North-of-the-Delta Offstream Storage Investigation

Status Report for Water Supply Subcommittee

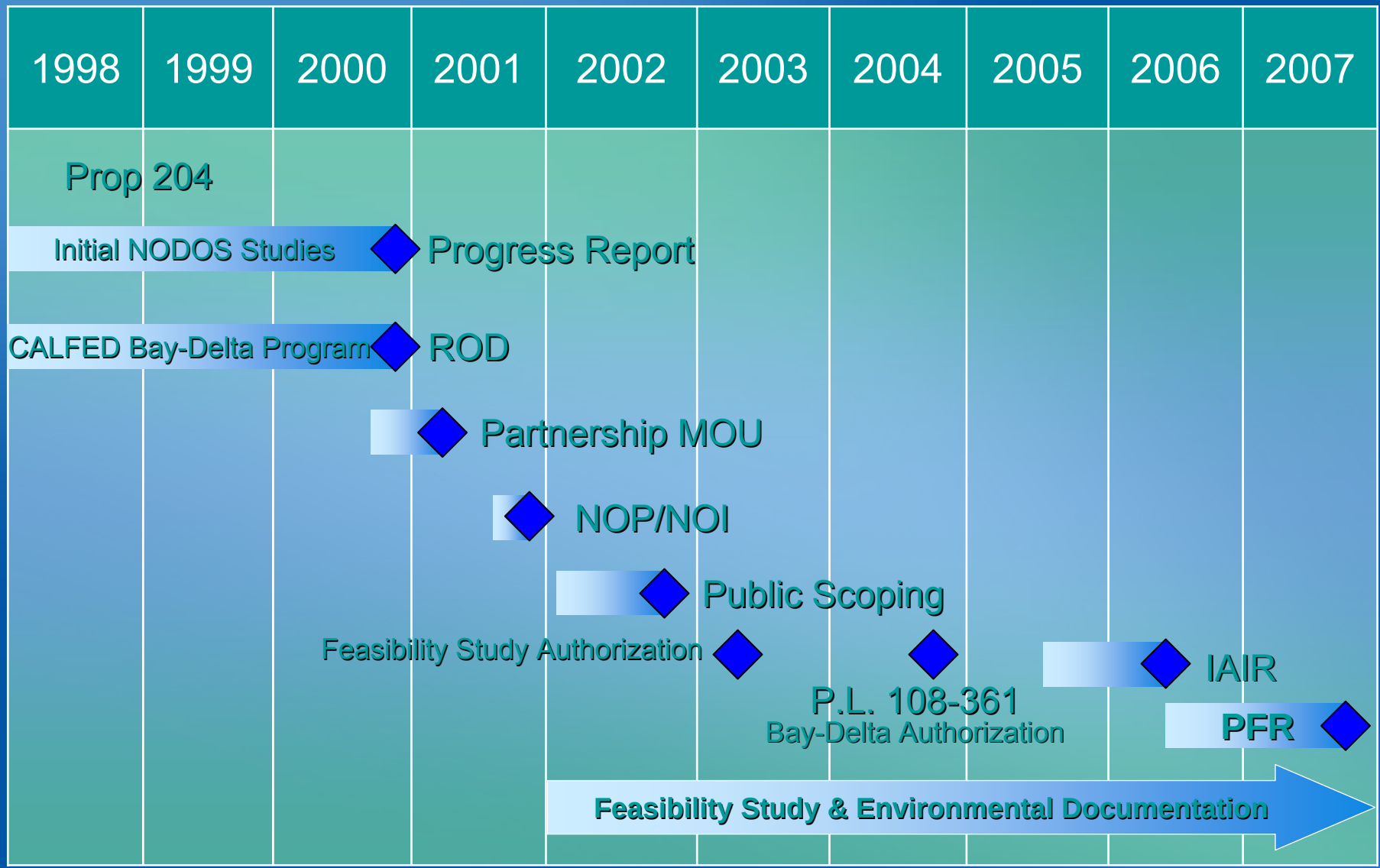
State of California
Department of Water Resources

U.S. Department of the Interior
Bureau of Reclamation

May 17, 2007

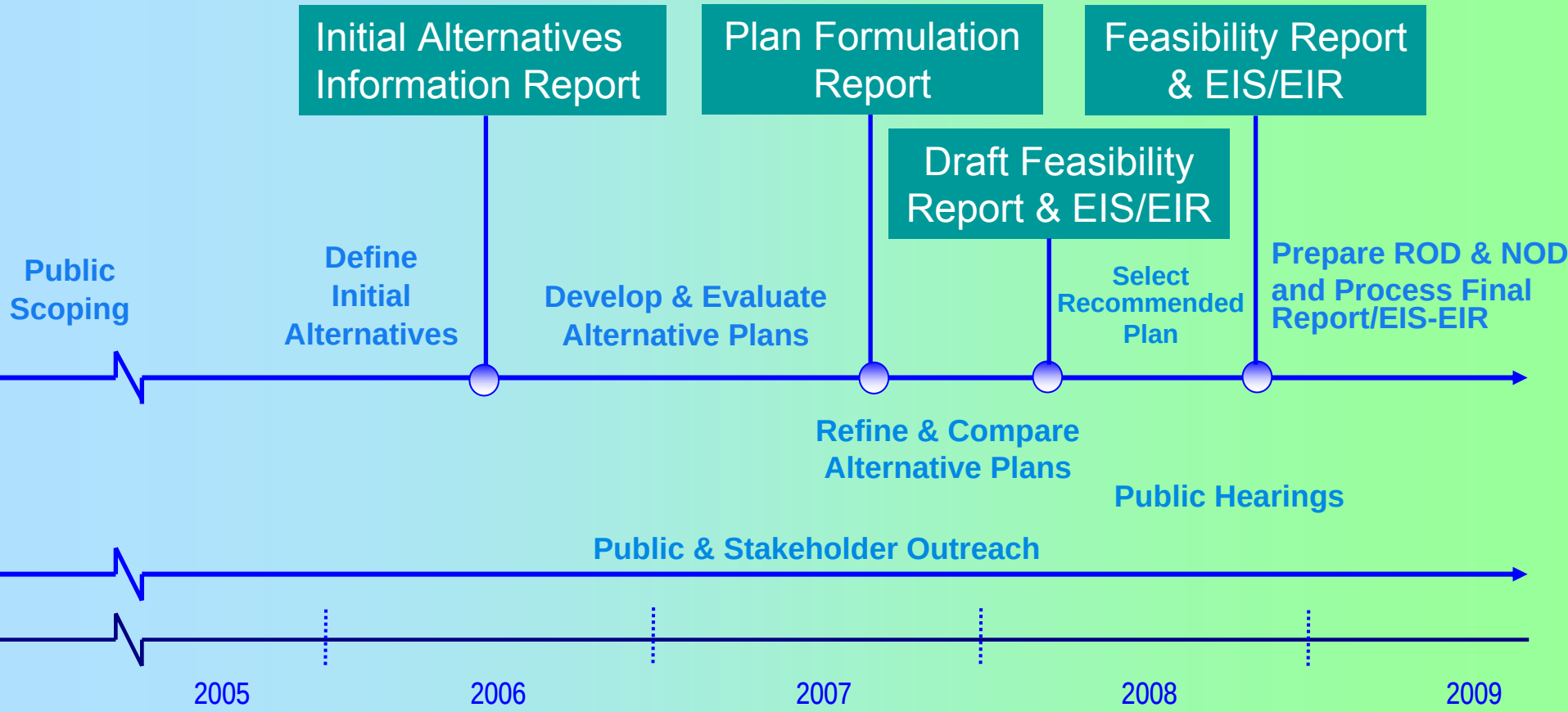
NODOS History

North-of-the-Delta Offstream Storage



Planning Process and Schedule

North-of-the-Delta Offstream Storage



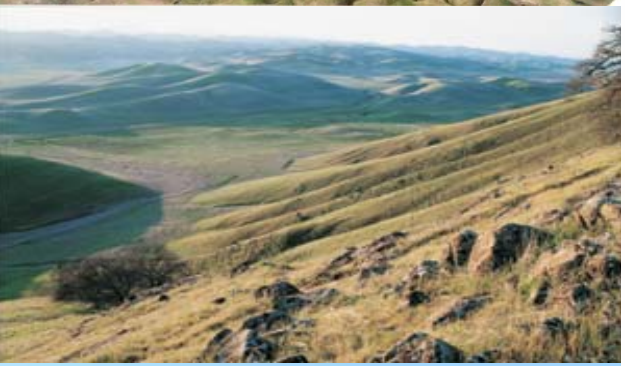
North-of-the-Delta Offstream Storage

Planning Objectives

- **Primary Objectives:**
  - Increase water supply and water supply reliability and Sacramento Valley water management flexibility
  - Improve Delta water quality
  - Increase survival of anadromous fish populations in Sacramento River, and other aquatic species

- **Secondary Objectives:**
  - Provide ancillary hydropower generation benefits
  - Provide additional recreational opportunities
  - Provide incremental flood damage reduction benefits

Sites Reservoir Location



Sites Reservoir
Project Features

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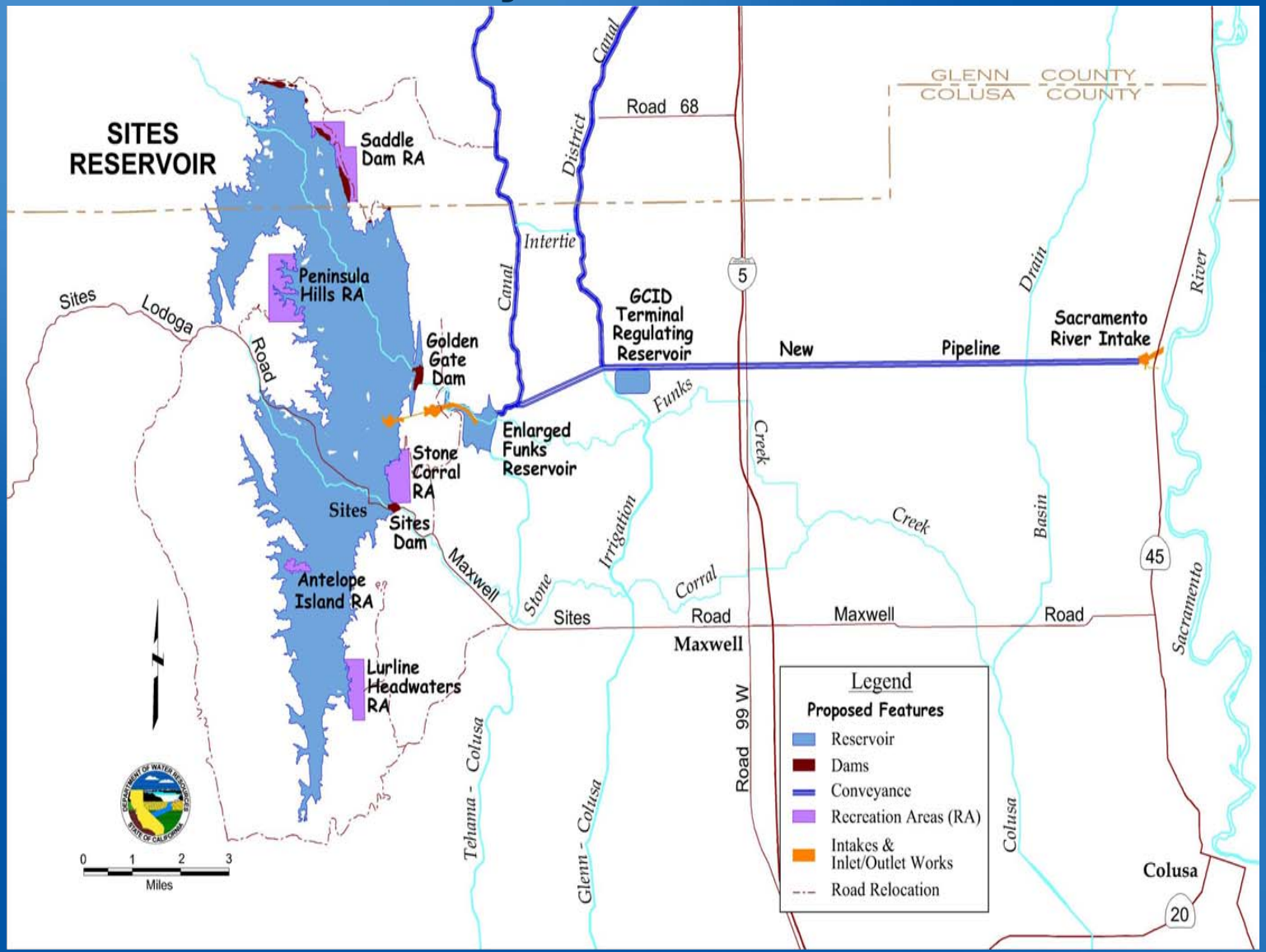

Potential Benefits

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- Improve Water Supply Reliability for Agricultural, Urban/M&I, and Environmental Purposes
- Improve Delta Water Quality (Salinity, Blending)
- Improve Sacramento River Ecosystem Restoration
- Improve Flood Protection Opportunities/Flexibility
- Improve Recreation Opportunities
- Improve Delta Emergency Response Opportunities
- Respond to Potential Impacts of Climate Change

Preliminary Estimates of Potential Water Benefits Under Various Operational Scenarios

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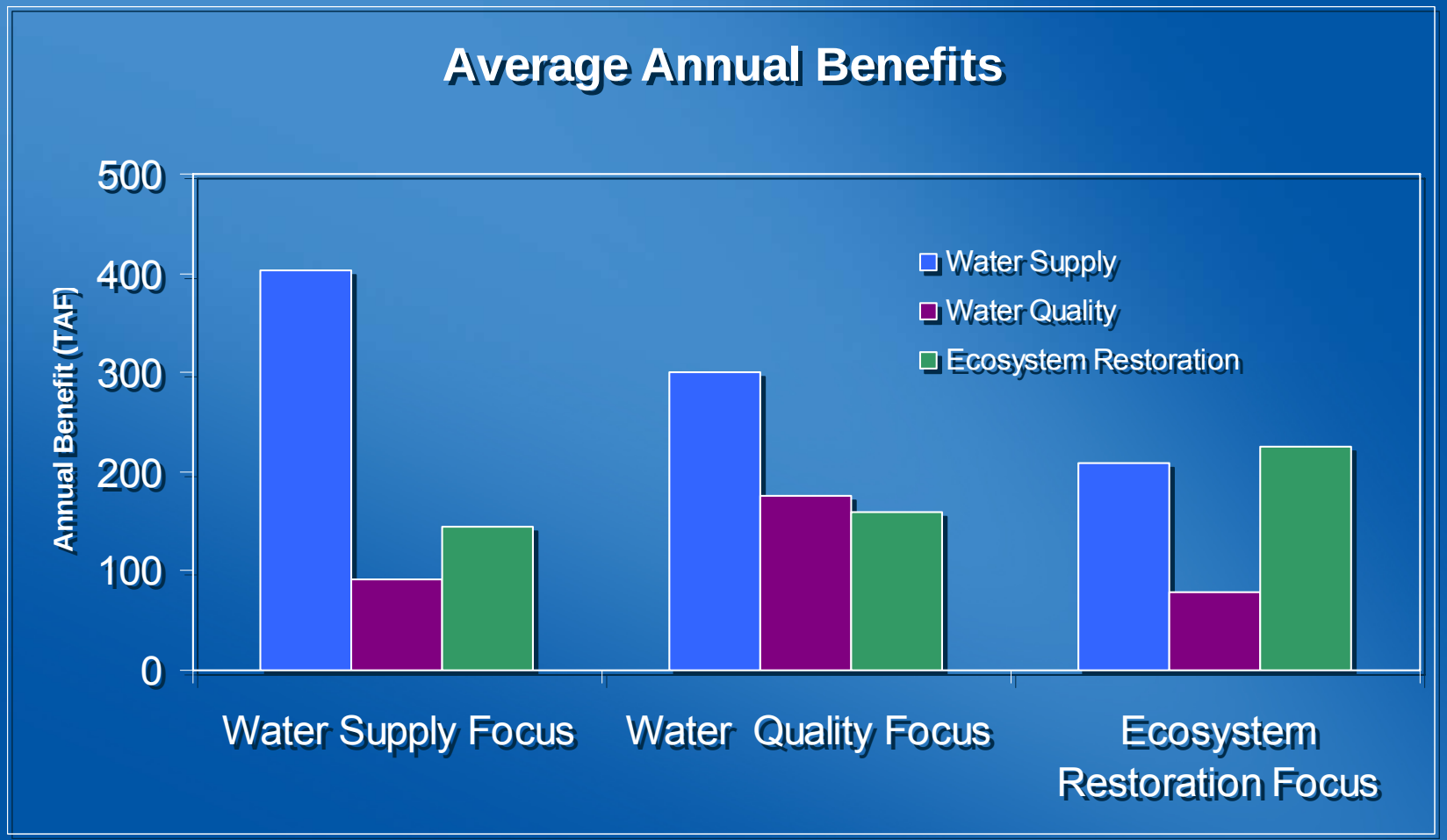

Potential Water Quality Benefits

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- Water Quality drivers:
  - Operation triggered according to Rock Slough (at Old River) chloride levels
  - Release water in the fall to augment Delta outflow
  - Limitation: New pipeline or other conveyance/exchange (Shasta Lake) capacity required
- Up to 9% reduction in chloride/bromide concentration at Banks Pumping Plant

Potential Ecosystem Restoration Benefits

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- **Ecosystem Restoration Actions**
  (Based on input from Flow Regime Technical Advisory Group)
  - Provide Stable Fall Flows – Keswick to Red Bluff
  - Increase Cold Water Pool in Shasta
  - Improve Fish Passage at Red Bluff Diversion Dam
  - Reduce Diversions at T-C and GCID Canals during Critical Fish Migration Periods
  - Provide Supplemental Flows for Cottonwood Establishment

Estimated Direct Habitat Conversion-Loss

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- **Sites Reservoir: 14,840 to 15,590 acres**
- Includes Reservoir Footprint, Road Relocations, Conveyance
- Impacts to biological/cultural resources will be mitigated
- Environmental impacts of Sites Reservoir are less than at alternative locations (e.g., Newville, Colusa, Red Bank)
- Offstream storage in general has fewer environmental impacts than onstream storage
- CALFED Program/PEIS-EIR screened out new onstream storage in initial surface storage evaluations

Preliminary Cost Estimate

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Storage Capacity[1]	1.8 million acre-feet
Construction Cost Estimates[2]	$2.1 - $3.0 Billion
Total Annual Water Benefits	470 – 640 TAF per year

1. Reservoir sizing to be optimized and evaluated in feasibility study phase.
2. Range of preliminary costs reflects various conveyance options and appurtenant structures under consideration to date.
3. Cost estimates are pre-feasibility level of detail and subject to change; they do not include interest during construction, annual operations and maintenance, and/or power costs.

Climate Change Sensitivity Analysis
(Four Climate Change Scenarios)

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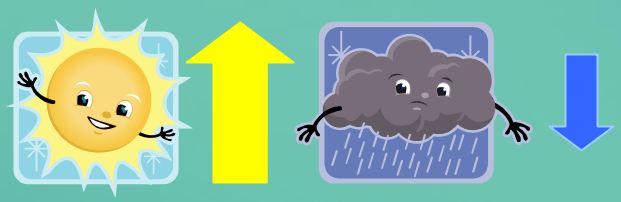
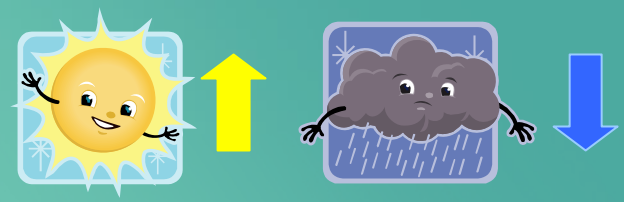
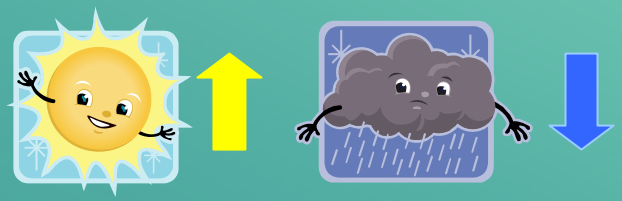
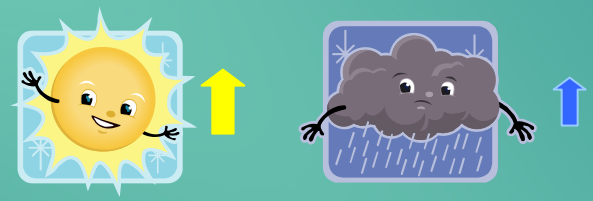
Scenario/ Model	A2	B1
GFDL	GFDL A2  Relatively strong warming Modest drying	GFDL B1  Modest warming Modest drying
PCM	PCM A2  Modest warming Modest drying	PCM B1  Weak temperature warming Weak precipitation increase in California

Climate Action Team selected four scenarios: 2 models x 2 emissions scenarios.

Potential Climate Change Impacts

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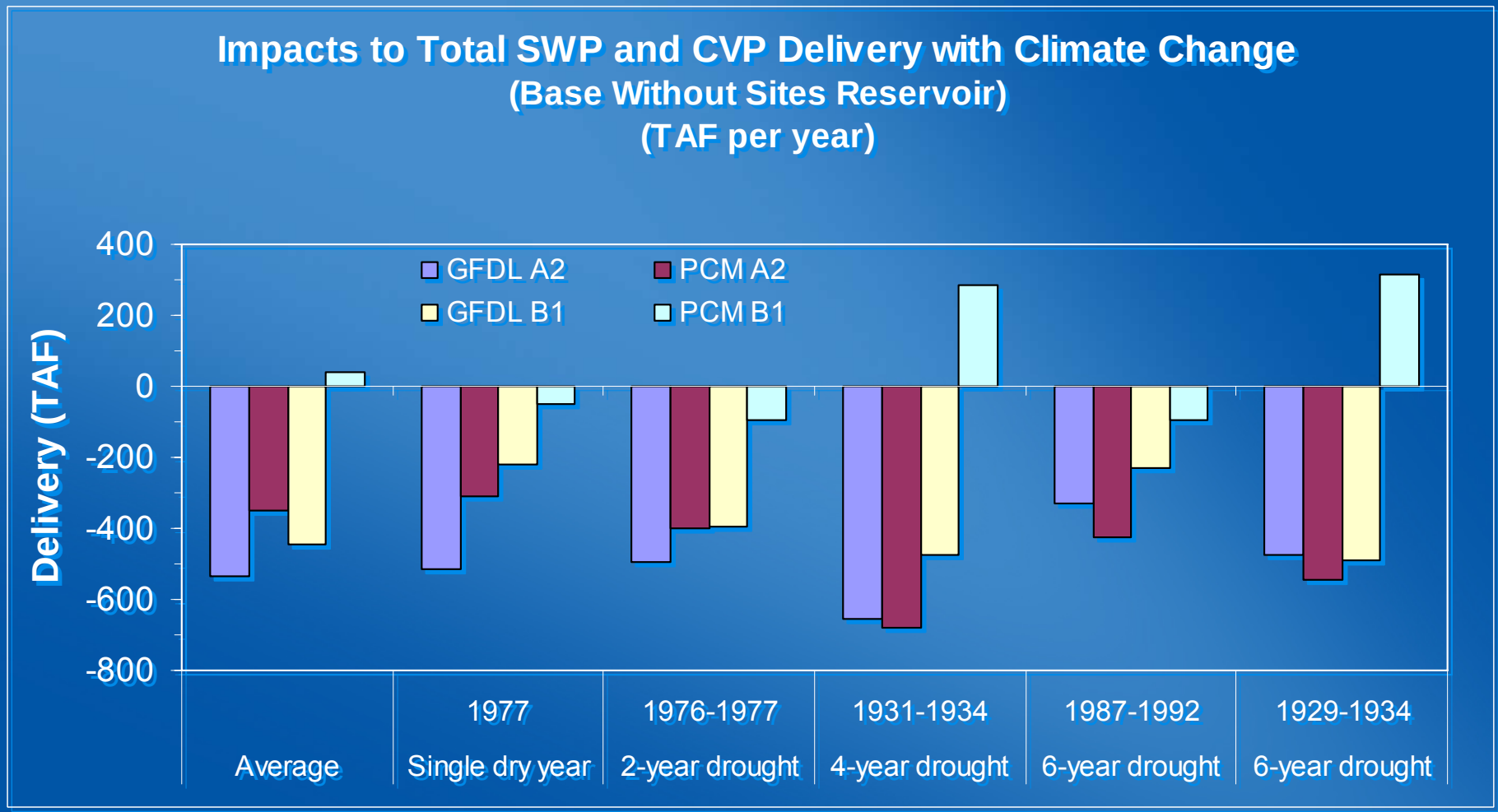

Potential Climate Change Impacts

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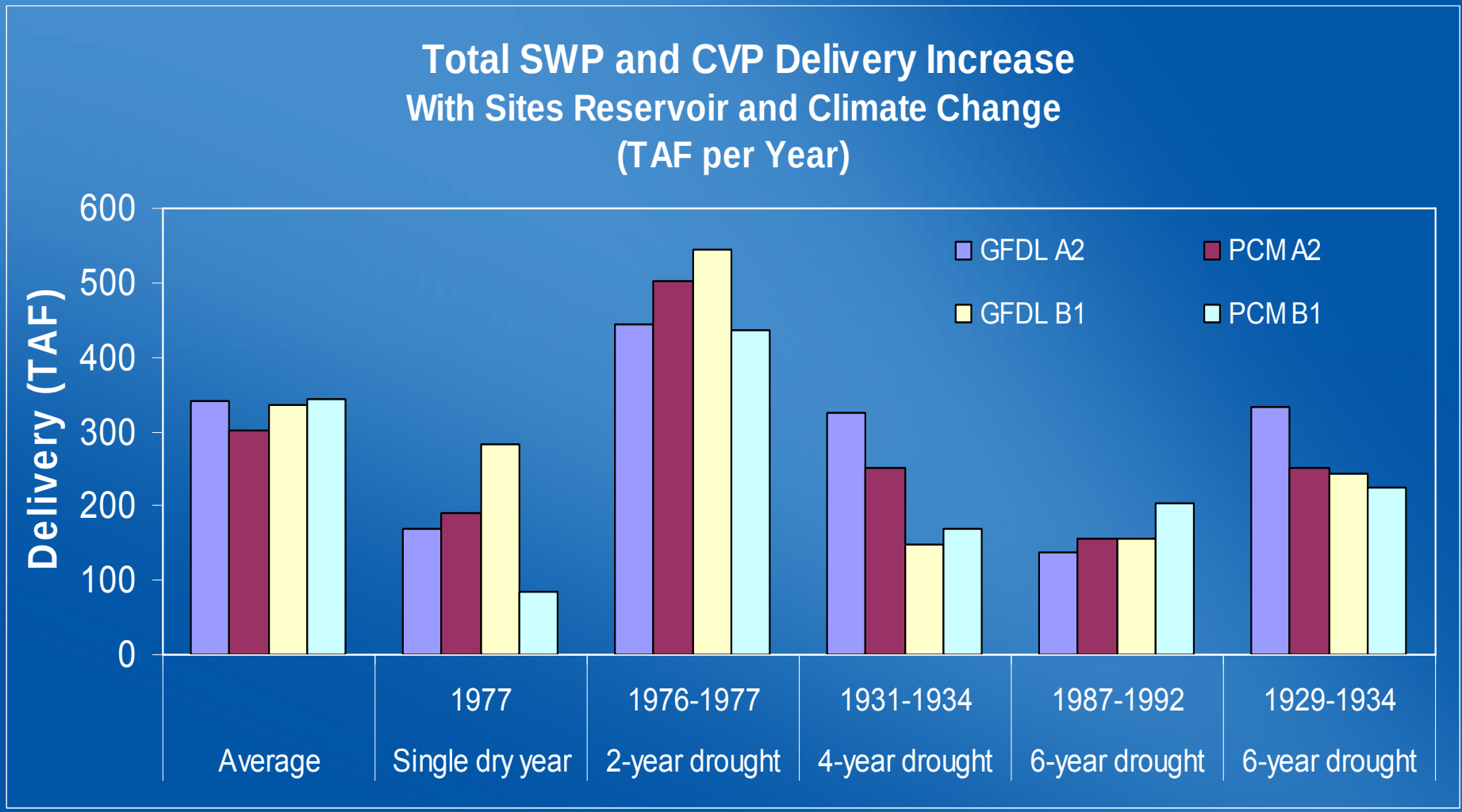

Feasibility Phase

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- Coordinate with concerned public, resource agencies, stakeholders, tribes
- Refine alternative plans & operations scenarios
  - Complete reservoir optimizations & features designs
  - Evaluate potential environmental effects
  - Complete estimates of costs and benefits
  - Perform climate change & other sensitivity analyses
  - Compare and rank alternatives
- Select recommended plan
- Prepare & process Feasibility Report/EIS-EIR
- Congressional & Legislative actions/ROD/NOD

Contacts

North-of-the-Delta Offstream Storage

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Pertinent Websites:

www.storage.water.ca.gov/northdelta/index.cfm

www.usbr.gov/mp/nodos/index.html