

## Recommendations for the Development and Maintenance of a Reference Condition Management Program to Support Biological Assessment of California's Wadeable Streams.

### What is it?

This document provides recommendations to SWAMP on developing and maintaining a Reference Condition Management Program (RCMP) that will support its regulatory biological assessment programs. The SWAMP commitment to develop bioassessment/biological objectives infrastructure provides the need to standardize the reference site selection process statewide. 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.

### Why is it important to the State?

For decades, most state water quality monitoring programs have focused on the chemical integrity of waterbodies. Exclusive focus on these measures is inadequate to protect aquatic life uses. Adoption of biology-based regulatory standards (biological objectives) has the potential to provide significant enhancements to the protection of water resource integrity because biological objectives provide a regulatory mechanism for applying the benefits of bioassessment to numerous water resource objectives. The issue of reference conditions is critical to the interpretation of biological data. Three peer reviews of SWAMP have affirmed the importance of this effort (2002: external review of bioassessment programs throughout California by Tetra Tech; 2006: SPARC review; 2008: USEPA Critical Elements Review).



## Why is it important to me?

Aquatic bioassessment is the applied science of interpreting the ecological condition of waterbodies directly from the organisms that inhabit them. Biological objectives are narrative or numeric standards that define whether the integrity of biological communities is impaired at a specific site. Water quality regulatory programs can receive many benefits from adopting biology-based standards as targets of their policies and management actions. The key to using biology-based methods effectively is the establishment of benchmarks that objectively define the biological expectations of a given site. Reference conditions provide these objective benchmarks.

## How will this information be used?

This report has proposed a general strategy for identifying reference sites. Data collected from reference sites will be used to answer a primary question: "what is the expected natural composition of lotic freshwater organisms (those organisms that are in actively moving water) in each of the major biogeographical regions of California?" The answer needs to be determined with sufficient rigor to serve as the basis for setting defensible numeric biological objectives. The primary focus is on establishing expectations for benthic macroinvertebrate assemblages in perennial wadeable streams, but it is expected that the approach will allow similar assessments of algal and fish assemblages as well as instream habitat condition and riparian condition.

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