



Stream Pollution Trend (SPoT) Monitoring at Integrator Sites (Statewide)

What is it?

The Statewide Stream Pollution Trend (SPoT) Monitoring Program is part of the long-term statewide trend monitoring being conducted to assess California streams. This program is designed to detect changes in the concentrations of stream-borne contaminants and their effects on aquatic life in large watersheds at time scales appropriate to management decision making. Three specific goals of this program are to:

1. Determine long-term trends in stream contaminant concentrations and effects statewide.
2. Relate water quality indicators to land-use characteristics and management efforts.
3. Establish a network of sites throughout the state to serve as a backbone for collaboration with local, regional, and federal monitoring.

Sites are selected at points where contaminants released throughout large watersheds are likely to accumulate in streams. These sites are similar to the “integrator” sites used in the USGS National Water Quality Assessment (NAWQA) program; that is, sites located near discharge points of large watersheds characterized by mixed land uses. To monitor long-term trends, sediment samples are collected annually at 100 sites in a state divided into approximately 200 major hydrologic units. Because most water-borne pollutants tend to bind to sediment particles and remain with the sediments when they are deposited downstream, monitoring at these sites provides an estimate of the cumulative contribution of contaminants from throughout the target watersheds. The sediments are analyzed for a suite of pollutants and for toxicity to aquatic organisms.

The integrator site surveys are designed to link water quality with land use and management activities within watersheds, using sediment data measurements from the base of the a watershed. This involves the collection and spatial analysis of supplementary data such as land cover, chemical application rates, and hydrologic variables. SWAMP scientists are adapting geographic analysis tools from the USGS, US EPA, NOAA, and others for these assessments.

Some Regional Water Boards (e.g., Central Valley) have contributed additional resources to augment the monitoring conducted by the statewide program to provide more monitoring within their region to obtain a more complete regional perspective. While these Regional Water Boards publish these data in separate reports, all the data are combined when the assessments are conducted.

Why is it important to the State?

This type of monitoring provides a direct assessment of the mobilization of pollutants within California's watersheds, and measures the potential for adverse biological impacts from pollutants in the State's streams. Aquatic communities may be affected by contaminants transported from upper watersheds into streams and downstream habitats. SPoT primarily is designed to assess aquatic life beneficial use support in California streams.

Why is it important to me?

Californians value clean water and the wildlife and human uses it supports. The SPoT program investigates how land use and management activities may be impacting water quality and the health aquatic life. The information provided by this program will help inform management decisions that affect the water quality of California's streams.

How are the data used?

All monitoring data are entered into the SWAMP data base, where they become available for a number of uses, including the following:

- Statewide 305[b] reporting and 303[d] listing as required by the Clean Water Act
- Enhancing Regional monitoring programs
- Evaluating the success of TMDL, Regional, and statewide management programs
- Determining relationships between human activities and stream pollution for NPS programs
- Providing perspective for and enhancing agricultural waiver monitoring
- Providing perspective for and enhancing urban stormwater monitoring
- Assisting with sediment quality objective development
- Examining trends related to particular stressors of concern
- Providing a framework for prioritizing individual issues for further investigation.

SWAMP Partners: US EPA, multiple watershed monitoring programs, municipal storm water programs, State Water Board Nonpoint Source Program, Moss Landing Marine Laboratories, U.C. Davis Granite Canyon Laboratory

To learn more about SPoT, click here.