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Overview of a Three-tiered Framework for Establishing Environmental Flows for California Streams

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Abstract

Establishing environmental flow targets to protect biological communities is a priority for numerous programs in California. Although methods vary, each effort aims to achieve similar goals of stipulating flow conditions necessary to protect ecological integrity in light of competing water uses, such as agricultural production (including cannabis), hydropower and dam operation, timber harvest, urban water reuse, consumptive uses (including groundwater extraction), or runoff management. Methods vary based on the ecological endpoint of management concern (e.g. fish, macroinvertebrates, habitat), stream type, and preferences of the implementing agency, and include a variety of established methods, such as Physical Habitat Simulation (PHABSIM), Instream Flow Incremental Methodology (IFIM), functional flows, Ecological Limits of Hydrologic Alteration (ELOHA), and minimum percent of flow. A statewide technical workgroup consisting of UC Davis, Southern California Coastal Water Research Project, The Nature Conservancy, UC Berkeley, and the U.S. Geological Survey has convened to develop a framework for organizing environmental flow analyses across California and provide consistent science-based recommendations for applying appropriate methods to inform setting and managing of environmental flows. A central goal of this framework is to improve the ability to coordinate statewide and local efforts, provide guidance on methodology, share data and tools, and produce consistently interpretable environmental flow recommendations. This talk will provide an overview and introduction to the three-tiered approach that the workgroup has developed for establishing environmental flows in California. Subsequent talks in this session will provide details and examples of the tools and sample applications of the framework.