

# BAY DELTA CONSERVATION PLAN UPDATE

July 26, 2011



# BDCP – Overview

- Science-based, long-term conservation plan
- Plan provides compliance with state and federal endangered species laws
- Must be implemented to continue project operations
- Goal is to increase water supply over current regulatory constraints



# BDCP – Where We Are Today

- November 18, 2010 Working Draft
  - [www.baydeltaconservationplan.com](http://www.baydeltaconservationplan.com)
- December 2010 State Highlights Document
  - [www.baydeltaconservationplan.com](http://www.baydeltaconservationplan.com)
- December 2010 Federal Status Update
- First public meeting held by new state Administration

# BDCP – Working Groups

- Biological goals and objectives
- Yolo Bypass Fishery Enhancement Plan
- Governance structure
- Water quality modeling in South Delta
- Cache Slough habitat
- Levee maintenance mitigation
- BDCP compatibility with Delta agriculture
- Adaptive range of water operations criteria
- South Delta habitat
- BDCP relationship to San Joaquin River Restoration Program
- Stone Lakes National Wildlife Refuge
- Conveyance facilities – size and configuration
- Financing

# BDCP – Conservation Strategy

- Comprehensive ecosystem approach provides best opportunities to meet co-equal goals: fishery recovery and water supply restoration
- Separate water delivery system from Delta freshwater flows; new conveyance facility would bypass Delta
- Restore thousands of acres of habitat
- Restore river flows to more natural patterns
- Address the many other stressors impacting fish populations – invasive species, pesticides, ammonia discharges, etc.



# BDCP “Proposed Project”

- The “proposed project” consists of 19 conservation measures addressing water flow, habitat, and other stressors
- One for flow, 10 for habitat and 8 for other stressors
- Found in Chapter 3 of the Nov. 18, 2010 Working Draft
- Summarized on pages 28-29 of the December Highlights Document

# Current Flow Patterns with South Delta Facilities



# More Natural Flow Patterns with New North Delta Facilities



# BDCP – New Conveyance Benefits

- Substantial improvements over existing conditions:
  - Flexibility from multiple points of diversion
  - Minimizes potential for entrainment
  - Allows more extensive habitat restoration
  - Restores more natural flow patterns in the Delta
  - Protects water supply from earthquake threats and rising sea levels

# CM 1: Water Facilities and Operation Criteria

- Pipeline/tunnel alignment facilities
  - 15,000 cfs
  - 5 intakes
- Water operations criteria restricting diversions at North and South Delta facilities

# CM 1 – Water Operations Criteria

- Will improve exports to pre-Wanger levels up to but **NO GREATER THAN** quantities previously allowed in D. 1641
- Do not infringe on any existing water rights
- Will result in compliance with all existing water quality requirements
- Any potential effects on upstream storage must be fully evaluated and addressed

## CONSERVATION STRATEGY

# Criteria Apply to These Locations

### CM2 Yolo Bypass\*

Objectives: (1) Modify Fremont and Sacramento Weirs to improve fish passage and to increase the frequency and duration of Yolo Bypass inundation, (2) increase spawning and rearing habitat for splittail, juvenile and adult salmon, and sturgeon (3) provide alternate migration corridor to the mainstem Sacramento River, and (4) increase availability and quality of food and habitat in Cache Slough. (Yolo Bypass operations are covered under Conservation Measure 2).

### Operate the Montezuma Slough Salinity Control Gate

during the long-term implementation period for environmental benefits. Objectives: Reduce delays in outmigration of juvenile salmonids and sturgeon by allowing more water and fish to flow past Chipps Island, and improve access of splittail, salmonids, and sturgeon to existing and future restored intertidal marsh habitats in Suisun Marsh.

### Rio Vista Flows

Objectives: Maintain flows for migrating salmon and smelt.

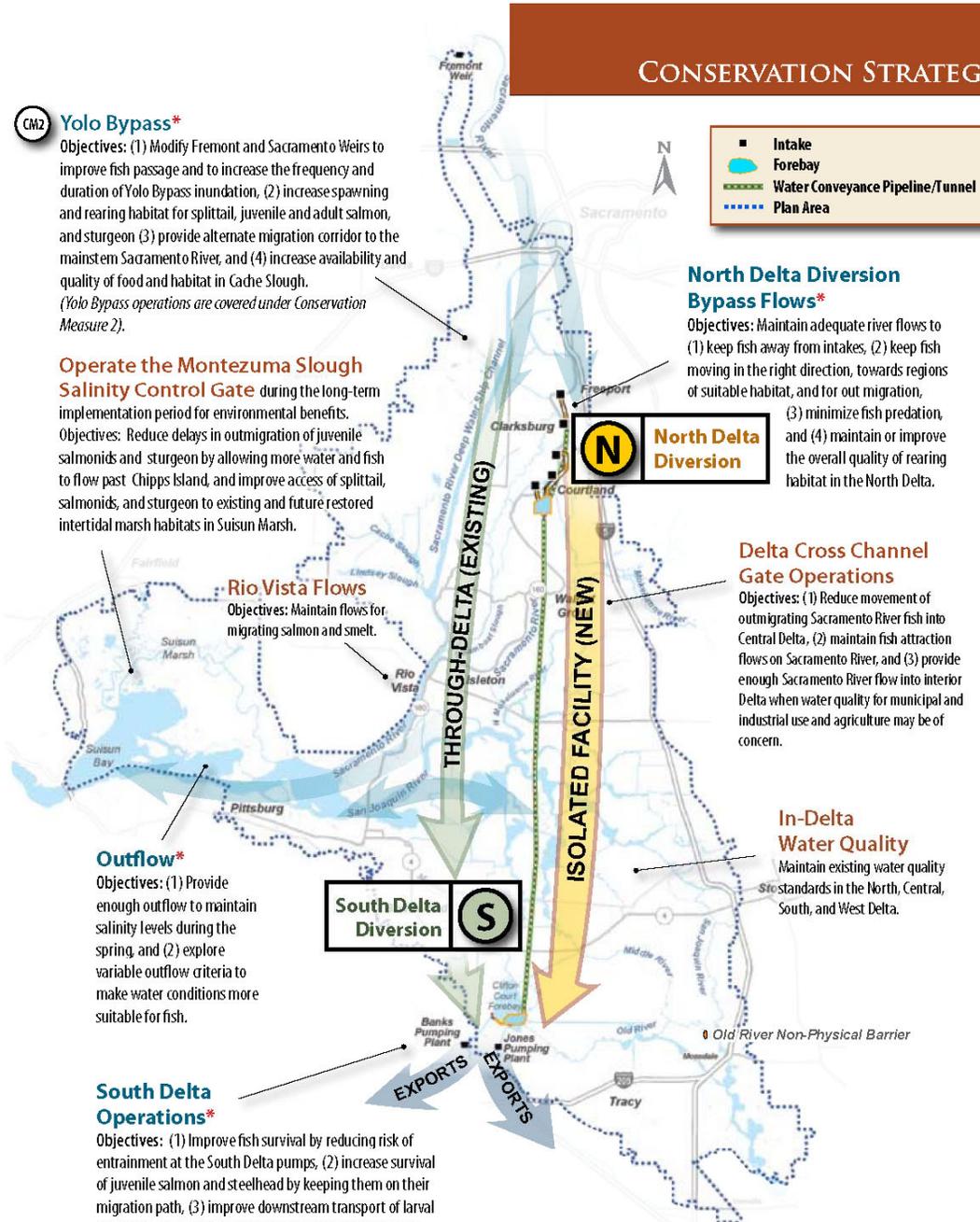
### Outflow\*

Objectives: (1) Provide enough outflow to maintain salinity levels during the spring, and (2) explore variable outflow criteria to make water conditions more suitable for fish.

### South Delta Operations\*

Objectives: (1) Improve fish survival by reducing risk of entrainment at the South Delta pumps, (2) increase survival of juvenile salmon and steelhead by keeping them on their migration path, (3) improve downstream transport of larval and juvenile fish, and (4) improve the production of food resources within the Delta and Suisun Bay.

\* Primary Delta Flow Management Factor



### North Delta Diversion Bypass Flows\*

Objectives: Maintain adequate river flows to (1) keep fish away from intakes, (2) keep fish moving in the right direction, towards regions of suitable habitat, and for out migration, (3) minimize fish predation, and (4) maintain or improve the overall quality of rearing habitat in the North Delta.

### Delta Cross Channel Gate Operations

Objectives: (1) Reduce movement of outmigrating Sacramento River fish into Central Delta, (2) maintain fish attraction flows on Sacramento River, and (3) provide enough Sacramento River flow into interior Delta when water quality for municipal and industrial use and agriculture may be of concern.

### In-Delta Water Quality

Maintain existing water quality standards in the North, Central, South, and West Delta.

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Old River Non-Physical Barrier

Tracy

Middle River

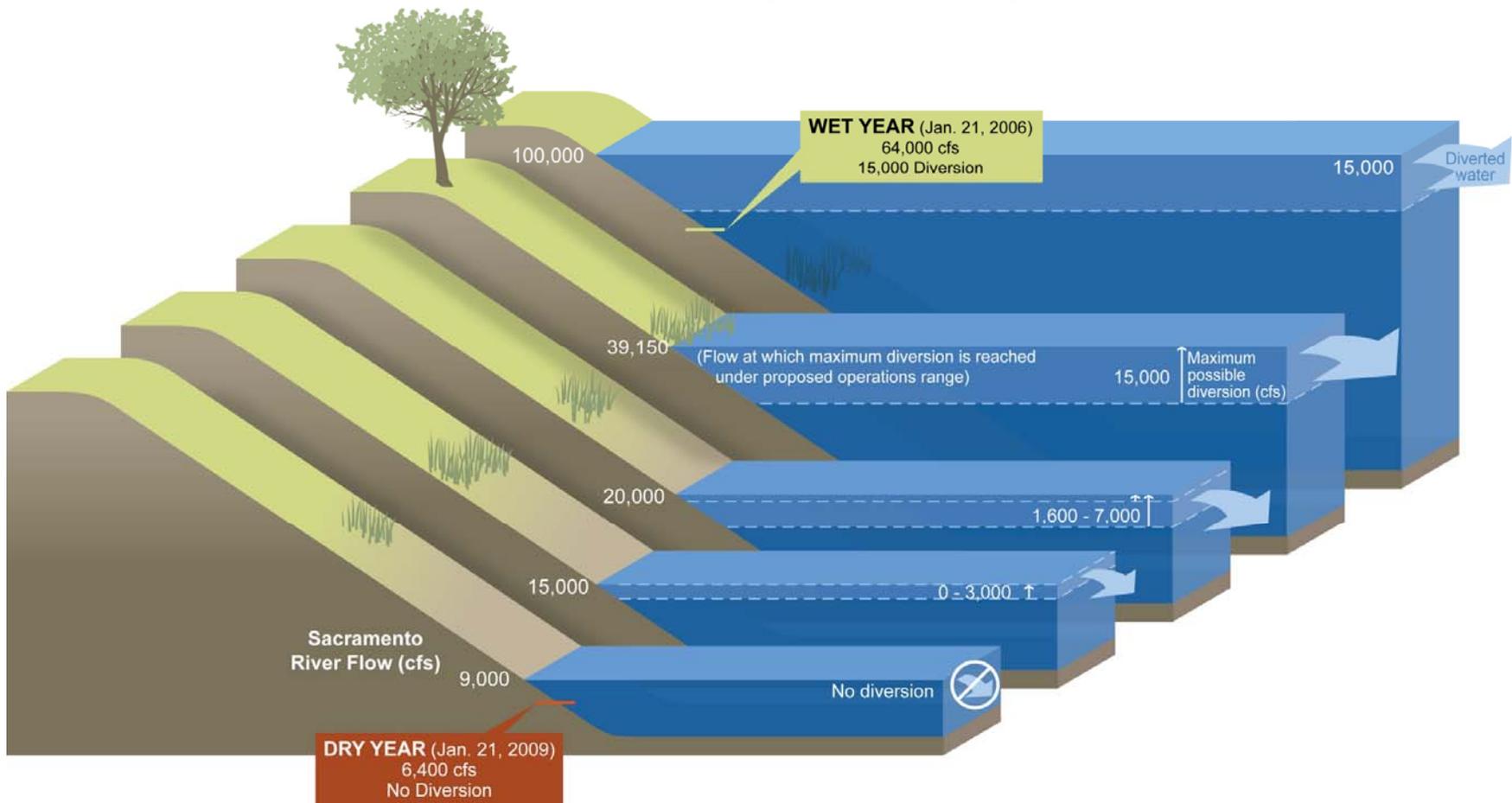
Old River

# Two Versions of Long-Term Operating Criteria

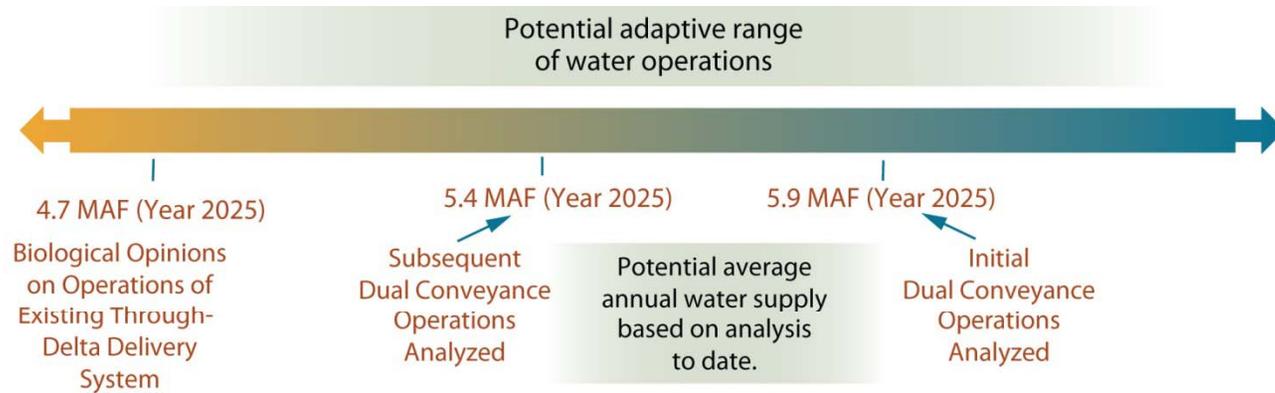
- January 2010 (see Table 3-13, pg. 3-312 of November 18 working draft)
- Five agencies' proposed changes (“Alternative BDCP Initial Project Operations Criteria Proposed for Analysis”) available at:
  - [www.baydeltaconservationplan.com](http://www.baydeltaconservationplan.com)

# North Delta Diversion Rules (“Hood Bypass Requirements”)

## New Diversion Proposed Operations Criteria (December - April\*)

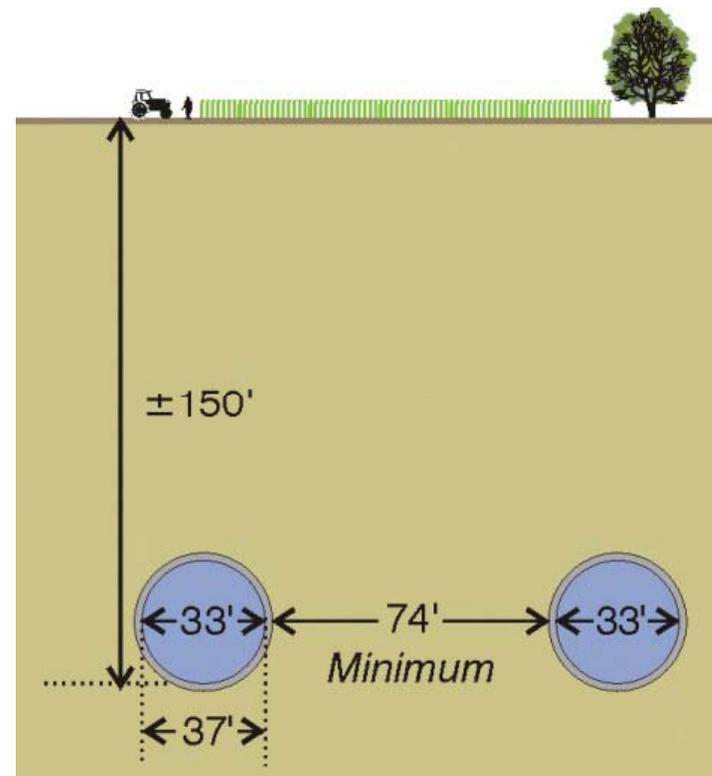


# Potential Exports Under Proposed Operating Criteria



# Tunnel Sizes Analyzed

- 3,000 cfs
- 6,000 cfs
- 9,000 cfs
- 12,000 cfs
- 15,000 cfs

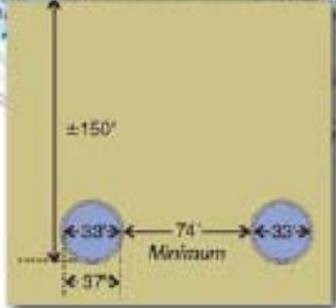


# Intake Facilities

## Intermediate Forebay

- Water surface area: Approximately 750 acres
- Intermediate pump station with 16 pumps
- Embankment height: Approximately 32 feet above sea level
- Active storage volume: Approximately 5,200 acre-feet.

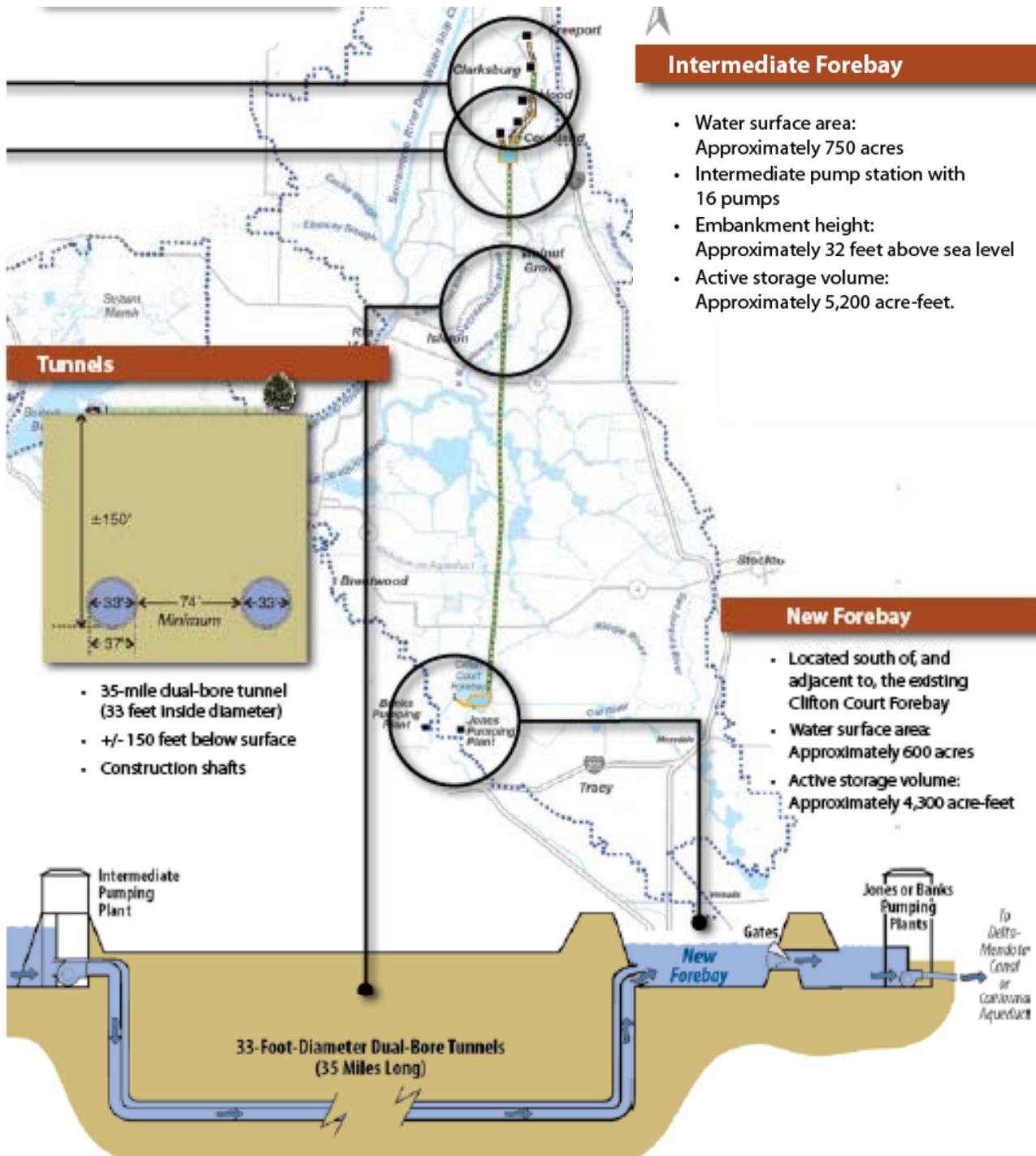
## Tunnels



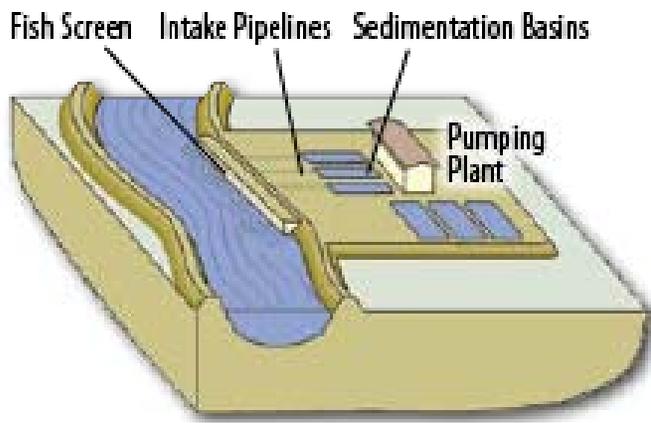
- 35-mile dual-bore tunnel (33 feet inside diameter)
- +/- 150 feet below surface
- Construction shafts

## New Forebay

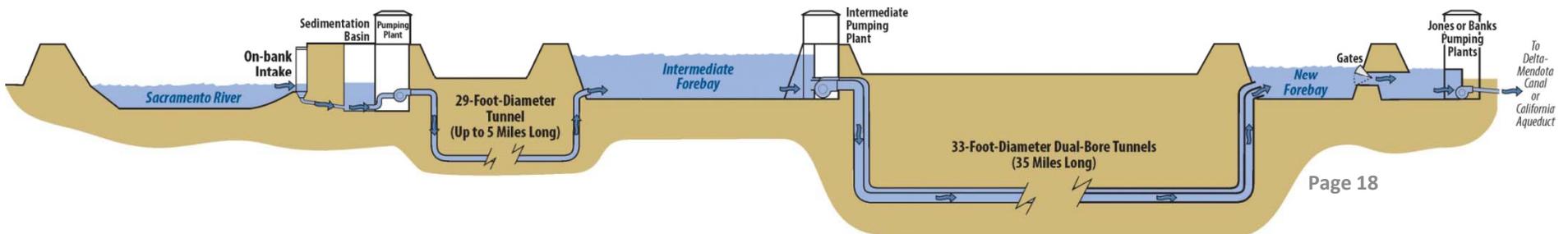
- Located south of, and adjacent to, the existing Clifton Court Forebay
- Water surface area: Approximately 600 acres
- Active storage volume: Approximately 4,300 acre-feet



# Intake Facilities



- On-bank technology
- 5 Intakes from Freeport to Courtland
  - 90-acre footprint
  - Up to 1,700-foot-long fish screen structures



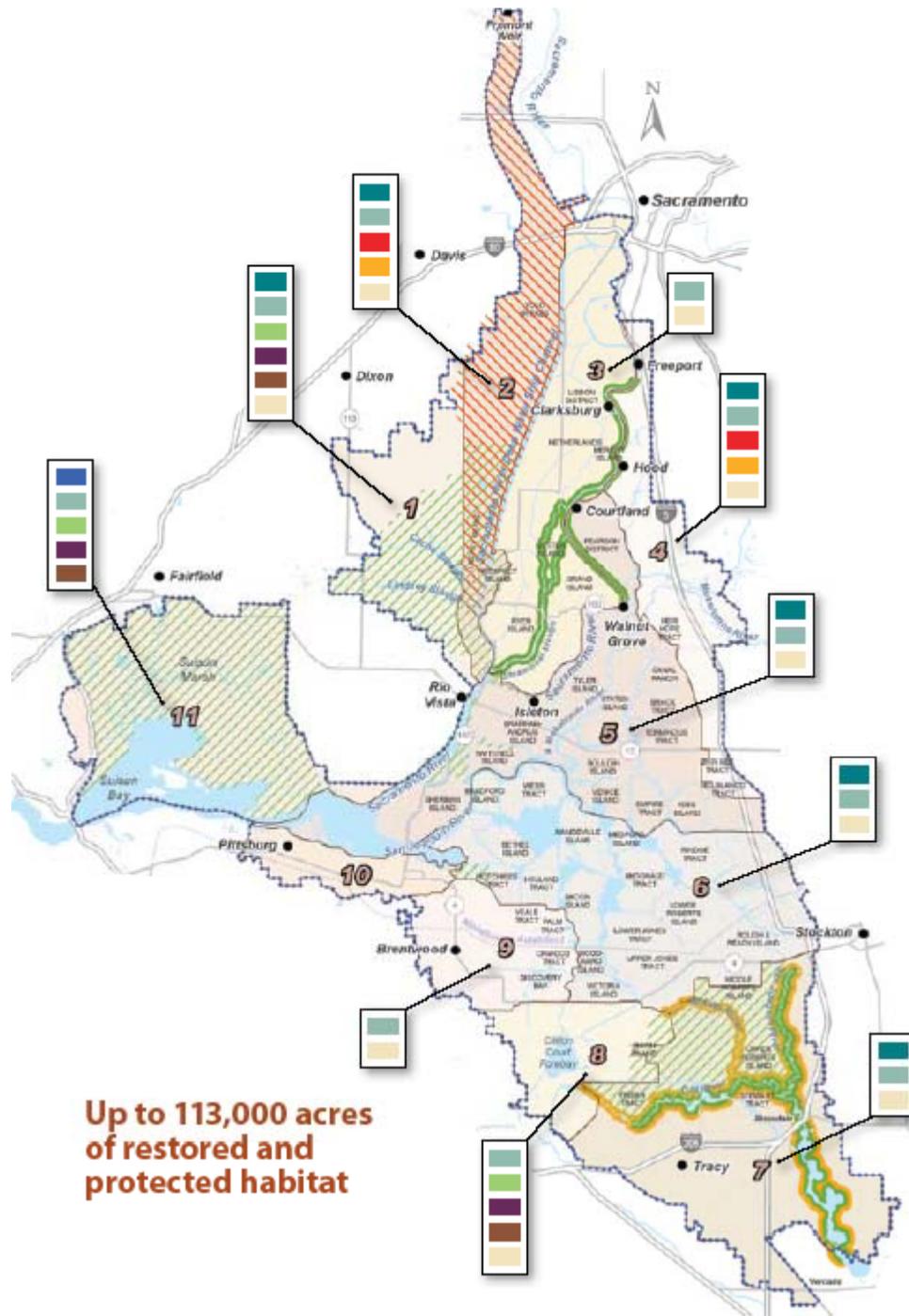
# BDCP - Habitat Conservation Measures

- Extensive land use changes over the last 150 years.
- Only about 10% of historical wetlands now remain.
- Goal is to substantially increase the quality, availability, spatial diversity, and complexity of habitat.
- Also designed to protect communities important to terrestrial species through habitat preservation and protection of habitat corridors and linkages.
- Will restore and protect up to 113,000 acres of aquatic and terrestrial habitat

# BDCP Habitat Conservation Measures

- Yolo Bypass Fishery Enhancement
- Natural Communities Protection
- Tidal Habitat Restoration
- Seasonally Inundated Floodplain Restoration
- Channel Margin Habitat Enhancement
- Riparian Habitat Restoration
- Grassland Communities Restoration
- Vernal Pool Complex Restoration
- Nontidal Marsh Restoration
- Natural Communities Enhancement and Management

# BDCP - Habitat Restoration



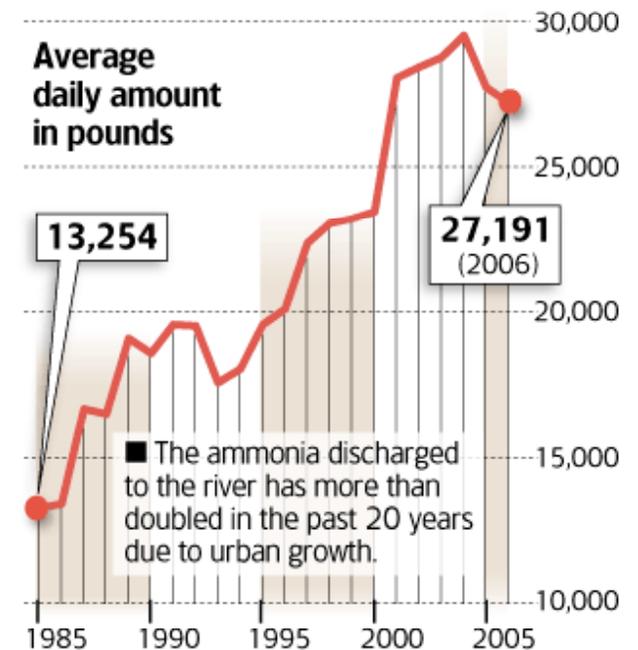
## Habitat Targets

-  **New Floodplain - Up to 10,000 Acres**  
Restore seasonally inundated floodplain by acquiring lands and taking action such as removing riprap, setting back levees, and grading restored floodplain surfaces.
-  **Existing Floodplain**  
Seasonal modification of the Yolo Bypass to improve the timing, frequency, and duration of inundation.
-  **Tidal Habitat - Up to 65,000 Acres**  
Restore freshwater and brackish (saltier) tidal habitat through levee breaches.
  -  - Tidal Perennial Aquatic/
  -  Tidal Brackish Emergent Wetland
  -  - Tidal Perennial Aquatic/
  -  Tidal Fresh Emergent Wetland
-  **Channel Margin - 20 Levee Miles**  
Modification of riverbank geometry to create improved fish and wildlife habitat. Actions include planting vegetation and woody material, as well as removal of existing riprap.
-  **Riparian - Up to 5,000 Acres**  
Restore areas where land and water meet through tidal and floodplain action by establishing riparian vegetation.
-  **Grassland - Up to 8,000 Acres (Protected)/ Up to 2,000 Acres (Restored)**  
Restore areas where vegetation was historically dominated by native grasses.
-  **Vernal Pool Complex -**  
*Up to 300 Acres (Protected)/ Up to 200 Acres (Restored)*  
Restore vernal pools (seasonal pools of water), also called vernal ponds. Usually devoid of fish, vernal pools allow the safe development of amphibian and invertebrate species.
- Nontidal Marsh - Up to 400 Acres**  
Restore marsh lands not exposed to tidal influence.
  -  - Nontidal Perennial Aquatic
  -  - Nontidal Perennial Freshwater Emergent Wetland
-  **Agriculture - Up to 16,620 to 32,640 Acres**  
Management of agricultural lands for optimal covered species habitat uses.
-  **Alkali Seasonal Wetland Complex -**  
*Up to 400 Acres*  
Protect and enhance remaining seasonal wetlands with alkali soils in conjunction with adjoining grassland and vernal pool habitats.

# BDCP – Addressing Other Stressors

Many factors have negatively impacted the Delta and its fish populations. The BDCP will address those factors by:

- Evaluating effects of ammonia on fish species
  - Ammonia/um discharge from Sacramento's treated wastewater nearly doubled in 20 years
- Reducing illegal in-Delta water diversions
- Reducing agricultural pesticides and herbicides
- Controlling invasive species in the Delta
- Reducing poaching



Source: Sacramento Regional County Sanitation District  
Sacramento Bee

# BDCP Other Stressors Conservation Measures

- Methylmercury Management
- Nonnative Aquatic Vegetation Control
- Stockton Deep Water Ship Channel Dissolved Oxygen Levels
- Predatory Control
- Non-Physical Fish Barriers
- Hatchery and Genetic Management Plans
- Illegal Harvest Reduction
- Conservation Hatcheries

# BDCP – Costs

	Estimated Capital Costs
Conveyance	\$12.7 Billion
Habitat	\$3.1-4.0 Billion
Other Stressors	\$120 to \$150 Million
Total	\$15.9 - \$16.8 Billion
Source: November 18, 2010 Working Draft Document	

# BDCP – Next Steps

- Scientific analysis of the Plan’s effects on biological resources
- Refinements to the Conservation Strategy including:
  - Operational criteria and adaptive range
  - Terrestrial community and species objectives
  - Revised goals and objectives for fish species
  - Revised monitoring actions and metrics
- Refinements to cost estimates and development of funding plan
- Description and evaluation of “alternatives to take”
- Description of regulatory assurances
- Reconvene Steering Committee or replace with new stakeholder process that will be: transparent, inclusive, and targeted

# Questions

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