

CHAPTER 6. PLAN IMPLEMENTATION

Track changes in this draft represent changes requested by the PREs and minor edits by SAIC as of October 29, 2010. Figures have been removed for ease of viewing and printing.

[Note to Reviewers: This full draft of chapter 6, Plan Implementation–Plan, includes revised sections previously distributed to the Steering Committee (SC) ~~and new sections~~. A full draft of Chapter 6 was provided to the Steering Committee on September 9, 2010. A prior draft of Section 6.1 Implementation Schedule text and schedule graphic was provided to SC on October 8, 2009 and an updated schedule graphic and presentation of schedule assumptions on August 12, 2010. ~~Section 6.2 Compliance and Progress Reporting is a new section.~~ A draft of Section 6.3 Regulatory Assurances, Changed Circumstances and Unforeseen Circumstances was distributed to the SC on January 7, 2010, and a revised draft of the subsection 6.3.2 Changed Circumstances was provided to the SC on August 12, 2010. ~~Section 6.4 Permit Duration and Renewal, Plan Amendment, Permit Suspension and Revocation, is a new section.~~ All sections provided to SC as earlier drafts have been revised to address comments from SC members.]

TABLE OF CONTENTS

16	CHAPTER 6. PLAN IMPLEMENTATION.....	1
17	6.1 Plan Implementation Schedule.....	<u>21</u>
18	6.1.1 Ecosystem-Level Conservation Measures	<u>87</u>
19	6.1.1.1 Conservation Measure CM1: Water Facilities and Operation	<u>87</u>
20	6.1.1.1.1 Near-Term Water Operations	<u>87</u>
21	6.1.1.1.2 Construction of North Delta Diversion and Conveyance Facilities	<u>97</u>
22	6.1.1.2 Conservation Measure CM2: Yolo Bypass Fisheries Enhancements	<u>98</u>
23	6.1.1.3 Conservation Measure CM3: Preserve Natural Communities	<u>108</u>
24	6.1.2 Natural Community-Level Conservation Measures	<u>109</u>
25	6.1.2.1 CM4: Tidal Habitat Restoration.....	<u>1513</u>
26	6.1.2.2 Conservation Measure CM5: Seasonally Inundated Floodplain Restoration.	<u>1816</u>
27	6.1.2.3 Conservation Measure CM6: Channel Margin Habitat Enhancement	Error! Bookmark
28	not defined.	
29	6.1.2.4 Conservation Measure CM7: Riparian Habitat Restoration	<u>1917</u>
30	6.1.2.5 Conservation Measure CM8: Grassland Communities Restoration	<u>2018</u>
31	6.1.2.6 Conservation Measure CM9: Vernal Pool Complex Terrain Restoration	<u>2220</u>
32	6.1.2.7 Conservation Measure CM10: Nontidal Marsh Restoration.....	<u>2320</u>
33	6.1.2.8 Conservation Measure CM11: Enhance and Manage Preserved Natural Communities	<u>2321</u>
34	<u>2321</u>
35	6.1.2.9 Conservation Measure CM12: Methylmercury Management.....	<u>2321</u>
36	6.1.2.10 Conservation Measure CM13: Nonnative Aquatic Vegetation Control	<u>2321</u>
37	6.1.3 Species-Level Other Stressors Conservation Measures	<u>2422</u>
38	6.1.3.1 Conservation Measure CM14: Stockton Deep Water Ship Channel Dissolved Oxygen Levels.....	<u>2422</u>
39	6.1.3.2 Conservation Measure CM15: Predator Control	<u>2422</u>
40	6.1.3.3 Conservation Measure CM16: Non-Physical Fish Barriers.....	<u>2422</u>
41	6.1.3.4 Conservation Measure CM17: Hatchery and Genetic Management Plans	<u>2523</u>
42	6.1.3.5 Conservation Measure CM18: Illegal Harvest.....	<u>2523</u>
43	6.1.3.6 Conservation Measure CM19: Conservation Hatcheries.....	<u>2523</u>

1	6.2	Compliance and Progress Reporting	2523
2	6.2.1	Annual Workplan and Budget	2725
3		TABLE OF CONTENTS (CONTINUED)	
4	6.2.2	Annual Water Operations Plan	2825
5	6.2.3	Annual Progress Report	2826
6	6.2.4	Annual Water Operations Report.....	3329
7	6.2.5	Five-Year Comprehensive Review	3329
8	6.2.6	Five Year Implementation Plan	3531
9	6.3	Regulatory Assurances and Changed Circumstances and Unforeseen Circumstances	3631
10	6.3.1	Regulatory Assurances	3631
11	6.3.1.1	Regulatory Assurances under the ESA - The No Surprises Rule	3632
12	6.3.1.2	Regulatory Assurances under the NCCPA	3733
13	6.3.2	Changed Circumstances.....	3833
14	6.3.2.1	Process to Identify Changed Circumstances.....	3935
15	6.3.2.2	Changed Circumstances Addressed by the BDCP.....	4136
16	6.3.2.2.1	Availability of Land Necessary for the Implementation of Habitat Conservation Measures	4136
17		4136
18	6.3.3	Unforeseen Circumstances.....	5445
19	6.3.4	Applicability of Other Federal Endangered Species Act Issues to the BDCP	5546
20	6.3.4.1	Future Recovery Plans	5546
21	6.3.4.2	Future Section 7 Consultations	5547
22	6.4	Permit Duration and Renewal, Plan Amendments, Permit Suspension and Revocation	5647
23	6.4.1	Permit Duration and Extension	5647
24	6.4.2	BDCP Administrative Actions That Do Not Require Modification or Amendment	5648
25	6.4.3	Minor Modifications or Revisions	5848
26	6.4.4	Formal Amendment	6050
27	6.4.5	Suspension of the Federal Permits	6151
28	6.4.6	Reinstatement of Suspended Federal Permit	6151
29	6.4.7	Revocation of the Federal Permits	6151
30	6.4.7.1	The Federal Permit Revocation Rule	6251
31	6.4.8	Suspension or Revocation of the State Permit	6352
32	6.4.8.1	Failure to Maintain Rough Proportionality	6453
33	6.4.8.2	State Permit Suspension and Revocation Steps	6453

LIST OF FIGURES

36	Figure 6-1.	BDCP Conservation Measure Implementation Schedule Following BDCP Authorization....	43
37	Figure 6-2.	Cumulative Habitat Outcomes of Implementing BDCP Conservation Measures.....	76
38	Figure 6-3.	Vernal Pool Habitat Restoration and Protection versus Permanent Impacts.....	1210
39	Figure 6-4.	Alkali Seasonal Wetland Habitat Protection versus Permanent Impacts	1210
40	Figure 6-5.	Grassland Habitat Restoration and Protection versus Permanent Impacts.....	1311
41	Figure 6-6.	Cropland Preservation versus Permanent Impacts	1311
42	Figure 6-7.	Tidal Habitat Restoration versus Permanent Impacts	1614
43	Figure 6-7.	Conceptual Evolution of Restored Tidal Habitat with and without Pre-Planting of Marsh	
44		Vegetation at Three Plan Locations	1715
45	Figure 6-9.	Cumulative Riparian Habitat Restoration versus Cumulative Permanent Removal	2018
46	Figure 6-10.	Maturation and Succession of Restored Riparian Forest and Scrub and Use by Covered	
47		Wildlife Species	2119

CHAPTER 6. PLAN IMPLEMENTATION

The BDCP Implementing Entity, as described in Chapter 7, *Implementation Structure*, will be responsible for To effectively achieve the implementation overall goals of the ecosystem restoration and water supply reliability, the BDCP sets out a Conservation Strategy that will be implemented over the long-term. This chapter provides descriptions of various components of identifies the key issues that are related to plan implementation involving the Implementing Entity, Authorized Entities, and the fish and wildlife agencies that are important to describes the success of the BDCP approaches that will be used to address those issues. The chapter includes a reasonable, for instance, establishes a schedule for the implementation of all of the BDCP conservation measures presented in Chapter 3, *Conservation Strategy*, and depicts the cumulative increase in benefits for natural communities and how the implementation of conservation actions over time compares to, which will guide the timing of adverse effects of covered activities. Regular work plans, budgets, reviews and progress reports are necessary to schedule and fund year by year implementation of conservation and sequencing of measures and to enhance opportunities to advance the biological goals and objectives. It further describes requirements for short-term and long-range planning, annual workplans and budgets, monitoring and to continually revise various aspects of the Plan through adaptive management based on annual and supra-annual evaluations and reviews. The chapter includes descriptions of required regular planning documents, compliance reporting, and scientific reviews that review to ensure regular communication across various agencies and the public and allow for continuous input of new information and ideas during transparency in decision-making and to promote refinements to approaches to plan implementation.

A primary goal of the BDCP is a stable regulatory framework and the The chapter provides a discussion of further describes the regulatory assurances under the federal ESA and California the NCCPA that are expected to come with the issuance of permits and authorizations. Significant events in the Plan Area, such as levee failures and fire, can result in changed circumstances for species and natural communities conserved under the BDCP implementation. Potential changed circumstances and be provided to the Authorized Entities. It also describes the commitment to responses are presented in of the chapter Implementation Office and an approach for addressing unforeseen the Authorized Entities to respond to foreseeable changes in circumstances is laid out.

The size and complexity of developing and implementing the BDCP call for having long term and durable federal and State permits. To provide more durability to the permits, the chapter includes processes for amendment and renewal of permits such that they may last their full term and possibly longer. Unanticipated declines in species populations and viability can result in situations where the fish and wildlife agencies must consider permit suspension or revocation and the chapter includes adversely affect Covered Species and habitats, and identifies a process for communication and joint planning to address such instances and to strive to reverse negative trends and stabilize species populations such that suspension or revocation does by which

1 changes that are not become necessary.
2 foreseeable can be addressed. The chapter identifies the circumstances under which regulatory
3 authorizations may be suspended or revoked. This chapter, in combination with Chapter 3
4 *Conservation Strategy*, Chapter 7 *Implementation Structure*, and Chapter 8 *Implementation Costs*
5 *and Funding Sources*, provides the full description of actions, commitments, and ~~coordination~~
6 required to implement approaches to ensure effective implementation of the BDCP.

7 **6.1 PLAN IMPLEMENTATION SCHEDULE**

8 The ~~general schedule for~~ implementation of ~~each of~~ the BDCP conservation measures is
9 ~~presented in Figure 6-1. Figure 6-2 illustrates the cumulative benefits of implementing BDCP~~
10 ~~conservation measures over the term of the BDCP. Year 0 of implementation is the year in~~
11 ~~which all permits, authorizations, and approvals are provided for the BDCP to initiate~~
12 ~~implementation of the BDCP will be guided by a schedule that has been developed to maximize~~
13 ~~the effectiveness of the~~ Conservation Strategy, as described in Chapter 3, *Conservation Strategy*.
14 ~~(see Figure 6-1). The plan implementation schedule represents the anticipated schedule for when~~
15 ~~conservation establishes an approximate timeframe and sequence for the initiation of the actions~~
16 ~~associated with each of the conservation measures will be implemented. Meeting the specific~~
17 ~~schedule presented here is not a requirement of the BDCP, but rather, the implementation~~
18 ~~schedule serves as a guide for the Implementing Entity and as a tool for other evaluations in the~~
19 ~~BDCP.~~ The cumulative habitat outcomes of implementing BDCP conservation measures under
20 this plan implementation schedule are depicted in Figure 6-2. Implementation of these actions
21 will begin in Year 0, the year in which regulatory authorizations are issued by the State and
22 federal fish and wildlife agencies pursuant to the BDCP. The implementation schedule will
23 inform the Implementation Office as it establishes priorities and develops annual workplans and
24 budgets. This implementation schedule has served as the basis for ~~determining~~estimating
25 funding ~~requirements~~needs over the term of BDCP implementation (see Chapter 8,
26 *Implementation Costs and Funding Sources*) ~~and was~~. It has also been used in the effects
27 analysis to ~~determine~~assess the anticipated timing of biological impacts and benefits to covered
28 species and natural communities associated with the implementation of the Plan (see Chapter 5,
29 *Effects Analysis*).

1 The implementation schedule represents a reasonable estimate of the temporal sequence for
2 implementation of the various interdependent conservation actions over the term of the BDCP
3 based on the best available information. The BDCP is a large and complex plan and, to ensure
4 successful implementation, the ~~Implementing Entity~~ [Implementation Office](#) will need to retain a
5 degree of flexibility to address new information that is developed over the term of BDCP that
6 may require adjustments in the implementation schedule to better ensure that the biological goals
7 and objectives are achieved. Consequently, the actual timing of implementation of some
8 conservation actions may vary from the implementation schedule described below. ~~Any~~
9 ~~variance~~ [Substantial variances](#) in the implementation schedule ~~will~~ [may need to](#) be addressed
10 through the adaptive management process described in Section [5-83.7](#), *Adaptive Management*
11 *Program*.

Figure 6-1. BDCP Conservation Measure Implementation Periods following Issuance of Schedule Following BCDP Permits Authorization

Conservation Actions	Near-Term Period Implementation Year (1-year intervals)										Long-Term Period Implementation Year (5-year intervals)									
	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25			26-30	31-35	36-40	41-45	46-50
CM1: Water Facilities and Operation																				
Water facilities start up and construction ¹																				
Water operations																				
CM2 [CM14]*: Yolo Bypass Fisheries Enhancements																				
Fremont Weir Modifications and Operation																				
Fremont Weir passage improvement																				
Lisbon Weir passage improvement																				
Sacramento Weir improvements																				
Lower Putah Creek passage improvements																				
CM3 [CM18]*: Preserve: Natural Communities Protection																				
Protect 87 acres of vernal pool complex terrain ³																				
Protect 44 acres of vernal pool complex terrain ³																				
Protect 43 acres of vernal pool complex terrain ³																				
Protect 93 acres of vernal pool complex terrain ³																				
Protect 33 acres of vernal pool complex terrain ³																				
Protect 9 acres of alkali seasonal wetland complex ³																				
Protect 8 acres of alkali seasonal wetland complex ³																				
Protect 8 acres of alkali seasonal wetland complex ³																				
Protect 8 acres of alkali seasonal wetland complex ³																				
Protect 267 acres of alkali seasonal wetland complex ³																				
Protect 100 acres of alkali seasonal wetland complex ³																				
Protect 500 acres of grassland ³																				
Protect 500 acres of grassland ³																				
Protect 500 acres of grassland ³																				
Protect 500 acres of grassland ³																				
Protect 1,000 acres of grassland ³																				
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Protect 1,000 acres of grassland ³																				
Protect 1,000 acres of grassland ³																				
Protect 1,000 acres of grassland ³																				
Preserve 1,500 acres of cultivated habitat ⁴																				
Preserve 1,700 acres of cultivated habitat ⁴																				
Preserve 2,745 acres of cultivated habitat ⁴																				
Preserve 1,500 acres of cultivated habitat ⁴																				
Preserve 1,000 acres of cultivated habitat ⁴																				
Preserve 1,000 acres of cultivated habitat ⁴																				
Preserve 4,600 acres of rice land ⁵																				
Preserve 1,100 acres of cultivated habitat ⁴																				
Preserve 3,490 acres of cultivated habitat ⁴																				
Preserve 3,590 acres of cultivated habitat ⁴																				
Preserve 2,645 acres of cultivated habitat ⁴																				
Preserve 2,590 acres of cultivated habitat ⁴																				
Preserve 2,590 acres of cultivated habitat ⁴																				
Preserve 2,590 acres of cultivated habitat ⁴																				

Figure 6-1. BDCP Conservation Measure Implementation Periods following Issuance of Schedule Following BCDP Permits Authorization

Conservation Actions	Near-Term Period Implementation Year (1-year intervals)										Long-Term Period Implementation Year (5-year intervals)									
	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25			26-30	31-35	36-40	41-45	46-50
CM4-[CM10]*: Tidal Habitat Restoration²	Restore 14,000 acres by Year 10										Restore 25,000 acres by Year 15 and 65,000 acres by Year 40									
Restore 1,000 acres of tidal habitat																				
Restore 2,500 acres of tidal habitat																				
Restore 3,500 acres of tidal habitat																				
Restore 3,500 acres of tidal habitat																				
Restore 3,500 acres of tidal habitat																				
Restore 11,000 acres of tidal habitat																				
Restore 8,000 acres of tidal habitat																				
Restore 8,000 acres of tidal habitat																				
Restore 8,000 acres of tidal habitat																				
Restore 8,000 acres of tidal habitat																				
Restore 8,000 acres of tidal habitat																				
CM5-[CM13]*: Seasonally Inundated Floodplain Restoration	Restore 1,000 acres of seasonally inundated										Restore 1,000 acres by Year 15 and 10,000 acres by Year 40									
Restore 1,000 acres of seasonally inundated																				
Restore 3,000 acres of seasonally inundated																				
Restore 3,000 acres of seasonally inundated																				
Restore 3,000 acres of seasonally inundated																				
CM6-[CM14]*: Channel Margin Habitat	Enhance 5 miles by Year										Enhance 10 miles by Year 20, 15 miles by Year 25, and 20 miles by Year 30									
Restore 5 miles of channel margin habitat																				
Restore 5 miles of channel margin habitat																				
Restore 5 miles of channel margin habitat																				
Restore 5 miles of channel margin habitat																				
CM7-[CM12]*: Riparian Habitat Restoration	Restore 400 acres by year 15 and 5,000 acres by Year 40										Restore 400 acres by year 15 and 5,000 acres by Year 40									
Restore 5 acres of riparian habitat																				
Restore 5 acres of riparian habitat																				
Restore 4 acres of riparian habitat																				
Restore 417 acres of riparian habitat																				
Restore 190 acres of riparian habitat																				
Restore 1,397 acres of riparian habitat																				
Restore 1,397 acres of riparian habitat																				
Restore 199 acres of riparian habitat																				
Restore 1,386 acres of riparian habitat																				
CM8-[CM17]*: Grassland Communities	Restore 1,000 acres by Year 10										Restore 1,250 acres by year 15 and 2,000 acres by Year 30									
Restore 250 acres of grassland																				
Restore 250 acres of grassland																				
Restore 250 acres of grassland																				
Restore 250 acres of grassland																				
Restore 250 acres of grassland																				
Restore 250 acres of grassland																				
Restore 250 acres of grassland																				
Restore 250 acres of grassland																				
CM9-[CM16]*: Vernal Pool Complex Terrain	Restore 100 acres by year 10										Restore 150 acres by year 15 and 200 acres by Year 20									
Restore 58 acres of vernal pool complex habitat																				
Restore 29 acres of vernal pool complex habitat																				
Restore 29 acres of vernal pool complex habitat																				

Figure 6-1. BDCP Conservation Measure Implementation Periods following Issuance of Schedule Following BCDP Permits Authorization

Conservation Actions	Near-Term Period Implementation Year (1-year intervals)										Long-Term Period Implementation Year (5-year intervals)									
	1	2	3	4	5	6	7	8	9	10	11-15	16-20	21-25			26-30	31-35	36-40	41-45	46-50
Restore 42 acres of vernal pool complex habitat																				
Restore 42 acres of vernal pool complex habitat																				
CM10-[CM15]¹; Nontidal Marsh Restoration⁶	Restore 400 acres by year 10																			
Restore 100 acres of nontidal marsh																				
Restore 100 acres of nontidal marsh																				
Restore 100 acres of nontidal marsh																				
Restore 100 acres of nontidal marsh																				
Other Species-Level Stressors Conservation Measures																				
CM11- [CM19] ² ; Enhance and Manage Preserved ³																				
CM12- [CM8] ⁴ ; Methylmercury Management ⁷																				
CM13- [CM9] ⁵ ; Nonnative Aquatic Vegetation																				
CM14- [CM2] ⁶ ; Stockton Deep Water Ship Channel																				
CM15- [CM6] ⁷ ; Predator Control																				
CM16- [CM7] ⁸ ; Non-physical Physical Fish																				
CM17- [CM4] ⁸ ; Hatchery and Genetic																				
CM18- [CM3] ⁸ ; Illegal Harvest																				
CM19- [CM5] ⁸ ; Conservation Hatcheries																				

1 ~~[]~~ Former Conservation Measure #

- 2 ¹Assumes no ground disturbance in the first year
- 3 ²Implemented in Conservation Zones 1, 2, 4, 5, 7, and 11.
- 4 ³Implemented in Conservation Zones 1, 8, and/or 11.
- 5 ⁴Acreage implementation encompasses a range based upon quality of habitat.
- 6 ⁵Implemented in Conservation Zone 2.
- 7 ⁶Implemented in Conservation Zones 2 and 4.
- 8 ⁷Phased implementation occurs in conjunction with tidal habitat restoration schedule.
- 8 ⁸Implementation occurs at tidal habitat restoration sites 3 years following restoration.

Legend

	Near-term operations
	Long-term operations
	Conservation measure becomes functional (for habitat restorations, initial function may be low, with increasing function over time)
	Interagency coordination, feasibility evaluations, site acquisition, planning, environmental compliance, and construction

9

10

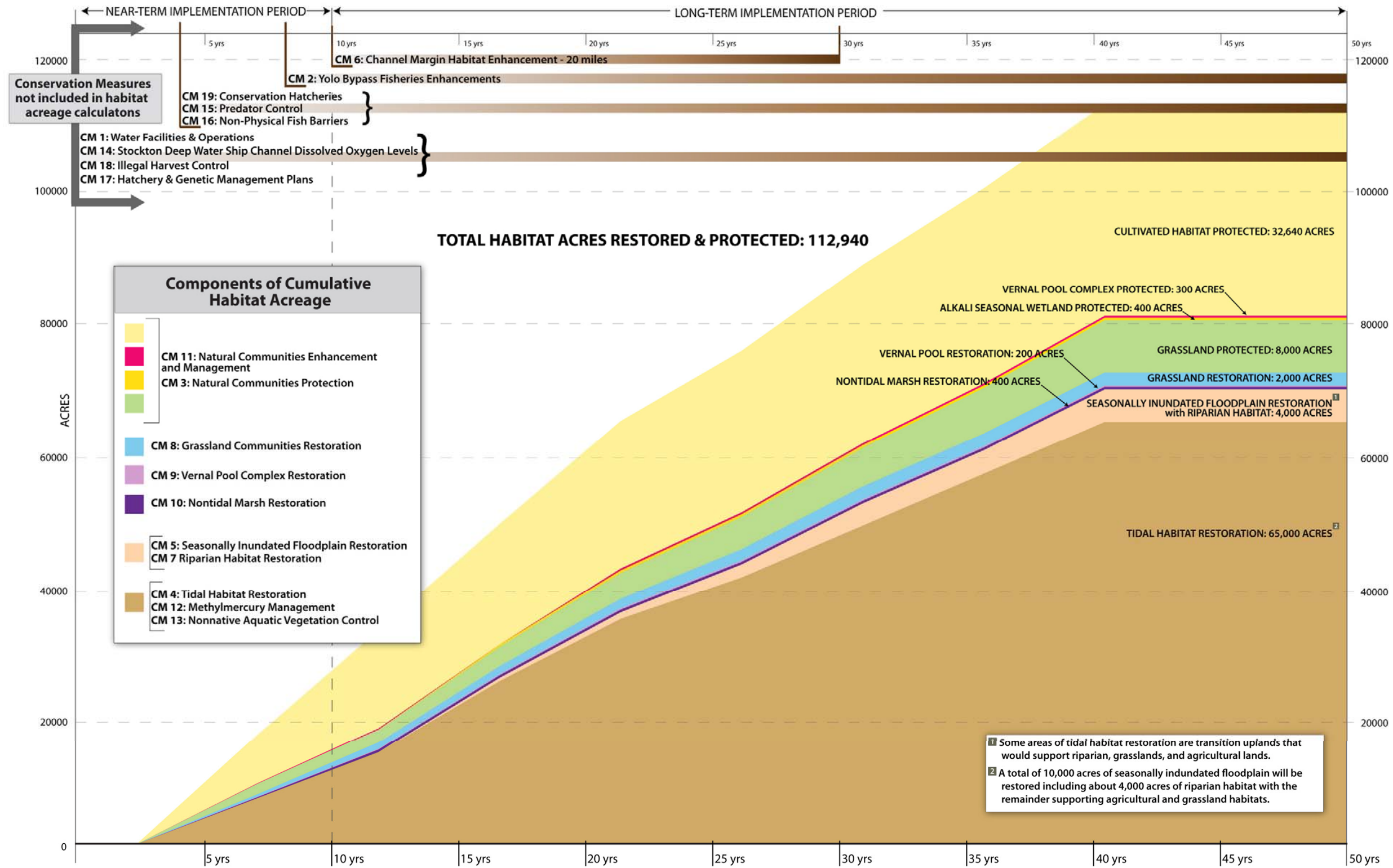


Figure 6-2. Cumulative Habitat Outcomes of Implementing BDCP Conservation Measures

The plan implementation schedule ~~included~~ was informed by information, data, and analysis used to develop the Conservation Strategy, including:

- The near-term, early long-term, and late long-term restoration targets established for tidal, seasonally inundated floodplain, and channel margin habitats (see Section 3.4, *Conservation Measures*) and the extent of habitat restoration effects on natural communities and covered species habitats (see Chapter 5, *Effects Analysis*);
- Vernal pool complex and grassland restoration targets (see Section 3.4, *Conservation Measures*) and the extent of habitat restoration effects on natural communities and covered species habitats (see Chapter 5, *Effects Analysis*);
- Vernal pool complex, alkali seasonal wetland complex, grassland, and agricultural habitat protection/preservation targets (see Section 3.4, *Conservation Measures*); and
- The pipeline/tunnel construction schedule and the extent of construction effects on natural communities and covered species habitats (see Chapter 5, *Effects Analysis*).

The ~~length of time needed~~ estimated timeframes for implementation of each of the conservation measures were ~~developed~~ determined based on ~~timing information from evaluations of~~ similar type actions ~~already that have been~~ completed and on input from individuals experienced with similar types of projects.

6.1.1 Ecosystem-Level Conservation Measures

~~[Note to reviewers: Conservation measure (CM) numbering has changed again (due to organizational revisions to Chapter 3 Conservation Strategy). New CM numbers are used here, with the old number in brackets to allow you to connect to older BDCP documents.]~~

Ecosystem-level conservation measures address include actions that effect affect large areas of the Delta and large-scale ecosystem processes, including flow, hydrodynamics, water quality, and large areas of terrestrial, floodplain, and aquatic habitat.

6.1.1.1 Conservation Measure CM1 ~~[CM1]~~: Water Facilities and Operation

6.1.1.1.1 Near-Term Water Operations

The implementation schedule assumes that near-term water operations of the SWP and CVP ~~are will be~~ implemented in ~~the first~~ year following BDCP approvals and continue until long-term water operations are implemented (see Figure 6-1). Operation of the modified Fremont Weir is assumed to commence in year 7 following completion of construction necessary to install an operable gate on Fremont Weir (see Section 6.1.1.4, *Yolo Bypass Fisheries Enhancements*). Changes in operation of the Suisun Marsh Salinity Control Gate require changes to existing agreements that are assumed to become effective in early long-term implementation period.

1 **6.1.1.1.2 Construction of North Delta Diversion and Conveyance Facilities**

2 The implementation schedule is based on an assumption that construction of the new north Delta
3 diversion and conveyance facilities and related actions will require up to 10 years to complete
4 (see Figure 6-1). Scheduled activities that would be implemented during this period include
5 acquisition of lands, preparation and submittal of regulatory permit applications, preparation and
6 letting of construction-related contracts, and facilities construction. This construction time
7 assumption is based on rough estimates provided by DHCCP engineers.

8 Long-Term Water Operations

9 Implementation of the long-term water operations conservation measures is dependent on
10 completion of construction of the north Delta diversion and conveyance facilities, assumed to be
11 10 years. Long-term operations would then continue over the remaining 50-year term of the
12 BDCP. The schedule is based on the assumption that construction of the north Delta diversion
13 and conveyance facilities will be completed in year 10 and that long-term water operations will
14 commence in year 11 (see Figure 6-1).

15 | **6.1.1.2 Conservation Measure CM2—~~[CM14]~~: Yolo Bypass Fisheries** 16 **Enhancements**

17 | The implementation schedule ~~of this conservation measure~~ for the Yolo bypass fisheries
18 enhancements assumes that modifications to the Fremont Weir and any attendant modifications
19 necessary to the configuration of the Yolo Bypass to allow for operation of the weir will be
20 completed in year 6 following BDCP approvals. Implementation activities assumed to occur and
21 to be completed by year 6 include completion of project planning, environmental compliance
22 documentation, permitting, engineering design, acquisition of flood easements and land (if
23 necessary), modification of the Fremont Weir, and construction of Bypass modifications that
24 may be necessary to direct and contain bypass flows ~~(e.g., construction of dikes and training~~
25 ~~structures)~~ resulting from operation of the modified weir. Planning, permitting, and construction
26 of improvements to the Fremont Weir fish passage structures are assumed to be completed by the
27 end of year 4 and the modified passage structures to be operational in year 5.

28 The implementation schedule assumes that modifications to the Lisbon Weir, lower Putah Creek
29 channel, and any other modifications of the bypass to improve fish passage will be completed by
30 year 6. Initial grading, excavation, and filling that may be required to reduce the potential for
31 fish stranding is also expected to be completed by year 6, although localized actions to further
32 reduce fish stranding are expected to occur in subsequent years under the Adaptive Management
33 Program based on results of fish stranding monitoring. Implementation activities assumed to
34 occur and to be completed by year 6 include completion of any additional regulatory compliance
35 processes, acquisition of land or easements necessary to implement the Bypass modifications,
36 and construction-related activities.

6.1.1.3 ~~Conservation Measure CM3 [CM18]: Preserve:~~ Natural Communities Protection

The implementation schedule for ~~this conservation measure~~actions to preserve natural communities assumes that acquisition, protection/preservation, enhancement, and management of existing vernal pool complex, alkali seasonal wetland complex, grassland habitat and agricultural habitats will be implemented approximately concurrent with or in advance of the commensurate adverse effects of BDCP implementation on these natural communities and the covered species habitats they support. The schedule assumes that, except for protection actions implemented in the second year following BDCP authorization, a 2 year period will be necessary to identify and bring under protection (e.g., through conservation easement, fee title acquisition, or other means) existing natural communities. Based on the expected timing of adverse impacts on natural communities and covered species habitat resulting from construction activities early in BDCP implementation, the schedule is based on the assumption that planning for the first increment of protection of existing alkali seasonal wetland complex, grassland, and agricultural habitat will be initiated prior to BDCP authorization.

In addition to the protection of existing natural communities and covered species habitat, natural communities and covered species habitat that will be restored under Conservation Measures CM4-CM10 will be included within the BDCP preserve system. The implementation schedule for habitat restoration actions is described in Section 6.1.2, *Natural Community-Level Conservation Measures*.

The schedule for protection of natural communities and covered species habitat includes time for activities by the ~~Implementing Entity~~Implementation Office to identify specific parcels of land that are available for acquisition that have the physical and biological characteristics that make the lands suitable for achieving habitat protection targets.

Figures 6-3 through 6-6 show the timing of effects of BDCP actions on existing vernal pool complex, alkali seasonal wetland complex, grassland, and agricultural habitats in relation to when these habitat protection/preservation actions are implemented. The implementation schedule assumes that monitoring and management of protected/preserved habitats will occur over the remainder of the term of the BDCP following completion of each restoration increment as described in Conservation Measure CM11: ~~Enhance and Manage Preserved~~ Natural Communities Enhancement and Management.

6.1.2 Natural Community-Level Conservation Measures

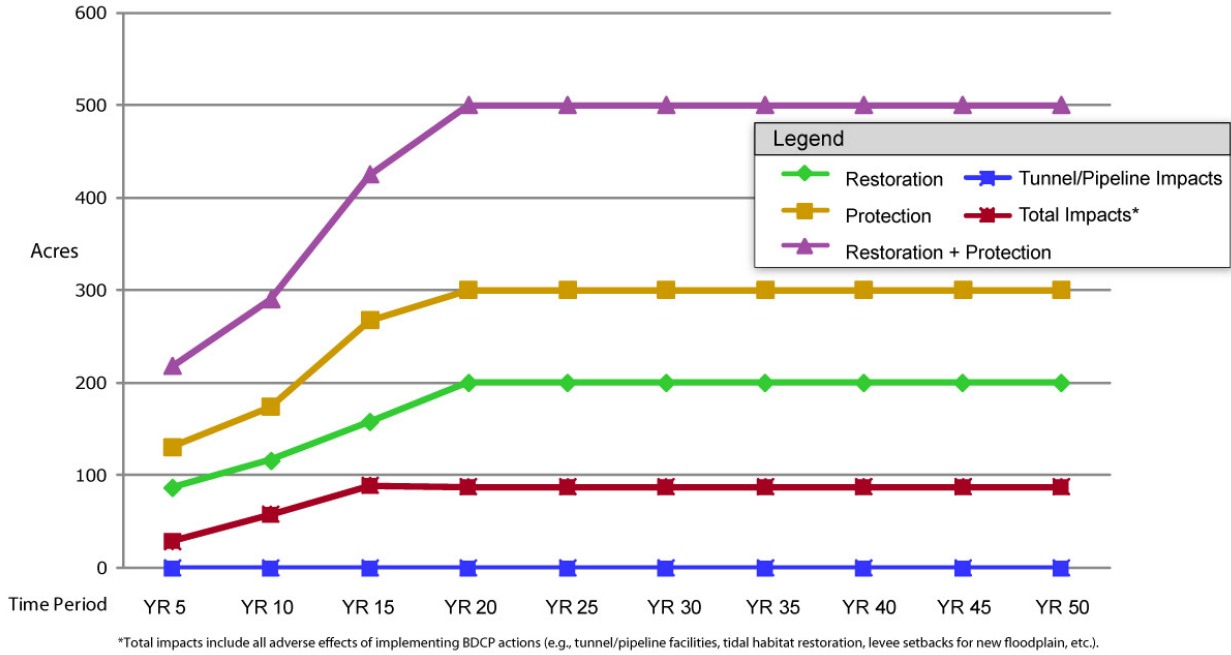
Natural community conservation measures address actions to restore tidal, riparian, seasonally inundated floodplain, vernal pool complex, and grassland habitat; enhance channel margin habitat; and enhance and manage BDCP preserve lands. The schedule for implementing each habitat restoration action is comprised of the following elements:

- 1 • Habitat enhancement and restoration site acquisition;
- 2 • Enhancement and restoration planning and design;
- 3 • Regulatory compliance; and
- 4 • Habitat restoration and enhancement implementation activities.

5 These elements are generally expected to be implemented concurrently and are aggregated in the
6 implementation schedule (see Figure 6-1).

7

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1

Figure 6-3. Vernal Pool Habitat Restoration and Protection versus Permanent Impacts

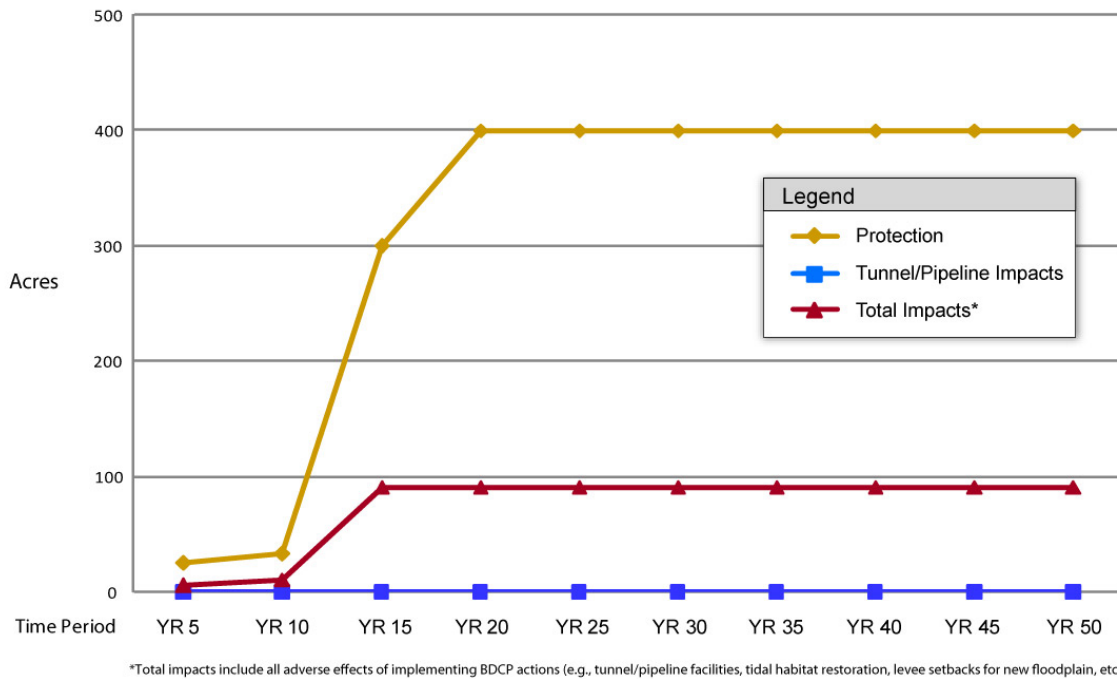


Figure 6-4. Alkali Seasonal Wetland Habitat Protection versus Permanent Impacts

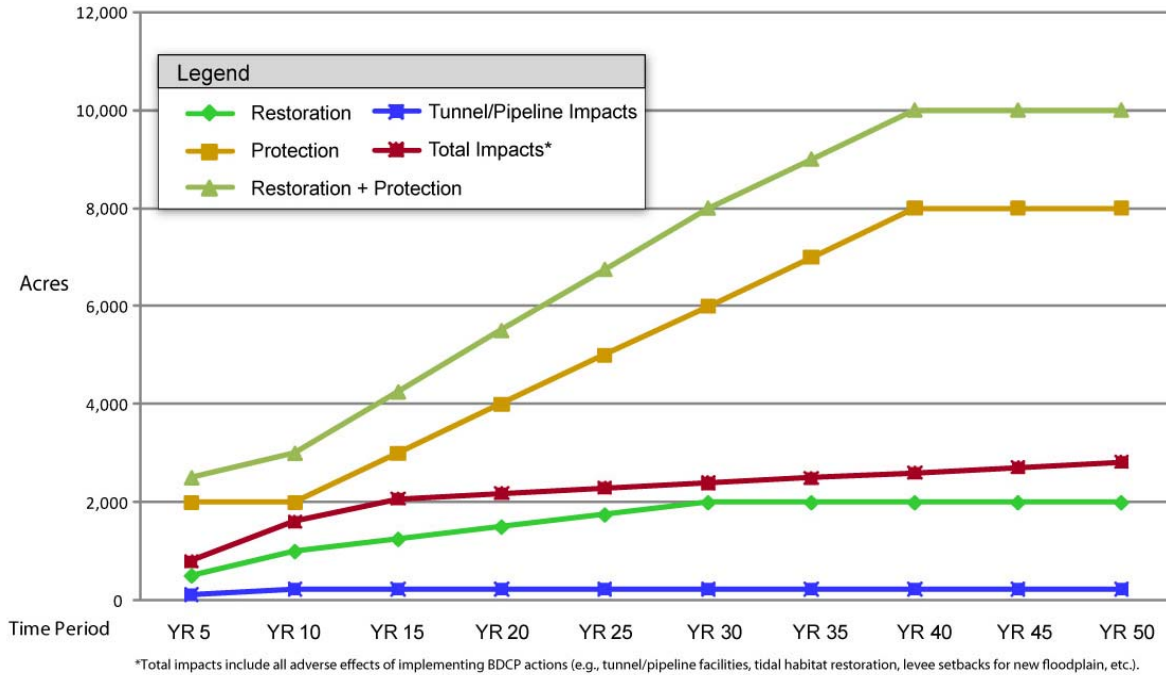


Figure 6-5. Grassland Habitat Restoration and Protection versus Permanent Impacts

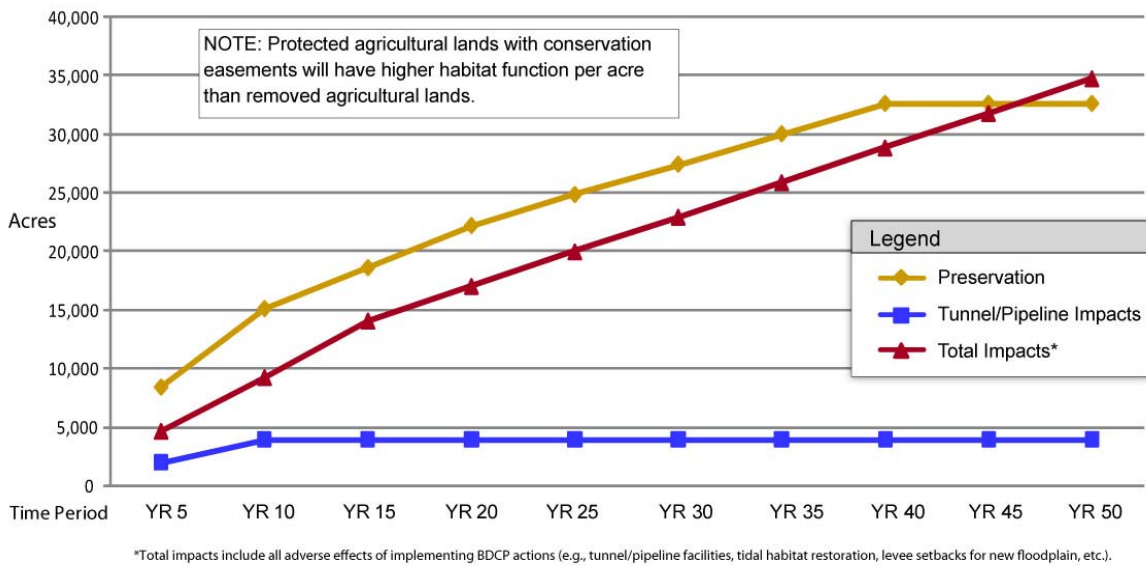


Figure 6-6. Cropland Preservation versus Permanent Impacts

1 **Habitat enhancement and restoration site acquisition.** ~~This implementation element includes~~
2 ~~all activities related to identifying~~ These actions include the identification and acquisition of
3 specific parcels of available land that ~~are available for acquisition and that~~ have the physical and
4 biological characteristics ~~that render the lands suitable for achieving~~ sufficient to advance habitat
5 protection, enhancement, and restoration objectives, ~~and acquisition of the lands.~~ Site
6 acquisitions for actions that involve modifications to levees (e.g., setting back levees to restore
7 seasonally inundated floodplain habitat) include obtaining concurrence of the responsible
8 agencies to initiate planning studies.

9 **Enhancement and restoration planning and design.** This implementation element includes all
10 activities related to:

- 11 • Development of conceptual habitat enhancement and restoration designs, including
12 coordinating development of conceptual restoration designs with stakeholders (e.g., local,
13 state, and federal agencies and potentially affected landowners);
- 14 • Development of detailed habitat enhancement and restoration designs and cost estimates;
- 15 • Development of bid specifications and drawings; and
- 16 • Preparation of habitat enhancement and restoration contracts and contractor selection

17 **Regulatory compliance.** This implementation element includes the preparation and submittal of
18 documents and applications associated with compliance with and acquisition of the permits
19 associated with applicable laws and regulations, including:

- 20 • Additional project-level review under the California Environmental Quality Act (CEQA),
21 and National Environmental Policy Act (NEPA);
- 22 • Sections 401 and 404 of the Federal Clean Water Act, including Nationwide Permit 27,
23 Stream and Wetland Activities;
- 24 • California Water Code sections 1000 et seq. (water rights);
- 25 • Water Code sections 13000 et seq. (water quality);
- 26 • Sections 10 (33 USC 403) and 14 (33 USC 408) of the Rivers & Harbors Act of 1899;
- 27 • Section 1602 of the California Fish and Game Code (Streambed and Lakebed Alteration
28 Agreements);
- 29 • Section 106 of the National Historic Preservation Act; and
- 30 • Encroachment permits for work on levees from the Central Valley Flood Protection
31 Board and reclamation districts.

32 **Habitat restoration and enhancement implementation activities.** This implementation
33 element includes all activities related to completing habitat restoration actions including:

- 1 • Contractor mobilization;
- 2 • Site preparation, including grading, excavation, and placement of fill;
- 3 • Construction/installation of water management, utility and other operational
- 4 infrastructure;
- 5 • Demolition of or refurbishment of existing infrastructure;
- 6 • Construction of dikes, levees, and roads; and
- 7 • Planting vegetation.

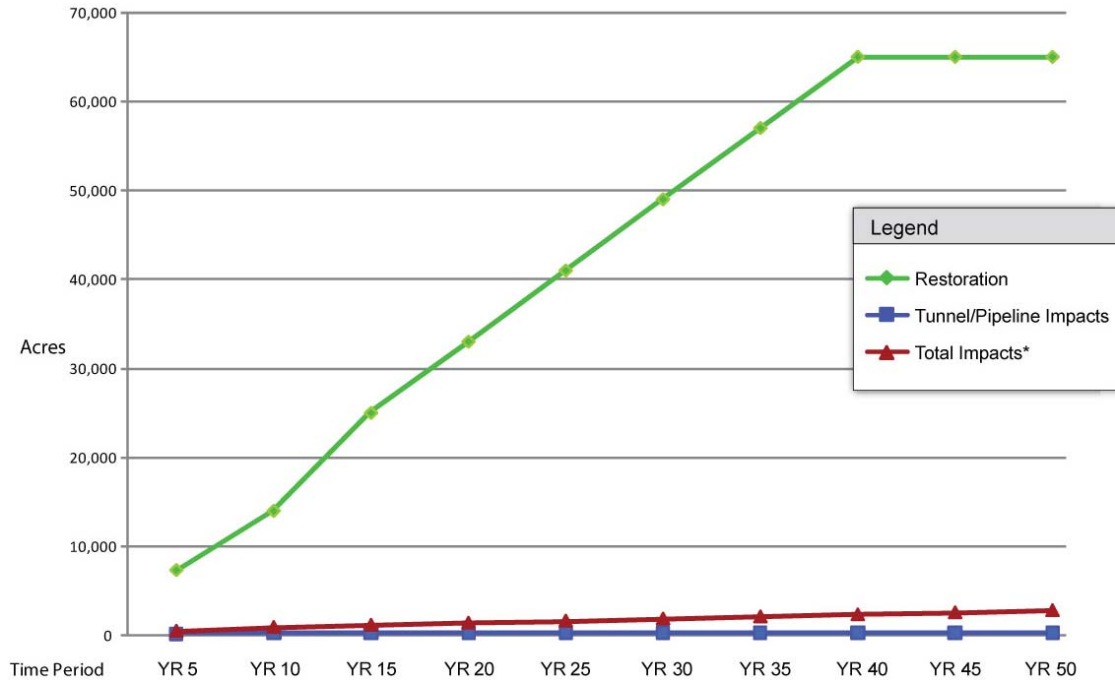
8 **6.1.2.1 CM4 ~~[CM10]~~: Tidal Habitat Restoration**

9 The implementation schedule for tidal habitat restoration actions is based on the assumption that
10 site acquisition, planning, and regulatory compliance related activities are initiated prior to
11 BDCP authorization for first 7,000 acres of tidal habitat to be restored in the near-term
12 implementation period. These initial restoration actions could, therefore, be constructed
13 immediately following BDCP authorization. These initial restoration actions are expected to
14 require less time to acquire and permit because they are assumed to be implemented on sites that
15 will be readily available to the [Implementing Entity Implementation Office](#) (e.g., state and federal
16 owned lands). The schedules for implementation of subsequent tidal habitat restoration actions
17 are based on the assumption that 5 years are required for all the elements of restoration. It is
18 anticipated that most or all of tidal habitat restored during the near-term implementation period
19 will be restored in the Cache Slough Complex, Suisun Marsh, and West Delta areas.

20 Figure 6-7 shows the timing of adverse effects of construction activities on existing tidal habitats
21 in relation to when tidal habitat restoration actions are implemented. The implementation
22 schedule assumes that monitoring and management of restored tidal habitats will occur over the
23 remainder of the term of the BDCP following completion of each restoration increment as
24 described in Conservation Measure CM11: ~~Enhance and Manage Preserved~~ Natural
25 Communities [Enhancement and Management](#).

26 The tidal habitat restoration conservation measure provides for the restoration of varying
27 amounts of subtidal aquatic, tidal mudflat, and tidal marsh habitat over time, depending on
28 location and restoration design within the Plan Area. Figure 6-8 presents reasonable
29 representations of how restored tidal habitat may develop over time within 1,000 acre conceptual
30 restoration sites at Suisun Marsh, the Cache Slough Complex, and the south Delta. The habitat
31 functions supported for covered species will also change over time as marsh vegetation
32 composition, structure, and density and tidal channels evolve over time.

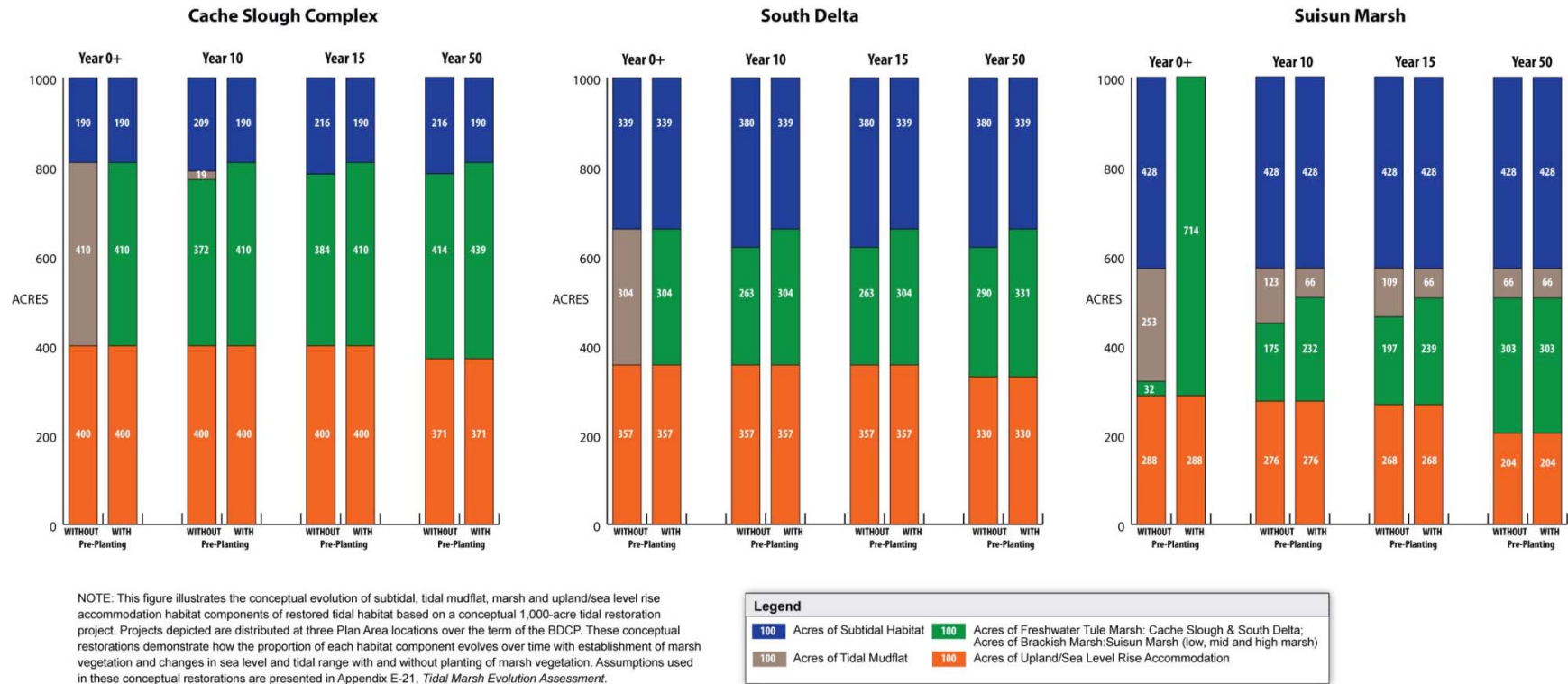
33



*Total impacts include all adverse effects of implementing BDCP actions (e.g., tunnel/pipeline facilities, tidal habitat restoration, levee setbacks for new floodplain, etc.).

1

Figure 6-7. Tidal Habitat Restoration versus Permanent Impacts



NOTE: This figure illustrates the conceptual evolution of subtidal, tidal mudflat, marsh and upland/sea level rise accommodation habitat components of restored tidal habitat based on a conceptual 1,000-acre tidal restoration project. Projects depicted are distributed at three Plan Area locations over the term of the BDCP. These conceptual restorations demonstrate how the proportion of each habitat component evolves over time with establishment of marsh vegetation and changes in sea level and tidal range with and without planting of marsh vegetation. Assumptions used in these conceptual restorations are presented in Appendix E-21, *Tidal Marsh Evolution Assessment*.

Figure 6-8. Conceptual Evolution of Restored Tidal Habitat with and without Pre-Planting of Marsh Vegetation at Three Plan Locations

1 **6.1.2.2 Conservation Measure CM5: Seasonally Inundated Floodplain**
2 **Restoration**

3 Restoration of seasonally inundated floodplain habitat will require extensive levee setbacks to
4 reconnect historical floodplain with Delta channels. The implementation schedule assumes that
5 at least 1,000 acres of floodplain will be restored by year 15 and that restoration of the remaining
6 9,000 acres of floodplain restoration will be completed in increments of 3,000 acres by years 25,
7 30, and 40, respectively. Each floodplain restoration increment will, on average, require five
8 years to identify potential floodplain restoration sites, coordinate planning with USACE, DWR
9 and other flood control agencies and Reclamation Districts, and conduct feasibility studies prior
10 to implementation. Following approval of floodplain restoration plans, an additional 5 years are
11 assumed to be required to acquire restoration lands, obtain any outstanding regulatory approvals
12 and permits, develop bid specifications and drawings, construct the new levees and floodplain,
13 and breach existing levees.

14 The implementation schedule assumes that monitoring and management of restored seasonally
15 inundated floodplains will occur over the remainder of the term of the BDCP following
16 completion of each restoration increment as described in CM11: Natural Communities
17 Enhancement and Management.

18 **6.1.2.3 Conservation Measure CM6: Channel Margin Habitat Enhancement**

19 The implementation schedule for enhancing channel margin habitat assumes that channel margin
20 enhancements will be completed in increments of 5 miles of channel (achieved at multiple sites
21 for a total of 5 miles of channel margin length) by years 10, 20, 25, and 30, respectively. Each
22 channel margin habitat enhancement increment will, on average, require 5 years to identify
23 potential channel margin enhancement sites, coordinate planning with USACE, DWR, and other
24 flood control agencies and Reclamation Districts, and conduct feasibility studies prior to
25 implementation. Following approval of enhancement plans, an additional five years are assumed
26 to be required to obtain any outstanding regulatory approvals and permits and develop bid
27 specifications and drawings and implement channel margin enhancements.

28 The implementation schedule assumes that monitoring and management of enhanced channel
29 margin habitats will occur over the remainder of the term of the BDCP following completion of
30 each restoration increment as described in Conservation Measure CM11: Natural Communities
31 Enhancement and Management.

32

6.1.2.4 Conservation Measure CM7-~~CM12~~: Riparian Habitat Restoration

Restoration of riparian habitat will be a component of tidal habitat restoration, seasonally inundated floodplain restoration, and channel margin habitat enhancement projects; therefore, the schedule for planning, site acquisition, environmental compliance, and implementation of riparian restoration actions is the same as the implementation schedule for those tidal, floodplain, and channel margin habitat restoration actions. The amount of riparian habitat restored varies greatly among the three restoration types. The preponderance of the 5,000 acres of riparian habitat to be restored will be performed in conjunction with seasonally inundated floodplain restoration and tidal habitat restoration in the south Delta in the early long-term and late long-term evaluation periods.

Figure 6-9 shows the timing of adverse effects of construction activities on existing riparian habitats in relation to when riparian restoration actions would be implemented. There is a temporal loss of habitat function as a result of the time lag between when riparian habitats are affected and when riparian habitat is restored and become functional as habitat for associated covered species (see Figure 6-9).

The implementation schedule assumes that monitoring and management of restored riparian habitat will occur over the remainder of the term of the BDCP following completion of each restoration increment as described in Conservation Measure CM11: Natural Communities Enhancement and Management. Figure 6-10 illustrates how restored riparian habitats are expected to evolve from riparian scrub to riparian forest and to develop habitat functions that support covered species over time. A description of methods used to identify riparian habitat maturation rates is provided in Appendix X [riparian forest maturation].

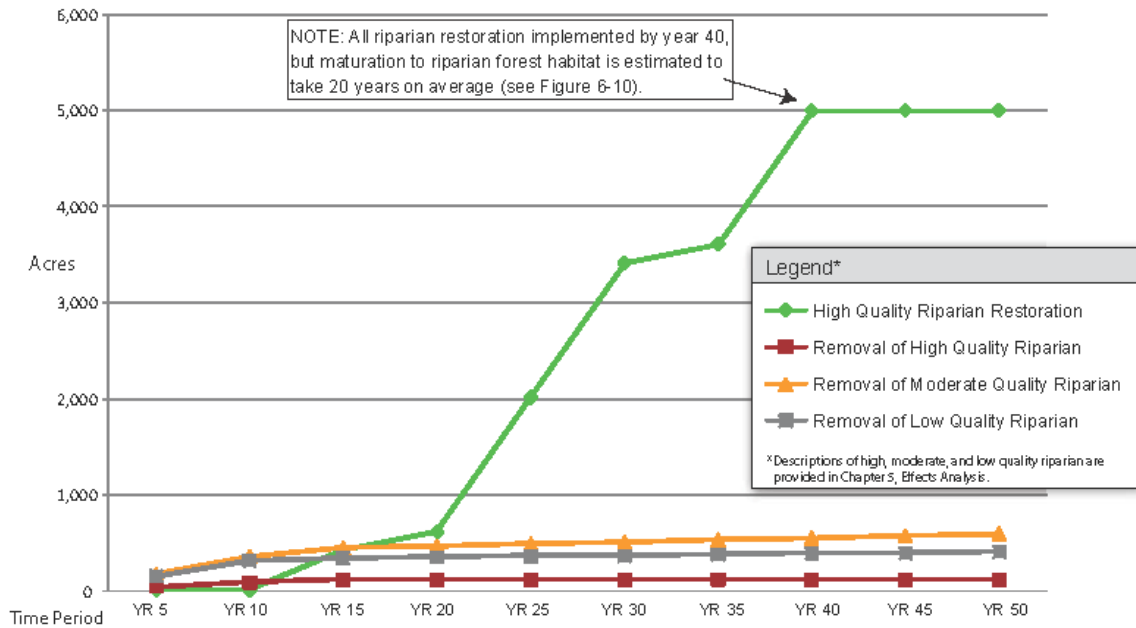
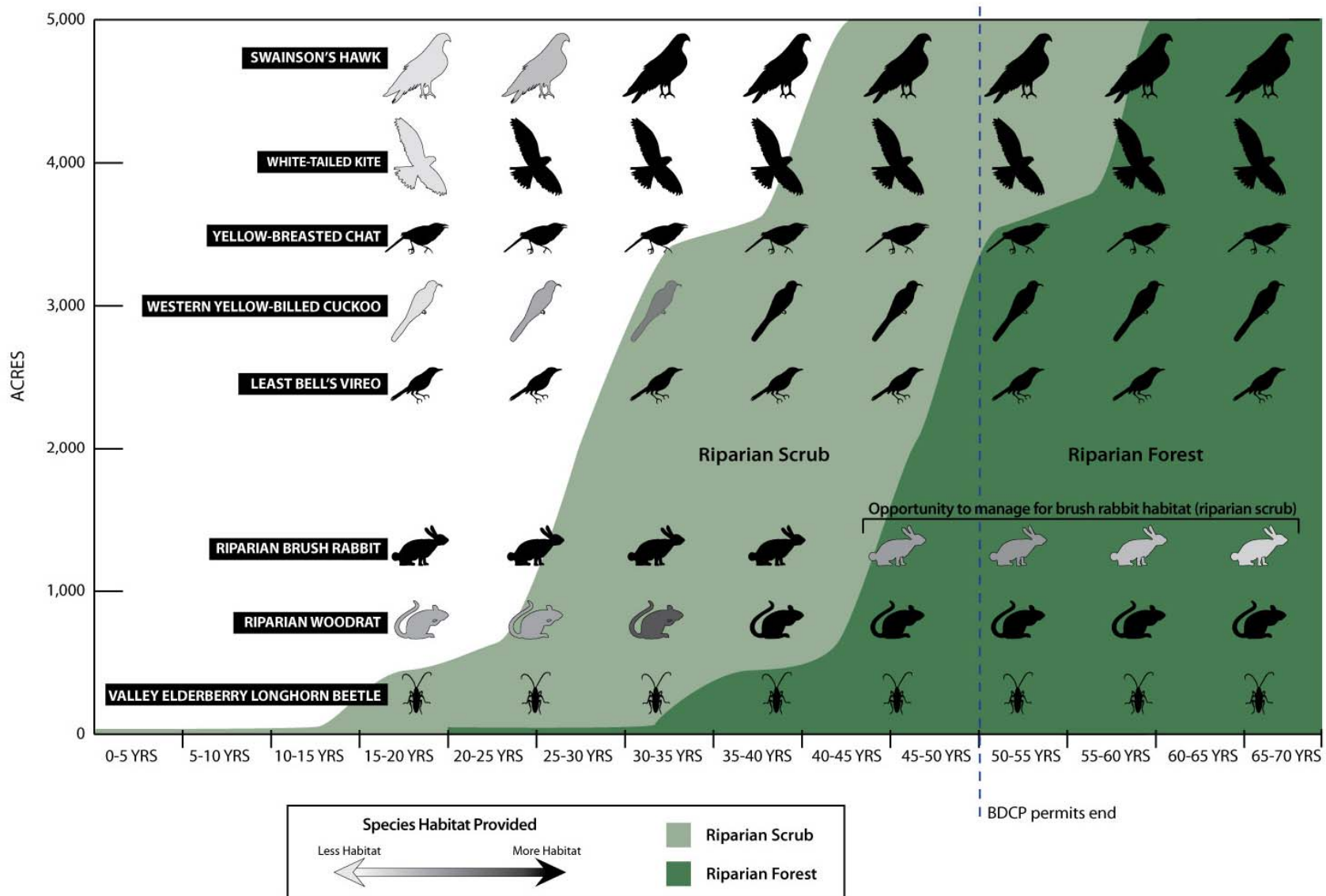


Figure 6-9. Cumulative Riparian Habitat Restoration versus Cumulative Permanent Removal

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2
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1

2 **Figure 6-10. Maturation and Succession of Restored Riparian Forest and Scrub and Use by Covered Wildlife Species**

1 | **6.1.2.5 Conservation Measure ~~CM8~~ ~~[CM17]~~: Grassland Communities**
2 | **Restoration**

3 The implementation schedule assumes that all grassland habitat restoration actions will be
4 implemented between years 3 and 30. A total of 1,000 acres of grassland will be restored in the
5 near-term implementation period, 250 acres in the early long-term implementation period, and
6 750 acres in the late long-term implementation period. The implementation schedule assumes
7 that site acquisition, planning, and regulatory compliance related activities for the first 250 acres
8 of grassland restoration to be completed in year 3 is initiated in the first year following BDCP
9 authorization and requires a total of 2 years to complete those implementation elements. All
10 subsequent restoration increments also require a 2 year period to complete site acquisition,
11 planning, and regulatory compliance prior to implementing restoration actions.

12 Figure 6-5 shows the timing of adverse effects of BDCP activities on existing grassland habitats
13 in relation to when grassland restoration actions are implemented. The implementation schedule
14 assumes that monitoring and management of restored grassland habitat will occur over the
15 remainder of the term of the BDCP following completion of each restoration increment as
16 described in Conservation Measure CM11: ~~Enhance and Manage Preserved~~ Natural
17 Communities [Enhancement and Management](#).

18 | **6.1.2.6 Conservation Measure ~~CM9~~ ~~[CM16]~~: Vernal Pool Complex ~~Terrain~~**
19 | **Restoration**

20 The implementation schedule assumes that all vernal pool complex habitat restoration actions
21 will be implemented between years 2 and 15. A total of 116 acres of vernal pool complex will
22 be restored in the near-term implementation period, 42 acres in the early long-term
23 implementation period, and 42 acres in the late long-term implementation period. The
24 implementation schedule assumes that site acquisition, planning, and regulatory compliance
25 related activities for the first 58 acres of vernal pool complex restoration to be completed in year
26 2 is initiated before BDCP authorization and requires a total of 3 years to complete those
27 implementation elements. All subsequent restoration increments also require a 3 year period to
28 complete site acquisition, planning, and regulatory compliance prior to implementing restoration
29 actions.

30 Figure 6-3 shows the timing of adverse effects of BDCP activities on existing vernal pool
31 complex habitats in relation to when vernal pool complex restoration actions are implemented.
32 The implementation schedule assumes that monitoring and management of restored vernal pool
33 complex will occur over the remainder of the term of the BDCP following completion of each
34 restoration increment as described in Conservation Measure CM11: ~~Enhance and Manage~~
35 ~~Preserved~~ Natural Communities [Enhancement and Management](#).

6.1.2.7 **Conservation Measure CM10-~~CM15~~: Nontidal Marsh Restoration**

The implementation schedule assumes that all nontidal freshwater marsh restoration actions will be completed by year 9 in the near-term implementation period. The restored nontidal freshwater marsh will be designed specifically to support giant garter snake habitat and would be completed in the near-term implementation period to provide benefits for this endangered species as early as practicable. The implementation schedule assumes that site acquisition, planning, and regulatory compliance related activities for each 100 acres of restoration requires 2 years to complete with the restoration actions being completed in the third year.

The implementation schedule assumes that monitoring and management of restored nontidal freshwater marsh will occur over the remainder of the term of the BDCP following completion of each restoration increment as described in Conservation Measure CM11: ~~Enhance and Manage Preserved~~-Natural Communities Enhancement and Management.

6.1.2.8 **Conservation Measure CM11-~~CM19~~: ~~Enhance and Manage Preserved~~: Natural Communities Enhancement and Management**

This conservation measure applies to all BDCP protected and restored habitats and is implemented at the time each parcel of land is acquired for the BDCP conservation lands system. Within two years of acquisition of conservation land parcels, the Management Entity Implementation Office will conduct surveys to collect the information necessary to assess the ecological condition and function of conserved species habitats and supporting ecosystem processes (note that such surveys would be in addition to due-diligence biological and physical surveys conducted prior to site acquisitions, see Chapter 3, *Conservation Strategy*). Based on results of the assessment, the Management Entity Implementation Office will develop management plans. These management plans may be prepared for specific parcels or for multiple preserved parcels within a specified geographic area that describe habitat enhancement and management actions necessary to achieve the biological objectives established for the preserve lands addressed by each plan. Subsequent habitat enhancement and management actions will be implemented in accordance with the preserve-specific habitat enhancement and management schedule for each plan.

6.1.2.9 **Conservation Measure CM12-~~CM8~~: Methylmercury Management**

This conservation measure provides for specific tidal habitat restoration design elements to reduce the potential for methylation of mercury and/or its bioavailability in tidal habitats. Consequently, this conservation measure is implemented as part of the tidal habitat restoration design schedule indicated in Figure 6-1.

6.1.2.10 **Conservation Measure CM13-~~CM9~~: Nonnative Aquatic Vegetation Control**

This conservation measure provides for control of nonnative aquatic vegetation in subtidal habitats restored as a component of BDCP tidal habitat restoration actions. The implementation

1 schedule assumes that non-native aquatic vegetation control actions will be required at each tidal
2 habitat restoration site 3 years following the restoration. Because current nonnative aquatic
3 vegetation control methods are dependent on the use of herbicides, the implementation schedule
4 assumes 3 years to complete planning and environmental compliance for the first tidal habitat
5 restoration to be completed in year 2. Thereafter, the schedule assumes that planning and
6 environmental compliance processes will be streamlined, requiring no more than 2 years to
7 complete, and run concurrent with planning and compliance elements conducted for each of the
8 subsequent tidal habitat restoration actions.

9 | **6.1.3 Species-Specific Level Other Stressors Conservation** 10 | **Measures**

11 | **6.1.3.1 Conservation Measure CM14 ~~[CM2]~~: Stockton Deep Water Ship** 12 | **Channel Dissolved Oxygen Levels**

13 The implementation schedule assumes the current Stockton Deep Water Ship Channel dissolved
14 oxygen diffuser demonstration project will be implemented immediately following BDCP
15 authorization (i.e., continued operation). The implementation schedule assumes the dissolved
16 oxygen diffuser technology will need to be modified to provide substantial biological benefits for
17 the covered fish species. The implementation schedule also assumes completion of a
18 demonstration study by at the end of year 1 that will provide guidance on how to modify the
19 diffusers. Additional planning, coordination, environmental compliance, and construction is
20 assumed to require an additional 2 years and, assuming modifications are necessary, the
21 modified dissolved oxygen diffusion facilities becoming operational in Year 4 with operations
22 continuing over the term of the BDCP.

23 | **6.1.3.2 Conservation Measure CM15 ~~[CM6]~~: Predator Control**

24 The implementation schedule assumes that predator control actions to remove artificial structures
25 and abandoned boats from Delta channels will require 2 years of planning and environmental
26 compliance, with actions being implemented in year 3. Authorizations to implement actions to
27 remove non-native predatory fish from specific locations are assumed to be completed in the first
28 year following BDCP authorization and implemented in year 3. Following the first year of their
29 implementation, predator control actions are assumed to be implemented annually over the term
30 of BDCP.

31 | **6.1.3.3 Conservation Measure CM16 ~~[CM7]~~: Non-Physical Fish Barriers**

32 The existing non-physical fish barrier serving as a pilot project at the Head of Old River is
33 assumed to continue to be operated immediately following BDCP implementation. Planning and
34 compliance activities for placing barriers at the Delta Cross Channel and Georgiana Slough are
35 assumed to be initiated in the year following BDCP approval, requiring 2 years to complete,
36 followed by construction and operation in the third year. The schedule assumes that up to four
37 additional barriers may be constructed at operated if studies indicate substantial benefits for the

1 covered fish species. The implementation schedule assumes 2 years of studies will be conducted
2 following BDCP authorization and, assuming the studies indicate the placement of barriers will
3 be beneficial, that 2 years will be required for planning and compliance and 1 year for
4 construction as described above for the initial barriers.

5 | **6.1.3.4 Conservation Measure CM17—[CM4]: Hatchery and Genetic** 6 **Management Plans**

7 The implementation schedule assumes that preparation of each of the 12 hatchery and genetic
8 management plans is initiated in the year following BDCP authorization and are all completed at
9 the end of the third year of implementation. Because preparation of some plans will have been
10 initiated before BDCP authorization, some of the plans may be completed earlier. The schedule
11 subsequently assumes each plan will be updated every 5 years, requiring 1 year to complete [each](#)
12 [update](#). Staff support for implementing and updating plans is assumed to be implemented the
13 year that the initial hatchery and genetic management plans are completed.

14 | **6.1.3.5 Conservation Measure CM18 [CM3]: Illegal Harvest**

15 The implementation schedule assumes that planning and coordination with DFG and the existing
16 Delta-Bay Enhanced Enforcement Program (DBEEP) necessary to expand DBEEP staffing will
17 immediately following BDCP authorization such that the conservation measure is implemented
18 by the end of year 2. The funding for enhanced staffing support is assumed to be maintained
19 over the term of the BDCP.

20 | **6.1.3.6 Conservation Measure CM19 [CM5]: Conservation Hatcheries**

21 The implementation schedule assumes that site acquisition, planning, and environmental
22 compliance necessary for construction of the new USFWS conservation hatchery facility will
23 require 3 years following BDCP authorization; an additional 2 years would be necessary for
24 construction; and the facility would become operational in year 6. Planning and environmental
25 compliance necessary for the expansion of the UC Davis conservation hatchery are assumed to
26 be initiated before BDCP authorization such that the facility expansion is completed by the end
27 of the second year of BDCP implementation, becoming operational in the year 3 of
28 implementation. Both the USFWS and UC Davis facilities are assumed to be operated over the
29 term of the BDCP once they have become operational.

30 **6.2 COMPLIANCE AND PROGRESS REPORTING**

31 | The BDCP ~~Implementing Entity~~ [Implementation Office](#) will ~~regularly~~ prepare, [on a regular basis](#),
32 planning documents and implementation reports to demonstrate compliance with the Plan and its
33 associated authorizations and to facilitate interagency coordination, scientific exchange, and
34 public outreach. Under ESA, habitat conservation plans are required to establish monitoring

1 | programs to assess the effects of plan implementation on covered species¹ ~~and.~~² In addition, the
 2 | USFWS/NMFS Five-Point Policy³ recommends that such plans provide for annual reporting
 3 | ~~of on matters related to~~ compliance with permit terms and conditions. Similarly, the NCCPA
 4 | requires that implementation agreements include “provisions for periodic reporting to wildlife
 5 | agencies and the public for purposes of information and evaluation of plan progress.”⁴ The
 6 | ~~Implementing Entity~~Implementation Office will, over the term of the BDCP, submit various
 7 | reports and plans to the fish and wildlife agencies that serve the following purposes:

- 8 | • Provide the necessary data and information to demonstrate that the BDCP is being
 9 | properly implemented;
- 10 | • ~~Publish monitoring results and analyses to report~~Identify the effect of plan
 11 | implementation on covered species and on the effectiveness of the Conservation Strategy
 12 | at advancing the BDCP biological goals and objectives;
- 13 | • Document actions taken under the ~~process and results of~~ adaptive management (program
 14 | (e.g., process, decisions, changes, results, corrective actions));
- 15 | • Disclose issues and challenges concerning plan implementation, and identify potential
 16 | modifications or amendments to the ~~Conservation Strategy~~Plan that would increase the
 17 | likelihood of success;
- 18 | • ~~Provide plans~~Describe schedule and ~~budgets for cost related to~~ the implementation of
 19 | actions over one-year and five-year timeframes; ~~and.~~
- 20 | • ~~Provide adequate information to the Delta Stewardship Council on matters relating to the~~
 21 | ~~implementation of the BDCP, including the status of monitoring programs and adaptive~~
 22 | ~~management.~~

23 | Throughout the course of plan implementation, the ~~Implementing Entity~~Implementation Office
 24 | will prepare and submit to the fish and wildlife agencies the following documents, as described
 25 | in this chapter:

- 26 | • Annual Workplan ~~&and~~ Budget;
- 27 | • Annual Water Operations ~~Strategy and Monitoring and Research~~ Plan;
- 28 | • Annual Progress Report;
- 29 | • Annual Water Operations Report;
- 30 | • Five-Year Comprehensive Review; and
- 31 | • Five-Year Implementation Plan.

¹ 50 C.F.R. § 17.22(b)(1) and 50 C.F.R. § 222.307(b)(5)

² 50 C.F.R. § 17.22(b)(3) and 50 C.F.R. § 222.307(b)(5)

³ Five-Point Policy for HCPs, 65 FR 106, June 1, 2000

⁴ California Fish & Game Code § 2820(b)(7)

1 | The ~~Implementing Entity~~Implementation Office will work in partnership with DWR,
2 | Reclamation, USFWS, NMFS, DFG, the BDCP Stakeholder Committee, the Delta Stewardship
3 | Council, and the Delta Science Program in the development of these planning and reporting
4 | documents. The totality of these documents will enable the range of interested public and private
5 | stakeholders, and the general public, to assess on an ongoing basis the progress and performance
6 | of the BDCP toward meeting the biological goals and objectives of the Plan and make informed
7 | recommendations to the ~~Implementing Entity~~Implementation Office regarding matters relating to
8 | plan implementation. To accommodate access to this information, these reports will be available
9 | to the public and posted on the BDCP website.

10 | 6.2.1 Annual Workplan ~~&and~~ Budget

11 | On an annual basis⁵, the ~~Implementing Entity~~Implementation Office will prepare a workplan and
12 | budget for the upcoming implementation year. The workplan will identify planned actions for
13 | the implementation of conservation measures and the monitoring, research, and adaptive
14 | management programs. The budget will ~~identify planned~~set out the anticipated expenditures and
15 | ~~identify the~~ sources of funding for those expenditures. A final ~~workplan~~Annual Workplan and
16 | ~~budget~~Budget will be completed no later than one month prior to the beginning of the
17 | implementation year. A draft of the ~~annual workplan~~Annual Workplan and ~~budget~~Budget will
18 | be provided to ~~DWR, Reclamation, USFWS, NMFS, DFG,~~BDCP Implementation Board and the
19 | BDCP Stakeholder Committee for review no later than one month prior to the due date for the
20 | final plan.

21 | At a minimum, the ~~workplan~~Annual Workplan and ~~budget~~Budget will contain the following
22 | information:

- 23 | • A description of the planned actions ~~(including anticipated adaptive management~~
24 | ~~changes)~~ to implement conservation measures (for water operations conservation
25 | measures, see Section 6.2.2 *Water Operations Plan*) and the entities that will carry out
26 | the actions;
- 27 | • A description of the planned monitoring actions and the entities that will implement those
28 | actions;
- 29 | • A description of the anticipated research studies to be undertaken, and the entities that
30 | will conduct the studies;
- 31 | • A budget reflecting the costs of implementing the planned actions, including a line item
32 | for each specific action; ~~and~~
- 33 | • ~~A summary of the projected and actual budgets for all prior implementation years; and~~

⁵ The ~~Implementing Entity~~Implementation Office will decide how the planning year will be bounded (e.g., calendar year, federal fiscal year, state fiscal year; or water year).

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

6.2.2 Annual Water Operations ~~Strategy and Monitoring and Research Plan~~

The ~~Implementing Entity~~Implementation Office will work closely with CVP and SWP operation managers to ensure the proper implementation of operations conservation measures. DWR and Reclamation will retain their authority and obligation to determine overall water project operations consistent with their various permit terms and conditions and other applicable requirements. DWR and Reclamation will conduct Delta operations in close coordination with DFG, FWS and NMFS and in accordance with permitted operating criteria, and consistent with the following aspects.

~~Annual Water Operations Strategy and Monitoring and Research Plan.~~ No later than December 15 each year, DWR, Reclamation, DFG, FWS, and NMFS will develop a Water Operations ~~Strategy and Monitoring and Research Plan~~Plan, including provisions for seasonal variations, that identifies:

- Operations priorities for both fishery and water supply for the coming year;
- Expected operations or “most likely” criteria that will guide operations ~~criteria~~ within the real-time operations ranges identified~~established~~ in the permitted~~water~~ operations criteria~~conservation measures~~; and
- Monitoring, data collection, research, and adaptive management experiments associated with that water year’s water operations.

~~The BDCP Chief Scientist will seek independent science input on an initial draft of the Annual Water Operations Strategy and Monitoring and Research Plan will be submitted for review to an independent science panel in an open, public forum. The independent science panel will review the draft plan and provide a comprehensive written review of the draft plan.~~

The Annual Water Operations ~~Strategy and Monitoring and Research Plan~~ will include the first of three Seasonal Operations Strategies (~~see below~~).

~~Seasonal Operations Strategies.~~ No later than December 31, March 31, and July 31 of each year, DFG, FWS, and NMFS will seasonally evaluate then current hydrologic and fishery information and will update the expected operating criteria within the real-time operations range, as necessary. Based on this information, DWR and Reclamation will prepare Seasonal Operations Strategies that update their operating forecasts and expected water supply projections. The Seasonal Operations Strategies documents will be completed no later than January 15, April 15, and August 15.

~~Real-Time Operations Response Team.~~ DFG, FWS and NMFS will continuously monitor

~~Delta conditions and, with input from DWR and Reclamation, will provide real time operating criteria to DWR and Reclamation within the operating range described as part of the permitted water operations criteria and the Annual Water Operations Strategy and Monitoring and Research Plan. Real-time water operations criteria will be designed to increase fish benefits while meeting the water supply target in the Annual Water Operations Strategy and Monitoring and Research Plan as revised in the Seasonal Operations Strategies.~~

6.2.3 Annual Progress Report

At the end of each implementation year⁶, the ~~Implementing Entity~~ Implementation Office will prepare an Annual Progress Report. These reports will provide a summary of the activities carried out during the previous implementation years. The Annual Report, for instance, will include a description and accounting of land acquisitions and habitat restoration activities, and ~~detail an update on~~ the status of the monitoring and ~~adaptive management~~ research programs, including a discussion of the synthesis and use of data and information and the identification of important trends. Annual reports will be completed within ~~3~~ three months of the close of the reporting year, which will provide sufficient time to compile data and complete analyses.

~~At minimum, the~~ The annual reports will ~~contain~~ include the following elements:

1. Documentation of the implementation of habitat conservation measures (i.e., protection/ enhancement/ creation/ restoration) in relationship to the implementation schedule set out in Section 6.1, *Plan Implementation Schedule*, including:
 - a) A summary of the completed or in-progress habitat conservation ~~action~~ actions, including information related to type, extent, and location, ~~and species associations. The of restored, enhanced, and existing protected habitats and natural communities. This summary will include~~ identify the habitat lands acquired and the restoration and enhancements actions undertaken over the year, and a description of the relationship between the action and specific conservation measures and the entity(ies) responsible for its implementation. If the action involves the conveyance of a conservation easement, the report will identify the recipient of the easement. covered species that are expected to benefit from each action. The report will document, on an annual and cumulative basis, the habitat conservation actions that have been carried out.
 - b) ~~The extent to which each conservation action is expected to advance applicable ecosystem, natural community, and species-specific biological objectives.~~
 - c) ~~A description of the type, extent, and location of avoidance and minimization measures implemented to address potential impacts of Covered Activities on covered species during the reporting period.~~

⁶ The Implementing Entity will decide how the implementation year will be bounded (e.g., calendar year, federal fiscal year, state fiscal year; or water year).

1 ~~d) —A summary of the cumulative impacts of all land management activities~~
2 ~~undertaken on BDCP Covered Activities on covered natural communities and~~
3 ~~covered species habitats and the habitat mitigation implemented to address these~~
4 ~~impacts.~~

5 ~~e)b) A summary of the relationship of the cumulative impacts on covered natural~~
6 ~~communities and covered species habitats to the cumulative implementation of~~
7 ~~conservation measures for the same resourcesconservation lands, including a~~
8 ~~description of how implementation of conservation measures is roughly~~
9 ~~proportional in time and extent to the impacts on covered species and their~~
10 ~~habitatthe management issues facing the Implementation Office at each preserve~~
11 ~~unit.~~

12 ~~f) —The proportion of completion of each habitat conservation measure;~~

13 ~~g)c) Identification of habitat protection, restoration, or enhancement actions that have~~
14 ~~not been implemented in accordance the implementation schedule (i.e., actions~~
15 ~~that are either behind or ahead of the implementation schedule) and an~~
16 ~~explanation for the deviation from the schedule.~~

17 2. A summary of the water operations conservation measures implemented during the prior
18 year (a detailed description of water operations will be included in the Annual Water
19 Operations Report [see section 6.2.4]), including:

20 a) Documentation of compliance with the water operation criteria in effect during
21 the reporting period.

22 b) Documentation and rationale for any deviations from the water operation criteria
23 in effect during the reporting period.

24 c) Documentation of “real time” operational decisions.

25 d) Documentation of Fremont Weir operations, including:

26 i) Periods of operation.

27 ii) Flow volume by operation period.

28 iii) Documentation and rationale for any deviations from the Fremont Weir
29 operation ranges in effect during the reporting period.

30 3. A description of the status of ~~covered~~ natural communities, ~~covered habitats~~ and covered
31 species and their habitats, including:

32 a) An assessment of nature and extent of the impacts of covered activities on
33 covered natural communities and covered species. The report will also contain:

- i) The entity that carried out the covered activity.
 - ii) The location of habitat permanently or temporarily disturbed.
 - iii) A description of the covered activity that disturbed natural communities and covered species habitats.
- b) A description of the type, extent, and location of measures implemented to avoid and minimize the potential impacts of Covered Activities on covered species during the reporting period.
 - c) A summary of the overall level of impacts on BDCP Covered Activities on covered natural communities and covered species habitats and a description of how implementation of conservation measures is roughly proportional in time and extent to the impacts on covered species and their habitat.
 - b)d) The status of the BDCP conservation lands system assembly with respect to authorized take/habitat loss, and an assessment of the progress toward all acquisition goals, including those related to land-cover types, landscape linkages, covered plant populations, and wetland protection. This assessment will include evaluation of compliance with the reserve design and assembly principles as described in Chapter 3, *Conservation Strategy*.
 - ~~e) A summary of all land management activities undertaken on BDCP conservation lands and a discussion of the management issues facing the Implementing Entity at each preserve unit.~~
4. An evaluation of the results of monitoring and research activities, including:
 - a) A description of the ecosystem/landscape-level, natural-community level and species level monitoring activities (as described in Section 3.6, *Monitoring and Research Plan* or in monitoring plans subsequently developed during implementation) undertaken during the reporting period and a summary of monitoring results with appropriate assessment of population trends and status of covered species.
 - ~~b) An assessment of the appropriateness of performance indicators and metrics based on results of biological effectiveness monitoring and recommended changes to performance indicators and metrics.~~
 - ~~c) A description and assessment of the efficacy of the monitoring undertaken during the reporting period, and a description of any remedial actions (e.g., adaptive management changes to monitoring protocols) undertaken during the reporting period.~~

1 ~~d)b)~~ A description of all BDCP directed research conducted during the reporting
2 period, a summary of research results to date, ~~and a description of how these~~
3 ~~results were integrated into the adaptive management and monitoring programs.~~

4 ~~e)~~ ~~A presentation of the conceptual ecological models developed to date and any~~
5 ~~changes to those models as a result of new information and research findings.~~

6 5. A description of adaptive management activities, including:

7 a) A description of the adaptive management decisions made during the reporting
8 period, including how existing information was used to guide these decisions and
9 the rationale for the action.

10 b) A description of the use of independent scientists or other experts in the adaptive
11 management decision making processes.

12 c) A description of adopted and recommended changes to the operating conservation
13 program based on interpretation of monitoring results and research findings.

14 ~~6.~~ ~~A financial report that details the following:~~

15 ~~a) Funds describing funds provided to the Implementing Entity by source.~~

16 ~~b) Expenditures, set out by the cost categories described in Chapter 8,~~
17 ~~Implementation *Costs* Office by source; annual and *Funding Sources*.~~

18 ~~c) Funding received and expended cumulative expenditures by cost category from~~
19 ~~the time of BDCP authorization.~~

20 ~~d) Economic assumptions on which Plan implementation costs were based relative to~~
21 ~~actual costs.~~

22 ~~7.6.~~ ~~Any; deviations in expenditures from the annual budget; and other relevant information~~
23 ~~as appropriate.~~

24 ~~Transfers of funds between cost categories and the rationale for such transfers (e.g.,~~
25 ~~transfer of funds initially associated with a specific conservation measure to support~~
26 ~~another conservation measure(s) based on decisions made through the adaptive~~
27 ~~management process to reduce or discontinue implementation of an ineffective~~
28 ~~conservation measure).~~

29 ~~8.7.~~ A description of actions implemented or pending to respond to changed circumstances,
30 including:

31 a) A description of the changed circumstance and its effects on covered species and
32 natural communities.

- 1 b) A description of the actions taken to address the changed circumstance and the
2 effectiveness of those actions, including the outcomes of actions to address
3 changed circumstances from earlier years.

4 ~~9.8.~~A summary of any administrative changes, minor modifications, or major amendments to
5 the Plan proposed or approved during the reporting period.

6 **6.2.4 Annual Water Operations Report**

7 No later than November 15 of each year, DWR and Reclamation, with participation from DFG,
8 FWS and NMFS, will prepare a Water Operations Report on the prior water year's (October 1 to
9 September 30) operational effects on covered species. The report will include:

- 10 • A summary of the prior year's operations, including a comparison of the actual
11 operations with planned operations;
- 12 • A discussion of new data collected and information from new scientific research;
- 13 • Evaluation of the effectiveness of actions for covered fish species and ecological
14 processes, including the responses to real-time operational changes;
- 15 • Description of the extent to which water supply projections in the prior year's Annual and
16 Seasonal Operations Strategies were met, and if not, identification factors affecting the
17 ability to meet projections;
- 18 • Consideration of whether any protective actions should be altered in light of new
19 information, an inability to meet fishery protection or water supply reliability targets, ~~or~~
20 ~~to address changed circumstances.~~

21 The ~~agencies~~Chief Scientist will ~~provide a seek independent science input on the~~ draft of the
22 Water Operations Report ~~for review to an independent science panel in an open, public forum.~~
23 ~~The independent science panel will review the report and provide a comprehensive written~~
24 ~~review of the report.~~

25 **6.2.5 Five-Year Comprehensive Review**

26 The implementation of the BDCP will ~~undergo~~ be subject to a comprehensive review every five
27 years throughout the term of the ~~plan~~Plan. As part of this review, the ~~Implementing~~
28 ~~Entity~~Implementation Office will prepare a report, which will be known as the Five-Year
29 Comprehensive Review, ~~memorializing that memorializes~~ the ~~finding~~findings of this review.

30 The objectives of the Five-Year Comprehensive Review are ~~threefold~~as follows:

- 31 • To provide an overview of the status of plan implementation, including implementation
32 of conservation measures and the progress made toward meeting biological goals and
33 objectives;

- 1 • To assess covered species trends and habitat conditions associated with BDCP
2 implementation relative to overall trends and conditions for covered species and natural
3 communities; [based on all relevant information \(i.e., not limited to BDCP data and](#)
4 [reports\)](#);
- 5 • To evaluate the relevance of the various monitoring actions and research projects to the
6 implementation of conservation measures; and
- 7 • To evaluate changes that have been made in the implementation of the BDCP and set out
8 potential modifications that may be advisable in the future based on new information and
9 lessons learned.

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

17 In contrast to the annual reports, the Five-Year Comprehensive Reviews will require significant
18 analysis and synthesis of data collected over time, utilizing data and information compiled from
19 various sources. Five-Year Comprehensive Reviews will include critical evaluations of the
20 assumptions and model outputs upon which the BDCP has been based and of the efficacy of the
21 conservation measures in light of monitoring data and the analysis and synthesis of information
22 through the adaptive management process.

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

30 The Five-Year Comprehensive Review will be developed in close coordination with the
31 Interagency Ecological Program (IEP), Delta Science Program, and Independent Science Board.
32 The [Implementing Entity Implementation Office](#) will work with the IEP Lead Scientist and Chief
33 Scientist for the Delta Science Program to consolidate data and information from a range of
34 sources. The Review may be scheduled to coincide with the Delta Science Conference to
35 capitalize on the gathering of the community of scientists engaged in Delta issues.

1 | The ~~Implementing Entity~~Implementation Office will post the Five-Year Comprehensive Review
2 | on the BDCP website and include a summary of the Review to assist stakeholders and the public
3 | in their review of the report.

4 | **6.2.6 Five Year Implementation Plan**

5 | Based on the Five-Year Comprehensive Review, the ~~Implementing Entity~~Implementation Office
6 | will prepare a Five-Year Implementation Plan ~~for that covers~~ the ~~implementation of the BDCP~~
7 | ~~over the following upcoming~~ five years. In contrast to the Annual Workplan and Budget, the
8 | Five-Year Implementation Plan will ~~provide a broad overview of~~ focus more broadly on
9 | potential future conservation actions and ~~will focus on proposed~~ adaptive management changes
10 | ~~and,~~ other potential modifications to ~~BDCP implementation~~the BDCP, and on the significance of
11 | ecological trends. At a minimum, the Five-Year Implementation Plan will contain the following
12 | information:

- 13 | • Description of adaptive management changes to BDCP implementation of conservation
14 | measures, monitoring, research, and program administration;
- 15 | • Modifications, if necessary, to biological goals and objectives;
- 16 | • ~~Identification of any changes to the BDCP that would require amendments to the permits~~
17 | ~~or other authorizations;~~
- 18 | • ~~Summary of the planned actions and schedule to implement conservation measures;~~
- 19 | • Description of the long-term and system-wide monitoring actions and anticipated
20 | research studies; and
- 21 | • ~~Summary budget projection reflecting the costs of implementing the planned actions.~~

22 | ~~The Implementing Entity will receive and consider the comments on an initial draft of the Five-~~
23 | ~~Year Plan from the BDCP Stakeholder Committee, Interagency Ecological Program, Delta~~
24 | ~~Science Program, and Independent Science Board prior to submitting the plan to the DWR,~~
25 | ~~USBR, USFWS, NMFS, and DFG for approval. All five agencies must agree on any adaptive~~
26 | ~~management adjustments, and any adjustments must be within the adaptive range ranges~~
27 | ~~described in the BDCP.~~

28 | In years when Five-Year Plans are prepared, the Annual Workplan and Budget may be included
29 | within or prepared separately from the Five-Year Plan, ~~but all of the requirements for the Annual~~
30 | ~~Workplan and Budget must be included.;~~

6.3 REGULATORY ASSURANCES AND CHANGED CIRCUMSTANCES AND UNFORESEEN CIRCUMSTANCES

6.3.1 Regulatory Assurances

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

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

6.3.1.1 Regulatory Assurances under the ESA - The No Surprises Rule

Under the No Surprises Rule,⁷ once an incidental take permit has been issued pursuant to an HCP, and its terms and conditions are being fully implemented, the federal government will not require additional conservation or mitigation measures, including land, water (including quantity and timing of delivery), money, or restrictions on the use of those resources.⁸ If the status of a species addressed under an HCP unexpectedly declines, the primary obligation for undertaking additional conservation measures rests with the federal government, other government agencies, or other non-federal landowners who have not yet developed HCPs. As explained by the federal fish and wildlife agencies:

“Once an HCP permit has been issued and its terms and conditions are being fully complied with, the permittee may remain secure regarding the agreed upon cost of conservation and mitigation. If the status of a species addressed under an HCP unexpectedly worsens because of unforeseen circumstances, the primary obligation for implementing additional conservation measures would be the responsibility of the

⁷ *Id.*⁷ 63 Fed. Reg. 8859 (Feb. 23, 1998)..

⁸⁸ *Id.* at 8868. The No Surprises rule was promulgated jointly by the Department of the Interior (Service) and the Department of Commerce (National Marine Fisheries Service).

1 *Federal government, other government agencies, and other non-Federal landowners who*
2 *have not yet developed an HCP.”⁹*

3 However, the federal fish and wildlife agencies may, in the event of unforeseen circumstances,
4 require additional measures provided they are limited to modifications within conserved habitat
5 areas or to the conservation plan’s operating conservation program for the affected species, and
6 that these measures do not involve additional financial commitments or resource restrictions
7 without the consent of the permittee. These assurances are provided to all HCP permittees that
8 properly implement their plans. ~~However, they are~~ The No Surprise Rule, however, does not
9 ~~available~~ apply to ~~federal agencies. As such, the Bureau of Reclamation~~ USBR, which will use
10 the BDCP as the basis for a biological assessment (BA) to support the issuance of
11 take authorizations from USFWS and NMFS pursuant to section 7 of the ESA for its actions in
12 the Delta, ~~will not received the benefits of the No Surprises Rule.~~

13 The assurances provided by the No Surprises rule, however, are not absolute and are tempered
14 by other regulatory provisions of the ESA. The “Permit Revocation” rule moderates the scope of
15 the No Surprises rule, providing that in instances where a species covered by an HCP is
16 threatened with extinction, assurances may be nullified and USFWS ~~and/or NMFS~~ may revoke
17 the HCP permit.¹⁰ The federal fish and wildlife agencies may exercise this authority even if a
18 permittee is in compliance with the terms and conditions of the permit, provided the permitted
19 activity would appreciably reduce the likelihood of the survival and recovery of the species in
20 the wild.¹¹

21 *[Note to Reviewers: Additional text will be added regarding the application of the No Surprises*
22 *rule to the various BDCP authorized entities]*

23 **6.3.1.2 Regulatory Assurances under the NCCPA**

24 Under the NCCPA, DFG provides assurances to permittees commensurate with the long-term
25 conservation measures and associated actions that will be implemented under the plan. In its
26 determination of the level and term of the assurances to be afforded a permittee, DFG takes into
27 account the conditions specific to the plan, including such factors as: the level and quality of
28 information regarding covered species and natural communities, the sufficiency and use of the
29 best available scientific information in the analysis of impacts on these resources, reliability of
30 mitigation strategies, and appropriateness of monitoring techniques, including the use of
31 centralized information to evaluate the effectiveness of the plan; the adequacy of funding
32 assurances; the range of foreseeable circumstances that are addressed by the plan; and the size
33 and duration of the plan.¹²

⁹ 63 FR *Id.* at 8867.

¹⁰ 50 C.F.R. § 17.22(b)(8) ~~[CHECK NMFS REGS]~~.

¹¹ 69 Fed. Reg. 71723, 71727 (December 10, 2004).

¹² DFG bases its determination of the level of assurances on multiple factors. See Fish and Game Code section 2820(f).

1 The assurances provided ~~by DFG pursuant to the~~ [entities receiving permits under the NCCPA to](#)
2 ~~the BDCP applicable permittees~~ will, at a minimum, ensure that if there are unforeseen
3 circumstances, no additional financial obligations or restrictions on the use of resources will be
4 required of the permittees without their consent. Specifically, the NCCPA directs that, ~~“If [i]f~~
5 there are unforeseen circumstances, additional land, water, or financial compensation or
6 additional restrictions on the use of land, water, or other natural resources shall not be required
7 without the consent of plan participants for a period of time specified in the implementation
8 agreement, unless [DFG] determines that the plan is not being implemented consistent with the
9 substantive terms of the implementation agreement.”¹³ However, like the provision ~~of in the~~ ESA
10 ~~regulation~~ [regulations](#), the NCCPA requires that DFG suspend or revoke a permit, in whole or in
11 part, if the continued take of a covered species would jeopardize its continued existence.

12 6.3.2 Changed Circumstances

13 Ecological conditions in the Delta are likely to change as a result of future events and
14 circumstances that may occur during the course of the implementation of the BDCP. The BDCP
15 identifies changes in circumstances that are reasonably foreseeable and that could adversely
16 affect species and natural communities covered by the plan, consistent with the “changed
17 circumstances” provisions of ESA regulations and in the NCCPA.¹⁴ To ensure successful
18 implementation of the BDCP conservation strategy, the plan further sets out measures designed
19 to respond to these anticipated future changes.

20 The changed circumstances provisions of the BDCP are intended to address reasonably
21 foreseeable events, both inside and outside of the Delta, that may impede or prevent the BDCP
22 from achieving ~~its the~~ biological ~~goals and objectives within benefit expected to result from the~~
23 [implementation of the conservation measures in](#) the Plan Area. The BDCP identifies a broad
24 range of potential changed circumstances, including events or conditions that may ~~cause~~
25 [population level declines in covered species limit the biological benefits of the conservation](#)
26 [measures](#), such as new invasive species and significant releases of pollutants, or ~~that may~~
27 [substantially degradethe substantial degradation of](#) habitat functions, ~~such as from~~ flooding ~~and/or~~
28 climate change.

29 Responses to the changed circumstances provided for in the BDCP will largely be developed and
30 implemented as part of the adaptive management program.¹⁵ For certain specified changed
31 circumstances, measures beyond the scope of the adaptive management program have been
32 developed, as described in this section. The responsive measures set out in the plan reflect

¹³ [Fish and Game Code § 2820\(f\)\(2\)](#).

¹⁴ USFWS and NMFS regulations define changed circumstances as “changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the [USFWS and NMFS] and that can be planned for...” (50 C.F.R. §17.3; 50 C.F.R §222.102). The NCCP Act defines changed circumstances as “...reasonably foreseeable circumstances that could affect a covered species or geographic area covered by the plan.” (Fish and Game Code §2805(c)).

¹⁵ See generally, U.S. Fish and Wildlife Service and National Marine Fisheries Service Habitat Conservation Planning Handbook, page 3-28 (November 1996).

1 approaches that are both practicable and roughly proportional to the impacts of covered activities
2 on covered species and habitat.

3 Changed circumstances provisions are not intended to remedy events or conditions that are
4 beyond the control of the permittees. Rather, these provisions are intended to protect the
5 ~~plan's~~Plan's operating conservation program in the face of such events. Thus, for example, in the
6 event of changes in water temperatures in the Delta, the BDCP would not provide for actions to
7 moderate such temperature changes. The BDCP, however, would require that the Management
8 Entity Implementation Office implement responsive actions or contingency plans that provide for
9 a recalibration of habitat restoration strategies or other actions within the context of the defined
10 range of the adaptive management program. Similarly, an occurrence of a major flood event that
11 results in substantial loss of tidal marsh habitat restored under the BDCP would trigger actions
12 under the adaptive management program to restore functions of tidal marsh habitat for covered
13 species.

14 To address the potential for changed circumstances, the BDCP sets out funding commitments for
15 remedial responsive measures that may be implemented as part of the adaptive management
16 program (see Section 3.7, *Adaptive Management*). The BDCP also identifies contingency
17 funding to implement measures to address those changed circumstances not contemplated in the
18 adaptive management program, as described in Chapter 8, *Implementation Costs and Funding*
19 *Sources*. In the event that changed circumstances occur, the Management Entity Implementation
20 Office will implement the remedial responsive measures identified in this chapter. However, the
21 BDCP sets out the range of financial commitments of the participating entities, which includes
22 limitations on funding to remediate changed circumstances. As such, remedial responsive
23 measures for changed circumstances will be implemented within the levels of funding set out in
24 the BDCP for these purposes: and no additional funding will be required from permittees. [*Note*
25 *to Reviewers: The levels of funding for remedial responsive measures have not yet been*
26 *determined.*]

27 In the event of such changed circumstances, the BDCP Management Entity Implementation
28 Office would implement the responsive measures described in this chapter. The following
29 describes the process for identifying the occurrence of changed circumstances, the changed
30 circumstances that would be addressed by the BDCP, and the measures that would be
31 implemented in response to such occurrences.

32 **6.3.2.1 Process to Identify Changed Circumstances**

33 ~~For changed circumstances that are anticipated in the BDCP, the Management Entity, in~~
34 ~~conjunction with the fish and wildlife agencies, will develop thresholds and triggers as part of the~~
35 ~~adaptive management program that will be used to signal the onset of changed circumstances.~~
36 The occurrence of a changed circumstance will generally become apparent to the Management
37 Entity Implementation Office through information gained from systemssystem-wide or
38 effectiveness monitoring, scientific study, or by notification received from another party (e.g.,

1 | contamination of a levee failure terrestrial area reported by a reclamation district) county health
2 | agency). Upon an indication that a changed circumstance has occurred, or is likely to occur, the
3 | Management Entity Implementation Office will take immediate steps to investigate and confirm
4 | the occurrence of such an event. If a changed circumstance appears to have occurred, the
5 | Management Entity Implementation Office will contact the appropriate fish and wildlife agencies
6 | to confirm the changed circumstance. The Management Entity Implementation Office will notify
7 | the BDCP Authorized Entities, relevant Supporting Entities, and the Implementation Committee
8 | of the changed circumstance.

9 | After establishing an occurrence of a changed circumstance identified in this chapter, the
10 | Management Entity, in coordination with the fish and wildlife agencies, Implementation Office
11 | will determine specific remedial responsive actions that are consistent with the responses
12 | described in Section 6.3.2.2, *Changed Circumstances Addressed by the BDCP*, for the particular
13 | changed circumstance and develop a schedule for implementation. The Implementation Office
14 | will, to the extent necessary, coordinate with the fish and wildlife agencies in the implementation
15 | of these responses. For those actions that are to be implemented through the adaptive
16 | management program, the decision-making process described in Section 3.7, *Adaptive*
17 | *Management*, will be used. For other responsive actions, the Management Entity Implementation
18 | Office will implement the identified measures after conferring with the relevant fish and wildlife
19 | agencies. After implementing remedial responsive actions, the Management
20 | Entity Implementation Office will monitor the effectiveness of the measures and report the
21 | associated results and findings.

1 **6.3.2.2 Changed Circumstances Addressed by the BDCP**

2 | **6.3.2.2.1 ~~4-~~Availability of Land Necessary for the Implementation of Habitat** 3 **Conservation Measures**

4 *Nature of the Changed Circumstance*

5 The BDCP Conservation Strategy assumes that sufficient land will be available within the Plan
6 Area to implement the habitat conservation measures set out in the Plan. In the event that land
7 suitable for these purposes is not available, these changed circumstances will be addressed as set
8 out in this section. A shortfall in available land necessary to implement habitat conservation
9 measures will be deemed to have occurred if land with suitable site conditions and characteristics
10 (e.g., topography, soils, hydrology, proximity to occupied covered species habitats) and in
11 | appropriate locations within the Plan Area cannot be ~~feasibly~~reasonably and practicably
12 obtained.

13 *Planned Response*

14 | During the course of BDCP implementation, the ~~Management Entity~~Implementation Office may
15 determine that land suitable for meeting one or more of the habitat restoration and protection
16 targets is not reasonably and practicably available within the Plan Area. In such instances, the
17 ~~Management Entity~~Implementation Office, through the adaptive management process and after
18 consultation with the ~~concurrence of the~~ fish and wildlife agencies, will take all reasonable and
19 practicable steps to: (a) undertake habitat restoration or protection of habitat in areas outside of
20 the BDCP designated Conservation Zone(s), including tidal habitat restoration opportunity areas
21 (ROAs), but within the Plan Area, at locations that would benefit the affected covered species,
22 (b) restore or protect habitat in suitable locations outside of the Plan Area, in coordination with
23 local governments, to benefit the associated covered species, or (c) identify and implement
24 alternative conservation measures that would provide equivalent or greater benefits to the
25 affected covered species.

26 |

2. Levee Failures

Nature of Changed Circumstance

During the course of BDCP implementation, it is expected that levee failures will occur within the Plan Area, and that such failures may affect benefits to covered species provided by the BDCP. To address such circumstances, the BDCP identifies a range of actions that will be carried out by the [Management Entity Implementation Office](#) to respond to such events. To guide responses to such events, levee failures will be considered a changed circumstance under the BDCP if the failure: (a) diminishes significantly the function of BDCP restored and protected natural communities as habitat for covered species, as jointly determined by the [Management Entity Implementation Office](#) and the fish and wildlife agencies, (b) precludes implementation of habitat conservation measures, and/or (c) impedes the implementation of water operations conservation measures.

Planned Responses

The following sets out several foreseeable scenarios involving the failure of levees that may adversely affect ecological benefits provided by the BDCP, and describes the response that would be provided for under the BDCP.

Failure of levees constructed as part of a BDCP activity result in substantial reduction of the level of benefits to covered species produced by [BDCP restored tidal habitat](#). To reduce the potential for failure of a BDCP levee, BDCP levees will be designed to appropriate standards. However, notwithstanding the integrity of constructed levees, the BDCP [Management Entity Implementation Office](#) may encounter circumstances in which levees constructed pursuant to a BDCP activity subsequently fail. In such an event, the [Management Entity Implementation Office](#) will be responsible for undertaking actions to restore the functions of habitat degraded or lost as a result of the failure. If such restoration of habitat functions is not practicable, the [Management Entity Implementation Office](#) will, through the adaptive management process, restore habitat of comparable biological value elsewhere in the Plan Area or at other locations to replace lost or degraded habitat functions to the extent practicable, as provided for under Changed Circumstance No. 1. The affected habitat may also be replaced at the location of the levee failure site if the breach results in newly created habitat of sufficient value to replace the lost habitat and the new habitat area is or can be made available to the [Management Entity Implementation Office](#) for protection.

Failure of levees not constructed as part of a BDCP activity reduce the benefits to covered species produced by [BDCP tidal habitat restoration and water operations conservation measures](#). The BDCP Implementation Office is not responsible for repair of failed non-BDCP levees. Following failure of a non-BDCP levee that affects restored ~~tidal marsh~~. The

1 ~~Management Entity, including DWR, BDCP tidal habitat areas, the Implementation Office will~~
2 ~~collaborate with local Reclamation Districts, other flood control entities, and landowners as~~
3 ~~appropriate to determine if there is sufficient justification for repair of failed levees and~~
4 ~~restoration of damage to the function the extent of BDCP habitats. Following repair effects on~~
5 ~~the habitat functions for covered species that are supported by the restored habitat. If the~~
6 ~~intended habitat functions of the levee, the BDCP Management Entity restored tidal habitat for~~
7 ~~covered species are found to be substantially degraded, the BDCP Implementation Office will,~~
8 ~~to the extent reasonable and practicable, identify and undertake actions through the adaptive~~
9 ~~management process to adjust implementation of Conservation Measure CM10: Nontidal Marsh~~
10 ~~Restoration to restore or compensate for the degraded or lost habitat. To the extent feasible, the~~
11 ~~Management Entity will coordinate restoration efforts with the entity or entities with~~
12 ~~responsibility for repair and rehabilitation of the failure of a non-BDCP levee.~~

13 ~~**Failure of levees unrelated to BDCP actions that inhibit implementation of water operations**~~
14 ~~**conservation measures or reduce the covered species and ecosystem benefits that would result**~~
15 ~~**from such conservation measures.** In the event of a levee failure that affects affects the~~
16 ~~implementation of BDCP water operations conservation measures, the Management~~
17 ~~Entity Implementation Office will invoke the adaptive management process to determine, in~~
18 ~~coordination with the Authorized Entities DWR and USBR and the fish and wildlife agencies,~~
19 ~~appropriate adjustments to water operations, or other conservation measures, on a temporary~~
20 ~~basis and within the established adaptive range of water operations, necessary to minimize~~
21 ~~adverse effects of the levee failure(s) on covered species and other conservation measures. Once~~
22 ~~the circumstances affecting the implementation of the water operations conservation measures~~
23 ~~have been addressed, the Projects SWP and CVP will resume operations under the parameters~~
24 ~~that were in place prior to the levee failure.~~

25 ~~**Failures of levees unrelated to BDCP activities that are not repaired by the responsible flood**~~
26 ~~**control entity and inhibit the implementation of water operations conservation measures or**~~
27 ~~**reduce the covered species and ecosystem benefits that would be provided by the conservation**~~
28 ~~**measure.** Should a levee failure occur with no subsequent repair, the BDCP Management~~
29 ~~Entity The BDCP Implementation Office is not responsible for repair of failed non-BDCP levees.~~
30 ~~Following a determination that a failed non-BDCP levee will not be repaired, the Implementation~~
31 ~~Office will determine the extent of effects on the aquatic habitat functions for covered species~~
32 ~~that are supported by the affected water operations. If the intended ecological functions for~~
33 ~~covered species supported by the water operations are found to be substantially degraded, the~~
34 ~~BDCP Implementation Office and/or DWR and USBR will, through the adaptive management~~
35 ~~process and subject to the specific circumstances of the event, implement one or more of the~~
36 ~~following actions to obtain the intended benefits of water operations conservation measures~~
37 ~~precluded by levee failures: -(a) adjust water operations within the permitted adaptive range of~~
38 ~~water operations to restore benefits to covered species and habitat provided by the measures, to~~
39 ~~the extent practicable or (b) identify and implement, within the context of the adaptive~~
40 ~~management program, alternative conservation measures (e.g., additional restoration of physical~~
41 ~~covered fish species habitats, increase in magnitude of other stressors conservation measures)~~

1 that will provide similar types and levels of covered species benefits intended by the affected
2 conservation measures.— No additional response beyond that contained within the adaptive
3 management program and permit assurances will be required.

4 *Failure of multiple Delta levees substantially alter aquatic conditions such that conservation*
5 *measures cannot be implemented and/or the covered species habitat benefits provided by*
6 *conservation measures are substantially reduced as a result of altered aquatic ecosystem*
7 *conditions or changes in the behavior or distribution of covered fish species.* A widespread or
8 catastrophic change in ecological conditions within the Plan Area due to multiple levee failures
9 would be atof such magnitude so as to render most responses through the BDCP infeasible. As
10 such, in the event of this changed circumstance, no specific responses would be required under
11 the BDCP; the Management Entity Implementation Office and DWR and USBR, however, will
12 meet and confer with the fish and wildlife agencies identify and undertake actions to determine
13 the efficacy of a response.

14 ~~To the extent that actions can be undertaken~~reasonable and practicable within the parameters of
15 the BDCP adaptive management program that would help to moderate the ecological effects of
16 multiple levee failures, ~~the BDCP Management Entity would identify and implement such~~
17 ~~measures. For instance, such.~~ Such adaptive management responses ~~may include~~would be
18 limited to identifying alternative locations for habitat restoration actions, adjusting water
19 operations within the adaptive management operations range, and adjusting implementation of
20 other stressors conservation measures to more effectively provide benefits for covered fish
21 species under the altered hydrodynamic conditions. The types and extent of potential
22 adjustments in implementation may change over time as Delta conditions evolve towards a new
23 equilibrium.

3. Failure of water operations infrastructure

Nature of Changed Circumstance

For the purpose of this provision, a failure of water operations infrastructure located within the Plan Area will be deemed to have occurred if a malfunction or breakdown of water operations conveyance facilities, including ~~the pipeline/tunnel,~~ intake and fish screen facilities, pumping facilities, ~~upstream reservoir operations~~ facilities, and other appurtenant facilities, and the failure precludes or substantially inhibits the ability to manage water operations within the adaptive ranges as defined in the BDCP Conservation Strategy. ~~water operations parameters in effect at the time of the infrastructure failure.~~ Failure of the pipelines, tunnels or canal that comprises the principal conveyance facility are not reasonably foreseeable as a changed circumstance due to the nature of their planned construction.

Planned Response

The water operations infrastructure of the CVP and the SWP are routinely and diligently maintained to greatly reduce the potential for failure. In the unlikely event of such a failure, ~~the Management Entity of infrastructure within the Plan Area,~~ the Implementation Office would request that DWR and/or Reclamation repair the affected facilities or make adjustments or modifications to other facilities to restore full operational capacity necessary to implement BDCP conservation measures, as soon as feasible, reasonable and practicable, and temporarily adjust water operations within the adaptive range of water operations if such action is deemed necessary to minimize adverse effects on covered species. to the extent practicable. Upon completion of facility repairs or alternative modifications to other infrastructure, operations would return to pre-existing levels ~~and,~~ parameters and water supply. If the infrastructure failure does not permit operations within the adaptive management range the Management Entity Implementation Office will operate under the emergency procedures described in Chapter 4, *Covered Activities.*

4. Fire

Nature of Changed Circumstance

Fire is defined as any fire not prescribed by the ~~Management Entity Implementation Office~~ on BDCP protected lands that removes a sufficient extent of vegetation such that the intended habitat functions of the protected land for covered species is substantially degraded, as jointly determined by the ~~Management Entity Implementation Office~~ and fish and wildlife agencies.

Fire may substantially degrade the intended habitat functions of natural communities and covered species habitats protected and/or restored under the BDCP. However, the non-aquatic lands within the BDCP Plan Area are primarily characterized by intensively managed agriculture, which generally does not provide the conditions for uncontrolled or extensive fire

1 events. Moreover, within the BDCP Plan Area, the extensive network of waterways serves as
2 barriers to the rapid spread of fire. While fire is typically a natural component of grassland
3 communities, which represent approximately 8% of the BDCP Plan Area, most natural
4 communities in the Plan Area, including valley/foothill riparian, wetlands, and agriculture, are
5 typically not prone to fire.

6 *Planned Response*

7 | To minimize the risk of fire, the [Management Entity Implementation Office](#) will identify [BDCP](#)
8 | protected lands that pose a high risk of fire (e.g., grasslands situated near roadways) and carry
9 | out a number of preventative measures on those lands. The [Management Entity Implementation](#)
10 | [Office](#) will ensure that fuel breaks are established and maintained around such lands, ~~that steps~~
11 | ~~are taken to coordinate efforts with state and local fire agencies to improve fire suppression~~
12 | ~~preparedness for protected lands~~, and that post-fire monitoring plans are developed.

13 | In the event of a fire, the [Management Entity Implementation Office](#) will assess the proportion of
14 | the protected habitat area that has burned and its likely effects on habitat use by covered species,
15 | will make an initial determination of whether or not a changed circumstance exists, and will
16 | notify the fish and wildlife agencies of the fire event. If a changed circumstance is determined to
17 | exist, the [Management Entity Implementation Office](#) will implement the appropriate post-fire
18 | monitoring plan for a two-year period following the fire. If over the course of the monitoring
19 | period it is determined that vegetation is not recovering sufficiently in the burned area to
20 | reestablish the original functions of the affected habitat, the [Management Entity Implementation](#)
21 | [Office](#) will develop and implement through the adaptive management program [to the extent](#)
22 | [practicable](#) a habitat restoration plan to enhance recovery of the affected habitat area. Elements
23 | of habitat restoration plans may include provisions for planting and caring for native vegetation
24 | and controlling the establishment of invasive plant species.

25 **5. Conflicts Related to State or federal environmental laws or regulation**

26 *Nature of the Changed Circumstance*

27 | In the course of implementing the BDCP, the [Management Entity Implementation Office](#) will
28 | seek to obtain various State and federal permits and authorizations necessary to carry out certain
29 | conservation actions. The [Management Entity Implementation Office](#) may discover that, in some
30 | instances, the implementation of a conservation measure may conflict with the requirements of a
31 | State and/or federal law or regulation. The apparent conflict could necessitate changes to the
32 | conservation measure or an elimination of the measure altogether.

33 *Planned Response*

34 | In the event that it is determined that the implementation of a conservation measure would likely
35 | conflict with a State or federal environmental law or regulation, the [Management](#)
36 | [Entity Implementation Office](#) will pursue one or more of the following actions through the

1 adaptive management process: (a) modify implementation of the conservation measures to
2 ensure compliance with all applicable State and/or federal laws or regulations; (b) identify and
3 implement alternative conservation measures that provide equivalent ecological benefits for the
4 affected covered species. In the alternative, the [Management Entity Implementation Office](#) may
5 also sufficiently reconcile the apparent regulatory conflict in conjunction with the relevant State
6 and/or federal agency and proceed with the implementation of the conservation measure(s).

7 6. New Species Listings

8 *Nature of the Changed Circumstance*

9 The USFWS, NMFS, or DFG may list additional species as threatened or endangered under the
10 ESA or CESA¹⁶ that [occur in the Plan Area that](#) are not BDCP Covered Species. In the event that
11 a fish and wildlife agency lists a species not covered by the BDCP, the provisions of this
12 changed circumstance will be automatically triggered.

13 *Planned Response*

14 Upon a new listing of a species under State or federal endangered species laws, the [Management](#)
15 [Entity Implementation Office](#) will undertake the following measures:

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

20 In the event that a species not covered by the BDCP becomes listed as threatened or endangered
21 or designated as a candidate species, or is proposed or petitioned for listing, the [Management](#)
22 [Entity Implementation Office](#), on behalf of the Authorized Entities, may request that the
23 appropriate fish and wildlife agency add the species to the relevant take authorizations issued
24 pursuant to the BDCP. In determining whether to seek take coverage for the species, the
25 [Management Entity Implementation Office](#) will consider, among other things, whether the
26 species is present in the Plan Area and, if the covered activities could result in the take of the
27 species, and if the existing conservation measures benefit the species and avoid and minimize
28 effects of covered activities on the species. If such take coverage is sought, the BDCP and its
29 authorizations will be amended. Alternatively, the [Management Entity Implementation Office](#),
30 on behalf of the Authorized Entities could seek new and separate take authorizations. The
31 procedures for Plan modifications and amendments are described in Section 6.4 *Permit*
32 *Duration, Amendment, Renewal, and Enforcement*.

33 7. Invasive Species

¹⁶ A species designated by the State as a “candidate” for listing also receives regulatory protection during the pendency of the candidacy. As such, the provisions set out in this changed circumstance will apply to State-designated candidate species.

1 *Nature of Changed Circumstance*

2 A changed circumstance that involves the introduction of an invasive species will be considered
3 to have occurred if the [Management Entity Implementation Office](#) and the fish and wildlife
4 agencies jointly determine that such a species is present and has been established within the Plan
5 Area and that the presence of the invasive species will substantially diminish the benefits to
6 covered species provided by the BDCP conservation measures.

7 *Planned Response*

8 As described in Section 3.6, *Monitoring and Research Plan*, the [Management](#)
9 [Entity Implementation Office](#) will take steps to detect, through the monitoring program and
10 through collaboration with other responsible entities, the establishment of new invasive species
11 in the Plan Area. If a new invasive species is discovered, the [Management Entity Implementation](#)
12 [Office](#) in coordination with the fish and wildlife agencies, will conduct an assessment to
13 determine the possible threats of the invasive species to covered species and the Delta
14 ecosystem. Based on results of the assessment, the [Management Entity Implementation Office](#)
15 will implement, within the following responses:

16 ~~*Introduction parameters of new, invasive non-native species diminishes benefits to covered*~~
17 ~~*species produced by conservation measures related to habitat restoration and protection. The*~~
18 ~~*BDCP Management Entity, through the adaptive management process, will program, identify and*~~
19 ~~*implement, to the extent reasonable and practicable, measures to reduce and/or control the*~~
20 ~~*adverse effects of new non-native species on the functions provided by habitat restored and*~~
21 ~~*protected the conservation measures under the Plan (e.g., control of non-native plant species in*~~
22 ~~*restored tidal marsh that affect food web functions). If methods to adequately reduce and/or*~~
23 ~~*control adverse effects of the non-native species on the functions of restored physical habitats are*~~
24 ~~*not available or practicable, the Management Entity Implementation Office will identify*~~
25 ~~*reasonable and practicable alternate design, implementation, and management approaches to*~~
26 ~~*future habitat restoration actions within the parameters of the adaptive management program to*~~
27 ~~*avoid or minimize potential adverse effects of the invasive species on covered species. If such*~~
28 ~~*modifications are not practicable, the Management Entity, through the adaptive management*~~
29 ~~*process, will identify and implement alternative conservation measures that provide equivalent*~~
30 ~~*levels of benefit to applicable covered species.*~~

31 ~~*Introduction of a new, invasive non-native species diminishes benefits to covered species*~~
32 ~~*provided by conservation measures related to water operations or other stressors. The BDCP*~~
33 ~~*Management Entity, through the adaptive management process, will identify and implement*~~
34 ~~*measures to reduce and/or control adverse effects of a new non-native species on the beneficial*~~
35 ~~*outcomes associated with water operations or other stressors conservation measures. If methods*~~
36 ~~*are not reasonably and practicably available to reduce and/or control such effects, the BDCP*~~
37 ~~*Management Entity adverse effects of invasive species on water operations, physical habitat, and*~~
38 ~~*other conservation measures, the BDCP Implementation Office, within defined adaptive*~~

1 management ranges, will identify and implement alternative conservation measures that provide
2 equivalent or greater benefits to covered species and their habitats [to the extent reasonable and](#)
3 [practicable](#).

4 **8. Toxic or Hazardous Spills**

5 *Nature of Changed Circumstance*

6 Toxic or hazardous spills will be considered a changed circumstance if the spills of chemicals
7 into Delta waterways or BDCP restored and protected habitats could substantially and adversely
8 affect habitat restored and/or protected through the BDCP, as jointly determined by the
9 [Management Entity Implementation Office](#) and the Fish and Wildlife Agencies.

10

1 |
2 | *Planned Responses*

3 | The ~~Management Entity Implementation Office~~ will respond to toxic or hazardous spill events
4 | that occur in habitat areas that have been protected, enhanced, or restored through BDCP actions.
5 | To minimize the potential effects of a toxic or hazardous spill, the BDCP ~~Management~~
6 | ~~Entity Implementation Office~~ will develop a toxic and hazardous spill response plan in
7 | coordination with responsible regulatory entities (e.g., local, state and federal specialized
8 | response teams) to guide its initial responses on detection of a spill event.

9 | For a spill event that is caused by a BDCP action, the BDCP ~~Management Entity Implementation~~
10 | ~~Office~~ will coordinate its response with DFG's Office for Oil Spill Prevention, the Regional
11 | Water Quality Control Board, and other state or federal regulatory entities as appropriate to the
12 | nature of the spill event ~~to curtail the immediate spread and minimize the effects of the spill.~~
13 | The ~~Management Entity Implementation Office~~ will also identify and undertake management
14 | measures sufficient to remediate the effects of the toxic substance on covered species and
15 | affected habitats (i.e., removal or isolation of the material) and restore the ecological functions of
16 | the degraded habitat. If the affected habitat areas cannot be ~~feasibly/practicably~~ and effectively
17 | restored, the ~~Management Entity Implementation Office~~, through the adaptive management
18 | process, will identify and implement measures to contain the ecological effects of the spill and
19 | either compensate for the loss of habitat functions at other locations or implement alternative
20 | conservation measures (e.g., expanded or additional contaminant reduction measures) that
21 | provide equivalent or greater ecological benefits to the affected covered species.

22 | The BDCP Implementation Office is not responsible for the effects of a spill event that is not the
23 | result of a BDCP action. If the spill event is not caused by a BDCP action, the BDCP
24 | ~~Management Entity Implementation Office~~, would coordinate with responsible regulatory
25 | agencies and the party(ies) responsible for the spill event to identify the measures that will need
26 | to be funded and/or undertaken by the responsible party(ies) to adequately remediate the effects
27 | of the spill and restore the ecological functions of the affected habitat. ~~The Management Entity~~
28 | ~~will ensure that any such remediation and restoration actions are conducted in an appropriate~~
29 | ~~manner.~~

30 | **9. Climate Change**

31 | *Nature of Changed Circumstance*

32 | ~~Changed circumstances related~~ The BDCP conservation measures were developed to address the
33 | range of predicted effects of climate change ~~will be considered to have occurred in the event~~
34 | ~~that on sea level and watershed hydrology over the term of the BDCP using the best scientific~~
35 | information available. Consequently, changes in sea level and watershed hydrology that are of
36 | greater magnitude or significance than was assumed during the development of the BDCP
37 | conservation strategy, ~~such that conservation measures cannot be implemented or such measures~~
38 | ~~would be unlikely to yield significant benefit to covered species or natural communities (e.g.,~~

1 ~~climate change conditions affect availability of suitable restoration sites).~~ are considered a
2 changed circumstance.

3 ~~BDCP conservation measures were developed based on modeled estimates of future changes in~~
4 ~~sea level and watershed hydrology over the term of the BDCP. If actual changes in sea level or~~
5 ~~in watershed hydrology exceed climate change estimates used to develop the conservation~~
6 ~~measures, the ability to implement conservation measures and/or their efficacy for producing~~
7 ~~covered species benefits could be diminished. The existence of this changed circumstance will~~
8 ~~be determined through actual measurements of climate change effects over the term of the BDCP~~
9 ~~and results of conservation measure effectiveness monitoring.~~

10 *Planned Response*

11 In the event ~~of this changed circumstance,~~ changes in sea level and watershed hydrology exceed
12 those used to develop the BDCP Management Entity would conservation strategy, no response is
13 required under the BDCP. The BDCP Implementation Office in coordination with the fish and
14 wildlife agencies, however, may identify and implement actions adjust implementation of habitat
15 conservation measures through the parameters of the adaptive management program to the extent
16 such ~~actions~~ adjustments could be effective at moderating the ecological effects of these
17 hydrological changes. Such adaptive management responses may include expanding the range
18 of environmental gradients to provide for shifting species distributions and habitats. Measures
19 beyond those contemplated by the adaptive management program for habitat conservation
20 measures would likely be impracticable and ineffective given the magnitude and pervasiveness
21 of such changes within Plan Area and, as such, are not provided for under the BDCP.

1 10. Water Temperature Changes

2 *Nature of Changed Circumstance*

3 Changed circumstances related to water temperature changes are defined as those changes in
4 water temperatures within the Plan Area that exceed the tolerance level for one or more covered
5 fish species, such that one or more of the following conditions occur: (a) a covered fish species
6 no longer inhabits BDCP restored habitats; (b) a covered fish species is no longer present in the
7 Plan Area; (c) a covered fish species no longer accrues benefits from BDCP water operations,
8 habitat restoration, or other stressors conservation measures; and/or (d) a covered fish species'
9 population demonstrates a sustained downward trend in abundance.

10 *Planned Response*

11 Significant changes in water temperature within the Plan Area would likely have widespread,
12 catastrophic impacts on ecological conditions within the Plan Area. As such, the effects of water
13 temperature changes would be of such magnitude as to render any response through the BDCP
14 infeasible. ~~As such, and no response to changes in the event of this changed circumstance, no~~
15 ~~specific responses would be water temperature is~~ required under the BDCP; ~~the Management~~
16 ~~Entity, however, would meet and confer. The BDCP Implementation Office in coordination~~
17 ~~with the fish and wildlife agencies to determine the efficacy of a response. To the extent that,~~
18 ~~however, may identify and implement habitat restoration conservation actions can be undertaken~~
19 within the parameters of the BDCP-adaptive management program ~~that would help to moderate to~~
20 ~~the extent such actions could be reasonably and practicably effective at moderating the~~
21 ~~ecological effects of water temperature changes, the BDCP Management Entity would identify~~
22 ~~and implement such measures changed water temperatures.~~ For instance, such adaptive
23 management responses may include identifying alternative locations for ~~habitat restoration~~
24 ~~actions.~~

1 [implementing habitat restoration actions within the Plan Area such that they create areas of cool](#)
2 [water refugia or encourage more rapid passage of covered fish species through areas supporting](#)
3 [unsuitable water temperatures for covered fish species.](#)

4 **11. Changes in Ocean Conditions**

5 *Nature of Changed Circumstance*

6 Changed circumstances that involve changes in ocean conditions are defined as changes in ocean
7 habitat conditions (e.g., water temperature, upwelling) and ecosystem processes (e.g, food web
8 productivity) that support covered anadromous fish species to a degree that biological goals and
9 objectives cannot be achieved for covered anadromous fish species within the Plan Area. For
10 example, changed ocean conditions could result in lower survival of Chinook salmon in the
11 ocean, resulting in fewer adults returning to spawn upstream of the Delta, which could result in
12 population declines.

13 *Planned Response*

14 Adverse effects on covered anadromous fish species and their habitats resulting from changed
15 ocean conditions could not be [feasibly, reasonably, or practicably](#) addressed by the BDCP.
16 Actions to remedy those effects would be well-beyond the capacity of the [Management](#)
17 [Entity Implementation Office](#) or the Authorized Entities. ~~As such, in the event of this changed~~
18 ~~circumstance, and no specific responses would be response is~~ required under the BDCP; ~~the~~
19 ~~Management Entity, however, will meet and confer with the fish and wildlife agencies to~~
20 ~~determine the efficacy of a response.~~

21 ~~Significant changes in ocean conditions could have widespread, catastrophic impacts on~~
22 ~~ecological conditions within the Delta. To the extent that actions can be undertaken within the~~
23 ~~parameters of the BDCP adaptive management program that would help to moderate the~~
24 ~~ecological effects of these changes in ocean conditions, the BDCP Management Entity would~~
25 ~~identify and implement such measures. Such adaptive management responses may include~~
26 ~~identifying alternative locations for habitat restoration actions.~~

27 **12. Long-Term Changes in Precipitation and Temperature**

28 *Nature of Changed Circumstance*

29 Long-term changes in precipitation and temperature will be considered a changed circumstance
30 in the event that such changes in the timing and amount of rainfall and ambient air temperature
31 in the Plan Area as a result of climate change are of a magnitude sufficient, as jointly determined
32 by the [Management Entity Implementation Office](#) and Fish and Wildlife Agencies, to diminish
33 the benefit to covered species provided by natural communities restored and protected pursuant
34 to the BDCP conservation measures.

1 *Planned Response*

2 | Changes in precipitation and temperature patterns in the Plan Area may affect vegetation
3 | composition and structure of BDCP protected, enhanced, and restored habitat areas. In the event
4 | of this changed circumstance, the BDCP Management Entity Implementation Office will identify
5 | and implement reasonable and practicable actions through within the parameters of the adaptive
6 | management program to the extent such actions would help to moderate the ecological effects of
7 | changes in precipitation and temperature. Such adaptive management responses may include
8 | expanding the range of environmental gradients to provide for shifting species distributions and
9 | habitats. Measures beyond those contemplated by the adaptive management program would
10 | likely be impracticable and ineffective given the magnitude and pervasiveness of such changes
11 | within Plan Area and, as such, are not provided for under the BDCP.

12 **6.3.3 Unforeseen Circumstances**

13 | The USFWS and NMFS define unforeseen circumstances as those changes in circumstances that
14 | affect a species or geographic area covered by an HCP that could not reasonably have been
15 | anticipated by the plan participants during the development of the conservation plan, and that
16 | result in a substantial and adverse change in the status of a covered species.¹⁷ Under ESA
17 | regulations, if unforeseen circumstances arise during the life of the BDCP, USFWS and/or
18 | NMFS may not require the commitment of additional land or financial compensation, or
19 | additional restrictions on the use of land, water, or other natural resources other than those
20 | agreed to in the Plan, unless the BDCP authorized entities consent.

21 | Within these constraints, USFWS and/or NMFS may require additional measures, but only if: (1)
22 | the agencies prove an unforeseen circumstance exists; (2) such measures are limited to
23 | modifications of the BDCP's operating conservation program for the affected species; (3) the
24 | original terms of the Plan are maintained to the maximum extent practicable; and (4) the overall
25 | cost of implementing the BDCP is not increased by the modification. USFWS and/or NMFS
26 | bear the burden of demonstrating that unforeseen circumstances exist. A finding of unforeseen
27 | circumstances must be clearly documented, based upon the best available scientific and
28 | commercial information and made considering certain specific factors.¹⁸ If such a finding is
29 | made and additional measures are required, the BDCP authorized entities will work with
30 | USFWS and/or NMFS to appropriately redirect resources to address the unforeseen
31 | circumstances.

32 | Similarly, unforeseen circumstances are defined in the NCCPA as changes affecting one or more
33 | species, habitat, natural community, or the geographic area covered by a conservation plan that

¹⁷ 50 C.F.R. §17.3; 50 C.F.R. §222.102

¹⁸ 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 C.F.R. §17.22(b)(5)(iii)(C); 50 C.F.R. §222.307(g)(3)(iii).

1 could not reasonably have been anticipated at the time of plan development, and that result in a
2 substantial adverse change in the status of one or more covered species.¹⁹ The NCCPA further
3 provides that, in the event of unforeseen circumstances, DFG shall not require additional land,
4 water, or financial compensation or additional restrictions on the use of land, water, or other
5 natural resources without the consent of the plan participants for a period of time specified in the
6 Implementation Agreement. However, such assurances are not applicable in those circumstances
7 in which DFG determines that the plan is not being implemented consistent with the substantive
8 terms of the Implementation Agreement.²⁰

9 **6.3.4 Applicability of Other Federal Endangered Species Act** 10 **Issues to the BDCP**

11 **6.3.4.1 Future Recovery Plans**

12 | Recovery plans under the ESA delineate actions necessary to recover and protect federally-listed
13 species. However, these plans are not intended to establish obligations of permittees to undertake
14 specific tasks.

15 The Plan Participants, USFWS, and NMFS acknowledge that ESA recovery plans will have no
16 effect on the implementation of the BDCP, except to the extent that they may contribute
17 information to the Adaptive Management Program. Any recovery plan applicable to any Covered
18 Species within the BDCP Plan Area that is developed after the approval of the BDCP will:

- 19 • Not require any additional water, land, or financial compensation be provided by the
20 Authorized Entities;
- 21 • Be finalized only after the USFWS or NMFS has conferred with and requested input
22 | from the [Management Entity Implementation Office](#) on the preparation of the recovery
23 plan; and
- 24 • In no way diminish the take authorizations provided pursuant to the BDCP, the IA, and
25 the companion biological assessment.

26 **6.3.4.2 Future Section 7 Consultations**

27 The USFWS and NMFS will evaluate the direct, indirect and cumulative effects of the Covered
28 Activities in its internal biological opinion that will be issued in connection with the BDCP and
29 issuance of the section 10(a) permits and the biological opinion that will be issued to
30 Reclamation. Accordingly, in any consultation under *Section 7* that occurs after the approval of
31 the BDCP, the USFWS and NMFS will ensure that any biological opinion issued in connection
32 with the proposed project that is the subject of the consultation is consistent with the BDCP
33 biological opinions. The proposed project must be consistent with the terms and conditions of the

¹⁹ Fish and Game Code §2805(k)

²⁰ Fish and Game Code §2820(f)(2)

1 BDCP and the IA. Any reasonable and prudent measures included under the terms and
2 conditions of a biological opinion issued subsequent to the approval of the BDCP with regard to
3 the Covered Species and Covered Activities will, to the maximum extent appropriate, be
4 consistent with the measures of the BDCP and the IA. Neither the USFWS nor NMFS will
5 impose measures in excess of those that have been or will be required by the Authorized Entities
6 pursuant to the BDCP, the IA, or the companion biological assessment.

7 **6.4 PERMIT DURATION AND RENEWAL, PLAN AMENDMENTS,** 8 **PERMIT SUSPENSION AND REVOCATION**

9 **6.4.1 Permit Duration and Extension**

10 | The Plan Participants are seeking ~~to~~ take authorizations from the State and federal fish and
11 wildlife agencies with terms of 50 years. The term of the take authorizations issued under the
12 BDCP would begin from the date of their issuance. Prior to their expiration, the authorized
13 entities may apply to the fish and wildlife agencies to renew their take permits. ~~To provide~~
14 ~~adequate time for the review and processing of a permit renewal, the authorized entities~~The
15 Permittees will initiate the permit renewal process ~~five years~~ prior to the expiration of the initial
16 50-year period and with ample time to allow for the review and processing of the permit renewal.

17 The proposed 50-year term is necessary to achieve the overall BDCP goals of water supply
18 reliability and ecosystem restoration. Many of the key elements of the BDCP, including the
19 development of substantial new water conveyance infrastructure, restoration of tidal and
20 estuarine habitats, restoration of seasonal floodplain habitat, and establishment and maturation of
21 riparian forest habitat will require substantial commitments of funding and ~~a protracted an~~
22 ~~extended~~ period of time to fully ~~realize~~implement. The duration of the permits must be sufficient
23 to justify such expenditures of funds, allow for proper sequencing and effective implementation
24 of the actions contemplated by the Plan, and ~~to~~ afford regulatory stability with respect to the
25 operation of the primary water delivery systems for the State of California. A permit term of 50
26 years provides a practicable time frame in which to ~~perform~~carry out the activities that will be
27 authorized under the Plan, including adaptive management strategies, and maximize the benefits
28 of these activities to species and their habitats.

29 ~~6.4.2 Modifications and Amendments to the BDCP~~

30 ~~BDCP modifications and amendments are not anticipated to occur on a regular basis. However,~~
31 ~~certain events may trigger modifications or amendments, both minor and major, to the BDCP.~~

6.4.2.1—Modifications

6.4.2.1.1—Clerical Changes

6.4.2 BDCP Administrative Actions That Do Not Require Modification or Amendment

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, the following:

- ~~Clerical changes to the BDCP will be made by the Implementing Entity on its own initiative or in response to a written request submitted by any Authorized Entity or by the Fish and Wildlife Agencies, which will include documentation supporting the proposed clerical change. Clerical changes will not require amendments to the BDCP, the Implementation Agreement (IA), or permits or other authorizations. Clerical changes include corrections to typographical, grammatical, and similar editing errors that do not change the intended meaning. Clerical changes may also include corrections to any ; or to maps or other exhibits to address insignificant errors. The Plan Participants anticipate that most clerical changes to the BDCP will occur during the early phases of plan implementation. Annual reports submitted to the Fish and Wildlife Agencies will include a summary of clerical changes made to the BDCP during the preceding calendar year.~~
- ~~Except as otherwise provided in the BDCP, Adaptive management changes to conservation measures, including actions to avoid, minimize, and mitigate impacts and those that contribute to conservation, or modifications to habitat management strategies developed through and consistent with the Adaptive Management Program described in Chapter 3 will not require any amendment to the BDCP, the IA, or any related Permits/Authorizations.~~
- Variations in the day-to-day management of reserve system lands, such as adjusting irrigation schedules for created or restored habitat 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;
- Changes in the membership of BDCP advisory committees.

6.4.3 Minor Amendments/Modifications or Revisions

~~Minor Amendments encompass those~~ As part of the process of plan implementation, the Implementation Office will likely need to make minor changes to the BDCP that are of a minor or (“Minor Modifications or Revisions”) to the BDCP from time to time to respond appropriately to new information, scientific understanding, technological advances, and other such circumstances. Minor Modifications or Revisions will in many instances be technical in nature and where the will not involve changes that would adversely effect of the change on Covered Species, the level of take, or on the obligations of Authorized Entities/Permittees. The process for implementing Minor Modifications or Revisions is not significantly different than those described in the BDCP as adopted. Minor Amendments to the BDCP will set forth in Section 6.4.3.1 below.

Minor Modifications or Revisions may include, but are not require amendments limited to, the IA or the Permits/Authorizations following circumstances:

6.4.2.1.2 List of Minor Amendments

~~Minor Amendments to the BDCP and the Permits/Authorizations are listed below. Any such changes will be administratively implemented pursuant to the procedures below. Minor Amendments are limited to the following:~~

- Minor corrections to land ownership ~~boundaries or~~ descriptions;
- Minor revisions/Changes to survey, monitoring, reporting and/or management protocols that do not adversely affect Covered Species or habitat functions and values;
- Transfer/Transfers of targeted acreages between Restoration Opportunity Area (ROA) consistent with criteria set out in Chapter 3, *Conservation Strategy*;
- Transfer/Transfers of targeted habitat acreages ~~amount among~~ BDCP Conservation Zones, provided such change does not preclude meeting preserve assembly requirements, significantly increase the cost of the BDCP management or preclude achieving Covered Species and natural community goals and objectives; and
- Minor extension/Extensions of earth moving or ground disturbance outside the rights-of-way limits analyzed in the BDCP for covered activities involving infrastructure development or habitat restoration; ~~and.~~
- Updates/corrections to the vegetation or other resource maps and/or species occurrence data.

- Other proposed changes to the Plan that the permitting agencies have determined to be insubstantial and appropriate for implementation as a Minor Amendment

6.4.3.1 Procedures for Minor Amendments/Modifications or Revisions

~~Any~~The Implementation Office, the Authorized ~~Entity~~Entities, or ~~the~~ fish and wildlife agency/agencies may propose Minor ~~Amendments to the BDCP~~Modifications or ~~the IA~~Revisions by providing written notice to ~~all other parties~~the Implementation Office, Authorized Entities, and fish and wildlife agencies. Such notice will include a description of the proposed Minor ~~Amendment~~Modifications or Revisions, an explanation of the reason for the proposed Minor ~~Amendment~~Modifications or Revisions, an analysis of its environmental effects including any impacts to Covered Species, and ~~a description~~an explanation of why ~~that party believes~~the effects of the proposed Minor ~~Amendment~~:

~~Would~~Modifications or Revisions would not be significantly different:

1. Significantly differ from, and ~~are at least~~would be biologically equivalent to, the effects described in the BDCP, as originally adopted;
2. ~~Would not be inconsistent~~Conflict with the terms and conditions of the BDCP, as originally adopted; and
3. ~~Would not cause significant impairment of the~~Significantly impair implementation of the BDCP Conservation Strategy.

The fish and wildlife agencies and/or the Authorized Entities may submit comments on the proposed Minor ~~Amendments~~Modification or Revision in writing within sixty (60) days of receipt of ~~such~~ notice. If any Authorized Entity disagrees with the proposed Minor Modification or Revision for any reason, the Minor Modification or Revision will not be incorporated in the BDCP. If the fish and wildlife agencies do not concur that the proposed Minor Modification or Revision meets the requirements for a Minor Modification or Revision, the proposal must be approved according to the Amendment process. Any partyAuthorized Entity or fish and wildlife agency may institute the informal meet and confer process set forth in section XX of the IA to resolve disagreements concerning ~~Minor Amendments~~. ~~If the fish and wildlife agencies do not concur with the justification for the Minor Amendment, the proposed change will be subject to the Major Amendment process. If the fish and wildlife agencies concur with the proposed Minor Amendment, or if they fail to respond within the 60-day period, the Minor Amendment will be approved.~~a proposed Minor Modifications or Revisions.

6.4.2.2 Major Amendments

~~Major Amendments~~If the Authorized Entities are those in agreement regarding the proposed Minor Modification or Revision, and the fish and wildlife agencies concur that the requirements for a Minor Modification or Revision have been met and the modification or revision should be

1 incorporated in the Plan, the BDCP will be modified accordingly. If any fish and wildlife agency
 2 fails to respond within the 60-day period to the written notice, the agency will be deemed to have
 3 approved the proposed Minor Modification or Revision.

4 **6.4.4 Formal Amendment**

5 Under some circumstances, it may be necessary to substantially amend the BDCP. Any proposed
 6 changes to the BDCP that ~~are do~~ not ~~Modifications~~ qualify for treatment under Sections 6.4.2 or
 7 Minor Amendments. ~~Major Amendments to the BDCP~~ 6.4.3 will require ~~subsequent amendments~~
 8 to the IA and the Formal Amendment. Formal Amendment to the BDCP will also require
 9 corresponding amendment to the Authorizations/Permits, ~~as required by~~ in accordance with
 10 applicable laws and regulations ~~regarding permit amendments~~. The BDCP ~~Implementing~~
 11 Entity ~~Implementation~~ Office will be responsible for submitting any proposed ~~Major~~
 12 Amendments to the ~~Fishfish~~ and ~~Wildlife Agencies~~ wildlife agencies.

13 **6.4.2.2.1 List of Major Amendments**

14 Major ~~amendments~~ Amendments to the BDCP will likely occur infrequently. The process for
 15 making Formal Amendments is set forth in Section 6.4.4.1 below. Formal Amendments include,
 16 but are not limited to, ~~any of~~ the following:

- 17 1. ~~All amendments not contemplated in the BDCP or the IA as Modifications or Minor~~
 18 ~~Amendments to the BDCP, except subsequent minor changes which are not specifically~~
 19 ~~listed as such but that the Fish and Wildlife Agencies have determined to be insubstantial~~
 20 ~~and appropriate for implementation as a Minor Amendment;~~
- 21 • Changes ~~Substantive changes~~ to the boundary of the BDCP Plan Area; ~~other than those~~
 22 ~~associated with the acquisition of terrestrial habitat within the surrounding Delta counties,~~
 23 ~~as described in Section 1.4.1, Geographic Scope of the BDCP Plan Area;~~
 - 24 • Addition ~~Additions~~ of species to the Covered Species list;
 - 25 • Changes ~~in funding strategies and~~ Substantial changes in implementation schedules that
 26 would have ~~substantial~~ significant adverse effects on the Covered Species;
 - 27 • Changes in water operations ~~that would result in~~ conservation measures or covered water
 28 operations ~~that are~~ outside of the ~~permitted/authorized adaptive management rangeland~~
 29 ~~established in the Plan~~ for water operations.

30 Procedures 6.4.4.1 Process for Major Amendments Formal Amendment

31 Major ~~Formal~~ Amendments will ~~require~~ involve the same process ~~followed that was required~~ for
 32 the original ~~BDCP~~ approval. ~~A Major of the BDCP. In most cases, an~~ Amendment will require
 33 ~~modifications to the BDCP and the IA to properly address the new circumstances, subsequent~~
 34 ~~publication and~~ public ~~notification~~ review and comment, CEQA/NEPA compliance, and intra-
 35 Service Section 7 consultation, ~~if deemed necessary~~. Major. Amendments will be subject to
 36 review and approval by the ~~Implementing Entity~~ Implementation Office and the Authorized

1 ~~Entities/Permittees, as appropriate, at a noticed public hearing.~~ The Fish and Wildlife Agencies
2 will use reasonable efforts to process proposed ~~Major~~ Amendments within ~~120~~one hundred
3 eighty (180) days after publication.

4 ~~6.4.3 Annual Review and Oversight~~

5 ~~The BDCP incorporates a variety of mechanisms to provide for regular notification to the State~~
6 ~~and federal Fish and Wildlife Agencies regarding BDCP activities as well as to facilitate annual~~
7 ~~review and oversight of Plan implementation. These mechanisms are described in Section 6.2,~~
8 ~~Compliance and Progress Reporting and Chapter 7, Implementation Structure.~~

9 6.4.5 Suspension of the Federal Permits

10 Under certain circumstances defined by federal regulation, USFWS or NMFS may suspend, in
11 whole or in part, the regulatory authorizations they issue under the BDCP. However, except
12 where USFWS or NMFS determines that emergency action is necessary to avoid irreparable
13 harm to a Covered Species, it will not suspend an authorization without first (1) attempting to
14 resolve the issue through the informal dispute resolution process set forth in section XX of the
15 IA, and (2) identifying the facts or action/inaction which may warrant the suspension and
16 providing the Implementation Office a reasonable opportunity to implement appropriate
17 responsive actions. Any decision to suspend one or both federal permits must be in writing and
18 must be signed by the Secretary of the Interior and/or the Secretary of Commerce, as the case
19 may be.

20 6.4.6 Reinstatement of Suspended Federal Permit

21 If USFWS or NMFS suspends a federal permit, as soon as possible but no later than 10 days
22 after the suspension, it will meet and confer with the Implementation Office and Permittees to
23 discuss how the permits can be reinstated. At the conclusion of the meeting, USFWS/NMFS will
24 identify reasonable, specific actions needed to address the suspension. Upon performance or
25 completion of the actions, USFWS and/or NMFS will immediately reinstate the federal permit.
26 It is the expectation of the BDCP participants that the federal fish and wildlife agencies and the
27 permit holders will strive to reinstate the Federal Permit as soon as possible.

28 ~~6.4.4.7~~Revocation and Suspension of the Federal Permits

29 ~~The fish and wildlife agencies may suspend or revoke the permits issued pursuant to the BDCP~~
30 ~~under several circumstances summarized in this section. Processes are described that could~~
31 ~~avoid the need for permit revocation in particular instances.~~

32 ~~6.4.3.1~~ The Federal Permit Revocation Rule

33 Unless immediate revocation is necessary to avoid the likelihood of jeopardy to a listed species,
34 USFWS and NMFS will not revoke the Federal Permits unless the Authorized Entities fail to

1 fulfill their obligations under the BDCP, and only after (1) completing the informal dispute
2 resolution process described in Section XX of the IA, and (2) identifying the actions/inactions
3 that may warrant the revocation and giving the Implementation Office a reasonable opportunity
4 to implement appropriate responsive actions. USFWS and NMFS will revoke or terminate a
5 Federal Permit to avoid the likelihood of jeopardy to a listed species only in accordance with the
6 Federal Permit Revocation Rule as described below. Any decision to revoke one or both Federal
7 Permits must be in writing and must be signed by the Secretary of the Interior and/or the
8 Secretary of Commerce, as the case may be.

9 **6.4.7.1 The Federal Permit Revocation Rule**

10 The No Surprises ~~Rule~~rule, as promulgated in 1998, did not address circumstances in which a
11 species covered by a permitted HCP experienced significant decline and the continuation of an
12 activity covered by the HCP would contribute to the likelihood of jeopardy to the species. To
13 address such circumstances, the USFWS issued a regulation in 2004, known as the “Permit
14 Revocation Rule,” that allows the FWS to nullify regulatory assurances granted under the No
15 Surprises rule and revoke the section 10 permit only in specified instances, including where
16 continuation of a permitted activity would jeopardize the continued existence of a species
17 covered by an HCP ~~is threatened with extinction~~ and the impact of the permitted activity on the
18 species has not been remedied in a timely manner.²¹

19 ~~If~~In the event that such unforeseen circumstances were to arise under the BDCP, the USFWS
20 and/or NMFS would work with the BDCP ~~Implementing Entity~~Implementation Office and the
21 Authorized Entities to obviate the need for such a revocation. The federal Fish and Wildlife
22 Agencies would engage in the following process prior to taking any steps to revoke the BDCP
23 permits:

- 24 1. The BDCP ~~Implementing Entity~~Implementation Office and the Fish and Wildlife
25 Agencies would determine, through the adaptive management process ~~or otherwise~~,
26 whether changes can be made to the BDCP’s operating conservation program to remedy
27 the situation.
- 28 2. The USFWS and/or NMFS would determine whether the Fish and Wildlife Agencies or
29 other State and federal agencies can undertake actions that would remedy the situation. It
30 is recognized that the Fish and Wildlife Agencies have available a wide array of
31 authorities and resources that can be used to provide additional protection for the species,
32 as do other State and federal agencies.
- 33 3. The ~~Implementing Entity~~Implementation Office and the Fish and Wildlife Agencies will
34 determine whether there are additional voluntary conservation actions that the
35 ~~Implementing Entity~~Implementation Office could undertake to remedy the situation.

²¹ 69 Fed. Reg. 71723, December 10, 2004

1 The USFWS and/or NMFS would only begin the revocation process if no solutions are found
 2 and it is determined that the continuation of a BDCP covered activity would appreciably reduce
 3 the likelihood of survival and recovery for one or more covered species and that no remedy can
 4 be found and implemented. The USFWS and/or NMFS would follow the administrative
 5 procedures set out in the BDCP IA- and the regulations implementing the Permit Revocation
 6 Rule (50 C.F.R. §§ 13.28 & 13.29).

7 ~~6.4.3.2~~ State Permit Revocation and Suspension

8 ~~6.4.56.4.8~~ if Revocation of the State Permit

9 ~~The NCCPA requires revocation of a Section 2835 take permit, in whole or in part, plan~~
 10 ~~participants do not maintain rough proportionality between impacts on habitats or covered~~
 11 ~~species and conservation measures and do not, within 45 days, remedy such condition or develop~~
 12 ~~a plan with the DFG to provide remedy.²²~~

13 The NCCPA requires that the implementation agreement include specific terms and conditions
 14 that, if violated, result in suspension or revocation of the ~~Section~~section 2835 take permit. Such
 15 terms and conditions must include suspension or revocation of the permit if the plan participants
 16 fail to provide adequate funding to implement the plan; do not maintain proportionality between
 17 impacts on habitats or covered species and conservation measures; adopt or approve changes to
 18 the plan that are not consistent with the objectives and requirements of the approved plan without
 19 concurrence of the wildlife agencies; or allow the level of take to exceed the permit limits.²³

20 The DFG must also suspend or revoke a *Section 2835* take permit if continued take would result
 21 in jeopardy to a species.²⁴

22 ~~If~~ the Authorized Entities violate the terms and conditions of the State permits, or if necessary
 23 to avoid jeopardizing the continued existed of a listed species, DFG may suspend or revoke the
 24 permits in whole or in part. However, unless immediate revocation is necessary to avoid the
 25 likelihood of jeopardy to a listed species or to address rough proportionality (see below), DFG
 26 will not suspend or revoke the State permits without first (1) attempting to resolve any
 27 disagreements regarding the implementation or interpretation of the BDCP or this Agreement in
 28 accordance with the informal dispute resolution process provided in Section XX of the IA, and
 29 (2) notifying the Implementation Office and permittees of the action/inaction that may warrant
 30 the suspension or revocation and providing the Implementation Office and permittees with a
 31 reasonable opportunity to take appropriate responsive action. Any decision to suspend or revoke
 32 one or both State permits must be in writing and must be signed by the Director of DFG.

²²~~California Fish & Game Code section 2820(c).~~

²³~~California Fish & Game Code sections 2820(b)(3).~~

²⁴California Fish & Game Code section 2823.

6.4.8.1 Failure to Maintain Rough Proportionality

The NCCPA requires revocation of a section 2835 take permit, in whole or in part, if the plan participants do not maintain rough proportionality between impacts on habitats or covered species and conservation measures and do not, within 45 days, remedy such condition or develop a plan with the DFG to provide a remedy.⁴

Rough proportionality will be maintained by implementing the conservation measures substantially in accordance with the agreed upon Plan Implementation Schedule. If DFG determines, after conferring with USFWS, NMFS and the Implementation Office, that rough proportionality is not being maintained, the Implementation Office, permittees, and DFG will meet and confer and, within 45 days of DFG's determination, agree on adjustments to the Implementation Schedule to expeditiously regain rough proportionality. Adjustments to the Implementation Schedule may include any of a variety of commitments or adjustments to BDCP implementation designed to regain rough proportionality, including advancing and/or accelerating plans to acquire, restore, or enhance lands of the appropriate land cover type. The Implementation Office will implement all actions set forth in the agreed upon adjusted Implementation Schedule. As an alternative to the agreement, the Implementation Office may regain rough proportionality within forty-five (45) days by implementing the actions according to the existing Implementation Schedule.

6.4.8.2 State Permit Suspension and Revocation Steps

In the event that such circumstances for permit revocation or suspension were to arise under the BDCP, the DFG would work with the BDCP Implementing EntityImplementation Office and the Authorized Entitiespermittees to obviate the need for permit revocation or suspension. The DFG would engage in the following process prior to taking any steps to revoke the BDCP permits:

1. The BDCP Implementing Entity will work with DFG to remedy or develop a plan to remedy anyIn the event of a failure to maintain rough proportionality~~between impacts on habitats or covered species~~, the BDCP Implementation Office will work with DFG to remedy the situation through schedule adjustments as described in Section 6.4.9.1 above and conservation measures. Such remedies or plan for remedies will be developed within 45 days of a notice from DFG to the Implementing Entity that such a condition exists in accordance with the Implementation Agreement. Note that the BDCP monitoring program is designed to identify such issues and that the Implementing EntityImplementation Office must report such issues in annual reports.
2. TheFor other situations that could result in permit revocation or suspension or if rough proportionality cannot be regained through schedule adjustments, the BDCP Implementing EntityImplementation Office, Permittees, and the DFG would determine, through the adaptive management process~~or otherwise~~, whether other changes can be

⁴ Fish and Game Code §2820(c).

1 | made to the BDCP's operating conservation program to remedy ~~situations that could~~
2 | ~~result in permit revocation or suspension~~the situation.

- 3 | 3. The DFG would determine whether the DFG or the federal fish and wildlife agencies or
4 | other State and federal agencies can undertake actions that would remedy the situation. It
5 | is recognized that the fish and wildlife agencies have available a wide array of authorities
6 | and resources that can be used to provide additional protection for the species, as do other
7 | State and federal agencies.

- 8 | 4. The ~~Implementing Entity~~Implementation Office and DFG will determine whether there
9 | are additional voluntary conservation actions that the ~~Implementing~~
10 | ~~Entity~~Implementation Office could undertake to remedy the situation.

11 | The DFG would only begin the revocation or suspension process if no solutions are found and it
12 | is determined that the continuation of a BDCP covered activity would result in jeopardy to a
13 | species or violate any of the terms and conditions for permit revocation or suspension identified
14 | in the IA.