# Overview of the Bay Delta Conservation Plan

**(Prepared by DSC staff and consultants)**

## INTRODUCTION

The Bay Delta Conservation Plan (BDCP) is intended to restore and protect both ecosystem health and water supply within a stable regulatory framework. If approved, BDCP will serve as a 50-year habitat conservation plan (HCP) and natural community conservation plan (NCCP) for the Sacramento–San Joaquin River Delta. It is being developed to comply with the federal Endangered Species Act (ESA), the California Natural Community Conservation Planning Act (NCCPA), and other applicable environmental laws and policies. To issue permits, the state and federal fish and wildlife agencies are required to consider alternatives that would avoid or reduce the "take" of covered species. In addition, BDCP must comply with the requirements of Water Code section 85320 to be included in the Delta Plan prepared by the Delta Stewardship Council (DSC), and to be eligible for state funding for public benefits.

The BDCP preferred project includes new water intakes on the Sacramento River in the north Delta and a conveyance facility to move the water to the existing State Water Project (SWP) and Central Valley Project (CVP) pumping plants in the south Delta (see Figure 1). BDCP also includes extensive habitat restoration and measures to reduce stressors is intended to meet the coequal goals of restoring the Delta's ecosystem while providing reliable water supplies for 25 million Californians and three million acres of irrigated agriculture. The BDCP EIR/S is focused on the statutory Delta and areas of additional analysis, primarily the Yolo Bypass, which comprises 872,000 acres.

## BIOLOGICAL GOALS AND OBJECTIVES

BDCP is based on 214 biological goals and objectives for 57 fish and terrestrial species (covered species) that form the basis of a conservation strategy designed to: 1) describe desired biological outcomes and how those outcomes contribute to long-term conservation of covered species; 2) provide metrics (targets and timeframes) for desired outcomes; 3) provide a basis for measuring progress; and 4) establish metrics for monitoring and evaluating the effectiveness of conservation measures in an adaptive management program. BDCP proposes to incorporate large-scale ecosystem restoration in the Delta to support multiple species in contrast to the current species-by-species approach. The biological goals and objectives are specific, measurable outcomes, and are the means by which BDCP will measure how well the plan is working. BDCP conservation measures are intended to achieve the biological objectives and will directly or indirectly contribute to achieving one or more biological goals.

## CONSERVATION MEASURES

The proposed BDCP conservation measures (CMs) are shown in Table 1, (source: 2013 Administrative Draft BDCP EIR/S). CM1, Water Facilities and Operation, and CM2, Yolo Bypass Fisheries Enhancement, are presented at the landscape scale because they apply to several natural communities and covered species. CM3 through CM11 include a range of natural community restoration, enhancement, and

protection elements for one or more covered species, and CM12 through CM21 address other stressors. CM22 includes avoidance and minimization measures that apply to all CMs. CM1, Water Facilities and Operation, is the only conservation measure that is analyzed and evaluated at the project-level in the BDCP EIR/S; all other CMs are presented at a programmatic level.

**RANGE OF ALTERNATIVES**

In addition to the No Action and Existing Conditions alternatives, the 2013 Administrative Draft of the BDCP EIR/S evaluates fifteen alternatives for CM1 and, with few exceptions, one alternative each for CMs 2-22. CM1 project alternatives vary based on methods of conveyance (pipeline/tunnel, canal, or through-Delta); conveyance alignment (east or west); capacity (ranging from 3,000 to 15,000 cfs); and operational scenarios (eight scenarios and application of a decision tree process). The BDCP EIR/S preferred alternative (alternative 4) includes the following major features:

- Three intakes on the Sacramento River in the north Delta, each with a capacity of 3,000 cfs.
- Pipelines to convey water from the intakes to the intake pumping plants.
- A single bore 29-foot diameter tunnel, 3.8 miles long, from the intake pumping plants to a new 760-acre intermediate forebay west of South Stone Lake.
- A dual bore, gravity fed, 40-foot diameter tunnel, 34.7 miles long, from the intermediate forebay to a new 600-acre Byron Tract Forebay near the existing Clifton Court Forebay in the south Delta.
- Conveyance operations that include criteria for north Delta diversion bypass flows, South Delta OMR (Old and Middle River) flows, south Delta export/import ratio, Yolo Bypass flows, Delta inflow and outflow, Delta Cross Channel operations, Rio Vista minimum instream flow, Delta water quality, and water quality for agricultural and municipal/industrial diversions.
- Approximately 65,000 acres of land acquired for natural and tidal communities protection and restoration, and approximately 84,000 acres of ecosystem restoration.

While a significant portion of water supply will still be diverted via through-Delta conveyance under the preferred alternative, none of the CMs involve improvements or upgrades to existing levees.

**DECISION TREE**

The decision tree process is proposed to address scientific uncertainty in spring and fall (termed spring and fall X2) outflow criteria to meet Longfin and Delta smelt biological goals and objectives. The spring outflow operating criteria will be determined based on whether the tree identifies flow criteria or tidal wetland restoration as necessary to meet Longfin smelt biological objectives. If it is determined that CMs other than outflow criteria (Fall X2) can achieve Delta smelt biological objectives, then there may be no high fall outflow scenario.

**IMPACTS**

The BDCP EIR/S identifies the environmental impacts of the proposed project and its construction on agriculture, water supplies and water quality, biological resources, local economics, transportation, recreation, and community and cultural resources. Because CMs 2-22 are currently analyzed at the programmatic level, detailed evaluation of the environmental impacts of these CMs are postponed to the future. Mitigation is proposed to reduce impacts; however, certain impacts (for example, those associated with water quality issues) remain "significant and unavoidable" and will require a statement of overriding considerations from the lead agency. The State Water Resources Control Board and the U.S. Environmental Protection Agency have expressed concerns about the frequency with which BDCP would exceed California state water quality standards. In addition, DSC has expressed concern about major changes to agricultural economy, recreation, and character in the Delta region.

**EFFECTS ANALYSIS**

The BDCP effects analysis (EA), which is limited to the preferred project (alternative 4), describes the anticipated impacts on biological resources (aquatic and terrestrial), Delta ecosystems and landscapes, covered species, and natural communities as compared to a baseline. Using both quantitative and qualitative methods, the EA evaluates both the impacts from covered actions (water exports and conveyance infrastructure) based on a project-level analysis, as well as impacts from habitat restoration and measures to reduce other stressors based on a program-level analysis to predict anticipated outcomes and overall net effect. The development of the EA has been subject to independent science review, which has raised concerns regarding the EA assumptions and methodology, and whether the EA can demonstrate that the preferred project is likely to achieve its biological objectives.

**BDCP ECOSYSTEM RESTORATION**

Historically, the Delta ecosystem was a dynamic landscape of floodplains and tidal marshland including vast areas of brackish and fresh water marshes, intertidal wetlands, and waterways and sloughs. The Delta landscape created a rich and complex ecosystem, which supported a great diversity of fish and wildlife. Over the past 150 years the Delta's landscape has been extensively modified and only about five percent of the original wetland habitat remains. The significant habitat loss that has occurred, along with the operation of the state and federal water projects, has negatively impacted native species. The Delta is in a state of ecological crisis and native fish species that were historically abundant are threatened, endangered, or extinct.

BDCP's 50-year proposal includes restoration of approximately 145,000 acres (approximately 17 percent of the Delta EIR/S study area) of aquatic and terrestrial habitat including approximately 30,000 acres of aquatic habitat restoration during the first 15 years. BDCP restoration elements are intended to support recovery of BDCP's covered species by restoring tidal and non-tidal wetland habitat, restoring active floodplain areas, and by enhancing degraded riverbanks. The following elements comprise the restoration scheme: 10,000 acres of restored floodplain; 65,000 acres of restored tidal habitat; 20 levee miles of restored channel margin; 5,000 acres of restored riparian woodland; 8,000 acres of protected

grassland; 2,000 acres of restored grassland; and 1,250 acres of other restoration (vernal pool, non-tidal marsh, alkali seasonal wetland). BDCP's ecological hope is based on new intake locations, revised water operations, and establishment of new and restored Delta habitat with other protective actions so that routine SWP and CVP water deliveries can occur while still supporting conservation and recovery of endangered fish species.

**CLIMATE CHANGE**

The BDCP EIR/S details the impacts of climate change on the conveyance facilities and the Delta's natural communities. The EIR/S does not, however, clearly differentiate those impacts that would be due to climate change alone from those that would be due to BDCP facilities and operation. For example, agencies have expressed concern that BDCP concludes most temperature-related water quality effects are caused solely or substantially by climate change as opposed to changes in water operations. Further, the EIR/S does not clearly discuss how the BDCP would help buffer the impacts of climate change on water supplies and natural communities, nor how it would adapt to changes beyond the 50-year timeframe despite the fact that the facilities will likely be in operation for a much longer period of time. Finally, the assumptions in the analyses were not clear regarding the actual amount of sea level rise predicted for the interior Delta.

**COSTS AND FUNDING**

The total project cost estimate is $24.7 billion over 50 years in 2012 dollars (see Table 2). Capital costs are estimated at $19.7 billion and operations and maintenance would be $4.8 billion (over 50 years). Under the principle of beneficiaries pay, the state and federal water contractors will fund the construction and operation of the conveyance facilities, and for mitigation of construction-related impacts (roughly 68 percent of total costs). On the other hand, funding for habitat restoration measures unrelated to project mitigation will depend on future bond issue(s) and future legislative action at both the state and federal levels, which is not a guaranteed revenue stream. This may be in conflict with ESA and NCCPA requirements for assured and adequate funding.

**TIMELINE/IMPLEMENTATION SCHEDULE**

As shown in Figure 2, CM1 (conveyance) is expected to be operational by year 11 (years following issuance of permits), and CM2 (Yolo Bypass Enhancement) by year 13. The remaining CMs 3-22 will begin between years 2 and 4, and will be ongoing throughout the 50-year timescale. Implementation could be delayed where land acquisition is inhibited by lack of willing sellers.

**FIGURE 1**
**BDCP PipelineTunnel Alignment Overview**
**(Taken from Figure 3-2 of the BDCP EIR/S)**

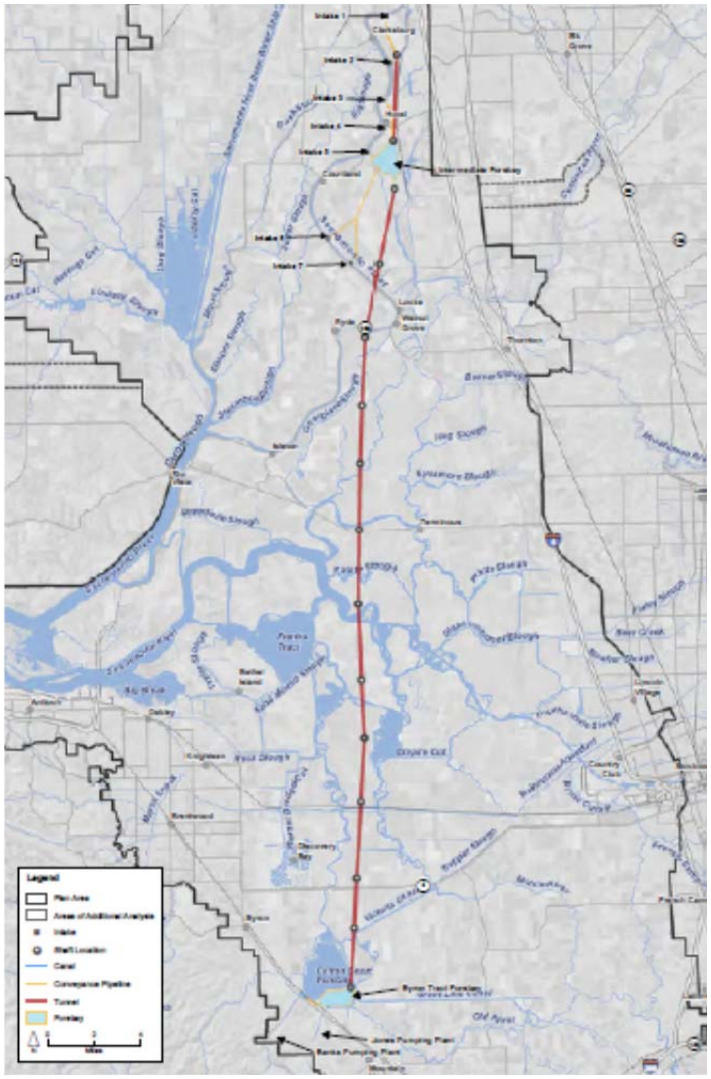

**FIGURE 2**
**BDCP Implementation Schedule**
**(Taken from BDCP Implementation Brochure)**

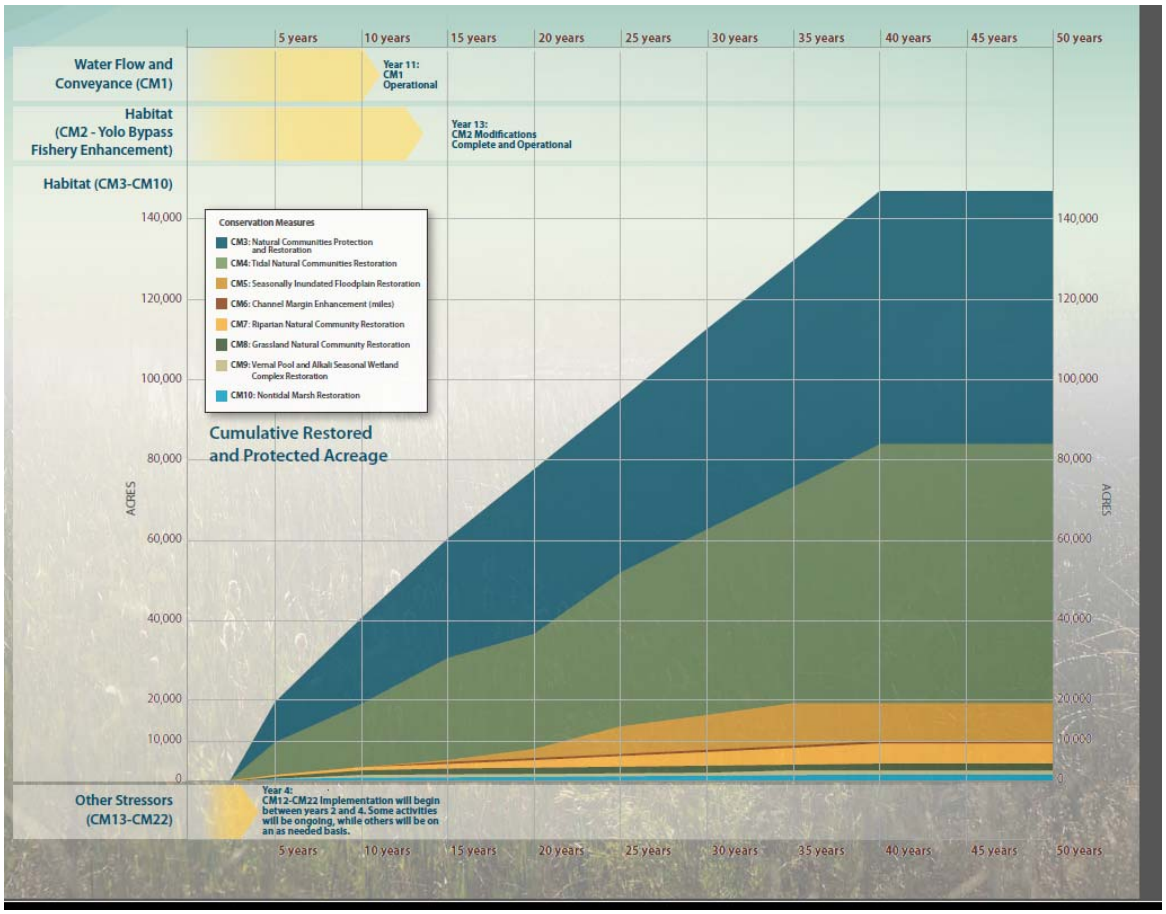

**TABLE 1**
**BDCP Conservation Measures**
**(Taken from Table 3-3 of the BDCP EIR/S)**

Table 3-3. Summary of Proposed BDCP Conservation Measures of All Action Alternatives

| CM | Title/Description | Primary Focus |
|---|---|---|
| 1 | Water Facilities and Operation | Manage the routing, timing, and amount of flow through the Delta while establishing an interconnected system of conservation lands across the Plan Area. |
| 2 | Yolo Bypass Fisheries Enhancement | |
| 3 | Natural Communities Protection and Restoration | |
| 4 | Tidal Natural Communities Restoration | Restore, enhance, and manage physical habitat to expand the extent and quality of intertidal, floodplain, and other habitats across defined conservation zones (CZs) and Restoration Opportunity Areas (ROA). |
| 5 | Seasonally Inundated Floodplain Restoration | |
| 6 | Channel Margin Enhancement | |
| 7 | Riparian Natural Community Restoration | |
| 8 | Grassland Natural Community Restoration | |
| 9 | Vernal Pool and Alkali Seasonal Wetland Complex Restoration | |
| 10 | Nontidal Marsh Restoration | |
| 11 | Natural Communities Enhancement and Management | |
| 12 | Methylmercury Management | Reduce the adverse effects of various stressors on covered species, such as toxic contaminants, nonnative predators, illegal harvest, and nonproject water diversions. |
| 13 | Invasive Aquatic Vegetation Control | |
| 14 | Stockton Deep Water Ship Channel Dissolved Oxygen Levels | |
| 15 | Localized Reduction of Predatory Fishes (Predator Control) | |
| 16 | Nonphysical Fish Barriers | |
| 17 | Illegal Harvest Reduction | |
| 18 | Conservation Hatcheries | |
| 19 | Urban Stormwater Treatment | |
| 20 | Recreational Users Invasive Species Program | |
| 21 | Nonproject Diversions | |
| 22 | Avoidance and Minimization Measures | Avoid or minimize direct take of covered species and minimize impacts on natural communities that provide habitat for covered species. |

Administrative Draft

**TABLE 2**
**Estimated Cost to Implement BDCP**
**(Cost in $Millions)**

| | CAPITAL COST | Total O&M COST | TOTAL |
|---|---|---|---|
| Water Facilities and Operation | $14,509 | $1,456 | **$15,965** |
| Natural Community Restoration | 4,152 | 247 | **4,399** |
| Other Stressors | 931 | 1,603 | **2,534** |
| Monitoring and Plan Administration | | 1,468 | **1,468** |
| Changed Circumstances | 178 | | **178** |
| **TOTAL** | **$19,770** | **$4,774** | **$24,544** |