

# THE USFWS STATE & FEDERAL WATER PROJECTS BIOLOGICAL OPINION: AN OVERVIEW

PRESENTED JANUARY 23-24, 2013

Matt Nobriga, Jennifer Norris  
and Erin Gleason  
USFWS Bay-Delta FWO



# The Bay-Delta Fish & Wildlife Office

- Established 2009
- Geographic Area of responsibility includes the legal Delta, Suisun Marsh and Yolo Bypass.
- Responsible for fish and wildlife resource issues within the legal Delta area, including endangered species, and habitat and species conservation.
- Assumed responsibility for the 2008 delta smelt Biological Opinion from the Sacramento Fish & Wildlife Office.

San Francisco Bay-Delta Fish and Wildlife Office Jurisdiction



The geographic area of responsibility of the BDFWO includes the legal Delta, Yolo Bypass, and Suisun Marsh.



SAN FRANCISCO BAY-DELTA FISH AND WILDLIFE OFFICE  
650 Capitol Mall Suite 8-300  
Sacramento, CA 95814

Prepared for general use only. Not for legal purposes.

	BDFWO Jurisdiction
	Major Cities
	Cities
	Waterways
	County Boundaries
	Interstate Highway
	State Highway and Route
	US Highway

# Outline for Today

- ▣ Delta smelt 101-Matt Nobriga
- ▣ USFWS 2008 Biological Opinion and status of litigation and remand-Jennifer Norris
- ▣ Reasonable & Prudent Alternative (RPA) elements and Smelt Working Group-Erin Gleason
- ▣ All the information you'll need on delta smelt, our BiOp and the Smelt Working Group can be found at <http://www.fws.gov/sfbaydelta/cvp-swp/cvp-swp.cfm>

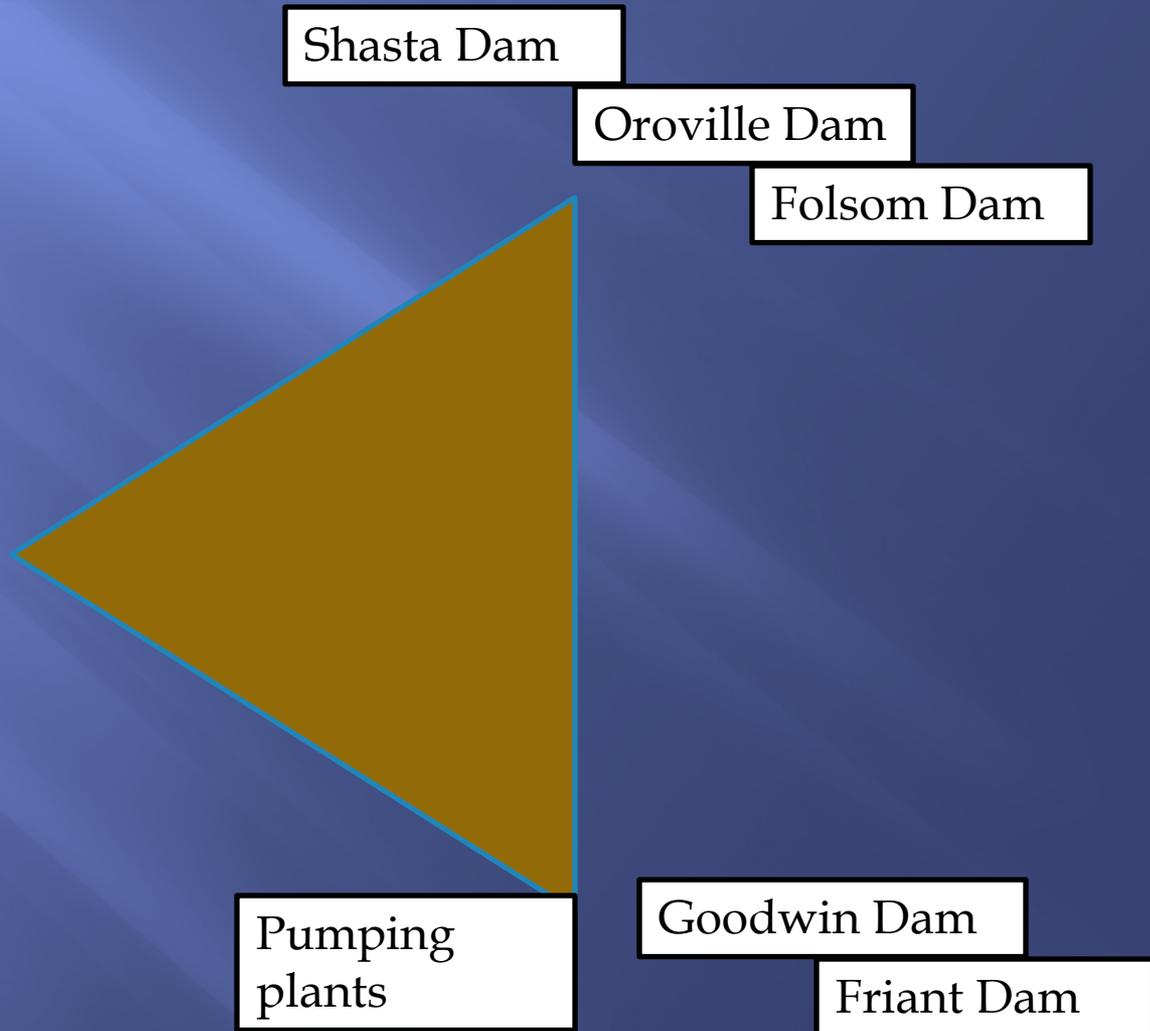
# Delta smelt 101

Matt Nobriga

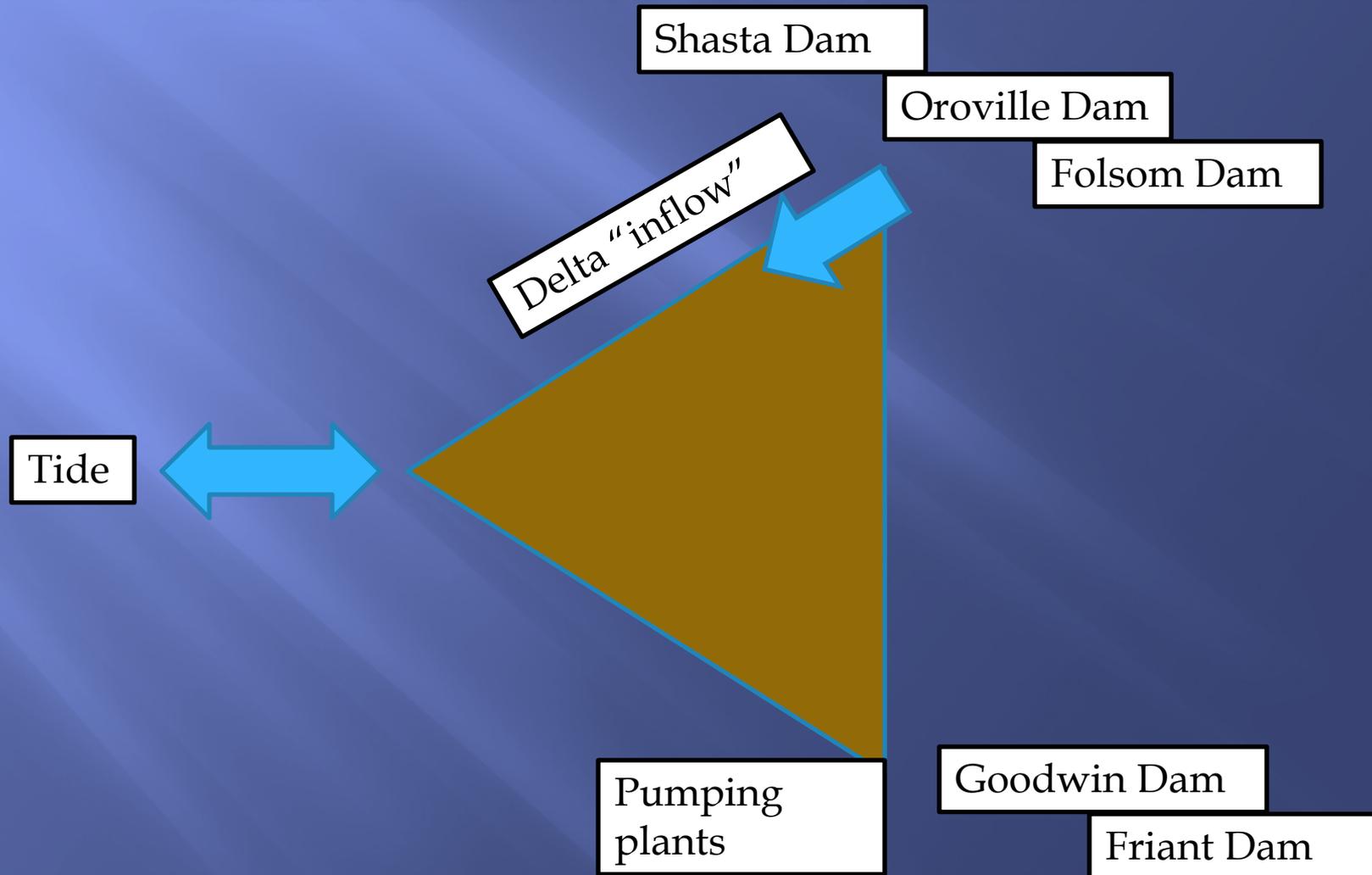
Fish & Wildlife Biologist



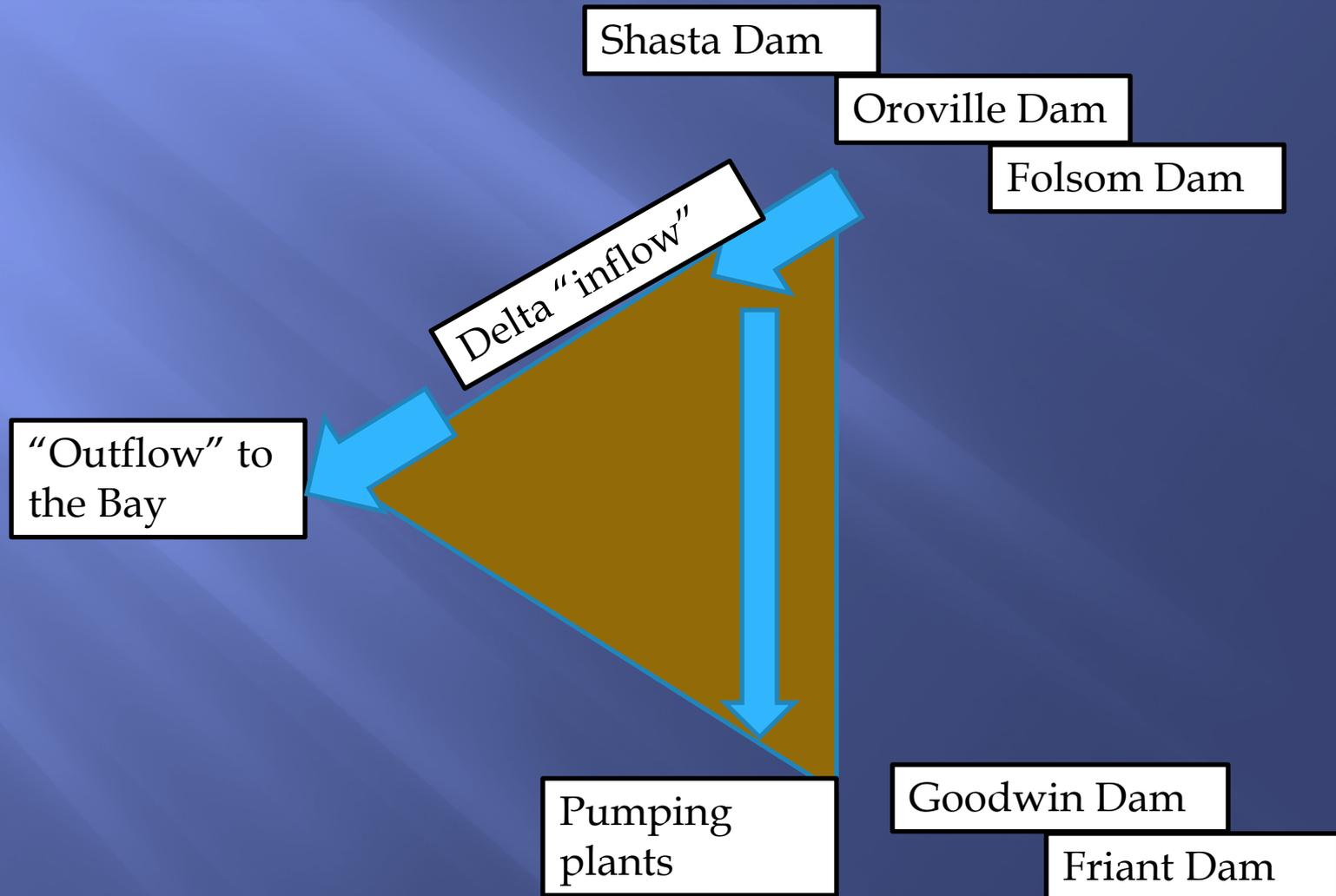
# The intersection of the contemporary human environment with the one the native fishes evolved in...



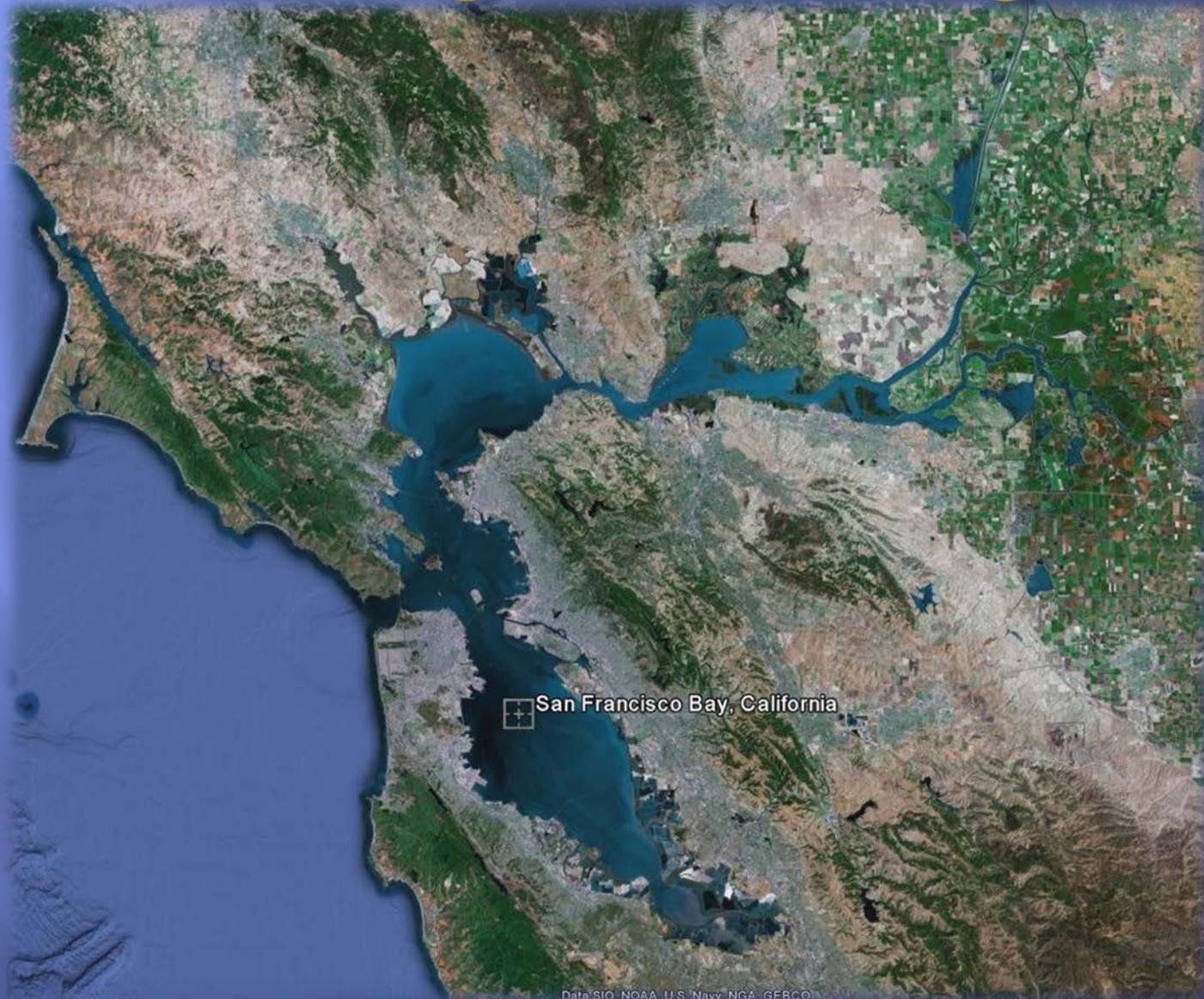
# The intersection of the contemporary human environment with the one the native fishes evolved in...



# The intersection of the contemporary human environment with the one the native fishes evolved in...



# Getting our bearings



# The story starts with surf smelt



# The evolution of the Bay-Delta



**15,000 Years Ago**  
(End of last Ice Age -- sea level approximately 400 feet below present level; rivers not shown)



**10,000 Years Ago**  
(Formation of Farallon Islands and intrusion into the "Golden Gate")



**5,000 Years Ago**  
(Formation of Bay and Delta Basins)



**125 Years Ago**  
(Landward edge of undiked tidal marsh)



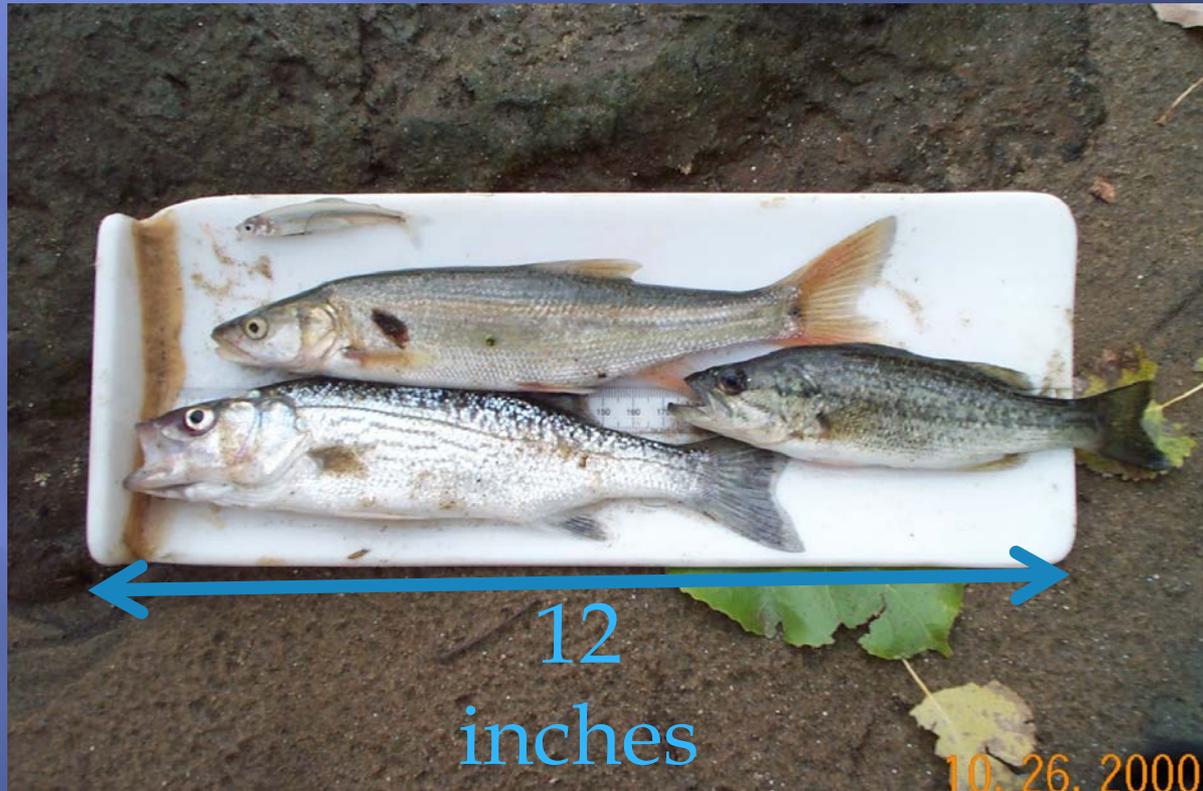
**Today**  
(Includes changes due to hydraulic mining sediment deposition, land reclamation, and filling of wetland areas)

**Figure 1.4. The invading estuary.** Holocene transgression of the San Francisco Estuary and current extent of tidal waters as influenced by modern land use. (adapted by San Francisco Estuary Project from Atwater 1979 and Atwater et al. 1979, reprinted in TBI 1998)

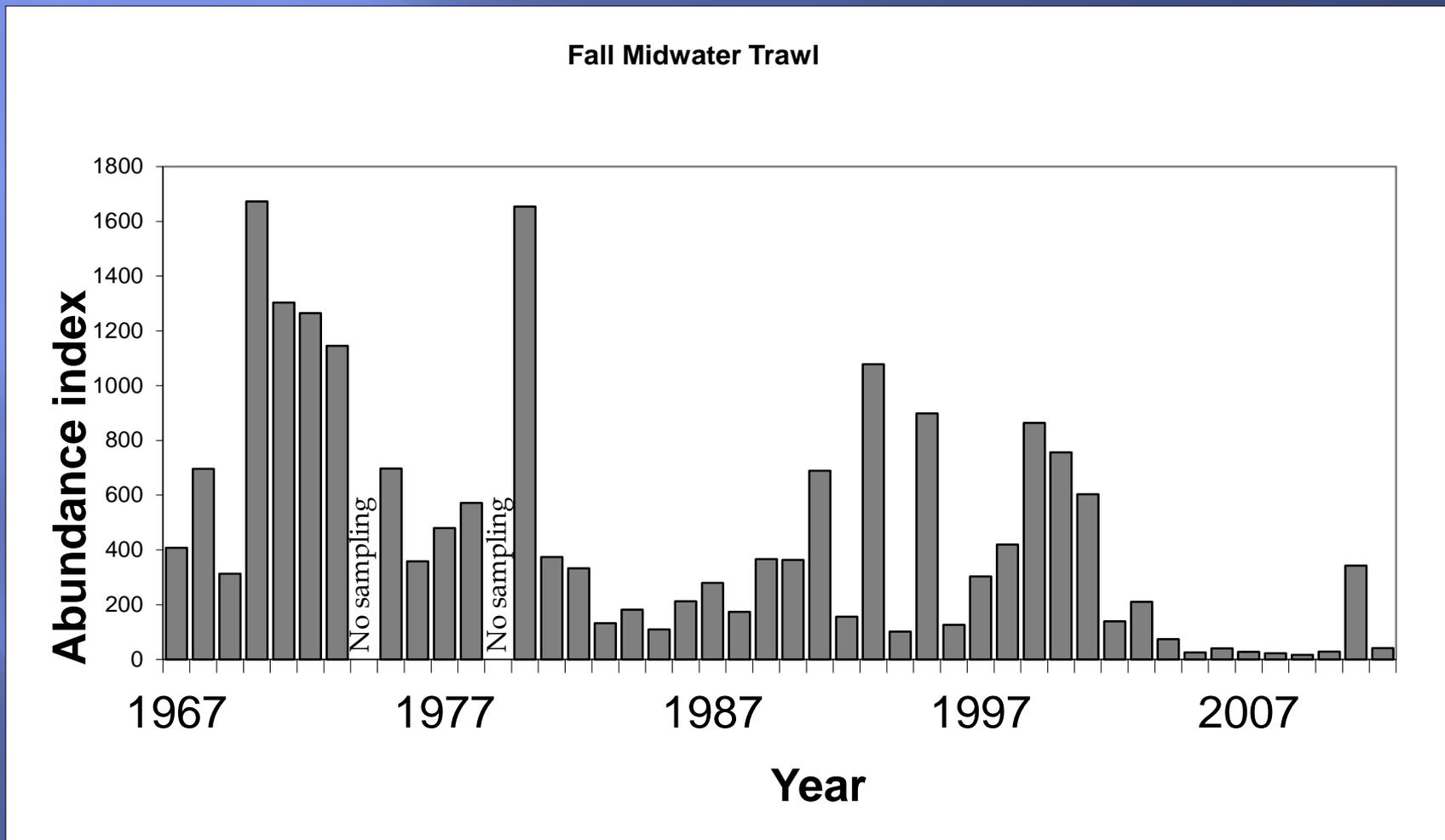
# “Charismatic megafauna”



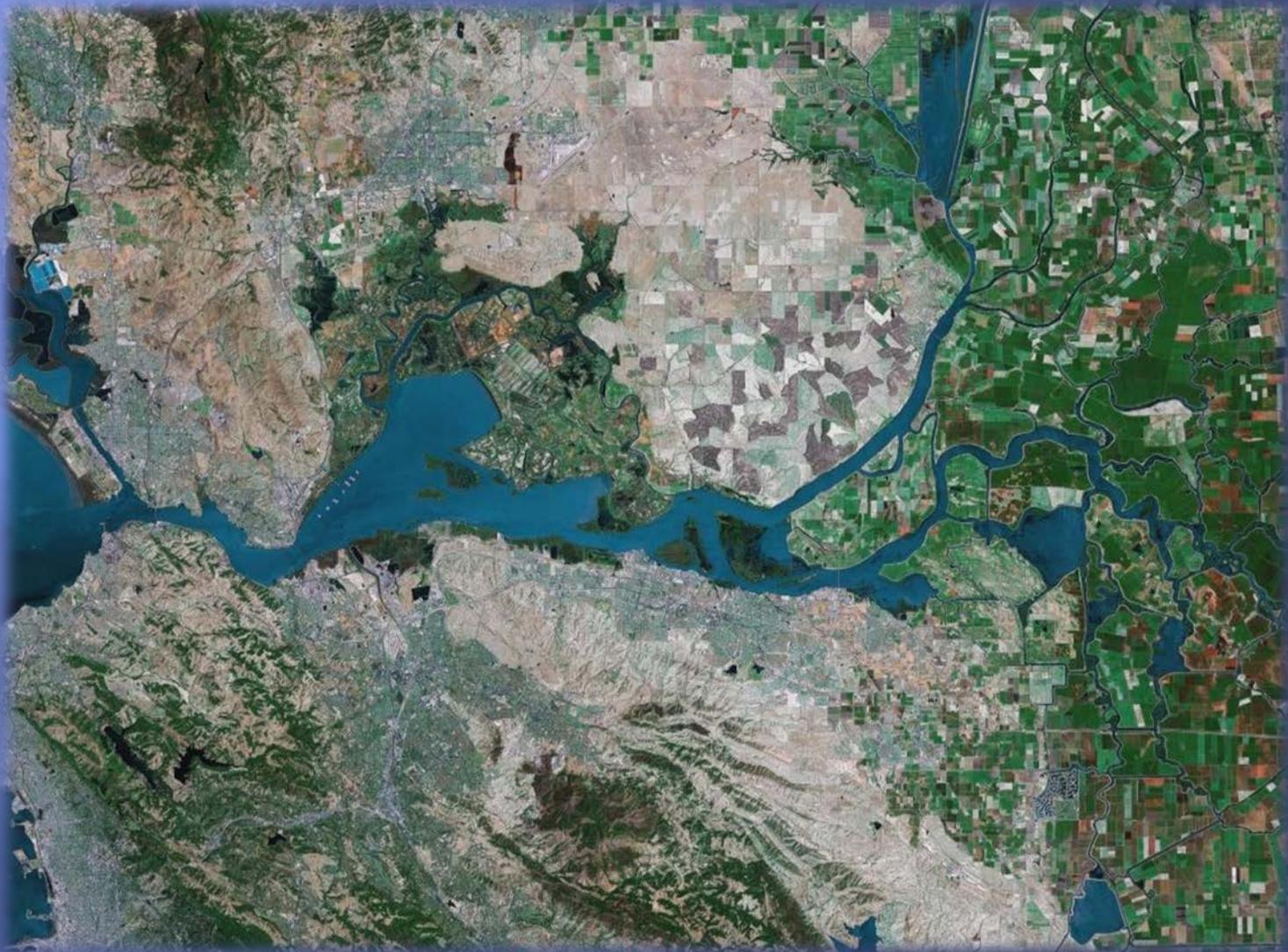
# Delta smelt are not charismatic megafauna



# Delta smelt: one of many declining native species



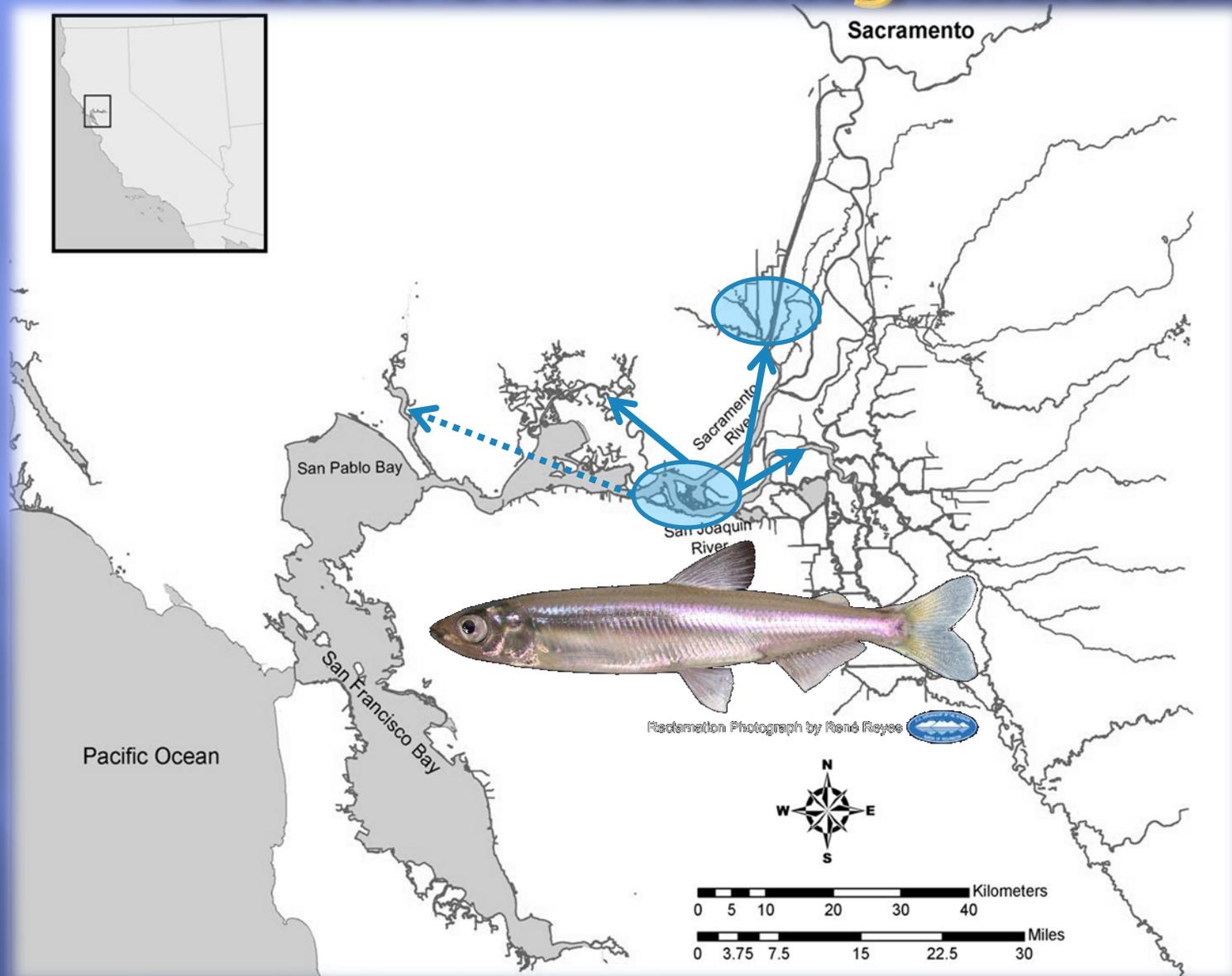
# Delta smelt habitat today



This is what delta smelt habitat looks like when you're in it

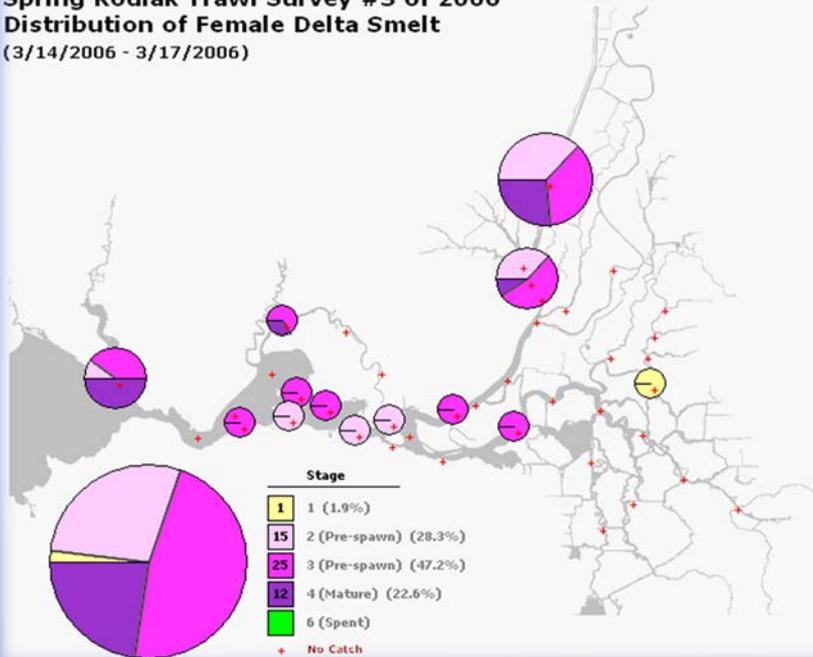


# Delta smelt migration



# Example spawner distributions

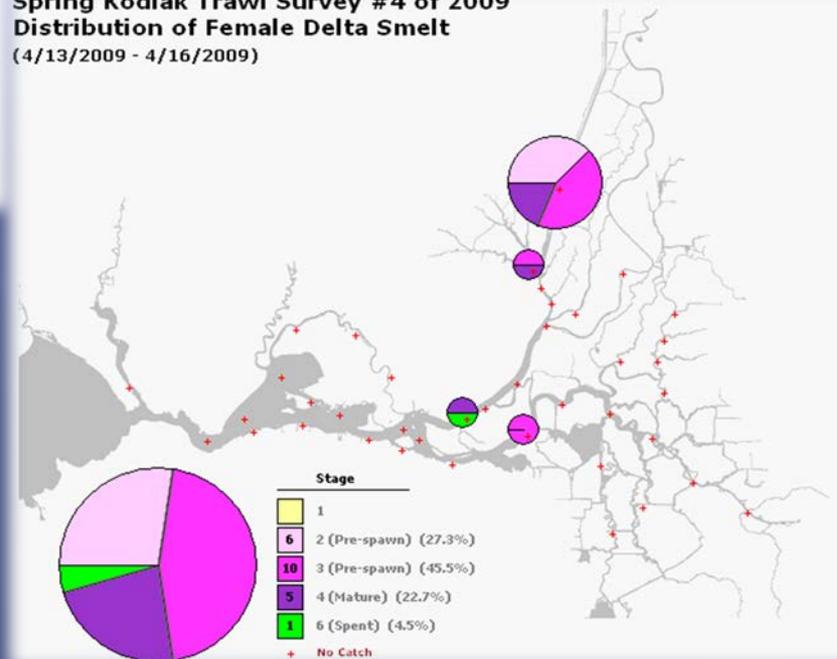
Spring Kodiak Trawl Survey #3 of 2006  
Distribution of Female Delta Smelt  
(3/14/2006 - 3/17/2006)

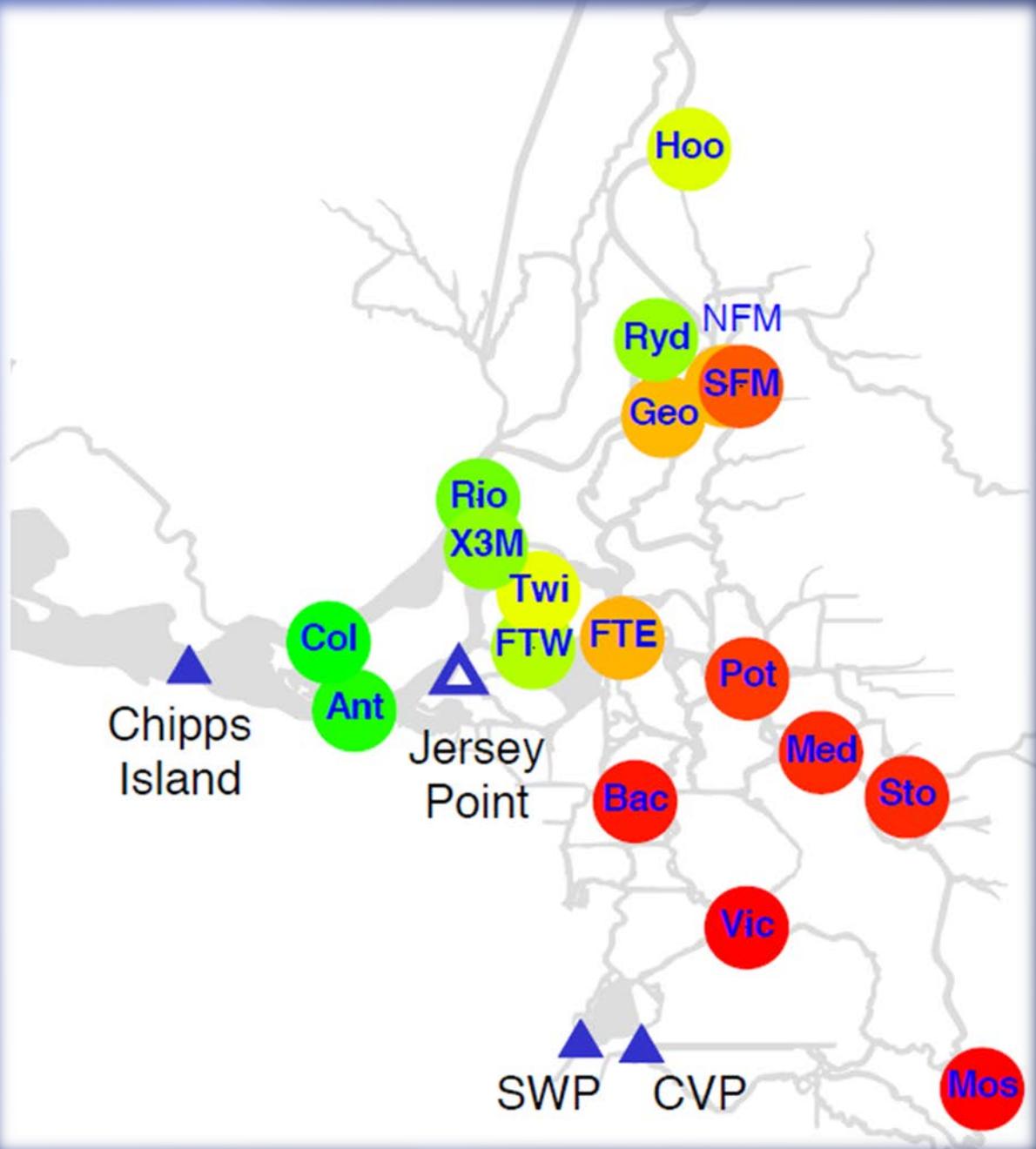


Wet spring

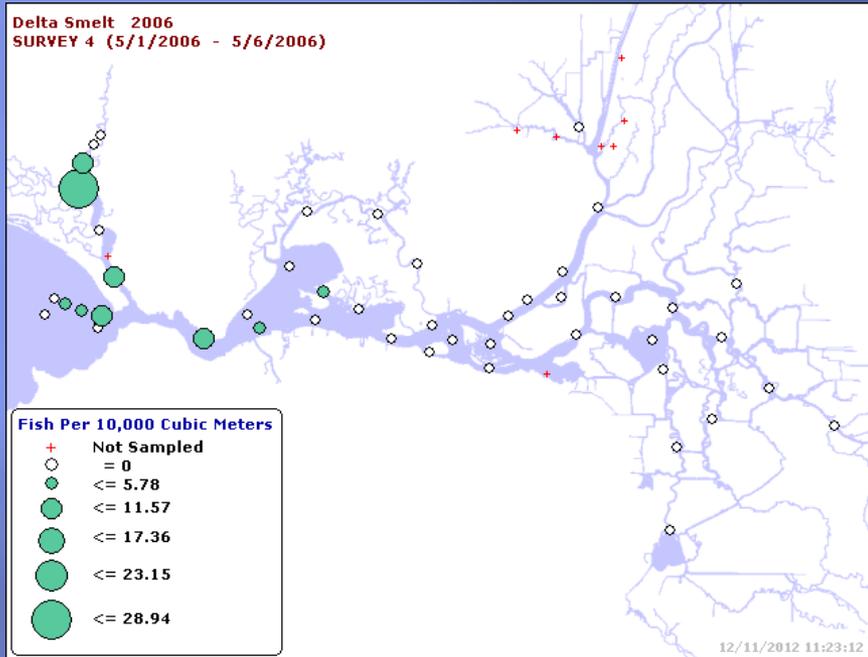
Dry spring

Spring Kodiak Trawl Survey #4 of 2009  
Distribution of Female Delta Smelt  
(4/13/2009 - 4/16/2009)





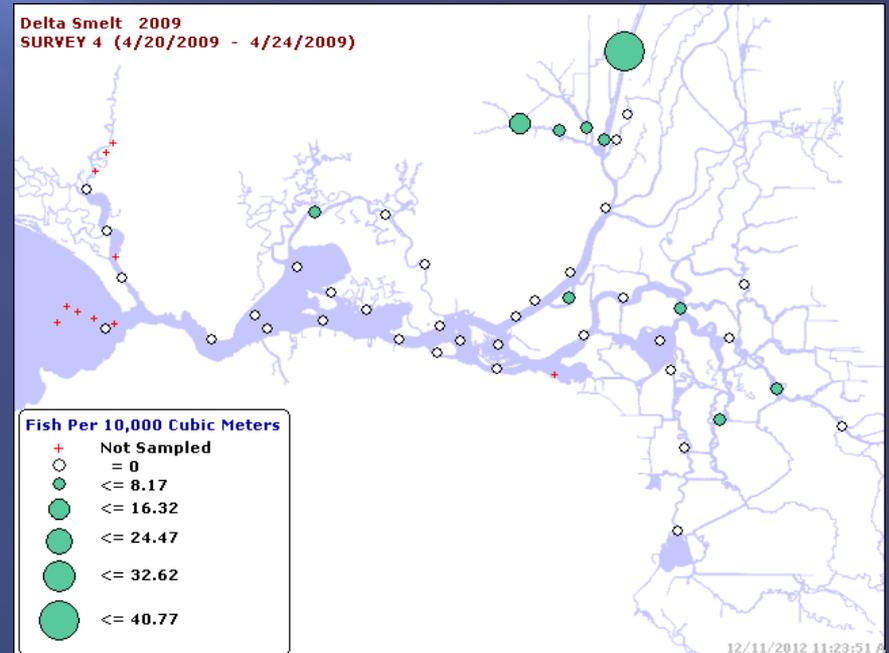
# Example larval distributions



Wet spring



Dry spring



# WHY ARE DELTA SMELT DECLINING?



Reclamation Photograph by René Reyes

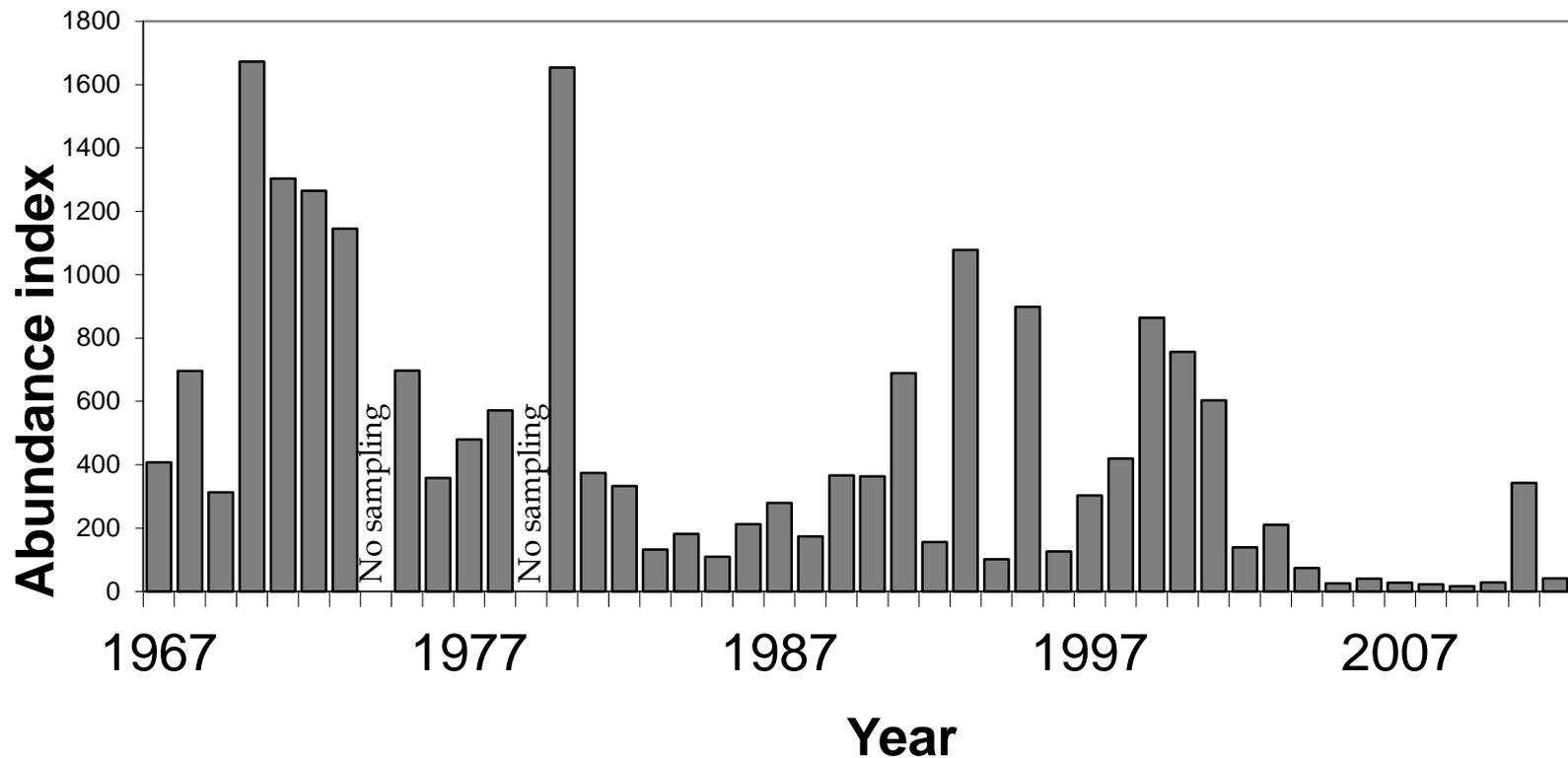


Reclamation Photograph by René Reyes

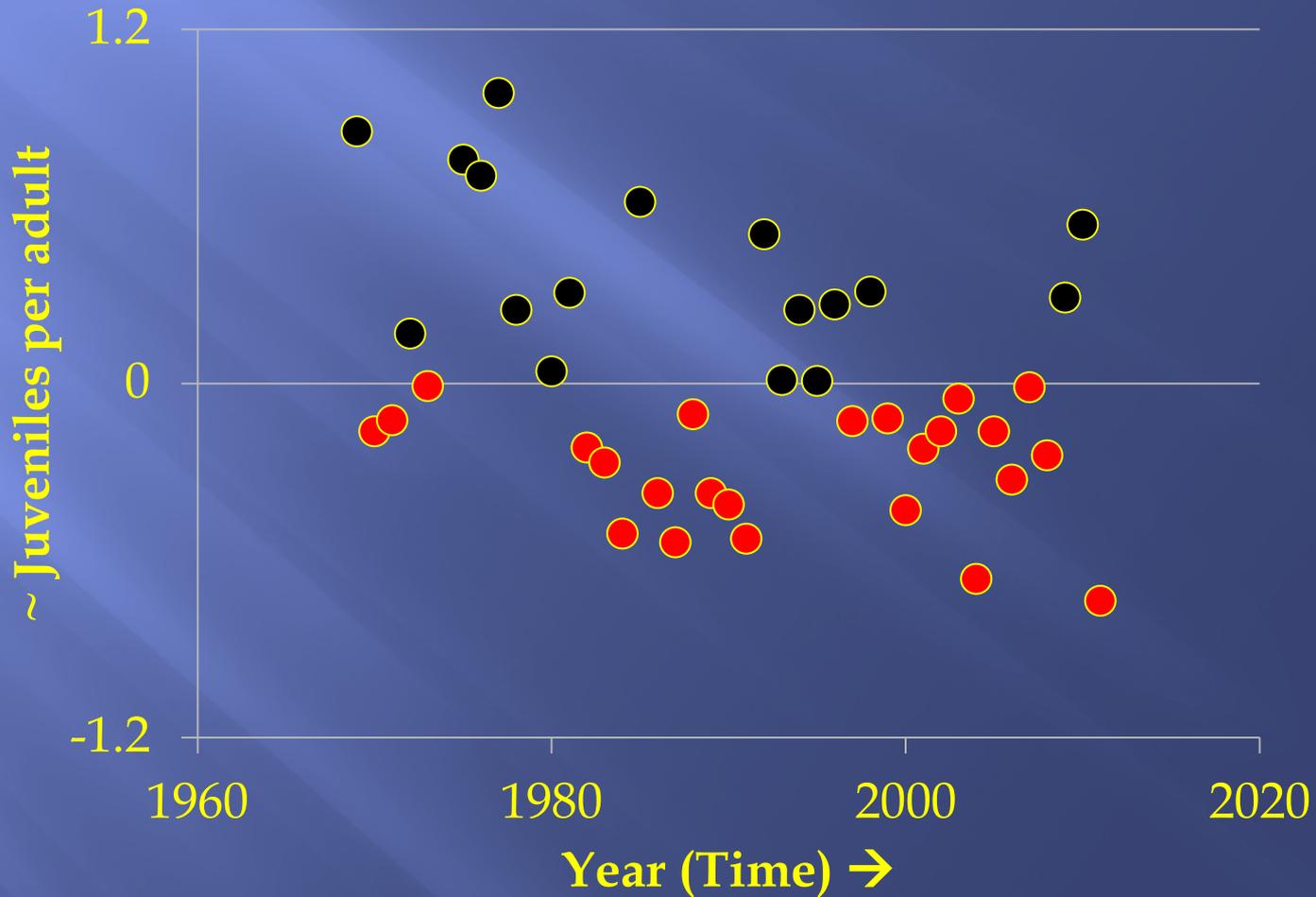


# Fish decline means mortality is greater than production

Fall Midwater Trawl



# The number of young fish per adult has declined



# Why?

- Egg predators?

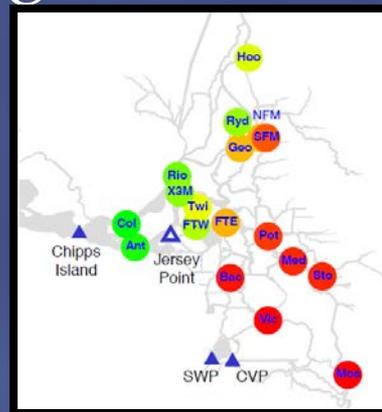


Reclamation Photograph by Rene Reyes 

- Young fish not getting enough to eat?



- Entrainment too high and outflow too low given the above?



# The USFWS State & Federal Water Projects biological opinion: An overview

Jennifer Norris

BDFWO Deputy Field Supervisor



# What is a Biological Opinion?

- ▣ Endangered Species Act 1973
  - Federal actions may not jeopardize listed species or adversely modify critical habitat (Section 7)
  - Take of listed species is prohibited (Section 9)
  - Federal agencies must consult with the Services on their actions
  - NMFS or FWS issues a biological opinion
    - ▣ Jeopardy/adverse modification determination and RPA, if necessary
    - ▣ Incidental take permit and reasonable and prudent measures to minimize take
    - ▣ Intended to allow federal actions and ensure protection of listed species

# Why a CVP/SWP Biological Opinion

- ▣ Delta smelt listed as threatened under ESA (USFWS)
- ▣ Salmon, steelhead, sturgeon listed under ESA (NMFS)
- ▣ Central Valley Project is a federal activity
- ▣ Reclamation consults on coordinated operations of the state and federal water projects with NMFS and FWS
- ▣ CVP/SWP BiOp
  - Determines whether project operations avoid jeopardy
  - Provides incidental take authorization

# 2008 Biological Opinion

- ▣ Project operations determined likely to jeopardize delta smelt and adversely modify critical habitat
  - Reduced numbers and increased stressors mean higher risk of extinction
  - Pumps lead to direct mortality due to entrainment
  - Reduced flows leading to reduced habitat quality and quantity at key times of year

# 2008 Smelt Reasonable and Prudent Alternative

- ▣ Designed to ensure that operations of the state and federal water projects do not jeopardize delta smelt or adversely modify its critical habitat
- ▣ Five Components
  1. Protection of adults
  2. Protection of larvae and juveniles
  3. Improve rearing habitat
  4. Habitat restoration
  5. Monitoring and reporting

# Litigation History

State and federal water project BiOps	Litigated?
1995 (No Jeopardy)	No
2004 (No Jeopardy)	Yes - NRDC
2005 (No Jeopardy)	Yes - NRDC
2008 (Jeopardy)	Yes - DWR, water contractors

# Litigation on 2008 BiOp

- ▣ USFWS sued in district court by DWR and state and federal water contractors
- ▣ In 2011, BiOp found unlawful
- ▣ BiOp remanded without vacatur
- ▣ New BiOp required by December 2013
- ▣ Reclamation must conduct NEPA on the RPA
- ▣ Request for 3 year time extension to focus on BDCP and collaborative science

Questions?

# RPA AND THE ROLE OF THE SMELT WORKING GROUP

Erin Gleason  
Fish and Wildlife Biologist



# Biological Opinion

## RPA Components

- ▣ RPA Component 1: Protection of Adult Delta Smelt
- ▣ RPA Component 2: Protection of Larval & Juvenile Delta Smelt
- ▣ RPA Component 3: Improve Habitat for Delta Smelt Growth and Rearing
- ▣ RPA Component 4: Habitat Restoration
- ▣ RPA Component 5: Monitoring and Reporting

# Protection of Delta Smelt: RPA Components 1 and 2

## ▣ RPA Component 1:

### Adult Delta Smelt Entrainment Protection

- Action 1-Spawning movement during winter pulse
- Action 2-Spawning movement after winter pulse

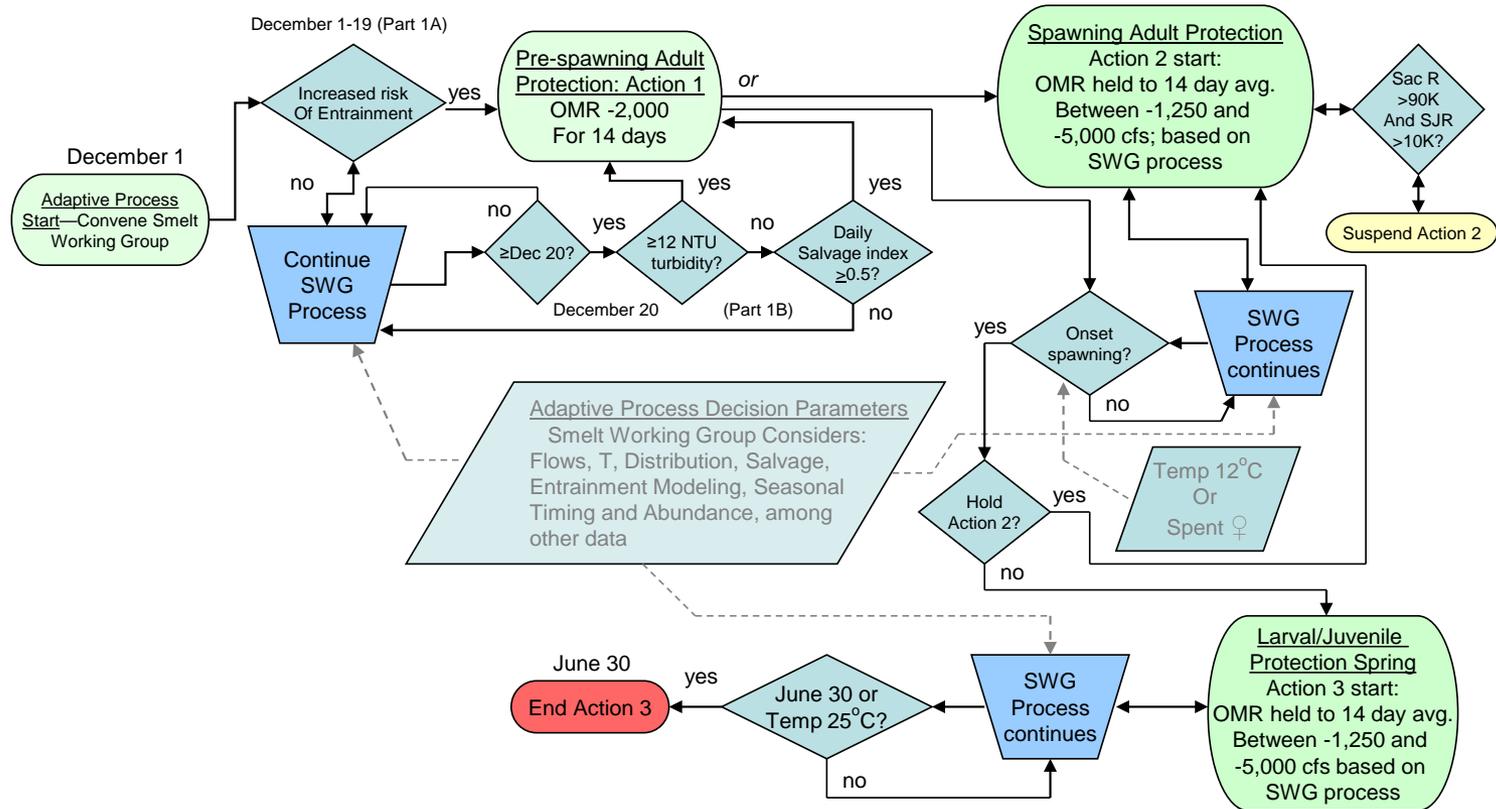
## ▣ RPA Component 2:

### Larval & Juvenile Delta Smelt Entrainment Protection

- Action 3-Entrainment of larval delta smelt

# Helpful?

## Biological Opinion Reasonable and Prudent Alternative Actions to Protect Delta Smelt

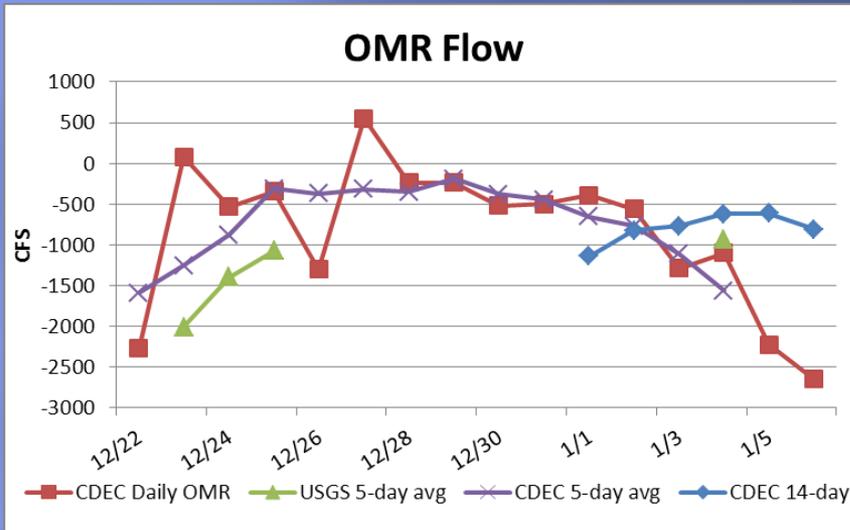


# Smelt Working Group

The SWG consists of representatives from:

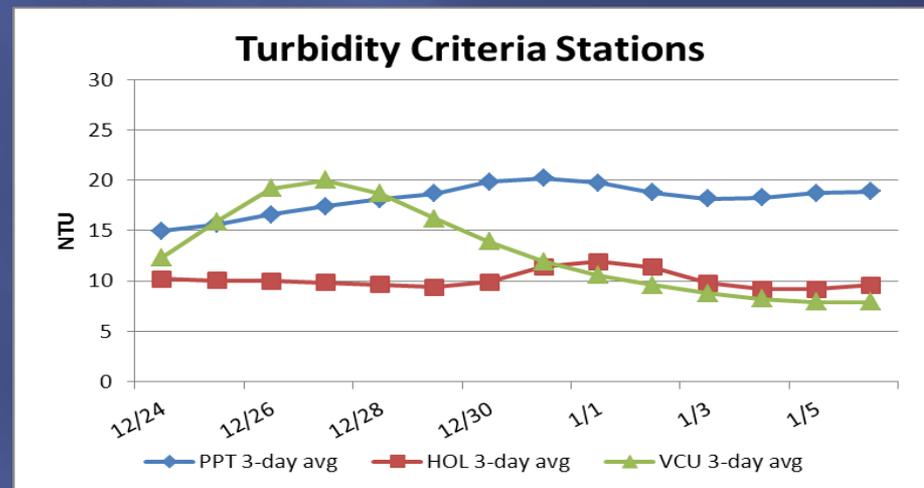
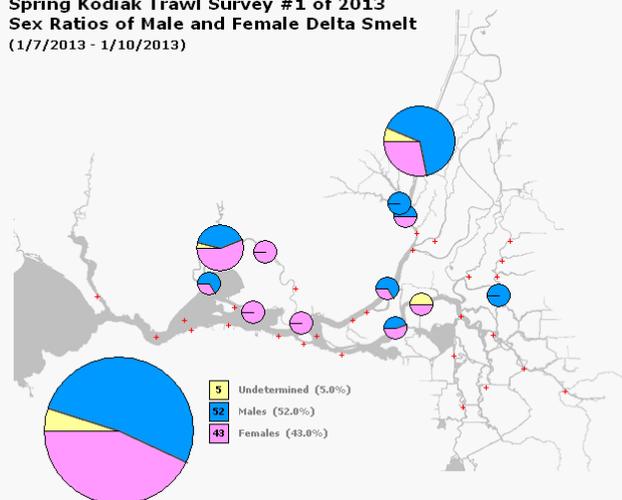
- California Department of Fish and Wildlife
- U.S. Fish and Wildlife Service
- California Department of Water Resources
- U.S. Bureau of Reclamation
- U.S. Environmental Protection Agency
- National Marine Fisheries Service

# Smelt Working Group



Date	Catch	Salvage	Seasonal Adult	Seasonal Juvenile
1/1/2013	0	0	86	0
1/2/2013	1	4	90	0
1/3/2013	0	0	90	0
1/4/2013	0	0	90	0
1/5/2013	0	0	90	0
1/6/2013	0	0	90	0
1/7/2013	4	16	106	0
1/8/2013	0	0	106	0
1/9/2013	0	0	106	0
1/10/2013	0	0	106	0
1/11/2013	0	0	106	0
1/12/2013	0	0	106	0
1/13/2013	2	6	112	0
1/14/2013	0	0	112	0

Spring Kodiak Trawl Survey #1 of 2013  
Sex Ratios of Male and Female Delta Smelt  
(1/7/2013 - 1/10/2013)



# SWG Recommendation

SMELT WORKING GROUP  
Monday, January 14, 2013

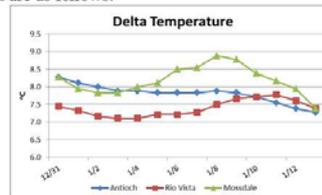
## Meeting Summary:

The Working Group recommended that OMR flow should be set at a 14-day average flow of no more negative than -2,500 cfs with a corresponding 5-day average flow of no more negative than -3,125 cfs. Implementation of Action 2 began January 2, 2013, following immediately the end of Action 1. The Working Group will continue to monitor salvage, turbidity, and other conditions, and will reconvene Tuesday January 22.

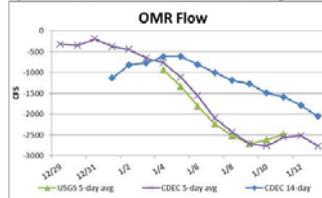
## Reported Data:

### 1) Current environmental data:

- **Water temperatures** are as follows:



- **OMR:** USGS tidally-averaged daily OMR flow and 5-day average OMR flow on January 11 was -2,189 cfs and -2,485 cfs, respectively. CDEC 5-day OMR flow and 14-day average OMR flow as of January 13 is -2,777 cfs and -2,057 cfs, respectively.



- **Flow:** Sacramento River inflow is 23,900 cfs and San Joaquin River is 1,850 cfs.  $X_2$  calculation from CDEC is at 63km. The graphs below show the most recent trends in Delta hydrology and water quality that were evaluated by the Working Group. Of special note is the fact that during the period 1/8 through 1/13 CVP exports were kept at low levels due to facility maintenance; however, the average daily combined export level remained fairly consistent between 4,000 and 5,000 cfs.

# USFWS Determination



Early December 2012

# Rain FutureCast

MON 8:00 AM

Seattle

Eugene

San Francisco



- *December 17, 2012:*  
Initiate Action 1
- *December 31, 2012:*  
Maintain Action 1 flows
- *January 4, 2013:*  
Allow increased water exports

Back to Jennifer . . . .

# Action 4: the Fall Action

- ▣ Designed to increase access to high quality habitat in fall
- ▣ Designed to increase fall flow variability
- ▣ Implemented in above normal and wet years only
- ▣ Requires adaptive management to review and potentially modify the action

# Action 4: the Fall Action

- ▣ During September and October set X2 position at an average of
  - 74 km following wet years
  - 81 km following above normal years
- ▣ During November pass inflow through reservoirs to augment outflow
- ▣ Implemented in 2011\*
- ▣ FLaSH studies

# Closing thoughts

- ▣ 2008 Biological Opinion designed to allow project operations while protecting delta smelt
- ▣ Implemented in real time to allow flexibility
- ▣ Remains in effect until a new opinion is in place
- ▣ FWS committed to working with our partners and developing collaborative science