March 20, 2013

California Natural Resources Agency
Meeting Purpose

- Provide project progress and schedule update

- Review BDCP 2\textsuperscript{nd} Administrative Draft Chapters 1 – 4
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>March 14</td>
<td>Release BDCP Revised Administrative Draft Chapters 1-4</td>
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<tr>
<td>March 20</td>
<td>Public Meeting (Chapters 1-4)</td>
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<tr>
<td>March 27</td>
<td>Release BDCP Revised Administrative Draft Chapters 5-7</td>
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<td>April 4</td>
<td>Public Meeting (Chapters 5-7)</td>
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<td>Week of April 22</td>
<td>Release BDCP Revised Administrative Draft Chapters 8-12</td>
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<td>Week of May 6</td>
<td>Public Meeting (Chapters 8-12)</td>
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BDCP Revised Administrative Draft

CHAPTERS 1 – 4 UPDATE
• **Chapter 1 – Introduction**
  – 49 pages, 1 appendix

• **Chapter 2 – Existing Ecological Conditions**
  – 146 pages, 3 appendices

• **Chapter 3 – Conservation Strategy**
  – 821 pages w/o figures, 8 appendices

• **Chapter 4 – Covered Activities and Associated Federal Actions**
  – 47 pages
CHAPTER 1
INTRODUCTION
Ch. 1 – Introduction

• BDCP is comprehensive conservation strategy for Sacramento-San Joaquin Delta

• Joint Document
  – Habitat Conservation Plan
  – Natural Community Conservation Plan

• Participating Agencies
  – CA Department of Water Resources
  – U.S. Bureau of Reclamation
  – Certain federal and state water contractors
• Designed to
  – restore and protect ecosystem health, water supply, and water quality
  – create a stable regulatory framework
• Result in
  – long-term permits/authorizations under State and Federal Endangered Species Acts
  – for operations of State Water Project and Central Valley Project
Ch. 1 – Introduction

- Regulatory background
- Scope of the Plan
  - Plan area:
  - Covered species: now 57, dropped
    - Spadefoot toad
    - Townsend’s big-eared bat
    - Caper-fruited tropidocarpum
  - Permit term: 50 years
  - Relationship to other plans in the Delta
  - Overview of planning process
Questions on Chapter 1
CHAPTER 2
EXISTING ECOLOGICAL CONDITIONS
Ch. 2 – Existing Ecological Conditions

Purpose

– Inform the evaluation of potential effects of covered activities on proposed covered species and natural communities
– Support the development of conservation strategy

Describes

– Existing ecological conditions present in the Plan Area, including natural processes in the Plan Area, physical environment, and biological communities
– Historic conditions in the Plan Area and upstream/downstream of the Delta
– Summary of biological diversity
Section 2.2 – *Historical Conditions*

- Provides overview of historical hydrologic and geomorphic and biological environmental conditions in the Plan Area, and environmental conditions upstream/downstream of Plan Area that relate to conditions within Plan Area
Section 2.3 – Existing Ecological Conditions

- Data sources used as background data
- Natural community delineation
- Aquatic, chemical, geomorphic, and terrestrial ecosystem processes
- Physical environment of Plan Area
- Natural Communities (13 in Plan Area) descriptions
Section 2.4 – Biological Diversity

- Over 100 different plant associations
- Important for migratory and wintering shorebirds
- 345 species of vertebrates could occur in biological communities of Plan Area (approx. 40% of all vertebrate species in CA)
- 61% of CA’s native fish species are found in Delta [mention appendices]
Ch. 2 Appendices

• Appendix 2.A Covered Species Accounts (914 pp)
  – Legal Status
  – Distribution and Status
  – Habitat Requirements and Special Considerations
  – Life History
  – Threats and Stressors
  – Relevant Conservation Efforts
  – Habitat Suitability Model
  – Recovery Goals

• Appendix 2.C Climate Change Implications and Assumptions
Questions on Chapter 2
CHAPTER 3
CONSERVATION STRATEGY
• **Methods** (Page 3.2-1)
• **Biological goals and objectives** (Page 3.3-1)
• **Conservation measures** (Page 3.4-1)
• **Important related actions** (Page 3.5-1)
• **Adaptive management, monitoring, and research program** (Page 3.6-1)
• **Avoidance and minimization measures**
What’s new since the February 2012 draft?

- **CM1** – Much more detailed
- **Section 3.6** – Clear procedures
- **Appendix 3.A** – History of conservation measures
- **Appendix 3.E** – Listing of specific monitoring and research actions
SECTION 3.2
METHODS
Section 3.2 – *Methods*

- **Identifying Conservation Zones and Restoration Opportunity Areas** – geographic areas for conservation targets, protection/restoration actions

- **Aquatic Resources Conservation Strategy** – 3 part approach (water + habitat + other stressors); consistency with BiOps

- **Terrestrial Resources Conservation Strategy** – conservation targets, reserve system, other regional conservation plans
Section 3.3 – Biological Goals and Objectives

• **Landscape** – addresses physical or ecological processes that cross the boundaries between natural communities

• **Natural communities** – address processes that affect the diversity and resilience of natural communities, and their potential to act as habitat for covered species

• **Covered Species** – addresses specific needs of individual species
Landscape Goals

1. Reserve system
2. Ecological processes that sustain/reestablish natural communities and covered species
3. Provide connectivity between habitat area to support movement by covered species
4. Reduce harm to covered species
Natural Community Goals

**Tidal perennial aquatic**
Restore or create at least 10,000 acres, control invasive plants

**Tidal brackish emergent wetland**
Restore or create at least 3,000 acres
Promote connectivity, control pepperweed

**Tidal freshwater emergent wetland**
Restore or create at least 13,900 acres, increase connectivity
Natural Community Goals

Valley/Foothill riparian
Restore or create 5,000 acres and protect 750 acres, increase vegetation structural diversity and overall biodiversity

Nontidal aquatic and freshwater emergent wetland
Create 1,200 acres focused on giant garter snake and western pond turtle

Alkali seasonal wetland
Protect 150 acres, provide seasonal flooding
Natural Community Goals

Vernal pool complex
Protect 600 acres, improve connectivity, enhance habitat for native pollinators

Managed wetland
Protect and enhance 6,500 acres, 1500 of which on Grizzly Island

Grassland
Protect 8,000 acres and restore 2,000 acres

Cultivated lands
Protect 45,505 acres
• Habitat needs of many covered species are adequately addressed by landscape and natural communities BGOs, but some require dedicated BGOs.

• **Example:** Objective SH1.4: In the reserve system, protect at least 10,725 acres of grassland, vernal pool, and alkali seasonal wetland as Swainson’s hawk foraging habitat.
Most fish species have 3 types of goals, directed at:

- Increased abundance
- Improved passage
- Improved habitat
Species Objectives

Delta Smelt: Abundance

• **Goal DTSM1**: Increased end of year fecundity and improved survival ...

• **Objective DTSM1.1**: Increase fecundity of delta smelt over baseline conditions as measured through field investigations and laboratory studies conducted through year 10 and refined through adaptive management.

• **Objective DTSM1.2**: [Entrainment]

• **Objective DTSM1.3**: [Recovery Index]
Species

Delta Smelt: Habitat

• **Goal DTSM2**: Increased quality and availability of habitat for all life stages of delta smelt and increased availability of high-quality food for delta smelt

• **Objective DTSM2.1**: Increase the extent of suitable habitat
SECTION 3.4.
CONSERVATION MEASURES
Section 3.4 – Conservation Measures

- Conservation measures (CMs) are actions implemented to meet conservation requirements of ESA and NCCPA
- CMs are designed to collectively meet BGOs
- CMs are defined by function, location, timeframe, performance targets (monitoring), and uncertainties (research)
The description of each CM includes:

- Purpose
- Problem statement
- Implementation
- Adaptive management, monitoring and research considerations
- Consistency with BGOs
CM1 – Water Facilities and Operation

• Purpose
• Problem Statement
• Implementation
  – Proposed facilities
  – Flow criteria
  – Decision trees
  – Real-time operations
• Adaptive management and monitoring
Purpose

- To construct and operate a facility that improves conditions for covered species and natural communities in the Delta while improving water supply.
Problem Statement

• Reverse flow in Old and Middle Rivers
• Entrainment, salvage, and predation in south Delta
• Delta Cross Channel effects on fish migration
• Flow modification effects in the Sacramento River
• Effects of climate change
• Delta outflow effects
• Uncertainty about many aspects of Delta ecosystem science
CM1 – Water Facilities and Operation

New Water Facilities

• Three new north Delta intakes, each 3,000 cfs capacity, with highly designed fish screens

• Two 35-mile long gravity-feed tunnels leading to the SWP/CVP headworks

• New Head of Old River operable gate and several nonphysical barriers

• North Bay Aqueduct intake
Example Fish Screen
Operation/Maintenance of Facilities

- North Delta intakes (new)
- South Delta export facilities (existing)
- Head of Old River operable gate (new)
- Delta Cross Channel gates (existing)
- Suisun Marsh Salinity Control Gates (existing)
- North Bay Aqueduct intake (new)
CM1 – Water Facilities and Operation

Flow Criteria

• Old and Middle River flows
• Head of Old River gate operations
• Outflow: Spring, Fall, Summer, Winter
• Bypass flows (Sacramento R.)
• Export: Inflow ratio
Old and Middle River Flow Criteria

- Constrained in all months but Jul-Aug-Sep
- Indexed to water year time and SJR flows at Vernalis

Head of Old River Gate Criteria

- Seasonal barrier to be replaced by operable gate
- Open in December and 6/16-9/30, otherwise variably closed to support OMR flows, minimize entrainment risk, and maintain water quality
Outflow: Decision Tree

- **Fall outflow**
  - Either Bay-Delta Water Quality Control Plan requirement or USFWS Reasonable and Prudent Alternative
    - \((X2 = 74 \text{ km in wet, 79 km in above normal yrs})\)

- **Spring (March to May) outflow**
  - Either Bay-Delta Water Quality Control Plan requirement

<table>
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<th>Exceedance</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
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<td>&gt;= 44,500</td>
<td>&gt;= 35,000</td>
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- All outcomes are evaluated in Ch. 5 – *Effects Analysis*
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<tr>
<th>FALL OUTFLOW</th>
<th>SPRING OUTFLOW</th>
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<td>Bay-Delta Water Quality Control Plan</td>
<td>Bay-Delta Water Quality Control Plan</td>
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<td>Low Outflow Scenario (LOS)</td>
<td>Higher Outflow</td>
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<td>High Spring Scenario</td>
<td>High Outflow Scenario</td>
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<td>USFWS Reasonable &amp; Prudent Alt.</td>
<td>Evaluated Starting Operations (ESO)</td>
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<td>High Outflow Scenario (HOS)</td>
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</table>
Bypass Flow Criteria

- October, November: Flows >7,000 cfs
- July, August, September: Flows >5,000 cfs
- December through June: Variable (depends on timing, Sacramento flow level)

Inflow/Export Flow Criteria

- Still under development
Questions on CM1
CONSERVATION MEASURE 2 –
YOLO BYPASS FISHERIES ENHANCEMENT
CM2 – *Yolo Bypass Fisheries Enhancement*

- Approximately 20 projects
- Focus on works to increase inundation, ease passage, reduce stranding, improve food availability
CM2 – Yolo Bypass Fisheries Enhancement

• Programmatic Conservation Measure
• Yolo Bypass Fishery Enhancement Plan and associated EIR/EIS will provide specifics to balance existing uses and biological benefits.
• YBFEP and EIR/EIS will be completed by year 5 after BDCP permit authorization.
• Timing of Component Projects
  o Phase 1 – years 1-5 (actions small scale, interim solution)
  o Phase 2 – years 6-10 (actions defined in YBFEP, but can proceed without CEQA/NEPA compliance)
  o Phase 3 – years 11-25 (actions requiring CEQA/NEPA compliance)
  o Phase 4 – years 26-50 (operations, monitoring, adaptive management)

pp 3.4-29 to 3.4-56
Natural Community Conservation Measures
CM3 – Natural Communities Protection and Restoration

• Describes how BDCP would establish the reserve system
• Protect at least 62,455 acres of high-value natural communities and covered species habitats
• Reserve System organized by Conservation Zones and Restoration Opportunity Areas

pp 3.4-56 to 3.4-104
## Natural Communities Protected and Restored

### Conservation Measures that Restore and Protect Natural Communities

- **CM3 Natural Communities Protection and Restoration**
- **CM11 Natural Communities Enhancement and Management**
- **CM5 Seasonally Inundated Floodplain Restoration**
- **CM7 Riparian Natural Community Restoration**
- **CM4 Tidal Natural Communities Restoration**
- **CM9 Vernal Pool and Alluvial Seasonal Wetland Complex Restoration**
- **CM8 Grassland Natural Community Restoration**
- **CM12 Mercury Management**
- **CM13 Invasive Aquatic Vegetation Control**

### Key Areas Protected and Restored:

- **Valley/Foothill Riparian**: 750 acres
- **Vernal Pool Complex**: 600 acres
- **Alkali Seasonal Wetland Complex**: 150 acres
- **Vernal Pool and Alkali Seasonal Wetland Complex Restored**: 139 acres
- **Grassland**: 8,000 acres
- **Grassland Restored**: 2,000 acres
- **Non-tidal Marsh & Managed Wetland Protected & Restored**: 8,670 acres
- **Valley/Foothill Riparian Restored**: 5,000 acres
- **Tidal and Non-tidal Wetland Protected & Restored**: 65,000 acres
- **Cultivated Lands Protected**: 45,405 acres

### Note:

Graph shows restoration and protection occurring gradually as measures are implemented over the permit term. Actual restoration and protection will occur more stepwise as large acquisitions or restoration projects are implemented.

(1) Up to 10,000 acres of tidal restoration will consist of grassland adjacent to restored wetlands, providing transitional uplands to accommodate sea level rise.
CM4 – *Tidal Natural Communities Restoration*

- At least 65,000 acres of tidal natural community restoration
  - 16,300 acres by year 10
  - 25,975 by year 15
  - Completion by year 40

- 10,000 acres in *upland transitional communities*, to accommodate sea level rise due to climate change

pp 3.4-104 to 3.4-128
Tidal Freshwater Emergent Wetland concept

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CM5 – Seasonally Inundated Floodplain Restoration

- BDCP would set back river levees and restore seasonally inundated floodplains
- At least 10,000 acres (mostly in South Delta)
- Restored floodplains will support
  - valley/foothill riparian
  - nontidal freshwater perennial emergent
  - nontidal perennial aquatic
  - Floodplain-compatible agriculture

pp 3.4-128 to 3.4-140
Floodplain surface restored to support a gradient from emergent to riparian to grassland communities or maintained in compatible crop types. Graded to preclude fish stranding.

New setback levee

Riparian forest and scrub
Emergent vegetation

Removed existing levee
Seasonal flooding

Removed riprap to allow channel meander

Riparian forest
Compatible crops

Not to Scale

Figure 3.4-19
Conceptual Design for Restored Seasonally Inundated Floodplain
CM6 – *Channel Margin Enhancement*

- BDCP would improve channel geometry and restore riparian, marsh, and mudflat habitats on the riverine side of levees
- 20 linear miles of riverbank
- Only along streams that provide rearing and outmigration habitat for juvenile salmonids
CM7 – Riparian Natural Community Restoration

- BDCP would restore 5,000 acres riparian forest and scrub to support habitat for **20** riparian covered species
- Sites would mostly be in lands restored for:
  - Tidal wetlands (CM4)
  - Floodplains (CM5)
  - Channel margins (CM6)

pp 3.4-149 to 3.4-162
CM8 – Grassland Natural Community Restoration

• Connect fragmented patches of existing protected grassland and provide upland habitat adjacent to riparian and tidal natural communities for wildlife foraging and upland refugia
• Restore 1,000 acres by year 10 and 2,000 acres (cumulative) by year 25
• Benefits 15 covered species
CM9 – Vernal Pool and Alkali Seasonal Wetland Complex Restoration

• Remediates impacts from other covered activities, such as tidal habitat creation
• Helps to connect areas of protected vernal pool (600 ac) & alkali seasonal wetland (150 ac)
• Contributes to conservation of 15 vernal pool and 3 alkali seasonal wetland covered species

pp 3.4-169 to 3.4-178
CM10 – Nontidal Marsh Restoration

• Creates foraging and breeding habitat for giant garter snake, western pond turtle, and other native species
  – 400 acres by year 10
  – 600 acres by year 20
  – 1,200 acres by year 40

• Also 320 acres of greater sandhill crane roost habitat

pp 3.4-178 to 3.4-185
• Describes how BDCP would prepare and implement management plans for lands in the reserve system.
• Describes management principles, guidelines, and techniques that will be used to achieve biological objectives for covered species using the reserve system lands.

pp 3.4-186 to 3.4-232
Questions on CMs 2-11
Other Stressors Conservation Measures
CM12 – *Methylmercury Management*

- Methylmercury is a legacy problem
- Provides criteria to site and design restoration projects to minimize methylmercury generation
- Management strategies to monitor and (with adaptive management) minimize creation and mobilization of methylmercury at restored sites
- Designed for consistency with the Delta methylmercury TMDL

pp 3.4-233 to 3.4-241
CM13 – *Invasive Aquatic Vegetation Control*

- To prevent introduction and control spread of invasive aquatic vegetation (IAV)
- IAV benefits invasive fish and reduces habitat for native fish
- Aquatic herbicides are used
- Aggressive control program can be successful in 5 to 11 years

pp 3.4-241 to 3.4-260
CM14 – Stockton Deep Water Ship Channel Dissolved Oxygen Levels

- Continued support to Aeration Facility
- Helps maintain dissolved oxygen levels beneficial to salmon

pp 3.4-260 to 3.4-269
CM15 – Localized Control of Predatory Fish

• Conduct predator control at locations with high levels of fish predation on salmonids and sturgeon
• Focused on predation by non-native fishes (not birds)
• Due to uncertainties, first years of program focused on research
  – determine appropriate locations, methods, and levels of activity needed

Predation Hotspots
- Clifton Court Forebay
- CVP Intakes
- Head of Old River
- Geogiana Slough
- Old and Middle River
- Franks Tract
- Paintersville Bridge
- Salvage Release Site
- North Delta Water Diversion Facilities
CM16 – Nonphysical Fish Barriers

• Improve survival of outmigrating salmonids
• Redirect juvenile fish away from channels and river reaches with high mortality risk
• Possible sites include
  – Head of Old River (at San Joaquin River)
  – Delta Cross Channel
  – Georgiana Slough (at Sacramento River)
  – Turner Cut
  – Columbia Cut
CM17 – *Illegal Harvest Reduction*

- Fund more enforcement by CDFW wardens
- Reduce illegal harvest of salmon, steelhead, and sturgeon
CM18 – Conservation Hatcheries

- Establish new hatchery for longfin smelt
- Expand existing hatchery for delta smelt
- Rio Vista and UC Davis
CM19 – *Urban Stormwater Treatment*

- Fund projects to improve urban stormwater treatment
- Reduce pollutant discharges to Delta waters
CM20 – *Recreational Users Invasive Species Program*

- Reduce risk of new aquatic invasive species introductions
- Support watercraft inspection and cleaning
- Recreation user education / information
CM21 – *Nonproject Diversions*

- Voluntary program to remove or screen nonproject diversions in the Plan Area
- Builds on existing federal program but provides funding and addresses all covered fish species
- Remediates 100 cfs of diversions per year
- 50 year life of plan = 5,000 cfs of remediation
CM22 – Avoidance and Minimization Measures

• Complies with ESA and CESA requirements to minimize incidental take

• Describes 26 measures used during construction and maintenance
  – avoid or minimize effects on covered species and natural communities from covered activities
Section 3.5 – *Important Regional Actions*

 Certain actions outside the scope of BDCP will foreseeably have important effects on ecosystem health and covered species recovery

- **Ammonia load reductions** expected from improved treatment at the Sacramento regional wastewater treatment plant and other municipal treatment works in the Delta may support improved aquatic productivity in the Delta

- **Hatchery Genetic Management Plans** proposed for salmon and steelhead hatcheries in the Central Valley may have possible beneficial effects on salmon and steelhead populations
• Adaptive management, monitoring, and research address uncertainty and are required in a HCP/NCCP.
• Monitoring is done by Implementation Office and addresses compliance, effectiveness, and trends.
• Research is done by Implementation Office and addresses key uncertainties in the conservation strategy (BOs and CMs)
Section 3.6 – Adaptive Management and Monitoring Program

• Adaptive Management Team guides adaptive management. They can respond to:
  – Unexpected Plan impacts
  – Declines in covered species populations
  – Insufficient progress on biological objectives
  – New information that alters scientific understanding or presents new technologies for conservation
  – Occurrence of certain changed circumstances
• Adaptive management responses can include:
  – Changes to conservation measures
  – Changes to biological objectives (not goals)
  – New or continued monitoring or research
  – Recommendations for other responses (legal, regulatory, etc.) by governing authorities
CHAPTER 4

COVERED ACTIVITIES AND ASSOCIATED FEDERAL ACTIONS
Ch. 4 – Covered Activities and Associated Federal Actions

- Describes activities performed under permits & authorizations issued for BDCP
- Describes construction of new water facilities in some detail
- Discusses relative federal and non-federal roles under BDCP
  - Federal and Nonfederal actions receive ESA authorization in different ways ESA Section 10 vs. Section 7
  - Federal Actions Associated w/BDCP
  - Joint Federal and Nonfederal Actions
Section 4.2 – Covered Activities

• **Covered Activities** occur in Plan Area and are associated with implementation of conservation strategy
  – New water facilities construction; operation & maintenance of all water facilities (CM1)
  – Conservation actions (CM2 to CM21)
  – Actions by Adaptive Management & Monitoring Program
Section 4.3 – Federal Actions Associated with BDCP

• **Associated Federal Actions** are activities in Plan Area associated with CVP-related activities in the Delta
  – Subject to the ESA Section 7 consultation process

• **Examples:**
  – Delta Cross Channel
  – eastern portion of Contra Costa Canal
  – Jones Pumping Plant
  – Tracy Fish Collection Facility
  – northern portion of Delta Mendota Canal
  – CVP diversions
  – maintenance/monitoring activities
Section 4.4 – Joint Federal and Nonfederal Actions

• **Joint Actions** are activities that will be carried out jointly by DWR and Reclamation

• Examples:
  – Joint point of diversion operations
  – Operations of new water intake and conveyance facilities
  – Water transfers
  – Suisun Marsh facilities operations/maintenance
Questions