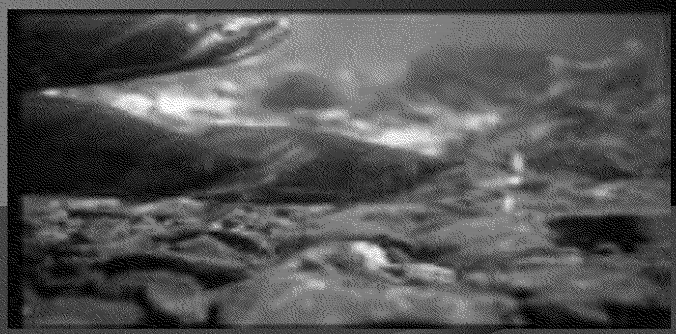
San Francisco Bay Delta Estuary



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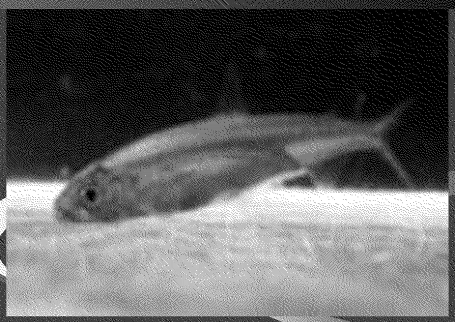
Region 9 Team

- Karen Schwinn (Associate Director)
- Tom Hagler (attorney)
- Bruce Herbold (biologist)
- Carolyn Yale → Valentina Cabrera-Stagno
- Erin Foresman
- Tim Vendlinski
- Sam Ziegler (Watersheds Office mgr)

Agenda

- Setting
- Significance of estuary
- Issues
- Interagency efforts
- EPA priorities
- Bay Delta Conservation Plan



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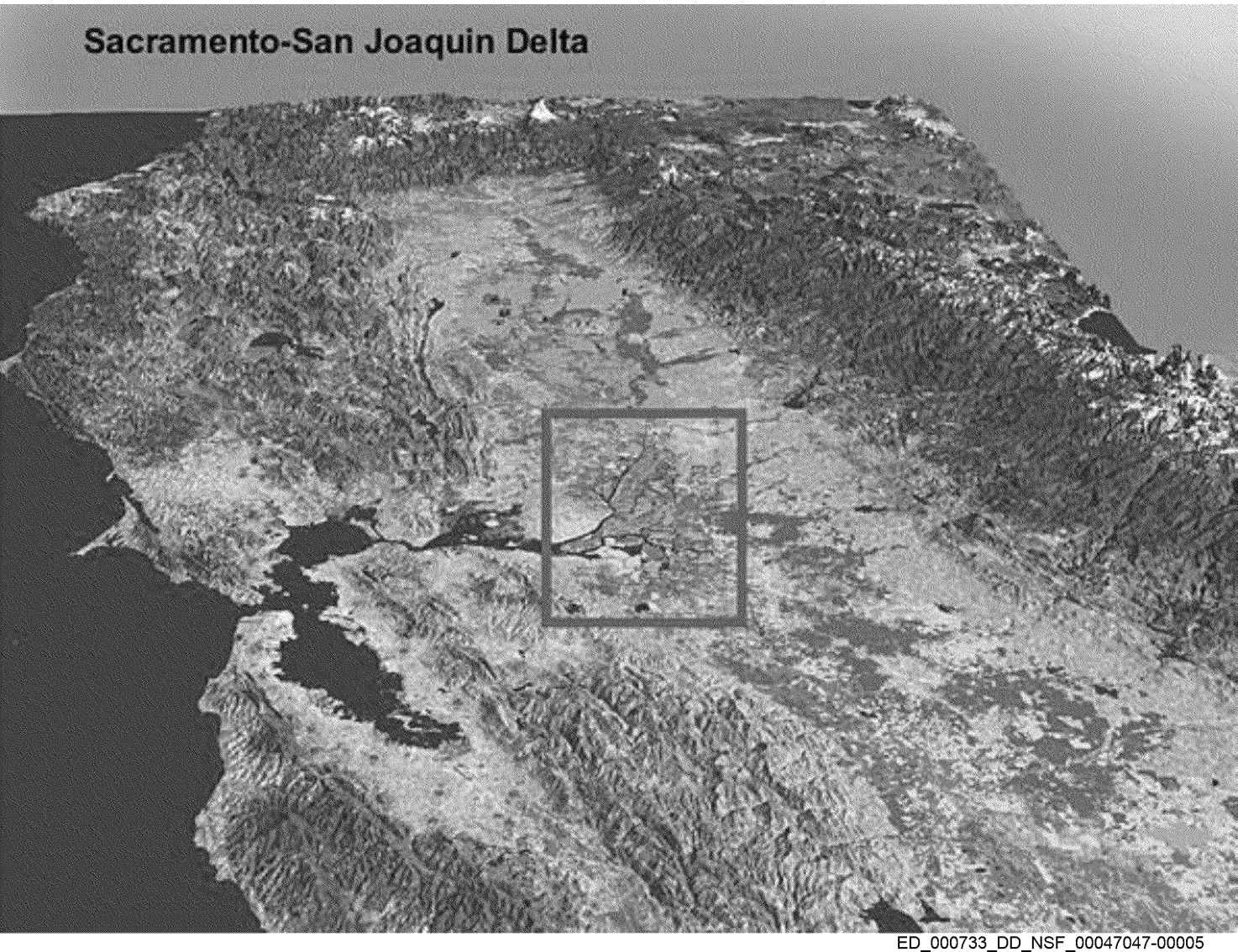

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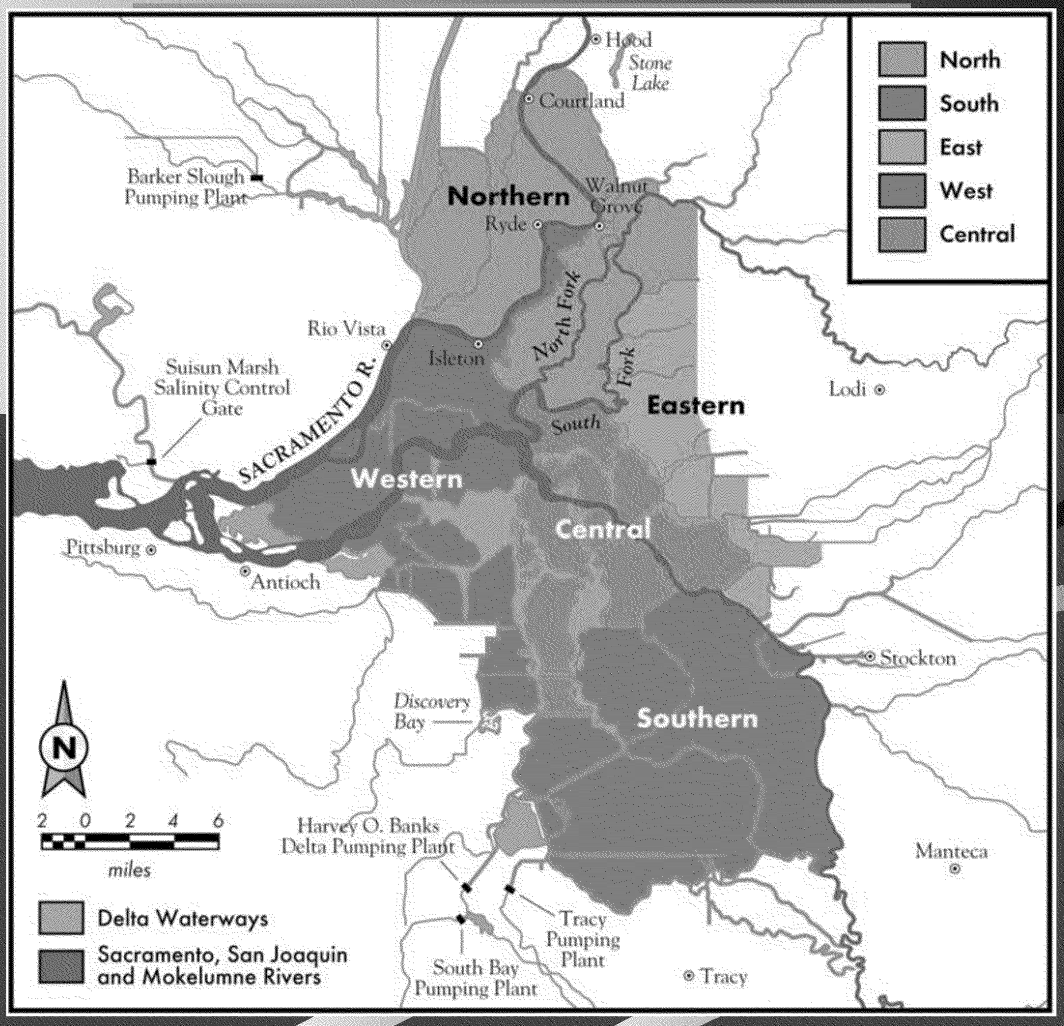

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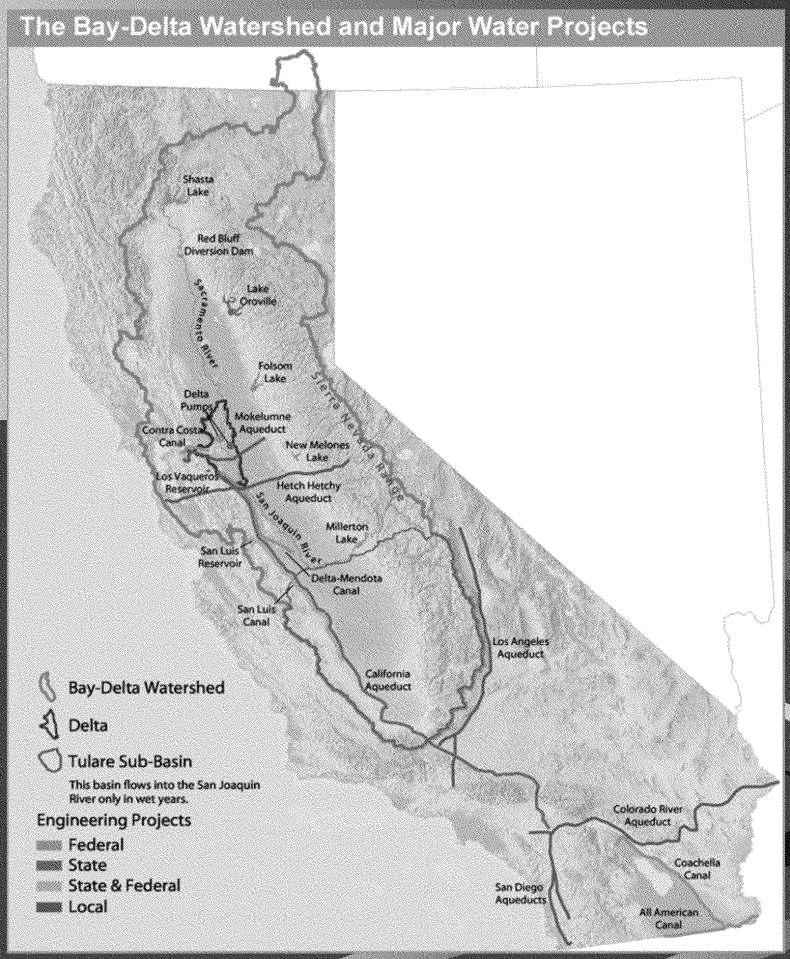

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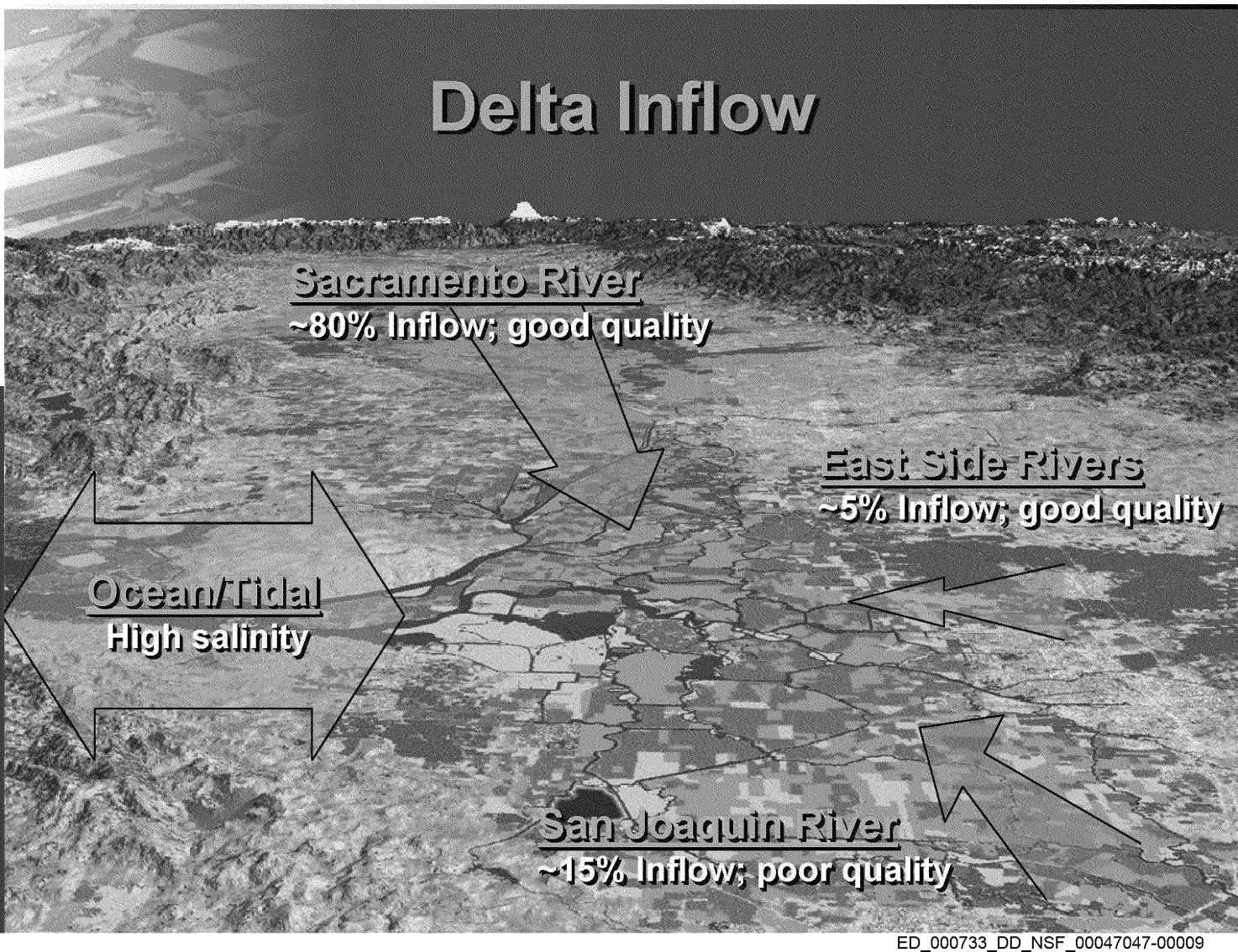

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Why is the Delta important?

- Largest West Coast estuary
- Habitat for 800 species
- Commercial & recreational fishery
- 2/3 of Californian's rely on Delta water
- Irrigation for 45% of the nation's fruits and vegetables (& most of the nuts)
- Recreation and tourism

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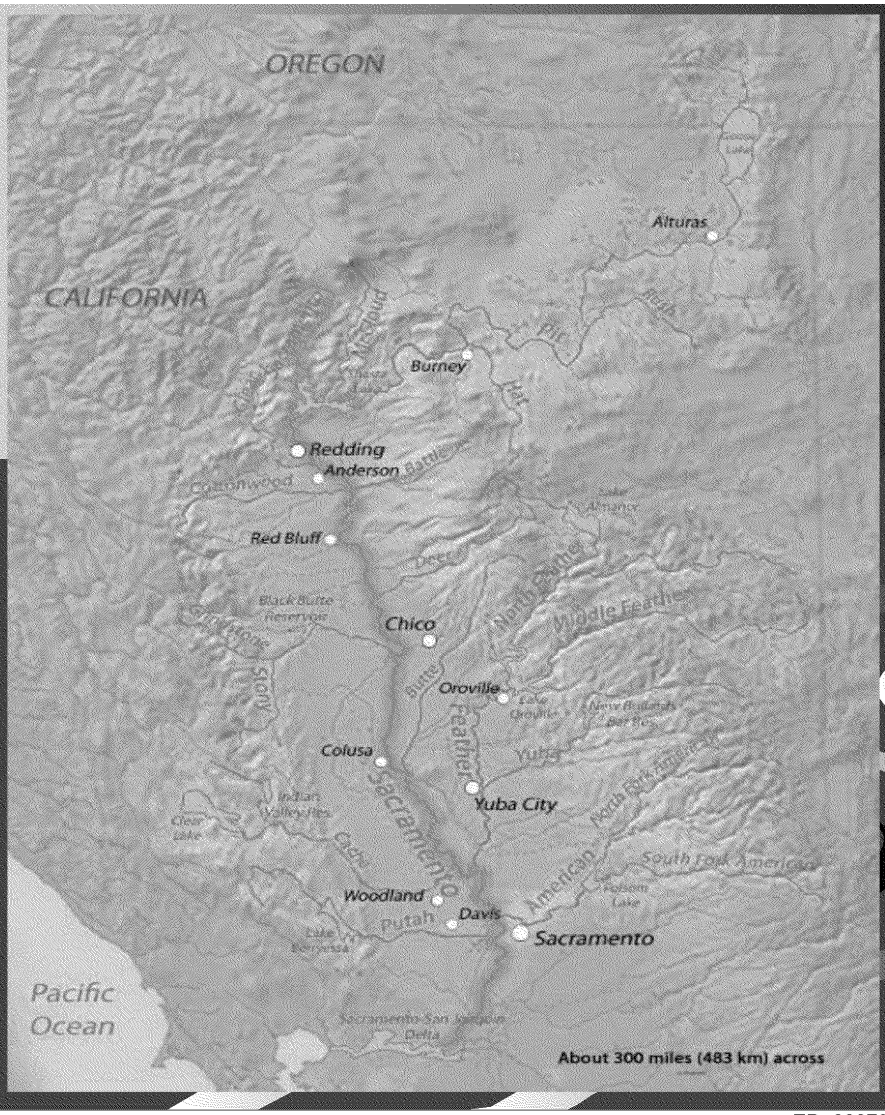

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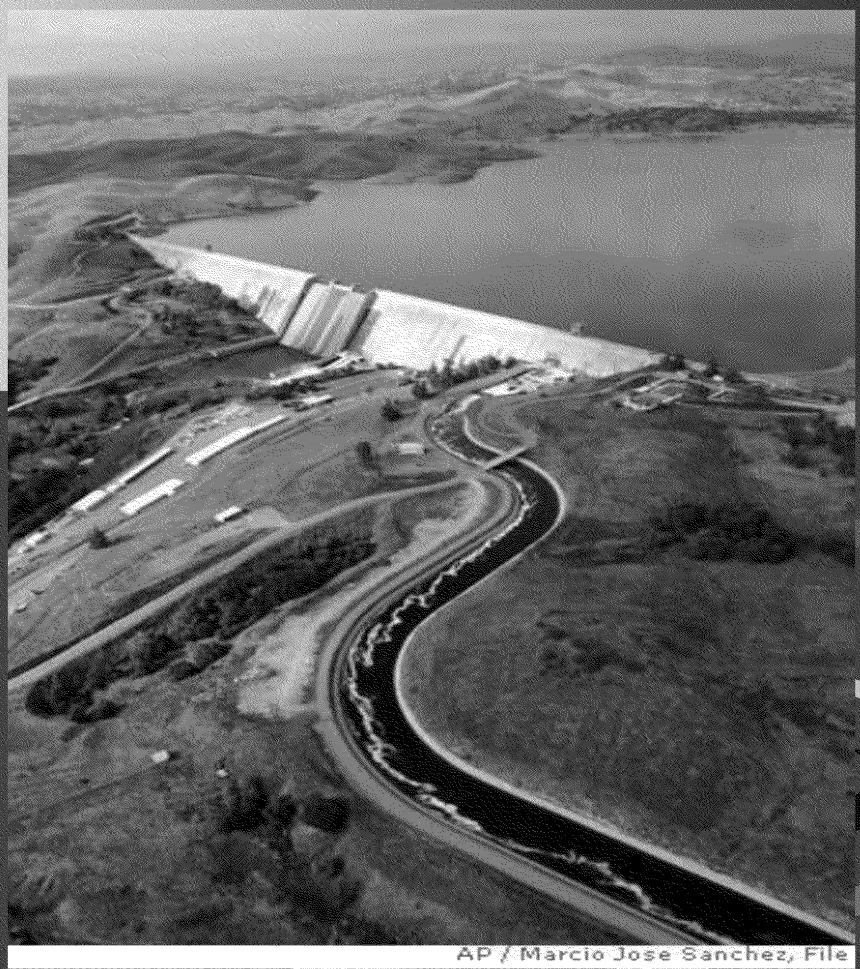
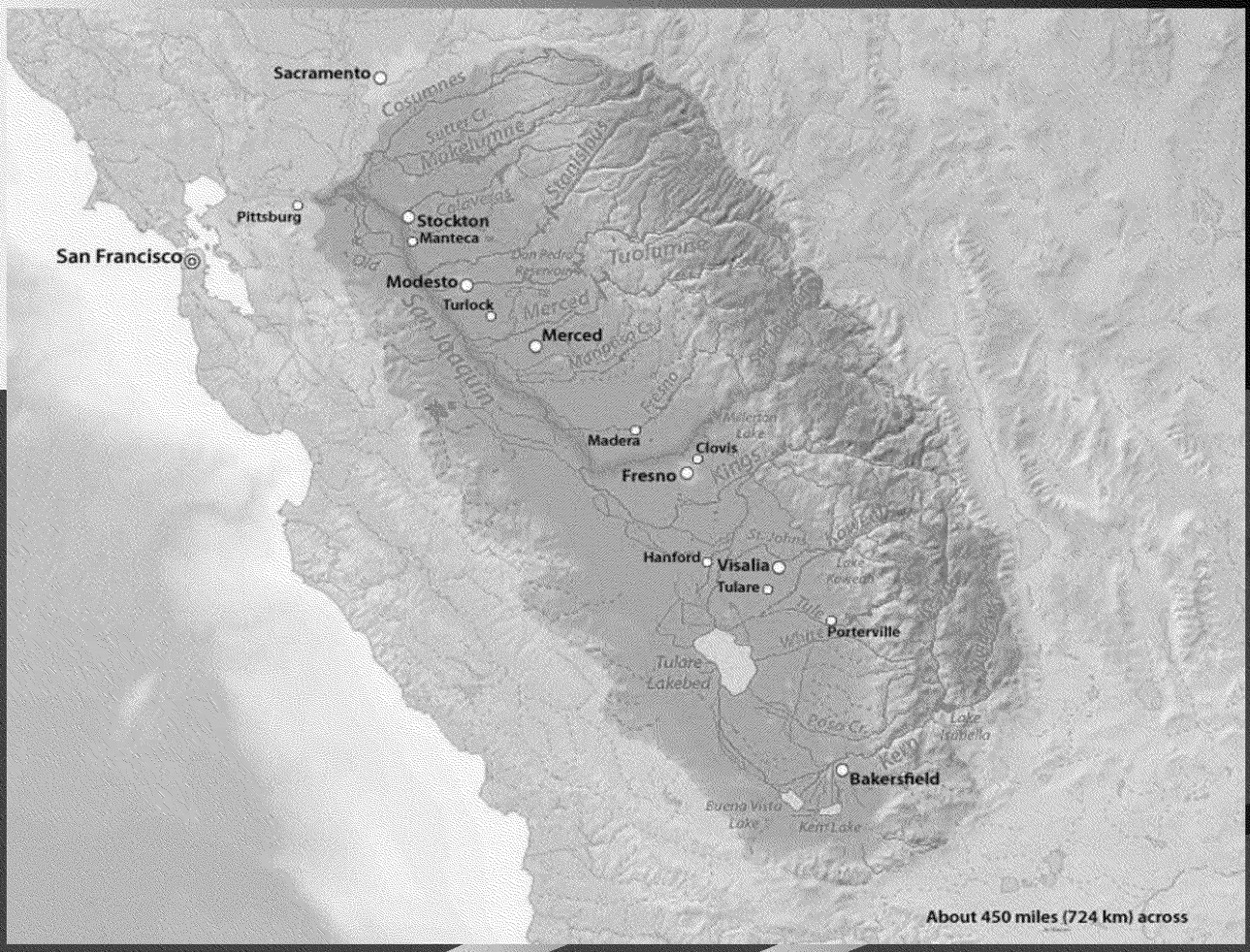


AP / Marcio Jose Sanchez, File



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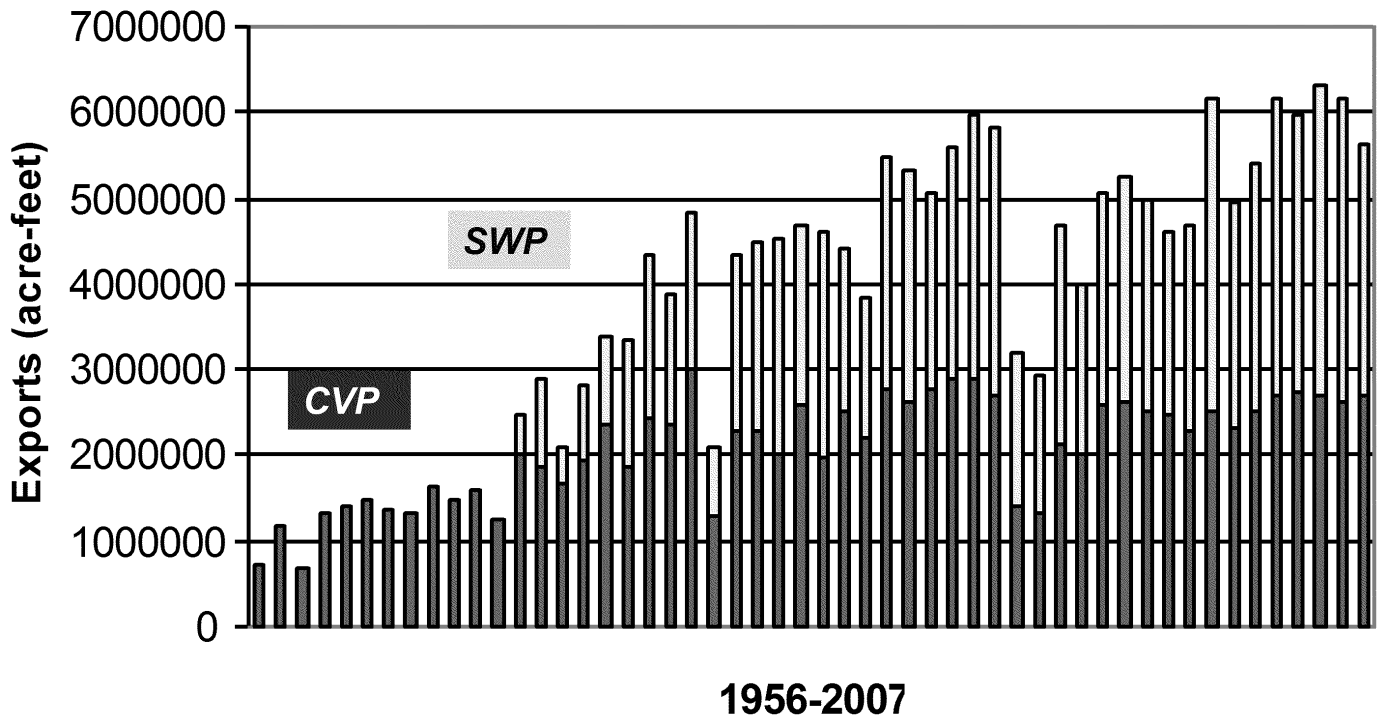
What's the problem?

- Competing needs for water
- Unreliable water supply
- Ecosystem degradation
- Drinking water quality degradation
- Levee vulnerability
- Climate change exacerbating problems



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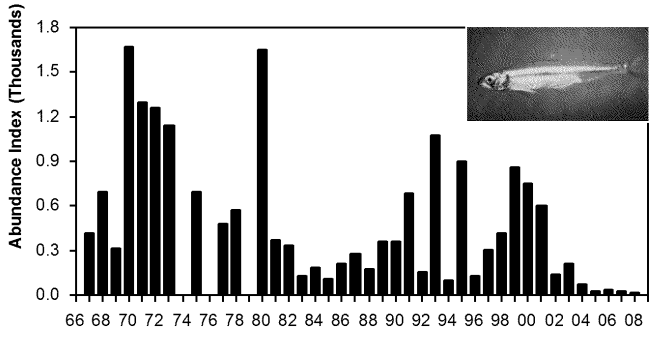
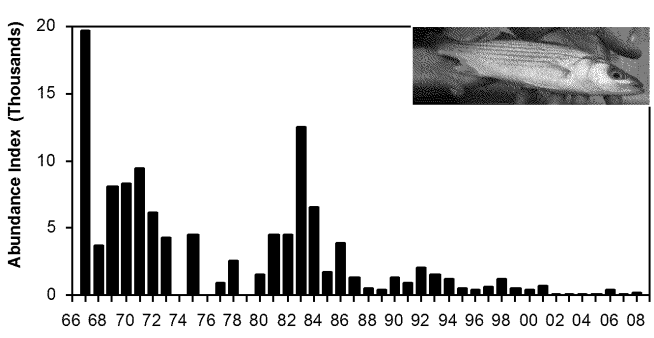
Fall abundance in 2008 continued low for all POD fishes.

Source DFG 2008 Fall MW Trawl
No sampling 1974 and 1979

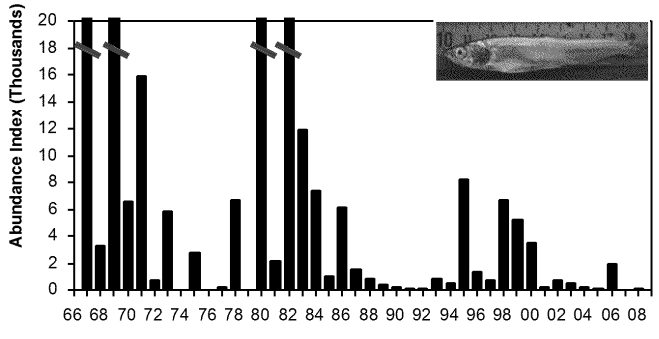
Delta Smelt



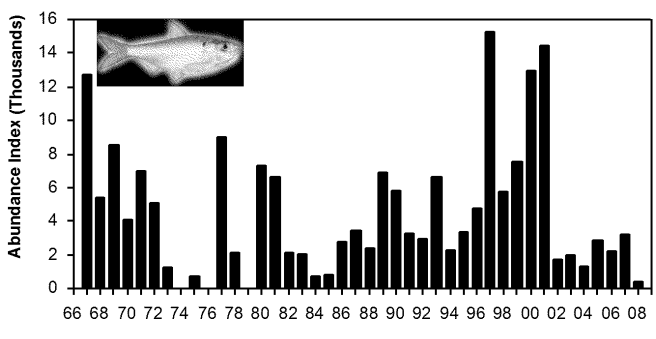
Striped Bass



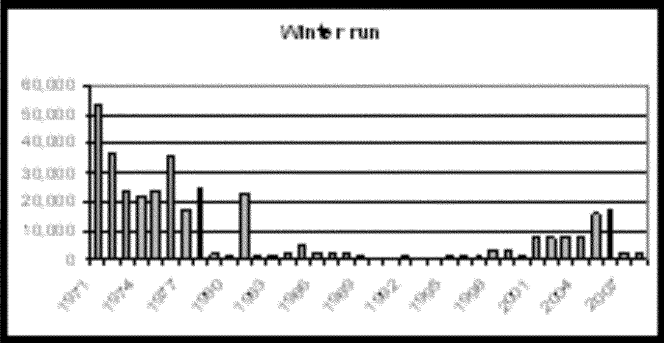
Longfin Smelt

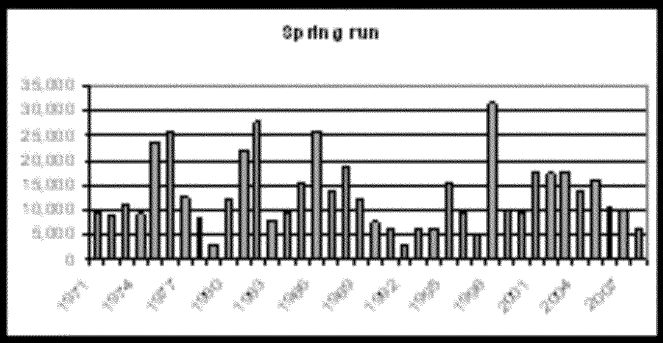


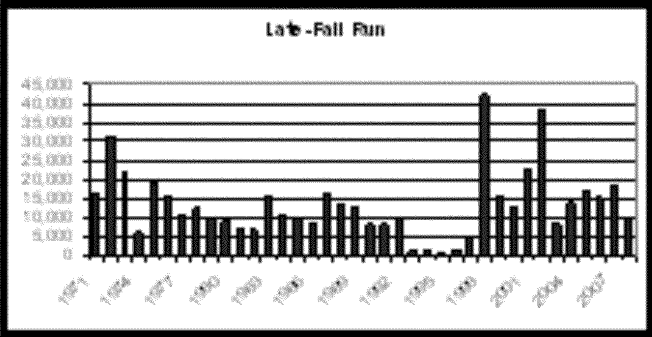
Threadfin Shad

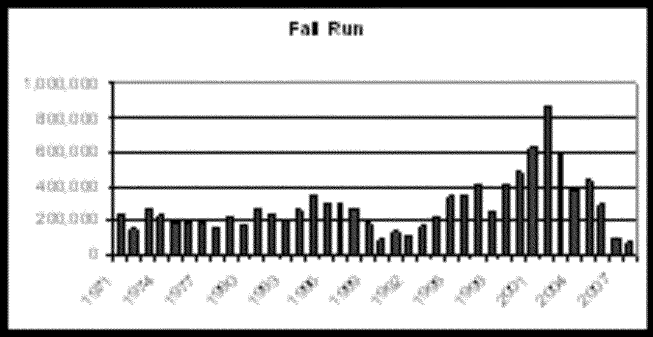


Chinook Salmon









Water quality issues

Aquatic life issues
- Salinity/ flow
- Temperature
- Dissolved oxygen
- Pesticides
- Ammonia
- Selenium
- Invasive species
- CECs

Drinking Water
- DBP precursors
- Pathogens
- Nutrients

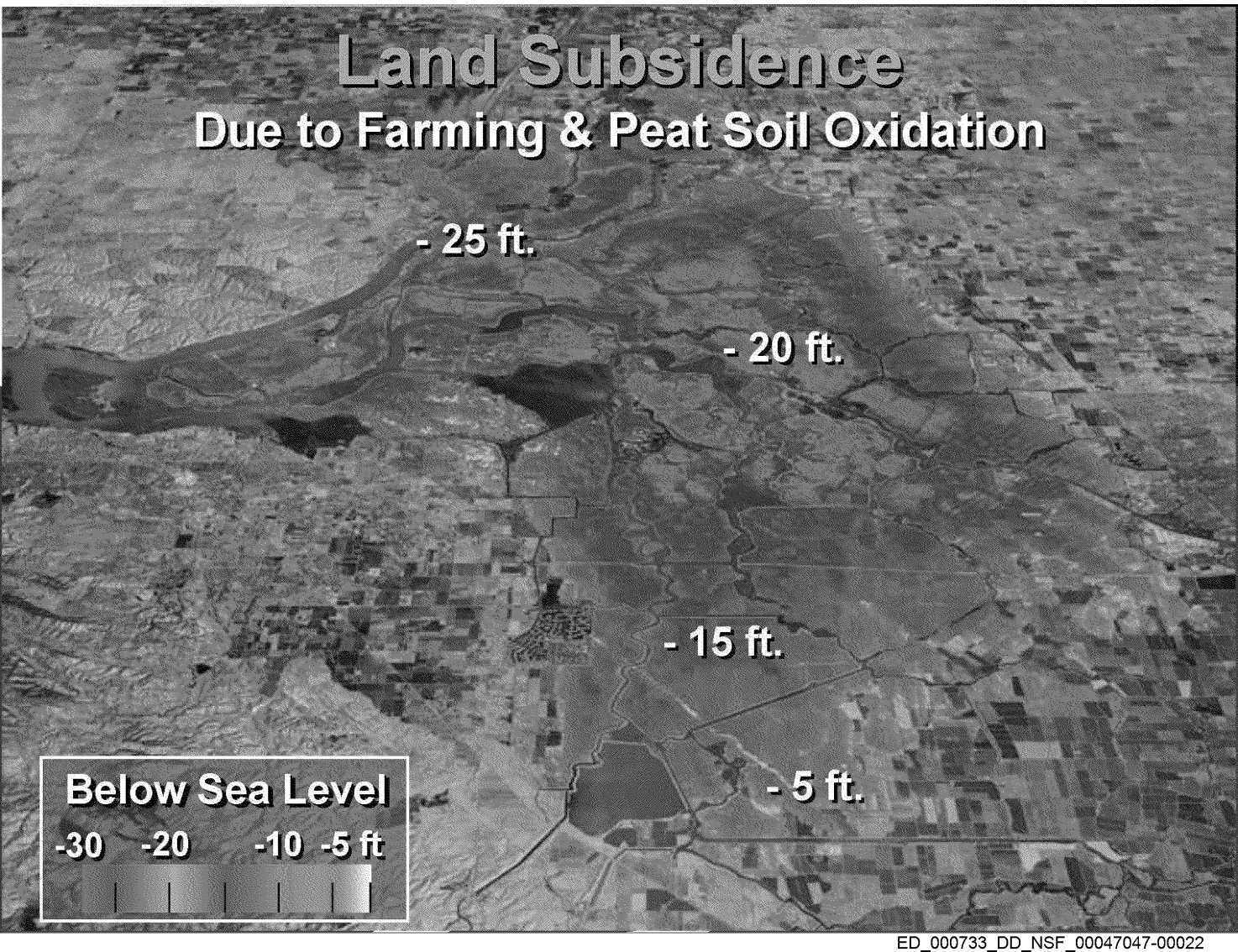
Ag water
- Salinity

Fish consumption
- Mercury

Recreation
- Microcystis

Levee vulnerability

- Subsidence
- Earthquakes
- Floods
- Sea level rise



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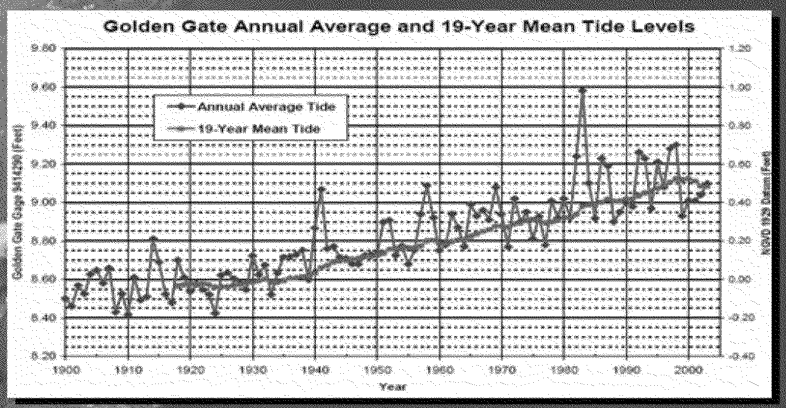
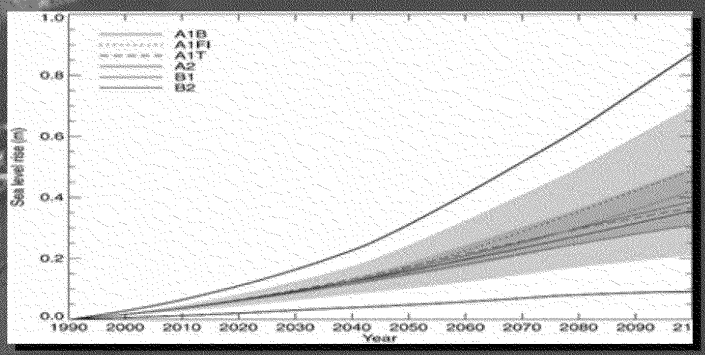
Sea Level Rise



Past (1900 – 2000)

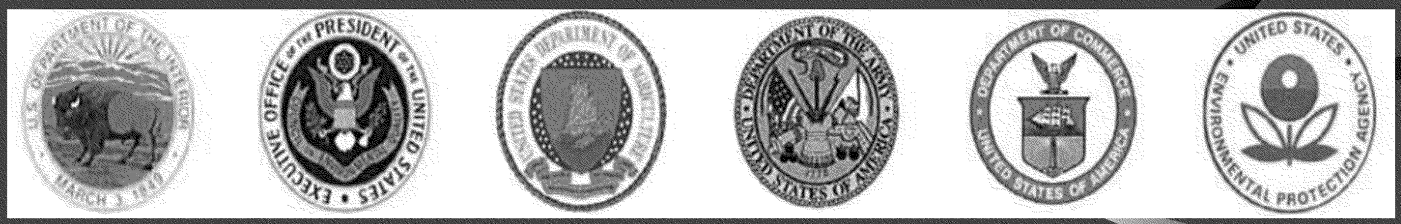
+ ½ ft sea level rise



Future (2000 – 2100)

2 to 3 ft sea level rise

Interim Federal Action Plan (Dec 2009)



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Advanced Notice of Proposed Rulemaking
February 2011

Contaminants:

ammonia
selenium
pesticides
contaminants of emerging concern

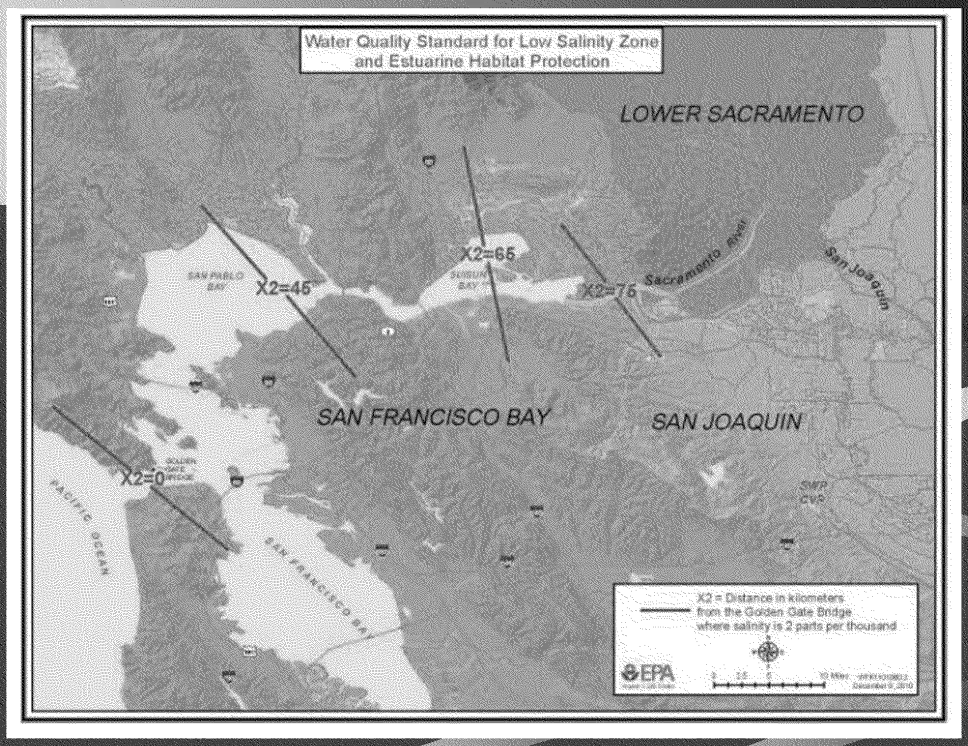
Habitat:

estuarine conditions
migratory corridors
wetlands

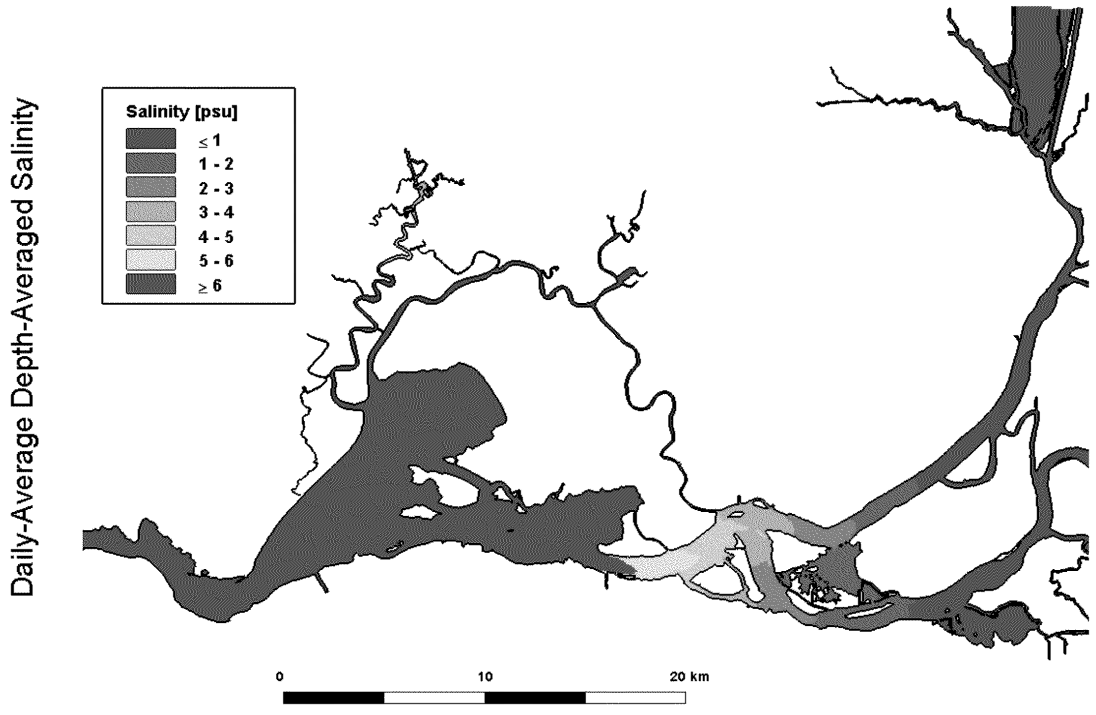
EPA's top priorities in B-D Estuary

- Estuarine habitat water quality standard
- Regional Water Quality Monitoring Program
- Selenium criteria
- San Joaquin River restoration
- TMDL implementation
- Methylmercury control in wetlands
- CWA-FIFRA interaction

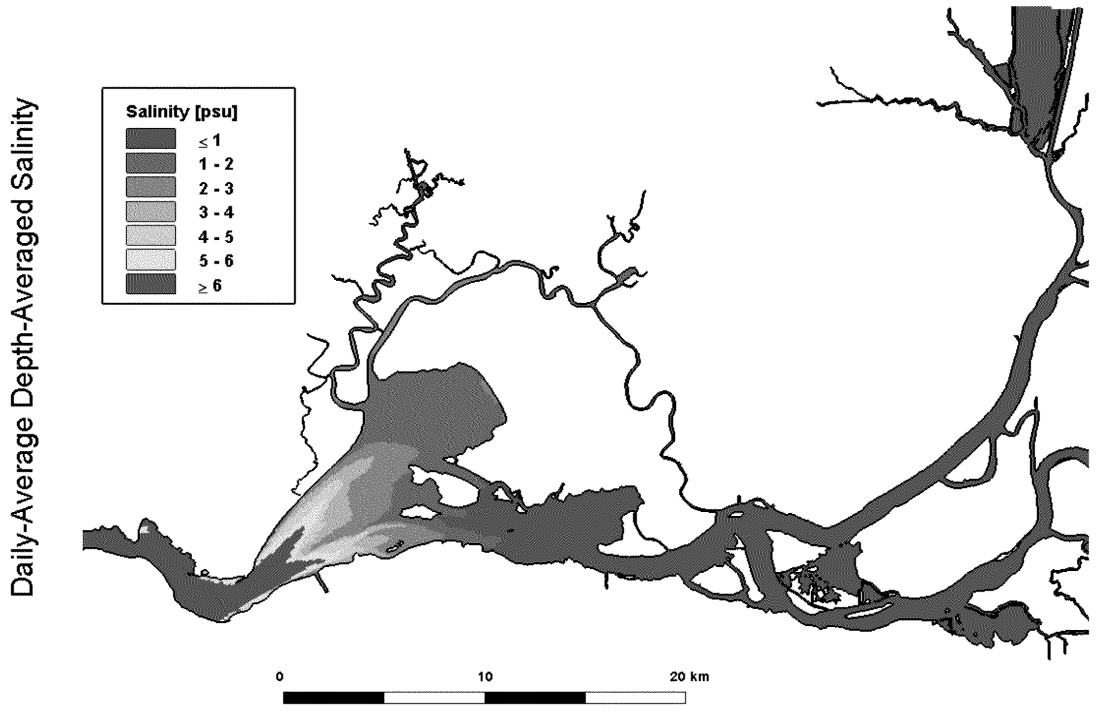
Estuarine habitat standard



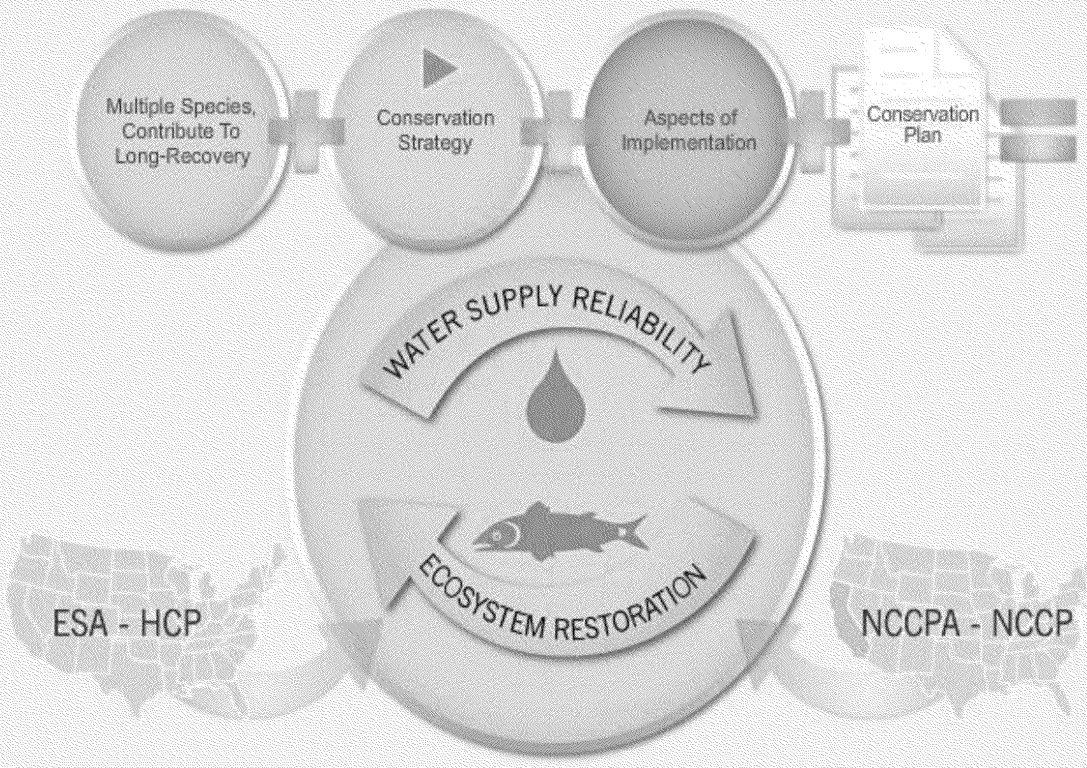
LSZ squeezed in Delta channels = ☹ Fish

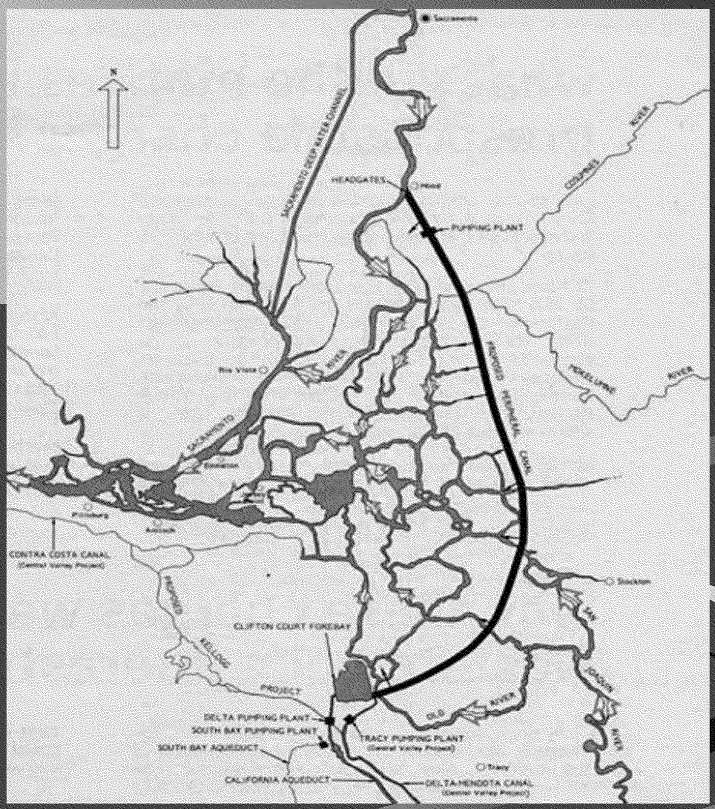


LSZ spread across Suisun Bay = ☺ Fish



Bay Delta Conservation Plan




Sacramento
SACRAMENTO DEEP WATER CHANNEL
HEADGATES
PUMPING PLANT
COSUMNES RIVER
Rio Vista
RIVER
MOKELUMNE RIVER
PROPOSED INTERNAL CANAL
SACRAMENTO
Stockton
CONTRA COSTA CANAL
(Central Valley Project)
PROPOSED
CLIFTON COURT FOREBAY
KELLOGG
PROJECT
DELTA PUMPING PLANT
SOUTH BAY PUMPING PLANT
TRACY PUMPING PLANT
(Central Valley Project)
SOUTH BAY AQUEDUCT
Tracy
CALIFORNIA AQUEDUCT
DELTA-MENDOTA CANAL
(Central Valley Project)
OLD
RIVER
SAN
JOAQUIN
RIVER

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Drinking water

- Salt + Organic Carbon
- Vulnerability to levee failure

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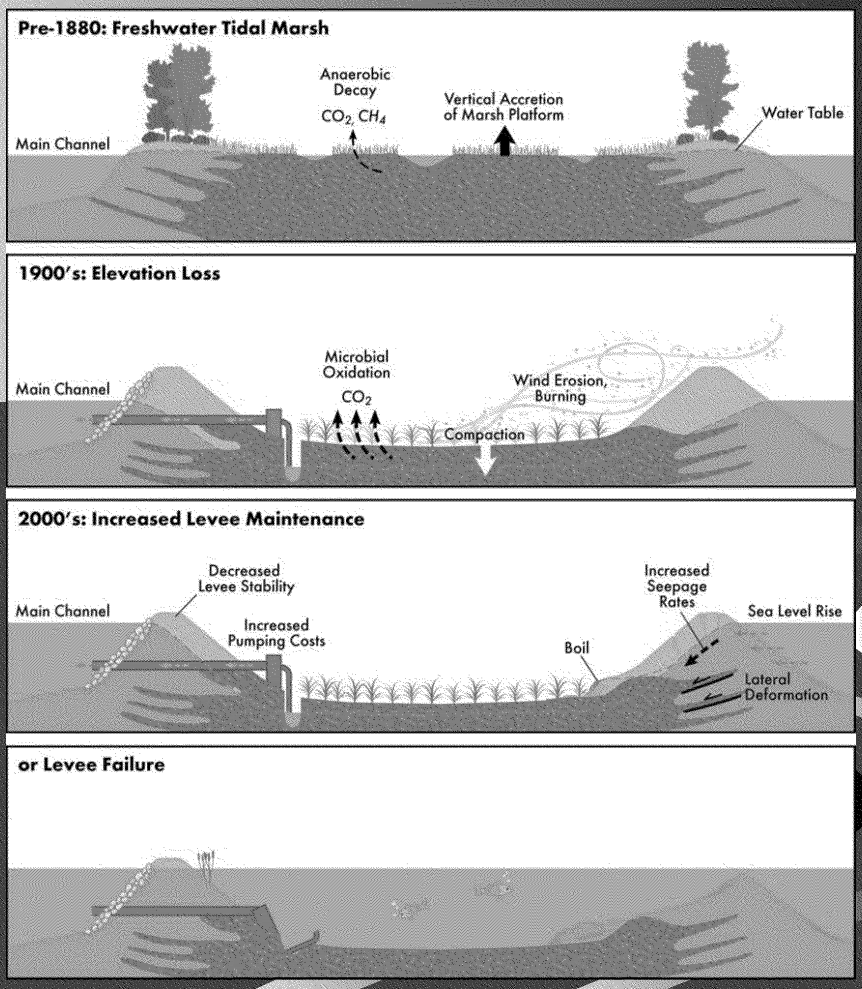

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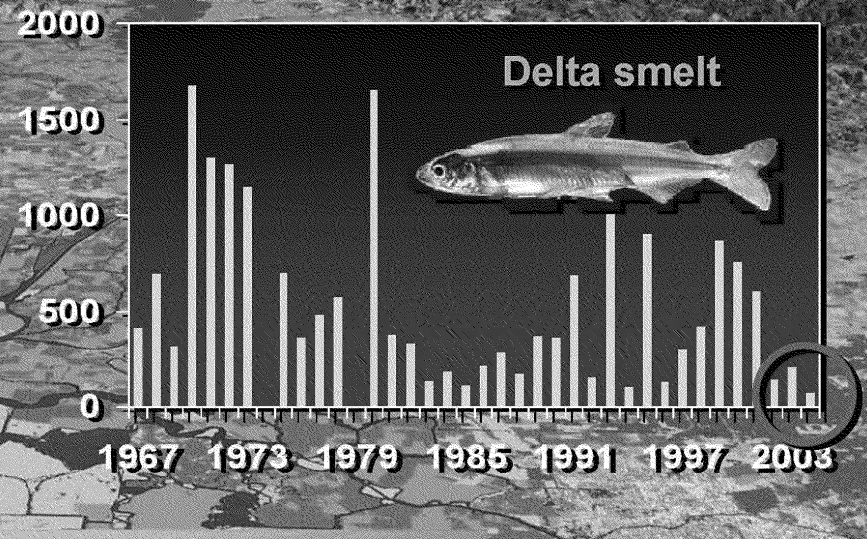
The Delta – The Risks are Intensifying

Hurricane Katrina



Jones Tract (2004)

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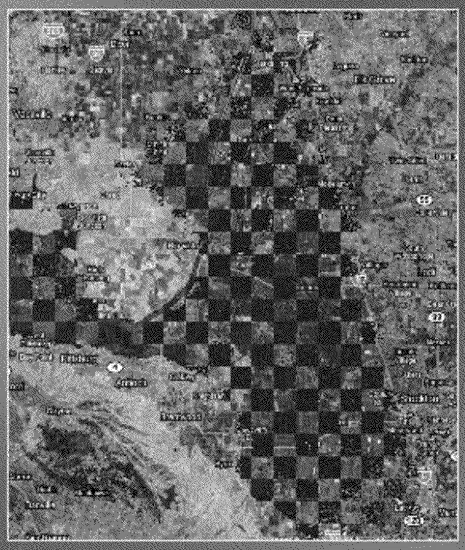
Climate change predictions

- Loss of snowpack
- Earlier runoff
- More dry years
- More floods
- Higher air and water temperatures
- Sea level rise

California's Delta

Today

With 1 meter sea level rise



Source: Google Earth

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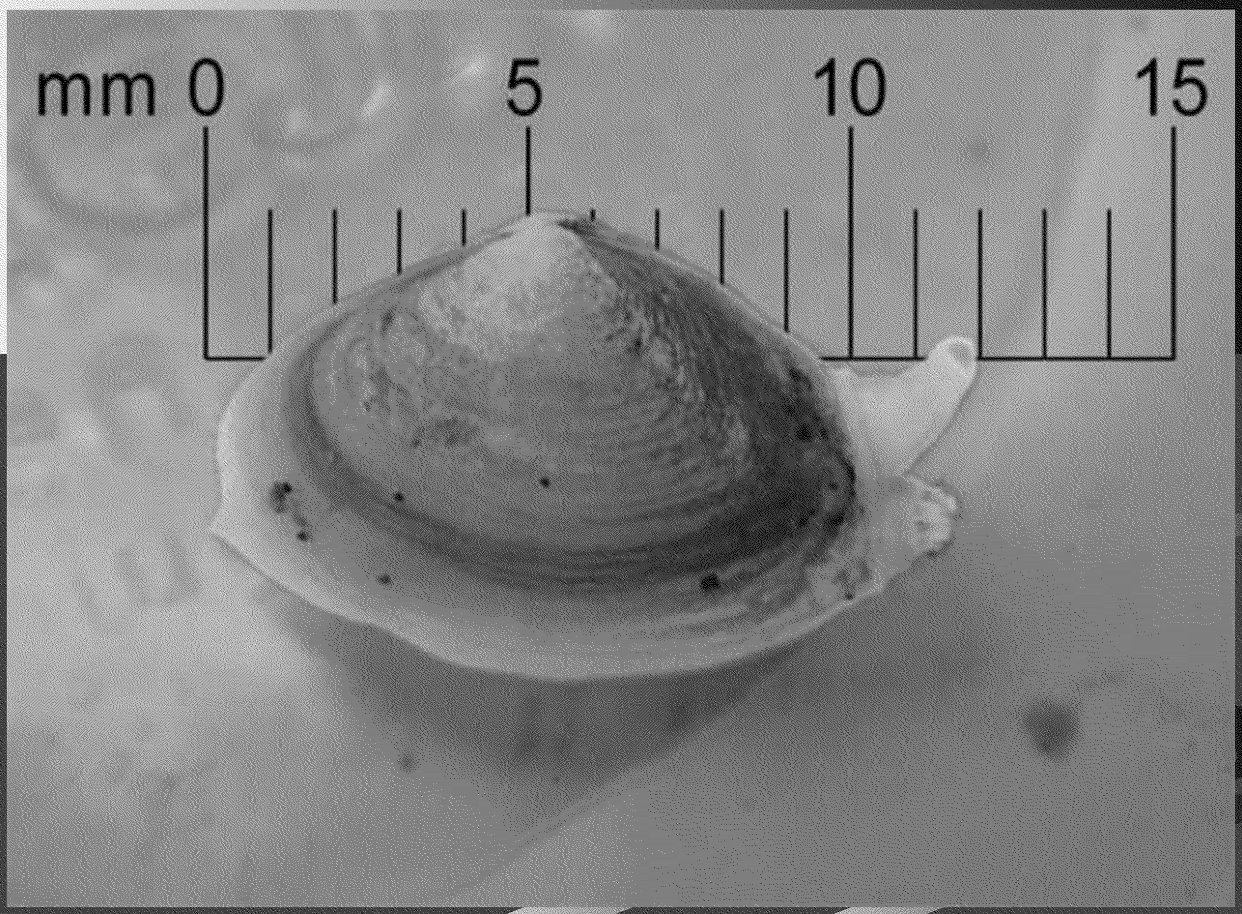

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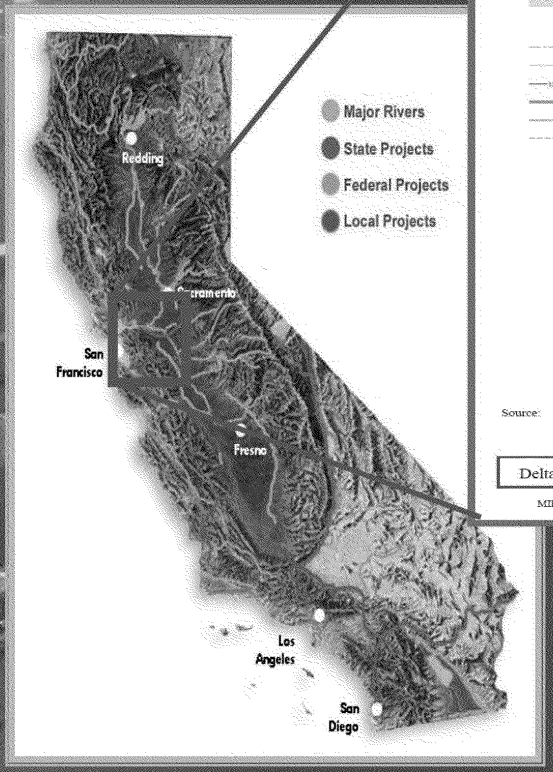
Sacramento-San Joaquin Delta



Legal Delta and Zones

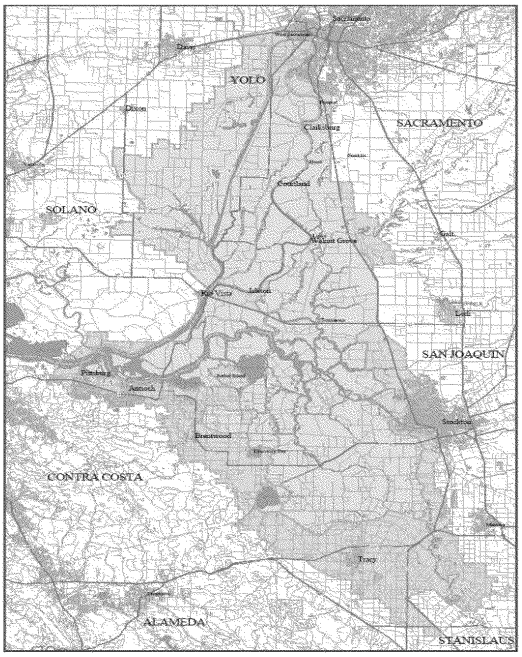
Primary Zone
Secondary Zone

County Boundary
Surface Streets
Major Highways
Hydrography
Delta Primary Zone
Delta Secondary Zone

Source: Department of Water Resources 1995

Delta Protection Commission

MILES 10



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Six Factors that Intensify Future Risks

- Subsidence
- Sea level rise
- Regional climate change
- Seismicity
- Exotic species and ecosystem change
- Population growth and urbanization

Regional Climate Change

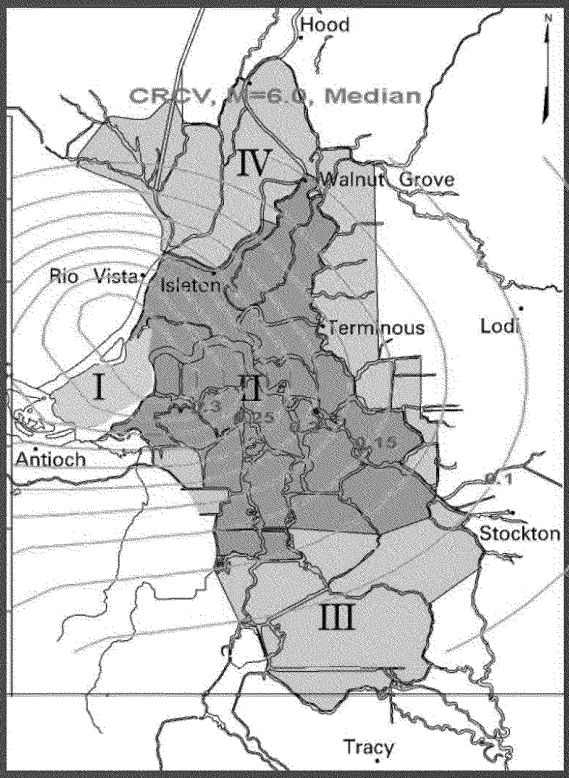
By 2100
+ 1.4 – 5.8 °C degrees

By 2050
1/3 loss of snowpack

Hypothetical Scenario

A 6.5 magnitude earthquake in the western Delta:

- 30 levee breaks
- 20 islands flooded
- Water quality degraded
- 200 miles of levees weakened by slumping, cracking and increased seepage
- Increased pressure on the system - future levee failures



Urbanization

- Fastest growing region in California
- Increasing population and water supply pressures
- Demand for conversion of the Delta to homes
- 130,000 homes = about 55,000 acres

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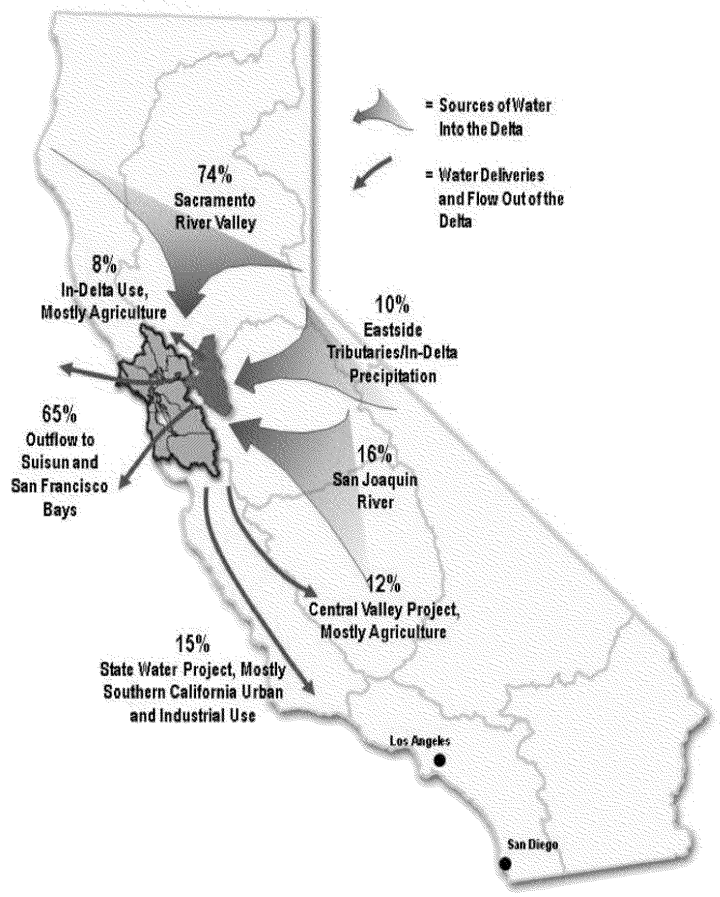
DSC White Paper Template
deltacouncil.ca.gov/sites/default/files/docu...
Google

Figure 3-1
Water Movement through the Delta
Source: LAO, 2008



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Goals & Opportunities

2. Address water quality problems with regulatory and financial tools and technical assistance

- Support to Water Board and Fish agencies
- Seek cooperation from BOR & DWR
- Promote innovative agricultural practices
- Advance a Regional Monitoring Program

Goals & Opportunities

1. Influence water management through:

- Supporting water conveyance around the Delta – a "peripheral canal" of appropriate size, location and operations, funded by beneficiaries

- Upgrading Delta water quality standards