

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

### **BIOACCUMULATION MONITORING IN CALIFORNIA: PROBLEM STATEMENT**

Great strides have been made in the last few years in providing the information needed to manage bioaccumulative pollutants in California Water bodies.

- Statewide surveys of contaminants in sport fish have been conducted across all of the major water body types
- Unprecedented coordination of programs on a statewide scale
- Annual reports and fact sheets
- Safe to Eat Portal
- A centralized database has been established and is being used
- Plans are in place for the first statewide study of the impacts of bioaccumulation on wildlife in lakes and reservoirs

However, California still lacks the comprehensive monitoring, assessment, and communication needed to fully support protection of human and wildlife health from risks due to bioaccumulation of pollutants from California water bodies.

There are multiple facets of the problem.

#### **1. Insufficient data**

- Incomplete coverage of many water bodies not monitored sufficiently to protect public health (support safe eating guidelines) and aquatic life (including wildlife), or support cleanup efforts; others not monitored at all
- Lack of information on the fishing beneficial use (fishing pressure and species preferences across water body types)
- Lack of information on the aquatic life beneficial use (population status and basic ecology of sensitive species)
- Lack of information on trends in pollutants of concern at a regional or local scale
- Lack of information on contaminants of emerging concern
- Lack of information on biotoxins
- Lack of information needed (especially lake properties and water quality parameters) to understand drivers of patterns in bioaccumulation across the state

#### **2. Uncoordinated monitoring** - lack of consistency and coordination in:

- Monitoring (including QA)
- Data management
- Assessment
- Reporting

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- Peer review
- 3. **Insufficient synthesis, assessment, and reporting**
  - Timely development of safe eating guidelines (OEHHA)
  - Interpretation of patterns in existing data to support management
- 4. **Insufficient understanding of sources and fate**
  - Understanding of relative importance of different sources and of fate processes that influence bioaccumulation is essential to management. Process studies needed to address this.
- 5. **Insufficient access to data** for scientists, regulators, and the public. Safe to Eat Portal is a good start, but needs more development (including user feedback).
  - Access to **data** for scientists and regulators
  - Access to **information** for anglers and the public
- 6. **Uncoordinated and ineffective communication** of important information
  - Coordinated public release of important information
  - Lack of investment in communication – lack of understanding of target audiences, lack of evaluation of effectiveness

**GENERAL GOALS AND OBJECTIVES FOR BIOACCUMULATION MONITORING IN CALIFORNIA**

- Conduct coordinated, long-term statewide monitoring and assessment to generate the data needed to support water quality protection and restoration (TMDLs, etc.)
  - Provide periodic statewide assessments of California water bodies that policy makers need to track general status
  - Conduct the trend monitoring needed to track effectiveness of specific cleanup actions
  - In support of control efforts, conduct the studies needed to identify the most important sources and pathways
- Communicate to the public and provide public access to information on fish contamination that the public can use to reduce their exposure to contaminants and participate in management processes in an informed manner
  - Maintain and refine the “safe to eat” portal as one form of access to fish contamination information
  - Develop safe eating guidelines for all water bodies where they are needed
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**GOALS AND OBJECTIVES FOR SWAMP WITH REGARD TO BIOACCUMULATION MONITORING IN CALIFORNIA**

- Create the infrastructure needed to promote coordinated long-term, statewide monitoring to generate reliable and accessible data and information
  - Create a forum (the BOG) for coordination and exchange of information relating to bioaccumulation monitoring
  - Produce synthesis reports on bioaccumulation issues
  - Further develop and promote the use of a shared database for bioaccumulation data
  - Provide guidance for other groups on sampling design and methods to promote the generation of reliable data
  - Promote the use of appropriate and consistent assessment approaches across the state
- Conduct statewide monitoring and studies to address the most important data gaps relating to support of water quality protection and restoration (TMDLs, etc.)
  - Provide periodic statewide assessments of California water bodies that policy makers need to track general status
  - Conduct or coordinate trend monitoring to evaluate general statewide effectiveness of water quality regulations
  - In support of control efforts, conduct or coordinate the studies needed to identify the most important sources and pathways

## Recommendations

1. Conduct a statewide assessment for all water body types every 10 years
2. Conduct the monitoring and assessment needed to support development of safe eating guidelines for all water bodies significantly supporting the fishing beneficial use
3. Conduct the monitoring and assessment needed to protect aquatic life
4. Conduct the monitoring and studies needed to support TMDLs, standard development, and other cleanup efforts
5. **Require** all significant monitoring efforts to participate in a coordinated statewide program
6. **Require** agencies to coordinate communication of information to the public and stakeholders via safe eating guidelines, reports, accessible data, and press releases

## Steps in Strategy Development

1. Develop a draft strategy
2. Identify additional members
3. Get new members to participate with help from BOG members
4. Decide on workgroup organization and processes
5. Review charter with expanded workgroup
6. Review draft strategy with expanded workgroup
7. Finalize strategy
8. Present strategy to the Council for review
9. Start implementing strategy

## Beneficial Uses Addressed

Fishing

Aquatic Life (includes wildlife)

“Public Health”?

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Table 1. Objectives and assessment questions for the SWAMP that pertain to bioaccumulation monitoring.

### FISHING BENEFICIAL USE SUPPORT – *we adopted these back in 2006*

#### **D.1. Determine the status of the fishing beneficial use throughout the State without bias to known impairment**

D.1.1 What is the extent and location of water bodies not supporting any fishing beneficial use?

D.1.2 What is the extent and location of water bodies partially supporting the fishing beneficial use?

D.1.3 What is the extent and location of water bodies fully supporting the fishing beneficial use?

D.1.4 What is the proportion of water bodies in the State and each region falling within the three levels of support of the fishing beneficial use?

#### **D.2. Assess trends in the fishing beneficial use throughout the State**

D.2.1 Are water bodies improving or deteriorating with respect to the fishing beneficial use?

D.2.2 Have water bodies fully supporting the fishing beneficial use become impaired?

D.2.3 Has full support of the fishing beneficial use been restored to previously impaired water bodies?

#### **D3. Evaluate sources and pathways of factors impacting the fishing beneficial use**

D3.1 What is the relative importance of different pollutant sources and pathways in terms of impact on the fishing beneficial use on a regional and statewide basis?

#### **D4. Evaluate the effectiveness of management actions in improving the fishing beneficial use**

D4.1 How is the fishing beneficial use affected by remediation, source control, or pollution prevention actions and policies regionally and statewide?

### AQUATIC LIFE BENEFICIAL USE SUPPORT – *parallel to the fishing ones – we haven't adopted these*

#### **A.1. Determine the status of aquatic life use support throughout the State without bias to known impairment**

A.1.1 What is the extent and location of water bodies with limited support of the aquatic life beneficial use?

A.1.3 What is the extent and location of water bodies fully supporting the aquatic life beneficial use?

A.1.4. What is the proportion of water bodies in the State and each region in each level of support of the aquatic life beneficial use?

#### **A.2. Assess trends in support of the aquatic life beneficial use throughout the State**

A.2.1 Are water bodies improving or deteriorating with respect to the fishing beneficial use?

A.2.2 Have water bodies fully supporting the aquatic life beneficial use become impaired?

A.2.3 Has full support of the aquatic life beneficial use been restored to previously impaired water bodies?

#### **A.3. Evaluate sources and pathways of factors impacting the aquatic life beneficial use**

A.3.3 What is the relative importance of different pollutant sources and pathways in terms of impact on the aquatic life beneficial use?

#### **A.4. Evaluate effectiveness of management actions improving the aquatic life beneficial use**

A.4.1 How is the aquatic life beneficial use affected by remediation, source control, or pollution prevention actions and policies regionally and statewide?

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**What Monitoring Needs to Be Done Going Forward**

Beneficial Use	Objective	Lakes and Reservoirs	Coast and Bays and Estuaries	Rivers and Streams	Wetlands
<b>Fishing</b>	Status	✓	✓	✓	Not Applicable
	Trends	✓	✓	✓	Not Applicable
	Sources	✓	✓	✓	Not Applicable
	Management effectiveness	✓	✓	✓	Not Applicable
<b>Aquatic Life</b>	Status	?	?	?	✓
	Trends	?	?	?	✓
	Sources	?	?	?	✓
	Management effectiveness	?	?	?	✓

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**What and Who Going Forward - Strawman**

Beneficial Use	Objective	Lakes and Reservoirs	Coast and Bays and Estuaries	Rivers and Streams	Wetlands
<b>Fishing</b>	Status	<p><b>Periodically repeat probability survey SWAMP/USEPA?</b> SWAMP separate survey every 10 yr?</p> <p><b>Periodic census of popular/targeted lakes (every 10 yr)</b> Coordinate with: TMDL parties FERC DWR USACE Etc. SWAMP fill gaps</p>	<p><b>Census every 10 yr</b> RMP? Bight SWAMP Others?</p>	<p><b>Census every 10 yr</b> TMDL parties? SWAMP Others?</p>	
	Trends	<p><b>Higher frequency monitoring at selected lakes – lakes subject to management actions or reference lakes (every 5 yr at a minimum)?</b> TMDL parties SWAMP jump start and fill gaps?</p>	<p><b>Higher frequency monitoring at selected locations?</b> RMP Bight? SWAMP fill gaps?</p>	<p><b>Higher frequency monitoring at selected locations?</b> TMDL parties? SWAMP jump start and fill gaps?</p>	
	Sources	TMDL Parties	TMDL Parties	TMDL Parties	
	Management effectiveness	See Trends above TMDL Parties	See Trends above TMDL Parties	See Trends above TMDL Parties	

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<b>Aquatic Life</b>	Status	<b>Address through translators (e.g., BAFs) from sport fish to other species</b>	Same	Same	? <b>A gap</b>
	Trends	Same	Same	Same	? <b>A gap</b>
	Sources	TMDL Parties	TMDL Parties	TMDL Parties	? <b>A gap</b>
	Management effectiveness	See Trends above	See Trends above	See Trends above	? <b>A gap</b>