BAY DELTA CONSERVATION PLAN

OVERVIEW OF BDCP

June 19, 2013

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DEPUTY DIRECTOR

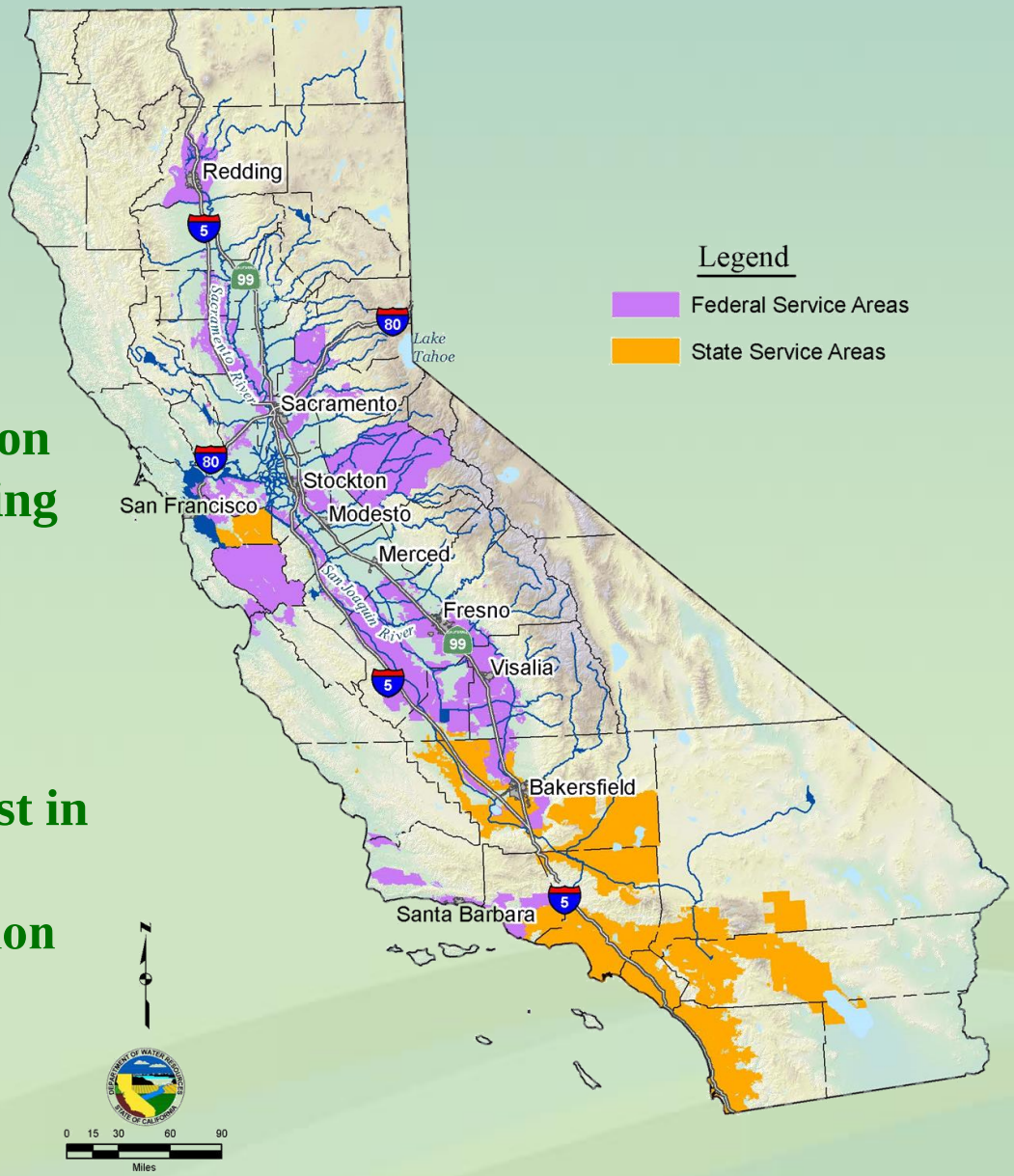
CA DEPARTMENT OF WATER RESOURCES

Water Supplies

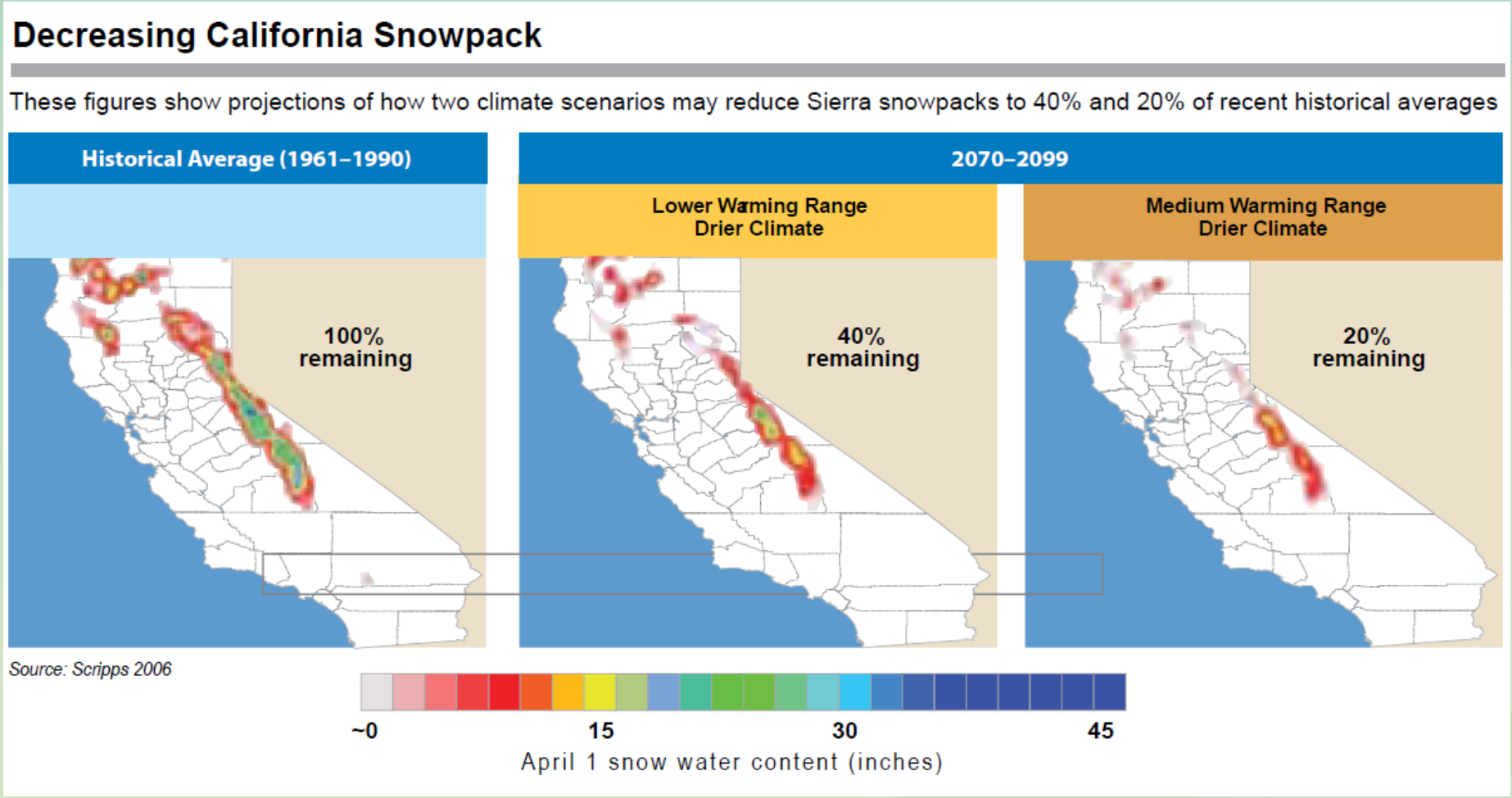
Areas of California served by water supplies from the Delta.

Over 24 million people depend on the Bay-Delta system for drinking water (two-thirds of the State's population).

2.5 million acres irrigated at least in part by water from the Delta, supporting California's $27 billion agricultural industry.



California Snowpack Predictions



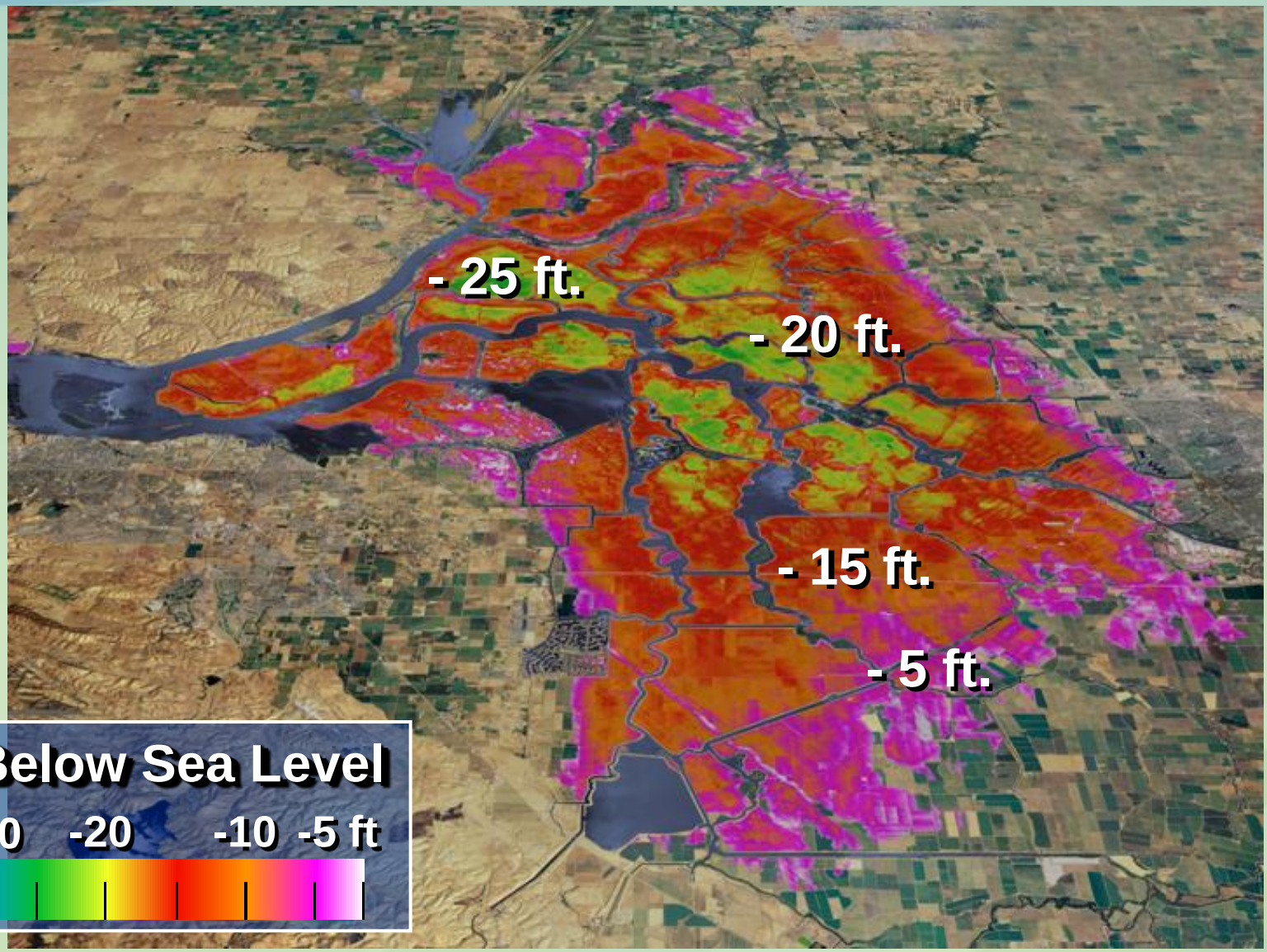
DWR, 2010

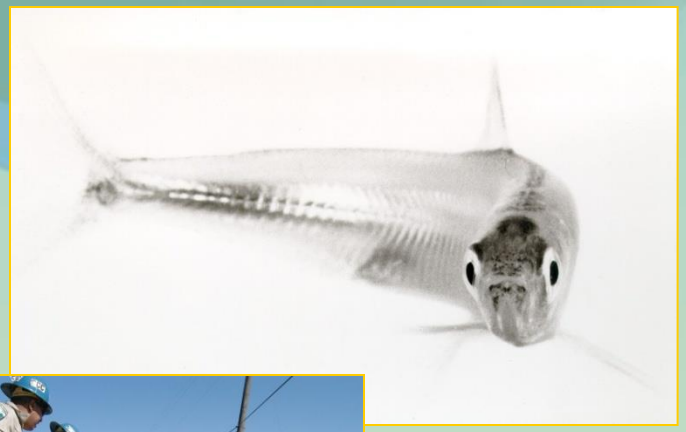
Sea Water Intrusion with Levee Breaks

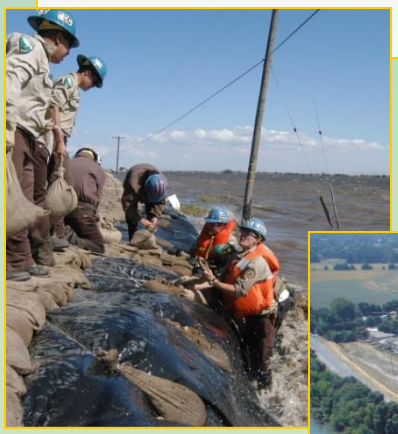
Significant multiple levee failures could results in loss of water supply for 3 years or longer.

Jones Tract
Levee Breach - 2004

Delta Islands Below Sea Level





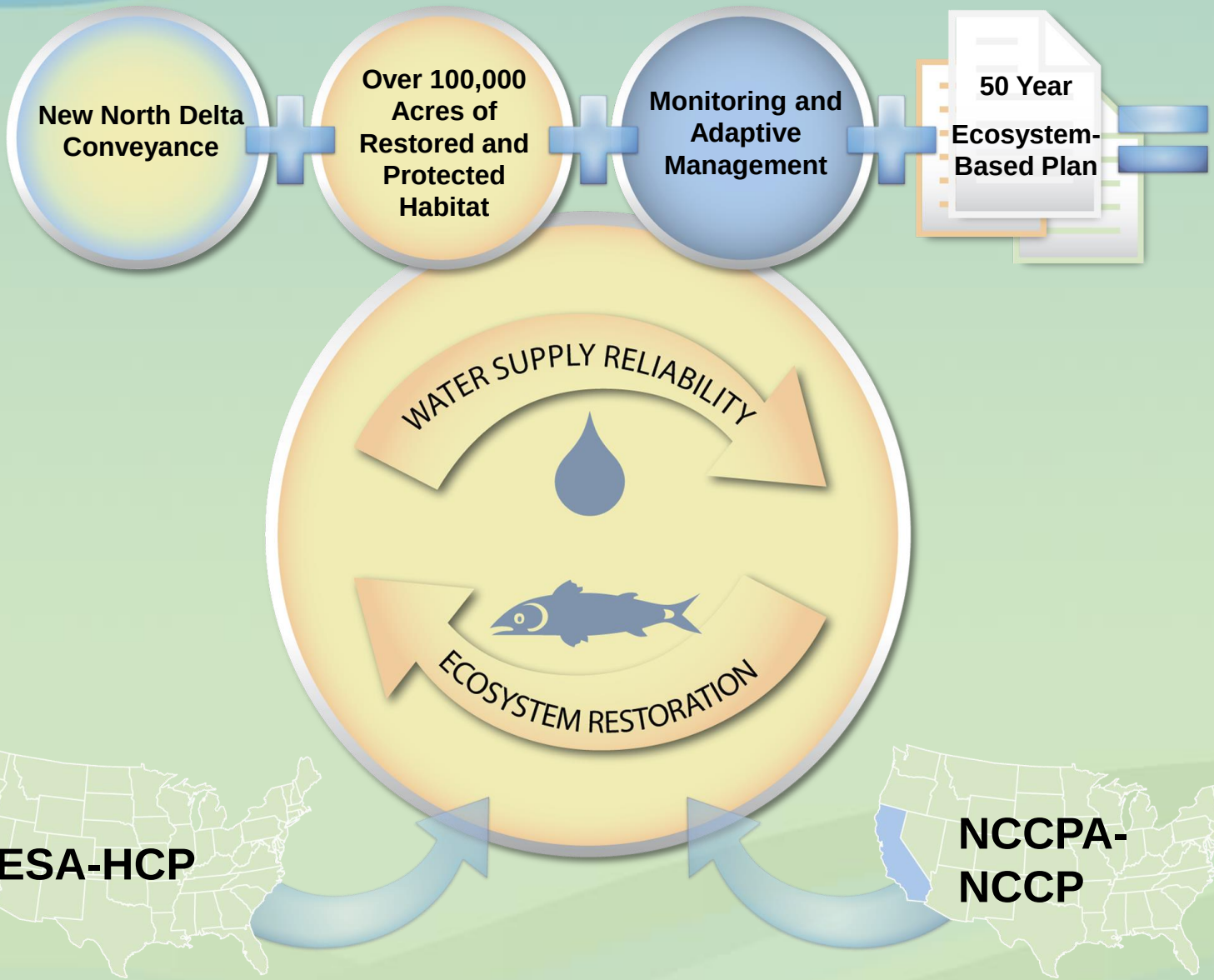


Delta Challenges

- Subsidence
- Earthquakes
- Climate Change
- Declining Species
- Regulatory Uncertainty

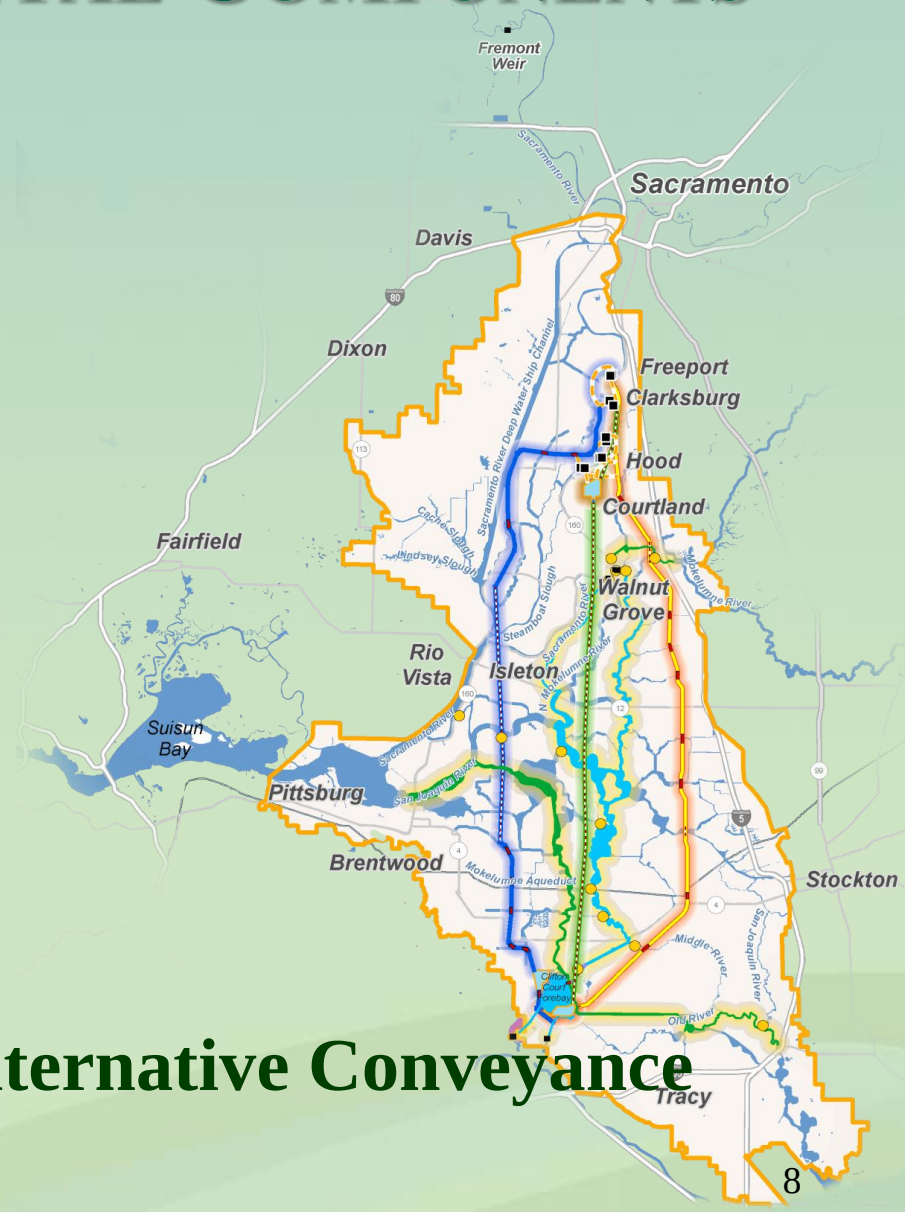
“64% chance of catastrophic failure due to earthquake or storm in the next 50 years.”

Bay Delta Conservation Plan



BDCP Fundamental Components

- **Large Scale Restoration**

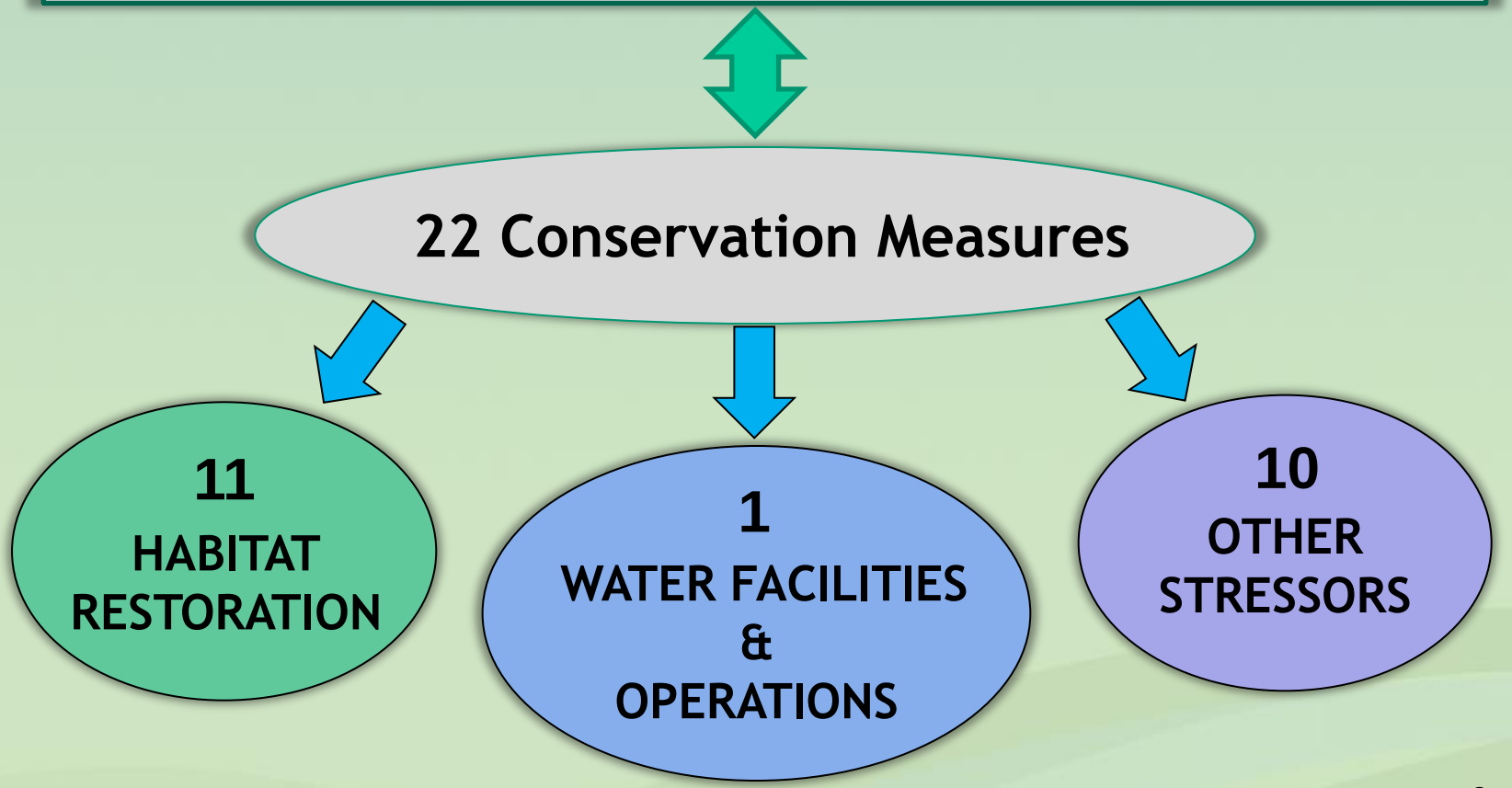


- **Alternative Conveyance**

BDCP Conservation Strategy

200 Biological Goals and Objectives for 56 species

11 of which are aquatic species



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Habitat Restoration Goals Under BDCP

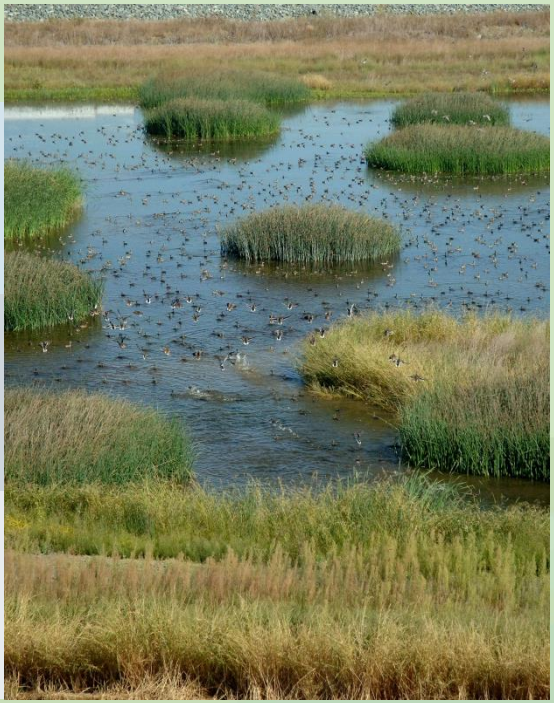
Accelerated habitat restoration in the Delta

- **30,000 acres** of aquatic habitat in next 15 years

Additional habitat restoration components:

- **Approximately 145,000 of restored and protected habitat**

New Floodplain in the south Delta 10,000 Acres	**Tidal Habitat** 65,000 Acres	**Channel Margin** 20 Levee Miles
Riparian 5,000 Acres	**Grassland** 10,000 Acres	**Other Habitats** 5,000 Acres
Managed Wetlands 6,500 Acres	**Cultivated Lands** Approx. 45,000 Acres	**Enhanced Floodplain Habitat in the Yolo Bypass**



BDCP Revised Admin Draft-March 2013

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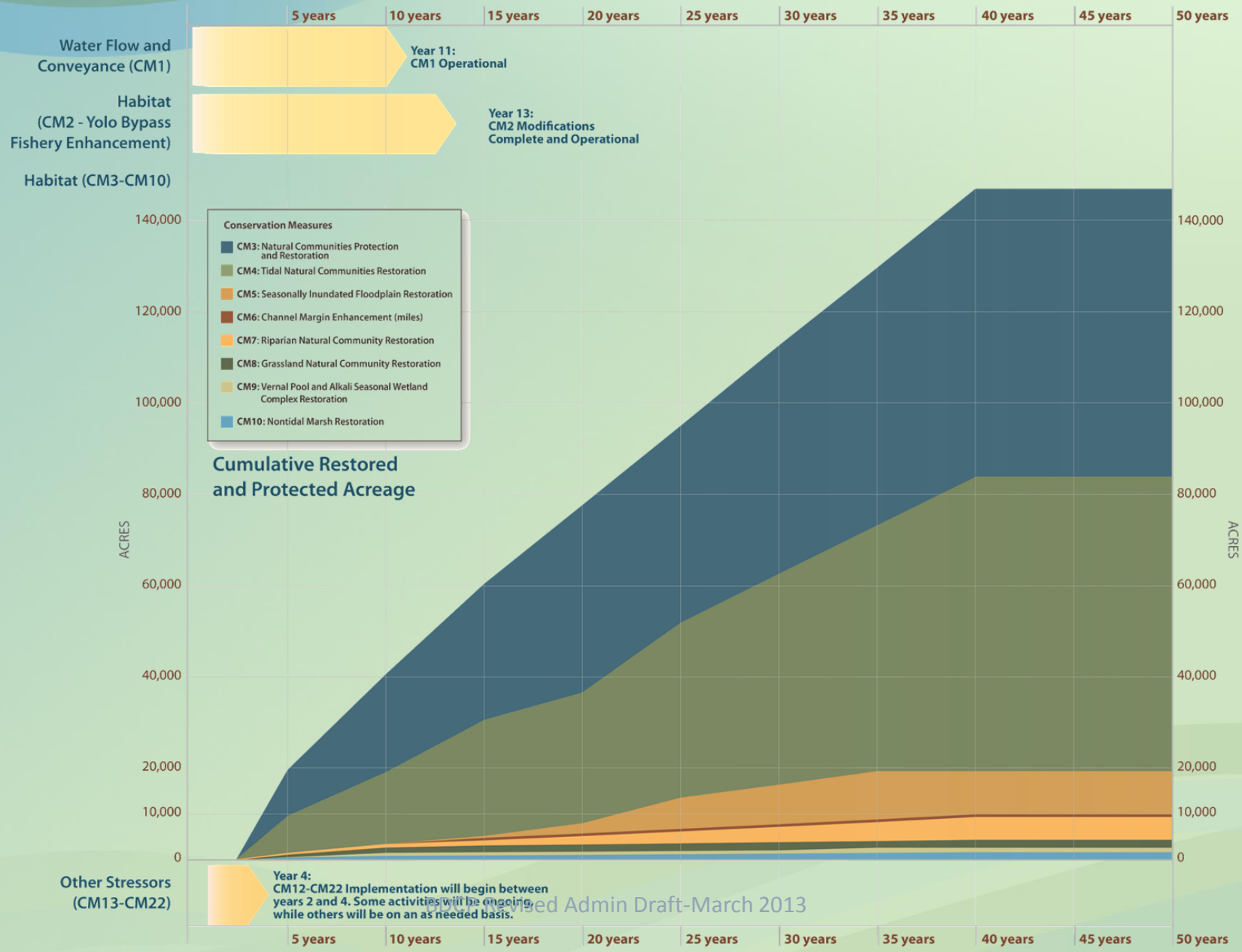
Habitat Implementation Schedule



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Conveyance Options

Intakes

West Option

Pipeline/Tunnel Option

Separate Corridors Option

East Option

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CM1: Proposed Project

Conveyance facility would feature:

- Three intakes and three pumping plants for a total of 9,000 cfs diversion capacity
- Three state-of-the-art fish screens that would protect passing fish.
- Three 20 ft interior diameter tunnel to carry water 1-5 miles from Intakes to the Intermediate Forebay.
- An Intermediate Forebay for temporarily storing the water pumped from the river.
- Gravity Flow from Intermediate Forebay to Byron Tract Forebay

Gravity Flow Benefits Include:

- Reduced energy consumption and greenhouse gas emissions
- Installation of fewer transmission lines

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CM1: Proposed Project (continued)

Conveyance facility would feature:

- Two 40ft interior diameter tunnels, 35 miles long.
- New 4,300 af capacity forebay at Byron Tract
- Total Electric Load - 57 MW
- Dual Operation - Continued use of SWP/CVP facilities in the South Delta

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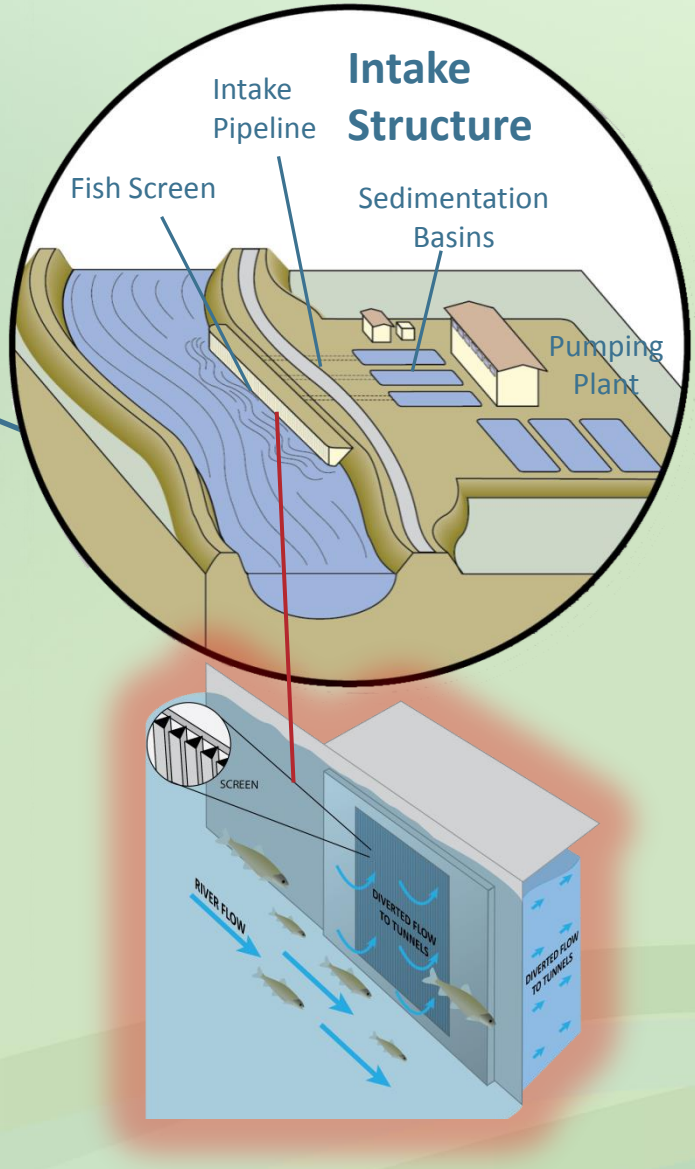
Intake Structures



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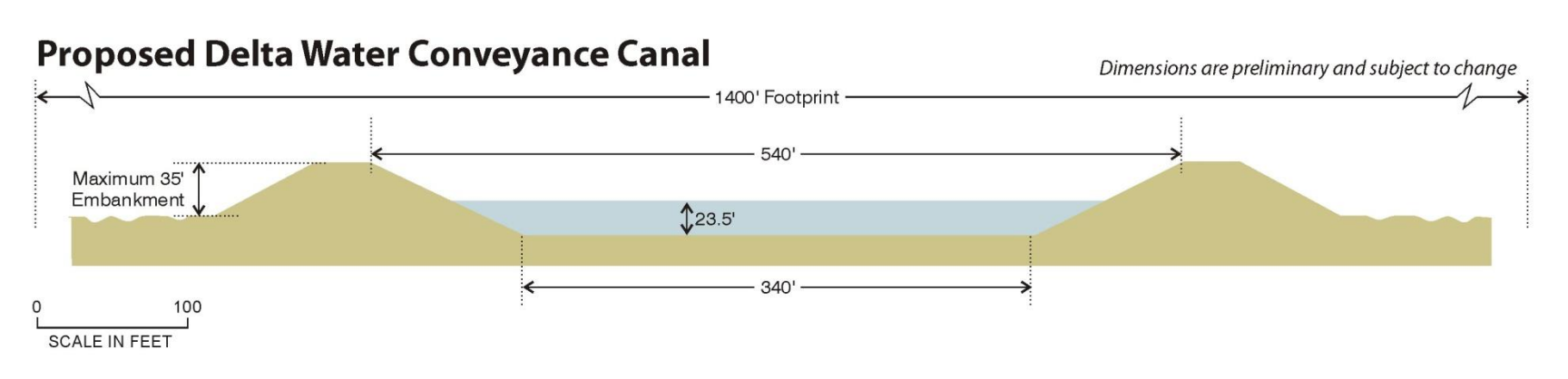
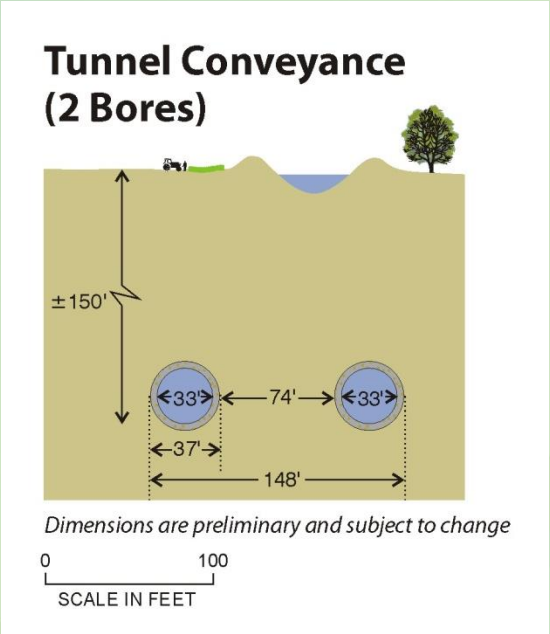
Footprint – Cross Section





SIZING CONVEYANCE – BACKGROUND

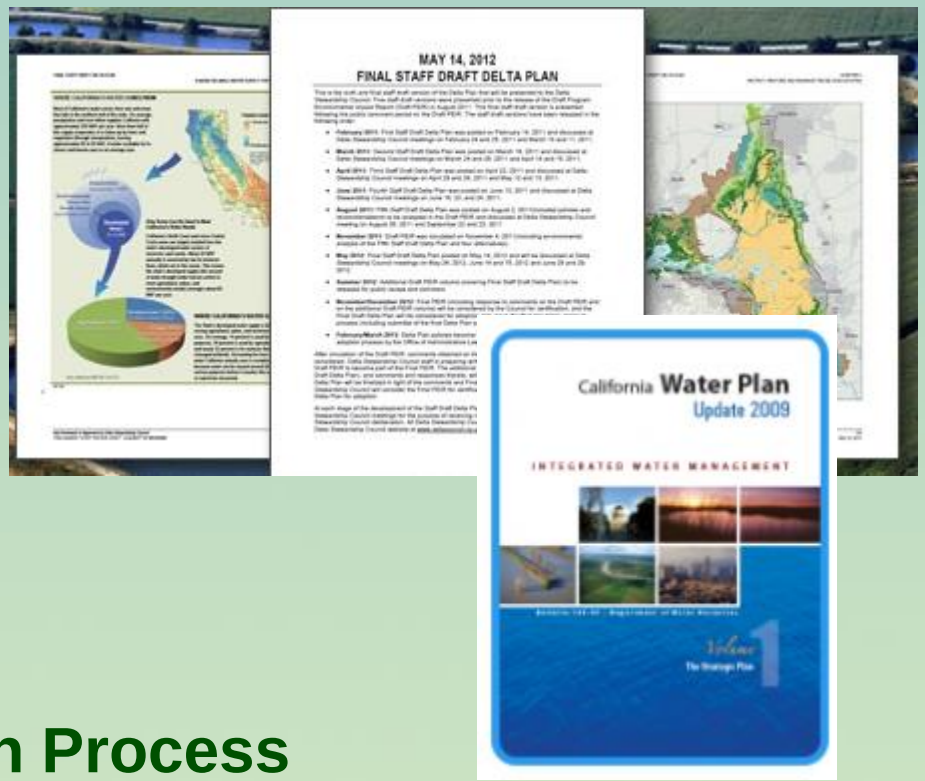
- Existing aqueduct capacity - 15,000 cfs
- Initial BDCP Steering Committee capacity – 15,000 cfs
- 1982 Peripheral Canal - 22,000 cfs
- BDCP "Framework Proposal – 9,000 cfs; three intakes
- Final size yet to be determined

Sizing Conveyance – Rationale

- Must meet needs for 100-200 years
- Address climate change and sea level rise
- Provide protection from seismic events
- Improve water quality
- Provide reliability – two tunnel design
- “Big gulp, Little sip”

Examples of Master Plans

- California Water Plan
- Delta Plan
- Integrated Regional Water Management Plans
- Central Valley Flood Plan



BDCP is a Permit Application Process

- Delta Conveyance Solution for Water Supply Reliability for SWP/CVP
- Mitigation and Habitat Improvements
- Incidental Take Coverage under Federal and State ESAs

NRDC Proposal Expands Permit Requirements

Existing Proposal

- Conveyance/Operations
- Habitat

NRDC Alternative Proposal

- Conveyance/Operations
- Habitat
- Delta Levee improvements
- South of Delta Storage
- Local Water Supply Development

Alternatives analysis must identify specific project impacts

Expanding permit requirements could affect water supply reliability

Response to NRDC Proposal

Evaluation

- 3,000 cfs tunnel option is covered in the BDCP EIR/S
- Economic calculations of the cost/benefit of the portfolio proposal will be addressed in Chapter 9 of the BDCP and accompanying documents
- Other water use efficiency and supply alternatives (recycling, desalination) are being facilitated in IRWM and regulatory programs

Problems

- Does not meet long-term needs – reliability for all Delta diversions
- Does not meet co-equal goals
- Does not address reverse flows and south Delta restrictions
- Reduces habitat restoration by 60%
- Funding for local water supply projects is not identified

Hetch Hetchy Seismic upgrade: $4.5 billion

This retrofit includes replacing pipes over SF Bay with a tunnel, a new dam and upgrade of water treatment facilities.

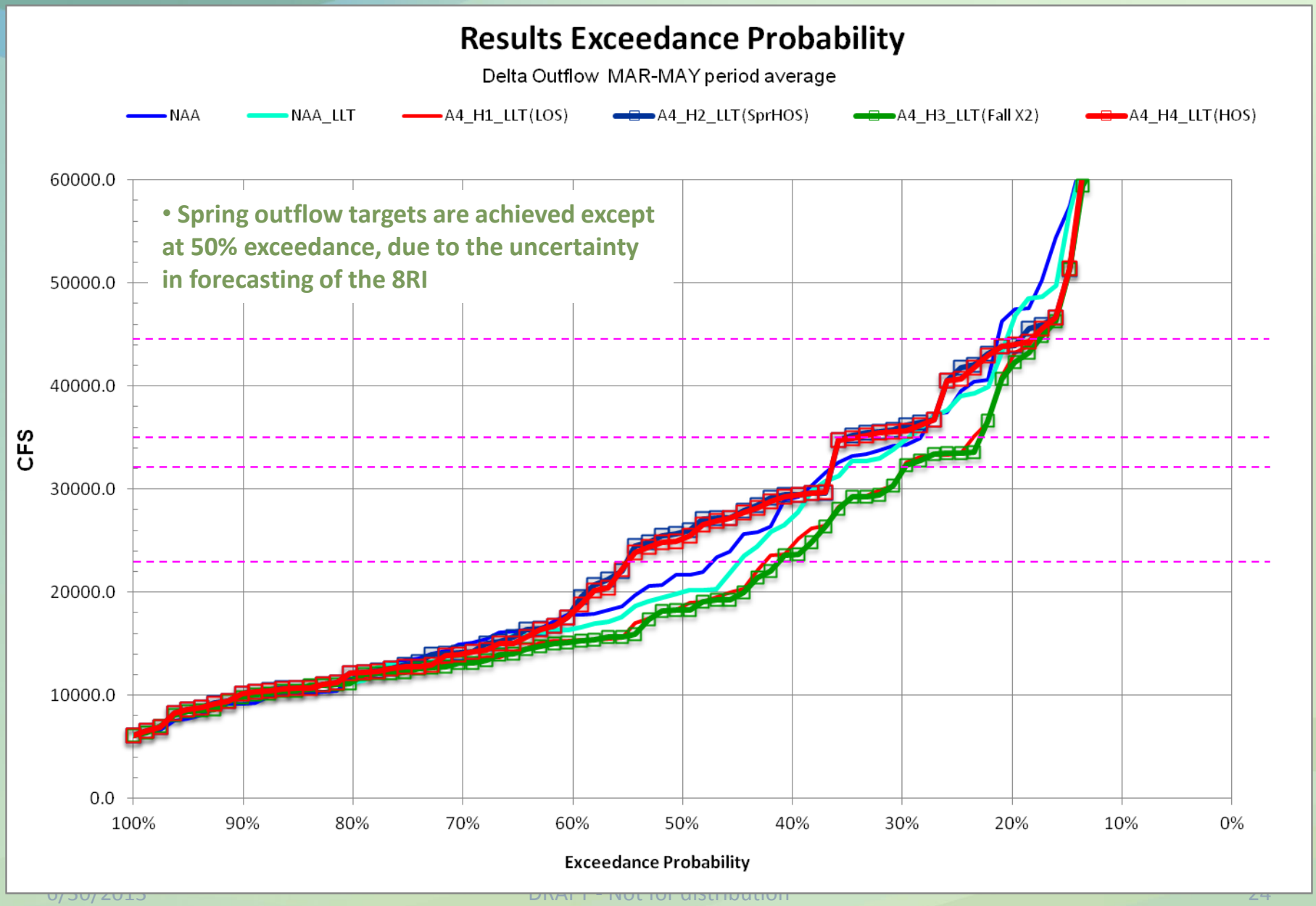
Source: Mountain Cascade Inc.

Photo: abc News

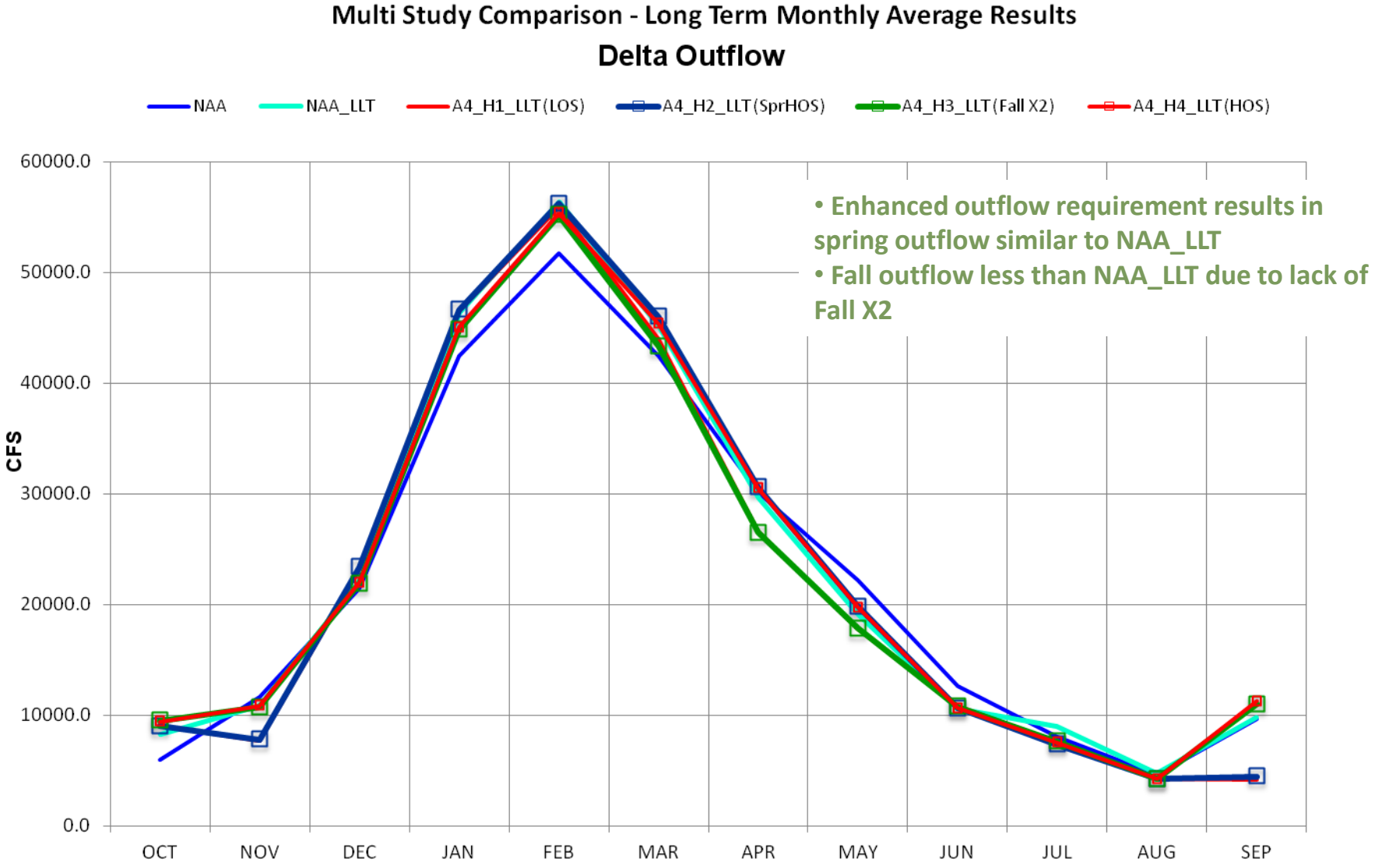
Water Investment Projects

Project	Cost	Population Served	Per capita cost
MWD Diamond Valley Lake / Inland Feeder	$3,100,000,000	18,000,000	$172
EBMUD	$517,000,000	1,300,000	$398
SDCWA Emergency Storage Project	$1,500,000,000	2,800,000	$536
BDCP	14,700,000,000	25,000,000	$588
CCWD Los Vaqueros Project	$570,000,000	550,000	$1,036
SWP Coastal Aqueduct and CCWA Project	$575,000,000	430,000	$1,337
SFPUC's Hetch Hetchy Project	$4,600,000,000	2,500,000	$1,840

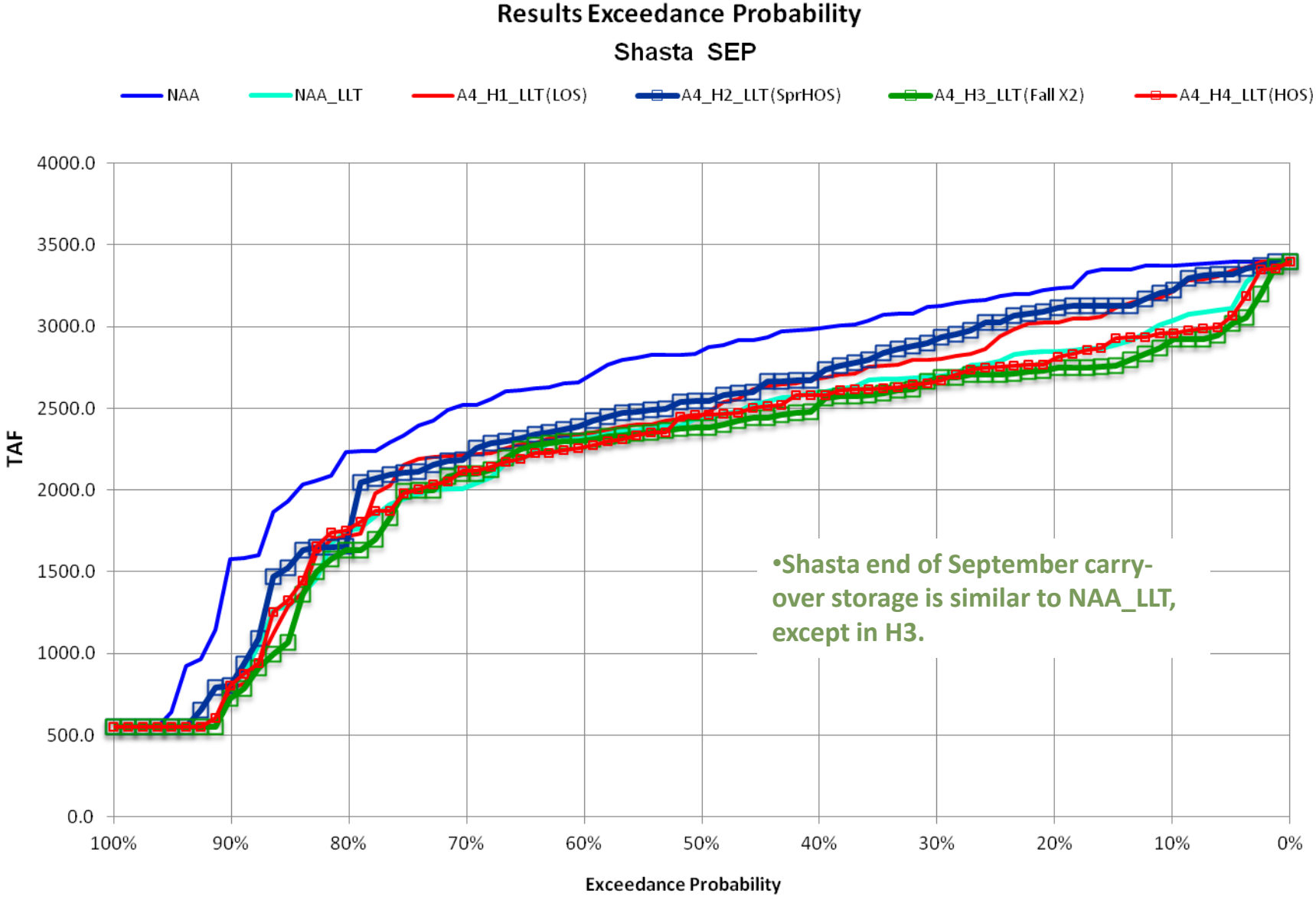
Mar – May Delta Outflow



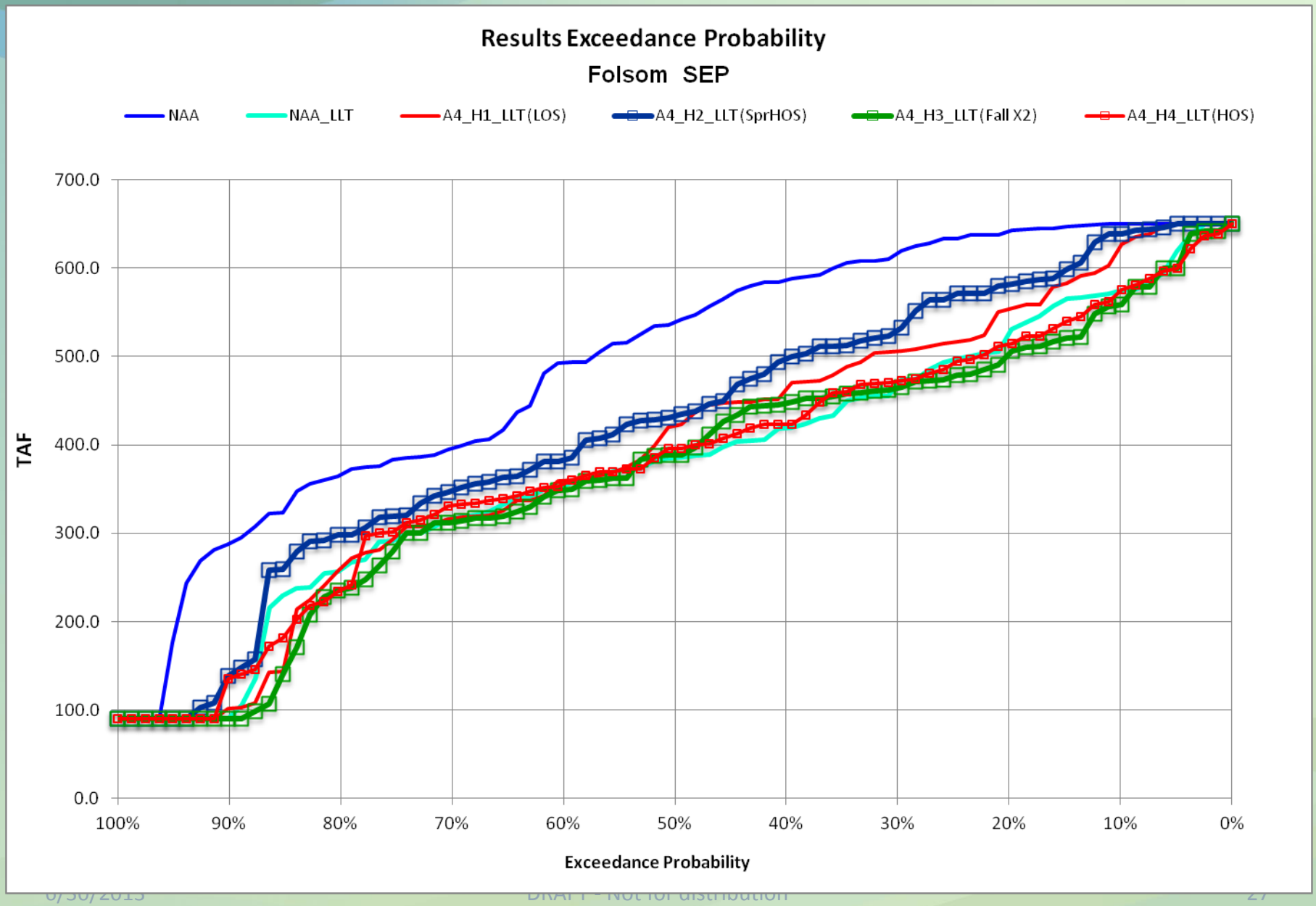
Long-term Average Delta Outflow



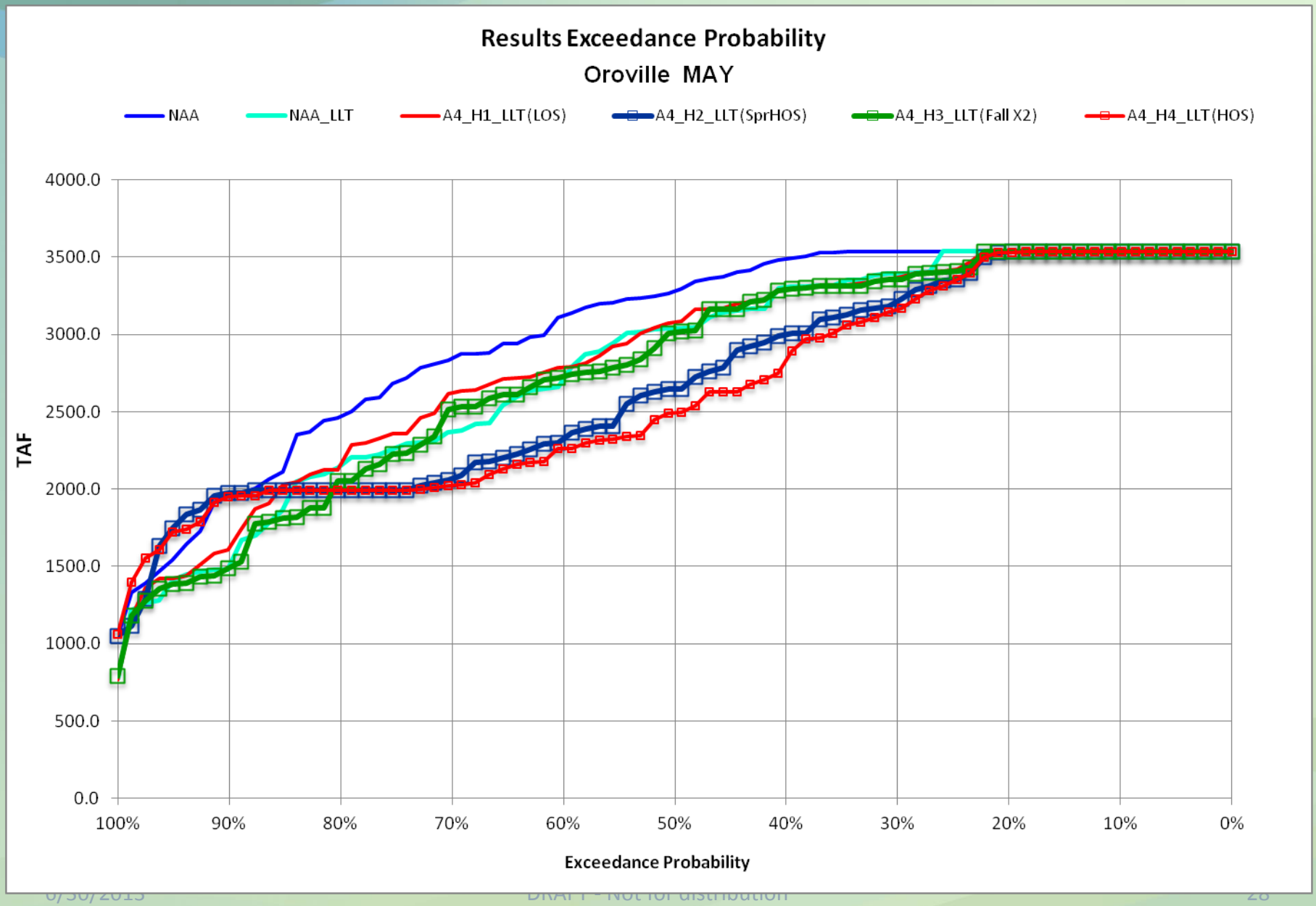
Shasta End of September



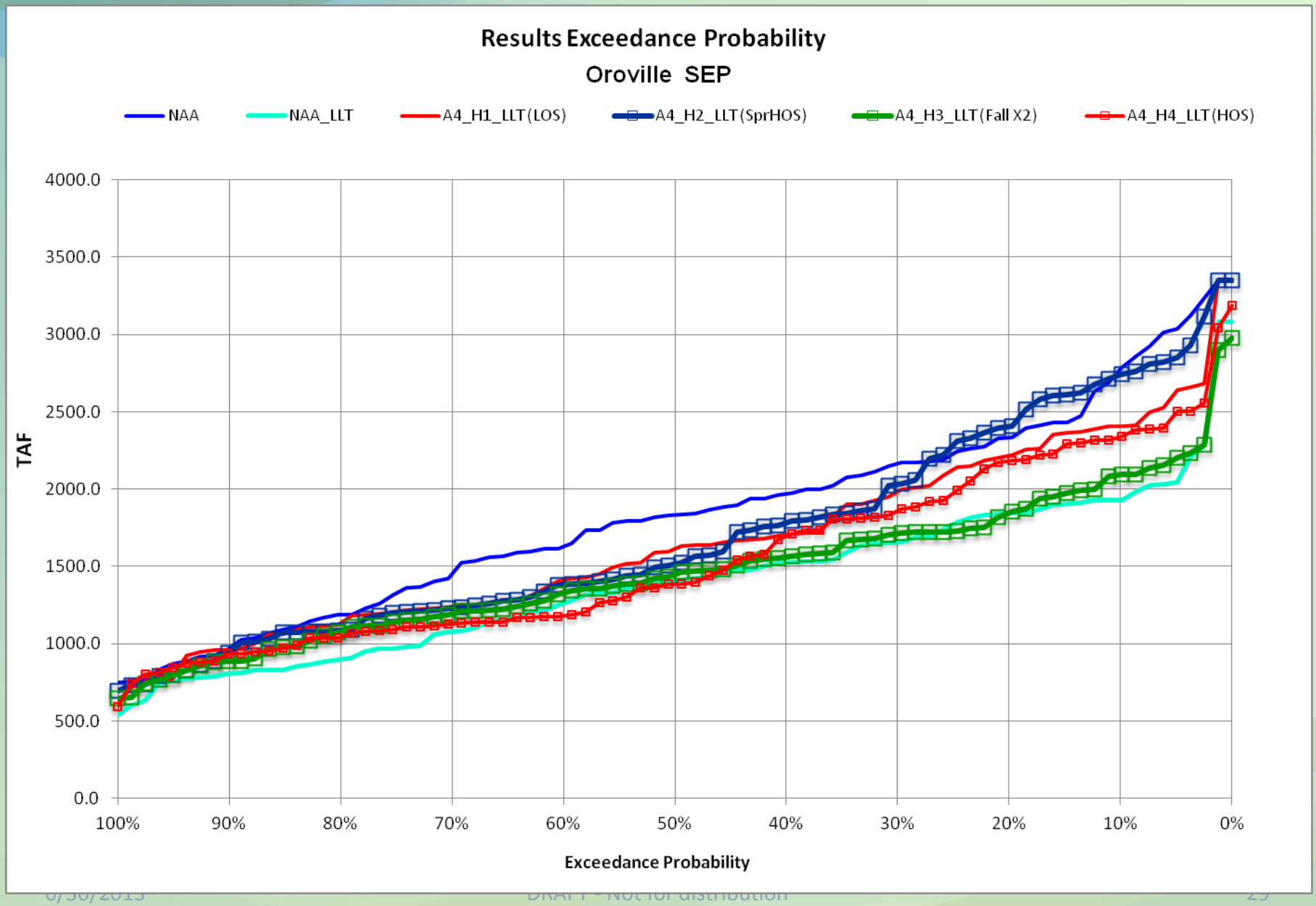
Folsom End of September



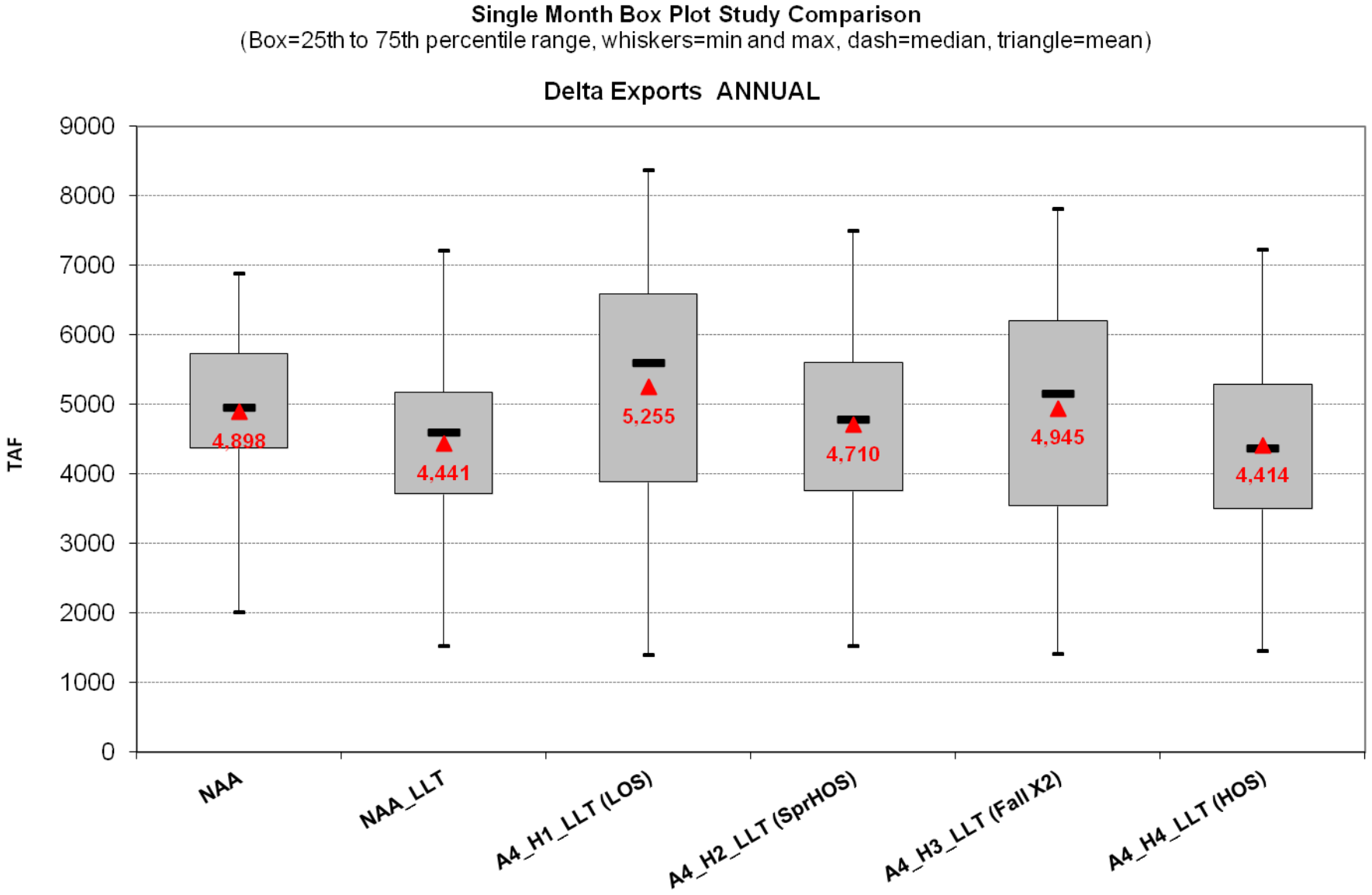
Oroville End of May



Oroville End of September



Delta Exports



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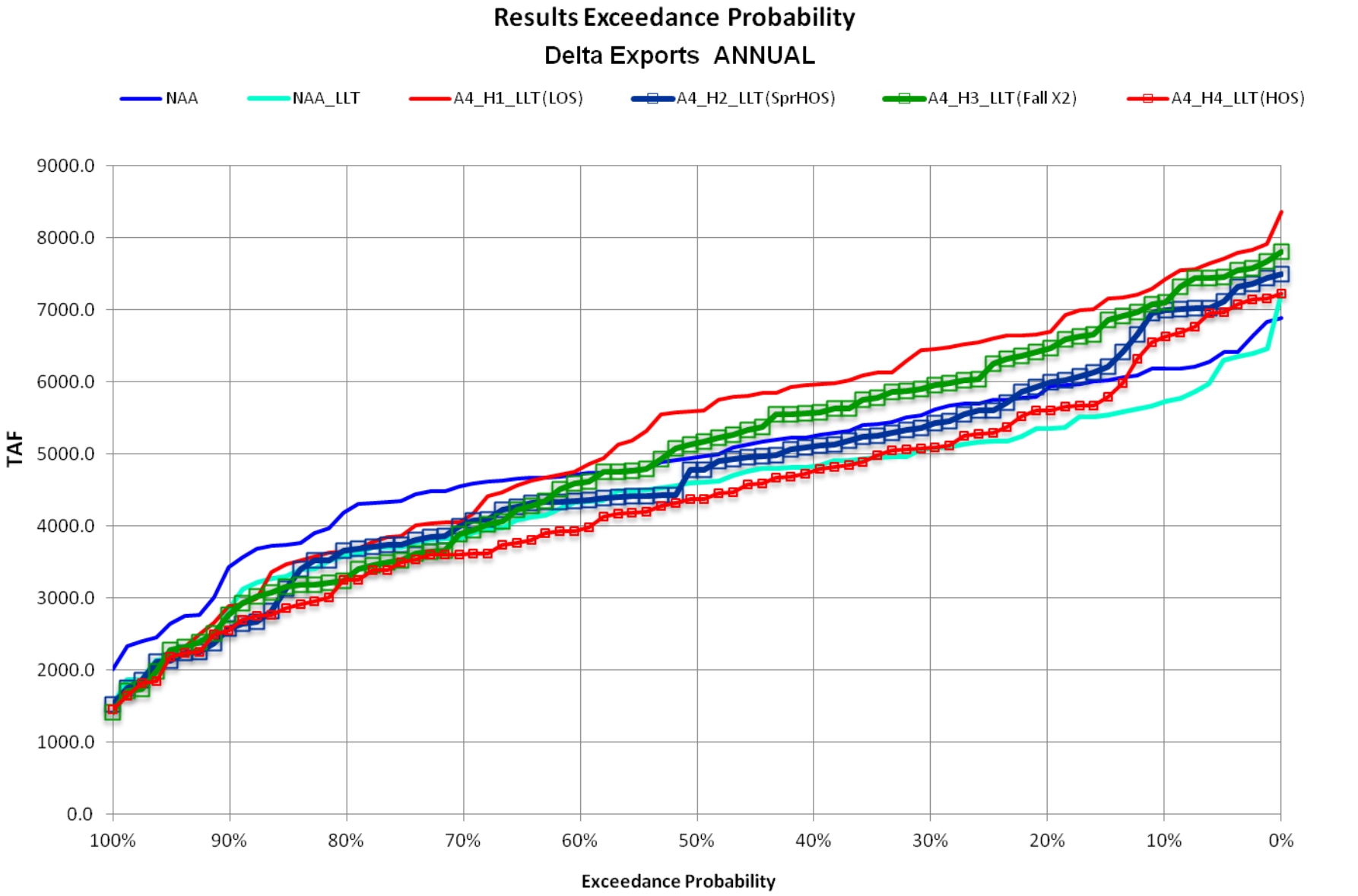

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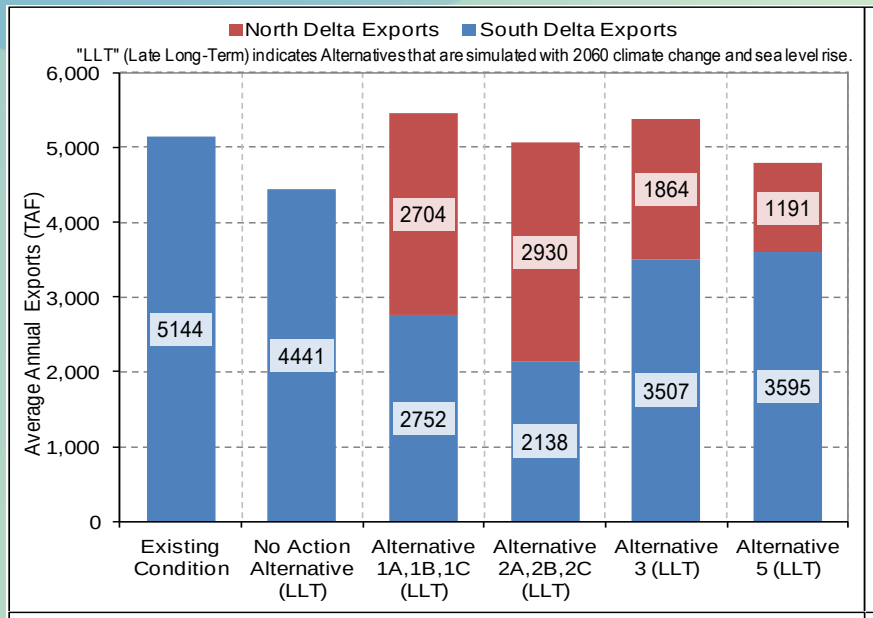
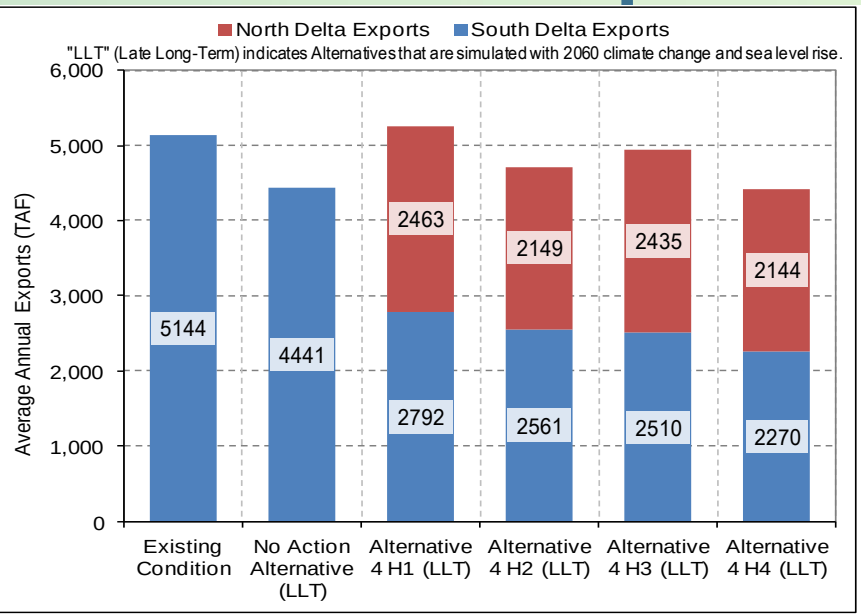
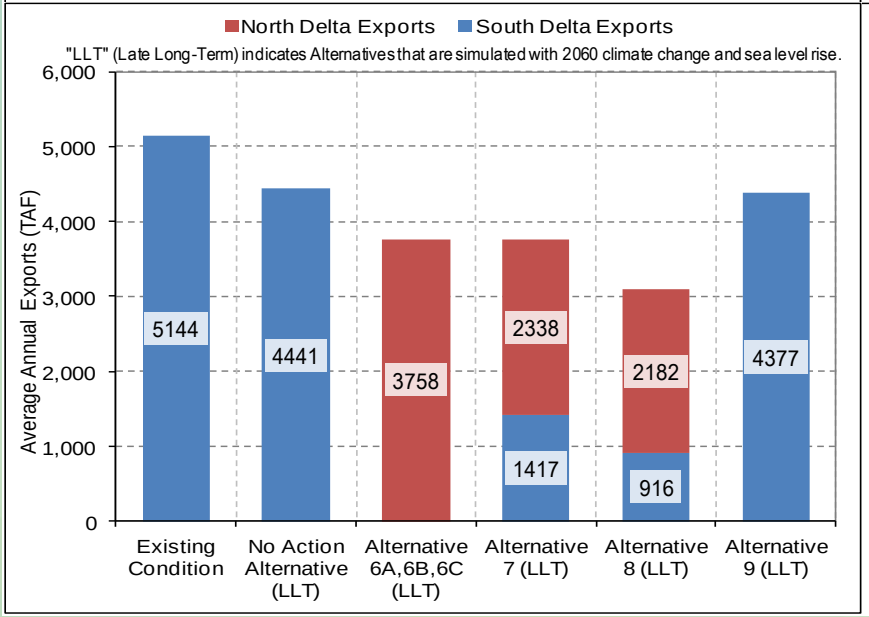
Total Delta Exports







Alternative 4 Scenario Definitions:

H1 - Low Delta Outflow Scenario
H2 - Enhanced Spring Delta Outflow Scenario
H3 - Fall X2 Scenario
H4 - High Delta Outflow Scenario

North and South Delta Exports Long-Term Average

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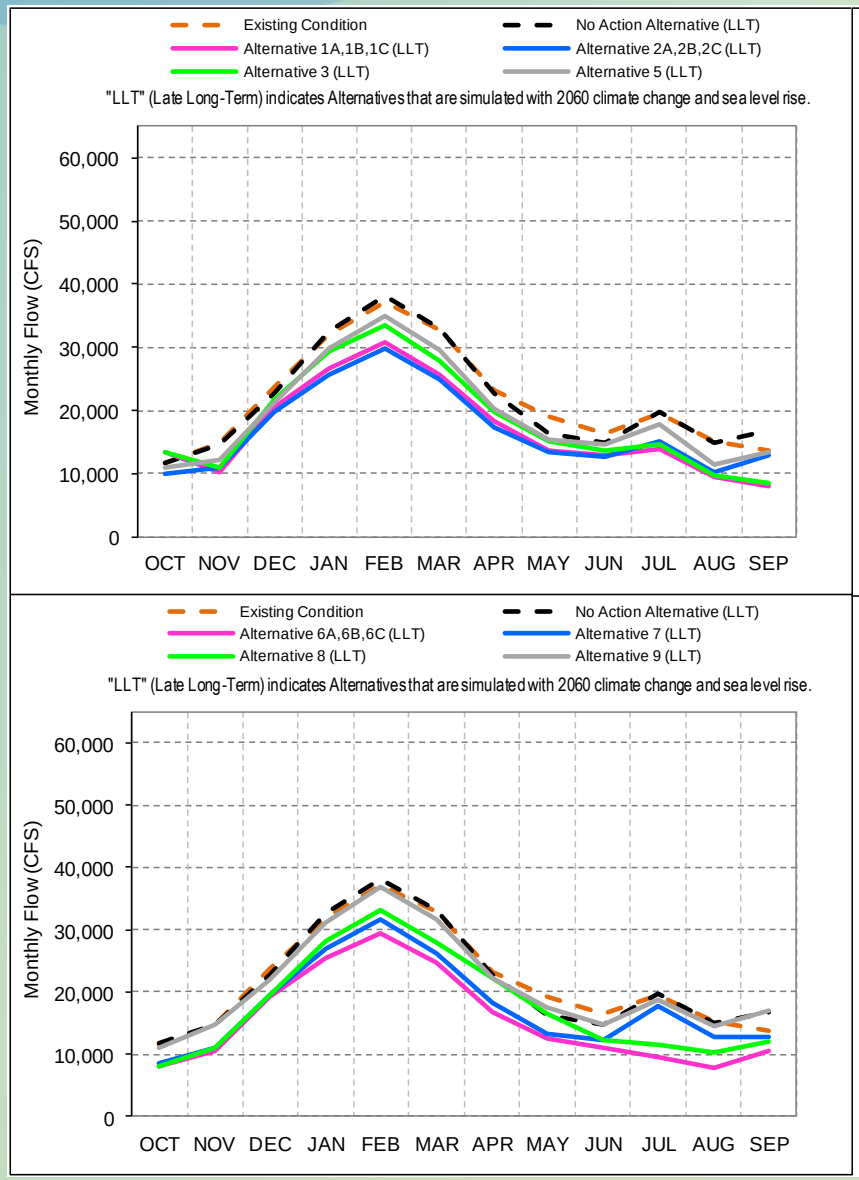
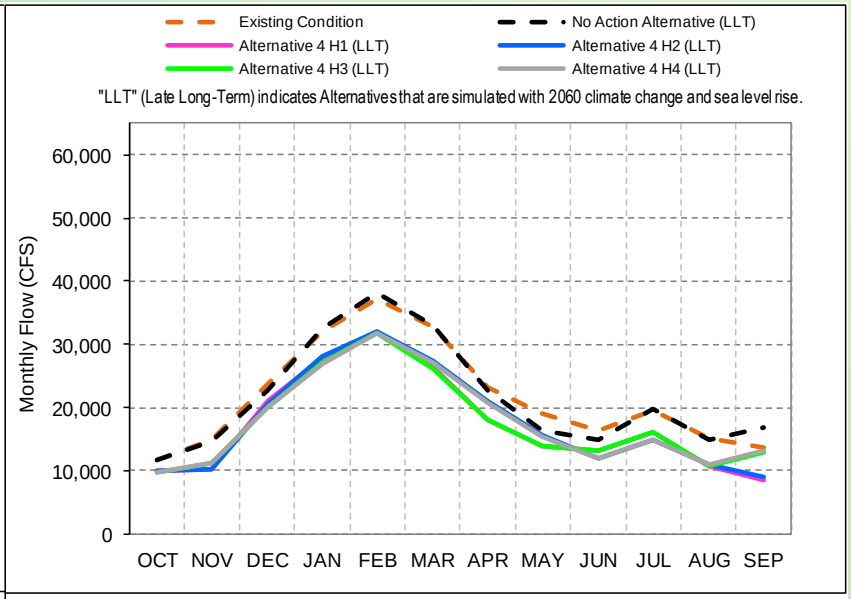
Long-Term Average: Sacramento R. Downstream of North Delta Intakes





Alternative 4 Scenario Definitions:

H1 - Low Delta Outflow Scenario
H2 - Enhanced Spring Delta Outflow Scenario
H3 - Fall X2 Scenario
H4 - High Delta Outflow Scenario

Sacramento River Flow downstream of North Delta Intakes, Long-Term Average

Alternative 4 Decision Tree

- Decision tree for “enhanced spring outflow” and “fall X2” operations.
- Four scenarios in the Alternative 4 decision tree:
  - Scenario H1: Low outflow
  - Scenario H2: Includes “enhanced spring outflow” and excludes “fall X2”
  - Scenario H3: Excludes “enhanced spring outflow” and includes “fall X2”
  - Scenario H4: High outflow

Assumptions for Alternative 4 Decision Tree Scenarios

- 9,000 cfs North Delta Diversion
  - Intakes 2, 3 and 5
- Key assumptions consistent with January 2010 PP operations
  - North Delta Diversion Operations
  - Fremont Weir
- Key assumptions consistent with March 2011 "Scenario 6" operations
  - OMR requirements
  - Head of Old River Barrier (HORB) operations

Assumptions for Alternative 4 Decision Tree Scenarios – contd.

- Scenario H1 outflow targets per D-1641
- Fall X2 operations in Scenarios H3 and H4 consistent with No Action Alternative.
- Enhanced spring Delta outflow targets in Scenarios H2 and H4
  - Mar through May average targets outlined below

Exceedance Level	90%	80%	70%	60%	50%	40%	30%	20%	10%
Delta Outflow Target (cfs)	9200	11400	13300	17200	23000	32000	35000	44500	44500

Enhanced Spring Delta Outflow Operations

- Each year in March, enhanced spring Delta outflow target for the Mar-May period is determined based on the forecasted Mar-May 8RI value and its exceedance probability.
- Enhanced spring outflow requirement is not considered as an "in-basin use" for CVP-SWP Coordinated Operations.
- Enhanced spring outflow requirement is first met through by curtailing Delta exports at Banks and Jones Pumping Plants by an amount needed to meet the outflow target, such that the minimum exports are at least 1,500 cfs.
- In wetter years (< 50% exceedance), if the outflow target is not achieved by export curtailments, then additional flow needed to meet the outflow target is released from the Oroville reservoir in Apr and May, as long as projected end-of-May storage is at or above 2 MAF.