

Chapter 6

Plan Implementation

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Note to Reader: This is a revised working draft prepared by the BDCP consultants. This document is currently undergoing review by the Department of Water Resources with input from the Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and U.S. Bureau of Reclamation and does not necessarily reflect the position of the state or federal agencies. It is expected to go through several more revisions prior to being released for formal public review and comment in 2012. All members of the public will have an opportunity to provide comments on the public draft of a revised version of this document during the formal public review and comment period. Responses will be prepared only on comments submitted in the formal public review and comment period.

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ADMIN DRAFT

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1 Acronyms and Abbreviations

BA	biological assessment
BDCP	Bay Delta Conservation Plan
BiOp	biological opinion
CalEPA	California Environmental Protection Agency
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CM	Conservation Measure
CVP	Central Valley Project
CWA	Clean Water Act
DFG	California Department of Fish and Game
DWR	California Department of Water Resources
ESA	federal Endangered Species Act
Fish & Game Code	California Fish and Game Code
FR	<i>Federal Register</i>
HCP	habitat conservation plan
IEP	Interagency Ecological Program
NCCPA	Natural Community Conservation Planning Act
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
RCRA	Resource Conservation and Recovery Act
Reclamation	Bureau of Reclamation
ROA	Restoration Opportunity Area
SARA	Superfund Amendments and Reauthorization Act
SWP	State Water Project
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

Chapter 6

Plan Implementation

[Note to Reviewers: This is a revised version of Chapter 6. It incorporates changes made in response to fish and wildlife agency comments.]

To effectively achieve the overall goals of ecosystem restoration and restored water supply and reliability, the Bay Delta Conservation Plan (BDCP) sets out a conservation strategy that will be implemented over the 50-year permit duration. This chapter identifies the key issues that are related to plan implementation and describes the approaches that will be used to address those issues. This chapter establishes a schedule for the implementation of the BDCP conservation measures, which will guide the timing and sequencing of measures to enhance opportunities to advance the biological goals and objectives. It further describes requirements for planning, annual workplans and budgets, monitoring, compliance reporting, and scientific review to ensure transparency in decision making to help refine BDCP implementation.

The chapter further describes the regulatory assurances under the federal Endangered Species Act (ESA) and the Natural Community Conservation Planning Act (NCCPA) that are expected to be provided to the Proposed Authorized Entities. It also describes the commitment of the Implementation Office and the Proposed Authorized Entities to respond to foreseeable changes in circumstances that may adversely affect covered species and habitats, and identifies a process by which changes that are not foreseeable can be addressed. The chapter identifies the circumstances under which regulatory authorizations may be suspended or revoked. See Chapter 3, *Conservation Strategy*, for a full description of the conservation measures. See Chapter 7, *Implementation Structure*, for a description of the BDCP implementation structure and decision-making process. Finally, see Chapter 8, *Implementation Costs and Funding Sources*, for a description of BDCP implementation costs and funding.

6.1 Implementation Schedule

The implementation of the BDCP conservation measures will be guided by the schedules in Table 6-1 and Table 6-2. Table 6-1 provides the schedule for conservation measures that address water operations and other stressors, and Table 6-2 shows the implementation schedule for natural community preservation and restoration. The schedules were developed to meet the following goals.

- Ensure that key conservation actions occur early in the permit term to offset expected effects of covered activities and meet the NCCPA requirement for rough proportionality of effects and conservation.
- Ensure that conservation actions occur by the implementation deadlines established in Chapter 3, *Conservation Strategy*.
- Ensure that conservation actions occur on a feasible schedule and allow adequate time for landowner negotiation for acquisition, project planning, permitting, funding, design, and construction (see below for details).

- 1 • Group the related conservation actions or covered activities together or in the proper sequence
- 2 (e.g., implementing riparian restoration and channel margin enhancement together).
- 3 • Require natural community protection and restoration to occur in almost every time period to
- 4 ensure that progress is always being made toward the total conservation requirement in year
- 5 40.

6 The schedule for natural community restoration (Table 6-2) establishes milestones defined by when

7 restoration construction is completed; not the time at which a restoration site must meet its

8 performance criteria because it will take years or even decades for natural community restoration

9 to be fully functioning biologically. The cumulative outcomes of implementing BDCP natural

10 community protection and restoration conservation measures under this implementation schedule

11 are depicted in Figure 6-1.

12 The implementation schedules represents a reasonable estimate of the temporal sequence for

13 implementation of the various interdependent conservation actions over the term of the BDCP. The

14 BDCP is a large and complex plan and, to ensure successful implementation, the Implementation

15 Office will need to retain a degree of flexibility to adjust the implementation schedule to best ensure

16 that the biological goals and objectives are achieved. In addition, the timing of funding available

17 from public sources for actions that contribute to species recovery (not mitigation), may dictate the

18 timing of some conservation actions (see Chapter 8, *Implementation Costs and Funding Sources*, for a

19 description of all funding sources). Consequently, the actual timing of implementation of some

20 conservation actions may vary from the implementation schedules in Table 6-1 and Table 6-2.

21 **6.1.1 Implementing Conservation Actions**

22 As described in the conservation strategy (Chapter 3), some conservation measures can be

23 implemented soon after permit issuance because they require little or no additional regulatory

24 compliance beyond those provided by the BDCP (e.g., *CM8 Grassland Natural Community*

25 *Restoration*, *CM14 Stockton Deep Water Ship Channel Dissolved Oxygen Levels*, *CM17 Illegal Harvest*

26 *Reduction*, *CM19 Urban Stormwater Treatment*). Implementation of these conservation measures can

27 occur early in the permit term because, although additional planning is needed, they may not

28 require additional permits or additional California Environmental Quality Act (CEQA) or National

29 Environmental Policy Act (NEPA) compliance. However, most of the conservation actions will

30 require additional planning, permitting, and compliance before they can be implemented. An

31 overview of the general steps involved in implementing each conservation measure is provided

32 below according to the following four elements.

- 33 • Site acquisition
- 34 • Planning and design
- 35 • Regulatory compliance
- 36 • Implementation activities.

37 These elements are expected to be implemented concurrently. All are taken into account in the

38 implementation schedules for each conservation measure (Table 6-1 and Table 6-2).

1 **Table 6-1. Implementation Schedule for Water Facilities and Other Stressors Conservation Measures**

Conservation Measure	Implementation ¹ Estimated to Start	Explanation
CM1 Water Facilities and Operations	Year 11	<ul style="list-style-type: none"> Construction of the new north Delta diversion and conveyance facilities would begin approximately 2 years after permit issuance and continue for an estimated 9–10 years. Operations could begin as early as Year 11.
CM2 Yolo Bypass Fisheries Enhancement	Year 10	<ul style="list-style-type: none"> Because of the complexity of the projects planned, implementation will be phased (see CM2 in Chapter 3 for a schedule). Planning, design, environmental compliance, permitting, and construction for fish passage facilities will likely be completed first, by Year 10. Several years of study and adaptive management of fish passage facilities will be needed before more complex seasonally inundate floodplain restoration can occur. Modifications to Fremont Weir, Lisbon Weir, Sacramento Weir, lower Putah Creek Channel, and related projects will be initiated by Year 11 and operations by Year 13.
CM13 Invasive Aquatic Vegetation Control	Year 2	<ul style="list-style-type: none"> Aquatic vegetation control will occur by Year 2 to control the spread of Brazilian waterweed and other invasives such as spongeplant. Control will occur within tidal wetland restoration sites as they are implemented and as needed.
CM14 Stockton Deep Water Ship Channel Dissolved Oxygen	Year 1	<ul style="list-style-type: none"> Continued funding for the current Stockton Deep Water Ship Channel dissolved oxygen diffuser demonstration project will be made available within 1 year of BDCP permit issuance.
CM15 Predator Control	Year 3	<ul style="list-style-type: none"> Approximately 2 years of planning, prioritization, and environmental compliance needed to determine most effective sites and techniques for predator removal actions. Predator control efforts would begin by Year 3 and continue throughout the permit term.
CM16 Nonphysical Fish Barriers	Year 4	<ul style="list-style-type: none"> The existing barrier at the head of Old River is assumed to continue as a pilot project. Planning, environmental compliance, and installation of barriers at the Delta Cross Channel and Georgiana Slough are expected to take 3 years. Timelines for subsequent barriers, if needed, are expected to be similar although planning and permitting times may be reduced.
CM17 Illegal Harvest Reduction	Year 3	<ul style="list-style-type: none"> Expansion of the DFG Delta-Bay Enhanced Enforcement Program requires time to hire appropriate staff and purchase new vehicles and equipment. Enforcement actions under this conservation measure are expected to begin in year 3 of Plan implementation.

Conservation Measure	Implementation¹ Estimated to Start	Explanation
CM18 Conservation Hatcheries	Years 4 and 7	<ul style="list-style-type: none"> • Planning, design, and construction of the expansion of the existing UC Davis conservation hatchery is expected to take 3 years, allowing operation by Year 4. • Site acquisition, planning, and environmental compliance of the new DFG hatchery is expected to take 3 years. Design, construction, and facility staffing is expected to take another 3 years.
CM19 Urban Stormwater Treatment	Year 3	<ul style="list-style-type: none"> • Interagency agreements and program development are expected to take 2 years, with the program becoming operational in year 3 of Plan implementation. Individual actions under the program are expected to take approximately 5 years each to fund, design, permit, and construct.
CM20 Recreational Users Invasive Species Program	Year 1	<ul style="list-style-type: none"> • Since this measure provides funding to support existing actions, implementation will begin in year 1 of Plan implementation, although full program development will likely take approximately 3 years.
CM21 Nonproject Diversions	Year 3	<ul style="list-style-type: none"> • Interagency agreements and program development are expected to take 2 years, with the program becoming operational in year 3 of Plan implementation. Individual actions under the program are expected to take approximately 4 to 8 years each to design, permit, and construct.
<p>Notes:</p> <p>¹ Implementation is defined as the completion of construction and beginning of operations to benefit covered species, natural communities, and ecosystems.</p>		

1 **Table 6-2. Implementation Schedule for Natural community Protection and Restoration Conservation Measures (acres)**

Conservation Measure	Total Requirement	Minimum Amount of Acquisition or Restoration by 5-Year Time Periods ¹									
		Near-Term		Early Long-Term	Late Long-Term						
		1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50
BDCP Reserve System											
CM3: Natural Communities Protection											
Valley/Foothill Riparian	750		750								
Vernal pool complex	600	200	200	200							
Alkali seasonal wetland complex	150		65	85							
Grassland	8,000	2,300	2,300	1,400	400	400	400	400	400		
Managed marsh	1,500			500	500			500			
Cultivated lands (non-rice) ⁴	27,500	3,800	3,800	4,000	3,100	3,200	3,200	3,200	3,200		
Cultivated lands (rice) ⁵	-										
<i>Total Acquisition</i>	<i>38,500</i>	<i>6,300</i>	<i>7,115</i>	<i>6,185</i>	<i>3,500</i>	<i>4,100</i>	<i>3,600</i>	<i>4,100</i>	<i>3,600</i>		
Natural Community Restoration											
CM4: Tidal Wetland Restoration											
Tidal brackish emergent wetland	4,800	1,000	1,000	500	500	500	500	500	300		
Tidal freshwater emergent wetland	13,900	2,600	2,600	2,600	1,300	1,200	1,200	1,200	1,200		
Tidal perennial aquatic (below MLLW)	10,000	1,250	1,250	1,250	1,250	1,250	1,250	1,250	1,250		
Tidal wetland of any type	36,300	4,500	4,500	4,500	4,500	4,500	4,600	4,600	4,600		
<i>Subtotal: Tidal wetland restoration</i>	<i>65,000</i>	<i>9,350</i>	<i>9,350</i>	<i>8,850</i>	<i>7,550</i>	<i>7,450</i>	<i>7,550</i>	<i>7,550</i>	<i>7,350</i>		
CM5: Seasonally Inundated Floodplain Restoration	10,000			1,000	1,800	1,800	1,800	1,800	1,800		
CM6: Channel Margin Enhancement (miles)	20		5		5	5	5				
CM7: Riparian Restoration	5,000	400	400	300	750	750	750	800	850		
CM8: Grassland Communities Restoration	2,000	570	570	340	100	100	100	100	120		
CM9: Vernal Pool Complex Restoration ²	89	30	30	29							
CM10: Nontidal Marsh Restoration	400	100	100	100	100						
<i>Total Restoration³</i>	<i>82,489</i>	<i>10,450</i>	<i>10,450</i>	<i>10,619</i>	<i>10,300</i>	<i>10,100</i>	<i>10,200</i>	<i>10,250</i>	<i>10,120</i>		
Total Acquisition and Restoration	120,989										

Conservation Measure	Total Requirement	Minimum Amount of Acquisition or Restoration by 5-Year Time Periods ¹									
		Near-Term		Early Long-Term	Late Long-Term						
		1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50
<p>Notes:</p> <p>¹ See text for the rationale for the requirements by time period. In some cases, acquisition or restoration within a time period may be greater than shown in order to stay ahead of impacts.</p> <p>² Vernal pool restoration objective requires no net loss, so restoration requirement is the maximum needed if all projected impacts occur; actual restoration will likely be lower. The timing of vernal pool restoration is assumed to be evenly distributed over the first three time periods because that is when most of the impact will occur. Actual timing will depend on the timing of impacts.</p> <p>³ Excludes channel margin enhancement (in miles).</p> <p>⁴ The amount of conservation of cultivated land will vary by the biological value of the land lost to covered activities and conserved through easements or fee title. Actual conservation will range between the minimum commitment described in Objective CLNC1.1, 20,000 acres, and the maximum of 35,100 acres. The value shown is an approximate midpoint of the range. The timing of acquisition will be determined by the pace of impacts; conservation must stay ahead of impacts.</p> <p>⁵ The commitment for rice lands is to maintain 3,600 acres within the Plan Area. Rice lands would be conserved only if the total amount of rice lands in the Plan Area falls below this minimum, as needed within each time period.</p>											

1

1 **Site acquisition.** In many cases, conservation measures can be implemented on existing public land
2 and therefore will not require site acquisition. Where this is not possible, specific parcels of land or
3 water must be acquired with conservation easements or in fee title that have suitable physical and
4 biological characteristics. For example, site acquisition will be necessary to preserve natural
5 communities (Table 6-2). The criteria used to select sites for acquisition varies by conservation
6 measure (e.g., see *CM3 Natural Communities Protection and Restoration* for a description of
7 acquisition criteria for this conservation measure).

8 Thorough field assessments will be needed to assess the suitability of a particular site for
9 implementation of a conservation measure. The Implementation Office will also need to ensure that
10 property encumbrances (e.g., existing easements, leases, rights-of-way, property title, resource
11 extraction rights, hazardous materials) do not conflict with Plan goals and objectives. For sites
12 acquired using easements, easement terms should be negotiated before purchase. Site acquisitions
13 for actions that involve modifications to levees (e.g., setting back levees to restore seasonally
14 inundated floodplain habitat) include obtaining concurrence of the responsible agencies to initiate
15 planning studies.

16 **Planning and design.** In some cases, additional planning and design work is needed to allow
17 conservation measure implementation. Design guidelines are provided within each applicable
18 conservation measure (*Chapter 3, Conservation Strategy*). General planning and design will likely
19 include the following steps.

- 20 • Conceptual designs will be developed for natural community enhancement and restoration
21 (CM3 through CM12), construction of new facilities (CM1, CM2, CM16, CM18, CM21), or removal
22 of structures (CM4, CM5, CM15, CM21). Conceptual designs will need to be coordinated with
23 affected stakeholders (e.g., local, state, and federal agencies, potentially affected landowners).
- 24 • Based on conceptual designs, detailed designs and cost estimates will be developed for each
25 project.
- 26 • Based on the detailed design, bid specifications and drawings will be developed.
- 27 • Bids will be evaluated and contractors selected to implement the conservation measure at the
28 selected location.

29 **Regulatory compliance.** This implementation element includes the preparation and submittal of
30 documents and applications associated with compliance with and acquisition of the permits
31 associated with the following applicable laws and regulations.

- 32 • Additional project-level review under CEQA and NEPA.
- 33 • Sections 401 and 404 of the federal Clean Water Act (CWA).
- 34 • California Water Code Sections 1000 *et seq.* (water rights).
- 35 • Water Code Sections 13000 *et seq.* (water quality).
- 36 • Sections 10 (33 United States Code [USC] 403) and 14 (33 USC 408) of the Rivers and Harbors
37 Act of 1899.
- 38 • Section 1602 of the California Fish and Game Code (Fish & Game Code) (Streambed and Lakebed
39 Alteration Agreements).

- 1 ● Section 106 of the National Historic Preservation Act.
- 2 ● Encroachment permits for work on levees from the Central Valley Flood Protection Board and
- 3 reclamation districts.

4 **Implementation activities.** This implementation element includes all activities related to
5 construction.

- 6 ● Contractor mobilization.
- 7 ● Site preparation, including grading, excavation, and placement of dredge or fill.
- 8 ● Construction/installation of water management, utility, and other operational infrastructure.
- 9 ● Demolition or refurbishment of existing infrastructure.
- 10 ● Construction of dikes, levees, docks, or roads.
- 11 ● Planting vegetation.
- 12 ● Construction monitoring (see Chapter 3, *Conservation Strategy*, Section 3.6, *Adaptive*
- 13 *Management and Monitoring Program*; and *CM22 Avoidance and Minimization Measures*).
- 14 ● Site remediation, if necessary.

15 **6.1.1.1 Natural Community Restoration Schedule**

16 The implementation schedule for natural community restoration conservation measures (CM4
17 through CM10 in Table 6-2) is described below for each natural community.

- 18 ● **CM4 Tidal Wetland Restoration.** The implementation schedule for tidal natural community
19 restoration actions is based on the assumption that site acquisition, planning, and any required
20 environmental or regulatory compliance activities for the first 4,000 acres of tidal natural
21 community restoration would be initiated immediately after BDCP authorization. Initial
22 restoration actions are expected to require less time to plan and permit than restoration actions
23 for other natural communities because tidal natural community restoration is likely to be
24 implemented first on public lands. The schedule for subsequent tidal wetland restoration is
25 based on the assumption that it will take several years to acquire restoration lands, conduct
26 analyses, develop conceptual plans, obtain any outstanding environmental and regulatory
27 approvals and permits, develop bid specifications and drawings, construct new levees (if
28 required) and natural community features, and breach existing levees.
- 29 ● **CM5 Seasonally Inundated Floodplain Restoration.** Restoration of seasonally inundated
30 floodplains will require extensive levee setbacks to reconnect historical floodplain with Delta
31 channels. The implementation schedule (Table 6-2) assumes that at least 1,000 acres of
32 floodplain will be restored by year 15 and that restoration of the remaining 9,000 acres of
33 floodplain restoration will be completed in increments of 1,800 acres for each 5-year time
34 period until year 40. Each floodplain restoration project will, on average, require 5 years to
35 identify potential floodplain restoration sites; coordinate planning with the U.S. Army Corps of
36 Engineers (USACE), California Department of Water Resources (DWR) and other flood control
37 agencies and reclamation districts; and conduct feasibility studies prior to implementation.
38 Following approval of floodplain restoration plans, an additional 5 years are assumed to be
39 required to acquire restoration lands, obtain any outstanding regulatory approvals and permits,

- 1 develop bid specifications and drawings, construct the new levees and floodplain, and breach
2 existing levees. Therefore, the first seasonally inundated floodplain restoration project is not
3 expected to be completed until after the first 10 years of Plan implementation.
- 4 ● **CM6 Channel Margin Enhancement.** The implementation schedule assumes that channel
5 margin enhancements will be completed in increments of 5 miles of channel (achieved at
6 multiple sites for a total of 5 miles of channel margin length) by years 10, 20, 25, and 30 and that
7 channel margin enhancement will be a component of seasonally inundated floodplain and
8 riparian natural community restoration. Each channel margin natural community enhancement
9 increment will, on average, require 5 years to identify potential channel margin enhancement
10 sites; coordinate planning with USACE, DWR, and other flood control agencies and reclamation
11 districts; and conduct feasibility studies prior to implementation. Following approval of
12 enhancement plans, an additional 5 years are assumed to be required to obtain any outstanding
13 regulatory approvals and permits, develop bid specifications and drawings, and implement
14 channel margin enhancements.
 - 15 ● **CM7 Riparian Restoration.** Restoration of riparian natural community will be a component of
16 tidal natural community restoration (CM4), seasonally inundated floodplain restoration (CM5),
17 and channel margin natural community enhancement (CM6) projects; therefore, the schedule
18 for planning, site acquisition, environmental compliance, and implementation of riparian
19 restoration actions is linked to the implementation schedule for those restoration actions. Most
20 of the 5,000 acres of riparian restoration is expected to occur with seasonally inundated
21 floodplain restoration and tidal natural community restoration in the south Delta.
 - 22 ● **CM8 Grassland Natural Community Restoration.** The implementation schedule assumes that
23 all grassland natural community restoration actions will be implemented between years 3 and
24 30 (Table 6-2). A total of 1,140 acres of grassland will be restored in the near-term
25 implementation period, 340 acres in the early long-term implementation period, and the
26 remaining amount in the late long-term implementation period. Over half of the grassland
27 restoration needs to occur in the near-term period to offset the expected loss of this natural
28 community from covered activities, mostly construction of the new water facility by year 10.
29 The implementation schedule assumes that site acquisition, planning, and adaptive management
30 activities for the grassland restoration to be completed by year 5 are initiated in the first year or
31 two following BDCP authorization.
 - 32 ● **CM9 Vernal Pool Complex Restoration.** The vernal pool restoration objective (Objective
33 VPC1.2) requires that restoration occur to achieve no net loss of vernal pool complex. Based on
34 the estimated maximum loss of vernal pools, up to 89 acres of restoration will be needed to
35 achieve this objective. Most vernal pool complex restoration actions will likely need to be
36 implemented in the first 15 years of implementation in order to stay ahead of the effects of
37 vernal pool losses (Table 6-2). Site acquisition, planning, and regulatory compliance activities
38 for vernal pool complex restoration will likely require 2 to 3 years to complete.
 - 39 ● **CM10 Nontidal Marsh Restoration.** The implementation schedule assumes that all nontidal
40 freshwater marsh restoration actions will be completed by year 10 to provide giant garter snake
41 habitat as early as practical (Table 6-2). The implementation schedule assumes that site
42 acquisition, planning, and regulatory compliance-related activities for each 100 acres of
43 restoration will require approximately 2 years to complete, with the restoration actions being
44 completed in the third year.

1 6.2 Interim Conservation Actions

2 Conservation actions that occur before BDCP permit issuance and after the execution of the Planning
3 Agreement (October 6, 2006) can count toward meeting BDCP requirements as long as those actions
4 are consistent with the Plan, help to meet its biological goals and objectives, and do not provide
5 mitigation for an interim project¹. These actions, called interim conservation actions, will help the
6 Implementation Office to meet the implementation schedules (Table 6-1 and Table 6-2) early in the
7 permit term.

8 Interim conservation actions that have been completed, are in process, or are planned to be initiated
9 prior to permit issuance are listed in Table 6-3 and shown in Figure 6-2 [table and figure to come].
10 These actions include natural community preservation and restoration. Once permits are issued, the
11 Implementation Office will document these actions and propose them for credit toward the BDCP to
12 the fish and wildlife agencies prior to or as part of the first Annual Progress Report, described below
13 in Section 6.3.3, *Annual Progress Report*.

14 6.3 Compliance and Progress Reporting

15 The BDCP Implementation Office will prepare, on a regular basis, planning documents and
16 implementation reports to demonstrate compliance with the BDCP and its associated authorizations
17 and to facilitate interagency coordination, scientific exchange, and public outreach. Under the ESA,
18 habitat conservation plans (HCPs) are required to establish monitoring programs to assess the
19 effects of plan implementation on covered species (50 Code of Federal Regulations [CFR]
20 17.22(b)(3) and 50 CFR 222.307(b)(5)). In addition, the U.S. Fish and Wildlife Service
21 (USFWS)/National Marine Fisheries Service (NMFS) Five-Point Policy (65 *Federal Register* [FR] 106,
22 June 1, 2000) recommends that such plans provide annual reporting on matters related to
23 compliance with permit terms and conditions. Similarly, the NCCPA requires that implementation
24 agreements include “provisions for periodic reporting to wildlife agencies and the public for
25 purposes of information and evaluation of plan progress” (Fish & Game Code 2820(b)(7)). The
26 Implementation Office will, over the term of the BDCP, submit various reports and plans to the fish
27 and wildlife agencies that serve the following purposes.

- 28 • Provide the necessary data and information to demonstrate that the BDCP is being properly
29 implemented.
- 30 • Identify the effect of BDCP implementation on covered species and on the effectiveness of the
31 conservation strategy at advancing the BDCP biological goals and objectives.
- 32 • Document actions taken under the adaptive management and monitoring program (e.g., process,
33 decisions, changes, results, corrective actions).
- 34 • Disclose issues and challenges concerning BDCP implementation, and identify potential
35 modifications or amendments to the BDCP that would increase the likelihood of success.
- 36 • Describe schedule and cost related to the implementation of actions over 1-year and 5-year
37 timeframes.

¹ See BDCP Planning Agreement Section 7.7.

1 Throughout the course of BDCP implementation, the Implementation Office will prepare and submit
2 to the fish and wildlife agencies the following documents, as described in this chapter.

- 3 ● Annual Workplan and Budget
- 4 ● Annual Water Operations Strategy
- 5 ● Annual Progress Report
- 6 ● Annual Water Operations Report
- 7 ● Five-Year Comprehensive Review
- 8 ● Five-Year Implementation Plan

9 The Implementation Office will work in partnership with DWR, U.S. Department of the Interior
10 Bureau of Reclamation (Reclamation), USFWS, NMFS, California Department of Fish and Game
11 (DFG), the BDCP Stakeholder Committee, the Delta Stewardship Council, and the Delta Science
12 Program in the development of these planning and reporting documents. The totality of these
13 documents will enable the range of interested public and private stakeholders, and the general
14 public, to assess on an ongoing basis the progress and performance of the BDCP toward meeting its
15 biological goals and objectives and to make informed recommendations to the Implementation
16 Office regarding plan implementation. These reports will be available to the public and posted on
17 the BDCP website.

18 **6.3.1 Annual Workplan and Budget**

19 Annually², the Implementation Office will prepare a workplan and budget for the upcoming
20 implementation year. The workplan will identify planned actions for the implementation of
21 conservation measures and the adaptive management and monitoring program. The budget will set
22 out the anticipated expenditures and identify the sources of funding for those expenditures. A final
23 Annual Workplan and Budget will be completed no later than 1 month prior to the beginning of the
24 implementation year. A draft of the Annual Workplan and Budget will be provided to BDCP
25 Implementation Board and the BDCP Stakeholder Committee for review no later than 1 month prior
26 to the due date for the final plan.

27 At a minimum, the Annual Workplan and Budget will contain the following information.

- 28 ● A description of the planned actions (including anticipated adaptive management changes) to
29 implement conservation measures (for water operations conservation measures, see Section
30 6.3.2, *Annual Water Operations Strategy*) and the entities that will carry out the actions.
- 31 ● A description of the planned monitoring actions and the entities that will implement those
32 actions.
- 33 ● A description of the anticipated research studies to be undertaken and the entities that will
34 conduct the studies.
- 35 ● A budget reflecting the costs of implementing the planned actions, including a line item for each
36 specific action.

² The Implementation Office will decide how the planning year will be bounded (e.g., calendar year, federal fiscal year, state fiscal year, or water year).

- 1 • A description of the sources of funding to support the budget.

2 **6.3.2 Annual Water Operations Strategy**

3 The Implementation Office will work closely with State Water Project (SWP) and Central Valley
4 Project (CVP) operation managers to ensure the proper implementation of water operations
5 conservation measures, which take effect when the proposed north Delta diversion and conveyance
6 facilities become operational. DWR and Reclamation will retain their authority and obligation to
7 determine overall water project operations consistent with their various permit terms and
8 conditions and other applicable requirements. DWR and Reclamation will conduct Delta operations
9 in close coordination with DFG, USFWS, and NMFS and in accordance with permitted operating
10 criteria, and consistent with the f planning processes described below.

11 Beginning in the year prior to operations of the proposed north Delta diversion and conveyance
12 facilities (assumed to be year 9), and no later than December 15 each year, DWR, Reclamation, DFG,
13 USFWS, and NMFS will develop a Water Operations Strategy, including provisions for seasonal
14 variations, that identifies the following elements.

- 15 • Operations priorities for both fisheries and water supply for the coming year.
- 16 • Expected operations or “most likely” criteria that will guide operations within the real-time
17 operations ranges established in the water operations conservation measures.
- 18 • Monitoring, data collection, research, and adaptive management experiments associated with
19 that water year’s water operations.

20 The BDCP Science Manager will use prior years’ Annual Water Operations Reports to inform
21 development of the Annual Water Operations Strategy. The Science Manager will seek independent
22 science input on an initial draft of the Annual Water Operations Strategy to be submitted for review
23 to an independent science panel in an open, public forum. The independent science panel will
24 review the draft plan and provide a comprehensive written review of the draft plan.

25 **6.3.3 Annual Progress Report**

26 At the end of each implementation year³, the Implementation Office will prepare an Annual Progress
27 Report. These reports will provide a summary of the activities carried out during the previous
28 implementation years. The Annual Progress Report, for instance, will include a description and
29 accounting of land acquisitions and natural community restoration activities and an update on the
30 status of the monitoring and research programs, including a discussion of the synthesis and use of
31 data and information and the identification of important trends. Annual reports will be completed
32 within 6 months of the close of the reporting year, which will provide sufficient time to compile data
33 and complete analyses.

34 The annual reports will include the following types of information.

- 35 • Executive summary of the Water Operations Report (Section 6.3.4, *Annual Water Operations*
36 *Report*).

³ The Implementation Office will decide how the implementation year will be bounded (e.g., calendar year, federal fiscal year, state fiscal year; or water year).

- 1 ● Documentation of the implementation of natural community conservation measures (i.e.,
2 protection, enhancement, creation, restoration) in relation to the implementation schedule set
3 out in Section 6.1, *Implementation Schedule*, including the following components.
 - 4 ○ A summary of the completed or in-progress conservation actions, including information
5 related to type, extent, and location of protected, enhanced, and restored natural
6 communities and modeled habitat for covered species⁴. This summary will identify the
7 lands acquired and the restoration and enhancements actions undertaken over the year, and
8 describe the covered species that are expected to benefit from each action. The report will
9 document this on an annual and cumulative basis.
 - 10 ○ A general summary of all land management activities undertaken on BDCP conservation
11 lands, including a description of the management issues facing the Implementation Office at
12 each preserve unit.
 - 13 ○ The status of the BDCP conservation lands system assembly and an assessment of the
14 progress toward all acquisition goals, including those related to natural communities,
15 landscape linkages, covered plant populations, and wetland protection. This assessment will
16 include evaluation of compliance with the reserve design and assembly principles as
17 described in Chapter 3, *Conservation Strategy*.
 - 18 ○ Identification of natural community conservation actions that have not been implemented in
19 accordance the implementation schedule (i.e., actions that are either behind or ahead of the
20 implementation schedule) and an explanation for the deviation from the schedule.
- 21 ● Documentation of the implementation of "other stressors" conservation measures (CM12
22 through CM21) in relation to the implementation schedule set out in Section 6.1, *Implementation*
23 *Schedule*, including the following components.
 - 24 ○ A summary of the actions completed or in progress for each conservation measure,
25 including information related to type, location, and method of implemented actions. This
26 summary will identify the expected benefits to covered species resulting from each action.
27 The report will document this on an annual and cumulative basis.
 - 28 ○ An assessment of progress toward meeting all goals and objectives served by "other
29 stressors" conservation measures.
 - 30 ○ Identification of conservation actions proposed under the "other stressors" conservation
31 measures that have not been implemented in accordance the implementation schedule (i.e.,
32 actions that are either behind or ahead of the implementation schedule) and an explanation
33 for the deviation from the schedule.
- 34 ● A description of the implementation of covered activities and their effects on natural
35 communities and covered species, including the following items.
 - 36 ○ An assessment of nature and extent of the effects of covered activities on covered natural
37 communities and covered species. The report also will contain the following elements.

⁴ Species habitat distribution models may change over the course of the plan as understanding of species' ecology improves. However, loss of modeled habitat for covered species will be reported based on models at the time of plan approval to ensure consistent tracking throughout the permit term.

- 1 ● A brief description of the covered activity and the entity that carried out the covered
2 activity.
- 3 ● The location of a natural community or covered species modeled habitat permanently or
4 temporarily affected.
- 5 ● The identity and location of any known occurrences of covered species disturbed or lost
6 to covered activities (e.g., take of covered species).
- 7 ○ A brief description of the type, extent, and location of measures implemented to avoid and
8 minimize the potential effects of covered activities on covered species during the reporting
9 period.
- 10 ○ A summary of the overall level of effects in the current year, a summation of effects of all
11 prior years of BDCP covered activities on covered natural communities and for covered
12 species, and a description of how implementation of conservation measures is roughly
13 proportional in time and extent to the effects on natural communities and for covered
14 species.
- 15 ● An evaluation of the results of monitoring and research activities, including descriptions of the
16 following activities.
 - 17 ○ Ecosystem/landscape-scale, natural community, and species monitoring activities (as
18 described in Section 3.6, *Adaptive Management and Monitoring Program*, or in monitoring
19 plans subsequently developed during implementation) undertaken during the reporting
20 period and a summary of monitoring results with appropriate assessment of population
21 trends and status of covered species.
 - 22 ○ All directed research conducted by the BDCP during the reporting period and a summary of
23 research results to date.
- 24 ● Descriptions of the following adaptive management activities.
 - 25 ○ Adaptive management decisions made during the reporting period, including how existing
26 information was used to guide these decisions and the rationale for the action.
 - 27 ○ Use of independent scientists or other experts in the adaptive management decision-making
28 processes.
 - 29 ○ Adopted and recommended changes to the implementation of conservation measures based
30 on interpretation of monitoring results and research findings.
- 31 ● A financial report describing funds provided to the Implementation Office by source; annual and
32 cumulative expenditures by cost category; deviations in expenditures from the annual budget;
33 and other relevant information as appropriate (a detailed financial report will be included in the
34 Annual Workplan and Budget [Section 6.3.1, *Annual Workplan and Budget*]).
- 35 ● Descriptions of actions implemented or pending to respond to changed circumstances.
 - 36 ○ Identification of the changed circumstance and its effects on covered species and natural
37 communities.
 - 38 ○ Actions taken to address the changed circumstance and the effectiveness of those actions,
39 including the outcomes of actions to address changed circumstances from earlier years.

- 1 • A summary of any administrative changes, minor modifications, or major amendments to the
2 plan proposed or approved during the reporting period.

3 **6.3.4 Annual Water Operations Report**

4 Beginning in the first year that the proposed north Delta diversions and conveyance become
5 operational, and no later than November 15 of each year, DWR and Reclamation, with participation
6 from DFG, USFWS, and NMFS, the Implementation Office will prepare a Water Operations Report on
7 the prior water year's (October 1 to September 30) operational effects on covered species. The
8 report will include the following components.

- 9 • A summary of the prior year's operations, including a comparison of the actual operations with
10 planned operations.
- 11 • Evaluation of the effectiveness of actions for covered fish species and ecological processes,
12 including the responses to real-time operational changes.
- 13 • Description of the extent to which water supply projections in the prior year's Annual Water
14 Operations Strategy were met, and if not met, identification of factors affecting the ability to
15 meet projections.
- 16 • Consideration of whether any protective actions should be altered in light of new information,
17 an inability to meet fishery protection, or water supply reliability targets.
- 18 • Documentation of compliance with the water operation criteria in effect during the reporting
19 period.
- 20 • Documentation and rationale for any deviations from the water operation criteria in effect
21 during the reporting period.
- 22 • Documentation of Fremont Weir operations.

23 The Science Manager will seek independent science input on the draft of the Water Operations
24 Report.

25 **6.3.5 Five-Year Comprehensive Review**

26 The implementation of the BDCP will be subject to a comprehensive review every 5 years
27 throughout the term of the plan. As part of this review, the Implementation Office will prepare a
28 report, known as the Five-Year Comprehensive Review, which documents the findings of this
29 review.

30 The objectives of the Five-Year Comprehensive Review are as follows.

- 31 • To provide an overview of the status of BDCP implementation, including implementation of
32 conservation measures and the progress made toward meeting biological goals and objectives.
- 33 • To assess covered species trends and natural community conditions associated with BDCP
34 implementation relative to overall trends and conditions for covered species and natural
35 communities based on all relevant information (i.e., not limited to BDCP data and reports).
- 36 • To evaluate the relevance of the various monitoring actions and research projects to the
37 implementation of conservation measures.

- 1 • To evaluate changes that have been made in the implementation of the BDCP and set out
2 potential modifications that may be advisable in the future based on new information and
3 lessons learned.

4 The primary purpose of the Five-Year Comprehensive Review is to provide a periodic, program-
5 level assessment of the progress made under the BDCP toward achieving the biological goals and
6 objectives. As such, the review will be focused on identifying and evaluating broad ecological trends
7 in the Delta, including covered species abundance, variability, distribution, and population growth
8 rate; ecological processes and stressors such as hydrodynamics, foodwebs, and contaminants;
9 natural community distribution, function, and diversity; natural community restoration extent and
10 functionality; and other relevant measures.

11 In contrast to the annual report, the Five-Year Comprehensive Review will require significant
12 analysis and synthesis of data collected over time, using data and information compiled from
13 various sources. Five-Year Comprehensive Reviews will include critical evaluations of the
14 assumptions and model outputs on which the BDCP has been based and of the efficacy of the
15 conservation measures in light of monitoring data and the analysis and synthesis of information
16 through the adaptive management process.

17 The Five-Year Comprehensive Review also will include an evaluation of the BDCP monitoring
18 program, assessing such issues as the program's capacity to adequately measure the BDCP's
19 progress toward achieving biological goals and objectives. The review will discuss the lessons that
20 have been learned during the course of implementation and reach conclusions regarding how best
21 to approach monitoring into the future. The review also will afford an opportunity to evaluate the
22 BDCP biological goals and objectives and assess their continued relevance in light of new
23 information that has become available.

24 The Five-Year Comprehensive Review will be developed in close coordination with the Interagency
25 Ecological Program (IEP), Delta Science Program, and Independent Science Board. The
26 Implementation Office will work with the IEP lead scientist and science manager for the Delta
27 Science Program to consolidate data and information from a range of sources. The review may be
28 scheduled to coincide with the Delta Science Conference to capitalize on the gathering of the
29 community of scientists engaged in Delta issues.

30 The Implementation Office will post the Five-Year Comprehensive Review on the BDCP website and
31 will include a summary to assist stakeholders and the public in their review of the report.

32 **6.3.6 Five-Year Implementation Plan**

33 Based on the Five-Year Comprehensive Review, the Implementation Office will prepare a Five-Year
34 Implementation Plan that covers the upcoming 5 years. In contrast to the Annual Workplan and
35 Budget, the Five-Year Implementation Plan will focus more broadly on potential future conservation
36 actions and adaptive management changes, other potential modifications to the BDCP, and the
37 significance of ecological trends. At a minimum, the Five-Year Implementation Plan will contain the
38 following information.

- 39 • Description of adaptive management changes to BDCP implementation of conservation
40 measures, monitoring, research, and program administration.
- 41 • Modifications, if necessary, to biological goals and objectives.

- 1 • Summary of the planned actions and schedule to implement conservation measures.
- 2 • Description of the long-term and system-wide monitoring actions and anticipated research
- 3 studies.
- 4 • Summary budget projection reflecting the costs of implementing the planned actions.

5 In years when Five-Year Implementation Plans are prepared, the Annual Workplan and Budget may
6 be included within or prepared separately from the Five-Year Implementation Plan.

7 **6.4 Regulatory Assurances, Changed Circumstances,** 8 **and Unforeseen Circumstances**

9 **6.4.1 Regulatory Assurances**

10 ESA regulations and provisions of the NCCPA provide for regulatory and economic assurances to
11 parties covered by approved HCPs or natural community conservation plans (NCCPs) concerning
12 their financial obligations under a plan. Specifically, these assurances are intended to provide a
13 degree of certainty regarding the overall costs associated with species mitigation and other
14 conservation measures, and add durability and reliability to agreements reached between Proposed
15 Authorized Entities and the fish and wildlife agencies. That is, if unforeseen circumstances occur
16 that adversely affect species covered by an HCP or NCCP, the fish and wildlife agencies will not
17 require additional land, water, or financial compensation or impose additional restrictions on the
18 use of land, water, or other natural resources.

19 The assurances provided under the ESA and the NCCPA do not prohibit or restrain USFWS, NMFS,
20 DFG, or any other public agency from taking additional actions to protect or conserve species
21 covered by an NCCP or HCP. The state and federal agencies may use the variety of tools at their
22 disposal and take actions to reduce the effects of other stressors to ensure that the needs of species
23 affected by unforeseen events are adequately addressed.

24 **6.4.1.1 Regulatory Assurances under the Endangered Species Act—The** 25 **No Surprises Rule**

26 Under the No Surprises rule (63 FR 8859, Feb. 23, 1998), once an incidental take permit has been
27 issued pursuant to an HCP, and its terms and conditions are being fully implemented, the federal
28 government will not require additional conservation or mitigation measures, including land, water
29 (including quantity and timing of delivery), money, or restrictions on the use of those resources
30 (63 FR 8868),⁵. If the status of a species addressed under an HCP unexpectedly declines, the primary
31 obligation for undertaking additional conservation measures rests with the federal government,
32 other government agencies, or other non-federal landowners who have not yet developed HCPs. The
33 federal fish and wildlife agencies provide the following explanation.

34 Once an HCP permit has been issued and its terms and conditions are being fully complied with, the
35 permittee may remain secure regarding the agreed upon cost of conservation and mitigation. If the

⁵ The No Surprises rule was promulgated jointly by the Department of the Interior (U.S. Fish and Wildlife Service) and the Department of Commerce (National Marine Fisheries Service).

1 status of a species addressed under an HCP unexpectedly worsens because of unforeseen
2 circumstances, the primary obligation for implementing additional conservation measures would be
3 the responsibility of the Federal government, other government agencies, and other non-Federal
4 landowners who have not yet developed an HCP (63 FR 8867).

5 However, the federal fish and wildlife agencies may, in the event of unforeseen circumstances,
6 require additional measures provided they are limited to modifications in conserved natural
7 community areas or to the conservation plan's operating conservation program (i.e., the BDCP
8 conservation strategy) for the affected species, and that these measures do not involve additional
9 financial commitments or resource restrictions without the consent of the permittee (The BDCP
10 permittees will be those Potential Authorized Entities that receive permits from USFWS and NMFS
11 pursuant to Section 10, as defined in Chapter 1, *Introduction*. These Potential Authorized Entities
12 include certain SWP and CVP water contractors). These assurances are provided to all HCP
13 permittees that properly implement their plans. The No Surprises rule, however, does not apply to
14 Reclamation, which will use the BDCP as the basis for a biological assessment (BA) to support the
15 issuance of take authorizations from USFWS and NMFS pursuant to Section 7 of the ESA for its
16 actions in the Delta.

17 The assurances provided by the No Surprises rule are not absolute and are tempered by other
18 regulatory provisions of the ESA. The Permit Revocation rule moderates the scope of the No
19 Surprises rule, providing that in instances where a species covered by an HCP is threatened with
20 extinction, assurances may be nullified and USFWS may revoke the HCP permit (50 CFR
21 17.22(b)(8)). The federal fish and wildlife agencies may exercise this authority even if a permittee is
22 in compliance with the terms and conditions of the permit, provided the permitted activity would
23 appreciably reduce the likelihood of the survival and recovery of the species in the wild (69 FR
24 71723, 71727; December 10, 2004).

25 **6.4.1.2 Regulatory Assurances under the** 26 **Natural Community Conservation Planning Act**

27 Under the NCCPA, DFG provides assurances to permittees (for the BDCP, permittees are the
28 Potential Authorized Entities that receive permits from DFG pursuant to the NCCPA, as defined in
29 Chapter 1, *Introduction*) commensurate with the long-term conservation assurances and associated
30 implementation measures that will be implemented under the plan.⁶ In its determination of the level
31 and term of the assurances to be afforded a permittee, DFG takes into account the conditions specific
32 to the plan, including such factors as the level and quality of information regarding covered species
33 and natural communities, the sufficiency and use of the best available scientific information in the
34 analysis of impacts on these resources, reliability of mitigation strategies, and appropriateness of
35 monitoring techniques, including the use of centralized information to evaluate the effectiveness of
36 the plan; the adequacy of funding assurances; the range of foreseeable circumstances that are
37 addressed by the plan; and the size and duration of the plan.⁷

38 The assurances provided to the entities receiving permits under the NCCPA will, at a minimum,
39 ensure that if there are unforeseen circumstances, no additional financial obligations or restrictions

⁶ Fish & Game Code 2820 (f) states "*The department may provide assurances for plan participants commensurate with long-term conservation assurances and associated implementation measures pursuant to the approved plan.*"

⁷ DFG bases its determination of the level of assurances on multiple factors. See Fish & Game Code 2820(f).

1 on the use of resources will be required of the permittees without their consent. Specifically, the
2 NCCPA directs that,

3 [i]f there are unforeseen circumstances, additional land, water, or financial compensation or
4 additional restrictions on the use of land, water, or other natural resources shall not be required
5 without the consent of plan participants for a period of time specified in the implementation
6 agreement, unless [DFG] determines that the plan is not being implemented consistent with the
7 substantive terms of the implementation agreement (Fish & Game Code 2829(f)(2)).

8 However, like the provision in the ESA regulations, the NCCPA requires that DFG suspend or revoke
9 a permit, in whole or in part, if the continued take of a covered species would jeopardize its
10 continued existence.

11 **6.4.2 Changed Circumstances**

12 Ecological conditions in the Delta are likely to change as a result of future events and circumstances
13 that may occur during the course of the implementation of the BDCP. This section identifies changes
14 in circumstances that are reasonably foreseeable and that could adversely affect reserve system
15 lands or waters in the Plan Area, consistent with the “changed circumstances” provisions of ESA
16 regulations and in the NCCPA. To ensure successful implementation of the BDCP conservation
17 strategy, the Plan further sets out measures designed to respond to these anticipated future changes.

18 In the context of the ESA, changed circumstances are defined as “changes in circumstances affecting
19 a species or geographic area covered by a conservation plan that can reasonably be anticipated by
20 plan developers and the [USFWS and NMFS] and that can be planned for.” The NCCPA similarly
21 defines changed circumstances as “reasonably foreseeable circumstances that could affect a covered
22 species or geographic area covered by the plan” (50 CFR 17.3, 50 CFR 222.102, and Fish & Game
23 Code 2805(c)).

24 This section identifies the specific changed circumstances that can reasonably be expected to occur
25 in the Plan Area during the course of plan implementation and that may compromise the
26 effectiveness of the conservation actions set out in the BDCP. The section further describes the
27 responses that will be implemented through the BDCP to adequately address such events and their
28 potential to prevent or impede the BDCP from achieving anticipated biological outcomes. The
29 specific approaches and steps related to many of the planned responses largely will be developed
30 and implemented through the adaptive management and monitoring program (Section 3.6, *Adaptive
31 Management and Monitoring Program*). However, for certain changed circumstances, responsive
32 actions will fall outside the scope of the adaptive management and monitoring program; these
33 actions are specifically described in this section. The planned responses to changed circumstances
34 have been designed to be practical and roughly proportional to the impacts of covered activities on
35 covered species and natural communities, yet sufficient to effectively address such events.

36 For each changed circumstance, the cost of implementing the planned responses was accounted for
37 in in budget established for the BDCP (Chapter 8, *Implementation Costs and Funding Sources*).

38 **6.4.2.1 Process to Identify Changed Circumstances**

39 The occurrence of a changed circumstance will generally be identified by the Implementation Office
40 through information obtained from system-wide or effectiveness monitoring, scientific study, or
41 information provided by another party. Once the Implementation Office has become aware that a

1 changed circumstance has occurred or is likely to occur, it will take immediate steps to investigate
2 and confirm the event. If a changed circumstance appears to have occurred, the Implementation
3 Office will contact the fish and wildlife agencies to inform them of the changed circumstance. The
4 Implementation Office will also notify the BDCP Implementation Board, the Implementation Council,
5 and the Stakeholder Council of the change in circumstances.

6 After documenting the occurrence of a changed circumstance, the Implementation Office will
7 determine specific responsive actions that are consistent with the requirements set out in this
8 section and develop a schedule for their implementation. The Implementation Office will confer with
9 the fish and wildlife agencies regarding the details of the response and a timeframe for
10 implementation. For actions implemented through the adaptive management and monitoring
11 program, the decision-making process described in Section 3.6, *Adaptive Management and*
12 *Monitoring Program*, will be used. After implementing these actions, the Implementation Office will
13 monitor their effectiveness and report the associated results and findings through the annual
14 reporting process.

15 **6.4.2.2 Changed Circumstances Related to the BDCP**

16 The following changed circumstances are described and will be addressed in implementation if they
17 occur.

- 18 • Levee failures
- 19 • Flooding
- 20 • New species listing
- 21 • Wildfire
- 22 • Toxic or hazardous spills
- 23 • Nonnative invasive species
- 24 • Climate change

25 The Implementation Office will be required to respond to all changed circumstance events that meet
26 the changed circumstances criteria as defined in the following sections.

27 **6.4.2.2.1 Levee Failures**

28 **Nature of Changed Circumstance**

29 During the course of BDCP implementation, levee failures may occur in the Plan Area, and such
30 failures may compromise or eliminate the benefits provided by some reserve system lands or by
31 some conservation measures. Levees in the Delta sometime fail as a result of events or conditions
32 such as earthquakes, flooding, and structural inadequacy (also known as “sunny day events”)
33 (California Department of Water Resources 2009, 2011). All levee failures are considered a changed
34 circumstance under the BDCP if the failure meets any of the following criteria and is within the
35 limits described in the following paragraphs.

- 36 • Diminishes significantly the function of reserve system lands, as jointly determined by the
37 Implementation Office and the fish and wildlife agencies.

- 1 ● Precludes implementation of conservation measures.
- 2 ● Impedes the implementation of water operations conservation measures.

3 Given the current and anticipated future state of the Delta, all reserve system lands and other
4 resources conserved by the plan that are currently or will be protected by a levee are susceptible to
5 the consequences of levee failures due to the influence of external events on levees. It is foreseeable
6 that several natural community types in the reserve system could be affected by this changed
7 circumstance. These include managed wetlands and cultivated lands in Conservation Zones 1 and 11
8 (up to 9,000 acres) and other natural seasonal wetlands, nontidal permanent freshwater emergent
9 wetlands, and non-tidal perennial aquatic in Conservation Zones 2 and 4 (up to 400 acres total). In
10 addition, all natural community enhancement or restoration in levee-protected floodplains would be
11 vulnerable to flooding caused by a levee failure. Natural community enhancement or restoration in
12 floodplains could be damaged if levee failure occurs before riparian plantings become established.
13 Finally, a single levee failure event could temporarily impede implementation of water operation
14 conservation measures either in the north or south Delta, but not both simultaneously. The
15 Implementation Office will be required to implement corrective actions for all changed circumstance
16 events that meet this definition.

17 **Rationale**

18 Different types of events are likely to cause different kinds of levee failures, which result in different
19 types of effects. A single external event may cause the failure of one or more levees, causing the
20 flooding of one or more islands or tracts in tidally influenced areas. An earthquake or large peak
21 flow event may result in multi-levee failure and multi-island or multi-tract flooding (California
22 Department of Water Resources 2009). A sunny day event is more likely to cause the failure of a
23 single levee and to affect nearby areas (California Department of Water Resources 2009). As such,
24 levee failures hold the potential to cause widespread or localized flooding, which could extend to
25 multiple islands or be confined to a levee subsection.

26 Available historical data suggest that external events will likely occur during the BDCP permit term
27 that cause levee failures. Since 1900, an average of 1.31 failures per year have occurred, excluding
28 earthquakes and Suisun Marsh (historical records in Suisun Marsh are incomplete). Looking at
29 trends in more recent years (1950 through 2006) that are more likely to represent future risks, 74
30 storm-related levee failures (1.36 per year) and 8 sunny-day failures (0.10 failures per year in the
31 Delta and 0.04 per year in Suisun Marsh) have occurred in the Plan Area (California Department of
32 Water Resources 2008).

33 In most of the Delta, a levee failure causes the flooded area to become tidally influenced. The depth
34 and extent of the flooded area will change with the tides. One or more levee failures could affect the
35 volume of water that moves in and out of the area during the tidal cycle (i.e., the tidal prism).
36 Multiple levee failures could expand the tidal prism enough to cause the high tide to be lower and/or
37 the low tide to be higher than normal. Such changes, if not reversed by levee repair, could alter the
38 distribution of tidally influenced natural communities, all of which are sensitive to small variations
39 in depth, frequency, and duration of tidal inundation. Over a period of years, the affected natural
40 communities will reach equilibrium with the new tidal range, but the end result will be changes in
41 the distribution and acreage of each tidally influenced natural community.

1 There are a number of compounding effects that make it difficult to use historical data to accurately
2 predict future events. Both the likelihood of failure and locations within the reserve system or water
3 system operations vulnerable to levee failure need to be considered. Likelihood of failure is
4 influenced by external events, levee condition (e.g., age, location, height, construction), current site
5 characteristics (e.g., geology, groundwater conditions, tidal conditions), and changing conditions
6 (e.g., amount of water, sea level rise, earthquakes). Locations vulnerable to failure include current
7 and future locations below sea level (e.g., subsided islands/tracts). To that end, the changed
8 circumstances analysis looks at which areas of the reserve system or water system could be affected
9 by a levee failure.

10 Many BDCP conservation measures protecting or restoring natural communities will be
11 implemented in areas that are not within tidal elevation ranges, but some of these measures will
12 occur in areas protected by and behind levees. Failure of those levees may compromise the function
13 of these protection and restoration actions. Identifying the natural communities vulnerable to this
14 impact depends on the final configuration of levee removal or relocation projects, but these
15 communities may include managed wetlands and cultivated lands in Conservation Zones 1 and 11,
16 as well as other natural seasonal wetlands, nontidal permanent freshwater emergent wetlands, and
17 nontidal perennial aquatic communities in Conservation Zones 2 and 4. If an adjacent levee is
18 breached, the function of these protected or restored communities could be diminished. If levee
19 repair does not occur, these areas may change to natural communities associated with floodplains,
20 such as valley/foothill riparian, grassland, alkali seasonal wetland, nontidal freshwater perennial
21 emergent wetland, or seasonally flooded cultivated lands.

22 Levees protect infrastructure required for implementation of water operations conservation
23 measures. The dual conveyance system will allow operational flexibility if levee failure impedes
24 water withdrawals from the north Delta or south Delta intakes; however, increased withdrawals
25 may be required from the undamaged intakes. Levee failure could also restrict water delivery to the
26 Yolo Bypass and the level of flooding required for conservation measure implementation will be
27 difficult to maintain. Because of the distance separating the north Delta and south Delta facilities, it
28 is foreseeable that levee failure will impede water operations in the north Delta or south Delta, not
29 both simultaneously. Levee repair may be required to ensure implementation of water operations
30 conservation measures.

31 Levees also protect floodplains adjacent to waterways (e.g., along the San Joaquin River). Breaching
32 of these levees is possible during flood events occurring during the rainy season. The effects of such
33 flooding will likely be temporary because water will ultimately recede. Seasonally inundated
34 floodplain restoration, channel margin enhancement, or riparian natural community restoration
35 may occur in levee-protected floodplains; however, the natural communities created by these efforts
36 are adapted to and therefore resilient to flooding. They are shaped by their proximity to streams and
37 are maintained by seasonal flooding in winter and spring and by drought in summer. Diminished
38 function of these natural communities from levee failures is not anticipated; however, new riparian
39 plantings may need to be replaced if levee failure results in their destruction.

40 **Planned Responses**

41 The two foreseeable scenarios described below involve the failure of levees that result in either the
42 loss or degradation of natural community or create an impediment to the proper implementation of
43 the conservation strategy, including the operation of the SWP and CVP. The remedial actions that

1 will be undertaken to address such circumstances are described for each scenario. The scenarios
2 cover those events that occur as a result of failures of BDCP levees and those that occur as a result of
3 failure of non-BDCP levees.

4 **Failure of levees constructed as part of the BDCP (BDCP-related levees).** BDCP-related levees
5 will be designed and constructed to standards required by USACE and the jurisdictional flood
6 management authority, to minimize the risk of failure. In the event of the failure of a BDCP-related
7 levee, the Implementation Office will either repair the breached levee or undertake other measures
8 that produce at least equivalent benefits for covered species and natural communities affected by
9 the event. These measures will be consistent with the process and schedule identified in this section.

10 The Implementation Office will be responsible for undertaking, in a timely manner, an assessment of
11 the levee failure, which will include the following actions.

- 12 ● An evaluation of the effects of the failure on the covered species and natural communities
13 addressed by the BDCP.
- 14 ● A description of the proposed remedial actions.
- 15 ● A process and schedule for their implementation.

16 The Implementation Office will evaluate the affected site to determine whether biological conditions
17 for any of the covered species have been degraded and what, if any, feasible and reasonably
18 achievable corrective actions are necessary.

19 Corrective actions could occur at the affected site or at another location. Actions taken on site will
20 likely include the repair of the levee, restoration of the affected site, or equivalent measures.

21 In most cases, levees will need to be repaired or replaced to maintain permit compliance. However,
22 in cases where the levee does not need to be fixed, alternative sites may be protected or restored at
23 lower cost and effort than required for levee replacement. Offsite corrective actions will require a
24 different process and timeline than onsite actions. Offsite natural community restoration
25 replacement will require the identification of a site suitable for a replacement project. The
26 Implementation Office will identify and oversee the acquisition of an appropriate site and manage
27 the planning, design, and permitting, if any, necessary to effectuate the project.

28 **Failure of levees not constructed as part of a BDCP activity (non-BDCP levees).** The
29 Implementation Office will also be responsible for implementing remedial measures associated with
30 the failure of non-BDCP-constructed levees when those failures adversely affect natural
31 communities protected through BDCP conservation actions, including by interfering with the
32 operations of the projects, and will seek funding or reimbursement costs from the appropriate
33 responsible entity. A similar process to that identified above for failure of BDCP-constructed levees
34 will be followed. However, the schedule for remedial action implementation will likely be longer
35 because of the necessary involvement of third parties with responsibility for the affected levee.

36 Several responsible flood management entities in the Plan Area manage non-BDCP levees (see
37 Figure 2-17 for the locations of all non-BDCP levees). These entities include USACE and local water
38 districts. State and federal levees in the Delta that are at risk of failure or that otherwise require
39 repair or replacement are covered by the levee repairs program under Section 821 of the Disaster
40 Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E). Local agencies that maintain

1 levees may seek funding assistance through the local levee grant program, which provides for cost-
2 sharing between the state and local agencies for work done on sites deemed critical by DWR.

3 In the event of a non-BDCP levee breach, the Implementation Office will evaluate the affected site to
4 determine whether covered species or their habitat have been adversely affected, or whether the
5 breach had the potential to adversely affect aquatic habitats used by covered species. Adverse
6 effects could include reduced benefits to covered species from diminished conservation measures.
7 The site of the levee failure will be evaluated to allow adequate time for the Implementation Office
8 to contact and coordinate with the responsible flood management entity. For example, the
9 Implementation Office may need to obtain permission from the local entity to access the property.

10 The Implementation Office will follow the same procedure for site assessment as it will for a BDCP-
11 related levee failure. The Implementation Office will also coordinate with the responsible flood
12 management entity to ensure that the responsible entity repairs the levee. The responsible flood
13 management entity will therefore assume financial responsibility for the costs of the remedial
14 action, including for the levee repair work and the restoration of the affected reserve system lands.
15 However, to ensure that the repair work occurs quickly and permit compliance is not compromised,
16 the Implementation Office may need to assist the responsible local flood management entity (e.g.,
17 provide funding to be reimbursed or complete repairs and be reimbursed).

18 **6.4.2.2 Flooding**

19 **Nature of Changed Circumstance**

20 Any flood events in the reserve system caused by excessive precipitation, or floods of a magnitude
21 up to a 100-year level will be considered a changed circumstance if the flooding is determined to
22 cause permanent loss of the ecological benefits provided by BDCP conservation measures. The
23 Implementation Office will be required to implement corrective actions for all changed circumstance
24 events that meet this definition.

25 **Rationale**

26 Flooding is a natural event in stream systems, having both beneficial and detrimental effects on
27 natural communities. Seasonally inundated floodplain restoration, channel margin enhancement, or
28 riparian natural community restoration are resilient to flooding because they may occur in
29 floodplains. These communities are shaped by their proximity to streams and are maintained by
30 seasonal flooding in winter and spring and by drought in summer. Any adverse effects of flooding
31 will likely be temporary because flood waters will ultimately recede. However, severe flooding along
32 stream channels with new riparian plantings could destroy restoration sites.

33 Damage or destruction of facilities and infrastructure constructed to implement the conservation
34 strategy due to flooding is not foreseeable. Facilities and infrastructure will be constructed outside
35 of floodplains or to withstand a severe peak flow event.

36 **Planned Response**

37 The BDCP conservation strategy includes measures to reduce the risk of natural flooding of certain
38 reserve system lands. Still, remedial measures may be necessary if flooding causes permanent loss
39 of natural community values created through BDCP actions. The remedial measure implemented in
40 response to a flood event less than the 100-year event will be to repair or replace the restoration

1 site once flood water recedes, consistent with the conservation strategy described in Chapter 3,
2 *Conservation Strategy*, and any permits acquired for the original project (e.g., USACE permit).

3 **6.4.2.2.3 New Species Listings**

4 **Nature of the Changed Circumstance**

5 USFWS, NMFS, or DFG may list additional species that occur in the Plan Area as threatened or
6 endangered under the ESA or the California Endangered Species Act (CESA)⁸. In the event that a fish
7 and wildlife agency lists a species not covered by the BDCP, the provisions of this changed
8 circumstance will be triggered. The Implementation Office will be required to implement corrective
9 actions for all changed circumstance events that meet this definition. A new species listing of a
10 covered species will not trigger this changed circumstance because the Plan already anticipates such
11 actions and take coverage for the newly-listed covered species will be automatic.

12 **Planned Response**

13 Upon a new listing of a species (not covered by the BDCP) under state or federal endangered species
14 laws, the Implementation Office will undertake the following measures.

- 15 • Evaluate the potential effects of covered activities on the newly listed species and conduct an
16 assessment of the presence of suitable habitat in areas of potential effect.
- 17 • Implement measures to avoid effects on the newly listed species until such time as the BDCP has
18 been amended to include the newly listed species as a covered species.

19 In the event that a species not covered by the BDCP becomes listed as threatened or endangered, is
20 designated as a candidate species, or is proposed or petitioned for listing, the Implementation Office,
21 on behalf of the Proposed Authorized Entities, may request that the appropriate fish and wildlife
22 agency add the species to the relevant take authorizations issued pursuant to the BDCP. In
23 determining whether to seek take coverage for the species, the Implementation Office will consider,
24 among other things, whether the species is present in the Plan Area, whether the covered activities
25 could result in incidental take of the species, and whether the existing conservation measures
26 benefit the species and avoid and minimize effects of covered activities on the species. If incidental
27 take coverage is sought, the BDCP and its authorizations will be amended. Alternatively, the
28 Implementation Office, on behalf of the Proposed Authorized Entities, could seek new and separate
29 take authorizations. The procedures for plan modifications and amendments are described in
30 Section 6.5, *Permit Duration and Renewal, Plan Changes, Permit Suspension and Revocation*.

31 **6.4.2.2.4 Wildfire**

32 **Nature of Changed Circumstance**

33 Wildfire will be considered a changed circumstance in the event that any number of fires not
34 prescribed by the Implementation Office (i.e., as part of conservation strategy implementation in
35 BDCP conservation lands) damages or destroys sufficient amounts of vegetation to substantially

⁸ A species designated by the State of California as a candidate for listing also receives regulatory protection during the review of the candidacy. As such, the provisions set out in this changed circumstance will apply to state-designated candidate species.

1 degrade the intended natural community functions of BDCP protected lands for covered species. The
2 scope of the remedial actions required for a single event will be limited to an area of no greater than
3 1,300 acres of reserve system lands in Conservation Zones 1, 8, or 11 because of the expected
4 configuration and land cover type composition of these lands. This limit corresponds to the expected
5 limit in size of a wildfire in any of these three zone. The remedial actions will be limited to no more
6 than 1,300 acres. The Implementation Office and the fish and wildlife agencies will jointly determine
7 the nature and extent of habitat loss resulting from the fire. The Implementation Office will be
8 required to implement corrective actions for all changed circumstance events that meet this
9 definition.

10 **Rationale**

11 Fire-adapted natural communities in BDCP conservation lands include grassland and inland dune
12 scrub, totaling at least 8,000 acres in the conservation lands. Other natural communities in the BDCP
13 conservation lands are not fire-adapted or fire-prone because of their low fuel loads and high
14 moisture context (e.g., cultivated lands, wetlands, riparian areas). Wildfire in grassland or inland
15 dune scrub is unlikely to substantially degrade these communities because they are both fire-
16 adapted, early-successional natural communities. Because of the layout of BDCP conservation lands,
17 the distribution of the fire-prone communities, and the presence of many waterways that serve as
18 barriers to fire, it is likely that a single wildfire event will affect a contiguous area no greater than
19 1,300 acres in Conservation Zones 1, 8, or 11 (i.e., a single fire of no more than 1,300 acres in any of
20 these three zones).

21 **Planned Response**

22 In the event of a fire in BDCP conservation lands, the Implementation Office will notify the fish and
23 wildlife agencies of the fire event and conduct a preliminary assessment of the likely effects of the
24 fire on covered species and reserve system lands of a size that is defined above as foreseeable. This
25 information will be used to make an initial determination of whether a changed circumstance has
26 occurred. In most cases, a wildfire will be deemed a natural event that has neutral or beneficial
27 effects on a fire-adapted community. If a changed circumstance is determined to exist, the
28 Implementation Office will implement a series of remedial measures. First, the Implementation
29 Office will conduct a more detailed assessment within three months of the event to identify
30 appropriate post-fire restoration and rehabilitation actions, if any. Such actions, which may include
31 natural community restoration, nonnative invasive species control, or erosion management, will be
32 undertaken to ensure reestablishment of covered plants and other native vegetation through active
33 or passive means, as appropriate. In addition, appropriate erosion control structures and
34 applications (e.g., seeding) will be put in place before the upcoming rainy season.

35 The Implementation Office will also implement a post-fire monitoring plan for a 2-year period
36 following the fire. If over the course of the monitoring period it is determined that vegetation was
37 not recovering sufficiently in the burned area to reestablish the original functions of the affected
38 natural community, the Implementation Office will develop and implement a natural community
39 restoration plan to restore natural community functions of the affected areas.

1 **6.4.2.2.5 Toxic or Hazardous Spills**

2 **Nature of Changed Circumstance**

3 Toxic or hazardous spills will be considered a changed circumstance if the spill of chemicals into
4 Delta waters or into a protected or restored aquatic natural community could substantially and
5 adversely affect habitat functions for a covered species, as jointly determined by the Implementation
6 Office and the fish and wildlife agencies. The scope of the remedial actions required will be limited
7 to an area of no greater than 4,000 acres of reserve system lands, inclusive of restoration sites. The
8 Implementation Office will be required to implement corrective actions for any event that meets this
9 definition.

10 **Rationale**

11 A single spill of toxic or hazardous materials could not affect the entire reserve system (i.e.,
12 protected and restored lands and waters) because of its noncontiguous and dispersed configuration.
13 The parameters defining this changed circumstance reflect the amount of land that will ultimately
14 be protected in the reserve system that may be vulnerable to a spill event. The largest contiguous
15 area of potential restoration occurs in Conservation Zone 11. Conservation targets in Zone 11
16 include Suisun Marsh Restoration Opportunity Area (ROA) tidal restoration (7,000 acres), and
17 additional restoration and protection that is assumed to be 9,000 acres, for a total estimated size in
18 Suisun Marsh of 16,000 acres. A toxic or hazardous spill is not expected to affect the entire reserve
19 in this area, so the changed circumstance threshold represents 25% of the BDCP reserve system
20 land base in Conservation Zone 11. Only spills that meet this criteria would be considered a changed
21 circumstance under the BDCP.

22 **Planned Responses**

23 There are existing local, state, and federal statutory frameworks that dictate the process and
24 approach to the cleanup of toxic and hazardous waste. The U.S. Environmental Protection Agency
25 (EPA) is the lead federal agency responsible for the enforcement of federal regulations associated
26 with hazardous materials. The primary legislation governing hazardous materials are the
27 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC
28 Section 9601 *et seq.* 1980); the Resource Conservation and Recovery Act (RCRA) (42 USC Section
29 6901 *et seq.* 1976); and the Superfund Amendments and Reauthorization Act (SARA) of 1986.

30 The cleanup of toxic or hazardous spills is governed by CERCLA. CERCLA provides for federal
31 funding to support the clean up of uncontrolled or abandoned hazardous waste sites, accidents,
32 spills, discharges, and other emergency releases of pollutants and contaminants into the
33 environment. Through CERCLA, EPA has the authority to seek out those parties responsible for any
34 hazardous release and assure their cooperation in the cleanup. The California equivalent to CERCLA
35 is the California Hazardous Substance Account Act (Division 20 of the Health and Safety Code,
36 Chapter 6.8). This act requires past and present owners and operators to assume liability for the
37 remediation of hazardous waste sites within the State of California. At the local level, the Unified
38 Program consolidates, coordinates, and makes consistent the administrative requirements, permits,
39 inspections, and enforcement activities of six environmental and emergency response programs.
40 The California Environmental Protection Agency (CalEPA) and other state agencies set the standards
41 for their programs, and local governments implement the standards. These local implementing
42 agencies are called Certified Unified Program Agencies. All remedial actions implemented by the

1 Implementation Office or other responsible parties will be carried out in a manner consistent with
2 the existing statutory framework.

3 The conservation strategy includes implementation of best management practices to avoid or
4 minimize adverse effects from contaminant spills on covered species and natural communities that
5 could result from BDCP covered activities (*CM22 Avoidance and Minimization Measures*). This
6 includes the development and implementation of a hazardous materials management plan. The plan
7 will include appropriate practices to reduce the likelihood of a spill of toxic chemicals and other
8 hazardous materials during construction. A specific protocol for the proper handling and disposal of
9 materials will be established before construction activities begin and will be enforced by DWR. All
10 work will be performed in accordance with the rules and regulations pertaining to safety
11 established by the California Division of Industrial Safety. The avoidance and minimization
12 measures that will be implemented through this framework are detailed in Appendix 3.C, *Avoidance*
13 *and Minimization Measures*. For any spill event caused by a BDCP action, the Implementation Office
14 will immediately coordinate its response with DFG's Office for Oil Spill Prevention, the Regional
15 Water Quality Control Board, and other state and federal regulatory entities as appropriate to the
16 nature of the spill event to curtail the immediate spread of the spill and minimize its effects.

17 As soon as practicable, or as otherwise directed by the aforementioned regulatory entities, the
18 Implementation Office will identify and undertake management measures sufficient to remediate
19 the effects of the toxic substance on covered species and affected habitats (e.g., removal or isolation
20 of the material) and restore the ecological functions of the affected habitat. Onsite habitat
21 restoration or enhancement will be initiated, to the extent practicable, within 1 year of the spill.

22 If the affected habitat areas cannot be practicably and effectively restored, the Implementation
23 Office will identify and implement measures to contain the ecological effects of the spill and either
24 compensate for the loss of habitat functions at other locations or implement alternative
25 conservation measures (e.g., expanded or additional contaminant reduction measures) that provide
26 equivalent or greater ecological benefits to the affected covered species. Offsite habitat restoration
27 or enhancement will be initiated, to the extent practicable, within 2 years of the spill to allow for an
28 appropriate site to be identified and protected, if necessary.

29 If a spill event has not been caused by a BDCP action, the Implementation Office will coordinate with
30 responsible regulatory agencies and the parties responsible for the spill event (responsible
31 regulatory agencies and parties). The responsible regulatory agencies and parties will assume
32 financial responsibility for the costs of remedial action, including spill cleanup and restoration of
33 affected reserve system lands. However, to ensure that the spill cleanup occurs quickly, the
34 Implementation Office may need to assist the responsible local flood management entity. The
35 Implementation Office will ensure that responsible regulatory agencies and parties take immediate
36 steps to contain the spill and minimize its impact on affected species and habitats. Within 3 months
37 of spill event, the Implementation Office will work with the responsible regulatory agencies and
38 parties to complete an assessment of the spill site and provide that assessment to the fish and
39 wildlife agencies for review and concurrence (as per the process identified in Section 6.4.2.2.1, *Levee*
40 *Failures*). On the basis of this assessment, the Implementation Office will coordinate with
41 responsible regulatory agencies and parties to identify the measures that will need to be funded
42 and/or undertaken by the responsible parties to adequately remediate the effects of the spill and
43 restore the ecological functions of the affected habitat for covered species. However, to ensure that
44 the cleanup occurs quickly, the Implementation Office may need to assist the responsible parties.

1 **6.4.2.2.6 Nonnative Invasive Species**

2 **Nature of Changed Circumstance**

3 A changed circumstance that involves the introduction and spread of a new nonnative invasive
4 species will be considered to have occurred if the Implementation Office and the fish and wildlife
5 agencies determine jointly that such a species is present in the Plan Area, and proliferation of the
6 new nonnative invasive species affects an area up to XX% above the area occupied by the most
7 prolific nonnative invasive species currently in the Plan Area. The Implementation Office's
8 responsibility will be limited to taking actions on nonnative invasive species for which control
9 measures are available and effective. The Implementation Office will be required to implement
10 corrective actions for any event that meets this definition.

11 **Rationale**

12 Nonnative invasive species are a global in nature and adversely affect covered species and natural
13 communities both inside and outside of the Plan Area. All of the natural communities represented in
14 the Plan Area currently support a large number of nonnative invasive species, including plants,
15 amphibians, fish, and invertebrates. The conservation strategy includes many measures to identify,
16 treat, and, if possible, eradicate nonnative invasive species in the Plan Area in aquatic and terrestrial
17 natural communities. These measures were designed to treat nonnative invasive species currently
18 known in the Plan Area and that have widespread adverse effects on the covered species and natural
19 communities. However, it is foreseeable that new nonnative invasive species will appear in the Plan
20 Area during Plan implementation. If these species were to become widespread, they could cause
21 harmful effects on covered species or natural communities not considered by the effects analysis or
22 the conservation strategy. It is the responsibility of the Implementation Office to address harmful
23 species that are introduced or spread as a result of BDCP conservation measures (e.g., restoration
24 actions that create conditions for colonization of new nonnative invasive species).

25 It is difficult to predict how widespread a new nonnative species could become in the reserve
26 system; however, the adaptive management program predicts that existing nonnative invasive
27 species could increase by up to XX%. As such, the same threshold is considered foreseeable for a
28 new nonnative invasive species.

29 ***[Note to Reviewers: The adaptive management threshold is not yet established. The changed***
30 ***circumstances threshold will be consistent with that established for adaptive management of existing***
31 ***nonnative invasive species.]***

32 Nonnative invasive species that are introduced and spread in the Plan Area independent of BDCP
33 conservation measures will be identified and treated as part of the conservation strategy within the
34 limits of the Plan. However, such events are not defined as a changed circumstance and it is not the
35 sole responsibility of Implementation Office to remediate or eradicate those species from the Plan
36 Area. The Implementation Office will support efforts to detect, treat, control, and if feasible,
37 eradicate these new nonnative invasive species as part of its conservation strategy and adaptive
38 management and monitoring program.

39 **Planned Response**

40 The Implementation Office will take steps to detect, through the monitoring and adaptive
41 management program and through collaboration with other responsible entities, the establishment

1 and spread of new invasive species in the Plan Area. If a new invasive species is discovered, the
2 Implementation Office will conduct an assessment to determine the possible threats of the invasive
3 species to covered species and BDCP protected and/or restored natural communities. Remedial
4 responses will be informed by the results of the assessment and will be implemented through the
5 adaptive management and monitoring program.

6 Based on results of the assessment, the Implementation Office will, through the adaptive
7 management and monitoring program, identify and implement, to the extent reasonable and
8 practicable, measures to reduce and/or control the adverse effects of new nonnative species on the
9 functions provided by the conservation measures under the Plan. If methods to adequately reduce
10 and/or control adverse effects of the nonnative species on the functions of restored physical natural
11 communities are not available or practicable, the Implementation Office will identify practicable
12 alternative design, implementation, and management approaches to future natural community
13 restoration actions within the parameters of the adaptive management and monitoring program to
14 avoid or minimize potential adverse effects of the invasive species on covered species. If methods
15 are not available to reduce and/or control adverse effects of invasive species on water operations,
16 physical natural community, and other conservation measures, the Implementation Office, within
17 defined adaptive ranges, will identify and implement alternative conservation measures that
18 provide equivalent or greater benefits to covered species and their habitats to the extent reasonable
19 and practicable. The effectiveness of remedial measures will be monitored over time and, based on
20 their efficacy, such measures may be adjusted within the framework of the adaptive management
21 and monitoring program.

22 **6.4.2.2.7 Climate Change**

23 **Nature of Changed Circumstance**

24 Long-term changes in sea level, watershed hydrology, precipitation, temperature (air or water), or
25 ocean conditions that are of the magnitude or effect assumed for the BDCP effects analysis and that
26 adversely affect conservation strategy implementation or covered species are considered a changed
27 circumstance. The occurrence of this changed circumstance will be determined jointly by the
28 Implementation Office and fish and wildlife agencies. Because the BDCP already anticipates the
29 effects of climate change, no additional actions would be required to remediate climate change
30 effects on covered species and natural communities in the reserve system.

31 **Rationale**

32 The BDCP incorporates the results of a coordinated effort to analyze the effects of future climate
33 change. Appendix 2.C, *Climate Change Implications and Assumptions* summarizes the methodology
34 for selection and application of climate scenarios specific to this process, discussion and selection of
35 sea level rise scenarios, and the use of these climate change projections in the primary analytical
36 tools to be used in the BDCP planning. A technical subgroup consisting of key staff at DWR,
37 Reclamation, USFWS, and NMFS met over the course of 2009 and early 2010 to discuss the merits of
38 various approaches and methods. The recommended approach consists of the selection of five
39 "ensemble-informed" climate scenarios for each future analysis period. These regional climate
40 scenarios utilize ensemble subsets of the 112 available downscaled climate projections to
41 characterize the range of future climate possibilities indicated by the current state of global climate
42 models. Importantly, the scenarios are derived from multiple projections, rather than a single global

1 climate model projection, thus reducing the “noise” primarily associated with multi-decadal
2 variability and sampling of global climate model period changes.

3 Climate change was evaluated as a cumulative effect. Regional climate change scenarios and sea
4 level rise estimates are provided for the two long-term periods. The proposed method of
5 incorporating of climate changes preserves both the projected changes in mean climate and the
6 projected changes in climate variability. Mid-range sea level rise estimates selected for use at the
7 two long-term timelines are 15 centimeters (6 inches) by 2025 and 45 centimeters (18 inches) by
8 2060. These estimates are derived from review of various sources used by DWR, recommendations
9 by the CALFED Independent Science Board, and recent guidance from the Army Corps of Engineers.

10 The expected effects of climate change presented in Appendix 2.C, *Climate Change Implications and*
11 *Assumptions* are discussed in detail in Chapter 2, *Existing Ecological Conditions*, Section 2.3.2.1.5,
12 *Effects of Anthropogenic Influence and Future Climate Change*. The assumptions for climate change
13 used in the effects analysis are described in Chapter 5, *Effects Analysis* and Appendix 5.A, *Conceptual*
14 *Foundation and Analytical Framework*. These assumptions are considered a reasonable worst-case
15 scenario.

16 **Planned Response**

17 The conservation strategy, monitoring and research program, and adaptive management and
18 monitoring program already include responses to anticipate climate change effects at the landscape,
19 natural community, and species scales. For example, biological goals and objectives have been
20 established at the landscape level to take climate change into account during conservation strategy
21 implementation (Goal ECSY7, Objective 7.1). Natural community restoration and protection will take
22 into account natural community and species ecological responses to climate change, such as changes
23 in range, abundance, distribution, and habitat suitability (CM3 and CM4). Construction and
24 preferential operation of a new water diversion facility in the north Delta is proposed in part
25 because of climate change considerations. System-wide monitoring actions have been established to
26 detect and allow for adaptive management responses (Element 4: Climate Change, Monitoring
27 Action SY4-1; Element 6: Landscape Change, Monitoring Action SY6-1).

28 The adaptive management and monitoring program (Section 3.6, *Adaptive Management and*
29 *Monitoring Program*) monitors climate change effects and assumes that conservation measures will
30 need to be adjusted in response to these effects. This will allow the Implementation Office to
31 continually adjust conservation measures to the changing conditions in the Plan Area as part of the
32 adaptive management program. Such adaptive management responses may include identifying
33 alternative locations for implementing natural community restoration or protection actions in the
34 Plan Area to increase habitat availability and suitability and to allow movement across
35 environmental gradients. Examples include creation of cool water refugia, expansion of the range of
36 environmental gradients included in restoration design, or selection of protected sites to provide for
37 shifting species distributions and habitats. All of these potential responses would be made as part of
38 the adaptive management and monitoring program. Measures beyond those contemplated by the
39 adaptive management and monitoring program are not likely to be necessary because the
40 conservation strategy was designed to anticipate a reasonable worst-case scenario of climate
41 change. A change in conservation measures in response to climate change beyond that considered in
42 Chapter 3, *Conservation Strategy*, and through the adaptive management and monitoring program is

1 considered an unforeseen circumstance. Therefore, no remedial actions are required for this
2 changed circumstance.

3 **6.4.3 Unforeseen Circumstances**

4 The USFWS and NMFS define *unforeseen circumstances* as those changes in circumstances that affect
5 a species or geographic area covered by an HCP that could not reasonably have been anticipated by
6 the plan participants during the development of the conservation plan, and that result in a
7 substantial and adverse change in the status of a covered species (50 CFR 17.3, 50 CFR 222.102).
8 Under ESA regulations, if unforeseen circumstances arise during the life of the BDCP, USFWS and/or
9 NMFS may not require the commitment of additional land or financial compensation, or additional
10 restrictions on the use of land, water, or other natural resources other than those agreed to in the
11 plan, unless the Proposed Authorized Entities consent.

12 Within these constraints, USFWS and/or NMFS may require additional measures, but only if the
13 following conditions apply.

- 14 • The agencies prove an unforeseen circumstance exists.
- 15 • Such measures are limited to modifications of the BDCP's conservation measures to benefit the
16 affected species.
- 17 • The original terms of the plan are maintained to the maximum extent practicable.
- 18 • The overall cost of implementing the BDCP is not increased by the modification (see Chapter 8,
19 *Implementation Costs and Funding Sources*, for a description of BDCP costs).

20 USFWS and/or NMFS bear the burden of demonstrating that unforeseen circumstances exist. A
21 finding of unforeseen circumstances must be clearly documented, based on the best available
22 scientific and commercial information, and made considering certain specific factors.⁹ If such a
23 finding is made and additional measures are required, the BDCP Proposed Authorized Entities will
24 work with USFWS and/or NMFS to appropriately redirect resources to address the unforeseen
25 circumstances.

26 Similarly, *unforeseen circumstances* are defined in the NCCPA as changes affecting one or more
27 species, habitat, natural community, or the geographic area covered by a conservation plan that
28 could not reasonably have been anticipated at the time of plan development, and that result in a
29 substantial adverse change in the status of one or more covered species (Fish & Game Code
30 2805(k)). The NCCPA further provides that, in the event of unforeseen circumstances, DFG shall not
31 require additional land, water, or financial compensation or additional restrictions on the use of
32 land, water, or other natural resources without the consent of the plan participants for a period of
33 time specified in the Implementation Agreement. However, such assurances are not applicable in
34 those circumstances in which DFG determines that the plan is not being implemented in a manner

⁹ These factors include the following: (1) size of the current range of the affected species; (2) percentage of range adversely affected by the conservation plan; (3) percentage of range conserved by the conservation plan; (4) ecological significance of that portion of the range affected by the conservation plan; (5) level of knowledge about the affected species and the degree of specificity of the species' conservation program under the conservation plan; and (6) whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild. 50 CFR 17.22(b)(5)(iii)(C); 50 CFR 222.307(g)(3)(iii).

1 consistent with the substantive terms of the Implementation Agreement (Fish & Game Code
2 2820(f)(2)).

3 **6.4.4 Applicability of Other Federal Endangered Species Act** 4 **Issues to the BDCP**

5 **6.4.4.1 Future Recovery Plans**

6 Recovery plans under the ESA delineate actions necessary to recover and protect federally listed
7 species. These plans provide useful information and recommendations to guide conservation
8 measures that are intended to help recover species. However, recovery plans are not intended to
9 establish obligations of permittees to undertake specific tasks.

10 The plan participants, USFWS, and NMFS acknowledge that ESA recovery plans will have no effect
11 on the implementation of the BDCP, except to the extent that they may contribute information to the
12 Adaptive Management and Monitoring Program. Any recovery plan applicable to any covered
13 species in the Plan Area that is developed after the approval of the BDCP will meet the following
14 requirements.

- 15 • Not require any additional water, land, or financial compensation be provided by the Proposed
16 Authorized Entities.
- 17 • Be finalized only after the USFWS or NMFS has conferred with and requested input from the
18 Implementation Office on the preparation of the recovery plan.
- 19 • Diminish or otherwise alter the take authorizations provided pursuant to the BDCP, the
20 Implementing Agreement, and the companion BA.

21 **6.4.4.2 Future Section 7 Consultations**

22 An important goal of the BDCP is to provide ESA compliance for the conservation measures and
23 other covered activities regardless of whether those measures or activities obtain their federal take
24 authorization through Section 7 or 10 of the ESA. Many conservation measures or other covered
25 activities will require a future Section 7 consultation because the action will be undertaken by a
26 federal agency, will receive federal funding, or will require a federal permit. Section 7 consultations
27 apply only to federally listed species, so only those covered species that are federally listed at the
28 time of the consultation need be included in the consultation.

29 In any consultation under Section 7 that occurs for BDCP covered activities after the approval of the
30 BDCP, USFWS and NMFS will ensure that these biological opinions (BOs) are consistent with the
31 BDCP BOs, the plan, and the federal permit. The covered activity subject to Section 7 must be
32 consistent with the terms and conditions of the BDCP and the Implementing Agreement. Any
33 reasonable and prudent measures included under the terms and conditions of a BO issued
34 subsequent to the approval of the BDCP with regard to the covered species and covered activities
35 will, to the maximum extent appropriate, be consistent with the BDCP and the Implementing
36 Agreement. Neither USFWS nor NMFS will impose measures in excess of those that have been or will
37 be required by the Proposed Authorized Entities pursuant to the BDCP, the Implementing
38 Agreement, or the companion BA.

6.5 Permit Duration and Renewal, Plan Changes, Permit Suspension and Revocation

This section describes the process for a permit extension, the process for informal or formal changes to the Plan, and the unlikely chance of a permit suspension or revocation. The Plan can be modified during implementation in accordance with DFG, USFWS, and NMFS regulations and the terms of the permits and Implementing Agreement. Plan modifications may be needed periodically to clarify provisions or correct unanticipated inconsistencies in the documents. Plan changes fall into three broad categories. In order of importance, they are administrative changes, minor modifications, and formal amendments. The process for a permit extension, informal or formal changes to the plan, and permit suspension or revocation are each discussed below.

6.5.1 Permit Duration and Extension

The Proposed Authorized Entities are seeking take authorizations from the state and federal fish and wildlife agencies with terms of 50 years. The terms of the take authorizations issued under the BDCP would begin from the date of their issuance. Prior to expiration of the take permits, the Proposed Authorized Entities may apply to the fish and wildlife agencies to renew them. The Proposed Authorized Entities will initiate the permit renewal process prior to the expiration of the initial 50-year period and with ample time to allow for the review and processing of the permit renewal.

6.5.2 BDCP Administrative Changes

The administration and implementation of the BDCP will require frequent and ongoing interpretation of the provisions of the plan. Actions taken on the basis of these interpretations that do not substantively change the purpose or intent of the plan provisions will not require modification or amendment of the BDCP or its associated authorizations. Such actions related to the ordinary administration and implementation of the BDCP may include, but are not limited to, those following.

- Clerical corrections to typographical, grammatical, and similar editing errors that do not change the intended meaning; or to maps or other exhibits to address insignificant errors.
- Adaptive management changes to conservation measures, including actions to avoid, minimize, and mitigate impacts, or modifications to habitat management strategies developed through and consistent with the adaptive management and monitoring program described in Chapter 3, *Conservation Strategy*.
- Variations in the day-to-day management of reserve system lands, such as adjusting irrigation schedules for created or restored natural community on the basis of observed water needs of planted vegetation.
- Adaptations to the design of directed studies.
- Adjustments to monitoring protocols to incorporate new protocols approved by the fish and wildlife agencies.
- Administration of the Implementation Office.

- 1 • Changes in the membership of BDCP advisory committees.

2 **6.5.3 Minor Modifications or Revisions**

3 As part of the process of Plan implementation, the Implementation Office likely will need to make
4 minor modifications or revisions to the BDCP from time to time to respond appropriately to new
5 information, scientific understanding, technological advances, and other such circumstances. Minor
6 modifications or revisions in many instances will be technical in nature and will not involve changes
7 that would adversely affect covered species, the level of take, or the obligations of Proposed
8 Authorized Entities. The process for implementing such changes is set forth in Section 6.5.3.1,
9 *Procedures for Minor Modifications or Revisions*, below.

10 Minor modifications or revisions may include, but are not limited to, the following circumstances.

- 11 • Minor corrections to land ownership descriptions.
- 12 • Changes to survey, monitoring, reporting and/or management protocols that do not adversely
13 affect covered species or habitat functions and values.
- 14 • Transfers of targeted acreages between ROAs consistent with criteria set out in Chapter 3,
15 *Conservation Strategy*.
- 16 • Transfers of targeted natural community acreages among BDCP conservation zones, provided
17 such change does not preclude meeting preserve assembly requirements, significantly increase
18 the cost of the BDCP management, or preclude achieving covered species and natural
19 community goals and objectives.
- 20 • Extensions of earth moving or ground disturbance outside the right-of-way limits analyzed in
21 the BDCP for covered activities involving infrastructure development or natural community
22 restoration.
- 23 • Updates or corrections to the vegetation or other resource maps or species occurrence data.
- 24 • Other proposed changes to the Plan that the permitting agencies have determined to be
25 unsubstantial and appropriate for implementation as a minor amendment.

26 **6.5.3.1 Procedures for Minor Modifications or Revisions**

27 The Implementation Office, the Proposed Authorized Entities, or the fish and wildlife agencies may
28 propose minor modifications or revisions by providing written notice to the Implementation Office,
29 Proposed Authorized Entities, and fish and wildlife agencies. Such notice will include a description
30 of the proposed minor modifications or revisions, an explanation of the reason for the proposed
31 minor modifications or revisions, an analysis of their environmental effects including any impacts on
32 covered species, and an explanation of why the effects of the proposed minor modifications or
33 revisions would have the following characteristics.

- 34 • They would not significantly differ from, and would be biologically equivalent to, the effects
35 described in the BDCP, as originally adopted.
- 36 • They would not conflict with the terms and conditions of the BDCP, as originally adopted.
- 37 • They would not significantly impair implementation of the BDCP conservation strategy.

1 The fish and wildlife agencies and/or the Proposed Authorized Entities may submit comments on
2 the proposed minor modification or revision in writing within 60 days of receipt of notice. If any
3 Proposed Authorized Entity disagrees with the proposed minor modification or revision for any
4 reason, the minor modification or revision will not be incorporated into the BDCP. If the fish and
5 wildlife agencies do not concur that the proposed minor modification or revision meets the
6 requirements for a minor modification or revision, the proposal must be approved according to the
7 amendment process. Any Proposed Authorized Entity or fish and wildlife agency may institute the
8 informal meet and confer process set forth in the BDCP Implementing Agreement to resolve
9 disagreements concerning a proposed minor modifications or revisions.

10 If the Proposed Authorized Entities are in agreement regarding the proposed minor modification or
11 revision, and the fish and wildlife agencies concur that the requirements for a minor modification or
12 revision have been met and the modification or revision should be incorporated into the plan, the
13 BDCP will be modified accordingly. If any fish and wildlife agency fails to respond to the written
14 notice within the 60-day period, the agency will be deemed to have approved the proposed minor
15 modification or revision.

16 **6.5.4 Formal Amendment**

17 Under some circumstances, it may be necessary to substantially amend the BDCP. Any proposed
18 changes to the BDCP that do not qualify for treatment as described in Sections 6.5.2, *BDCP*
19 *Administrative Changes*, or 6.5.3, *Minor Modifications or Revisions*, will require formal amendment.
20 Formal amendment to the BDCP also will require corresponding amendment to the
21 authorizations/permits, in accordance with applicable laws and regulations regarding permit
22 amendments. The BDCP Implementation Office will be responsible for submitting any proposed
23 amendments to the fish and wildlife agencies.

24 Amendments to the BDCP likely will occur infrequently and will follow the process set forth in
25 Section 6.5.4.1, *Process for Formal Amendment*. Formal amendments include, but are not limited to,
26 those following changes.

- 27 ● Substantive changes to the boundary of the Plan Area, other than those associated with the
28 acquisition of terrestrial natural community in the surrounding Delta counties, as described in
29 Section 1.4.1, *Geographic Scope of the Plan Area*.
- 30 ● Additions of species to the covered species list.
- 31 ● Increase in the allowable take limits of covered activities or adding new covered activities to the
32 plan.
- 33 ● Substantial changes in implementation schedules that would have significant adverse effects on
34 the covered species.
- 35 ● Changes in water operations conservation measures or covered water operations that are
36 outside the ranges established in the plan for water operations.

37 **6.5.4.1 Process for Formal Amendment**

38 Formal amendments will involve the same process that was required for the original approval of the
39 BDCP. In most cases, an amendment will require public review and comment, CEQA and NEPA
40 compliance, and intra-Service Section 7 consultation. Amendments will be subject to review and

1 approval by the Implementation Office and the Proposed Authorized Entities. The fish and wildlife
2 agencies will use reasonable efforts to process proposed amendments within 180 days.

3 **6.5.5 Suspension of the Federal Permits**

4 Under certain circumstances defined by federal regulation, USFWS or NMFS may suspend, in whole
5 or in part, the regulatory authorizations they issue under the BDCP. However, except where USFWS
6 or NMFS determines that emergency action is necessary to avoid irreparable harm to a covered
7 species, it will not suspend an authorization without first attempting to resolve the issue through
8 the informal dispute resolution process set forth in the BDCP Implementing Agreement, and
9 identifying the facts or action/inaction that may warrant the suspension and providing the
10 Implementation Office a reasonable opportunity to implement appropriate responsive actions. Any
11 decision to suspend one or both federal permits must be in writing and must be signed by the
12 Secretary of the Interior or the Secretary of Commerce, as the case may be.

13 **6.5.5.1 Reinstatement of Suspended Federal Permit**

14 If USFWS or NMFS suspends a federal permit, as soon as possible but no later than 10 days after the
15 suspension, it will meet and confer with the Implementation Office and Proposed Authorized
16 Entities to discuss how the permits can be reinstated. At the conclusion of the meeting, USFWS
17 and/or NMFS will identify reasonable, specific actions needed to address the suspension. Upon
18 performance or completion of the actions, USFWS and/or NMFS will immediately reinstate the
19 federal permit. It is the expectation of the BDCP participants that the federal fish and wildlife
20 agencies and the permit holders will strive to reinstate the federal permit as soon as possible.

21 **6.5.6 Revocation of the Federal Permits**

22 The No Surprises rule, as promulgated in 1998, did not address circumstances in which a species
23 covered by a permitted HCP experienced significant decline and the continuation of an activity
24 covered by the HCP would contribute to the likelihood of jeopardy to the species. To address such
25 circumstances, USFWS issued a regulation in 2004, known as the Permit Revocation rule, that allows
26 USFWS to nullify regulatory assurances granted under the No Surprises rule and revoke the Section
27 10 permit only in specified instances, including where continuation of a permitted activity would
28 jeopardize the continued existence of a species covered by an HCP and the impact of the permitted
29 activity on the species has not been remedied in a timely manner (69 FR 7172, December 10, 2004).

30 In the event that such unforeseen circumstances were to arise under the BDCP, USFWS and/or
31 NMFS would work with the BDCP Implementation Office and the Proposed Authorized Entities to
32 avoid a permit revocation. The federal fish and wildlife agencies would engage in the following
33 process prior to taking any steps to revoke the BDCP permits.

- 34 • The BDCP Implementation Office and the fish and wildlife agencies would determine, through
35 the adaptive management process, whether changes can be made to the BDCP's conservation
36 strategy to remedy the situation.
- 37 • The USFWS or NMFS would determine whether the fish and wildlife agencies or other state and
38 federal agencies can undertake actions that would remedy the situation. It is recognized that the
39 fish and wildlife agencies have available a wide array of authorities and resources that can be
40 used to provide additional protection for the species, as do other state and federal agencies.

- 1 • The Implementation Office and the fish and wildlife agencies will determine whether there are
2 additional voluntary conservation actions that the Implementation Office could undertake to
3 remedy the situation.

4 The USFWS or NMFS would begin the revocation process only if it is determined that the
5 continuation of a BDCP covered activity would appreciably reduce the likelihood of survival and
6 recovery of one or more covered species and that no remedy can be found and implemented. The
7 USFWS or NMFS also could begin the revocation process if the Proposed Authorized Entities fail to
8 fulfill their obligations under the BDCP, and only after completing the informal dispute resolution
9 process described in the BDCP Implementing Agreement, and identifying the actions or inactions
10 that may warrant the revocation and giving the Implementation Office a reasonable opportunity to
11 implement appropriate responsive actions. The USFWS or NMFS would follow the administrative
12 procedures set out in the BDCP Implementing Agreement and the regulations implementing the
13 Permit Revocation rule (50 CFR 13.28 and 13.29). Any decision to revoke one or both federal
14 permits must be in writing and must be signed by the Secretary of the Interior or the Secretary of
15 Commerce, as the case may warrant.

16 **6.5.7 Suspension or Revocation of the State Permit**

17 The NCCPA requires that the implementation agreement include specific terms and conditions that,
18 if violated, result in suspension or revocation of the Section 2835 take permit. Such terms and
19 conditions must include suspension or revocation of the permit if the plan participants fail to
20 provide adequate funding to implement the plan; do not maintain proportionality between impacts
21 on habitats or covered species and conservation measures; adopt or approve changes to the plan
22 that are not consistent with the objectives and requirements of the approved plan without
23 concurrence of the wildlife agencies; or allow the level of take to exceed the permit limits (Fish &
24 Game Code 2820(b)(3)). DFG also must suspend or revoke a Section 2835 take permit if continued
25 take would result in jeopardy to a species (Fish & Game Code 2820(c)).

26 If the Proposed Authorized Entities violate the terms and conditions of the state permits, or if
27 necessary to avoid jeopardizing the continued existence of a listed species, DFG may suspend or
28 revoke the permits in whole or in part. However, unless immediate revocation is necessary to avoid
29 the likelihood of jeopardy to a listed species or to address rough proportionality (see below), DFG
30 will not suspend or revoke the state permits without first attempting to resolve any disagreements
31 regarding the implementation or interpretation of the BDCP or this agreement in accordance with
32 the informal dispute resolution process provided in the BDCP Implementing Agreement, and
33 notifying the Implementation Office and Proposed Authorized Entities of the action or inaction that
34 may warrant the suspension or revocation and providing the Implementation Office and Proposed
35 Authorized Entities with a reasonable opportunity to take appropriate responsive action. Any
36 decision to suspend or revoke one or both state permits must be in writing and must be signed by
37 the Director of DFG.

38 **6.5.7.1 Failure to Maintain Rough Proportionality**

39 The NCCPA requires revocation of a Section 2835 take permit, in whole or in part, if the plan
40 participants do not maintain rough proportionality between impacts on habitats or covered species
41 and conservation measures and do not, within 45 days, remedy such condition or develop a plan
42 with DFG to provide a remedy(Fish & Game Code 2820(c)).

1 Rough proportionality will be maintained by implementing the conservation measures substantially
2 in accordance with the agreed-upon plan implementation schedule. If DFG determines, after
3 conferring with USFWS, NMFS, and the Implementation Office, that rough proportionality is not
4 being maintained, the Implementation Office, Proposed Authorized Entities, and DFG will meet and
5 confer and, within 45 days of DFG's determination, agree on adjustments to the implementation
6 schedule to expeditiously regain rough proportionality. Adjustments to the implementation
7 schedule may include any of a variety of commitments or adjustments to BDCP implementation
8 designed to regain rough proportionality, including advancing or accelerating plans to acquire,
9 restore, or enhance lands of the appropriate land-cover type. The Implementation Office will
10 implement all actions set forth in the agreed-upon adjusted implementation schedule. As an
11 alternative to the agreement, the Implementation Office may regain rough proportionality within 45
12 days by implementing the actions according to the existing implementation schedule.

13 **6.5.7.2 State Permit Suspension and Revocation Steps**

14 In the event that such circumstances for permit revocation or suspension were to arise under the
15 BDCP, DFG would work with the BDCP Implementation Office and the Proposed Authorized Entities
16 to obviate the need for permit revocation or suspension. The DFG would engage in the following
17 process prior to taking any steps to revoke the BDCP permits.

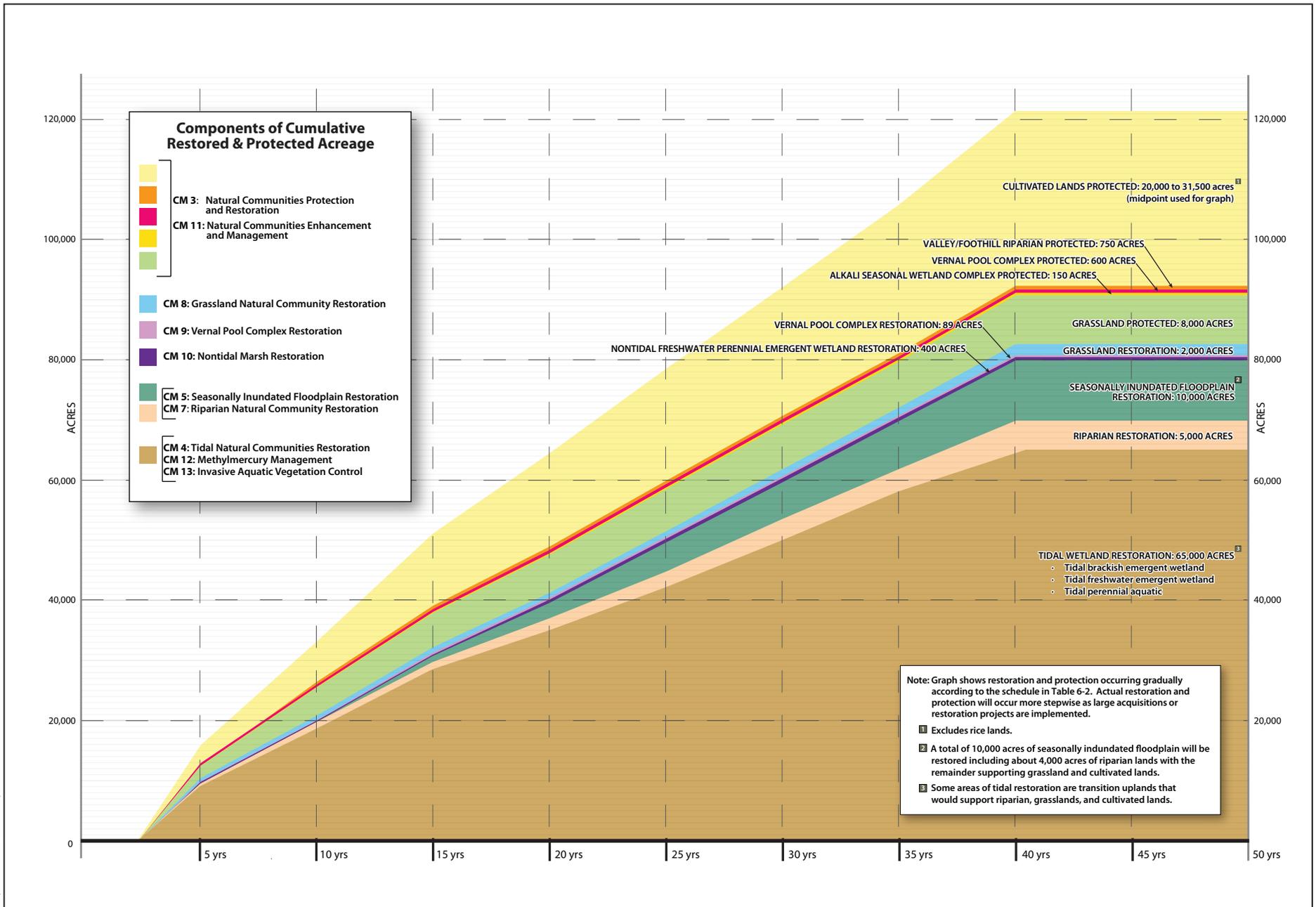
- 18 • In the event of a failure to maintain rough proportionality, the BDCP Implementation Office will
19 work with DFG to remedy the situation through schedule adjustments as described in
20 Section 6.5, *Permit Duration and Renewal, Plan Changes, Permit Suspension and Revocation*, and
21 in accordance with the Implementation Agreement. Note that the BDCP monitoring program is
22 designed to identify such issues and that the Implementation Office must report such issues in
23 annual reports.
- 24 • For other situations that could result in permit revocation or suspension or if rough
25 proportionality cannot be regained through schedule adjustments, the BDCP Implementation
26 Office, Proposed Authorized Entities, and DFG would determine, through the adaptive
27 management process, whether other changes can be made to the BDCP's conservation strategy
28 to remedy the situation.
- 29 • DFG will determine whether DFG or the federal fish and wildlife agencies or other state and
30 federal agencies can undertake actions that would remedy the situation. It is recognized that the
31 fish and wildlife agencies have available a wide array of authorities and resources that can be
32 used to provide additional protection for the species, as do other state and federal agencies.
- 33 • The Implementation Office and DFG will determine whether there are additional voluntary
34 conservation actions that the Implementation Office could undertake to remedy the situation.

35 DFG would begin the revocation or suspension process only if no solutions are found and it is
36 determined that the continuation of a BDCP covered activity would result in jeopardy to a species or
37 violate any of the terms and conditions for permit revocation or suspension identified in the
38 Implementing Agreement.

1 **6.6** **References**

- 2 California Department of Water Resources. 2008. Technical Memorandum: Delta Risk Management
3 Strategy (DRMS) Phase 1. Topical Area: Levee Vulnerability Final. May 15.
- 4 California Department of Water Resources. 2009. *Delta Risk Management Strategy Phase 1*. February.
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6 Water Resources.
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9 Water Resources.
- 10 U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1996. *Habitat Conservation*
11 *Planning Handbook*. November. Pages 3-28.

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Figure 6-1
Cumulative Amount of Natural Community Protection and Restoration over Permit Term