Estimation of Passage Flows for Anadromous Fish through Critical Riffles in Stevens and Coyote Creeks, Santa Clara County, California

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Abstract

Regulated streams are ubiquitous throughout the western United States and play a key role in providing drinking water, flood protection and power generation for residents of the region’s major urban centers. However, streamflow regulation also impacts anadromous fish by fundamentally changing the hydrology and sediment transport regimes of the affected watersheds and by introducing artificial migration barriers. These problems have long been recognized by the private and public sectors and, as a result, many local, state and federal agencies are actively engaged in managing reservoir releases for the benefit of anadromous fisheries.

Critical passage flows were identified for each stream and are compared to similar work at other locations, particularly results from Mosley (1982) in New Zealand. Results from this project have been used by the Santa Clara Valley Water District to make decisions regarding the magnitude of water releases from upstream reservoirs during periods of up-migration. The iterative flow calculation methodology shows promise as a useful tool for resource managers who may not have the budget or requisite technical resources needed to run HEC-RAS, conduct formal IFIM modeling, or establish gaging stations.

References


