water quality conditions or adverse effects to designated beneficial uses in the Delta	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in DOC concentrations at the Delta-Mendota Canal at the Jones Pumping Plant (CVP Jones Pumping Plant) that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in Old River at Bacon Island that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Middle River at Middle River that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Middle River at Mowry Bridge that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Export Service Area	Decreases in San Luis Reservoir storage that could result in degraded water quality conditions or adverse effects to designated beneficial uses	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
Fisheries and Aquatic Resources (Chapter 10)								
Yuba Region	Decreases in New Bullards Bar Reservoir water surface elevations during the spawning/nesting season could affect warmwater fish	B	B	LTS	LTS	LTS	B	LTS
	Decreases in New Bullards Bar Reservoir storage could reduce the coldwater pool and thereby affect coldwater fish	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Yuba River, or changes in monthly mean water temperatures, could affect spring-run Chinook salmon	NUA	UA	B	LTS	LTS	LTS	PS
	Changes in monthly mean flows in the lower Yuba River, or changes in monthly mean water temperatures, could affect fall-run Chinook salmon	NUA	UA	B	LTS	LTS	LTS	PS
	Changes in monthly mean flows in the lower Yuba River, or changes in monthly mean water temperatures, could affect steelhead	NUA	NUA	B	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Yuba River, or changes in monthly mean water temperatures, could affect green sturgeon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Yuba River, or changes in monthly mean water temperatures, could affect American shad	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Yuba River, or changes in monthly mean water temperatures, could affect striped bass	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
CVP/SWP Upstream of the Delta Region	Decreases in Oroville Reservoir water surface elevations during the spawning/nesting season could affect warmwater fish	NUA	NUA	LTS/B	LTS	LTS	LTS	LTS
	Decreases in Oroville Reservoir storage could reduce the coldwater pool and thereby affect coldwater fish	NUA	NUA	LTS/B	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Feather River, or changes in monthly mean water temperatures, could affect spring-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Feather River, or changes in monthly mean water temperatures, could affect fall-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Feather River, or changes in monthly mean water temperatures, could affect steelhead	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Feather River, or changes in monthly mean water temperatures, could affect green sturgeon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Feather River, or changes in monthly mean water temperatures, could affect American Shad	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Feather River, or changes in monthly mean water temperatures, could affect striped bass	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the lower Feather River, or changes in monthly mean water temperatures, could affect Sacramento splittail	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect winter-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect spring-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect fall-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect late fall-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect steelhead	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect green sturgeon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect American shad	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect striped bass	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Changes in monthly mean flows in the Sacramento River, or changes in monthly mean water temperatures, could affect Sacramento splittail	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Sacramento-San Joaquin Delta Region	Changes in Delta habitat evaluation parameters (i.e., X2 locations, Delta outflows and E/I ratios) and salvage estimates could affect delta smelt	NUA	NUA	LTS	LTS	PS	LTS	LTS
	Changes in Delta habitat evaluation parameters (i.e., X2 locations, Delta outflows and E/I ratios) and salvage estimates could affect winter-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Delta habitat evaluation parameters (i.e., X2 locations, Delta outflows and E/I ratios) and salvage estimates could affect spring-run Chinook salmon	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Delta habitat evaluation parameters (i.e., X2 locations, Delta outflows and E/I ratios) and salvage estimates could affect steelhead	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Delta habitat evaluation parameters (i.e., X2 locations, Delta outflows and E/I ratios) and salvage estimates could affect striped bass	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Delta habitat evaluation parameters (i.e., X2 locations, Delta outflows and E/I ratios) could affect other Delta fisheries resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Export Service Area	Decreases in San Luis Reservoir water surface elevations during the spawning/nesting season could affect warmwater fish	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Decreases in San Luis Reservoir storage could reduce the coldwater pool and thereby affect coldwater fish	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Terrestrial Resources (Chapter 11)								
Yuba Region	Changes in New Bullards Bar Reservoir water surface elevations during the March through September period that could degrade continuous strands of native vegetation of relatively high to moderate wildlife value	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in the New Bullards Bar Reservoir fishery during the April through July period that could degrade piscivorous bird forage quantity or quality	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in lower Yuba River flow during the March through September period that could degrade the growth, maintenance, and reproductive capacity of riparian vegetation	NUA	NUA	LTS	LTS	LTS	LTS	LTS
CVP/SWP Upstream of the Delta Region	Changes in Oroville Reservoir water surface elevations during the March through September period that could degrade continuous strands of native vegetation of relatively high to moderate wildlife value	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in the Oroville Reservoir fishery during the April through July period that could degrade piscivorous bird forage quantity or quality	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in lower Feather River flow during the March through September period that could degrade the growth, maintenance, and reproductive capacity of riparian vegetation	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Changes in lower Sacramento River flow during the March through September period that could degrade the growth, maintenance, and reproductive capacity of riparian vegetation	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Export Service Area	Changes in San Luis Reservoir water surface elevations during the March through September period that could degrade continuous strands of native vegetation of relatively high to moderate wildlife value	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in the San Luis Reservoir fishery during the April through July period that could degrade piscivorous bird forage quantity or quality	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Recreation (Chapter 12)								
Yuba Region	Decreases in New Bullards Bar Reservoir monthly mean water surface elevations that could result in reduced boat ramp and swimming beaches availability	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Decreases in lower Yuba River flows that could result in reduced boating opportunities	NUA/B	NUA	LTS	LTS	LTS	LTS	LTS
	Consistency with Yuba County General Plan recreation policies	NUA	NUA	LTS	LTS	LTS	LTS	LTS
CVP/SWP Upstream of the Delta Region	Decreases in Oroville Reservoir monthly mean water surface elevations that could result in reduced boat ramp availability	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Decreases in Oroville Reservoir monthly mean water surface elevations that could result in reduced camping and swimming beaches availability	NUA/B	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Changes in Orville Reservoir monthly mean water surface elevations that could result in reduced recreation opportunities	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Feather River flows that could result in reduced boating and fishing opportunities	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Consistency with Feather River recreation policies	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Sacramento River flows that could result in reduced Sacramento River boating, hunting, and fishing opportunities	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Consistency with Sacramento River recreation policies	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Sacramento-San Joaquin Delta Region	Changes in Delta inflows that could result in reduced recreation opportunities in the Delta	NUA/B	NUA/B	LTS	LTS	LTS	LTS	LTS
	Consistency with Delta recreation policies	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Export Service Area	Decreases in San Luis Reservoir monthly mean water surface elevations that could result in reduced boat ramp availability	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Visual Resources (Chapter 13)								
Yuba Region	Changes in New Bullards Bar Reservoir monthly mean water surface elevations that could result in adverse impacts to the visual character of the landscape	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in lower Yuba River monthly mean flows that could result in adverse impacts to the visual character of the landscape	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Change in surface water conditions that could result in adverse impacts to the landscape character and the attractiveness of Class A and B resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
CVP/SWP Upstream of the Delta Region	Changes in Oroville Reservoir monthly mean water surface elevations that could result in adverse impacts to the visual character of the landscape	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Feather River monthly mean flows that could result in adverse impacts to the visual character of the landscape	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Sacramento River monthly mean flows that could result in adverse impacts to the visual character of the landscape	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Change in surface water conditions that could result in adverse impacts to the landscape character and the attractiveness of Class A and B resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Sacramento-San Joaquin Delta Region	Changes in monthly mean Delta inflows that could result in adverse impacts to the visual character of the landscape	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Change in surface water conditions that could result in adverse impacts to the landscape character and the attractiveness of Class A and B resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Export Service Area	Changes in San Luis Reservoir monthly mean water surface elevations that could result in adverse impacts to the visual character of the landscape	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
	Change in surface water conditions that could result in adverse impacts to the landscape character and the attractiveness of Class A and B resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Cultural Resources (Chapter 14)								
Yuba Region	Changes in New Bullards Bar Reservoir water surface elevations that could result in adverse impacts to sensitive cultural resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Alteration of the character of New Bullards Bar Reservoir site setting that could affect eligibility for site inclusion in the National Register of Historic Places	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in lower Yuba River monthly mean flows that could result in adverse impacts to sensitive cultural resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Alteration of the character of the lower Yuba River site setting that could affect eligibility for site inclusion in the National Register of Historic Places	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in surface water or groundwater conditions that could result in adverse impacts to a federally reserved water right	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in surface water or groundwater conditions that could result in adverse impacts to the health of Tribes	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in surface water conditions that could result in adverse impacts to a federally reserved hunting, fishing, or gathering right	NUA	NUA	LTS	LTS	LTS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
CVP/SWP Upstream of the Delta Region	Changes in Oroville Reservoir monthly mean water surface elevations that could result in adverse impacts to sensitive cultural resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Alteration of the character of Oroville Reservoir site setting that could affect eligibility for site inclusion in the National Register of Historic Places	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Feather River monthly mean flows that could result in adverse impacts to sensitive cultural resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Alteration of the character of the Feather River site setting that could affect eligibility for site inclusion in the National Register of Historic Places	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in Sacramento River monthly mean flows that could result in adverse impacts to sensitive cultural resources	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Alteration of the character of the Sacramento River site setting that could affect eligibility for site inclusion in the National Register of Historic Places	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Air Quality (Chapter 15)								
Yuba Region	Increases in emissions associated with groundwater pumping that 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	NUA	NUA	LSM	LSM	PS/SU	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
Export Service Area	Increases in emissions associated with groundwater pumping that 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	NUA	NUA	LTS/B	LTS	LTS	LTS/B	LTS
Land Use (Chapter 16)								
Yuba Region	Changes in annual surface water deliveries that could result in potential impacts to existing land use designations	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in annual water deliveries and instream flow conditions that could result in potential impacts to the compatibility with surrounding land uses and regional character	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in annual water deliveries that could result in potential impacts to farmland and agricultural acreage	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in annual water deliveries that could result in potential impacts to the conversion of lands to protected lands	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Changes in annual water deliveries and instream flow conditions that could result in potential impacts to local and regional planning objectives	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Agricultural Impacts Resulting from Changes in Water Temperature	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Socioeconomics (Chapter 17)								
Yuba Region	Decreases in cumulative net revenues that could result in adverse impacts to the annual income of local growers	NUA	NUA	LTS	LTS	PS	LTS	LTS

Table ES-1 (Continued)

Potential Impacts Evaluated for the Resources Addressed in the EIR/EIS		Alternatives Comparisons						
		1	2	3	4	5	6	7
		CEQA Accord vs. No Project[a]	CEQA Modified vs. No Project[a]	CEQA Accord vs. Existing[b]	CEQA Modified vs. Existing[b]	CEQA No Project vs. Existing[b]	NEPA Accord vs. No Action[b]	NEPA Modified vs. No Action[b]
Growth Inducement (Chapter 18)								
Yuba Region	Potential local growth-inducing considerations in the Yuba Region Potential local growth-inducing considerations in the Yuba Region	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Export Service Area	Potential regional growth-inducing considerations in the Export Service Area	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Increases in water deliveries to CVP contractor service areas that could remove an impediment to growth or contribute to growth inducement in the Export Service Area	NUA	NUA	LTS	LTS	LTS	LTS	LTS
	Increases in water deliveries to SWP contractor service areas that could remove an impediment to growth or contribute to growth inducement in the Export Service Area	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Environmental Justice (Chapter 19)								
Yuba Region	Changes in the natural or physical environment that would result in a proportionately high or adverse impact on a minority or low-income population	NUA	NUA	LTS	LTS	LTS	LTS	LTS
Indian Trust Assets (Chapter 20)								
Yuba Region	Potential for environmental impacts on Indian Trust Assets	NI						
CVP/SWP Upstream of the Delta Region	Potential for environmental impacts on Indian Trust Assets	NI						
Delta Region	Potential for environmental impacts on Indian Trust Assets	NA						

Table ES-1 (Continued)

Notes

Alternative Comparisons:

1 - CEQA Yuba Accord Alternative Compared to the CEQA No Project Alternative (Water Rights)
2 – CEQA Modified Flow Alternative Compared to the CEQA No Project Alternative (Water Rights)
3 – CEQA Yuba Accord Alternative Compared to the CEQA Existing Condition (CEQA)
4 – CEQA Modified Flow Alternative Compared to the CEQA Existing Condition (CEQA)
5 – CEQA No Project Alternative Compared to the CEQA Existing Condition (CEQA)
6 – NEPA Yuba Accord Alternative Compared to the NEPA No Action Alternative (NEPA)
7 – NEPA Modified Flow Alternative Compared to the NEPA No Action Alternative (NEPA)

[(a)]Level of Effect (Water Rights)

NUA = Not Unreasonably Affect
UA = Unreasonably Affect

Notes:
NR = None Required
NA = Not Applicable

[(b)]Level of Significance (CEQA/NEPA)

B = Beneficial
NI = No Impact
LTS = Less Than Significant Impact
LSM = Less Than Significant Impact with Mitigation Measures Incorporated
PS = Potentially Significant Impact (no mitigation identified)
SU = Significant Unavoidable Impact (no mitigation feasible at this time)

Table ES-2. Comparison of the Alternatives Evaluated to Satisfy NEPA Regulatory Compliance Requirements

Resource Topic	Affected Environment [a]	No Action Alternative	Yuba Accord Alternative Compared to the No Action Alternative [b]	Modified Flow Alternative Compared to the No Action Alternative [b]
Surface Water Supply and Management				
Yuba Region				
Local Water Supply Demand	Wet and above normal years - approximately 305 TAF Below normal, dry and critical years - about 311 TAF	Wet and above normal years - approximately 338 TAF Below normal, dry and critical years - about 344 TAF	Wet and above normal years - approximately 338 TAF Below normal, dry and critical years - about 344 TAF	Wet and above normal years - approximately 338 TAF Below normal, dry and critical years - about 344 TAF
YCWA Water Transfers	Average of about 100 TAF during water transfer years	No stored water transfers; potential for groundwater substitution transfers	60 TAF per year to EWA; up to an additional 140 TAF in drier years	Stored water and groundwater substitution transfers, as possible
CVP/SWP System				
Delta Exports	Base Delta Exports (Accounting baseline) Average of 5,927 TAF	Additional 18 TAF of total exports, on average	Additional 89 TAF of total exports, on average	Additional 70 TAF of total exports, on average
EWA	Purchases water for environmental actions average 250 TAF/yr, up to 120 TAF + from YCWA	Continue as-available purchases to meet needs, little or no water available from YCWA	Long-term source of supply 60 TAF + annual from YCWA	Continue as-available purchases to meet needs, water from YCWA available as conditions permit
Groundwater Resources				
Groundwater Pumping	19 TAF of annual groundwater pumping on average. Wet, above normal, and below normal years - no pumping Dry and critical years - average annual groundwater pumping of 50 and 52 TAF, respectively	27 TAF of annual groundwater pumping on average Wet and above normal years - no pumping Below normal, dry, and critical years - average annual groundwater pumping of 10, 60, 58 TAF, respectively	Additional 4 TAF of pumping, on average Wet, dry, and critical years - additional groundwater pumping of up to 13 TAF Below normal years - decrease in groundwater pumping by 5 TAF	Decrease in groundwater pumping by 2 TAF, on average Below normal and critical years - decrease in groundwater pumping by up to 5 TAF Dry years - Additional 1 TAF groundwater pumping

Table ES-2 (Continued)

Resource Topic	Affected Environment [a]	No Action Alternative	Yuba Accord Alternative Compared to the No Action Alternative [b]	Modified Flow Alternative Compared to the No Action Alternative [b]
Groundwater Resources (Continued)				
Groundwater Storage and Aquifer Levels	11 TAF of annual groundwater storage increase on average Wet, above normal, and below normal years - average annual 30 TAF groundwater storage increase due to natural recharge Dry and critical years - average annual groundwater storage decline of up to 22 TAF	3 TAF of annual groundwater storage increase, on average Wet, above normal, and below normal years - up to 30 TAF of increase in groundwater storage Dry and critical years - groundwater storage decline of up to 30 TAF	Decrease in groundwater storage by 4 TAF Wet, dry, and critical years - decrease in groundwater storage by up to 13 TAF Below normal years - increase in groundwater storage by 5 TAF	Increase in groundwater storage by 2 TAF, on average Below normal and critical years - increase in groundwater storage by up to 5 TAF Dry years - decrease in groundwater storage by 1 TAF
Power Production and Energy Consumption				
Yuba Region				
Hydropower Generation	Generation dictated by instream & agricultural releases, power contract, nominal annual generation 1,590 gigawatthours	Slight shift in month-to-month generation pattern due to change in regulatory requirement, nominal annual generation 1,595 gigawatthours	Slight shift in month-to-month generation pattern due to change in regulatory requirement, nominal annual generation 1,601 gigawatthours	Very slight shift in month-to-month generation pattern due to change in regulatory requirement, nominal annual generation 1,596 gigawatthours
Power Consumption	Energy consumption for groundwater pumping for deficiencies or transfer, 287 - 4,213 MWh per year depending on conditions	Likely some increase in pumping load due to deficiency pumping, 361 - 5,288 MWh per year depending on conditions	More pumping resulting from additional groundwater transfers, 401 - 5,879 MWh per year depending on conditions	Less pumping resulting from less groundwater transfer potential, 332 - 4,866 MWh per year depending on conditions
CVP/SWP System				
Hydropower Generation	Generation largely dictated by release requirements, nominal 37,762 gigawatthours per year average	Generation largely dictated by release requirements, nominal 37,692 gigawatthours per year average	Slight shift in month-to-month generation pattern due to change water availability, nominal 37,681 gigawatthours per year average	Slight shift in month-to-month generation pattern due to change water availability, nominal 37,689 gigawatthours per year average
Power Consumption	Pumping dictated by availability of water for export, environmental constraints on pumping, nominal 1,659 gigawatthours per year average	Generally increasing demands for exports and more stringent environmental constraints, nominal 1,677 gigawatthours per year average	Minor increase in power consumption results from additional exports of groundwater, nominal 1,677 gigawatthours per year average	Minor increase in power consumption results from additional exports, nominal 1,671 gigawatthours per year average

Table ES-2 (Continued)

Resource Topic	Affected Environment [a]	No Action Alternative	Yuba Accord Alternative Compared to the No Action Alternative [b]	Modified Flow Alternative Compared to the No Action Alternative [b]
Surface Water Quality				
Yuba Region Water Quality	Monthly mean water temperatures in the lower Yuba River at the Marysville Gage vary from 47.9°F in January to 62.6°F in September	Water temperatures in the lower Yuba River are similar to the Affected Environment	Reduction in mean monthly water temperature for the months of July, August, September and October by 0.6°F to 2.1°F	Reduction in mean monthly water temperature for the months of July, August, September and October by 0.4°F to 1.5°F
Delta Water Quality (EC)	Delta water quality standards established by SWRCB WQCP and E/I standard typically control Delta operations from June to October Chloride concentration at Old River at Los Vaqueros Intake used as water quality indicator	Increase in chloride concentration at Old River at Los Vaqueros Intake during the fall and winter months	Increase in mean monthly chloride concentration at Old River at Los Vaqueros Intake from May to August by 0.2 to 4.3 mg/l	Increase in mean monthly chloride concentration at Old River at Los Vaqueros Intake from April to September by 0.1 to 5.2 mg/l
Fisheries and Aquatic Resources				
Yuba River Instream Flows	RD-1644 Interim Flow Requirements Current conditions	RD-1644 Long-term Flow Requirements Generally equivalent or improved conditions for some lifestage considerations, except: *Spring-run Chinook salmon* – Less suitable water temperatures during the summer rearing period *Fall-run Chinook salmon* – Less suitable water temperatures during adult immigration – Lower spawning habitat availability – Less suitable embryo incubation water temperatures *Steelhead* – Less suitable immigration and holding water temperatures – Lower spawning habitat availability	Yuba Accord Flow Schedules Generally equivalent or improved conditions for some lifestage considerations, specifically: *Spring-run Chinook salmon* – More suitable water temperatures during adult immigration and holding – More suitable spawning water temperatures – More suitable embryo incubation water temperatures – More suitable over-summer/early fall juvenile rearing water temperatures – Higher flows during drier years for smolt emigration	RD-1644 Interim with Conference Year Provisions Generally equivalent or improved conditions for some lifestage considerations, except: *Spring-run Chinook salmon* – Less suitable water temperatures during adult immigration and holding – Lower spawning habitat availability – Generally equivalent or less suitable water temperatures during the juvenile rearing and emigration lifestages

Table ES-2 (Continued)

Resource Topic	Affected Environment [a]	No Action Alternative	Yuba Accord Alternative Compared to the No Action Alternative [b]	Modified Flow Alternative Compared to the No Action Alternative [b]
Fisheries and Aquatic Resources (continued)				
Yuba River Instream Flows (continued)			*Fall-run Chinook salmon* – More suitable water temperatures during adult immigration and holding – More suitable spawning water temperatures – More suitable embryo incubation water temperatures – Higher flows during drier years for juvenile rearing and emigration *Steelhead* – More suitable water temperatures during adult immigration and holding – Higher spawning habitat availability – More suitable over-summer/early fall juvenile rearing water temperatures *Green Sturgeon* – More suitable over-summer juvenile rearing and emigration water temperatures	*Fall-run Chinook salmon* – Less suitable water temperatures during adult immigration and holding – Lower flows during drier years for juvenile rearing and outmigration – Less suitable water temperatures during juvenile rearing and outmigration *Steelhead* – Lower flows under drier conditions during smolt emigration
CVP/SWP System Fisheries	Current conditions	Generally equivalent habitat conditions	Slightly improved habitat conditions due to more suitable water temperatures during summer in the lower Feather River	Generally equivalent or improved habitat conditions
Delta Fisheries	Current conditions	Generally equivalent or potentially less suitable conditions due to changes in X2 location, Delta outflow, E/I ratio and salvage of species of management concern	Generally equivalent conditions due to relatively minor changes in X2 location, Delta outflow and E/I Ratio, and overall decreases in long-term average salvage of species of management concern	Generally equivalent conditions due to relatively minor changes in X2 location, Delta outflow and E/I ratio, and overall decreases or equivalent long-term average salvage of species of management concern
Air Quality				
Criteria Pollutant Emissions	Current conditions	Slight increase due to deficiency pumping during drier years	No net increase with mitigation measures incorporated	Similar to Affected Environment
Socioeconomics				
Cumulative Net Revenues	Current conditions	Slight decrease due to increased groundwater pumping and potential land fallowing	Increase in total net revenues to growers	Slight increase in total net revenues to growers

[a] For the purposes of this EIR/EIS, the CEQA Existing Condition is the same as the NEPA Affected Environment. See Chapter 2 for additional detail.
[b] See Chapter 3 for additional details.

Table ES-3. Summary of Potential Cumulative Impacts for the Proposed Lower Yuba River Accord

Potential Cumulative Impacts for the Resources Addressed in the EIR/EIS	Yuba Accord Alternative Cumulative Condition vs. Existing Condition	Modified Flow Alternative Cumulative Condition vs. Existing Condition
Surface Water Supply and Management (Chapter 5)		
Potential for cumulative surface water supply and management impacts within the Yuba Region	PSU	PSU
Potential for cumulative surface water supply and management impacts within the Delta Region	PSU	PSU
Potential for cumulative surface water supply and management impacts within the Export Service Area	PSU	PSU
Groundwater Resources (Chapter 6)		
Potential for cumulative groundwater resources impacts within the Yuba Region	LTS	LTS
Power Production and Energy Consumption (Chapter 7)		
Potential for cumulative hydropower impacts within the Yuba Region	PSU	PSU
Potential for cumulative hydropower impacts within the CVP/SWP Upstream of the Delta Region	PSU	PSU
Potential for cumulative hydropower impacts within the Delta Region	PSU	PSU
Potential for cumulative hydropower impacts within the Export Service Area	PSU	PSU
Flood Control (Chapter 8)		
Potential for cumulative flood control impacts within the Yuba Region	LTS	LTS
Potential for cumulative flood control impacts within the CVP/SWP Upstream of the Delta Region	LTS	LTS
Potential for cumulative flood control impacts within the Delta Region	LTS	LTS
Potential for cumulative flood control impacts within the Export Service Area	LTS	LTS
Surface Water Quality (Chapter 9)		
Potential for cumulative water quality impacts within the Yuba Region	LTS	LTS
Potential for cumulative water quality impacts within the CVP/SWP Upstream of the Delta Region	PSU	PSU
Potential for cumulative water quality impacts within the Delta Region	PSU	PSU
Potential for cumulative water quality impacts within the Export Service Area	LTS	LTS
Fisheries and Aquatic Resources (Chapter 10)		
Potential for cumulative fisheries and aquatic resources impacts within the Yuba Region	B	B
Potential for cumulative fisheries and aquatic resources impacts within the CVP/SWP Upstream of the Delta Region	PSU	PSU
Potential for cumulative fisheries and aquatic resources impacts within the Delta Region	PSU	PSU
Potential for cumulative fisheries and aquatic resources impacts within the Export Service Area	LTS	LTS
Terrestrial Resources (Chapter 11)		
Potential for cumulative terrestrial resources impacts within the Yuba Region	LTS	LTS
Potential for cumulative terrestrial resources impacts within the CVP/SWP Upstream of the Delta Region	PSU	PSU
Potential for cumulative terrestrial resources impacts within the Export Service Area	LTS	LTS
Recreation (Chapter 12)		
Potential for cumulative recreation impacts within the Yuba Region	LTS	LTS
Potential for cumulative recreation impacts within the CVP/SWP Upstream of the Delta Region	PSU	PSU
Potential for cumulative recreation impacts within the Delta Region	PSU	PSU
Potential for cumulative recreation impacts within the Export Service Area	LTS	LTS

Table ES-3 (Continued)

Potential Cumulative Impacts for the Resources Addressed in the EIR/EIS	Yuba Accord Alternative Cumulative Condition vs. Existing Condition	Modified Flow Alternative Cumulative Condition vs. Existing Condition
Visual Resources (Chapter 13)		
Potential for cumulative visual resources impacts within the Yuba Region	LTS	LTS
Potential for cumulative visual resources impacts within the CVP/SWP Upstream of the Delta Region	LTS	LTS
Potential for cumulative visual resources impacts within the Delta Region	LTS	LTS
Potential for cumulative visual resources impacts within the Export Service Area	LTS	LTS
Cultural Resources (Chapter 14)		
Potential for cumulative cultural resources impacts within the Yuba Region	LTS	LTS
Potential for cumulative cultural resources impacts within the CVP/SWP Upstream of the Delta Region	LTS	LTS
Potential for cumulative cultural resources impacts within the Delta Region	LTS	LTS
Potential for cumulative cultural resources impacts within the Export Service Area	LTS	LTS
Air Quality (Chapter 15)		
Potential for cumulative air quality impacts within the Yuba Region	LSM	LSM
Land Use (Chapter 16)		
Potential for cumulative land use impacts within the Yuba Region	LTS	LTS
Socioeconomics (Chapter 17)		
Potential for cumulative socioeconomic impacts within the Yuba Region	NI	NI
Growth Inducement (Chapter 18)		
Potential for cumulative growth inducing impacts within the Yuba Region	NA	NA
Environmental Justice (Chapter 19)		
Potential for cumulative environmental justice impacts within the Yuba Region	NI	NI
Indian Trust Assets (Chapter 20)		
Potential for cumulative environmental impacts on Indian Trust Assets within the Yuba Region	NI	NI
Potential for cumulative environmental impacts on Indian Trust Assets within the CVP/SWP Upstream of the Delta Region	NI	NI
Potential for cumulative environmental impacts on Indian Trust Assets within the Delta Region	NA	NA

Level of Significance (CEQA/NEPA)
B = Beneficial
NI = No Impact
LTS = Less Than Significant Cumulative Impact
PSU = Potentially Significant Unavoidable Cumulative Impact
LSM = Less Than Significant Cumulative Impact with Mitigation Measures Incorporated
NA = Not Applicable

MITIGATION MEASURES/ENVIRONMENTAL COMMITMENTS

The proposed mitigation measures that would reduce potential impacts of the Proposed Project/Action or an alternative to a less than significant level are summarized below.

Water Quality

- 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 the reservoir will not adversely affect water quality in the Delta and export service areas south of the Delta.

Fisheries and Aquatic Resources

- Mitigation Measure 10.2.9-3: Annual scheduling of flow regimes for the Modified Flow Alternative to avoid impacts to spring-run Chinook salmon.
- Mitigation Measure 10.2.9-4: Annual scheduling of flow regimes for the Modified Flow Alternative to avoid impacts to fall-run Chinook salmon.

Air Quality

- Mitigation Measure 15-1: 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.

Additional details regarding specific mitigation measures are included in the resource-specific discussions presented in the individual chapters of this EIR/EIS.

PREFERRED ALTERNATIVE

Title 40 of the Code of Federal Regulations (CFR), Section 1502.14(e) requires federal agencies to identify an agency-preferred alternative which would best meet the purpose of and need for the action, as defined in the environmental documentation. As stated in Reclamation's NEPA Handbook (Reclamation 2000), "…defining the preferred alternative does not define Reclamation's final decision. However, it is intended to provide the public with notification of what the agency considers to be the best alternative, based on the information available" (Reclamation 2000).

Reclamation has determined that the Yuba Accord Alternative is the preferred alternative due to: (1) the lower environmental impacts of the Proposed Project/Action; and (2) its ability to best achieve the project's purpose and need. The environmental impacts associated with the Yuba Accord Alternative and the other action alternatives considered in this EIR/EIS are summarized in Table ES-1 of the Executive Summary and are detailed in the individual resource chapters (see Chapters 5 through 20). Section 1.1 presents an overview of the project objectives and purpose and need, and **Table ES-4** presents a summary of the Proposed Project/Action and the alternatives' ability to meet the project objectives and purpose and need for the project. Based on consideration of this information and the analyses presented in this EIR/EIS, Reclamation has determined that the Yuba Accord Alternative is the preferred alternative.

Table ES-4. Comparison of the Alternatives' Ability to Meet the Project Objectives and Purpose and Need

	No Project Alternative	No Action Alternative	Proposed Project/Action Alternative	Modified Flow Alternative
Yuba County Water Agency Project Objectives				
Provide a level of protection for lower Yuba River fisheries equivalent to or greater than the requirements of SWRCB RD-1644	Yes	Yes	Yes	No
Improve Yuba County water supply management and reliability through the implementation of a comprehensive conjunctive use program and water use efficiencies	No	No	Yes	Limited
Provide revenues to fund Yuba Accord actions (e.g., conjunctive use, River Management Team) and Yuba County flood control, water supply and other projects, including but not limited to, constructing a new fish screen at the South Canal Diversion	No	No	Yes	Limited
Implement a lower Yuba River long-term fisheries monitoring, studies and enhancement program	No	No	Yes	No
Bureau of Reclamation Purpose and Need				
Protection of Delta fisheries (through acquisition of EWA Program assets via the Water Purchase Agreement)	No	No	Yes	Limited
Improve federal water contractor water supply reliability	No	No	Yes	Limited
California Department of Water Resources Project Objectives[a]				
Provide assets for the EWA program to assist in the protection and recovery of listed Delta-dependent fish species	No	No	Yes	Limited
Improve state water contractor water supply reliability	No	No	Yes	Limited

[a] DWR is participating as a cost-share agency in the preparation of environmental compliance documentation and would rely upon the analyses in this EIR/EIS for purposes of decision-making related to the agency's decisions regarding execution of the Water Purchase Agreement with YCWA and separate agreements with Reclamation and State Water Contractors (Tier 2 and Tier 3 agreements, respectively).

ENVIRONMENTALLY SUPERIOR OR PREFERABLE ALTERNATIVE

Section 15126.6(e)(2) of the California Code of Regulations state that CEQA requires the identification of the environmentally superior alternative, and specify that if the environmentally superior alternative is the "no project" alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. CEQ regulations (40 CFR §1505.2(b)) for implementing NEPA requires that, in cases where an EIS has been prepared, the decision-making document (i.e., Record of Decision) must specify the alternative or alternatives which were considered to be environmentally preferable. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural and natural resources (Council on Environmental Quality Website 2007). Defining the environmentally

preferable alternative in this Draft EIR/EIS does not define YCWA's and Reclamation's final decision-making for the project, but it is intended to provide the public with notification of what the agency considers to be the environmentally preferable alternative, based on the information available (Reclamation 2000).

YCWA, as the CEQA lead agency, and Reclamation, as the NEPA lead agency, have both determined that the Yuba Accord Alternative is environmentally superior to the Modified Flow Alternative and the No Project Alternative, based on the CEQA/NEPA analyses of each of the alternatives' potentially significant environmental impacts, which are summarized above in Table ES-1 and presented in the individual resource chapters.

Draft
Environmental Impact Report/ Environmental Impact Statement for the Proposed Lower Yuba River Accord

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List of Acronyms

Acronym	Definition
µg/m^3	microgram per cubic meter
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ACPI	Accelerated Climate Prediction Model
AFB	Air Force Base
APCD	Air Pollution Control District
APE	Area of Potential Effect
AQMD	Air Quality Management District
Banks	Banks Pumping Plant
Bay/Delta	San Francisco Bay/Sacramento-Joaquin Delta (Bay/Delta)
BCC	Sacramento Valley Basinwide Air Pollution Control Council
B-E	Bookman-Edmonston Engineering, Inc.
bgs	below ground surface
BIA	Bureau of Indian Affairs
BVID	Browns Valley Irrigation District
BWD	Brophy Water District
CAA	Clean Air Act
CALFED	CALFED Bay-Delta Program
California SWTR	California Surface Water Treatment Rule
Caltrans	California Department of Transportation
CALVIN	California Value Integrated Network
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCWA	Central Coast Water Authority
CCWD	Contra Costa Water District
CDEC	California Data Exchange Center
CDFG	California Department of Fish and Game
CDHS	California Department of Health Services
CDPR	California Department of Parks and Recreation
CEQ	President's Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CID	Cordua Irrigation District
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
COA	Coordinated Operations Agreement
Conjunctive Use Agreements	Principles of Agreement for Proposed Conjunctive Use Agreements
Corps	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CVP	Central Valley Project

Acronym	Definition
CVP/SWP Intertie	Delta-Mendota Canal/California Aqueduct Intertie
CVPIA	Central Valley Project Improvement Act
D-1644	SWRCB Decision 1644
DBP	disinfection byproducts
DCMWC	Dry Creek Mutual Water Company
Delta	Sacramento-San Joaquin Delta
DO	dissolved oxygen
DOC	dissolved organic carbon
DPC	Delta Protection Commission
DRRIP	Drought Risk Reduction Investment Program
Dry Year Program	2001 Dry Year Water Purchase Program
DWR	California Department of Water Resources
DWSP	Delta Water Supply Project
E/I	export-to-inflow ratio
EA/IS	environmental assessment/initial study
EBMUD	East Bay Municipal Utility District
EC	electrical conductivity
EFH	essential fish habitat
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERP	Ecosystem Restoration Program
ERPP	Ecosystem Restoration Plan Program
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
EWA Agencies	Reclamation, DWR, USFWS, NMFS and CDFG (cooperating agencies in the decisions to implement protective measures for fish and day-to-day operational management of EWA assets)
EWA	Environmental Water Account
EWP	Environmental Water Program
Exchange Contractors	San Joaquin River Exchange Contractors Water Authority
FERC	Federal Energy Regulatory Commission
Fisheries Agreement	Principles of Agreement for Proposed Lower Yuba River Fisheries Agreement
FMMP	Farmland Mapping and Monitoring Program
FOR	Friends of the River
FPA	Federal Power Act
FRWA	Freeport Regional Water Authority
FRWP	Freeport Regional Water Project
FWCA	Fish and Wildlife Coordination Act
FWUA	Friant Water Users Authority
GAP	Gap Analysis of Mainland California
GCM	General Circulation Models
Giannelli Plant	CVP/SWP William R. Giannelli Pumping-Generating Plant
GMP	Groundwater Management Program

Acronym	Definition
HIC	Hallwood Irrigation Company
HSC	Health and Safety Code
IEP	Interagency Ecological Program
IFIM	Instream Flow Incremental Methodology
Interior	U.S. Department of the Interior
ITAs	Indian Trust Assets
Jones	C.W. Jones Pumping Plant
JPOD	Joint Point of Diversion
km^2	square kilometers
kWh	kilowatt-hour
LBNL	Lawrence Berkeley National Laboratory
LT2	Long Term 2 Enhanced Surface Water Treatment Rule
M&I	municipal and industrial
Madera	Madera Irrigation District
MAF	million acre-feet
MCL	maximum contaminant level
mgd	million gallons per day
MRY	Yuba River gage at Marysville
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSCS	Multi-Species Conservation Strategy
msl	mean sea level
MUN	municipal and domestic supply
MW	megawatts
MWD	municipal water district
MWDSC	Metropolitan Water District of Southern California
MWh	megawatts per hour
NCCPA	Natural Community Conservation Planning Act
NDOI	Net Delta Outflow Index
NEPA	National Environmental Policy Act
NGOs	non-governmental organizations
NHPA	National Historic Preservation Act
NID	Nevada Irrigation District
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOD	Notice of Determination
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	oxides of nitrogen
NRA	National Recreation Area
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
NYI	North Yuba Index

Acronym	Definition
OCAP	Operating Criteria and Plan
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
OPUD	Olivehurst Public Utility District
PCL	Planning and Conservation League
PCWA	Placer County Water Agency
PG&E	Pacific Gas and Electric Company
PL	Public Law
PM&E	protections, mitigations and enhancement measures
PM_{10}	particulate matter that measures 10 microns or less
POD	pelagic organism decline
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
PRC	Public Resource Code
PRMS	Precipitation-Runoff Modeling System
Proposed Yuba Accord	Proposed Lower Yuba River Accord
RD-1644	SWRCB Revised Decision 1644
Reclamation	Bureau of Reclamation
RK	river kilometer
RMF	River Management Fund
RMT	River Management Team
ROD	Record of Decision
ROG	reactive organic gases
RWD	Ramirez Water District
SCVWD	Santa Clara Valley Water District
SCWA	Sacramento County Water Agency
SDIP	South Delta Improvements Program
SDWA (Chapter 9)	Safe Drinking Water Act
SDWA (Chapter 5)	South Delta Water Agency
Secretary	Secretary of the Interior
SEIS	Supplemental Environmental Impact Statement
Settlement	Agreement to restore water flows for salmon in the San Joaquin River below Friant Dam
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
Skinner Fish Facility	John E. Skinner Delta Fish Protective Facility
SL	standard length
SMS	Scenery Management System
SR	State Route
SRA	State Recreation Area
SRFCP	Sacramento River Flood Control Project
SRSC	Sacramento River Settlement Contractors

Acronym	Definition
SRWRS	Sacramento River Water Reliability Study
SSWD	Sacramento Suburban Water District
Stage 1 D/DBPR	Stage 1 Disinfectants and Disinfection Byproducts Rule
SVAB	Sacramento Valley Air Basin
SVI	Sacramento Valley Index
SVWMA	Sacramento Valley Water Management Agreement
SVWMP	Sacramento Valley Water Management Program
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWSD	Semitropic Water Storage District
SWTR	Surface Water Treatment Rule
SYRCL	South Yuba River Citizens League
SYWD	South Yuba Water District
TAF	thousand acre-feet
TBI	The Bay Institute
TDF	Through-Delta Facility
TDS	total dissolved solids
THM	trihalomethane
TMDL	total maximum daily loads
TOC	total organic carbon
TU	Trout Unlimited
United Groups	Coalition of Fishery Groups
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UV	ultraviolet
VAMP	Vernalis Adaptive Management Plan
VIC	Variable Infiltration Capacity
Water Code	California Water Code
Water Purchase Agreement	Principles of Agreement for Proposed Long-term Transfer Agreement
WC	Water Code
Westlands	Westlands Water District
Wheatland Project	Yuba/Wheatland In-Lieu Groundwater Recharge and Storage Project
WMA	Wildlife Management Area
WQCP	Water Quality Control Plan
WQRP	Water Quality Response Plan
WTP	water treatment plant
WWD	Wheatland Water District
X2	2 ppt salinity unit isohaline at one meter above the bottom of the Sacramento River Channel
YCWA	Yuba County Water Agency
YOY	young-of-the-year
YPM	Yuba Project Model
YRI	Yuba River Index
Yuba Project	Yuba River Development Project

CHAPTER 1
INTRODUCTION AND PURPOSE AND NEED

The Yuba County Water Agency (YCWA) and the United States Department of the Interior (Interior) Bureau of Reclamation (Reclamation), as lead agencies under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) respectively, have jointly prepared this Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) pursuant to the requirements of CEQA and NEPA. This Draft EIR/EIS describes the potential environmental impacts that could result from implementing the Lower Yuba River Accord (Proposed Yuba Accord).

The purpose of the Proposed Yuba Accord (sometimes referred to as the "Proposed Project/Action Alternative" or the "Yuba Accord Alternative") is 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). As a state agency party to the Proposed Yuba Accord, DWR also would be involved in the purchase of Yuba Project water for use in the Environmental Water Account (EWA) Program or an equivalent program[1], and for SWP state water contractor supplies. Along with the lead agencies, DWR project representatives participated in the oversight, development, and review of project documentation to ensure that this EIR/EIS satisfies DWR's CEQA requirements.

Related to the purpose and need for this project, the Proposed Project/Action or an alternative should accomplish the following objectives:

Yuba County (Yuba Region)

- Implement a level of protection for lower Yuba River fisheries equivalent to or greater than the level of protection under State Water Resources Control Board (SWRCB) Revised Water Right Decision 1644 (RD-1644).
- Improve Yuba County water supply management and reliability to meet local service area needs.
- Provide revenue for YCWA to fund the following: (1) a comprehensive conjunctive use program; (2) Yuba County flood control improvements; and (3) implementation of a long-term fisheries monitoring, studies, and enhancement program.

[1] The purposes of the existing EWA Program are to: (1) protect the at-risk fish species affected by CVP/SWP operations and facilities, (2) contribute to the recovery of these species, (3) allow timely water-management responses to changing environmental conditions and changing fish protection needs, (4) provide reliable water supplies to water users in CVP/SWP export areas, and (5) not result in uncompensated water loss to users (Reclamation *et al.* 2003). In the future, a long-term EWA Program or a program equivalent to the EWA may be implemented. Although future operations associated with an equivalent program may or may not be similar to those under the existing EWA Program, it is assumed that such a program in the future would provide a level of protection equivalent to that which is provided by the existing EWA Program.

CVP/SWP System (CVP/SWP Upstream of the Delta Region, Delta Region and Export Service Area)

- Continue to provide water for use by the EWA Program, or an equivalent program.
- Improve CVP and SWP water supply reliability.

Meeting the objectives of protecting and improving the Yuba River fisheries also should resolve all or almost all of the pending litigation challenging RD-1644.

Various signatories and participants in the Proposed Yuba Accord, as a consequence of their various authorities, may prioritize the above objectives differently. For example, Reclamation (as the NEPA lead agency) and DWR are seeking to enable a long-term acquisition of water for the Delta, for use in the EWA Program or an equivalent program, and to improve water supply reliability for state and federal water contractors. The National Marine Fisheries Service (NMFS) and the California Department of Fish and Game (CDFG) are seeking to protect and improve lower Yuba River fisheries resources and aquatic habitat. YCWA, as the CEQA lead agency, and its participating Member Units (listed in Section 1.1.1.2) are seeking to: (1) protect local water supply reliability; (2) protect the Yuba River fisheries in a way that will settle the litigation challenging RD-1644; and (3) provide a revenue stream to support needed improvements in Yuba County. The project objectives for each of the project proponents are summarized in **Table 1-1.**

1.1 OVERVIEW OF THE PROJECT OBJECTIVES AND PURPOSE AND NEED

The background of the objectives and purpose and need for managing the lower Yuba River is presented below in three sections: (1) background relevant to YCWA and the local study area, including a description of the Yuba River, infrastructure development, and flood risks; (2) background relevant to Reclamation and DWR regarding the EWA Program and the need to increase supply reliability throughout the state; and (3) background relevant to fisheries improvements.

1.1.1 BACKGROUND RELEVANT TO YUBA COUNTY WATER AGENCY AND THE YUBA REGION

This section describes the Yuba River Basin, provides a history of the development of infrastructure on the river, and discusses flooding concerns in Yuba County.

1.1.1.1 DESCRIPTION OF THE YUBA RIVER

The Yuba River Basin drains approximately 1,339 square miles of the western Sierra Nevada slope, 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 average annual unimpaired flow of the Yuba River at Smartville is 2.45 million acre-feet (MAF); however, a significant portion of this water is diverted out of the watershed and is not available to the lower Yuba River. The annual unimpaired flow has ranged from a maximum of about 4.9 MAF in 1986 to a minimum of about 370 thousand acre-feet (TAF) in 1977.

Today, the Yuba River is one of California's most important rivers because it provides habitat for some of the Central Valley's last wild, native Chinook salmon and steelhead runs. However, the river has been the subject of controversy since the 1850s, when Gold Rush miners searched for gold.

Table 1-1. Objectives of Proposed Yuba Accord by Proponent

Entity	Settle Litigation	Protect Lower Yuba River Fisheries	Protect Yuba County Water Supply Reliability	Provide Revenue to Yuba County Water Agency for Local Flood Control and Fund Conjunctive Use	Continue to Provide Water to EWA Program	Improve CVP and SWP Water Supply Reliability
Yuba County Water Agency	√	√	√	√	√	
California Department of Water Resources					√	√
Bureau of Reclamation					√	√
California Department of Fish and Game	√	√			√	
Friends of the River	√	√				
South Yuba River Citizens League	√	√				
The Bay Institute	√	√				
Trout Unlimited	√	√				
National Marine Fisheries Service		√			√	
U.S. Fish and Wildlife Service		√			√	
Brophy Water District	√		√	√		
Browns Valley Irrigation District	√		√	√		
Dry Creek Mutual Water Company			√	√		
Hallwood Irrigation Company			√	√		
Ramirez Water District			√	√		
South Yuba Water District	√		√	√		
Wheatland Water District			√	√		

Hydraulic mining and other destructive mining techniques took a significant toll on the river. Debris from these activities clogged the river, damaged salmon and steelhead spawning beds, and led to later flooding in nearby communities.

1.1.1.2 DEVELOPMENT OF FACILITIES ON THE LOWER YUBA RIVER

To stabilize debris and reduce flood risk, the California Debris Commission, a division of the United States Army Corps of Engineers (Corps), constructed Daguerre Point Dam in 1906 and Englebright Dam in 1941. The Corps still owns and is responsible for maintenance of Englebright and Daguerre Point dams today.

In 1959, YCWA, a public agency, was created through passage of the Yuba County Water Agency Act of 1959. In the late 1960s, to reduce the risk of flooding in Yuba County, YCWA financed and built the Yuba Project. Infrastructure of the Yuba Project includes New Bullards Bar Dam and Reservoir, several small dams, diversion tunnels, and hydroelectric generating

facilities located above Englebright Dam (New Colgate Powerhouse) and below Englebright Dam (Narrows II Powerhouse). Additionally, Pacific Gas and Electric Company (PG&E) owns a hydroelectric facility below Englebright Dam (Narrows I Powerhouse). New Bullards Bar Reservoir is the major storage facility for the Yuba Project. The reservoir has a total storage of 966 TAF with a minimum operating level of 234 TAF (Federal Energy Regulatory Commission (FERC) Project License minimum pool), leaving 732 TAF of regulable capacity. A portion of this regulable capacity, 170 TAF, is held in reserve from October through May for flood control purposes. The major water development facilities in the Lower Yuba River Basin are shown on **Figure 1-1**.

YCWA owns and operates the Yuba Project in accordance with: (1) its FERC License; (2) flood control rules promulgated by the Corps; (3) a 1966 Power Purchase Contract with PG&E; and (4) SWRCB water right permits. (Details of these contracts and YCWA's water right permits are contained in Chapter 5 and in Appendix D.) Water for both hydroelectric power generation and consumptive use is managed cooperatively by YCWA and PG&E. YCWA operates the Yuba Project to provide fish and wildlife protection on the lower Yuba River, water supplies to local farmers, flood control, and recreational benefits, and to produce nearly 360 megawatts (MW) of hydroelectric power.

The YCWA service area includes all of Yuba County and the contiguous territories of its Member Units that are outside Yuba County. YCWA currently provides surface water to seven of its eight Member Units: Brophy Water District (BWD), Browns Valley Irrigation District (BVID), Cordua Irrigation District[2] (CID), Dry Creek Mutual Water Company (DCMWC), Hallwood Irrigation Company (HIC), Ramirez Water District (RWD), and the South Yuba Water District (SYWD). YCWA and its eighth Member Unit, Wheatland Water District (WWD), are currently constructing a canal to deliver water to farmers within the WWD service area. YCWA and Member Unit service areas are shown on **Figure 1-2**. Delivery of surface water to local farmers reversed a serious groundwater overdraft condition that had occurred, particularly in the South Yuba Basin, due to prior groundwater pumping for irrigation (see Chapter 6).

The Member Units are water districts, irrigation districts, and mutual water companies responsible for delivering water to end-users. Currently, YCWA supplies only untreated agricultural water for a variety of agricultural crops within the service areas of the Member Units. In 2004, Yuba County's leading agricultural crop commodities included rice (34,100 acres), clingstone peaches (5,977 acres), and walnuts (8,793 acres) (CDFA Website 2006).

1.1.1.3 LOWER YUBA RIVER AND FEATHER RIVER FLOODING CONCERNS

The Yuba Project originally was intended to be one element of a comprehensive flood control program. However, the Marysville Reservoir, a second key element in the overall program, was never constructed. The Marysville Reservoir would have been located approximately 10 miles downstream from Englebright Dam. Despite the flood control capacity provided by the Yuba Project, and an extensive system of levees, flooding remains a significant problem in Yuba County. Currently, YCWA and other entities are considering, or are involved in, construction of several flood control projects to further protect Yuba and Sutter counties.

[2] As described above, CID is one of the irrigation districts within the YCWA Member Unit Service Area that receives surface water supplies provided by YCWA. However, CID decided not to be a signatory to the Memorandum of Understanding for the Conjunctive Use Agreements and, thus, although CID is a "Member Unit" of YCWA, CID is not identified as one of the Member Units that would participate in the Conjunctive Use Agreements.

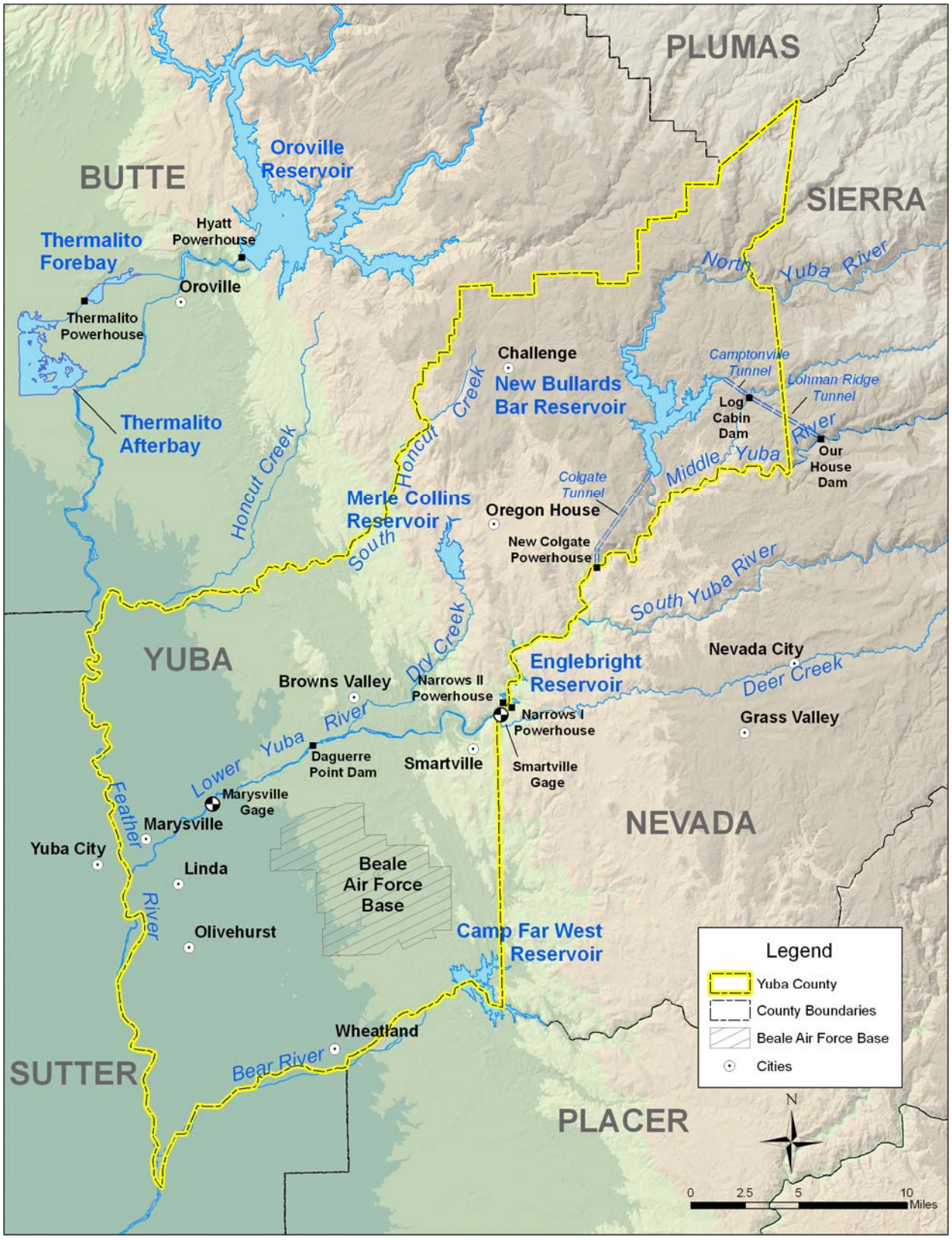

Figure 1-1. Major Water Development Facilities in the Lower Yuba River Basin

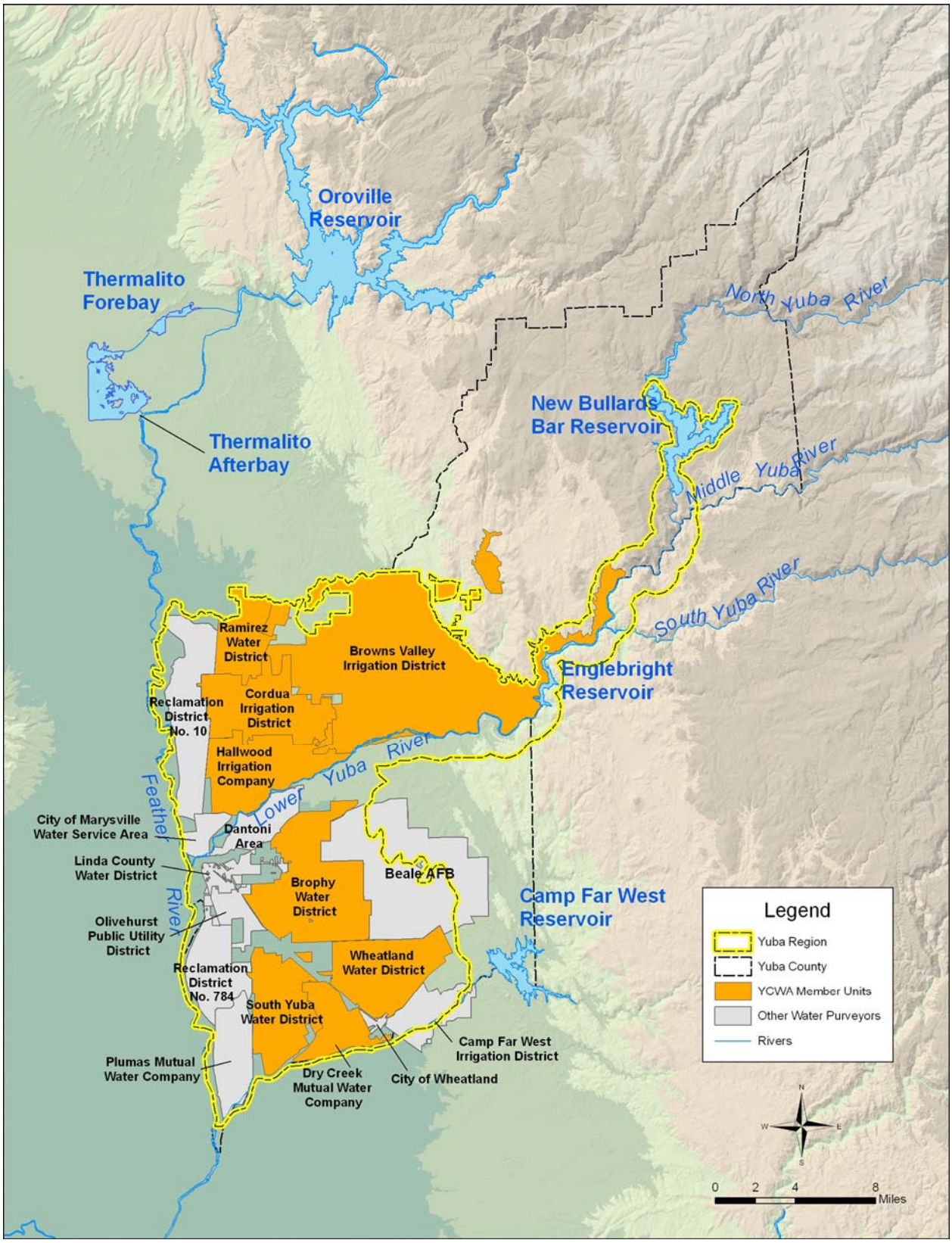

Figure 1-2. YCWA Member Units, and Service Areas of Other Water Purveyors

An estimated 850 homes were damaged or destroyed by the 1997 flood. The cost of damages suffered during the 1997 flood is still being calculated (YCWA Website 2006). One of the project objectives is to provide a secure funding source for YCWA to finance levee strengthening and other Yuba County flood control improvement measures over the next eight years.

More than 10 major floods have occurred in Yuba County during the 20th century. The floods of 1986 inundated nearly 10,700 acres and flooded more than 3,000 homes and 150 businesses, causing $95 million in damages and three deaths. In 1997, 100,000 people were evacuated from their homes because of flood risk. Approximately 16,000 acres in Yuba County were inundated as a result of a levee break on the Feather River, and three more people died.

1.1.2 EWA PROGRAM BACKGROUND INFORMATION RELEVANT TO DWR AND RECLAMATION PROJECT OBJECTIVES AND PURPOSE AND NEED

The EWA Program (Reclamation *et al.* 2004) addresses fish protection and recovery in the San Francisco Bay/Sacramento-San Joaquin Delta (Bay/Delta) while at the same time improving water supply reliability for CVP and SWP customers. The EIS/EIR for the existing EWA Program was certified in 2004; the term of this program is through 2007. Currently, DWR and Reclamation plan to temporarily extend the existing EWA Program, and they are in the process of completing supplemental environmental documentation for this extension of the program that is anticipated to be released by the end of 2007 (see Chapter 3). The CVP and SWP facilities that pump water from the Delta can entrain and kill fish, some of which are state-listed and federally listed species. Reductions in CVP and SWP pumping to protect these fish species can reduce water supply reliability. The existing EWA Program involves environmentally beneficial changes in operations of the CVP and SWP for Delta-dependent native fish species, other upstream fish actions such as instream flow enhancements, and acquires and manages water assets to pay back the water diversions foregone by the CVP and SWP.

EWA acquisitions are acquired through voluntary purchases in the water transfer market and through operational flexibility at the Delta pumps. The EWA Program is based on the concept that flexible management of water will achieve fishery and ecosystem benefits more efficiently and to a greater degree than a completely prescriptive regulatory approach.

To date, the majority of water acquisitions for the existing EWA Program have been short-term transfers. The continuation of EWA Program as a long-term management tool also is being considered by the EWA Agencies[3]. While it is uncertain at this time whether a long-term EWA Program or a program equivalent to the EWA will be implemented in the future, or what the elements of such a program will be, the best assumption that can be made at this time is that the EWA Program or an equivalent program will continue, with conditions similar to those for the existing EWA Program (see Section 1.2.3.3). For this reason, the analyses in this EIR/EIS that concern future conditions assume that a long-term EWA Program or a program equivalent to the EWA will be implemented, with conditions similar to those for the existing EWA Program, and this EIS/EIR identifies the Delta fish protection actions at the CVP and SWP pumping facilities as "the EWA Program or an equivalent program." If a successor program to the EWA is implemented, then DWR's participation as a recipient of water provided by the Yuba Accord Alternative would need to adhere to the conditions specified in the proposed Water Purchase

[3] As part of these potential long-term management considerations, Reclamation and DWR are conducting a comprehensive review of the EWA Program, taking into account the recently observed changes in Delta fish populations and the uncertainty of the nature of future actions to benefit at-risk Delta fish.

Agreement (see Section 1.2.3.3). Water acquisitions and transfers have been described by both the federal and state government as one of many methods to increase water supply reliability. Although several short-term (i.e., one-year) EWA acquisitions and other water transfers have occurred over the past few years, these actions were of a limited duration and could not be guaranteed on a regular basis in subsequent years. Through participation in the Proposed Yuba Accord, Reclamation and DWR could obtain a long-term source of water that could be used to improve state-wide water supply management by providing supplemental water to the CVP and the SWP.

1.2 HISTORY AND DEVELOPMENT OF THE PROPOSED YUBA ACCORD

Historic mining, mining runoff and consequential activities (construction of the Englebright and Daguerre Point debris dams) severely impacted the native fishery in the Yuba River. Construction of the Yuba Project helped to ameliorate some of the mining-related impacts by providing a source of cold water to re-establish a native fishery in the lower Yuba River below Englebright Dam. The lower Yuba River fishery remains an important host to several salmonid species of special concern.

YCWA's operation of water development projects on the Yuba River previously were subject to a 1965 agreement with CDFG concerning instream flow standards, and YCWA operated its facilities to meet the instream flows specified in that agreement, which specified minimum instream flows immediately below Daguerre Point Dam. Generally, historic lower Yuba River flows have substantially exceeded the minimum flow requirements specified in the 1965 agreement, and have helped maintain current fish populations in the river.

In February 1988, a coalition of fishery groups (United Groups) filed a complaint with the SWRCB alleging that the instream flow requirements specified in YCWA's permits did not provide adequate protection for fish. In March 1991, the CDFG released a "*Lower Yuba River Fisheries Management Plan*," which contained specific recommendations for restoration, maintenance, and protection of fishery resources in the lower 24-mile section of the Yuba River. The plan recommended higher minimum flow requirements, maximum water temperature requirements and improved fish screens. CDFG requested that the SWRCB modify YCWA's water rights permits to implement the recommendations contained in the CDFG plan. In response to CDFG's request, and to address various allegations raised by the United Groups concerning several other water agencies, SWRCB initiated a proceeding to consider fishery protection and water rights issues on the lower Yuba River in 1991.

1.2.1 SWRCB COURT PROCEEDINGS AND WATER RIGHT DECISIONS

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. In D-1644, the SWRCB: (1) increased the minimum instream flow requirements specified in YCWA's water right permits; (2) directed YCWA and other water districts diverting water from the lower Yuba River at two major diversion facilities to consult with CDFG and federal fishery agencies and prepare a plan to reduce losses of fish at those diversions; (3) addressed several other issues regarding the extent of various parties' water rights on the Yuba River; (4) required YCWA to take actions to address potential concerns regarding water temperatures for Chinook salmon and steelhead; and (5) required studies and consultation on various other issues.

YCWA, several local water districts in Yuba County, and a coalition of conservation non-governmental 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, which contained only minor changes from D-1644. The parties that had challenged D-1644 then initiated new legal proceedings challenging RD-1644 on most of the same issues.

1.2.2 YUBA ACCORD SETTLEMENT DEVELOPMENT PROCESS

As described in the previous sections, the Yuba Project is a multi-purpose project constructed for flood control, water supply and hydroelectric generation purposes. At the time of construction of the Yuba Project, a suite of rules and agreements governing operations of the Yuba Project (including flood curves, minimum releases, and other rules) were crafted to meet the multiple demands and protect local resources.

The Yuba Project continues to serve the purposes for which it was constructed. However, growth in demand for water for consumptive uses (both within and outside of Yuba County), and increasing concern for protecting both the Yuba River fishery and environmental values in the Delta have led to greater challenges in meeting competing interests. The proceedings before the SWRCB (described above) attempted to strike a new balance between competing interests; however, parties to the proceedings generally were dissatisfied with the outcome, as evidenced by subsequent legal challenges to the decisions.

The Yuba Accord Alternative represents an effort on the part of the Yuba River stakeholders to find a solution to the challenges of competing interests by providing water for fisheries, developing new tools to ensure local reliable water supply, and crafting a revenue stream to pay for the Yuba Accord Alternative and to provide additional water for out-of-county environmental and consumptive uses. These various objectives would be met through implementation of the Yuba Accord Alternative, which includes the "*Principles of Agreement for Proposed Lower Yuba River Fisheries Agreement*" (Fisheries Agreement), the "*Principles of Agreement for Proposed Conjunctive Use Agreements*" (Conjunctive Use Agreements), and the "*Principles of Agreement for Proposed Long-term Transfer Agreement*" (Water Purchase Agreement). The proposed agreements are briefly discussed below and presented in more detail in Chapter 3.

1.2.3 OVERVIEW OF YUBA ACCORD AGREEMENTS

The Yuba Accord Alternative includes three separate but interrelated agreements that would result in enhancement of fisheries protection on the lower Yuba River, increase certainty of local supply reliability, and provide Reclamation and DWR with increased operational flexibility for protection of fisheries resources through the EWA Program or an equivalent program, and provision of supplemental dry-year water supplies to state and federal water contractors (Figure 1-3).

The Fisheries Agreement is the cornerstone of the Yuba Accord Alternative. To become effective, however, all three sets of agreements (Fisheries, Conjunctive Use, and Water Purchase) would need to undergo CEQA and NEPA review and be fully approved and executed by the individual parties to each agreement. Also, implementation of the Yuba Accord Alternative would require appropriate SWRCB amendments of YCWA's water-right permits and RD-1644.

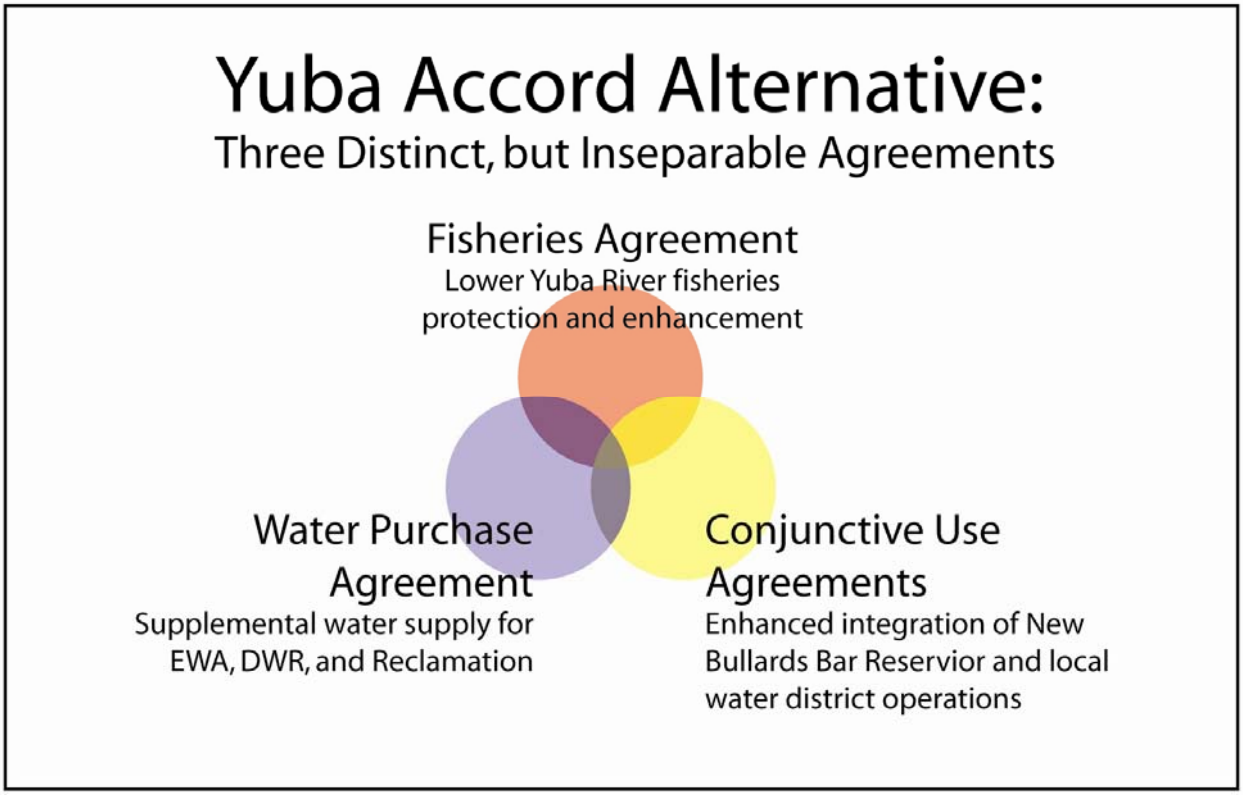

Figure 1-3. Inter-relationships of the Three Agreements Comprising the Yuba Accord Alternative

Additionally, the Yuba Accord Alternative is intended to provide water for use in protecting fisheries resources, including a firm commitment of 60 TAF of water every year that would be provided to the EWA Program or an equivalent program for fisheries purposes. Also, the Yuba Accord Alternative is intended to improve water supply reliability for Reclamation and DWR through the purchase of additional water in drier years.

If operational limitations of the Yuba Project, CVP, or SWP cause a reduction in the quantity of water purchased by the EWA Program, YCWA would deliver the previously undelivered quantity of water in a following year according to the terms set forth in the Water Purchase Agreement (Section 5.A). Each agreement is described in more detail below.

1.2.3.1 FISHERIES AGREEMENT

The Fisheries Agreement was developed by state, federal, and consulting fisheries biologists, fisheries advocates, and policy representatives. Compared to the interim flow requirements of RD-1644, the Fisheries Agreement would establish higher instream flow requirements in most months of most water years.

Signatory parties to the proposed Fisheries Agreement include YCWA, CDFG, the South Yuba River Citizens League (SYRCL), Friends of the River (FOR), Trout Unlimited (TU), and The Bay Institute (TBI). NMFS and the U.S. Fish and Wildlife Service (USFWS) are precluded from signing the Fisheries Agreement by federal law; however, they have signed the Statement of Support for Proposed Lower Yuba River Fisheries Agreement (see Appendix B) and have provided critical input to development of the Fisheries Agreement. The term of the agreement is proposed to extend to 2016, when the existing FERC long-term license for the Yuba Project expires.

1.2.3.2 CONJUNCTIVE USE AGREEMENTS

To assure that YCWA's water supply reliability would not be reduced by the higher instream flow requirements, YCWA and its participating Member Units would implement the Conjunctive Use Agreements. These agreements would establish a comprehensive conjunctive use program that would integrate the surface water and groundwater supplies of the local irrigation districts and mutual water companies that YCWA serves in Yuba County. Integration of surface water and groundwater would allow YCWA to increase the efficiency of its water management.

YCWA would enter into individual Conjunctive Use Agreements with each of the participating Member Units: BWD, BVID, DCMWC, HIC, RWD, SYWD, and WWD. The term of the Conjunctive Use Agreements is proposed to extend until 2016, consistent with the term of the Fisheries Agreement.

1.2.3.3 WATER PURCHASE AGREEMENT

Under the Water Purchase Agreement (Tier 1 Agreement), Reclamation and DWR would enter into an agreement with YCWA to purchase water from YCWA for use in the EWA Program or an equivalent program. Additional water purchased by Reclamation and DWR would be available for the CVP/SWP in drier years. The EWA Program or an equivalent program would take delivery of water in every year when operational and hydrological conditions allow; the CVP/SWP would receive additional water in the drier years.

The term of this agreement is proposed to extend to 2025. The initial term of the Water Purchase Agreement is anticipated to extend until the expiration of YCWA's FERC license (2016), consistent with the terms of the Fisheries Agreement and Conjunctive Use Agreements. The Water Purchase Agreement includes provisions for some continued YCWA deliveries of water, and Reclamation and DWR purchase of such water, through December 31, 2025.

Revenue generated from implementation of the Water Purchase Agreement would be used by YCWA to fund a comprehensive conjunctive use program and Yuba County flood control improvements, and to implement a long-term fisheries monitoring, studies, and enhancement program. The nature and locations of future local improvement projects is not known at this time. Any future flood control or water supply improvement project undertaken by YCWA would be subject to future project-specific environmental review and documentation.

In addition to the Water Purchase Agreement, Reclamation and DWR also would enter into an agreement regarding sharing the purchased water, and related integrated operations of the CVP/SWP system (Tier 2 Agreement). Finally, Reclamation and DWR would each enter into separate agreements with state and federal water contractors, respectively, regarding allocation of the purchased water supply (Tier 3 Agreements).

The Fisheries, Conjunctive Use, and Water Purchase agreements would enable YCWA to operate the Yuba Project in a more flexible and comprehensive manner to implement the Yuba Accord Alternative's higher instream flow requirements. Additionally, an amendment to the 1966 power purchase contract between YCWA and PG&E would enable YCWA to meet Yuba Accord Alternative flow requirements while still allowing PG&E to receive the same amount of hydroelectric power benefits from the Yuba Project.

1.2.4 SIGNATORIES AND PARTICIPANTS IN THE PROPOSED LOWER YUBA RIVER ACCORD

Development of the Proposed Yuba Accord involved agricultural, environmental, and fisheries interests, including local, state, and federal agencies. These 17 entities and their involvement in the Yuba Accord agreements and the environmental compliance process for the EIR/EIS are summarized in **Table 1-2** (also see Section 1.5.1).

In addition to the 17 entities listed in Table 1-2, other local, state, and federal agencies will be involved in the environmental compliance process for the EIR/EIS and related activities, but not directly involved in the agreements as signatories or participants.

Table 1-2. Signatories and Participants in the Proposed Yuba Accord Agreements and Environmental Compliance Roles

Entity	Proposed Yuba Accord Agreement			Environmental Compliance Roles
	Fisheries	Conjunctive Use	Water Purchase	
Yuba County Water Agency	Signatory	Signatory	Signatory	CEQA Lead Agency Cost-Share Agency
California Department of Water Resources			Signatory	CEQA Responsible Agency Cost-Share Agency
Bureau of Reclamation			Signatory	NEPA Lead Agency Cost-Share Agency
California Department of Fish and Game	Signatory			CEQA Responsible/ Trustee Agency
Friends of the River	Signatory			NGO
South Yuba River Citizens League	Signatory			NGO
The Bay Institute	Signatory			NGO
Trout Unlimited	Signatory			NGO
National Marine Fisheries Service	Participant [a]			NEPA Cooperating Agency
U.S. Fish and Wildlife Service	Participant [a]			NEPA Cooperating Agency
Brophy Water District		Signatory		Member Unit – CEQA Responsible Agency
Browns Valley Irrigation District		Signatory		Member Unit – CEQA Responsible Agency
Dry Creek Mutual Water Company		Signatory		Member Unit – Private Company
Hallwood Irrigation Company		Signatory		Member Unit – Private Company
Ramirez Water District		Signatory		Member Unit – CEQA Responsible Agency
South Yuba Water District		Signatory		Member Unit – CEQA Responsible Agency
Wheatland Water District		Signatory		Member Unit – CEQA Responsible Agency

[a] NMFS and USFWS have signed a Statement of Support for the Fisheries Agreement. Federal law constrains these entities from signing the final Fisheries Agreement.

Source: (YCWA 2005)

In addition, many other agencies, organizations, and entities have interests in the success of the Yuba Accord. Many of the entities listed in Table 1-2 were involved in the SWRCB hearing process or the settlement negotiations. Many could be affected by Yuba Accord Alternative operations. In addition to the key stakeholders and local, state, and federal agencies, tribal interests also are stakeholders in the process. Federally recognized tribal interests in Yuba County include the Rumsey Rancheria, Strawberry Valley Maidu Tribe, and Estom Yumeka Maidu Tribe.

1.3 STATE AND FEDERAL ENVIRONMENTAL REVIEW REQUIREMENTS

Prior to implementation of one of the alternatives considered in this EIR/EIS, the lead agencies must fulfill or comply with the necessary state and federal environmental review requirements described below.

The primary environmental review requirements of CEQA (Public Resource Code (PRC) 21000 *et seq.*) are as follows:

- Disclose to decision-makers and the public any significant environmental impacts of proposed activities.
- Identify ways to avoid or reduce significant environmental impacts.
- Prevent or mitigate any significant environmental impacts by requiring implementation of feasible alternatives or mitigation measures.
- Disclose to the public the reasons for agency approval of projects with significant environmental impacts.
- Foster interagency coordination in the review of projects.
- Enhance public participation in the planning process.

CEQA applies to all discretionary activities that are proposed to be approved by California public agencies, including local, county, regional, and state agencies, unless an exemption applies. CEQA requires that public agencies comply with both procedural and substantive requirements. Procedural requirements include preparation of the appropriate environmental documents, mitigation measures, alternatives, mitigation monitoring, findings, statements of overriding considerations, public notices, scoping, responses to comments, notices of preparation (NOP), agency consultation, and State Clearinghouse reviews.

CEQA's substantive provisions require that agencies address significant environmental impacts. When avoiding or minimizing environmental impacts is not feasible, CEQA requires that agencies prepare a written statement of the overriding considerations that resulted in approval of a project that would cause one or more significant impacts to the environment. CEQA establishes a series of action-forcing procedures to ensure that agencies accomplish the purposes of the law. In addition, under the direction of CEQA, the California Resources Agency has adopted regulations, known as the "*State CEQA Guidelines*," which provide detailed procedures that agencies must follow to implement the law.

NEPA (42 USC 4321; 40 CFR 1500.1) applies to all federal agencies and to most of the activities they manage, regulate, or fund that affect the environment. It requires all agencies to disclose and consider the environmental implications of their proposed actions. NEPA establishes environmental policies, provides an interdisciplinary framework for evaluating environmental

effects, and contains "action-forcing" procedures to ensure that federal agency decision-makers take environmental factors into account.

NEPA requires preparation of an appropriate document to ensure that federal agencies accomplish the law's purposes. The President's Council on Environmental Quality (CEQ) has adopted regulations and other guidance, including detailed procedures that federal agencies must follow to implement NEPA. Reclamation and the NEPA cooperating agencies will use this EIR/EIS to comply with NEPA and CEQ regulations.

1.4 STATE AND FEDERAL LAWS AND REGULATIONS GOVERNING WATER TRANSFERS AND WATER ACQUISITIONS

Both state and federal laws contain provisions that authorize, acknowledge, or support water transfers. This section describes the water rights and statutes governing water transfers that are applicable to the Yuba Accord Alternative, and also describes pertinent laws that affected development of the other project alternatives.

1.4.1 WATER RIGHTS

Water rights described in this section include riparian rights, appropriative rights to surface water, other water rights and protections, and related concepts in the California Water Code.

1.4.1.1 RIPARIAN RIGHTS

A property owner with lands abutting a stream, lake, or defined underground channel has a right to divert and use the water adjacent to or flowing by that land. These rights are known as "riparian rights." Riparian rights extend only to the natural flow of the stream and allow riparian landowners to divert as much water as they can reasonably and beneficially use on riparian lands in the watershed of the stream. During times of water shortage, riparian right holders are obligated to share the natural flow of the stream equally with other riparian right holders. These rights do not authorize storage of water during times of water surplus for use in times of water shortage.

No permit requirement exists for riparian rights; however, riparian right holders (with some exceptions) must file statements of water diversion and use (Water Code Sections 5100-5108) with the state, documenting their water diversions and use. This allows the state to inform riparian right holders when applications for permits for upstream water diversion and use are received. Because riparian rights are parts of the riparian lands, water that may be diverted under a riparian right may not be transferred to others. However, others can appropriate water not diverted under riparian rights.

1.4.1.2 APPROPRIATIVE RIGHTS TO SURFACE WATER

Appropriative water rights are based on beneficial use and allow diversion of the flow of a stream for use on land that does not directly abut the waterway. Appropriative rights may be used both to store water and to directly apply water to beneficial use. Unlike riparian right holders, who share equally in the natural flow of the system, priorities among appropriative right holders are based on the "first in time, first in right" doctrine. During periods of low flows in a waterway, senior water right holders have priority, and junior water right holders must reduce or cease water diversions, if necessary.

Appropriative rights are divided into two categories: pre-1914 and post-1914 (or modern) appropriative rights, demarking the time when the state began to regulate appropriations of water. Pre-1914 appropriative rights are not under any statewide permitting authority, and right holders need not give notice or request permission to change the purpose of use, place of use, or points of diversion. However, if such change could be construed as initiation of a new right, a new appropriative right would be required for the diversion and use of the water. Such changes also must not injure any legal users of water (see subsequent discussion of Water Code Section 1706). In contrast, modern appropriative rights are subject to administrative requirements that involve water right permits and licenses. Water users obtain modern appropriative water right permits by applying to SWRCB. Any requests to change modern appropriative rights must go through a public notification and petition and approval process.

Both YCWA and some of its Member Units hold various appropriative water rights. Details of these water rights are provided in Chapter 5.

1.4.1.3 OTHER RIGHTS AND PROTECTIONS

Many water users have rights to use water through contracts with the holders of appropriative water rights. Other types of water rights include federal reserved rights and Pueblo rights. These rights typically attach to the land from which they are derived and are not a major factor in water transfers in California.

Water Code Sections 1010, 1011, 1011.5, 1244, 1440, 1731, 1737, and 1745.07 provide protections to water right holders who transfer water. Water rights can be lost through disuse for a stated period of time, subject to notice and opportunity for hearing requirements. However, if the disuse of water is because of water conservation, use of recycled water, or participation in a conjunctive groundwater use program, the rights can be protected under Water Code Sections 1010, 1011, and 1011.5.

Both water contract and water transfer provisions of the Water Code are applicable to various elements of the Proposed Yuba Accord, and to the actions of various parties to the Accord (including YCWA, some of its Member Units, DWR, and Reclamation).

1.4.1.4 RELATED CONCEPTS IN THE WATER CODE

Both state and federal laws contain provisions that authorize, acknowledge, or support water transfers. The Water Code protects legal users of water and fish and wildlife during water transfers through the "no-injury rule," analyses of impacts to fish and wildlife, evaluation of third-party impacts, and the 1707 process. The sections below discuss these protections.

Several of these related concepts would be applicable to various elements of the Proposed Yuba Accord, and to the actions of various parties to the Accord (including YCWA, some of its Member Units, DWR, Reclamation, and CDFG).

NO-INJURY RULE

A change in a water right may not cause injury to any legal user of the water involved. This condition applies to modern water rights through Sections 1702, 1727 and 1736 of the Water Code and applies to pre-1914 water rights through Section 1706 of the Water Code. SWRCB supervises changes to post-1914 water rights, and the courts have jurisdiction over potential violations of Water Code Section 1706.

EFFECTS ON FISH AND WILDLIFE

Water Code Sections 1725 and 1727 require that SWRCB make findings that certain transfers would not result in unreasonable impacts on fish and wildlife or other instream beneficial uses. These Water Code sections apply to specific types of water transfers (urgent, temporary, and long-term transfers) related to post-1914 appropriative rights. Pre-1914 water rights are not subject to the permit system, although a change in use for instream flow may be authorized under Section 1707 by petition to SWRCB.

THIRD-PARTY IMPACTS

Third parties in the context of the Proposed Yuba Accord are any persons other than the entities transferring or receiving water. Although the Water Code does not define third-party impacts, they traditionally include impacts related to: downstream water rights and adjacent groundwater users; fish and wildlife; and recreation, economic, and social impacts. Most third-party impacts are evaluated under Water Code sections that protect prior rights and fish and wildlife, as discussed above. In addition, Water Code Sections 386 and 1810 require evaluation of other third-party impacts for some specific transfers, and prohibit such transfers from affecting the overall economy of the area or county from which the water is being transferred.

Water Code Section 1810 states that transferees can use public water conveyance facilities as long as "*this use of a water conveyance facility is to be made without injuring any legal user of water and without unreasonably affecting fish, wildlife, or other in-stream beneficial uses and without unreasonably affecting the overall economy or the environment of the county from which the water is being transferred*."

The CVP and SWP have historically coordinated use of Delta export pumping facilities to assist with deliveries and to aid each other during times of facility failures. The sharing of these facilities is referred to as Joint Point of Diversion (JPOD). The JPOD was conditionally approved by SWRCB in D-1641.

It has been the policy of SWRCB that all water transfers must meet similar criteria and conditions as set forth for JPOD, and has mandated a "response plan" evaluation process for real-time incremental export operations, to determine the effects of water transfer and JPOD operations, and to protect the environment and water users in the south Delta. JPOD requirements and the response plans are described in further detail in Section 5.1.5.3.

WATER CODE SECTION 1707

Section 1707 of the Water Code allows water right holders, including riparian and pre-1914 right holders, to dedicate their rights to instream uses "*for the purpose of preserving or enhancing wetlands, fish and wildlife resources, or recreation in, or on, the water*." These transfers, from a consumptive use to a nonconsumptive use with an identified need, may be temporary or permanent. The transfer must meet the following requirements for SWRCB to approve the change in use:

- Will not increase the amount of water the person is entitled to use
- Will not unreasonably affect any legal user of water
- Otherwise meets the requirements of Division 2 of the Water Code

The petitioner can request that the water subject to transfer approval be in addition to water required for "*federal, state, or local regulatory requirements governing water quantity, water quality,*

instream flows, fish and wildlife, wetlands, recreation and other instream beneficial uses." If the petitioner does not submit this request to SWRCB, the water may be used to meet any of the above requirements.

1.4.2 WATER TRANSFERS

Long-term water transfers and sources of water for transfers in Yuba County are discussed in this section.

1.4.2.1 LONG-TERM WATER TRANSFERS

Implementation of the Water Purchase Agreement includes a provision for a long-term transfer (duration greater than one year) of water. Long-term transfers of water under post-1914 appropriative rights are governed by Sections 1735-1737 of the Water Code. Long-term transfers are not limited to stored or consumptively used water. Long-term transfers are subject to CEQA, and also must comply with the standard SWRCB public notice and protest process. If valid protests to the proposed change cannot be resolved through negotiation among the parties, a hearing must be held prior to SWRCB's decision on the requested transfer.

1.4.2.2 WATER TRANSFERS – SOURCES

The Proposed Yuba Accord would involve water purchases and possible transfers that could originate from stored reservoir water (New Bullards Bar Reservoir) or from groundwater substitution from sources within the YCWA service area pursuant to the Conjunctive Use Agreements.

STORED WATER

Water Code Section 1725 allows a permittee or licensee to temporarily change a point of diversion, place of use, or purpose of use of water. The transfer must involve water that would have been used consumptively or stored in the absence of the transfer. Under the Proposed Yuba Accord, YCWA would transfer surface water that would otherwise have been stored in the absence of the transfer.

GROUNDWATER

Groundwater users may drill a well and pump groundwater without a state water right permit; however, local ordinances govern use of groundwater in some locations. Some groundwater basins, mostly in Southern California, have been adjudicated, and many groundwater basins have local groundwater management plans adopted under Water Code Sections 10750-10755.4 (also known as AB 3030) or local ordinances that govern groundwater transfers. YCWA developed a groundwater management plan in March 2005 to build on and formalize the historically successful management of Yuba County's groundwater resource and develop a framework for implementing future activities.

Groundwater substitution transfers occur when users pump groundwater to meet their needs, thereby freeing up surface water deliveries that otherwise would have been used by the user. Groundwater management plans, local ordinances, or Section 1745.10 of the Water Code may govern the replacement of surface water with groundwater. Under the Conjunctive Use Agreements, YCWA Member Units would participate in a conjunctive use program and

substitute groundwater for some surface water supplies. Chapter 3 and Chapter 6, describe the Proposed Yuba Accord conjunctive use program and associated groundwater actions, respectively.

1.5 AGENCY USES OF THIS DOCUMENT AND REQUIRED PROJECT APPROVALS

This EIR/EIS considers the potential environmental impacts of implementing the Proposed Yuba Accord elements, including the Fisheries, Conjunctive Use, and Water Purchase agreements. The terms of these agreements are anticipated to extend until FERC issues a new hydropower license for the Yuba Project (anticipated in April 2016), and the Water Purchase Agreement contains provisions for the transfer of water to Reclamation and DWR through December 31, 2025 and the Conjunctive Use Agreements also could be extended to this later date.

This EIR/EIS evaluates the potential environmental impacts of four alternatives:

- Proposed Project/Action (Yuba Accord Alternative)
- Modified Flow Alternative
- No Project Alternative (CEQA)
- No Action Alternative (NEPA)

The Proposed Project/Action is based upon the Yuba Accord principles of agreement (Fisheries Agreement, Water Purchase Agreement, Conjunctive Use Agreements) and flow schedules (Fisheries Agreement), a conjunctive use program (Conjunctive Use Agreements), and water transfers (Water Purchase Agreement).

1.5.1 ROLES, RESPONSIBILITIES AND ACTIONS NECESSARY TO IMPLEMENT THE YUBA ACCORD ALTERNATIVE AS THE PROPOSED PROJECT/ACTION

The CEQA and NEPA lead agencies will use this EIR/EIS to determine whether to approve the Proposed Project/Action or an Alternative. If the Yuba Accord Alternative is selected, the CEQA and NEPA lead agencies, together with the CEQA responsible agencies and other stakeholders, also will use this document to decide whether to execute the agreements that comprise the Proposed Yuba Accord. If the agencies decide to approve and implement the proposed agreements that are part of the Proposed Yuba Accord, this EIR/EIS would be used to help formalize the decision-making process, finalize the terms of the agreements, and guide specific implementation actions (i.e., mitigation measures).

Roles, responsibilities and actions to be taken by the CEQA and NEPA lead agencies, CEQA responsible agencies, and other trustee agencies, either as part of the environmental review process or for the purpose of implementing one of the alternatives evaluated in this EIR/EIS are described below.

1.5.1.1 YUBA COUNTY WATER AGENCY – CALIFORNIA ENVIRONMENTAL QUALITY ACT LEAD AGENCY

YCWA is the lead agency for CEQA compliance. Pursuant to CEQA, when a project is to be carried out or approved by more than one public agency, only one agency, referred to as the lead agency, shall be responsible for preparing the EIR for the project (15 California Code of

Regulations (CCR) Section 15050). According to CEQA criteria for identifying the lead agency, YCWA is the appropriate lead agency for the Proposed Yuba Accord project because:

- YCWA initiated development of the Yuba Accord Alternative;
- YCWA would be primarily responsible for implementing the Yuba Accord Alternative elements;
- YCWA would have the greatest responsibility for supervising or approving the proposed project as a whole;
- The Yuba Accord Alternative involves the transfer and management of water stored under YCWA water rights in facilities owned and managed by YCWA;
- YCWA principally controls the release of water and flows in the lower Yuba River;
- YCWA is the only state or local public agency that would be a party to all of the Proposed Yuba Accord agreements; and
- It is anticipated that YCWA would be the public agency to act first on the project in question (14 CCR Section 15051).

YCWA has consulted with DWR and CDFG (two state agencies party to the Proposed Yuba Accord agreements) and each agency concurs that YCWA is the appropriate CEQA lead agency. Additionally, in accordance with the CEQA process, YCWA would be responsible for certifying the EIR and deciding whether to approve the project.

With respect to project implementation, YCWA is the only local or state public agency that would be a party to all of the Proposed Yuba Accord agreements, and would be responsible for implementing the agreements. As such, YCWA would need to coordinate with each participating Member Unit to implement groundwater-substitution-based water transfers, and to monitor the groundwater basin. YCWA would implement the Fisheries Agreement through monitoring releases and participating on the Lower Yuba River Management Team (RMT). Furthermore, YCWA would coordinate with Reclamation and DWR under the Water Purchase Agreement to release water, as agreed, and to report on water accounting and refill.

YCWA, as lead agency under CEQA, is authorized to implement these actions as the public agency created pursuant to the Yuba County Water Agency Act of 1959. YCWA includes all of Yuba County and contiguous territories of its Member Units that are outside Yuba County. The Yuba County Water Agency Act of 1959 was enacted for the purposes of: (1) making water available for present or future beneficial use or uses of lands or inhabitants in the agency; (2) developing, and selling at wholesale rates, hydroelectric power in connection with its projects; (3) controlling and conserving flood and storm waters; and (4) storing, conserving, reclaiming, and importing water.

The Yuba County Water Agency Act (Section 84-4) includes improving Yuba County water supply management and reliability, and maintaining the ability to deliver water to meet current and future local service area needs, as authorized YCWA purposes. In addition, YCWA is authorized under the Yuba County Water Agency Act (Section 84-5) to enter into long-term contracts to sell water for use outside Yuba County (e.g., the Water Purchase Agreement).

1.5.1.2 BUREAU OF RECLAMATION – NATIONAL ENVIRONMENTAL POLICY ACT LEAD AGENCY

As the federal lead agency under NEPA, Reclamation collaborated with YCWA to develop the EIR/EIS, which will be used to support Reclamation's future decision-making process regarding whether to approve the project and issue a Record of Decision (ROD).

With respect to project implementation, Reclamation would have the decision-making responsibility of approving and implementing the Water Purchase Agreement, including: (1) Reclamation's purchase, diversion and use of water pursuant to the terms of the Water Purchase Agreement and associated changes in CVP and SWP operations; and (2) execution of related agreements with DWR and federal water contractors regarding use of the water and integrated operations of the CVP/SWP system. Related to these Reclamation actions, execution of the final Water Purchase Agreement with YCWA (Tier 1 Agreement), and related agreements with DWR (Tier 2 Agreement) and Reclamation's federal water contractors (Tier 3 Agreements) would be required.

As the lead agency under NEPA, Reclamation is authorized to implement these actions pursuant to Section 14 of the Reclamation Project Act of 1939. The Secretary of the Interior, through Reclamation, is authorized to enter into contracts for exchange or replacement of water, water rights, or electric energy, or for the adjustment of water rights that are necessary and in the interests of the United States and any reclamation or irrigation project.

1.5.1.3 CALIFORNIA ENVIRONMENTAL QUALITY ACT RESPONSIBLE AND TRUSTEE AGENCIES

The CEQA responsible and trustee agencies, and related agency actions associated with the Proposed Yuba Accord are described below.

DEPARTMENT OF WATER RESOURCES

As a CEQA responsible agency, DWR collaborated with YCWA and Reclamation during development of this EIR/EIS and provided valuable input regarding the characterization of SWP operations and other state-related considerations. Along with the lead agencies, DWR representatives were active participants in the oversight, development, and review of project documentation to ensure that this EIR/EIS satisfies DWR's CEQA requirements.

Regarding project implementation, DWR would have decision-making responsibilities associated with approving and implementing the Water Purchase Agreement, including: (1) DWR's purchase, diversion, and use of water pursuant to the terms of the Water Purchase Agreement and associated changes in CVP and SWP operations (Tier 1 Agreement); (2) execution of related agreements with Reclamation (Tier 2 Agreement) and state water contractors (Tier 3 Agreements) regarding use of the water and integrated operations of the CVP/SWP system; and (3) managing some of the water on behalf of the EWA Program.

STATE WATER RESOURCES CONTROL BOARD

The SWRCB is a CEQA responsible agency involved in making water right decisions related to diversion and use of water and implementation of the Proposed Yuba Accord. SWRCB would have the decision-making responsibility of approving YCWA petitions to amend YCWA water rights and RD-1644 to: (1) change instream flow requirements and other provisions in

accordance with the terms of the Fisheries Agreement; and (2) add the CVP and SWP as new points of diversion/rediversion (i.e., Banks Pumping Plant and C.W. Jones Pumping Plant (Jones Pumping Plant) and places of use, as necessary, to implement the Water Purchase Agreement in accordance with the terms of the Fisheries Agreement.

CALIFORNIA DEPARTMENT OF FISH AND GAME

CDFG is a CEQA responsible agency and trustee agency involved in the Fisheries Agreement process. CDFG would have the decision-making responsibility of approving and implementing the Fisheries Agreement, including participating on the RMT. YCWA also would pursue coordination and consultation with CDFG for California Endangered Species Act (CESA) compliance.

YCWA MEMBER UNITS THAT ARE PUBLIC AGENCIES

YCWA Member Units that are public agencies are CEQA responsible agencies involved in the Conjunctive Use Agreements processes. The public agency Member Units would be responsible for approving and implementing the final Conjunctive Use Agreements consistent with the "*Outline of Proposed Principles of Agreements with YCWA Member Units in Connection with Proposed Settlement of SWRCB Decision-1644,*" including: (1) groundwater pumping and management in Yuba County, as necessary to implement the Proposed Yuba Accord, as provided by the Conjunctive Use Agreements, and (2) including the use of groundwater pumps, including some diesel pumps, and conversion of some diesel pumps to electric or other non-diesel pumps.

YCWA MEMBER UNITS (MUTUAL WATER COMPANIES)

DCMWC and HIC are participants in the Conjunctive Use Agreements processes. These Member Units would be responsible for approval and implementation of the final Conjunctive Use Agreements consistent with the "*Outline of Proposed Principles of Agreements with YCWA Member Units in Connection with Proposed Settlement of SWRCB D-1644*," including: (1) groundwater pumping and management in Yuba County, as necessary to implement the Proposed Yuba Accord, as provided by the Conjunctive Use Agreements, and (2) the use of groundwater pumps, including some diesel pumps, and conversion of some diesel pumps to electric or other non-diesel pumps.

1.5.1.4 NATIONAL ENVIRONMENTAL POLICY ACT COOPERATING AGENCIES

The NEPA responsible agencies, and related agency actions associated with the Proposed Yuba Accord are described below.

NATIONAL MARINE FISHERIES SERVICE

NMFS is participating as a NEPA cooperating agency related to preparation of the EIR/EIS for the Proposed Yuba Accord. YCWA, Reclamation, and NMFS also are conducting technical assistance coordination meetings and consultations under the federal Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

UNITED STATES FISH AND WILDLIFE SERVICE

USFWS is participating as a NEPA cooperating agency related to preparation of the EIR/EIS for the Proposed Yuba Accord. USFWS would be asked to assist in development of impact evaluation approaches to ensure compliance with Fish and Wildlife Coordination Act (FWCA) requirements. YCWA, Reclamation, and USFWS also are conducting technical assistance coordination meetings and consultations under the federal ESA.

BUREAU OF INDIAN AFFAIRS

The Bureau of Indian Affairs has agreed to participate as a NEPA cooperating agency to evaluate Native American or Tribal interests in the EIR/EIS.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The U.S. Environmental Protection Agency (EPA) will be provided with an opportunity to review the Draft EIR/EIS for compliance purposes related to air quality and other impact considerations, pursuant to both NEPA and Section 309 of the Clean Air Act (CAA).

1.5.1.5 OTHER PARTICIPATING ENTITIES

Other entities participating in the Proposed Yuba Accord through either the environmental review process or through actions anticipated to occur as part of project implementation are described below.

NATIVE AMERICAN OR TRIBAL INTERESTS

Native American or Tribal Interests have received invitations encouraging early participation of any federally recognized or other Tribes who have interests in, or potentially could be affected by, the Proposed Yuba Accord elements. Federally recognized tribal interests in Yuba County include the Rumsey Rancheria, Strawberry Valley Maidu Tribe, and Estom Yumeka Maidu Tribe.

FEDERAL AND STATE WATER PROJECT CONTRACTORS (CVP/SWP)

Reclamation and DWR each would enter into separate agreements with the federal and state water project contractors, respectively, regarding allocation and use of the transfer water supply (Tier 3 Agreements) obtained from implementation of the Water Purchase Agreement. Although the specific water contractors who would enter into Tier 3 Agreements with either Reclamation or DWR have not been identified, it is assumed that contractors wishing to participate in these agreements would enter into the agreements individually with Reclamation or DWR.

NON-GOVERNMENTAL ORGANIZATIONS

The SYRCL, FOR, TU, and TBI are participants in the Fisheries Agreement process.

1.6 REPORT ORGANIZATION

The chapters of this EIR/EIS are organized as follows:

Chapter 1 – Introduction – Briefly describes the background of the project and the project objectives and purpose and need, and history of development of the Proposed Yuba Accord; summarizes the applicable laws, regulations, and requirements, and agency uses of the document and required project approvals; and outlines the organization of this document.

Chapter 2 –Environmental Setting and CEQA Existing Condition/NEPA Affected Environment – Describes the environmental setting, and existing operational and regulatory conditions.

Chapter 3 – Proposed Project/Action and Alternatives – Describes the alternatives evaluated in the EIR/EIS, including Proposed Project/Action Alternative (Yuba Accord Alternative), Modified Flow Alternative, No Project Alternative, and No Action Alternative.

Chapter 4 – Overview of Analytical Approach – Explains the approach for assessing environmental consequences.

Chapters 5 through 20 – Include the environmental setting/affected environment, environmental impacts/consequences, and mitigation measures/environmental commitments, of the Yuba Accord Alternative and alternatives for the individual resource topics, including the following:

- Chapter 5 – Surface Water Supply and Management
- Chapter 6 – Groundwater Resources
- Chapter 7 – Power Production and Energy Consumption
- Chapter 8 – Flood Control
- Chapter 9 – Surface Water Quality
- Chapter 10 – Fisheries and Aquatic Resources
- Chapter 11 – Terrestrial Resources
- Chapter 12 – Recreation
- Chapter 13 – Visual Resources
- Chapter 14 – Cultural Resources
- Chapter 15 – Air Quality
- Chapter 16 – Land Use
- Chapter 17 – Socioeconomics
- Chapter 18 – Growth Inducement
- Chapter 19 – Environmental Justice
- Chapter 20 – Indian Trust Assets

Chapter 21 - Cumulative Impacts – Discusses the programs and projects that are included in the cumulative impact analyses, and the analysis of cumulative impacts.

Chapter 22 – Climate Change Considerations – Discusses climate change considerations associated with the Proposed Project/Action and alternatives.

Chapter 23 – Consultation and Coordination – Describes the consultation and outreach activities that occurred during the document preparation process.

Chapter 24 – List of Preparers – Identifies the individuals who prepared this document.

Chapter 25 – References – Lists the sources of information used in completing this EIR/EIS, including literature citations and personal communications.

Acronyms and Abbreviations – Lists the project-specific terminology and acronyms and abbreviations used in this EIR/EIS.

Glossary – Provides definitions for specialized terms related to the Proposed Project/Action and alternatives.

Index – Lists topics/sections of this EIR/EIS and indicates the page number(s) where they may be found.

Appendices (DVD)

A – Notice of Preparation/Notice of Intent

B – Proposed Lower Yuba River Accord Agreements
- B1 – Statement of Support for Proposed Lower Yuba River Fisheries Agreement
- B2 – Memorandum of Understanding for Implementation of Environmental Review and a One-Year Pilot Water Purchase Program for the Yuba River Accord
- B3 – Signed Memoranda of Understanding for Conjunctive Use Agreements

C – Background Regarding the Development of the Proposed Yuba Accord Fisheries Agreement

D – Modeling Technical Memorandum (description of models, post-processing applications, and assumptions)

E – Fisheries Resources Analytical Approach and Analyses
- E1 – Anadromous Salmonid Spawning Habitat – Flow Analyses
- E2 – Water Temperature Index Values for Technical Evaluation Guidelines

F – Graphical and Tabular Analysis of Environmental Resources – Summary and Technical Output
- F1 – Surface Water Supply and Management Model Output
- F2 – Groundwater Resources Monitoring Data and Supporting Information
- F3 – Power Production and Energy Consumption Model Output
- F4 – GATAER Model Output
- F5 – DSM2 Model Output
- F6 – Combined Old and Middle River Flow Model Output

G – Fisheries Resources Summary Diagram Maps

H – Mitigation Monitoring and Reporting Plan/Environmental Commitments Plan

I – Responses to Comments Received on the Public Draft EIR/EIS

J – State and Federal Endangered Species Act Compliance Documentation
- California Department of Fish and Game
- National Marine Fisheries Service
- U.S. Fish and Wildlife Service

K – Fish and Wildlife Coordination Act Compliance Documentation

CHAPTER 2
ENVIRONMENTAL SETTING AND THE CEQA EXISTING CONDITION/NEPA AFFECTED ENVIRONMENT

This chapter describes the environmental setting, including the study area, which is divided into four study regions. For CEQA/NEPA purposes, this chapter also describes the Existing Condition/Affected Environment of the four study regions.

The CEQA Existing Condition includes the project area as it existed in 2005, when the Notice of Preparation/Notice of Intent (NOP/NOI) was published. The NEPA Affected Environment is considered to be the existing condition and describes the physical environment of the project area (Reclamation 2000). Additional details about the CEQA Existing Condition/NEPA Affected Environment pertinent to specific resources and information used for hydrologic modeling purposes are in the various resource chapters of this EIR/EIS and in Appendix D.

2.1 PROJECT STUDY AREA

The project study area includes those regions that might benefit or potentially be affected by implementation of a project that changes water management of the lower Yuba River. The study area includes: (1) Yuba Project facilities and the lower Yuba River; (2) the YCWA Member Units and their service areas; (3) local groundwater basins; (4) CVP and SWP storage reservoirs and flows downstream of these reservoirs; and (5) the Delta (**Figure 2-1**). Additionally, San Luis Reservoir and areas served by downstream CVP/SWP water users (i.e., Export Service Area) also are considered. Therefore, the geographic areas influenced by implementation of the Proposed Project/Action or an alternative are described and evaluated in the following four regions:

- Yuba Region
- CVP/SWP Upstream of the Delta Region
- Delta Region
- Export Service Area

Areas not included in the evaluation are discussed in Section 4.2.

2.1.1 YUBA REGION

The Yuba Region encompasses the lower Yuba River Basin, including: storage and hydropower facilities located in the basin; the riparian corridor along the North Yuba River downstream of New Bullards Bar Dam; the lower Yuba River downstream of Englebright Dam to the confluence with the Feather River; the YCWA Member Unit water service areas; local groundwater basin; and lands overlying the groundwater basin. The features of the Yuba Region are shown on **Figure 2-2**. Water bodies, water supply facilities, and associated land areas in this region include the following:

Figure 2-1. Project Study Area for the Proposed Lower Yuba River Accord

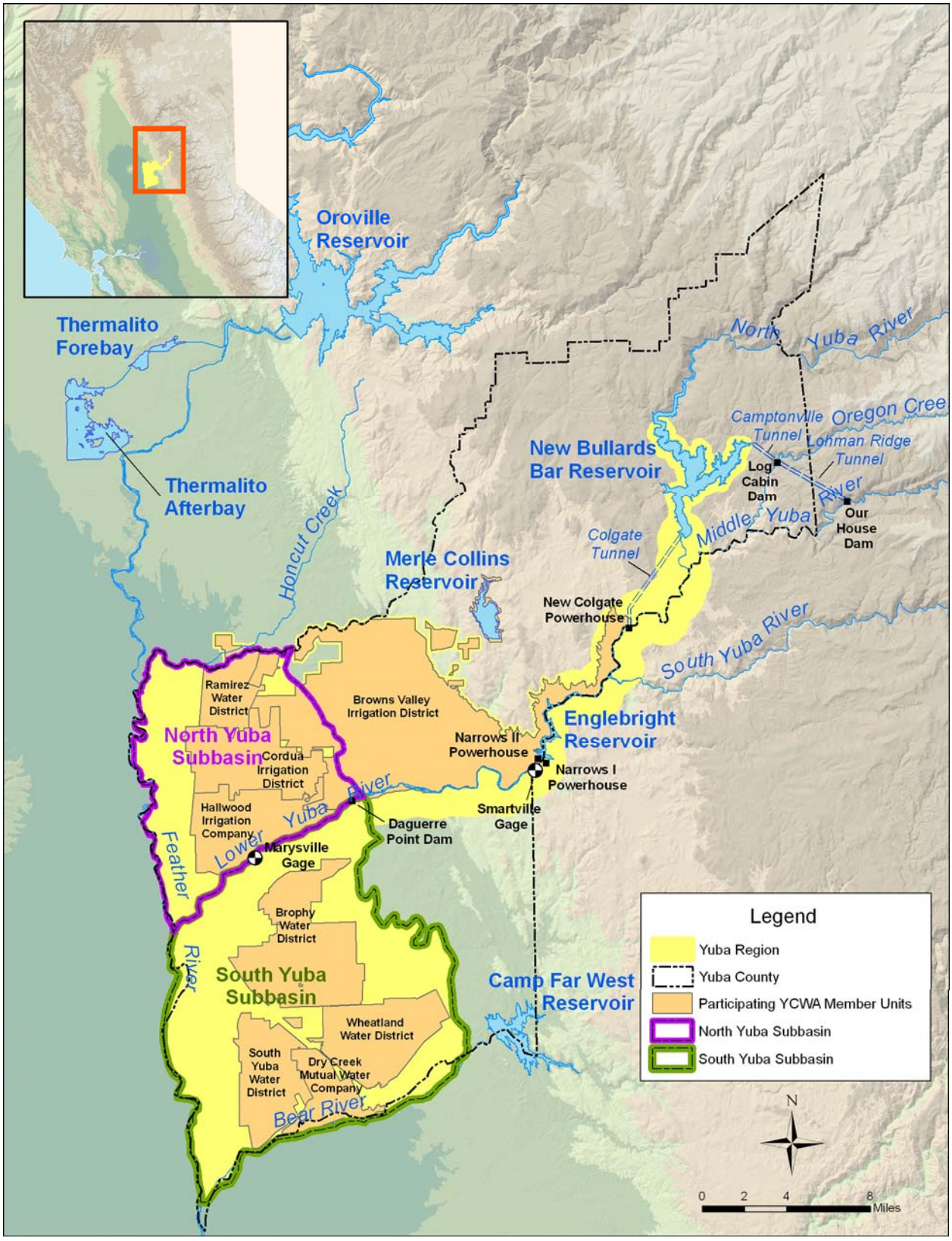

Figure 2-2. Yuba Region

- Reservoirs, including instream and riparian areas
  - New Bullards Bar Reservoir
  - Englebright Reservoir
- Yuba River, including instream and riparian areas
- YCWA Member Unit service areas
  - 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
  - Wheatland Water District
- Yuba Groundwater Basin
  - North Yuba Subbasin
  - South Yuba Subbasin

2.1.1.1 FEATURES

RESERVOIRS

New Bullards Bar Dam and Reservoir were constructed on the North Yuba River from 1969 through 1972 for hydroelectric power generation, flood control, and water supply. The reservoir is 16 miles long and has 60 miles of shoreline and 4,700 surface acres. New Bullards Bar Reservoir has a total storage capacity of 966 TAF. New Bullards Bar Reservoir is the primary flood control reservoir in the Yuba River Basin. A portion of the storage capacity, 170 TAF, is held in reserve from October through May for flood control.

Englebright Reservoir is a 9-mile-long reservoir impounded by Englebright Dam, a concrete arch structure that is 1,142 feet wide and 260 feet high.[1] The dam was constructed in 1941 for the primary purpose of trapping sediment derived from hydraulic mining operations in the Yuba River watershed. Today, Englebright Reservoir is used primarily for recreation and hydropower. Water can be released from the reservoir only through the two hydroelectric plants, or by spilling over the top of the dam. Englebright Dam is the upstream limit of anadromous fish migration in the Yuba River.

Englebright Reservoir has limited regulating capability because its active storage 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. During flood events, uncontrolled spills overtop Englebright Dam.

[1] The "height" listed is the vertical distance from the crest of the dam to the original stream bed at the downstream toe of the dam.

YUBA RIVER

The Yuba River watershed encompasses 1,339 square miles on the western slopes of the Sierra Nevada Mountain Range, and is located in portions of Sierra, Placer, Yuba, and Nevada counties (Reynolds *et al.* 1993). The primary watercourses of the upper Yuba River watershed are the South, Middle, and North Yuba rivers, which flow into Englebright Reservoir. The region of the watershed included as part of the study area is from New Bullards Bar Reservoir, located on the North Yuba River, downstream to Englebright Reservoir, and the lower Yuba River. The lower Yuba River, from Englebright Dam downstream to the confluence with the Feather River, is approximately 24 miles long, and supports a wild Chinook salmon and steelhead fishery.

YCWA AND YCWA MEMBER UNIT SERVICE AREAS

YCWA is a major water right holder on the Yuba River. YCWA's water rights authorize diversion of water from the lower Yuba River for irrigation and other uses from September 1 to June 1, and diversion of water to storage in New Bullards Bar Reservoir from October 1 to June 1 for subsequent irrigation and other uses. YCWA releases water for power generation at the New Colgate and Narrows II powerhouses, and coordinates operations of the Narrows I Powerhouse with PG&E.

YCWA provides surface water to eight Member Units, which are water districts, irrigation districts, and mutual water companies responsible for delivering water to end-users. HIC, CID, riparian diverters in the Dantoni area, and BVID also have their own water rights on the lower Yuba River.

YUBA GROUNDWATER BASIN

The groundwater aquifer underlying Yuba County is divided by the Yuba River into the North Yuba and South Yuba subbasins. DWR defines these subbasins in Bulletin 118 as follows (DWR 2003):

> ***North Yuba Subbasin*** *(Basin Number 5-21.60) lies in the eastern central portion of the Sacramento Valley Groundwater Basin. It is bounded on the north by Honcut Creek, on the west by the Feather River, on the south by the Yuba River, and on the east by the Sierra Nevada foothills.*
>
> ***South Yuba Subbasin*** *(Basin Number 5-21.61) lies in the southern portion of the Sacramento Groundwater Basin. It is bounded on the north by the Yuba River, on the west by the Feather River, on the south by the Bear River, and on the east by the Sierra Nevada foothills.*

2.1.1.2 CURRENT YUBA PROJECT AND YUBA COUNTY WATER AGENCY OPERATIONS

To characterize current operations and hydrologic conditions in the lower Yuba River, information related to instream flow requirements, flow fluctuations and reductions, water temperature management, and existing fishery studies are described below.

INSTREAM FLOW REQUIREMENTS

CDFG, USFWS, and NMFS identified Central Valley fall-run and spring-run Chinook salmon and steelhead as the primary fish species of concern in the lower Yuba River. Fall-run Chinook

salmon are the most abundant anadromous fish in the lower Yuba River and support significant sport and commercial fisheries. Fall-run Chinook salmon are designated as a species of concern under the federal ESA and a state species of special concern under the CESA. Spring-run Chinook salmon are listed as a threatened species under both the federal ESA and CESA. Steelhead are listed as a threatened species under the federal ESA. Additionally, CDFG is concerned with protecting American shad, and USFWS has stated concerns regarding green sturgeon in the lower Yuba River. Effective June 2006, NMFS listed the Southern Distinct Population Segment (DPS) of the North American green sturgeon as a threatened species. In the project study area, the only known spawning habitat for green sturgeon is on the Sacramento River.

Chinook salmon, steelhead, and American shad populations in the lower Yuba River depend on adequate flows downstream of Englebright and Daguerre Point dams to provide habitat for adult attraction and passage, spawning, egg incubation, juvenile rearing, and emigration. Green sturgeon may occur below Daguerre Point Dam.

The Existing Condition includes the SWRCB RD-1644 Interim instream flow requirements (shown in **Table 2-1**). YCWA must meet these instream flow requirements at two compliance points, the United States Geological Survey (USGS) gages at Smartville and Marysville (see Figure 2-2 for locations of the compliance points). Minimum instream flow requirements are measured using five-day running averages of average daily stream flows. Currently, YCWA is required to operate the Yuba Project to meet RD-1644 Interim instream flow requirements until March 31, 2008, after which the RD-1644 Long-term instream flow requirements are scheduled to become effective.

Water year types are defined by the Yuba River Index. More details about the Yuba River Index are in Appendix D.

STREAM FLOW FLUCTUATIONS AND REDUCTIONS (RAMPING CRITERIA)

Flow fluctuations and reductions in stream flow could cause dewatering of salmonid redds and stranding of fry and juvenile fish. Stream flow fluctuations are considered to be changes in flow that occur associated with routine or daily operations of hydroelectric power generation or deliveries to water diverters. Stream flow reductions are considered to be planned reductions in flow for more than a day, such as those associated with changes in instream flow requirements, reservoir flood reservation requirements, deliveries to off-stream diverters, water transfers, downstream salinity intrusion control, or other purposes.

FERC issued a License Amendment for the Yuba Project (Project No. 2246) on November 22, 2005, which imposes a more protective set of flow fluctuation and ramping requirements for the Yuba Project. The new criteria govern YCWA's releases of water from the Narrows II Powerhouse and require YCWA to make reasonable efforts to operate New Bullards Bar and Englebright reservoirs to avoid flow fluctuations in the lower Yuba River. Details of the flow fluctuation and ramping requirements are described in Chapter 5.

Table 2-1. Revised Decision 1644 Interim Instream Flow Requirements (cfs)

Period	Wet and Above Normal Years [a]		Below Normal Years [a]		Dry Years [a]		Critical Years [a]	
	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage
Sep 15 through Sep 30							400	150
Sep 15 through Oct 14	700	250	550	250	500	250	400	150
Oct 1 through Oct 14							400	250
Oct 15 through Apr 20	700	500	700	500	600	400	600	400
Apr 21							--	280
Apr 21 through Apr 30	--	1,000	--	900	--	400		
Apr 22 through Apr 30							--	270
May 1 through May 31	--	1,500	--	1,500	--	500	--	270
June 1	--	1,050	--	1,050	--	400		
Jun 1 through Jul 2							--	[b]
Jun 2 through Jun 30	--	800	--	800	--	400		
Jul 1	--	560	--	560	--	280		
Jul 2	--	390	--	390	--	250		
Jul 3	--	280	--	280	--	250		
Jul 3 through Sep 14							--	100
Jul 4 through Sep 14	--	250	--	250	--	250		

[a] Water year classifications are based on DWR forecast of unimpaired flow of the Yuba River at Smartville published in DWR Bulletin 120.

[b] The interim instream flow requirements for June 1 through 30 of critical years shall be 245 cfs pursuant to provisions of the agreement between YCWA and CDFG, dated September 2, 1965, except if a lower flow is allowed pursuant to the provisions of the 1965 agreement. The minimum flow on July 1 shall be 70 percent of the flow on June 30, and the minimum flow on July 2 shall be 70 percent of the flow on July 1.

" --" – indicates no flow standard requirement.

Note: No instream flow requirements are associated with shaded cells.

WATER TEMPERATURE

Reservoir control gates at New Bullards Bar Dam can release water from different reservoir storage elevations, ranging from a near-surface elevation of 1,956 feet to a low-level outlet elevation of 1,638 feet. YCWA has used only the low-level outlet for water releases since 1993, pursuant to discussions with CDFG. Although coldwater releases from New Bullards Bar Reservoir have improved water temperatures in the lower Yuba River, ambient warming via solar radiation continues to elevate the temperature of water in Englebright Reservoir and, thus, increases the water temperature of releases from Englebright Dam during summer and fall. The monthly average of daily lower Yuba River water temperatures measured at the Marysville Gage for the periods prior to and after development of the Yuba Project are shown on **Figure 2-3**.

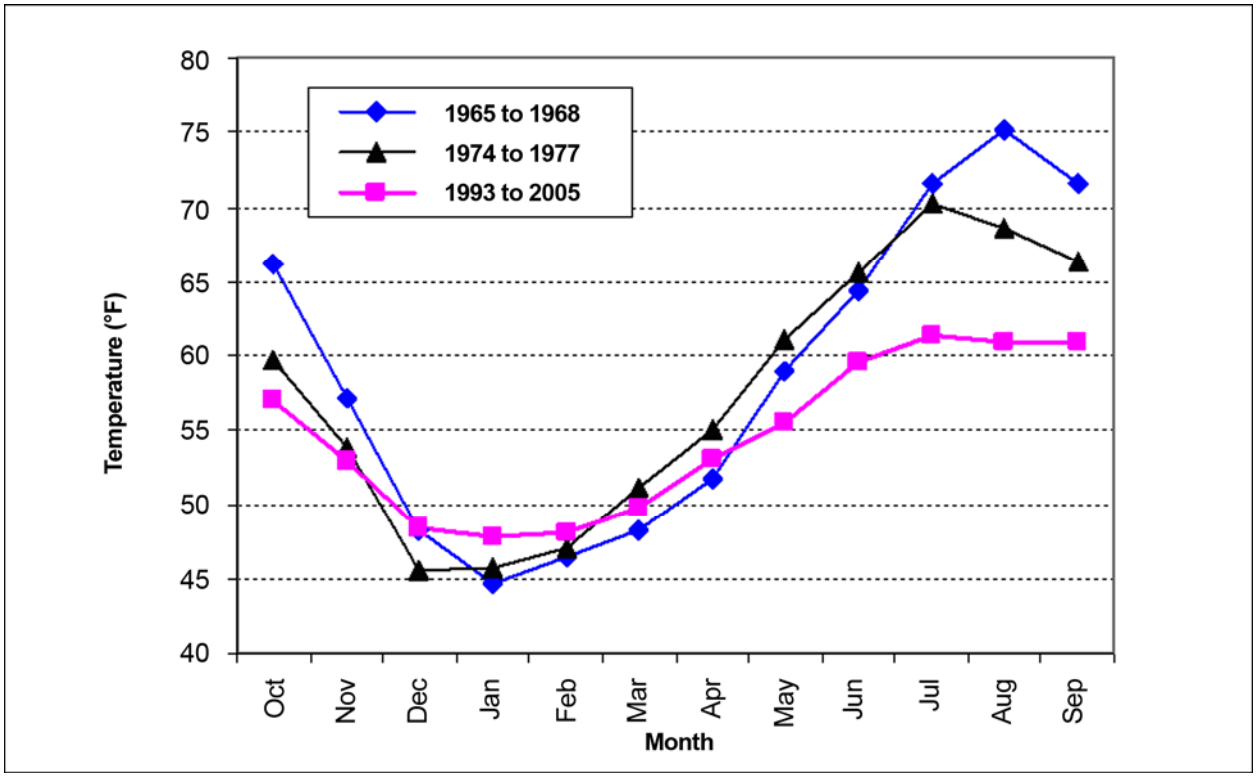

Figure 2-3. Monthly Average of Daily Yuba River Temperatures at Marysville Gage for Periods of Pre- and Post-Yuba River Development Project (YCWA 2001)

FISHERIES STUDIES

RD-1644 requires YCWA, in conjunction with CDFG and USFWS, to conduct additional field monitoring of the effects of flow fluctuations to ensure that Chinook salmon and steelhead redds and fry are adequately protected from dewatering or stranding. RD-1644 requires YCWA to prepare an annual summary report of this monitoring for submittal to SWRCB.

2.1.1.3 RESERVOIR OPERATIONS CRITERIA

The following sections describe YCWA's base flow management operations for New Bullards Bar and Englebright dams and reservoirs. Base flow water management operations describe normal operations of New Bullards Bar Reservoir when YCWA controls system flows through

regulation of reservoir storage and releases. Base flow operations occur outside periods of flood control operations, spilling, bypassing uncontrolled flows into Englebright Reservoir, or responses to unregulated inflows from tributary streams downstream of Englebright Dam.

New Bullards Bar Dam release rates are operated for the following:

- Instream flow requirements
- Carry-over storage targets
- Local irrigation demands and water supply contract deliveries
- Flood control
- Hydropower
- Water transfers

The instream flow requirements are discussed above in Section 2.1.1.2. Irrigation (water supply contract provisions) requirements, hydropower generation, and carry-over storage are discussed below.

CARRY-OVER STORAGE

New Bullards Bar Reservoir is currently operated to meet a minimum carry-over storage requirement of 705 TAF on September 30 (i.e., the end of the hydrologic water year). This target carry-over storage is designed to ensure that 100 percent of instream (fishery) flows and 50 percent of water deliveries could be met during the following water year, even if the following year is a 1-in-100 year drought event. The determination of operations necessary to meet the annual carry-over storage requirement is based on several factors, including the target drought protection level, anticipated diversion demand, instream flow requirements, and forecasted unimpaired flows.

Englebright Reservoir has limited regulating capability because its active storage is small compared to stream inflow. Storage in Englebright Reservoir is used to attenuate daily and weekly power peaking releases from New Colgate Powerhouse and tributary inflows. A more detailed description of Englebright Reservoir operations is included in Section 2.1.1.1 and in Chapter 7.

Details of multi-year forecasts of unimpaired inflows and operational storage targets by month are presented in Chapter 5.

2.1.1.4 SURFACE WATER SUPPLY

YCWA supplies wholesale irrigation water from the Yuba Project to Member Units located north and south of the Yuba River. Member Units receive surface water from the Yuba Project either through their own water rights (YCWA water rights are described in detail in Chapter 5), or through contracts with YCWA to purchase water, or both. Annual contract amounts for YCWA's Member Units are presented and discussed in Chapter 5**.** During dry years, water supplies to contractors may be reduced according to the water supply contract deficiency provisions, which also are presented and discussed in Chapter 5.

IRRIGATION AND CONSUMPTIVE DEMANDS

After construction of the Yuba Project, YCWA entered into water supply contracts with several Member Units within the YCWA service area. When the Yuba Project originally was constructed, ample supply was available to: (1) meet Yuba County demands; (2) maintain carry-over storage in the Yuba Project reservoir (New Bullards Bar Reservoir); (3) protect

against drought conditions in the following year; and (4) release additional water in many years. Recent and projected growth in Yuba County water supply demands, and the advent of water transfer opportunities (to provide water supplies for environmental purposes and consumptive supplies to regions outside of Yuba County) may exceed the water supply capability of the Yuba Project and result in increasing competition for Yuba Project water resources.

Agricultural diversion requirements for the YCWA service area were estimated for present and full-development conditions in Yuba County during the hearing that led to D-1644 ("*SWRCB Lower Yuba River Hearings 2000, Exhibit S-YCWA-15: Lower Yuba River Diversion Requirements: Present and Full Development*"). Under the Existing Condition, demand was estimated at approximately 305 TAF in years classified as above normal and wet hydrologic conditions. In years classified as below normal, dry and critically dry demand was estimated to be 311 TAF. Since the 2000 hearings, some adjustments have been made to these estimates. Details of monthly demand patterns are presented in Chapter 5 and in Appendix D.

2.1.1.5 GROUNDWATER SUPPLY AND MANAGEMENT

The groundwater aquifer underlying Yuba County is divided by the Yuba River into the North Yuba and South Yuba subbasins. Groundwater is an important source of water supply in Yuba County. All urban areas in the subbasin, including Marysville, Olivehurst, Linda, Wheatland, and Beale Air Force Base, are dependent on pumped groundwater for their municipal and industrial (M&I) water supplies. Most of the groundwater pumping for irrigation occurs south of the Yuba River. Irrigation north of the Yuba River is primarily supplied by surface water except in Reclamation District 10. In the South Yuba Subbasin, portions of Reclamation District 784 and all of the Wheatland Water District currently rely on groundwater. Before YCWA began surface water deliveries to the South Yuba Subbasin, the Member Units relied solely on groundwater for irrigation. Data from 1950 to 1980 indicate that the pumping of groundwater created localized decreases in the groundwater levels (cones of depression). Due to the delivery of surface water, the groundwater table has risen approximately 80 feet since 1983 in some parts of Brophy Irrigation District service area. Recovery of the groundwater level in recent years resulted from the use of surface water for irrigation and reduction in groundwater pumping. In the South Yuba Subbasin, a net gain of groundwater storage has occurred.

In 1991, 1994, 2001, and 2002, water users within the YCWA service area increased groundwater pumping to allow YCWA to transfer surface water. In 1991 and 1994, the groundwater substitution transfers were to DWR for use in the Drought Water Bank. Groundwater extractions were 82,018 acre-feet (AF) in 1991 and 26,033 AF in 1994. In 2001 and 2002, the groundwater substitution transfers were to the EWA Program. Groundwater extractions were 62,184 AF in 2001 and 57,084 AF in 2002. In all cases, the aquifer groundwater surface elevations recovered to 85 percent to 90 percent of pre-transfer elevations within a year. Full recovery to pre-transfer levels in some cases took up to 3 years. Details of the two groundwater subbasins and the aquifer response to groundwater substitution based transfers are presented in Chapter 6.

GROUNDWATER MANAGEMENT

YCWA, in coordination with DWR, has actively managed, and continues to actively manage the Yuba groundwater subbasins. In 2005, YCWA adopted a Groundwater Management Plan (YCWA 2005) that includes provisions to protect the safe yield of the North Yuba and South Yuba groundwater subbasins. Primarily, YCWA's Groundwater Management Plan is a

formalization of its ongoing management of the subbasins. The Groundwater Management Plan includes required and voluntary components (Water Code Section 10750 *et seq.*), such as provisions for stakeholder involvement, groundwater monitoring, groundwater resource protection, and groundwater sustainability.

Basin Management Objectives described in YCWA's Groundwater Management Plan are summarized below:

- **Achieve groundwater storage levels that result in a net benefit to basin groundwater users.** YCWA intends to manage groundwater through conjunctive use activities to avoid unreasonable impacts that may occur from changes in groundwater elevations due to external water transfers. Groundwater elevation reductions that may occur as a result of groundwater extractions to meet local and out-of-county demands in drier years will be monitored by YCWA.
- **Maintain or improve groundwater quality in the basin for the benefit of groundwater users.** Generally, the groundwater in the basin is of excellent quality. However, occurrences of both groundwater contamination and increases in total dissolved solids have been documented in the basin. In these instances, YCWA will coordinate with appropriate local, state, and federal agencies to pursue actions that will result in the remediation of the problem.
- **Protect against potential inelastic land surface subsidence.** Land subsidence can cause significant damage to essential infrastructure. Historically, land surface subsidence within the county area has been minimal, with no known significant impacts to existing infrastructure. Given the historical trends, the potential for land surface subsidence from groundwater extraction in the North and South subbasin areas is remote. However, YCWA intends to coordinate with DWR to monitor for potential land surface subsidence. If inelastic subsidence is documented in conjunction with declining groundwater elevations, YCWA will investigate appropriate actions to avoid adverse impacts
- **Protect against adverse impacts to surface water flows.** Among other important uses, the Yuba River provides habitat for a variety of fish and wildlife species. YCWA is committed to meeting flow requirements in the Yuba River for protection of habitat. In addition, YCWA plans to coordinate with DWR in monitoring efforts that evaluate the relationship (if any) between groundwater pumping and adjacent river or stream flows.

Part of the implementation of YCWA's Groundwater Management Plan includes an examination of the adequacy of current groundwater monitoring. YCWA and DWR currently monitor groundwater elevation and quality. In 1995, YCWA installed 15 dedicated monitoring wells throughout the county. In addition to these dedicated monitoring wells, DWR and YCWA monitor approximately 50 production wells. Monitoring of these production wells has been ongoing since 1946. YCWA is currently installing approximately 8 to 10 new dedicated monitoring wells with grant funds from DWR. Information fully describing YCWA groundwater pumping, air quality monitoring and improvement plan is in Chapter 6.

Inelastic subsidence is not currently monitored within the groundwater basin. The Groundwater Management Plan proposes that YCWA coordinate with DWR to evaluate the necessity of developing an inelastic subsidence monitoring program and to explore funding opportunities to implement the program. YCWA is coordinating with DWR to develop a baseline subsidence monitoring study.

DWR has begun monitoring groundwater/surface water interactions in recent years. DWR is currently preparing a report based on 14 months of data collected from a Bear River stream gage and a nearby production well. DWR also has begun collecting data to measure groundwater and surface water interaction in the vicinity of the Yuba River. The Groundwater Management Plan proposes that YCWA meet with DWR to review the results of the Bear River study and to consider the need for, and cost-effectiveness of, additional monitoring stations and studies. The Groundwater Management Plan also specifies that YCWA and DWR will coordinate on the development of data collection, sharing, and archiving protocols.

2.1.1.6 FLOOD CONTROL OPERATIONS

Operation of New Bullards Bar Reservoir for flood control purposes is designed to protect life, property, and the dams on the river from actual and anticipated major flood events. Flood control operations include all operations involving releases or other actions: (1) according to the Corps flood control criteria; (2) requested by the Corps or the DWR/Corps Joint Flood Control Center under flood control authorities; (3) required to maintain a flood control buffer; or (4) to meet other flood control purposes.

New Bullards Bar Dam 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 into on May 9, 1966, YCWA agreed to reserve 170 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*." The proposed change in water management of the Yuba Project would not cause any changes in flood control operations. The Existing Condition and all the alternatives for the project assume flood control operations as described above. Flood control is discussed in more detail in Chapter 8.

2.1.1.7 HYDROPOWER GENERATION

YCWA operates the Yuba Project (Figure 1-1) to generate hydroelectric power pursuant to: (1) Federal Power Act License 2246, which is administered by FERC; (2) its water right licenses for power production; and (3) the 1966 Power Purchase Contract between YCWA and PG&E. YCWA releases water for power generation at the New Colgate Powerhouse and at the Narrows II Powerhouse, and coordinates power generation operations with the PG&E Narrows I Powerhouse. Englebright Reservoir serves as the afterbay for YCWA's New Colgate Powerhouse and as a forebay for power generation at the Narrows I and II powerhouses.

The New Colgate Powerhouse operates as a peaking facility, which may be run at full capacity for a total of a few hours each day. There is a fish bypass requirement of 5 cfs from New Bullards Bar Dam into the North Yuba River.

The Narrows I Powerhouse is operated pursuant to FPA License 1403 (1993), held by PG&E. PG&E's FPA License specifies minimum flow requirements at Smartville for power generation at the Narrows I Powerhouse. From October 1 through March 31, minimum flow requirements are 700 cfs; from April 1 through April 30, 1,000 cfs; from May 1 through May 31, 2,000 cfs; from June 1 though June 30, 1,500 cfs; and from July 1 through September 30, 450 cfs. For limits on when instream flow requirements in the current FERC license for Narrows I are in effect, see Chapter 5.

YCWA operates the Narrows II Powerhouse pursuant to FPA License 2246. The operation of the Narrows I and II powerhouses depends on the water level, or "head," in Englebright

Reservoir and the amount of water being released. The combined capacity of the Narrows I and II powerhouses is 4,100 cfs. Virtually all of the water released to provide instream flows in the lower Yuba River passes through the YCWA and PG&E power plants before it enters the river downstream of Englebright Dam.

Details about storage criteria and minimum required power production are contained in Chapter 7.

2.1.1.8 WATER TRANSFERS

Beginning in 1987, YCWA entered into agreements with downstream water purveyors, including DWR[2], Contra Costa Water District (CCWD), and Santa Clara Valley Water District (SCVWD) to implement short-term water transfers pursuant to statutory provisions encouraging water transfers. Water Code Section 109 encourages voluntary water transfers that are consistent with the public welfares of the place of export and the place of import.

The volumes of water transferred, source of the water, buyer of the water, and revenue generated from the transfer from 1987 to 2004 are presented in **Table 2-2**. During the 18-year period between 1987 and 2004, YCWA transferred water in 13 years, averaging 100 TAF in each transfer year. The CEQA Existing Condition assumes that transfers will continue to occur at or near the same level. It is assumed that both groundwater substitution transfers and stored surface water transfers would occur.

2.1.1.9 REVENUES TO YUBA COUNTY WATER AGENCY FOR FUTURE FLOOD CONTROL AND WATER SUPPLY PROJECTS

The revenues to YCWA from past water transfers are presented in Table 2-2. YCWA receives revenues for stored surface water transfers. Most revenues from groundwater substitution transfers are passed on to the Member Units, and ultimately to individual well owners. YCWA keeps only the portion of the revenue generated from groundwater substitution transfers that is necessary to pay the costs of processing the transfer (environmental documents, contracts, monitoring, reporting, and handling).

For the 19-year period represented in Table 2-2, the average annual revenue to YCWA from water transfers was slightly over $3.7 million. During that period, YCWA has used these revenues to pay for ongoing flood control projects, water right hearings, water right litigation challenges of SWRCB D-1644 and RD-1644, water supply improvement projects, and its Groundwater Management Plan. Revenues from water transfers are YCWA's sole source of funding for these activities.

[2] Beginning in 2001, YCWA water transfers to DWR were used for the existing EWA Program.

Table 2-2. YCWA's Historical Water Transfers and Revenues

Year	Buyer	Stored Water Transfer (AF)	Groundwater Substitution Transfer (AF)	Revenue Paid to YCWA ($ 000s)
1987	Department of Water Resources	83,100		$786.0
1988	Department of Water Resources	135,000		$1,552.5
1989	Department of Water Resources	90,000		$4,050.0
	Department of Water Resources for Department of Fish and Game	110,000		$1,210.0
	City of Napa	7,000		$315.0
	East Bay Municipal Utility District	60,000		$2,700.0
1990	City of Napa	6,700		$301.5
	Department of Water Resources	109,000		$4,905.0
	Tudor Mutual Water Company/Feather Water District	2,951		$22.1
1991	State Water Bank	99,200	84,840	$12,400.0[a]
	State Water Bank - Department of Fish and Game	28,000		$1,400.0
	City of Napa	7,500		$375.0
1992	State Water Bank	30,000		$3,750.0
1994	Department of Water Resources		26,033	$0.0[a]
1997	Reclamation for Refuge Water	25,000		$1,250.0
	Sacramento Area Flood Control Agency for American River Fishery	48,857		$2,442.9
2001	Department of Water Resources for the Environmental Water Account	50,000		$3,750.0
	Department of Water Resources	52,912	61,140	$3,968.4[a]
2002	Department of Water Resources for the Environmental Water Account	79,742	55,248	$5,980.7 [a]
	Department of Water Resources	22,050		$1,653.8
	Contra Costa Water District	5,000		$500.0
2003	Department of Water Resources for the Environmental Water Account	65,000		$5,525.0
	Contra Costa Water District	5,000		$343.8
2004	Department of Water Resources for the Environmental Water Account	100,000		$8,500.0
	Department of Water Resources	487		$41.4
2005	Department of Water Resources	6,044		$485.5
TOTAL		**1,223,543**	**227,261**	**$67,958.6**

[a] Exclusive of groundwater substitution transfer payments. Because most revenue from groundwater substitution transfers passes through to YCWA's Member Units for distribution to well owners, it is not listed in this table.

2.1.1.10 2006 AND 2007 PILOT PROGRAMS

The 2006 and 2007 Pilot Programs closely follow the proposed flow regimes, accounting rules, management framework and other aspects of the Yuba Accord Alternative. Implementation of the 2006 and 2007 Pilot Programs has allowed real-world tests of several of the principal elements of the Yuba Accord Alternative, including the proposed lower Yuba River flow schedules, transfer accounting rules, and compliance provisions. Implementation of the 2006 and 2007 Pilot Programs also has allowed commencement of the planning work for the detailed monitoring studies that will evaluate the Yuba Accord Alternative flow schedules.

In November 2005, YCWA filed two petitions to temporarily amend its water right permits so that YCWA could implement the 2006 Pilot Program. The first petition (the Extension Petition) requested a change in the effective date of the SWRCB RD-1644 Long-term instream flow requirements from April 21, 2006 to March 1, 2007. The second petition (the Transfer Petition), filed pursuant to Water Code Section 1725, was for approval of the temporary changes in

YCWA's water right permits that were necessary for a one-year water transfer from YCWA to DWR. SWRCB approved these petitions in April 2006.

In August 2006, YCWA also filed two petitions to temporarily amend its water right permits so that YCWA may implement the 2007 Pilot Program. The first petition (the Extension Petition) requested a change in the effective date of the SWRCB RD-1644 Long-term instream flow requirements from March 1, 2007 to April 1, 2008. The second petition (the Transfer Petition), filed pursuant to Water Code Section 1725, requested approval of the temporary changes in YCWA's water right permits that are necessary for a one-year water transfer from YCWA to DWR. The SWRCB approved these petitions in February 2007.

The changes in the effective date of RD-1644 Long-term instream flow requirements that were requested in the Extension Petitions were necessary for three reasons. First, the proposed water transfers could not take place unless the regulatory baseline for instream flow requirements from which the temporary transfer would be measured continued to be the RD-1644 Interim instream flow requirements. Second, if YCWA had to operate the Yuba Project to comply with both RD-1644 Long-term flow requirements and the flow schedules identified for the 2006 and 2007 Pilot Programs, then there would have been a significant risk that YCWA would experience severe shortages in subsequent water years, as more fully explained in the documents filed with the Extension Petitions. Third, the 2006 and 2007 Pilot Programs were designed to provide opportunities to test several key elements of the Yuba Accord Alternative. The extensions of RD-1644 Interim flow requirements were necessary to enable YCWA to correctly adjust and emulate the North Yuba Index, lower Yuba River flow schedules, accounting procedures, and other elements of the Yuba Accord Alternative during the 2006 and 2007 Pilot Programs.

YCWA's Transfer Petitions requested the temporary modifications of the points of diversion/rediversion and place use of water in YCWA's water right permit that were necessary for implementation of the one-year water transfers from YCWA to DWR, and to allow DWR to use the water made available by YCWA pursuant to the Fisheries Agreement provisions adhered to as part of the 2006 and 2007 Pilot Programs.

2.1.1.11 OTHER PROJECTS

Other projects that could influence hydrologic conditions under the baseline and operations associated with the proposed changes in water management of the Yuba Project are considered in this EIR/EIS. Although many projects are on the planning horizon and are included in the cumulative effects analysis in Chapter 21, only projects currently being implemented are included in the CEQA Existing Condition/NEPA Affected Environment. For the purposes of this EIR/EIS, projects included in the assumptions for the CEQA Existing Condition/NEPA Affected Environment are: (1) the existing EWA Program[3] (Reclamation *et al.* 2004); (2) Trinity River flows, as specified in the Trinity Record of Decision (USDOI 2000); and (3) the Central Valley Project Improvement Act (CVPIA) 3406 (b)(2) (Reclamation 2001).

[3] Because the Final EIS/EIR evaluating the existing EWA Program through 2007 was adopted in March 2004, the existing EWA Program is included in the characterization of the CEQA Existing Condition/NEPA Affected Environment. Environmental documentation for extension of the EWA Program is currently under preparation but has not been finalized or approved. While it is uncertain at this time whether a long-term EWA Program or a program equivalent to the EWA will be implemented in the future, it is possible that such implementation will occur.

2.1.2 CVP/SWP UPSTREAM OF THE DELTA REGION

The CVP/SWP Upstream of the Delta Region includes the reservoirs, rivers, and components of the CVP and SWP that may be affected by integrated operation of the CVP/SWP system under the Proposed Project/Action or an alternative. These facilities include, but are not limited to, the following:

- Reservoirs, including instream and riparian areas
  - Oroville Reservoir
- River systems below reservoirs, including instream and riparian areas
  - Sacramento River (from the Feather River confluence downstream to the Delta)
  - Feather River (from Oroville Dam to the confluence with the Sacramento River)

The CVP and SWP facilities included in the CVP/SWP Upstream of the Delta Region are shown on **Figure 2-4**.

2.1.2.1 RESERVOIRS

Oroville Dam, along with two small saddle dams, impounds Lake Oroville, a 3.5 MAF capacity storage reservoir with a surface area of 15,810 acres at its normal maximum operating level. Oroville Reservoir stores winter and spring runoff for release to the Feather River, as necessary, for project purposes and/or flood control. Three hydroelectric power generating facilities are located within the Oroville project, and have a combined licensed generating capacity of approximately 762 MW. The Oroville Facilities are an integral component of the Sacramento River Flood Control Project and are operated from September to June under flood control requirements specified by the Corps.

2.1.2.2 RIVER SYSTEMS

The Sacramento River is the largest river system in California, yielding 35 percent of the state's water supply. Most of the Sacramento River flow is controlled by Reclamation's Shasta Dam, and river flow is augmented in average water years by transfer of up to 630 TAF of Trinity River water through Clear and Spring creek tunnels to Keswick Reservoir (USDOI 2000). The Sacramento River supports one of the largest contiguous riverine and wetland ecosystems in the Central Valley. Immediately below Keswick Dam, the river is deeply incised in bedrock with very limited riparian vegetation.

Near Redding, the river flows into a somewhat broader floodplain of alluvium derived from tributary streams entering from the east and west, with riparian and floodplain ecosystems adjacent to the river, forming corridors along the tributaries. Downstream of Red Bluff, the river landscape changes significantly as it enters the broad alluvial floodplain of the Sacramento Valley.

Wildlife refuges along the Sacramento River provide habitat for resident and migratory waterfowl, threatened and endangered species, and wetland dependent aquatic biota, as well as fishing, hunting, and wildlife viewing opportunities. These refuges include the Sacramento, Colusa, Sutter, and Delevan National Wildlife Refuges (NWR) and Gray Lodge Wildlife Management Area (WMA), which is the most popular of the five refuges in the region. Water supplies for certain wildlife refuges within the Central Valley are administered through CVPIA programs that acquire and convey water.

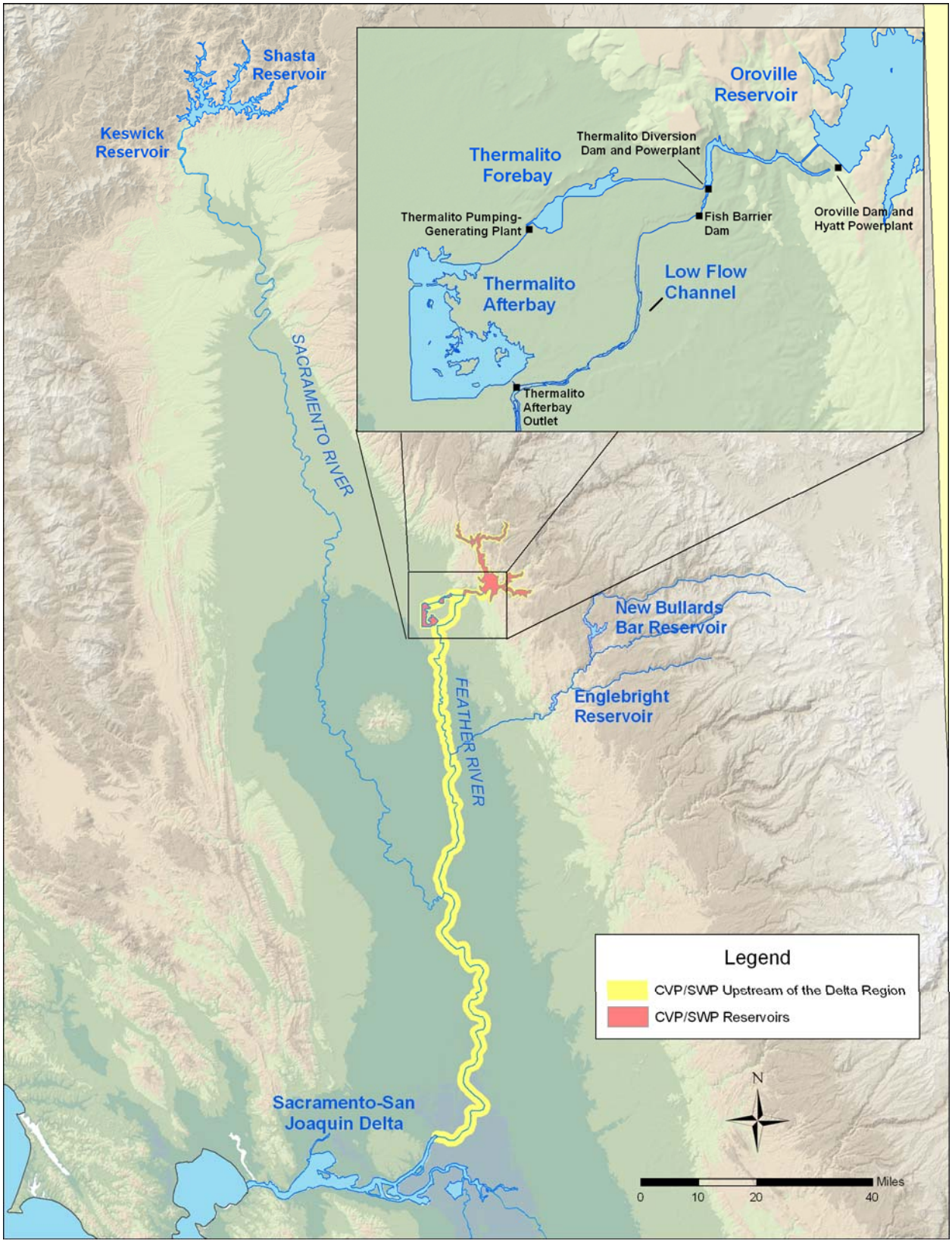

Figure 2-4. CVP/SWP Upstream of the Delta Region

Water for refuges is acquired through water supply contracts with "willing sellers".[4] Any water acquired under the Proposed Project/Action or an alternative for refuge-related purposes would be used to help meet Reclamation's obligations under the CVPIA. The water to be acquired is known as Incremental Level 4 supplies. Incremental Level 4 supplies, when added to Level 2 supplies (historical deliveries), make up full Level 4 supplies (quantity of water needed to achieve full development). For a detailed description of water transfer programs and operations, please refer to Chapter 5.

The Feather River watershed has an area of 5,900 square miles, with numerous tributaries, the largest of which is the Yuba River. Downstream of Oroville Dam, the water is diverted in several directions to: the Thermalito Complex, the Feather River Fish Hatchery, and the Low Flow Channel. The sources combine below the Thermalito Afterbay, creating the High Flow Channel. The Low Flow Channel is highly regulated, with flows of approximately 600 cubic feet per second (cfs) for the majority of the year. The Low Flow Channel also contains the majority of the anadromous salmonid spawning habitat.

2.1.3 SACRAMENTO/SAN JOAQUIN DELTA REGION (DELTA REGION)

The Delta is a vast, low-lying inland region located east of the San Francisco Bay Area, at the confluence of the Sacramento and San Joaquin Rivers. Geographically, this region forms the eastern portion of the San Francisco estuary, which includes the San Francisco, San Pablo, and Suisun Bays. A web of water channels and man-made islands, the Delta stretches nearly 50 miles from Sacramento south to the City of Tracy, and spans almost 25 miles from Antioch east to Stockton (Public Policy Institute of California 2007). The Delta is a complex area for both anadromous fisheries production and distribution of California water resources for numerous beneficial uses. Approximately 42 percent of the state's annual runoff flows through the Delta's maze of channels and sloughs, which surround 57 major reclaimed islands and nearly 800 unleveed islands (WEF Website 2006). The Delta Region (**Figure 2-5)** also includes the CVP Jones Pumping Plant and SWP Banks Pumping Plant in the south Delta (export pumps).

The Delta has long been an important resource for California, providing agricultural and recreational uses, wildlife habitat, infrastructure pathways, and water supply services throughout the state. However, by many measures, the Delta appears to be in poor health today. Its levee system is fragile, many of its native species are declining. Since 2002, routine fish surveys have registered sharp declines in several pelagic (open-water) species, including the delta smelt, a species listed as a threatened species under the federal and state Endangered Species Acts provided in Chapters 4 and 5.

[4] Environmental documentation has already been prepared that addresses the overall impacts of acquiring full Level 4 supplies at the refuges, the conveyance of water to the refuges, and use of water on the refuges. The overall impacts of implementing the CVPIA, including providing Level 4 water supplies to the refuges, were addressed in a Final Programmatic EIS/EIR (CALFED 2000) and environmental assessments/initial studies (EA/IS). These documents addressed both the conveyance of water to the Sacramento Valley and San Joaquin Valley Wildlife Refuges (Reclamation 1997a; Reclamation 1997b; Reclamation 1997d; Reclamation 1997c; Reclamation and CDFG 2003) and the use of water on these refuges (Reclamation 1997c; Reclamation *et al.* 2001a; Reclamation *et al.* 2001b; Reclamation and USFWS 2001). Therefore, the analysis in this EIR/EIS with respect to refuge water supplies is focused solely on the potential impacts of Reclamation acquiring water to help meet Incremental Level 4 refuge needs.

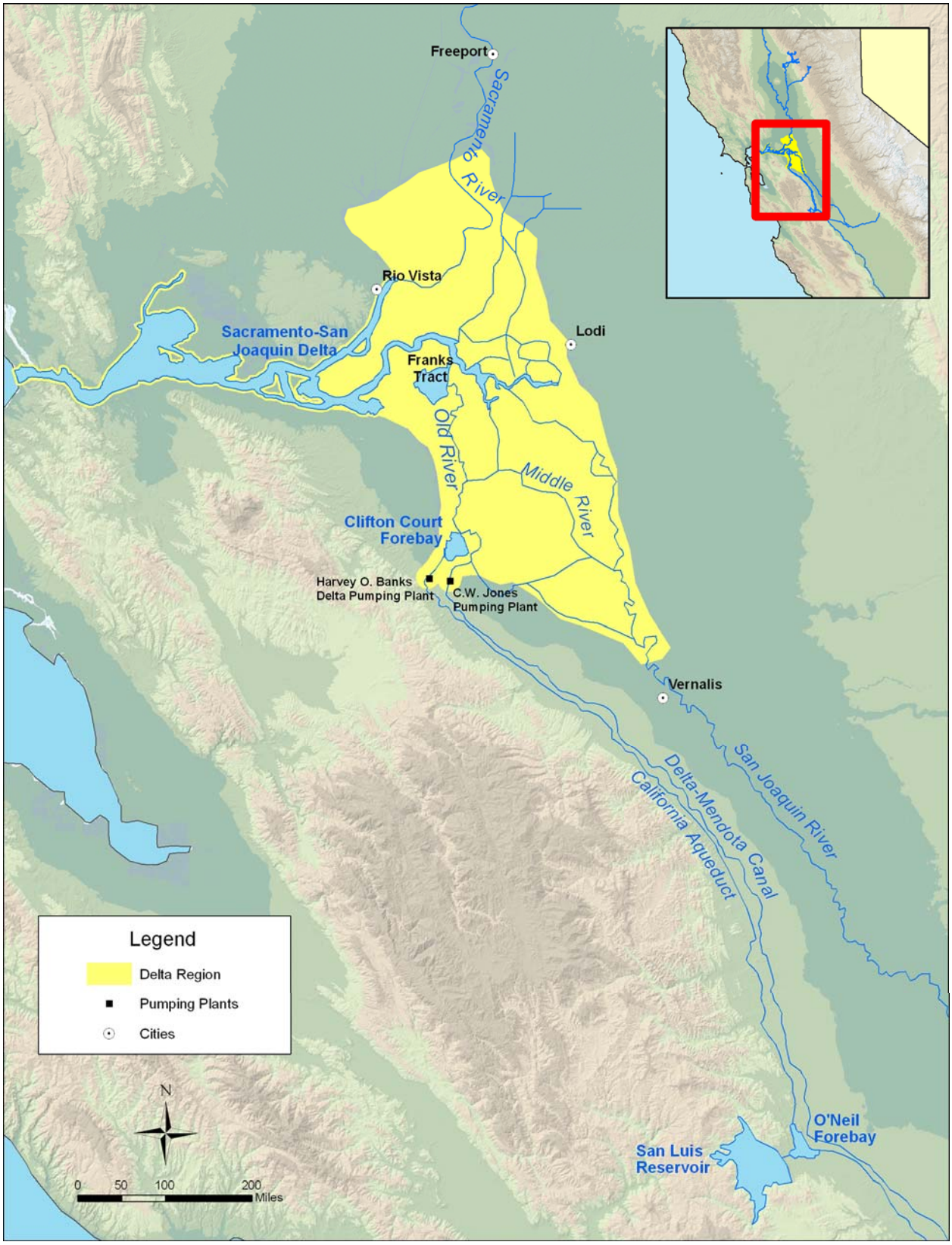

Figure 2-5. Delta Region

Interagency Ecological Program (IEP) surveys also have observed record low abundances for striped bass, and near record lows for longfin shad and threadfin shad (IEP 2007). Subsequent surveys in 2006 and 2007 have confirmed this trend, raising concerns that the delta smelt, which is seen as an indicator of ecosystem health in the Delta, risks extinction if a solution is not found quickly (Public Policy Institute of California 2007). Several hypotheses have been put forward to potentially explain the reason behind the recent changes in Delta conditions and species declines, and multiple factors are currently being investigated by a combination of federal, state, and academic researchers.

In response to these concerns about the current status of the Delta, other planning efforts also are under way, including the Delta Vision process, launched by the governor in fall 2006. The Delta Vision is intended to identify a strategy for managing the Delta as a sustainable ecosystem that would continue to support environmental and economic functions that are critical to the people of California. Although it builds on work done through the CALFED Bay-Delta Program, the Delta Vision will broaden the focus of past efforts within the Delta to recommend actions that will address the full array of natural resource, infrastructure, land use and governance issues necessary to achieve a sustainable Delta (CALFED Website 2007). The Delta Vision (DWR 2007) is based on a growing consensus among scientists, supported by recent legislation and other information, indicating that:

- Environmental conditions and current Delta "architecture" are not sustainable;
- Current land and water uses and related services dependent on the Delta are not sustainable based on current management practices and regulatory requirements;
- Current environmental conditions and current and ongoing services (e.g., utility, transportation and water conveyance services) are reliant on an aging and deteriorating levee system;
- Major "drivers of change" that are largely outside of our control will impact the Delta during the coming decades, including seismic events, land subsidence, sea level rise, regional climate change and urbanization;
- The current fragmented and complex governance systems within the Delta are not conducive to effective management of the fragile Delta environment in the face of the cumulative threats identified above; and
- Failure to act to address identified Delta challenges and threats will result in potentially devastating environmental and economic consequences of statewide and national significance.

As these efforts move forward, new ways of thinking about the Delta may arise. This EIR/EIS acknowledges that there are numerous issues surrounding the Delta, and recognizes that, in response to these planning efforts, future Delta operations and management will differ from that which has been in place under the CEQA Existing Condition and the NEPA Affected Environment. Additional background information about the POD and the ongoing efforts to address these Delta issues is provided in Chapter 10.

2.1.4 EXPORT SERVICE AREA

The Export Service Area is defined as those lands that receive, store and use CVP and SWP water pumped from the Delta. For the purposes of this EIR/EIS, this area includes San Luis Reservoir, the San Joaquin Valley and CVP/SWP customers in the Bay Area, south central California Coast, and southern California (**Figure 2-6**).

San Luis Reservoir is an offstream storage reservoir within the Export Service Area jointly operated by the CVP and SWP. It is near Los Banos, has a capacity of 2,041,000 AF, and stores exports from the Delta to be used when the water is needed in the Export Service Area. Both the CVP and SWP systems use San Luis Reservoir to increase water allocations. San Luis Reservoir water supplements other CVP or SWP water during periods of constrained operations in the Delta and when demands exceed maximum capacity at the pumping plants. Additional information about CVP/SWP operations in San Luis Reservoir and the Export Service Area is provided in Chapters 4 and 5.

2.2 CONSISTENCY OF THE PROPOSED YUBA ACCORD WITH APPLICABLE LOCAL AND REGIONAL PLANNING DOCUMENTS

The CEQA Guidelines (Section 15125 (d)) require lead agencies to disclose whether the proposed project could result in any inconsistencies with local land use and environmental plans, goals and policies. The objective of such a discussion is to find ways to modify the project, if warranted, to reduce any identified inconsistencies with relevant plans and policies. YCWA, as the CEQA lead agency, is required to evaluate and discuss whether the Proposed Yuba Accord would be contrary to previously adopted policies and planning documents. Therefore, relevant adopted plans (e.g., General Plans[5], Specific Plans[6] and Community Plans) for areas located within the Yuba Region were reviewed to determine whether the Proposed Yuba Accord would be consistent with existing land use and environmental goals, objectives and policies. The planning documents considered during this review are listed below.

- Beale Air Force Base Land Use Plan
- City of Marysville General Plan
- City of Wheatland General Plan
- East Linda Specific Plan
- North Arboga Study Area Comprehensive Land Use Plan
- Olivehurst Avenue Specific Plan
- Oregon House Community Plan
- Plumas Lake Specific Plan
- River Highlands Community Plan
- Spring Valley Specific Plan
- Yuba City General Plan
- Yuba County General Plan
- Yuba County Water Agency Groundwater Management Plan
- Yuba Highlands Specific Plan

[5] California state law requires each city and county to adopt a general plan "*for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning*" (California Government Code Section 65300). The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private (State of California 2003).

[6] In the hierarchy of planning tools, Specific Plans are secondary to city and county general plans, and are sometimes regarded as a "bridge" between the more general policy statements and land use designations found in a General Plan and the individual development proposals.

Figure 2-6. Export Service Area

2.2.1 YUBA COUNTY WATER AGENCY ACT AND POLICIES

Formed under the provisions of the Yuba County Water Agency Act of 1959, YCWA has the power to perform every lawful act necessary to make sufficient water available for any present or future water supply uses, including but not limited to irrigation, domestic, fire protection, M&I, commercial, recreational, and all other beneficial uses and purposes (Section 84-4). Consistent with the Yuba County Water Agency Act, the Proposed Yuba Accord objectives include improving Yuba County water supply management and reliability, and maintaining the ability to deliver water to meet current and future local service area needs. YCWA also may cooperate and contract with the United States under federal reclamation laws and other federal acts for carrying out the purposes listed above (also see Chapter 1). YCWA also may contract with state or federal agencies for acquisition or sale of water, or for the construction and operation of works for controlling, conserving, and transporting flood or storm waters for beneficial uses, including recreational uses and generation of electric energy (Section 84-6.2). In addition, YCWA is authorized under the Yuba County Water Agency Act (Section 84-5) to enter into long-term contracts to sell water for use outside of Yuba County (e.g., the Water Purchase Agreement).

2.2.2 CONSISTENCY WITH EXISTING PLANNING GOALS, OBJECTIVES AND POLICIES

The aforementioned general, specific, and community plan documents provide comprehensive planning strategies for growth and development within Yuba County, including water supply sources identified to meet the service area and community needs extending over a planning period that generally ranges from 2 to 20 years. Within Yuba County, various water districts, several of which are Member Units participating in the Proposed Yuba Accord, provide domestic, commercial, and/or irrigation water supplies from surface water and groundwater resources. Although YCWA does not directly sell water for M&I purposes at this time, it does provide surface water to the Member Units. Additionally, many of the communities and surrounding areas addressed in the relevant general and specific plans rely upon groundwater deliveries to meet current and future service area requirements.

Because of this reliance on groundwater, the need to protect and manage the underlying North Yuba and South Yuba groundwater basins is an important consideration with respect to the goals, objectives, and long-term vision described in these plans. As part of the Proposed Yuba Accord, it is anticipated that implementation of any of the alternatives would include: (1) adherence to the basin management objectives described in the YCWA Groundwater Management Plan; and (2) implementation of a Groundwater Monitoring and Reporting Program. Additionally, the Yuba Accord Alternative would include a conjunctive use program. Through these actions, the Proposed Project/Action or alternatives would be implemented to minimize or avoid potential impacts (e.g., local water supply deliveries) and to ensure that safe yield of the underlying groundwater aquifer is maintained, thereby conforming to the identified planning provisions for the above referenced plan areas.

Additional detailed information on other relevant planning issues (e.g., air quality attainment, land use designations, local water supply sources and service area demands) are addressed through discussions and analyses presented in subsequent resource-specific chapters of this document.

Based on YCWA's review of the above-referenced plans and other information available to date, no planning inconsistencies associated with the Proposed Project/Action and alternatives have

been identified. If, following pubic review of the Draft EIR/EIS, it is determined that one of the alternatives would conflict with a particular goal, objective or policy for a resource specified in an adopted plan, then YCWA will consider either refining a particular alternative, if feasible, or initiating discussions with the respective governing body to collaboratively address any potential plan inconsistencies or mitigation requirements that may be necessary.

CHAPTER 3
PROPOSED PROJECT/ACTION AND ALTERNATIVES

This chapter describes the Proposed Project/Action and alternatives that are evaluated in this Draft EIR/EIS.

The EIR/EIS evaluates four alternatives:

- Yuba Accord Alternative (Proposed Project/Action Alternative)
- Modified Flow Alternative
- No Project Alternative (as defined by CEQA)
- No Action Alternative (as defined by NEPA)

The Proposed Project/Action Alternative would implement the Yuba Accord Alternative, including its three primary proposed elements: (1) Fisheries Agreement; (2) Water Purchase Agreement; and (3) Conjunctive Use Agreements.

3.1 DEVELOPMENT OF ALTERNATIVES

Under CEQA and NEPA, an EIR/EIS should consider a range of reasonable alternatives that could feasibly attain the overall purpose and need and all or most of objectives of the project, including alternatives that would avoid or substantially lessen any of the significant impacts of the project. CEQA and NEPA also require analysis of a "No Project" alternative and a "No Action" alternative, respectively.

Potential alternatives were considered in two forums. First, a wide variety of alternatives were considered during the collaborative development of the Proposed Project/Action Alternative, as described in Section 3.4. Second, variations on the Proposed Project/Action Alternative were considered during the public scoping process for this EIR/EIS. Reasons describing why these variations on the Proposed Project/Action Alternative are not analyzed in this EIR/EIS are presented in Section 3.4.

3.2 ALTERNATIVES CONSIDERED IN DETAIL

This section of the Draft EIR/EIS describes each alternative in narrative fashion in comparison to the Existing Condition. Throughout this narrative description of the alternatives, pertinent data (e.g., the detailed instream flow schedules for each of the alternatives) is included. However, other data regarding the specifics of each alternative is not presented in this chapter. Instead, references to the appropriate resource chapter or appendix are provided for specific data. The purpose of the narrative description is to provide a basic understanding of each alternative before introducing the details of the alternatives.

Selection of the Yuba Accord Alternative or Modified Flow Alternative would result in implementation of a revised instream flow regime and other related actions. The No Project and No Action alternatives would result in no project or action being implemented. The primary differences between the Yuba Accord and the Modified Flow alternatives and the No Project and No Action alternatives are related to: (1) the instream flow schedules that would be implemented and the potential level of protection and enhancement for lower Yuba River fisheries; (2) variations in the level of groundwater pumping that would occur within Yuba

County; and (3) the volumes of water acquisitions by the EWA Program, DWR, and Reclamation.

The primary differences between the Yuba Accord Alternative, Modified Flow Alternative, No-Action/Project Alternatives, and the Existing Condition are summarized in **Table 3-1.** The differences are categorized as follows:

- ***Instream Flow Schedules*** – Describes the source for the monthly minimum flow requirement assumed for each alternative and the Existing Condition
- ***Local Supply Reliability*** – Describes the changes in groundwater and surface water collaborative use and the change in groundwater demand:
    - Pumping volumes for transfer and deficiencies
    - Local surface water demand estimates
- ***Water Transfers*** – Describes potential water acquisition volumes and the source of the water to:
    - The EWA Program
    - Reclamation and DWR
- ***Revenues for Yuba County Flood Control and Water Supply Projects*** – Describes the assumptions behind revenue projections
- ***Reservoir Operations –*** Describes changes to operational targets or constraints:
    - Carry-over targets
    - Flood control
    - Hydropower generation
- ***Other Projects –*** Describes the assumptions for other projects to be implemented

The differences between the alternatives are briefly described below. A detailed description of each alternative begins in Section 3.2.1. Details regarding how each alternative was modeled are included in Appendix D.

The instream flow schedules of the Existing Condition are the RD-1644 Interim instream flow requirements. The instream flow schedules for the Proposed Project/Action Alternative are the schedules in the Fisheries Agreement (Appendix B1). The instream flow schedules for the Modified Flow Alternative are the RD-1644 Interim requirements with a provision for Conference Years. The instream flow schedules for the No Project and No Action alternatives are RD-1644 Long-term requirements.

Differences in conjunctive use operations between the Existing Condition and the four alternatives are due largely to assumptions about the volume of groundwater pumping. Under the Proposed Project/Action Alternative, conjunctive use would operate as described in the Conjunctive Use Agreements (see Appendix B3). Under the No Project and No Action alternatives, little change would occur to YCWA's existing conjunctive use program and groundwater management (described in detail in Section 2.2.4 and Section 2.2.7).

Table 3-1. Summary Comparison of Operational Assumptions and Constraints Associated with the Existing Condition and the Alternatives Considered in the Proposed Yuba Accord EIR/EIS

Analysis of Existing Condition and the Alternatives		CEQA		NEPA	Yuba Accord Alternative	Modified Flow Alternative
		Existing Condition	No Project Alternative	No Action Alternative		
Instream Flows		RD-1644 Interim [a]	RD-1644 Long-term [b]		Yuba Accord Alternative flow schedules listed in the Fisheries Agreement [c]	RD-1644 Interim with Conference Year Provisions
Local Supply Reliability	Conjunctive Use (Groundwater Pumping)	Pumping primarily for transfer	Drier year pumping to meet deficiencies in surface water deliveries; some groundwater substitution transfers.		Pumping in drier years as needed to meet the conjunctive use agreements [d]	Pumping primarily for transfer
	Local Surface Water Demand	Current demand without Wheatland Water District	**----------Current demand plus demand for Wheatland Water District ----------**			
	Reservoir Carry-over Targets	Target is the maximum 50% shortage for 1-in-100-year drought event in the following year			Target is the maximum 50% shortage for 1-in-100-year drought event in the following year. Actual storage determined by Accord requirements.	Target is the maximum 50% shortage for 1-in-100-year drought event in the following year.
Water Transfers	YCWA to EWA	At historical volumes [e]	No stored water transfers. Possible groundwater substitution transfers.		60 TAF per year [f]	Both stored water and groundwater substitution transfers, as possible.
	YCWA to CVP/SWP	At historical volumes [e]	No stored water transfers. Possible groundwater substitution transfers.		Up to an additional 140 TAF in drier years [f]	Both stored water and groundwater substitution transfers, as possible.
Revenue for Local Projects (Flood Control)		At historical levels	None to YCWA		Revenue [f] to YCWA	Commensurate with the volume of stored surface water transfers.
Reservoir Operations	Flood Control	**----------No Change----------**				
	Hydropower	Historical practice	Historical practice		Historical practice with adjustments to Yuba Accord target line	Historical practice
Other New Projects Considered for Modeling		Implemented	Near-term (2007)	**----------Longer term (2025)----------**		

[a] Detailed information on RD-1644 Interim instream flow requirements (i.e., monthly release patterns, by water year type) is presented in Table 2-1.
[b] Detailed information on RD-1644 Long-term instream flow requirements (i.e., monthly release patterns, by water year type) is presented in Table 3-7.
[c] Detailed information on the Yuba Accord Alternative flow schedules is presented in Tables 3-3 and 3-4.
[d] See Conjunctive Use Agreement in Appendix B3.
[e] Information on historical water transfer volumes under the Existing Condition is presented in Table 2-2.
[f] See Water Purchase Agreement in Appendix B2.

The assumption of the demand for local surface water deliveries is the same among the alternatives, but not the Existing Condition. Under the Existing Condition, surface water deliveries to WWD are not included. The canal that will bring surface water to WWD is currently under development and is scheduled to be operational in 2007 (environmental document requirements for the Yuba/Wheatland In-Lieu Groundwater Recharge and Storage Project (Wheatland Project) are being met separately from this document). In each of the four alternatives, the canal is assumed to be operational. Delivering surface water to WWD is assumed to increase surface water diversions at Daguerre Point Dam by 40 TAF.

The ability of YCWA to deliver water, either to the EWA Program or to Reclamation and DWR, would be significantly different under the various alternatives. Under Yuba Accord Alternative, delivery of water to the EWA Program would be 60 TAF per year. Additional volumes of water, ranging up to approximately 140 TAF per year, would be delivered to Reclamation and DWR in drier years. Under the Modified Flow Alternative, transfers may occur, based on hydrology (estimates of delivery volumes are presented in Chapter 5). Under both the No Project and the No Action alternatives (using RD-1644 Long-term instream flow requirements), no stored surface water would be transferred, and the only transfers would be from groundwater substitution. Under the Existing Condition (using RD-1644 Interim instream flow requirements), the transferable volume of water is assumed to be equal to historical volumes (see Table 2-2).

The ability of YCWA to generate revenue would be significantly different under the various alternatives. The ability of YCWA to generate revenue to support ongoing flood control efforts, groundwater pumping for deficiencies in local deliveries during droughts, and future water supply projects depends on the volume of water transferred. Under the Yuba Accord Alternative, the revenue is specified in the Transfer Agreement. Under the Modified Flow Alternative, revenue would depend on the ability of YCWA to transfer stored surface water each year. Under the No Project and No Action alternatives, YCWA would receive no net revenue because no stored surface water transfers would occur (YCWA receives a minor portion of the groundwater substitution revenues; however, all of that money is used to cover YCWA's administrative costs of these transfers. Therefore, YCWA receives no net revenue for general purposes from these transfers). Under the Existing Condition, annual revenues are characterized as being approximate to historical levels.

No difference exists in reservoir operations for carry-over storage operational targets and flood control operations between the Existing Condition or any of the four alternatives. Similarly, **no difference exists in the criteria for setting carry-over storage operational targets** between the Existing Condition or any of the four alternatives. However, the actual carry-over storage levels that will occur under the Yuba Accord Alternative will be determined by the flow requirements in the Fisheries Agreement. **Power generation would be different under the Proposed Project/Action Alternative** compared to the Existing Condition. A new "Accord Target Line" was developed in conjunction with PG&E. This operational requirement is discussed in detail in Section 3.2.1.5.

For modeling purposes, other new projects that are expected to be operational in the foreseeable future are included in the NEPA analysis. Under the Yuba Accord Alternative, the Modified Flow Alternative, and the No Action Alternative, other new projects, such as a long-term EWA Program or program equivalent to the EWA, are assumed to be operational. Under the CEQA No Project Alternative, other new projects are included in the modeling assumptions only if they are expected to be operational in the near term. Therefore, under the No Project Alternative, the list of other new projects included for modeling purposes is smaller than under

the No Action Alternative. **The only difference between the No Project Alternative (under CEQA) and the No Action Alternative (under NEPA) is the list of other new projects included or excluded.** The list of other projects that are considered in the modeling assumptions for each alternative is fully described in Table 4-1 of Appendix D.

The next sections describe the four alternatives. The descriptions following the categories of analysis presented in Table 3-1 of this chapter are: (1) fisheries; (2) local supply reliability, including conjunctive use, water demand, and reservoir carry-over targets; (3) water transfers; (4) revenue generation; and (5) other projects included for modeling considerations. In addition to these categories, two additional categories are included: (1) flood control, and (2) hydropower generation. Following the descriptions of the four alternatives is a discussion of alternatives previously considered and then dismissed from further consideration.

3.2.1 PROPOSED PROJECT/ACTION ALTERNATIVE (YUBA ACCORD ALTERNATIVE)

The Yuba Accord Alternative, which is the Proposed Project/Action Alternative, is the result of over two years of work and discussions by Yuba River stakeholders (listed in Section 1.2.4) to resolve the controversies regarding RD-1644. The goal of the negotiations and discussions was to find a solution to the challenges of competing interests by providing water for fisheries (Fisheries Agreement), developing new tools to ensure a reliable local water supply (Conjunctive Use Agreements), and crafting a revenue stream to pay for the Yuba Accord Alternative and to provide additional water for out-of-county environmental and consumptive uses (Water Purchase Agreement). The three proposed agreements are in Appendix B. The implementation process, anticipated duration of each proposed agreement, and relationships of other actions and approvals affecting the Yuba Accord Alternative are shown on **Figure 3-1**.

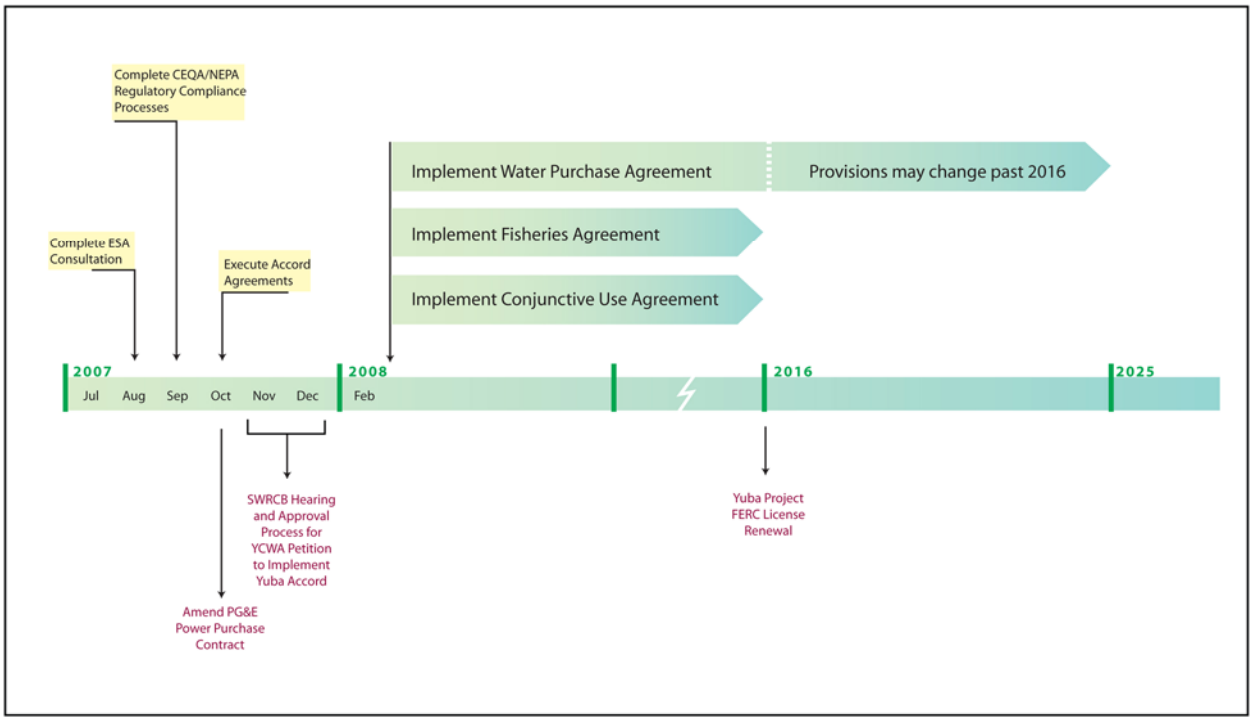

Figure 3-1. Implementation Process Associated with the Yuba Accord Alternative

YCWA, SYRCL, TU, TBI, FOR, CDFG, USFWS, and NMFS developed the comprehensive proposal contained in the Fisheries Agreement. The Fisheries Agreement is the cornerstone of the Yuba Accord Alternative. The Fisheries Agreement contains proposed new instream flow requirements for the lower Yuba River that are intended to increase protection of the river's fisheries resources. In addition to the best available science and data, the interests of the participating state, federal, and local fisheries biologists, fisheries advocates, and policy representatives were considered during development of the Yuba Accord Alternative. A fundamental precept of the Yuba Accord Alternative is the provision of instream flows during specified periods of the year that are higher than the Interim flow requirements of D-1644.

To provide these flows, YCWA proposes to implement the Conjunctive Use Agreements, which would establish a conjunctive use program that would provide for comprehensive management of the surface water and groundwater supplies within Yuba County, in coordination with the local irrigation districts and mutual water companies that YCWA serves in the county.

Under the Water Purchase Agreement, Reclamation and DWR would purchase water from YCWA to improve water supply reliability for the CVP and SWP and to contribute to the security of a long-term EWA Program or a program equivalent to the EWA. Substantial portions of the water obtained by the CVP and SWP under the Water Purchase Agreement may be used for fish and wildlife purposes, which may include meeting refuge water supply commitments and helping to achieve Delta outflow requirements.

The following sections provide more detail about each of the three Proposed Yuba Accord agreements, and describe how implementing the provisions and actions identified in the agreements could change the conditions identified in Table 3-1.

3.2.1.1 FISHERY PROTECTION AND ENHANCEMENT MEASURES - FISHERIES AGREEMENT AND STATEMENT OF SUPPORT FOR THE FISHERIES AGREEMENT

The signatories to the proposed Fisheries Agreement (see Appendix B1) would be YCWA, CDFG, SYRCL, FOR, TU, and TBI. NMFS and USFWS, although not signatories to the Fisheries Agreement, have signed the *Statement of Support for Proposed Lower Yuba River Fisheries Agreement* and have provided critical input into the development of the Fisheries Agreement. The term of the proposed Fisheries Agreement would extend until FERC issues a new long-term license for the Yuba Project (approximately 2016).

Key elements of the Fisheries Agreement include: (1) changes to lower Yuba River instream flow requirements; and (2) formation of a RMT (a collaborative decision-making body made up of the signatories to the "*Statement of Support for Proposed Lower Yuba River Fisheries Agreement")* and River Management Fund (RMF). Each of these elements is discussed below.

INSTREAM FLOWS

The Fisheries Agreement would establish 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, plus Conference Year rules for 1-in-100 critically dry years, has 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 YCWA, the NGOs, CDFG, NMFS, and 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. A discussion of the development of the flow regimes is in Appendix C.

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**. The development of the NYI is described in Section A.2.5.2 of Attachment A to Appendix D.

Table 3-2. 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

In addition to the six types of water years for the flow schedules, Conference Years would 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 Alternative would have provisions for the management and operation of the Yuba Project in Conference Years. In such years, YCWA 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. YCWA also would notify the SWRCB of the Conference Year conditions.

As part of the Yuba Accord Alternative, YCWA would operate the Yuba Project and manage lower Yuba River instream flows according to proposed revised instream flow requirements, and according to specific flow schedules, numbered 1 through 6 (measured at the Marysville Gage) and lettered A and B (measured at the Smartville Gage), based on water availability (see **Table 3-3** for Schedules 1 through 6 and **Table 3-4** for Schedules A and B). The specific flow schedule that would be implemented at any time would be 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 would be 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 would be managed by the 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 3-3. Yuba Accord Alternative - 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

[a] For the Yuba Accord Alternative (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.

Table 3-4. Yuba Accord Alternative – Lower Yuba River Minimum Instream Flows (cfs) for Schedules A and B, Measured at the Smartville 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
A[a]	700	700	700	700	700	700	700	[c]	[c]	[c]	[c]	[c]	[c]	[c]	700
B[b]	600	600	550	550	550	550	600	[c]	[c]	[c]	[c]	[c]	[c]	[c]	500

[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 Smartville Gage will equal or exceed flows at Marysville.

In Conference Years, the strategic management plan would identify the steps that YCWA 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 would be implemented to meet irrigation demand. Minimum instream flow requirements in Conference Year conditions would be the FERC license requirements. The RMT also may determine and advise YCWA to make additional instream flows depending on water availability for the purposes of meeting fisheries resources needs.

YCWA would not be obligated to deliver Components 1 through 4 water in a Conference Year or refund any part of payment received for Component 1 water in such a year. However, YCWA would deliver, in a subsequent water accounting year, on a schedule acceptable to Reclamation and DWR, the amount of Component 1 water that was not delivered in a Conference Year.

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

RIVER MANAGEMENT TEAM AND RIVER MANAGEMENT FUND

In addition to the instream flows described above, the Fisheries Agreement would provide for the formation of the RMT and the RMF. The RMT would be composed of representatives from YCWA, CDFG, NMFS, USFWS, Reclamation, DWR, PG&E, and the NGOs, and would be charged with providing a forum for consensus-based decisions and actions for management of the lower Yuba River. The RMF, which would be administered by the RMT, would be funded by YCWA with $6 million over the term of the agreement to finance a long-term fishery

monitoring, study, and enhancement program for the lower Yuba River. The enhancement program element could include physical restoration projects.

The RMT would be responsible for scheduling additional instream flows (above the FERC license requirements) during Conference Years and for scheduling water made available for supplemental instream flows in connection with any supplemental water transfer. The RMT also would modify flow schedules, when necessary, in accordance with the terms of the Fisheries Agreement and would oversee various environmental actions for the lower Yuba River, including operation of water temperature devices, the planning of fisheries monitoring and studies, and habitat enhancement measures. Primary fisheries resources of concern for monitoring and habitat enhancement in the Yuba River include Central Valley steelhead, spring-run Chinook salmon, fall run Chinook salmon, American shad, and Southern DPS of North American green sturgeon.

The RMT would consist of a Planning Group and an Operations Group. The Planning Group would include representatives of each party to the Fisheries Agreement or the Water Purchase Agreement, and NMFS, USFWS, and PG&E. The Operations Group would include one representative each from YCWA, PG&E, CDFG, NMFS, USFWS, the NGOs, DWR, and Reclamation. One representative would rotate between CDFG, NMFS, and USFWS, and one representative would rotate between Reclamation and DWR. If necessary, the Planning Group may convene a Technical Working Group, which would include members designated by the Planning Group. Only the parties to the Fisheries Agreement, NMFS and USFWS, would participate in making formal decisions on Planning Group actions involving fisheries issues.

In Schedule 5 years, the Planning Group may decide to adjust the Marysville Gage instream flows to 400 cfs during all or part of the period extending from October 1 until the next February Bulletin 120 forecast is available. The Planning Group also may decide to temporarily alter the applicable instream flows in Schedules 1 to 6 at any time during the term of the Fisheries Agreement, if necessary or appropriate for aquatic resources, Yuba Project operations or maintenance, or CVP/SWP operations or maintenance, as long as the agreed-to instream flows comply with the applicable requirements of YCWA's FERC license and water right permits. Additionally, the Planning Group may schedule any water made available for supplemental instream flows in connection with a supplemental surface water transfer or the groundwater substitution program or additional instream flows during Conference Years.

The Planning Group also may determine the planned operations of the upper and lower outlets for New Bullards Bar Dam into the New Colgate Dam penstock and any temperature adjustment device that is constructed at Englebright Dam. In addition, the Planning Group may comment on YCWA's plans for Narrows I and II powerhouse maintenance outages.

In association with planned fisheries studies, the Planning Group may develop and implement studies of lower Yuba River fish or fish habitat, monitoring of flows or water temperatures, or fry studies. The Planning Group also may make decisions to spend money in the RMF for any authorized purpose, and designate a fiscal agent for the RMF.

The Operations Group would provide specific guidance to YCWA for recommendations or directions given from the Planning Group. The Operations Group would provide guidance related to YCWA's implementation of the flow schedule set by the Planning Group for the 30 TAF of groundwater substitution program water during Schedule 6 years. The Operations Group also would provide guidance to YCWA associated with any temporary alterations in the applicable instream flow requirements in Schedules 1 to 6 that had been agreed on by the Planning Group, any supplemental instream flows that had been scheduled by the Planning

Group in connection with a supplemental surface water transfer or the groundwater substitution program, and any additional instream flows during Conference Years that had been scheduled by the Planning Group. Additionally, the Operations Group would provide guidance on any Planning Group decision regarding the operation of the upper and lower outlets from New Bullards Bar Dam into the New Colgate Dam penstock or any temperature adjustment device that is constructed at Englebright Dam.

YCWA would use some of the revenues generated by implementation of the Water Purchase Agreement to provide annual funding to the RMF, in amounts subject to the rules outlined in the Fisheries Agreement. Additionally, both YCWA and CDFG would make in-kind contributions of services and equipment to the RMF on an annual basis. The RMF would be used for various fisheries monitoring and evaluation studies and habitat enhancement measures, including: monitoring and evaluating the effectiveness of the implementation of the Yuba Accord Alternative; evaluating the condition of fisheries resources in the lower Yuba River; evaluating the viability of lower Yuba River fall-run Chinook salmon Evolutionarily Significant Units (ESU) that may exist in the lower Yuba River; implementing habitat improvement and non-flow enhancement actions and activities; purchasing water for instream flows in the lower Yuba River above the flows specified in the Water Purchase Agreement; retaining expert advice for specified technical questions; retaining an expert or experts for dispute resolution process; and paying local shares of grant-funded projects for fish or fish habitat in the lower Yuba River, specifically to facilitate unique grant-matching opportunities.

If implemented, the Yuba Accord Alternative flow schedules would continue through the term of the Fisheries Agreement and expire when FERC issues a new long-term license to YCWA for the Yuba Project. Through the Fisheries Agreement activities, the participating parties would obtain a credible and relatively long-term data set that could be used to develop a proposal for future Yuba River instream flow requirements to be established by FERC as part of its relicensing efforts for the Yuba Project, anticipated in occur 2016. If consensus could be reached, then the participants could jointly submit the proposal to the SWRCB and FERC during their processes regarding the new FERC license.

3.2.1.2 CONJUNCTIVE WATER MANAGEMENT - CONJUNCTIVE USE AGREEMENTS

YCWA would enter into individual Conjunctive Use Agreements with each of the participating Member Units: BWD, BVID, DCMWC, HIC, RWD, SYWD, and WWD. The terms of the Conjunctive Use Agreements would be until FERC issues a new license for the Yuba Project (approximately 2016). Additionally, the agreements would provide for consideration of extending the terms of the agreements if the parties to the individual agreement concurred.

The proposed Conjunctive Use Agreements would formalize the integration of surface water and groundwater supplies in Yuba County. Integration of Yuba County's groundwater and surface water supplies has been a key element of the YCWA transfer program for the past 14 years. Under the Yuba Accord Alternative, this integration would be formalized to assure a supplemental dry year supply of groundwater to irrigate local farmland and to allow storage in New Bullards Bar Reservoir to be more fully exercised to meet: (1) the instream flow requirements in the Fisheries Agreement; and (2) the commitments to deliver water in the Water Purchase Agreement. If YCWA and a Member Unit decide to enter into a conjunctive use agreement, then the Member Unit would arrange for its respective water users to reduce their use of surface water diversions by amounts to be determined by YCWA and its Member Units during the water accounting year, and to pump equivalent amounts of groundwater from approved wells as replacement supplies for the groundwater substitution component of the

YCWA water transfer to Reclamation and DWR. YCWA would provide a list of groundwater well locations that may be used to Reclamation and DWR. Wells located within two miles of the Yuba and Feather rivers would be subject to review and approval by Reclamation and DWR prior to the commencement of groundwater pumping. Other listed wells would be approved by Reclamation and DWR after YCWA had demonstrated that all required local permits for these wells have been obtained. Pumped groundwater would be used to irrigate lands within the Member Units' service areas that otherwise would have been served by surface water between March 1 and December 31. These operations would be consistent with the implementation of YCWA's Groundwater Management Plan (YCWA 2005) and within the safe yields of the groundwater basins.

In Schedule 6 years, the participating members would implement 30 TAF of groundwater substitution to increase surface water storage releases for instream flows. This commitment would be proportionally split among those members. YCWA would provide the participating Member Units, one-time, upfront payments for their commitments to pump groundwater in these years, and additional per-acre-foot payments for actual pumping during Schedule 6 years.

YCWA also would provide financing to assist in modernizing local diesel groundwater pumps through conversions to more efficient and cleaner electric pumps. Meeting the Yuba Accord Alternative's higher instream flow requirements may result in occasional surface water deficiencies under YCWA's contracts with participating members. To mitigate such deficiencies, YCWA would compensate participating Member Units for the costs associated with groundwater pumping determined necessary to irrigate crops and avoid irrigation deficiencies.

Under the Transfer Agreement, Reclamation and DWR, in dry and critical years, would purchase from YCWA the surface water made available by participating Member Units' use of groundwater as a substitute supply. YCWA would compensate those Member Units for: (1) associated groundwater pumping, and (2) electric standby charges incurred to implement the conjunctive use program (if the wells were not used to provide water for a groundwater substitution water transfer during the period when the standby charge was incurred).

Under the Existing Condition, groundwater substitution transfers have occurred at sustainable levels. Implementation of the Yuba Accord Alternative would continue to exercise the aquifer at sustainable levels. Differences in the patterns and volumes of groundwater extraction between the Existing Condition and the Yuba Accord Alternative have been analyzed using the modeling tools and impact analysis. The results of this analysis are described in Chapter 6.

One change to groundwater that would occur during implementation and operation of the Yuba Accord Alternative, but which is not directly related to the Proposed Yuba Accord, is the increase in in-lieu groundwater recharge that is anticipated to occur when the Wheatland Project is completed. The Wheatland Project is described in Section 3.2.1.6. The Wheatland Project will deliver up to 40 TAF of water to WWD from the Yuba Project. Currently, the growers in WWD all rely on groundwater for irrigation. After completion of the Wheatland Project, most WWD growers will be using surface water rather than groundwater, thereby normally reducing the demand for groundwater in Yuba County.

3.2.1.3 WATER DELIVERIES - WATER PURCHASE AGREEMENT

YCWA, DWR, and Reclamation would be parties to the proposed Water Purchase Agreement. This agreement provides for the purchase and delivery of water to Reclamation and DWR in quantities described below. The term of the Water Purchase Agreement (Tier 1 Agreement)

would extend until December 31, 2025. Related to implementation of the Water Purchase Agreement and use of the transfer water, Reclamation and DWR would enter into an agreement regarding sharing of the water and related integrated operations of the CVP/SWP system (Tier 2 Agreement). Additionally, Reclamation and DWR would each enter into separate agreements with the federal and state water contractors, respectively, regarding allocation of the transfer water supply (Tier 3 Agreements).

Key elements of the Water Purchase Agreement include: (1) definition of water supply components and related pricing structures; (2) a water accounting mechanism; (3) explanation of Conference Year principles; (4) definition of the proposed place of use of the water; and (5) Groundwater Monitoring and Reporting Program. These elements are described below.

From 2008 through 2015, the Water Purchase Agreement would require YCWA to provide 60 TAF of water annually to the EWA Program or an equivalent program. Additionally, the Water Purchase Agreement would enable provision of a supplemental water supply of up to 140 TAF in dry years for use in the CVP and SWP, including for fish and wildlife purposes. The proposed agreement includes provisions to ensure that the water transfer flows first would protect and improve fisheries habitat conditions within the lower Yuba River.

The Water Purchase Agreement would provide YCWA with a stable source of revenue for flood control and water supply activities in Yuba County, including the conjunctive use program with Member Units. Yuba County has identified a funding shortfall of more than $150 million for short to medium-term flood control projects. Revenues from the Water Purchase Agreement could be used to address some of this funding shortfall

The Water Purchase Agreement would require a petition to SWRCB to add the CVP (Jones Pumping Plant) and SWP (Banks Pumping Plant) as new points of diversion/rediversion and the CVP and SWP as new places of use, as necessary to implement the Water Purchase Agreement.

From January 1, 2016 through December 31, 2025, the Water Purchase Agreement would allow YCWA to deliver Component 1 (up to 60 TAF) and Component 2 through 4 water (up to 140 TAF) to Reclamation and DWR if the terms of the new FERC long-term license[1] do not affect YCWA's ability make these water supplies available. At a minimum, the Water Purchase Agreement would provide only a guaranteed supply of 20 TAF after 2015. If YCWA would be able to make additional supplies of water available consistent with its FERC long-term license and the water supply needs in Yuba County, then YCWA may be able to provide additional Component 1 through 4 water to Reclamation and DWR.

It is anticipated that Component 1 water provided after 2015 would be pumped primarily during the July through September period. Because of the uncertainties associated with future conditions and changed uses of this water in the Yuba Region (e.g. FERC license conditions for the Yuba Project) and the CVP/SWP system (e.g., other projects on the planning horizon, CVP/SWP operational constraints) the amounts of any additional Component 1 water and of any Component 2, 3 and 4 water available for delivery through the remaining term of the Water Purchase Agreement (i.e., 2016 through 2025) cannot be definitively determined at this time. If additional supplies were available, the first 40 TAF of any additional supplies above the 20 TAF would be allocated to Component 1 water deliveries. Any additional supplies above this 40 TAF would be allocated to Components 2, 3 and 4 and could be used for CVP and SWP

[1] YCWA's new FERC license is scheduled to be issued in 2016.

purposes. Recognizing the range of conditions and constraints that could be in place after 2015, it is assumed in this EIR/EIS that Component 1, 2, 3 and 4 water deliveries to the CVP/SWP potentially could range from a "lower boundary" of 20 TAF up to an "upper boundary" that could include full Yuba Accord deliveries. For analytical purposes, this approach was taken to describe the broadest spectrum of potential hydrologic changes that could occur as a result of water deliveries under a range of potential future conditions after 2015. However, it is recognized that only 20 TAF would be guaranteed after 2015.

WATER SUPPLY COMPONENTS AND DELIVERY OPERATIONS UNDER THE WATER PURCHASE AGREEMENT

YCWA would provide water for purchase from both New Bullards Bar Reservoir surface water storage releases and groundwater substitution programs. These quantities would include some of the water used to implement the instream flow schedules in the Fisheries Agreement, some storage releases from New Bullards Bar Reservoir besides the releases needed to implement the instream flow schedules, and foregone surface water diversions resulting from groundwater substitution programs implemented by YCWA Member Units.

The Water Purchase Agreement identifies four water supply components that would be provided based on certain water availability conditions and subject to various pricing structures. Portions of the water used to implement Schedules 1 through 6 of the Fisheries Agreement would be delivered as Component 1, 2, 3, or 4 water.

Component 1 Water Supplies – For the first 8 years of this agreement (2008 to 2016), Reclamation and DWR would purchase 60 TAF per year of Component 1 water, for a total of 480 TAF. Reclamation and DWR plan to use these supplies exclusively for the EWA Program. In certain years, operational limitations of the Yuba Project, the CVP or the SWP may cause the quantity of water provided by YCWA to be less than 60 TAF. In this event, YCWA would provide "makeup" water quantities in a later water year, ensuring that over the course of the agreement the EWA Program or a program equivalent to the EWA would receive its full entitlement of Component 1 water. Subsection 5.B.1 of the 2005 draft Water Purchase Agreement provided that Reclamation and DWR would make two payments to YCWA for Component 1 water. Since then, the representatives of Reclamation, DWR and YCWA have agreed to amend this payment provision in the proposed agreement to provide for one payment of $30.9 million within 60 days of the effective date of the agreement – after all environmental compliance required by state and federal law has been completed.

Component 2 Water Supplies – YCWA would provide Reclamation and DWR 15 TAF of water in any dry year and 30 TAF in any critical year. Reclamation and DWR would pay YCWA $50.00 per acre-foot for this water in dry years and $62.50 per acre-foot in critical years.

Component 3 Water Supplies – When, on April 21, the allocations to CVP south of Delta agricultural contractors are less than 45 percent of their contractual entitlements and the allocations to SWP contractors are less than 60 percent of their Table A amounts, Reclamation and DWR may request up to 40 TAF of water from YCWA as Component 3 water. If allocations to CVP south of Delta or SWP contracts decrease between April 21 and May 21, then Reclamation and DWR may call for additional Component 3 water from YCWA, up to a total maximum amount of 40 TAF. If these allocations increase between April 21 and May 21, then Reclamation and DWR may reduce the amounts of Component 3 water that they will receive from YCWA. Reclamation and DWR would pay $50.00 per acre-foot for this water in above

normal years, $75.00 per acre-foot in below normal years, $100.00 per acre-foot in dry years, and $125.00 per acre-foot in critical years.

Component 4 Water Supplies – In all water year types, YCWA would inform Reclamation and DWR of the quantity of any additional water available from surface and groundwater supplies. Reclamation and DWR then would notify YCWA if they opted to take delivery of any or all of this Component 4 water. The pricing for the Component 4 water would be the same as Component 3, and wet year water would be priced at $25 per acre-foot.

Water Supplies Available to Third Parties – If YCWA identified an opportunity to provide Component 3 or 4 water, but Reclamation and DWR decided not to take delivery of that water, YCWA could sell that water to a third party, provided that: (1) the sale would not impair YCWA's ability to meet its current and future obligations to deliver water to Reclamation and DWR; and (2) YCWA would provide Reclamation and DWR with advance notice of such sale. In addition, any Component 2, 3, or 4 water released by YCWA that could not be used by Reclamation and DWR, but met the criteria to be considered transferable, would be water that could be sold by YCWA to a third party.

Accounting for the transfers would occur as follows. On April 10 of each year, the parties to this agreement would discuss the schedule for the Component 1, 2, 3, and 4 water that YCWA would provide to Reclamation and DWR during that water year. The final schedule would be determined no later than May 21 of each year. The agreement also would include specific accounting provisions for reservoir refill impacts. This accounting would be very similar to the refill accounting used for the previous 1-year temporary transfers that YCWA has made to the EWA Program.

Although the Yuba Accord Alternative would provide certainty to YCWA's transfer program, it probably would not significantly change the average annual amounts of water transferred. Under the Existing Condition, YCWA would continue to transfer water at historical rates (see Table 2-2). Those historical volumes are within the same range of volumes as the Yuba Accord Alternative volumes.

RECLAMATION AND DWR TIER 2 AND TIER 3 AGREEMENTS

The Water Purchase Agreement would be the Tier 1 Agreement under which Yuba Project water would be transferred to Reclamation and DWR. Reclamation and DWR also would enter into Tier 2 and Tier 3 agreements. The Tier 2 Agreement would describe the conditions under which Reclamation and DWR would share water made available for purchase from YCWA. The Tier 3 Agreements would be individual agreements entered into by Reclamation and CVP water contractors and DWR and SWP contractors, which would establish the terms regarding use of the water delivered by YCWA for the purposes of the CVP and SWP providing supplemental water supplies to these contractors**.**

Tier 2 Agreement

This agreement between Reclamation and DWR would describe the allocation of Yuba River water made available under the Water Purchase Agreement, and would be executed prior to implementation of the Water Purchase Agreement. As described in the Water Purchase Agreement, Component 1 water would be supplied to the EWA Program or an equivalent program through 2015. A long-term EWA Program or a program equivalent to the EWA would be implemented such that annual transfers of Component 1 water would be managed by DWR,

in coordination with CDFG, for purposes designed to benefit the fish and wildlife resources of the Delta. If any Component 1 water could not be put to beneficial use by the EWA Program (or an equivalent program), DWR would use the remaining quantity of Component 1 water for other purposes served by the SWP, consistent with the provisions described by the funding source from which the water was purchased.

Component 2, 3, and 4 water normally would be shared equally between Reclamation and DWR for purposes served by the CVP and SWP. Although most of the Component 2, 3 and 4 water would be conveyed to CVP/SWP south of Delta contractors, DWR also may provide a small percentage of this water to SWP contractors located upstream of the Delta (see Chapter 5). During any year in which either Reclamation or DWR did not acquire its full portion of the water, the remaining amounts of Component 2, 3 and 4 water could be acquired by the other agency for its contractors, or if the other agency decided not to acquire the water, by the EWA Program (or an equivalent program) or for any other CVP or SWP purpose (e.g., refuge water supply).

In this EIR/EIS, the analysis of the Yuba Accord Alternative is based on the concept that the Component 2, 3, and 4 water transfer amounts would be shared equally between the CVP and SWP, and thereafter would be divided among the respective projects' contractors, most likely in proportion to contract water allocation provisions.

It is expected that contractual arrangement between the CVP and SWP (the Tier 2 Agreement) would recognize the potential that one project could receive more than 50 percent of the Component 2, 3 and 4 transfer water, up to 100 percent of the total amount, in a particular year, depending on the relative allocations of each project's supplies to its contractors in that year, and on the willingness of the other project to relinquish some or all of its share of Yuba Accord water in that year. For example, in a dry year that followed a relatively wet year, the SWP might be able to maintain relatively high allocations, while the CVP would have lower allocations. In that case, the projects might arrange for the CVP to potentially receive the entire volume of Component 2, 3 and 4 water in that year. The opposite could occur in years when CVP allocations are high and SWP allocations are low.

Thus, there could be a year within the initial eight-year portion of the Yuba Accord Alternative when one project or the other receives all of the Component 2, 3 and 4 water made available by YCWA in that year.

Export of Component 2, 3 and 4 water would be divided between the Banks and Jones pumping plants according to each project's share of water, fisheries considerations, and available pumping capacity. In practice, limited or no pumping capacity is expected to exist at the Jones Pumping Plant except during dry and years when CVP south-of-Delta allocations are low. The modeling approach used for this EIR/EIS assumes that during wet and above normal years, all transfers from the Yuba Accord Alternative would be exported through the Banks Pumping Plant until all capacity is used. Any remaining Component 2, 3 and 4 water would be exported through any available capacity at the Jones Pumping Plant. During below normal, dry and critical years, transfer of Component 2, 3 and 4 water would be split evenly between Banks Pumping Plant and Jones Pumping Plant, as long as export capacity is available. Once either pumping plant reaches capacity, any remaining Component 2, 3 and 4 water would be exported through the remaining capacity at the other pumping plant.

Under the Tier 2 and Tier 3 agreements, Component 4 water (and Component 3 water to a limited extent) foregone by the CVP/SWP contractors would be available to the EWA Program or an equivalent program. For modeling purposes, it is assumed that during wet and above

normal years, the CVP and SWP contractors would totally forego their priority to Component 4 water, and that 100 percent of Component 4 water would be available to the EWA Program (or an equivalent program). In below normal, dry and critical years it is assumed that all Component 4 water would be delivered to the CVP and SWP contractors.

For analytical purposes in this EIR/EIS, it is assumed that Component 2, 3 and 4 water from Yuba Accord Alternative deliveries provided to CVP and SWP contractors would be split equally between the CVP and SWP. While this may not be the case in specific years, it is consistent with the proposed Tier 2 Agreement and is the best estimate of what will occur.

Tier 3 Agreements

Under the provisions of the Water Purchase Agreement, Reclamation and DWR would provide water to those contractors that elect to purchase Component 2, 3, and/or 4 water made available under the Yuba Accord Alternative. Reclamation would provide additional water furnished by the Yuba Accord Alternative to existing CVP contractors. The additional Component 2, 3 and 4 water deliveries would provide a supplemental supply, not to exceed the maximum existing CVP contract entitlements, which would improve reliability, particularly during dry years. During wetter years, the contractors may choose to forego their right to Component 4 water (and Component 3 water on rare occasions), and allow it instead to go to the EWA Program, or an equivalent program. Water also could pass between Reclamation and DWR on behalf of their respective contractors, such that the overall quantities to either the CVP or the SWP contractors could be greater than 50 percent of the estimated Component 3 and 4 quantities.

Water supplies for certain wildlife refuges[2] within the Central Valley are administered through CVPIA programs that acquire and convey water. Water for refuges is acquired through water supply contracts with "willing sellers".[3] The water to be acquired is known as Incremental Level 4 supplies. Incremental Level 4 supplies, when added to Level 2 supplies (historical deliveries), make up full Level 4 supplies (quantity of water needed to achieve full development). In recent years, acquired water to meet Level 4 needs have averaged between 70 to 80 TAF. Any water acquired under the Proposed Project/Action or an alternative for refuge-related purposes would be used to help meet Reclamation's obligations under the CVPIA to provide Incremental Level 4 refuge water supply. Water supplies to wildlife refuges along the Sacramento River corridor would not be adversely affected, and would benefit from long-term water transfers to the CVP/SWP system implemented under the Proposed Project/Action (see Chapter 5 for a detailed description of water transfer programs and operations).

[2] The refuges specified in the CVPIA are mainly located along the axes of the Sacramento and the San Joaquin Valleys (see Chapter 12 for a list of these specified refuges).

[3] Environmental documentation has already been prepared that addresses the overall impacts of acquiring full Level 4 supplies at the refuges, the conveyance of water to the refuges, and use of water on the refuges. The overall impacts of implementing the CVPIA, including providing Level 4 water supplies to the refuges, were addressed in a Final Programmatic EIS (Reclamation and USFWS 1999) and environmental assessments/initial studies (EA/IS). These documents addressed both the conveyance of water to the Sacramento Valley and San Joaquin Valley Wildlife Refuges (Reclamation 1997a; Reclamation 1997b; Reclamation 1997c; Reclamation 1997d; Reclamation and CDFG 2003) and the use of water on these refuges (Reclamation 1997c; Reclamation *et al.* 2001a; Reclamation *et al.* 2001b; Reclamation and USFWS 2001). Therefore, the analysis in this EIR/EIS with respect to refuge water supplies is focused solely on the potential impacts of Reclamation acquiring water to help meet Incremental Level 4 refuge needs.

DWR would enter into individual agreements with the SWP contractors. These agreements would specify the terms and conditions, including allocations and financing arrangements for the acquisition of this water supply. Component 2 water would be purchased by the SWP, with costs distributed among all contractors, and normally allocated to the 29 SWP contractors in proportion to their Table A[4] percentages. Component 3 and 4 water also would be made available to the SWP contractors and normally allocated in proportion to Table A percentages, but individual contractor participation in the water purchases would be optional.

As previously discussed, total annual water deliveries extending through 2015 could range from a minimum of 60 TAF of Component 1 water to a maximum of 200 TAF, which would include up to an additional 140 TAF of Component 2, 3 and 4 water, depending on annual hydrologic conditions. After 2015, the Water Purchase Agreement would provide only a guaranteed supply of 20 TAF, which would be characterized as Component 1 water for EWA purposes. It is anticipated that the Component 1 water that would be provided after 2015 would be pumped primarily during the July through September period. Because of the uncertainties associated with future conditions and changed uses of this water in the Yuba Region (e.g. FERC license conditions for the Yuba Project) and the CVP/SWP system (e.g., other projects on the planning horizon, CVP/SWP operational constraints) the amounts of additional Component 1 water and of any Component 2, 3 and 4 water that would be available for delivery through the remaining term of the Water Purchase Agreement (i.e., 2016 through 2025) cannot be definitively determined at this time. However, after 2015, if additional supplies were available, then the next 40 TAF/yr would be Component 1 water (up to a total of 60 TAF/yr), and additional water above that amount would be used for CVP and SWP purposes. Recognizing the types of conditions and constraints that could be in place after 2015, it is assumed that Component 1, 2, 3 and 4 water deliveries to the CVP/SWP potentially could range from a "lower boundary" of 20 TAF up to an "upper boundary" that could include full Yuba Accord deliveries. The first 40 TAF of any additional supplies above the 20 TAF would be allocated to Component 1 water deliveries. Any additional supplies above this 40 TAF would be allocated to Components 2, 3 and 4.

As described above, this approach was taken to describe the broadest spectrum of potential hydrologic changes that could occur as a result of water deliveries under a range of potential future conditions after 2015. However, it is recognized that only 20 TAF would be guaranteed after 2015.

Water Transfer Accounting

YCWA, Reclamation and DWR would coordinate the scheduling, notification and operations for released transfer water. On April 10 of each year, the parties to the Water Purchase Agreement would discuss the schedule for the Component 1, 2, 3, and 4 water that YCWA would provide to Reclamation and DWR during that water year. The final schedule would be determined no later than May 21 of each year that a water transfer would occur. Delivered water would include the amount of released water that could be subsequently diverted at the

[4] 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" and the amount of each contract is specified in "Table A". Table A is an exhibit to the SWP contracts, and 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.

CVP/SWP Delta pumping facilities, plus the associated carriage water necessary to support these diversions. Water deliveries will occur only when the Delta is in "balanced conditions."[5]

For impact assessment purposes in this document, several assumptions have been made to characterize the accounting mechanisms and CVP/SWP operations (e.g., available pumping capacity, backing-up water, reservoir refill criteria and modeling hierarchy) related to the Proposed Project/Action Alternative. The full suite of modeling assumptions[6] is described in Appendix D. Specific assumptions of key importance that relate to the characterization of the Proposed Project/Action Alternative and CVP/SWP Delta operations are discussed below.

Yuba Accord transfer water would be conveyed through the Banks and Jones pumping plants when the Delta is in balanced conditions, and would be constrained by the available permitted pumping capacity, downstream channel capacity, restrictions imposed by SWRCB required response plans, and the export-to-inflow (E/I) ratio (unless YCWA elects to pay for carriage water costs[7]).

Characterization of "Backing-Up" Water for Impact Assessment Purposes

Under the Yuba Accord Alternative, Oroville Reservoir may be used to re-regulate 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. The timing of released transfer water from the lower Yuba River is determined by the proposed instream flow requirements and the proposed target operating line for New Bullards Bar Reservoir in the Fisheries Agreement. However, the export of released transfer water from the South Delta depends on Delta conditions and available pumping capacity at the Banks and Jones pumping plants. When Delta conditions constrain the export of increases in Yuba River flow at the Marysville Gage (relative to the basis of comparison), it may be possible for the SWP to reduce storage releases from Oroville Reservoir, resulting in an increase of storage for a later release and export.

Oroville Reservoir releases from storage can be reduced if Feather River flows are greater than the flow requirement below the Thermalito Afterbay Outlet, but upstream of the confluence of the Feather and Yuba rivers, and reservoir storage is below flood control levels.

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[5] Balanced conditions exist when the only water flowing into the Delta is that amount needed to meet Delta standards, required Delta outflow, in-Delta consumptive uses, and CVP/SWP project exports. Under balanced conditions all in-basin water demands are being met and the CVP and SWP are storing (or releasing) and exporting water in a manner that does not allow water above that needed to meet Delta standards to leave the Delta (CALFED Website 2000). When balanced conditions do not exist, the Delta is in "excess conditions".

[6] Assumptions were developed through an iterative process involving collaboration with Reclamation and DWR. Although these efforts attempted to characterize the assumptions as accurately as possible for incorporation into available modeling tools, they are not intended for application to day-to-day real-time operations of the CVP/SWP system, which are considerably more complex than that which can be represented by the currently available modeling tools. Therefore, the assumptions described above, and further discussed in Appendix D, are designed to address project considerations related to CVP/SWP operations and fisheries protections in the Delta for planning purposes associated with the development of this EIR/EIS.

[7] Consistent with other recent Reclamation and DWR projects, it is assumed that a 20 percent carriage water cost would be applied to the total transfer volume for any increase in Delta exports.

Delta Facilities and Pumping Sequencing

For impact analysis purposes in this EIR/EIS, the following assumptions have been regarding the pumping of water made available by the Yuba Accord flow schedules. When possible, DWR would plan to move Component 1 water through the Banks Pumping Plant using the EWA dedicated capacity available during July through September. Initial division of pumping of Component 2, Component 3 and Component 4 water would be split equally between the CVP Jones Pumping Plant (50 percent) and SWP Banks Pumping Plant (50 percent), using the remaining capacity that may be available at each facility. However, surplus capacity available for transfers varies considerably with hydrologic conditions. The CVP has little surplus capacity, except under drier hydrologic conditions. The SWP has greatest surplus capacity in dry and critical years, less under average conditions, and some surplus in wetter years when demands may be lower because contractors have alternate supplies.

Recognizing that the CVP's Jones Pumping Plant frequently operates at capacity, Reclamation and DWR would share pumping responsibilities according to the provisions described in the Coordinated Operations Agreement (COA) and authorized by the JPOD permit (see Chapter 5). Pumping would subsequently be adjusted if there is insufficient capacity at one pumping plant and spare capacity at the other pumping plant.

Reservoir Refill Considerations

Hydrologic changes resulting from stored water transfers that could impact the ability of the CVP and SWP to divert water are not experienced at the time water is transferred. Rather, these impacts can occur when the reservoir storage vacated by the transfer is refilled, which frequently occurs in the winter or spring following the transfer. In balanced conditions, while the CVP and SWP may be diverting water to storage or releasing water for export, the amount available for diversion or export could be reduced, if at the same time a non-project reservoir (e.g., New Bullards Bar Reservoir) is filling storage previously vacated by a stored water transfer. Reservoir refill criteria generally include daily accounting of reservoir refill to determine injury to other legal users of water, including the CVP and SWP (SWRCB 2002). If the refill occurs when the Delta is in excess conditions, then the refill would have no effect on the CVP and SWP and refill criteria would not be triggered (CALFED Website 2000).

In response to changes in instream flow requirements (i.e., Yuba Accord flow schedules instead of RD-1644 Interim requirements) and New Bullards Bar Reservoir refill conditions, lower Yuba River flows under the basis of comparison may be higher than flows under the Yuba Accord Alternative during some months. To maintain sufficient flows into the Delta when New Bullards Bar Reservoir is refilling, releases from upstream CVP/SWP reservoirs (i.e., Oroville) could be increased or Delta exports could be reduced, depending on hydrologic conditions. Consistent with the approach discussed during the Yuba Accord settlement negotiations, modeled New Bullards Bar Reservoir refill impacts are addressed by either: (1) increasing releases from project storage (i.e., Oroville Reservoir) during wet, above normal and below normal years; or (2) reducing Delta exports during dry and critical years, or essentially decreasing San Luis Reservoir storage and creating a "debt". For modeling purposes "refill" impacts that result in a reduction in pumping at Banks or Jones pumping plants, or a reduction in storage in project reservoirs (e.g., Oroville) would be offset by the first positive increment of released transfer water that is exported (i.e., water credited to Component 1, 2, 3 or 4 would be reduced by the refill impact from the previous month). If the Yuba Accord flows are lower than the baseline flow during the spring, then the payback of the "debt" is assumed to occur during the same year as a result of increased flows during the summer. Conversely, if Yuba Accord

flows are lower than the baseline flow during later months, then the assumed payback may not occur until the following year. Recognizing the limitations of a monthly model and the inherent complexities associated with calculating actual refill repayment schedules that would occur under real-time operations, the description presented above represents a general characterization of how refill considerations would be addressed. Specific details regarding reservoir refill accounting measures and repayment of potential refill impacts are based on the procedures defined in the 2004 DWR/EWA - Yuba 2004 Transfer Agreement, with the modifications identified in Exhibit 5 of the Water Purchase Agreement (see Appendix B2, Exhibit 5).

As previously described, YCWA may decide to enter into agreements with individual Member Units under which each Member Unit would arrange for its respective water users to reduce their use of surface water diversions by amounts to be determined by YCWA and the Member Units during the water accounting year, and to pump equivalent amounts of groundwater from approved wells as replacement supplies for the groundwater substitution component of the water transfer. Member Units would monitor and record groundwater pumping volumes, which would be provided to YCWA for incorporation into the master accounting procedure (see Appendix B2, Exhibit 4).

Upon completion of transfer activities for a given year, water that has been determined to be delivered transfer water would be credited to one of the four water components according to the priorities and accounting provisions in the Water Purchase Agreement. To further facilitate the accounting process, the contracting parties would establish regular coordination procedures to allow for the exchange of operational planning and hydrologic information during the transfer periods.

3.2.1.4 WATER PURCHASE AGREEMENT REVENUES

Besides funding fisheries studies and the conjunctive use program, the Yuba Accord Alternative also would provide revenues for flood control and other improvement activities in Yuba County. The history of flooding in Yuba County, including the most recent floods in 1986 and 1997, is discussed in Section 1.1.1.3. YCWA estimates the Yuba Accord Alternative would provide 8-year revenues that could range from about $30 million to $70 million, depending on the actual hydrology, with less revenue if there is a wet sequence and more if there is a dry sequence. Payment provisions and potential revenues associated with Component 1, 2, 3 and 4 water that could be provided by the Yuba Accord Alternative are presented in **Table 3-5**.

A significant portion of these revenues may be used for flood control projects in Yuba County. However, any flood control or water supply improvement project that would be funded or carried out by YCWA would be separate from the Yuba Accord Alternative, and would undergo independent environmental review.

Table 3-5. Overview of Payment Provisions and Water Purchase Agreement Revenues Associated with the Yuba Accord Alternative

	Payment Provisions	Range of Water Pricing Rates ($ per acre-foot)	Range of Potential Water Transfer Amounts (TAF per year)
Component 1 Water	❑ One payment of $30.9 million within 60 days of effective date of the Water Purchase Agreement	N/A	60
Component 2 Water	❑ Based on annual deliveries, but dependent on water availability in dry and critical water years	$50 to $62.50	15 to 30
Component 3 Water	❑ Based on annual deliveries, but dependent on water availability in below normal, dry and critical water years	$75 to $125	Up to 40
Component 4 Water	❑ Based on annual deliveries, but dependent on water availability in wet, above normal, below normal, dry and critical water years	$25 to $125	Up to 70
Source: Appendix B2, Water Purchase Agreement			

3.2.1.5 RESERVOIR OPERATIONS AND PLANNING

Besides operating New Bullards Bar Reservoir to meet flow requirements, the reservoir also would be operated to meet the target operating line and minimum carry-over storage targets. Table A-14, Attachment A of Appendix D presents various operational changes for the various alternatives.

CARRY-OVER STORAGE TARGETS

YCWA operates New Bullards Bar Reservoir to meet end-of-September carry-over storage operational targets. These targets designed to ensure that instream flow requirements and anticipated surface water deliveries to YCWA member units will be met during the next year. The carry-over storage requirement is a drought protection measure. Reservoir carry-over 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. The drought protection level is designed to provide full instream flow requirements and 50 percent of diversion requirements during the following water year, if that water year were to have the specified return period. YCWA will impose deficiencies of up to 50 percent on surface water deliveries to its Member Units to meet the carry-over storage in New Bullards Bar Reservoir.

The Yuba Accord Alternative would not change the criteria for establishing the minimum carry-over storage for New Bullards Bar Reservoir. Because of changes in surface water deliveries, operation of the reservoirs would take into account the Conjunctive Use Agreements, conference year provisions and flow requirements of the Fisheries Agreement, the actual volume of carry-over storage under the Yuba Accord Alternative during any given year would be different than under the Existing Condition. However, the target of meeting irrigation demand in 1 in 100 years in a year following a dry year, as described for the Existing Condition in Section 2.2.3.1, would remain under the Yuba Accord Alternative.

FLOOD CONTROL OPERATIONS

The Yuba Accord Alternative would not change the Existing Condition flood control operations of the Yuba Project.

HYDROPOWER GENERATION

Under the 1966 Power Purchase Contract between PG&E and YCWA, PG&E receives the entire electrical output of the Yuba Project in exchange for certain payments (for defeasance of the bonds for the Yuba Project and operations and maintenance). The Power Purchase Contract defines a "Critical Line"[8] water storage target line. Critical Line levels for New Bullards Bar Reservoir during each month of the year are presented in **Table 3-6**. Under the Power Purchase Contract, PG&E has a right to require YCWA to release stored reservoir water down to the Critical Line each month. However, New Bullards Bar Reservoir storage is allowed to exceed the monthly power storage Critical Line when releases would result in Englebright Reservoir releases exceeding the combined capacity of Narrows I and Narrows II powerhouses, causing reductions in total system power generation. Additional details regarding hydropower operations on the lower Yuba River are described in Section 2.2.6 and in Chapter 7.

Table 3-6. New Bullards Bar Reservoir Operational Storage Targets (TAF)

Target	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Inactive (Dead Pool)	234	234	234	234	234	234	234	234	234	234	234	234
Critical Line	660	645	645	600	600	685	825	930	890	830	755	705
Accord Target Line	650	650	650	600	650	750	850	960	890	820	705	650
Flood Envelope	796	796	796	796	796	796	896	966	966	966	966	910

Under the Power Purchase Contract, if the reservoir level during a given month is not on target to reach the specified end-of-month Critical Line, PG&E may call for additional releases through the New Colgate Powerhouse to adjust reservoir operations so that storage reaches the Critical Line by the end of the month. Conversely, if reservoir storage is at or below the Critical Line, PG&E is entitled to call for only limited generation (15 to 35 percent of full production, depending on the month).

In recent years, PG&E has not called for operation to the Critical Line during the winter months, because it has been in the interests of both PG&E and YCWA to operate storage in New Bullards Bar Reservoir more adaptively, based on watershed conditions and other factors. To provide assurance that this more flexible operation would not result in significant lost hydropower generation at the New Colgate Powerhouse due to increased spills resulting from maintaining storage amounts higher than the Critical Line, PG&E and YCWA would agree under the Yuba Accord Alternative to operate storage between two target storage lines: (1) the Critical Line as a minimum target storage; and (2) an "Accord Target Line" that would be a target upper storage amount.

[8] For the complete 1966 Power Purchase Contract definition of the "Critical Line", or maximum end-of-month storage amount, see Chapter 5.

Through extensive modeling simulations of the Yuba Project the Accord Target Line was developed. This winter target operation for New Bullards Bar Reservoir storage is a compromise between retaining water in storage to protect against later dry conditions, and evacuating storage to avoid later wet conditions that could require bypasses of water past the powerhouses (spills). During wetter years (based on reservoir storage and the forecast of available water expected to flow into New Bullards Bar Reservoir), the reservoir would be operated to the Critical Line. During drier years (also based on reservoir storage and the forecast of available water expected to flow into New Bullards Bar Reservoir), the reservoir would be operated to the Accord Target Line.

The effect of these changes to the Power Purchase Contract would be a formal protocol that would resemble the type of operational decisions that YCWA and PG&E have made each year during the past decade. This change to the Power Purchase Contract would require approval by the California Public Utilities Commission (CPUC), either under a formal hearing process or under an Advice Letter process. Based on preliminary modeling by YCWA and PG&E, it is not anticipated that an adverse impact would occur to PG&E ratepayers. Review by the CPUC would likely be undertaken in 2007.

It is anticipated that hydroelectric generation patterns under the Proposed Project/Action and alternatives would not differ substantially from existing generation patterns. The Accord Target Line would only affect operations under the Proposed Project/Action, and, as described above, would largely confirm existing operational practice for reservoir operations. Although there are different regulatory flow requirements for the various project alternatives, the total annual reservoir throughput (water captured and released) would not vary substantially from past practice. Additionally, New Colgate Powerhouse is operated as a "peaking" facility (generation occurs during only a few hours per day), and releases from New Bullards Bar Reservoir via the New Colgate Powerhouse are subsequently reregulated at Englebright Reservoir. Under current operations, the New Colgate Powerhouse may operate for more, fewer, or irregular hours on any given day in response to power market demands, with the total water throughput on a weekly basis necessary to maintain minimum flow requirements as the only constraint on operations.

3.2.1.6 OTHER PERTINENT PROJECTS AND AGREEMENTS

For modeling purposes, the following projects are considered as part of either the current or future conditions.

WHEATLAND PROJECT

YCWA has received approval of $3.15 million in grant funding from DWR for the Wheatland Project. The purpose of the Wheatland Project is to extend YCWA surface water delivery facilities to WWD (YCWA 2002). Farmers within WWD currently use only groundwater for irrigation. Construction of the canal and delivery of surface water will increase in-lieu groundwater recharge annually by the volume (up to about 40 TAF) of surface water that will be delivered. It is anticipated that construction for Phase I of the project will begin in 2007 and that water deliveries will begin in 2008 (pers. comm., Winchester 2006).

When the Wheatland Project is completed, water will be diverted from the Yuba River at Daguerre Point Dam and conveyed via the South Main Canal to the WWD's service area in southern Yuba County. Diverted water will be provided either through direct diversion of the natural flow of the Yuba River, or during dry periods, through rediversion of stored water

released from New Bullards Bar Reservoir. Once these water deliveries begin, irrigation demands under future baseline conditions will increase by approximately 40 TAF per year above the demands that currently are in place (i.e., Existing Condition). Therefore, although not directly related to the Yuba Accord Alternative, the Wheatland Project will change Yuba Project irrigation demand patterns. To accurately characterize baseline conditions used for impact assessment purposes in this EIR/EIS, Wheatland Project demands are represented differently in modeling assumptions used to simulate existing and future conditions (for additional detail, see Chapter 5 and Appendix D).

FREEPORT REGIONAL WATER PROJECT

East Bay Municipal Utility District (EBMUD) and Sacramento County Water Agency (SCWA), in coordination with Reclamation and the City of Sacramento, agreed to jointly pursue development of a regional project to divert water from the Sacramento River. The Freeport Regional Water Project Final EIS/EIR was certified in 2004 and a ROD was issued in 2005. The Freeport Regional Water Authority (FRWA), a joint powers agency formed under state law by EBMUD and SCWA, will construct and operate the Freeport Regional Water Project to meet water supply needs in EBMUD and Sacramento County.

SACRAMENTO VALLEY WATER MANAGEMENT PROGRAM

The Sacramento Valley Water Management Program (SVWMP) is a collaborative regional strategy that consists of multiple water management projects and actions to ensure that local water needs are fully met while helping to enhance operational flexibility of the CVP and SWP to meet contractual obligations and regulatory requirements including flow-related water quality objectives, and to improve water supplies in the Delta and throughout California. The participants include DWR, Reclamation, Sacramento Valley water users, and South of Delta water users. The SVWMP was developed to help resolve water quality and water rights issues arising from the need to meet the flow-related water quality objectives of the 1995 WQCP.

Implementation of the SVWMP will be in two-phases: (1) a Short-term Program; and (2) a Long-term Program. The Short-term Program has been developed and is currently undergoing environmental evaluation. A Long-term Program has yet to be identified.

The work plan for the Short-term Program lists approximately 40 water management projects and evaluations in the Sacramento River watershed that could help provide water for local water uses, CVP and SWP water supply needs, and environmental needs. The Short-term Program proposes to generate additional water supplies to help meet increasing demands in the Sacramento Valley, and to enhance the operational flexibility of the CVP and SWP to meet contractual obligations and regulatory requirements including flow-related water quality objectives and to improve water supply. The Short-term Program would make additional water available through its conjunctive use and reservoir reoperation projects (water management projects) and transfer of water made available by upstream users (defined in the Short-term Settlement Agreement) to relieve a portion of the CVP and SWP burden of maintaining water quality objectives in the Delta. CVP and SWP water currently dedicated to maintenance of those water quality objectives would be diverted to Downstream Water Users and ultimately be used for consumptive uses within the CVP and SWP service areas. The Short-term Program would be implemented during a 10-year period, with an initial augmentation of water up to 50 TAF in the first year, and maximum augmentation of water up to 185 TAF during full

implementation. As much as 60 percent of the water could go to SWP contractors and as much as 40 percent to CVP contractors.

YCWA is a signatory to the Sacramento Valley Water Management Agreement (SVWMA), and has committed to provide 15 TAF per year through groundwater substitution for the Short-term Program.[9] While it is uncertain at this time whether the SVWMP or a similar program will be implemented in the future, it is possible that such implementation will occur. The analysis in this Draft EIR/EIS that concerns future conditions does not attempt to quantify potential future SVWMP operations and associated changes in Delta outflow and Delta exports However, given YCWA's commitment to the program, evaluation of potential impacts to the Yuba groundwater basin does account for local groundwater substitution pumping that might occur under the SVWMP.

SOUTH DELTA IMPROVEMENTS PROGRAM

The CALFED ROD (CALFED 2000) identifies the SDIP as an action included in its Programmatic EIS/EIR to address regional and local water supply needs, as well as the needs of the aquatic environment. The SDIP is a series of proposed actions designed to improve water quality and protect salmon in the south Delta while allowing the SWP to operate more effectively.

The SDIP includes a phased approach to physical and structural improvements as well as operational changes that, together, represent a balanced approach to meeting California's water needs (Reclamation and DWR 2005). Physical and structural components in Stage 1 include: (1) replacement of seasonal rock barriers with permanent operable gates at up to four locations in the south Delta, which would protect salmon and improve water levels and water quality; and (2) conducting dredging at key locations in the south Delta, which would improve flows in Delta channels and provide better access to irrigation water. The operational component, which would be Stage 2, is designed to optimize the use of the Delta to convey CVP and SWP export water by modifying operations to increase pumping at the SWP Banks Pumping Plant at the head of the California Aqueduct. At this time, the permitted diversion limit into the SWP Clifton Court Forebay is 6,680 cfs[10]. However, operational changes proposed by the SDIP would increase the maximum diversion limit (from 6,680 cfs to 8,500 cfs) at the SWP Banks Pumping Plant to provide more water for communities, businesses and agricultural users south of the Delta when it is environmentally sound to do so (Reclamation and DWR 2005).

Stage 1 is designed to address the physical/structural improvements, including the new operable gates, dredging and agricultural modifications. At the end of Stage 1, it is anticipated that a decision document (Notice of Determination (NOD)/ROD) would be issued for the physical/structural component of the project. After the Stage 1 decision, it is anticipated that Stage 2 would address the proposed operational component to increase water deliveries south of the Delta, and most likely would involve preparation of supplemental environmental documentation (Reclamation and DWR 2005). Reclamation and DWR issued a Final EIS/EIR in

[9] YCWA's commitment to the SVWMP Short-term Program (i.e., up to 15 TAF annually via groundwater substitution) is a separate action unrelated to the Proposed Yuba Accord.

[10] Clifton Court Forebay and Banks Pumping Plant operate under a nationwide permit issued by the Corps under Section 10 of the Rivers and Harbors Act. Under this permit, the maximum diversion rates into Clifton Court Forebay are 13,870 AF daily and 13,250 AF per day over a 3-day average (equivalent to 6,680 cfs). From December 15 to March 15, diversions may be increased by one-third of the San Joaquin River flow at Vernalis, provided that flows at Vernalis exceed 1,000 cfs. During this period the maximum diversion rate is 8,500 cfs.

December 2006, and are expected to issue a NOD/ROD for the physical and structural component of the project during 2007.

For impact assessment purposes, the Proposed Project/Action and alternatives are analyzed for a maximum diversion limit into the SWP Clifton Court Forebay of 6,680 cfs under the CEQA scenarios. Under the NEPA scenarios, the Proposed Project/Action and alternatives are analyzed with a diversion limit of 8,500 cfs. The impact analysis, therefore, considers a full range of possible future conditions. Inclusion of the 8,500 cfs diversion limit in the No Action Alternative does not imply that Stage 2 of the SDIP will be implemented.

CVP AND SWP COORDINATED OPERATIONS AGREEMENT

The COA concerning operations of the CVP and SWP establishes an accounting system to ensure that the projects meet applicable requirements. The COA for operations of the CVP and SWP was signed in 1986 (DWR Website 2003; Reclamation and DWR 1986), replacing earlier similar agreements between the United States and California. The COA specifies how the CVP and SWP will operate to meet all project requirements and objectives without adversely affecting the rights of other parties. The COA identifies two basic conditions for operational purposes: (1) balanced water conditions, and (2) excess water conditions. Balanced water conditions occur when releases from upstream reservoirs plus unregulated flow equal the water supply needed to meet Sacramento Valley in-basin uses plus exports. During balanced water conditions, storage releases required to meet the Sacramento Valley in-basin uses are made 75 percent from the CVP and 25 percent from the SWP. If unstored water is available for export during balanced conditions, this water is allocated 45 percent to the SWP and 55 percent to the CVP.

Excess water conditions occur when the Delta inflows (combined releases from upstream reservoirs and unregulated flow) are greater than the flows needed to meet the in-basin uses plus exports. Under these conditions, flow through the Delta is adequate to meet all needs and no coordinated operation between the CVP and SWP is required.

The COA does not cover all circumstances that occur in Delta operations (including water quality requirements in the 1995 WQCP, biological opinions, the EWA Program and other requirements). The CVP and SWP are making accommodations for these new requirements now. The requirements of the COA were fully considered during development of the alternatives for this EIR/EIS.

ENVIRONMENTAL WATER ACCOUNT PROGRAM

The EWA Program is a key component of CALFED's Water Management Strategy. The EWA Program is a cooperative management program designed to provide protection to the at-risk native fish species primarily in the Bay/Delta Estuary, but also to some extent in areas upstream of the Delta, through environmentally beneficial changes in the operations of the CVP and SWP, at no uncompensated water costs to CVP and SWP water users. When taken together with other aspects of the CALFED Bay/Delta Program (e.g., Ecosystem Restoration Program Plan (ERPP), the EWA Program provides part of the resources required for the protection of critical fish species of the Bay/Delta estuary and provides assurances that the water supplies of the CVP and SWP will not be reduced to provide that protection (DWR Website 2003). Protective actions for at-risk native fish species include modifying Delta export pumping and augmenting instream flows and Delta outflows. Beneficial changes in CVP and SWP operations

include changing the timing of some flow releases from storage and the timing of water exports from the Delta pumping plants to coincide with periods of greater or lesser vulnerability of various fish species to environmental conditions in the Delta. The timing of the protective actions and operational changes vary from year to year, depending on many factors, such as hydrology and real-time monitoring, that indicate fish presence at or near the pumps or in streams tributary to the Delta.

The CALFED ROD and the EWA Operating Principles Agreement give five federal and state agencies the responsibility for implementing the EWA. Of these five agencies, the three "management agencies," USFWS, NMFS, and CDFG, have primary responsibility for exercising biological judgments to recommend which CVP/SWP operational changes and other actions would be beneficial to the protection and recovery of the at-risk fish species. Reclamation and DWR, the two "project agencies" under the EWA Program, implement the recommended CVP/SWP operational changes proposed by the management agencies and cooperate with the management agencies in administering EWA by acquiring, transferring, exchanging, source shifting, selling, borrowing, banking, and conveying EWA water assets. Reclamation, DWR, USFWS, NMFS and CDFG, collectively referred to as the "EWA Agencies," cooperate in the decisions to implement protective measures for fish and day-to-day operational management of EWA assets.

The EWA Program acquires water to replace project water supply reduced by the environmentally beneficial changes in CVP and SWP operations. The EWA Program obtains its water "assets" by acquisition from willing sellers (water transfers) and through operational flexibility of Delta facilities. The EWA Program also can use CVP and SWP storage and conveyance facilities to the extent that extra capacity is available. Allowing flexibility to acquire and manage EWA assets differently each year increases the EWA agencies' capability for responding to varying hydrologic conditions. Actions that may be taken to protect and benefit fish include: (1) pumping reductions to protect fish in the Delta; and (2) upstream fish actions such as instream flow enhancements to help facilitate fish population recovery (Reclamation *et al.* 2003).The EIS/EIR for the existing EWA Program was completed in January 2004. The March 2004 ROD/NOD for the existing EWA Program EIS/EIR documented the EWA Agencies' decision to implement the Flexible Purchase Alternative. The Flexible Purchase Alternative allows the EWA Agencies to purchase up to 600 TAF of water per year, although the EWA Agencies typically acquire 200 to 300 TAF annually, except in wet years or years with high fisheries needs (Reclamation *et al.* 2003). Actual purchases depend on the year type, EWA funding, and amounts that sellers are willing to transfer in a given year (Reclamation *et al.* 2003).

The existing EWA Program will sunset on December 31, 2007. Currently, DWR and Reclamation plan to temporarily extend the existing EWA Program, and they are in the process of completing supplemental environmental documentation for this extension of the program that is anticipated to be released by the end of 2007. This supplemental documentation is expected to be for a continuation of the existing EWA Program (or some elements of it) for up to another 4 years. The continuation of EWA Program as a long-term management tool also is being considered by the EWA Agencies[11]. While it is uncertain at this time whether a long-term

[11] As part of these potential long-term management considerations, Reclamation and DWR are conducting a comprehensive review of the EWA Program, taking into account the recently observed changes in Delta fish populations and the uncertainty of the nature of future actions to benefit at-risk Delta fish.

EWA Program or a program equivalent to the EWA will be implemented in the future, or what the elements of such a program will be, the best assumption that can be made at this time is that the EWA Program or an equivalent program will continue, with conditions similar to those for the existing EWA Program. For this reason, the analyses in this EIR/EIS that concern future conditions assume that a long-term EWA Program or a program equivalent to the EWA will be implemented, with conditions similar to those for the existing EWA program, and this EIS/EIR identifies the Delta fish protection actions at the CVP and SWP pumping facilities as "the EWA Program or an equivalent program." Implementation of a long-term EWA Program or a program equivalent to the EWA is included in the quantitative cumulative analysis (see Appendix D).

DELTA-MENDOTA CANAL/CALIFORNIA AQUEDUCT INTERTIE

The Delta-Mendota Canal/California Aqueduct Intertie (CVP/SWP Intertie) would consist of the construction and operation of a pumping plant and pipeline connections between the Delta-Mendota Canal and the California Aqueduct. The CVP/SWP Intertie would be used in a number of ways to achieve multiple benefits, including: (1) meeting current water supply demands; (2) allowing for the maintenance and repair of the CVP Delta export and conveyance facilities; and (3) providing operational flexibility to respond to emergencies related to both the CVP and the SWP.

Currently, the average daily pumping capacity at the Jones Pumping Plant is limited to a maximum of 4,600 cfs, which is the existing capacity of the upper Delta-Mendota Canal and its intake channel. However, because of conveyance capacity limitations in the lower Delta-Mendota Canal and other factors, pumping at the Jones Pumping Plant is almost always less than 4,600 cfs. Delta-Mendota Canal conveyance capacity is affected by: (1) subsidence; (2) canal siltation and deposition; (3) the amount, timing, and location of water deliveries from the Delta-Mendota Canal; (4) facility design; and (5) other factors. By connecting the upper Delta-Mendota Canal with the California Aqueduct, the CVP/SWP Intertie would allow year-round CVP Jones pumping up to 4,600 cfs, subject to all applicable export pumping restrictions for water quality and fisheries protections. CVP Jones capacity would remain limited to its existing authorized pumping capacity of 4,600 cfs. This project was included in Reclamation's OCAP and a Draft EIS is expected to be available in October 2007.

MODIFIED FLOW ALTERNATIVE

While the No Project and No Action alternatives include future flow regimes based on RD-1644, the Modified Flow Alternative represents a scenario in which RD-1644 would not remain in effect. Instead, instream flow requirements would be based on YCWA's voluntary implementation of the RD-1644 Interim flows (which are similar to the flows in a minimum flow proposal made by YCWA during the RD-1644 hearings), modified to include Conference Year requirements for the driest one percent of water years.

3.2.1.7 FISHERY PROTECTION MEASURES

The instream flow requirements for the Modified Flow Alternative are based on the RD-1644 Interim requirements, which also are the requirements for the Existing Condition (see Table 2-1). The provisions for conference years that are in the Yuba Accord Alternative also are included in the Modified Flow Alternative.

3.2.1.8 YCWA's Conjunctive Use and Groundwater Management

Under the Modified Flow Alternative, the operating assumptions for YCWA's conjunctive use and groundwater management activities would be the same as for the Existing Condition. The volume of groundwater pumped under the No Project and No Action alternatives would be different than the volume of water pumped under the Modified Flow Alternative. Those differences are presented in Chapter 6.

Additionally, the Modified Flow Alternative assumes that WWD would be receiving 40 TAF of surface water per year through the Wheatland Project. Delivery of this surface water would allow for in-lieu groundwater recharge of similar volumes of water.

3.2.1.9 Transfers and Revenue

Under the Modified Flow Alternative, water transfers and water transfer revenues would approximate those for the Existing Condition.

3.2.1.10 Reservoir Operations Criteria

Under the Modified Flow Alternative, reservoir operations criteria would be the same as for the Existing Condition.

3.2.1.11 Other Pertinent Projects

For modeling and impact assessment purposes, other projects considered as part of either the current or future condition under the Modified Flow Alternative would be the same as those listed above for the Yuba Accord Alternative.

3.2.2 NO PROJECT ALTERNATIVE

The No Project Alternative describes current environmental conditions plus 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. For CEQA purposes, the No Project Alternative is characterized by conditions that would be different from the Existing Condition.

The two primary differences between the Existing Condition and the No Project Alternative are:

- The instream flow schedules would be the RD-1644 Long-term requirements rather than the RD-1644 Interim requirements.
- 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.

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. Each of the differences and the impacts are described below.

3.2.2.1 Fisheries Protection and Enhancement

RD-1644 requires YCWA, in conjunction with CDFG and USFWS, to monitor the effects of flow fluctuations that may occur as a result of Yuba Project operations to ensure that Chinook salmon and steelhead in the lower Yuba River are adequately protected from redd dewatering

or stranding. The instream flow requirements and the fisheries studies of the No Project Alternative are described below.

INSTREAM FLOW REQUIREMENTS

Under the No Project Alternative, RD-1644 Long-term flow requirements would be implemented in the lower Yuba River. These requirements are presented in **Table 3-7**.

Table 3-7. State Water Resources Control Board Revised Water Right Decision 1644 Long-term Flow Requirements

Period	Wet, Above Normal, and Below Normal Years [a] (cfs)		Dry Years [a] (cfs)		Critical Years [a] (cfs)		Extreme Critical Years [a] (cfs)	
	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage	Smartville Gage	Marysville Gage
Sept15 – Oct 14	700	250	500	250	400	250	400	250
Oct. 15 – Apr 20	700	500	600	400	600	400	600	400
Apr 21 – Apr 30	--	1,000	--	1,000	--	1,000	--	500
May 1 – May 31	--	1,500	--	1,500	--	1,100	--	500
Jun 1	--	1,050	--	1,050	--	800	--	500
Jun 2	--	800	--	800	--	800	--	500
Jun 3 – Jun 30	--	800	--	800	--	800	--	500
Jul 1	--	560	--	560	--	560	--	500
Jul 2	--	390	--	390	--	390	--	390
Jul 3	--	280	--	280	--	280	--	280
Jul 4 – Sep 14	--	250	--	250	--	250	--	250

[a] Water year classifications are defined by the Yuba River Index, which is based on DWR's forecast of unimpaired flow of the Yuba River at Smartville published in DWR's Bulletin 120. Wet years are defined as years when the Yuba River Index > 1,230 TAF, above normal years are years when the Yuba River Index > 990 TAF, below normal years are years when the Yuba River Index > 790 TAF, dry years are years when the Yuba River Index > 630 TAF, critical years are years when the Yuba River Index < 630 TAF, extreme critical years are years when the Yuba River Index < 540 TAF.

"--" Indicates no flow standard requirement

FISHERIES STUDIES

YCWA would continue to conduct the fisheries monitoring studies and reporting required by RD-1644. However, because the higher RD-1644 Long-term instream flow requirements would impose greater operational constraints on the Yuba Project and, thus, eliminate YCWA's ability to participate in stored surface water transfers, the No Project Alternative would not generate any water transfer revenues. Therefore, YCWA would not be able to establish the RMT or RMF, and could not undertake the fisheries monitoring and habitat enhancement projects that would be implemented under the Yuba Accord Alternative.

3.2.2.2 CONJUNCTIVE USE AND GROUNDWATER MANAGEMENT

Although the higher RD-1644 Long-term lower Yuba River instream flow requirements would preclude YCWA from participating in stored surface water transfers, groundwater substitution transfers likely would still occur under the No Project Alternative. The volumes of water pumped for groundwater substitution transfers would be within sustainable levels.

The groundwater management described under the Existing Condition would be the same under the No Project Alternative with the exceptions of an increase in in-lieu groundwater recharge of approximately 40 TAF annually as a consequence of the assumed completion of the Wheatland Project and probable greater pumping levels to mitigate deficiencies in surface water supplies.

3.2.2.3 WATER TRANSFERS AND REVENUE

As stated above, as a consequence of operating New Bullards Bar Reservoir to meet the RD-1644 Long-term instream flow requirements, YCWA would no longer be able to make stored surface water transfers. Groundwater substitution transfers could occur on a level that is sustainable for the basin. See Chapter 6 for a discussion of sustainable extraction rates.

Without stored surface water transfers, YCWA would not have a revenue stream to invest in continued flood control management, and future water supply projects could not be funded from surface water transfers.

3.2.2.4 OTHER PERTINENT PROJECTS

The number of other projects included as part of the characterization of existing and future conditions for the No Project Alternative is relatively limited. For modeling and impact assessment purposes, the Wheatland Project is the only additional project that would occur under the No Project Alternative, relative to the Existing Condition.

3.2.3 NO ACTION ALTERNATIVE

The key elements and activities (e.g., implementation of the RD-1644 Long-term instream flow requirements and implementation of the Wheatland Project) described above for the No Project Alternative would be the same for the No Action Alternative (Table 3-1). However, as required by NEPA, the No Action Alternative assumes that 2025 conditions would be in place, which would be different from the 2007 conditions assumed for the CEQA No Project Alternative. Although implementation of the RD-1644 Long-term instream flow requirements would occur under both the No Project and No Action alternatives, the resultant model outputs for both scenarios is different because of variations in the way existing and future YCWA, Reclamation and DWR operations are characterized (see Appendix D). Additional differences between the No Project Alternative and the No Action Alternative involve the number of other reasonably foreseeable future projects that are on the planning horizon, which are included in the analytical assumptions used for modeling purposes and discussed below.

3.2.3.1 OTHER PERTINENT PROJECTS

For modeling and impact assessment purposes, other projects included in the characterization of the No Action Alternative include:

- Environmental Water Account
- South Delta Improvements Program
- Freeport Regional Water Project
- CVP/SWP Intertie

Descriptions of these projects are presented above in Section 3.2.1.6.

3.3 SUMMARY COMPARISON OF ALTERNATIVES

A summary comparison of the key elements and activities associated with each of the alternatives is presented in **Table 3-8**.

Table 3-8. Summary Comparison of Key Elements and Implementation Activities Associated with the Alternatives Considered in the Proposed Yuba Accord EIR/EIS

	No Project Alternative	No Action Alternative	Proposed Project/Action Alternative	Modified Flow Alternative
Lower Yuba River Instream Flow Requirements				
Lower Yuba River instream flow requirements	RD-1644 Long-term	RD-1644 Long-term	Yuba Accord Alternative Flows	RD-1644 Interim plus Conference Year provisions
River Management Team and River Management Fund				
River Management Team and River Management Fund	No	No	Yes	No
Lower Yuba River long-term fisheries monitoring, studies, and enhancement program	No	No	Yes Budgeted to cost $6 million which will come from the Yuba Accord Alternative revenues	No
YCWA and Member Units Conjunctive Use Program				
Integrated operations using surface water and groundwater supplies	Yes	Yes	Yes Yuba Accord Alternative Conjunctive Use Agreements	Yes
Water conservation and water use efficiency measures	Individual Member Unit measures	Individual Member Unit measures	Yuba Accord Alternative revenue to supplement individual Member Unit measures	Individual Member Unit measures
Conversion of diesel groundwater pump motors to electric-powered motors	Under SVWMP	Under SVWMP	Under both SVWMP and Yuba Accord Alternative	Under SVWMP
Water Transfers to Downstream Water Users (Outside Yuba County)				
Provision of water assets to EWA or an equivalent program for protection of Delta fisheries	No stored surface water transfers, some groundwater substitution transfers[a]	No stored surface water transfers, some groundwater substitution transfers[a]	Commitment of 60 TAF on average, per year (Component 1 water)[b]	Yes
Supplemental dry year water supply source for state and federal water contractors	No stored surface water transfers, some groundwater substitution transfers only[a]	No stored surface water transfers, some groundwater substitution transfers only[a]	Up to 140 TAF annually (Component 2 ,3 and 4 water)[b]	Yes

[a] Under the No Project and No Action alternatives, YCWA would not be able to participate in the EWA Program or to provide supplemental stored transfer water to federal and state contractors, because of the higher carry-over storage requirements that would result from the RD-1644 Long-term instream flow requirements.

[b] Provided that hydrologic conditions and available pumping capacity at the CVP and SWP facilities allow for water transfers to occur in the Delta.

3.4 ALTERNATIVES CONSIDERED AND ELIMINATED FROM DETAILED EVALUATION

This section describes alternatives considered, but eliminated from detailed analysis, based on the project objectives and purpose and need.

3.4.1 ALTERNATIVES CONSIDERED DURING SETTLEMENT NEGOTIATIONS LEADING TO DEVELOPMENT OF THE YUBA ACCORD ALTERNATIVE

The development of the proposed agreements that comprise the Yuba Accord Alternative (Proposed Project/Action) was a collaborative process that occurred over a period of almost three years. The process of negotiations that culminated in the Yuba Accord Alternative is described in detail in Appendix C.

The following paragraphs contain a brief summary of the negotiation process. The stakeholders who participated in the development of the Yuba Accord Alternative's proposed agreements included most of the fisheries, water-user, and regulatory entities that are concerned with water flows in the lower Yuba River and downstream to the Delta, and with uses of Yuba Project water.

The Yuba Accord Alternative was developed to attempt to settle the pending litigation over the RD-1644 instream flow requirements for the lower Yuba River. Stakeholders and other participants in these discussions began with the principal objectives and criteria that would be necessary for any settlement of the pending litigation. The objectives and criteria developed through that process were ultimately carried forward as the objectives described in Chapter 1 of this EIR/EIS.

The initial discussions in this process focused on the development of a set of flow schedules for the lower Yuba River. As discussed in detail in Appendix C, development of these flow schedules included several relevant biological and hydrological considerations, including a "stressor analysis," in which the various life stages of the fish species of concern were prioritized and the stressors on these life stages were weighted. Flow schedules were developed for wetter years to maximize fisheries benefits and minimize these stressors, and for drier years to maintain fisheries benefits and minimize the stressors to the extent possible. In addition to attempting to maximize fisheries benefits and minimize stressors, development of the flow schedules considered water supply demands for water from the lower Yuba River and the hydrological constraints on the Yuba Project and the lower Yuba River, including flood control requirements and hydroelectric power generation commitments. This process also included development of a new hydrological index that could be used to determine flow schedules that most closely match the hydrological conditions in the lower Yuba River.

After development of the flow schedules, other technical working teams of the stakeholders: (1) developed the proposed Fisheries Agreement, under which YCWA would commit to implement the flow schedules and other important biological provisions; (2) developed the proposed Conjunctive Use and Water Purchase agreements; and (3) adjusted these proposed agreements so that they together would form a complete and consistent package. In many instances, elements or concepts of one proposed agreement needed to be carefully tailored to avoid inconsistencies with elements of another proposed agreement; in other instances, the path to resolving an issue brought forth by a party to one agreement resulted in new or modified elements in another agreement.

Throughout the nearly three-year process that ultimately resulted in the Yuba Accord Alternative, all of the stakeholders were able to both represent their own interests and perspectives, and to work together to achieve the proposed agreements. To address all of the diverse interests, different approaches, alternatives, concepts, and changes were described, discussed, debated, evaluated, and either incorporated into the Proposed Project/Action Alternative or discarded. For example, during development of the proposed flow schedules,

more than two dozen different proposed flow schedule combinations were evaluated by the technical team, and a dozen combinations of proposed operational rules were evaluated before agreement was reached on rules for supplemental surface water transfers. Notification and reporting requirements (and associated key dates) in each of the proposed agreements were developed after multiple revisions were made to accommodate all of the interests, to provide operational flexibility and to correspond to relevant dates in the other proposed agreements. The penalty and remedy provisions in each of the agreements were developed from lists of several different potential provisions.

In total, a multitude of different combinations of possible flow requirements, constraints on Yuba Project operations, and other relevant factors were evaluated and considered before the final Yuba Accord Alternative was developed. During the entire process that led to the development of the Yuba Accord Alternative, the various participants and technical teams remained mindful of the initial suite of objectives of the process. As a result, alternatives that were eliminated were rejected because they were technically insufficient, failed to meet a key interest of one or more of the stakeholders, or failed to meet one or more of the initial objectives of the process.

3.4.2 CONSIDERATION OF ALTERNATIVE FLOW SCHEDULES

As discussed in Section 3.4.1, development of the Yuba Accord Alternative's flow schedules occurred through a collaborative, science-based and iterative process that involved over three years of analysis, discussions, modeling, and drafting, during which hundreds of different flow schedules and operations scenarios were considered. As a result of this process, the Yuba Accord Alternative is believed to best balance the competing needs of the fishery species in the lower Yuba River and demands for other uses of Yuba River water. No other consensus-based flow schedule alternative is analyzed in this EIR/EIS, because: (1) any such alternative was likely already considered and ultimately rejected by the technical team that developed the Yuba Accord Alternative flow schedules; (2) it was either not technically feasible or would not meet one or more of the project objectives; or (3) it would not be accepted as a settlement of the pending RD-1644 litigation by one or more of the parties involved in that litigation.

3.4.3 OTHER SUBSTANTIAL MODIFICATIONS TO ONE OR MORE OF THE YUBA ACCORD AGREEMENTS

The Yuba Accord Alternative consists of three proposed agreements that were developed after extensive negotiations among the numerous interested parties over a period of several years. Because the three proposed agreements contain many interrelated provisions, modifying any or one proposed agreement almost certainly would require related modifications to one or both of the other proposed agreements. Because any such changes would require new, protracted negotiations among all or many of the parties to the proposed agreements, and because such new negotiations might not result in any new consensus, alternatives based on substantial modifications of any the proposed agreements are not analyzed in this EIR/EIS.

3.5 PREFERRED ALTERNATIVE

Title 40 of the Code of Federal Regulations (CFR), Section 1502.14(e) requires federal agencies to identify an agency-preferred alternative which would best meet the purpose of and need for the action, as defined in the environmental documentation. As stated in Reclamation's NEPA Handbook(Reclamation 2000), "*…defining the preferred alternative does not define Reclamation's*

final decision. However, it is intended to provide the public with notification of what the agency considers to be the best alternative, based on the information available" (Reclamation 2000).

Reclamation has determined that the Yuba Accord Alternative is the preferred alternative due to: (1) the lower environmental impacts of the Proposed Project/Action; and (2) its ability to best achieve the project's purpose and need. The environmental impacts associated with the Yuba Accord Alternative and the other action alternatives considered in this EIR/EIS are summarized in Table ES-1 of the Executive Summary and are detailed in the individual resource chapters (see Chapters 5 through 20). Section 1.1 presents an overview of the project objectives and purpose and need, and **Table 3-9** presents a summary of the Proposed Project/Action and the alternatives' ability to meet the project objectives and purpose and need for the project. Based on consideration of this information and the analyses presented in this EIR/EIS, Reclamation has determined that the Yuba Accord Alternative is the preferred alternative.

Table 3-9. Comparison of the Alternatives' Ability to Meet the Project Objectives and Purpose and Need

	No Project Alternative	No Action Alternative	Proposed Project/Action Alternative	Modified Flow Alternative
Yuba County Water Agency Project Objectives				
Provide a level of protection for lower Yuba River fisheries equivalent to or greater than the requirements of SWRCB RD-1644	Yes	Yes	Yes	No
Improve Yuba County water supply management and reliability through the implementation of a comprehensive conjunctive use program and water use efficiencies	No	No	Yes	Limited
Provide revenues to fund Yuba Accord actions (e.g., conjunctive use, RMT) and Yuba County flood control, water supply and other projects, including but not limited to, constructing a new fish screen at the South Canal Diversion	No	No	Yes	Limited
Implement a lower Yuba River long-term fisheries monitoring, studies and enhancement program	No	No	Yes	No
Bureau of Reclamation Purpose and Need				
Protection of Delta fisheries (through acquisition of EWA Program assets via the Water Purchase Agreement)	No	No	Yes	Limited
Improve federal water contractor water supply reliability	No	No	Yes	Limited
California Department of Water Resources Project Objectives[a]				
Provide assets for the EWA program to assist in the protection and recovery of listed Delta-dependent fish species	No	No	Yes	Limited
Improve state water contractor water supply reliability	No	No	Yes	Limited

[a] DWR is participating as a cost-share agency in the preparation of environmental compliance documentation and would rely upon the analyses in this EIR/EIS for purposes of decision-making related to the agency's decisions regarding execution of the Water Purchase Agreement with YCWA and separate agreements with Reclamation and State Water Contractors (Tier 2 and Tier 3 agreements, respectively).

3.6 ENVIRONMENTALLY SUPERIOR OR PREFERABLE ALTERNATIVE

Section 15126.6(e)(2) of the California Code of Regulations state that CEQA requires the identification of the environmentally superior alternative, and specify that if the environmentally superior alternative is the "no project" alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. CEQ regulations (40 CFR §1505.2(b)) for implementing NEPA requires that, in cases where an EIS has been prepared, the decision-making document (i.e., ROD) must specify the alternative or alternatives which were considered to be environmentally preferable. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural and natural resources(Council on Environmental Quality Website 2007). Defining the environmentally preferable alternative in this Draft EIR/EIS does not define YCWA's and Reclamation's final decision-making for the project, but it is intended to provide the public with notification of what the agency considers to be the environmentally preferable alternative, based on the information available (Reclamation 2000).

YCWA, as the CEQA lead agency, and Reclamation, as the NEPA lead agency, have both determined that the Yuba Accord Alternative is environmentally superior to the Modified Flow Alternative and the No Project Alternative, based on the CEQA/NEPA analyses of each of the alternatives' potentially significant environmental impacts, which are summarized above in Table ES-1 and presented in the individual resource chapters.

CHAPTER 4
OVERVIEW OF ANALYTICAL APPROACH

This chapter describes the scope and extent of the environmental analyses for this EIR/EIS, presented by study area region (see Section 2.1). Specifically, this chapter describes the framework for the impact analyses, identifies the environmental resource areas evaluated in this EIR/EIS, and explains why some resource areas have been dismissed from further evaluation. In addition, this chapter introduces the approach for the cumulative effects analysis, discusses irreversible and irretrievable commitments of resources, and discusses the relationship between short-term uses of the environment and maintenance and enhancement of the long-term productivity of resources.

4.1 EVALUATED ENVIRONMENTAL RESOURCE AREAS

Environmental resources within the project study area were examined to determine whether they could be directly or indirectly affected by implementation of a project that changes water management on the lower Yuba River. Some, but not all, of these environmental resources include: (1) fisheries and aquatic resources; (2) rivers used to convey transfer water, including conveyance of transfer water stored in Oroville and Shasta reservoirs; (3) rivers that may be influenced by implementation of the Proposed Project/Action or alternatives; (4) the Yuba Groundwater Basin and overlying lands within Yuba County; and (5) lands within YCWA and its Member Unit service areas. The environmental resource areas evaluated in this EIR/EIS, by region and Export Service Area, are presented in **Table 4-1.**

Table 4-1. Regional Connections to the Resource Analytical Chapters

		Project Study Area			
		Yuba Region	CVP/SWP Upstream of the Delta Region	Delta Region	Export Service Area
Environmental Resource Topic (Resource Chapter Number)	(5) Surface Water Supply and Management	√	√	√	√
	(6) Groundwater Resources	√			√
	(7) Power Production and Energy Consumption	√	√	√	√
	(8) Flood Control	√	√	√	
	(9) Surface Water Quality	√	√	√	√
	(10) Fisheries and Aquatic Resources	√	√	√	√
	(11) Terrestrial Resources	√	√	√	√
	(12) Recreation	√	√	√	√
	(13) Visual Resources	√	√		√
	(14) Cultural Resources	√	√		√
	(15) Air Quality	√			√
	(16) Land Use	√	√	√	√
	(17) Socioeconomics	√			√
	(18) Growth Inducement	√			√
	(19) Environmental Justice	√			
	(20) Indian Trust Assets	√	√		
	(21) Cumulative Impacts	√	√	√	√
√ – Resource evaluated for region.					

The following paragraphs provide an overview of the types of operational changes that potentially could affect the regional areas and resources listed in Table 4-1. Implementation of any of the four alternatives could result in operational changes to the Yuba Project, including New Bullards Bar Reservoir, the North Yuba River between New Bullards Bar and Englebright reservoirs, or the lower Yuba River downstream of Englebright Dam. New Bullards Bar Reservoir is the Yuba Project facility used to store surface water in the Yuba River Basin. Changes in the lower Yuba River flow regime also potentially could influence Feather River flows downstream of the confluence with the Yuba River, Sacramento River flows downstream of its confluence with the Feather River, and Delta inflows. YCWA would continue to provide surface water deliveries to its Member Units and other water contractors throughout its service area through its operation of the Yuba Project.

Implementation of some of the alternatives could result in the annual delivery of up to 200 TAF of water to Reclamation and DWR. In 1991, 2001 and 2002, YCWA transferred (primarily to the EWA Program and DWR) volumes of water ranging between approximately 114 TAF and 219 TAF (see Table 2-2). Under any of the alternatives, Reclamation and DWR would convey and manage the delivery of any water transferred to the EWA Program or any supplemental water supplies to federal and state water contractors through the CVP/SWP facilities, including Oroville Reservoir and the Feather River (SWP), the Sacramento River downstream of the Feather River, and Delta facilities (CVP/SWP). Transfer of Yuba Project water to Reclamation and DWR could result in changes to CVP and SWP operations. Reclamation and DWR have indicated that such operational changes potentially could influence reservoir storage and water surface elevations with potential environmental effects at Oroville Reservoir and in the reaches of the Sacramento and Feather rivers located downstream of Oroville Reservoir. The Proposed Project/Action and alternatives would not be expected to result in any changes to CVP operations within the Trinity River, Shasta, Sacramento River or American River divisions (see Sections 4.2.2 and 4.2.3).

Implementation of any of the four alternatives could result in changes in the volumes or patterns of groundwater extractions from the North Yuba and South Yuba subbasins. It is anticipated that, during some water year types, YCWA Member Units would participate in groundwater pumping operations under all the alternatives. For example, under the No Project and No Action alternatives, groundwater substitution based water transfers are assumed to occur at historical volumes. In 1991, 1994, 2001, and 2002, groundwater-substitution-based transfers were 84,840 AF, 26,033 AF, 61,140 AF, and 55,248 AF, respectively. YCWA also could integrate operations of the Yuba Project, specifically New Bullards Bar Reservoir, with participating Member Units to manage Yuba County groundwater supplies. These groundwater supplies would be used to help meet local water supply needs in dry years, facilitating YCWA's operation of its water storage facilities, as needed, to meet higher minimum instream flow requirements in the lower Yuba River.

Surface water released from New Bullards Bar Reservoir would be used to maintain minimum flow requirements and would be conveyed downstream through the lower Yuba, lower Feather, and Sacramento rivers to the Delta. Surface waters reaching the Delta could then be made available for transfer to Reclamation and DWR for use in the Delta and/or to meet CVP and SWP contract requirements south of the Delta. The water also would be available for use under the EWA Program.

In addition, some alternatives have provisions for supplemental surface water transfers and groundwater substitution transfers. These operations would involve releases from New Bullards Bar Reservoir above those required by the instream fishery flow schedules. The

availability of supplemental water supplies would be determined through an assessment of potential water supply shortages in dry years using anticipated annual water supply allocation projection methods specific to each agency. Water provided to federal and state water contractors south of the Delta by implementing any of the four alternatives would not increase supplies to any contractor above its maximum existing contract amount (see Sections 3.2.1.3, 4.1.3.1, and 4.1.3.2)

The impact analyses for this EIR/EIS require the differentiation of the project study area into separate regions because different effects could occur in different regions. Water transfers originating in the Yuba Region would require that water be conveyed through the Delta. Constraints to transferring water through the Delta include both physical and regulatory limitations. Careful coordination of transfers with existing CVP and SWP operations to meet water rights, water quality, and fishery protection measures would be necessary when water would be transferred through the Delta.

Environmental resource topics and infrastructure facility components associated with each of the four evaluated regions are described below. The following information is provided to establish the initial framework for subsequent environmental resource evaluations presented in each of the resource chapters in this EIR/EIS. The respective analytical chapters of this document describe the differences that may occur between the overall project study area features and project operations (as described below) and the area of analysis for a particular resource (e.g., the area of analysis may vary for different resources, as described in Chapters 5 to 20).

4.1.1 YUBA REGION - FEATURES AND PROJECT OPERATIONS

The Yuba Region includes YCWA's Yuba Project facilities on the North Yuba River and lower Yuba River, the Yuba Groundwater Basin, lands overlying the groundwater basin, and additional land areas within the YCWA Member Unit service areas.

Operation of the Yuba Project and other facilities requires annual consideration and integration of a number of factors, including the following:

- Annual hydrologic variations in the watershed
- Seasonality and timing of water availability
- Water rights
- Yuba Project operations for base flow, flood control, and storm runoff management
- Yuba Project routine maintenance requirements
- Yuba Project physical system limitations (capacity constraints)
- Lower Yuba River fishery protection measures
- Consumptive demands for irrigation, rice decomposition, and waterfowl habitat
- Conjunctive use and groundwater management
- Hydropower generation (power contract requirements), including FERC license requirements
- Flood control
- Recreation uses
- Out-of-basin water transfers

4.1.2 CVP/SWP UPSTREAM OF THE DELTA REGION – FEATURES AND PROJECT OPERATIONS

The CVP/SWP Upstream of the Delta Region is restricted to CVP and SWP facilities and associated river reaches that could be affected by operational changes in the Yuba Project.

The CVP Shasta Division is operated for flood control, navigation, agricultural and M&I water supply, hydroelectric power generation, and fish conservation. The Shasta Division includes: Shasta Dam, Reservoir, and Powerplant; Keswick Dam, Reservoir and Powerplant; and the Shasta temperature control device. As discussed in Section 4.2.3, operation of these facilities would not be affected by the Proposed Project/Action or alternatives.

The CVP Sacramento River Division includes the Red Bluff Diversion Dam, Corning Pumping Plant, and Corning and Tehama-Colusa canals. The Sacramento River Division would not be affected by the Proposed Project/Action or alternatives.

SWP facilities on the Feather River include Oroville Dam, Oroville Reservoir, Edward Hyatt Powerplant, and Thermalito Complex, located approximately four miles downstream of Oroville Dam. The Oroville-Thermalito facilities could be affected by changes to the Yuba Project due to refill impacts, or through temporary storage of transfer water in Oroville Reservoir. Backup of transfer water into Oroville Reservoir may occur during Delta balanced conditions when water from Oroville Reservoir otherwise would be released to meet instream flow requirements on the lower Feather River or for export at Banks and Jones pumping plants.

4.1.3 DELTA REGION – FEATURES AND PROJECT OPERATIONS

The Delta Region is considered separately from the CVP/SWP Upstream of the Delta Region because of its legal status and its use as a conveyance system for upstream water acquisitions and water management operations. The Delta lies at the confluence of the Sacramento and San Joaquin rivers and serves as a major operations hub for the CVP and SWP. A series of regulations and agreements with various agencies (e.g., SWRCB, USFWS, NFMS, CDFG and the Corps) govern current CVP and SWP operations in the Delta. These regulations and agreements affect the volume of water that can be exported from the Delta. The CVP and SWP store and release water upstream of the Delta and export water from the Delta to areas generally west and south of the Delta. Reclamation diverts water from the Delta through its CVP Jones Pumping Plant to the Delta-Mendota Canal and San Luis Canal. DWR pumps for export through the 444-mile long California Aqueduct and South Bay Aqueduct at its SWP Banks Pumping Plant on Clifton Court Forebay.

4.1.3.1 CENTRAL VALLEY PROJECT – DELTA FEATURES AND PROJECT OPERATIONS

The CVP operates the Jones Pumping Plant to pump water from the south Delta into the Delta-Mendota Canal to serve CVP contractors in the San Joaquin Valley, the Tulare Basin, the San Benito Unit and the SCVWD. South-of-Delta CVP demands include agricultural and M&I demands, and refuge water needs. Almost all of the CVP Jones water supply is for agricultural uses, representing about 10 percent of the total California agricultural water supply (Reclamation and DWR 2005). The Jones facility includes a pumping plant and the Jones Fish Collection Facility, which intercepts fish that are then collected and transported by tanker truck to release sites away from the pumps. The Jones facility consists of six pumps, with a maximum capacity of about 5,100 cfs. The Jones facility has an authorized pumping capacity of 4,600 cfs,

or 9,125 acre-feet per day. The Delta- Mendota Canal capacity varies from 4,600 cfs in the upper reaches to 4,200 cfs at the O'Neil Forebay. The canal capacity limits pumping at Jones Pumping Plant to about 4,200 cfs during the winter period (November to March) when diversions from the upper reaches of the Delta-Mendota Canal (near the Jones Pumping Plant) are low. From May through August, the CVP monthly demands exceed the CVP capacity to convey water from the Delta. Therefore, additional water must be pumped during the winter and early spring and stored in San Luis Reservoir for later delivery to meet annual allocations for most water years. Consequently, diversions at Jones Pumping Plant remain near capacity from the summer to the following spring except under dry conditions when pumping is limited by the available water supply.

CVP demands exceed permissible Jones pumping capacity, and full CVP deliveries must rely on SWP wheeling (pumping for the CVP at the SWP Banks facility) of some of these CVP demands. The CVPIA also has introduced additional constraints on CVP Jones pumping. A portion of the CVPIA Section 3406 (b)(2) water that is dedicated to anadromous fish restoration purposes (maximum 800 TAF) is normally allocated by the USFWS) to reduce pumping during the Vernalis Adaptive Management Plan (VAMP) period (April 15 to May 15) and additional pumping reductions are often applied during the remainder of May and June (normally a 3,000 cfs limit), and at times during fish-sensitive periods in December through March. Under the CVPIA, the CVP is required to deliver Level 2 wildlife refuge supplies of about 271 TAF per year to refuges located in the San Joaquin River and Tulare River basins. Water for these refuges must be supplied from the Jones facility.

Other CVP facilities in the Delta include the Delta Cross Channel and the Contra Costa Canal. The Delta Cross Channel is a gated diversion channel that connects the Sacramento River to Snodgrass Slough near Walnut Grove. Water from the Sacramento River flows through the Delta Cross Channel to the natural channels of the lower Mokelumne and San Joaquin rivers, and toward the interior Delta to supply the Contra Costa Canal and the CVP Jones facility in the south Delta and improve water quality by reducing saltwater intrusion from Antioch. The Contra Costa Canal originates at Rock Slough and supplies the CCWD. The canal and associated facilities are part of the CVP, but are operated and maintained by CCWD.

4.1.3.2 STATE WATER PROJECT – DELTA FEATURES AND PROJECT OPERATIONS

The SWP operates the Harvey O. Banks Pumping Plant to lift water from the south Delta into the California Aqueduct for delivery to SWP customers in the south San Francisco Bay Area, San Luis Obispo, and Santa Barbara counties, San Joaquin Valley, and Southern California. The Banks Pumping Plant has an installed capacity of about 10,668 cfs, and SWP water rights for diversion specify a maximum diversion of 10,350 cfs. The current permitted diversion capacity is 6,680 cfs, which would provide a maximum of about 4,836,000 AF per year if the full diversion could be maintained every day of the year. Additional permitted diversions of one-third of the San Joaquin River flow at Vernalis are allowed under the current permit rule for a 90-day period from December 15 to March 15 if the Vernalis flow is above 1,000 cfs. Seasonal SWP demands are highest in the summer months, requiring a portion of the demands to be supplied from San Luis Reservoir storage. San Luis Reservoir releases often are needed during these months because SWP Banks pumping is limited during April through June by a combination of VAMP and the 35 percent E/I ratio specified in SWRCB D-1641 from February through June.

The 29 SWP contractors[1] that divert water from the Delta have individual Table A[2] contract amounts that total 4,173,000 AF per year (DWR 2006). SWP contractors can also request Article 21 water, which may be made available by DWR in addition to Table A supplies when: San Luis Reservoir is full; other SWP storage is as full as operational constraints permit; all Table A demands are being met; and the Banks Pumping Plant has capacity to pump additional water within its permitted diversion capacity. These Article 21 deliveries are typically made between January and mid-April, after San Luis Reservoir is full.

The Metropolitan Water District of Southern California (MWDSC) is the largest SWP contractor, with a Table A amount of approximately 1.911 MAF. There are 12 other contractors in Southern California with Table A amounts that total approximately 682 TAF, and whose water also must be pumped from the Delta over the Tehachapi Mountains through the Edmonston Pumping Plant. The Edmonston Pumping Plant has a maximum capacity of 3.25 MAF per year, which limits SWP deliveries to Southern California. San Joaquin Valley agricultural contractors have combined Table A amounts of about 1.2 MAF. The Kern County Water Agency has a Table A amount of approximately 1 MAF, and the three South Bay aqueduct contractors have a total Table A amount of approximately 223 TAF (DWR 2006).

4.1.4 EXPORT SERVICE AREA – FEATURES AND PROJECT OPERATIONS

Reclamation and DWR are responsible for operating the CVP and SWP systems and, likewise, for determining how best to address system-wide needs as environmental conditions change. It is anticipated that conveyance of water provided by the Yuba Accord Alternative through the CVP/SWP system, the Delta and the Export Service Area would be consistent with the procedures and operating principles established by Reclamation and DWR in the 2004 Operating Criteria and Plan (OCAP), and according to authorized water supply delivery and distribution provisions in the long-term water purchase contracts.

On May 25 and June 1, 2007, the court issued orders in *Natural Resources Defense Council v. Kempthorne*, Case No. 1:05-CV-01207 OWW TAG (E. D. Cal.), ruling that the 2005 Biological Opinion that the USFWS prepared is unlawful and inadequate on several listed grounds. To comply with this order and to complete the new OCAP ESA consultations that are described in Section 10.1.4.1 of this EIR/EIS, Reclamation will be preparing a new OCAP for the CVP/SWP system. After Reclamation adopts this new OCAP, any conveyance of water provided by the Yuba Accord Alternative through the CVP/SWP system, the Delta and the Export Service Area would be consistent with all of the procedures and operating principles that are established in this new OCAP.

Under the Yuba Accord Alternative, approximately 60 TAF of Component 1 water would be delivered to the EWA Program[3] or a program equivalent to the EWA during almost every year[4]

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[1] Of the 29 SWP contractors, three are served upstream of the Delta, two divert at the SWP North Bay Pumping Plant, and the remaining 24 are served downstream from the Banks plant in the Delta.

[2] Contracts between DWR and the 29 SWP water contractors define the terms and conditions governing the water delivery and cost repayment for the SWP. Table A is an exhibit to each of these contracts. Water supply related costs of the SWP are paid by the contractors, and Table A serves as a basis for allocating some of the costs among contractors. Additionally, Table A plays a key role in the annual allocation of available water supply among SWP contractors (DWR 2006).

[3] The 60 TAF of Component 1 water in the Yuba Accord Alternative is within the maximum quantity (i.e., an annual maximum of 600 TAF with an average of between 200 TAF and 300 TAF) of the existing EWA water identified in Reclamation's 2004 OCAP.

in which the Yuba Accord Alternative agreements are anticipated to be in place (2008 through 2016). The Yuba Accord Alternative also would authorize Reclamation and DWR to acquire water from YCWA to supplement supplies with the federal and state water contractors, respectively. YCWA would provide Components 2, 3, and 4 water associated with the Yuba Accord Alternative to Reclamation and DWR. Reclamation and DWR would then be responsible for delivering portions of Components 2, 3, and 4 water to the buyers. Typically, water deliveries to CVP contractors are less than the full contractual amounts specified in the long-term water purchase contracts. Water deliveries to SWP contractors also are often less than the full contractual amounts. The Yuba Accord Alternative may allow a somewhat greater portion of these contracted amounts to be provided under dry and critical water year conditions, relative to deliveries that would occur without the Yuba Accord Alternative. CVP and SWP deliveries would not exceed the maximum amounts of water specified in the delivery contracts. Buyers of CVP and SWP water that have existing delivery contracts (long-term water purchase contracts) could be supplied Components 2, 3, and 4 water only during conditions when total water supplies received would be less than the amounts specified in their respective contracts.

The quantity of Component 1 water to be delivered to the EWA Program or an equivalent program would be within the amount previously evaluated by the existing EWA Program (Reclamation *et al.* 2004) and included as part of Existing Condition. Component 1 water would replace water currently purchased under single-year purchase agreements. Therefore, export of this water would not increase the deliveries to CVP and SWP contractors located in the Export Service Area. Component 2, 3, or 4 water purchased by DWR and Reclamation for delivery to CVP and SWP contractors would improve water supply reliability by reducing deficiencies during dry and critical water years. Deliveries would not exceed CVP contract amounts or SWP full Table A, and thus would not increase the overall yield to the CVP/SWP system, or the yield to south of Delta export service areas.

Under the Yuba Accord Alternative, the Water Purchase Agreement contains provisions for continuation of water transfers from YCWA of not less than 20 TAF per year from 2016 through 2025 (Article 15C of Water Purchase Agreement). Reclamation and DWR have agreed to use the 20 TAF of water as a partial continuation of water supplied to the EWA Program (see Section 3.2.1.3).

Although the existing EWA Program EIS/EIR analyzed potential service area effects associated with EWA acquisitions, the existing EWA Program will sunset on December 31, 2007. Currently, DWR and Reclamation plan to temporarily extend the existing EWA Program, and they are in the process of completing supplemental environmental documentation for this extension of the program that is anticipated to be released by the end of 2007. While it is uncertain at this time whether a long-term EWA Program or a program equivalent to the EWA will be implemented in the future, or what the elements of such a program will be, the best assumption that can be made at this time is that the EWA Program or an equivalent program will continue, with conditions similar to those for the existing EWA Program. Information regarding the characterization of Component 1 water in a long-term EWA Program or a

[4] Under the Proposed Project/Action, Component 1 water deliveries would be approximately 60 TAF per year. However, hydrologic conditions may preclude some or all of the Component 1 water from being delivered or accounted for during certain water years. In these years, the Component 1 debt would be repaid in a subsequent year, subject to the terms and conditions outlined in the Water Purchase Agreement and its Exhibit 1, "Scheduling and Accounting Principles."

program equivalent to the EWA is not known at this time, but it is assumed that the quantity would be, at a minimum, commensurate with that which was identified for the existing EWA Program. Because it is uncertain whether the supplemental environmental documentation for the extension of the existing EWA Program will be approved before the existing EWA Program expires, and to bridge the potential gap associated with an interim period between the two EWA Programs, this EIR/EIS addresses potential service area impacts associated with supplemental water provided by the Yuba Accord Alternative to areas south of the Delta.

Therefore, to address these potential impacts, the following resource chapters include discussions of Export Service Area issues: surface water supply and management; surface water quality; fisheries and aquatic resources; terrestrial resources; recreation; visual resources; cultural resources; air quality; and growth inducement). The following subsections provide an overview of the south of Delta CVP/SWP features and project operations, which are used to support the more detailed Export Service Area analyses presented in the specific resource chapters of this EIR/EIS.

4.1.4.1 SAN LUIS DAM AND RESERVOIR

Jointly operated by the CVP and the SWP, San Luis Dam and Reservoir is an offstream storage reservoir within the Export Service Area. Located near Los Banos, California, it has a capacity of about 2 MAF and stores exports from the Delta, which then are used when the water is needed in the Export Service Area. Other facilities associated with San Luis Dam and Reservoir include the O'Neill Dam and Forebay, located downstream of San Luis Dam along the California Aqueduct. The forebay is used as a hydraulic junction point for state and federal waters. The O'Neill Pumping-Generating Plant lifts CVP water from the Delta-Mendota Canal to the O'Neill Forebay. The joint CVP/SWP William R. Giannelli Pumping-Generating Plant (Giannelli Plant) lifts CVP and SWP water from O'Neill Forebay to San Luis Reservoir. The forebay provides re-regulation storage necessary to permit off-peak pumping and on-peak power generation by the Giannelli Plant. When CVP water is released from the O'Neill Forebay to the Delta-Mendota Canal, the units at the O'Neill Pumping-Generating Plant operate as hydroelectric generators (Reclamation and DWR 2005).

Both the CVP and SWP systems use San Luis Reservoir for water allocations to CVP and SWP contractors. Water from San Luis Reservoir is used to supplement other CVP or SWP water supplies during periods of constrained operations in the Delta, and when demands exceed maximum capacity at the Delta pumping plants (Reclamation *et al.* 2003). During irrigation months, water from the California Aqueduct flows through the O'Neill Forebay instead of being pumped into the San Luis Reservoir (Reclamation Website 2006).

4.1.4.2 CENTRAL VALLEY PROJECT – FEATURES AND PROJECT OPERATIONS

The Delta-Mendota Canal is the main conveyance facility of the CVP for water pumped from the Delta. It conveys water from the Jones Pumping Plant in the southern Delta to agricultural lands in the San Joaquin Valley. Water not delivered directly is diverted from the Delta-Mendota Canal at O'Neill Pumping Plant into O'Neill Forebay. The water then flows along the San Luis Canal to CVP contractors in the San Joaquin Valley or is pumped into San Luis Reservoir through the Gianelli Plant for later use. The majority of the remaining water continues to the southern Central Valley (Reclamation *et al.* 2003).

4.1.4.3 STATE WATER PROJECT – FEATURES AND PROJECT OPERATIONS

In the south Delta, the SWP diverts water from Clifton Court Forebay for deliveries south of the Delta. The Banks Pumping Plant lifts water from the Clifton Court Forebay into the California Aqueduct. The California Aqueduct then flows to Bethany Reservoir, where supplies for urban contractors in the south San Francisco Bay Area are pumped into the South Bay Aqueduct. The remainder of the water continues south in the California Aqueduct to O'Neill Forebay. From O'Neill Forebay, the water may be pumped into San Luis Reservoir for seasonal storage, or may continue south through the California Aqueduct to serve San Joaquin Valley agricultural contractors and the mainly urban regions of southern California.

4.2 FEATURES AND FACILITIES ELIMINATED FROM FURTHER ANALYTICAL CONSIDERATION

Within the project study area, several features and facilities have been eliminated from further analytical consideration. A discussion of these features and facilities, including the rationale for elimination, is provided below.

4.2.1 RE-REGULATING RESERVOIRS

For impact assessment purposes in this EIR/EIS, regulating reservoirs downstream of regional study area reservoirs that may be affected by implementation of the Proposed Project/Action or alternatives are not evaluated in detail because these reservoirs normally are operated just to attenuate variable flows, and none of the alternatives would affect operations of the regulating reservoirs. Increases in reservoir inflows would not affect the reservoir storage levels of these regulating reservoirs because releases would increase by corresponding amounts.

4.2.2 TRINITY RIVER AND CLEAR CREEK

Water operations in the Trinity River and Clear Creek are components of the integrated operations of the CVP system. Although the Trinity River is connected to the Sacramento River by the Clear Creek Tunnel and Spring Creek Conduit and thus contributes to the CVP water supply, the Trinity River does not flow directly into the Sacramento River Basin. While Trinity River flows enter the Sacramento River below Keswick Dam through Clear Creek, Sacramento River flows below Keswick Dam do not influence or reenter the Trinity River Basin. Because of this CVP system configuration, and hydrologic and water temperature modeling results that demonstrate that the Proposed Project/Action and alternatives would not directly or indirectly affect Trinity River resources, the Trinity River system is not further considered in this EIS/EIR.

4.2.3 SHASTA RESERVOIR AND THE UPPER SACRAMENTO RIVER

Reclamation augments Sacramento River flow with water from the Trinity River, and over the past five years, an annual average of 0.72 MAF of water from the Trinity River has been transferred through the Clear and Spring creek tunnels to Keswick Reservoir (Reclamation, Central Valley Operations Diversion, unpub. data, 2006). Keswick Dam, located nine miles downstream of Shasta Dam, regulates the outflow from Shasta Reservoir.

Hydrologic and water temperature modeling results demonstrate that the Proposed Project/Action and alternatives, relative to the bases of comparison, would not directly or indirectly affect Shasta Reservoir storage, or upper Sacramento River flow and water temperature conditions immediately downstream of Keswick Dam (Appendix F4). Because

modeled output indicates that hydrologic conditions in the upper Sacramento River immediately downstream of Keswick Dam generally would not differ under the Proposed Project/Action and alternatives, relative to the bases of comparison, neither would hydrologic conditions in the downstream reaches of the Sacramento River that are located between Keswick Dam and the Feather River confluence with the Sacramento River. Because the Proposed Project/Action and alternatives could result in changes to SWP operations and hydrologic conditions in the lower Feather River, the evaluation of potential resource-specific impacts associated with changed conditions in the Sacramento River is limited in subsequent chapters of this EIR/EIS to those Sacramento River reaches located downstream of the Feather River confluence. Therefore, Shasta Reservoir and the upper Sacramento River are not further considered in this EIS/EIR.

4.2.4 LOWER AMERICAN RIVER AND FOLSOM RESERVOIR

Water operations in Folsom Reservoir and the lower American River also are components of CVP operations. The Proposed Project/Action and alternatives would not change operations at Folsom Reservoir, Folsom Dam, or in the lower American River, because annual operations at Folsom Reservoir leave little or no opportunity to store project water assets or to "back up" water into this reservoir. Reclamation does not anticipate modifying Folsom Reservoir, Folsom Dam or lower American River operations as a result of the Proposed Yuba Accord for the following reasons:

- Average annual inflow to Folsom Reservoir is about 2.7 MAF, slightly more than 2.5 times the active storage in the reservoir;
- The inflow-to-storage ratio is so large that Folsom Dam and Reservoir is operated as an annual storage reservoir with typically little or no opportunity to store water assets outside of naturally occurring inflow;
- In a case when water assets might potentially be stored in Folsom Reservoir, the likelihood that assets would be spilled due to required flood control operations would be high; and
- Lower American River flow operations are highly sensitive to, and regulated by, fishery considerations such that changes to flow regimes are undesirable and unlikely if alternative operations can accomplish CVP objectives.

For these reasons, CVP operators intend to maintain lower American River releases below Nimbus Dam consistent in magnitude and temporal distribution with those that have occurred historically. Because of these known operational limitations to the American River system, and hydrologic and water temperature modeling results that demonstrate that the Proposed Project/Action and alternatives would not directly or indirectly affect Folsom Reservoir or lower American River resources, the American River system is not further considered in this EIS/EIR.

4.3 FRAMEWORK FOR ENVIRONMENTAL IMPACTS/CONSEQUENCES ANALYSES

This EIR/EIS presents information pertinent to assessing the potential impacts of the Proposed Project/Action and alternatives on the environment, in accordance with CEQA and NEPA requirements. The document includes analytical sections for the following 17 resource categories: surface water supply and management, groundwater resources, hydropower, 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 (ITAs), and cumulative impacts (see Table 4-1). Chapters 5 through 20 each contain the following required CEQA/NEPA components for these resource categories:

- Environmental Setting/Existing Condition, including a detailed presentation of existing environmental conditions within the specific areas of analysis for each resource area, presented for the Yuba Region, CVP/SWP Upstream of the Delta Region, Delta Region, and Export Service Area.
- Environmental Impacts/Environmental Consequences, including impact analysis methods, significance criteria, qualitative and quantitative descriptions of potential impacts on the physical, biological, and social environments, and mitigation measures for each of the following alternatives:
  - Yuba Accord Alternative
  - Modified Flow Alternative
  - No Project Alternative
  - No Action Alternative
- Mitigation Measures (for resources with potentially significant impacts)
- Growth-inducing Impacts
- Cumulative Impacts

4.4 CEQA AND NEPA TERMINOLOGY AND BASES OF COMPARISON

CEQA and NEPA are similar in that both laws require the preparation of environmental studies to evaluate the environmental effects of proposed governmental activities. This joint EIR/EIS has been developed to address CEQA and NEPA requirements for analyzing potential impacts of the Proposed Yuba Accord on the environment. Although many concepts are common to both CEQA and NEPA, the laws sometimes use different terminology for similar parameters. Some of these terms are used in formulating the basis of comparison for determining potential project-related environmental impacts. A key to corresponding CEQA and NEPA terminology used in this document is presented in **Table 4-2**.

Table 4-2. Identification of Important CEQA and NEPA Terminology

California Environmental Quality Act	National Environmental Policy Act
Responsible Agency	Cooperating Agency
Proposed Project	Proposed Action
No Project Alternative	No Action Alternative
Environmentally Superior Alternative	Environmentally Preferred Alternative
Project Objectives	Purpose and Need
Environmental Setting	Affected Environment
Environmental Impacts	Environmental Consequences
Environmental Impact Report (EIR)	Environmental Impact Statement (EIS)
Notice of Preparation (NOP)	Notice of Intent (NOI)
Notice of Completion (NOC)	Notice of Availability (NOA)
Notice of Determination (NOD)/Findings	Record of Decision (ROD)

CEQA requires a description of the environmental setting:

> *"An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, from both a local and regional perspective*." (Title 14 CCR Section 15125).

The environmental setting is the basis of comparison from which the Proposed Project/Action and alternatives are compared. The environmental setting for this analysis includes the environmental conditions at the time YCWA filed the NOP on June 20, 2005. To account for monthly and annual variations in hydrologic conditions, the analyses of the environmental setting were made using the 72 years of available hydrologic data, with the assumption that the physical and regulatory conditions that existed on June 20, 2005 were in place during this entire 72-year period. The Environmental Setting/Affected Environment sections of each resource chapter in this EIR/EIS describe the existing conditions of the cultural, physical, and biological environments in the study area. These conditions vary for each of the resource topics evaluated in the EIR/EIS.

Reclamation's NEPA guidelines require the lead agency to evaluate a no action alternative that describes future conditions without the proposed action:

> *"No action" represents a projection of current conditions to the most reasonable future responses or conditions that could occur during the life of the project without any action alternatives being implemented. The no action alternative should not automatically be considered to be the same as the existing condition of the affected environment, since reasonably foreseeable future actions may be taken whether or not any of the project action alternatives are chosen. 'No action' is therefore often described as the 'future without the project*.'" (Reclamation 2000).

The NEPA action alternatives are compared to the "no action" alternative to determine the net effects or impacts of each of the action alternatives.

CEQA guidelines also recognize the need to consider potential impacts associated with potential future changes to the environmental setting through the no project alternative. Therefore, for some resource topics, potential impacts associated with the Proposed Project/Action and alternatives are evaluated under both the Existing Condition and future conditions without the project. In this manner, the requirements of both CEQA and NEPA are met.

4.5 OVERVIEW OF IMPACT ANALYSIS COMPARISONS

To analyze the potential impacts of the Proposed Project/Action and alternatives described in Chapter 3, scenarios with the Proposed Project/Action and alternatives are compared to various baseline scenarios. Many of the assumptions for these scenarios are described in Chapters 2 and 3. More details regarding the modeling assumptions for these scenarios are presented in Appendix D. As for the analyses of the environmental setting, the analyses of the Proposed Project/Action and alternatives were made using the 72 years of available hydrologic data, with the assumption that the physical and regulatory conditions that apply to the analyzed scenario were in place during this entire 72-year period.

CEQA and NEPA have different legal and regulatory standards that require slightly different assumptions in the modeling scenarios used to compare the Proposed Project/Action and alternatives to the appropriate CEQA and NEPA bases of comparison in the impact

assessments. It therefore was necessary to use separate CEQA and NEPA modeling scenarios to make the impact analyses that are required by CEQA and NEPA. For this reason, each scenario that was modeled and then compared for an impact analysis has either a "CEQA" or a "NEPA" prefix before the name of the scenario being evaluated. A detailed discussion of the different assumptions used for the CEQA and NEPA modeling scenarios is included in Appendix D, Modeling Technical Memorandum. Even though different scenarios were used for the CEQA and NEPA modeling, there is only one "Yuba Accord Alternative" and only one "Modified Flow Alternative." These alternatives are described in detail in Chapter 3.

The comparisons of modeled scenarios that are made in this EIR/EIS (including the cumulative impact analyses described in Section 4.9 and Chapter 21) are presented in **Table 4-3**.

Table 4-3. Summary of Comparisons of Scenarios Evaluated in this EIR/EIS

Statute	Baseline Scenario	Compared Alternative Scenario	Purpose of Comparison
CEQA	CEQA Existing Condition	CEQA Yuba Accord Alternative	To evaluate potential impacts of the Proposed Project and alternatives scenarios, relative to the Existing Condition
		CEQA Modified Flow Alternative	
		CEQA No Project Alternative	
	CEQA Existing Condition	Yuba Accord Alternative Cumulative Condition	To evaluate potential cumulative impacts, relative to the Existing Condition
NEPA	NEPA Affected Environment	NEPA No Action Alternative	To evaluate potential impacts of the No Action Alternative, relative to the Affected Environment
	NEPA No Action Alternative	NEPA Yuba Accord Alternative	To evaluate potential impacts of the Proposed Action and alternatives, relative to the No Action Alternative
		NEPA Modified Flow Alternative	
	NEPA Affected Environment	Yuba Accord Alternative Cumulative Condition	To evaluate potential cumulative impacts of the Proposed Action and alternatives to the overall cumulative impacts
		Modified Flow Alternative Cumulative Condition	
Water Rights	CEQA No Project Alternative	CEQA Yuba Accord Alternative	To evaluate potential impacts of the SWRCB action
		CEQA Modified Flow Alternative	

Because many of the modeling assumptions used for the CEQA and NEPA scenarios are similar or the same, the corresponding CEQA and NEPA scenarios (CEQA No Project and NEPA No Action, CEQA Yuba Accord Alternative and NEPA Yuba Accord Alternative, CEQA Modified Flow Alternative and NEPA Modified Flow Alternative) are quite similar. However, there are some relatively minor, but important differences between these similar scenarios, which are necessary to meet the specific legal requirements of CEQA and NEPA.

The principal difference between the CEQA scenarios and the NEPA scenarios is that the NEPA scenarios include several potential future water projects in the Sacramento Valley (e.g., Sacramento Valley Water Management Program, CVP/SWP Intertie, Freeport Regional Water Project) while the CEQA scenarios do not. Because comparisons of both the CEQA and the NEPA scenarios are made in this EIR/EIS, it evaluates the impacts of the Proposed Project/Action and alternatives that would occur both with and without these other proposed projects.

For CEQA impact assessments, the alternatives (i.e., Yuba Accord, Modified Flow and No Project) are compared to the CEQA Existing Condition, which includes the RD-1644 Interim instream flow requirements and current demands at Daguerre Point Dam. For NEPA impact assessments, the NEPA No Action Alternative, which includes the RD-1644 Long-term instream flow requirements and the projected future demands at Daguerre Point Dam, is compared to the NEPA Affected Environment (which is the same as the CEQA Existing Condition). The

NEPA action alternatives (i.e., Yuba Accord, Modified Flow) then are compared to the NEPA No Action Alternative.

The CEQA action alternatives (i.e., CEQA Yuba Accord and CEQA Modified Flow) also are compared to the CEQA No Project Alternative, which includes the RD-1644 Long-term instream flow requirements and projected future demands at Daguerre Point Dam. Although these latter comparisons are not required by CEQA or NEPA, they are made for water-rights purposes, to provide the SWRCB and interested parties with information regarding the effects of a potential SWRCB action to amend RD-1644 to implement one of these action alternatives.

The results of these comparisons are evaluated to describe the potential changes in hydrologic parameters (e.g., instream flows, reservoir elevations, end-of-month reservoir storage, water temperatures and fish salvage) that would be expected to occur in the Yuba Region, the CVP/SWP Upstream of the Delta Region, the Delta Region and the Export Service Area under the Proposed Project/Action or one of the alternatives, relative to the basis of comparison. The evaluations of environmental impacts are made by comparing the differences in model outputs that are calculated in each of these comparisons over the 72-year period of hydrologic record to the impact indicators and significance criteria that were developed for each resource area. These evaluations are presented in the individual resource chapters (Chapters 5-20).

4.6 ASSESSMENTS OF IMPACTS

In each resource chapter, the subsection describing the anticipated environmental impacts and consequences discusses the impacts associated with the following comparisons of scenarios, in the following order: (a) the CEQA Yuba Accord Alternative compared to the CEQA No Project Alternative; (b) the CEQA Modified Flow Alternative compared to the CEQA No Project Alternative; (c) the CEQA Yuba Accord Alternative compared to the CEQA Existing Condition; (d) the CEQA Modified Flow Alternative compared to the CEQA Existing Condition; (e) the CEQA No Project/NEPA No Action Alternative compared to the CEQA Existing Condition/NEPA Affected Environment; (f) the NEPA Yuba Accord Alternative compared to the NEPA No Action Alternative; and (g) the NEPA Modified Flow Alternative compared to the NEPA No Action Alternative.

The first two comparisons (CEQA Yuba Accord Alternative compared to the CEQA No Project Alternative and CEQA Modified Flow Alternative compared to the CEQA No Project Alternative) are made to determine whether the action alternative would satisfy the requirement of Water Code section 1736 that the proposed change associated with the action alternative "would not unreasonably affect fish, wildlife, or other instream beneficial uses." The impact assessments for these comparisons therefore state whether or not the proposed change would unreasonably affect the evaluated parameter.

The next three comparisons (CEQA Yuba Accord Alternative compared to the CEQA Existing Condition, CEQA Modified Flow Alternative compared to the CEQA Existing Condition, and CEQA No Project Alternative compared to the CEQA Existing Condition) are made to satisfy the requirements of CEQA. For these comparisons, the following types of impact assessments are made:

- ***Beneficial Impact***: A beneficial impact would result in an improvement to the environment regardless of the threshold of significance.
- ***Less Than Significant Impact***: A less than significant impact would cause no substantial change in the environment (no mitigation is required).

- ***Potentially Significant Impact***: A potentially significant impact may cause a substantial change in the environment; however, additional information is needed regarding the extent of the impact. A potentially significant impact is treated as a significant impact unless additional information indicates that the impact will not be significant.
- ***Significant Impact***: A significant impact would cause a substantial adverse change in the physical conditions of the environment. Significant impacts are identified by the evaluation of project effects using significant criteria specific to each resource. Mitigation measures and/or project alternatives are identified to reduce project effects to the environment.
- ***Significant Unavoidable Impact***: A significant unavoidable impact would result in a substantial change in the environment that cannot be avoided or mitigated to a less than significant level if the project is implemented.

Under NEPA, significance levels are used to determine whether an EIS is required. Once a decision to prepare an EIS is made, the magnitude of impacts is evaluated in the EIS, but no further assessments of the significance of the impacts are required. Nevertheless, to be consistent with the impact analyses that are made for the comparisons of CEQA action alternatives, this EIR/EIS makes the same types of impact assessments for the two comparisons of NEPA action alternatives (NEPA Yuba Accord Alternative compared to the NEPA No Action Alternative, and NEPA Modified Flow Alternative compared to the NEPA No Action Alternative).

A quantitative analysis was conducted to evaluate differences in the Yuba Region and the CVP/SWP system that would be expected to occur under the CEQA No Project Alternative, relative to the CEQA Existing Condition. This analysis was based on OCAP Study 3, which was used to characterize near-term conditions (2001 level of development). The analysis of the NEPA No Action Alternative compared to the NEPA Affected Environment consists of two components: (1) an analysis of near-term future without project conditions relative to the NEPA Affected Environment, which is quantified by the analysis of the CEQA No Project Alternative relative to the CEQA Existing Condition; and (2) a qualitative analysis of longer-term future without-project conditions (the NEPA No Action Alternative). The comparisons of the NEPA No Action Alternative to the NEPA Affected Environment in this EIR/EIS do not include any statements regarding levels of significance of impacts.

4.7 RESOURCE TOPICS DISMISSED FROM FURTHER EVALUATION

During preparation of this EIR/EIS, it became evident that some environmental resources are present in the project study area, but no impact on these resources was identified that could potentially occur as a result of the Proposed Project/Action and alternatives. These resources are noise, geology and soils, transportation and circulation, public health and worker safety, hazards and hazardous materials, and public services. Therefore, these topics were dismissed from further analysis, for the reasons discussed below.

4.7.1 NOISE

Actions associated with the Proposed Project/Action and alternatives would not involve construction. To the extent that the Proposed Project/Action and alternatives involve the substitution of new electric pumps for existing diesel pumps, there would not be any noise

impacts, because the electric pumps produce less noise than the diesel pumps. Electric irrigation pumps are a relatively low and highly dispersed source of noise. Additionally, the level of pumping under all alternatives is similar. While additional pumping by existing and new electric pumps may produce some additional noise, the increment of such additional noise would be insignificant. Noise impacts therefore are not further evaluated in this EIR/EIS.

4.7.2 GEOLOGY AND SOILS

The Proposed Project/Action and alternatives would not include new construction of water facilities, infrastructure, or any other type of construction or land disturbance. Water transfers associated with the Proposed Project/Action and alternatives would not exceed typical releases from the reservoirs. Therefore, geomorphological effects to riverbanks and levee systems due to actions associated with the Proposed Project/Action and alternatives were not calculated, and this EIR/EIS does not include additional analysis of geology and soils.

4.7.3 TRANSPORTATION AND CIRCULATION

The Proposed Project/Action and alternatives would 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 Proposed Project/Action and alternatives would have no impact on transportation and circulation and these topics were not evaluated.

4.7.4 PUBLIC HEALTH AND WORKER SAFETY

Actions associated with the Proposed Project/Action and alternatives would not involve construction or disturbances in water bodies that would contribute to conditions that might cause mudflows or other water-related hazards. Therefore, the Proposed Project/Action and alternatives would not have an impact on public health or worker safety and these topics were not evaluated.

4.7.5 HAZARDS AND HAZARDOUS MATERIALS

Actions associated with the Proposed Project/Action and alternatives would not involve construction or disturbances in water bodies that would result in fill or discharge of pollutants. The Proposed Project/Action and alternatives would not create hazards or hazardous conditions or include hazards materials. Therefore, this EIR/EIS does not include an analysis of hazards or hazardous materials.

4.7.6 PUBLIC SERVICES

No effects to public services (e.g., waste disposal, emergency services) are expected to result from activities associated with the Proposed Project/Action and alternatives. Under the Proposed Project/Action and alternatives, no road closures would be required. Therefore, no interruptions to emergency access are expected to occur. In addition, no public utilities or infrastructure would be affected and no additional demands on public services would be expected. Therefore, this EIR/EIS does not include an analysis of pubic services.

4.8 CUMULATIVE IMPACTS

CEQA defines cumulative impacts as "*two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts*" (CEQA Guidelines, Section 15355). Similarly, NEPA defines "cumulative effects" "*as effects that result from the incremental impact of proposed action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such other actions.*" (40 CFR Section 1508.7). A draft EIR must discuss cumulative impacts when they are significant and, when they are not deemed significant, the document should explain the basis for that conclusion. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative actions have been identified under the Proposed Project/Action and alternatives. These cumulative actions, which include other water acquisition programs and other actions creating similar impacts, are described in Chapter 21. Cumulative impacts of these actions combined with the effects of the Proposed Project/Action and alternatives are analyzed in the individual resource chapters included in this EIR/EIS.

4.9 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Title 40 of CFR Section 1502.16 and NEPA Section 102(C)(v) require federal agencies to consider to the fullest extent possible any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. The CEQA Guidelines (Section 15126.2(c)) contain similar requirements. Irreversible commitments are decisions affecting renewable resources such as soils, wetlands, and waterfowl habitat. Such decisions are considered irreversible if implementation would affect a resource that has deteriorated to the point that renewal can occur only over a long period of time or at great expense, or if the decisions would cause the resources to be destroyed or moved. Irretrievable commitments of natural resources mean loss of production or use of resources as a result of a decision. Irretrievable commitments represent opportunities foregone for the period of time that a resource cannot be used. To illustrate, cultural resources are nonrenewable; any destruction or loss of these resources is irreplaceable.

Uses of non-renewable resources used during project activities may be irreversible because uses of such resources could permanently remove resources from further use, such as the use of fuel that is required to power generators for the extraction of groundwater. CEQA requires evaluation of irretrievable resources to assure that the use is justified. NEPA requires an explanation of which environmental impacts are irreversible or would result in irretrievable commitment of resources.

The Modified Flow Alternative and the No Action Alternative would result in no irretrievable uses or irreversible commitments of resources. The Yuba Accord Alternative is the preferred alternative and therefore, the alternative that determines if the proposed project will include any irretrievable or irreversible uses of resources. The list below identifies the resources under the Yuba Accord Alternative for which there would not be any irreversible or irretrievable commitments.

- Surface Water Supply and Management
- Groundwater
- Flood Control
- Surface Water Quality
- Cultural Resources
- Air Quality
- Land Use
- Socioeconomics

- Fisheries and Aquatic Resources
- Terrestrial Resources
- Recreation
- Visual Resources
- Growth Inducement
- Environmental Justice
- Indian Trust Assets

The Yuba Accord Alternative would not involve construction or the use of any resources besides water, with one exception. This 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, which would result in unavoidable impacts associated with an increase in energy usage (increased annual power consumption for pumping). These unavoidable impacts would be potentially significant because they would require the generation of electrical energy from another source (to replace lost hydroelectric generation or to provide additional power for pumping). Replacement or additional generation would likely come from a thermal generation source, such as a combined cycle natural gas fired turbine, or a coal fired power plant (see Chapter 7). The operational strategies, protective measures and avoidance actions incorporated into the Yuba Accord Alternative would prevent any irreversible or irretrievable commitments of other nonrenewable resources. There would be no other commitment of nonrenewable resources, and the Yuba Accord Alternative would not commit future generations to permanent use of natural resources.

4.10 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

NEPA Section 102(C)(IV) and title 40 of CFR Section 1502.16 require EISs to discuss the relationship between local short-term uses of the human environment and the maintenance and enhancement of long-term productivity. Long-term productivity refers to the values of the existing environment.

Because there would be no construction activities associated with the Proposed Project/Action or any of the alternatives, none of the short-term uses of the environment that sometimes are associated with construction projects would occur. As discussed in Chapter 7, the Yuba Accord Alternative could have potentially significant impacts on power production and energy consumption because of the additional groundwater pumping that would occur in the YCWA Member Unit service areas. As discussed in Chapter 10, the Modified Flow Alternative could have potentially significant impacts on spring-run and fall-run Chinook salmon population levels.

Because both the Yuba Accord Alternative and the Modified Flow Alternative would be of limited duration and would not involve any construction or other permanent actions, neither of these alternatives would have any effects on the long-term productivity of the existing environment.