



# Development of a Quality Assurance System for the California Department of Fish and Wildlife Instream Flow Program

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## Background

Instream flow measurements and data reports are vitally important to water management policies related to fish and wildlife habitat protection. This creates a challenge to agencies as instream flow reports may be highly variable in their approach to planning, study design, data collection, and reporting formats. The absence of established quality assurance (QA) systems has often left few mechanisms to assess if instream flow data were produced in a credible, comparable, coordinated, and scientifically-defensible manner.

In 2012, the California Department of Fish and Wildlife (CDFW) Instream Flow Program began work with the Quality Assurance Team in the Marine Pollution Studies Laboratory at the Moss Landing Marine Laboratories to develop a documented, systematic QA program for instream flow data. This program:

- ✓ Produces scientifically-defensible data of known and documented quality
- ✓ Promotes consistent and comparable data and reporting
- ✓ Allows for greater data and funding leverage
- ✓ Links data collection with decision-making
- ✓ Provides method flexibility
- ✓ Is peer-reviewed



## The Toolbox

- **Standard Operating Procedures** →
- **Fact Sheets:** to broadcast program information and resources
- **Report Writing Guidance, Report Review Guidance, and Report Review Checklist:** to ensure consistent management of reports
- **Program Web Page:** to centralize program information, documents, and resources:  
[dfg.ca.gov/water/instream\\_flow](http://dfg.ca.gov/water/instream_flow)
- **Study Plan Template:** to provide content and scope guidance
- **Still to Come...**  
Additional SOPs and fact sheets  
Intercomparison of field crews  
QA manual  
Field training  
Outreach



## Standard Operating Procedures

If multiple instream flow studies are performed using differing protocols or criteria, the resulting data may not be comparable. To enable the production of complete and consistent data for use in the analysis of flow regimes, the Instream Flow QA Program has begun developing standard operating procedures (SOPs) for data collection:

- **Critical Riffle Analysis for Fish Passage in California:** A series of depth measurements is made in natural low-flow areas of a stream and used to determine flows needed for fish passage and aquatic habitat connectivity.
- **Discharge Measurements in Wadeable Streams in California:** A velocity meter and wading rod are used to collect data for use in discharge calculations.
- **Streambed and Water Surface Elevation Data Collection in California:** An autolevel and differential leveling measurements are used to collect streambed and water surface elevation data for use in hydraulic habitat and other instream flow type analyses and models.
- **Flow Duration Analysis in California:** Existing hydrologic data are used to compare, predict, and recommend stream flows.
- **Wetted Perimeter Data Collection in California:** A field-based method is used to determine flow needs for maintaining productive riffle habitats - typically during the summer and/or fall low flow months.

