

Bioassessment of Perennial Streams in Southern California: A Report on the First Five Years of the Stormwater Monitoring Coalition's Regional Stream Survey

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EXECUTIVE SUMMARY

Streams are important natural resources in the South Coast of California, a region that extends from Ventura to San Diego counties. Competing needs for aquatic resources are intense and growing. Assessing the biological condition of these streams has been the focus of considerable monitoring activity. However, until 2009 these efforts were minimally coordinated and provided only limited information about the health of streams in the region, as a result of an emphasis on end-of-watershed monitoring. The Stormwater Monitoring Coalition (SMC) regional perennial stream survey was created in response to the need for a more holistic and coordinated approach. This report provides the results of a five-year probability-based bioassessment of southern California's perennial wadeable streams and represents one of the most comprehensive assessments of stream conditions in the United States.

The five-year survey was designed to answer key questions that are essential to watershed management:

- 1) What is the biological condition of perennial streams in the region?
- 2) What stressors are associated with poor condition?
- 3) Are conditions changing over time?

Answering these questions at the regional scale provides resource managers with the ability to contextualize their programs and improve understanding of the effectiveness of management actions, prioritization of streams most in need of protection, and identification of stressors that are likely to pose the greatest risk to stream health.

Prior to the initiation of the SMC perennial stream survey, bioassessment efforts in southern California had a limited ability to answer any of these questions. Lead monitoring agencies worked with little coordination, typically addressing site-specific problems with sometimes incomparable methodologies and rarely sharing data. Targeted monitoring mandated by permits did not provide the regional context needed to inform management decisions. Earlier probabilistic sampling efforts in southern California were limited (rarely more than a handful of sites per year), and were conducted as a small part of a statewide or national assessment.

Since the initiation of the SMC perennial stream survey in 2009, stormwater agencies have been able to coordinate their monitoring efforts with regulatory agencies, reallocate resources, and generate the needed data in a cost-neutral way, while simultaneously allowing regulated agencies to fulfill their permit obligations. This survey serves as the regional component of the statewide Perennial Stream Assessment, allowing both the SMC and the State Water Resources Control Board to leverage resources and support each other's surveys.

To answer key management questions, over 500 sites were sampled for four key indicators of biological condition: benthic macroinvertebrates, diatoms, soft algae, and riparian wetlands. These indicators were used to assess the biological health of over 7000 km of streams. In addition, water chemistry, water column toxicity, and physical habitat were examined in order to identify stressors affecting biological

conditions in the region. Furthermore, because the survey spanned five years, initial estimates of regional trends are now possible.

Full text: [844 SoCalStrmAssess.pdf](#)

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