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California Dreamin': A vision for more effective use of biological data in water resource management

¹Peter R. Ode

²Raphael D. Mazor

¹*California Department of Fish and Wildlife*

²*Southern California Coastal Water Research Project, Costa Mesa, CA*

Abstract

The expanding use of biological indicators over the past two decades was fueled by the promise that they would support more meaningful assessments of waterbody health. Significant progress has been made to ensure that bioassessment data are objective, reliable and repeatable, but much still needs to be done to fully realize the benefits that could accrue from shifting focus to biological indicators. In California, large investments in bioassessment infrastructure have given water resource managers an array of tools to reliably quantify the condition of multiple assemblages multiple waterbody types. However, most managers in the state are still learning how to use this information and need tools that will help them detect and interpret patterns in the biological data in the context of local and regional factors (e.g., chemistry, habitat, flow alteration, landuse). California is now focused on developing two new types of technical tools: 1) response models that set management targets for stressors (e.g., nutrients, hydromodification, physical habitat alteration) that will protect biological integrity and 2) landscape and spatial network models that provide context and encourage practitioners to look beyond reaches and consider patterns in condition occurring across larger regions..