BDCP

Bay Delta Conservation Plan

A Collaborative Approach to Restore the Delta Ecosystem and Protect Water Supplies

An Overview and Update

March 2009

BDCP Exec Sum.indd 1 3/3/09 9:01:56 AM

It is a major challenge to restore an ecosystem in an environment like the Delta that is highly altered and largely unnatural.

The Delta was once a vast marsh and floodplain dissected by meandering channels and sloughs that provided a dynamic habitat for a rich diversity of fish, wildlife and plants. The Delta of today has been altered by a system of artificial levees and dredged waterways constructed to support farming and urban development on islands as well as to provide flood control. These waterways also provide transportation corridors for ships and boats and convey water for urban and agricultural uses inside and outside the Delta.

The BDCP aims to enhance and restore the ecosystem processes and function, including seasonal flood plain habitat, subtidal and intertidal habitat, hydrologic conditions, and salinity within the Delta estuary, as well as to reduce direct losses of fish and other aquatic organisms. Because it is a permitting vehicle, the BDCP is in a unique position to implement restoration while simultaneously securing a reliable freshwater source for human use.

Introduction to the BDCP Draft Conservation Strategy

As a Habitat Conservation Plan/Natural Community Conservation Plan under federal and state law respectively, the purpose of the Bay Delta Conservation Plan (BDCP) is to provide for the conservation of threatened and endangered fish species in the Delta and improve the reliability of the water supply system within a stable regulatory framework. When adopted and approved by the federal and state fishery agencies, it will result in the issuance of long-term permits for those activities that support water supply and power generation, such as water conveyance and facility maintenance and improvements.

When completed, the BDCP is required to have the plan elements listed below on the left. This document is an overview and summary of some of the conservation measures that could comprise the BDCP's conservation strategy, shown as chapter 3 below. This document provides details on the approach and status of the development of the conservation strategy to date.

Chapter 1. Introduction
Chapter 2. Existing Ecological Conditions
Chapter 3. Conservation Strategy
Chapter 4. Description of Covered Activities
Chapter 5. Assessment of Impacts and Level of Take
Chapter 6. Plan Implementation
Chapter 7. Implementation Structure
Chapter 8. Implementation Costs and Funding Sources
Chapter 9. Alternatives Considered and Rejected
Chapter 10. Independent Science Advisory Process
Chapter 11. List of Preparers
Chapter 12. References
Appendices

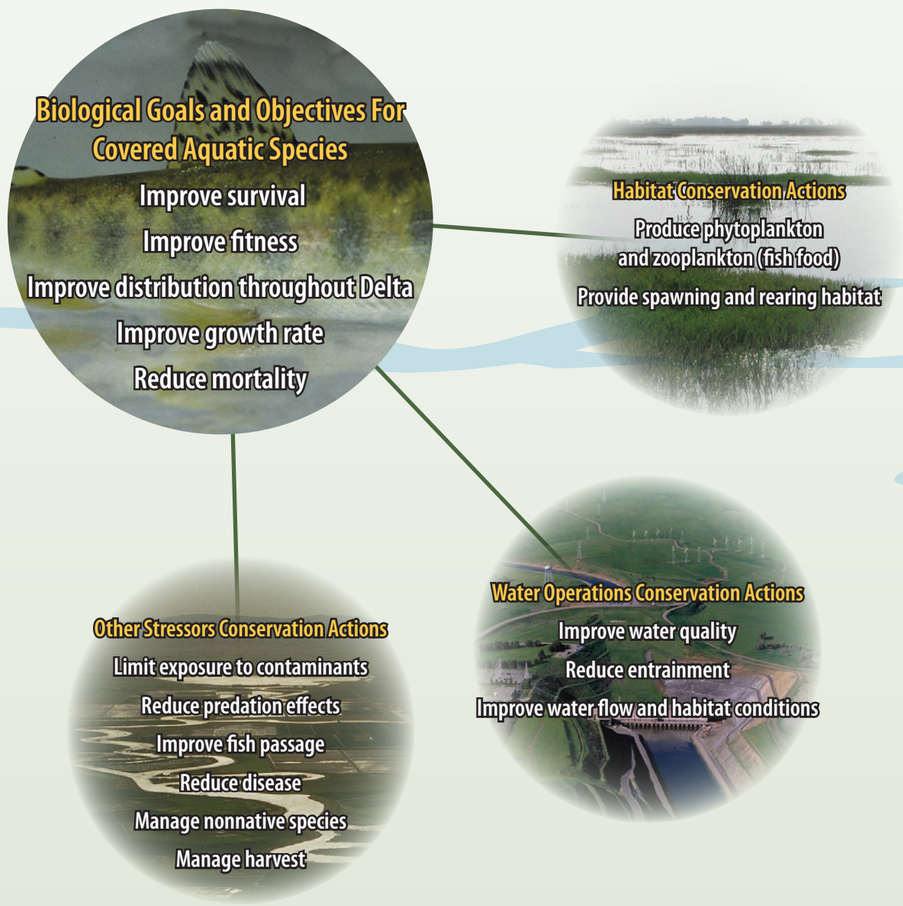
3.1 Introduction
3.2 Biological Goals and Objectives
3.3 Approach to Conservation: Overview of Key Conservation Measures and Their Integration
3.4 Conservation Measures
3.5 Monitoring Plan
3.6 Adaptive Management Program
3.7 Summary of the Approach to Minimization and Mitigation of Effects
3.8 Summary of Expected Outcomes for Covered Species and Natural Communities

BDCP Exec Sum.indd 2-1 3/3/09 9:02:03 AM

Conservation Strategy Overview

The BDCP approach is essential to making significant contributions to the recovery of covered species and to the restoration of a more naturally functioning ecosystem while securing a reliable freshwater source for human use. The draft conservation measures in this overview document reflect BDCP efforts to date with regard to fish species that are covered by the plan. Consideration of terrestrial species for coverage in the BDCP is ongoing.

The BDCP's draft conservation measures are highly interrelated. Any one of the conservation measures alone would have limited effectiveness. However, implementing these measures together as an integrated package dramatically increases the potential for success of the overall Conservation Strategy.



Primary Components of the Draft Conservation Strategy

Physical habitat restoration

- Including floodplain, freshwater and brackish tidal marsh, channel margin, riparian, and shallow subtidal habitat restoration
- Intended to improve spawning, rearing and migration habitat and to increase nutrient and food availability for covered fish species and to restore and enhance habitat for covered wildlife and plant species

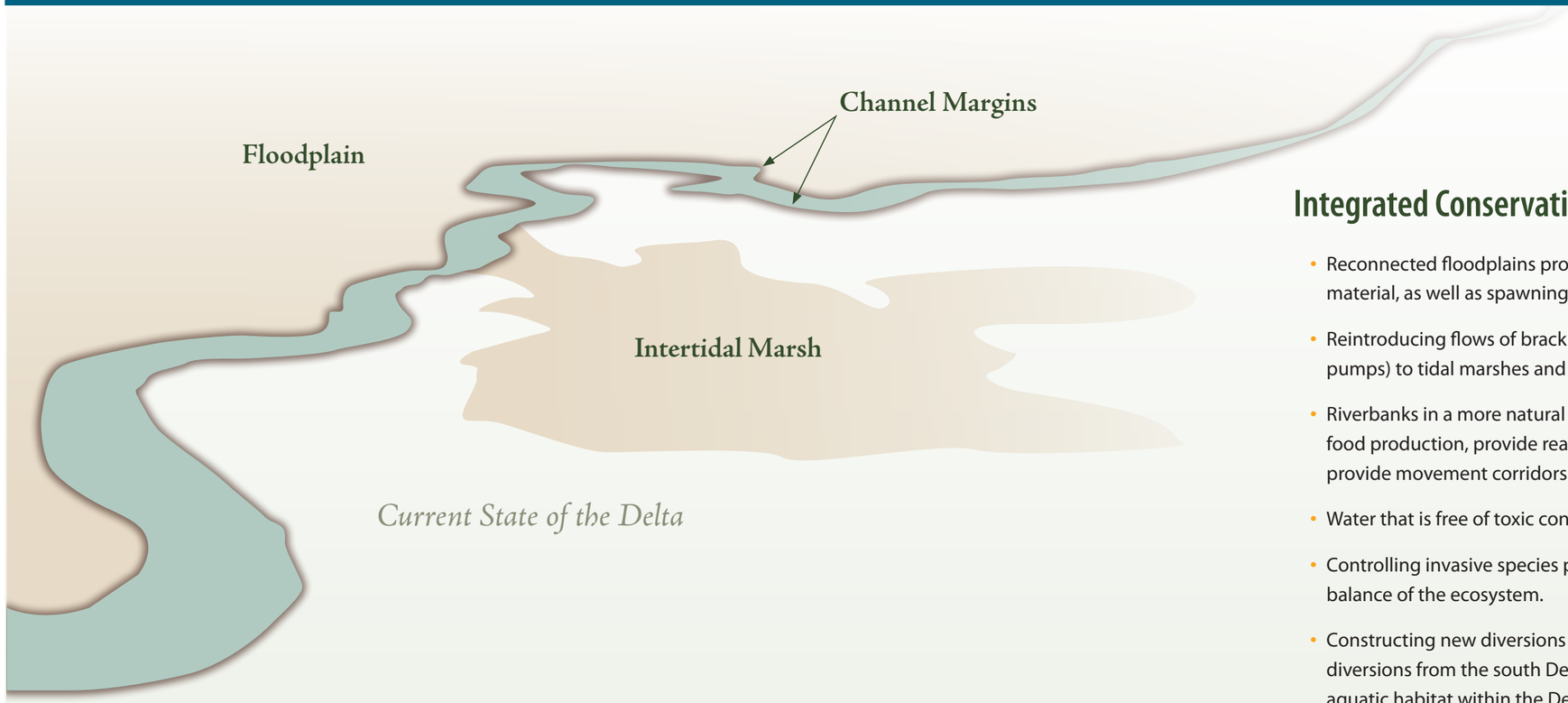
Reduction in other stressors

- Reducing the occurrence of toxic contaminants
- Controlling nonnative aquatic species
- Improving the physical design of operations of non-Project diversions to reduce entrainment
- Managing legal harvest and reducing illegal harvest of covered fish species
- Improving hatchery management practices to minimize adverse effects on wild salmonid stocks
- Providing a safety net against extinction by creating and expanding fish conservation hatchery/refuge programs
- Reducing the adverse effects of commercial and recreational activities on covered fish species

Improvements to water operations and flow

- Improving the existing system for moving water through the Delta using existing points of diversion in the southern Delta
- Constructing and operating new points of diversion in the northern Delta reach of the Sacramento River with isolated conveyance around the Delta to existing south Delta State Water Project and Central Valley Project facilities
- Providing seasonal fresh water flows to support fish survival, transport and migration, food production, growth, and reproduction
- Protecting the state water supply system against the threat of sea level rise, earthquakes, continued land subsidence, and higher winter flood flows
- Providing opportunities for habitat restoration that are otherwise incompatible with the existing through-Delta water conveyance and export system

BDCP Exec Sum.indd 2-3 3/3/09 9:02:13 AM



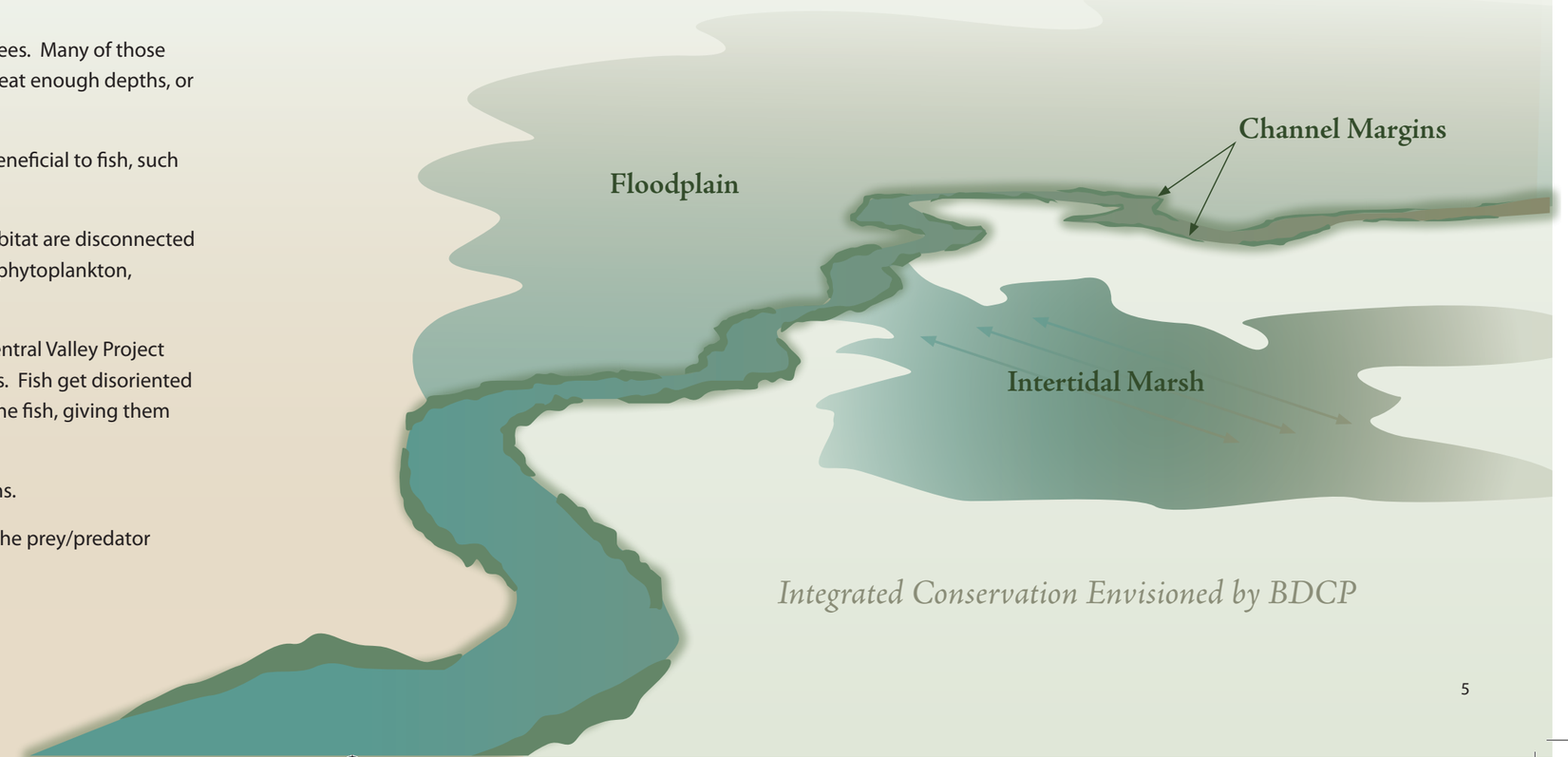
Current State of the Delta

Current State of the Delta

- Many historical floodplains are disconnected from water channels by levees. Many of those floodplains that are still connected are not inundated as frequently, at great enough depths, or for long enough periods of time to provide beneficial habitat for fish.
- Levees and riprap do not provide the types of habitat features that are beneficial to fish, such as overhanging shade, instream woody material and shallow benches.
- Lands that historically provided intertidal marsh and shallow subtidal habitat are disconnected by levees and dikes, meaning less habitat for fish and less production of phytoplankton, zooplankton, and less organic material that provide food for fish.
- The flow of water is affected by the pull of the State Water Project and Central Valley Project pumps. Fish and their food supply are pulled toward and into the pumps. Fish get disoriented and get lost or stuck in channels. Predators have learned where to find the fish, giving them an unnatural advantage.
- Toxic contaminants affect water quality, fish health and habitat conditions.
- Invasive species change the natural balance in the ecosystem, affecting the prey/predator system and disrupting the food web.

Integrated Conservation Envisioned by BDCP

- Reconnected floodplains produce large quantities of phytoplankton, zooplankton and organic material, as well as spawning and rearing habitat.
- Reintroducing flows of brackish and fresh water (unaffected by the pull of the water project pumps) to tidal marshes and subtidal aquatic habitat also supports a beneficial food web.
- Riverbanks in a more natural state (more logs, trees, bushes, and shallow benches) increase food production, provide rearing habitat, improve local water temperature conditions, and provide movement corridors for fish.
- Water that is free of toxic contaminants improves fish health and the health of the food web.
- Controlling invasive species protects fish from predation and helps support a more natural balance of the ecosystem.
- Constructing new diversions equipped with state-of-the-art fish screens while reducing diversions from the south Delta is expected to reduce mortality and substantially improve aquatic habitat within the Delta.



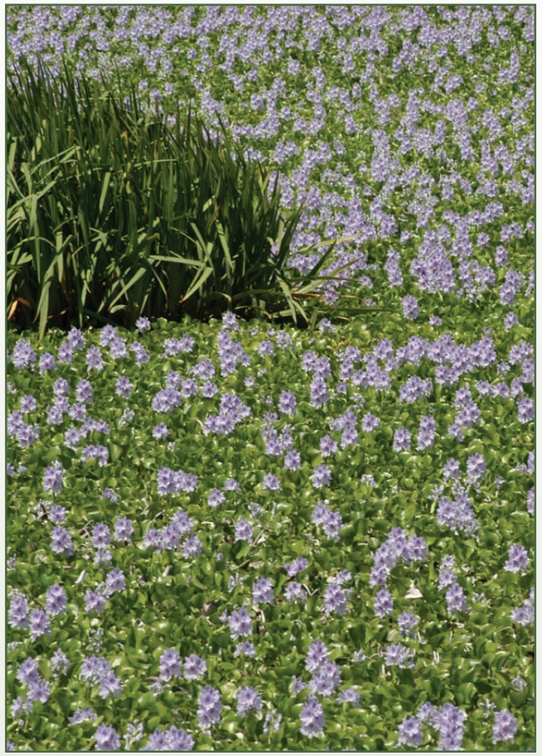
Integrated Conservation Envisioned by BDCP

BDCP Exec Sum.indd 4-5 3/3/09 9:02:15 AM

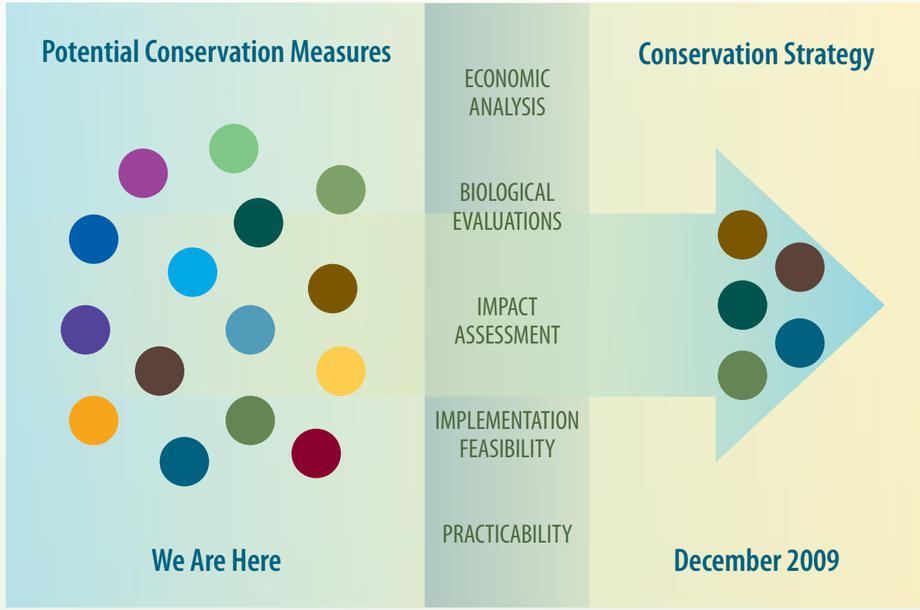
Planning Principles

To help guide their deliberations the BDCP Steering Committee developed the following planning principles to clarify the approach to the integration of conservation measures and the underlying rationales for the BDCP.

1. Provide a comprehensive set of conservation measures to recover species
2. Divert more water in the wetter periods and less in the drier periods
3. Focus on natural biological and physical processes
4. Build in flexibility
5. Address scientific uncertainty directly through adaptive management
6. Provide for reliable water supplies



Developing Conservation Measures



At this stage, the BDCP Steering Committee is discussing and considering a wide variety of potential conservation measures. After continued analysis, including economic analysis, biological evaluations, impact assessment, and a feasibility assessment, only those conservation measures that meet the plan's objectives will be carried forward.

BDCP Process Moving Forward

BDCP Exec Sum.indd 6-7 3/3/09 9:02:18 AM

Overview Strategy Elements

In December 2008, the BDCP Steering Committee released *An Overview of the Draft Conservation Strategy for the Bay Delta Conservation Plan* to share key components of the draft Conservation Strategy as well as the approach and direction being taken by the BDCP Steering Committee. The Overview identified a number of elements that demonstrated the integrated nature of the draft Conservation Strategy, including those that are likely to form the nucleus of the overall Conservation Strategy. These elements were selected based on the following attributes:

1. Elements that shape the overall architecture of a new hydrodynamic system that would be developed as a result of the BDCP.
2. Measures that would be likely to be included in any scenario to rehabilitate the Delta ecosystem and water supply system.
3. Elements that could be planned or constructed in the next five to 10 years.

A significant amount of additional detail than can be included in this brief summary—including a discussion of assumptions, rationale, issues, concerns, and next steps—is available by reading *An Overview of the Draft Conservation Strategy for the Bay Delta Conservation Plan* dated January 12, 2009.

Large Scale Tidal Marsh Restoration in the Cache Slough Complex

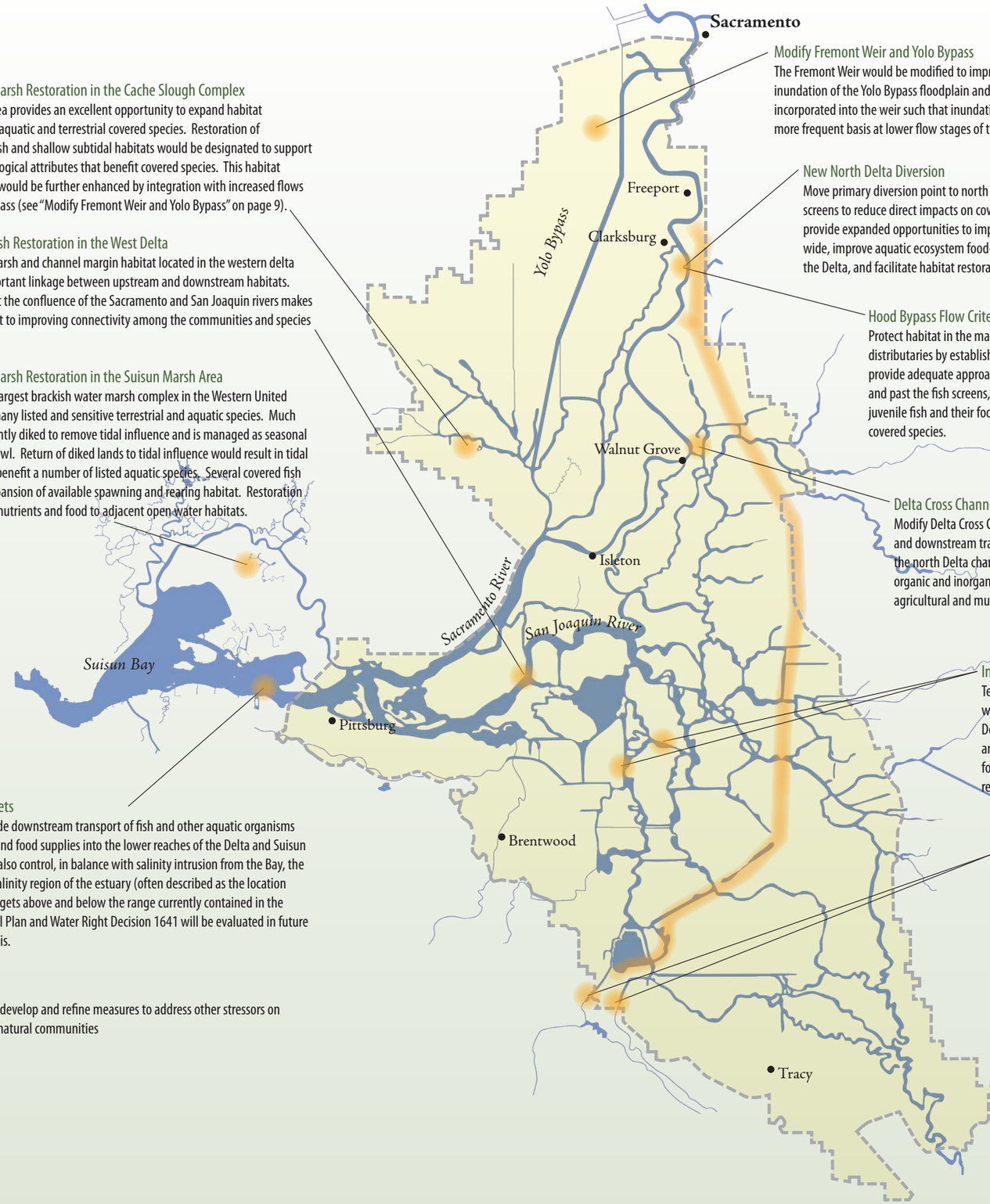
The Cache Slough area provides an excellent opportunity to expand habitat supporting multiple aquatic and terrestrial covered species. Restoration of freshwater tidal marsh and shallow subtidal habitats would be designated to support the physical and biological attributes that benefit covered species. This habitat restoration element would be further enhanced by integration with increased flows through the Yolo Bypass (see "Modify Fremont Weir and Yolo Bypass" on page 9).

Strategic Tidal Marsh Restoration in the West Delta

Tidal and subtidal marsh and channel margin habitat located in the western delta may provide an important linkage between upstream and downstream habitats. This area's location at the confluence of the Sacramento and San Joaquin rivers makes it uniquely important to improving connectivity among the communities and species of the Delta.

Large Scale Tidal Marsh Restoration in the Suisun Marsh Area

Suisun Marsh is the largest brackish water marsh complex in the Western United States. It supports many listed and sensitive terrestrial and aquatic species. Much of the marsh is currently diked to remove tidal influence and is managed as seasonal wetlands for waterfowl. Return of diked lands to tidal influence would result in tidal brackish marsh and benefit a number of listed aquatic species. Several covered fish would benefit by expansion of available spawning and rearing habitat. Restoration also may contribute nutrients and food to adjacent open water habitats.



Modify Fremont Weir and Yolo Bypass

The Fremont Weir would be modified to improve passage for fish and allow more frequent inundation of the Yolo Bypass floodplain and Cache Slough. An operable gate would be incorporated into the weir such that inundation of the bypass could occur in winter and spring on a more frequent basis at lower flow stages of the Sacramento River than under existing conditions.

New North Delta Diversion

Move primary diversion point to north Delta diversion facilities with state-of-the-art fish screens to reduce direct impacts on covered species by entrainment at south Delta diversions, provide expanded opportunities to implement comprehensive conservation measures Delta-wide, improve aquatic ecosystem food-web processes, restore more natural flow patterns in the Delta, and facilitate habitat restoration in the south Delta.

Hood Bypass Flow Criteria

Protect habitat in the mainstem Sacramento River and downstream distributaries by establishing bypass flow criteria to ensure sufficient flow to provide adequate approach and sweeping velocities for fish moving toward and past the fish screens, provide downstream transport for larval and juvenile fish and their food, and protect spawning and rearing habitats for covered species.

Delta Cross Channel Operations

Modify Delta Cross Channel gate operations to improve fish survival and downstream transport of nutrients. Better flow conditions in the north Delta channels enable fish migration and movement and organic and inorganic nutrient transport, while minimizing effects on agricultural and municipal water quality.

Interim Tidal Gates

Temporary gates could be installed in sloughs on the western and eastern side of Bacon Island, in the central Delta, or in Three-Mile Slough and operated seasonally and on tidal cycles to provide added protection to fish, food resources, and nutrients, as well as improve water reliability for south Delta diverters.

Manage South Delta Exports/Hydrodynamics

Reduce entrainment of fish and food resources by decreasing Old and Middle river reverse flows through reduction of south Delta exports (rather than by increasing San Joaquin River flows, for which there is limited control through the BDCP process). Include an interim program to test the efficacy of temporary gates to reduce entrainment. Evaluate the benefits of other potential measures, including isolating Middle or Old river corridors or other south Delta actions.

Delta Outflow Targets

Delta outflows provide downstream transport of fish and other aquatic organisms as well as nutrients and food supplies into the lower reaches of the Delta and Suisun Bay. Delta outflows also control, in balance with salinity intrusion from the Bay, the location of the low salinity region of the estuary (often described as the location of "X2"). Outflow targets above and below the range currently contained in the Water Quality Control Plan and Water Right Decision 1641 will be evaluated in future modeling and analysis.

Other Stressors

Continue to identify, develop and refine measures to address other stressors on covered species and natural communities

BDCP Exec Sum.indd 8-9 3/3/09 9:02:24 AM

Conservation Measures Addressing Other Stressors

A number of stressors that affect covered fish species throughout the Delta and Suisun Bay and Marsh would be addressed through conservation measures that are not specific to individual geographic regions. Examples of potential Other Stressors measures include:

- Preventing, identifying and rapidly responding to new introductions of nonnative species, and controlling existing populations.
- Reducing inputs of toxic contaminants to Delta waterways.
- Improving hatchery practices to benefit wild-reared salmonids.
- Supporting conservation hatcheries to create refuge populations of delta and longfin smelt.
- Improving harvest practices to protect covered fish species from overfishing and illegal harvest.
- Improving the design and operations of non-Project diversions to reduce entrainment of covered fish species.
- Reducing the effects of recreational activities on specific sensitive habitat sites in the Delta.

BDCP Background

The BDCP Steering Committee was formed in mid-2006. Members of the Steering Committee signed a Planning Agreement in late 2006. Throughout 2007, the Steering Committee evaluated different conceptual approaches to the development of the BDCP, focusing primarily on water conveyance and ecosystem restoration opportunities. Ten conservation strategies were analyzed based on biological, planning, and other criteria, then narrowed to four conservation options.

In late 2007, the Steering Committee published *Points of Agreement for Continuing into the Planning Process*, which outlined basic approaches for developing the elements of the BDCP. The Steering Committee agreed that the most promising approach for achieving both BDCP conservation and water supply goals would be to develop and analyze more environmentally friendly ways to move water through and/or around the Delta, and then to develop corresponding conservation strategies.

Throughout 2008, the Steering Committee focused on:

- Developing biological goals and objectives
- Identifying existing ecological conditions
- Identifying habitat restoration and conservation actions
- Analyzing different water conveyance approaches
- Developing ideas for the eventual organizational structure for governing BDCP implementation
- Developing an adaptive management and monitoring program

Purpose of the BDCP

The purpose of the Bay Delta Conservation Plan is to provide for the recovery of endangered and sensitive species and their habitats in the Delta in a way that also will provide for the protection and restoration of water supplies. The BDCP is being developed to provide for the issuance of permits under the Federal Endangered Species Act and the California Natural Community Conservation Planning Act and will undergo extensive environmental analysis that will include opportunities for public review and comment.

For more information about the BDCP, please contact Karla Nemeth by phone at (916) 651-7587 or by email at Karla.Nemeth@resources.ca.gov.

BDCP Exec Sum.indd 10-11 3/3/09 9:02:25 AM

Challenges

The changes in Delta land use and hydrology, water conveyance facilities, and ways to reduce other stressors on fish species that are being contemplated in the Draft Conservation Strategy have raised concerns among Delta communities about the potential local and Delta-wide effects of such actions. The BDCP Steering Committee recognizes these concerns and the need for an intensified, ongoing dialogue with Delta communities and other members of the public to better understand and explore solutions to conflicts that may arise as a result of the implementation of the BDCP.

The issues and concerns identified currently include, but are not limited to:

- existing land uses such as agriculture and ag-based economies
- recreational activities and recreation-based economies
- property tax, in lieu fees and user fee revenues of local jurisdictions
- potential regulatory effects on adjacent property owners
- mosquito and vector controls
- the production of methylmercury
- the effects of the plan on other protected terrestrial species
- the compatibility of the plan with flood control plans
- the effects on existing irrigation and drainage infrastructure
- adverse effects on local water quality such as salinity, dissolved oxygen, and organic carbon
- existing water rights
- effects on existing wastewater treatment operations of local jurisdictions
- local control over local land use

The BDCP Steering Committee will strive to resolve these issues and additional concerns that may arise through further detailed analysis of the BDCP as draft conservation measures are refined, as well as during the environmental review process of the proposed plan and through the design of avoidance and mitigation strategies for potentially unavoidable effects as the planning process progresses.

Public Participation

The BDCP process is open to public participation. All Steering Committee, Technical Team and Working Group meetings are open to the public. Documents, links, a calendar of events, and other useful information are available at the BDCP Web site, located at ***http://resources.ca.gov/bdcp/***.

There is a three-tiered approach to public participation, tied directly to milestones in the development of the BDCP.

1. Leading up to the Administrative Draft of the BDCP, which is expected in summer 2009, the public is encouraged to participate in Steering Committee, Technical Team and Working Group meetings and to submit comments in writing (which are posted on the Web site for public review). BDCP staff are actively engaged in making presentations and providing briefings to interested organizations. The focus in this time period will be on crafting the Administrative Draft, which will be the first opportunity to see the shape of an overall, integrated plan.
2. After the Administrative Draft is made available, public participation will shift toward seeking input directly about elements of the plan, and narrowing in on issues and details that can be addressed in the Public Review Draft. Again, BDCP staff will be available for briefings and presentations, and the public will be encouraged to continue participation in the various BDCP meetings and to provide comment.
3. Once the Public Review Draft has been released, there will be public meetings and a public review period, as established by state and federal law, typically lasting 90 days.

In addition, there are several opportunities for public input as a part of the environmental review process, including scoping meetings and public meetings associated with both the Draft and Final Environmental Impact Report/Environmental Impact Statement. For information about the environmental review process, visit ***http://www.water.ca.gov/deltainit/bdcp.cfm.***

For more information or to set up a presentation or briefing, contact Karla Nemeth at 916/651-7587 or ***karla.nemeth@resources.ca.gov***.

BDCP Exec Sum.indd 12-13 3/3/09 9:02:29 AM

General BDCP Definitions & Acronyms

BDCP	Bay Delta Conservation Plan, a conservation plan prepared to meet the requirements of the Federal Endangered Species Act, California Endangered Species Act and/or the Natural Community Conservation Planning Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
Covered Activities	Activities to be identified in the BDCP that support water supply and power generation, including water conveyance (pipes, canals, and pumps) and facility maintenance and improvements
Covered Species	Species that are threatened or endangered in the Delta and potentially affected by certain water and energy projects to be identified in the BDCP
CVP	Central Valley Project—operated by the Bureau of Reclamation; irrigates more than 3 million acres of farmland and provides drinking water to nearly 2 million consumers
EIR/EIS	Environmental Impact Report / Environmental Impact Statement
Endangered	At risk of becoming extinct
Entrainment	The loss of fish and other organisms as a direct result of water diversion operations
ESA	Federal Endangered Species Act
Fishery Agencies	CA Department of Fish and Game (DFG), US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS)
Flow	The rate, direction and volume of water movement through Delta channels
HCP	Habitat Conservation Plan—prepared pursuant to section 10(a) (1) (B) of ESA
Incidental Take Permit	Permit that allows for the take of listed species incidental to, and not the purpose of, an otherwise lawful activity
Listed Species	Species designated as candidate, threatened or endangered pursuant to CESA and/or listed as threatened or endangered under ESA
NCCPA	Natural Community Conservation Planning Act
NCCP	Natural Community Conservation Plan, prepared to meet the requirements of Fish and Game Code, section 2800

NEPA	National Environmental Policy Act
NOI/NOP	Notice of Intent (federal) and Notice of Preparation (state)
Planning Area	The legal Delta, which is the geographic area proposed to be addressed in the BDCP
PRE	Potential Regulated Entity—Those entities that may seek take authorizations, including federal and non-federal entities that export, divert, or utilize water from the Delta and/or its tributaries within the Planning Area for water supply or power generation
Rearing Habitat	Areas in Delta channels where juvenile fish find food and shelter to live and grow
Spawning Habitat	Aquatic habitat suitable for reproduction (e.g., egg laying and incubation)
Steering Committee	The principal forum within which key policy and strategy issues related to the BDCP are discussed and considered. Members of the Steering Committee include state, federal, and local water agencies; state and federal fish agencies; environmental organizations; and other interested parties
SWP	State Water Project—operated and maintained by the California Department of Water Resources; provides water supplies for 25 million Californians and 755,000 acres of irrigated farmland
Take	Defined in the federal and state Endangered Species Acts as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a threatened or endangered species
Threatened	At risk of becoming endangered in the foreseeable future

BDCP Exec Sum.indd 14-15 3/3/09 9:02:36 AM

Immediate Next Steps in Developing the Plan

The BDCP Steering Committee anticipates the publication by the federal and state lead agencies of a draft joint Environmental Impact Statement/Environmental Impact Report by the end of 2009, with public reviews to follow. To meet this schedule, environmental review has commenced and other work is underway to map out the necessary analyses that will be undertaken to ensure a full and complete environmental review of the proposed plan.

In coming months, the Steering Committee will address a number of important and difficult issues that are intrinsic to such a large and complex conservation planning process, including the following issues related to the development of Chapter 3:

1. Continued identification, development and refinement of measures to address other stressors
2. Completing further analytical work and modeling to assess and refine conservation measures
3. Refining the operating parameters for the State Water Project and Central Valley Project taking into consideration effects on Delta water quality
4. Refining the current draft biological goals and objectives for the BDCP and developing biological goals and objectives and conservation measures for covered terrestrial species
5. Completing the adaptive management and monitoring plans
6. Refining conservation measures and their monitoring metrics in response to comments and new information

The Steering Committee also will address governance and assurances, and implementation structures for the plan, as well as identify costs and address funding. In addition, a number of issues extend beyond the current scope of the BDCP, but yet are related to the actions being considered in the Conservation Strategy. These include, but are not limited to:

- Sacramento River inflows
- San Joaquin River inflows
- New water storage facilities
- Conservation measures outside the planning area
- Measures to address changed circumstances (e.g., levee failure and climate change)

BDCP Steering Committee

Federal and State Agencies

California Bay-Delta Authority
California Department of Water Resources
California Resources Agency (chair)
State Water Resources Control Board
US Department of Interior, Bureau of Reclamation
US Army Corps of Engineers

Fish Agencies

California Department of Fish and Game
US Fish and Wildlife Service
National Marine Fisheries Service

Water Agencies

Kern County Water Agency
Metropolitan Water District of Southern California
San Luis & Delta-Mendota Water Authority
Santa Clara Valley Water District
Westlands Water District
Zone 7 Water Agency
Contra Costa Water District
Friant Water Authority
North Delta Water Agency

Environmental Organizations

American Rivers
Defenders of Wildlife
Environmental Defense Fund
Natural Heritage Institute
The Bay Institute
The Nature Conservancy

Other Organizations

California Farm Bureau Federation
Mirant Delta

BDCP Exec Sum.indd 16-17 3/3/09 9:02:44 AM

BDCP

BAY DELTA CONSERVATION PLAN

www.resources.ca.gov/bdcp/

BDCP Exec Sum.indd 18 3/3/09 9:02:44 AM