CHAPTER 1. INTRODUCTION

[***Note to Reviewers**: This is a revised version of BDCP Chapter 1, Introduction. The last draft of Chapter 1 was presented to the Steering Committee at the August 26, 2010 meeting. Revisions have been made throughout the text to address comments received, to clarify concepts, and to bring the document up to date with the progress on various components of the BDCP in 2010. The BDCP Steering Committee members have submitted comments to various drafts of this chapter during development, which may or may not have been incorporated into this November 18, 2010 draft. While the text of this chapter is subject to change and revision as the BDCP planning process progresses, the chapter has been drafted and formatted to appear as it may in a completed draft HCP/NCCP. Although the chapter includes declarative statements (e.g., the Implementation Office will…), it is nonetheless a "working draft" that will undergo further modification based on input from the BDCP Steering Committee, state and federal agencies, and the public.]*

1.1 BACKGROUND

The Bay Delta Conservation Plan (BDCP or "Plan") addresses the increasingly significant and intensifying conflict between the ecological needs of a number of at-risk species adversely affected by a range of human activities and the need for adequate and reliable water supplies from the Sacramento-San Joaquin River Delta (Delta) for people, communities, agriculture, and industry. The Plan sets out a comprehensive conservation strategy for the Delta designed to advance the co-equal planning goals of restoring ecological functions of the Delta and improving water supply reliability to large portions of the state of California. The BDCP reflects the outcome of a multi-year collaboration between public water agencies, state and federal fish and wildlife agencies, non-governmental organizations, agricultural interests, and the general public.

The BDCP is expected to result in long-term regulatory authorizations under state and federal endangered species laws for the operations of the State Water Project (SWP) and the Central Valley Project (CVP), as well as the operations of certain power plants owned by Mirant Delta LLC (Mirant). The Plan will further provide the basis for durable regulatory assurances. Specifically, the goal of the BDCP is to serve as a natural community conservation plan (NCCP) under the state's Natural Community Conservation Planning Act (NCCPA),[1] and a habitat conservation plan (HCP) under Section 10 of the federal Endangered Species Act (ESA). The Plan will also provide the basis for biological assessments that support new ESA Section 7 consultations between the Bureau of Reclamation (Reclamation), the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS). The BDCP is further intended to meet the standards set out in the recently-enacted Sacramento-San Joaquin Delta

[1] The BDCP has also been designed to meet the regulatory standards of the California Endangered Species Act.

Reform Act, which provides for the incorporation of the BDCP in a comprehensive management plan for the Delta (known as the "Delta Plan").[2]

Unlike past regulatory approaches, which have relied almost exclusively on iterative adjustments to the operations of the SWP and CVP, the BDCP prescribes actions that will produce fundamental, systemic and long-term physical changes to the Delta. These changes will involve substantial alterations to water conveyance infrastructure and water management regimes in combination with extensive restoration of habitat and actions to reduce the impacts of various biological stressors. It is expected that these actions will significantly enhance Delta productivity and ecological processes so as to provide for the conservation of multiple species and natural communities, while improving water supply reliability for the export contractors. To further advance this holistic approach and enhance opportunities for success, the BDCP has been designed to accommodate and respond over time to new information and greater scientific understanding of the Delta.

The BDCP sets out an integrated Conservation Strategy to achieve the overarching planning goals of ecosystem restoration and water supply reliability (Section 1.2, *BDCP Planning Goals and Conservation Objectives*) and meet a range of specific biological goals and objectives (Section 3.3, *Biological Goals and Objectives*). The BDCP includes a description of each element of the Conservation Strategy and the rationale for its inclusion in the Plan. The BDCP further describes the expected contribution of each plan element toward advancing both the overall planning goals and specific biological goals and objectives. The Conservation Strategy was informed by findings and conceptual models developed over time through prior scientific efforts, including those conducted by the CALFED Science Program, and supplemented by data and analysis developed through the BDCP process. The Conservation Strategy is based on the best available science and was built upon the following scientific tenets:

- Increase the quality, availability, spatial diversity, and complexity of aquatic habitat within the Delta;
- Create new opportunities to restore the ecological health of the Delta by modifying the water infrastructure to convey water around the Delta, reducing reliance on conveyance of water through artificial and natural channels in the Delta to export pumping plants in the southern Delta;
- Directly address key ecosystem drivers unrelated to freshwater flow patterns rather than manipulation of Delta flow patterns alone;
- Improve connectivity among aquatic habitats, facilitate migration and movement of covered fish among habitats, and provide transport flows for the dispersal of planktonic material (organic carbon), phytoplankton, zooplankton, macroinvertebrates, and fish eggs and larvae;

[2] Add citation for the Delta Reform Act.

- Improve synchrony between environmental cues and conditions and the life history of covered fish and their food resources within the upstream rivers, Delta, and Suisun Bay, including the hydrologic seasonal synchrony within the watershed, seasonal water temperature gradients, salinity gradients, turbidity, and other environmental cues;
- Reduce sources of direct mortality and other stressors on the covered fish and the aquatic ecosystem within the Delta;
- Improve habitat conditions for covered fish in upstream river reaches, within the Delta, and downstream within the low salinity zone of the estuary in Suisun Bay through the integration of water operations with physical habitat enhancement and restoration;
- Minimize adverse effects on terrestrial wildlife and plants resulting from implementation of measures to benefit aquatic species;
- Expand the extent and enhance the functions of existing natural communities and habitat of covered wildlife and plants that is permanently protected;
- Restore habitat to expand the populations and distributions of covered wildlife and plant species; and
- Rely, to the extent possible, on natural physical habitat and biological processes to support and maintain covered species and their habitat.

The BDCP covers the Sacramento-San Joaquin Delta, as defined by California Water Code Section 12220 ("statutory Delta"), as well as certain additional areas in which conservation measures set out in the Conservation Strategy will be implemented (Section 1.4.1 *Geographic Scope of the Plan Area*) (Figure 1-1). The geographic scope of the Plan Area also encompasses the areas in which the activities that have been proposed for regulatory coverage under the Plan are expected to occur.

Because the infrastructure of the state and federal water projects, however, form an integrated system that extends beyond the boundaries of the Delta, the implementation of the BDCP will affect water operations and species and habitat both inside and outside of the Delta. While the geographic scope of Plan Area generally does not include areas upstream and downstream of the Delta, the Plan will take into account and address the upstream and downstream effects of covered activities, both beneficial and adverse.

1.1.1 BDCP Steering Committee and the Planning Agreement

In January 2006, a number of stakeholders with diverse interests in the Delta, including public water agencies, environmental and conservation organizations, and other parties, agreed to a Statement of Principles that called for the development of a comprehensive conservation plan for the Delta[3]. The parties to that agreement envisioned a plan that would advance the recovery of fish and wildlife species affected by certain water supply-related activities and provide long-term

[3] Appendix H1, Jan 2006 Statement of Principles

assurances regarding the operation of existing and future water-related facilities and other activities associated with the SWP and the CVP.

In July 2006, several of these parties entered into a memorandum of agreement (MOA) entitled For Supplemental Funding for Certain Ecosystem Actions and Support for Implementation of Near-Term Water Supply, Water Quality, Ecosystem, and Levee Action.[4] The MOA set out the financial commitments of the parties to carry out actions to satisfy existing regulatory requirements related to the operation of the SWP and the CVP and to develop a conservation plan for the Delta that would support new regulatory authorizations under state and federal endangered species laws for current and future activities related to the SWP and CVP.

[4] Appendix H2, MOA For Supplemental Funding for Certain Ecosystem Actions and Support for Implementation of Near-Term Water Supply, Water Quality, Ecosystem, and Levee Action, July 2006.)

Figure 1-1. BDCP Plan Area

Click here to view figure

1

At the same time, the California Resources Agency (currently the "California Natural Resources Agency") convened a diverse group of stakeholders and regulatory agencies to help guide the development of a comprehensive conservation plan for the Delta, which became known as the BDCP. The resulting BDCP Steering Committee consisted of parties to the Statement of Principles and MOA as well as other interested groups and additional state and federal agencies, all of whom indicated their commitment to engage in a process to advance the co-equal goals of ecosystem restoration and water supply reliability (Table 1-1). The meetings of the BDCP Steering Committee were intended to serve as the principal forum within which key policy and strategy issues pertaining to the development of the BDCP would be discussed and considered. In December 2006, the original members of the Steering Committee entered into a formal Planning Agreement, consistent with requirements of the NCCPA,[5] for the development of the BDCP. The Steering Committee was expanded after December 2006, as noted in Table 1-1. The Planning Agreement, among other things, defined the goals, commitments, and expectations of the parties regarding the BDCP planning process. It also reiterated the goal of the Steering Committee to develop a conservation plan that would meet the requirements of the ESA and the NCCPA. Section 1.5, *Overview of the Planning Process*, provides a summary of the role of the Steering Committee and the various groups and teams that supported the Committee.

Table 1-1. BDCP Steering Committee Members and Planning Agreement Signature Dates

Entities	*Original Signature Date*	*Amendment Signature Date*
State and Federal Agencies		
California Natural Resources Agency	October 24, 2006	October 27, 2009
California Department of Water Resources	November 14, 2006	December 3, 2009
State Water Resources Control Board (*ex officio*)	See Note	See Note
U.S. Bureau of Reclamation	November 13, 2006	October 30, 2009
U.S. Army Corps of Engineers (*ex officio*)	See Note	See Note
Potential Regulated Entities (PREs)		
Kern County Water Agency	December 6, 2006	January 29, 2010
Metropolitan Water District of Southern California	November 2, 2006	December 3, 2009
Mirant Delta, LLC	December 6, 2006	October 5, 2009
San Luis & Delta-Mendota Water Authority	December 6, 2006	December 6, 2009
Santa Clara Valley Water District	November 20, 2006	November 30, 2009
Westlands Water District	December 6, 2006	December 1, 2009
Zone 7 Water Agency	October 26, 2006	November 30, 2009
Environmental Organizations		
American Rivers	November 8, 2006	January 21, 2010
Defenders of Wildlife	March 15, 2007	January 29, 2010
Environmental Defense Fund	October 30, 2006	January 21, 2010
Natural Heritage Institute	October 25, 2006	November 3, 2009
The Nature Conservancy	November 14, 2006	December 1, 2009
The Bay Institute	July 26, 2007	December 7, 2009
Other Member Agencies		
California Farm Bureau Federation	March 30, 2007	November 11, 2009
Contra Costa Water District	August 3, 2007	January 4, 2010
Friant Water Authority	March 9, 2009	November 18, 2009
North Delta Water Agency	March 12, 2009	October 5, 2009

[5] Appendix H3, BDCP Planning Agreement and amendments

Table 1-1. BDCP Steering Committee Members and Planning Agreement Signature Dates (continued)

Entities	*Original Signature Date*	*Amendment Signature Date*
Fishery Agencies		
California Department of Fish and Game (*ex officio*)	October 24, 2006	October 5, 2009
U.S. Fish and Wildlife Service (*ex officio*)	November 6, 2006	December 3, 2009
National Marine Fisheries Service (*ex officio*)	November 14, 2006	December 3, 2009
Other *Ex Officio* Member Agencies		
Delta Stewardship Council		
Note: The SWRCB and USACE are not signatories of the Planning Agreement.		

1.2 BDCP PLANNING GOALS AND CONSERVATION OBJECTIVES

The overarching goals of the BDCP are to advance the restoration of the ecological functions and productivity in the Delta and improve the reliability of water supplies provided by the SWP and CVP, as first stated in the Statement of Principles and reaffirmed in the BDCP Planning Agreement. The Planning Agreement further articulated specific planning goals to guide the development of the BDCP and further ensure its consistency with the broader goals of the program. The planning goals for the BDCP are as follows:

- Provide for the conservation and management of covered species within the Plan Area;
- Preserve, restore and enhance aquatic, riparian and associated terrestrial natural communities and ecosystems that support covered species within the Plan Area through conservation partnerships;
- Allow for projects to proceed that restore and protect water supply, water quality, and ecosystem health within a stable regulatory framework;
- Provide a means to implement covered activities in a manner that complies with applicable state and federal fish and wildlife protection laws, including the California Endangered Species Act (CESA) and ESA, and other environmental laws, including the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA);
- Provide a basis for permits necessary to lawfully take covered species;
- Provide a comprehensive means to coordinate and standardize mitigation and compensation requirements for covered activities within the Plan Area;
- Provide a less costly, more efficient project review process which results in greater conservation values than project-by-project, species-by-species review; and
- Provide clear expectations and regulatory assurances regarding covered activities occurring within the Plan Area.

Throughout the planning process, the Steering Committee worked to develop a plan consistent with these planning goals. The BDCP reflects these goals and provides the basis for conservation and regulatory outcomes identified in the Planning Agreement.

The BDCP process was also guided by a preliminary set of conservation objectives that were first expressed in the Planning Agreement. These preliminary conservation objectives included the following:

- Provide for the protection of covered species and associated natural communities and ecosystems that occur within the Plan Area;
- Preserve the diversity of fish, wildlife, plant and natural communities within the Plan Area;
- Minimize and mitigate, as appropriate, the take of proposed covered species;
- Preserve and restore habitat and contribute to the recovery of covered species;
- Reduce the need to list additional species;
- Set forth species-specific goals and objectives;
- Set forth specific habitat-based goals and objectives;
- Implement an adaptive management and monitoring program to respond to changing ecological conditions; and
- Avoid actions that are likely to jeopardize the continued existence of covered species or result in the destruction or adverse modification of critical habitat.

These planning goals and preliminary conservation objectives set the initial direction for the BDCP planning process. As the planning process progressed, the Steering Committee began to identify specific biological goals and objectives that the BDCP would be expected to meet during its implementation. These specific biological goals and objectives are described in Section 3.3, *Biological Goals and Objectives,* and are set out in a hierarchical framework that distinguishes between ecosystem-level goals and objectives, natural community goals and objectives, and species-specific goals and objectives. The biological goals reflect broad principals while the biological objectives identify more specific targets that the Plan should meet to achieve its overall biological goals. These objectives include measureable metrics or criteria to enable ongoing assessment of the Plan's effectiveness throughout its implementation.

1.3 REGULATORY CONTEXT

1.3.1 Regulatory Purpose of the BDCP

The BDCP provides the basis for regulatory compliance with ESA and the NCCPA for a range of activities related to the operation of the SWP, CVP, and the Mirant power plants that occur within the Plan Area, including the diversion and export of water from the Delta and its tributaries. The BDCP advances a comprehensive solution to the persistent regulatory

challenges that have faced the SWP and CVP. This comprehensive solution includes systemic changes to water conveyance infrastructure and broad-scale restoration and enhancement of ecological resources. This approach is intended to result in long-term regulatory stability for the state and federal water projects, while furthering the goals of water supply reliability and ecological restoration.

The BDCP has been prepared as a joint HCP/NCCP, which will support the issuance of incidental take authorizations from USFWS and NMFS pursuant to Section 10 of the ESA and take authorizations from the California Department of Fish and Game (DFG) under Section 2835 of the NCCPA to the non-federal applicants.[6] The BDCP has also been designed to meet the standards of Section 2081 of the California Endangered Species Act (CESA). The BDCP will further provide the basis for biological assessments (BA) to support the issuance of incidental take authorizations from USFWS and NMFS to Reclamation pursuant to Section 7 of the ESA, for its actions in the Delta.[7]

To meet these regulatory objectives, the BDCP sets out a comprehensive Conservation Strategy that will address the adverse effects of SWP and CVP actions that occur within the Plan Area on aquatic and terrestrial species, including those listed under the ESA or CESA as threatened, endangered, or candidates for listing, as well as on critical habitat, if any, that has been designated for these species pursuant to the ESA (Chapter 3 *Conservation Strategy*). The biological assessment for CVP-related activities in the Delta will adopt the BDCP Conservation Strategy as it relates to those federal actions and will serve as a companion document to the BDCP. It should be noted that the BDCP does not attempt to distinguish precisely between the effects on covered species attributable to the CVP covered activities and those of the SWP. Rather, the BDCP includes a comprehensive analysis of the effects associated with both the SWP and the CVP within the Plan Area and proposes a Conservation Strategy that adequately addresses the totality of those effects. On the basis of the BDCP and the companion biological assessment, USFWS and NMFS are expected to issue Section 10 permits and a new joint biological opinion that supersedes biological opinions existing at that time as they relate to SWP and CVP actions covered by the BDCP.

The BDCP affords an opportunity to move beyond the cycle of litigation that has compelled incremental and disruptive adjustments to the operations of the existing water supply infrastructure and toward a stable regulatory environment. The succession of federal court decisions over the past several years regarding the intersection of the federal and state endangered species acts and the operation of the state and federal water projects did little to settle conflicts over species conservation and water supply needs. Rather, these decisions translated into additional restrictions on water supplies to 25 million Californians in the Bay Area, Central Valley, and Southern California. These water supplies had been previously constrained because of a worsening environmental crisis in the Delta, prior court-ordered pumping restrictions, and state-wide drought conditions. The recent legal proceedings are but part of a history of legal

[6] 16 U.S.C. § 1539.; California Fish and Game Code (Fish & Game Code) § 2835 *et seq*.

battles that have served to further reinforce the need for comprehensive, legally-defensible regulatory solutions to the environmental and water supply challenges associated with the Delta.

1.3.2 The Federal Endangered Species Act

The United States Congress passed the Endangered Species Act (ESA) in 1973 to provide a means for conserving the ecosystems that endangered and threatened species require in order to prevent species extinctions. The ESA has three major components relevant to the BDCP: the Section 7 requirement that federal agencies ensure, in consultation with the federal fish and wildlife agencies, that their actions are not likely to jeopardize the continued existence of species or result in modification or destruction of critical habitat; the Section 9 prohibition against the "taking" of listed species; and the Section 10 provisions that provide for the permitting of non-federal entities for the incidental take of listed species.

Section 7 of the ESA provides that each federal agency must ensure, in consultation with the Secretary of the Interior or Commerce, that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of areas determined to be critical habitat.[8] Section 7 requires federal agencies to engage in formal consultation with USFWS or NMFS for any proposed actions that are likely to adversely affect listed species. A biological opinion is issued by USFWS or NMFS at the completion of formal consultation. The biological opinion can conclude that the project as proposed is either likely or not likely to jeopardize the continued existence of the species. If the biological opinion concludes "no jeopardy," the action can proceed as proposed. If the biological opinion concludes "jeopardy," USFWS or NMFS will identify "reasonable and prudent alternatives" to the proposed action that would avoid jeopardizing the species. Included in the biological opinion is an incidental take statement that authorizes a specified level of take anticipated to result from the proposed action. The incidental take statement contains "reasonable and prudent measures" that are designed to minimize the level of incidental take and that must be implemented as a condition of the take authorization.[9]

Section 9(a)(1)(B) of the ESA prohibits the take by any person of any endangered fish or wildlife species; take of threatened fish or wildlife species is prohibited by regulation. The ESA prohibits the take of any listed threatened fish or wildlife species in violation of any regulation promulgated by the USFWS or NMFS. "Take" is defined broadly to mean harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.[10] "Harm" is defined by regulation to mean an act which actually kills or injures wildlife, including those activities that cause significant habitat modification or degradation resulting in the killing or injuring of wildlife by significantly impairing essential behavior patterns, including breeding,

[8] 16 U.S.C. § 1536(a)(2).

[9] 50 C.F.R. § 402.14(i)(5).

[10] 16 U.S.C. § 1532 (1988).

feeding, or sheltering.[11] The take prohibitions of the ESA apply unless take is otherwise specifically authorized or permitted pursuant to the provisions of Section 7 or Section 10 of the ESA. The protections for listed plant species under the ESA are more limited than for fish and wildlife. [12]

Section 10 of the ESA specifically addresses the authorization for take by non-federal entities through the development of a HCP. For those actions for which no federal nexus exists, private individuals, corporations, state and local government agencies, and other non-federal entities who wish to conduct otherwise lawful activities that may incidentally result in the take a listed species must first obtain a Section 10 incidental take permit from USFWS or NMFS. The non-federal entity is required to develop an HCP as part of the permit application process.

Under Section 10(a)(1)(B) of the ESA, the Services may permit the incidental take of listed species that may occur as a result of an otherwise lawful activity. To obtain a Section 10(a)(1)(B) permit, an applicant must prepare an HCP that meets the following five criteria: (1) the taking will be incidental to an otherwise lawful activity; (2) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking; (3) the applicant will ensure that adequate funding for the plan will be provided; (4) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (5) other measures, if any, which the Services require as being necessary or appropriate for purposes of the plan will be met. [13]

The BDCP is intended to meet all regulatory requirements necessary for USFWS and NMFS to issue Section 10 permits to allow incidental take of all proposed covered species as a result of covered activities undertaken by the California Department of Water Resources (DWR), certain SWP contractors, and Mirant Corporation, and to issue Section 7 biological opinions to authorize incidental take for covered actions undertaken by Reclamation and CVP contractors. The BDCP assessment of direct and indirect effects (Chapter 5 *Effects Analysis*) on covered species and critical habitat provides the analyses and information necessary for Reclamation, USFWS, and NMFS to meet the analytical requirements of Section 7.

1.3.2.1 Compliance with the Services' Five-Point Policy Guidance

In June 2000, the USFWS and NMFS adopted a five-point policy designed to clarify elements of the habitat conservation planning program as they relate to biological goals, adaptive management,

[11] 50 C.F.R. § 17.3. NMFS has a similar definition that adds the concepts of spawning and migrating to examples of injury. NMFS defines "harm" as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering.' (50 C.F.R § 222.102).

[12] Section 9(a)(2)(B) of the ESA prohibits removal, possession, or malicious damage or destruction of endangered plants in areas under federal jurisdiction, as well as actions that remove, cut, dig up, damage, or destroy endangered plants in areas outside of federal jurisdiction in violation of any state law or regulation, including state criminal trespass law. Protection for threatened plant species is limited to areas under federal jurisdiction. 50 C.F.R. § 17.71(a). The ESA section 7(a)(2) prohibition against jeopardy applies to plants, wildlife, and fish equally, and USFWS and NMFS may not issue a section 10(a)(1)(B) permit if the issuance of that permit would result in jeopardy to any listed species.

[13] 16 U.S.C. § 1539(a)(2)(A).

monitoring, permit duration, and public participation.[14] The five-point policy directs that the following elements be addressed in the development of habitat conservation plans:

Biological Goals and Objectives. HCPs are required to define biological goals and objectives that the plan is intended to achieve. Biological goals and objectives clarify the purpose and direction of the plan's conservation program. The BDCP sets out extensive biological goals and objectives, including specific measurable targets that the Plan is designed to meet. These targets were developed on the basis of the best available scientific information and have been used as parameters and benchmarks to guide the conservation strategies for the species and natural communities covered by the Plan. The biological goals and objectives of the BDCP are described in Section 3.3, *Biological Goals and Objectives*.

Adaptive Management. The five-point policy encourages the inclusion of adaptive management strategies in HCPs in appropriate circumstances to address uncertainty related to species covered by a plan. The agencies describe adaptive management as a "method for examining alternative strategies for meeting measurable biological goals and objectives, and then if necessary, adjusting future conservation management actions according to what is learned." [15] The BDCP incorporates an adaptive management process that is designed to facilitate and improve decision-making during the implementation of the Plan and identify adjustments and modifications, as defined in the Plan, to the conservation strategy as new information becomes available over time. The framework for the BDCP adaptive management program is set out in Section 3.7, *Adaptive Management Program*.

Monitoring. HCPs are required to include provisions for monitoring to gauge the effectiveness of the plan in meeting the biological goals and objectives and to verify that the terms and conditions of the plan are being properly implemented. The biological and compliance monitoring provisions of the BDCP are found in Section 3.6, *Monitoring and Research Program*.

Permit Duration. Consistent with the five-point policy, the USFWS and NMFS consider several factors in determining the term of an incidental take permit. The agencies, for instance, take into account the expected duration of the activities proposed for coverage and the anticipated positive and negative effects on covered species that will likely occur during the course of the plan. The agencies also factor in the level of scientific and commercial data underlying the proposed operating conservation program, the length of time necessary to implement and achieve the benefits of the operating conservation program, and the extent to which the program incorporates adaptive management strategies. The duration of the permits to be issued pursuant to the BDCP is anticipated to be 50 years.

Public Participation. Under the five-point policy, the federal fish and wildlife agencies have sought to increase public participation in the HCP process, including greater opportunity for the public to assess, review, and analyze HCPs and associated NEPA documentation. As part of this

[14] Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting, 65 FR 106, June 1, 2000 (hereinafter referred to as the "Five Point Policy")

[15] Five-Point Policy for HCPs, 65 FR 106, June 1, 2000

effort, the agencies have encouraged greater engagement of the public for most HCPs, particularly those with regional scopes. As described in Section 1.5.2, the BDCP process afforded extensive opportunities for public involvement and input throughout the development of the Plan.

1.3.3 Natural Community Conservation Planning Act

The Natural Community Conservation Planning Act (NCCPA) provides a mechanism for compliance with state endangered species regulatory requirements through the development of comprehensive, broad-scale conservation plans that focus on the needs of natural communities and the range of species that inhabit them.[16] The NCCP program has provided the basis for successful collaborations throughout California between state and federal agencies, local governments, community groups, and private interests that have resulted in long-term, habitat-based protections for regional biodiversity and related ecosystems. It has also proved to be an effective tool in achieving these protections while reducing conflicts between conservation goals and the reasonable use of natural resources and lands for economic development. The BDCP adopts the approaches set out in the NCCPA and incorporates those elements necessary to meet regulatory requirements of the Act.

Specifically, the BDCP has been developed in a manner consistent with the process identified in its Planning Agreement, including processes to ensure ample public participation and engagement throughout Plan development and review, extensive input from independent scientists, and coordination with federal fish and wildlife agencies with respect to ESA requirements. Consistent with the requirements of the NCCPA, the Plan further provides a multi-faceted approach to provide for the conservation and management of covered species and their habitats, incorporating a conservation strategy that provides for the protection of habitat, natural communities, and species diversity on an ecosystem level; establishes conservation measures, including measures sufficient to fully mitigate the effects of covered activities; integrates adaptive management strategies that can be modified based on new information developed through monitoring; and sets out a detailed implementation program, including provisions that ensure adequate funding to carry out the Plan.

The BDCP addresses all of the requirements of the NCCPA for aquatic, wetland, and terrestrial covered species of fish, wildlife, and plants and Delta natural communities affected by BDCP actions. On that basis, DFG may issue permits for the taking of the species proposed for coverage under the Plan.[17]

[16] Fish & Game Code § 2800 *et. seq*.

[17] Fish & Game Code § 2835.

1.3.4 California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of wildlife or plant species designated as threatened or endangered by the California Fish and Game Commission.[18] "Take" is defined as any action or attempt "to hunt, pursue, catch, capture, or kill."[19] Like the ESA, CESA allows for exceptions to the take prohibitions for otherwise lawful activities. The requirements of an application for incidental take under CESA are described in Section 2081 of the Fish and Game Code. Incidental take of endangered, threatened, or candidate species may be authorized if an applicant demonstrates, among other things, that the impacts of the proposed take will be minimized and fully mitigated.[20]

Although the BDCP has been designed to comply with the NCCPA, and take authorizations are being sought under Section 2835 of the Fish and Game Code, the Plan's provisions have also been developed to be consistent with the regulatory standards of CESA. Specifically, the BDCP Conservation Strategy incorporates measures that adequately minimize and fully mitigate the effects of Covered Activities on state-listed species and includes other such measures as required by CESA. As such, the actions set out in the BDCP are expected to be sufficient to allow for findings to be made by DFG to support the issuance of incidental take authorizations under CESA.

1.3.5 The National Environmental Policy Act

The purpose of NEPA is to ensure that federal agencies consider the environmental impacts of their actions and decisions.[21] NEPA requires that the federal government use all practicable means and measures to protect environmental values and makes environmental protection a part of the mandate of every federal agency and department. To accomplish this goal, NEPA establishes a process and approach to analysis to determine the environmental impacts associated with proposed federal actions that significantly affect the quality of the human environment.

The permitting and implementation of the BDCP involve several federal actions and decisions that are subject to review under NEPA. Reclamation's actions include changes in the operation of the Delta Cross Channel, an expected agreement with DWR to provide for wheeling of CVP water through a new isolated conveyance facility, and the implementation of certain conservation measures through the BDCP Implementation Office. USFWS and NMFS will make decisions regarding the issuance of incidental take permits under Section 10(a)(1)(B) of the ESA. Reclamation, USFWS, and NMFS are joint lead agencies for the preparation of the BDCP Environmental Impact Statement (EIS). The U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) are participating in the NEPA process as cooperating federal agencies.

[18] Fish & Game Code § 2080.

[19] Fish & Game Code § 86.

[20] Fish & Game Code § 2081(b)(2).

[21] 42 U.S.C. § 4371 *et seq*.

1.3.6 The California Environmental Quality Act

The CEQA serves as a counterpart to NEPA, and applies to all discretionary activities proposed to be carried out or approved by California public agencies. CEQA requires state and local agencies to identify significant environmental impacts of their actions and to take all feasible steps to avoid or mitigate those impacts. CEQA sets forth both procedural and substantive requirements and its procedures are intended to ensure adequate public participation and input into the decision-making process.

The BDCP is a project subject to CEQA, as are numerous BDCP-related actions that will be implemented over the term of the plan.[22] DWR serves as the lead agency for the preparation of the Environmental Impact Report (EIR), which will include analyses of DWR's proposed adoption of the plan, as well as its implementation of certain projects covered by the BDCP. Among the BDCP-related projects that will undergo review are the construction of new conveyance facilities and several identifiable habitat restoration actions, which are all described in the BDCP. DFG is participating in the preparation of the EIR as both a responsible and trustee agency. The EIR will also serve as the CEQA document for the purpose of regulatory permits issued by DFG pursuant to the BDCP.

The state and federal lead agencies will prepare a joint BDCP EIR/EIS to satisfy CEQA and NEPA concurrently.

1.3.7 Relationship with Existing Biological Opinions

The operations of the SWP and the CVP are currently subject to the terms and conditions of biological opinions issued by the USFWS and NMFS pursuant to Section 7 of the federal ESA. The biological opinion to be jointly issued by USFWS and NMFS on the basis of the BDCP and its companion biological assessments will supersede USFWS and NMFS biological opinions that exist at the time of the approval of the BDCP as they relate to the coordinated operation of the CVP and SWP to the extent that the BDCP addresses activities covered by these existing biological opinions.

1.3.8 Recent California Legislation Relating to Water and the Sacramento-San Joaquin Delta

In November 2009, the state of California enacted comprehensive legislation to address the range of challenges facing the Delta, including those involving water supply reliability and ecosystem health. The legislation advances several broad goals of the state with regards to the Delta and specifies a range of actions to be implemented to meet those goals. Among the several goals stated in the legislation is the following:

[22] California Public Resources Code (CPRC) section 21000 *et seq*. and CEQA Guidelines 14 CCR 15000 *et seq*.

> *Achieve the two co-equal goals of providing for a more reliable water supply for the California and protecting, restoring, and enhancing the Delta ecosystem. The co-equal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.*[23]

The codification of these co-equal goals has served to reinforce the nearly-identical BDCP planning goals adopted by the Steering Committee and used throughout the planning process to help guide the development of the Plan.

The Delta legislation includes the Sacramento-San Joaquin Delta Reform Act of 2009,[24] which provides for the establishment of an independent state agency, the Delta Stewardship Council, to further the co-equal goals of ecosystem restoration and a reliable water supply. The Council, which became operational on February 3, 2010, is charged with the development and implementation of a comprehensive management plan for the Delta (Delta Plan), and is vested with the authority to review actions of state and local agencies and advise on their consistency with the Delta Plan.

The Council is also required to consider the inclusion of the BDCP in the Delta Plan. The Delta Reform Act sets out the conditions under which the Council is to incorporate the BDCP into the Delta Plan. To be considered for inclusion in the Delta Plan, the BDCP must comply with the requirements of the NCCPA and CEQA, which includes a review and analysis of various specified alternatives to the proposed Plan. Upon approval of the BDCP as an NCCP and as an HCP under the ESA, the Council is required to incorporate the BDCP into the Delta Plan. However, the determination by DFG that the BDCP meets the requirements of the NCCPA may be appealed to the Council.

1.3.9 Relationship between the BDCP and Other Federal and State Laws and Regulations

The BDCP has been developed as a conservation plan that complies with state and federal endangered species laws. However, the Plan or the actions described herein will need to conform to the requirements of various other state and federal laws and regulations not specifically addressed by the Plan. Prior to the implementation of many of the conservation actions set out in the BDCP, regulatory authorizations and approvals will need to be obtained from state and federal under applicable laws. Such authorizations will likely involve some or all of the following statutes: California Water Code sections 1000 *et seq*. (water rights), Water Code sections 13000 *et seq*. (water quality), California Fish and Game Code sections 1600 *et seq*. and 5900 *et seq*. (channel modification, fish screens), Clean Water Act Section 404 (placement of dredge and fill), Rivers and Harbors Act Section 408 (work on levees), Rivers and Harbors Act Section 10 (navigation), and the Migratory Bird Treaty Act (migratory birds).

[23] SBX 7 1.

[24] Division 35, California Water Code.

1.3.9.1 Section 404 of the Clean Water Act

In 1972, Congress passed the Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA), with the goal of "restor[ing] and maintain[ing] the chemical, physical, and biological integrity of the Nation's waters."[25] In furtherance of this goal, the CWA prohibits the discharge of any pollutants into navigable waters, except as allowed by permit issued under certain sections of the CWA.[26] Specifically, Section 404 authorizes USACE to issue permits for and regulate the discharge of dredged or fill materials into wetlands or other "waters of the United States." Under the CWA and its implementing regulations, "waters of the United States" are broadly defined to consist of rivers, creeks, streams, and lakes extending to their headwaters, including adjacent wetlands.[27]

Responsibility for the implementation of Section 404 of the CWA is shared by the U.S. EPA and USACE. EPA is generally responsible for establishing policy and guidance regarding the implementation of the program. For instance, EPA developed the guidelines that are used to evaluate the sufficiency of Section 404 permit applications, and has played the lead role in determining the scope of the federal government's jurisdiction over aquatic resources, including the reach of the term "waters of the United States." EPA also determines the eligibility of a state to assume responsibility for portions of the Section 404 program.[28] On the other hand, USACE is responsible for the day-to-day administration of the Section 404 permit program.
Many of the actions that will be implemented under the BDCP will result in the discharge of dredged or fill materials into "waters of the U.S." and will need to be authorized by USACE. These BDCP actions will receive such authorizations through both General Permits and Individual Permits. Typically, General Permits apply to specific classes of activities that have been determined to cause no more than minimal impact to the aquatic environment (e.g., construction of road crossings, installation of utility lines, and operations and maintenance activities).[29] Individual Permits are designed for activities that have the potential to have more than a minimal effect on jurisdictional waters or that otherwise do not qualify under the conditions of a General Permit. Substantively, USACE must evaluate applications for Individual Permits to determine their consistency with the requirements of the Section 404(b)(1) Guidelines[30] and USACE' regulations.[31]

[25] 33 U.S.C. § 1251(a).

[26] *See* 33 U.S.C. §§ 1311, 1342, and 1344.

[27] 33 C.F.R. § 328.3(a)(3).

[28] The 1977 amendments to the CWA provided that States can assume the federal 404 program provided that the State has a "comparable" program. State program assumption of 404 is only available for non-navigable waters so that even in States where the program has been assumed, the federal government retains control over activities in navigable waters. Only two States, Michigan and New Jersey, have assumed the 404 program to date. In States with assumed 404 programs, the State authorization is the only one required.

[29] 33 C.F.R. § 325.5(c).

[30] 40 C.F.R. Part 230.

[31] 33 C.F.R. Part 325.

1.3.9.2 Section 401 of the Clean Water Act

Pursuant to Section 401, states can certify or deny federal permits or licenses that might result in a discharge to state waters, including wetlands.[32] Section 404 permit applicants must obtain a "water quality certification" from the state water quality agency indicating that the proposed activity complies with all applicable state water quality standards, limitations, and restrictions. In California, the Regional Water Quality Control Boards (RWQCB) issue water quality certifications within their jurisdictions. Appeals to the decisions of the RWQCBs are heard by the SWRCB.

1.3.9.3 Section 10 of the Rivers and Harbors Act

Certain BDCP actions will require authorizations under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) which requires authorization from the Secretary of the Army for the construction of any structure in or over any navigable water of the United States or the construction of structures or alteration of capacity in any port, canal, navigable river, or other water of the United States.[33] "Navigable waters" under Section 10 of the Rivers and Harbors Act are defined as "those waters of the United States that are subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce."[34]

1.3.9.4 Section 14 of the Rivers and Harbors Act ("Section 408")

Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408; commonly referred to as "Section 408") provides protection for federal projects in waterways such as sea walls, dikes, levees, and piers from being moved, altered, or destroyed, in a manner that impairs the usefulness of the structure. Under Section 408, the Chief of Engineers may grant permission to alter an existing federal project if it is not injurious to the public interest and does not impair the usefulness of the project. Certain BDCP actions, such as those that affect federal project levees and weirs, will require authorizations under Section 408.

1.3.9.5 California Fish and Game Code Section 1600 et seq.

California has adopted regulations to address impacts to many of the resources subject to Section 404 of the CWA. Although not entirely overlapping, these programs intersect frequently. Project proponents are required to obtain separate authorizations from USACE and DFG.

Section 1602 of the California Fish and Game Code requires any person, state or local governmental agency to provide advance written notification to DFG prior to initiating any activity that would: (1) divert or obstruct the natural flow of, or substantially change or remove material from the bed, channel, or bank of any river, stream, or lake; (2) result in the disposal or

[32] 33 U.S.C. § 1341.

[33] 33 C.F.R. § 401 *et seq*.

[34] 33 C.F.R. § 329.4

deposition of debris, waste, or other material into any river, stream, or lake.[35] The State definition of "lake, rivers, and streams" includes all rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life, and watercourses with surface or subsurface flows that support or have supported riparian vegetation.[36]

Certain actions that will be implemented under the BDCP will require Streambed Alteration Agreements under Section 1602. As part of that process, DFG will review notifications submitted by the BDCP Implementation Office to determine if the proposed project would impact existing fish and wildlife resources that are directly dependent on a lake, river, or stream. If DFG determines that the proposed activity will not substantially adversely affect an existing fish and wildlife resource, it will notify the Implementation Office that no Streambed Alteration Agreement is required and the project may proceed.[37] If DFG determines that the project may substantially adversely affect an existing fish and wildlife resource, it will require, as part of a Streambed Alteration Agreement, reasonable measures necessary to protect the fish and wildlife resource.[38]

1.3.9.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 implements four international treaties for the conservation and management of bird species that may migrate through more than one country.[39] The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 Code of Federal Regulations (CFR) Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations.[40] For federally listed migratory bird species covered under the BDCP for which an ESA Section 10(a) permit has been issued, the Implementation Office may also obtain an MBTA permit for those species.

1.3.9.7 Water Rights under the California Water Code

The California Water Code[41] prescribes detailed procedures that govern the appropriation of water from a lake, river, stream, or creek. After the enactment of the State Water Commission Act in 1914, the state required any person or agency seeking to use surface water, without an existing riparian right, to apply for and receive approval for such use from the State Water Resources Control Board (SWRCB). Water rights permits granted by the SWRCB include detailed descriptions of the amounts, conditions, and construction timetables under which the proposed water project must comply. Prior to permit issuance, the SWRCB must take into account all prior rights and the availability of water in the basin. The Board must also consider

[35] Fish & Game Code § 1602.

[36] 14 C.C.R. § 1.72.

[37] Fish & Game Code § 1602(a)(4)(A)(i).

[38] Fish & Game Code § 1603(a).

[39] 16 U.S.C. § 703 *et seq*.

[40] 50 C.F.R. § 21.

[41] Division 2, Wat. Code section 1000 *et seq*.

the flows needed to preserve instream uses such as recreation and fish and wildlife habitat. The Board may impose additional conditions to ensure that these criteria are satisfied and it may use its continuing authority to enforce and revise the conditions of water right permits over time. The SWRCB is also empowered to revoke a permit or issue cease and desist orders if conditions of the permit are not being met.

At any time after receiving a water right permit, a permittee may seek permission from the SWRCB to change the point of diversion, place of use, or purpose of use from that specified in the permit. The proposed change cannot involve a new right or cause injury to any other legal user of water. The implementation of the BDCP will require a change in points of diversion specified in the DWR and Reclamation water right permits. As such, DWR and Reclamation will need to petition the SWRCB to change the point of diversion. Prior to approving these petitions, the SWRCB must find that the change will not cause injury to any legal user of the water involved or result in harm fish or wildlife. Other right holders and the public will have an opportunity to object to the proposed change by filing a protest form with the SWRCB. If a protest is filed, the Board must hold a hearing on the petition and will either grant or refuse permission to make the change, as the facts may warrant. Because the SWRCB has discretion to approve the requested petition, it must comply with the California Environmental Quality Act.

1.3.9.8 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne)[42] sets out a comprehensive regulatory, planning, and management program to protect water quality and beneficial uses of the state's water. The Act established the State Water Resources Control Board's authority to preserve and enhance the quality of California's water resources, and to ensure proper allocation and efficient use of water.

Under Porter-Cologne, the SWRCB is required to prepare a Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). While the Regional Water Boards have primary responsibility for formulating and adopting water quality control plans for their respective regions, the SWRCB also is authorized to develop and adopt water quality control plans. In such instances, the water quality control plan adopted by the SWRCB supersedes regional plans developed for the same waters, to the extent they conflict.

The Bay-Delta Plan consists of three primary components: (1) the beneficial uses (of water) to be protected; (2) the water quality objectives for the estuary; and (3) the implementation programs to meet the water quality objectives. Beneficial uses include uses such as domestic, agricultural and industrial supply; power generation; recreation and aesthetic use; navigation; and preservation and enhancement of fish, aquatic, and wildlife resources. Water quality objectives or standards reflect the levels of water quality constituents that have been determined to be necessary to protect beneficial uses. Implementation plans describe actions to be taken to achieve the objectives and set out programs for monitoring, management, and enforcement.

[42] Water Code § 13000 *et seq*.

The SWRCB is vested with primary regulatory authority over flows, water quality, and other water rights issues in the Bay-Delta. As such, many of the actions described in the BDCP, including modifications to the water conveyance system, will require the approval of the SWRCB. The SWRCB's participation in the development of the BDCP and in the environmental review process is intended to ensure consistency between the actions described in the BDCP and those required by the SWRCB as part of its water quality control planning and implementation activities.

1.4 SCOPE OF THE BDCP

This section describes the geographic scope of the BDCP, the types of activities that the Plan covers, and the duration sought for regulatory permits that are issued by the Fish and Wildlife agencies pursuant to the Plan.

1.4.1 Geographic Scope of the Plan Area

The geographic scope of the Plan Area encompasses the Sacramento-San Joaquin Delta and additional areas in which conservation measures may be implemented pursuant to the Plan. Take authorizations issued under the BDCP will extend to covered activities that occur within the Plan Area.

The BDCP Conservation Strategy is primarily focused on the statutory Delta, as defined in California Water Code Section 12220. However, certain areas outside the statutory Delta contain desirable locations for conservation actions that advance the goals and objectives of the Plan (Figure 1-1).[43] Areas such as Suisun Marsh, Suisun Bay, and upstream areas of the upper Yolo Bypass and the area that encompasses the Fremont Weir, for instance, provide important sites for habitat restoration to support goals and objectives for natural communities and covered species (Figure 1-1). In addition, the Conservation Strategy includes measures that will be implemented outside of the statutory Delta to support or complement regional conservation planning efforts underway in Yolo, Solano, Contra Costa, San Joaquin, and Sacramento counties. As such, the geographic scope of the Plan Area will also encompass habitat lands that are conserved through BDCP actions taken in conjunction with these other regional conservation programs. To the extent appropriate, these conservation actions will be implemented through cooperative agreements, or similar mechanisms, between the BDCP Implementation Office and local agencies, interested non-governmental organizations, landowners, or other parties.

To accommodate the range of conservation measures necessary to meet the goals and objectives of the BDCP, the scope of the Plan Area may be expanded during the implementation of the Plan. The flexibility to expand the boundaries of the Plan during plan implementation will allow for greater opportunity to maximize conservation benefits associated with the measures set out in

[43] The BDCP Planning Agreement, recognized the likelihood that the BDCP Conservation Strategy would include actions that would be implemented outside of the Statutory Delta to further advance the goals and objectives of the plan

the Conservation Strategy. Adjustments to the Plan Area, however, would occur only under certain defined circumstances and within identified areas, as set out in the Conservation Strategy.

Because the SWP and CVP water infrastructure is operated as an integrated system, the effects of implementing the BDCP will extend beyond the Delta, both upstream and downstream, and will implicate water operational parameters as well as species and their habitats. Therefore, the BDCP effects analysis (Chapter 5 *Effects Analysis*) takes into account these upstream and downstream effects, both positive and negative, to ensure that the overall effects of the BDCP are sufficiently described, analyzed and addressed. Areas potentially affected by the implementation of the BDCP located outside of the geographic scope of the plan, have been included in the analysis of effects to ensure that all of the potential effects within the "action area," as defined by Section 7 of the ESA, have been adequately assessed.

1.4.2 Natural Communities

Natural communities are distinct and reoccurring assemblages of plants and animals associated with specific physical environmental conditions and ecological processes. A natural community occurs across a landscape where similar ecological conditions exist. The Wildlife and Natural Areas Conservation Act defines natural community as "a distinct, identifiable, and recurring association of plants and animals that are ecological interrelated" (California Fish and Game Code subsection 2702[d]). Individual species occur within the context of natural communities and it is within these communities that species interact with other species and the physical environment. The NCCPA states that the purpose of natural community conservation planning is "to sustain and restore those species and their habitat …that are necessary to maintain the continued viability of those biological communities impacted by human changes to the landscape." [44]

To adequately address the natural communities in the Delta that support covered species and native biodiversity, the BDCP includes measures that sustain and enhance ecological processes and provide for the protection and restoration of a broad range of natural communities. Conservation measures have been designed to improve ecological functions and restore species habitat in the following natural communities:

- Tidal Perennial Aquatic;
- Tidal Mudflat;
- Tidal Brackish Emergent Wetland;
- Tidal Freshwater Emergent Wetland;
- Valley/Foothill Riparian;
- Nontidal Perennial Aquatic;
- Nontidal Freshwater Perennial Emergent Wetland;

[44] Fish & Game Code § 2801(h)(i).

- Alkali Seasonal Wetland Complex;
- Vernal Pool Complex;
- Other Natural Seasonal Wetland;
- Managed Wetland;
- Grassland; and
- Inland Dune Scrub.

Although not considered a natural community, cultivated croplands are nonetheless taken into account in the BDCP Conservation Strategy because, in certain instances, they provide value as habitat for covered species. Cultivated croplands addressed by the BDCP have been divided into subtypes, each of which provide varying benefits to different covered species or groups of covered species. These cultivated cropland subtypes are as follows:

- Alfalfa;
- Irrigated Pasture;
- Rice;
- Other cultivated crops;
- Orchards; and
- Vineyards.

Collectively, the covered natural communities encompass the habitat used by covered species within the Plan Area.

1.4.3 Covered Species

The ESA and the NCCPA set forth specific criteria that must be satisfied to support the issuance of regulatory authorizations that provide for the incidental take of species. The term "covered species" refers to those species for which incidental take authorizations may be issued under the BDCP pursuant to state and federal endangered species laws. The proposed BDCP covered species are identified in Table 1-2.

The BDCP seeks regulatory coverage for those species that will potentially be adversely affected by those activities covered by the Plan. As such, the list of species proposed for coverage is limited to those species currently protected under state or federal wildlife laws, and those species that are likely to receive the protection of those laws in the future. The list of covered species is not intended to include all species that occur within the Plan Area or all species and habitats that will directly or indirectly benefit from implementation of the BDCP. Rather, the covered species list reflects the range of species for which regulatory authorizations are needed under state and/or federal law for any take associated with the activities covered by the BDCP. Species not covered

under the BDCP will benefit from the measures that provide for the conservation of natural communities that encompass both common and rare species.

1.4.3.1 Species Evaluated for Coverage

The species evaluated for potential coverage under the BDCP include a broad range of fish and wildlife species that are likely to occur within the geographic scope of the Plan and are currently considered to be rare, sensitive, threatened or imperiled, or likely to be so in the future (Appendix C, *Evaluation of Species Considered for Coverage*). Many of the species on the list have been granted protected or special status, including those that have been listed under the state and/or federal endangered species acts or other laws or regulations. This list further included species that have been recognized by the scientific community as warranting concern due to their rarity or ecological importance. Among the species included on the list are those with the following special status:

- Listed as threatened or endangered under the ESA;
- Proposed or candidates for listing under ESA;
- Listed as threatened or endangered under CESA;
- Candidates for listing under CESA;
- California species of special concern identified by DFG;
- California fully protected species under California Fish & Game Code sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish);
- USFWS birds of conservation concern;
- NMFS species of concern;
- Plants listed as rare under the California Native Plant Protection Act (NPPA); or
- Plants included in the California Native Plant Society (CNPS) List 1A, 1B, or 2.

1.4.3.2 Evaluation and Selection Criteria

The evaluation process relied primarily on four criteria to determine which special-status species would be included on the list of species proposed for coverage under the BDCP. The selection criteria, which are discussed in detail in Appendix C, *Evaluation of Species Considered for Coverage*, are as follows:

- Listing status of the species.
- Likelihood that the species is present in the Plan Area or other areas within the geographic scope.
- Potential for the species to be adversely affected by BDCP covered activities, including the implementation of conservation measures.

- Level of information available to determine potential impacts to species and to identify effective conservation measures.

Those species that met all four of these criteria are proposed for coverage under the BDCP (Table 1-2). The results of the evaluations conducted for each species are set out in Appendix C, *Evaluation of Species Considered for Coverage*.

Table 1-2. BDCP Proposed Covered Species and Associated Habitats

**[*Note to reviewers:* *This table provides the current list of proposed covered species. Additional species may be added and some of the species presented here may be removed from the covered species list as per continuing development of the BDCP.]*

No.	*Common Name/ Scientific Name*	*Status (Federal/ State/CNPS)*[1]	*Natural Communities Supporting Species Habitat*
Fish (11 species)			
1	Central Valley steelhead *Oncorhynchus mykiss* DPS	T/-/- DPS Critical Habitat, Recovery Plan[11]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
2	Sacramento River winter-run Chinook salmon *Oncorhynchus tshawytscha* Evolutionarily Significant Unit (ESU)	E/E/- ESU Critical Habitat, Recovery Plan[11, 12]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
3	Central Valley spring-run Chinook salmon *Oncorhynchus tshawytscha* ESU	T/T/- ESU Critical Habitat, Recovery Plan[11, 13]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
4	Central Valley fall- and late fall-run Chinook salmon *Oncorhynchus tshawytscha*	-/SSC/- Recovery Plan[13]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
5	Delta smelt *Hypomesus transpacificus*	T/T/- Critical Habitat, Recovery Plan[13]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
6	Longfin smelt *Spirinchus thaleichthys*	-/T/- Recovery Plan[13]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
7	Sacramento splittail *Pogonichthys macrolepidotus*	-/SSC/- Recovery Plan[13]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
8	White sturgeon *Acipenser transmontanus*	-/-/-	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
9	North American green sturgeon *Acipenser medirostris* Southern DPS	T/SSC/- Southern DPS *Proposed* Critical Habitat, Recovery Plan[13]	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
10	Pacific lamprey *Entosphenus tridentatus*	-/-/-	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland

Table 1-2. BDCP Proposed Covered Species and Associated Habitats (continued)

No.	*Common Name/ Scientific Name*	*Status (Federal/ State/CNPS)*[1]	*Natural Communities Supporting Species Habitat*
11	River lamprey *Lampetra ayresii*	-/-/-	Tidal perennial aquatic, tidal mudflat, tidal brackish emergent wetland, tidal freshwater emergent wetland
Mammals (6 species)			
12	San Joaquin kit fox *Vulpes macrotis mutica*	E/T/- Recovery Plan[2]	Grassland, agricultural habitats
13	Riparian woodrat *Neotoma fuscipes riparia*	E/SSC/- Recovery Plan[2]	Valley/foothill riparian
14	Salt marsh harvest mouse *Reithrodontomys raviventris*	E/E,FP/- Recovery Plan[3, 4]	Tidal brackish emergent wetland, managed wetland, grassland
15	Riparian brush rabbit *Sylvilagus bachmani riparius*	E/E/- Recovery Plan[2]	Valley/foothill riparian
16	Townsend's big-eared bat *Corynorhinus townsendii*	-/SSC/-	All natural communities
17	Suisun shrew *Sorex ornatus sinuosus*	-/SSC/- Recovery Plan[3]	Tidal brackish emergent wetland, managed wetland
Birds (12 species)			
18	Tricolored blackbird *Agelaius tricolor*	-/SSC/-	Tidal brackish emergent wetland, tidal freshwater emergent wetland, valley/foothill riparian, alkali seasonal wetland complex, managed wetland, other natural seasonal wetland, grassland, agricultural habitats
19	Suisun song sparrow *Melospiza melodia maxillaris*	-/SSC/- Recovery Plan[4]	Tidal brackish emergent wetland, tidal freshwater emergent wetland, managed wetland
20	Yellow-breasted chat *Icteria virens*	-/SSC/-	Valley/foothill riparian
21	Least Bell's vireo *Vireo bellii pusillus*	E/E/- Recovery Plan[5]	Valley/foothill riparian
22	Western burrowing owl *Athene cunicularia hypugaea*	-/SSC/-	Grassland, alkali seasonal wetland complex, vernal pool complex, managed wetland, other natural seasonal wetland, agricultural habitats
23	Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C/E/-	Valley/foothill riparian
24	California least tern *Sternula antillarum browni*	E/E/- Recovery Plan[6]	Tidal perennial aquatic
25	Greater sandhill crane *Grus canadensis tabida*	-/T,FP/-	Agricultural habitats, alkali seasonal wetland complex, vernal pool complex, managed wetland, other natural seasonal wetland, grassland
26	California black rail *Laterallus jamaicensis coturniculus*	-/T,FP/- Recovery Plan[4]	Tidal brackish emergent wetland, tidal freshwater emergent wetland, nontidal freshwater perennial emergent wetland
27	California clapper rail *Rallus longirostris obsoletus*	E/E,FP/- Recovery Plan3, 4	Tidal brackish emergent wetland

Table 1-2. BDCP Proposed Covered Species and Associated Habitats (continued)

No.	*Common Name/ Scientific Name*	*Status (Federal/ State/CNPS)*[1]	*Natural Communities Supporting Species Habitat*
28	Swainson's hawk *Buteo swainsoni*	-/T/-	Valley/foothill riparian, agricultural habitats, grassland, alkali seasonal wetland complex, vernal pool complex, managed wetland, other natural seasonal wetland
29	White-tailed kite *Elanus leucurus*	-/FP/-	Valley/foothill riparian, agricultural habitats, grassland, alkali seasonal wetland complex, vernal pool complex, managed wetland, other natural seasonal wetland
Reptiles (2 species)			
30	Giant garter snake *Thamnophis gigas*	T/T/- Recovery Plan[6]	Tidal perennial aquatic, tidal freshwater emergent wetland, nontidal perennial aquatic, nontidal freshwater perennial emergent wetland, alkali seasonal wetland complex, vernal pool complex, managed wetland, other natural seasonal wetland, grassland, agricultural habitats
31	Western pond turtle *Actinemys* (formerly *Clemmys* and *Emys*) *marmorata*	-/SSC/-	Tidal perennial aquatic, tidal freshwater emergent wetland, tidal brackish emergent wetland, nontidal perennial aquatic, nontidal freshwater perennial emergent wetland, valley/foothill riparian, alkali seasonal wetland complex, vernal pool complex, managed wetland, other natural seasonal wetland, grassland, agricultural habitats
Amphibians (3 species)			
32	California red-legged frog *Rana draytonii*	T/SSC/- Critical Habitat, Recovery Plan[8]	Valley/foothill riparian, nontidal freshwater perennial emergent wetland, tidal freshwater emergent wetland, nontidal perennial aquatic, managed wetland, grassland, alkali seasonal wetland complex, vernal pool complex, other natural seasonal wetland, agricultural habitats
33	Western spadefoot toad *Spea hammondii*	-/SSC/- Recovery Plan[9]	Grassland, alkali seasonal wetland complex, vernal pool complex, other natural seasonal wetland, nontidal perennial aquatic
34	California tiger salamander *Ambystoma californiense* Central Valley Distinct Population Segment (DPS)	T/T/- Central Valley DPS Critical Habitat	Vernal pool complex, alkali seasonal wetland complex, other natural seasonal wetland, grassland
Invertebrates (8 species)			
35	Lange's metalmark butterfly *Apodemia mormo langei*	E/-/- Recovery Plan[15]	Inland dune scrub
36	Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/-/- Recovery Plan[14]	Valley/foothill riparian, grassland
37	Vernal pool tadpole shrimp *Lepidurus packardi*	E/-/- Critical Habitat Recovery Plan[9]	Vernal pool complex

Table 1-2. BDCP Proposed Covered Species and Associated Habitats (continued)

No.	*Common Name/ Scientific Name*	*Status (Federal/ State/CNPS)*[1]	*Natural Communities Supporting Species Habitat*
38	Conservancy fairy shrimp *Branchinecta conservatio*	E/-/- Critical Habitat Recovery Plan[9]	Vernal pool complex
39	Longhorn fairy shrimp *Branchinecta longiantenna*	E/-/- Recovery Plan[9]	Vernal pool complex
40	Vernal pool fairy shrimp *Branchinecta lynchi*	T/-/- Critical Habitat Recovery Plan[9]	Vernal pool complex
41	Midvalley fairy shrimp *Branchinecta mesovallensis*	-/-/- Recovery Plan[9]	Vernal pool complex
42	California linderiella *Linderiella occidentalis*	-/-/- Recovery Plan[9]	Vernal pool complex
Plants (21 species)			
43	Alkali milk-vetch *Astragalus tener* var. *tener*	-/-/1B Recovery Plan[9]	Vernal pool complex
44	Heartscale *Atriplex cordulata*	-/-/1B	Alkali seasonal wetland complex, vernal pool complex, grassland
45	Brittlescale *Atriplex depressa*	-/-/1B	Alkali seasonal wetland complex, vernal pool complex, grassland
46	San Joaquin spearscale *Atriplex joaquiniana*	-/-/1B	Alkali seasonal wetland complex, vernal pool complex, grassland
47	Slough thistle *Cirsium crassicaule*	-/-/1B	Valley/foothill riparian
48	Suisun thistle *Cirsium hydrophilum var. hydrophilum*	E/-/1B Critical Habitat Recovery Plan[4]	Tidal brackish emergent wetland
49	Soft bird's-beak *Cordylanthus mollis ssp. mollis*	E/R/IB Critical Habitat Recovery Plan[4]	Tidal brackish emergent wetland
50	Dwarf downingia *Downingia pusilla*	-/-/2	Vernal pool complex
51	Delta button-celery *Eryngium racemosum*	-/E/1B	Alkali seasonal wetland complex, vernal pool complex, valley/foothill riparian, grassland
52	Contra Costa wallflower *Erysimum capitatum var. angustatum*	E/E/1B Critical Habitat Recovery Plan[15]	Inland dune scrub
53	Boggs Lake hedge-hyssop *Gratiola heterosepala*	-/E/1B Recovery Plan[9]	Vernal pool complex
54	Carquinez goldenbush *Isocoma arguta*	-/-/1B	Alkali seasonal wetland complex, grassland
55	Delta tule pea *Lathyrus jepsonii var. jepsonii*	-/-/1B Recovery Plan[4]	Tidal brackish emergent wetland, tidal freshwater emergent wetland, valley/foothill riparian
56	Legenere *Legenere limosa*	-/-/1B Recovery Plan[9]	Vernal pool complex
57	Heckard's peppergrass *Lepidium latipes var. heckardii*	-/-/1B	Vernal pool complex
58	Mason's lilaeopsis *Lilaeopsis masonii*	-/R/1B	Tidal mudflats, tidal brackish emergent wetland, tidal freshwater emergent wetland, valley/foothill riparian
59	Delta mudwort *Limosella subulata*	-/-/2	Tidal mudflats, tidal brackish emergent wetland, tidal freshwater emergent wetland, valley/foothill riparian

Table 1-2. BDCP Proposed Covered Species and Associated Habitats (continued)

No.	*Common Name/ Scientific Name*	*Status (Federal/ State/CNPS)*[1]	*Natural Communities Supporting Species Habitat*
60	Antioch Dunes evening-primrose *Oenothera deltoides ssp. howellii*	E/E/1B Critical Habitat Recovery Plan[15]	Inland dune scrub
61	Side-flowering skullcap *Scutellaria lateriflora*	-/-/2	Valley/foothill riparian
62	Suisun Marsh aster *Symphyotrichum* (formerly *Aster lentus) lentum*	-/-/1B	Tidal brackish emergent wetland, tidal freshwater emergent wetland, valley/foothill riparian
63	Caper-fruited tropidocarpum *Tropidocarpum capparideum*	-/-/1B	Grassland

[1]Status:
Federal
E = Listed as endangered under ESA
T = Listed as threatened under ESA
C = Candidate for listing under ESA

State
E = Listed as endangered under CESA
T = Listed as threatened under CESA
R = Listed as rare under the California Native Plant Protection Act
SSC = California species of special concern
FP = Fully protected under the California Fish and Game Code

California Native Plant Society (CNPS)
1B = rare or endangered in California and elsewhere
2 = rare and endangered in California, more common elsewhere

[2]U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.

[3]U.S. Fish and Wildlife Service. 1984. Salt marsh harvest mouse and California clapper rail recovery plan. Portland, OR.

[4]U.S. Fish and Wildlife Service. 2009. Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California. Sacramento, California. xviii+636 pp.

[5]U.S. Fish and Wildlife Service. 1998. Draft recovery plan for the least Bell's vireo. U.S. Fish and Wildlife Service, Portland, OR. 139 pp.

[6]U.S. Fish and Wildlife Service. 1985. Recovery plan for the California least tern, Sterna antillarum browni. U.S. Fish and Wildlife Service, Portland, OR. 112 pp.

[7]U.S. Fish and Wildlife Service. 1999. Draft Recovery Plan for the Giant Garter Snake (Thamnopsis gigas). U.S. Fish and Wildlife Service, Portland, Pregon. ix+192 pp.

[8]U.S. Fish and Wildlife Service. 2002. Recovery Plan for the California Red-legged Frog (Rana aurora draytonii). U.S. fish and Wildlife Service, Portland, Oregon. viii+173 pp.

[9]U.S. Fish and Wildlife Service. 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon. xxvi + 606 pages.

[10]California Tiger Salamander distinct population segments are federally listed as endangered in Sonoma and Santa Barbara counties.

[11]National Marine Fisheries Service. 2009. Public Draft Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of Central Valley Steelhead. Sacramento Protected Resources Division. October 2009.

[12]National Marine Fisheries Service. 1997. NMFS Proposed Recovery Plan for the Sacramento River winter-run Chinook Salmon. NMFS Southwest Region. Long Beach, CA.

[13]U.S. Fish and Wildlife Service. 1995. Sacramento-San Joaquin Delta Native Fishes Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon.

[14]U.S. Fish and Wildlife Service. 1984. Valley elderberry longhorn beetle Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 62 pp.

[15]U.S. Fish and Wildlife Service. 1984. Revised recovery plan for three endangered species endemic to Antioch Dunes, California.

[16]U.S. Fish and Wildlife Service, Portland, Oregon

1.4.4 Covered Activities and Associated Federal Actions

The BDCP is intended to provide the basis for the issuance of regulatory authorizations under the ESA and the NCCPA for a broad range of ongoing and anticipated activities in the Plan Area that are associated with the operations of the SWP and the CVP, as well as for actions related to the operation of Mirant power plants. Covered Activities and Associated Federal Actions encompass all actions that are proposed for coverage under take authorizations that are expected to be issued by the state and/or federal Fish and Wildlife Agencies on the basis of the BDCP.

These actions have been designated as either "Covered Activities," which encompass those actions that will be undertaken by non-federal parties, or "Associated Federal Actions," which refer to those actions that are authorized, funded, or carried out by Reclamation. The BDCP Covered Activities and Associated Federal Actions are described in Chapter 4, *Description of Covered Activities and Associated Federal Actions*.

1.4.4.1 Covered Activities

The BDCP Covered Activities consist primarily of activities related to the development and operation of water conveyance infrastructure associated with the SWP that will occur within the Plan Area. Specifically, those SWP-related actions covered by the BDCP involve: (1) the operation of existing and future Delta facilities to transport and deliver water for SWP purposes; (2) the construction of new water conveyance infrastructure and other facilities; and (3) the maintenance and monitoring of water infrastructure and other facilities.

The BDCP also covers the operation of the Pittsburg and Contra Costa power plants owned by Mirant. The Plan covers activities related to the intake and discharge of water from the Delta necessary to operate the plants as well as certain other maintenance activities required to ensure continued proper operation of the existing facilities.

The BDCP Covered Activities also include the conservation measures described in the Conservation Strategy for the Plan. These actions are covered by the BDCP because they may potentially impact species protected under state and/or federal endangered species laws. Such conservation actions include the restoration of aquatic and terrestrial habitats, construction of facilities, monitoring of Covered Species, and research and study of species and habitats.

1.4.4.2 Associated Federal Actions

The BDCP associated federal actions comprise those activities that are authorized, funded, or carried out by Reclamation within the Plan Area and relate to the operation of the CVP's Delta facilities. These actions include: (1) operation of existing CVP Delta facilities to convey and export water to meet project purposes; and (2) associated maintenance and monitoring activities. While the CVP and SWP are separate systems, the projects function in an integrated and coordinated manner pursuant to the Coordinated Operations Agreement (COA). As such,

Reclamation and/or the CVP contractors will utilize a portion of the conveyance capacity of a new tunnel/pipeline facility.

1.4.5 Permit Duration

DWR is seeking take permits from the state and federal Fish and Wildlife Agencies that remain in effect for a term of 50 years. A 50 year term is necessary to allow for the full implementation of the BDCP Conservation Strategy and to maximize the ecological benefits of the Plan. Moreover, the nature and scope of the actions to be permitted require a permit duration of 50 years.

1.5 OVERVIEW OF THE PLANNING PROCESS

1.5.1 Role of the Steering Committee

The BDCP reflects input from a range of interested parties, public agencies, stakeholder groups, independent scientists, and the general public. The development of the Plan was primarily guided by the BDCP Steering Committee, whose membership is set out in Table 1-1, with direction from a Management Team. The Steering Committee provided direction on a range of technical, regulatory, and policy matters that shaped the Plan. The Management Team served the role of establishing agendas and facilitating meetings of the Steering Committee. The state and federal fish and wildlife agencies participated on the Steering Committee in an *ex officio* capacity. The proceedings of the Steering Committee, including the schedule and notice of meetings, topics for inclusion in meeting agendas, and the course of deliberations, were facilitated by the California Natural Resources Agency.

The Steering Committee formed a number of standing "Working Groups" and "Technical Teams," as well as ad hoc groups, to focus on approaches and solutions to specific issues related to Plan development. The focus of these groups is described below. The Working Groups dealt primarily with broad topics related to such matters as biological goals and objectives, conservation strategies, water conveyance, other stressors, and governance, and developed recommendations which were presented to the Steering Committee for consideration. Each Working Group was co-chaired by members of the Steering Committee. Technical Teams were tasked with responsibility for developing proposed approaches to technical and scientific issues. These teams were co-chaired by subject-matter experts who represented Steering Committee members, and were staffed by technical experts from both inside and outside the Steering Committee. All of these subgroups of the Steering Committee were composed of or were informed by technical experts representing a broad range of disciplines relevant to various aspects of plan development. Meetings of the Working Groups and Technical Teams were noticed on the BDCP website and open to the public.

The Working Groups and Technical Teams included the following:

- Conservation Strategy Working Group
- Biological Goals and Objectives Working Group
- Conveyance Working Group
- Other Stressors Working Group
- Implementation Structure/Governance Working Group
- Analytical Tools Technical Team
- Fish Facilities Technical Team
- Habitat and Operations Technical Team
- Habitat Restoration Program Technical Team
- Terrestrial Resources Subgroup
- Synthesis Team
- Integration Team
- Logic Chain and Metrics Technical Group

1.5.2 Public Participation and Engagement

The NCCPA requires the establishment of a process for public participation and outreach throughout the development of a plan.[45] Similarly, policies governing the ESA emphasize the importance of public involvement in the development of large-scale HCPs and encourage plan participants to facilitate the engagement of the public.[46] At the initial stage of the BDCP planning process, an outreach program was developed to provide the public a wide range of opportunities to learn about the various elements of the Plan and provide input during the course of its development.

The BDCP Steering Committee was established in May 2006, and met on a regular and ongoing basis throughout the planning process. All meetings of the Steering Committee, as well as Working Groups and Technical Teams, were open to the public. Such meetings could also be attended by teleconference, with live or archived access to presentations provided through the internet. Initially, a group email list was compiled and used to provide Steering Committee members and interested parties with Steering Committee meeting dates, times, and handouts. Later, an electronic listserv was developed and maintained to ensure that interested members of the public were notified of upcoming meetings and that draft documents pertaining to the planning process were distributed as they became available. All documents discussed by the Steering Committee, including its Working Groups and Technical Teams, were made available

[45] Fish & Game Code § 2815.

[46] 65 FR at X.

to the public on the BDCP website. At BDCP meetings, both oral and written public comments were received by the Steering Committee, and those comments received in writing were posted to the website. The notes of Steering Committee meetings also reflected comments and input offered by the public.

Throughout the planning process, representatives of the BDCP conducted approximately 200 briefings for community organizations, local jurisdictions within and adjacent to the Plan Area, environmental organizations, urban and agricultural water users groups, and recreational and commercial fishing organizations. Public presentations were made throughout the state, and information about the BDCP was regularly distributed, including updated "fact sheets" explaining the purpose of the Plan and describing its various components. To further facilitate the dissemination of information, the BDCP maintained a project website at: www.baydeltaconservationplan.com. Additional public outreach and involvement activities were conducted around major milestones in the planning process, and in compliance with NEPA and CEQA environmental review processes.

In 2008, DWR, Reclamation, NMFS, and USFWS, the lead agencies in the CEQA and NEPA environmental review processes, hosted ten scoping meetings throughout California. These meetings occurred at locations within the Sacramento Valley, the primary watershed through which stored water supplies are conveyed to and through the Delta to Project pumping facilities; other Delta communities; the San Francisco Bay Area; the San Joaquin Valley; and Southern California. Within the same year, DWR held eight landowner workshops in various Delta communities that focused in particular on the Temporary Entry Permit process and on updating these communities on the status of the BDCP planning process, and the environmental review process associated with the plan. In addition, the California Natural Resources Agency convened town hall meetings in Sacramento, Stockton, and Walnut Grove to further inform Delta communities about the BDCP and to respond to questions about the broader array of public agency efforts underway in the Delta, including the BDCP, pertaining to land use, flood protection, ecosystem restoration and governance.

In the spring of 2009, the BDCP produced and distributed a summary update about the development of the Plan to interested members of the public, including details of individual conservation measures that were being considered as part of the BDCP conservation strategy. NEPA and CEQA lead agencies also conducted 12 additional scoping meetings throughout California, seeking public input about the scope of BDCP actions and potential alternatives to the proposed action. Six of these scoping meetings were held in communities in or in close proximity to the Plan Area including Brentwood, Clarksburg, Davis, Fairfield, Sacramento, and Stockton. A Webinar was hosted in advance of these meetings to provide more in depth information about the BDCP process and to afford individuals unable to attend the workshops in person an opportunity to access to this information and interact with the BDCP representatives.

During the fall of 2009, after the release of a draft of a partial conservation strategy, four technical workshops were held in the Delta communities of Brentwood, Stockton, Walnut Grove,

and West Sacramento to solicit input about the planning assumptions, biological rationale, and feasibility of draft conservation measures, as well as to seek recommendations for additional or different conservation measures. Input from the workshops was compiled and conveyed to the BDCP Steering Committee for its consideration and posted on the BDCP website. Three fact sheets were distributed that described the status of the Plan's development, the draft conservation strategy generally, and proposed water conveyance and flow and habitat restoration conservation measures more specifically.

Throughout 2010, BDCP representatives continued to conduct community briefings throughout the state, but primarily with organizations and local jurisdictions located within the Delta. As a result of these ongoing briefings, important working relationships were established with community leaders, further facilitating local engagement. In addition, informational materials about the BDCP, including fact sheets and issue summaries, evolved over time to ensure that the public was kept up-to-date with BDCP developments.

1.5.3 Integration of Science

The BDCP is built upon and reflects the extensive body of scientific investigation, study, and analysis of the Delta compiled over several decades,[47] including the results and findings of numerous studies initiated under the CALFED Bay-Delta Science program and Ecosystem Restoration Program, the long-term monitoring programs conducted by the Interagency Ecological Program (IEP), research and monitoring conducted by state and federal resource agencies, and research contributions of academic investigators.

In addition, the BDCP Steering Committee considered a number of other recent reports on the Delta, including reports of the Governor's Delta Vision Blue Ribbon Task Force (January and October 2008) and several recent reports of the Public Policy Institute of California.[48] Many elements of the BDCP conservation strategy parallel the recommendations of these other reports.

1.5.3.1 Independent Science Advisory Process

To ensure that the BDCP would be based on the best scientific and commercial data available, the Steering Committee also sought input and advice from independent scientists on the key elements of the Plan. Early in the planning process, the Steering Committee established a group of "Science Liaisons" to recommend approaches to ensure an appropriate level of independent scientific input into the development of the BDCP and to coordinate with facilitators tasked with responsibility for arranging and overseeing the independent science process. Consistent with the requirements of the NCCPA and the policy directives of the Five-Point Policy,[49] the BDCP Steering Committee directed the facilitators to convene independent scientists at several key stages of the BDCP planning process, enlisting well-recognized experts in ecological and biological sciences to produce recommendations on a range of relevant topics, including

[47] See The State of Bay-Delta Science (2008).

[48] For example, *Comparing Futures for the Sacramento-San Joaquin Delta* (Public Policy Institute of California 2008).

[49] 65 Fed. Reg. 35242.

approaches to conservation planning for aquatic and terrestrial species in the Delta and developing adaptive management and monitoring programs. Among other things, the independent scientists provided recommendations and guidance on such matters as:

- Scientifically sound conservation strategies for species and natural communities proposed to be covered by the Plan;
- A set of reserve design principles that addresses the needs of species, landscapes, ecosystems, and ecological processes in the Plan Area proposed to be addressed by the Plan;
- Management principles and conservation goals that could be used in developing a framework for the monitoring and adaptive management component of the Plan; and
- Identification of data gaps and uncertainties so that risk factors may be adequately evaluated.

Reports prepared by independent science advisors to the BDCP are provided in Appendix G, *Independent Science Advisors Reports*.

The Steering Committee assembled five different groups of independent science advisors during the development of the BDCP. The first group gathered in September 2007, to provide guidance on approaches to planning for the conservation of aquatic species and ecosystem processes in the Delta. Specifically, the group advised the Steering Committee on the following elements of the BDCP:

- The application of conservation planning principles within the Plan Area;
- Geographic and temporal scope of the BDCP;
- Addressing facets of Delta ecosystem dynamics;
- Analytical methods used in BDCP formulation, methods of analysis; and
- Adaptive management and monitoring considerations.

A second group of science advisors was convened in September 2008 to consider approaches to planning for the conservation of non-aquatic resources in the Plan Area. The group provided recommendations to the Steering Committee on such issues as:

- Non-aquatic species to be considered for regulatory coverage under the BDCP;
- Terrestrial natural communities that should be addressed under the BDCP;
- Landscape-level approaches to conservation planning for non-aquatic resources;
- Additional sources of information that should be developed to support the non-aquatic resource elements of the BDCP; and

- Conservation strategies that may be considered for addressing terrestrial and non-tidal wetland communities and dependent wildlife and plant species.

The third group of science advisors met in December 2008 and focused on matters related to the development of an adaptive management decision making process for the BDCP informed by data and information generated by monitoring and research efforts. This group built upon guidance on adaptive management that followed from the first of the independent science workshops, offering more specific advice based on progress that had since been made in the development of the BDCP.

The Delta Science Program provided assistance in assembling a fourth group of independent science advisors in February-March 2010 and a fifth group in July-August 2010 to evaluate and provide recommendations on the "Logic Chain" planning structure. The Logic Chain has been proposed as a framework for linking recovery goals for covered fish species with BDCP goals, objectives, conservation measures, monitoring, and adaptive management. Two science reports on the Logic Chain were prepared.

In the first report, dated March 19, 2010 (Appendix G5), the group assessed the value of the Logic Chain as a tool, its internal consistency, and next steps for input of information into the Logic Chain. The group stated that the Logic Chain was a useful tool for clearly articulating and linking goals, objectives, actions, and outcomes, but recommended an alternate approach that clarifies the links in the chain and reduces areas of ambiguity; distinguish between order-of-magnitude approximations of goals and objectives that are acceptable in early planning and the more detailed descriptions developed later; frame projected outcomes as testable hypotheses linked to specific conservation measures; use metrics to evaluate the success of outcomes that clearly link to biological functions and consider the judicious use of surrogate metrics; consider constraints to implementation of conservation measures; consider the potential impacts of system dynamics, variation, and change over time; and provide more detail to the adaptive management framework. As next steps, the group recommended developing logic chains for a few species initially; leaving recovery goal development to responsible regulatory agencies; focusing on development of the BDCP biological goals and objectives; and convening a workshop to develop monitoring metrics.

In the second report, dated August 23, 2010 and revised September 6, 2010 (Appendix G6 and G7), the group assessed the populated logic chains to evaluate internal logic, measurability, and linkages, and consistency in approach; recommended alternative strategies and metrics for goals and objectives and alternative ways of framing goals and objectives to be more practicable; and provided advice on constructing an integrated monitoring program linked to the logic chains. Recommendations of this science group included: simplifying the logic chain structure to reduce the number of objective statements and to focus on BDCP objectives; identify stressors that are outside of BDCP management; focus BDCP objectives on measures of individual and population-level performance, such as habitat-specific estimates of growth and survivorship, quantitative estimates of abundance, and quantitative measures of movement and/or distribution;

take care in populating the compliance and performance monitoring actions and consider three monitoring levels separately, the global goal, the "covered activity" level, and compliance; and to link implementation of conservation measures, through monitoring and evaluation, to the adaptive management program.

1.5.3.2 DRERIP Evaluation Process

The BDCP Steering Committee undertook a rigorous process to incorporate new and updated information and to evaluate a wide variety of issues and approaches as it formulated a cohesive, comprehensive BDCP conservation strategy. This effort included an evaluation conducted early in 2009 by multiple teams of experts of draft BDCP conservation measures, using the CALFED Bay-Delta Ecosystem Restoration Program's (ERP) Delta Region Ecosystem Restoration Implementation Plan (DRERIP) Scientific Evaluation Process.

In October 2008, the Steering Committee developed early drafts of BDCP conservation measures related to water operations, habitat restoration, and other stressors. The DRERIP evaluation process was used to evaluate these draft conservation measures. The DRERIP process was specifically developed to aid in planning and decision making regarding potential ecosystem restoration projects in the Delta. The process entails engaging teams of experts to work through a structured, step-by-step examination of the scientific efficacy of proposed restoration actions by analyzing both potential positive and negative outcomes which might result from a given action.

To conduct the DRERIP evaluations, the Steering Committee engaged 52 technical experts assembled into five teams to address related groupings of conservation measures. The DRERIP Technical Team meetings were limited to specific technical experts trained in the DRERIP evaluation process. The teams conducted DRERIP evaluations, from January-April 2009, on 32 draft conservation measures that could be evaluated using the process. The evaluations were conducted using a series of peer-reviewed DRERIP ecosystem and species conceptual models developed specifically for the Delta and additional relevant sources of information (e.g., published literature, recently collected data). The conceptual models describe the current scientific understanding regarding how the Delta ecosystem works and were designed to serve as a foundation for the evaluation process. A description of the BDCP DRERIP evaluations and evaluation results are presented in Appendix F, *DRERIP Evaluation Results*.

Results include an assessment of the likely magnitude of the ecological outcomes and the certainty of those outcomes that could be associated with implementation of each evaluated conservation measure. However, because the DRERIP process is designed to evaluate restoration actions independently, it does not provide for a direct assessment of the combined magnitude and certainty of positive and negative ecological outcomes that would be associated with the contemporaneous implementation of multiple conservation measures under BDCP. To address this need, the Steering Committee established a Synthesis Team comprised of Steering Committee member representatives and technical experts that participated in the DRERIP

evaluations to conduct an assessment of the likely synergistic ecological effects of simultaneous implementation of multiple conservation measures based on the evaluation results for individual conservation measures. The Synthesis Team conducted the evaluation during March-April 2009 and provided recommendations to the Steering Committee for refining conservation measures, sequencing implementation of conservation measures, and adjusting DRERIP results for individual conservation measures based on their synergistic effects with implementation of other conservation measures.

DRERIP evaluation results were also used to inform development of the effectiveness monitoring for conservation measures (Section 3.6, *Monitoring and Research Program*). DRERIP evaluation results include assessments and sources of uncertainty surrounding the magnitude of ecological outcomes that could be expected with the implementation of each conservation measure. Based on these assessments, effectiveness monitoring was developed to collect the information necessary to address these sources of uncertainty and to inform the need for future adjustments to conservation measures to improve their performance over time through the BDCP adaptive management decision making process (Section 3.7, *Adaptive Management Program*).

1.6 ORGANIZATION OF THE BDCP

The BDCP consists of an Executive Summary, 12 chapters, and 14 appendices. Specifically, the plan includes the following components:

The BDCP includes an executive summary, which provides an overview of the BDCP, including descriptions of the background, purpose, covered activities, conservation strategy, and approach to plan implementation. Chapter 1 sets the context for the development of the BDCP, including the purpose and scope of the plan, the planning and conservation goals and objectives, and the expected regulatory outcomes. Chapter 1 also describes the process that guided the development of the Plan. Chapter 2 describes existing environmental conditions within the Plan Area, providing the context in which the BDCP and its various elements have been developed. Chapter 3 sets out the BDCP conservation strategy, including the biological goals and objectives of the Plan, approach to conservation adopted by the Plan, the range of conservation measures for aquatic and terrestrial species and habitats, and the monitoring and adaptive management plans.

Chapter 4 identifies the activities proposed for regulatory coverage, including existing and future actions. Chapter 5 includes an analysis of the beneficial and adverse effects of the BDCP on covered natural communities and covered species. The chapter also describes the indirect effects resulting from the implementation of the BDCP conservation strategy and the covered activities. Chapter 6 addresses matters relating to the implementation of the BDCP, including the schedule for the implementation of actions, the reporting process to ensure compliance, regulatory assurances anticipated by the entities seeking authorizations, measures to address changed circumstances, and the approach to unforeseen circumstances. Chapter 7 sets out a governance structure to ensure successful long-term implementation of the Plan. Chapter 8 estimates the

costs of Plan implementation and identifies the sources of funding that will be relied on to implement the Plan.

Chapter 9 sets out the alternatives to take that were developed and considered and the reasons why they were not adopted. Chapter 10 describes the independent science advisory process and the recommendations provided by these scientists. Chapter 11 lists the preparers of the BDCP, and Chapter 12 lists the sources cited in the Plan.