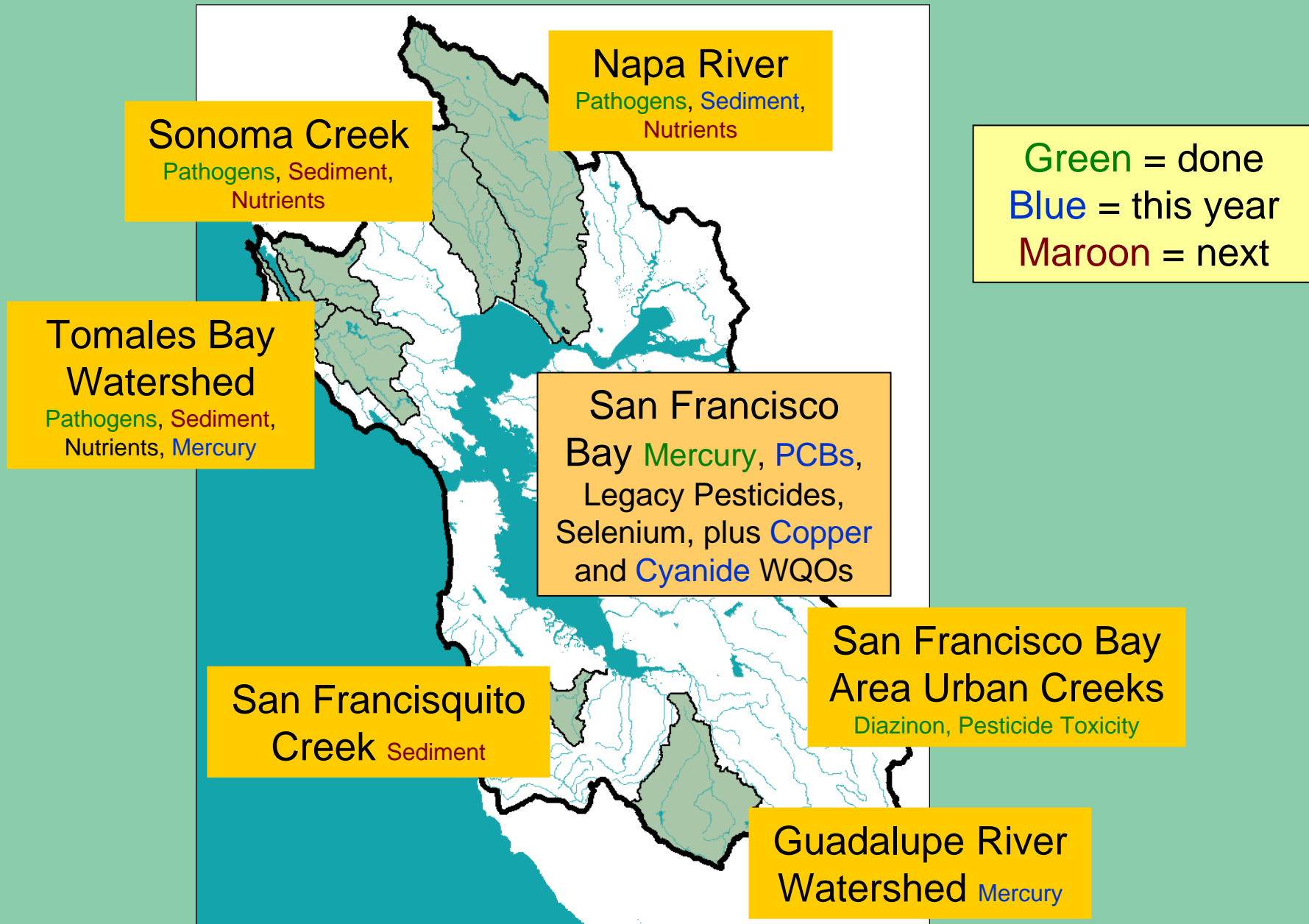




# Update on TMDLs and Water Quality Objectives

Tom Mumley  
San Francisco Bay  
Regional Water Quality Control Board

# SF Bay Region TMDL Projects



# Mercury Water Quality Objectives and TMDL

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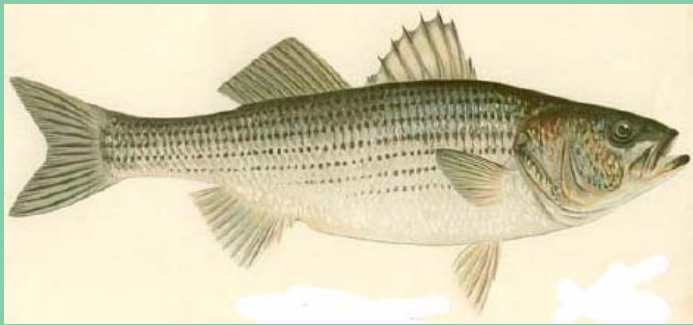
 Basin Plan Amendment adopted in August 2006

- Two new water quality objectives
- Revised TMDL

 Adaptive Implementation Plan

- Mercury in bay sediments
- Methylmercury studies

# “New” Mercury Water Quality Objectives for SF Bay



**0.2 ppm mercury**  
in large predator fish



**0.03 ppm mercury**  
in prey fish

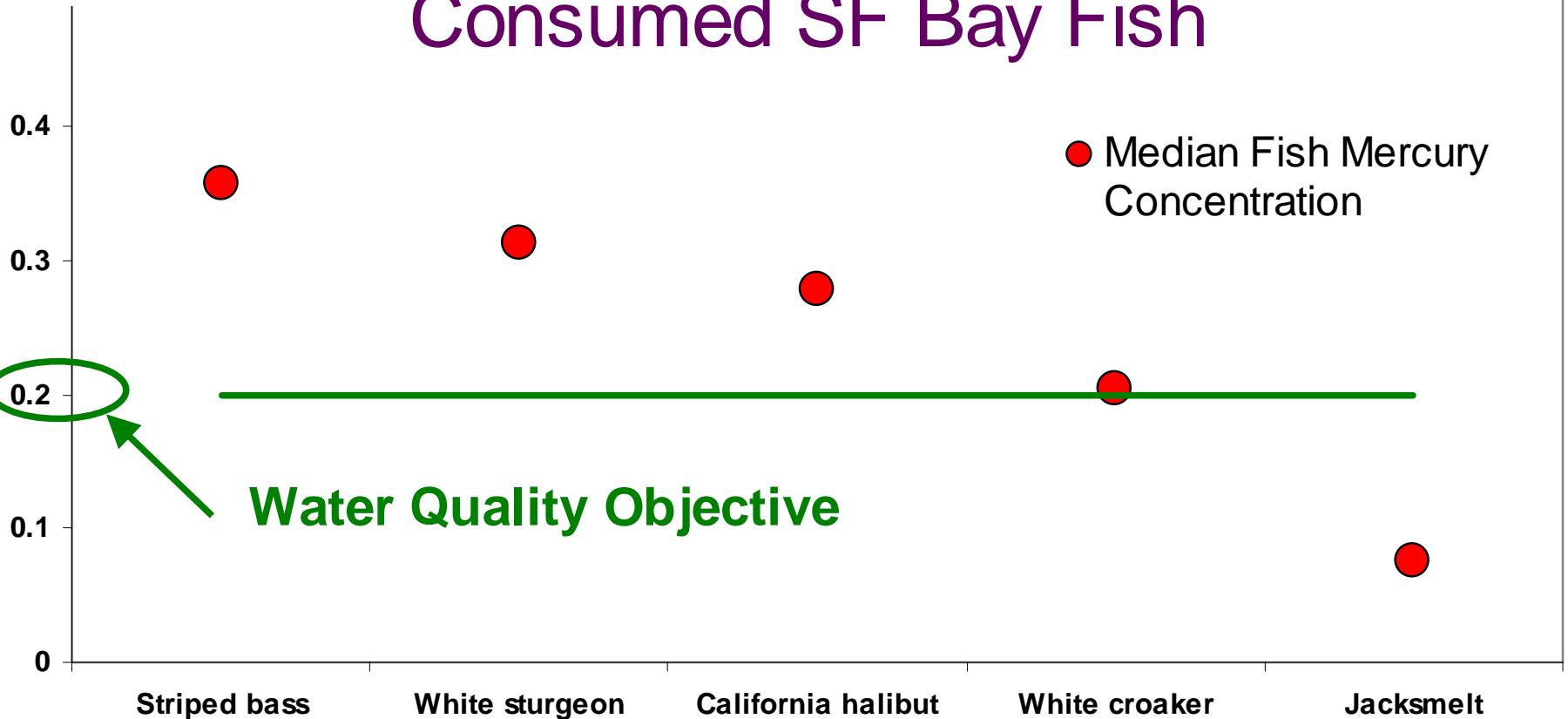


California least tern



# Mercury in Commonly Consumed SF Bay Fish

Mercury  
(ppm)



# PCBs TMDL

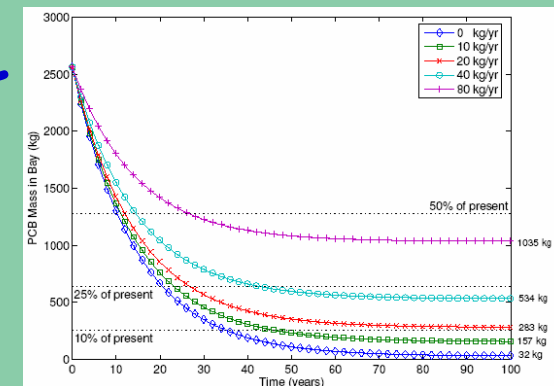
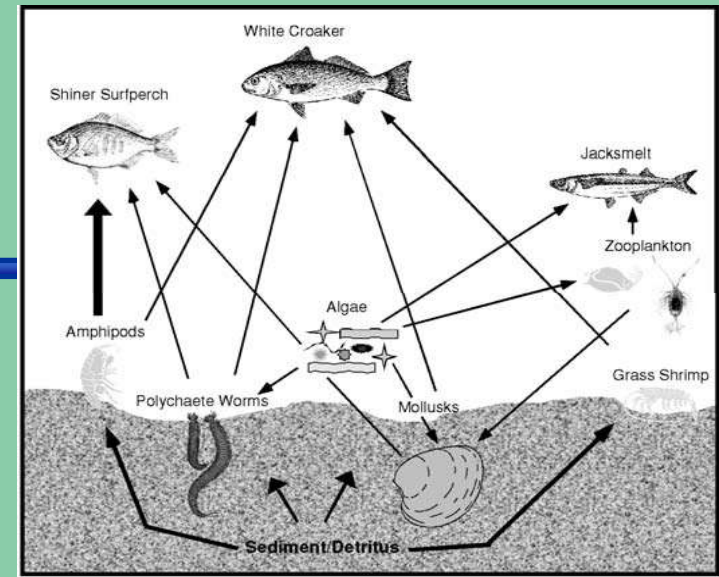
🐟 Target =  $10 \mu\text{g/kg ww}$   
in fish (white croaker)

🐟 Includes dioxin-like PCBs

🐟 Food web model  $\rightarrow 1 \mu\text{g/kg}$  in sediment

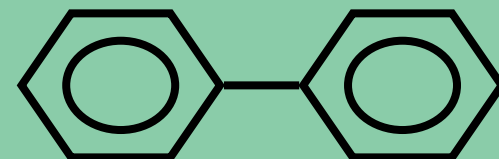
🐟 Mass balance model  $\rightarrow 10 \text{ kg/yr}$

🐟  $10 \text{ kg/yr} \approx 300 \text{ g/day TMDL}$



# PCBs TMDL Next Steps

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 Allocate 10 kg/yr to sources

- Urban runoff load reduction (40 → 2 kg/yr?)

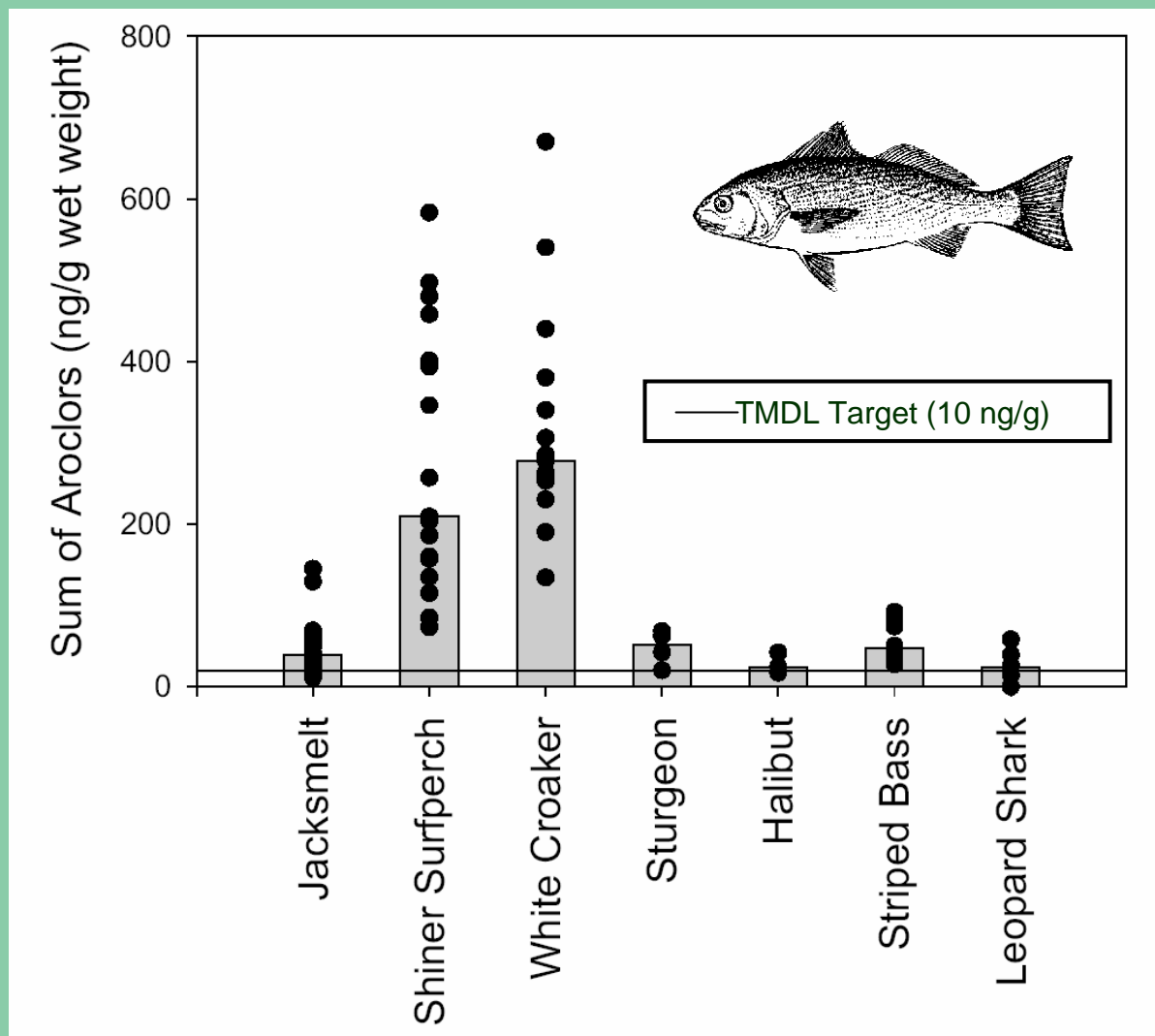
 Adaptive implementation plan

- Workshop in Oct/Nov 2006

 Basin Plan amendment package

- Public Notice Jan/Feb 2007
- Water Board hearing in April/May 07


# PCBs in SF Bay Fish




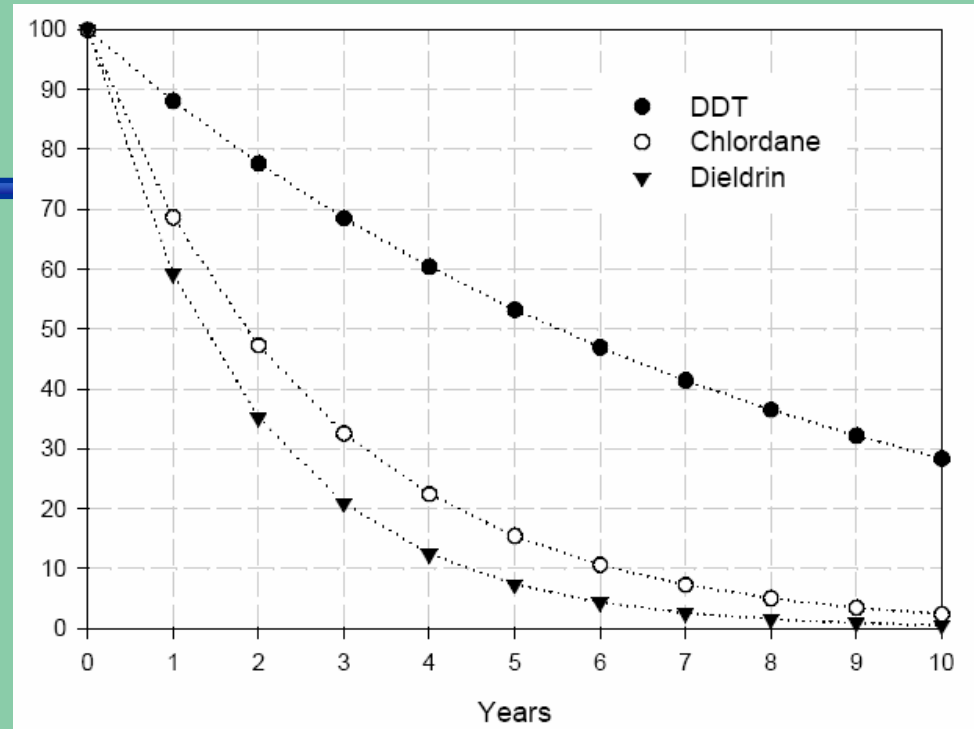


# Legacy Pesticides

 Project Plan  
forthcoming

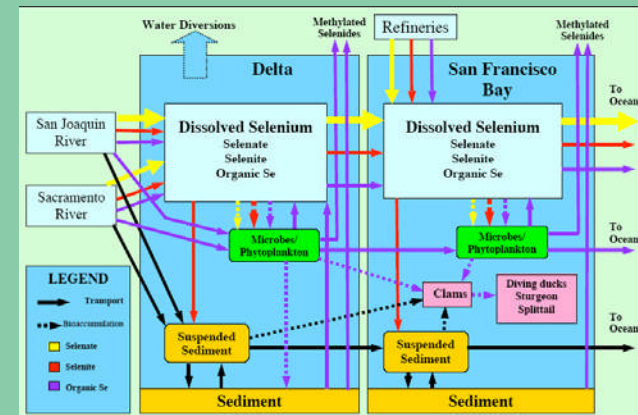
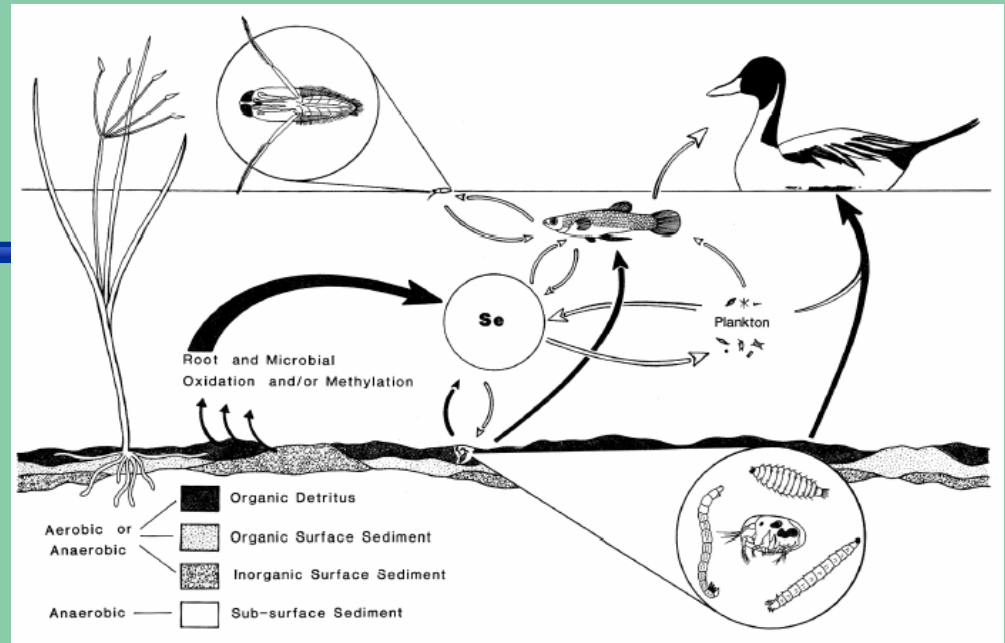
 Piggyback on  
PCBs TMDL

 Implementation  
alternatives

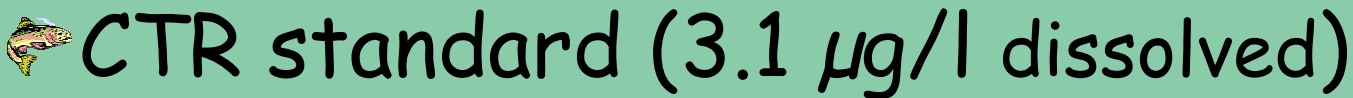


# Selenium TMDL

- Complex biogeochemistry
- Listing based on duck consumption advisory
- Fish tissue water quality objective forthcoming
- Project Plan forthcoming



# Copper Water Quality Objectives



- Met in bay No of Dumbarton Bridge (barely)
- Driven by *M. edulis* (blue mussel)

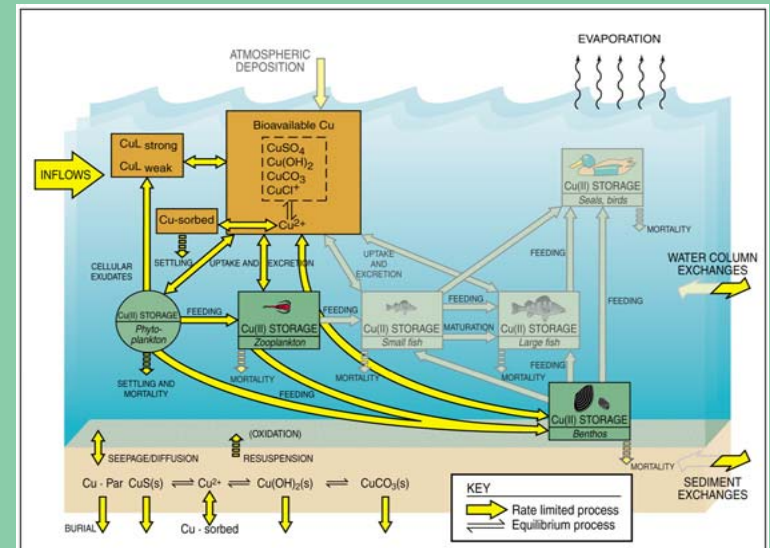


- New *M. edulis* data = ↓
- Water Effect Ratio = ↑

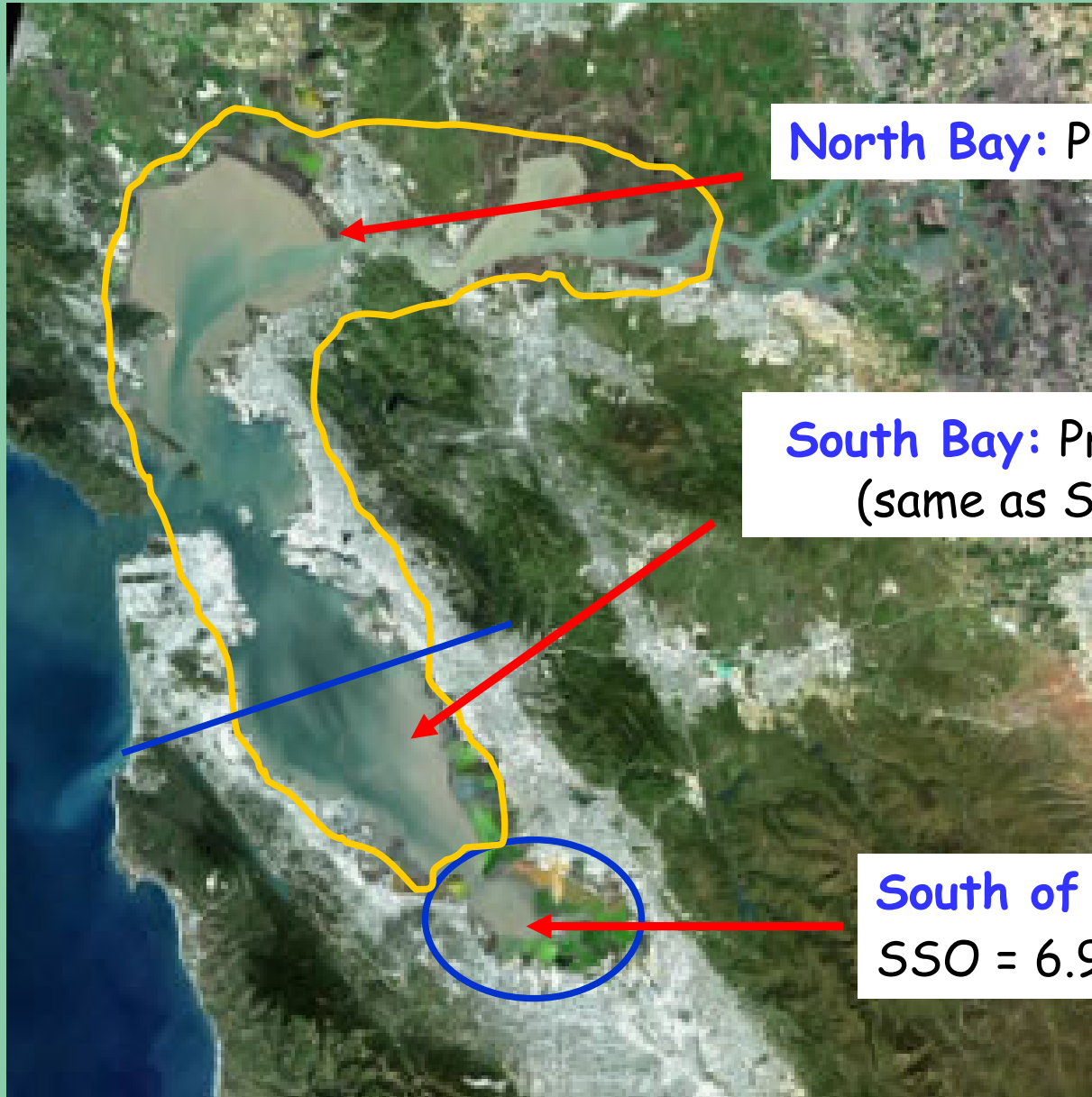
# Dec 06 - CEQA Workshop

# Jan 07 - Public Notice

# March 07 - Hearing



# Copper Site Specific Objectives (SSOs)



**North Bay:** Proposed SSO =  $6.0 \mu\text{g/l}$

**South Bay:** Proposed SSO =  $6.9 \mu\text{g/l}$   
(same as South of Dumbarton)

**South of Dumbarton Bridge:**  
SSO =  $6.9 \mu\text{g/l}$  dissolved copper

# Cyanide Water Quality Objectives

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## Current National Toxics Rule criteria

- Driven by Eastern Rock crab toxicity data
- Acute and chronic values = 1 µg/l
- Met in bay




## Wastewater compliance challenge

- Byproduct of disinfection

**1985  
Marine  
Water  
Quality  
Criteria**

# Cyanide Water Quality Objectives

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 Proposed objectives based on west coast crabs toxicity data

- Acute value =  $9.4 \mu\text{g/l}$  (one-hour average)
- Chronic value =  $2.9 \mu\text{g/l}$  (4-day average)

 Oct 06 testimony hearing  
Dec 06 adoption hearing



# Pollutants of Concern

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 Exotic species ✓

 Emerging pollutants ✓

- Fire retardants (PBDEs)
- Perflourinated compounds
- Pharmaceuticals

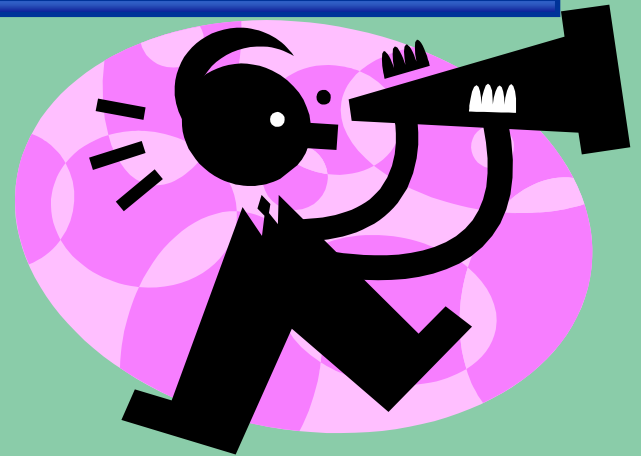
 Pesticides ?

- Diazinon replacements → pyrethroids

 Trash ✓

 PAHs ?

 Nutrients ?





For TMDL info:

[www.waterboards.ca.gov/sanfranciscobay/  
tmdlmain.htm](http://www.waterboards.ca.gov/sanfranciscobay/tmdlmain.htm)

For Basin Plan (WQOs) info:

[www.waterboards.ca.gov/sanfranciscobay/  
basinplan.htm](http://www.waterboards.ca.gov/sanfranciscobay/basinplan.htm)

