

CHAPTER 21

CUMULATIVE IMPACTS

21.1 INTRODUCTION

State CEQA guidelines and federal NEPA regulations require that the cumulative impacts of a proposed project be addressed in an EIR/EIS. This cumulative impact analysis discusses the cumulative impacts of the Proposed Project/Action and alternatives, and other closely related, reasonably foreseeable projects. This chapter describes the methodology used for evaluating cumulative impacts, and other projects and their relationships to the Proposed Yuba Accord, summarizes the cumulative impacts in each resource area, and recommends mitigation measures for identified significant cumulative impacts. The cumulative impact analysis uses both quantitative tools (e.g., hydrologic modeling) and qualitative analyses to determine the potential cumulative impacts of the Proposed Yuba Accord and other closely related projects.

21.2 APPROACH TO CUMULATIVE IMPACT ANALYSES

21.2.1 LEGAL REQUIREMENTS

CEQA and NEPA require that the cumulative impacts of a proposed project be addressed in an EIR/EIS when the cumulative impacts may be significant and, when the project's incremental effect is cumulatively considerable (Title 14 CCR 15130(a), 40 CFR 1508.25(a)(2)). Cumulative impacts are impacts on the environment that result from the combined incremental impacts of the project and other past, present and reasonably foreseeable future actions, regardless of which agency (federal or non-federal) or person may undertake such other actions (Guidelines 15355(b), 40 CFR 1508.7). Such impacts can result from individually minor but collectively significant actions taking place over time (40 CFR 1508.7).

Section 15130 of the CEQA Guidelines states that the discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the project alone. The level of detail should be guided by what is practical and reasonable (Title 14 CCR 15130). The NEPA regulations do not specify a required format for displaying cumulative impacts. An EIS is required, however, to include cumulative impacts within the scope of its analysis (40 CFR 1508.25(a)(2)).

21.2.2 CUMULATIVE IMPACT ASSESSMENT METHODOLOGY

According to the CEQA Guidelines (Title 14 CCR 15130(b)), an adequate discussion of significant cumulative impacts should contain the following elements:

- ❑ A list or summary of related past, present, and future projects or planned developments that would affect resources in the project area similar to those affected by the proposed project;
- ❑ Definition of the geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic scope used;
- ❑ A summary of the expected environmental effects that may be produced by those projects, with specific references to additional information stating where that information is available; and

- ❑ A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

To identify the related projects, the CEQA Guidelines (Title 14 CCR 15130(b)(1)(A)) recommend either the "list" or "projection" approach. This analysis uses the list approach, which entails listing past, present, and probable future projects that may produce related or cumulative impacts, including, if necessary, those projects outside the control of the agency. To determine which projects to include, factors including the nature of each environmental resource being examined, the location of the project, and its type have been considered.

Although NEPA does not provide specific guidance on how to conduct a cumulative impact assessment, Reclamation's NEPA Handbook states that an EIS should "*identify associated actions (past, present, or future) which, when viewed with the proposed or alternative actions, may have cumulative significant impacts. Future cumulative impacts should not be speculative but should be based on known long-range plans, regulations, or operating agreements*" (Reclamation 2000).

Potential cumulative impacts associated with the Proposed Project/Action and alternatives are analyzed both quantitatively and qualitatively in this EIR/EIS. CEQA and NEPA alternatives comparisons that are evaluated in this EIR/EIS for cumulative effects purposes are:

- ❑ Yuba Accord Alternative Cumulative Condition compared to the Existing Condition
- ❑ Modified Flow Alternative Cumulative Condition compared to the Existing Condition

The purpose of the alternatives comparisons identified above is to determine whether the incremental effects of the Proposed Project/Action and alternatives would be expected to be "cumulatively considerable" when viewed in connection with the effects of past projects, the other current projects, and probable future projects (PRC Section 21083, subdivision (b)(2)). "*The [proposed] project must make some contribution to the impact; otherwise it cannot be characterized as a cumulative impact of that project*" (*Sierra Club v. West Side Irrigation Dist.* (2005) 128 Cal.App.4th 690, 700). Thus, "[t]he mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable" (CEQA Guidelines, Section 15064, subd. (h)(4)). Also, even if the Proposed Project/Action and alternatives will not have an incremental effect that is "cumulatively considerable", the lead agencies still are required to briefly describe the basis for reaching this conclusion in the EIR (CEQA Guidelines, Section 15130(a)).

Applying these rules to the cumulative analysis conducted for this EIR/EIS, the resource-specific findings in each of the EIR/EIS chapters may conclude that the Proposed Project/Action or an alternative would not result in any significant cumulative impacts on a resource category, if the analysis concludes that the Proposed Project/Action or an alternative would not have any impacts on that resource category. These types of conclusions can be supported by the latter two comparisons listed above (also see Table 4-3 in Chapter 4). For resource categories where these comparisons show no impacts, it is appropriate for the discussion in the respective EIR/EIS chapter to state that conclusion and then explain that, for this reason, the Proposed Project/Action or an alternative would not have any cumulative impacts on the resource category.

As previously discussed in other chapters of this EIR/EIS, model output was used to demonstrate whether hydrologic changes associated with the Proposed Project/Action or an alternative would be expected to directly result in resource-specific impacts. Building on this approach, model output also was used as a tool in the cumulative impact assessment to help

demonstrate not only whether hydrologic changes associated with the Proposed Project/ Action or alternative would be expected to directly result in a significant impact, but also to determine whether it would be likely that such hydrologic changes would or would not be expected to result in an incremental contribution to potentially significant cumulative impacts.

To quantitatively evaluate changes in hydrologic conditions that may be caused by projects, they must be well-defined and reasonably foreseeable. Although the CALFED ROD identifies many projects, few of them are far enough along in the planning stage to be considered well-defined. Although many related programs would likely compete for water and conveyance and pumping capacity, it is not possible now to determine how each program would operate or even which projects will be completed. Therefore, only those projects that have been adequately defined (i.e., in recent project-level environmental documents or CALSIM II modeling) and that have the potential to contribute to cumulative impacts are included in the quantitative assessment. This quantitative analysis focuses largely on water-related issues because the anticipated future cumulative conditions have been established through the CALSIM II modeling process. To the extent possible, cumulative impacts related to resources such as surface water supply and management, hydropower, surface water quality, fisheries and aquatic resources, terrestrial resources, recreation, visual resources, and cultural resources are evaluated quantitatively utilizing model output to provide an indication of the potential incremental contributions of the Proposed Project/Action and alternatives to cumulative impacts. However, to fully address cumulative impacts, these analyses also may be supplemented with an accompanying qualitative analysis.

The qualitative analysis of cumulative effects takes into account the other projects that are being discussed by various entities but which are not yet sufficiently defined to be considered “reasonably foreseeable” for modeling purposes. Cumulative impacts related to resources such as groundwater, air quality, land use, socioeconomics, and environmental justice generally are evaluated qualitatively. The following sections describe each approach.

21.2.2.1 QUANTITATIVE CUMULATIVE IMPACT ASSESSMENT METHODOLOGY

The quantitative assessment of potential cumulative impacts associated with the Proposed Project/Action and alternatives takes into account reasonably foreseeable future increased water use by water rights holders, the CVP, the SWP, and system-wide operations under the EWA and CVPIA requirements. The quantitative assessment includes the projected water use by agencies holding contracts for water supplies from the CVP/SWP system. Use of these assumptions defines the extent to which cumulative impacts of the Proposed Project/Action and alternatives can reasonably be analyzed quantitatively. Part of the technical approach for conducting the cumulative impact assessment involved quantitatively comparing CALSIM II hydrologic model output for the 2020 level of development with the Proposed Project/Action and alternatives (CALSIM II 2020 benchmark study) to the Existing Condition (2005 level of development without the Proposed Yuba Accord or alternatives). This 2020 level of development is representative of long-term future land use patterns and related water demands projected under DWR’s Bulletin 160-98 (DWR 1998).

CALSIM II hydrologic model output was used to identify the potential increment of change that could be attributed to the Proposed Project/Action and alternatives (e.g., Yuba Accord Alternative), which was used in combination with anticipated effects of other projects and then compared against the Existing Condition. OCAP Study 5 was utilized to characterize these cumulative modeling scenarios. Assumptions under OCAP Study 5 are similar to those described for OCAP Study 3 (see Appendix D, Modeling Technical Memorandum). However,

OCAP Study 5 includes assumptions for additional projects, including: (1) the SDIP¹; (2) SWP/CVP Integration; (3) FRWP; and (4) the Delta-Mendota Canal/California Aqueduct Intertie (CVP/SWP Intertie), and was modified to account for Long-term RD-1644 flow requirements. Details regarding these OCAP studies are further described in Appendix D.

The analysis of resource-specific cumulative impacts is presented in each resource chapter of this EIR/EIS. For cumulative impacts assessment purposes, the tools, approach, impact indicators, and significance criteria used to determine the environmental impacts of hydrologic changes are the same as those used in the resource-specific impact analysis. The level of detail associated with the cumulative analysis may vary by resource, and is dependent upon whether the Proposed Project/Action or an alternative would result in any potential impacts to the resource. To assess the incremental contribution of the Proposed Project/Action and alternatives to cumulative impacts, the future with-project conditions are compared to the future without-project conditions². By subtracting the Proposed Project/Action conditions from the future without-project conditions, the incremental contribution of the project to overall cumulative impacts can be determined (see discussion above).

The approach for addressing potential cumulative impacts associated with other future actions that cannot be defined quantitatively at this time are discussed in the following sections.

21.2.2.2 QUALITATIVE CUMULATIVE IMPACT ASSESSMENT METHODOLOGY

The qualitative analysis of cumulative impacts considers projects that are in the planning stage or are being discussed by various entities (such as various CALFED actions), but that have not been sufficiently defined to be considered “reasonably foreseeable” and quantifiable. Projects that are not yet quantifiable using CALSIM simulations, but that could have an effect on various resources, are addressed qualitatively to provide as much information on potential cumulative impacts as possible. For some resources including surface water supply and management, surface water quality, and fisheries resources, this qualitative analysis complements the discussion that is based on a quantitative evaluation, and provides additional context for potential future impacts and benefits. All other resource topics that are not dependent on hydrology, water level, or water quality or that are not effectively evaluated using hydrologic modeling (i.e., groundwater, air quality, land use, socioeconomics, and environmental justice) are assessed in a qualitative manner.

Reasonably foreseeable projects to be included in the resources-specific qualitative analyses were identified through a collaborative, multi-step process that included input provided by the lead agencies and application of several decision-making criteria. The criteria used to identify individual projects for consideration in the cumulative analysis included the following: (1) whether the project is under active consideration; (2) whether the project would be operational or completed within the timeframe being considered for the Proposed Project/Action and alternatives; and (3) whether the project, in combination with the Proposed Project/Action and alternatives, has the potential to affect the same resources. Projects determined to meet all three of the above criteria are considered to be reasonably foreseeable and within the planning horizon for the Proposed Yuba Accord and, thus, were selected for inclusion in the qualitative cumulative analysis presented in each of the resource-specific chapters of this EIR/EIS (**Table 21-1**).

¹ The SDIP includes a maximum pumping rate of 8,500 cfs at the Banks Pumping Plant.

² OCAP Study 5 is used to characterize the No Action Alternative.

Table 21-1. Summary of Reasonably Foreseeable Programs and Projects Considered in the Resource-specific Cumulative Impacts Analyses

Line	Reasonably Foreseeable Programs and Projects	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	Notes
CALFED Storage Programs															
1	Shasta Lake Water Resources Investigation (Shasta Reservoir Enlargement)	√	---	√	√	√	√	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
2	Upstream of Delta Off-Stream Storage (Sites Reservoir)	√	---	---	√	√	√	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
3	Upper San Joaquin River Basin Storage Investigation	√	---	√	√	√	√	---	√	√	√	√	---	---	Addressed in the qualitative cumulative analysis
4	In-Delta Storage Program (Delta Wetlands Project)	√	---	---	---	√	---	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
5	Los Vaqueros Reservoir Expansion Project	√	---	---	---	√	---	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
CALFED Conveyance Program															
6	South Delta Improvements Program (SDIP)	√	---	√	---	√	√	√	---	---	---	---	---	---	Included in the modeling (quantitative analysis); discussion of water quality effects of permanent operable barriers on south Delta agricultural diverters addressed in the qualitative cumulative analysis
7	8,500 cfs at Banks (included in SDIP)	√	---	√	---	√	√	---	---	---	---	---	---	---	Included in the modeling (quantitative analysis)
8	10,300 cfs at Banks	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
9	Tracy Fish Test Facility	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
10	Lower San Joaquin Flood Improvement Project	---	---	---	√	---	---	√	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
11	Rock Slough and Old River Water Quality Improvement Projects	√	---	---	---	√	---	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
12	Delta Cross Channel Reoperation and Through-Delta Facility	√	---	√	√	√	√	√	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
13	North Delta Flood Control and Ecosystem Restoration Project	√	---	---	√	---	√	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
14	Delta-Mendota Canal/California Aqueduct Intertie (CVP/SWP Intertie)	√	---	---	---	√	√	---	---	√	√	---	---	---	Included in the modeling (quantitative analysis)
15	Clifton Court Forebay- Jones Pumping Plant Intertie	---	---	---	---	---	---	---	---	√	√	---	---	---	Not included
CALFED Drinking Water Quality Program															
16	Bay Area Water Quality and Supply Reliability Program	√	---	---	---	√	---	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
17	San Joaquin Valley/Southern California Water Exchange Program	√	---	---	---	√	√	√	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
18	North Bay Aqueduct Improvements	---	---	---	---	√	---	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
19	South Bay Aqueduct Improvement and Enlargement Project	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
20	San Luis Reservoir Low Point Improvement Project	---	---	---	---	√	---	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
Projects Related to CVP/SWP System Operations															
21	Trinity River Mainstream Fishery Restoration Program	---	---	---	---	---	---	---	---	---	√	---	---	---	Included in the modeling (quantitative analysis)
22	Sacramento Valley Water Management Program	√	√	√	√	---	---	√	√	√	√	---	---	---	Partially included in the modeling (quantitative analysis); partially addressed in the qualitative cumulative analysis
23	Long-Term CVP and SWP Operations Criteria and Plan (OCAP)	√	---	√	√	√	√	√	√	√	√	---	---	---	Included in the modeling (quantitative analysis); OCAP reconsultation addressed in the qualitative cumulative analysis
24	Central Valley Project Long-Term Contract Renewals	√	---	---	---	√	√	√	√	√	√	---	√	---	Included in the modeling (quantitative analysis); interim contract renewals included in the discussion of long-term contracts;
25	Sacramento River Water Reliability Study	√	---	---	---	√	√	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
26	Freeport Regional Water Project	√	---	---	√	√	√	√	√	---	---	---	---	---	Included in the modeling (quantitative analysis)
27	CVP/SWP Integration Proposition	√	√	√	√	√	√	√	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
28	Isolated Delta Facility (Peripheral Canal)	√	---	√	√	√	√	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
29	Delta-Mendota Canal Recirculation Feasibility Study	√	---	√	√	√	√	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
30	CVP M&I Water Shortage Policy	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
31	San Joaquin River Restoration Settlement Act (Friant Settlement Legislation)	√	√	√	√	√	√	---	√	√	√	√	---	---	Addressed in the qualitative cumulative analysis
32	Oroville Facilities FERC Relicensing	√	√	√	√	√	√	√	√	---	√	√	√	√	Addressed in the qualitative cumulative analysis
33	City of Stockton Delta Water Supply Project	√	√	---	√	√	√	√	√	√	---	√	---	---	Addressed in the qualitative cumulative analysis
34	Monterey Plus EIR	√	---	---	√	√	√	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis

Line	Reasonably Foreseeable Programs and Projects	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	Notes
35	Folsom Dam Raise Project	√	---	---	√	√	√	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
36	Folsom Dam Safety and Flood Damage Reduction Project	---	---	---	√	---	---	---	---	---	√	---	---	√	Addressed in the qualitative cumulative analysis
Water Transfer and Acquisition Programs															
37	Dry Year Water Purchase Program	√	---	√	√	√	√	---	√	√	√	---	---	---	Included in the modeling (quantitative analysis); addressed in the qualitative cumulative analysis
38	CALFED Environmental Water Account	√	√	√	√	√	√	---	√	√	√	---	---	---	Included in the modeling (quantitative analysis)
39	CALFED Environmental Water Program	---	---	---	---	---	---	---	---	---	√	---	---	---	Not included
40	CVPIA Water Acquisition Program	---	---	---	√	√	√	√	√	√	√	---	---	---	Included in the modeling (quantitative analysis)
41	Delta Improvements Package	√	---	√	√	√	√	---	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
Groundwater Banking Projects															
42	South-of-Delta Water Banking: Madera Irrigation District Water Banking Project	√	√	---	---	---	---	√	---	---	---	√	---	---	Addressed in the qualitative cumulative analysis
43	South of Delta Water Banking: Semitropic Water Storage District Groundwater Banking Project	√	√	---	---	---	---	√	---	---	---	√	---	---	Addressed in the qualitative cumulative analysis
Additional Projects															
44	The Governor's Drought Risk Reduction Investment Program	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
45	Contra Costa Water District Alternative Intake Project	√	---	---	---	√	---	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
46	Contra Costa Canal Encasement Project (CEQA)/ Contra Costa Canal Replacement Project (NEPA)	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
47	San Joaquin Valley Drainage Project	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
Ecosystem Restoration and Fisheries Improvement Projects															
48	Suisun Marsh Levee and Habitat Restoration Program	---	---	---	---	---	---	---	---	---	√	---	---	---	Not included
49	CALFED Ecosystem Restoration Program	---	---	---	---	√	√	√	√	√	√	---	---	---	Addressed in the qualitative cumulative analysis
50	CALFED Levees Program	---	---	---	---	---	---	---	---	---	√	---	---	---	Not included
Local Projects in the Yuba Region															
51	South Fish Screen	---	---	---	---	---	√	---	---	---	---	---	---	---	Addressed in the qualitative cumulative analysis
52	YCWA Groundwater Management Plan	---	√	---	---	---	---	---	---	---	---	√	---	---	Addressed in the qualitative cumulative analysis
53	Yuba River Development Project FERC Relicensing	√	√	√	√	√	√	√	√	√	---	---	---	---	Addressed in the qualitative cumulative analysis
54f	YCWA Flood Control Operations Obligations	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
55	YCWA Englebright Reservoir Intake Extension Project	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
Local Projects in the Delta Region															
56	State Route 4 Bypass Project	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
57	Mountain House	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
58	River Islands	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
59	East Altamont Energy Center	---	---	---	---	---	---	---	---	---	---	---	---	---	Not included
NOTE: Screening criteria were developed to support the determination of whether a project was considered to be reasonably foreseeable (see Section 21.2.2). Projects that did not meet the three conditions established in the screening criteria were not included in the cumulative impacts analyses conducted for this EIR/EIS.															

21.2.3 RELATED AND REASONABLY FORESEEABLE PROGRAMS AND PROJECTS

This section describes reasonably foreseeable, relevant programs, projects, and water management actions considered in the cumulative analysis and their interrelationships with one another. The analysis focuses on those projects that, when combined with the Proposed Project/Action and alternatives, could contribute to cumulative impacts. Scoping for the Proposed Yuba Accord EIR/EIS and other recent documents was used to identify projects considered in the cumulative impacts analysis.

21.2.3.1 CALFED PROGRAMS

The CALFED Bay-Delta Program involves collaboration between state and federal agencies and stakeholders from key interest sectors created to address and resolve resource management issues in the Bay-Delta system. The mission of CALFED is to develop and implement a comprehensive plan that addresses resource problems in the Bay-Delta Estuary related to fish and wildlife, water supply reliability, natural disasters, and water quality. The CALFED ROD was signed in late 2000. The ROD directs that a number of specific studies be implemented to address identified resource management issues. Several of these studies include feasibility studies of major water resources projects and programs that could interact cumulatively with the Proposed Yuba Accord and other cumulative actions assumed and included in the CALSIM II modeling. Studies included in the CALFED ROD regarding these potential projects include:

- ❑ Shasta Reservoir Enlargement, a study to explore the expansion of the reservoir to increase yield;
- ❑ Sites Reservoir, a study of a major water supply storage reservoir in northern California;
- ❑ In-Delta storage options study, which is examining the potential for water storage on islands in the Delta (this project is essentially identical to the Delta Wetlands Project that recently obtained water right permits for storage on Delta islands);
- ❑ San Luis Reservoir Low Point Improvement Project, which is exploring alternatives for addressing water quality problems in the reservoir during periods of low storage;
- ❑ South Delta Improvements Program, which involves developing a project and alternatives that would allow increased exports from the Delta while minimizing effects on water quality, fisheries, and water levels in the south Delta;
- ❑ The CVP/SWP Intertie, which would involve developing a new pipeline connection between DWR's California Aqueduct and the CVP's Delta-Mendota Canal to improve operational flexibility for both the CVP and the SWP;
- ❑ Los Vaqueros Reservoir Expansion Project, which is exploring the benefits and opportunities associated with expanding the Los Vaqueros Reservoir;
- ❑ Upper San Joaquin River Storage, which is studying the potential to increase storage capacity by raising Friant Dam or implementing a similar storage program;
- ❑ The EWA, which is intended to acquire water assets and use them to buffer water supplies, especially in dry years;
- ❑ Bay Area Water Quality and Supply Reliability Program, which is intended to develop and coordinate regional blending and exchange concepts that can improve water quality

and water supply reliability for several Bay Area water agencies (including EBMUD); and

- The ERP, which involves extensive habitat restoration throughout the Sacramento and San Joaquin Valleys.

Many of these programs are in the early planning and feasibility stages. They have not been adopted in any planning documents or official plans beyond highly programmatic environmental documents. No firm descriptions of these projects and programs are available, and many do not have schedules for environmental compliance or project implementation. It is highly unlikely that all of these projects will move forward into the implementation stage. In addition, those that are ultimately implemented likely will be staged over a period of several years. It is therefore not possible to include discussions of many of these projects and programs in this analysis. However, because of the inherently interrelated nature of major water resources programs in northern California, they are included in the qualitative analysis.

There are other actions and programs being evaluated and implemented by CALFED and CALFED agencies that could conceivably contribute to cumulative impacts. However, these are also relatively undefined at this time, and it is not possible to include these other programs in this cumulative analysis.

SHASTA RESERVOIR ENLARGEMENT

The CALFED ROD includes enlargement of Shasta Reservoir as an option to increase storage upstream of the Delta. One alternative to expand Shasta Reservoir is to raise the height of the dam by 6.5 feet, which would enlarge the reservoir by 290 TAF, and would inundate a small portion of McCloud River that is protected under the California Wild and Scenic Rivers Act, as well as portions of the Pit River and Upper Sacramento River. Other alternatives include modifications to the dam and reservoir reoperations. This project is currently in the planning stages, with an Initial Alternatives Information Report prepared in 2004.

The Shasta Enlargement Project could contribute to cumulative effects on water supplies and associated resources. The project could increase water supplies available for export in those years when Shasta Reservoir otherwise would have spilled. Additionally, this project could modify the timing and magnitude of upstream reservoir releases in wet years. An environmental document for this project has not been issued yet, but is anticipated to be released in 2008. This project is included in the qualitative cumulative analysis.

UPSTREAM OF DELTA OFF-STREAM STORAGE (SITES RESERVOIR)

The CALFED agencies are currently studying several off-stream storage locations including Sites Reservoir, which would be located 70 miles northwest of Sacramento, as possible options for additional storage. With a potential maximum capacity of 1.8 MAF, Sites Reservoir could increase the reliability of water supplies for a large portion of the Sacramento Valley and could improve fish migration by reducing water diversions on the Sacramento River. If this project were implemented, one of its operational benefits would be its ability to store water from high winter flows and release the stored water during the summer months, which could be used to manage salinity and water quality conditions in the Delta (California State Senate Republican Caucus Website 2007).

The Sites Reservoir Project could contribute to cumulative effects on water supplies and associated resources. The project could increase water supplies available for export in those

years when export supplies otherwise would be limited. This project also could modify the timing and magnitude of upstream reservoir releases in wet years. An NOP/NOI for this project was issued in November 2001 and public scoping for the environmental document occurred in January 2002. The environmental document and engineering feasibility study for this project are in progress, and are scheduled for completion near the end of 2008 (DWR Website 2007b). This project is included in the qualitative cumulative analysis.

UPPER SAN JOAQUIN RIVER BASIN STORAGE INVESTIGATION

As part of the Upper San Joaquin River Basin Storage Investigation, Reclamation, DWR and their partners are evaluating the potential for increasing surface water storage in the upper San Joaquin River watershed. Additional storage opportunities ranging from between 250 to 700 TAF could be provided by raising Friant Dam to expand Millerton Lake (DWR Website 2007c), or alternate storage options potentially could serve as an equivalent storage program to Friant Dam Enlargement. Depending on its operation, an expanded facility could provide additional reservoir storage capacity for improved flood control and an additional source of water available to help restore and improve aquatic habitats and water quality in the San Joaquin River (see Section 21.2.7) and the Delta (California State Senate Republican Caucus Website 2007).

The investigation is being undertaken through a two-phased plan of study. Phase 1 is designed to identify water resource opportunities and issues in the Upper San Joaquin River watershed, and includes an appraisal of opportunities to increase surface storage and conjunctive use of groundwater. Phase 2 is designed to provide more detailed analysis and would begin with public meetings to determine the scope of the study. Reclamation and DWR are in the process of preparing a Plan Formulation Report for the Upper San Joaquin River Basin Storage Investigation. Concurrent with this effort, surveys for the environmental document and permit applications also are being performed in the study area. The environmental document and engineering feasibility study for this project are in progress, and are scheduled for completion in 2009 (DWR Website 2007c). This project is included in the qualitative cumulative analysis.

IN-DELTA STORAGE PROGRAM (DELTA WETLANDS PROJECT)

The CALFED Agencies have researched various options for storing water in the Delta. In-Delta storage would increase the reliability, operational flexibility, and water availability for south-of-Delta water users. An in-Delta storage facility could capture peak flows through the Delta during the winter when the CVP and SWP systems do not have the capacity or ability to capture these flows. Water could then be released from the in-Delta reservoirs during periods of export demands, typically during the summer months. Storing additional water in the Delta would provide an opportunity to change the timing of Delta exports and the ability to capture flows during periods when there would be reduced impacts to fish. One option is to lease or purchase the Delta Wetlands Project, a private water development project that would store up to 217 TAF on two islands in the Delta and dedicate two other islands for habitat improvements (Reclamation and DWR 2005). As part of the Delta Wetlands Project, Webb Tract and Bacon Island would be converted to reservoirs, and Bouldin Island and Holland Tract would be used as wetland and wildlife habitat. The Delta Wetlands Project was previously analyzed in environmental documents, and permits were issued for the private project in 2001.

In 2006, DWR released a supplemental report to its 2004 In-Delta Storage Draft State Feasibility Report. The 2006 supplemental report (DWR 2006) identifies other events (e.g., pelagic

organism decline, increased focus on seismic instability and global climate change) occurring in the Delta that will affect water project operations. Although the decisions required to implement this type of in-Delta project are not expected to be made until after 2008 (DWR 2006), it is included in the qualitative cumulative analysis.

SAN LUIS RESERVOIR LOW POINT IMPROVEMENT PROJECT

Reclamation and SCVWD are pursuing an evaluation of the San Luis Reservoir Low Point Improvement Project, which would use one, or a combination of alternatives, including treatment options, bypasses, and other storage options to reduce the risk of “low point” water levels (Reclamation 2006). When water levels in San Luis Reservoir are low, high water temperatures combined with wind induced mixing result in algal blooms at the reservoir’s water surface (see Section 9.1.4.1). This condition degrades water quality, making it difficult or impractical to treat the water, and can prevent deliveries from San Luis Reservoir. To solve the low point problem, Reclamation and DWR have operated the reservoir to maintain water levels above the critical low elevation, or low point, requiring approximately 200 TAF of water to remain as “carry-over” in the reservoir.

Given likely growth in future water demands, and additional regulatory requirements, it is anticipated that storage in San Luis Reservoir will be more fully exercised and result in more frequent and lower late-summer storage levels in the reservoir (Reclamation 2006). Alternatives being considered to address water quality issues related to the low point problem and to increase the effective storage capacity in the reservoir include but are not limited to: (1) a bypass to the San Felipe Unit around San Luis Reservoir; (2) treatment options such as dissolved air flotation; (3) algae harvesting or application of algaecides; (4) lowering the San Felipe Division intake facilities; and (5) expansion of Pacheco Reservoir.

An NOI/NOP to prepare an EIS/EIR was released in 2002, and an Appraisal Report for the Low Point Improvement Project was issued in 2006. The Appraisal Report recommends that a federal feasibility study be initiated to further study potential measures for resolving these water-related issues and, thus, the project is currently in the planning stages. This project is included in the qualitative cumulative analysis.

DELTA CROSS CHANNEL REOPERATION AND THROUGH-DELTA FACILITY

As part of the CALFED ROD, changes in the operation of the Delta Cross Channel and the potential for a Through-Delta Facility (TDF) are being evaluated. Studies are being conducted to determine how changing the operations of the Delta Cross Canal could benefit fish and water quality. This evaluation will help determine whether a screened through-Delta facility is needed to improve fisheries and avoid water quality disruptions. In conjunction with the Delta Cross Canal operations studies, feasibility studies are being conducted to determine the effectiveness of a TDF. The TDF would include a screened diversion on the Sacramento River of up to 4,000 cfs and conveyance of that water into the Delta.

Both a Delta Cross Canal reoperation and a TDF would change the flow patterns and water quality in the Delta, affecting water quality, fisheries, ecosystems, and water supply reliability. Further consideration of related actions will take place only after completion of several assessments, which are currently in progress. This project is included in the qualitative cumulative analysis.

DELTA-MENDOTA CANAL/CALIFORNIA AQUEDUCT INTERTIE

Reclamation is evaluating the potential for the CVP/SWP Intertie, which 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 limitation 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. This project is included in the quantitative cumulative analysis.

LOS VAQUEROS RESERVOIR EXPANSION PROJECT

Reclamation, DWR and the CCWD are conducting a feasibility study examining alternatives to improve water quality and water supply reliability for Bay Area water users while enhancing the Delta environment, which will include expanding the existing Los Vaqueros Reservoir, as well as a variety of other alternatives. Current work has focused on planning level evaluations of expanding reservoir storage from 100 TAF up to 275 TAF to improve water quality and water supply reliability. An expanded reservoir would require a new or expanded Delta intake, with a capacity of up to about 1,000 cfs for the maximum reservoir size. Locations being considered for the new Delta intake include Old River and adjacent channels. The purposes of the Los Vaqueros Reservoir expansion include increased reliability, water quality, and environmental water supply. A connection to Bethany Reservoir is also currently under study.

The Los Vaqueros Reservoir Expansion Project is in the early planning stage. An Initial Alternatives Information Report was released in 2005 and more recently, a NOI/NOP to prepare an EIS/EIR was released in 2006. This project is included in the qualitative cumulative analysis.

LOWER SAN JOAQUIN RIVER FLOOD IMPROVEMENT PROJECT

The Lower San Joaquin River Flood Improvement Project is a component of the CALFED Conveyance Program, and would be designed to improve flood control capacity on the lower San Joaquin River and enhance ecosystem structure and function in the lower San Joaquin River and the south Delta (DWR and Reclamation 2000). Reclamation and DWR are in the process of completing a program management plan and feasibility cost-share agreement for this project. Activities planned for 2007/2008 to facilitate project development include conducting consensus meetings and the developing a project plan. Subsequent actions will involve work

on a San Joaquin River Flood Control Study with the South Delta Water Agency (SDWA), which are anticipated to begin during the 2008/2009 fiscal year (CALFED Bay-Delta Program Website 2007c). The environmental document and engineering feasibility study for this project are in progress, and are scheduled for completion in 2010 (CALFED Bay-Delta Program Website 2007b). This project is included in the qualitative cumulative analysis.

ALTERNATIVE INTAKE PROJECT

The Alternative Intake Project is a drinking water quality improvement project proposed for implementation by the CCWD and Reclamation. For extended periods each year, Delta water quality at CCWD's existing intakes does not meet CCWD adopted water quality objectives, thus requiring CCWD to use higher quality water stored in Los Vaqueros Reservoir to blend with the diverted Delta water. To ensure that state and federal regulatory requirements for drinking water and the water quality objectives can be met now and in the future, CCWD is proposing to relocate some of its existing diversions to Victoria Canal, a location in the Delta that has higher quality source water than that which is currently available at CCWD's Old River and Rock Slough intakes, to improve the quality of both its source and delivered water (CCWD and Reclamation 2006). Although the new intake would change the location, timing and quality of some of CCWD's diversions, CCWD is not seeking to increase its water rights, CVP contract amounts, or permitted Los Vaqueros Reservoir filling rates (CCWD and Reclamation 2006). A Draft EIR/EIS was released in May 2006; the Final EIR/EIS was released in October 2006. This project is included in the qualitative cumulative analysis.

CALFED ECOSYSTEM RESTORATION PROGRAM

The goals of the CALFED ERP are to:

- ❑ Facilitate the recovery of 19 at-risk native species and contribute to the recovery of 25 additional species;
- ❑ Rehabilitate natural processes related to hydrology, stream channels, sediment, floodplains and ecosystem water quality;
- ❑ Maintain and enhance fish populations critical to commercial, sport and recreational fisheries;
- ❑ Protect and restore functional habitats, including aquatic, upland and riparian, to allow species to thrive;
- ❑ Reduce the negative impacts of invasive species and prevent additional introductions that compete with and destroy native species; and
- ❑ Improve and maintain water and sediment quality to better support ecosystem health and allow species to flourish.

The ERP Plan, which is divided into the Sacramento, San Joaquin, and Delta and Eastside Tributary regions, includes the following kinds of actions:

- ❑ Develop and implement habitat management and restoration actions, including restoration of river corridors and floodplains, reconstruction of channel-floodplain interactions, and restoration of Delta aquatic habitats;
- ❑ Restore habitat that would specifically benefit one or more at-risk species;
- ❑ Implement fish passage programs and conduct passage studies;

- ❑ Continue major fish screen projects and conduct studies to improve knowledge of their effects;
- ❑ Restore geomorphic processes in stream and riparian corridors;
- ❑ Implement actions to improve understanding of at-risk species;
- ❑ Develop understanding and technologies to reduce the impacts of irrigation drainage on the San Joaquin River and reduce transport of contaminant (selenium) loads carried by the San Joaquin River to the Delta and the San Francisco Bay; and
- ❑ Implement actions to prevent, control, and reduce impacts from nonnative invasive species.

ERP actions will contribute to cumulative benefits on fish and wildlife species, habitats, and ecological processes and are considered in the qualitative analysis of cumulative effects.

SOUTH DELTA IMPROVEMENTS PROGRAM

The CALFED ROD (2000b) 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 project that is proposed by Reclamation and DWR, and includes 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. These proposed actions are intended to maximize diversion capability into Clifton Court Forebay, while providing an adequate water supply for the SDWA and reducing the effects of SWP exports on aquatic resources. The SDIP includes physical/structural improvements as well as operational changes that, together, represent a balanced approach to meeting California's water needs (Reclamation and DWR 2005).

The major components of the SDIP include:

- ❑ Increasing the maximum allowable diversion capacity at the SWP Clifton Court Forebay;
- ❑ Dredging a portion of Old River to improve conveyance capacity;
- ❑ Constructing permanent operable barriers to improve water supply reliability and water quality;
- ❑ Dredging local channels to reduce the frequency of barrier operations and to accommodate improvements to existing agriculture; and
- ❑ Constructing a permanent operable fish control structure at the head of Old River to improve conditions for salmon migrating up and down the San Joaquin River.

CALFED agencies determined that the objectives outlined in the PEIS/EIR could not be met without some of these South Delta improvements (DWR and Reclamation 2002).

Reclamation and DWR currently are pursuing the development of environmental compliance documentation for the SDIP, including a joint EIS/EIR and an ASIP. Following completion of the environmental document and regulatory compliance processes, Reclamation and DWR have identified a two-stage decision-making process for the SDIP project. 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 (ROD/NOD) 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). This project is included in the quantitative cumulative analysis.

Banks Pumping Plant Increase to 8,500 cfs

The operational component of the SDIP 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, authorized pumping is limited to 6,680 cfs. Operational changes proposed by DWR as part of the SDIP would: (1) increase the maximum diversion limit of 6,680 cfs to 8,500 cfs from March 15 to December 15; and (2) modify existing pumping criteria from December 15 to March 15 to allow greater use of SWP export capacity (CALFED 2000b) 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).

The proposed increase in export capacity to 8,500 cfs would allow more water to be moved through the Delta by all acquisition programs during the summer months. Because purchases in the CVP/SWP Upstream of the Delta Region are less expensive per acre-foot than purchases in the Export Service Area, water programs could purchase more water with a fixed amount of money in the CVP/SWP Upstream of the Delta Region.

Constructing Permanent Operable Barriers

The SDIP also proposes to dredge and install permanent and operable barriers to ensure adequate quantity and quality to agricultural diverters within the South Delta. The existing temporary barriers have a limited ability to respond to the continually changing hydraulic and environmental conditions in Delta Channels. It is anticipated that if permanent barriers were installed and continuously operated to address Delta concerns, water supply and quality would be improved. If the barriers were in place, water could be transferred, lessening the potential to affect the water quantity, quality, and channel water level needs of water users in the South Delta. Export capacity could not be increased to 8,500 cfs unless the channels in the South Delta are dredged and the permanent operable barriers are installed.

NORTH DELTA FLOOD CONTROL AND ECOSYSTEM RESTORATION PROJECT

The CALFED ROD identifies the North Delta Flood Control and Ecosystem Restoration Project, which is proposed by Reclamation and DWR, as an implementation action that would provide conveyance, flood control and ecosystem benefits through construction of floodway improvements in the North Delta (such as on the lower Mokelumne River and Georgiana Slough). Potential flood control components being considered include bridge replacement, setback levees, dredging, island bypass systems and island detention systems (Reclamation and DWR 2005). DWR and the Corps are conducting a feasibility study to examine potential flood control system improvements that would provide benefits to aquatic and terrestrial habitats and alleviate flood-related problems in the North Delta. In support of the environmental review process, an NOP/NOI was prepared and public scoping was held in 2003. Modeling studies are under preparation, and construction preliminarily scheduled to begin in 2008 (Reclamation and DWR 2005). This project is included in the qualitative cumulative analysis.

ROCK SLOUGH AND OLD RIVER WATER QUALITY IMPROVEMENT PROJECTS

CCWD has completed two important Delta water quality improvement projects that will improve water quality for CCWD's customers and help DWR manage water resources in the Delta. The projects, known as the CALFED Rock Slough and Old River Water Quality Improvement Projects, each improve water quality for CCWD's 500,000 customers by re-locating local sources of agricultural drainage that are near CCWD's water supply intakes. The projects were funded by DWR as part of a series of water quality improvement projects being undertaken in the CALFED Bay-Delta Program.

The project in Rock Slough has relocated an agricultural drainage discharge from Veale Tract that historically drained into Rock Slough, one of CCWD's major sources of water from the Delta. Drainage from Veale Tract is now discharged outside of Rock Slough, where strong currents quickly dilute the drainage without re-directing impacts. Agricultural drainage can contain elevated concentrations of salt and nutrients and is a concern when drains are located near drinking water intakes with little dilution. This project also helps federal and state agencies meet an important water quality standard and allows these agencies to provide better and more efficient operations in the Delta.

A similar project was also completed near the CCWD's Old River Pump Station, CCWD's other major source of supply. This project modified an agricultural drain discharge from Byron Tract by lengthening the outfall into Old River to eliminate possible impacts to the CCWD's source water quality. Previously, the outfall extended only to the immediate bank of the river, where channel velocities are slow and dilution of the discharge was minimal. Now, the discharge extends 150 feet into the middle of Old River, where much higher channel velocities quickly dilute the drainage ensuring no impacts to any other water users or to the Delta ecosystem. Part of the project was completed through a partnership with the Town of Discovery Bay, which also completed a new outfall system for the Town's wastewater discharge. A related but separate phase of this second project, now in the planning stage, will further improve Delta water quality for all Delta users by removing sediments and trace levels of substances such as heavy metals, herbicides, and pesticides from the Kellogg Creek watershed prior to discharge into Old River (CCWD Website 2007). These projects are included in the qualitative cumulative analysis.

BAY AREA WATER QUALITY AND SUPPLY RELIABILITY PROGRAM

The Bay Area Water Quality and Supply Reliability Program would encourage participating Bay Area partners, including Alameda County Water District, Alameda County Flood Control and Wastewater Conservation District, Bay Area Water Users Association, CCWD, EBMUD, the City of San Francisco and SCVWD to develop and coordinate regional exchange projects to improve water quality and supply reliability. This project would include the cooperation of these agencies in operating their water supplies for the benefit of the entire Bay Area, as well as the potential construction of interconnects between existing water supplies (Reclamation and DWR 2005). Phase 1 evaluated overall Bay Area water quality, developed a list of potential projects and provided a qualitative evaluation of the ability of existing infrastructure to provide sufficient high quality water to meet the drinking water objectives in the CALFED ROD (CALFED Bay-Delta Program Website 2007a). Several of these projects are in various stages of development and are proceeding, as described in the Bay Area Integrated Regional Management Plan, which was released in November 2006 (Bay Area IRWMP Website 2006). This program is included in the qualitative cumulative analysis.

SAN JOAQUIN VALLEY/SOUTHERN CALIFORNIA WATER EXCHANGE PROGRAM

The San Joaquin River Exchange Contractors Water Authority's 2005 to 2014 Transfer Program consists of the transfer of up to 130 TAF annually of substitute water (maximum of 80 TAF of developed water and a maximum of 50 TAF from land fallowing/crop idling) from the San Joaquin River Exchange Contractors Water Authority (Exchange Contractors) to other CVP contractors. The water would be transferred to Reclamation for delivery to the San Joaquin Valley wetland habitat areas and/or to Reclamation and/or DWR for use by the EWA Program as replacement water for CVP contractors. Reclamation would approve and/or execute short-term and/or long-term temporary water transfers or agreements. Reclamation and the Exchange Contractors issued a Draft EIS/EIR on June 16, 2004, and the Final EIS/EIR was published on December 16, 2004 (Reclamation Website 2004).

The San Joaquin Valley/Southern California Water Exchange Program would facilitate a partnership between MWD and the San Joaquin Valley water agencies to explore water management opportunities to help resolve water supply and water quality management problems. By better managing the water supply, the program would help improve the water quality in Southern California and the water conveyance infrastructure in Northern California. This project is included in the qualitative cumulative analysis.

NORTH BAY AQUEDUCT IMPROVEMENTS

Solano County Water Agency has evaluated the feasibility of relocating the North Bay Aqueduct intake by conducting an engineering, cost, and environmental analysis. In addition, a watershed management evaluation of Barker Slough has been completed. This evaluation incorporates water quality monitoring and developing and implementing pilot BMPs, including fencing the main drainage channel, the Noonan Drain, in the North Bay Aqueduct watershed to prevent livestock from entering the channel. This project is included in the qualitative cumulative analysis.

21.2.3.2 WATER TRANSFER AND ACQUISITION PROGRAMS

ENVIRONMENTAL WATER ACCOUNT

As previously discussed in Chapter 3, the EWA Program is a "cooperative management program whose purpose is to provide protection to the fish of the Bay-Delta Estuary through environmentally beneficial changes in the operations of the CVP and the SWP, at no uncompensated water cost to the CVP/SWP Projects' water users. The EWA is intended to provide sufficient water, combined with the Ecosystem Restoration Program and the regulatory baseline, to address CALFED's fishery protection, and restoration/recovery needs." (CALFED 2000a). As reported in the 2005 EWA Acquisition Strategy Report (Reclamation *et al.* 2005), EWA assets also have been used in limited ways to provide fish benefits upstream of the Delta during some years. The EWA Program's approach to fish protection requires the acquisition of alternative sources of CVP/SWP project water supply, called "assets," which are used to augment stream flows and Delta outflows, to modify exports to provide fishery benefits, and to repay the CVP/SWP contractors whose supplies have been interrupted by actions taken to benefit fish (70 FR 8605 (February 22, 2005)). The EWA Program was initially designed as a short-term program, and its continued use as a long-term management tool is being considered by the EWA Agencies.

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 developing supplemental environmental documentation for this extension of the program that is anticipated to be released by the end of the year. 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 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. Implementation of a long-term EWA Program or a program equivalent to the EWA is included in the quantitative cumulative analysis (see Appendix D).

CALFED ENVIRONMENTAL WATER PROGRAM

CALFED agencies created the Environmental Water Program (EWP) to carry out flow-related goals of the ERPP. The EWP was developed to be operational through the end of the 30-year CALFED Bay-Delta Program (CALFED Website 2002), and to acquire water from sources throughout the Bay-Delta watershed and provide flows to facilitate:

- ❑ Improvement in habitat conditions for fishery protection and recovery;
- ❑ Restoration of critical instream and channel-forming flows in Bay-Delta tributaries;
- ❑ Improvement in Delta outflow during critical periods; and
- ❑ Improvement of salmon spawning and juvenile survival in upstream tributaries as defined by the ERP and ERP Strategic Plan, by purchasing up to 100 TAF of water per year by the end of Stage 1.

The EWP was designed to make long-term surface water purchases, and to focus water acquisitions on Central Valley rivers and streams, with reservoirs upstream of the Delta as priority sources. Water was to remain within the Sacramento and San Joaquin rivers and could not be taken for non-environmental uses. The EWA and EWP programs planned to coordinate efforts to achieve mutual benefits with single acquisitions. Additional strategies for water transfers included groundwater banking and long term purchases.

Although funding for the EWP has been reduced in recent years, ongoing EWP efforts are focused on evaluating the feasibility of augmenting instream flows to promote the recovery of geomorphic process and ecological functions in Clear Creek. These processes are fundamental to re-create and maintain the diverse template of habitats required in the Clear Creek ecosystem to support and to recover aquatic and riparian species, particularly anadromous salmonids and native floodplain vegetation (CALFED Website 2004). However, the last program activity to date occurred in October 2004 (CALFED Website 2004). Because of the narrowed focus of ongoing EWP efforts, this program is not anticipated to involve other actions that may occur on a larger scale, or within the planning horizon for the Proposed Yuba Accord (pers. comm., R. Guinee, USFWS 2007). Thus, the EWP is not included in the cumulative analysis.

CVPIA WATER ACQUISITION PROGRAM

Section 3402 of the CVPIA identifies the purposes of the CVPIA as protection, restoration, and enhancement of fish, wildlife, and associated habitats in the Central Valley. The CVPIA provides for the acquisition of water for protecting, restoring, and enhancing fish and wildlife populations. To meet water acquisition needs under the CVPIA, the Interior has developed a joint Reclamation and USFWS Water Acquisition Program.

The CVPIA requires the provision of firm water supplies to specified National Wildlife Refuges, State Wildlife Areas, and private wetlands in the Grassland Resource Conservation District for the purpose of optimum habitat management on the refuge lands³. CVPIA Section 3406(d)(1) requires that the Secretary of the Interior immediately provide specific quantities of water to the refuges and indicates that long-term contractual agreements should be developed for water provided. These are referred to as “Level 2” supplies, for which Reclamation and Interior entered into long-term water supply agreements/contracts with USFWS and CDFG. The CVPIA requires full delivery of this water in all year types except critically dry water years, as determined by Reclamation for allocation of CVP water. In the case of a critically dry water year, the Secretary of the Interior may reduce Level 2 refuge water supplies by up to 25 percent (USFWS 1998).

Section 3406(d)(2) of the CVPIA refers to “Level 4” refuge water supplies, which are the supplies required for optimum habitat management of the existing refuge lands identified in the “1989 Report on Refuge Water Supply Investigations.” The CVP must acquire the increment of water between Level 2 and Level 4 supplies from willing sellers. Section 3406(d)(2) requires that, upon enactment of the CVPIA, Level 4 water be provided in 10 percent cumulative increments per year with provision of full Level 4 supplies after 10 years (i.e., 2002). Reclamation has been acquiring Level 4 water on a short-term basis from willing sellers since 1993. Meeting Level 4 requirements requires the annual acquisition of an additional 133,264 AF above Level 2 water supplies.

Refuge water acquisitions are primarily from CVP contractors, and delivery is typically taken at O’Neill Forebay for delivery to the refuges in the San Joaquin Valley. In recent years, acquired water to meet Level 4 needs has averaged between 70 TAF to 80 TAF. Coordination among the CVPIA Water Acquisition Program, the EWP, and EWA requires Reclamation, USFWS, and other CALFED agencies to determine how to address individual program goals while pursuing joint acquisitions. This project is included in the quantitative cumulative analysis.

LONG-TERM CVP AND SWP OCAP

The Long-term OCAP serves as the operational standard by which Reclamation operates the integrated CVP/SWP system. The OCAP describes how Reclamation and DWR operate the CVP and the SWP to divert, store, and convey water consistent with applicable law (Reclamation 2004). Reclamation and DWR completed an update to the OCAP in 2004 to reflect recent operational and environmental changes occurring throughout the CVP/SWP system. Additionally, Reclamation received BOs from the USFWS and NMFS in 2004 and 2005. The terms and conditions specified in the USFWS and NMFS BOs establish the instream habitat conditions and operational requirements that Reclamation and DWR must maintain as part of integrated CVP/SWP operations. For these reasons, the OCAP provides the basis for the hydrologic modeling assumptions and the comparative analytical simulations that were performed as part of the hydrologic assessment of effects on resources in this EIR/EIS. The 2004 OCAP included specific projects such as the CVP/SWP Intertie, the FRWP, and the Trinity River Mainstream Fishery Restoration Program, as described herein.

Due to numerous changed circumstances since the 2004/2005 OCAP consultation, Reclamation has requested re-initiation of Section 7 ESA consultation on OCAP with both NMFS and USFWS. In a letter to NMFS dated April 2006, and clarified in May 2006, Reclamation requested

³ CVPIA Sections 3406(d)(1) and 3406(d)(2).

initiation of early and formal consultation on the effects of long-term CVP and SWP operations on all federally listed species and critical habitat which may be affected by those operations, to include the newly designated critical habitat for Central Valley steelhead, Central Valley spring-run Chinook salmon, and Central Coast steelhead. Reclamation also requested initiation of conferencing on the effects of the OCAP on the federally threatened southern DPS of North American green sturgeon, which would convert into a formal and early consultation following the effective date of the final rule designating its status (i.e., July 2006). In addition, in a letter dated July 2006, Reclamation also requested re-initiation of formal consultation on the OCAP from the USFWS. The major reason for this re-initiation was changed circumstances regarding delta smelt populations, particularly related to new and constantly emerging information stemming from the POD study effort in the Delta. At this time, a date for the completion of these consultations is unknown.

The 2004 OCAP and the requirements of the 2004 and 2005 BOs are included in the quantitative cumulative analysis. As discussed in Sections 4.1.4 and 10.1.4.1, 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 the new OCAP that Reclamation will adopt after completion of the re-initiated OCAP ESA consultations. Because this new OCAP has not been prepared yet, it was not possible to include its provisions in the cumulative analysis.

CENTRAL VALLEY PROJECT LONG-TERM CONTRACT RENEWALS

There are approximately 250 long-term water service contracts that are dependent upon CVP operations to receive water for agricultural, or M&I uses. Most of these contracts extend for a term of 40 years, and were scheduled to expire in 2004 or subsequent dates prior to 2029. Water needs assessments were performed for each CVP water contractor eligible to participate in the CVP long-term contract renewal process (Reclamation 2003). The water needs assessments confirmed a contractor's past beneficial use and determined future CVP water supplies needed to meet the contractor's anticipated future demands. These assessments were based on a common methodology used to determine the amount of CVP water required to balance a contractor's water demands with available surface and groundwater supplies (Reclamation 2003). In 2005 and 2006, Reclamation issued decisions (ROD and FONSI) for renewing contracts of the Sacramento River Division, the Sacramento River Settlement Contracts, the Delta-Mendota Canal Division, the Friant Division and several individual contracts. Preparation of environmental documents for other divisions and contracts are ongoing, and are expected to be completed following Reclamation's ESA reconsultation on the 2004 OCAP BA.

Water supply findings for the completed contract renewals in the CVP divisions are summarized below. Although not yet completed, available information from the San Luis Unit Draft EIS also is summarized because this area could receive water under the Yuba Accord Alternative. This project is included in the quantitative cumulative analysis.

Sacramento River Division

- In the 2005 FONSI (Reclamation 2005b), Reclamation concluded that the Sacramento River Division Long-term Contract Renewal would not result in significant impacts to the quality of the human environment.
- Key findings presented in Reclamation's 2005 FONSI for the Sacramento River Division Long-term Contract Renewal (Reclamation 2005b):

- **Water Resources.** *“Renewal of long-term contracts will not change contract water quantities from the quantities in existing contracts and, therefore, will not cause any increased use. Therefore, there will be no effect on surface water supplies or quality. For the same reason, renewal of long-term contracts will not result in any growth-inducing impacts that will increase water demand during the time frame of this renewal.”*
- **Land Use.** *“The renewal of contracts will not provide for additional water supplies that could act as an incentive for conversion of native habitat for increased acreage of agricultural production, M&I development or other activities. The amount and types of crops will vary according to the annual water allocation and farming practices, and a small quantity of irrigation use may be changed to M&I purposes where the existing contract and governing laws and regulations allow. Therefore, there will be no significant effect on land uses.”*

Sacramento River Settlement Contractors

- In the 2005 ROD for the Sacramento River Settlement Contractors (SRSC) Long-term Contract Renewal (Reclamation 2005d), Reclamation concluded that *“...the negotiated contract renewals either have no impact or less-than-significant adverse impacts on biological, physical and cultural resources and will provide for stability of operation of the CVP to the benefit of the public and the natural environment.”*
- Key findings presented in Reclamation’s 2005 ROD:
 - Includes shortage provisions based on Shasta Reservoir inflow deficiencies and the Sacramento River 40-30-30 Index.
 - Through the negotiation process, Reclamation and the SRSC agreed to implement all practicable means to avoid or minimize environmental harm, enhance water conservation and ensure continuity of operations. Implementation of water conservation measures and measures to protect listed species will be the responsibility of the respective contractors.
- Other considerations
 - The EPA raised concerns over differences in the water demand projects used by Reclamation and those presented in DWR’s current update to Bulletin 160, and the lack of analysis for the period between 2025, when full use of contract supplies is anticipated, and 2044, the last full year of the renewed contracts. Reclamation’s response to this concern states that it is not necessary to speculate on impacts beyond the full use of the water under contract because once the total contract amount is reached, the effects of the contracts remain unchanged although the larger context of water use will be changing in the face of continued population growth and technological change, and in ways that will be addressed as specific changes are proposed (Reclamation 2005d).

Delta-Mendota Canal Unit

- In the 2005 FONSI (Reclamation 2005a), Reclamation concluded that the Delta-Mendota Canal Unit Long-term Contract Renewal would not result in significant impacts to the quality of the human environment.
- Key findings presented in Reclamation’s 2005 FONSI for the Delta-Mendota Canal Unit Long-term Contract Renewal (Reclamation 2005a):

- **Water Resources.** *“Renewal of the long-term water service contract will not change contract water quantities from the quantities in existing contracts and will therefore not cause any increased use. Therefore, there will be no effect on surface water supplies or quality. For the same reason, renewal of the water service contract would not result in any growth-inducing impacts that will increase water demand during the contract’s time frame.”*
- **Land Use.** *“The renewal of contracts will not provide for additional water supplies that could act as an incentive for the conversion of native habitat for increased acreage of agricultural production, M&I development, or other activities. The amount and types of crops will vary, as they have in the past, according to the annual water allocation and farming practices. ”*

Friant Division

- In the 2001 FONSI (Reclamation 2001), Reclamation concluded that the Friant Division Long-term Contract Renewal would not significantly affect the quality of the human environment.
- Key findings presented in Reclamation’s 2001 FONSI (Reclamation 2001) for the Friant Division Long-term Contract Renewal:
 - **Water Resources.** *“...CVP operations and use amounts would remain the same as the existing conditions...the Friant Division would continue conjunctive use of CVP surface water and groundwater. Thus there would be no effect on surface water resources... The proposed action would not change CVP operations or water service contract amounts. Contractors would continue conjunctive use of available surface water and ground water but with more emphasis on ground water during dry periods when CVP water is limited. The proposed action would have no effect on total water supply.”*
 - **Land Use.** *“...would not result in growth-inducing impacts because there would be no changes to CVP operations or contract amounts. Relatively small and insignificant decreases in irrigated acreage (less than two percent) are expected with changing climatic conditions and from wet to dry years. The proposed action would have no effect on land use.”*
- Other considerations
 - Following several years of litigation over Friant Dam operations and downstream releases, the involved parties reached a settlement agreement in September 2006 (FWUA Website 2006). As part of the settlement negotiations, the parties have agreed to work together on a series of projects to improve the river channel and instream flow conditions to restore and maintain healthy salmon populations in the San Joaquin River. At the same time, the settlement limits water supply impacts to Friant Division long-term water contractors by providing for new water management measures that are to be undertaken by Reclamation. The settlement agreement also provides that long-term Friant Division water service contracts be amended to conform the contracts to the terms of the settlement (United States District Court Eastern District of California 2006).

San Luis Division

- In the 2005 San Luis Unit Long-term Contract Renewal Draft EIS (Reclamation 2005c), Reclamation concluded that, when evaluated against the No Action Alternative, no potentially significant impacts have been identified that could result from the renewal of San Luis Unit long-term water service and repayment contracts analyzed in the EIS.

- Key findings presented in Reclamation's 2005 Draft EIS (2005c) for the San Luis Unit Long-term Contract Renewal state that:
 - **Water Resources.** *“Contract total, water to be made available, time for delivery, point of diversion, responsibility for water diversion, water measurement, and rates and methods of payment would not differ substantially from [the] No Action Alternative.”*
 - **Land Use.** *“No direct adverse impacts to land use. Renewed contract water deliveries continue to accommodate a portion of planned growth and support agricultural land uses as under No Action Alternative conditions. ”*

Reclamation's analyses of potential impacts to water resources and land use within the CVP service areas supplied with water from these long-term and interim contract allocations indicates that no additional adverse impacts would be expected to occur. The additional quantity of transfer water that the Yuba Accord Alternative would provide to supplement CVP contractor allocations south of the Delta primarily would increase supply reliability during drier conditions and would not result in deliveries that would be greater than existing CVP contract allocations that have been approved through the long-term and interim contract renewal processes. For this reason, potential changes in future Export Service Area conditions associated with water resources and land use would be similar to, and within the range of that which was determined to be less than significant in Reclamation's environmental documentation for the long-term contract renewals. To the extent feasible, approved CVP contractor demands and allocations were included as part of the future conditions characterized in the modeling conducted for this EIR/EIS. Therefore, system-wide operations associated with the CVP long-term contract renewal process are included in the quantitative cumulative analysis.

CVP/SWP INTEGRATION PROPOSITION

Reclamation, DWR, and SWP contractors have proposed increasing the integration of CVP and SWP operations by maximizing the existing and proposed SWP conveyance capacity (including the implementation of the SDIP) of both CVP and SWP supplies. Under the proposal, the state would have the primary responsibility for delivering water to federal wildlife refuges, which would allow for increased supply flexibility, particularly south of the Delta. The CVP would be increasingly responsible for maintaining Delta water quality, and CVP facilities would be used to store additional water in Northern California for SWP customers. The proposal is also structured to allow for supporting the continued implementation of the EWA Program or a program equivalent to the EWA. This project is included in the qualitative cumulative analysis.

DELTA-MENDOTA CANAL RECIRCULATION FEASIBILITY STUDY

Reclamation is conducting a feasibility study to evaluate the feasibility, benefits, and impacts of recirculating water from the Delta through the CVP pumping and conveyance facilities to the San Joaquin River. The purpose of the Delta-Mendota Canal Recirculation Study is to meet certain requirements of PL 108-361 and D-1641. The study has been proposed as a way “to provide flow, reduce salinity concentrations into the San Joaquin River, and reduce the reliance on the New Melones Reservoir for meeting water quality and fishery flow objectives through the use of excess capacity in export pumping and conveyance facilities.” [PL 108-361, Title 1, Section 103].

The concept of recirculation was developed to facilitate compliance with Delta water quality, salinity, and flow standards in the lower San Joaquin River. Recirculation uses water pumped at the Jones Pumping Plant to augment flow in the San Joaquin River. In principle, water to be recirculated is pumped from the Delta by the Jones Pumping Plant then conveyed in the Delta-Mendota Canal to one or the other (or both) of two existing wasteways (originally designed for emergency uses, such as a downstream canal failure) between the Delta-Mendota Canal and the San Joaquin River, where it is diverted from the canal back into the river. The diverted water then flows to the San Joaquin River either just upstream from the San Joaquin/Tuolumne River confluence (Westley Wasteway path) or near the San Joaquin/Merced River confluence (Newman Wasteway path). Once in the San Joaquin River, the water returns to the Delta, helping to meet the Vernalis flow and water quality standards during the recirculation period. The recirculation concept assumes that the water begins the recirculation process by leaving the Delta with lower salinity, turbidity and TOC levels, and combines with existing San Joaquin River flows of higher salinity, turbidity and TOC to improve the overall quality of the river water before it returns to the Delta. Recirculation will not be implemented when the quality of exported Delta water is worse than the quality of the San Joaquin River water at Vernalis (Reclamation Website 2006a). This project is included in the qualitative cumulative analysis.

DELTA IMPROVEMENTS PACKAGE

The Delta Improvements Package outlines actions related to water project operations in the Delta that would result in increased water supply reliability, improved water quality, environmental protection and ecosystem restoration, protection of the Delta Levee system, and analyses and evaluation to support improved real-time and long-term management (CALFED Website 2001).

The Delta Improvements Package also outlines conditions under which the SWP would be allowed to increase its permitted export pumping capacity from 6,680 cfs to 8,500 cfs. In addition to the commitments in the CALFED ROD to avoid adverse fishery impacts and to protect in-Delta water supply reliability, these conditions include:

- ❑ Construction of permanent operable barriers in the South Delta;
- ❑ Development of a salinity management plan for the San Joaquin River;
- ❑ Improvements to protect water quality near the Contra Costa Canal;
- ❑ Environmental protection for important native fish species, including implementation of the Ecosystem Restoration Program; and
- ❑ Development of a long-term EWA (or a program equivalent to the EWA).

This project is included in the qualitative cumulative analysis.

ISOLATED DELTA FACILITY

Four broad concepts have been studied to address urban water quality, water supply reliability, and environmental concerns in the Delta, including physical barriers, hydraulic barriers, through-Delta facilities, and isolated facilities. During the last 50 years, a variety of proposals modifying or combining all these concepts have been suggested to improve Delta conditions and to allow for beneficial use of Delta water supplies.

An isolated facility would convey water around the Delta for local supply and export through a hydraulically isolated channel. The previously proposed isolated facility consisted of

constructing an isolated canal from near Hood on the Sacramento River to Clifton Court Forebay (with a fish screen near Hood), siphons, and the capability to release water to Delta channels to improve water circulation in Delta channels. This could improve water quality for urban and agricultural water users, and would eliminate reverse flow in the Delta and improve water quality and flow in the Delta by releasing water to South Delta channels. Because the intake gate of this facility would be upstream of much of the Delta along the Sacramento River, it would significantly reduce bromide and agricultural drainage impacts on water delivered to urban water purveyors. Possible collateral measures to improve water quality at the intake gate would be to divert major Sacramento Valley agricultural drainage and Sacramento Regional Water Treatment Plant (WTP) effluent to the Yolo Bypass. This option would also reduce the effects of CVP and SWP export facilities on fish by eliminating predation in Clifton Court Forebay, improving fish migration by closing the Delta cross channel gates, and by eliminating reverse flow. This concept was formulated in a plan proposed by the Interagency Delta Committee in 1965 as the Peripheral Canal. A statute that would have authorized this and many other additions to the SWP was rejected by the voters in 1982. Implementation of this project would result in substantial changes to CVP/SWP system operations (DWR Website 1994). This project is included in the qualitative cumulative analysis.

SOUTH-OF-DELTA WATER BANKING: MADERA IRRIGATION DISTRICT WATER BANKING PROJECT

The Madera Irrigation District (Madera or district) is in the process of developing the Madera Water Supply and Groundwater Enhancement Project in an effort to help reduce drought impacts in the San Joaquin Valley. The district has purchased a 13,648-acre ranch, which would be used for the project. Under this proposed project, pumping facilities would convey district water to the ranch, where the water would be allowed to percolate and form a 'water bank' beneath the ranch. Banked water could be pumped and used locally when supply is low, providing a key regional water supply benefit. The project would help the district in its efforts to conserve and more efficiently use its local and CVP water supplies.

Reclamation published a Draft EA/FONSI for the Pilot Recharge and Recovery Project at Madera Ranch in February 2007. The proposed action consists of the pilot recharge and recovery of up to 11 TAF per year of Madera's Friant Division CVP water between February 2007 and April 2009. The recharged water would eventually be recovered by pumping groundwater using existing wells within district boundaries (Madera Ranch property overlies the recovery area). Approval of these actions would allow Madera to use its 2006-2009 Friant Division allocations to collect data on recharge rates and groundwater hydrology in the area, thereby supplementing evaluations made about the suitability of the area for future recharge and banking operations. This project is included in the qualitative cumulative analysis.

SOUTH-OF-DELTA WATER BANKING: SEMITROPIC WATER STORAGE DISTRICT GROUNDWATER BANKING PROJECT

Semitropic Water Storage District (SWSD) has obtained the necessary permits to initiate construction of a second phase of its groundwater banking program. The new facility, called the Stored Water Recovery Unit, is designed to increase the storage capacity of the groundwater banking project by 650 TAF to a maximum of 1.65 MAF, and will increase recovery capacity by 200 TAF per year, for a total guaranteed or pumpback capacity of 290 TAF per year (SWSD Website 2004). Including its entitlement exchange capability of up to 133 TAF per year, the

SWSD Water Storage Bank will be able to deliver up to 423 TAF per year of dry year yield to the California Aqueduct.

Through a separate action, Reclamation has analyzed and proposes to approve a water transfer, groundwater banking and exchange project that would provide up to 15 TAF of water per year to the SWSD on behalf of Westlands Water District (Westlands) (Reclamation Website 2006b). The exchange could occur in one of three ways: (1) Westlands would exchange the requested amount of banked water for an equal amount of SWSD's allocation of SWP Table A water; (2) Westlands would exchange the requested amount of banked water for an equal amount of CVP water; or (3) SWSD would pump groundwater stored on behalf of Westlands into the California Aqueduct (Reclamation Website 2006b). The return of the water (up to 15 TAF) stored and credited within SWSD bank would be returned to Westlands via exchange within the next 10 years, subject to applicable CVP contractual requirements.

Additional opportunities for new water banking partners to share in the benefits of the Stored Water Recovery Unit are available. Future partners could include existing banking partners, public agencies, and the EWA Program. This project is included in the qualitative cumulative analysis.

SACRAMENTO RIVER WATER RELIABILITY STUDY

The purpose of the SRWRS is to develop a water supply plan that is consistent with the Water Forum objectives of pursuing a Sacramento River diversion to meet the water supply needs of the Placer-Sacramento region and to promote ecosystem preservation along the lower American River. Reclamation is preparing the SRWRS with the cost-sharing partners: Placer County Water Agency (PCWA), City of Sacramento, City of Roseville, and Sacramento Suburban Water District (SSWD). The NOI and NOP for preparation of a joint EIS/EIR were issued in July and August 2003, respectively. Reclamation is the lead agency under NEPA, and PCWA is the lead agency under CEQA.

To meet the water supply needs of the cost-sharing partners, the SRWRS will identify a package of water supply infrastructure components, including new or expanded diversion(s) from the Sacramento, Feather, or American Rivers, and new or expanded water treatment and pumping facilities, storage tanks, and major transmission and distribution pipelines. The additional water supplies considered in the SRWRS for each cost-sharing partner include: (1) additional water supply of up to 35 TAF for PCWA's M&I demand with a treatment capacity of 65 million gallons per day (mgd), (2) additional water supply of up to 29 TAF in Water Forum average, drier, and driest years for SSWD's M&I demand and groundwater stabilization program with a treatment capacity of 15 mgd, (3) additional water supply of up to 7,100 AF for the City of Roseville's M&I demand with a treatment capacity of 10 mgd, and (4) additional water supply of up to 58 TAF (see note below) with a water treatment capacity of 165 mgd for the City of Sacramento's M&I demand (Reclamation Website 2007b). This project is included in the qualitative cumulative analysis.

MONTEREY PLUS EIR

The Monterey Plus EIR addresses the Monterey Amendment to the SWP long-term water supply agreements as part of a settlement agreement in *Planning and Conservation League v. Department of Water Resources* (83 Cal. App. 4th 892 (2000) (PCL v. DWR)).

In 1994, DWR and certain representatives of the SWP contractors agreed to a set of principles, known as the Monterey Agreement, to settle long-term water allocation disputes, and to

establish a new water management strategy for the SWP. The disputes focused on the phrasing of Article 18 of the SWP contracts, which addresses the allocation of shortages in water supply, and particularly under what circumstances the initial reductions to agricultural use should be imposed prior to reducing allocations to urban contractors. The Monterey Agreement Statement of Principles, executed on December 1, 1994, resolved the allocation controversy by proposing contract revisions to eliminate initial agricultural use cutbacks and specifying that all project water would be allocated in proportion to contract amounts.

In May 1995, a Draft EIR for the Monterey Agreement was prepared by the Central Coast Water Authority (CCWA) and the Final EIR was completed in October 1995. CCWA certified the Final EIR in November 1995 and issued findings and mitigation measures. Subsequently, DWR relied on the EIR as a responsible agency and drafted a contract amendment. Twenty seven of the 29 SWP contractors (all except Plumas County and Empire West Side Irrigation District) executed the Monterey Agreement amendments.

DWR has been operating the SWP consistent with the provisions of the Monterey Agreement since 1996. On December 27, 1995, the Planning and Conservation League (PCL) filed a lawsuit against DWR and CCWA challenging the adequacy of the 1995 Monterey Agreement EIR. The Citizens Planning Association of Santa Barbara and Plumas County Flood Control and Water Conservation District joined the lawsuit. Ultimately, on September 15, 2000, the Third District Court of Appeal ruled that DWR had the statutory duty to serve as lead agency in assessing environmental consequences of the Monterey Agreement. The Appellate Court further held that the 1995 Monterey Agreement EIR failed to adequately analyze the impacts of deleting Article 18(b) (the provision for reallocation of water among contractors in the event of a defined permanent water shortage) and directed that a new EIR be prepared.

The Monterey Plus EIR evaluates the potential environmental impacts of changes to SWP operations that are a consequence of the Monterey Amendment, as well as the additional actions set forth in an agreement to settle litigation regarding the 1995 Monterey Amendment EIR. The settlement agreement addresses preparation of an EIR evaluating the allocation of SWP water supplies, transfer of Table A⁴ amounts and land, water management provisions, financial restructuring, and other contract elements.

The NOP for the Monterey Plus EIR was issued on February 27, 2003. The Monterey Plus EIR will analyze resources that could be affected by the project, including but not limited to aesthetics, agricultural resources, air quality, biological resources, cultural resources, cumulative impacts, geology and soils, growth inducement, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, utilities and service systems (DWR Website 2007a). This project is included in the qualitative cumulative analysis.

21.2.3.3 DRY YEAR WATER PURCHASE PROGRAM

In mid-January 2001, several CVP and SWP contractors requested that Reclamation and DWR initiate planning for a dry year water acquisition program, based on the dry year hydrology to date. DWR announced the 2001 Dry Year Water Purchase Program (Dry Year Program) in March 2001. This program was the first dry year acquisition program by DWR since the 1991, 1992, and 1994 Drought Bank programs. The Dry Year Program was implemented again in

⁴ Table A lists the amounts of SWP water made available each year. Under certain conditions, the contractor may receive a lesser amount.

2002 through 2004, and may be activated in the future to help public agencies throughout California supplement their water supplies in dry years.

The program intends to reduce the possibility of any hardship associated with water shortages through the facilitation of water transfers, and it is open to CVP contractors, SWP contractors, and third party users. In 2001, DWR provided 138.8 TAF of water from willing sellers in Northern California to eight SWP contractors (DWR Website 2002). In 2002, DWR secured 22 TAF of water from willing sellers in Northern California and provided it to four water agencies throughout the state. In 2003 and 2004, DWR purchased very little water under the program.

Transfers negotiated between CVP and SWP contractors and other water users, such as the 2001 CVP Forbearance Agreement with Westlands and the 2003 crop idling acquisition by MWD from water agencies upstream of the Delta as part of its Colorado River Contingency Plan, are parts of the Dry Year Program. The mandatory reduction in California's use of Colorado River⁵ water could increase demand for water upstream of the Delta, and increase acquisitions under the Dry Year Program. This project is included in both the qualitative and quantitative cumulative analyses.

21.2.3.4 THE GOVERNOR'S DROUGHT RISK REDUCTION INVESTMENT PROGRAM

As part of the implementation of the CALFED Bay-Delta Program, the Governor convened a panel to develop plans for California to respond to future droughts. This plan was referred to as the Drought Risk Reduction Investment Program (DRRIP). Other environmental documents (e.g., existing EWA EIS/EIR) identified the DRIPP as a water acquisition project that was included in the cumulative condition. However, because of California's budget crisis, the program lost funding and was discontinued in 2003. Therefore, the DRIPP is not included in the cumulative analysis for this EIR/EIS.

21.2.3.5 DELTA WATER SUPPLY PROJECT

The Delta Water Supply Project (DWSP) would involve development of a new supplemental water supply for the City of Stockton by diverting water from the San Joaquin River, treating the Delta water at a new WTP, and distributing the treated water for M&U uses. The DWSP would consist of a surface water diversion/intake facility, a new raw water conveyance pipeline, a new water treatment facility, and treated water transmission pipelines to deliver water to the city's existing water distribution system. The project also would include a groundwater recharge component. Treated surface water would be injected into the groundwater aquifer for storage until it is needed, and then would be pumped or "recovered" from the groundwater aquifer for use (City of Stockton 2003).

The Final EIR was completed in 2005. Construction is anticipated to begin in 2008, and the first phase (including the WTP) of the project is scheduled for completion by 2010 (City of Stockton Website 2006). This project is included in the qualitative cumulative analysis.

⁵ Through the negotiation and settlement process leading up to the Colorado River Water Delivery Agreement, signed in 2003, the State of California has agreed to take specific, incremental steps that will reduce its diversions of Colorado River water in the next 14 years, allowing the state to live within its authorized annual share of 4.4 MAF (USDOI 2003).

21.2.3.6 SAN JOAQUIN RIVER RESTORATION SETTLEMENT ACT

The agreement to restore water flows for salmon in the San Joaquin River below Friant Dam (i.e., the "Settlement") was announced September 13, 2006 by the Natural Resources Defense Council, Friant Water Users Authority (FWUA) and the U.S. Departments of Interior and Commerce. It provides for river channel improvements and sufficient water to sustain a salmon fishery upstream of the confluence of the Merced River tributary, while maintaining water supply reliability to Reclamation's Friant Division water contractors.

The Settlement is based on two goals and objectives:

- (1) A restored river with continuous flows to the Delta and naturally reproducing populations of Chinook salmon. The focus is the 153-mile stretch of the river between Friant Dam and the Merced River.
- (2) A water management program to minimize water supply impacts to San Joaquin River water users. The San Joaquin River currently provides supplies to approximately 15,000 small farms.

Restoring continuous flows to the approximately 60 miles of dry river will be undertaken in a phased manner. Flows will be gradually increased over the next several years, with salmon being re-introduced by December 31, 2012. The Settlement continues in effect until 2026. After 2026, the U.S. District Court, in conjunction with the SWRCB, will consider any requests by the parties for changes in the restoration program.

The Settlement requires specific releases of water from Friant Dam to the confluence of the Merced River, designed to support the various life stages of spring-run and fall-run Chinook salmon. The release schedule assumes continuation of the current average Friant Dam release of 116,741 AF, with additional flow requirements depending on the water year type. These additional flow requirements vary from 247 TAF in most dry years, to 555 TAF in wet years. The projected impact on Friant Division long-term water contractor deliveries is a reduction of 170 TAF per year (about 15 percent of the 1,150,000 AF of current average deliveries). Through water management strategies, Friant has agreed to reduce or avoid these water supply impacts via strategies including using surplus water to enhance groundwater programs, and developing programs to return water to Friant water users through recapture, recirculation, transfers, and exchanges.

Exhibit B of the Settlement specifies the seasonal flow releases from Friant Dam for specified water year types. These flows may be augmented by buffer flows of up to 10 percent, and further augmented by acquisition of water from willing sellers. Interim flows for experimental purposes may be initiated in 2009. Full implementation of the flows will require prior improvement to channel capacities. Full restoration flows are to begin on January 1, 2014. Interim flows are expected to begin in fall 2009.

The full restoration releases are as follows:

- ❑ Wet years (defined as the wettest 20 percent of years) - 555,568 AF
- ❑ Normal wet years (next 30 percent of years) - 356,281 AF
- ❑ Normal dry years (next 30 percent of years) - 247,876 AF
- ❑ Dry years (next 15 percent of years) - 184,021 AF
- ❑ Critical years (remaining 5 percent of years) - 0 to 70,795 AF (depending on San Joaquin River runoff)

The Settlement agreement contains no definition of how restoration water released from Friant Dam would be recaptured and recirculated. Potentially any increase in flows on the San Joaquin River at Vernalis, derived from the above restoration releases, could be offset by a reduction in releases from New Melones Reservoir. Reclamation is required to operate New Melones Reservoir to meet water quality standards at Vernalis. There is no certainty that the Settlement would result in increased Delta inflow. Any increased flows into the Delta could potentially be recaptured by the CVP and SWP at Jones and Banks pumping plants. While this type of recapture and recirculation has been discussed, no details or analysis is presented in the public Settlement documents. Friant Dam restoration releases in the July to September period vary from 230 cfs in critical years to 350 cfs in wet years. The Settlement targets primarily the March-April period for restoration releases, and the March-June period for restoration releases in wet years. This project is included in the qualitative cumulative analysis.

21.2.3.7 OROVILLE FACILITIES FERC RELICENSING

DWR developed the Oroville Facilities as part of the SWP, and manages them for the primary purpose of water supply. However, the facilities also are managed for other purposes, including flood management, power generation, recreation, fish and wildlife enhancement, and salinity control in the Delta. Because the existing FERC license for the Oroville Facilities expired on January 31, 2007, DWR filed a license application with FERC in 2005 and is seeking a new license to continue to own, operate, and maintain the Oroville Facilities (FERC Project No. 2100) according to the requirements of the FPA and FERC regulations (DWR 2001). DWR's goal in the relicensing process is to obtain a new license that provides for the above purposes while also addressing stakeholder needs identified through the relicensing process.

In 2007, FERC issued a Final EIS (FERC 2007) that analyzed the environmental impacts associated with the issuance of a new license for the existing hydropower project and recommended conditions for inclusion in any license issued. In addition to the power and development purposes for which licenses are issued, FERC is required to give equal consideration to energy conservation and the protection and enhancement of fish and wildlife, aesthetics, cultural resources, and recreational opportunities. Overall, the measures proposed by DWR, along with additional recommended and revised measures provided by FERC staff, would protect and enhance existing water use, water quality, fish and wildlife, land use, aesthetics, recreational, and cultural resources. In addition, the project would continue to provide a large portion of the electricity needed to pump water through the SWP at a lower cost than potential replacement power sources. Based on FERC's analysis of the Oroville Facilities Project in the Draft EIS, the agency has concluded that issuing a new license for the project as proposed by DWR, along with staff's modification and additions to those proposals, would be best adapted to a comprehensive plan for the proper use, conservation, and development of the Feather River (FERC 2006).

21.2.3.8 FREEPORT REGIONAL WATER PROJECT

EBMUD has entered into a partnership with the SCWA to design and build a regional water supply project that will assure water for East Bay customers in dry years and needed water for the Sacramento region. EBMUD's Mokelumne River water supply is adequate to meet the water supply needs of the district's 1.3 million customers in normal and wet years, but in prolonged droughts, customers face severe rationing. Through the FRWP, EBMUD customers' drought year cutbacks will be reduced.

In 2002, EBMUD and the County of Sacramento (in association with the City of Sacramento and with support from Reclamation) formed the FRWA, which is responsible for the joint effort to draw water from the Sacramento River near the town of Freeport. The Draft EIR was published in 2003 and the Final EIR was published and certified in 2004. Reclamation issued the ROD in January 2005.

The following elements were approved under the 2004 EIR and subsequently refined through supplemental CEQA documents in 2006:

- ❑ A new 185 mgd water intake structure and pump station on the Sacramento River near Freeport;
- ❑ A new large diameter pipeline to transport water eastward to the new SCWA WTP and the existing Folsom South Canal to supply EBMUD customers;
- ❑ A new WTP in central Sacramento County, owned and operated by SCWA, which will provide treated surface water supplies to the Sacramento area; and
- ❑ A new pumping facility and large diameter pipeline will treat and transport water from the southern end of the Folsom South Canal to EBMUD's Mokelumne Aqueduct for use by EBMUD customers.

This program is included in the 2004 OCAP consultation and, thus, in the hydrologic modeling used to conduct the quantitative analyses.

21.2.3.9 TRINITY RIVER MAINSTREAM FISHERY RESTORATION PROGRAM

The purpose of this program is to alleviate impacts to fish due to deliveries of CVP water from the Trinity River. The Draft EIS for the Trinity River Mainstream Fishery Restoration Program was issued in October 1999, the Final EIS was issued in November 2000, and the ROD was signed in December 2000. Westlands filed suit against the Interior to enjoin it from implementing the ROD, which would increase the flow of water to the Trinity River, resulting in less water being imported from the Trinity River at Lewiston Dam to the Central Valley. Under the ROD, Interior would boost water flows on the lower Trinity to an average of 595 TAF annually, compared to the roughly 340 TAF previously retained in the river. Implementation of ROD was delayed due to litigation and completion of a Supplemental EIS (SEIS). A Draft SEIS was published in April 2004, however work on the SEIS was suspended pending resolution of court proceedings. In November 2004, the U.S. Court of Appeals denied the petitions for rehearing filed by Westlands and the Northern California Power Agency. The SEIS will not be completed and the ROD is now being implemented. This program is included in the 2004 OCAP consultation and, thus, in the hydrologic modeling used to conduct the quantitative analyses.

21.2.3.10 SACRAMENTO VALLEY WATER MANAGEMENT PROGRAM

The short-term phase of the SVWMP resolves water quality and water rights issues arising from the need to meet the flow-related water quality objectives of the 1995 Bay-Delta WQCP and the SWRCB's Phase 8 Water Rights Hearing process. In addition, the Short-Term Program would promote better water management in the Sacramento Valley and develop additional water supplies through a cooperative water management partnership. Program participants include Reclamation, DWR, Northern California Water Association, San Luis & Delta-Mendota Water Authority, some Sacramento Valley water users, and CVP and SWP contractors. Short-Term Program actions would be locally proposed projects and actions that include the development

of groundwater to substitute for surface water supplies, conjunctive use of groundwater and surface water, refurbishing existing groundwater extraction wells, installing groundwater monitoring stations, installing new groundwater extraction wells, reservoir reoperation, system improvements such as canal lining, tailwater recovery, and improved operations, and surface and groundwater planning studies. These short-term projects and actions would be implemented for a period of 10 years in areas of Shasta, Butte, Sutter, Glenn, Tehama, Colusa, Sacramento, Placer, and Yolo counties. The NOI/NOP was published on August 5, 2003. This program is included in the hydrologic modeling used to conduct the quantitative analyses.

21.2.3.11 FOLSOM DAM SAFETY AND FLOOD DAMAGE REDUCTION PROJECT

The Folsom Dam Safety and Flood Damage Reduction Project would improve public safety downstream of Folsom Dam by modifying the dam and its appurtenant structures. To mitigate potential safety concerns identified in previous and ongoing corrective action studies, potential modification alternatives address a combination of hydrologic, seismic, and static issues of the Folsom Dam complex, which includes the Main Folsom Dam, Mormon Island Auxiliary Dam, the two wing dams and eight dikes. Potential modification alternatives include, but are not limited to, construction of an auxiliary spillway, dam, and embankment raises, seismic retrofitting of structures, and dam and embankment static options. A major component of the project includes location and extractions of adequate borrow materials for embankment modifications. The Draft EIS/EIR was published in November 2006, and the Final EIS/EIR was released in March 2007 (Reclamation Website 2007a).

The Corps intends to adopt the Final EIS/EIR to satisfy the requirements of NEPA for flood damage reduction features of the proposed action to be accomplished under the Corps' Folsom Dam Modifications and Folsom Dam Raise Projects. This project is included in the qualitative cumulative analysis⁶.

21.2.3.12 FOLSOM DAM RAISE PROJECT

In February 2002, the Corps issued the Supplemental Plan Formulation Report/EIS/EIR for the American River Watershed, California, Long Term Study, which describes, analyzes, and reports impacts of flood damage reduction and ecosystem restoration along the American River, and includes the Corps' proposal to raise Folsom Dam seven feet to reduce the Sacramento area's flood risks. Study of the American River Watershed was initially authorized in the Flood Control Act of 1962 (PL 87-874) with direction from Congress given to the Corps to survey for flood control and allied purposes (Corps Website 2007).

The feasibility study was conducted in coordination with the Reclamation Board and SAFCA as the non-federal sponsors. This study supplements the 1996 Supplemental Information Report and the 1991 Feasibility Report for the American River Watershed Investigation. This document and its technical appendices support decision-making by the Corps and the non-federal sponsors, which include the Reclamation Board and SAFCA. In May 2006, the Corps issued the Public Draft SEIS/EIR and the Post Authorization Decision Document for the Folsom Dam Raise, Folsom Bridge portion of the American River Project (Corps Website 2007).

⁶ Although conditions in the lower American River are not specifically analyzed in the individual resource chapters of this EIR/EIS (see Chapter 4), the Folsom Dam Modifications Project and the Folsom Dam Raise Project are considered in the qualitative cumulative analysis for completeness, and because these projects have the potential to result in considerable changes to CVP/SWP system-wide operations in the future.

Construction of Folsom Bridge is expected to begin in the fall of 2007. This project is included in the qualitative cumulative analysis.

21.2.3.13 LOCAL PROJECTS

YCWA GROUNDWATER MANAGEMENT PLAN

Over the past decade, YCWA and its Member Units have taken an active and progressive role in managing the groundwater resources of the North Yuba and South Yuba groundwater subbasins. In addition to the surface water delivered by the YCWA, the Member Units have existing capacity to pump groundwater to meet parts of their demands. The five municipal purveyors (California Water Service, Linda County Water District, the City of Wheatland, Olivehurst Public Utility District (OPUD)⁷, and Beale AFB) located over these groundwater subbasins rely exclusively on groundwater to meet their needs. Other water purveyors in Yuba County use combinations of groundwater and surface water supplies to meet demands.

To better manage groundwater resources in Yuba County, YCWA prepared a Groundwater Management Plan consistent with the provisions of Water Code § 10750 *et seq.*⁸ as amended January 1, 2003. The YCWA Groundwater Management Plan was developed to build on and formalize the historically successful management of Yuba County's groundwater resources, and to develop a framework for implementation of future activities. In addition to several other districts in Yuba County that have adopted groundwater management plans, YCWA adopted the Groundwater Management Plan in February 2005.

As part of basin management, YCWA, DWR, and the Member Units have instituted a monitoring plan to record in detail the water levels and water quality of the groundwater subbasins. The monitoring plan will be included as part of the Proposed Project/Action and alternatives for this EIR/EIS.

The groundwater management approach for groundwater substitution transfers in Yuba County is embodied in three principles:

- ❑ Closely monitor conditions to watch for any potential significant impacts and to gain a better understanding of the groundwater resource;
- ❑ Immediately respond to any significant impacts that occur and mitigate those impacts with appropriate measures; and
- ❑ Utilize the transfer and associated activities to further the goal of effective management of the water resources of Yuba County through conjunctive use of groundwater and surface water.

YCWA's and DWR's coordinated implementation of the Groundwater Program for the Yuba Basin will protect Yuba County's groundwater resources. YCWA also works with DWR in monitoring the basin and has been instrumental in extending the monitoring network of wells in the basin. YCWA and the districts participating in water transfers also meet regularly to discuss the management of the groundwater subbasins. This project is included in the qualitative cumulative analysis.

⁷ The OPUD is currently scheduled to provide water to the Plumas Lake Specific Plan Area, at which time the area will be annexed into OPUD's service area.

⁸ The authority to manage groundwater resources in Yuba County is provided through the Yuba County Water Agency Act and Water Code Division 6, Part 2.75 (Water Code Sections 10750 *et seq.*).

SOUTH FISH SCREEN

As an outgrowth of the collaborative discussions regarding the Proposed Yuba Accord, YCWA recently executed a letter of agreement with CDFG to resolve issues associated with the water diversion and fish screen located on the south bank of the Yuba River immediately upstream from Daguerre Point Dam. The parties who developed the Proposed Yuba Accord's Fisheries Agreement recognize that addressing these issues is an important step in the ultimate improvement of habitat for the lower Yuba River's salmon and steelhead populations. Under this letter agreement, CDFG and YCWA, in coordination with environmental and fisheries interests and the local irrigation districts and mutual water companies that receive their water supplies through the South Canal, will collaborate on development and implementation of a plan to construct a new fish screen at the head of this canal so that South Canal diversions will comply with applicable federal and state fish screen criteria. Improved protections for the Yuba River fisheries and continued irrigation supplies to farmers in the southern portion of Yuba County are co-equal objectives of this collaborative effort. The overall plan will include a feasibility study phase, a design study phase, and a construction phase. The letter agreement between YCWA and CDFG specifies timelines for these elements. This project is included in the qualitative cumulative analysis.

FEDERAL ENERGY REGULATORY COMMISSION YUBA RIVER DEVELOPMENT PROJECT RELICENSING

YCWA's Yuba Project (FERC No. 2246) was completed in 1970. Major Yuba Project facilities include New Bullards Bar Dam and Reservoir on the North Yuba River, New Colgate Powerhouse on the North Yuba River, Our House Dam on the Middle Yuba River, Log Cabin Dam on Oregon Creek, and the Narrows II Powerhouse on the lower Yuba River. The Yuba Project's operations are coordinated with the Corps and PG&E operation of Englebright Dam and Reservoir and the operation of Narrows I Powerhouse on the lower Yuba River, just below Englebright Dam. The FERC license for the Yuba Project will expire in 2016.

Prior to the expiration of the Yuba Project license, YCWA must undergo a relicensing process that allows FERC, state and federal resource agencies (CDFG, SWRCB, USFWS, NMFS, etc.), conservation groups, and the general public to reconsider appropriate operations and land management for the project in consideration of current social and scientific knowledge. A provision of the FPA (FERC's operating law) known as the Equal Consideration Standard states:

In deciding whether to issue a license, the Commission must give equal consideration to developmental and environmental values, including: hydroelectric development; fish and wildlife resources, including their spawning grounds and habitat; visual resources; cultural resources; recreational opportunities and other aspects of environmental quality; irrigation; flood control; and water supply.

In the relicensing process, FERC will be obligated to prepare an EA or EIS, which will assess the environmental consequences of the proposed future operation of the Yuba Project and compare the potential impacts of proposed alternatives. Along with the EA or EIS, proposed license terms and conditions, and PM&Es will be considered. FERC likely will issue a Final EA or EIS and a decision on the license renewal, which is anticipated to include terms and conditions for operating the hydropower project. Because this renewal has a different timeframe than the Yuba Accord, it is not considered in the quantitative cumulative analysis. This project is included in the qualitative cumulative analysis.

YCWA FLOOD OPERATIONS OBLIGATIONS

Flood control is one of the purposes of the YCWA, as defined and authorized in the legislative authorization for the agency. During the past 10 years, YCWA has worked on behalf of various flood control efforts within Yuba County by soliciting grant, state and federal funding for various flood control projects, supporting and coordinating the activities of landowners and local agencies within Yuba County in support of flood control projects, and occasionally providing funding for various elements of flood control studies. In general, YCWA's activities in flood control involve funding, administration, management, and planning types of activities.

YCWA will continue to work on various elements of flood control in Yuba County, with the ultimate goal of achieving a satisfactory level of flood protection for Yuba County's citizens. However, the specific projects that will be undertaken or support activities in which YCWA will engage are not fully known at this time. Frequently, YCWA supports initiatives of other agencies (such as DWR or the Corps) or acts as a partner in those projects, providing local partner coordination for larger regional projects. As a result, YCWA does not necessarily select priorities for flood control.

At this time, although it is certain that YCWA will be involved in various flood control activities and projects in the future, the specific projects and YCWA's specific role and participation are not known. As a result, the cumulative impacts of yet-unspecified flood control projects will not be assessed further in this EIR/EIS.

YCWA ENGLEBRIGHT RESERVOIR INTAKE EXTENSION PROJECT

The Narrows II Powerhouse Intake Extension Project is a conceptual-level project that would lower the intake for the Narrows II Powerhouse to provide cooler water temperatures for releases through the Narrows II Powerhouse to the lower Yuba River. YCWA is charged with diligently pursuing the development of the Narrows II Powerhouse Intake Extension Project pursuant to RD-1644, including submittal of proposals for project funding and preparation of permitting and CEQA documentation.

At this time, the project has only a conceptual-level design, and no current source of funding for continued design work, permitting or construction. As a result, the cumulative impacts of this project will not be assessed further in this chapter.

21.3 SUMMARY OF CUMULATIVE IMPACTS

Resource specific cumulative impacts are analyzed and presented in each of the individual resource chapters included in this EIR/EIS. The discussion of cumulative water supply changes that could be expected under future with-project conditions, relative to future without-project conditions, provides quantified hydrological information that is used to evaluate cumulative impacts on specific resources. While significant conclusions are not discussed for cumulative water supply changes, they are discussed for resource-specific impacts that may be affected by water supply changes. **Table 21-2** summarizes the findings of the resource specific cumulative analyses, which are fully described in the EIR/EIS chapters.

Table 21-2. Summary of 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

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
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
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

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
Environmental Justice (Chapter 19)		
Potential for cumulative environmental justice impacts within the Yuba Region	NI	NI
Indian Trust Assets (Chapter 20)		
Potential for cumulative ITA impacts within the Yuba Region	NI	NI
Potential for cumulative ITA impacts within the CVP/SWP Upstream of the Delta Region	NI	NI
Potential for cumulative ITA impacts within the Delta Region	NI	NI
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		