

# Defining the Preliminary Array of Alternatives for BDCP Draft EIR/EIS

July 1, 2010

BDCP Steering Committee

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# Overview of Presentation

- Identification of Lead Agencies and Responsible/ Cooperating Agencies for the EIR/EIS
- Identification of Initial Alternative Concepts
- Development and application of screening criteria
- Preliminary Array of alternatives under consideration for evaluation in the BDCP Draft EIR/EIS

# EIR/EIS Lead Agencies

- CEQA Lead Agency
  - California Department of Water Resources
- NEPA Lead Agencies
  - Bureau of Reclamation
  - U.S. Fish and Wildlife Service
  - National Marine Fisheries Service



# CEQA Responsible or Trustee Agencies

- California Department of Fish and Game
- California Department of Parks and Recreation
- California State Water Resources Control Board
- California Air Resources Control Board
- California Department of Boating and Waterways
- California Department of Transportation
- California State Lands Commission
- San Francisco Bay Conservation and Development Commission
- California Delta Stewardship Council

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# NEPA Cooperating Agencies

- U.S. Environmental Protection Agency
  - U.S. Army Corps of Engineers
  - State and Federal Contractors Water Agency
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## Ongoing Discussions with the Responsible, Trustee and Cooperating Agencies

- BDCP Environmental Coordination Team (BECT)
- Presentations to the Delta Stewardship Council

# Identification of Initial Alternative Concepts

- Concepts in the Notice of Preparation and Notice of Intent
- Concepts identified during Scoping Process
  - Over 1,051 comments related to alternatives
  - Requests to include concepts described in 2007 and 2008 reports by Public Policy Institute of California
  - Request to include concepts presented to the Delta Vision Blue Ribbon Task Force
- Concepts included in BDCP Steering Committee handouts over past four years

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# All Initial Alternative Concepts include Three Components

- Restoration Components
- Measures to Reduce Other Stressors Components
- Conveyance Components
  - Isolated Conveyance
  - Dual Conveyance
  - Through Delta Conveyance

# Alternative Concepts and NEPA/CEQA Environmental Analysis

Programmatic Evaluation –

Early and Staged Implementation

Programmatic Evaluation –

Early and Staged Implementation

Project Specific Evaluation –

Long-term Implementation

OTHER STRESSORS

RESTORATION OPPORTUNITIES

CONVEYANCE AND WATER SYSTEM OPERATIONS

ALTERNATIVE CONCEPT



## Other Stressors Conservation Measures BDCP Steering Committee Handout - March 25, 2010

- Help Maintain Stockton Deep Water Ship Channel Dissolved Oxygen Levels above levels that impair covered fish species
- Reduce Illegal Harvest of salmonids and sturgeon
- Develop Hatchery and Genetic Management Plans
- Develop Conservation Hatcheries for Delta and longfin smelt
- Implement Predator Control
- Develop and Implement Non-Physical Fish Barriers
- Minimize methylation of inorganic mercury in BDCP habitat restoration areas caused by BDCP restoration actions
- Implement Non-Native Aquatic Vegetation Control



# Other Stressors Conservation Measures Undergoing Evaluation as of March 25, 2010

- Reduction of Ammonia Loads
- Reduction of Endocrine Disruptor Loads
- Reduction of Agricultural Pesticide Loads
- Reduction of Urban Runoff Loads
- Reduction of Activities that Introduce Non-native Species
- Increase Non-native Species Harvest of Predators
- Implement Restrictions on Splittail Harvest
- Implement Mark-Select Fisheries Program
- Reduction of Entrainment by Non-Project Diversions

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# Habitat Restoration Conservation Measures

## BDCP Steering Committee Handout - March 25, 2010

- Tidal Habitat Restoration
  - Provide for restoration of 65,000 acres of freshwater and brackish tidal habitat within BDCP Restoration Opportunity Areas
- Channel Margin Habitat Enhancement
  - Provide for enhancement of 20 linear miles in the Delta
- Riparian Habitat Restoration
  - Restore at least 5,000 acres of riparian forest and scrub
- Seasonally Inundated Floodplain Restoration
  - Provide for restoration of at least 10,000 acres of seasonally inundated floodplain habitat within the north, east, and/or south Delta
- Fremont Weir/Yolo Bypass Habitat Improvements
  - Modify Fremont Weir to provide fish passage and provide for more frequent and longer inundations of Yolo Bypass
  - Modify Sacramento Weir to reduce leakage and attraction flows
  - Improve Tule Canal/Toe Drain and Lower Putah Creek alignment

# CONVEYANCE

## Isolated Conveyance Concepts

- Central Delta Pipeline/Tunnel
- Eastern Unlined and Lined Canal
- Eastern Unlined Canal plus connection to San Joaquin River near Mossdale
- Eastern Unlined Canal plus connection to EBMUD and SFPUC
- Western Unlined and Lined Canal
- Western Unlined Canal plus use of Sacramento Deep Water Ship Channel
- Eastern Foothill Unlined Canal from Sacramento River near Verona

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# CONVEYANCE

## Dual Conveyance Concepts

- Central Delta Pipeline/Tunnel
- Eastern Unlined and Lined Canal
- Eastern Unlined Canal plus connection to San Joaquin River near Mossdale
- Western Unlined and Lined Canal
- Western Unlined Canal plus use of Sacramento Deep Water Ship Channel
- Eastern Foothill Unlined Canal from Sacramento River near Verona

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# CONVEYANCE

## Through Delta Conveyance Concepts

- Continued use of existing water supply systems
  - Levee armoring and new setback levees along South Fork Mokelumne and Middle rivers and Victoria Canal
  - Manage Delta for habitat, not local or SWP/CVP water supplies
- Separate Corridors
  - Water supply corridor along Mokelumne and Middle rivers and fish movement corridor along Old River
- Use of existing water supply systems with Delta salt water barrier installed near Benicia Bridge

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# Multiple-Step Screening Criteria Process

- First and Second Screening Levels
  - Defining alternatives under CEQA and NEPA
- Third Screening Level
  - Defining “potentially feasible alternatives” under CEQA and “reasonable alternatives” under NEPA
- Consideration of Sacramento-San Joaquin Delta Reform Act requirements
- Consideration of information needs identified by CEQA responsible agencies and NEPA cooperating agencies raised during scoping

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# First and Second Screening Levels

- First Screening Level
  - Could the potential alternative concept meet the project's purpose/objectives in Notice of Preparation and Notice of Intent?
- Second Screening Level
  - Under CEQA, consider: Would the potential alternative avoid or substantially lessen any of the expected significant environmental effects of the proposed project?
  - Under NEPA, consider: Would the potential alternative address one or more significant issues related to the proposed action?

## Third Screening Level

- Could the potential alternative concept be “feasible” under CEQA?
  - Capable of being accomplished in reasonable time period taking into account economic, legal, social, and technological factors?
- Could the potential alternative concept be “reasonable” under NEPA?
  - Practical or feasible from technical or economic standpoint?

CEQA and NEPA allow consideration of a reasonable balance of environmental, economic, social, and technical factors and legal feasibility under species protection and other laws

# Consideration of Sacramento-San Joaquin Delta Reform Act

- Do alternatives provide a reasonable range of:
  - Flow criteria? Diversion rates?
  - Other operational criteria to satisfy the criteria of approval as a Natural Community Conservation Plan?
  - Hydrologic conditions?
- Does the range of alternatives include a:
  - Through Delta Conveyance alternative?
  - Dual Conveyance alternative?
  - Isolated Conveyance alternative?
  - Dual or Isolated Conveyance – Lined Canal alternative?
  - Dual or Isolated Conveyance – Unlined Canal alternative?
  - Pipeline/Tunnel Conveyance alternative?

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# Consideration of Responsible/Cooperating Agencies Scoping Comments

- Do the alternatives address the decision making needs of the responsible agencies for the project:
  - Broad range of water quality objectives and operational strategies?
  - Potential interim changes to SWRCB Bay-Delta Water Quality Control Plan?
  - Long-term changes to SWRCB Bay-Delta Water Quality Control Plan with and without new conveyance facilities?
  - Reduced diversions lower than diversions allowed in USFWS and NMFS biological opinions

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# Development of Preliminary Array of Alternatives under consideration for Evaluation in the Draft EIR/EIS

- Applied the screening criteria to the range of alternative concepts to identify the alternatives for Draft EIR/EIS
- All alternatives in Draft EIR/EIS address conveyance, capacity, operations, restoration, and other stressors components

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# Climate Change and Sea Level Rise

- Three time horizons being evaluated
  - Late Near term – 10 years from permit
    - Alternative Conveyance almost complete but not operating
    - 14,000 acres of Tidal Habitat
    - Existing climate and sea level
  - Early Long-term – 2025
    - Alternative Conveyance Operational
    - 25,000 acres of Tidal Habitat
    - Climate change and sea Level rise (6 inches)
  - Late Long-term – 2060
    - Alternative Conveyance Operational
    - 65,000 Acres of Tidal Habitat
    - Climate change and sea Level Rise (18 inches)

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# No Action Alternative

Alternative	Habitat Restoration	Conveyance	Other Stressor Measures
<p>This alternative includes the existing through-Delta system only.</p>	<p>Based on Biological Opinions, with X aquatic habitat restoration and no terrestrial habitat restoration</p>	<ul style="list-style-type: none"> <li>•15,000 cfs (existing capacity)</li> <li>•Through-Delta without any modifications</li> </ul>	<p>No action</p>
		<ul style="list-style-type: none"> <li>•Water Operations are Based on Biological Opinions</li> </ul>	

Preliminary – Subject to revision



# Alternative 1: Bay Delta Conservation Plan

Alternative	Habitat Restoration	Conveyance	Other Stressor Measures
<p>This alternative reflects the BDCP as proposed for analysis by the BDCP Steering Committee. It includes dual conveyance, the combined use of a new isolated facility and the existing through-Delta conveyance system, aquatic and terrestrial habitat restoration and conservation, and other stressor measures.</p>	<ul style="list-style-type: none"> <li>•65,000 acres tidal marsh</li> <li>•5,000 acres riparian</li> <li>•10,000 acres new floodplain</li> <li>•Xx acres enhanced seasonal floodplain</li> <li>•20 miles channel bank restoration</li> </ul> <p style="text-align: center;"><b>Preliminary – Subject to Revision</b></p>	<ul style="list-style-type: none"> <li>•15,000 cfs (being evaluated)</li> <li>•Pipeline/Tunnel</li> </ul> <p>Other sub-alternatives:</p> <ul style="list-style-type: none"> <li>•Canal, East, lined and unlined</li> <li>•Canal, West, lined and unlined</li> </ul> <hr/> <p>Water Operations are as identified in the BDCP Proposed Project (2/11/10 BDCP Steering Committee Handout) (May be refined as result of the effects analysis)</p> <p style="text-align: center;"><b>Subject to Revision</b></p>	<ul style="list-style-type: none"> <li>• Help maintain dissolved oxygen in the Stockton Deep Water Ship Channel</li> <li>• Reduce salmon and sturgeon poaching</li> <li>• Develop hatchery and genetic management plans</li> <li>• Develop hatcheries for delta and longfin smelt</li> <li>• Reduce predation</li> <li>• Develop and install fish barriers</li> <li>• Minimize methylation of inorganic mercury</li> <li>• Remove and limit the growth of invasive species</li> </ul>



# Alternative 2: Dual Conveyance with Smaller Pipeline/Tunnel

Alternative	Habitat Restoration	Conveyance	Other Stressor Measures
<p>This alternative includes a smaller capacity conveyance facility than Alternative. The Habitat Restoration and Other Stressor measures are the same as those in Alternative 1.</p>	<ul style="list-style-type: none"> <li>•65,000 acres tidal marsh</li> <li>•5,000 acres riparian</li> <li>•10,000 acres new floodplain</li> <li>•Xx acres enhanced seasonal floodplain</li> <li>•20 miles channel bank restoration</li> </ul> <p style="text-align: center;">Preliminary – Subject to Revision</p>	<ul style="list-style-type: none"> <li>•6,000 cfs (being evaluated)</li> <li>•Pipeline/Tunnel</li> <li>•Water Operations similar to Alternative 1</li> </ul>	<ul style="list-style-type: none"> <li>• Help maintain dissolved oxygen in the Stockton Deep Water Ship Channel</li> <li>• Reduce salmon and sturgeon poaching</li> <li>• Develop hatchery and genetic management plans</li> <li>• Develop hatcheries for delta and longfin smelt</li> <li>• Reduce predation</li> <li>• Develop and install fish barriers</li> <li>• Minimize methylation of inorganic mercury</li> <li>• Remove and limit the growth of invasive species</li> </ul>



# Alternative 3: Isolated Conveyance

Alternative	Habitat Restoration	Conveyance	Other Stressor Measures
<p>This alternative includes only a new isolated conveyance facility, without use of the existing through Delta system. The Habitat Restoration and Other Stressor measures are the same as those in Alternative 1.</p>	<ul style="list-style-type: none"> <li>•65,000 acres tidal marsh</li> <li>•5,000 acres riparian</li> <li>•10,000 acres new floodplain</li> <li>•Xx acres enhanced seasonal floodplain</li> <li>•20 miles channel bank restoration</li> </ul> <p>Preliminary – Subject to Revision</p>	<ul style="list-style-type: none"> <li>•15,000 cfs</li> </ul> <p>Sub Alternatives will examine</p> <ul style="list-style-type: none"> <li>•Pipeline/Tunnel</li> </ul> <ul style="list-style-type: none"> <li>•Canal, East, lined and unlined</li> <li>•Canal, West, lined and unlined</li> <li>•Water Operations are similar to Alternative 1, plus Fall X2 rule</li> </ul>	<ul style="list-style-type: none"> <li>• Help maintain dissolved oxygen in the Stockton Deep Water Ship Channel</li> <li>• Reduce salmon and sturgeon poaching</li> <li>• Develop hatchery and genetic management plans</li> <li>• Develop hatcheries for delta and longfin smelt</li> <li>• Reduce predation</li> <li>• Develop and install fish barriers</li> <li>• Minimize methylation of inorganic mercury</li> <li>• Remove and limit the growth of invasive species</li> </ul>

# Alternative 4: Dual Conveyance with Enhanced Aquatic Conservation and Smaller Pipeline/Tunnel

Alternative	Habitat Restoration	Conveyance	Other Stressor Measures
<p>This alternative includes a smaller design capacity for a new pipeline/tunnel as part of dual conveyance, and additional aquatic habitat restoration. Other Stressors measures are the same as Alternative 1.</p>	<p>Same as Alternative 1, plus 20 additional miles of channel bank restoration and xx acres of enhanced seasonal floodplain</p> <p>Preliminary – Subject to Revision</p>	<ul style="list-style-type: none"> <li>•6,000-12,000 cfs (being evaluated)</li> <li>•Pipeline/Tunnel</li> <li>•Water Operations modified from Alternative 1 (more restrictive)</li> </ul>	<ul style="list-style-type: none"> <li>• Help maintain dissolved oxygen in the Stockton Deep Water Ship Channel</li> <li>• Reduce salmon and sturgeon poaching</li> <li>• Develop hatchery and genetic management plans</li> <li>• Develop hatcheries for delta and longfin smelt</li> <li>• Reduce predation</li> <li>• Develop and install fish barriers</li> <li>• Minimize methylation of inorganic mercury</li> <li>• Remove and limit the growth of invasive species</li> </ul>



# Alternative 5: Through Delta Conveyance with Separate Corridors

Alternative	Habitat Restoration	Conveyance	Other Stressor Measures
<p>This alternative includes only modifications to the existing through-Delta, to provide separate corridors for water supply and fish habitat. The Habitat Restoration and Other Stressor measures are similar to those in Alternative 1 but less in the Southern Delta.</p>	<ul style="list-style-type: none"> <li>•65,000 acres tidal marsh</li> <li>•5,000 acres riparian</li> <li>•10,000 acres new floodplain</li> </ul>	<ul style="list-style-type: none"> <li>•15,000 cfs</li> <li>•Through-Delta channel Modifications</li> <li>•Water Operations Modified from Alternative 1 (in an attempt to provide equivalent protection)</li> </ul>	<ul style="list-style-type: none"> <li>• Help maintain dissolved oxygen in the Stockton Deep Water Ship Channel</li> <li>• Reduce salmon and sturgeon poaching</li> <li>• Develop hatchery and genetic management plans</li> <li>• Develop hatcheries for delta and longfin smelt</li> <li>• Reduce predation</li> <li>• Develop and install fish barriers</li> <li>• Minimize methylation of inorganic mercury</li> <li>• Remove and limit the growth of invasive species</li> </ul>
	<p>Preliminary – Subject to Revision</p>		

# Next Steps

- Continue to develop the preliminary array of alternatives, including modifying existing preliminary alternatives and the potential to develop additional alternatives
- Incorporate potential changes to the BDCP Alternative as Steering Committee continues to develop the BDCP (for example, incorporating refined operating criteria based on effects analysis)
- Consider information developed from BDCP Separate Analyses and Important Related Actions in the review of alternatives (for example, Nitrogen reduction to address productivity issues)
- Begin to identify potential adverse impacts and related mitigation measures through impact assessments and modify alternatives as warranted