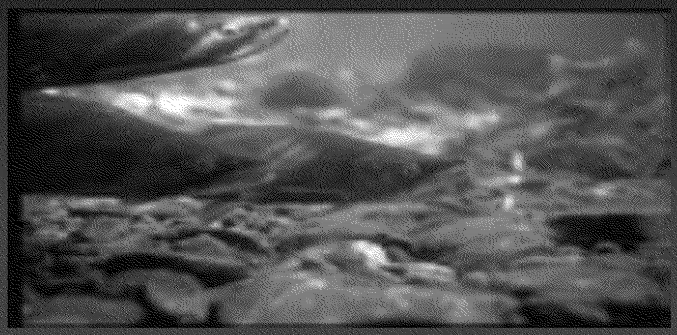
San Francisco Bay Delta Estuary

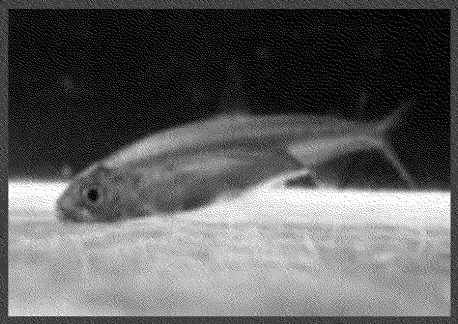


Region 9 Team

- Karen Schwinn (Associate Director)
- Tom Hagler (attorney)
- Carolyn Yale (lead staff person)
- Bruce Herbold (biologist)
- Sam Ziegler (Watersheds Office mgr)
- Plus various staff from our wetlands, permitting, drinking water, and TMDL programs on specific issues

Briefing Outline

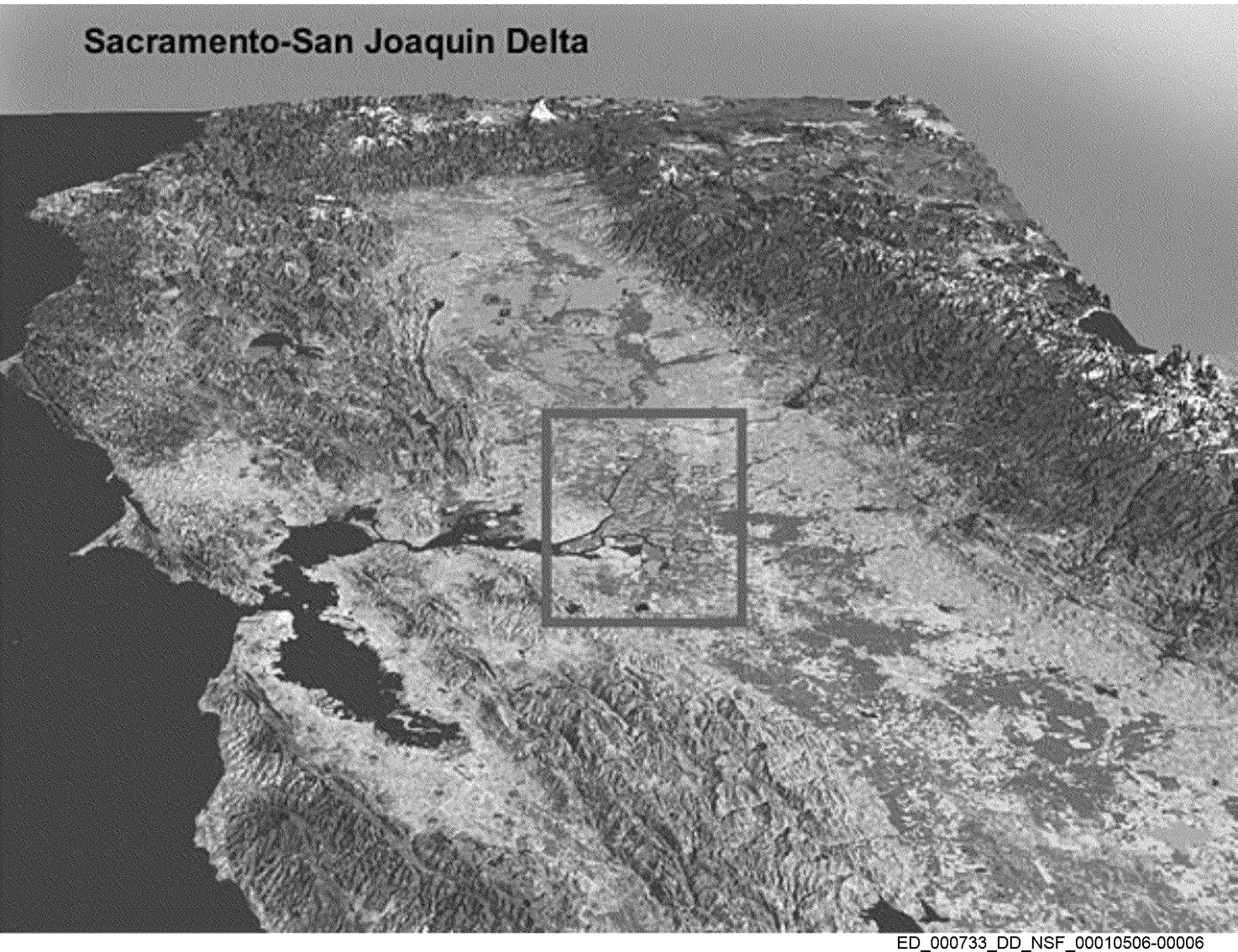
- Setting
- Significance of estuary
- Issues
- History and EPA's role
- EPA's goals
- Current opportunities



Goals

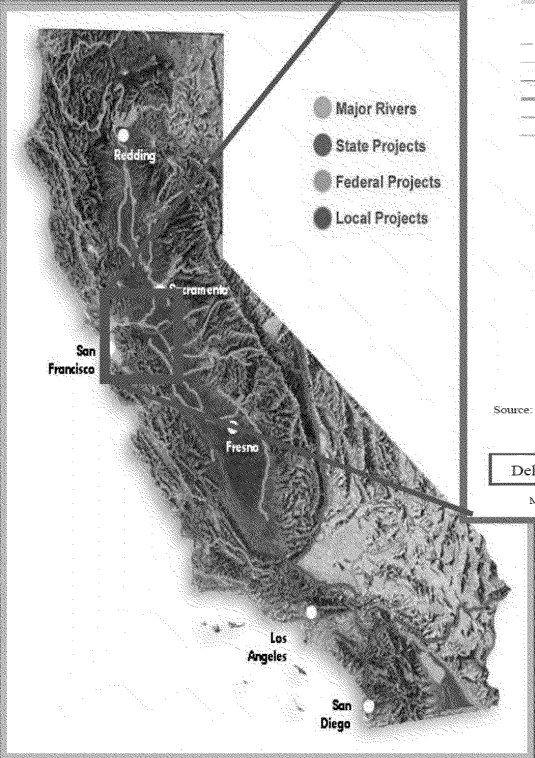
- Promote sustainable water management and a healthy ecosystem
- Fix Delta plumbing
- Work with State to aggressively address water quality issues
- Pursue authorized program for Estuary

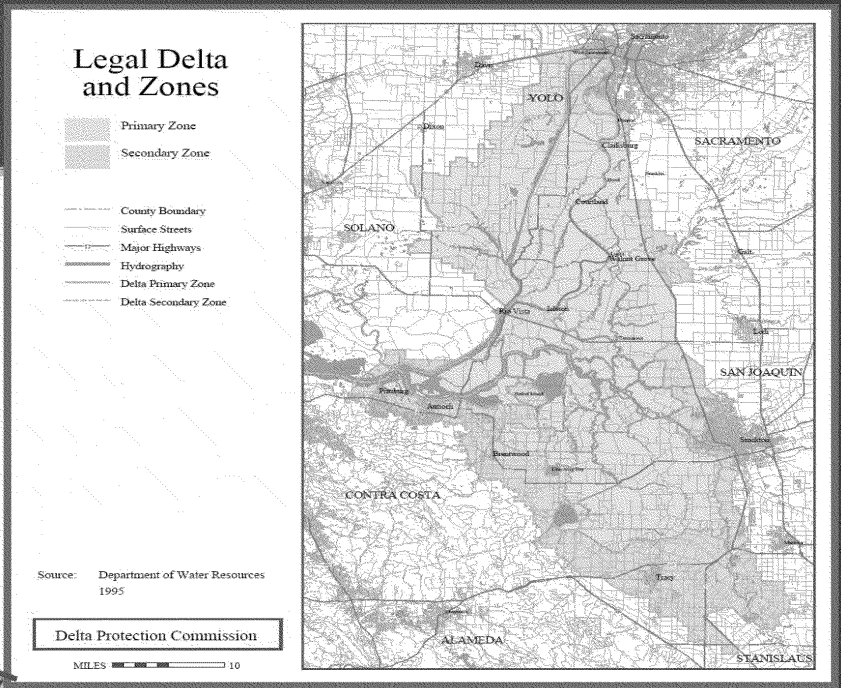
ED_000733_DD_NSF_00010506-00005


Sacramento-San Joaquin Delta

ED_000733_DD_NSF_00010506-00007

Sacramento-San Joaquin Delta



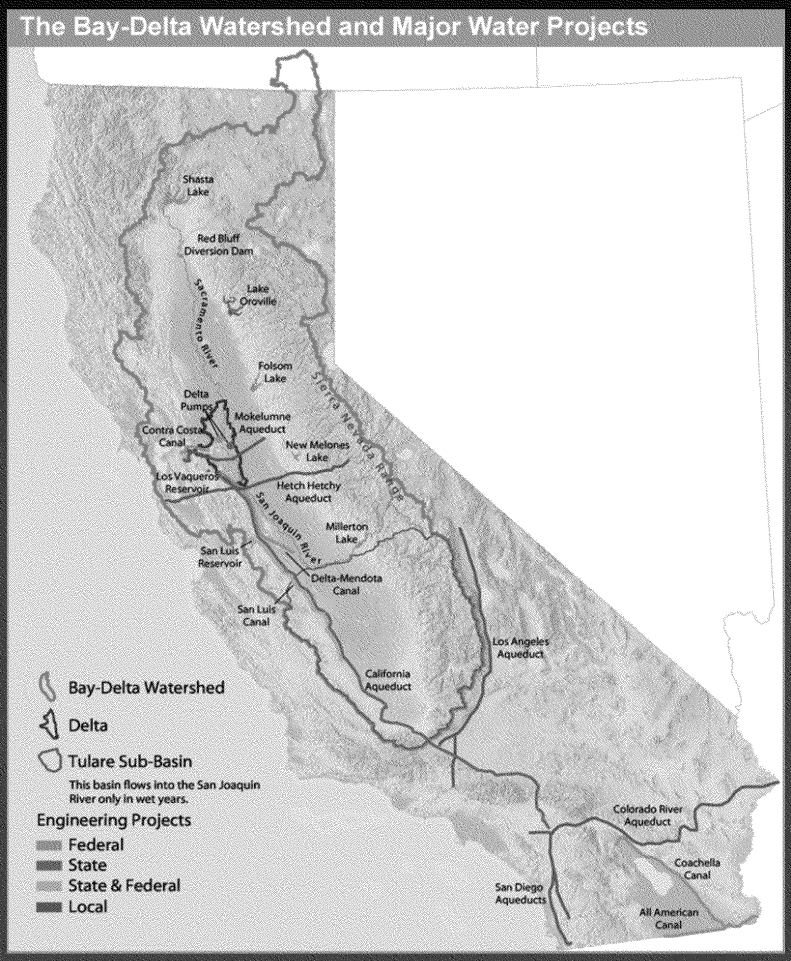


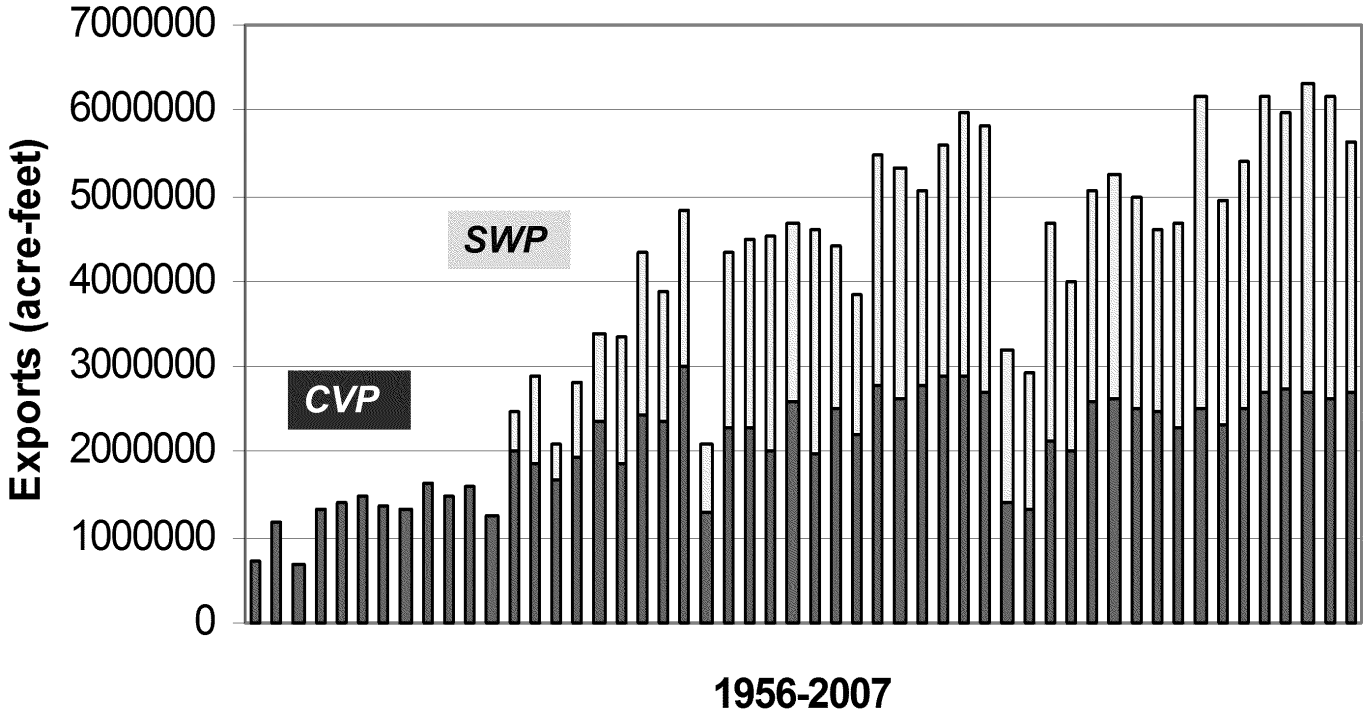
Why is the Delta important?

- Largest West Coast estuary
- Habitat for 700 species
- 2/3 of Californian's rely on Delta water
- Irrigation for 45% of the nation's fruits and vegetables
- 160,000 homes
- 2 ports; 3 railroads; other infrastructure
- Recreation

What's the problem?

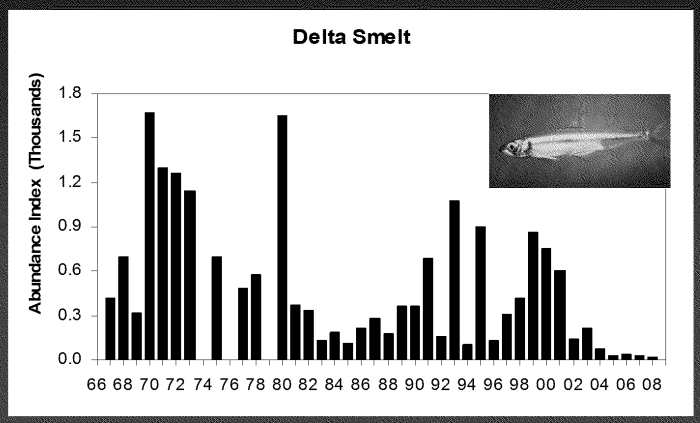
- Competing needs for water
  - Exports for urban and ag uses vs. in-stream needs
- Unreliable water supply
- Ecosystem degradation
- Drinking water quality degradation
- Levee vulnerability
- Climate change will exacerbate problems

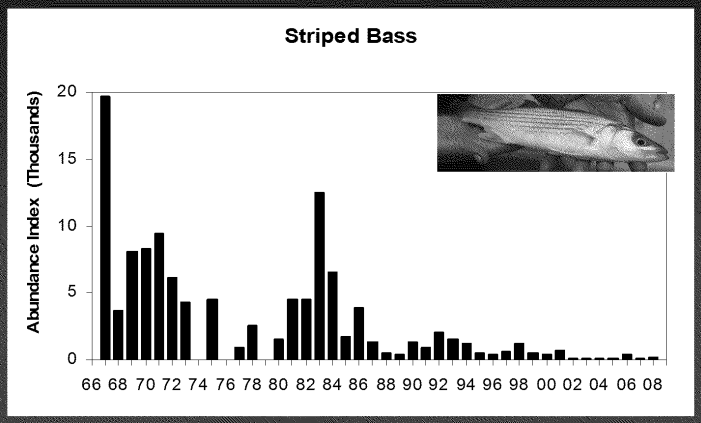

The Bay-Delta Watershed and Major Water Projects
Shasta Lake
Red Bluff Diversion Dam
Lake Oroville
Sacramento River
Folsom Lake
Sierra Nevada Range
Delta Pumps
Mokelumne Aqueduct
Contra Costa Canal
New Melones Lake
Los Vaqueros Reservoir
Hetch Hetchy Aqueduct
San Joaquin River
Millerton Lake
San Luis Reservoir
Delta-Mendota Canal
San Luis Canal
Los Angeles Aqueduct
California Aqueduct
Colorado River Aqueduct
Coachella Canal
San Diego Aqueducts
All American Canal
Bay-Delta Watershed
Delta
Tulare Sub-Basin
This basin flows into the San Joaquin River only in wet years.
Engineering Projects
Federal
State
State & Federal
Local

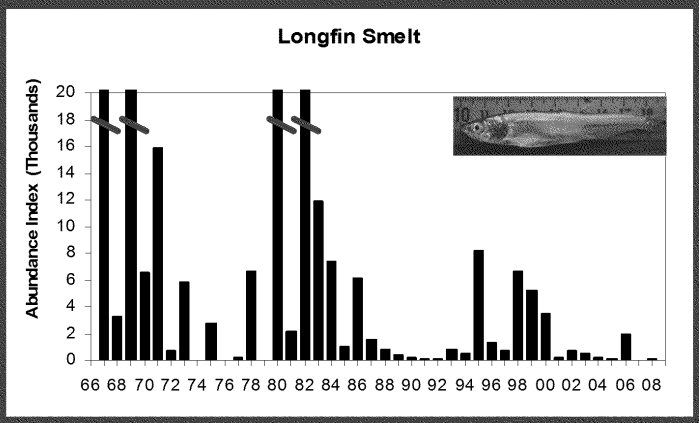

7000000
6000000
5000000
4000000
3000000
2000000
1000000
0
Exports (acre-feet)
SWP
CVP
1956-2007

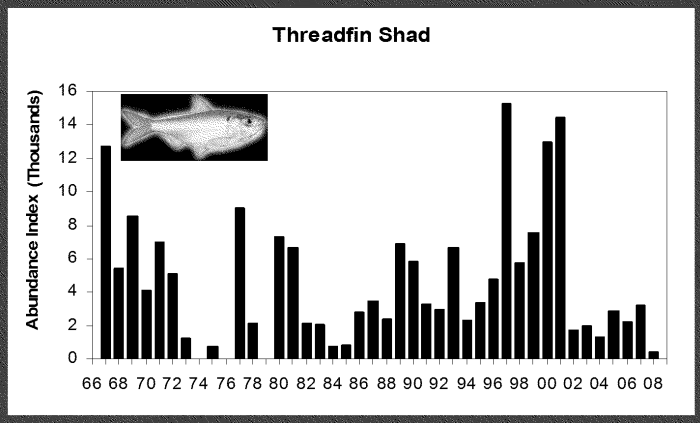
Fall abundance in 2008 continued low for all POD fishes.

Source DFG 2008 Fall MW Trawl
No sampling 1974 and 1979

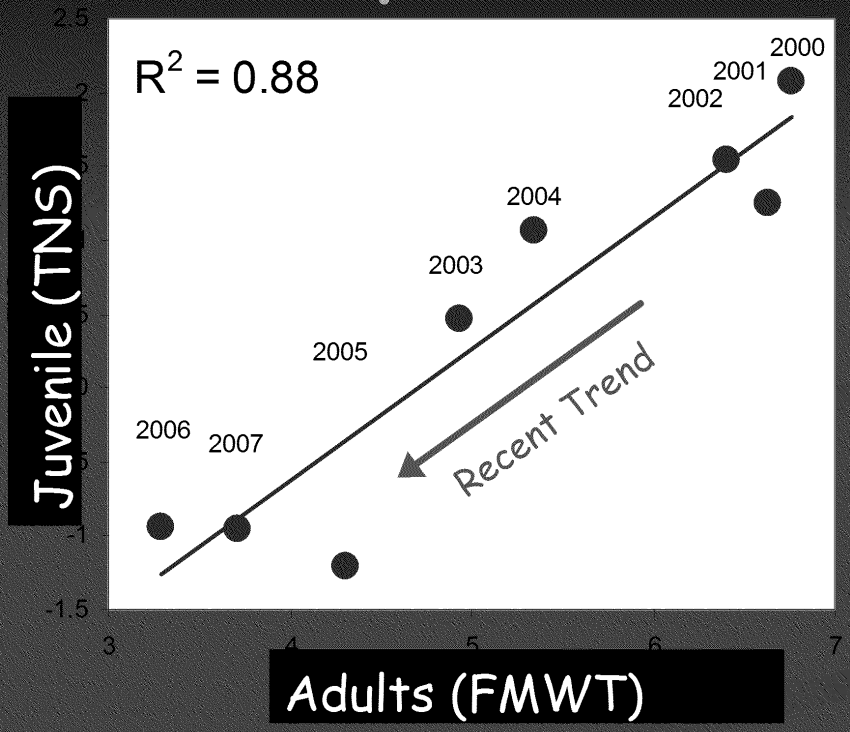




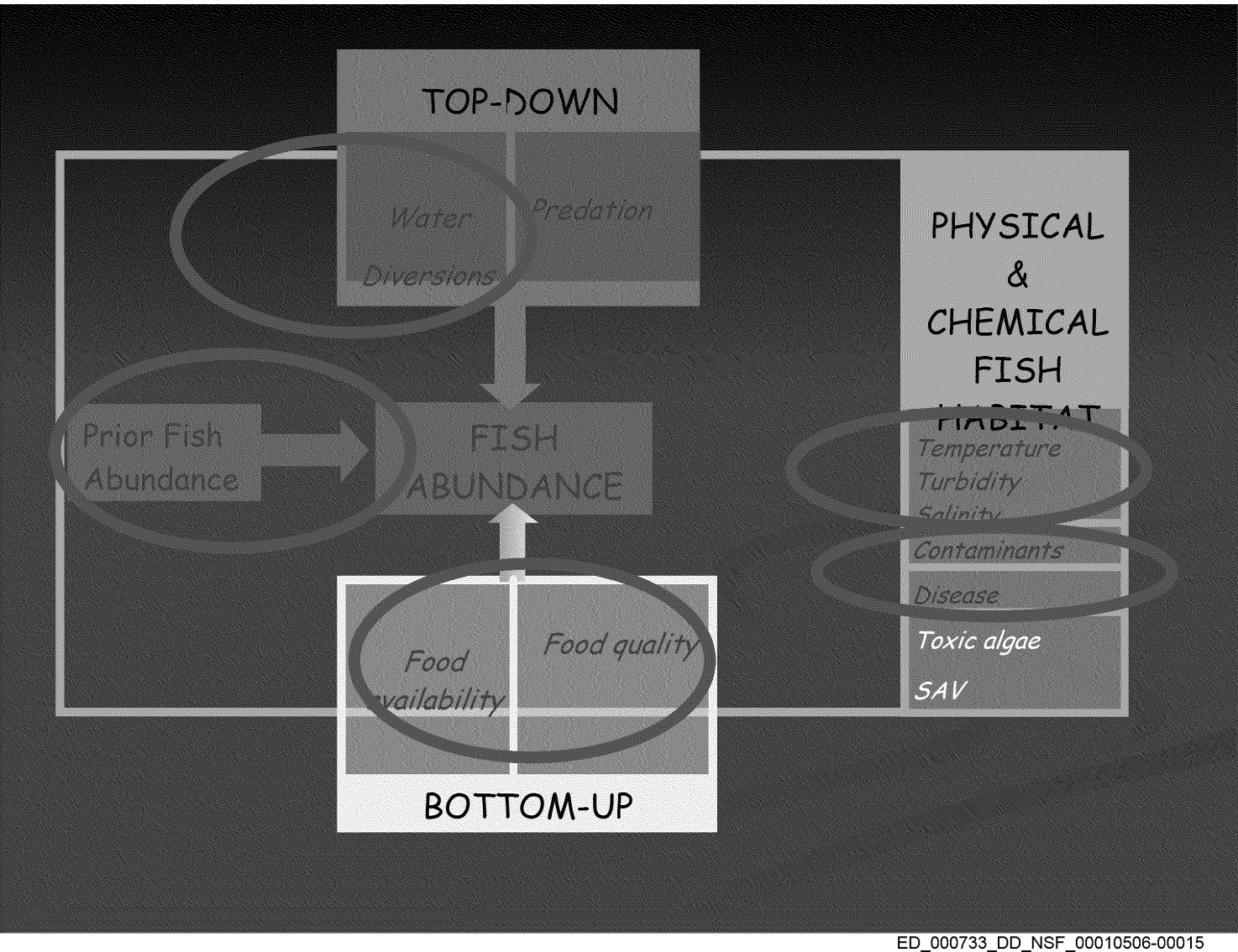




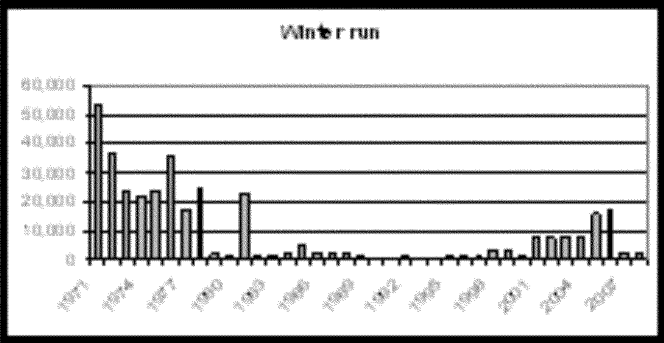
Have Delta Smelt Dropped Below Critical Population Levels?

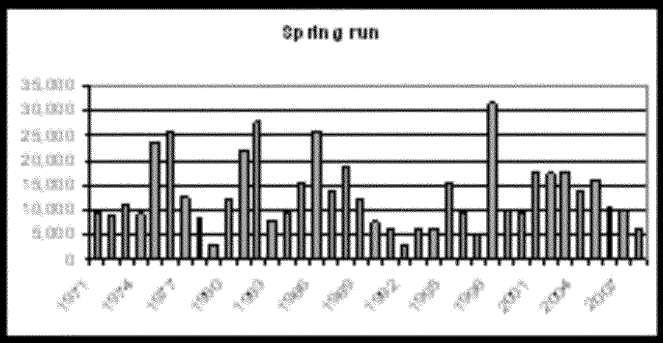


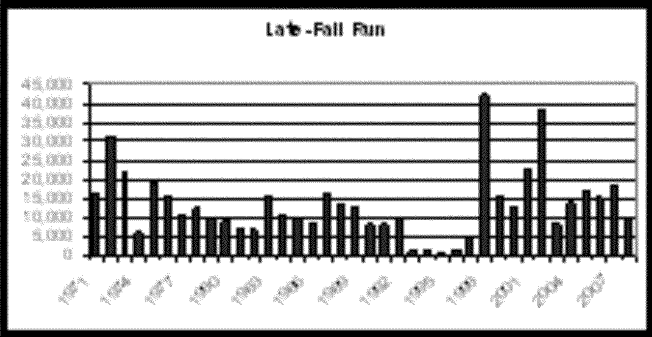
Source: Anke Mueller-Solger (DWR)

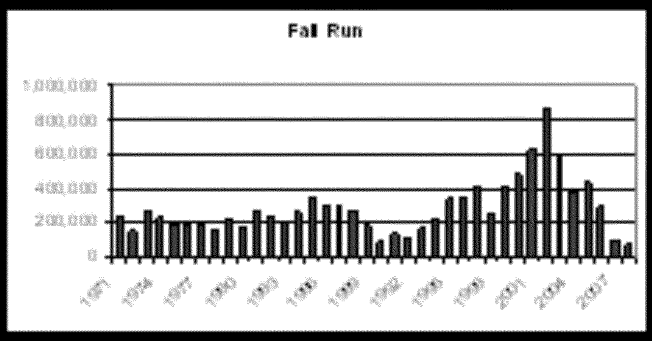

TOP-DOWN
Water Diversions
Predation
PHYSICAL & CHEMICAL FISH HABITAT
Temperature
Turbidity
Salinity
Contaminants
Disease
Toxic algae
SAV
Prior Fish Abundance
FISH ABUNDANCE
Food availability
Food quality
BOTTOM-UP

Chinook Salmon









Water quality issues

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

Drinking Water
- DBP precursors
- Pathogens
- Nutrients

Ag water
- Salinity

Fish consumption
- Mercury

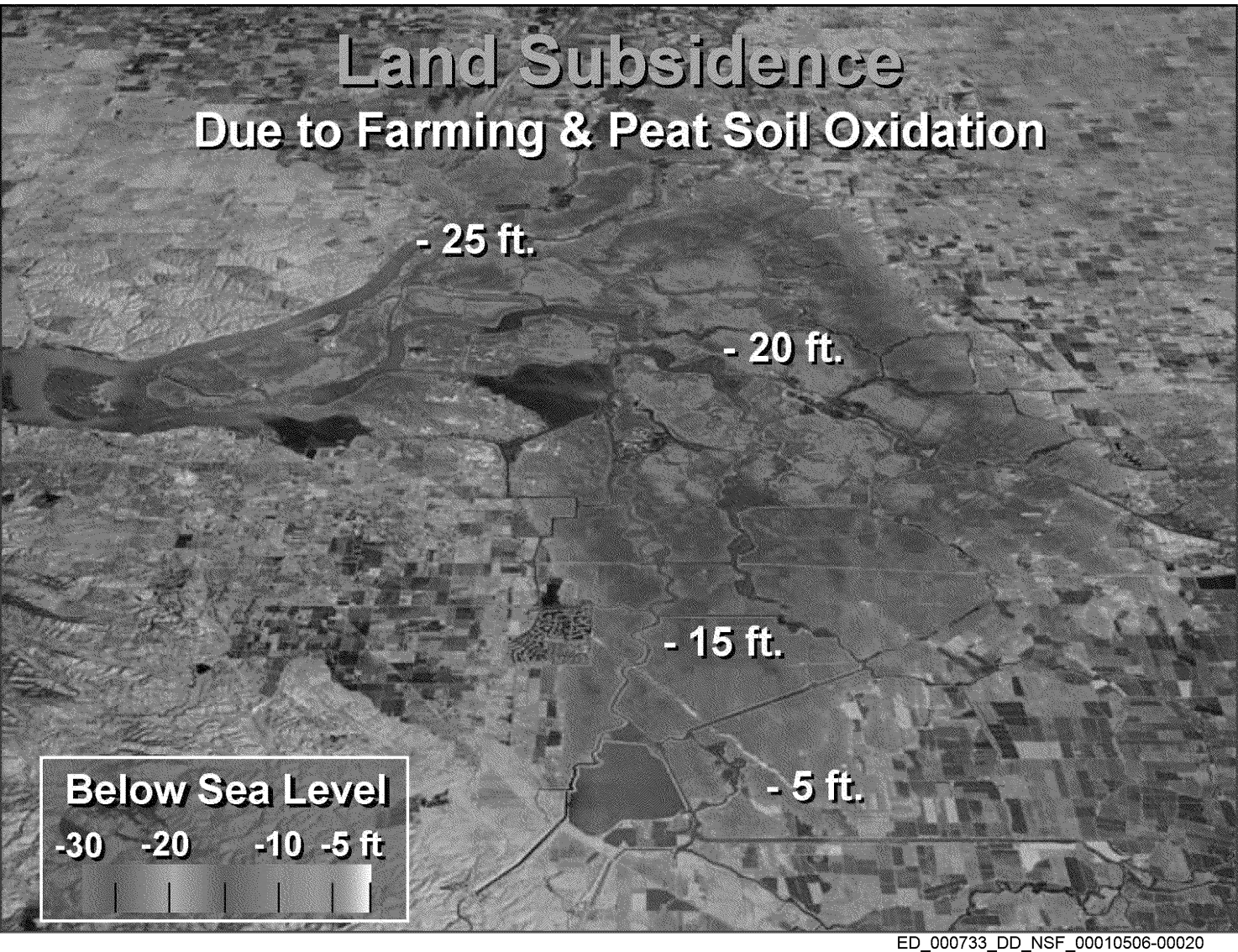
Recreation
- Microcystis

Drinking water

- Salt + Organic Carbon
- Vulnerability to levee failure

Levee vulnerability

- Subsidence
- Earthquakes
- Floods
- Sea level rise



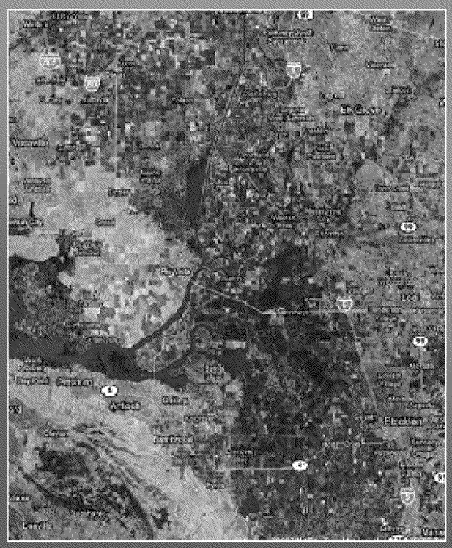
ED_000733_DD_NSF_00010506-00020

Climate change predictions

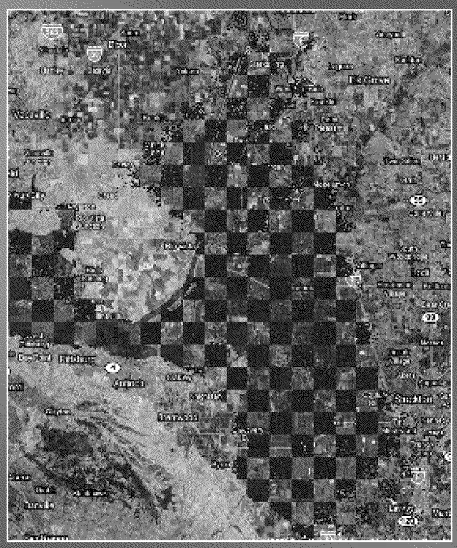
- Loss of snowpack
- Earlier runoff
- More dry years
- More floods
- Higher air and water temperatures
- Sea level rise

California's Delta

Today



With 1 meter sea level rise



Source: Google Earth

EPA’s changing role in the Bay Delta

1970s – 1994

"It was the best of times. It was the worst of times"

- Water supply unreliable – drought, ESA listings
- Regulatory gridlock
- Bay Delta Accord

→EPA as activist:

CEQ referral

WQS disapproval & promulgation

CCMP for the SF Estuary Project

Leadership on Bay Delta Accord

1995 – 2003

"From Rags to Riches"

- CalFed program developed
- ROD implementation begun
- State bonds
- California Bay Delta Authority created
- Federal authorization

→EPA as facilitator:

OW AA led federal CalFed team

2004 – 2006

"A Series of Unfortunate Events"

- pelagic organism decline
- CalFed finance plan unpopular
- State defunded CalFed program & ordered outside reviews
- Jones Tract levee break
- Katrina
- seismic studies
- climate change findings
- lawsuits
- drought

→EPA as scientist

2006 – present

"A Perfect Storm"

- Delta Vision completed
- BDCP underway
- 20 x 2020
- Scientific progress informs new BOs
- Water Board's Bay Delta Strategic Workplan
- San Joaquin River Restoration

→EPA as cooperator…?

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
- Supporting State's Integrated Regional Water Management Program

Goals & Opportunities

2. Address water quality problems through our
   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

3. Establish SF Estuary as authorized program

- Encompass SF Bay competitive grant program
- Clarify authority
- Provide institutional structure for future budgets

ED_000733_DD_NSF_00010506-00031