

Strategy for Coordinated Monitoring, Assessment, and Communication of Information on Bioaccumulation from Aquatic Ecosystems in California

Problem Statement

California lacks the monitoring information, assessment, and communication needed to 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** – 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)
2. **Uncoordinated monitoring** - lack of consistency and coordination in monitoring (including QA), data management, assessment, reporting, peer review
3. **Insufficient synthesis, assessment, and reporting** – safe eating guidelines (OEHHA backlog), 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 – essential to management – process studies needed to address this
5. **Insufficient access to data** for scientists, regulators, and the public – STEP is a good start, but needs more development (including user feedback)
6. **Uncoordinated and ineffective communication** of important information – this is strong wording, but there is a lot of room for improvement here

Goals

1. Facilitate establishment of a coordinated, long-term statewide program to generate the data and communicate the information needed to support management
 - a. Develop safe eating guidelines for all water bodies where they are needed
 - b. Provide monitoring needed to support cleanup efforts (TMDLs, etc.) in an adaptive management context

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)

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?

What Monitoring Needs to Be Done Going Forward

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

What and Who Going Forward - Strawman

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

BOG Strategy Elements 10-20-11

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