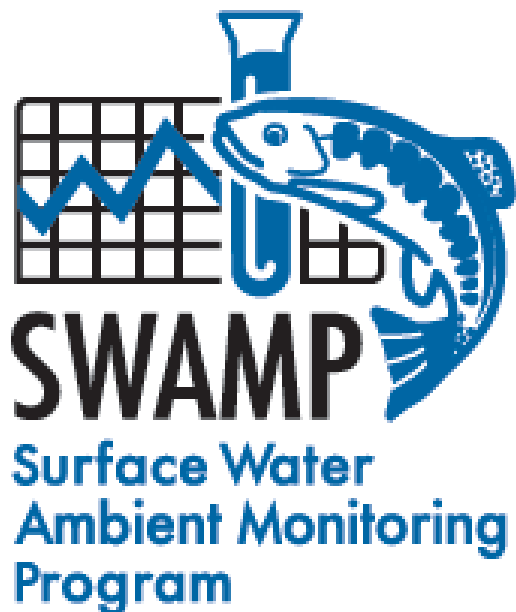




Symposium on Bioaccumulation in California

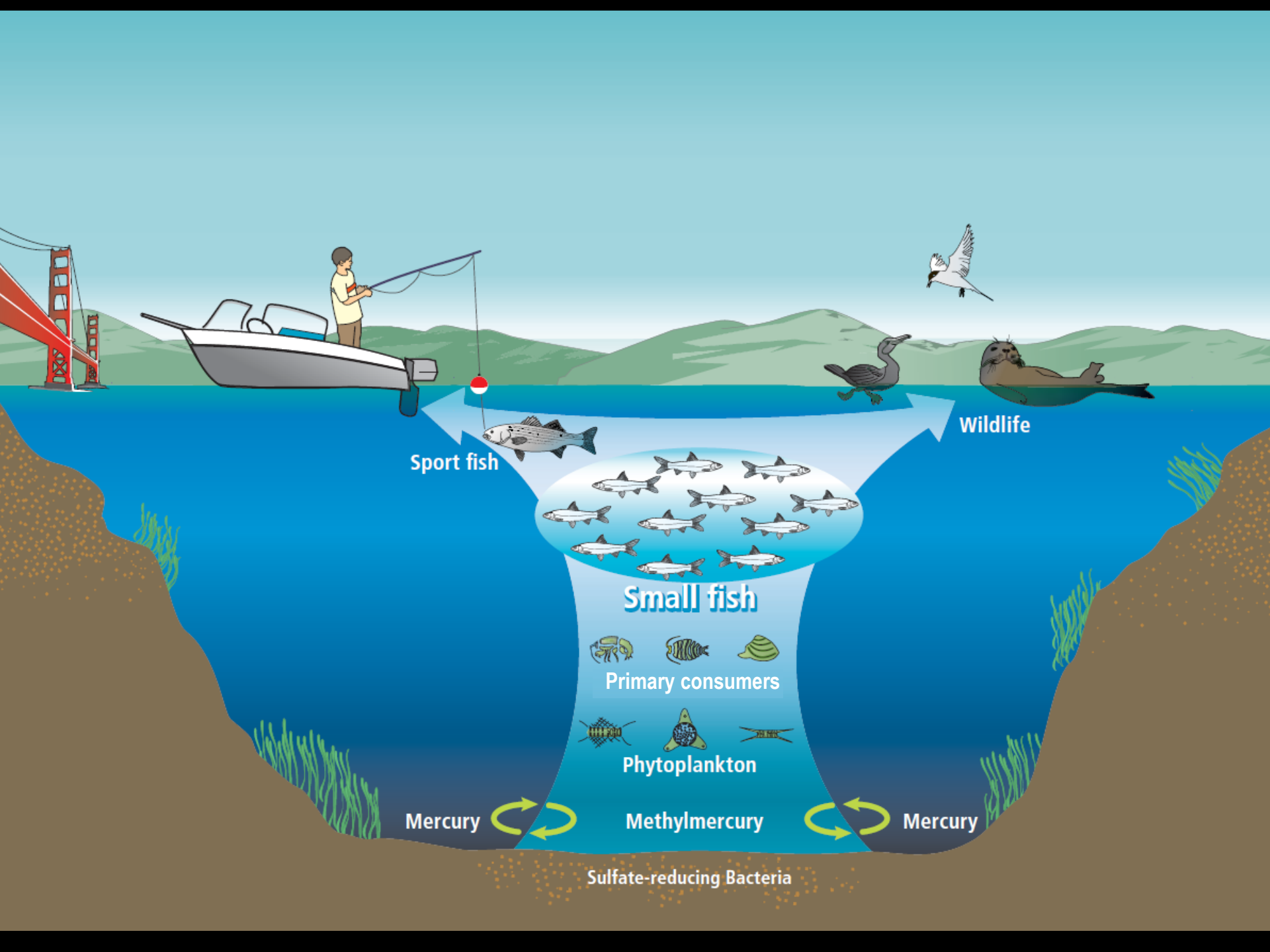
Jay Davis, SFEI

December 17, 2012



- What is bioaccumulation?
- Why is it a concern?
- What is the BOG?
- What can the BOG do for me?
- Why are we here today?





Sport fish

Wildlife

Small fish

Primary consumers

Phytoplankton

Mercury

Methylmercury

Mercury

Sulfate-reducing Bacteria

Historical Perspective on Bioaccumulation in California

- 1920s
 - Paralytic shellfish poisoning identified in San Francisco Bay
- 1950s
 - Grebe die-off from DDE in Clear Lake
- 1960s
 - Organochlorines found in San Francisco Bay birds and fish (1965)
 - Montrose Chemical
- 1970s
 - Mercury surveyed in Bay-Delta striped bass (1970-71)
 - Toxic Substances Monitoring Program (1976)
 - State Mussel Watch (1977)
 - Metals in San Francisco Bay clams
- 1980s
 - Selenium impacts on birds at Kesterson
- 1990s
 - PBDEs in San Francisco Bay Area
- 2000s
 - SWAMP
 - California Biomonitoring Program
 - Microcystin in sea otters



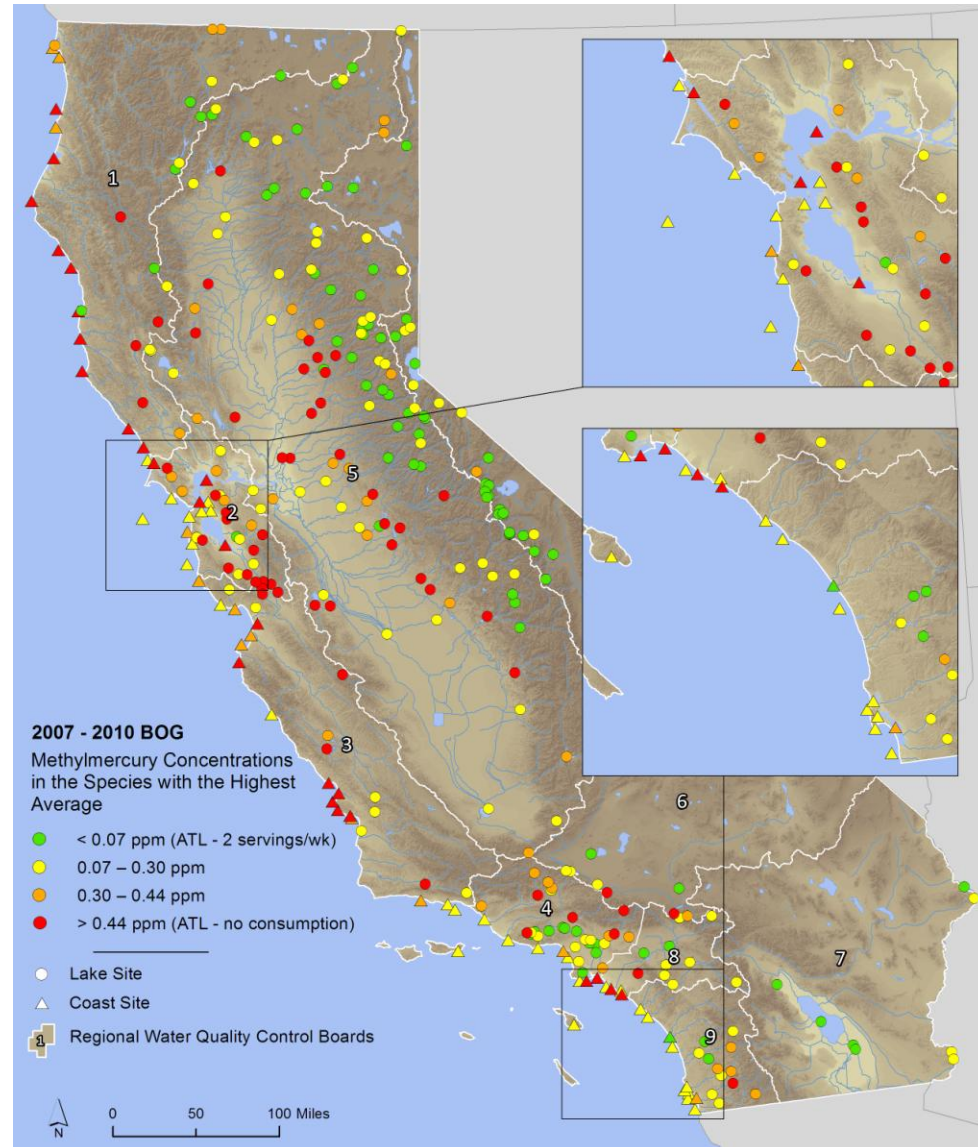
Safe for Fishing – Jay’s Ranking

Tier I **Methylmercury**
High Concern

Tier II
Moderate Concern

Tier III
Low Concern

Tier IV
Unknown Concern



Safe for Fishing – Jay’s Ranking

Tier I
High
Concern

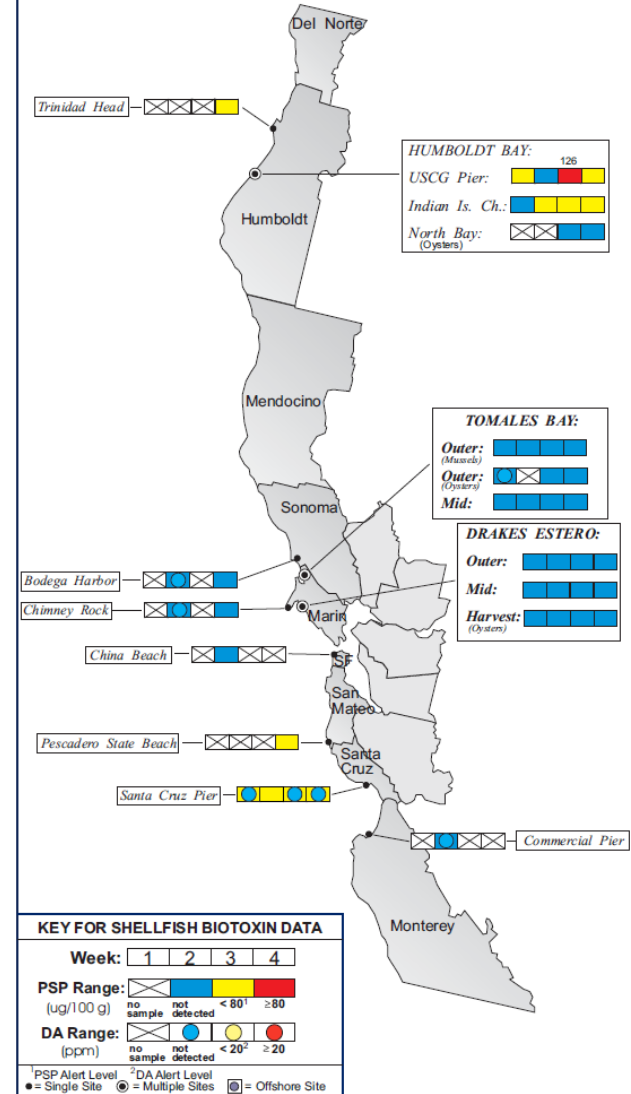
Methylmercury
Saxitoxin
Domoic Acid

Tier II
Moderate Concern

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Concern

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Figure 4. Distribution of shellfish biotoxins in Northern California during September, 2011.



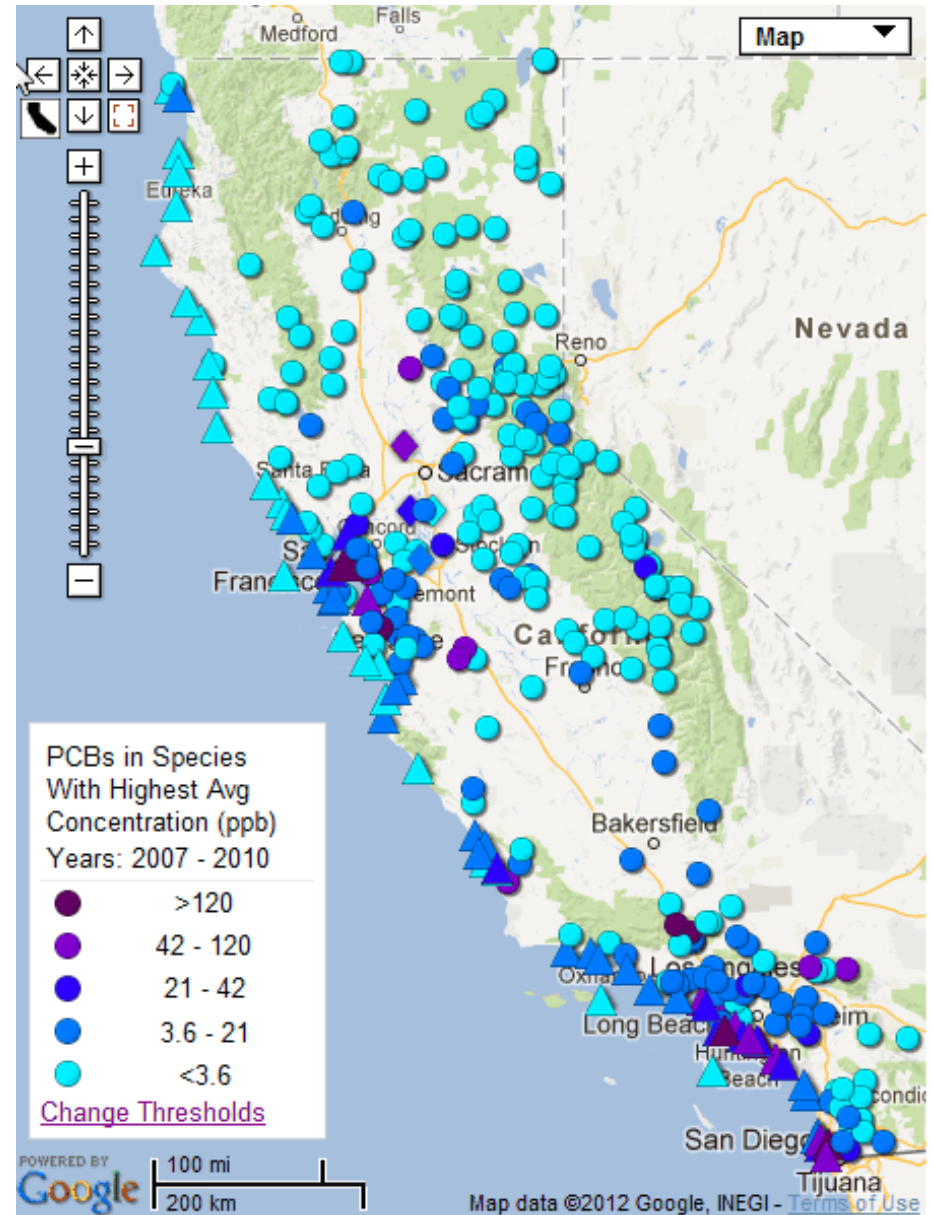
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Technical Memorandum

Microcystin Bioaccumulation in Klamath River Freshwater Mussel Tissue: 2009 Results



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JULY 2010

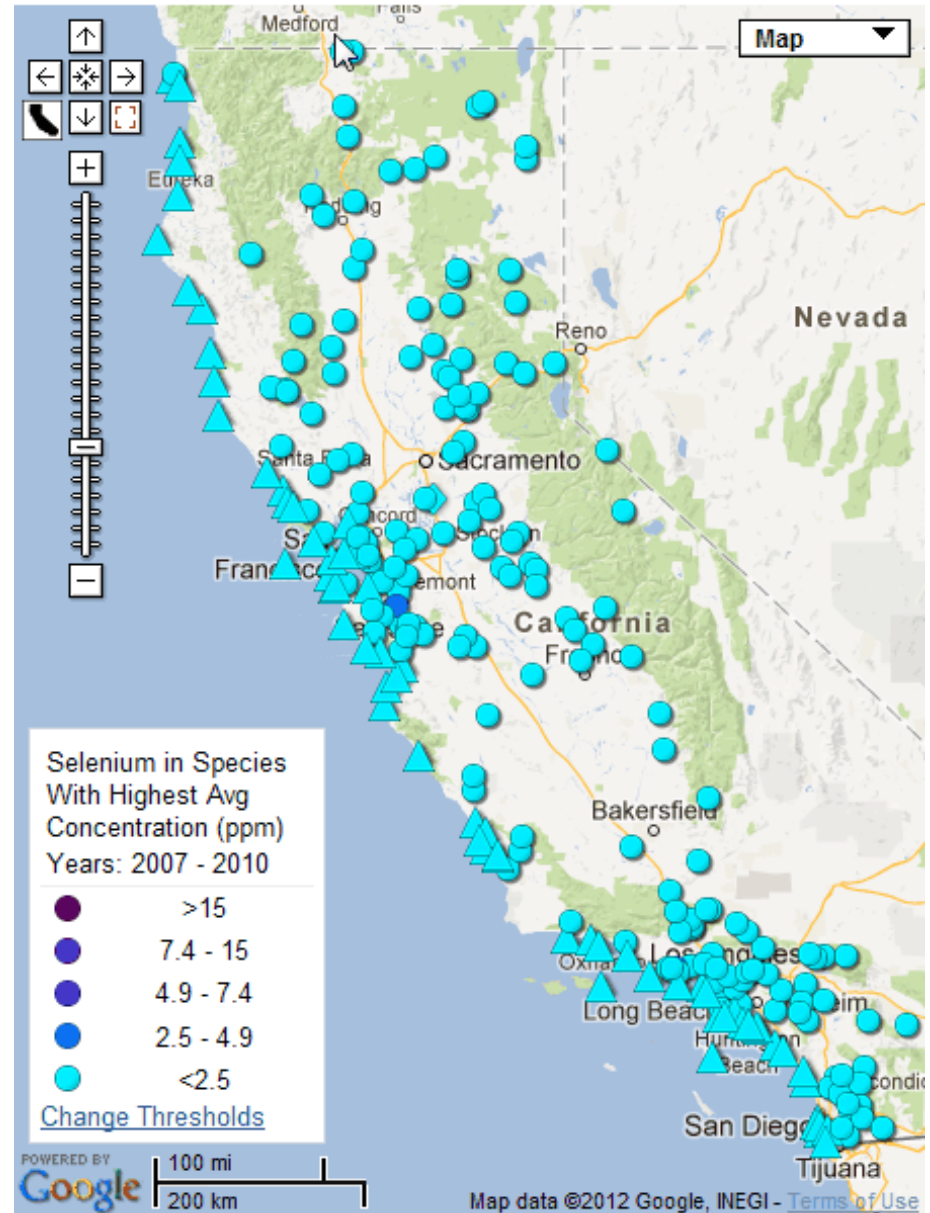
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 Saxitoxin
 Domoic Acid

Tier II
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Tier III
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 PBDEs DDTs
 Dieldrin Chlordanes
Selenium
 Many others

Tier IV
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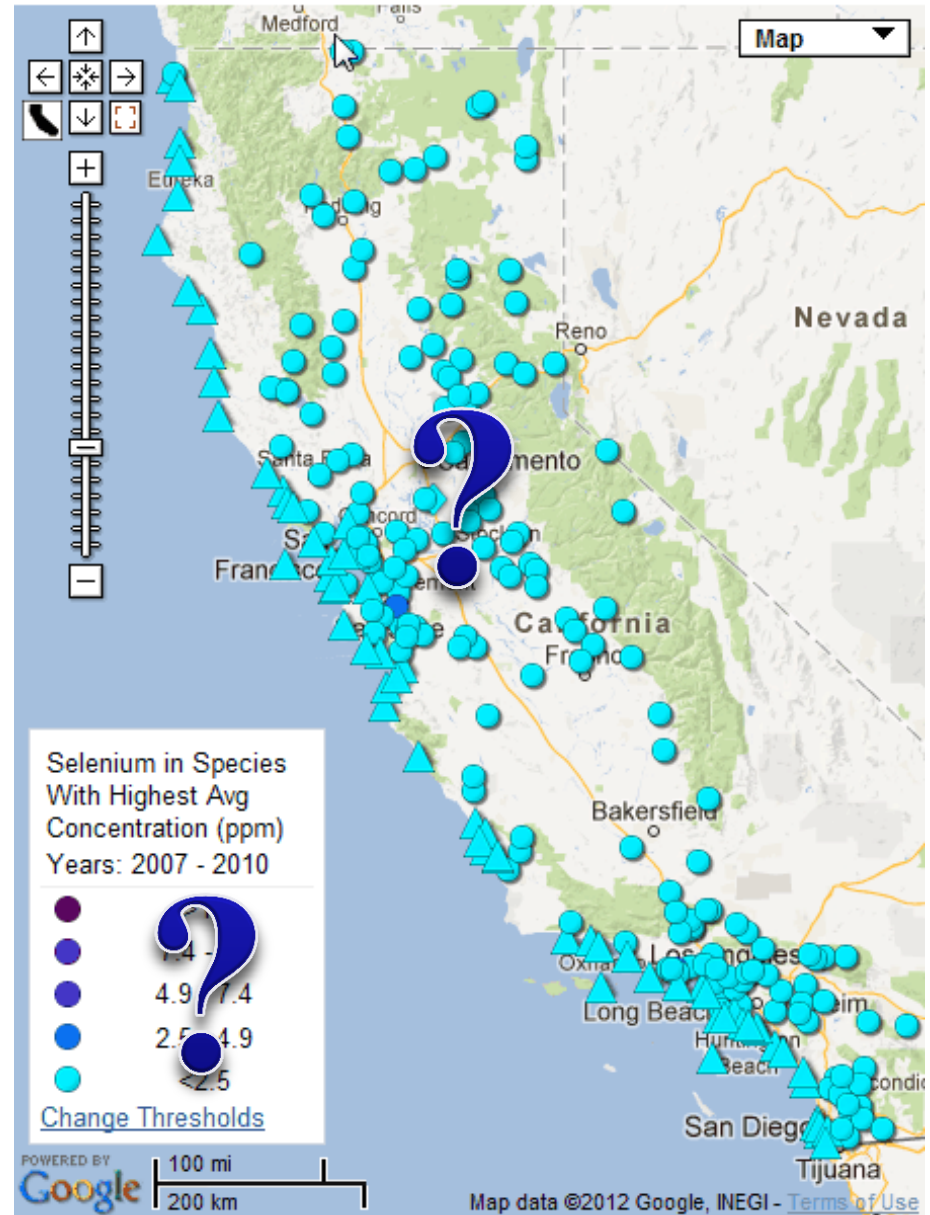
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 Dioxins
 CECs



Safe for Aquatic Life – Jay’s Ranking



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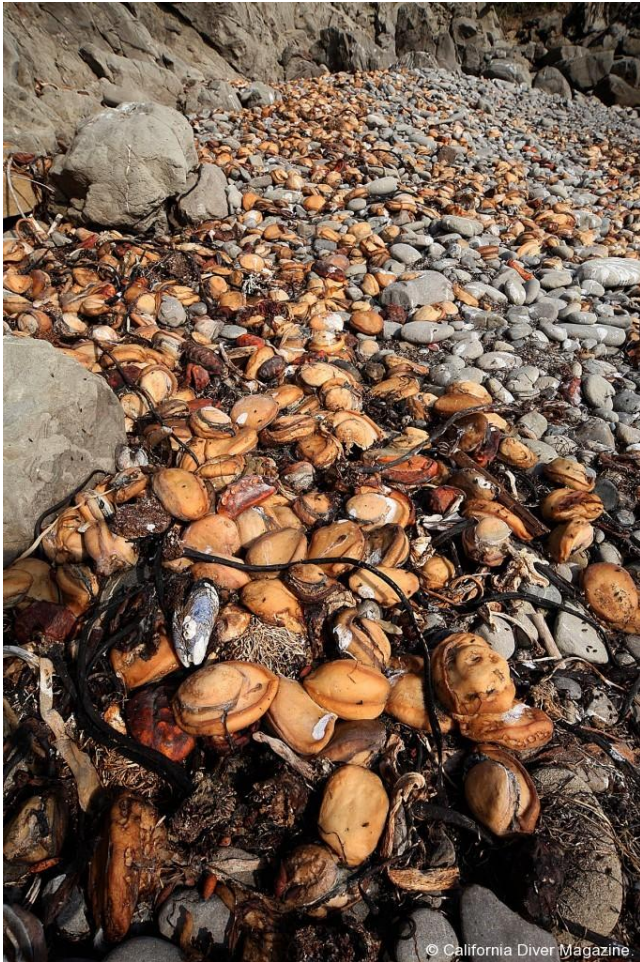
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Concern*

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Safe for Aquatic Life – Jay’s Ranking



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Microcystin
Other biotoxins

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Tier III
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Safe for Aquatic Life – Jay’s Ranking



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DDTs

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BOG Origins

- Cal EPA
 - State Water Resources Control Board & 9 Regional Water Quality Control Boards
 - Surface Water Ambient Monitoring Program (SWAMP)
 - **Bioaccumulation Oversight Group (BOG) formed in 2006**



BOG Evolves

- Interagency Efforts
 - California Water Quality Monitoring Council
 - Mission: promote coordination, integration, access
 - Members
 - Cal EPA, Resources Agency, Department of Public Health, Regulated Community, Public, Scientists, Water Supply Agencies
 - Workgroups
 - **BOG (2009)**, 9 others



Recent BOG Accomplishments

- Statewide sport fish surveys (2007-2011)
 - Annual reports
 - Safe eating guidelines
 - Statewide TMDL
- Centralized database
- “Safe to Eat?” web portal
- First statewide study on aquatic life impacts (2012-2013)
- Bioaccumulation Strategy



CONTAMINANTS IN SPORT FISH Two-Year Statewide Survey Reveals High Methylmercury on California Coast

The State Water Resources Control Board's Surface Water Ambient Monitoring Program (SWAMP) has released findings from the largest-ever statewide survey of contaminants in sport fish on the California coast. The report, *Contaminants in Sport Fish from the California Coast, 2009-2010*, represents a major step forward in understanding the extent of chemical contamination in the coastal food web. The report presents new data from sampling that focused on the North and Central coasts in 2010; these data combine with the results from 2009 to provide a comprehensive assessment of the entire coast. The study has provided information that will be valuable in prioritizing areas in need of further study, support development of consumption guidelines and cleanup plans, and provide information the public can use to be better informed about the degree of contamination of popular fishing spots.

Information for locations included in the 2009-2010 Coast Survey and the 2007-2008 Lakes Survey can be obtained by clicking the link *Is It Safe to Eat Fish and Shellfish from Our Waters?* at the California Water Quality Monitoring Council's "My Water Quality" website at: www.CaWaterQuality.net



May 2012

Bioaccumulation Strategy

- Efficient use of limited resources through coordination and thoughtful planning
- Goals
 - Coordinated, cooperative, long-term monitoring
 - Consistent and timely assessment
 - Coordinated communication and access to information

DRAFT

A STRATEGY FOR COORDINATED
MONITORING, ASSESSMENT, AND
COMMUNICATION OF INFORMATION ON
BIOACCUMULATION IN AQUATIC
ECOSYSTEMS IN CALIFORNIA



BIOACCUMULATION OVERSIGHT GROUP

CALIFORNIA WATER QUALITY
MONITORING COUNCIL

AUGUST 2012

Bioaccumulation Strategy

- Priority Actions
 - Establish BOG as a central forum
 - Inventory existing activities
 - Develop monitoring protocols
 - Develop monitoring plans for legacy pollutants, CECs, and biotoxins
 - Develop plan for development of safe eating guidelines (monitoring, assessment, communication)

DRAFT

A STRATEGY FOR COORDINATED
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BIOACCUMULATION OVERSIGHT GROUP

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AUGUST 2012

What Can the BOG Do For You?

- Goal is to be helpful
- Facilitate sharing of technical information
- Facilitate coordination and leveraging of projects
- A resource
 - Protocols
 - Infrastructure (e.g., for data management and communication)
- You can help define the BOG



Goals of Today's Meeting

- Increase participation in the BOG
- Introduction to the BOG
- Information sharing
- Coordination



Looking Forward

- Quarterly meetings
- Next meeting: review Strategy and begin implementation planning
- Annual Symposium?



More Information on the BOG

- Google “Bioaccumulation Oversight Group”
- Email jay@sfei.org to be added to our email distribution list

