

RECLAMATION

Managing Water in the West

Record of Decision

Coordinated Long-Term Operation of the Central Valley Project and State Water Project

Prepared by
**United States Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
Bay-Delta Office**



Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Record of Decision

Coordinated Long-Term Operation of the Central Valley Project and State Water Project

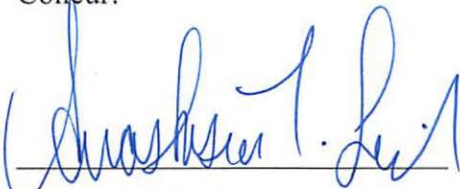
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1.0 Introduction

This document constitutes the Record of Decision (ROD) of the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) for the Coordinated Long-term Operation of the Central Valley Project and State Water Project (LTO). The Final LTO Environmental Impact Statement (EIS) was prepared by Reclamation in compliance with the National Environmental Policy Act (NEPA) regulations (40 Code of Federal Register [CFR] 1500-1508), Department of the Interior regulations (43 CFR 46), and issued November 23, 2015. This ROD has been prepared in accordance with NEPA and the Council on Environmental Quality's (CEQ) NEPA implementing regulations (40 CFR 1500-1508). The decision made herein is based on information presented in the Draft EIS (issued July 31, 2015) and the Final EIS, which are incorporated by reference.

The LTO EIS was prepared by Reclamation as ordered by the United States District Court for the Eastern District of California (District Court).

2.0 Background

The Central Valley Project (CVP) is composed of 20 reservoirs with a combined storage capacity of more than 11 million acre-feet; over 11 hydroelectric powerplants; and more than 500 miles of major canals and aqueducts. The first Federal action authorizing the CVP was by the Rivers and Harbors Act of August 30, 1935. The CVP was reauthorized for construction, operation, and maintenance by the Secretary of the Department of the Interior (Secretary), pursuant to the Reclamation Act of 1902, as amended and supplemented (the Federal Reclamation laws), and by the Rivers and Harbors Act of August 26, 1937. In 1992, the Central Valley Project Authorization Act of August 26, 1937 was amended by Section 3406(a) of the Central Valley Project Improvement Act (CVPIA), Public Law 102-575. (<http://www.usbr.gov/history/cvpintro.html>)

The State Water Project (SWP) is composed of 21 reservoirs and lakes and 11 other storage facilities, with a combined storage capacity of more than 4 million acre-feet; five hydroelectric powerplants and four pumping-generating plants; and more than 700 miles of major canals and aqueducts. The State Legislature appropriated funds to the California Department of Water Resources (DWR) to construct the SWP under the State Central Valley Project Act (Water Code section 11100 et seq.), Burns-Porter Act (California Water Resources Development Bond Act), State Contract Act (Public Contract Code section 10100

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et seq.), Davis-Dolwig Act (Water Code sections 11900 - 11925), and other acts of the State Legislature.

The CVP and SWP are operated in a coordinated manner in accordance with Public Law 99-546 (October 27, 1986), directing the Secretary to execute the Coordinated Operation Agreement (COA), and Section 3411(b) of the CVPIA, which requires the Secretary to fully comply with the COA. The COA is an agreement between the Federal government and the State of California for the coordinated operation of the CVP and SWP. The CVP and SWP are also operated under State Water Resources Control Board (SWRCB) decisions and water right orders related to the CVP's and SWP's water right permits and licenses to appropriate water by diverting to storage, by directly diverting to use, or by re-diverting releases from storage later in the year or in subsequent years. As conditions of the water right permits and licenses, the SWRCB requires the CVP and SWP to meet specific water quality objectives within the Delta. Reclamation and DWR coordinate operation of the CVP and SWP, pursuant to the COA, to meet these and other operating requirements.

Reclamation also operates the CVP in accordance with the Federal Endangered Species Act (ESA) consultations with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) for the coordinated long-term operation of the CVP and SWP with respect to the following species and their critical habitats:

- The Sacramento River winter-run Chinook Salmon (*Oncorhynchus tshawytscha*) evolutionarily significant unit (ESU) was originally listed as threatened in August 1989 (54 Federal Register (FR) 32085), under emergency provisions of the ESA, and formally listed as threatened in November 1990 (55 FR 46515). They were re-classified as an endangered species on January 4, 1994 (59 FR 440). Their critical habitat was designated on January 16, 1993 (58 FR 33212; and re-designated several times including the most recent amendment on March 23, 1999 (64 FR 14067).
- Central Valley spring-run Chinook Salmon (*O. tshawytscha*) ESU was listed as threatened on June 18, 2005 (70 FR 37160). Their critical habitat was designated on September 2, 2005 (70 FR 52590).
- The Central Valley Steelhead (*O. mykiss*) distinct population segment (DPS) was listed as threatened on January 5, 2006 (71 FR 834). Their critical habitat was designated on September 2, 2005 (70 FR 52590).
- The Southern Oregon/Northern California Coast Coho Salmon (*O. kisutch*) ESU was listed as threatened on June 18, 2005 (70 FR 37160). Their critical habitat was designated on May 5, 1999 (64 FR 24049); and updated on April 14, 2014 (79 FR 20802).

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- The Southern DPS of the North American Green Sturgeon (*Acipenser medirostris*) was listed as threatened on June 6, 2006 (71 FR 17757). Their critical habitat was designated on October 9, 2009 (73 FR 52084).
- The Southern Resident DPS of Killer Whales (*Orcinus orca*) was listed as endangered on November 18, 2005 (NMFS 2005). Their critical habitat was designated on November 29, 2006 (71 FR 69054).
- The Delta Smelt (*Hypomesus transpacificus*) was listed as threatened on March 5, 1993 (58 FR 12854). Their critical habitat was designated on December 19, 1994 (59 FR 65256). The species was recently proposed for re-listing as endangered under the ESA.

Fall and late-fall runs of Chinook Salmon are currently Federal Species of Concern, but have not been formally listed.

The Central California Coast Steelhead (*O. mykiss*) DPS was listed as threatened on January 5, 2006 (71 FR 834). The 2009 NMFS Biological Opinion (BO) determined that the long-term operation of the CVP and SWP would not likely adversely affect Central California Coast Steelhead DPS and its critical habitat. Therefore, no further analysis of this DPS was performed and addressed in the EIS.

2.1 Recent ESA Consultation Activities and Associated Court Rulings

In August 2008, Reclamation submitted a biological assessment (BA) to the USFWS and NMFS to initiate formal consultation. BO's were issued by the USFWS (December 15, 2008) and NMFS (June 4, 2009) with separate Reasonable and Prudent Alternative (RPA) actions to allow the CVP and SWP to continue operating without causing jeopardy to listed species or destroying or adversely modifying designated critical habitat. Reclamation provisionally accepted and began implementing the USFWS and NMFS BOs including the RPAs.

Several lawsuits were filed in the District Court challenging aspects of the 2008 USFWS BO and the 2009 NMFS BO and Reclamation's acceptance and implementation of the associated RPAs. Most of the lawsuits were consolidated into two cases depending on which BO was at issue: the *Consolidated Delta Smelt Cases* and the *Consolidated Salmonid Cases* are summarized below.

- *Consolidated Delta Smelt Cases*
 - On November 16, 2009, the District Court ruled that Reclamation violated NEPA by failing to conduct a NEPA review of the potential impacts to the quality of the human environment before provisionally accepting and implementing the 2008 USFWS BO, including the RPA.

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- On December 14, 2010, the District Court found certain portions of the 2008 USFWS BO to be arbitrary and capricious in several respects, and remanded those portions of the BO to the USFWS without vacatur for further consideration. The District Court ordered Reclamation to review its decision to provisionally accept and implement the BO and RPA in accordance with NEPA.
- The decision of the District Court related to the USFWS BO was appealed to the Appellate Court by the Federal defendants and the intervenor-defendants-appellants, the Natural Resources Defense Council and The Bay Institute. The intervenor-defendants-appellants also appealed the decisions related to the need to complete NEPA documents. On March 13, 2014, the Appellate Court reversed the District Court decision and upheld the BO. However, the Appellate Court affirmed the judgment of the District Court with respect to the NEPA claims.
- The District Court amended the judgment and issued the Final Order on October 1, 2014 consistent with the Appellate Court’s decision. Petitions for Writ of Certiorari were submitted to the U.S. Supreme Court; however, the U.S. Supreme Court decided to not hear the cases.
- *Consolidated Salmonid Cases*
 - On March 5, 2010, the District Court ruled that Reclamation violated NEPA by failing to undertake a NEPA analysis of potential impacts to the quality of the human environment before provisionally accepting and implementing the 2009 NMFS BO and RPA.
 - On September 20, 2011, the District Court found the 2009 NMFS BO was arbitrary and capricious in several respects, and remanded the 2009 NMFS BO without vacatur for further consideration.
 - The decisions of the District Court related to the 2009 NMFS BO were appealed to the Appellate Court. On December 22, 2014, the Appellate Court reversed the District Court decision and upheld the BO.
 - The District Court amended the judgment and issued the Final Order on May 5, 2015 consistent with the Appellate Court’s Decision.

In accordance with the District Court’s order in the *Consolidated Delta Smelt Cases*, the Final EIS and Record of Decision were to be completed on or before December 1, 2015. By order dated October 8, 2015, this date was extended to January 12, 2016. Reclamation completed the LTO EIS as ordered by the District Court. This document is the ROD for that EIS.

The LTO EIS was also completed to address the District Court order associated with the *Consolidated Salmonid Cases*. This ROD for the LTO EIS satisfies the

requirement to complete a NEPA review set forth in both the *Consolidated Delta Smelt Cases* and *Consolidated Salmonid Cases*.

3.0 The Decision

Reclamation's decision is to implement the No Action Alternative. The No Action Alternative contains all of the RPA actions in the 2008 USFWS BO and 2009 NMFS BO, as amended, including the RPA actions to evaluate fish passage to upstream habitats that exhibit lower water temperatures. The 2009 NMFS BO included RPA actions to implement fish passage to upstream habitat because often during periods with warm air and low flows, water temperatures below Shasta, Folsom, and New Melones dams become lethal to incubating eggs. The U.S. Environmental Protection Agency (USEPA) supports actions in the No Action Alternative because it results in full implementation of the 2008 USFWS BO and 2009 NMFS BO RPA actions with careful selection of methods and locations for habitat restoration to avoid increasing production and distribution of methylmercury (per the USEPA comment letter on the Draft EIS).

In making this decision, Reclamation reviewed the alternatives evaluated in the EIS, the results of the physical, environmental, economic, and human resources impact analyses, and comments submitted by federal, state, and local agencies, interested parties, and the public. The No Action Alternative was found to:

- Meet Reclamation's mission and responsibilities.
- Balance operational considerations of the CVP and SWP with an appropriate level of flexibility to address consistency with:
 - Applicable Federal laws and regulations.
 - Applicable Federally-issued permits and licenses.
 - Applicable State of California-issued water rights, permits, and licenses.
- Enable Reclamation and DWR to satisfy their contractual obligations to the fullest extent possible.
- Support Reclamation in the evaluation of fish passage and other actions to improve future conditions for anadromous fish in portions of the Sacramento River watershed where high water temperatures become lethal, especially as climate change progresses.

Of the alternatives considered, implementation of the No Action Alternative provides the most reasonable and practical approach to the continued coordinated long-term operation of the CVP and SWP.

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4.0 Alternatives Considered

The No Action Alternative and the range of alternatives for the EIS were developed to respond to the purpose and need for the action and to comments received during the scoping process and preparation of the Draft and Final EIS.

All of the alternatives, including the No Action Alternative, include the same assumptions related to (1) climate change and sea level rise in Year 2030, and (2) development throughout California in accordance with existing general plans, existing contracts, and implementation of reasonable and foreseeable water resources management projects.

4.1 No Action Alternative

The No Action Alternative is defined as the projections of current conditions and trends into the future without implementation of the alternatives. These projected conditions are defined in Question 3 of the CEQ Forty Most Asked Questions as “no change” from current management direction or level of management intensity.” The No Action Alternative also can be defined as the “no project” in cases where a new project is proposed for implementation. However, all of the alternatives evaluated in the EIS were developed to continue the coordinated long-term operation of the CVP and SWP. Therefore, the definition of the No Action Alternative for the EIS is the continuation of the current management direction and level of management intensity.

The No Action Alternative is based upon the continued operation of the CVP and SWP in the same manner as was occurring at the time of the publication of the Notice of Intent in March 2012. Thus, the No Action Alternative consists of the coordinated long-term operation of the CVP and SWP, including full implementation of the RPAs in the 2008 USFWS BO and 2009 NMFS BO, because Reclamation provisionally accepted the BOs in 2008 and 2009, respectively, began implementing the RPAs, and continues to implement the RPAs to date. The definition of the No Action Alternative is based upon the following assumptions.

- Continued long-term operation of the CVP and SWP in accordance with ongoing management policies, criteria, and regulations, including water right permits and licenses issued by the SWRCB, and operational requirements of the 2008 USFWS BO and the 2009 NMFS BO.
- Implementation of existing and future actions described in the 2008 USFWS BO and 2009 NMFS BO that have been completed or would have occurred by 2030 even without implementation of the BOs, including:
 - Restoration of more than 10,000 acres of intertidal and associated subtidal wetlands in Suisun Marsh and Cache Slough, as being implemented under

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- separate programs including Suisun Marsh Habitat Management, Preservation, and Restoration Plan, including programs addressed in 2008 USFWS BO RPA Component 4 (Habitat Restoration).
- Restoration of at least 17,000 to 20,000 acres of seasonal floodplain restoration in Yolo Bypass, as being considered under an ongoing program, including actions addressed in:
 - 2009 NMFS BO RPA Action I.6.1 (Restoration of Floodplain Habitat).
 - 2009 NMFS BO RPA Action I.6.2 (Near-Term Actions at Liberty Island/Lower Cache Slough).
 - 2009 NMFS BO RPA Action I.6.3 (Lower Putah Creek Enhancements).
 - 2009 NMFS BO RPA Action I.6.4 (Improvements to Lisbon Weir).
 - 2009 NMFS BO RPA Action I.7 (Reduce Migratory Delays and Loss of Salmon, Steelhead, and Sturgeon at Fremont Weir and Other Structures in the Yolo Bypass).
 - Gravel augmentation in Clear Creek and several other gravel augmentation programs in the Sacramento Valley and Stanislaus River watershed are being implemented in accordance with CVPIA, including programs addressed in 2009 NMFS BO RPA Action I.1.3 (Clear Creek Spawning Gravel Augmentation).
 - Replacement of the Spring Creek Temperature Control Curtain, as was constructed and placed into operation in 2011, and is addressed in 2009 NMFS BO RPA Action I.1.4 (Spring Creek Temperature Control Curtain Replacement).
 - Habitat restoration of Battle Creek, as being implemented under a separate program, and is addressed in 2009 NMFS BO RPA Action I.2.6 (Restore Battle Creek for Winter-Run, Spring-Run, and Central Valley Steelhead).
 - Implementation of Red Bluff Pumping Plant, as was constructed and placed into operation in 2012, and is addressed in 2009 NMFS BO RPA Action I.3.1 (Operate Red Bluff Diversion Dam with Gates Out).
 - Implementation of the CVPIA Anadromous Fish Screen Program, as was initiated in the 1990s, and is addressed in 2009 NMFS BO RPA Action I.5 (Funding for CVPIA Anadromous Fish Screen Program).
 - Implementation of the American River Flow Management Standard, as was initiated in 2006, and is addressed in 2009 NMFS BO RPA Action II.1 (Lower American River Flow Management).

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- Implementation of existing and future actions not described in the 2009 NMFS BO that have occurred or would occur by 2030 without implementation of the 2008 USFWS BO or 2009 NMFS BO, including:
 - Trinity River Restoration Program.
 - Clear Creek Mercury Abatement and Fisheries Restoration Project.
 - Iron Mountain Mine Superfund Site cleanup.
 - Mainstem Sacramento River and American River Gravel Augmentation Programs.
 - Nimbus Fish Hatchery Fish Passage Project.
 - Folsom Dam Water Control Manual Update.
 - FERC Relicensing for Middle Fork of the American River Project.
 - Lower Mokelumne River Spawning Habitat Improvement Project.
 - Dutch Slough Tidal Marsh Restoration.
 - Suisun Marsh Habitat Management, Preservation, and Restoration Plan Implementation.
 - Tidal Wetland Restoration in the Delta and Suisun Marsh.
 - San Joaquin River Restoration Program.
 - Stockton Deep Water Ship Channel Demonstration Dissolved Oxygen Project.
 - Grasslands Bypass Project.
 - Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).
 - Municipal Water Supply Projects identified in Urban Water Management Plans that have undergone environmental review and are reasonably foreseeable.
 - Water Transfers.

4.2 Inclusion of the Second Basis of Comparison

Numerous scoping comments requested that the No Action Alternative not include the RPAs in the 2008 USFWS BO and 2009 NMFS BO because, at that time, the District Court had remanded the BOs back to USFWS and NMFS. The comments indicated that the EIS should include a “basis of comparison” for the alternatives that was similar to conditions prior to implementation of the RPAs. Scoping comments also indicated that a “No Action Alternative scenario”

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without implementation of the RPAs in the 2008 USFWS BO and 2009 NMFS BO could be used to analyze the effects of implementing the RPAs.

Determining an appropriate baseline without the 2008 USFWS BO and 2009 NMFS BO actions and yet continuing to meet all of Reclamation's statutory and regulatory requirements is a difficult task. Simply analyzing a No Action Alternative that is similar to the project description described in either the 2004 Biological Assessment (BA) or 2008 BA is insufficient, as each was found to jeopardize listed species. In 2007, the District Court found that the 2004 BA did not avoid jeopardy, while the USFWS and NMFS subsequently found that the 2008 BA did not avoid jeopardy. Either of these operations would be inconsistent with Reclamation's existing policy and management direction which includes the decision to provisionally accept and implement the RPAs found in the 2008 USFWS BO and 2009 NMFS BO.

Because the RPAs were provisionally accepted and implementation had begun, and the No Action Alternative represents a continuation of existing policy and management direction, the No Action Alternative includes the RPAs. However, in response to scoping comments and subsequent comments from stakeholders and interest groups, and to provide a basis for comparison of the effects of implementation of the RPAs (per the District Court's mandate), the EIS includes a "Second Basis of Comparison" that represents a projected Year 2030 condition without implementation of the 2008 USFWS BO and 2009 NMFS BO. All of the alternatives were compared to the No Action Alternative and to the Second Basis of Comparison to describe the effects that could occur with a 2030 condition under both bases of comparison.

Several of the 2008 USFWS BO RPA and 2009 NMFS BO RPA actions had been initiated prior to issuance of the 2009 NMFS BO and those actions are included in the Second Basis of Comparison. Reasonably foreseeable actions included in the No Action Alternative that are not related to the 2008 USFWS BO or 2009 NMFS BO are also included in the Second Basis of Comparison.

The definition of the Second Basis of Comparison is based upon the following assumptions.

- Continued long-term operation of the CVP and SWP in accordance with ongoing management policies, criteria, and regulations, including water right permits and licenses issued by the SWRCB without implementation of the 2008 USFWS BO and the 2009 NMFS BO.
- Implementation of existing and future actions that would occur by 2030 without implementation of the 2008 USFWS BO and 2009 NMFS BO, including actions that have already been completed or have substantial progress:

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- Restoration of more than 10,000 acres of intertidal and associated subtidal wetlands in Suisun Marsh and Cache Slough, as being implemented under separate programs including Suisun Marsh Habitat Management, Preservation, and Restoration Plan, as are referenced in 2008 USFWS BO RPA Component 4 (Habitat Restoration).
- Restoration of at least 17,000 to 20,000 acres of seasonal floodplain restoration in Yolo Bypass, as being implemented under an ongoing program, and are referenced in:
 - 2009 NMFS BO RPA Action I.6.1 (Restoration of Floodplain Habitat).
 - 2009 NMFS BO RPA Action I.6.2 (Near-Term Actions at Liberty Island/Lower Cache Slough).
 - 2009 NMFS BO RPA Action I.6.3 (Lower Putah Creek Enhancements).
 - 2009 NMFS BO RPA Action I.6.4 (Improvements to Lisbon Weir).
 - 2009 NMFS BO RPA Action I.7 (Reduce Migratory Delays and Loss of Salmon, Steelhead, and Sturgeon at Fremont Weir and Other Structures in the Yolo Bypass).
- Gravel augmentation in Clear Creek and several other gravel augmentation programs in the Sacramento Valley and Stanislaus River watershed being implemented under separate programs, including programs in accordance with CVPIA, as are referenced in 2009 NMFS BO RPA Action I.1.3 (Clear Creek Spawning Gravel Augmentation).
- Replacement of the Spring Creek Temperature Control Curtain, as was constructed and placed into operation in 2011, and referenced in 2009 NMFS BO RPA Action I.1.4 (Spring Creek Temperature Control Curtain Replacement).
- Habitat restoration of Battle Creek, as being implemented under a separate program, and referenced in 2009 NMFS BO RPA Action I.2.6 (Restore Battle Creek for Winter-Run, Spring-Run, and Central Valley Steelhead).
- Implementation of Red Bluff Pumping Plant, as was constructed and placed into operation in 2012, and referenced in 2009 NMFS BO RPA Action I.3.1 (Operate Red Bluff Diversion Dam with Gates Out).
- Implementation of the CVPIA Anadromous Fish Screen Program, as was initiated in the 1990s, and referenced in 2009 NMFS BO RPA Action I.5 (Funding for CVPIA Anadromous Fish Screen Program).

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- Implementation of the American River Flow Management Standard, as was initiated in 2006, and referenced in 2009 NMFS BO RPA Action II.1 (Lower American River Flow Management).
- Trinity River Restoration Program.
- Clear Creek Mercury Abatement and Fisheries Restoration Project.
- Iron Mountain Mine Superfund Site cleanup.
- Mainstem Sacramento River and American River Gravel Augmentation Programs.
- Nimbus Fish Hatchery Fish Passage Project.
- FERC Relicensing for Middle Fork of the American River Project.
- Lower Mokelumne River Spawning Habitat Improvement Project.
- Dutch Slough Tidal Marsh Restoration.
- Tidal Wetland Restoration in the Delta and Suisun Marsh.
- San Joaquin River Restoration Program.
- Stockton Deep Water Ship Channel Demonstration Dissolved Oxygen Project.
- Grasslands Bypass Project.
- Municipal Water Supply Projects identified in Urban Water Management Plans that have undergone environmental review and are reasonably foreseeable.
- Water Transfers.

4.3 Alternative 1

Alternative 1 was created because many comments requested an alternative that reflected conditions without implementation of the 2008 USFWS BO and the 2009 NMFS BO RPAs. Since the Second Basis of Comparison (as described above in Section 4.2) could not be considered as an alternate “No Action Alternative” under NEPA guidelines because it did not represent existing policy and management conditions which include implementation of actions under the 2008 USFWS BO and the 2009 NMFS BO, the Second Basis of Comparison is not a true alternative, in accordance with NEPA guidelines. The Second Basis of Comparison was included for informational purposes only, therefore, Reclamation could not select the Second Basis of Comparison as a preferred alternative. Alternative 1 was defined as being identical to the Second Basis of Comparison to provide an alternative that could be selected as a preferred alternative without future actions identified in the 2008 USFWS BO and the 2009 NMFS BO.

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4.4 Alternative 2

Alternative 2 was first included in the Notice of Intent and identified as an initial proposed action that included the operational actions of the 2008 USFWS BO and 2009 NMFS BO. Alternative 2 does not include RPA actions that would require future studies and environmental documentation to define recommended actions (generally, structural actions). Therefore, Alternative 2 includes the assumptions in the No Action Alternative except:

- 2009 NMFS BO RPA Action I.2.5, Winter-Run Passage and Re-Introduction Program at Shasta Dam.
- 2009 NMFS BO RPA Action II.3, Structural Improvements for Temperature Management on the American River.
- 2009 NMFS BO RPA Action II.5, Fish Passage at Nimbus and Folsom Dams.
- 2009 NMFS BO RPA Action II.6, Implement Actions to Reduce Genetic Effects of Nimbus and Trinity River Fish Hatchery Operations.
- 2009 NMFS BO RPA Action III.2.1, Increase and Improve Quality of Spawning Habitat with Addition of Gravel.
- 2009 NMFS BO RPA Action III.2.2, Conduct Floodplain Restoration and Inundation Flows in Winter or Spring to Inundate Steelhead Juvenile Rearing Habitat on Stanislaus River.
- 2009 NMFS BO RPA Action III.2.3, Restore Freshwater Migratory Habitat for Juvenile Steelhead on Stanislaus River.
- 2009 NMFS BO RPA Action III.2.4, Fish Passage at New Melones, Tulloch, and Goodwin Dams.
- 2009 NMFS BO RPA Action IV.4, Tracy Fish Collection Facility Improvements to Reduce Pre-Screen Loss and Improve Screening Efficiency.
- 2009 NMFS BO RPA Action IV.4.2 Skinner Fish Collection Facility Improvements to Reduce Pre-Screen Loss and Improve Screening Efficiency.
- 2009 NMFS BO RPA Action IV.4.3 Tracy Fish Collection Facility and the Skinner Fish Collection Facility Actions to Improve Salvage Monitoring, Reporting and Release Survival Rates.
- 2009 NMFS BO RPA Action V Fish Passage.

4.5 Alternative 3

Alternative 3 was developed based upon a scoping comment from the Coalition for a Sustainable Delta, including actions related to their “RPA Alternative 1,” and a scoping comment received from Oakdale Irrigation District (OID) and

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South San Joaquin Irrigation District (SSJID). The definition of Alternative 3 is based upon the following assumptions.

- Continued long-term operation of the CVP and SWP in accordance with ongoing management policies, criteria, and regulations, including water right permits and licenses issued by the SWRCB, without the operational requirements of the 2008 USFWS BO and the 2009 NMFS BO RPAs.
- Implementation of the 2012 operations plan for New Melones Reservoir proposed by OID and SSJID.
- Additional demands for American River water supplies for up to 17,000 acre-feet/year under a Warren Act contract for El Dorado Irrigation District and 15,000 acre-feet/year under a water service contract for El Dorado County Water Agency.
- Implementation of actions described in the scoping comments letter from the Coalition for a Sustainable Delta related to their “RPA Alternative 1.”
 - The Old and Middle River (OMR) flow criteria under Alternative 3 are based on concepts addressed in the 2008 USFWS BO and 2009 NMFS BO related to adaptive restrictions for temperature, turbidity, salinity, and presence of Delta Smelt.
 - Flood control operations for the New Melones Reservoir would be the same as under the No Action Alternative. However, New Melones Reservoir would be operated for different fishery flows, water quality flows, and San Joaquin River base flows and pulse flows at Vernalis.
 - Implement predator control programs for Black Bass, Striped Bass, and Pikeminnow to protect salmonids and Delta Smelt, including establishment of new catch limits.
 - Restore or create at least 10,000 acres of tidally influenced seasonal or perennial wetlands (these conditions are the same as under the No Action Alternative and Second Basis of Comparison).
 - Establish a trap and haul program for juvenile salmonids entering the Delta from the San Joaquin River upstream of the Head of Old River in March through June with a release site near Chipps Island.
 - Modify ocean harvest limits for consistency with Viable Salmonid Population Standards, including harvest management plan to show that abundance, productivity, and diversity (age-composition) are not appreciably reduced.
- Implementation of existing and future actions that would occur by 2030 without implementation of the 2008 USFWS BO and 2009 NMFS BO,

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including actions that have already been constructed or have substantial progress, as described above for the Second Basis of Comparison.

4.6 Alternative 4

Alternative 4 was developed based upon a scoping comment from the Coalition for a Sustainable Delta, including actions related to their “RPA Alternative 2.” The definition of Alternative 4 is based upon the following assumptions.

- Continued long-term operation of the CVP and SWP in accordance with ongoing management policies, criteria, and regulations, including water right permits and licenses issued by the SWRCB, without the operational requirements of the 2008 USFWS BO and the 2009 NMFS BO, as described under Second Basis of Comparison.
- Implementation of actions described in the scoping comments letter from the Coalition for a Sustainable Delta related to their “RPA Alternative 2.”
 - Limit floodplain development to protect salmonids and Delta Smelt by incorporating guidance into flood hazard mapping to comply with ESA, prioritizing consideration of ESA listed species and critical habitats in flood insurance studies, refine community rating system to provide credits for natural and beneficial functions, prohibit new development and substantial improvements to existing development within any designated floodway or within 170 feet of the ordinary high water line of any floodway.
 - Modify the requirements of the U.S. Army Corps of Engineers related to removal of vegetation on levees to allow for the planting of trees and shrubs along the levees, and installation of vegetation, woody material, and root re-enforcement material on the levees instead of riprap for erosion protection.
 - Implement predator control programs for Black Bass, Striped Bass, and Pikeminnow to protect salmonids and Delta Smelt, including establishment of new catch limits.
 - Restore or create at least 10,000 acres of tidally influenced seasonal or perennial wetlands (these conditions are the same as under the No Action Alternative and Second Basis of Comparison).
 - Establish a trap and haul program for juvenile salmonids entering the Delta from the San Joaquin River upstream of the Head of Old River in March through June with a release site near Chipps Island.
 - Modify ocean harvest limits to reduce by-catch of winter-run and spring-run Chinook Salmon to less than 10 percent of age-3 cohort in all years.

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- Implementation of existing and future actions that would occur by 2030 without implementation of the 2008 USFWS BO and 2009 NMFS BO, including actions that have already been constructed or have substantial progress, as described above for the Second Basis of Comparison.

4.7 Alternative 5

Alternative 5 was developed considering comments from environmental interest groups during the scoping process. Alternative 5 is similar to the No Action Alternative with reduced potential for reverse flows in April and May and with associated increased Delta outflow, and use of the SWRCB Decision 1641 (D-1641) pulse flow at Vernalis. The definition of Alternative 5 is based upon the following assumptions.

- Continued long-term operation of the CVP and SWP in accordance with ongoing management policies, criteria, and regulations, including water right permits and licenses issued by the SWRCB, including the requirements of the 2008 USFWS BO and the 2009 NMFS BO.
- The OMR flow criteria similar to the RPA criteria in the 2008 USFWS BO and 2009 NMFS BO plus a requirement for positive OMR (no reverse flows) in April and May of all water year types.
- New Melones Reservoir operations are similar to assumptions under the No Action Alternative except additional requirements were added to meet the SWRCB D-1641 April and May pulse flows at Vernalis on the San Joaquin River.
- Additional demands for American River water supplies for up to 17,000 acre-feet/year under a Warren Act Contract for El Dorado Irrigation District and 15,000 acre-feet/year under a water service contract for El Dorado County Water Agency.
- Implementation of existing and future actions that would occur by 2030 without implementation of the 2008 USFWS BO and 2009 NMFS BO, including actions that have already been constructed or have substantial progress, as described above for the No Action Alternative.

5.0 Summary of Environmental Impacts

5.1 Basis of the Impact Analyses

The EIS considered a study period for the evaluation of alternatives at 2030 conditions because the 2009 NMFS BO is effective until December 31, 2030, and the planning period considered for the 2008 USFWS BO was 2030. Many changes to the environment could occur between existing conditions and 2030

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without specific changes to CVP and SWP operations, including local land use decisions, implementation of new water management facilities, and climate change. Other reasonably foreseeable changes to CVP and SWP operations due to future projects could occur and were considered as part of the cumulative effects analyses in the EIS. These types of changes in conditions or long-term operations of the CVP and SWP could require the re-initiation of consultation on the 2008 USFWS BO and/or 2009 NMFS BO. It is recognized that there are other project-specific programs implemented by Reclamation that have been analyzed or are undergoing evaluation under separate NEPA and ESA processes, and have or will have different study periods.

The impact analyses section of the resource chapters in the EIS addressed direct, indirect, and cumulative effects of the alternatives as compared to the No Action Alternative and the Second Basis of Comparison at 2030 conditions in the following manner:

- Alternatives 1 through 5 are compared to the No Action Alternative.
- Alternatives 1 through 5 and the No Action Alternative are compared to the Second Basis of Comparison.

The Second Basis of Comparison could not be considered as an alternate “No Action Alternative” under NEPA guidelines because it did not represent existing policy and management conditions which include implementation of actions under the 2008 USFWS BO and the 2009 NMFS BO, as described in Sections 4.2 and 4.3 of this ROD. Therefore, the comparison of the alternatives to the Second Basis of Comparison was included in the EIS for information purposes only. The results of these comparisons are presented in Table ES.2 of the Final EIS. However, these results are not included in the following summary of environmental impacts considered during preparation of the ROD.

The EIS did not evaluate short-term impacts related to implementing project-specific actions, such as impacts during construction and/or start-up periods for actions that are not fully defined at this time and that may be implemented by Reclamation or other agencies as part of the alternatives. It is recognized that numerous projects would be planned, designed, and constructed under the No Action Alternative and Alternatives 1 through 5, including tidal wetlands and floodplain restoration. It is also recognized that facilities could be constructed to implement fish passage at CVP reservoirs under the No Action Alternative and Alternative 5, and facilities to implement a trap and haul program for steelhead from the San Joaquin River under Alternatives 3 and 4. Project-specific construction impacts would be addressed in project-specific environmental documents prepared prior to implementation. At this time, however, the nature, magnitude, and extent of specific impacts are not known.

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The impact analyses included both quantitative and qualitative evaluations. Methods used to determine adverse impacts between conditions under Alternatives 1 through 5 as compared to conditions under the No Action Alternative are described in Chapter 3, Description of the Alternatives, in the Final EIS.

5.2 Results of the Impact Analyses

The results of the impact analyses that compared conditions under Alternatives 1 through 5 as compared to the No Action Alternative are summarized below.

- **Non-CVP and Non-SWP Water Deliveries** – Water deliveries under the No Action Alternative would be the same under Alternatives 1 through 5.
- **Total CVP and Total SWP Water Deliveries:**
 - Highest water deliveries would occur under Alternatives 1 and 4, and lowest water deliveries would occur under the No Action Alternative and Alternatives 2 and 5. Water deliveries under Alternative 3 would be less than under Alternatives 1 and 4, and greater than under the No Action Alternative and Alternatives 2 and 5.
 - Changes due to climate change under 2030 conditions would result in more short-duration high-rainfall events and less snowpack in the winter and early spring months. It is projected that the reservoirs would be full more frequently by the end of April or May under 2030 conditions than under recent historical conditions. However, as the water is released in the spring, there may be less snowpack to refill the reservoirs. This condition may reduce reservoir storage and available CVP and SWP water supplies.

Projected sea level rise may also result in reduced CVP and SWP reservoir storages. As sea level rise occurs, the location of the salt water-freshwater zone moves further inland, and the CVP and SWP would likely need to increase the amount of water released from CVP and SWP reservoirs to continue to meet the salinity criteria to protect Delta water users and Delta aquatic resources. This condition may also reduce reservoir storages and available CVP and SWP water supplies.

- Overall, CVP and SWP water contract deliveries for users located south of the Delta under Alternatives 1 and 4 would be higher than under the No Action Alternative over the long-term and in critically dry years:

CVP water supplies would be 13 percent higher over the long-term and 16 percent higher in critically dry years under Alternatives 1 and 4 than under the No Action Alternative.

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SWP water supplies would be 22 percent higher over the long-term and 28 percent higher in critically dry years under Alternatives 1 and 4 than under the No Action Alternative.

- Overall, CVP and SWP water contract deliveries for users located south of the Delta under Alternative 3 would be higher than under the No Action Alternative over the long-term and similar or higher in critically dry years:

CVP water supplies would be 12 percent higher over the long-term and similar (less than 5 percent difference) in critically dry years under Alternative 3 than under the No Action Alternative.

SWP water supplies would be 17 percent higher over the long-term and 14 percent higher in critically dry years under Alternative 3 than under the No Action Alternative.

- It is recognized that in the short-term during extreme dry periods, responses to reduced CVP and SWP water deliveries could be different than over the long-term. For example, during the recent drought, some areas relied upon crop idling because expansion of groundwater wellfields was not easily implemented in the short-term. The EIS analysis considered the long-term changes by 2030, including agricultural water supplies based upon long-term economic modeling using the SWAP model. The SWAP model indicated that even with the cost of groundwater pumping from greater depths, the overall agricultural production could be maintained. The Final EIS includes discussions of historical responses by CVP and SWP to recent drought conditions and associated SWRCB requirements, including reductions in recent deliveries of CVP and SWP water.

- **Surface Water Quality: Delta Salinity**

- The lowest salinity in fall and early winter months for the western Delta would occur under the No Action Alternative and Alternatives 2 and 5 as compared to Alternatives 1, 3, and 4.
- The lowest salinity in spring and summer months (consistent with SWRCB D-1641 Spring X2 requirements) would occur under the No Action Alternative and Alternatives 2, 3, and 5 as compared to Alternatives 1 and 4.
- Salinity in other months (associated with compliance with SWRCB D-1641) generally would be similar under the No Action Alternative and Alternatives 1 through 5.

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- **Surface Water Quality: Mercury and Selenium in Delta Fish Tissue** – Mercury and selenium concentrations in Delta fish tissue would be similar under the No Action Alternative and Alternatives 1 through 5.
- **Groundwater Conditions**
 - Groundwater conditions in the Trinity River Region and Sacramento Valley would be similar under the No Action Alternative and Alternatives 1 through 5.
 - In the San Joaquin Valley and in the San Francisco Bay Area, Central Coast, and Southern California regions, the lowest amount of groundwater pumping and highest groundwater elevations would occur under Alternatives 1, 3, and 4 as compared to the No Action Alternative and Alternatives 2 and 5.
 - Although local models have been developed to support groundwater management activities in some areas, the projected groundwater conditions in the Central Valley were based upon results from the CVHM model that simulates groundwater conditions throughout the Central Valley. Changes in groundwater use and related changes in groundwater levels are assumed to be correlated to availability of CVP and SWP water supplies. It is generally assumed that an increase in CVP and SWP water supplies would result in a decrease in groundwater use in these areas. Similarly, a decrease in CVP and SWP water supplies could result in a short-term increase in groundwater use; and associated decrease in groundwater levels. In adjudicated basins, groundwater use restrictions limit the amount of groundwater that can be pumped, even when surface water availability is reduced. In those basins, long-term groundwater use is assumed to not increase, and agricultural production could decrease if CVP and SWP water supplies decrease.

In addition, the reduced availability of higher quality surface water for use in recharge facilities may decrease the overall groundwater quality in those localized areas.

The CVHM simulation primarily focuses on changes in agricultural groundwater use in response to changes in the availability of CVP and SWP water. It is recognized that in the vicinity of some communities, such as in the area in the American River watershed served with CVP water supplies, groundwater use also would increase with the reduction in surface water availability. However, these changes are not considered to be substantial under the No Action Alternative as compared to the Second Basis of Comparison because the long-term reductions in CVP municipal water supplies are anticipated to be up to 7,000 acre-feet per year (or 6

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percent) over the long-term condition, up to 8,000 acre-feet per year (or 8 percent) in dry years, and similar (or 5 percent or less) in critically dry years. The water demands are consistent between the No Action Alternative and Second Basis of Comparison; therefore, it is anticipated that reduced surface water supplies would result in increased groundwater use.

In areas that use CVP and SWP water supplies, groundwater quality under the No Action Alternative could be reduced as compared to the Second Basis of Comparison in the central and southern San Joaquin Valley Groundwater Basin due to increased groundwater withdrawals and resulting potential changes in groundwater flow patterns. For example, potential impacts to groundwater quality may arise from deeper pumping close to the base of freshwater, where groundwater with higher total dissolved solids occurs. Large areas in the San Joaquin Valley also experience impairments due to nitrate and other fertilizers used in agriculture, which could migrate to areas with better quality water due to increased pumping and potential changes in groundwater flow directions.

- **CVP and SWP Energy Resources**
 - CVP net energy generation conditions would be similar under the No Action Alternative and Alternatives 1 through 5.
 - SWP net energy generation would be greater under the No Action Alternative and Alternatives 2 and 5 as compared to Alternatives 1, 3, and 4. SWP net energy generation would be less under Alternative 3 than under the No Action Alternative and Alternatives 2 and 5, and greater than under Alternatives 1 and 4.
- **Aquatic Resources**
 - Conditions along the Trinity River would be similar under the No Action Alternative and Alternatives 1 through 5.
 - Habitat conditions for Winter-run and Spring-run Chinook Salmon and steelhead on the Sacramento River system under the No Action Alternative and Alternative 5 would be improved as compared to conditions under Alternatives 1 through 4.
 - Habitat conditions for Fall-run and Late Fall-run Chinook Salmon, Green Sturgeon, and White Sturgeon on the Sacramento River system would be similar under the No Action Alternative and Alternatives 1, 3, 4, and 5, and habitat conditions for the same would be improved as compared to conditions under Alternative 2.

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- Habitat conditions for Delta Smelt and Longfin Smelt under the No Action Alternative and Alternatives 2 and 5 would be improved as compared to conditions under Alternatives 1, 3, and 4.
- Habitat conditions for Sacramento Splittail would be similar under the No Action Alternative and Alternatives 1 through 5.
- Habitat conditions for reservoir fish, Pacific Lamprey, and Hardhead on the Sacramento River system would be similar under the No Action Alternative and Alternatives 1 through 5.
- Habitat conditions for the Sacramento River system Striped Bass and American Shad under the No Action Alternative and Alternatives 2 and 5 would be improved as compared to conditions under Alternatives 1, 3, and 4.
- Habitat conditions for steelhead on the Stanislaus River system under the No Action Alternative and Alternative 5 would be improved as compared to conditions under Alternatives 1 through 4. Habitat conditions could be improved under Alternatives 3 and 4 as compared to the No Action Alternative and Alternative 5 due to predator controls, trap and haul operations, and harvest restrictions. However, the effectiveness of these measures is uncertain.
- Habitat conditions for Fall-run Chinook Salmon on the Stanislaus River system under the No Action Alternative and Alternatives 1, 3, 4, and 5 would be improved as compared to conditions under Alternative 2. Habitat conditions could be improved under Alternatives 3 and 4 as compared to the No Action Alternative and Alternative 5 due to predator controls, trap and haul operations, and harvest restrictions. However, the effectiveness of these measures is uncertain.
- Habitat conditions for White Sturgeon on the Stanislaus River system would be similar under the No Action Alternative and Alternatives 1 through 5.
- Habitat conditions for the Stanislaus River system reservoir fish, lampreys, and Hardhead would be similar under the No Action Alternative and Alternatives 1 through 5.
- Habitat conditions for the Striped Bass on the Stanislaus River under the No Action Alternative and Alternatives 1, 2, and 5 would be improved as compared to conditions under Alternatives 3 and 4.
- Habitat conditions for the Killer Whale in the Pacific Ocean would be similar under the No Action Alternative and Alternatives 1 through 5.

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- **Terrestrial Resources**

- Terrestrial conditions along the shorelines of the CVP and SWP reservoirs, along the Trinity, Sacramento, Feather, and American rivers downstream of the CVP and SWP reservoirs, and in the Yolo Bypass would be similar under the No Action Alternative and Alternatives 1 through 5.
- Terrestrial conditions along the Stanislaus River downstream of the New Melones Dam under Alternative 5 would be improved as compared to conditions under the No Action Alternative and Alternatives 1 through 4. Terrestrial conditions under the No Action Alternative and Alternative 2 would be improved as compared to conditions under Alternatives 1, 3, and 4.
- Terrestrial conditions related to freshwater habitat in the Delta under the No Action Alternative and Alternatives 2 through 5 would be improved as compared to conditions under Alternatives 1, 3, and 4.

- **Geology and Soils Resources** – Conditions would be similar under the No Action Alternative and Alternatives 1 through 5.

- **Agricultural Resources** – Conditions would be similar under the No Action Alternative and Alternatives 1 through 5.

- **Land Use** – Conditions would be similar under the No Action Alternative and Alternatives 1 through 5.

- **Visual Resources** - Conditions would be similar under the No Action Alternative and Alternatives 1 through 5.

- **Recreation Resources**

- Conditions at the CVP and SWP reservoirs and along downstream rivers would be similar under the No Action Alternative and Alternatives 1 through 5, except at San Luis Reservoir in drier years when conditions under Alternatives 1, 3, and 4 would be improved as compared to conditions under the No Action Alternative and Alternatives 2 through 5.
- Conditions related to recreational fishing of Striped Bass and sport ocean salmon fishing under the No Action Alternative and Alternatives 1, 2, and 5 would be improved as compared to conditions under Alternatives 3 and 4.

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- **Air Quality and Greenhouse Gas Emissions**
 - Air quality conditions under Alternatives 1 and 4 would be improved as compared to conditions under the No Action Alternative and Alternatives 2, 3, and 5.
 - Overall changes for greenhouse gas emissions are not known at this time due to complexity of balancing CVP and SWP net energy generation and changes in energy demands associated with alternative water supplies. However, GHG emissions could increase in the San Francisco Bay Area, Central Coast, and Southern California regions under Alternatives 1, 3, 4, and 5 as compared to the No Action Alternative and Alternative 2.
- **Cultural Resources** - Conditions would be similar under the No Action Alternative and Alternatives 1 through 5.
- **Public Health**
 - Water supply availability for wildland firefighting conditions at the CVP and SWP reservoirs would be similar under the No Action Alternative and Alternatives 1 through 5.
 - Conditions related to potential exposure to mercury in Delta fish tissue under Alternatives 1, 3, and 4 in some portions of the Delta would be improved as compared to conditions under the No Action Alternative and Alternatives 2 and 5. Conditions in other portions of the Delta would be similar under the No Action Alternative and Alternatives 1 through 5.
- **Socioeconomics**
 - Agricultural and municipal and industrial employment and municipal and industrial water supply operating expenses would be similar under the No Action Alternative and Alternatives 1 through 5.
 - Recreational economic conditions at the CVP and SWP reservoirs and along downstream rivers would be similar under the No Action Alternative and Alternatives 1 through 5, except at San Luis Reservoir in drier years when conditions under Alternatives 1, 3, and 4 would be improved as compared to conditions under the No Action Alternative and Alternatives 2 through 5.
 - Recreational economic conditions related to recreational fishing of Striped Bass and sport ocean salmon fishing under the No Action Alternative and Alternatives 1, 2, and 5 would be improved as compared to conditions under Alternatives 3 and 4.

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- Commercial ocean salmon fishing economic conditions under the No Action Alternative and Alternatives 1, 2, and 5 would be improved as compared to conditions under Alternatives 3 and 4.
- **Indian Trust Assets** - Conditions would be similar under the No Action Alternative and Alternatives 1 through 5.
- **Environmental Justice** – Conditions under the No Action Alternative and Alternatives 1 through 5 were analyzed to determine if potential adverse impacts would occur within counties that had a minority population of 50 percent or greater of the total population. These conditions occurred in 13 counties in the Central Valley Region, Santa Barbara County in the Central Coast Region, and in all five counties in the Southern California Region. The analysis, as described in the EIS, focused on whether adverse impacts would be disproportionately high on minority populations.
 - Conditions related to emissions of criteria air pollutants and precursors and/or exposure of sensitive receptors to substantial concentrations of air contaminants from diesel engines at groundwater wells under Alternatives 1 and 4 would be improved as compared to conditions under the No Action Alternative and Alternatives 2, 3, and 5. Many of the groundwater wells are located in agricultural areas with minority populations.
 - Conditions related to potential exposure to mercury in Delta fish tissue under Alternatives 1, 3, and 4 in some portions of the Delta would be improved as compared to conditions under the No Action Alternative and Alternatives 2 and 5. Conditions in other portions of the Delta would be similar under the No Action Alternative and Alternatives 1 through 5. It is not known if the minority populations would consume more Delta fish than non-minority populations. However, the opportunities for minority populations could be increased in the counties within the Delta which have 50 percent or more of the total population as minority populations (Sacramento, San Joaquin, Solano, and Yolo counties).

Changes in surface water conditions are not specifically presented in this comparison because the impacts are related to changes in aquatic, terrestrial, and recreation resources.

5.3 Environmentally Preferable Alternative

Regulations promulgated by the CEQ require lead agencies that prepare an EIS to identify all alternatives that were considered in the ROD, and specify the alternatives or alternatives which were considered to be environmentally preferable (40 CFR 1505.2(b)). The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in the NEPA Section 101. Typically, this means the alternative that causes the least

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damage to the biological and physical environment. It also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (CEQ 40 Most Asked Questions number 6(a)). However, CEQ Guidelines do not require adoption of the environmentally preferable alternative for implementation (CEQ 40 Most Asked Questions number 4(a)).

In choosing the No Action Alternative as the environmentally preferable alternative, Reclamation considered impacts to all resources, and on balance, the No Action Alternative would have the least environmental effects.

Many of the environmental resource conditions would be similar under the No Action Alternative as under Alternatives 1 through 5. The primary benefits of implementing the No Action Alternative as compared to Alternatives 1 through 5 would include:

- **Surface Water Quality in the Delta**
 - Lowest salinity in fall and early winter months for the western Delta.
 - Lowest salinity in spring and summer months (consistent with SWRCB D-1641 Spring X2 requirements).
- **Aquatic Resources**
 - Most favorable habitat conditions for Winter-run Chinook Salmon, Spring-run Chinook Salmon, Fall-run Chinook Salmon, Late Fall-run Chinook Salmon, steelhead, Green Sturgeon, White Sturgeon, Striped Bass, and American Shad on the Sacramento River system
 - Most favorable habitat conditions for Delta Smelt and Longfin Smelt.
 - Most favorable habitat conditions for Fall-run Chinook Salmon, steelhead, and Striped Bass on the Stanislaus River system.
- **Terrestrial Resources**
 - Most favorable terrestrial conditions along the Stanislaus River downstream of the New Melones Dam.
 - Most favorable terrestrial conditions related to freshwater habitat in the Delta.

The No Action Alternative would result in the following environmental resource effects that could be less desirable as compared to Alternatives 1 through 5.

- **Groundwater Conditions** – Increased groundwater pumping and lower groundwater elevations in the San Joaquin Valley and in the San Francisco Bay Area, Central Coast, and Southern California regions.

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- **Air Quality and Greenhouse Gas Emissions** – Increased potential for emissions of criteria air pollutants and precursors and/or exposure of sensitive receptors to substantial concentrations of air contaminants if increased groundwater pumping occurs with groundwater pumps that use diesel engines.

6.0 Basis for the Decision

The decision to select the No Action Alternative is based upon how well this alternative supports the purpose and need statement and the results of the impact analysis, as previously summarized in Section 5.0, Summary of Environmental Impacts, of this ROD.

6.1 The No Action Alternative Supports the Purpose of and Need for the Action

The No Action Alternative meets both the purpose and need of the action, as described below.

6.1.1 Purpose of the Action

The purpose of the action considered in the EIS is to continue the operation of the CVP in coordination with operation of the SWP, for its authorized purposes, in a manner that:

- Is similar to historic operational parameters with certain modifications;
- Is consistent with Federal Reclamation law; other Federal laws and regulations; Federal permits and licenses; State of California water rights, permits, and licenses; and
- Enables Reclamation and DWR to satisfy their contractual obligations to the fullest extent possible.

The No Action Alternative continues the coordinated long-term operation of the CVP and SWP with 2030 conditions, including climate change and sea level rise, in accordance with ongoing management policies, criteria, and regulations of historic operational parameters. The No Action Alternative assumes the coordinated long-term operation of the CVP and SWP with 2030 conditions that would be consistent with:

- Applicable Federal laws and regulations.
- Applicable Federally-issued licenses, permits, and BOs, including RPA actions identified under the 2008 USFWS BO and 2009 NMFS BO to avoid jeopardizing listed species or destroying or adversely modifying designated critical habitat.

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- Applicable State of California-issued water rights, permits, and licenses.

The No Action Alternative allows Reclamation and DWR to satisfy their contractual obligations with 2030 conditions to the fullest extent possible and continue to be compliant Federal and State of California requirements.

Alternative 5 also continues coordinated long-term operation of the CVP and SWP in accordance with historic operational parameters and is consistent with applicable Federal laws and regulations, applicable Federally-issued licenses, permits, and BOs, and applicable State of California-issued water rights, permits and licenses. However, Alternative 5 does not allow Reclamation and DWR to satisfy their contractual obligations to the fullest extent possible with consideration for applicable Federal and State of California requirements.

Alternatives 1 through 4 would enable Reclamation and DWR to more fully satisfy contractual obligations than the No Action Alternative. However, Alternatives 1 through 4 do not include operational parameters that would allow Reclamation to be compliant with applicable Federal and State of California laws with climate change and sea level rise conditions projected for 2030, including meeting water temperature requirements for anadromous fish in the Sacramento, American, and Stanislaus rivers.

6.1.2 Need for the Action

Continued operation of the CVP is needed to provide river regulation, navigation, flood control, water supply for irrigation and domestic uses, fish and wildlife mitigation, fish and wildlife protection, fish and wildlife restoration, fish and wildlife enhancement, and power generation. The CVP and the SWP facilities are also operated to provide recreation benefits and in accordance with the water rights and water quality requirements adopted by the SWRCB.

The USFWS and NMFS concluded in their 2008 and 2009 BOs, respectively, that the coordinated long-term operation of the CVP and SWP, as described in the 2008 Reclamation BA, jeopardized the continued existence of listed species and adversely modified critical habitat. To remedy this, the USFWS and NMFS provided RPAs in their respective BOs. The No Action Alternative and Alternative 5 are the only alternatives that include implementation of the 2008 USFWS BO and 2009 NMFS BO RPAs to avoid jeopardizing the continued existence of listed species or adversely modifying designated critical habitat.

The No Action Alternative and Alternatives 1 through 5 provide for the continued operation of the CVP to provide river regulation, navigation, flood control, water supply for irrigation and domestic uses, fish and wildlife mitigation, fish and wildlife protection, fish and wildlife restoration, fish and wildlife enhancement, power generation; and recreation benefits. However, the No Action Alternative includes operational criteria for the CVP that would result in improved fish and

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wildlife conditions as compared to Alternatives 1 through 4. The No Action Alternative also would result in higher net power generation conditions as compared to Alternatives 1 through 5.

6.2 Selection of the No Action Alternative Considered Results of Impact Analyses

While the alternatives considered in the EIS would result in different impacts for each of the environmental resources, the No Action Alternative provides Reclamation with the greatest degree of flexibility to:

- Meet Reclamation’s mission and responsibilities
- Balance operational considerations of the CVP and SWP with an appropriate level of flexibility to address consistency with:
 - Applicable Federal laws and regulations.
 - Applicable Federally-issued permits and licenses.
 - Applicable State of California-issued water rights, permits, and licenses.
- Enable Reclamation and DWR to satisfy their contractual obligations to the fullest extent possible.

The No Action Alternative also provides Reclamation with an opportunity to be compliant with the policy described in the November 3, 2015 Presidential Memorandum for the Secretary of Defense, Secretary of the Interior, Secretary of Agriculture, Administrator of the Environmental Protection Agency, and Administrator of the National Oceanic and Atmospheric Administration “to avoid and then minimize harmful effects to land, water, wildlife, and other ecological resources (natural resources)...consistent with existing mission and legal authorities.” Implementation of Alternatives 1 through 4 would require implementation of mitigation measures, including provisions included in the No Action Alternative, to avoid adverse impacts to aquatic resources, terrestrial resources, and surface water quality.

The No Action Alternative with projected 2030 conditions, including climate change and sea level rise, represents a continuation of current management direction and level of management intensity, and consistency with the 2008 USFWS BO and 2009 NMFS BO, which have been upheld by the Appellate Court. The No Action Alternative would result in improved conditions for aquatic resources, energy resources, Delta salinity, and freshwater habitat in the western Delta as compared to Alternatives 1 through 5. However, the No Action Alternative would result in lower CVP and SWP water deliveries and related increased groundwater pumping and lower groundwater elevations especially in the San Joaquin Valley. The No Action Alternative also could result in an

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increased potential for emissions of criteria air pollutants and precursors and/or exposure of sensitive receptors to substantial concentrations of air contaminants if increased groundwater pumping occurs with groundwater pumps that use diesel engines in the San Joaquin Valley, Central Coast Region, and Southern California Region. The No Action Alternative also would result in increased mercury in Delta fish tissue in some portions of the Delta.

Alternative 1 would result in higher CVP and SWP water deliveries, lower groundwater pumping in the San Joaquin Valley and associated air quality emissions, and lower mercury concentrations in Delta fish tissue than under the No Action Alternative. However, Alternative 1 also would result in lower SWP net energy generation, higher salinity in the western Delta during winter and spring months, poorer conditions for Longfin Smelt, poorer conditions for Striped Bass, poorer conditions for American Shad, and poorer conditions for terrestrial resources along the Stanislaus River and in the western Delta freshwater habitat as compared to the No Action Alternative. Alternative 1 would result in poorer conditions for the listed fish species as compared to the No Action Alternative, including Winter-run and Spring-run Chinook Salmon in the Sacramento River system, steelhead in the Stanislaus River system, and Delta Smelt.

Conditions under Alternative 2 would be similar to the No Action Alternative except aquatic resource conditions would be poorer for Fall-run and late Fall-run Chinook Salmon in the Sacramento River system and Fall-run Chinook Salmon in the Stanislaus River system as compared to the No Action Alternative.

Alternative 2 would result in poorer conditions for listed fish species in the Sacramento River system, including Winter-run Chinook Salmon and Spring-run Chinook Salmon, Green Sturgeon, and White Sturgeon. Alternative 2 also would result in poorer conditions for listed species outside of the Sacramento River system, including steelhead in the Stanislaus River system, and Delta Smelt in the Delta.

Alternative 3 would result in higher CVP and SWP water deliveries, lower groundwater pumping in the San Joaquin Valley and associated air quality emissions, and lower mercury concentrations in Delta fish tissue than under the No Action Alternative. However, Alternative 3 also would result in lower SWP net energy generation, higher salinity in the western Delta in spring months, poorer conditions for Longfin Smelt, poorer conditions for Striped Bass, poorer conditions for American Shad, and poorer conditions for terrestrial resources along the Stanislaus River and in the western Delta freshwater habitat as compared to the No Action Alternative. Alternative 3 would result in poorer conditions for the listed fish species as compared to the No Action Alternative, including Winter-run and Spring-run Chinook Salmon in the Sacramento River system, steelhead in the Stanislaus River system, and Delta Smelt.

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Alternative 4 would result in higher CVP and SWP water deliveries, lower groundwater pumping in the San Joaquin Valley and associated air quality emissions, and lower mercury concentrations in Delta fish tissue than under the No Action Alternative. Alternative 4 would result in lower SWP net energy generation, higher salinity in the western Delta in winter and spring months, and poorer conditions for Longfin Smelt, Striped Bass, and American Shad in the Delta as compared to the No Action Alternative. Alternative 3 would also result in poorer conditions for terrestrial resources along the Stanislaus River and in the western Delta freshwater habitat, and poorer recreational fishing opportunities for Striped Bass, sport ocean salmon fishing opportunities, and commercial ocean salmon fishing opportunities as compared to the No Action Alternative. Alternative 4 would result in poorer conditions for the listed fish species as compared to the No Action Alternative, including Winter-run and Spring-run Chinook Salmon in the Sacramento River system, steelhead in the Stanislaus River system, and Delta Smelt.

Alternative 5 would result in similar conditions as compared to the No Action Alternative except for lower CVP and SWP water deliveries, and higher groundwater pumping in the San Joaquin Valley and associated air quality emissions than under the No Action Alternative. Conditions for listed fish species would be similar as under the No Action Alternative.

The No Action Alternative represents the current management direction and level of management intensity consistent with the explanation of the No Action Alternative included in the CEQ's Forty Most Asked Questions (Question number 3). Reclamation's current management direction includes operations consistent with implementation of the 2008 USFWS BO and the 2009 NMFS BO in accordance with Section 7 of the ESA. Reclamation has a legal obligation to comply with Section 7 of the ESA by insuring that actions it authorizes, funds or carries out do not jeopardize the continued existence of any listed species and do not destroy or adversely modify designated critical habitat. In its operation of the CVP, Reclamation meets its Section 7 obligations by provisionally accepting and operating consistent with the 2008 USFWS BO and 2009 NMFS BO.

NEPA does not require lead agencies (Reclamation is the lead agency for this EIS) to mitigate impacts, nor does it require lead agencies to identify mitigation associated with the No Action Alternative. Reclamation does not generally identify mitigation measures associated with the No Action Alternative. Therefore, no mitigation measures are identified for implementation of the No Action Alternative, and a Mitigation Monitoring Plan is not appropriate for the action selected in this ROD.

7.0 Comments on the Final EIS

The LTO Final EIS was published on Reclamation's website and a press release was issued by Reclamation on November 23, 2015. Notices of the publication of the Final EIS were sent by Reclamation to interested parties on November 23, 2015. Electronic copies of the Final EIS on compact discs were distributed to cooperating agencies, stakeholders, and parties that submitted verbal and written comments on the Draft EIS on November 23, 2015. A Notice of Availability of the LTO Final EIS was published by the USEPA on December 4, 2015.

Reclamation received four written comment letters on the Final EIS. The major issues raised in the letters and Reclamation's responses to those issues are presented in Table 1. This ROD has been edited for clarity in response to comments received on the Final EIS.

Table 1 Summary of Issues Raised in Comments on the Final EIS and Responses

Commenters	Issues Raised in the Comments	Responses to Issues Raised in the Comments
USEPA	Supports selection of the No Action Alternative as the Preferred Alternative.	This comment is consistent with Reclamation's decision presented in this ROD.
USEPA	If another alternative (other than the No Action Alternative) is presented as the Preferred Alternative in the ROD, Reclamation should provide detailed mitigation measures.	Reclamation has selected the No Action Alternative as the Preferred Alternative in this ROD; therefore, no mitigation measures are required (see Section 6.2 of this ROD).
Cities of Roseville and Folsom, and San Juan Water District	<p>The response in the Final EIS to comments from these agencies on the Draft EIS related to protection of senior water rights on the American River (Comment Numbers 6 and 9) was:</p> <p><i>"The CVP and SWP operations prioritize meeting federal and state regulatory requirements and deliveries to water rights holders, including the City of Sacramento, prior to deliveries of water to CVP and SWP water contractors."</i></p> <p>These commenters inquired if the sentence with the phrase</p>	<p>The phrase <i>"including the City of Sacramento"</i> was used as an example of senior water rights. Reclamation recognizes the senior water rights, including those held by the City of Folsom and San Juan Water District, and the analysis in the EIS included prioritization of these senior water rights. As described in Appendix 5A, Section B, CalSim II and DSM2 Modeling Simulations and Assumptions, in the Final EIS, senior water rights on the American River are included in the CalSim II model, as presented in Table 5A.B-22 of Appendix 5A, Section B in the Final EIS.</p>

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Commenters	Issues Raised in the Comments	Responses to Issues Raised in the Comments
	<p>“including the City of Sacramento” also included prioritization of water rights held by the City of Folsom, San Juan Water District, and others who hold senior water rights on the American River.</p>	
<p>Cities of Roseville and Folsom, and San Juan Water District</p>	<p>The response in the Final EIS to comments from these agencies on the Draft EIS related to responses by Reclamation to the ongoing drought, including CVP operations on the American River, (Comment Numbers 9, 15, and 20) was:</p> <p><i>“More details have been included in Section 5.3.3 of Chapter 5, Surface Water Resources and Water Supplies, in the Final EIS to describe historical responses by CVP and SWP to these drought conditions, including implementation of a barge and pump system in Folsom Lake to allow diversions when low water surface elevations would cause capacity issues for existing intakes.”</i></p> <p>These commenters stated that these types of temporary emergency measures should not become common methods to operate during periodic droughts.</p>	<p>The text in Sections 5.3.2.2.1 and 5.3.3 of the Final EIS states that the recent use of the barges when “one of the most critical reservoir water elevations has occurred in Folsom Lake” in October 2015. As discussed in the Final EIS, Reclamation has used and may consider future use of barges during extremely critical low water elevations in Folsom Lake, but not as part of normal operations.</p>
<p>Cities of Roseville and Folsom, and San Juan Water District</p>	<p>Reclamation incorrectly defined the No Action Alternative to include continued implementation of the 2008 USFWS BO and the 2009 NMFS BO (per Comment 7 from these commenters on the Draft EIS). . The commenters</p>	<p>As described in Section 4.1 of this ROD and Section 3.3 of the Final EIS, Reclamation had provisionally accepted the provisions of the 2008 USFWS BO and 2009 NMFS BO, and was implementing the BOs at the time of publication of the Notice of Intent in March 2012.</p>

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Commenters	Issues Raised in the Comments	Responses to Issues Raised in the Comments
	<p>noted that the definition did not change in the Final EIS.</p>	<p>The definition of the No Action Alternative is consistent with the definition of “no change” from current management direction or level of management. Therefore, implementation of the BOs were included in the No Action Alternative as Reclamation provisionally accepted the BOs in 2008 and 2009, respectively, began implementing the BOs, and had implemented the BOs, as part of CVP operations for approximately three years at the time the Notice of Intent was issued (2008 USFWS BO implemented for three years and three months, 2009 NMFS BO implemented for two years and nine months).</p>
<p>Cities of Roseville and Folsom, and San Juan Water District</p>	<p>The Final EIS does not comply with NEPA and the District Court Order to analyze and mitigate the environmental impacts of the BOs.</p>	<p>The District Court ruled that Reclamation violated NEPA by failing to conduct a NEPA review of the potential impacts to the quality of the human environment before provisionally accepting and implementing the 2008 USFWS BO and the 2009 NMFS BO, including the RPAs. The District Court ordered Reclamation to review its decision to provisionally accept and implement the 2008 USFWS BO and the 2009 NMFS BO and the related RPAs in accordance with NEPA. The District Court did not order Reclamation to mitigate the environmental impacts caused by implementation of the BOs and RPA actions.</p>
<p>Cities of Roseville and Folsom, and San Juan Water District</p>	<p>The discussion on page 7-122 of the Final EIS which states that the impacts to groundwater in the American River watershed are “not considered to be substantial” is not supported.</p>	<p>The text on page 7-122 of the Final EIS compares 2030 groundwater conditions under the No Action Alternative and the Second Basis of Comparison. The EIS analysis assumed that if surface water supplies were reduced,</p>

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Commenters	Issues Raised in the Comments	Responses to Issues Raised in the Comments
		<p>groundwater use would increase and could cause declines in groundwater elevation.</p> <p>Under both the No Action Alternative and the Second Basis of Comparison for 2030 conditions, reservoir storage levels would be substantially reduced compared to recent historical conditions. Therefore, the surface water deliveries to senior water rights holders and CVP water contractors in the American River watershed would be similar in critically dry years for 2030 conditions under both the No Action Alternative and the Second Basis of Comparison. It is anticipated that groundwater conditions also would be similar for 2030 under the No Action Alternative as compared to the Second Basis of Comparison. Therefore, the differences for 2030 groundwater conditions under the No Action Alternative as compared to the Second Basis of Comparison in the Final EIS <i>“are not considered to be substantial.”</i></p>
<p>El Dorado Irrigation District (EID)</p>	<p>The Final EIS does not include converting the existing 5-year Warren Act Contract for the EID Project 184 consumptive water right to a long-term Warren Act Contract. Reference should be included in the ROD to results in Appendix 5B of the Final EIS.</p>	<p>This issue is addressed in Section 11.0, Actions that May Undergo Further Analysis, in this ROD.</p>
<p>North Coast Rivers Alliance</p>	<p>Supports selection of the No Action Alternative as the Preferred Alternative.</p>	<p>This comment is consistent with Reclamation’s decision presented in this ROD.</p>
<p>North Coast Rivers Alliance</p>	<p>The Purpose Statement is too narrow, and should be modified to not include the words “to the fullest extent possible” when referring to the ability of “Reclamation and DWR to</p>	<p>The phrase “to the fullest extent possible” in the third provision in the Purpose Statement (Enable Reclamation and DWR to satisfy their contractual obligations to the fullest extent possible) is related to</p>

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Commenters	Issues Raised in the Comments	Responses to Issues Raised in the Comments
	satisfy their contractual obligations to the fullest extent possible.”	the upper limit of legal CVP and SWP contractual water amounts and delineates an upper bound for development of EIS alternatives, not a target. It is not intended to imply that increased quantities of water will be delivered under the alternatives. As indicated by the “fullest extent possible” phrase, alternatives need not be capable of delivering full contract amounts on average in order to meet the project purposes. Alternatives that depict operational parameters that would result in deliveries of less than full contract amounts are consistent with this purpose.
North Coast Rivers Alliance	The range of alternatives is too narrow and does not include an alternative that reduces water exports.	The Final EIS evaluates Alternative 5 which would reduce long-term average CVP and SWP water exports by 13 percent and 27 percent, respectively.

In response to the press release on November 23, 2015, announcing the Final LTO EIS, the Hoopa Valley Tribal Fisheries Department sent an email to Reclamation’s Public Affairs Office stating the CalSim II model did not appear to include supplementary flows in Trinity and Klamath rivers associated with release of 50,000 acre-feet of water. Reclamation developed a draft plan for the long-term supplemental releases in April 2015 and a Notice of Intent to prepare a Draft EIS for the long-term plan was released in July 2015. The draft plan did not include a regular operation plan. Because the assumptions for the LTO EIS alternatives and the Second Basis of Comparison were developed based upon conditions at the time of publication of the Notice of Intent for the LTO EIS in March 2012, and because the 2015 draft plan developed by Reclamation for the long-term supplemental releases did not include specific operational criteria, Reclamation does not have enough information to evaluate this potential long-term action in the LTO EIS.

However, the Final LTO EIS does reference these flows on page 5-16.

- *“Reclamation has periodically released water from Lewiston Dam into the Trinity River to improve late summer flow conditions to avoid fish die-offs in the lower Klamath River or for tribal requirements along the Trinity River (DOI 2014; Trinity River Restoration Program [TRPP] 2014).”*

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Moreover, if these flows had been included in the CalSim II model assumptions for the LTO EIS, the flows would have been included in the No Action Alternative, Alternatives 1 through 5, and the Second Basis of Comparison since the flows are not actions under the RPAs. Therefore, the incremental differences between Alternatives 1 through 5 and the No Action Alternative, and between the No Action Alternative and Alternatives 1 through 5 and the Second Basis of Comparison would have been the same or similar to the incremental differences presented in the Final EIS.

8.0 Public Involvement

Public involvement was initiated with the scoping process on March 28, 2012, with the publication of the Notice of Intent in the Federal Register (FR) and continued through June 28, 2012. Initially, the public scoping process was to be completed on May 29, 2012. During the public scoping process, other agencies and interested persons requested an extension of the public scoping period to allow additional opportunities to provide scoping comments. In response to these requests, Reclamation published a notice on May 25, 2012, extending the public scoping period through June 28, 2012. Reclamation held five scoping meetings which were attended by 256 individuals. Scoping comments were used in the development of a reasonable range of alternatives and identification of key issues.

Reclamation also posted on its website an initial range of alternatives discussed at a stakeholders meeting on October 19, 2012. Several project status meetings were held with cooperating agencies and other stakeholders during preparation of the Draft EIS. Comments received during these processes were used to refine the description of the alternatives.

The Draft EIS was issued for public review in July 2015. The Notice of Availability was published by Reclamation in the Federal Register on July 31, 2015 (Federal Register, Vol 80, No. 147, 45681). Reclamation held four public meetings which were attended by 29 individuals. Approximately 860 written and verbal comments were received on the Draft EIS. All of the comments received on the Draft EIS were considered in preparation of the Final EIS. Written responses to all substantive comments received were included in the Final EIS.

A press release announcing the availability of the Final EIS was issued by Reclamation on November 23, 2015. The USEPA's Notice of Availability was published in the Federal Register on December 4, 2015.

9.0 Consultation and Coordination

In addition to the public involvement process, consultation and coordination efforts were conducted with the USFWS and NMFS, cooperating agencies, and in accordance with federal requirements, as summarized below.

9.1 Consultation with U.S. Fish and Wildlife Service and National Marine Fisheries Service

Federal agencies have an obligation pursuant to the ESA to "...ensure that any discretionary action authorized, funded, or carried out by such an agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification..." of such species' designated "critical habitat," "...unless such agency has been granted an exemption for such action..." by the Endangered Species Committee which the ESA creates (16 United States Code (U.S.C.) section 1536 (a)(2)). A discretionary agency action jeopardizes the continued existence of a listed species if it "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR section 402.02). Such action results in the destruction or adverse modification of designated critical habitat if there is "... a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species" (50 CFR section 402.02).

The Fish and Wildlife Coordination Act requires that Reclamation consult with fish and wildlife agencies (federal and state) on all water development projects that could affect biological resources. As part of this project, Reclamation met with the USFWS and NMFS during selection of the analytical methods to be used in the evaluation of the alternatives. As cooperating agencies, the USFWS and NMFS received copies of the Administrative Draft of the Draft EIS and Administrative Draft of the Final EIS. These consultation efforts were conducted in accordance with applicable requirements of the Fish and Wildlife Coordination Act.

The No Action Alternative includes full implementation of the 2008 USFWS BO and 2009 NMFS BO.

9.2 Consultation with Cooperating Agencies and Other Entities

A cooperating agency is defined as any Federal agency, except the NEPA lead agency, that has jurisdiction by law or has special expertise with respect to any environmental issue that should be addressed in the EIS (40 CFR 1501.6). A cooperating agency also can include a governmental entity (state, tribal, or local)

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that has jurisdiction by law or special expertise with respect to any environmental impact associated with the action being considered.

Reclamation invited eligible governmental agencies to participate as a cooperating agency. The federal cooperating agencies include the USFWS, NMFS, USEPA, U.S. Army Corps of Engineers (USACE), and Bureau of Indian Affairs.

Reclamation also provided non-federal agencies with the opportunity to participate in the NEPA process if they qualified under NEPA as a cooperating agency. In August of 2012, Reclamation mailed invitations to 747 non-federal entities to be cooperating agencies for the EIS, including:

- DWR
- SWRCB
- California Department of Fish and Wildlife (CDFW)
- Agencies that have contracts with the CVP or SWP for water delivery, water service repayment, exchange or settlement, or use of CVP or SWP facilities for conveyance
- State and Federal Contractors Water Agency
- Cities and counties within the CVP and SWP service areas
- Federally-recognized tribes within the CVP and SWP service area or areas affected by CVP or SWP operations

Non-federal entities that meet the specified criteria for cooperating agencies are required to enter into a Memorandum of Understanding (MOU) with Reclamation to memorialize their participation as a cooperating agency.

Reclamation has signed cooperating agency MOUs with the following entities:

- Anderson-Cottonwood Irrigation District
- California Department of Water Resources
- California Valley Miwok Tribe
- City of Hesperia
- Contra Costa Water District
- Friant Water Authority
- Glenn-Colusa Irrigation District
- Metropolitan Water District of Southern California
- Oakdale Irrigation District
- Reclamation District 108
- San Diego County Water Authority
- San Juan Water District

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- San Luis & Delta-Mendota Water Authority
- Stockton East Water District
- Sutter Mutual Water District
- Tehama Colusa Canal Authority
- Zone 7 Water Agency

These agencies participated in preliminary review of written materials that were used to prepare the Draft EIS.

Reclamation also received a request from an interested party to include the Federal Emergency Management Agency (FEMA) as a cooperating agency. However, Reclamation concluded that FEMA does not have special expertise related to environmental issues that would not be addressed by other cooperating federal agencies.

Reclamation also received a request from the State Water Contractors, a non-profit association of 27 public agencies from northern, central, and southern California that purchase water under contract from the SWP. However, Reclamation concluded that the State Water Contractors was not a public agency, and therefore, could not be cooperating agency. However, this group and several other non-profit groups (including the Natural Resources Defense Council and The Bay Institute) have participated in preliminary review of written materials that were used to prepare the Draft EIS.

9.3 Consultation with Other Federal and State Agencies

In addition to consultation with the USFWS and NMFS related to the ESA, the EIS was prepared in accordance with other policies and regulations adopted by federal and state agencies. Reclamation considered the requirements of these policies and regulations during preparation of the EIS and consultation with the related agencies, as summarized in Table 2.

Table 2 Summary of Consultation with Other Federal and State Agencies on Policies and Regulations Not Related to the Endangered Species Act

Agencies	Consultation and Coordination Activities	Applicability to the No Action Alternative
U.S. Army Corps of Engineers	As a cooperating agency, the USACE was invited by Reclamation to meetings during development of the EIS, and notices were sent to the USACE for review of administrative draft versions of the Draft EIS and Final EIS.	The No Action Alternative includes compliance by Reclamation related to CVP operations of the Trinity, Whiskeytown, Shasta, and Folsom lakes and New Melones reservoir in accordance with flood requirements issued by the USACE (per Rivers and Harbors Act of 1899, as amended; Flood Control Act of 1936, as amended; Emergency Flood Control Funds Act of 1955, as amended; and authorizations for specific CVP facilities).

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Agencies	Consultation and Coordination Activities	Applicability to the No Action Alternative
U.S. Environmental Protection Agency	As a cooperating agency, the USEPA was invited by Reclamation to meetings during development of the EIS, and notices were sent to the USEPA for review of administrative draft versions of the Draft EIS and Final EIS.	<p>The No Action Alternative includes compliance by Reclamation related to CVP operations within the applicable basin plans in the CVP water service area, including operations of the CVP facilities in the Delta (per Sections 401 and 303 of the Clean Water Act and applicable sections of the Federal Safe Drinking Water Act to protect water quality beneficial uses).</p> <p>The No Action Alternative includes compliance by Reclamation related to CVP operations within the applicable air basins in the CVP water service area, including operations of the CVP facilities in the Delta (per the Clean Air Act).</p>
U.S. Fish and Wildlife Service	As a cooperating agency, the USFWS was invited by Reclamation to meetings during development of the EIS, and notices were sent to the USFWS for review of administrative draft versions of the Draft EIS and Final EIS.	Continued coordinated operation of the CVP and SWP under the No Action Alternative would not result in adverse changes to the environment that would adversely affect migratory birds (per the Migratory Bird Treaty Act and Executive Orders 13186 and 11990).
National Marine Fisheries Service	As a cooperating agency, the NMFS was invited by Reclamation to meetings during development of the EIS, and notices were sent to the NMFS for review of administrative draft versions of the Draft EIS and Final EIS.	The No Action Alternative includes implementation of the 2009 NMFS BO, including actions related to the Southern Resident DPS of Killer Whales (per the Marine Mammal Protection Act).
California Department of Water Resources	DWR as a cooperating agency participated in numerous meetings during development of the EIS, and DWR reviewed administrative draft versions of the Draft EIS and Final EIS.	The No Action Alternative addresses the coordinated long-term operation of the CVP and SWP; and therefore, would affect the operations of both the CVP and SWP in accordance with the Coordinated Operation Agreement.
California State Water Resources Control Board	As a cooperating agency, the SWRCB was invited by Reclamation to meetings during development of the EIS, and notices were sent to the SWRCB for review of	The No Action Alternative includes compliance of Federal and state water quality requirements by Reclamation related to CVP operations within the applicable basin plans in the CVP water service area, including operations of the CVP facilities in the Delta.

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Agencies	Consultation and Coordination Activities	Applicability to the No Action Alternative
	administrative draft versions of the Draft EIS and Final EIS.	The No Action Alternative includes compliance with water rights established by the SWRCB related to CVP operations.

As described in Section 5.1, Basis of Impact Analyses, of this ROD, the EIS did not evaluate short-term impacts related to implementing project-specific actions, such as impacts during construction and/or start-up periods for actions that are not fully defined at this time and that may be implemented by Reclamation or other agencies as part of the alternatives. It is recognized that numerous projects would be planned, designed, and constructed under the No Action Alternative, including tidal wetlands and floodplain restoration and fish passage at CVP reservoirs under the No Action Alternative. Project-specific construction impacts would be addressed in project-specific environmental documents which would be prepared in consultation with USEPA (in accordance with Clean Water Act, Safe Drinking Water Act, and Clean Air Act), USACE (in accordance with flood management requirements), USFWS (in accordance with the Wild and Scenic Rivers Act, Migratory Bird Treaty Act, and Executive Orders 13186 and 11990), NMFS (in accordance with the Marine Mammal Protection Act), SWRCB (in accordance with implementation of the Clean Water Act), and CDFW (in accordance with the State regulatory requirements for endangered species, wetlands, and water bodies). Reclamation also would address the requirements of National Historic Preservation Act of 1966, American Indian Religious Freedom Act of 1978, and Executive Order 13007, which addresses Indian Sacred Sites on Federal lands.

9.4 Consultation with Tribal Governments

Consistent with President Clinton's April 29, 1994 Memorandum and President Obama's November 5, 2009 Memorandum, Reclamation invited 63 federally-recognized tribal governments to participate in preparation of the EIS. Following this notification, Reclamation received requests for meetings and met with the California Valley Miwok Tribe in 2012 and the Miwok Maidu United Auburn Indian Community of the Auburn Rancheria in 2013. None of the other federally-recognized tribal governments responded to the request to participate in preparation of the EIS. Reclamation provided electronic copies of the Draft EIS and Final EIS to these two tribal governments who requested participation in the process.

Tribal governments within the study area and Indian Trust Assets were considered during preparation of the EIS, in accordance with environmental justice considerations identified in Executive Order 12898 (February 11, 1994).

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Implementation of the Alternatives 1 through 5 would not result in adverse impacts to Indian Trust Assets as compared to the No Action Alternative.

10.0 Implementation of the Decision

Implementation of the Preferred Alternative, the No Action Alternative, by Reclamation will continue the coordinated long-term operation of the CVP and SWP, including full implementation of the RPAs in the 2008 USFWS BO and 2009 NMFS BO, pursuant to and in accordance with this ROD and the Final EIS. The Preferred Alternative will be implemented in a manner that will meet the following purposes without causing jeopardy to listed species or destroying or adversely modifying designated critical habitat:

- Meets Reclamation's mission and responsibilities.
- Balances operational considerations of the CVP and SWP with an appropriate level of flexibility to address consistency with:
 - Applicable Federal laws and regulations.
 - Applicable Federally-issued permits and licenses.
 - Applicable State of California-issued water rights, permits, and licenses.
- Enables Reclamation and DWR to satisfy their contractual obligations to the fullest extent possible.

Reclamation will also continue development of several ongoing items including those listed below. These items would be developed in a manner to continue the coordinated long-term operation of the CVP and SWP that will be compliant with applicable Federal and state requirements without causing jeopardy to listed species or destroying or adversely modifying designated critical habitat.

- **Fish Passage at CVP Dams:** Continued development by Reclamation of pilot projects to evaluate fish passage approaches to upstream habitat at Shasta, Folsom and New Melones dams because during periods with warm air and low flows, water temperatures below these dams often become lethal for incubating eggs. Study-specific impacts would be addressed in environmental documents prepared prior to implementation to address NEPA and ESA requirements.
- **Wetlands Restoration:** Continued development by Reclamation of ongoing tidal wetlands restoration in Suisun Marsh and Cache Slough (Component 4 of the 2008 USFWS BO) and floodplain restoration in Yolo Bypass (RPA Action I,6.1 of the 2009 NMFS BO) working with USEPA, USFWS, NMFS, USACE, SWRCB, DWR, and CDFW to implement the actions in the BOs.

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Reclamation will continue to work with USEPA, USFWS, NMFS, USACE, SWRCB, DWR, and CDFW to evaluate siting, design, and operations criteria to avoid increased production and distribution of methylmercury. Study-specific impacts would be addressed in environmental documents prepared prior to implementation to address NEPA and ESA requirements.

11.0 Actions that May Undergo Further Analysis

Reclamation acknowledges that several of the ongoing actions described in the 2008 USFWS BO and 2009 NMFS BO, as well as other ongoing actions that could affect CVP and SWP coordinated long-term operation, are being analyzed and may undergo further analyses, as described below.

11.1 Ongoing Actions Included in the 2008 USFWS BO and 2009 NMFS BO that May Undergo Further Analysis

Prior to the BOs being upheld by the Appellate Court, Reclamation and DWR were developing concepts for potential modifications to RPA actions to increase sustainability of the RPA actions over the long-term. Formulation of these concepts required intense and frequent technical discussions among Reclamation and DWR biologists, engineers, operators, planners and management. Although these concepts were not sufficiently developed to be included as part of an alternative for the current NEPA process given the District Court schedule, Reclamation may continue to explore additional opportunities to identify efficiencies with implementation of the 2008 USFWS BO and the 2009 NMFS BO. These opportunities would focus on methods to increase operational flexibility and feasibility that will meet the objectives of the BOs, while not jeopardizing the continued existence of listed species or resulting in destruction or adverse modification of designated critical habitat, including:

- **Clear Creek Channel Maintenance Flows:** Development of pilot studies to create pulse flows in Clear Creek to provide channel maintenance flows in accordance with the 2009 NMFS BO (RPA Action I.1.2). The RPA requires use of the Glory Hole Spillway in Whiskeytown Reservoir which is only designed for flood management operations when the water elevations are extremely high in the reservoir. A pilot plan may consider using the regular outlet to Clear Creek on Whiskeytown Dam, or using the Glory Hole Spillway opportunistically during storm events when appropriate. The pilot studies also may evaluate methods that would be coordinated to maximize spring attraction benefits and channel maintenance flows, and specific annual flow volumes. The pilot studies may consider the use of additional mechanical side channel restoration to provide benefits when flow actions do not adequately address the needs.

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- **Old and Middle River Actions and the Inflow to Export Ratio:** Evaluation of methods to combine the Old and Middle River (OMR) actions (2008 USFWS BO RPA Actions 1 through 3, and the 2009 NMFS BO RPA Actions 4.1.2 and 4.2.1), and also address the objectives of the San Joaquin River Inflow to Export Ratio (2009 NMFS BO RPA Action IV.2). The methods evaluated may be based on fish presence and behavior, and could include development of criteria for operational triggers and off-ramps. The studies may also include analyses of operational criteria for the Delta Cross Channel Gates, a potential gate at Georgiana Slough, and fish salvage methods at the CVP and SWP pumping plants.
- **Fall X2 Action:** Development of pilot studies to increase phytoplankton in the lower Sacramento River (as occurred in 2011 and 2012), and thereby, improve conditions for Delta Smelt. The pilot studies could evaluate methods to route water from the Colusa Basin Drain into Ridge Cut Slough, instead of the Sacramento River at Knights Landing. The water would flow into the Yolo Bypass toe drain to the Cache Slough Complex, and into the Sacramento River near Rio Vista. As the water flowed through the Yolo Bypass and Cache Slough Complex, it is anticipated that the concentration of organic materials would increase and would support extensive phytoplankton populations. The results of the pilot studies may be considered as option to help meet the objectives of the 2008 USFWS BO (Component 3).
- **OMR Index:** Continued evaluation of an OMR Index to comply with the 2008 USFWS BO RPA (Actions 1 through 3) and the 2009 NMFS BO (RPA Actions 4.1.2 and 4.2.1). The BO requires compliance determinations for the OMR flow requirements through the use of 5-day and 14-day running averages of tidally filtered daily gage data, as measured by the U.S. Geological Survey (USGS). The tidally filtered gage data is not available on a real-time basis, which makes it difficult to make operational decisions or project future operations. An OMR Index was developed in 2009 for use in planning efforts by the CVP and SWP operators. Development of an index could include coordinated monitoring and reporting of the USGS tidally filtered gage data and the OMR Index values.

11.2 Ongoing Actions Not Included in the 2008 USFWS BO and 2009 NMFS BO that May Undergo Further Analysis

Reclamation may also explore opportunities related to other future actions associated with the coordinated long-term operation of the CVP and SWP that are not addressed in the 2008 USFWS BO and 2009 NMFS BO, including:

- **Revised Plan of Operations for New Melones Reservoir:** Continued development of a revised plan of operations for the New Melones Reservoir to consider methods to implement the Central Valley Project Improvement Act

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Section 3406(b)(2) provisions, SWRCB D-1641 and Decision 1422, CDFW requirements under the 1987 Agreement, Central Valley Regional Water Quality Control Board Basin Plan, in-basin water rights, and flood control objectives in a manner that would avoid causing jeopardy to listed species or destroying or adversely modifying designated critical habitat. The revised plan of operations would be developed in coordinated manner working with USFWS, NMFS, SWRCB, CDFW, and Stanislaus River Basin Stakeholders. Study-specific impacts would be addressed in environmental documents prepared prior to implementation.

- **Implementation of the El Dorado Irrigation District Warren Act Contract and the El Dorado County Water Agency Water Service Contract:** Implementation of the El Dorado Irrigation District Warren Act Contract and the El Dorado County Water Agency Water Service Contract were included in the analysis prepared for the 2008 USFWS BO and the 2009 NMFS BO. These contracts are still under development, and therefore were not included in the No Action Alternative in the LTO Final EIS. Prior to the execution of these contracts, further analysis on local system effects must be completed. Assumptions related to these contracts were included in Alternatives 3 and 5 in the LTO Final EIS, however, the quantitative analyses did not include assumptions for these contracts. A sensitivity analysis was included in the LTO Final EIS which considered potential effects under Alternatives 3 and 5 with implementation of these contracts as compared to Alternatives 3 and 5 without these contracts. The results of the sensitivity analysis indicated that Folsom Lake storage, American River flow, and American River water temperature conditions under Alternatives 3 and 5 would be similar with or without these contracts, as presented in Appendix 5B, Sensitivity Analysis on Representation of EID's Warren Act and EDCWA's Water Service Contracts with Reclamation in Alternatives 3 and 5, of the Final EIS.

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