

# SWAMP Monitoring Strategy

## SWAMP's Statewide Assessment Programs



In order to provide resource managers, decision makers, and the public with timely, high-quality information on the condition of all waters throughout California, the Surface Water Ambient Monitoring Program (SWAMP) conducts three statewide monitoring programs. These programs assess bioaccumulation of contaminants in sport fish (Bioaccumulation Monitoring Program), biological condition in perennial streams (Bioassessment Monitoring Program), and sediment quality at the bottom of watersheds (Stream Pollution Trends Monitoring Program). Statewide monitoring and assessments provide information on the status and trends of California waters to guide decisions made by the Legislature and the State Environmental and Resources agencies.

### Bioaccumulation Monitoring Program

The Bioaccumulation Monitoring Program is part of a long-term effort to comprehensively monitor contaminants in sport fish in California waterbodies. With funding from SWAMP and oversight from the Bioaccumulation Oversight Group (BOG), the efforts to date have been focused on a two year screening survey of contaminants in sport fish from California lakes and reservoirs. Due to their vast number, high fishing pressure, and a relative lack of information on bioaccumulation, lakes and reservoirs

were identified early by the BOG as the first priority for SWAMP monitoring. Coastal waters were selected as the next priority, due to their importance for sport fishing and a relative lack of past monitoring. Monitoring will rotate between these waterbody types on a 5-year cycle. The Bioaccumulation Monitoring Program currently focuses on contaminant levels of methylmercury, PCBs, DDTs, dieldrin, chlordane, and selenium.

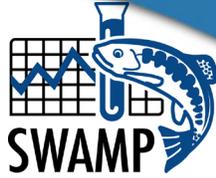
*This monitoring program is designed to answer the following question:*

- What proportion of California lakes have sport fish with levels of contaminants that exceed safe consumption thresholds?

Information obtained from this program will facilitate a general assessment of bioaccumulation impacts in California lakes and reservoirs, enable the determination of lakes that should be on the 303(d) list of impaired water bodies, and create a foundation for developing fish consumption guidelines for lakes with fish tissue concentrations above thresholds for concern.

### Biological Assessment Program

One of SWAMP's priorities has been to develop California's capacity to directly measure the biological integrity of the state's waterbodies. SWAMP's current focus is on the bioassessment of wadeable streams using stream invertebrates as indicators of



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ecological condition. However, SWAMP eventually plans to develop the capacity to measure biological integrity of other waterbodies (non-perennial streams, large rivers, wetlands, etc.) using multiple types of biological organisms (fish, algae, riparian vegetation, etc.).

SWAMP's Biological Assessment Program has two components: the Perennial Streams Assessment (PSA) and the Reference Condition Monitoring Program (RCMP). Together these programs provide resource managers with a framework for interpreting monitoring data and have a wide range of applications.

**PSA:** The PSA is an ongoing survey of stream health that builds on 8 years of prior national and state monitoring (EMAP and CMAP). SWAMP visits approximately 75 randomly selected stream reaches each year, collecting data on biological condition (benthic invertebrates, algae), instream and riparian habitat condition, and water chemistry. These data are used to make unbiased assessments of the health of California's streams and the factors that support or degrade stream health.

### *This monitoring program is designed to answer the following questions:*

- What percent of California's perennial, wadeable streams are in good, degraded, or very degraded condition?
- What is the condition of streams in agricultural, urban, and forested land use areas?
- What is the relative risk of various stressors to biological condition?

Information obtained from this program will fulfill a Statewide assessment requirement under the Clean Water Act, section 305(b); determine relationships between stressors and effects for non-point source programs; examine trends related to particular stressors of concern; and provide a framework for prioritizing individual issues for further investigation.



**RCMP:** The RCMP collects PSA-type data from streams that are minimally influenced by humans. This information is essential for bioassessment because it provides an unbiased means of setting biological expectations for test sites. The RCMP also establishes baseline levels of stressors and identifies water bodies in good condition that need to be protected from degradation.

## Stream Pollution Trends (SPoT) Monitoring Program

The SPoT Monitoring Program was established to protect aquatic life in California's rivers and streams, and seeks to monitor the affects of non-point source pollution from multiple and changing land-use activities within California's watersheds.

### *Questions*

- What are the long-term trends in stream contaminant concentrations and effects statewide?
- Are the selected water quality indicators appropriate for monitoring specific land use characteristics?
- How well do selected water quality indicators provide a basis for evaluation of management efforts?
- What must be done in order to establish a network of sites throughout the State to serve as a backbone for collaboration with local, regional, and federal monitoring programs?

Information obtained from this program will fulfill a Statewide assessment requirement under the Clean Water Act, section 305(b); evaluate the success of the total maximum daily load, Regional, and Statewide management programs; determine relationships between stressors and effects for non-point source programs; examine trends related to particular stressors of concern; and provide a framework for prioritizing individual issues for further investigation.



[http://www.waterboards.ca.gov/water\\_issues/programs/swamp](http://www.waterboards.ca.gov/water_issues/programs/swamp)



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