California's Surface Water Ambient Monitoring Program
Coordination with California Water Quality Monitoring

Presentation to the California Water Quality Monitoring Council
April 2, 2009

California Water Boards

SWAMP
Surface Water Ambient Monitoring Program

SWAMP and Monitoring Council Goals

(Coordinated, cost-effective, integrated, comprehensive monitoring)

1. Monitoring strategy
2. Objectives
3. Design
4. Indicators
5. QA/QC
6. Database
7. Assessment
8. Reporting
9. Program Evaluation
10. Program Support

State and Regional Board Focus
Year 5 out of 10

- Program strategy, objectives, design
- Indicators and Methods
- Data Management
- Consistency of assessment endpoints
- Reporting
- Program Sustainability

State Agencies (CalEPA, Resources, DPH)
Year 1 out of 10

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Opportunities for Collaboration

1. **Coordination of Monitoring and Assessment Activities**
   - Bioacummulation in fish tissue
   - Bioassessments in perennial streams
   - Trends in stressors at bottom of watersheds

2. **Monitoring Infrastructure**
   - Indicators, Methods, Assessment endpoints
   - QA/QC
   - Information Management

3. **Public Dissemination of Data**
   - CEDEN and Regional Data Centers
   - Thematic data portals

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1. Coordination of monitoring and assessment

ARE OUR AQUATIC ECOSYSTEMS HEALTHY?

- Wetlands

IS IT SAFE TO SWIM IN OUR WATERS?

- Coastal beaches, bays & estuaries

IS IT SAFE TO EAT FISH AND SHELLFISH?

- Sportfish

IS OUR WATER SAFE TO DRINK?

- Groundwater

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SWAMP organizes statewide monitoring around Beneficial Uses

	Drinkable	Swimmable	Fishable	Aquatic Life
Rivers	?	?	SWAMP	SWAMP
Lakes	?	?	SWAMP	National Surveys
Shoreline	NA	BEACH Program	?	?
Bays and Estuaries	NA	?	SWAMP	Regional Monitoring Programs and National Surveys
Ocean	NA	?		
Groundwater	GAMA	NA	NA	NA

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Potential for collaboration and coordination

ARE OUR AQUATIC ECOSYSTEMS HEALTHY?

- Wetlands, Stream bioassessment, Coastal waters, bays & estuaries

IS IT SAFE TO SWIM IN OUR WATERS?

- Coastal beaches, bays & estuaries

IS IT SAFE TO EAT FISH AND SHELLFISH?

- Sportfish (Lakes, Coastal, Rivers)

IS OUR WATER SAFE TO DRINK?

- Groundwater

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SWAMP – Primary role SWAMP – Secondary role

A. SWAMP Fish bioaccumulation program: Supports Safe to Eat Seafood

- **Status and trends in fish tissue contamination**
  - Lakes (2008, 2009) - Year 1 Report out soon
  - Coastal (2010, 2011) - Sampling to begin this summer
  - Rivers and Streams - Planned for 2012
  - Cycle through water body types on 5-year interval

- **Supports : Safe to eat seafood**
  - Statewide perspective
  - Screening level for future OEHHA work
    (SWAMP Lake data already used in OEHHA advisories update)
  - Provide input to 303(d) listing process

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SWAMP Lake Survey

Year 1 of a 2 year survey

Year 1 (152 lakes)

102 popular

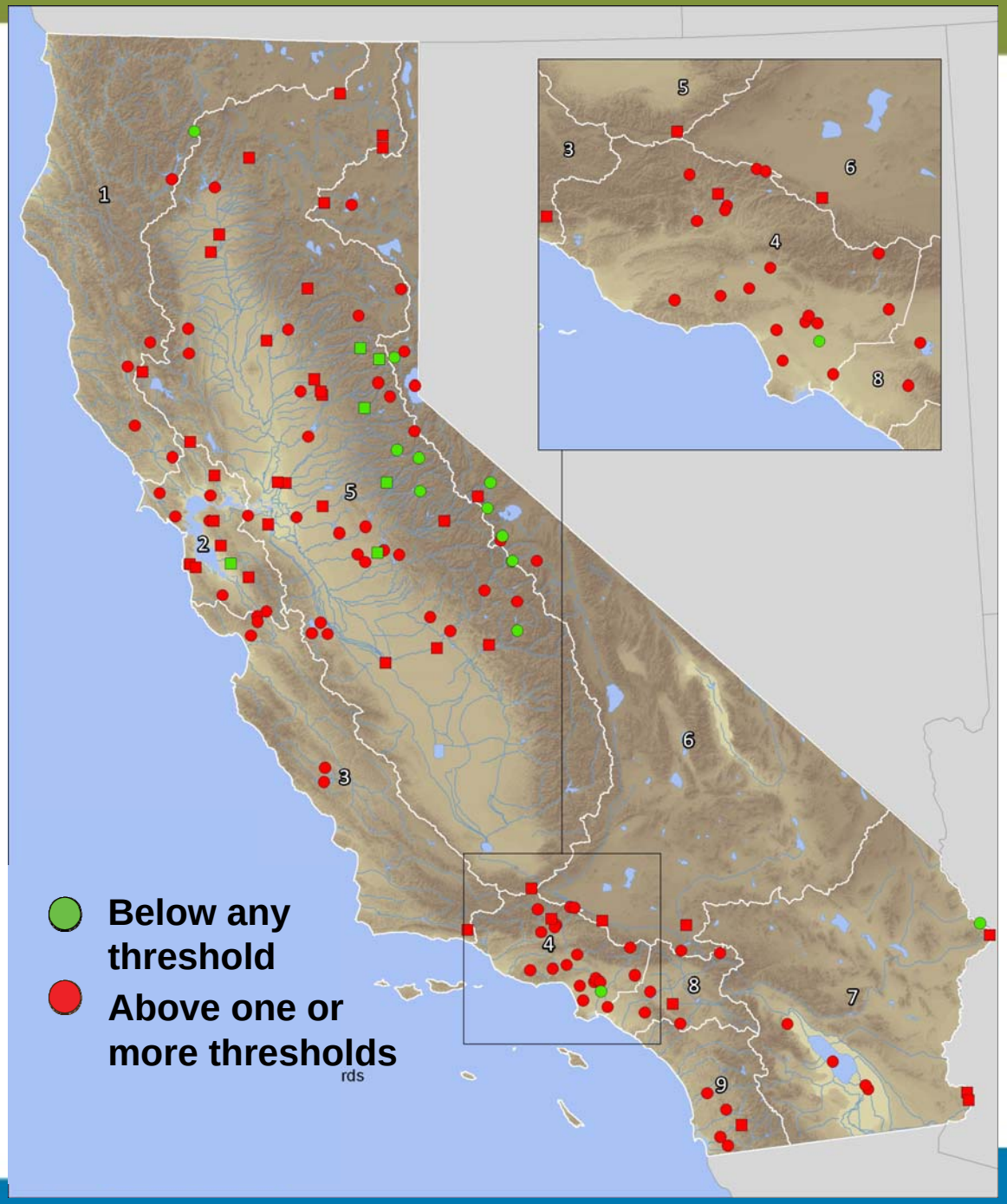
50 random

Results

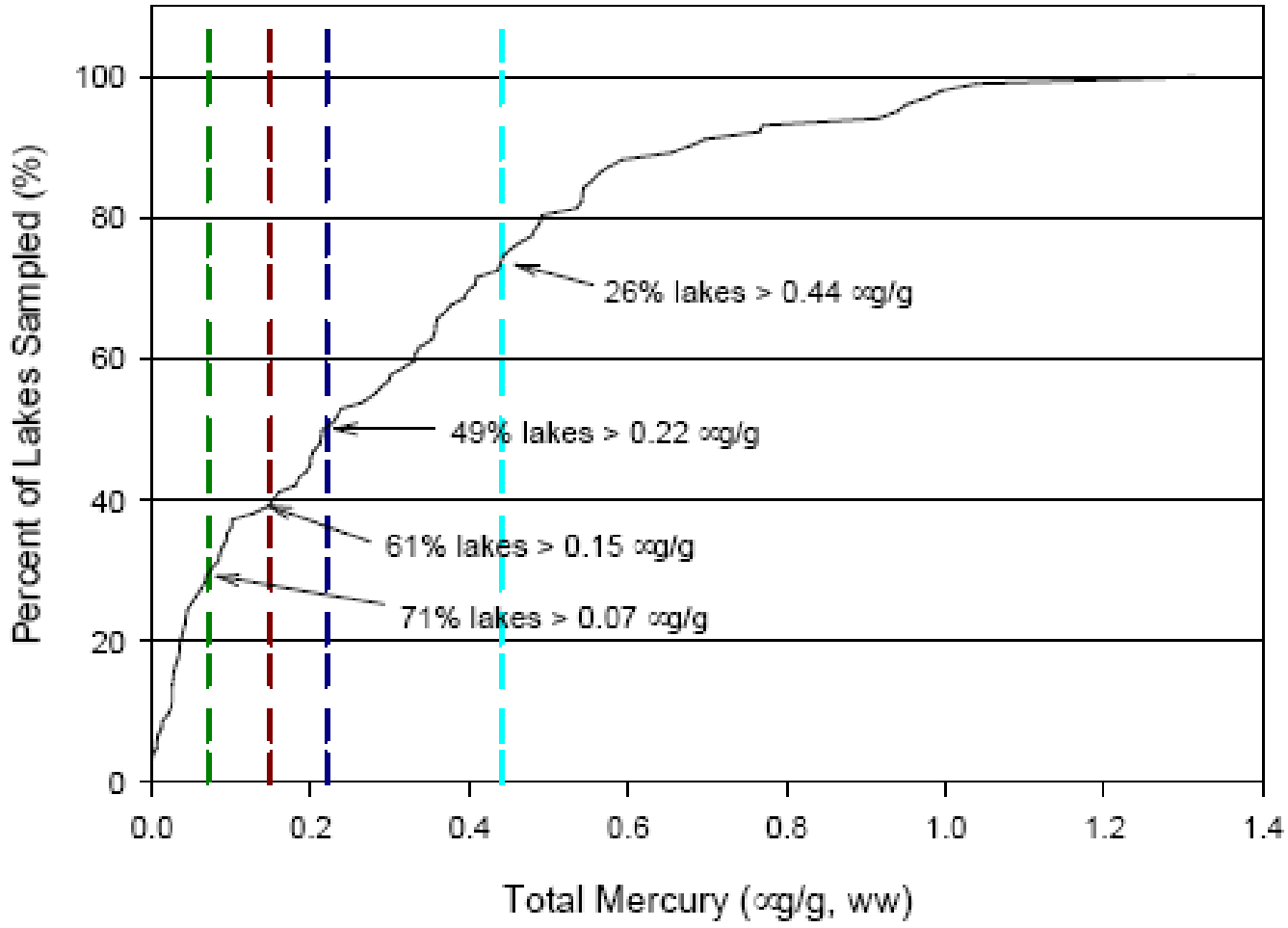
- 13% tested “clean”
- 87% were “elevated”

Mercury is elevated at most (76%) of the lakes

PCBs is elevated at 44% of the lakes



Mercury concentrations at popular lakes (from Year 1 Survey)



Cumulative Estimate
Fish Contaminant Goal
Advisory Tissue Level (3 servings/week)
Advisory Tissue Level (2 servings/week)
Advisory Tissue Level (No consumption)

EPA target = 0.30 ug/g
State's target ~0.22 ug/g

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B. SWAMP Stream Bioassessment Supports Healthy Aquatic Ecosystem

- **Status and Trends in condition of perennial streams**
  - 10th year of statewide stream assessment
  - Focus on macroinvertebrate
  - Testing other indicators (algae, wetlands)
- **Developing tools for interpretation**
  - Standardized sampling methodologies
  - Indices and assessment endpoints
  - Reference condition management plan
- **Long-term goal to support development of biological objectives**
- **Supports: Healthy Aquatic Ecosystem**
  - Assessment of stream condition
  - Associations with stressors

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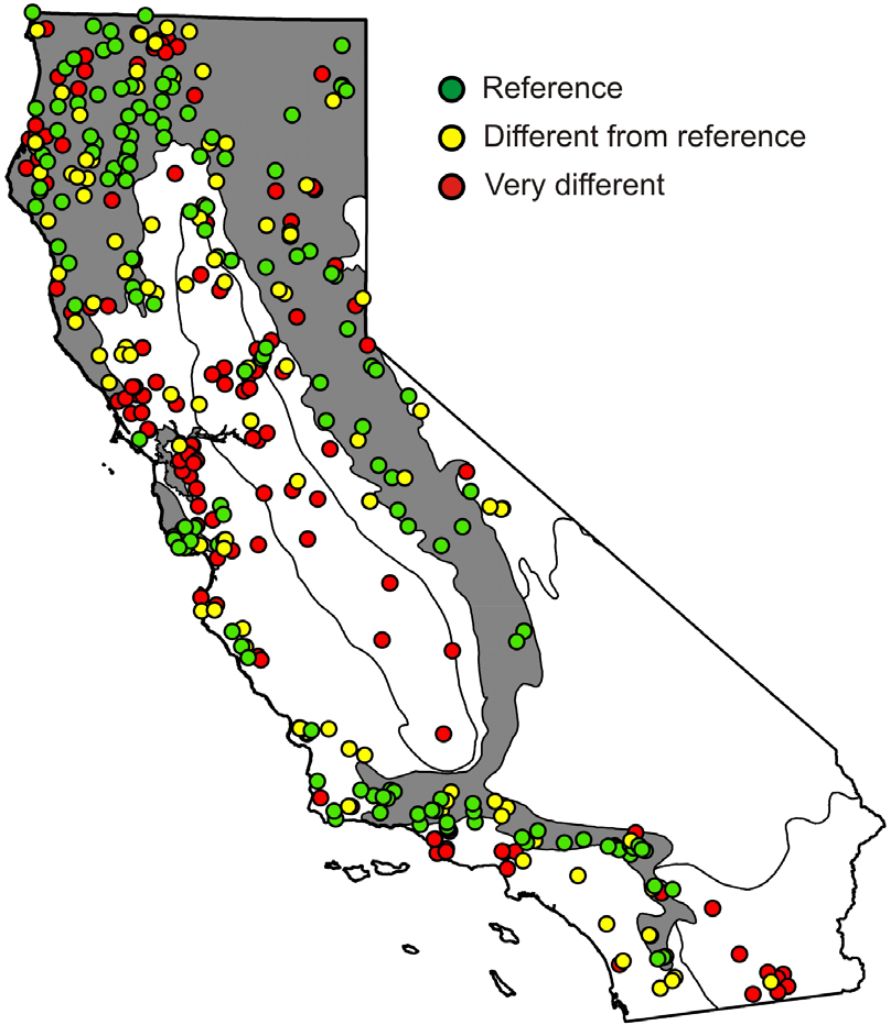
SWAMP Perennial Stream Survey
Status and Trends



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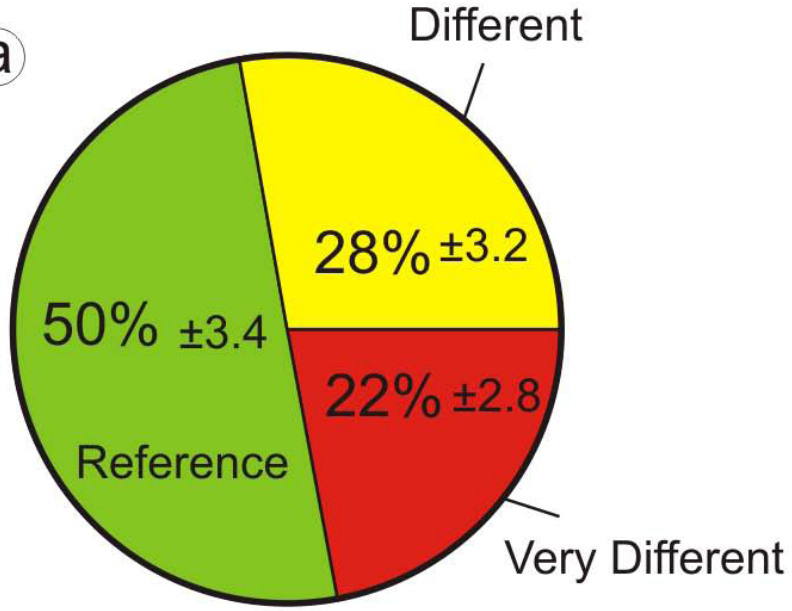
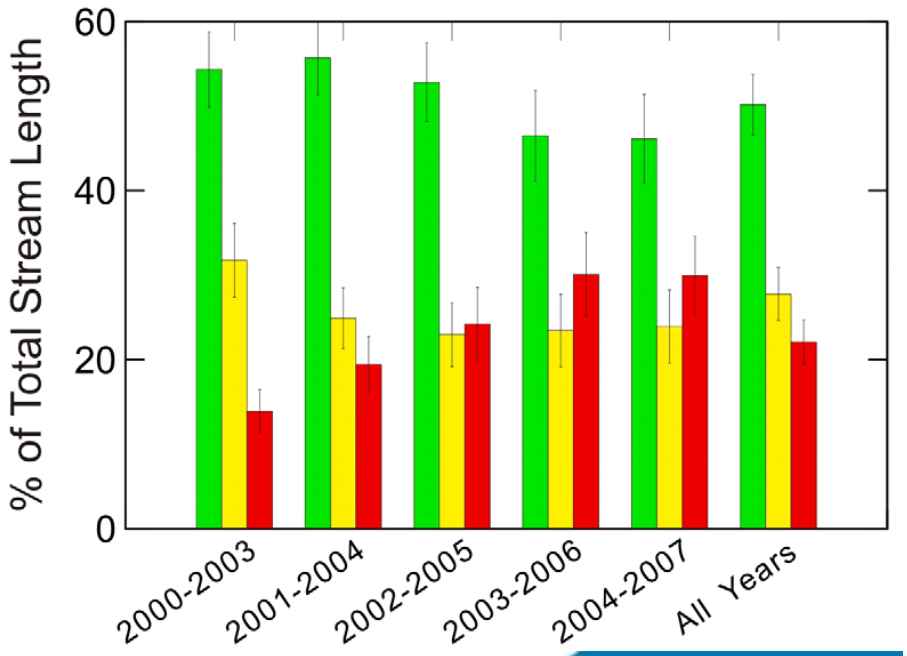
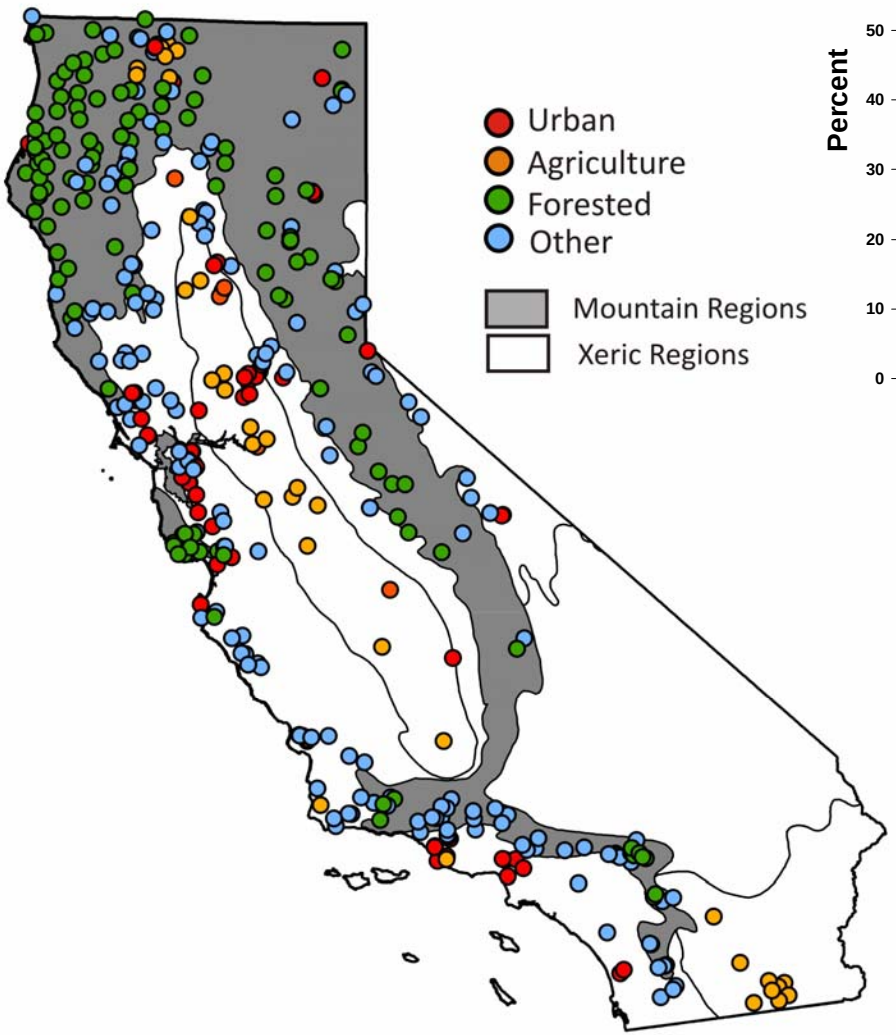
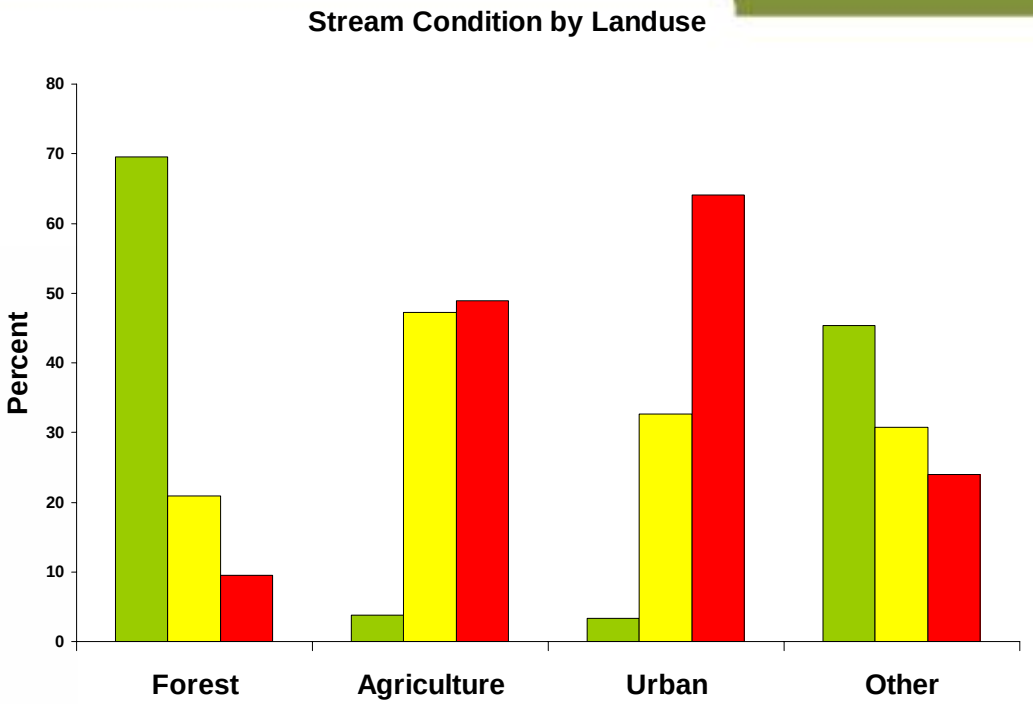


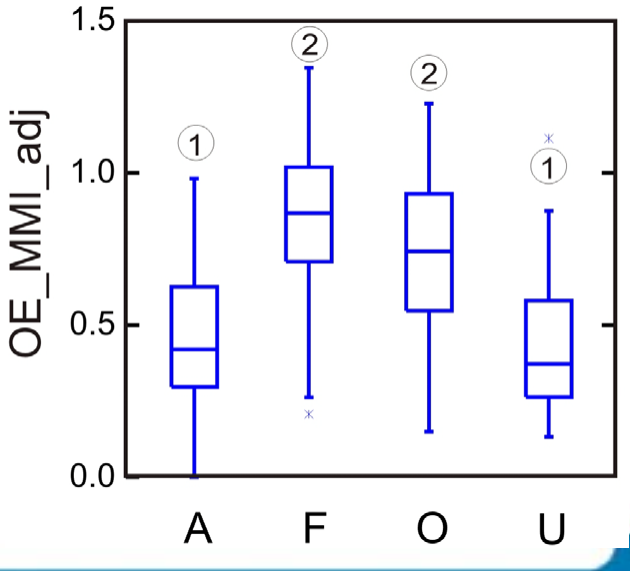


SWAMP Perennial Stream Survey

Landuse as a surrogate stressor







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C. End-of-watershed monitoring (Integrator sites)

- **State and Regional Board efforts focus on contaminant stressors**
  - Permitting
  - Non Point Source contamination
  - 303(d) listing
  - TMDLs

- **Goals of Integrator site study**:
  - Trends in contaminants at bottom of key watersheds
  - Assess effects of watershed protection efforts
  - Framework for integrating Regional Board programs on a watershed basis

- **Potential to support Stressor theme**

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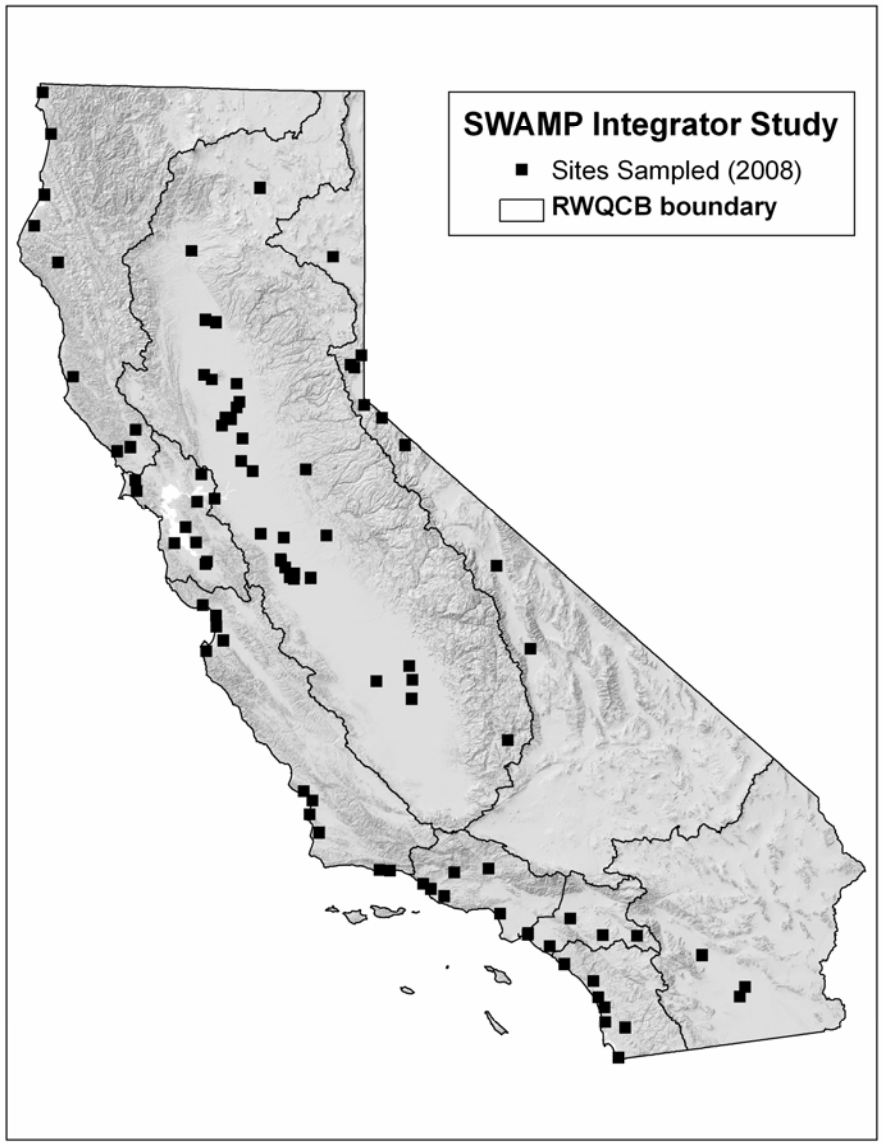
Integrator Sites



- Sediment chemistry and sediment toxicity
- Sampling at ~100 watersheds
- Framework for collaboration with monitoring efforts within watersheds

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2. SWAMP Monitoring Infrastructure

- **Methods (standardization and development)**
  - SOPs for biological monitoring
  - Performance-based QA for chemical and toxicity
- **Quality Assurance/Quality Control**
  - SWAMP QA Program Plan
  - Quality control procedures (data verification/validation)
- **Information Management**
  - Standard data formats
  - Structured data tables

Monitoring Council provides forum to:

- Vet SWAMP procedures with other agencies
- Disseminate lessons learned in SWAMP

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3. Public Dissemination of Data

- **SWAMP Information Management**
  - SWAMP Data Base
  - Standardized formats for ambient data
  - Rigorous data verification and validation process

- **California Environmental Data Exchange Network**
  - CEDEN for data sharing

    (Scientists, EPA, Environmental Groups, General Public)
  - CEDEN for public display of data

    (General Public and Managers)

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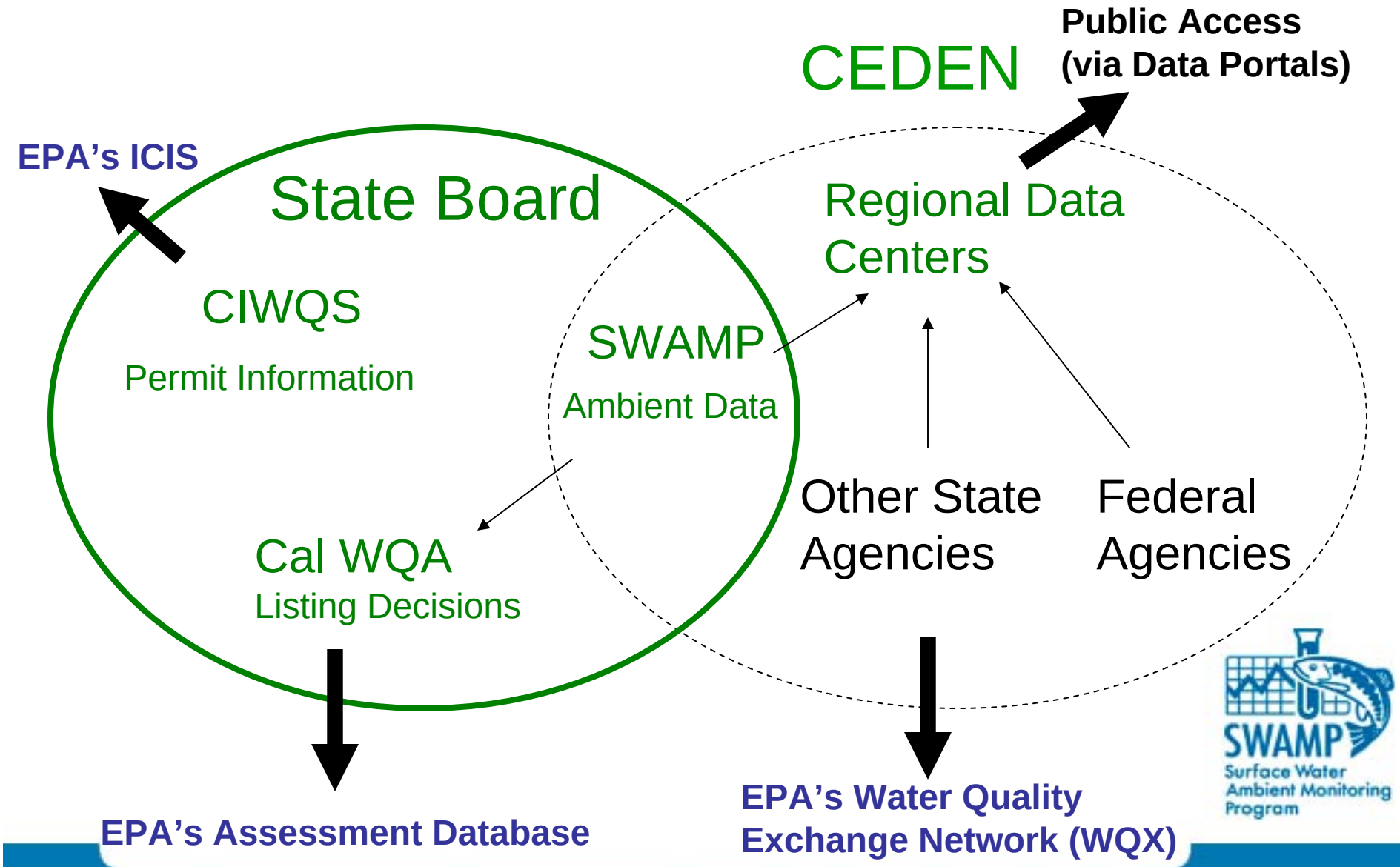
A SWAMP Perspective of the Data World



SWAMP already collaborating on Seafood portal

State of California
ENVIRONMENTAL PROTECTION AGENCY
RESOURCES AGENCY
CALIFORNIA WATER QUALITY MONITORING COUNCIL

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California This Site

Home | Drinking | Swimming | Eating Fish & Shellfish | Aquatic Ecosystem Health | Stressors & Processes

Consumption Advisories | Contamination Levels | Data & Trends | Impaired Waters | Improvements

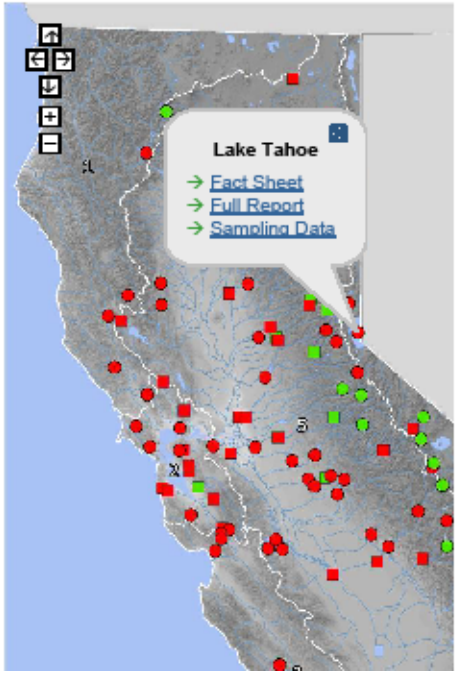
GOVERNOR SCHWARZENEGGER
Visit his Website

→ State & Regional Water Boards

SAFE TO EAT FISH LINKS
→ Pollution Sources & Health Risks (links to page 8)
→ Laws, Regulations & Standards (links to page 9)
→ Regulatory Activities
→ Enforcement Actions
→ Research
→ Monitoring Programs, Data Sources & Reports
→ Browse by Geography
  → Local
  → State
  → County
  → National

Home → Safe To Eat → Contamination Levels

What Are the Overall Tissue Contaminant Levels in My Lake, Stream, or Ocean Location?



Overall Fish and Shellfish Tissue Contaminant Levels

Some fish and shellfish contain chemicals that accumulate in their tissues from the water they live in and the food they eat. This interactive map shows monitoring data for fish and shellfish tissue samples in the locations where they have been monitored.

Green indicates that all tissue concentrations were below levels determined to be harmful to human and wildlife consumers of fish.

Red indicates that all tissue concentrations were at or above levels determined to be harmful to human and wildlife consumers of fish.

→ Click on a colored dot to view more detailed information about tissue contaminant levels, or

→ Type the water body name in the box below to view tissue contamination levels for that water body

Search GO

Fish tissue contaminant monitoring by the Surface Water Ambient Monitoring Program (SWAMP) occurs on a five year cycle, rotating between lakes, streams, and coastal waters. The following reports are currently available:

→ Historic data on fish and mussel monitoring
→ Sport fish in lakes and reservoirs

(Add SWAMP logo)

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Help in design of Healthy Aquatic Ecosystem and potentially the Stressor portal