



Perennial Streams Assessment (PSA)/Bioassessment Monitoring Program (Statewide)

What is it?

The year 2010 marked the 10th year that SWAMP conducted a statewide assessment on the biological integrity of California's perennial streams (streams that flow year round). The Perennial Streams Assessment (PSA) program is a monitoring program that builds upon prior work conducted by the US EPA's Environmental Monitoring and Assessment Program (EMAP) and California's Monitoring and Assessment Program (CMAP) to assess the ecological condition of the State's perennial streams. As with EMAP and CMAP, the PSA utilizes a probabilistic sampling design, which relies on a statistically valid random sample of sites to represent an area of interest. The PSA is designed to answer the question: "How many of California's perennial streams are in good, fair, or poor condition?"

The current PSA program assesses selected water quality measures plus the biological and physical habitat conditions of perennial streams. The main tool utilized by PSA is bioassessment. Bioassessment is a method of using resident aquatic organisms (such as fish, insects or algae) as indicators of biological condition. The PSA uses benthic macroinvertebrates (BMIs) which are bottom-dwelling animals (often insect larvae) that are large enough to be seen by the naked eye. BMIs were chosen as indicators for this program because there are well-established scientific methods for sampling and identifying them and tools (such as Indices of Biological Integrity (IBI) and Observed/Expected models) exist that utilize them to evaluate, or score, biological condition. These tools produce numeric scores for particular sites that are easier to interpret than counts of many individual macroinvertebrate samples. The water quality portion of the program monitors for constituents such as nutrients, salinity, suspended solids, and dissolved organic carbon. Physical habitat measures taken include thalweg profile, channel and riparian cross-section characteristics, and flow.

Another important component of PSA that cannot be overlooked is the development of a set of identified reference condition quality factors. Reference conditions are critical to the

interpretation of biological data. To address this, SWAMP has developed a Reference Condition Management Program (RCMP). The goal of the SWAMP RCMP is to provide an objective system for defining the expected biological and physical condition for wadeable streams and rivers in California.

Some Regional Water Boards (e.g., Santa Ana, San Diego, and Los Angeles) have contributed additional resources to augment the monitoring conducted by the statewide program to provide a more complete regional perspective. While these Regional Water Boards publish these data separately, all the data are combined when the assessments are conducted.

Why is it important to the State?

The State is required by federal law to assess the condition of its waters biennially. The data generated by this program are key to conducting a comprehensive and meaningful assessment of California surface waters. The probabilistic design of the PSA allows SWAMP to extend the assessment beyond the scope of the streams sampled directly to assess the water quality and biological integrity of all perennial streams of the State.

Why is it important to me?

Clean and healthy streams and rivers provide habitat, spawning grounds, food and shelter for fish, birds, and other aquatic and terrestrial wildlife. Impairment of water quality reduces the ability of a waterbody to provide these functions. This program provides valuable information on the health of our streams – both on a statewide and at a local level.

How will the information be used?

Data collected through this program will be used to assess the health of streams in California, and will contribute to the water quality assessments required by Clean Water Act Sections 303(d) and 305(b). The PSA monitoring will also provide information to support other Water Board programs including permitting, non-point source, and total maximum daily loads. These programs rely on monitoring and assessment information to provide an accurate and complete delineation of waterbody impairments and their associated causes. This information also will be used to support the State Water Board's efforts to develop biological objectives for California. The data will be incorporated into the California Environmental Data Exchange Network (CEDEN) and will be available for use by the other agencies and the general public.