



California's Water Crisis **In Search of a Solution**

Albert Napoli
Metropolitan Water District

Water Supply Outlook

Key Risks

Improvement Actions

February 26, 2009



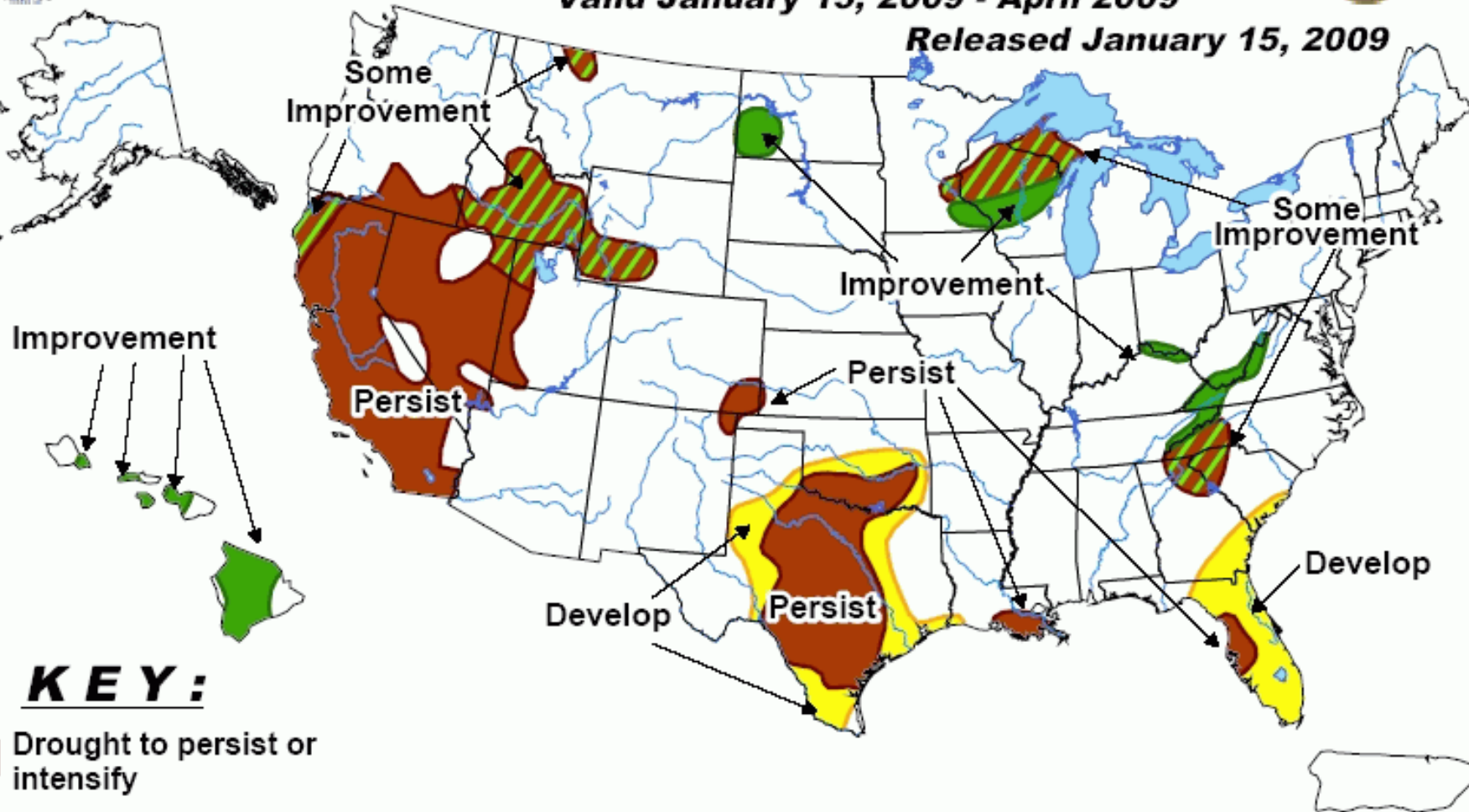
U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid January 15, 2009 - April 2009



Released January 15, 2009



KEY:

-  Drought to persist or intensify
-  Drought ongoing, some improvement
-  Drought likely to improve, impacts ease
-  Drought development likely

Statewide Perspective



FORECAST: WORST DROUGHT EVER

Less water in the mountains
In their search for snow of season levels in the Sierra, state officials found water content to be well below average — indicating less spring runoff.

More water rationing, higher produce costs predicted
— mid-January pushes state into 3rd straight dry year

By Kelly Kelly
Chronicle Staff Writer

California's water shortage is deepening as the state's history, officials say Thursday after reporting that the Sierra snowpack — the backbone of the state's water supply — is only at 60 percent of normal.

January usually shows California with about 50 percent of normal snowpack, but instead it delivered a third of the snow this year, almost certainly pushing the state into this year's drought. The snow and water is expected to be low.

Tips for saving water
Use the state heading for drought, here's what you can do:

- TOILETS:** Replace older toilets with high-efficiency ones.
- SHOWERS:** Install shower heads that use no more than 2.5 gallons of water per minute.
- WASHING:** When showering, wet hair, turn off water, apply soap, and turn on water to rinse.
- FOOD:** Wash fruits and vegetables in a bowl of water.
- LAUNDRY:** For bulky linens and towels, run full loads.
- SPRINKERS:** Water lawns only when necessary.
- WATERING:** Do it in the early morning or late evening to reduce evaporation.
- PLANTS:** Use drought-tolerant plants.
- POOL:** Cover pools to reduce evaporation.
- LEAKS:** Check for leaks in faucets and toilets.

The Modesto Bee

FRIDAY, JANUARY 30, 2009 modbee.com

Today's Scoop

Drought worries intensify

California's latest dry spell could be worse even if the state's water officials warned Thursday that the drought, now in its third year, could become the worst ever in California.

The warning came after a handful of meteorologists reported that the snowpack in the central Sierra Nevada, which supplies about 40 percent of average water to the state, is only at 60 percent of normal.

"We need to be on the alert for the worst California drought in modern history," department director Lester Snow said. "It is imperative for California to conserve water immediately."

The report also says that the snowpack in the Sierra Nevada is only at 60 percent of normal, which is a significant decrease from the 70 percent of normal that was reported last week.

"We have seen about drought, only a drought, in impact and a lack of the water, and we have seen the state of California," department director Lester Snow said.

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It's way too dry

Another dry year in the offing?
The Sierra snowpack was 60 percent of normal by the end of the year, which is a significant decrease from the 70 percent of normal that was reported last week.

Disappointing snowpack may result in rationing

By Paul Rogers
Mercury Staff Writer

State water officials on Thursday announced that California's snowpack is the lowest in 100 years, prompting widespread concern that the state — and Silicon Valley — could face the first widespread mandatory water rationing since the early 1990s.

"We may be at the start of the worst California drought in modern history," said Lester Snow, director of the California Department of Water Resources. "It is imperative for California to conserve water immediately."

The report also says that the snowpack in the Sierra Nevada is only at 60 percent of normal, which is a significant decrease from the 70 percent of normal that was reported last week.



"We may be at the start of the worst California drought in modern history."

-- Lester Snow, Director, California Department of Water Resources (Jan 30, 2009)

FRIDAY JANUARY 30, 2009
TODAY'S OUTLOOK: INLAND: 70-80 MOUNTAINS: 60-80 DESERT: 70-80 COMPLETE LOCAL FORECAST: 80

THE PRESS-ENTERPRISE

INLAND SOUTHERN CALIFORNIA'S NEWSPAPER

Dry winter raises worries

POOR SIERRA SNOWPACK: Below-normal water content readings in the mountains are raising concerns about the state's water supply.

State officials issued dry warnings Thursday to conserve water following another survey of the Sierra snowpack that indicates California is headed for a third dry year.

"We may be at the start of the worst California drought in modern history," department director Lester Snow said. "It is imperative for California to conserve water immediately."

CENTRAL COSTA

CONTRA COSTA TIMES

Friday, January 30, 2009 ContraCostaTimes.com Volume 95, Number 244 75 cents plus tax

Brace yourselves: California appears to be heading into a third straight dry year and the first significant drought since the early 1990s. It could be even worse.

"We may be at the start of the worst California drought in modern history," department director Lester Snow said. "It is imperative for California to conserve water immediately."

Oakland Tribune

Friday, January 30, 2009

Record dry spell could be in cards

"We may be at the start of the worst California drought in modern history," state water officials warn.

By Mike Taugher
Tribune Staff Writer

Record snowpack in California appears to be heading into a third dry year — and the first significant drought since the early 1990s.

It could get even worse. "We may be at the start of the worst California drought in modern history," warned Lester Snow, director of the state Department of Water Resources.

SHINING OVER CALIFORNIA'S GREAT CENTRAL VALLEY SINCE 1856

MERCED SUN-STAR

Friday, January 30, 2009

State urges residents to conserve water

Official says this may be 'worst California drought in modern history.'

By Mike Taugher
Mercury Staff Writer

State water officials on Thursday urged residents to conserve water as they reported that the Sierra snowpack is the lowest in 100 years.

State water officials on Thursday announced that California's snowpack is the lowest in 100 years, prompting widespread concern that the state — and Silicon Valley — could face the first widespread mandatory water rationing since the early 1990s.

Lake Oroville

Feather River



Lake Oroville

June 2005: 897.12 Feet Elevation - 3,492,262 Acre Feet

2005



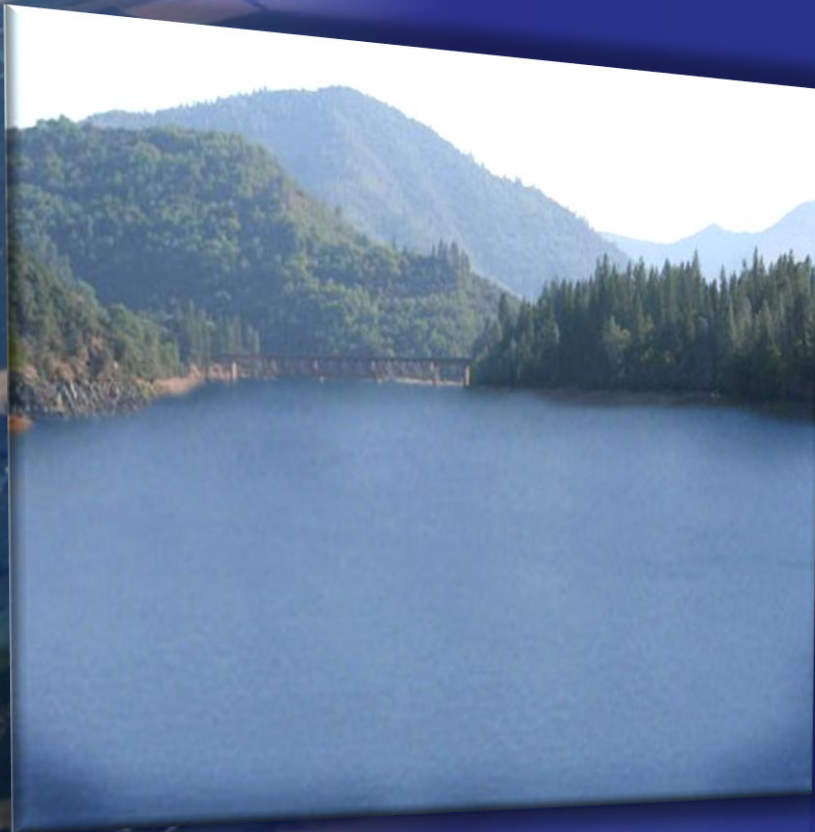
Lake Oroville

February 2008: 719.86 Feet Elevation - 1,412,524 Acre Feet

2008

Shasta Reservoir

Sacramento River



2006



2008

Lake Powell

Colorado River



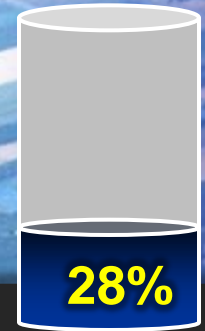
2002



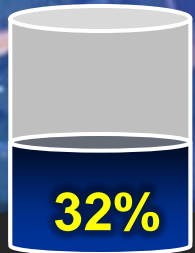
2008

Reservoir & Snowpack Conditions

(January 30, 2009)



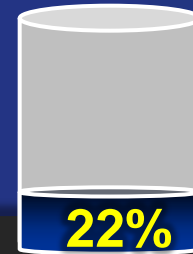
Oroville



San Luis



Diamond Valley



Pine Flat



Lake Mead

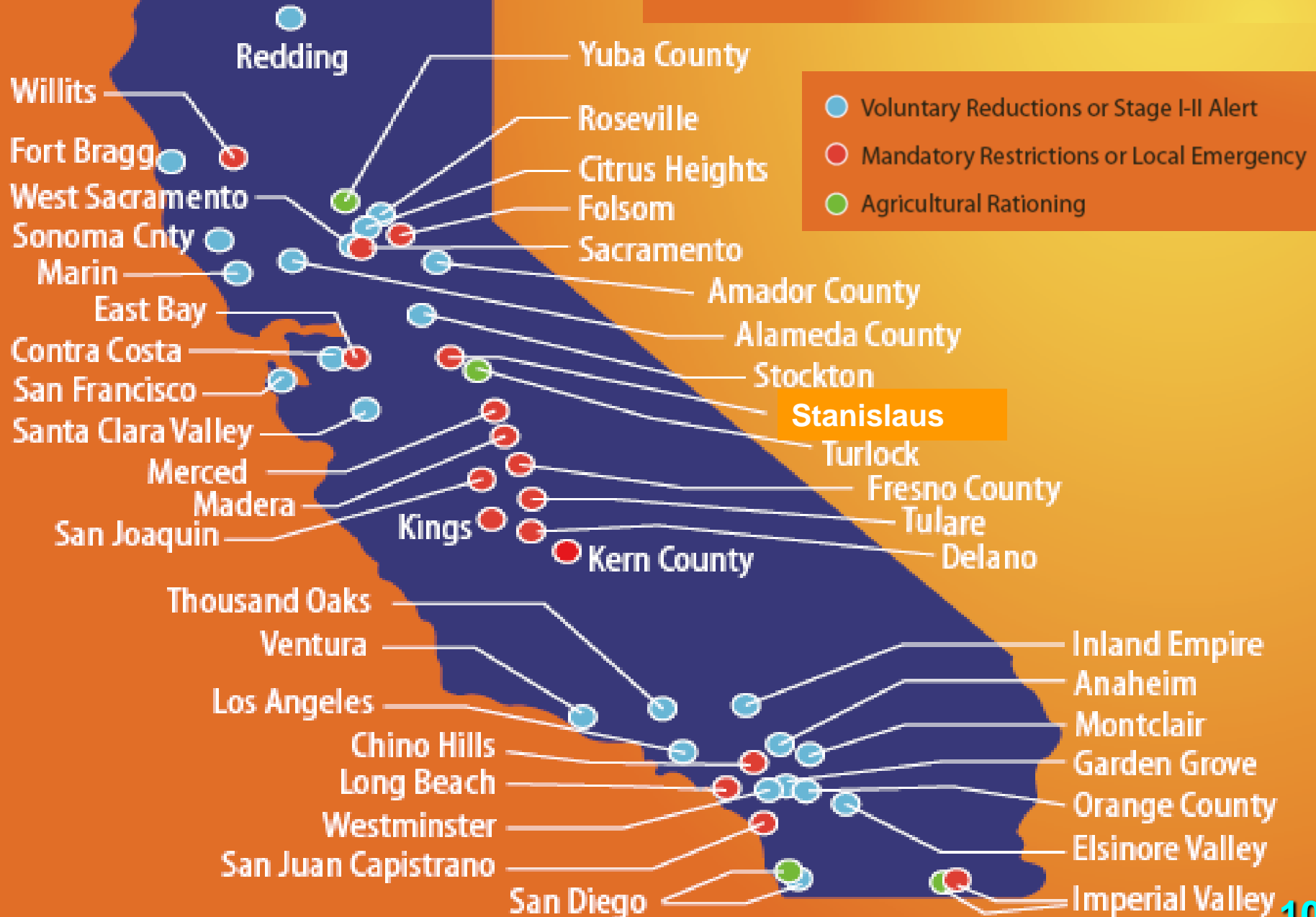




Water Supply Status

- 2-year critical drought; 2009 runoff ???
- Major reservoirs < 30% of capacity
- 15% of State Water Project contract allocations
- 33% - 50% supply cutback due to regulatory actions
- 55,000 anticipated jobs lost in San Joaquin Valley

RESPONSE TO DROUGHT



Regional Perspective

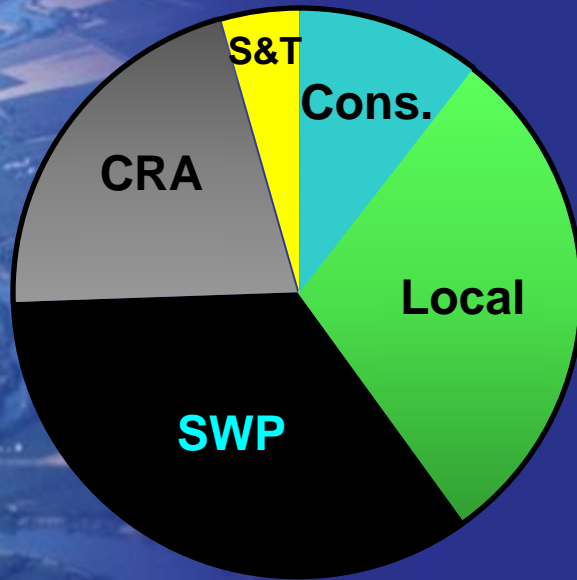


Metropolitan Water District of Southern California

- Serves 6 counties, 19 million people
 - Growth: 220,000 people/yr.
 - \$800 billion economy
 - 50+ % of region's water supply

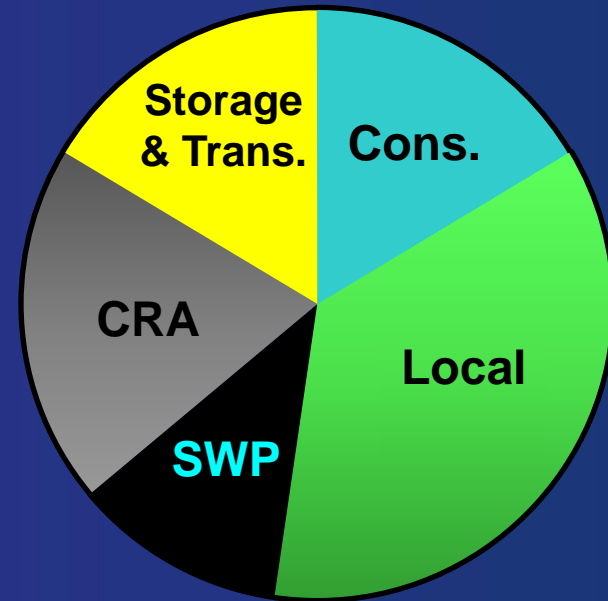


Evolving Southland Water Plans



Early 1990's


Future demands to rely on imported supplies and SWP diversions in dry years




Current Strategy

Future demands to rely on conservation, recycling, local supplies, storage and transfers

The Water Gauge

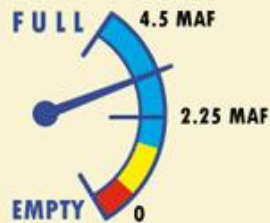
 Adequate Reserves

 Depleting Reserves

 Reserves for Emergencies Only
(670,000 AF)

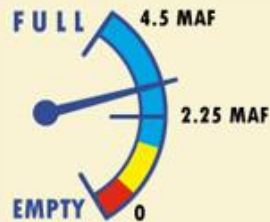
MAF = Million Acre Feet AF = Acre Feet AF

Previous



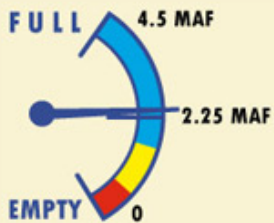
July 2006

Favorable rain conditions in Northern California help to allow Metropolitan to replenish its storage reserves with 2.44 million acre-feet of water, the peak in recent history before the district began to draw on the supplies.



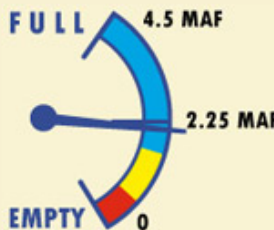
January 2007

Metropolitan has enough non-emergency reserves in storage to handle a full year's demand. A 60 percent supply from the Sacramento-San Joaquin Delta is initially projected.



January 2008

Record dry conditions in Southern California and court-ordered cutbacks in supplies from Northern California create a draw-down on reserves.



June 2008

After a record dry spring in the Sierra that reduces the moisture content of the snowpack by an estimated 40 percent, Metropolitan's Board of Directors calls for a Water Supply Alert and extraordinary conservation efforts throughout the service area.

Current



January 2009

As of January 2009 Metropolitan's water supply reserves are at approximately 1,770,000 AF. Further water supply restrictions in the Delta are projected.



California's Water Crisis **In Search of a Solution**

Water Supply Outlook

Key Risks

Improvement Actions



THE DELTA

**Hub of California's
water supply system**

Importance of Bay-Delta

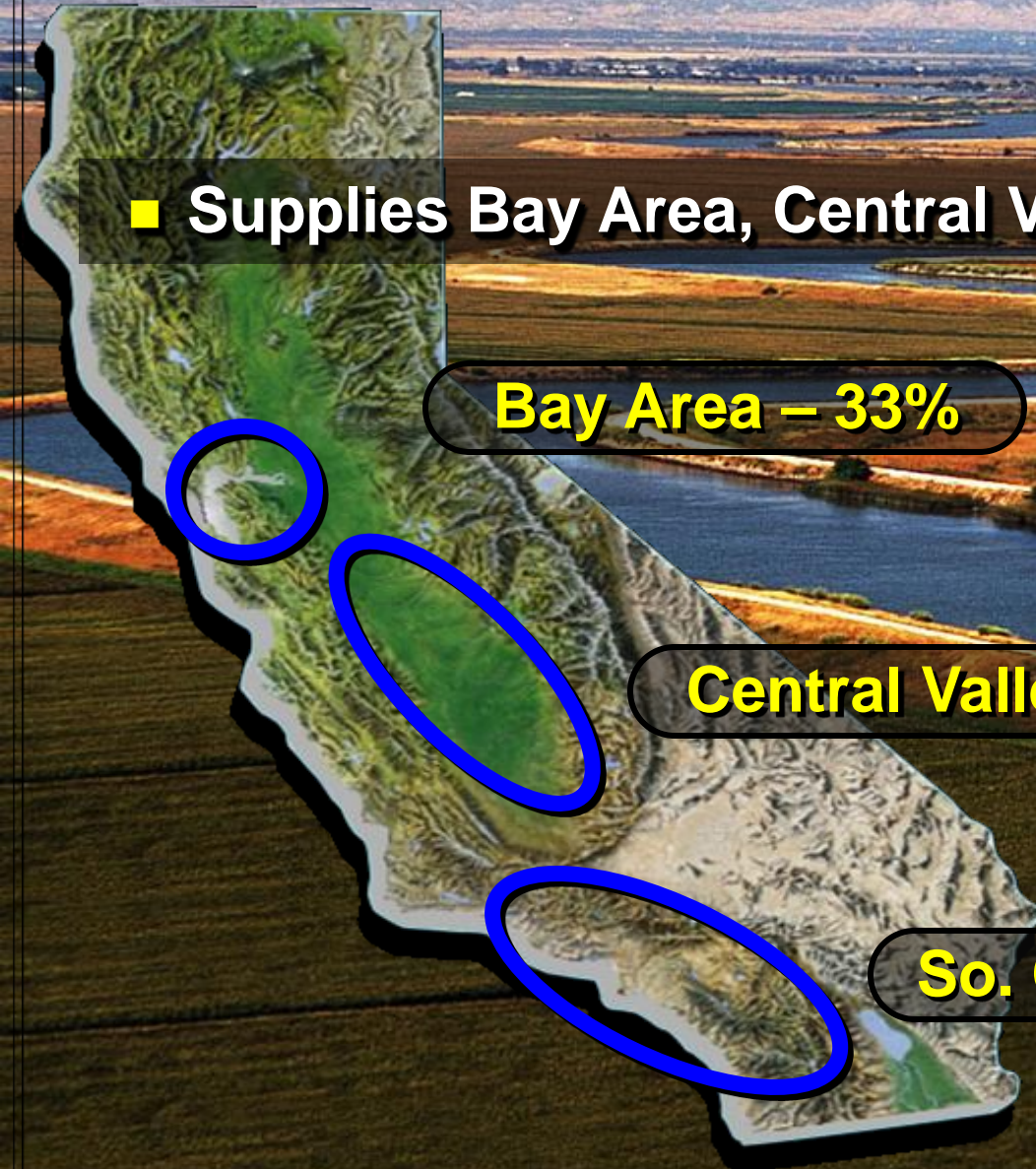
- Supplies Bay Area, Central Valley & So. California

Bay Area – 33%

**Some regions nearly
100% dependent on
Delta**

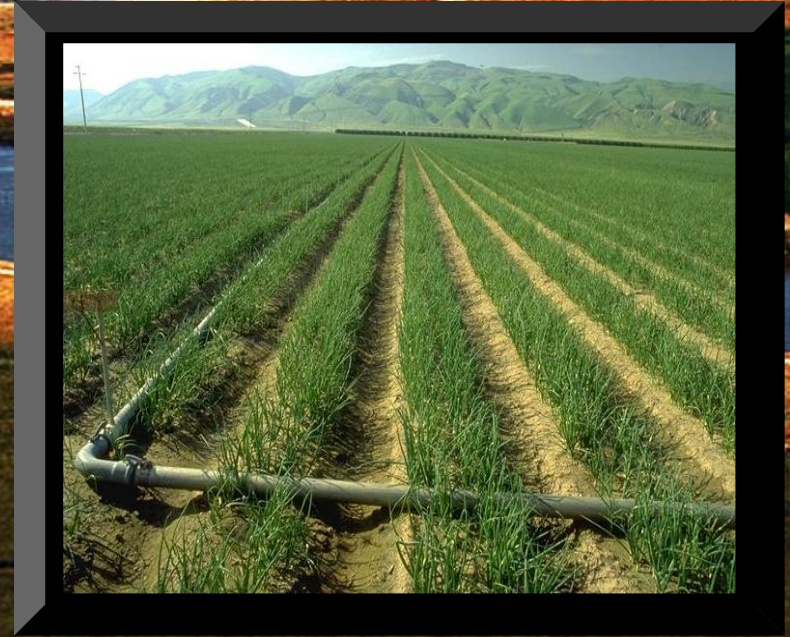
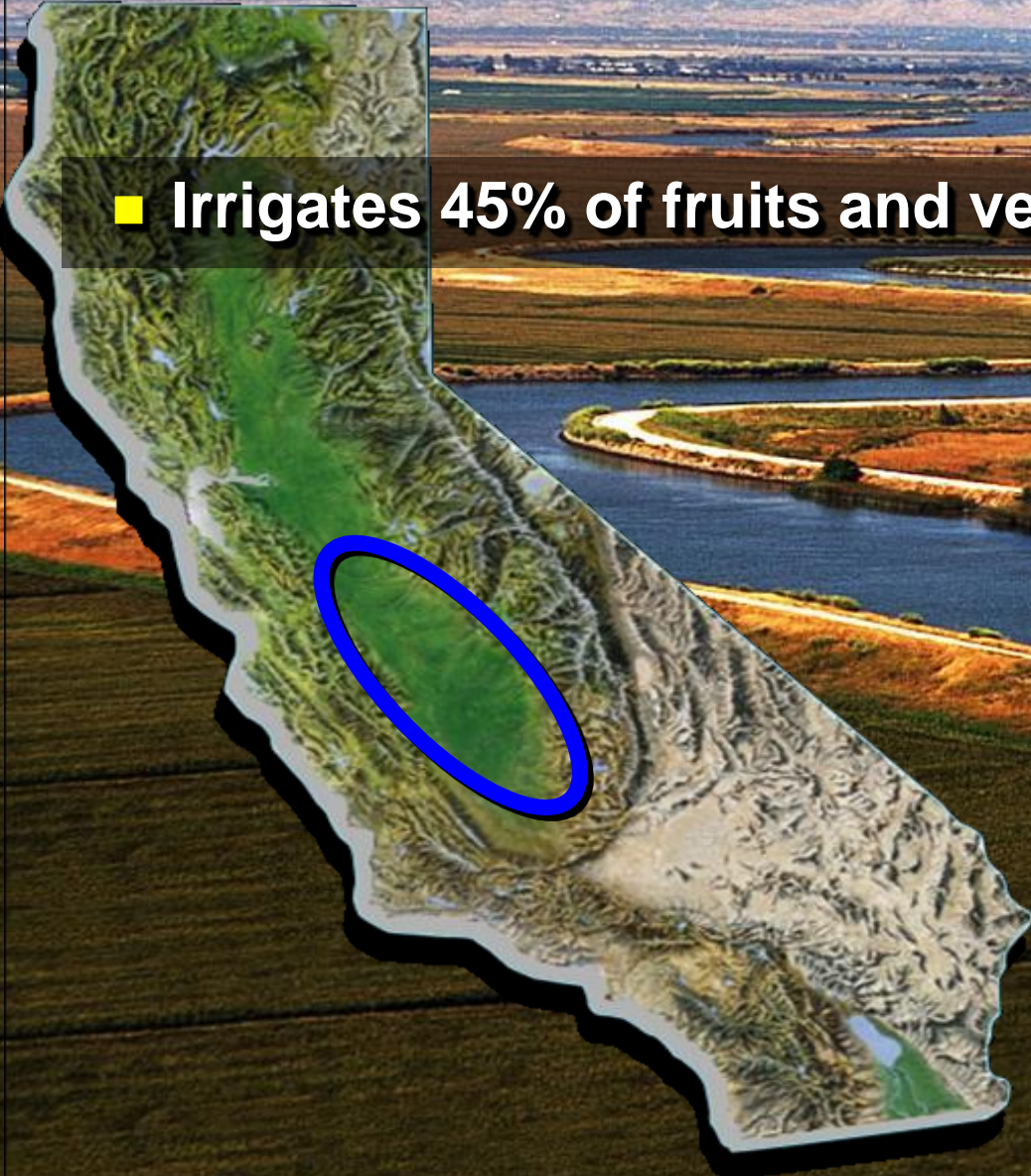
Central Valley – 23 to 90%

So. California – 30%



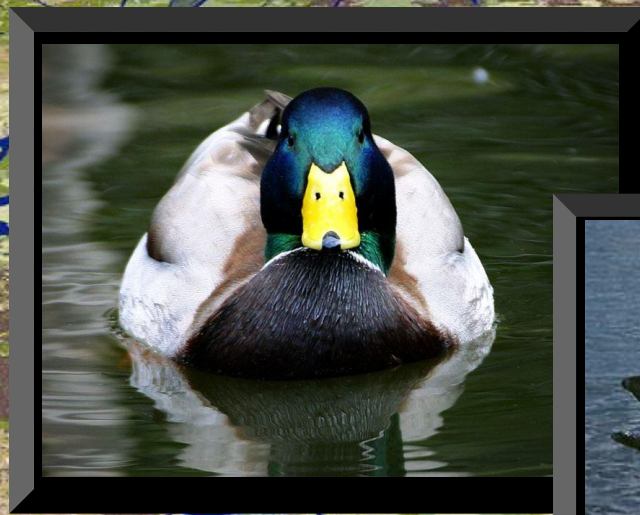
Importance of Bay-Delta

- Irrigates 45% of fruits and vegetables produced in US



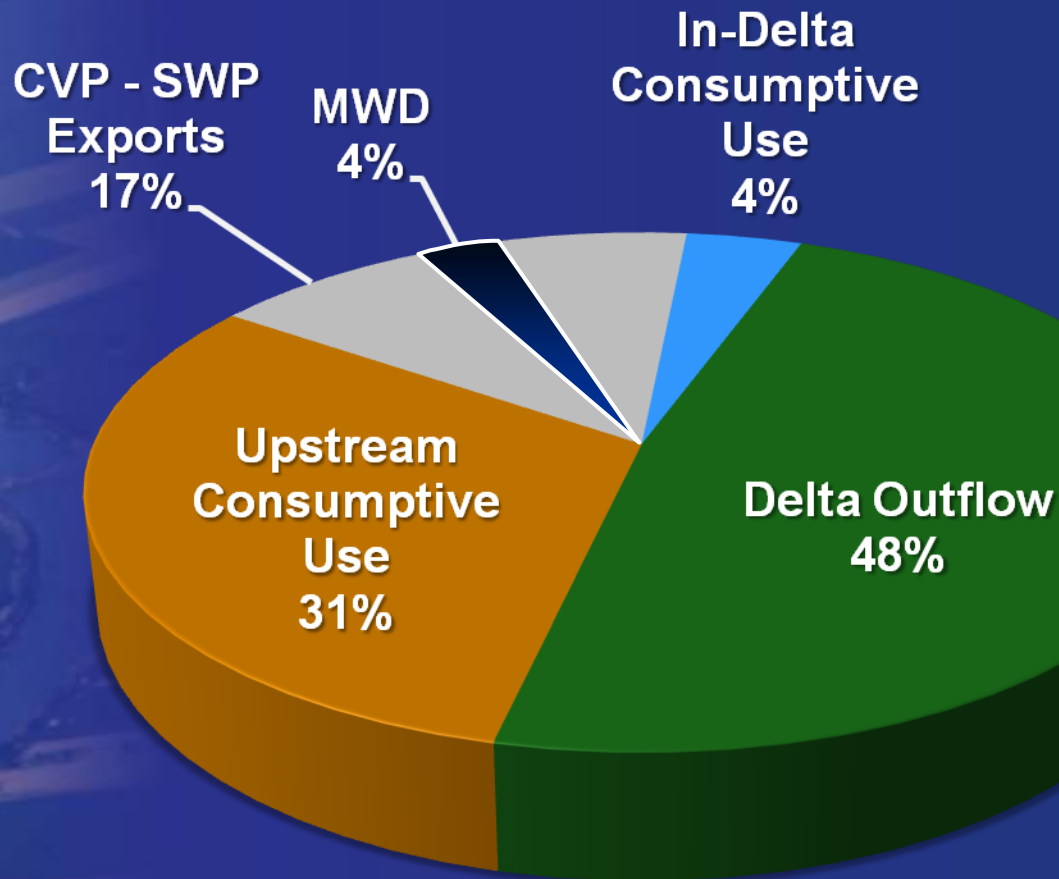
Importance of Bay-Delta

- 80% of state's commercial fisheries live in/or migrate through Bay-Delta
- Habitat for 500 species (incl. 5 ESA-listed fish)



Delta Watershed Diversions

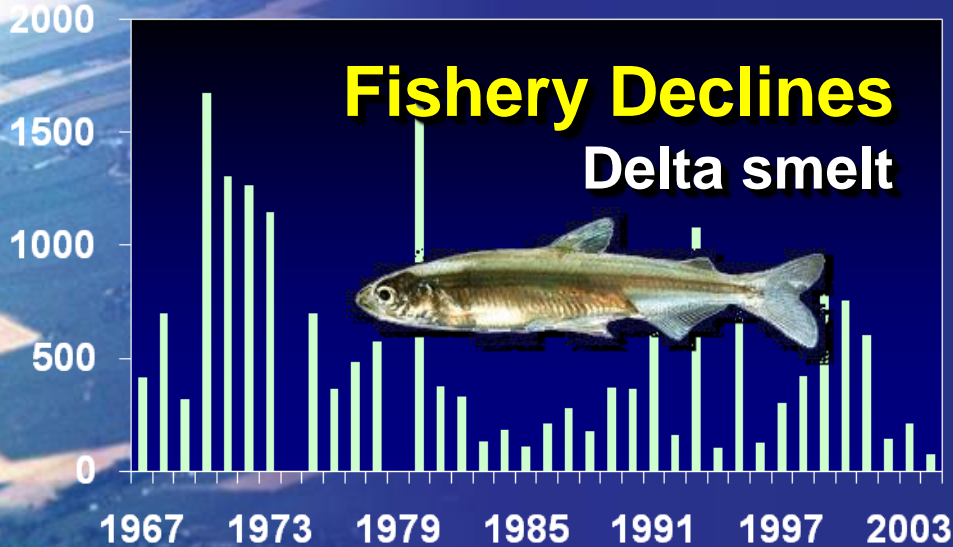
1990-05



Key Delta Risks

Fishery Declines

Delta smelt



Sea Level Rise



Seismic Risk

Bay Area Faults

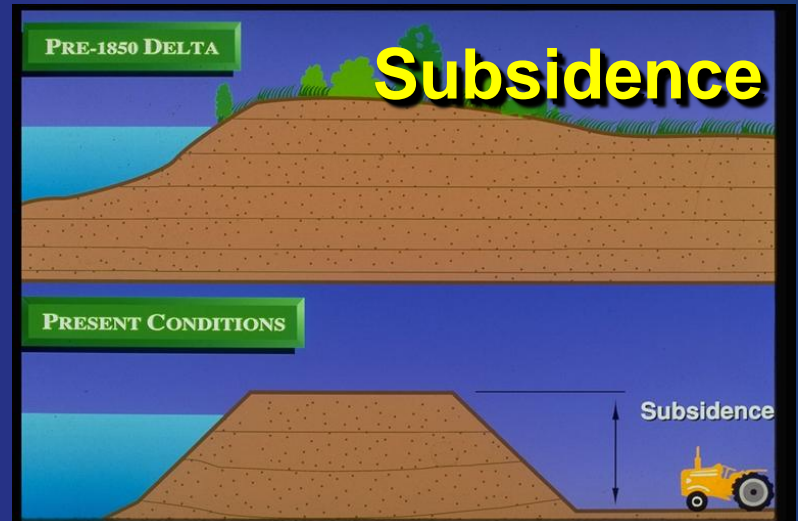


PRE-1850 DELTA

Subsidence

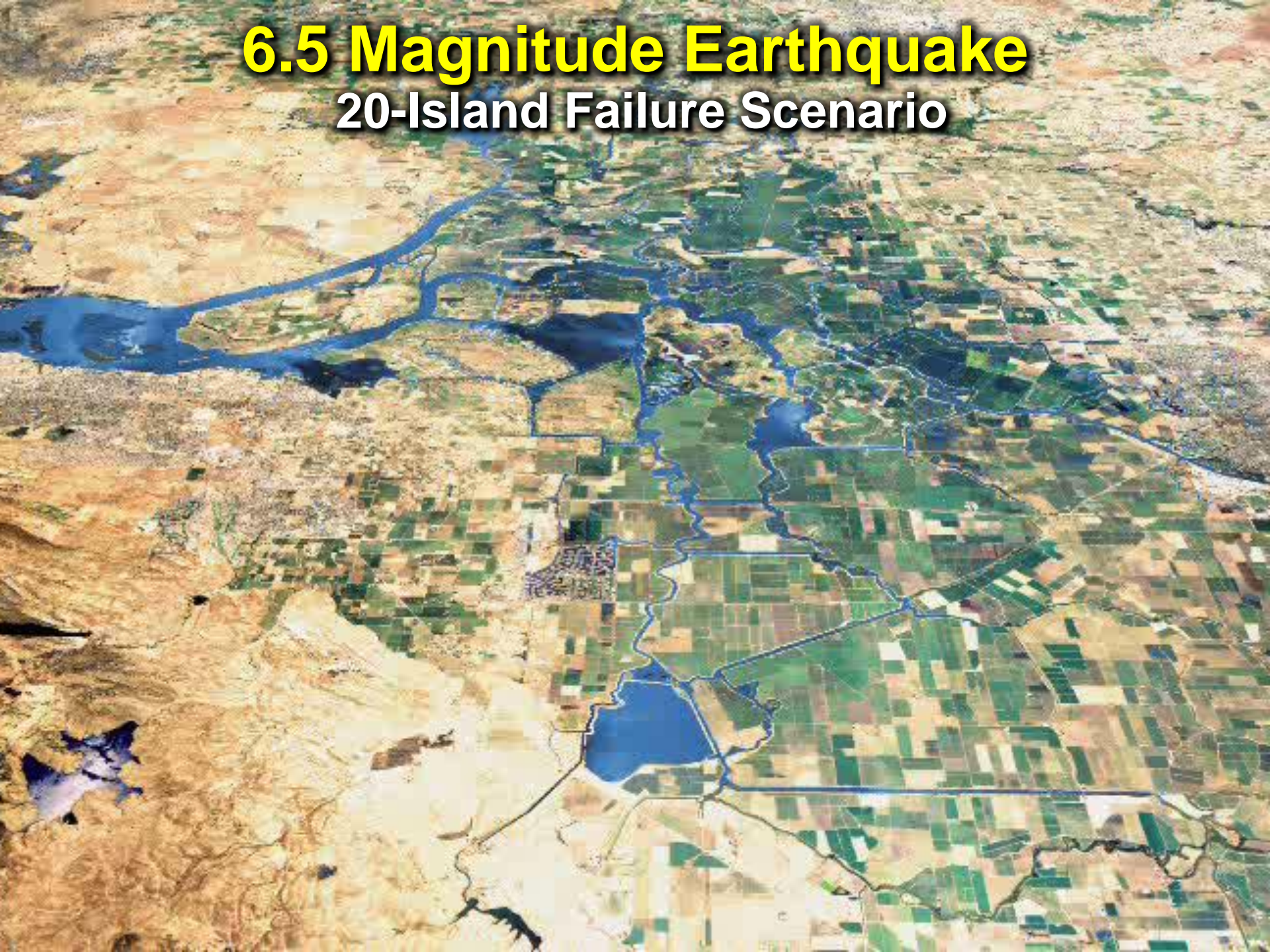
PRESENT CONDITIONS

Subsidence



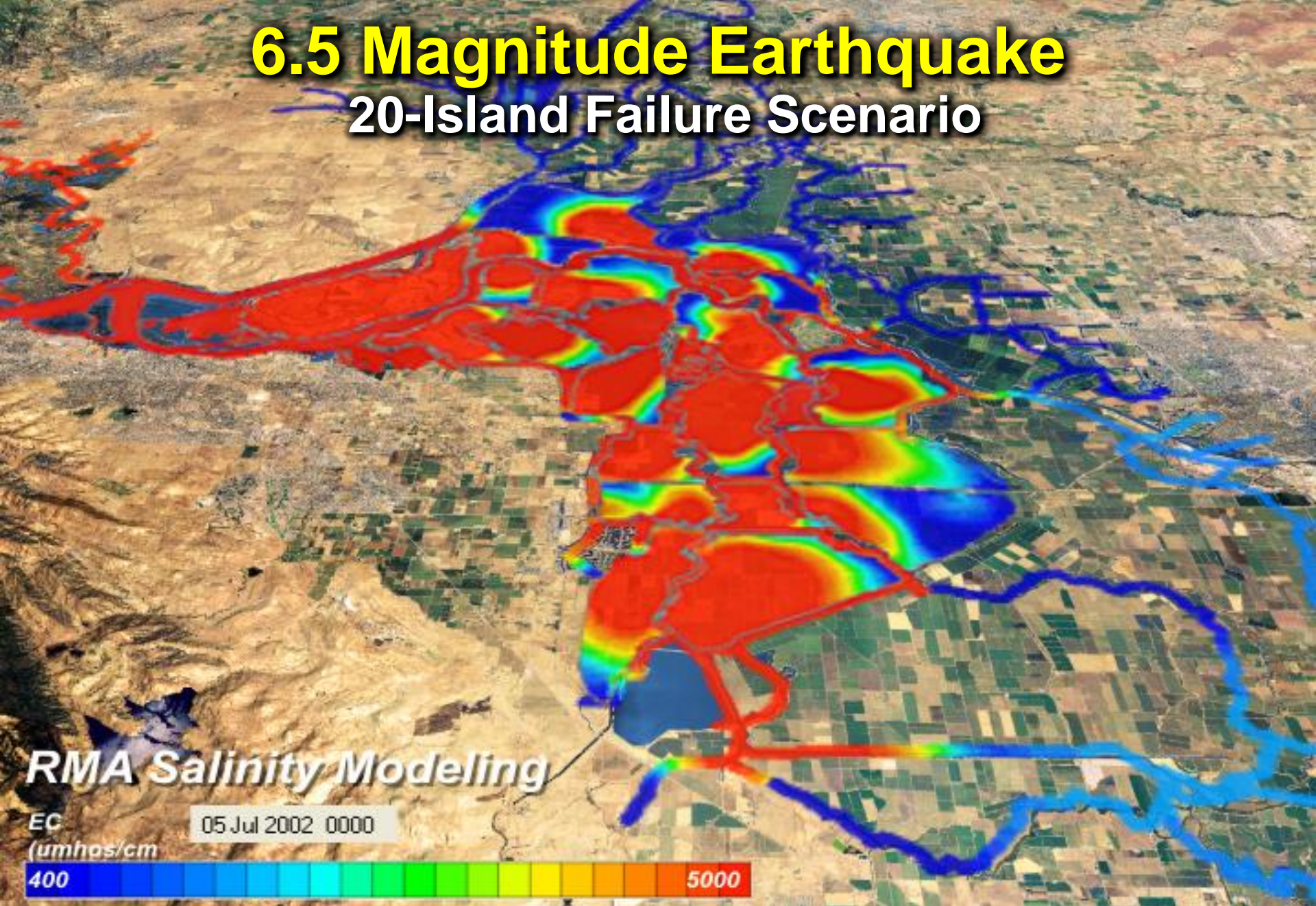
6.5 Magnitude Earthquake

20-Island Failure Scenario



6.5 Magnitude Earthquake

20-Island Failure Scenario

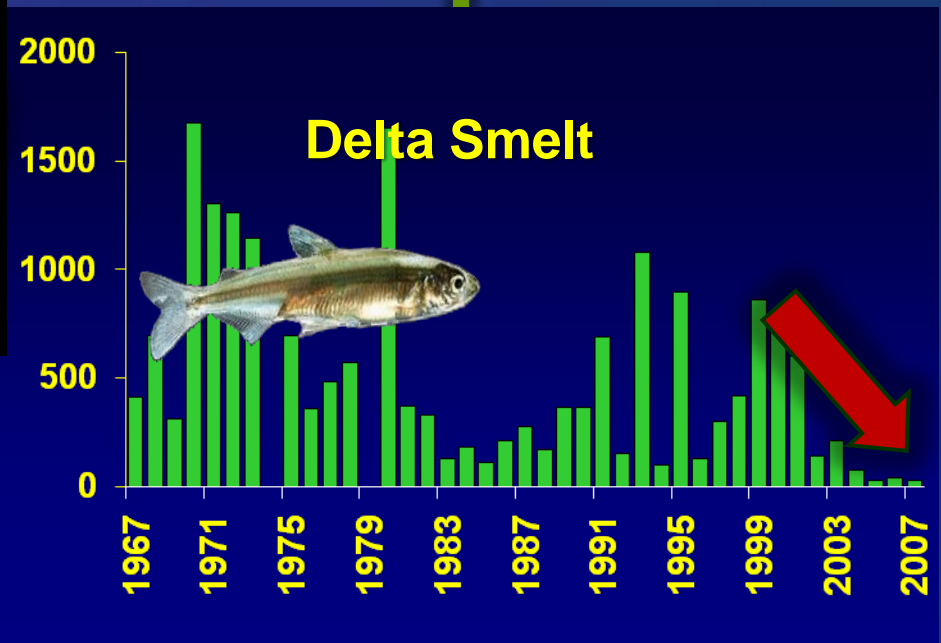
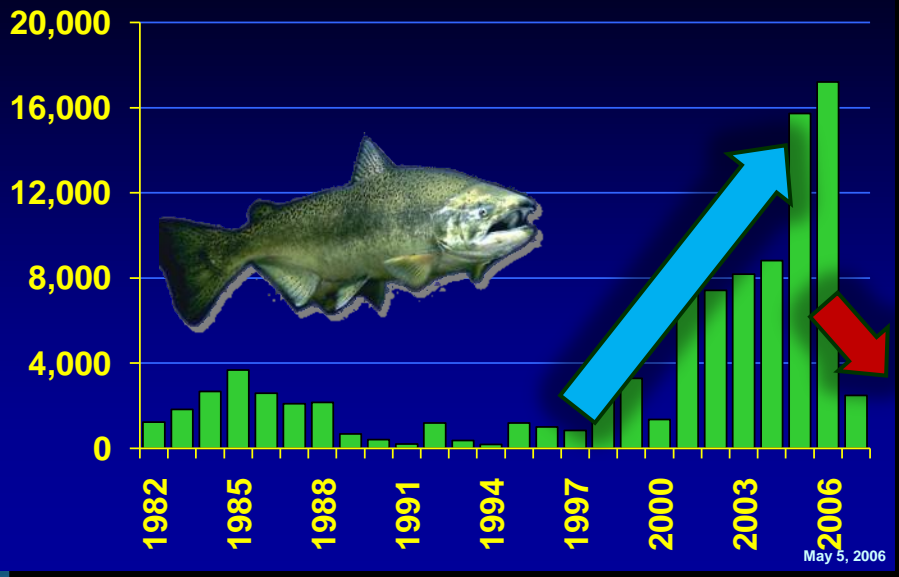


1 – 7 days: Saltwater throughout Delta

Delta Fisheries

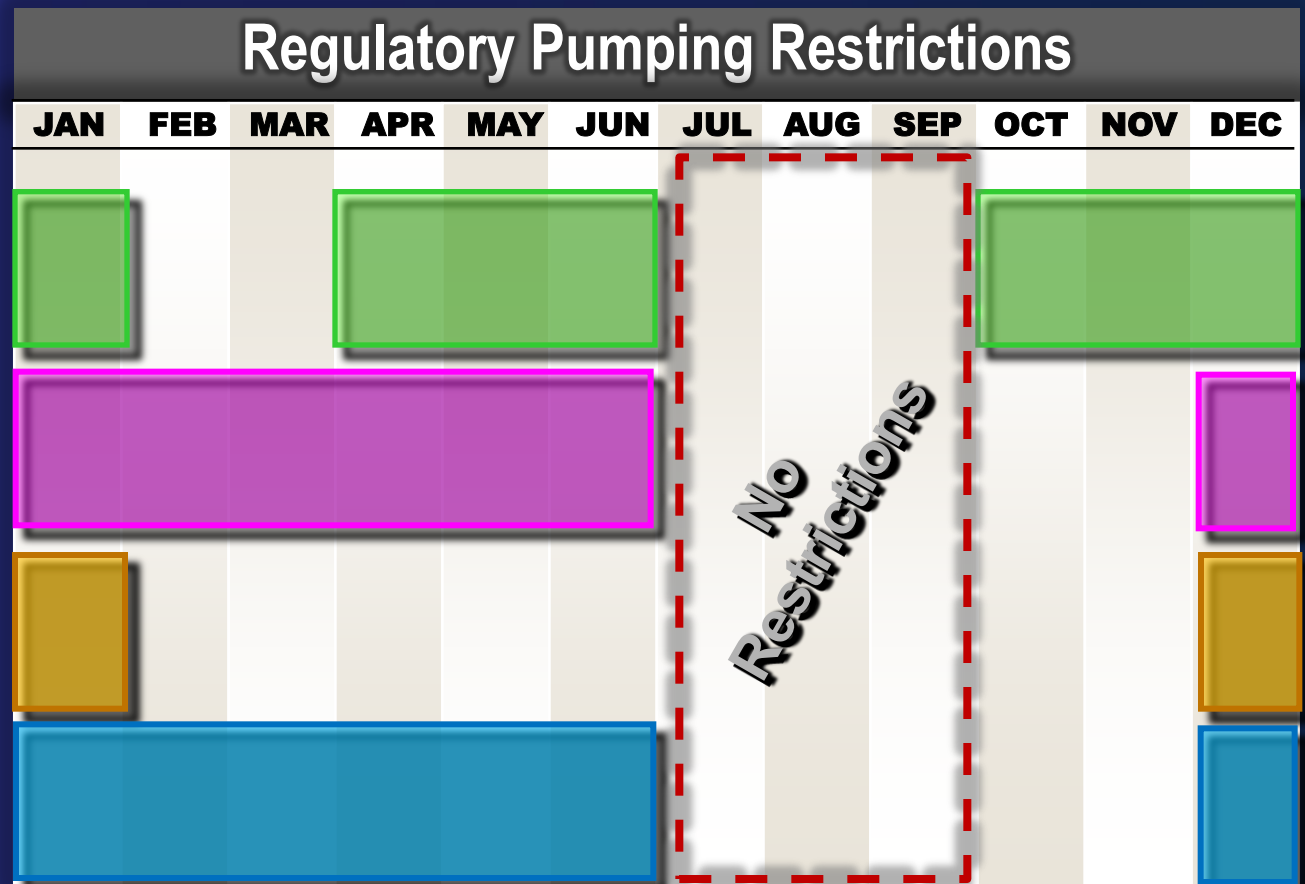
A Downturn for Delta Smelt & Salmon

Sacramento River Winter-Run Salmon



Pumping Flexibility Reduced

Window restricted even during wet years



(Potential New Restrictions)


2008 Drought Agricultural Impacts

- Total estimated agricultural losses - \$260M (as of 9/1/08)
 - Rangeland \$95M
 - Cotton \$62M
- Largest losses Fresno \$74M and Kern \$70M
- Almost 80,000 acres unplanted or abandoned



Bottom Line for Metropolitan

- **BiOp significantly lowers water supply expectations**
- **Increased pressure on storage resources**
 - **Large withdrawals anticipated for 2009**
 - **Additional need for maintaining reserves for 2010**
- **Likelihood of rationing in 2009**
 - **> 1 in 2 chance**
 - **Chances increase with ongoing dry conditions**
- **Does not factor additional fisheries impacts**

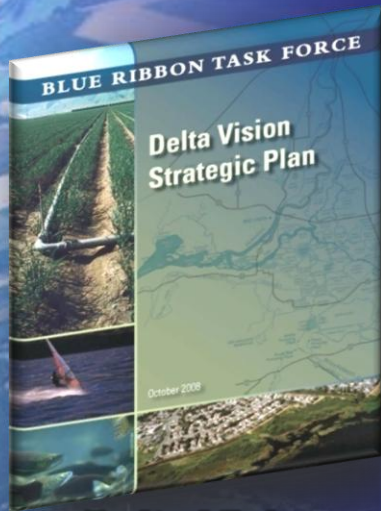


California's Water Crisis **In Search of a Solution**

Water Supply Outlook

Key Risks

Improvement Actions



Delta Vision
Strategic Plan

Governor's Delta Vision Process Milestones



Bay-Delta
Conservation
Plan

- **Nov. '08** – Blue Ribbon Task Force released final Strategic Plan
- **Jan. '09** – Cabinet-level committee released Implementation Report to Governor
- **October 2009** - Draft Bay-Delta Conservation Plan
- **December 2010** - Final Bay-Delta Conservation Plan NEPA/CEQA

Key Near-Term Measures

Emergency Stockpiling & Levee Improvements



240,000 tons of rock stockpile

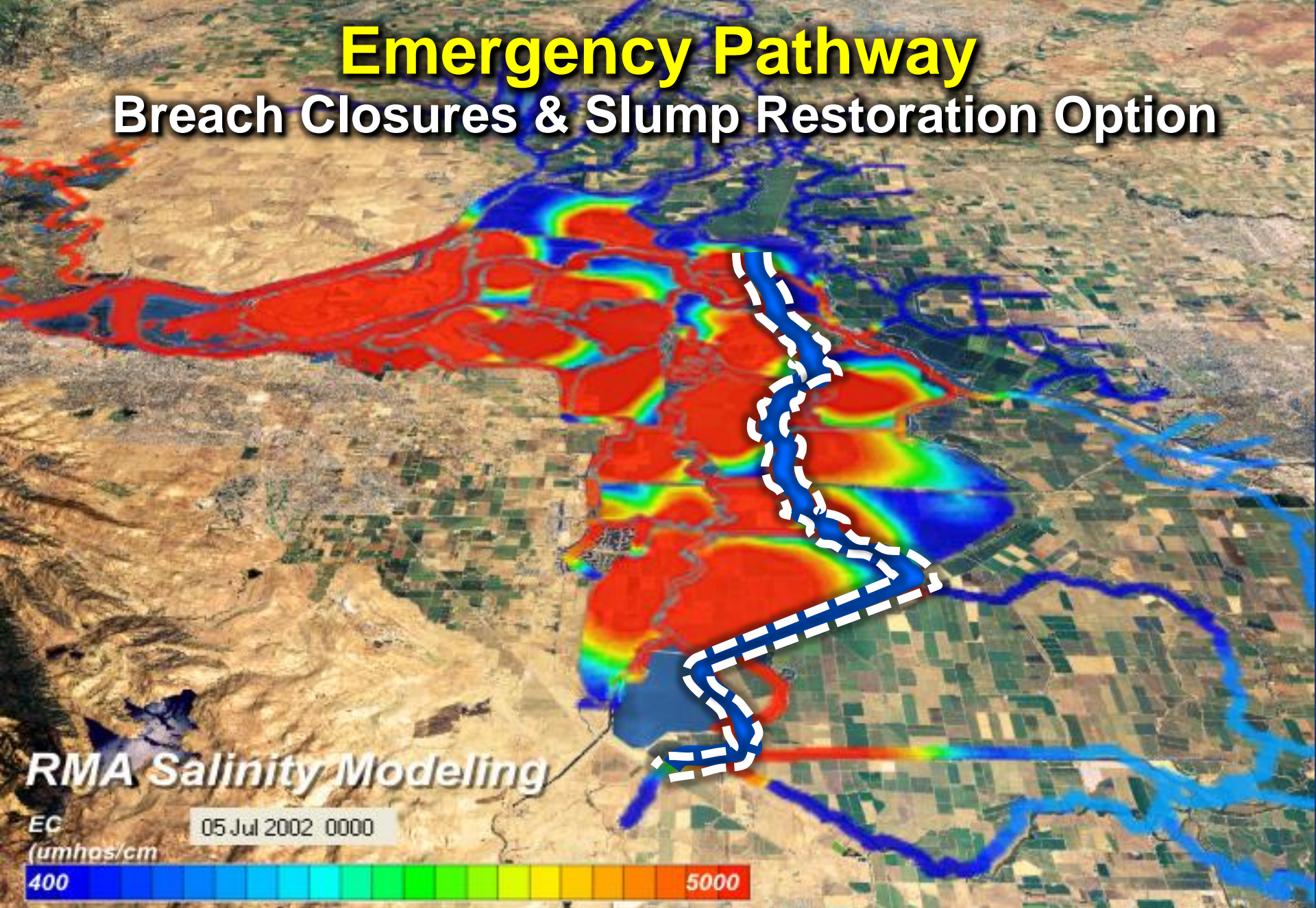
CVP Pumps

Stanton

River

Emergency Pathway

Breach Closures & Slump Restoration Option



6 months: estimated export resumption

Key Near-Term Measures

2-Gate Fish Protection Project



Sac River

Sacramento

Stockton

Delta Smelt
Habitat

SWP Pumps

CVP Pumps

Long-Term Vision



Sac River

Sacramento

Habitat Restoration

Dual Conveyance

Stockton

Reduce Other Stressors

SWP Pumps

CVP Pumps

SJ River

Rebate Programs

- **Save Water, Save a Buck**
 - Residential, Commercial and Multi-Family
- **Water Savings Performance**
 - Process Improvements
- **Landscape Rebates**
 - Large Irrigation
- **Public Sector Program**
 - Increased Rebates

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