

# **South Bay Trace Contaminants: Recent Findings from the Regional Monitoring Program**

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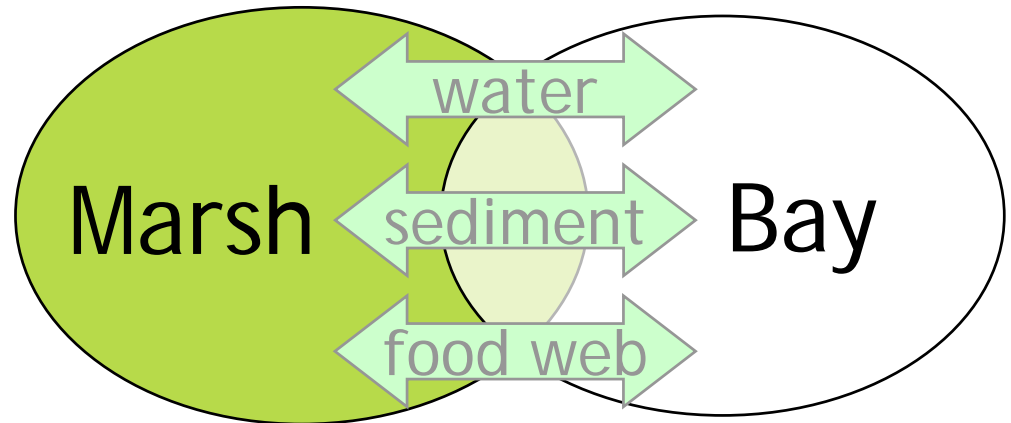
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# Watershed-Marsh-Bay Linkage



Astronaut photograph of the South Bay Salt Ponds. Image courtesy of the Image Analysis Laboratory, NASA Johnson Space Center.



Potential for regional impacts of marshes on the Bay

- Methylmercury export
- Increased erosion

Potential for Bay influence on marshes

- Inputs to marshes

# RMP Status and Trends Monitoring

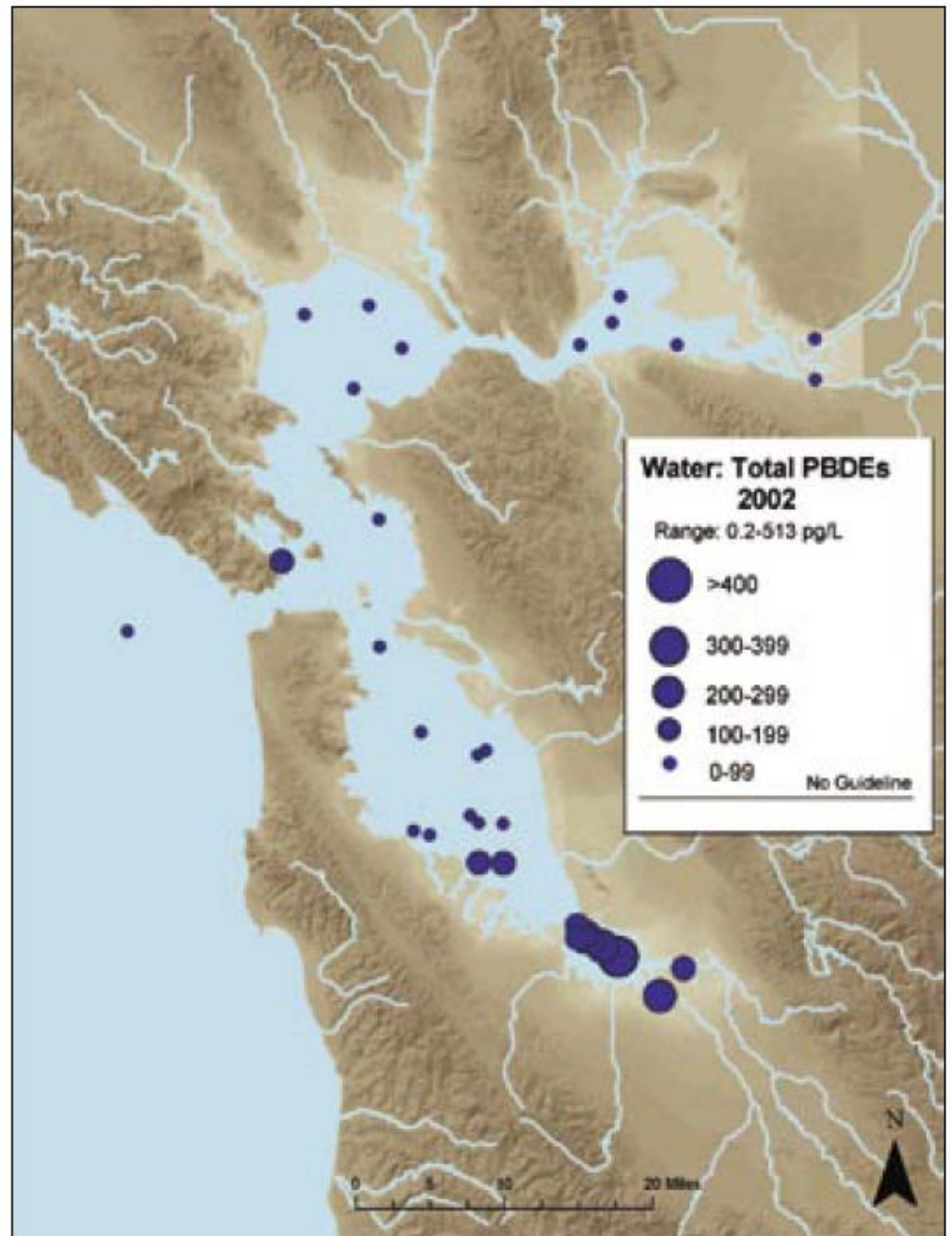
- Water
- Sediment
- Bivalves
- Sport fish
- Bird eggs (pilot study)
- Small fish (pilot study)
- Toxicity testing
- Episodic Toxicity
- Sediment dynamics (USGS)
- Conventional water quality (USGS) – Jim Cloern





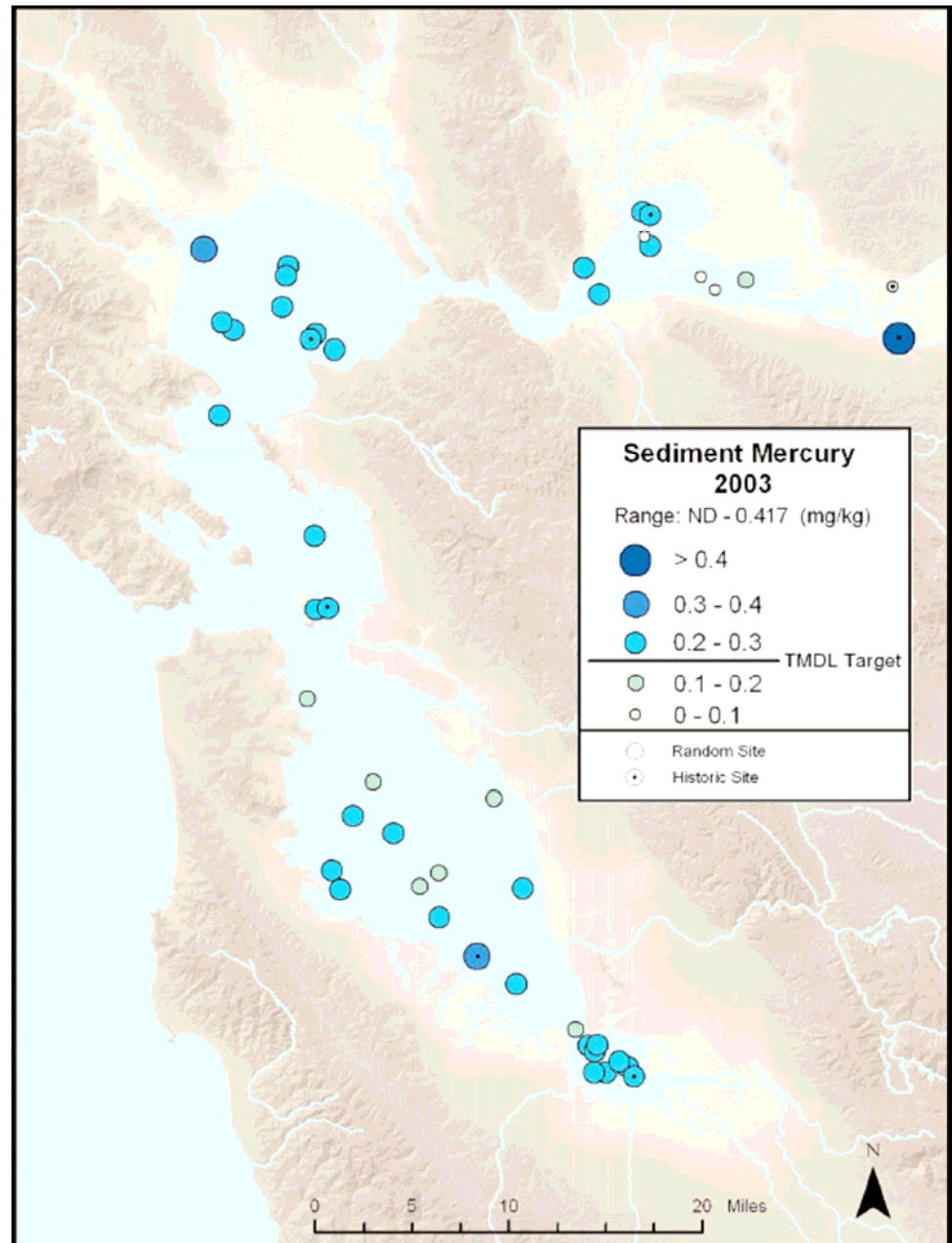
## Water PBDEs, 2002

- A new input to the ecosystem
- Relatively high in South Bay
- Municipal wastewater and urban runoff are sources
- Will be entering the marshes

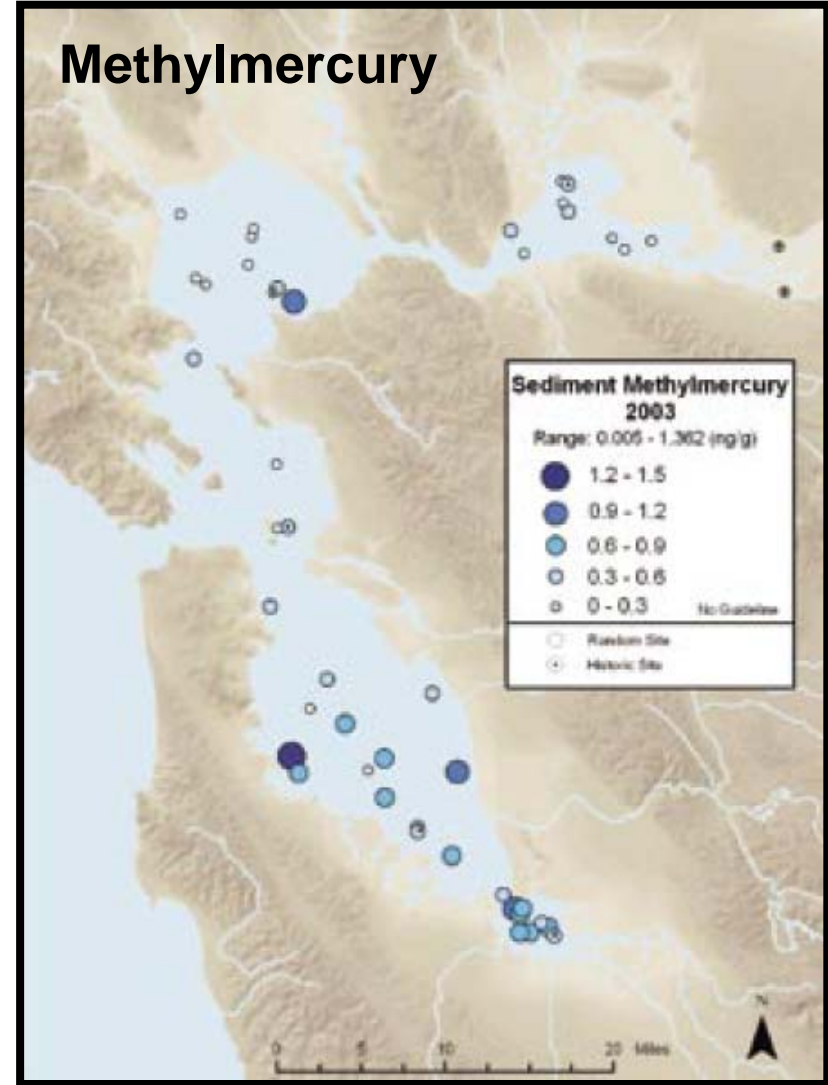
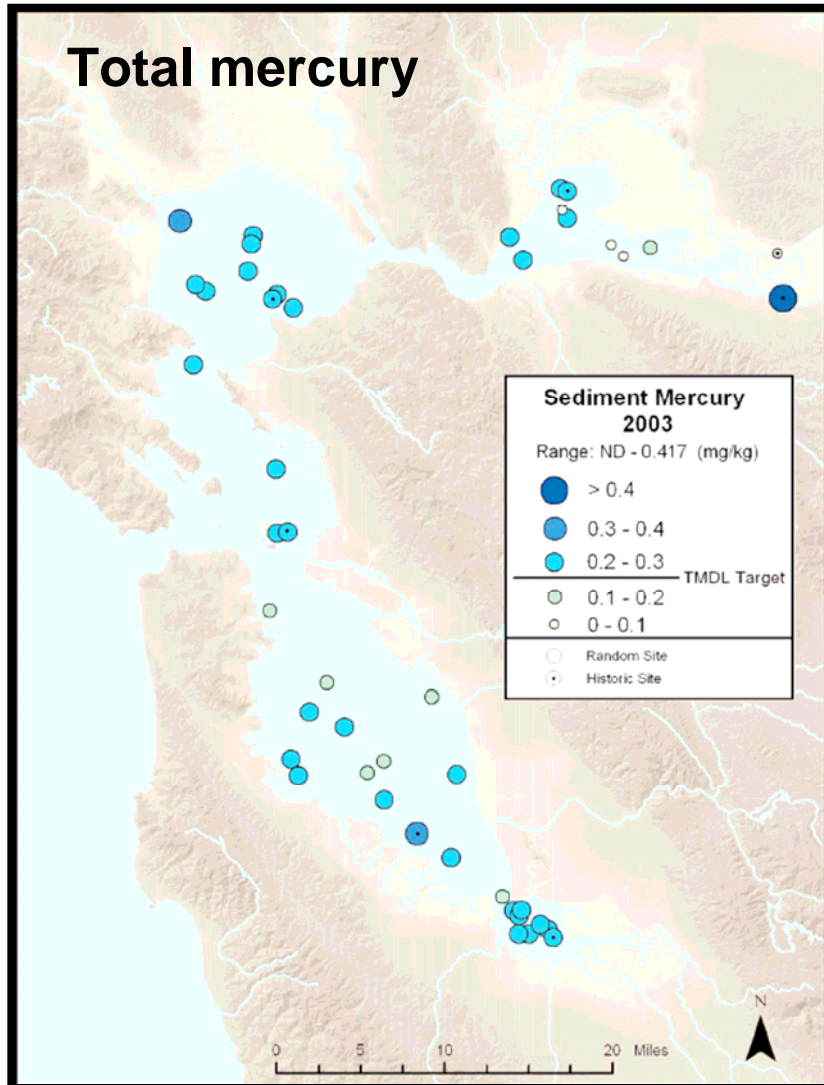


# Sediment Mercury, 2003

- Total mercury is ubiquitous
- Most sites above the TMDL target
- Most between 0.2 and 0.4 ppm



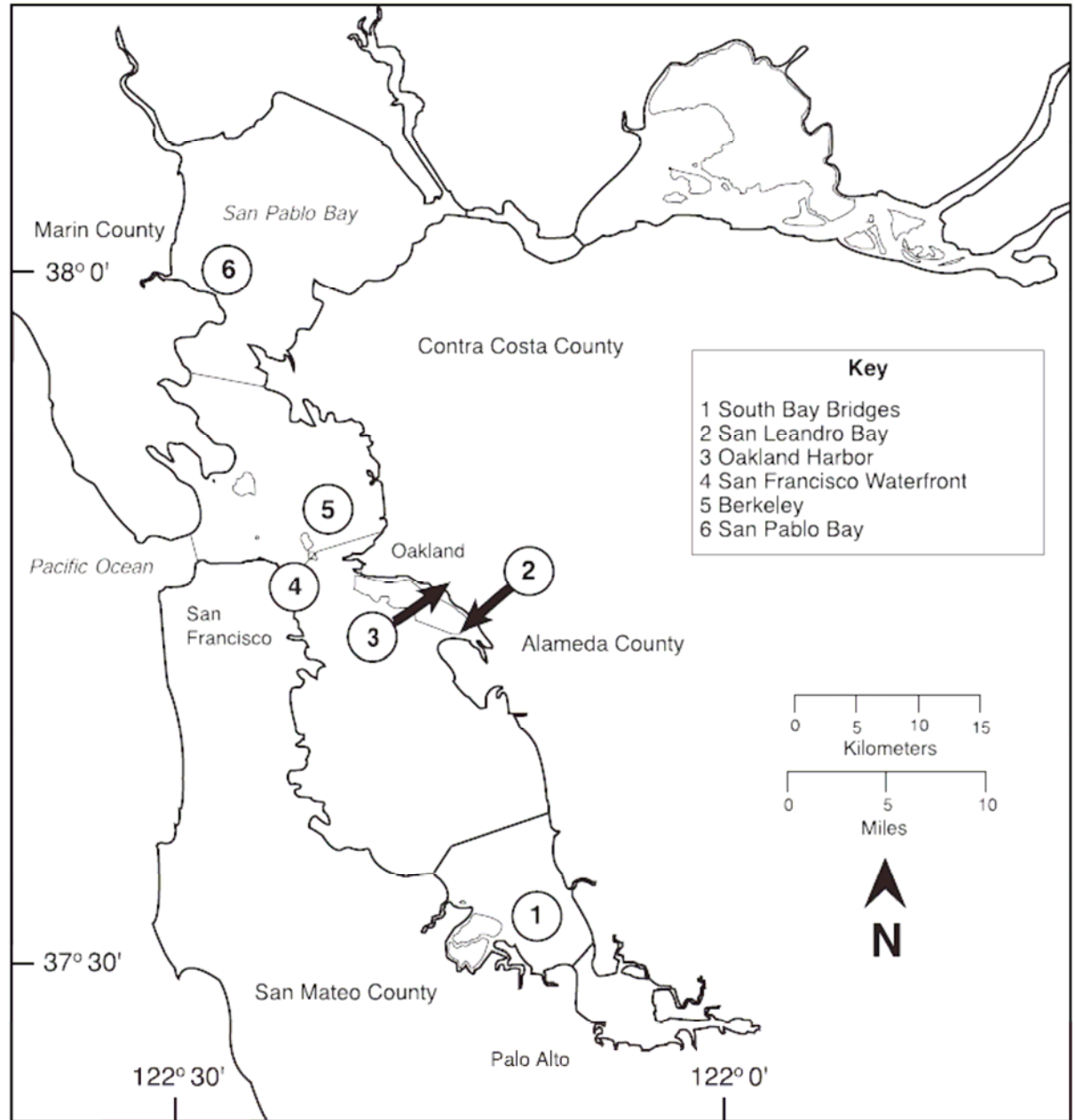
**Sediment methylmercury is 1) relatively high in the South Bay and 2) not well correlated with total mercury**





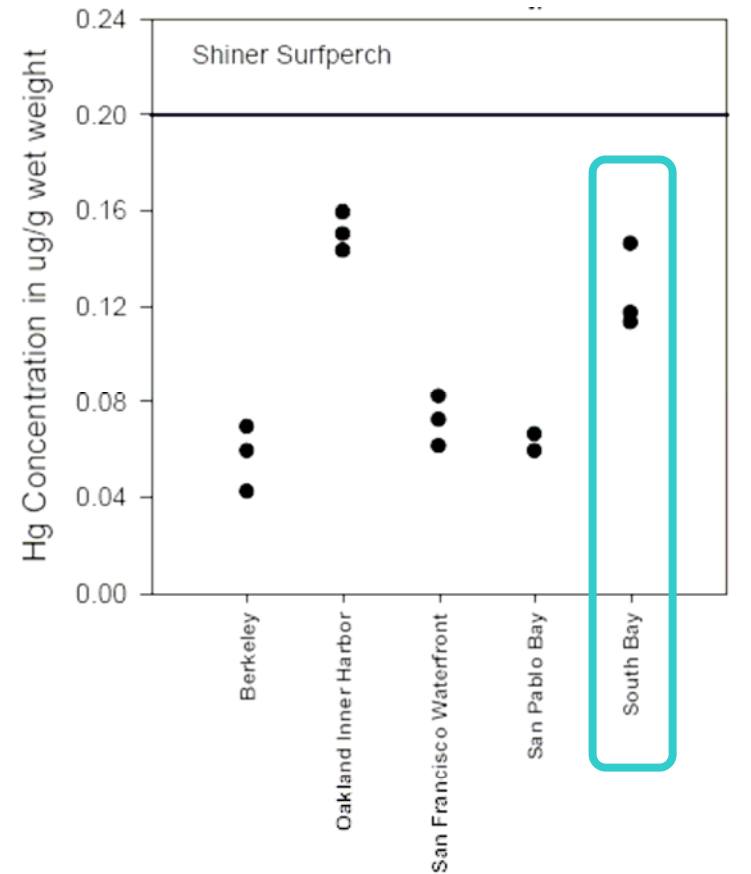
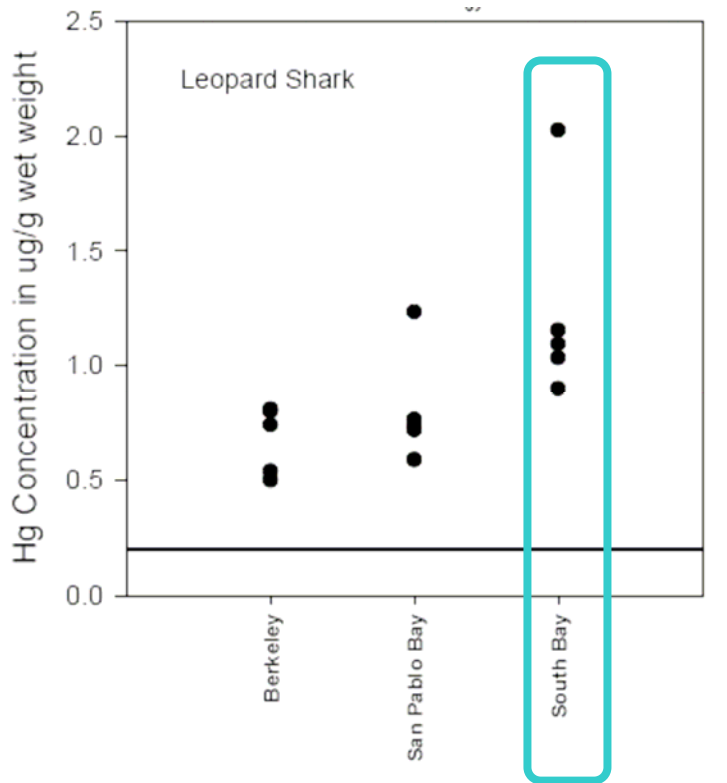
# Sport Fish

- Key impairment indicator
- Also indicate spatial and temporal trends



# Sport Fish Mercury, 2003

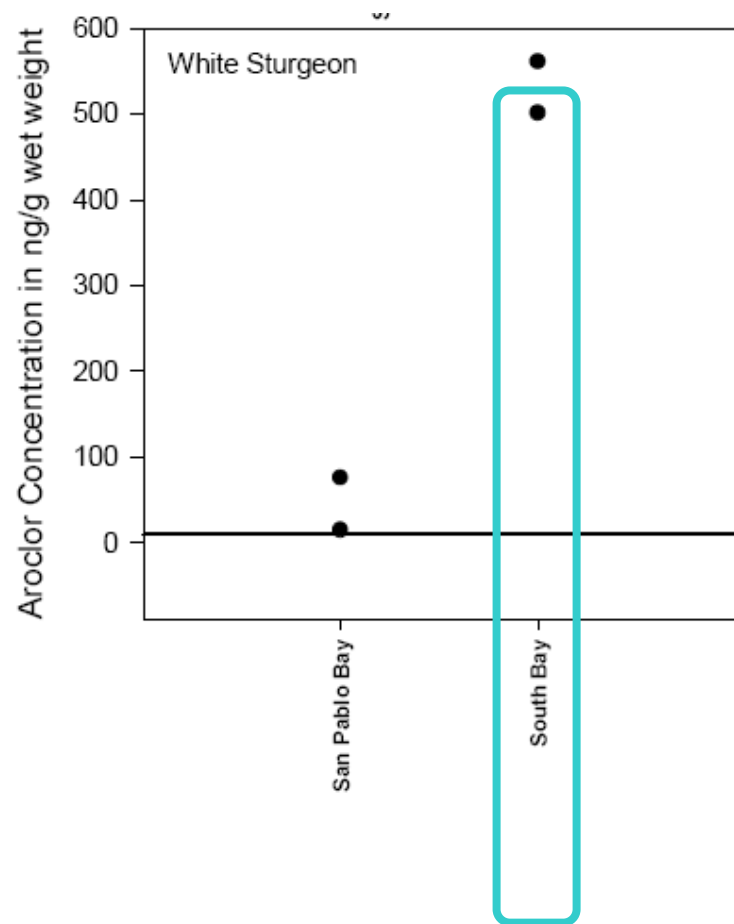
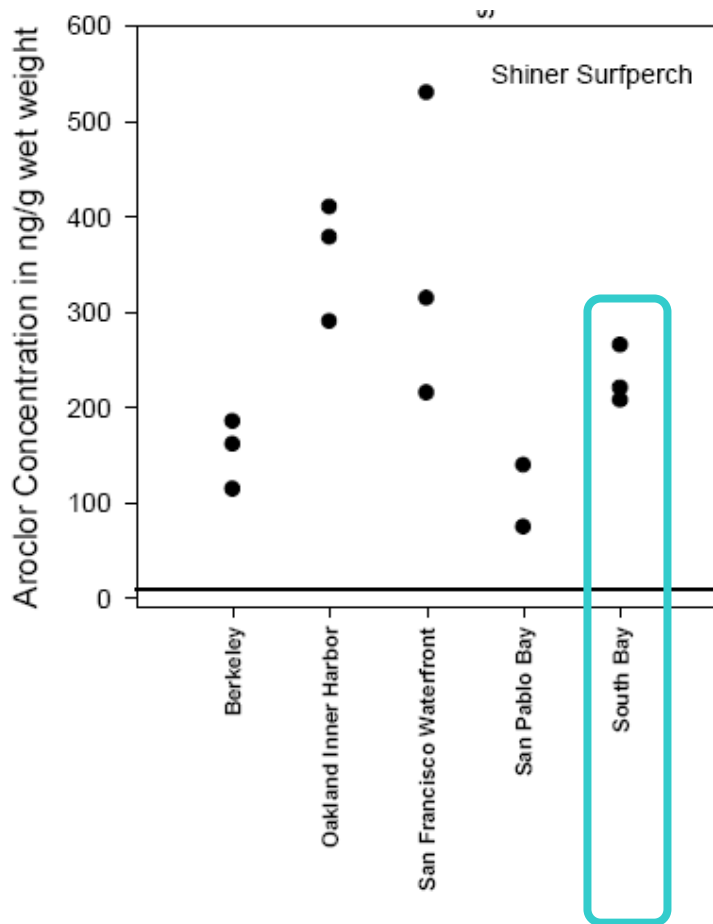
- Relatively high in South Bay
- If marshes export methylmercury impairment could get worse





# Sport Fish PCBs, 2003

- Relatively high in South Bay
- South Bay erosion could prolong this impairment

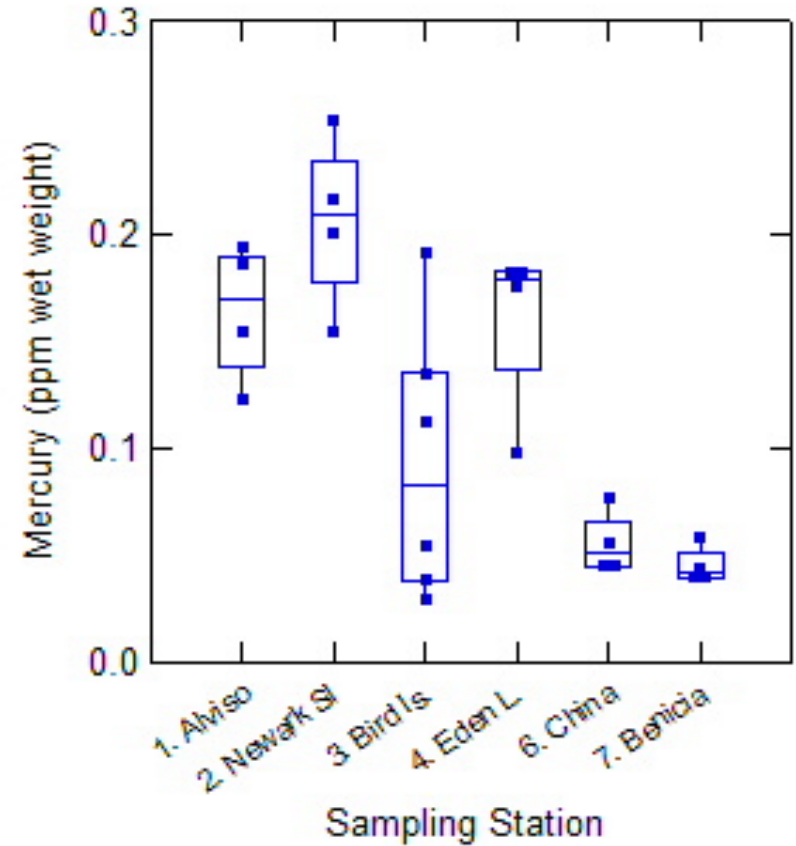


# Small Fish Mercury, 2005

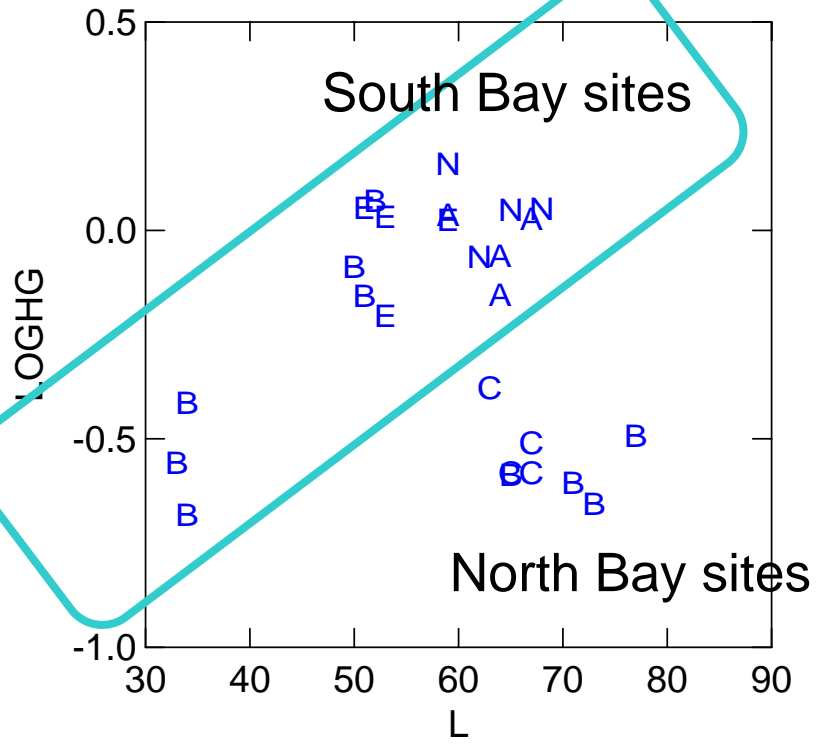
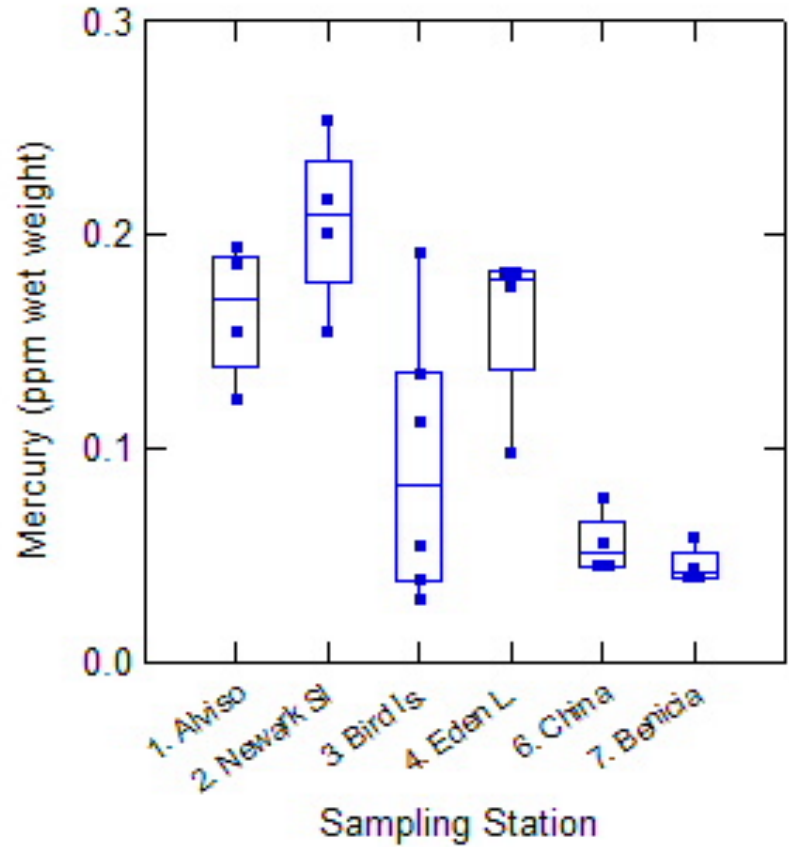
- Distinct spatial variation
- Relatively high in lower South Bay
- Linkage to SBSP monitoring



Mississippi Silverside Mercury vs. Station

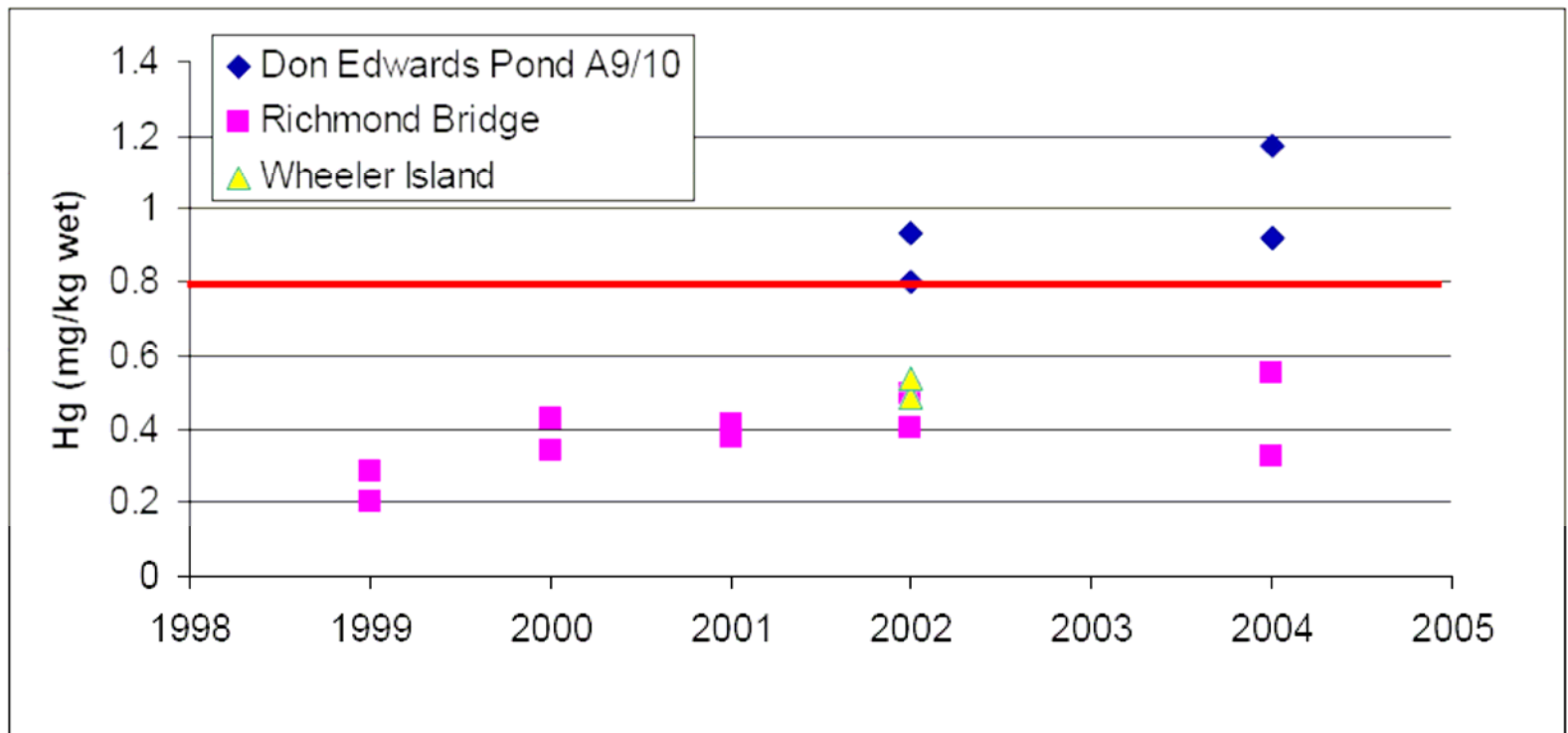
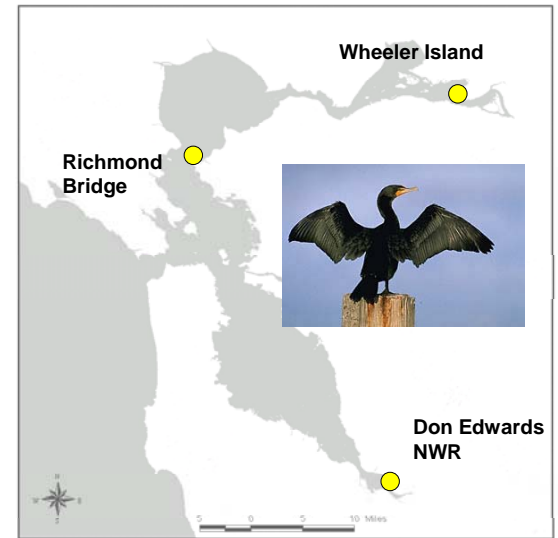


### Mississippi Silverside Mercury vs. Station



# Cormorant Eggs, 2002 & 2004

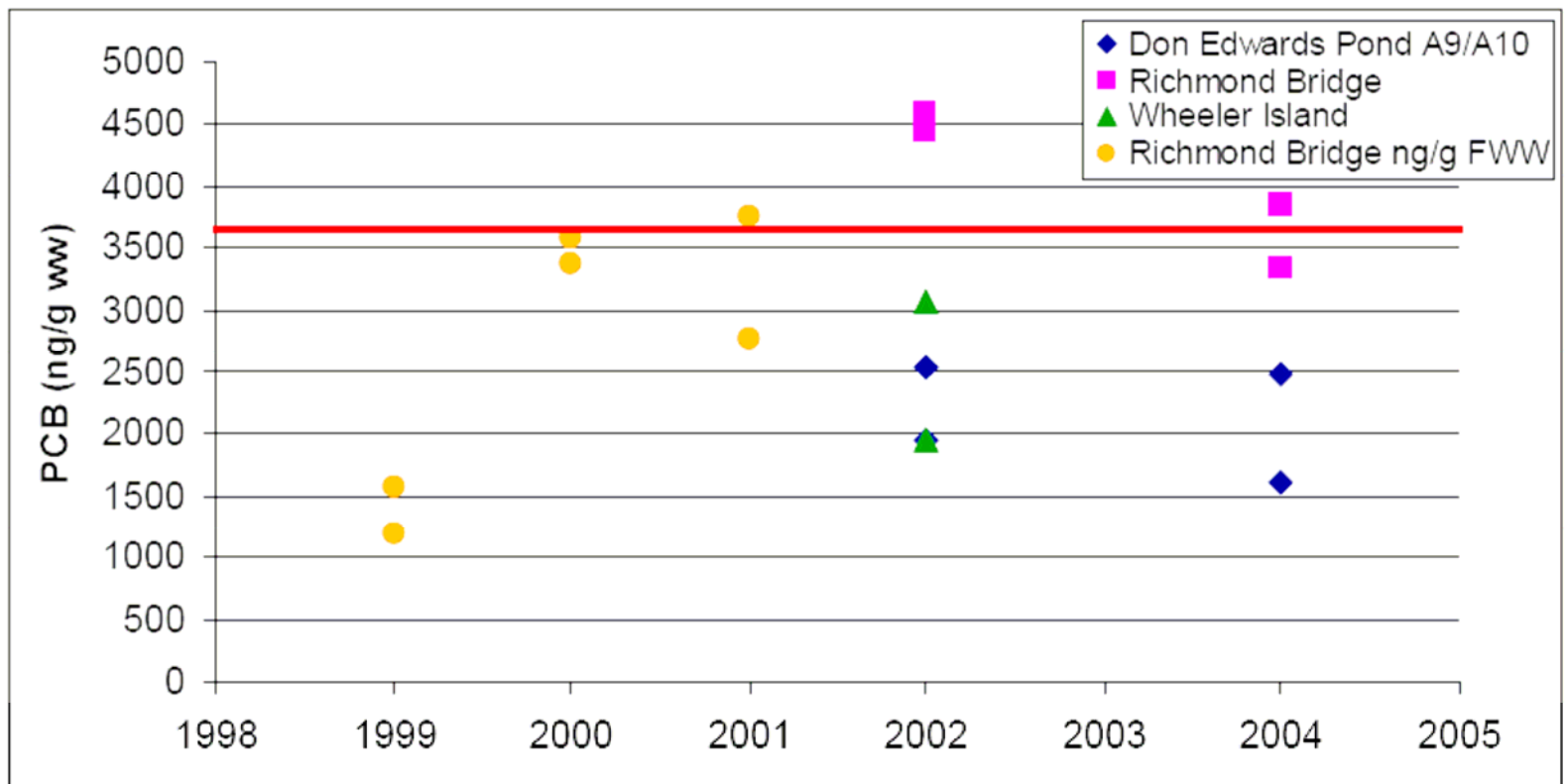
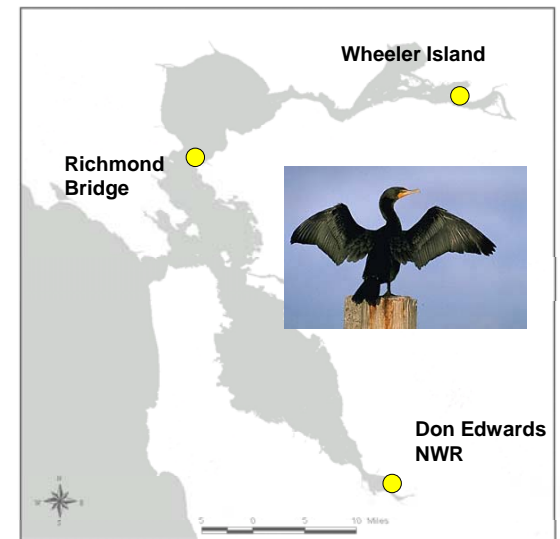
- Indicator of long-term and regional patterns and avian exposure
- Mercury quite elevated in South Bay





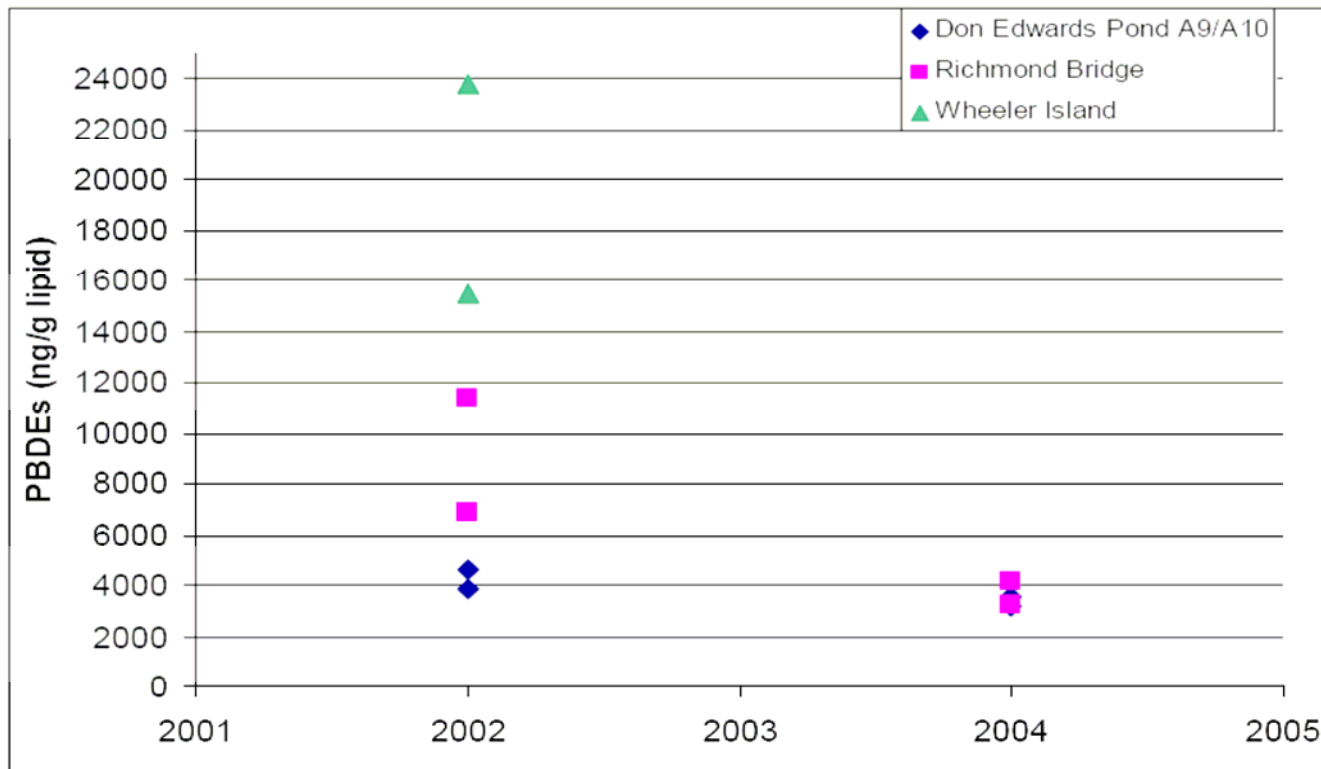
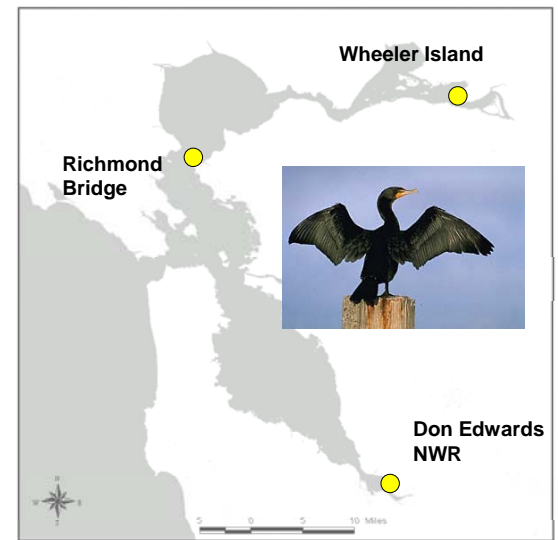
# Cormorant Eggs, 2002 & 2004

- PCBs relatively low in South Bay



# Cormorant Eggs, 2002 & 2004

- PBDEs not unusually high in South Bay



# Take-home Messages

- The South Bay has some water quality issues
- Marshes may affect the Bay and the Bay will affect the marshes
- Monitoring is essential to adaptive management of restoration and Bay water quality



Astronaut photograph of the South Bay Salt Ponds. Image courtesy of the Image Analysis Laboratory, NASA Johnson Space Center.

# Other Relevant SFEI Projects

**SBSP Mercury Monitoring:**  
Letitia Grenier

**Petaluma Marsh Mercury  
Study:** Don Yee

RMP reports and information  
available at:

[www.sfei.org](http://www.sfei.org)

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