

Chapter 1

1 Introduction

2 1.1 Introduction

3 This Draft Environmental Impact Statement (EIS) on the Coordinated Long-Term
4 Operation of the Central Valley Project (CVP) and State Water Project (SWP) has
5 been prepared by the Department of the Interior, Bureau of Reclamation
6 (Reclamation). Reclamation is the Federal lead agency for compliance with the
7 National Environmental Policy Act (NEPA) as ordered by the United States
8 District Court for the Eastern District of California (District Court). The reason
9 for the court order, as given by the District Court, is to evaluate potential
10 modifications to the continued long-term operation of the CVP, in coordination
11 with the operation of the SWP, related to Reclamation's acceptance and
12 implementation of the Reasonable and Prudent Alternatives (RPAs) included in
13 the Biological Opinions (BOs) issued in 2008 and 2009 by the U.S. Fish and
14 Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS),
15 respectively, pursuant to the Federal Endangered Species Act of 1973 (ESA) as
16 amended (United States Code [U.S.C.] 1531 et. seq.).

17 This Draft EIS evaluates potential long-term direct, indirect, and cumulative
18 impacts on the environment that could result from implementation of
19 modifications to the continued long-term operation of the CVP and SWP. This
20 Draft EIS does not evaluate impacts related to implementing project-specific
21 actions, such as impacts during construction and startup periods for actions that
22 are not fully defined at this time and that may be implemented by Reclamation or
23 other agencies as part of the long-term operation of the CVP and SWP.

24 1.2 Background

25 This chapter presents an overview of the CVP and SWP, the coordinated
26 operation of the CVP and SWP, and endangered species consultations related to
27 the long-term operation of the CVP and SWP. The long-term operation of the
28 CVP and SWP is described in more detail in Chapter 3, Description of
29 Alternatives; Chapter 5, Surface Water Resources and Water Supplies; and
30 Appendix 3A, No Action Alternative: Central Valley Project and State Water
31 Project Operations.

32 1.2.1 Overview of the Central Valley Project

33 California initiated a comprehensive water plan for the state more than 100 years
34 ago to provide water conservation, flood control, water storage, and water
35 distribution. In 1933, the state legislature, governor, and the electorate approved
36 construction of the CVP. Because of difficulty in marketing bonds to finance

1 construction, the project could not be constructed by the state, and the Federal
2 government was requested to construct the CVP.

3 The first Federal authorization of the CVP was by the Rivers and Harbors Act of
4 August 30, 1935. The CVP was reauthorized for construction, operation, and
5 maintenance by the Secretary of the Department of the Interior (Secretary),
6 pursuant to the Reclamation Act of 1902, as amended and supplemented by the
7 Rivers and Harbors Act of August 26, 1937. The 1937 act also provided that the
8 dams and reservoirs of the CVP "... be used, first, for river regulation,
9 improvement of navigation, and flood control; second, for irrigation and domestic
10 uses; and, third, for power."

11 In 1992, the Central Valley Project Authorization Act of August 26, 1937, was
12 amended by Section 3406(a) of the Central Valley Project Improvement Act
13 (CVPIA), Public Law 102-575. The CVPIA modified the 1937 act and specified
14 that the dams and reservoirs of the CVP be used "first, for river regulation,
15 improvement of navigation, and flood control; second for irrigation and domestic
16 uses and fish and wildlife mitigation, protection and restoration purposes; and
17 third for power and fish and wildlife enhancement."

18 The CVP is composed of more than 18 reservoirs with a combined storage
19 capacity of more than 11 million acre-feet, more than 10 hydroelectric power
20 plants, and more than 500 miles of major canals and aqueducts (Figure 1.1 at the
21 end of this chapter). The major CVP reservoirs are in the Sacramento-San
22 Joaquin Rivers Delta Estuary (Delta) watershed, including Shasta Lake on the
23 Sacramento River, Folsom Lake on the American River, New Melones Reservoir
24 on the Stanislaus River, and Millerton Lake on the San Joaquin River. The CVP
25 also diverts water from Trinity Lake (on the Trinity River) to the Sacramento
26 River system. CVP pumping plants and canals include the Red Bluff Pumping
27 Plant, which diverts water from the Sacramento River into the CVP Tehama-
28 Colusa Canal; Folsom South Canal, which conveys water from Folsom Lake to
29 southeastern Sacramento County; Contra Costa Canal Pumping Plant, which
30 diverts water from Rock Slough in the Delta into the CVP Contra Costa Canal;
31 and Jones Pumping Plant, which diverts water from the south Delta into the CVP
32 Delta-Mendota Canal (DMC).

33 These facilities are generally operated as an integrated project, although they are
34 authorized and categorized in more distinct units or divisions. However, not all
35 facilities are operated to meet each of the above-identified project purposes. For
36 example, flood control is not an authorized purpose of the CVP Trinity River
37 Division.

38 The facilities, operational criteria and constraints, and authorizations of the CVP
39 are described in Chapter 5, Surface Water Resources and Water Supplies.

40 **1.2.2 Overview of the State Water Project**

41 After World War II, California's population almost doubled, and more water was
42 needed. In addition, devastating floods occurred in northern and central
43 California in the 1950s. To provide more reliable water supplies and reduce the

1 flood risk in the Sacramento Valley, the state legislature appropriated funds to the
 2 California Department of Water Resources (DWR) to construct the SWP under
 3 the State Central Valley Project Act (Water Code Section 11100 et seq.), Burns-
 4 Porter Act (California Water Resources Development Bond Act), State Contract
 5 Act (Public Contract Code Section 10100 et seq.), Davis-Dolwig Act (Water
 6 Code Sections 11900 through 11925), and other acts of the state legislature. The
 7 plans for the SWP included a reservoir on the Feather River near Oroville (Lake
 8 Oroville), a Delta cross channel, an electric power transmission system, an
 9 aqueduct to convey water from the Delta to Solano and Napa counties (North Bay
 10 Aqueduct), an aqueduct to convey water from the Delta to the San Francisco Bay
 11 Area (South Bay Aqueduct and a reservoir in Alameda County), an aqueduct
 12 (California Aqueduct) with the San Luis Dam to convey water from the Delta to
 13 the San Joaquin Valley and southern California, and several reservoirs in southern
 14 California.

15 DWR is required to plan for recreational and fish and wildlife uses of water in
 16 connection with the SWP and other state-constructed water projects (Water Code
 17 Sections 233, 345, 346, 12582). The Davis-Dolwig Act (Water Code
 18 Sections 11900 through 11925) established the policy that preservation of fish and
 19 wildlife is part of state costs to be paid by SWP water supply contractors, and
 20 recreation and enhancement of fish and wildlife are to be provided by
 21 appropriations from the General Fund.

22 **1.1.1 Coordinated Operation of the CVP and SWP**

23 The CVP and SWP are operated in a coordinated manner in accordance with
 24 Public Law 99-546 (October 27, 1986), directing the Secretary to execute the
 25 Coordinated Operation Agreement (COA) and State Water Resources Control
 26 Board (SWRCB) decisions and water right orders related to the CVP's and SWP's
 27 water right permits and licenses to appropriate water by diverting to storage, by
 28 directly diverting to use, or by re-diverting releases from storage later in the year
 29 or in subsequent years.

30 The CVP and SWP are permitted by SWRCB to store water during wet periods,
 31 divert water that is surplus to the Delta as a common water supply, and re-divert
 32 CVP and SWP water that has been stored in upstream reservoirs. The CVP and
 33 SWP have built water storage and water delivery facilities in the Central Valley to
 34 deliver water supplies to affected water rights holders and CVP and SWP
 35 contractors. The CVP's and SWP's water rights are conditioned by SWRCB to
 36 protect the beneficial uses of water within each respective project and jointly for
 37 the protection of beneficial uses in the Delta.

38 As conditions of the water right permits and licenses, SWRCB requires the CVP
 39 and SWP to meet specific water quality and operational criteria within the Delta.
 40 Reclamation and DWR coordinate operation of the CVP and SWP, respectively,
 41 to meet these and other operating requirements pursuant to the COA. The COA is
 42 an agreement between the Federal government and the State of California for the
 43 coordinated operation of the CVP and SWP. The agreement superseded a 1960

1 agreement and annual coordination agreements that had been implemented
2 following construction of the SWP.

3 The purpose of the COA is to ensure that the CVP and the SWP each obtains its
4 share of water from the Delta and bears its share of obligations to protect the other
5 beneficial uses of water in the Sacramento Valley and the Delta. In accordance
6 with the COA, the CVP and SWP can use the water resources for CVP and SWP
7 purposes and meet the common beneficial uses in the Sacramento Valley and the
8 Delta. Coordinated operation by agreed-on criteria can increase the efficiency of
9 both the CVP and the SWP. The COA established the operating framework for
10 the CVP and SWP based upon conditions in the 1980s, by setting forth:
11 (1) definitions of the CVP and SWP facilities and their water supplies,
12 (2) procedures for coordination of operations, (3) formulas for sharing joint
13 responsibilities for meeting Delta standards and other legal uses of water,
14 (4) criteria for sharing unstored flow in the Delta, (5) a framework for exchange
15 of water and services between the SWP and CVP, and (6) provisions for
16 periodic reviews.

17 Implementation of the COA has evolved continually since 1986 as CVP and SWP
18 facilities, operational criteria, and physical and regulatory environment have
19 changed. For example, adoption of the CVPIA in 1992 changed purposes and
20 operations of the CVP, and ESA responsibilities have affected operation of the
21 CVP and SWP. Since 1986, facilities operations have been modified in response
22 to regulatory requirements that were not part of the original COA assumptions or
23 requirements. In addition, water quality and flow standards have been revised by
24 SWRCB since 1986, such as SWRCB Decision 1641 adopted in 2000. DWR and
25 Reclamation have operational arrangements to accommodate new facilities, water
26 quality and flow objectives, the CVPIA, SWRCB criteria, and ESA, but the COA
27 has not been formally modified to address these newer operating conditions.

28 **1.2.3 Federal Endangered Species Consultation**

29 In addition to the conditions and limitations imposed by SWRCB on the water
30 rights permits and licenses for the CVP and SWP, Federal agencies have an
31 obligation pursuant to Section (7a)(2) of the ESA to determine that any
32 discretionary action authorized, funded, or carried out by the agency is not likely
33 to jeopardize the continued existence of endangered or threatened species or result
34 in the destruction or adverse modification of their critical habitat unless the
35 Endangered Species Committee, created under the ESA, grants an exemption for
36 the action [16 U.S.C. 1536 (a)(2)]. A discretionary agency action jeopardizes the
37 continued existence of a listed species if the action is reasonably expected to
38 directly or indirectly appreciably reduce the likelihood of both the survival and
39 recovery of a listed species in the wild by reducing the reproduction, numbers, or
40 distribution of the listed species (50 Code of Federal Regulations [CFR] 402.02).

41 In carrying out its obligations, Reclamation must consult with the appropriate
42 regulatory agency or agencies (e.g., USFWS and NMFS) when an action may
43 affect listed species. After the consultation process, those agencies render written
44 statements (BOs) setting forth their opinion as to how the action would affect a

1 listed species and its designated critical habitat. If these agencies conclude that
 2 the action will jeopardize the continued existence of a listed species or result in
 3 the destruction or adverse modification of their designated critical habitat, they
 4 must suggest an RPA to the action if one exists. As defined in the ESA, RPAs
 5 “refer to alternative actions identified during formal consultation that can be
 6 implemented in a manner consistent with the intended purpose of the action, that
 7 can be implemented consistent with the scope of the Federal agency's legal
 8 authority and jurisdiction, that is economically and technologically feasible, and
 9 that the Director believes would avoid the likelihood of jeopardizing the
 10 continued existence of listed species or resulting in the destruction or adverse
 11 modification of critical habitat” (40 CFR 402.02).

12 If SWP seeks to avail itself of the incidental take protection provided by the BOs,
 13 the coordinated long-term operation of the SWP would be subject to the measures
 14 or RPAs required by the BOs.

15 **1.2.3.1 Threatened and Endangered Species Considered in ESA**
 16 **Consultation for Coordinated Long-Term Operation of the CVP**
 17 **and SWP**

18 The following species, and their associated ESA and critical habitat listing rules,
 19 were considered in recent ESA consultations with USFWS and NMFS for the
 20 coordinated long-term operation of the CVP and SWP analysis in this document:

- 21 • Sacramento River winter-run Chinook Salmon (*Oncorhynchus tshawytscha*)
 22 Evolutionarily Significant Unit (ESU) was originally listed as threatened in
 23 August 1989, under emergency provisions of the ESA, and formally listed as
 24 threatened in November 1990 (55 FR 46515). They were re-classified as an
 25 endangered species on January 4, 1994 (59 FR 440).
- 26 • Central Valley spring-run Chinook Salmon (*O. tshawytscha*) ESU was listed
 27 as threatened on June 18, 2005 (70 FR 37160).
- 28 • Central Valley Steelhead (*O. mykiss*) Distinct Population Segment (DPS) was
 29 listed as threatened on January 5, 2006 (71 FR 834).
- 30 • Southern Oregon/Northern California Coast Coho Salmon (*O. kisutch*) ESU
 31 was reaffirmed as threatened on June 18, 2005 (70 FR 37160).
- 32 • Southern DPS of the North American Green Sturgeon (*Acipenser medirostris*)
 33 was listed as threatened on June 6, 2006 (71 FR 17757).
- 34 • Southern Resident DPS of Killer Whales (*Orcinus orca*) was listed as
 35 endangered on November 18, 2005 (70 FR 69903-69912).
- 36 • Delta Smelt (*Hypomesus transpacificus*) was listed as threatened on
 37 March 5, 1993 (58 FR 12854). The species was recently proposed for
 38 re-listing as endangered under the ESA.

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

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

6 **1.2.3.2 Recent ESA Consultation Activities and Court Rulings**

7 Reclamation submitted a biological assessment to USFWS and NMFS for
8 consultation on the long-term operation of the CVP and SWP in June 2004.
9 Because SWP operations are coordinated with CVP operations, SWP operations
10 are included in Reclamation's action. NMFS has responsibility for anadromous
11 fish and marine mammals, and USFWS has jurisdiction over all other ESA listed
12 species.

13 In July 2004, USFWS issued its BO "Formal and Early Section 7 Endangered
14 Species Consultation on the Coordinated Operations of the Central Valley Project
15 and State Water Project and the Operations Criteria and Plan to Address Potential
16 Critical Habitat Issues." In February 2005, USFWS issued the "Re-Initiation of
17 Formal and Early Section 7 Endangered Species Consultation on the Coordinated
18 Operations of the Central Valley Project and State Water Project and the
19 Operational Criteria and Plan to Address Potential Critical Habitat Issues."

20 On October 22, 2004, NMFS issued its "Biological Opinion and Conference
21 Opinion on the Long-Term Operations of the Central Valley Project and State
22 Water Project."

23 On April 26, 2006, Reclamation requested that the NMFS consultation be
24 re-initiated based on the new listing of the Southern DPS of the North American
25 Green Sturgeon. On May 19, 2006, Reclamation requested that the USFWS
26 consultation be re-initiated because of the potential for the re-initiation of the
27 NMFS consultation to affect the Delta Smelt and because of recently compiled
28 data related to the pelagic organism decline.

29 Following the issuance of the 2004 and 2005 BOs, litigation was filed against the
30 Department of the Interior and the Department of Commerce challenging the
31 validity of these BOs. Following a finding that the CVP/SWP operation analyzed
32 in the 2005 BO jeopardized the continued existence of Delta Smelt, on
33 December 14, 2007, the District Court issued an Interim Remedial Order in
34 *Natural Resources Defense Council, et al. v. Kempthorne*, 1:05-cv-1207 OWW
35 GSA (E.D. Cal. 2007), to provide additional protection for Delta Smelt pending
36 completion of a new USFWS BO for the continued long-term operation of the
37 CVP and SWP. The Interim Remedial Order remained in effect until USFWS
38 issued a new BO for the continued long-term operation of the CVP and SWP on
39 December 15, 2008.

40 On April 16, 2008, the District Court issued a Memorandum Decision and Order
41 on the Cross-Motions for Summary Judgment filed in *Pacific Coast Federation of*
42 *Fishermen's Associations, et al. v. Gutierrez*, 1:06-cv-245-OWW-GSA (E.D.
43 Cal. 2008). The District Court found that the BO issued by NMFS in 2004 was

1 invalid. An evidentiary hearing followed, resulting in a Remedies Ruling on
 2 July 18, 2008. The ruling concluded that the District Court needed further
 3 evidence to consider the Plaintiffs’ proposed restrictions on the long-term
 4 coordinated CVP and SWP operation.

5 In August 2008, Reclamation submitted a biological assessment to USFWS and
 6 NMFS for consultation.

7 On December 15, 2008, USFWS issued a BO analyzing the effects of the
 8 coordinated long-term operation of the CVP and SWP on Delta Smelt and its
 9 designated critical habitat. The 2008 USFWS BO:

- 10 • Concluded that “the coordinated operation of the CVP and SWP, as proposed,
 11 [was] likely to jeopardize the continued existence of the Delta Smelt” and
 12 “adversely modify Delta Smelt critical habitat.”
- 13 • Included an RPA for long-term operation of the CVP and SWP designed to
 14 allow the projects to continue operating without causing jeopardy or adverse
 15 modification.

16 On December 15, 2008, Reclamation provisionally accepted and began
 17 implementing the USFWS RPA.

18 On June 4, 2009, NMFS issued a BO analyzing the effects of the coordinated
 19 long-term operation of the CVP and SWP on listed salmonids, Green Sturgeon,
 20 and southern resident Killer Whale and their designated critical habitats. The
 21 NMFS BO concluded that the long-term operation of the CVP and SWP, as
 22 proposed, was likely to:

- 23 • Jeopardize the continued existence of Sacramento River winter-run Chinook
 24 Salmon, Central Valley spring-run Chinook Salmon, Central Valley
 25 Steelhead, Southern DPS of North American Green Sturgeon, and Southern
 26 Resident Killer Whales.
- 27 • Destroy or adversely modify critical habitat for Sacramento River winter-run
 28 Chinook Salmon, Central Valley spring-run Chinook Salmon, Central Valley
 29 Steelhead, and Southern DPS of North American Green Sturgeon.

30 The 2009 NMFS BO included an RPA designed to allow the CVP and SWP to
 31 continue operating without causing jeopardy to the analyzed species or adverse
 32 modification of their designated critical habitat. On June 4, 2009, Reclamation
 33 provisionally accepted and began implementing the NMFS RPA.

34 Several lawsuits were filed in the District Court challenging aspects of the 2008
 35 USFWS BO and the 2009 NMFS BO and Reclamation’s acceptance and
 36 implementation of the associated RPAs. Many of the lawsuits were consolidated
 37 into two proceedings focused on each BO. The outcomes of the Consolidated
 38 Delta Smelt Cases and the Salmonid Consolidated Cases are summarized below.

- 39 • Consolidated Delta Smelt Cases
 - 40 – On November 16, 2009, the District Court ruled that Reclamation violated
 - 41 NEPA by failing to conduct a NEPA review of the potential impacts on

- 1 the human environment before provisionally accepting and implementing
2 the 2008 USFWS BO, including the RPA. Reclamation was ordered to
3 review the USFWS BO and RPA in accordance with NEPA.
- 4 – On December 14, 2010, the District Court found certain portions of the
5 2008 USFWS BO to be arbitrary and capricious and remanded those
6 portions of the BO to USFWS without vacatur for further consideration.
7 The District Court ordered Reclamation to review the BO and RPA in
8 accordance with NEPA.
- 9 – The decision of the District Court related to the USFWS BO was appealed
10 to the United States Court of Appeals for the Ninth Circuit (Appellate
11 Court). On March 13, 2014, the Appellate Court reversed the District
12 Court and upheld the BO. Therefore, the remand order related to the
13 USFWS BO was rescinded. However, the Appellate Court affirmed the
14 judgment of the District Court with respect to the NEPA claims.
- 15 – A mandate of the Appellate Court was issued on September 16, 2014.
16 Petitions for Writ of Certiorari were submitted to the U.S. Supreme Court;
17 however, the U.S. Supreme Court decided to not hear the cases. The
18 District Court issued the Final Order on October 1, 2014.
- 19 • Salmonid Consolidated Cases
- 20 – On March 5, 2010, the District Court ruled that Reclamation violated
21 NEPA by failing to undertake a NEPA analysis of potential impacts on the
22 human environment before accepting and implementing the 2009 NMFS
23 BO and RPA.
- 24 – On September 20, 2011, the District Court remanded the 2009 NMFS BO
25 to NMFS without vacatur for further consideration.
- 26 – The decisions of the District Court related to the 2009 NMFS BO were
27 appealed to the Appellate Court. On December 22, 2014, the Appellate
28 Court reversed the District Court and upheld the BO. Therefore, the
29 remand order related to the NMFS BO was rescinded.
- 30 – A mandate of the Appellate Court was issued on February 17, 2015.
31 The District issued the Final Order on May 5, 2015.

32 **1.3 Need to Prepare this Environmental Impact** 33 **Statement**

34 Compliance with NEPA is a Federal responsibility and involves the participation
35 of Federal, state, tribal, and local agencies, as well as concerned and affected
36 members of the public in the planning process. NEPA requires that Federal
37 agencies analyze and disclose the potential environmental impacts and possible
38 mitigation for Federal actions and a reasonable range of alternatives to the
39 proposed action. NEPA is required when a discretionary Federal action is
40 proposed. The regulations [40 CFR 1508.18(a)] define a Federal action as

1 including new and continuing activities, actions partly or entirely financed by
2 Federal agencies (where some control and responsibility over the action remain
3 with the Federal agency [43 CFR 46.100]), actions conducted by Federal
4 agencies, actions approved by Federal agencies, new or revised agency rules or
5 regulations, and proposals for legislation.

6 Section 102 of NEPA (42 U.S.C. 4332) indicates that a detailed analysis, such as
7 an EIS, should be completed with proposals for Federal actions that substantially
8 affect the quality of the human environment, including the natural and physical
9 environment and the relationship of people with that environment (40 CFR
10 1508.14).

11 To comply with the District Court's 2010 orders regarding NEPA, Reclamation
12 initiated preparation of this EIS in 2011. This EIS documents Reclamation's
13 analysis of the effects of modifications to the coordinated long-term operation of
14 the CVP and SWP that are likely to avoid jeopardy to listed species and
15 destruction or adverse modification of designated critical habitat.

16 In accordance with the District Court's order in the *Delta Smelt Consolidated*
17 *Cases*, the Final EIS and Record of Decision are to be completed on or before
18 December 1, 2015.

19 As described in Chapter 3, Description of Alternatives, many of the provisions of
20 the RPAs, as set forth in the 2008 USFWS BO and the 2009 NMFS BO, require
21 further study, monitoring, further consultation, implementation of adaptive
22 management programs, and subsequent environmental documentation for future
23 facilities to be constructed or modified. Specific actions related to these
24 provisions are not known at this time. Therefore, this EIS assumes the
25 completion of future actions, including provisions of the RPAs, in a manner that
26 would be consistent with the ESA and does not address impacts during
27 construction and startup phases of these actions.

28 **1.4 Use of the Environmental Impact Statement**

29 This EIS may be used by Reclamation or cooperating agencies that are
30 participating in the preparation of this EIS to inform future decisions related to the
31 ESA consultation and implementation of the RPAs in the 2008 USFWS BO and
32 2009 NMFS BO. A cooperating agency is defined as any Federal agency, except
33 the NEPA lead agency, that has jurisdiction by law or has special expertise with
34 respect to any environmental issue that should be addressed in the EIS
35 (40 CFR 1501.6). A cooperating agency also can include a governmental entity
36 (state, tribal, or local) that has jurisdiction by law or special expertise with respect
37 to any environmental impact associated with the action being considered. The
38 cooperating agencies for this EIS are listed in Section 1.6.

39 This Draft EIS does not recommend a preferred alternative. The
40 recommendations will be included in the Record of Decision developed by
41 Reclamation following completion of the EIS.

1 **1.5 Project Area**

2 The project area boundaries are defined by the locations of most of the CVP
3 facilities and their service areas and all of the SWP facilities and the SWP service
4 areas, as shown on Figure 1.1. The CVP facilities associated with Millerton Lake,
5 including the Madera and Friant-Kern canals and their service areas, and the San
6 Joaquin River Restoration Program are not part of the project area for this EIS
7 because the operations of these facilities were not addressed in the 2008 USFWS
8 BO and 2009 NMFS BO.

9 **1.5.1 CVP Facilities**

10 The CVP facilities evaluated in this EIS include reservoirs on the Trinity,
11 Sacramento, American, and Stanislaus rivers; Mendota Pool on the San Joaquin
12 River; rivers, streams, canals, and aqueducts used to convey CVP water; and the
13 CVP service area that relies upon water from these reservoirs including:

- 14 • A portion of the water from Trinity River is stored and re-regulated in Trinity
15 Lake, Lewiston Lake, and Whiskeytown Reservoir and diverted through
16 tunnels and power plants into the Sacramento River. Water is also stored and
17 re-regulated in Shasta Lake and Folsom Lake. Water from these reservoirs
18 and other reservoirs owned or operated by the CVP flows into the Sacramento
19 River. The Red Bluff Pumping Plant on the Sacramento River lifts water into
20 the Tehama Colusa Canal for delivery to CVP contractors. Water also is
21 delivered from the Sacramento River, American River, and the Folsom South
22 Canal to CVP contractors, water rights holders, and settlement contractors.
- 23 • The Sacramento River conveys water to the Delta for delivery through the
24 Contra Costa Canal and Jones Pumping Plant. The Contra Costa Canal
25 originates at Rock Slough near Oakley and extends to the Martinez Reservoir.
26 Water from the Contra Costa Canal is delivered to the Contra Costa Water
27 District. The Jones Pumping Plant at the southern end of the Delta lifts the
28 water into the DMC. This canal delivers water to CVP contractors, who
29 divert water directly from the DMC, and to San Joaquin River exchange
30 contractors, who divert directly from the San Joaquin River and the Mendota
31 Pool. CVP water is also conveyed to the San Luis Reservoir for deliveries to
32 CVP contractors through the San Luis Canal. Water from the San Luis
33 Reservoir is also conveyed through the Pacheco Tunnel to CVP contractors in
34 Santa Clara and San Benito counties.
- 35 • The CVP provides water stored in New Melones Reservoir for water rights
36 holders in the Stanislaus River watershed and CVP contractors in the northern
37 San Joaquin Valley and to meet existing water right permit conditions to
38 support fish and wildlife and water quality beneficial uses.

39 The project area includes portions of the watersheds upstream of the CVP
40 reservoirs that support anadromous fish species, as addressed in the NMFS BO,
41 and the service areas of CVP water users in the Trinity River Region, Sacramento

1 and San Joaquin valleys in the Central Valley Region, and the San Francisco-Bay
2 Area Region.

3 **1.5.2 SWP Facilities**

4 The SWP facilities evaluated in this EIS include Lake Oroville on the Feather
5 River; rivers, streams, canals, and aqueducts used to convey SWP water; and the
6 SWP service area that relies upon water from these reservoirs including:

- 7 • SWP water is stored and re-regulated in Lake Oroville and released into the
8 Feather River, which flows into the Sacramento River. Water also is
9 delivered from the Feather River to SWP contractors, water rights holders,
10 and settlement contractors.
- 11 • SWP water flows in the Sacramento River to the Delta and is exported from
12 the Delta at the Banks Pumping Plant. The Banks Pumping Plant pumps the
13 water into the California Aqueduct, which delivers water to the SWP
14 contractors and conveys water to the San Luis Reservoir for continued
15 delivery in the California Aqueduct to the San Joaquin Valley, Central Coast
16 Region, and southern California.
- 17 • The SWP provides water from the Delta to Solano and Napa counties through
18 the North Bay Aqueduct and to Alameda and Santa Clara counties through the
19 South Bay Aqueduct (including Lake Del Valle).
- 20 • The SWP provides water from the Delta to the Central Coast Region through
21 the Coastal Branch Aqueduct.
- 22 • The SWP provides water from the Delta to southern California through the
23 California Aqueduct (including Quail, Pyramid, Castaic, Silverwood, and
24 Perris lakes).
- 25 • The SWP delivers water to the Cross-Valley Canal, when the systems have
26 capacity, for CVP contractors.

27 The project area includes the service areas in the Sacramento and San Joaquin
28 valleys in the Central Valley Region as well as the San Francisco-Bay Area,
29 Central Coast, and Southern California regions.

30 **1.6 Study Period**

31 The coordinated long-term operation of the CVP and SWP, as described in this
32 EIS, is expected to continue to at least 2030 before CVP and SWP operations
33 would change. These changes could include projects considered as part of the
34 cumulative effects analyses, as described in Chapter 3, Description of
35 Alternatives. Therefore, this EIS analyzes future conditions projected for 2030.
36 It is recognized that many changes between existing conditions and 2030
37 conditions would occur without changes to CVP and SWP operations, including:

- 38 • Land use changes will occur in the Delta watershed as growth occurs as
39 projected in local agency general plans. Much of this growth is expected in

1 the service areas of water users with water rights that may be senior to the
2 CVP and SWP or within the Sacramento Valley, and municipal and industrial
3 CVP contractors will increase water demands for population growth as
4 described in the general plans. These actions could reduce the available water
5 supplies for use by the CVP and SWP. This EIS assumes that this growth will
6 occur by 2030. Therefore, the effects of land use changes by 2030 will be
7 similar in the comparison of all alternatives.

- 8 • Climate change could change CVP and SWP water supplies if the amount of
9 snow decreases and the amount of rain either decreases or occurs within a
10 shorter period and limits the amount of water captured in reservoirs. Sea-level
11 rise would increase salinity in the western, central, and southern Delta, which
12 could limit the time when CVP and SWP divert water. These actions could
13 reduce the available water supplies for use by the CVP and SWP. Federal and
14 state agencies have completed numerous studies that project future climate
15 change and sea-level rise scenarios. The specific characteristics of climate
16 change and sea-level rise are not defined at this time because this EIS includes
17 only qualitative analyses. All of the alternatives, including the No Action
18 Alternative, evaluated in this EIS include the same assumptions for climate
19 change and sea-level rise. Therefore, the effects of climate change and
20 sea-level rise will be similar in the comparison of all alternatives.
- 21 • Numerous studies are being prepared by Federal, state, and local agencies to
22 evaluate implementation of storage projects in the Delta watershed, Delta
23 conveyance, Delta ecosystem restoration, and Delta water quality
24 improvement through construction of treatment facilities for discharges into
25 the Delta. As described in Chapter 3, Description of Alternatives, most of
26 those studies have not been completed. However, many of the facilities
27 recommended by those studies are expected to be constructed and operational
28 by 2030. Therefore, the effects of implementation of those facilities will be
29 similar in the comparison of all alternatives.

30 As the changing conditions described above and other future changes occur,
31 changes in long-term operation of the CVP and SWP may be required. This may
32 require the re-initiation of ESA consultations. Therefore, because the above-
33 described changes in conditions are likely to occur by 2030 and because new BOs
34 would be required, this EIS considers a study period that concludes in 2030.

35 **1.7 Participants in Preparation of the Draft EIS**

36 For this EIS, Reclamation is the Federal lead agency. The Federal cooperating
37 agencies include USFWS, NMFS, U.S. Environmental Protection Agency, U.S.
38 Army Corps of Engineers, and Bureau of Indian Affairs.

39 Reclamation also provided non-federal agencies with the opportunity to
40 participate in the NEPA process if they qualified under NEPA (as described
41 above) as a cooperating agency. In August 2012, Reclamation invited
42 747 non-federal entities to be cooperating agencies for this EIS, including:

- 1 • DWR
- 2 • SWRCB
- 3 • California Department of Fish and Wildlife
- 4 • Agencies that have contracts with the CVP or SWP for water delivery, water
- 5 service repayment, exchange or settlement, or use of CVP or SWP facilities
- 6 for conveyance
- 7 • State and Federal Contractors Water Agency
- 8 • Cities and counties within the CVP and SWP service areas
- 9 • Federally recognized tribes within the CVP and SWP service areas or areas
- 10 affected by long-term operation of the CVP and SWP
- 11 Non-federal entities that meet the specified criteria for cooperating agencies are
- 12 required to enter into a Memorandum of Understanding (MOU) [43 CFR
- 13 46.225(d)] with Reclamation. The MOU provides a framework for cooperating
- 14 agencies to agree to their respective roles, responsibilities, and limitations,
- 15 including, as appropriate, target schedules.
- 16 Reclamation has signed or is in the process of signing MOUs with the following
- 17 entities:
- 18 • Anderson-Cottonwood Irrigation District
- 19 • California Department of Water Resources
- 20 • California Valley Miwok Tribe
- 21 • City of Hesperia
- 22 • Contra Costa Water District
- 23 • Del Puerto Water District
- 24 • East Bay Municipal Utility District
- 25 • Friant Water Authority
- 26 • Glenn-Colusa Irrigation District
- 27 • Humboldt County Board of Supervisors
- 28 • Metropolitan Water District of Southern California
- 29 • Oakdale Irrigation District
- 30 • Reclamation District 108
- 31 • San Diego County Water Authority
- 32 • San Juan Water District
- 33 • San Luis & Delta-Mendota Water Authority
- 34 • Santa Clara Valley Water District
- 35 • Tehama Colusa Canal Authority
- 36 • Stockton East Water District
- 37 • Sutter Mutual Water District
- 38 • Zone 7 Water Agency

1 Reclamation also received a request from an interested party to include the
2 Federal Emergency Management Agency (FEMA) as a cooperating agency.
3 However, Reclamation concluded that FEMA does not meet the requirements for
4 being a cooperative agency in accordance with Section 1501.6 of NEPA for a
5 “Federal agency which has special expertise related to environmental issues,
6 which should be addressed in the statement” and beyond that which could not be
7 addressed by other cooperating Federal agencies.

8 **1.7.1 Stakeholder and Public Involvement during Preparation of** 9 **the Draft EIS**

10 The scoping process was initiated on March 28, 2012, with the publication of the
11 Notice of Intent in the FR and continued through June 28, 2012. Initially, the
12 public scoping process was to be completed on May 29, 2012. During the public
13 scoping process, other agencies and interested persons requested an extension of
14 the public scoping process to allow additional opportunities to provide scoping
15 comments. In response to these requests, Reclamation published a notice on
16 May 25, 2012, extending the public scoping period through June 28, 2012.

17 Scoping meetings were held to inform the public and interested stakeholders
18 about the project and to solicit comments and input on the EIS. The scoping
19 meetings were held in:

- 20 • Madera on April 25, 2012 (6 participants)
- 21 • Diamond Bar on April 26, 2012 (3 participants)
- 22 • Sacramento on May 2, 2012 (15 participants)
- 23 • Marysville on May 3, 2012 (2 participants)
- 24 • Los Banos on May 22, 2012 (230 participants)

25 Reclamation posted the scoping notices in the FR, on its website, and in
26 newspapers that served areas where the scoping meetings were held. Reclamation
27 also published press releases to news organizations and others that have requested
28 notifications for all press releases.

29 Scoping comments were used in the development of a reasonable range of
30 alternatives and identification of key issues that would require analysis in the
31 Environmental Consequences sections of this EIS, as described in Chapter 3,
32 Description of Alternatives, and Chapter 23, Consultation, Coordination, and
33 Cooperation.

34 Reclamation also posted on its website an initial range of alternatives discussed at
35 a stakeholders meeting on October 19, 2012. As described in Chapter 3,
36 Description of Alternatives, comments received during that process were used to
37 refine the description of the alternatives.

38 Project status meetings were held with cooperating agencies and other
39 stakeholders during preparation of the Draft EIS, including meetings in
40 Sacramento on January 16, May 29, and November 5, 2014; and February 20 and
41 June 24, 2015.

1.7.2 Stakeholder and Public Involvement during Preparation of the Final EIS

This Draft EIS is being published for public review. The distribution list for the Public Draft EIS is included in Chapter 24. Reclamation has posted notification of the availability of the Public Draft EIS and location and timing of public hearing(s) on its website, in the FR, and through press releases. Comments received on the Public Draft EIS will be considered in preparation of the Final EIS. Written responses to all substantive comments received will be included in the Final EIS.

1.8 Related Projects and Activities

Because the EIS study area is large, many activities and studies that are currently ongoing or planned for the near future could be affected by the findings of the EIS or are related actions of long-term operation of the CVP and SWP. Preliminary information from these studies and projects has been used to describe the No Action Alternative or to assess cumulative impacts of implementing alternatives evaluated in this Draft EIS. These studies and projects are summarized in Chapter 3, Description of Alternatives, and are listed below:

- Trinity River Restoration Program
- Clear Creek Fisheries Habitat Restoration Program
- Clear Creek Mercury Abatement and Fisheries Restoration Project
- Iron Mountain Mine Superfund Site
- Mainstem Sacramento River and Lower American River Gravel Augmentation Program
- Battle Creek Salmon and Steelhead Restoration Project
- Lower Mokelumne River Spawning Habitat Improvement Project
- Dutch Slough Tidal Marsh Restoration
- Suisun Marsh Habitat Management, Preservation, and Restoration Plan Implementation
- San Joaquin River Restoration Program
- Stockton Deep Water Ship Channel Dissolved Oxygen Project
- City of Stockton Delta Water Supply Project
- Grassland Bypass Project
- Bay-Delta Water Quality Control Plan Update
- Bay Delta Conservation Plan and California Water Fix
- Shasta Lake Water Resources Investigation

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- 1 • North of Delta Offstream Storage Investigation
- 2 • Federal Energy Regulatory Commission (FERC) License Renewal for SWP
- 3 Oroville Project
- 4 • FERC Relicensing for Middle Fork of the American River Project
- 5 • FERC Relicensing for Yuba-Bear and Drum Spaulding Projects
- 6 • Woodland-Davis Water Supply Project
- 7 • El Dorado Water and Power Authority Supplemental Water Rights Project
- 8 • Folsom Dam Water Control Manual Update
- 9 • Nimbus Fish Hatchery Fish Passage Project
- 10 • Northeastern San Joaquin County Groundwater Banking Authority
- 11 • Semitropic Water Storage District Delta Wetlands
- 12 • North Bay Aqueduct Alternative Intake
- 13 • Los Vaqueros Reservoir Expansion Phase 2
- 14 • Contra Loma Reservoir and Recreation Resource Management Plan
- 15 • Bay Area Regional Desalination Project
- 16 • Upper San Joaquin River Basin Storage Investigation
- 17 • FERC Relicense Renewal for Turlock Irrigation District and Modesto
- 18 Irrigation District Don Pedro Project
- 19 • FERC Relicense Renewal for Merced Irrigation District's Merced River
- 20 Hydroelectric Project
- 21 • Central Valley Regional Water Quality Control Board Irrigated Lands
- 22 Regulatory Program
- 23 • Central Valley Salinity Alternatives for Long-term Sustainability (CV-Salts)
- 24 • San Luis Reservoir Low Point Improvement Project
- 25 • San Luis Reservoir State Recreation Area Resource Management
- 26 Plan/General Plan
- 27 • Mill Creek Riparian Assessment
- 28 • Yolo County Habitat/Natural Community Conservation Plan
- 29 • Yolo Bypass Salmonid Habitat Restoration and Fish Passage Implementation
- 30 Plan
- 31 • North Delta Flood Control and Ecosystem Restoration Project
- 32 • Franks Tract Project

1.9 Organization of the Draft Environmental Impact Statement

This Draft EIS is organized as follows:

- The **Executive Summary** presents the purpose and intended uses of this EIS and summarizes the project background, need to prepare this EIS, project area and study period, an overview of the alternatives, and major conclusions of the environmental analysis. A table summarizing the environmental consequences, mitigation measures, and significant impacts for the alternatives is included.
- **Chapter 1, Introduction**, summarizes the project background, need to prepare this EIS, use of this EIS, project area and study period, stakeholder and public involvement in the preparation of the Draft EIS, and related projects and activities.
- **Chapter 2, Purpose and Need for the Action**, summarizes the underlying purpose and need to which Reclamation is responding in proposing the alternatives for the action.
- **Chapter 3, Description of Alternatives**, summarizes the methods used for developing the alternatives considered in the Draft EIS, describes the alternatives, and discusses the alternatives considered but eliminated from detailed analysis.
- **Chapter 4, Approach to Environmental Analyses**, describes the approach and terms used in the description of the regulatory setting, affected environment, environmental consequences, cumulative effects, and mitigation measures, if appropriate, for the resource topics identified in Chapters 5 through 21.
- **Chapters 5 through 21** include the regulatory setting, affected environment, and environmental consequences for 17 resource topics and discuss methods of analysis, environmental impacts, and mitigation measures for potential direct and indirect impacts. References for each resource are included within each of these chapters, as follows:
 - Chapter 5 – Surface Water Resources and Water Supplies
 - Chapter 6 – Surface Water Quality
 - Chapter 7 – Groundwater Resources and Groundwater Quality
 - Chapter 8 – Energy
 - Chapter 9 – Fisheries and Aquatic Resources
 - Chapter 10 – Terrestrial Biological Resources
 - Chapter 11 – Geology and Soils
 - Chapter 12 – Agricultural Resources
 - Chapter 13 – Land Use
 - Chapter 14 – Visual Resources
 - Chapter 15 – Recreation Resources
 - Chapter 16 – Air Quality and Greenhouse Gas Emissions

Chapter 1: Introduction

- 1 – Chapter 17 – Cultural Resources
- 2 – Chapter 18 – Public Health
- 3 – Chapter 19 – Socioeconomics
- 4 – Chapter 20 – Indian Trust Assets
- 5 – Chapter 21 – Environmental Justice

- 6 • **Chapter 22, Other NEPA Considerations**, summarizes the environmental
7 effects of implementation of the alternatives related to growth-inducing
8 indirect impacts, the relationship between short-term and long-term
9 productivity, irreversible and irretrievable commitments of resources, and
10 impacts on other Federal and non-federal projects and plans.

- 11 • **Chapter 23, Consultation, Coordination, and Cooperation**, summarizes
12 public and stakeholder involvement activities under NEPA; Native American
13 consultation; consultation with other Federal, state, regional, and local
14 agencies; consultation with other entities and organizations; and
15 unresolved issues.

- 16 • **Chapter 24, Distribution List for Draft EIS**, provides locations where the
17 Draft EIS is available for review and provides an overview of governmental
18 entities, organizations, and interested parties that received a copy of the
19 Draft EIS.

- 20 • **Chapter 25, List of Preparers**, provides a list of individuals who participated
21 in the preparation of the Draft EIS.

- 22 • **Appendices** contain background information including modeling
23 methodologies, assumptions, and results; and lists and statuses of species
24 federally listed as threatened and endangered evaluated in this EIS.



1

2 **Figure 1.1 Study Area**

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