

SWAMP Bioaccumulation: Introduction



- New statewide comprehensive bioaccumulation monitoring program under SWAMP began in 2007
- \$750K to \$1 million per year
- First task was a review of past monitoring
- Five-year cycle to cover all water body types

The BOG

- Terry Fleming
- Bob Brodberg
- Michael Lyons
- Chris Foe
- Mary Adams
- Karen Taberski
- Dave Crane
- Cassandra Lamerdin
- Marco Sigala
- Billy Jakl
- Jennifer Doherty
- Autumn Bonnema
- *Help wanted...*
- Mark Stephenson
- Gary Ichikawa
- Jay Davis
- Aroon Melwani
- Ken Schiff
- Jennifer Hunt

Peer Review Panel

- Jim Wiener, Distinguished Professor, University of Wisconsin, La Crosse
- Ross Norstrom, Canadian Wildlife Service (retired); Carleton University, Ottawa, Canada
- Chris Schmitt, USGS, Columbia, Missouri

Monitoring Objectives

1. Status
2. Trends
3. Sources and Pathways
4. Effectiveness of Management Actions

Over the long-term, primary emphasis on 1 and 2; 3 and 4 are secondary

In the near-term, emphasis on 1 (Status)

Beneficial Uses

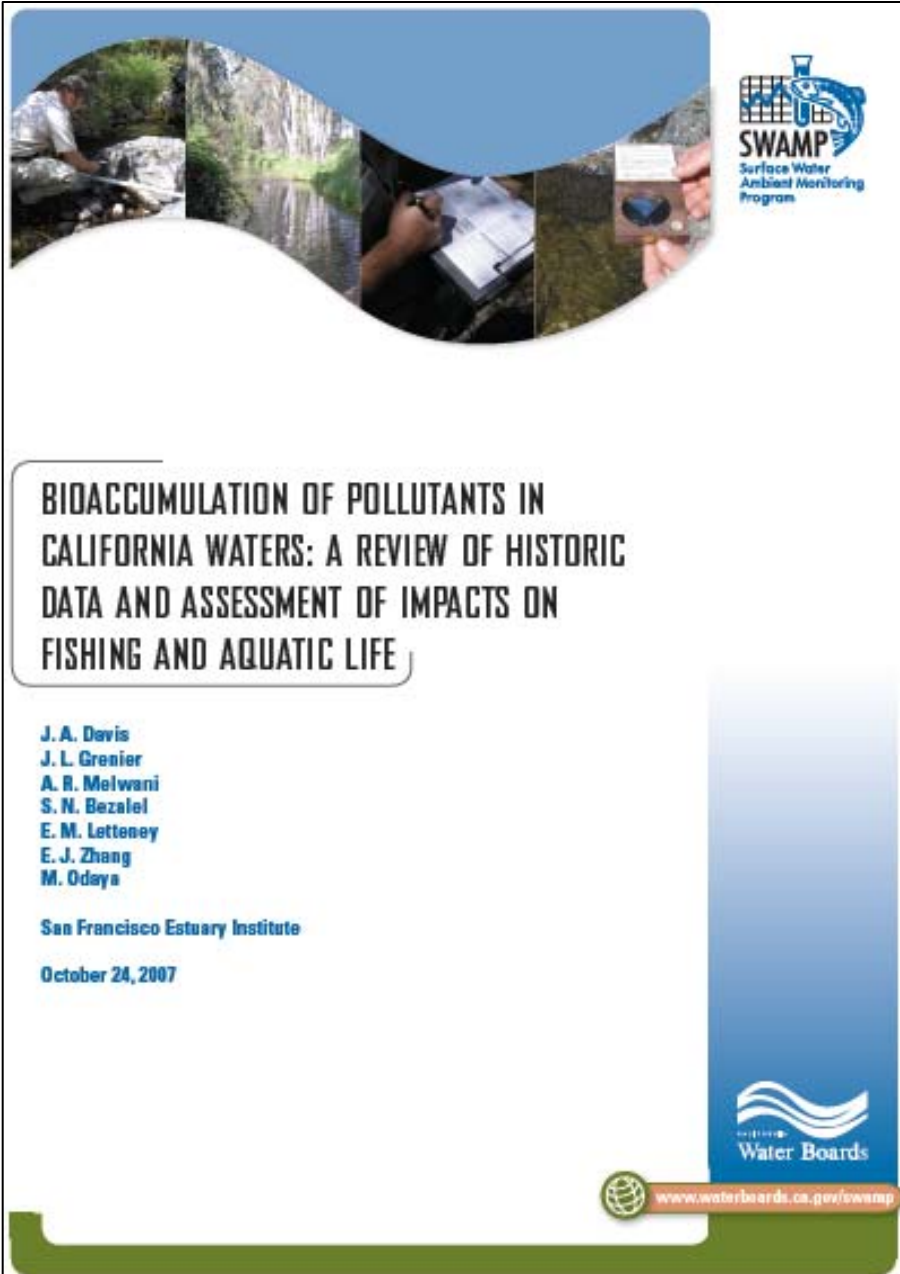
1. Fishing
2. Aquatic Life

Over the long-term, the Program should evaluate the impacts of bioaccumulation on both, with an emphasis on 1

In the near-term, emphasis on 1 (100%) - funds are too limited at present to do both

Review of Past Monitoring

- Comprehensive review
 - fish, mussels, birds, marine mammals
 - all water body types
- Primarily state programs (TSMP, State Mussel Watch, CFCP) but also others
- Data from 1970 to 2003
- SWAMP-compatible database created
- Report, fact sheet, press release in September 2008
- “a very solid foundation”



The image shows the cover of a report. At the top, there is a collage of four circular photographs: a person in a field, a river scene, hands holding a sample, and a person working at a desk. To the right of the collage is the SWAMP logo, which includes a stylized water drop and the text 'SWAMP Surface Water Ambient Monitoring Program'. Below the collage, the title 'BIOACCUMULATION OF POLLUTANTS IN CALIFORNIA WATERS: A REVIEW OF HISTORIC DATA AND ASSESSMENT OF IMPACTS ON FISHING AND AQUATIC LIFE' is written in a bold, sans-serif font. Below the title, the authors' names are listed: J. A. Davis, J. L. Grenier, A. B. Melwani, S. N. Bezael, E. M. Letteney, E. J. Zhang, and M. Odaya. Underneath the names is the text 'San Francisco Estuary Institute' and the date 'October 24, 2007'. At the bottom right, there is a logo for 'Water Boards' with a stylized wave icon and the website address 'www.waterboards.ca.gov/swamp'.

BIOACCUMULATION OF POLLUTANTS IN CALIFORNIA WATERS: A REVIEW OF HISTORIC DATA AND ASSESSMENT OF IMPACTS ON FISHING AND AQUATIC LIFE

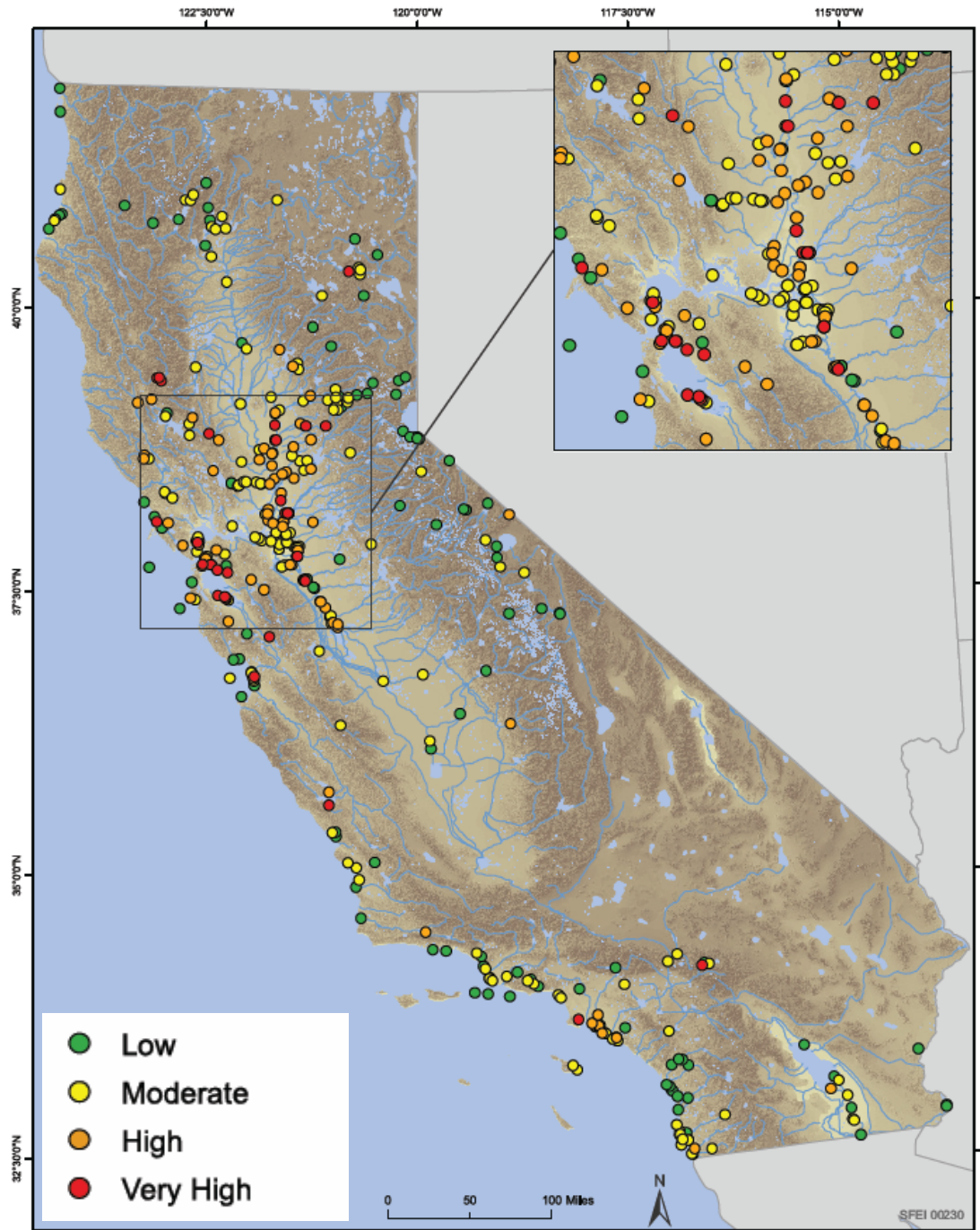
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San Francisco Estuary Institute
October 24, 2007

Water Boards
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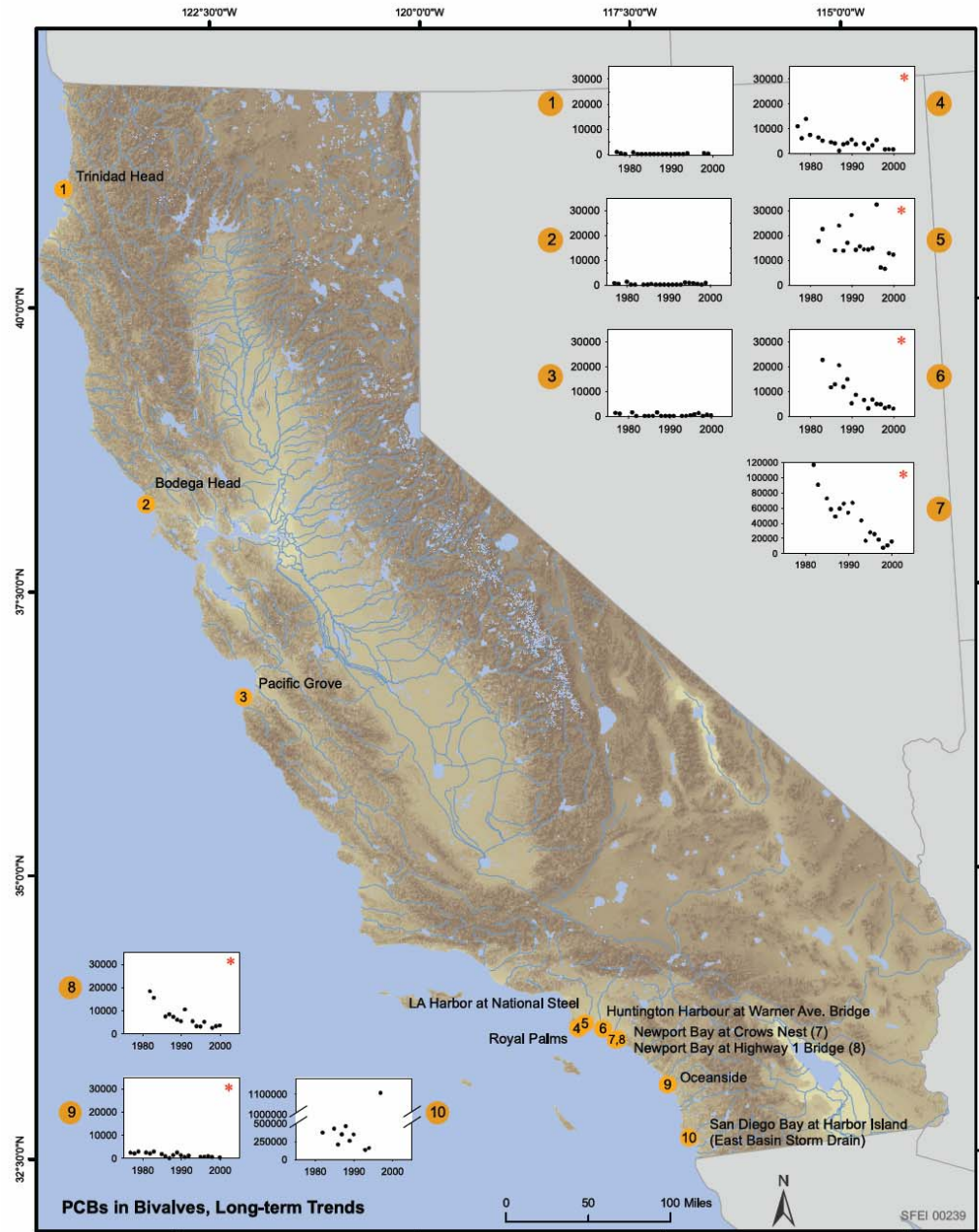
Recent Sport Fish Sampling (1998-2003)

- 390 sites sampled
- 32% fell into the “low” contamination category
- 68% of the water bodies sampled moderate to very high
- Mercury the primary concern
- Consumption advisories exist for only a fraction of the water bodies likely to need them



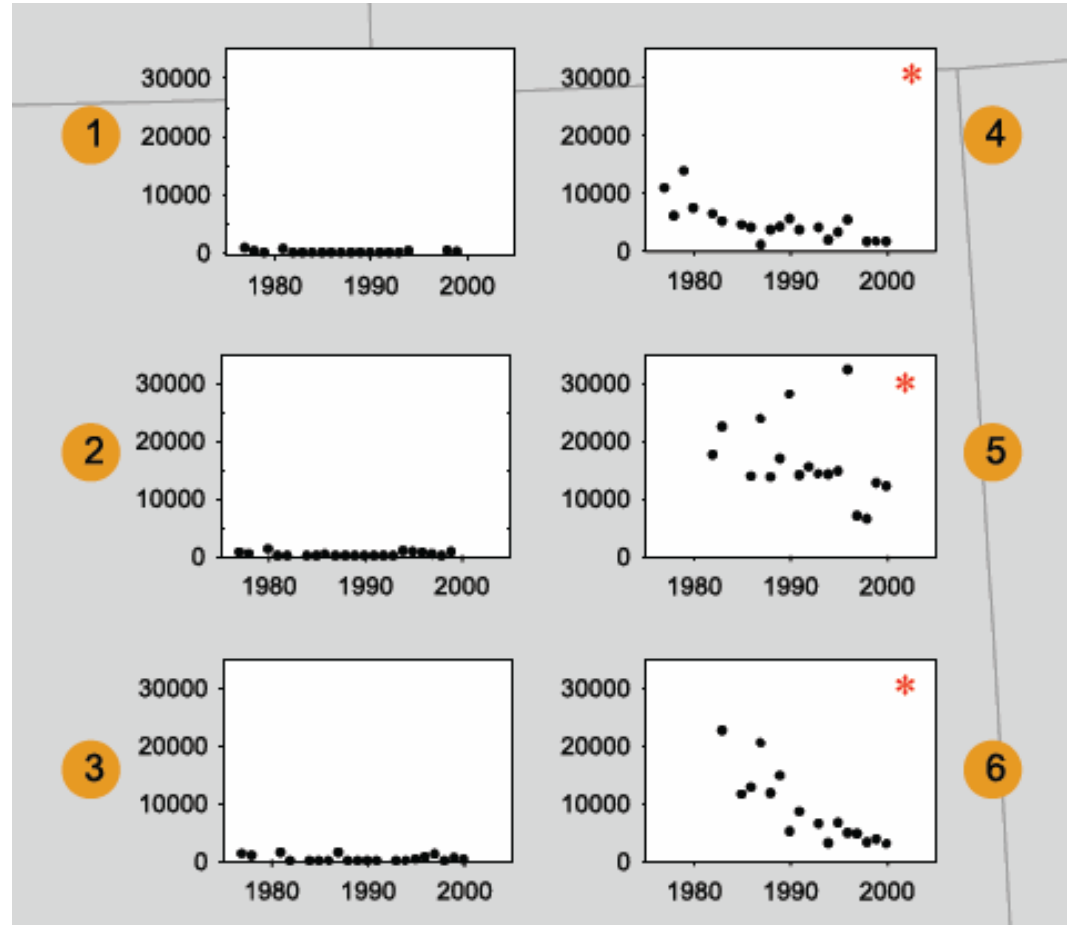
Trend Monitoring with Mussels

- PCB data shown
- Generally significant declines in organics
- Very limited trend data for mercury, sport fish



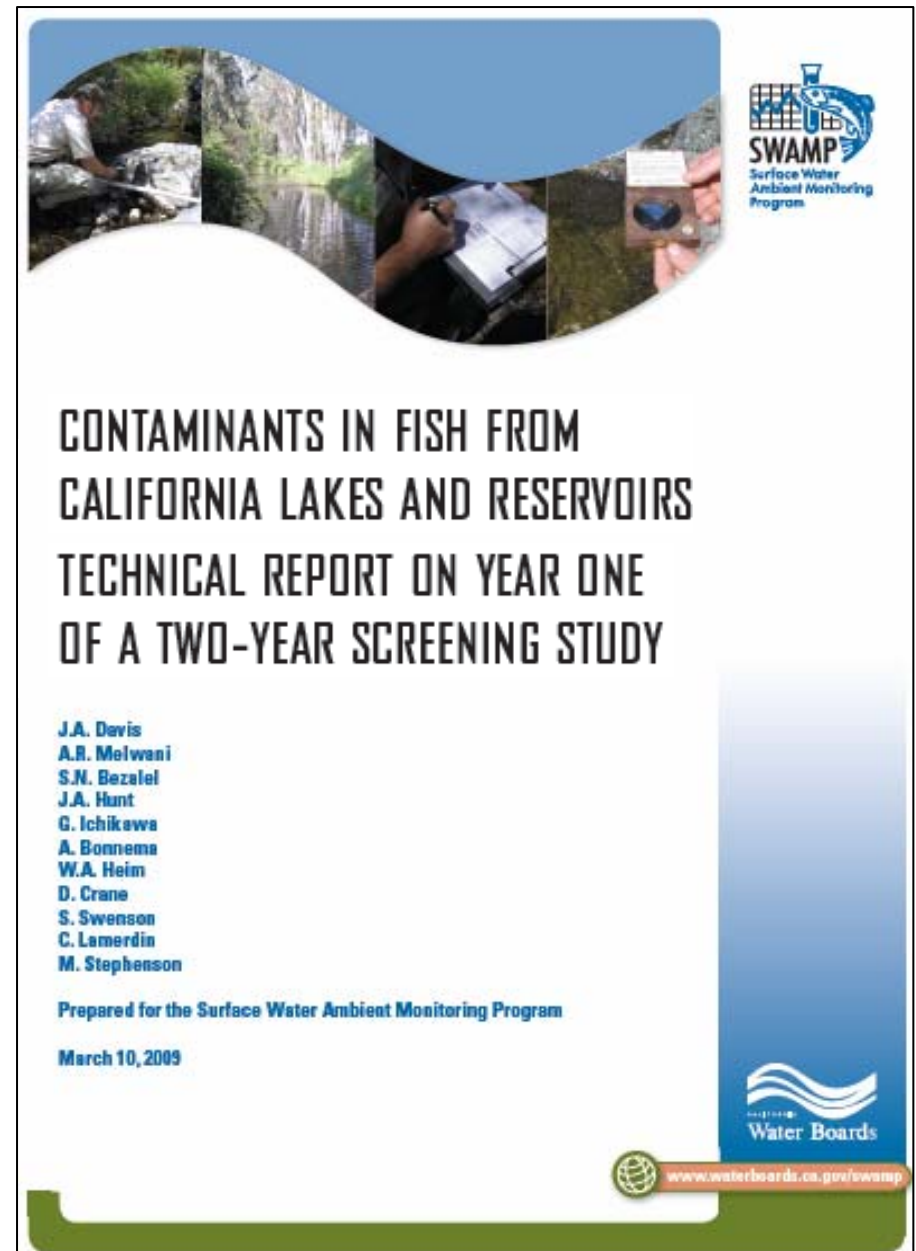
Trend Monitoring with Mussels

- Mussels a valuable tool for trend monitoring
- Report in preparation will compile recent mussel data from DFG and NOAA with historic data and make recommendations for future work



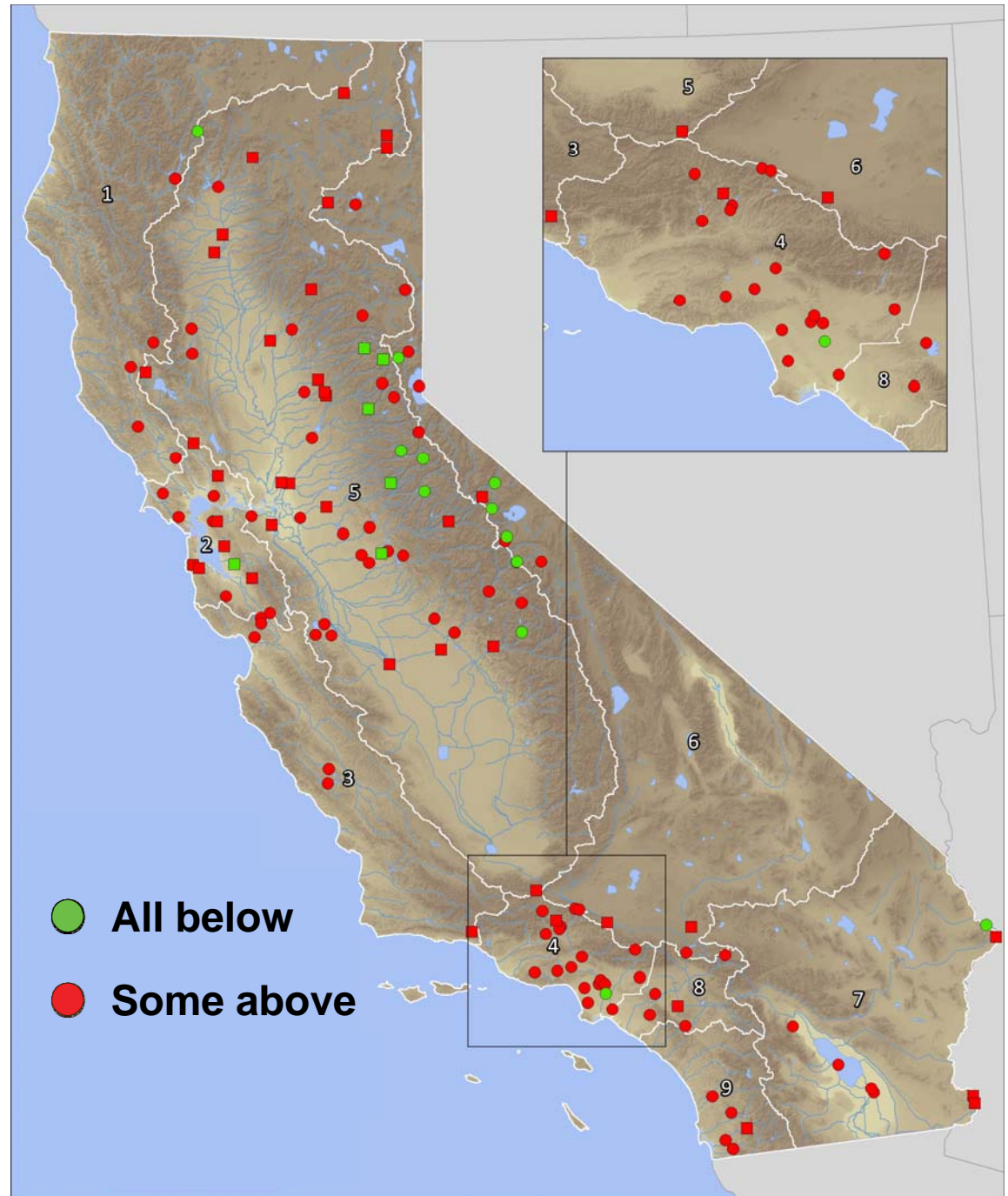
The Lakes Survey

- Focus on sport fish
- 2007 - 2008
- Screening survey
- Management Questions
 - Condition of California lakes?
 - Candidates for 303(d) listing?
 - Candidates for additional sampling?
- Focus on indicator species
- Multiple samples and species in each lake
- Year One Report released this month



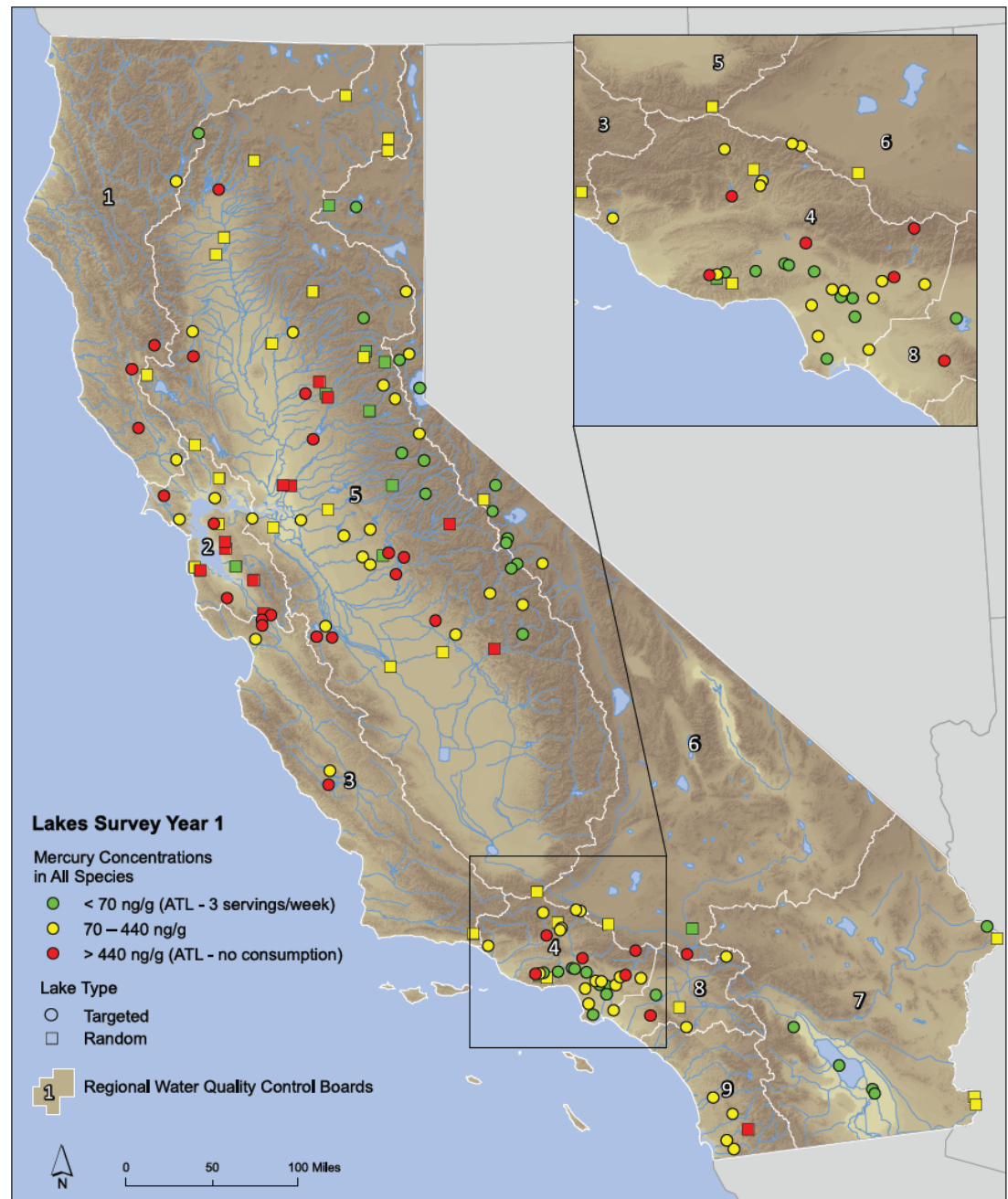
“Clean Lakes” (Based on This Survey, 2007)

- 15% of 136 lakes tested “clean” (all samples below all thresholds)
- These lakes are low priorities for further sampling
- 85% were “red”
- Mercury is the main problem at most of these lakes



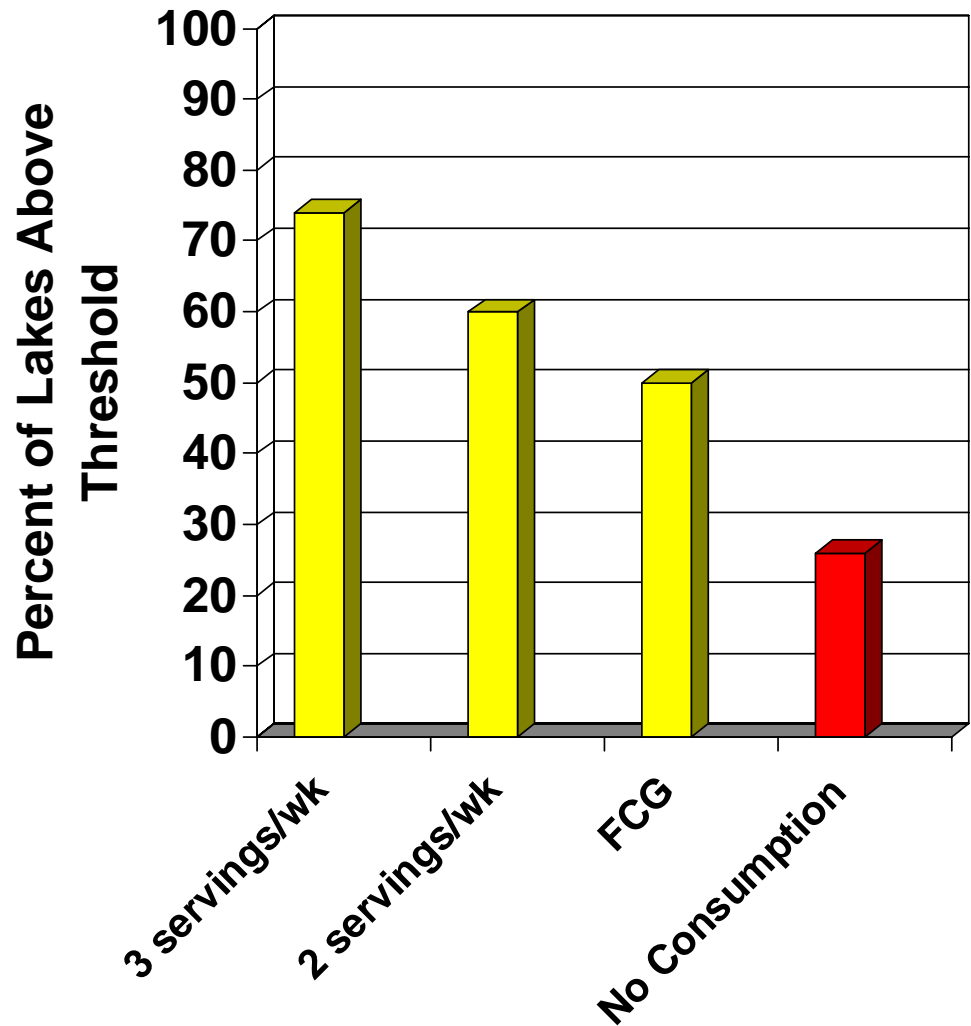
Mercury: Spatial Distribution

- Based on highest species at each lake
- Low concentrations in some Sierra Nevada and southern CA lakes
- Not just a northern CA problem
- Species distribution has a big influence
- Red lakes a high priority for followup



Mercury: Severity of the Problem

- Based on highest species average at each lake
- 26% of lakes in no consumption range (> 0.44 ppm)
- 50% above Fish Contaminant Goal (0.22 ppm)
- 61% above 2 serving/wk ATL (0.15 ppm)
- 74% above 3 serving/wk ATL (0.07 ppm)



Coastal Waters Survey

- 2009 - 2010
- Focus on sport fish
- Screening survey
- Management Questions
 - Status of popular species and fishing areas
 - Regional distribution
 - Candidates for additional sampling
- Focus on indicator species
- Multiple species in each zone

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DRAFT

SAMPLING AND ANALYSIS PLAN
FOR A SCREENING STUDY
OF BIOACCUMULATION
ON THE CALIFORNIA COAST

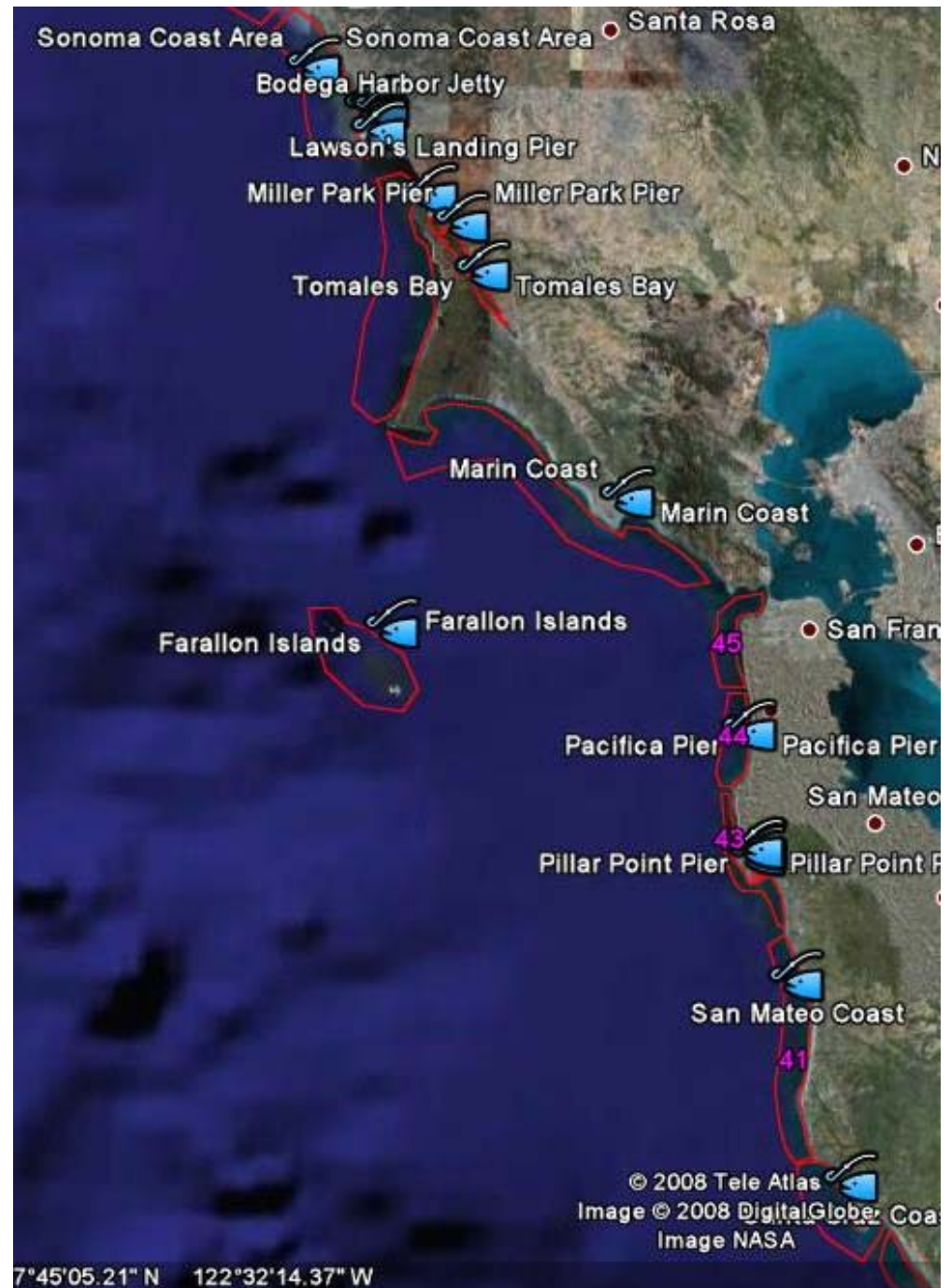
The Bioaccumulation Oversight Group (BOG)

Surface Water Ambient Monitoring Program

December 10, 2008

Coastal Waters Survey

- Overall \$575K of matching funds (RMP, Bight '08, Region 4)
- Joint design, assessment, and reporting across programs
- 70 fishing zones
- SC Bight and Region 2 in 2009, other areas in 2010
- Year One Report released early 2011



Things We Would Like To Do (But Don't Presently Have Funding For)

- Portal development
- Thorough interpretation
- Aquatic life impacts
- Enhanced mussel monitoring

