

# **BDPAC Drinking Water Subcommittee Meeting**

## **Surface Storage Program Water Quality Investigations**

April 1, 2005

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# Surface Storage Projects (R.O.D.)



Shasta Lake Enlargement



North of Delta Off-stream Storage



In-Delta Storage



Los Vaqueros Expansion



San Joaquin Storage



San Luis Low Point



# Key Accomplishments To Date

**Shasta Lake Reservoir Expansion:** released Initial Alternatives Information Report, issue NOI (Spring 2005)

**North-of-the-Delta Offstream Storage:** completed a Draft Flow Regime Technical Advisory Group Summary and Evaluation Report

**In-Delta Storage:** released State Feasibility Study and collected Jones Tract flooding information for State Feasibility Study Supplement (June 2005)



# Key Accomplishments (continued)

**Los Vaqueros Reservoir Expansion:** passed local advisory vote to continue studies and initiated Initial Alternatives Information Report

**Upper San Joaquin River Basin Storage:** initiated NEPA/CEQA process, completed Scoping, and finalized Initial Alternatives Information Report (Spring 2005)

**San Luis Low Point Improvement Project:** developed a fish mortality model and received Federal Feasibility Authorization and initial funding

# 2005/06 Water Quality Issues and Benefits Development

## North of Delta Off-stream Storage

- Water quality of ecosystem habitat in Sacramento River
- Delta water quality improvements.

## Shasta Lake Enlargement

- Water quality improvement for anadromous fish survival
- Cold water pool to maintain Sacramento River water temperatures.

## Los Vaqueros Expansion

- Improve Bay area water quality by delivering high quality water during drought periods
- Improving drinking water quality by blending
- Reduce chloride concentrations in South Bay supply in critical years during winter and early summer months
- Reduce Bay area chloride concentrations in all year types.

## In-Delta Storage

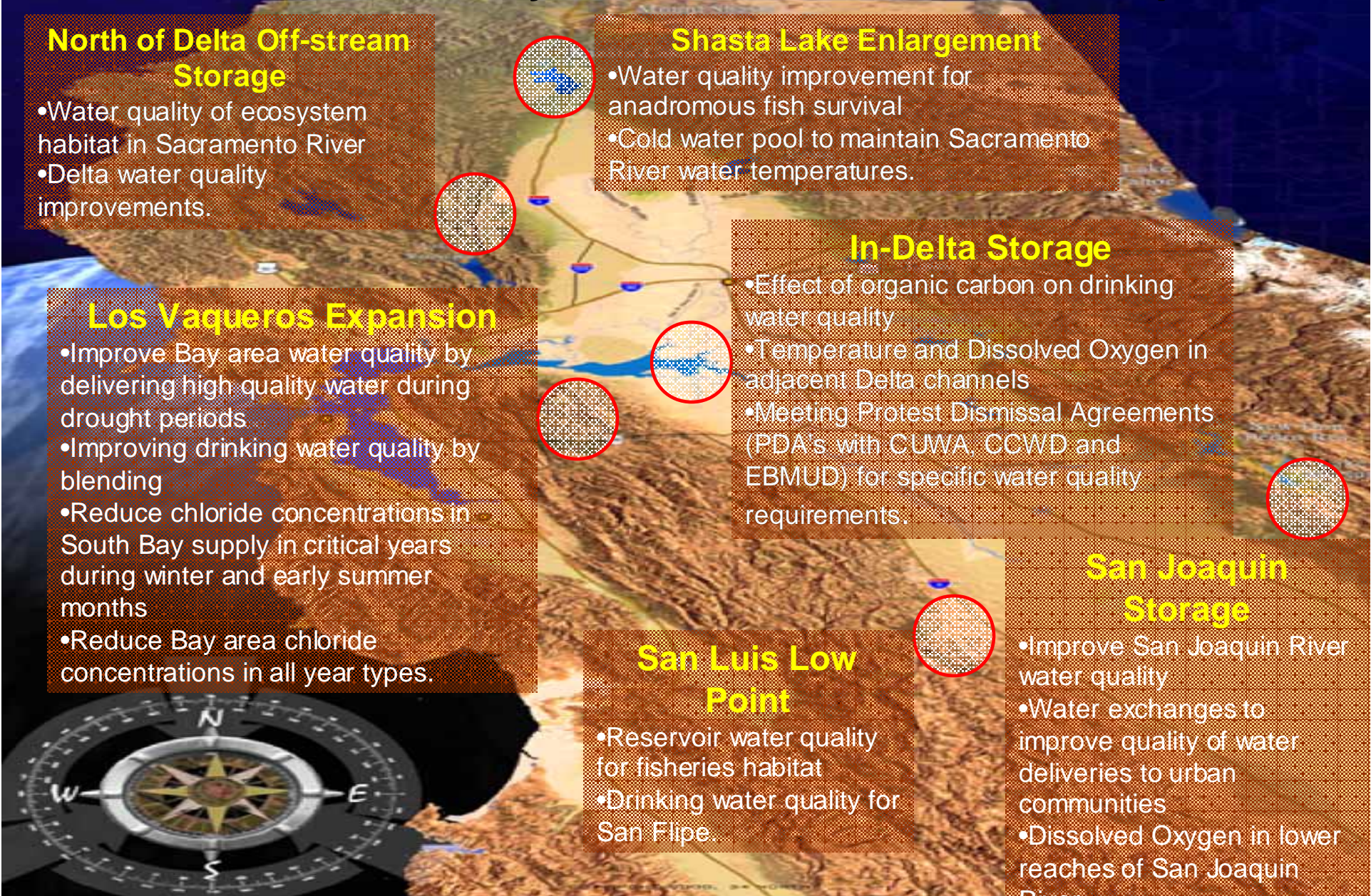
- Effect of organic carbon on drinking water quality
- Temperature and Dissolved Oxygen in adjacent Delta channels
- Meeting Protest Dismissal Agreements (PDA's with CUWA, CCWD and EBMUD) for specific water quality requirements.

## San Luis Low Point

- Reservoir water quality for fisheries habitat
- Drinking water quality for San Felipe.

## San Joaquin Storage

- Improve San Joaquin River water quality
- Water exchanges to improve quality of water deliveries to urban communities
- Dissolved Oxygen in lower reaches of San Joaquin River.

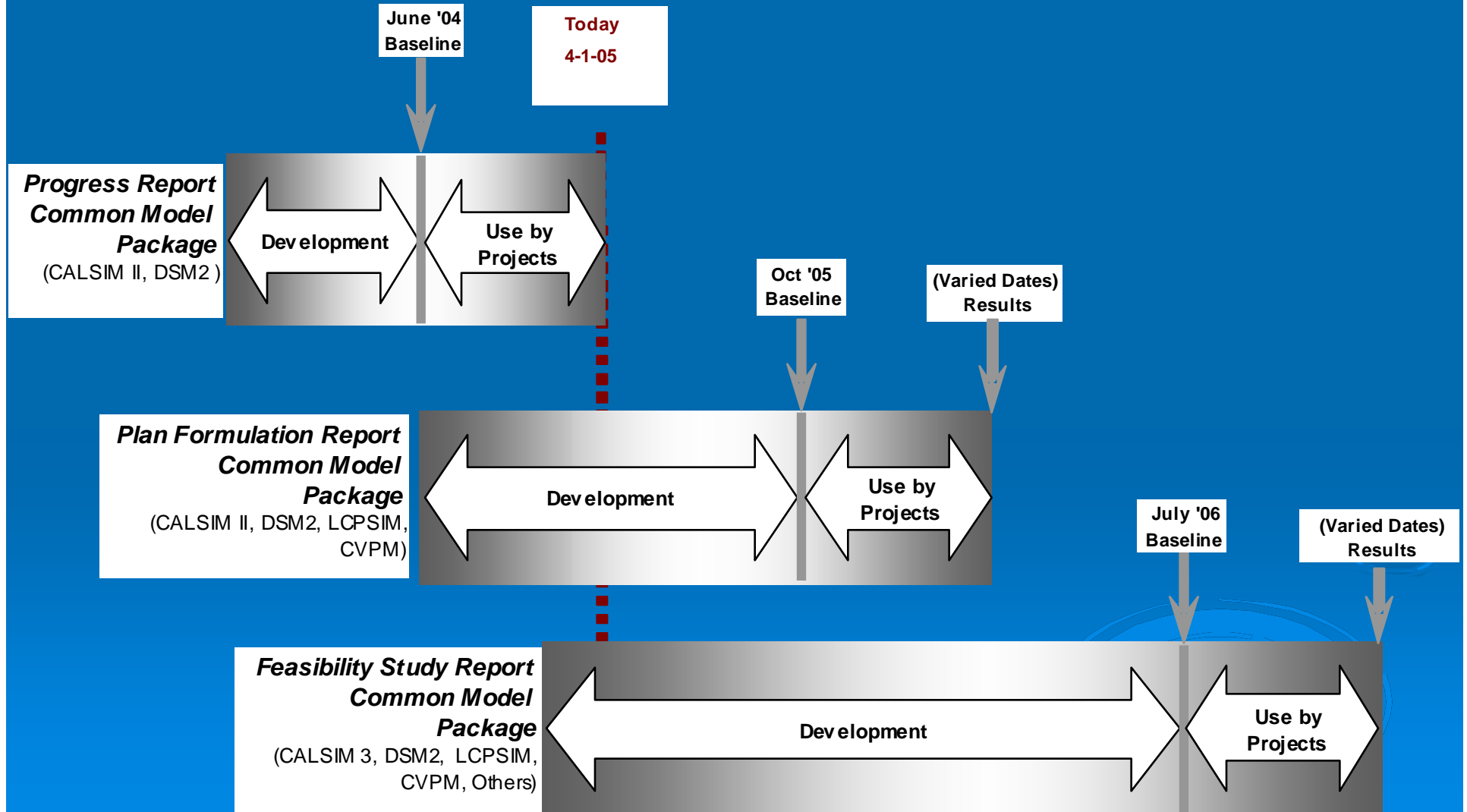




# Common Assumptions

- Completed Common Model Package for Second Progress Report (March 2005)
- Develop Plan Formulation Common Model Package in 2006.
- Refinements for CALSIM II (ANN Calibration) and DSM2 (73 year Extension) including: WUE, transfers, EWA and groundwater
- Complete refinements to economic models (LCPSIM, CVPM, etc.)

# Common Assumptions Schedule





# Evaluation Methodology

- Use of CALSIM II and DSM2 models
- Conceptual model development
- Calibration of water quality models to field data
- Application of operational techniques:
  - Storing good quality water when impact to fisheries is low and releasing pulse flows
  - Reduction of salinity intrusion by making fresh water releases in the Delta
  - Recirculation of water to reduce detention time and degradation of water quality in the Delta.

# Modeling Results

Using *Progress Report Common Model Package*, project study teams completed modeling for:

- Shasta Enlargement 3 scenarios
- North-of-Delta Offstream Storage 4 scenarios
- In-Delta Storage 4 scenarios
- Los Vaqueros Expansion 3 scenarios
- Upper San Joaquin Basin Storage not re-modeled

# Modeling Results

## Shasta Lake Water Resources Investigation

Reporting Metric	Scenario		
	1	2	3
	(difference from base condition)		
Total water supply - long-term (TAF/year)	39	69	89
- driest periods (TAF/year)	63	127	160
Percent of time the river temperature at Bend Bridge exceeds 56° (April-Sept. long-term)	-3.0%	-6.7%	-6.9%
Early life stage salmon mortality in Sacramento River (winter run) - dry & critical	-0.3%	-1.4%	-0.4%
Early life stage salmon mortality in Sacramento River (spring run) - dry & critical	-0.8%	-9.0%	-6.2%
Net increase in CVP energy production (GWh/year) - long term	11	36	30

**Common Model Package**

**Project-specific modeling**



# Modeling Results

## North-of-the-Delta Offstream Storage

Reporting Metric	Scenario			
	1	2	3	4
Total water supply - long-term (TAF/year)	259	177	220	87
- driest periods (TAF/year)	392	294	314	203
Long-term average EWA water supply delivered to Delta inflow (TAF/year)	n/a	n/a	n/a	124
Change in average Chloride loading to California Aqueduct for Jul-Oct (1976-91)	3%	-27%	4%	1%
Increase in long-term average flow below Keswick for Oct-Dec (TAF/year)	n/a	n/a	107	104
Reduction in long-term average Sacramento River diversions for Apr-Aug (TAF/year)	175	234	173	189
Long-term average water supply available for rice decomposition/refuges (TAF/year)	80	81	69	75

**Common Model Package**

**Project-specific modeling**

# Modeling Results

## In-Delta Storage

Reporting Metric	Scenario			
	1	2	3	4
	(difference from base condition)			
Total water supply - long-term (TAF/year)	77	73	52	63
- driest periods (TAF/year)	64	61	51	49
Long-term average EWA water supply delivered to San Luis Reservoir (TAF/year)	0	26	28	14
Long-term average water supply for ERP actions (TAF/year)	0	0	19	0
Long-term average releases for improving Delta water quality (TAF/year)	0	0	0	35

**Common  
Model  
Package**

# Modeling Results

## Los Vaqueros Reservoir Expansion

Reporting Metric	Scenario			
	2	3	4	
	(difference from base condition)			
Total water supply (CVP/SWP) - long-term (TAF/year) <sup>1</sup>	- 5	3	9	} Common Model Package
	- 3	14	23	
Total EWA long-term water supply (TAF/year)	143	123	117	
Improvement to Water Quality delivered to SBA SWP Contractors during Sep. thru Nov. Period	58%	52%	50%	} Project-specific modeling
Payback Operation – long-term (TAF/year)	5	5	4	
– driest periods (TAF/year)	2	3	2	

<sup>1</sup> Impacts to CVP/SWP water supply deliveries will not occur because they are compensated by use of Los Vaqueros storage through the “payback” operation



# Modeling Results Upper San Joaquin River Basin Storage Investigation

As reported in *California Bay-Delta Surface Storage Program Progress Report*. (April 2004)

- Water supply benefit: 100-235 (TAF/Year)<sup>1</sup>

<sup>1</sup> From *Phase 1 Investigation Report*, October 2003.

# Budget Proposition 50 State Budget

(Funding in \$ thousands)

	Fiscal Year				
	02/03	03/04	04/05	05/06	06/07
<b>Appropriations</b>	6,550	19,750	18,960		
<b>Reappropriations</b>		(14,700)	14,700		
<b>Subtotal</b>	<b>6,550</b>	<b>4,870</b>	<b>20,800</b>	<b>10,250</b>	<b>2,260</b>
<b>Expenditure</b>	(6,550)	(4,870)	<b>(11,250)</b>		
<b>Balance</b>	-	-	<b>9,550</b>		
<b>Proposed Budget</b>				3,500	6,050
				<b>13,750</b>	<b>8,310</b>

# Budget

## Federal Appropriations for FY05 and the President's Budget for FY 06

