

**CALIFORNIA DEPARTMENT OF FISH AND GAME
INSTREAM FLOW PROGRAM**

**ANNUAL REPORT
2009**



**California Department of Fish and Game
Water Branch, Instream Flow Program
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Sacramento, CA 95811**

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Instream Flow Program Annual Report 2009

Preface

The primary objective of the Department's Instream Flow Program is to develop scientific information on the relationships between flow and available stream habitat to determine what flows are needed to maintain healthy conditions for fish and wildlife. Relationships between flow and habitat will be developed on the selected streams for each species' critical lifestage need, including spawning, rearing and migration. The Department has interest in assuring that water flows within streams are maintained at levels which are adequate for long-term protection, maintenance and proper stewardship of those resources.

This annual report outlines the activities of the Department in 2009 to implement Public Resources Code sections 10000-10005 through the Department's Instream Flow Program, followed by a general workplan for 2010.

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I. PROGRAM ELEMENTS

In calendar year 2009, The Department's Instream Flow Program included the following program elements and activities related to instream flow:

Instream Flow Program Web Site

The Department created a public internet web site for the Instream Flow Program in 2009. The web site contains links to instream flow reports and documents including annual reports/workplans, priority streams, flow recommendations, and historical flow studies. The web address is:

http://www.dfg.ca.gov/water/instream_flow_docs.html

Priority Streams for Instream Flow Assessment

The Department's priority stream list contains a ranked list of streams and watercourses identified throughout the state for which minimum flow levels need to be established. The Department developed the list of 22 priority streams or watercourses for future instream flow work pursuant to Public Resources Code (PRC) 10004 in 2008. This list was compiled and ranked based on input from Regional Department staff, staff from the State Water Resources Control Board (SWRCB), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS). In developing the ranking, Department staff considered criteria such as 1) presence of coho or other anadromous species; 2) likelihood that the Department flow recommendations would provide a high level of improvement; 3) availability of recent flow studies or other relevant data; and 4) the possibility of partners/willing landowners.

The Department continued to use the priority streams list developed in 2008 for prioritizing flow related efforts and did not revise the list in 2009.

Coordination of Instream Flow Efforts

The Department coordinated instream flow efforts in 2009 with the Department's Regions, the SWRCB, scientists, and interested parties. Coordination efforts included informal public meetings with purposes that included: to exchange information and solicit input; to engage interested parties in study design and development, and obtain comments on study progress and results; to maintain dialogue throughout the instream flow study process and during important decision making steps; to build trust in the underlying science and performance of the studies so that study results are considered valid, credible, and usable; to understand roles and responsibilities from all interested parties; to understand needs of data users; and to explore ways to complement existing efforts and leverage funds.

The Department developed and participated on multiple technical project teams in 2009 to review existing data, identify data gaps in existing information, and to develop recommendations for future instream flow need assessments. Technical project teams met in 2009 to discuss, review, and plan instream flow efforts on the Big Sur River in Monterey County, Butte Creek in Butte County, the Santa Maria River in Santa Barbara County, and the Shasta River in Shasta County. Technical project teams are stream- or water course- specific and consist of Department staff from various offices including the Water Branch, Engineering Branch, and Fisheries Branch in Sacramento, and the relevant Department Regional office staff.

Partnership with SWRCB

The Department continued to maintain a partnership with SWRCB in 2009 for purposes of harmonizing priority setting, study availability, and data evaluation. The Department committed to maintain a partnership with the SWRCB in 2008, and to develop and transmit flow recommendations to SWRCB in a timely manner. Likewise, SWRCB has updated their Strategic Plan to reflect an expectation that the Department will develop instream flow recommendations. To follow through with the Department's commitment to the Water Board, the Department developed and transmitted instream flow recommendations for Butte Creek to the Water Board in 2009 (DFG, 2009)¹.

Identification and Evaluation of Instream Flow Data

The Department identified recently completed or ongoing instream flow studies that could possibly be used to develop stream flow recommendations. The flow studies identified are being funded by multiple entities including U.S. Geological Survey, Los Angeles Department of Water and Power, Southern California Edison, Pacific Gas and Electric, California Department of Water Resources, water agencies and districts, municipalities, local property owners, and others. A number of projects are part of the Federal Energy Regulatory Commission (FERC) relicense process for various hydroelectric projects.

The Department also identified recently or nearly completed flow study reports produced under the Central Valley Project Improvement Act (CVPIA) Instream Flow Investigations by the USFWS. The USFWS intends to release future reports on the Yuba River and Clear Creek. The purpose of the USFWS reports is to provide scientific information to the U.S. Fish and Wildlife Service's CVPIA program to assist in determining instream flow needs for Central Valley streams. In 2009 the Department evaluated a Butte Creek flow study report by the

¹ Department of Fish and Game, 2009. Minimum Instream Flow Recommendations: Butte Creek, Butte County. California Department of Fish and Game, Water Branch, Instream Flow Program. Sacramento, CA. 16 pp. Can be accessed: http://www.dfg.ca.gov/water/instream_flow_docs.html

USFWS and used the information and data to develop stream flow recommendations for Butte Creek.

Instream Flow Recommendations to SWRCB

Since creation of the Department's Instream Flow Program in 2008, the Department committed to develop and transmit one flow recommendation to the SWRCB by 2010, and on average, to develop and transmit one flow recommendation, to the extent funds are available, per year after 2010. In May 2009 the Department transmitted flow recommendations for Butte Creek to SWRCB for consideration as set forth in section 1257.5 of the Water Code (DFG, 2009).

Butte Creek is a significant watercourse for which minimum instream flow levels need to be established in order to assure the continued viability of stream-related fish and wildlife resources. Butte Creek was selected for development of flow recommendations because it is a significant watercourse with high resource value, and because it is one of only three streams (in addition to Deer and Mill Creek) that harbor a genetically distinct, sustaining population, of Spring Run Chinook Salmon (SRCS), *Oncorhynchus tshawytscha*.

The Department developed flow recommendations for Butte Creek using external studies, and transmitted the flow recommendations to SWRCB pursuant to the PRC sections 10001-10002. The flow recommendations report, which may be accessed on the Department's Instream Flow Program web site http://www.dfg.ca.gov/water/instream_flow_docs.html, contains comments received from the public comment period and the responses to those comments. Pursuant to PRC sections 10001-10002, the Department also consulted with the Departments of Water Resources, Boating and Waterways, and Parks and Recreation on the recommended stream flows identified for Butte Creek.

Instream Flow Studies Underway

An instream flow study typically includes the following tasks: 1) project/contract management; 2) habitat mapping; 3) field reconnaissance and site selection; 4) species and lifestage specific habitat suitability criteria (HSC) development, 5) hydraulic data collection; 6) construction and calibration of hydraulic and habitat simulation models; 7) identification of flow recommendations considering all important elements such as hydrology, biology, geomorphology, water quality and connectivity 8) and peer review. Many of these tasks require contracting with outside experts from universities, other agencies, and/or consultants.

The Department initiated several flow studies in 2009. The flow studies include the following from the Department's 2008 priority streams list: the Big Sur River, the Santa Maria River, and the Shasta River. Each project includes multi-agency involvement coordinated by, and with oversight by, the Department. A grant from

the Ocean Protection Council (OPC) for flow study work on coastal rivers has funded various levels of support for each of the flow studies by outside contractors.

Efforts to Seek Funding for Instream Flow Program

The Department has sought funding from various sources including water rights fees, General Fund monies, existing and future bond measures (including leveraging of bond expenditures that might necessitate stream flow studies), federal funding, grants, and fees on project applicants (such as development projects that may necessitate stream flow studies).

Staff prepared two grant funding proposals in 2009 seeking funding for stream flow efforts on priority streams. The first grant proposal was submitted to the Department's Fisheries Restoration Grant Program (FRGP) in the amount of \$454,842. The proposal was for funding to Pacific States Marine Fisheries Commission to conduct an instream flow assessment of San Gregorio Creek. The objectives of the proposal included: 1) Quantify steelhead and coho habitat as a function of flow in the San Gregorio Creek watershed using modeling, hydrological, and empirical methods; and 2) Develop stream flow recommendations needed for protection of steelhead and coho lifestages in the San Gregorio Creek watershed. A decision on the funding status of the grant has not been received.

The second grant proposal was submitted to FRGP in the amount of \$185,560 for stream flow monitoring in South-Central Steelhead habitat of the lower Big Sur River. The objectives of the proposal included: 1) Purchase a satellite telemetry-linked stream flow gage and installation on the lower Big Sur River. 2) Provide operating and maintenance resources for the gage for a period of five years. 3) Develop stream flow rating curve and monitor stream flow in south-central steelhead habitat of the lower Big Sur River. The stream flow monitoring is a critical component of the flow study currently underway on the Big Sur River. A decision on the funding status of the grant has not been received.

Each of the grant proposals provides information and data that would be used by the Department to develop in-stream flow recommendations for transmittal to SWRCB to be considered when SWRCB exercises its water rights authority. The primary objective of the stream flow studies planned and underway on San Gregorio Creek and the Big Sur River, respectively, is to provide the SWRCB with flow recommendations for the protection of salmonids.

At the Department's request \$1,039,000 is included as part of the Governor's Proposed Budget for 2010-2011 for implementing the Instream Flow Program. In summary, the Department continues to seek funding through grant programs and other efforts for implementation of the Instream Flow Program. Table 1 contains

a summary of the funds sought and secured by the Department for implementation of the Instream Flow Program.

Table 1. Funds Sought and Secured for Instream Flow Program 2008 and 2009.

	Funds Dedicated and Sought²	Funds Secured³
Calendar Year 2008		
Fisheries Restoration Grant Program (FRGP) Fire Relief Big Sur River	\$454,841	\$0
Ocean Protection Council (OPC) Coastal Flow Studies	\$1,000,000	\$1,000,000
Calendar Year 2009		
Fisheries Restoration Grant Program (FRGP) San Gregorio Creek Flow Study	\$454,842	N/A
Fisheries Restoration Grant Program (FRGP) Big Sur River Flow Monitoring	\$185,560	N/A
Budget Proposal for 2010-2011	\$1,039,000	N/A
Butte Creek Flow Recommendations - dedicated	\$222,732	\$0
Total 2008:	\$1,454,841	\$1,000,000
Total 2009:	\$1,902,134	N/A

Environmental Filing Fees Review

An application fee (environmental filing fee) for water diversions is currently imposed by PRC Sections 10000-10005 to fund the Department's Instream Flow Program. The environmental filing fees are collected by SWRCB through the water right application process and are transmitted to the Department to help fund the Instream Flow Program. Public Resources Code 10005 sets the filing fee at \$850 per application. Department staff reviewed the filing fees collected in 2009.

In 2009 the Department received \$74,983 pursuant to PRC 10005 from SWRCB. These funds were supplemented with approximately \$67,017 from the Non-dedicated Fish and Game Preservation Fund for one staff environmental scientist

² Funds dedicated and sought includes those funds the Department sought for implementation of the Instream Flow Program, as well as funds dedicated for development of flow recommendations from externally-funded studies and transmittal to the Water Board.

³ Funds secured include those funds the Department received through fund raising efforts that were directed towards implementation of the Department's Instream Flow Program. N/A indicates that status of the funding proposal has not been received.

to coordinate the Instream Flow Program. It is anticipated that this funding structure will continue for the foreseeable future, although the Department will seek other stable funding in addition to the environmental filing fees.

Identification of Costs for Instream Flow Program

The Department intends to identify and report 1) the cost to the Department to perform or oversee any flow studies and flow recommendations and 2) the gap between the amount of money necessary to continue or begin the desired instream flow studies or to prepare flow recommendations and the amount of money currently available.

The Department estimates that approximately \$1,264,000 per a year would provide for a Instream Flow Program that can make progress at fulfilling PRC mandates. Although existing funds provide a good foundation for the program by funding one full time staff coordinator position, this funding level is inadequate to fulfill the Department's PRC obligations. Including all fundraising activities the Department has been able to direct approximately \$331,000⁴ to instream flow actions for 2009.

⁴ Estimate includes cost of Instream Flow Program Coordinator as well funds dedicated to develop Butte Creek Flow Recommendations, approximately \$223,000. Estimate does not include funds sought through grants or the Budget Proposal for 2010-2011 since each are currently in review and funding approval is unknown.

II. SUMMARY OF IMPLEMENTATION OF PUBLIC RESOURCES CODE (PRC) 10000-10005.

The Department's efforts to implement PRC 10000-10005 through the Instream Flow Program are summarized in Table 2. The summary includes both activities that took place in 2008 and 2009, and those planned for 2010. For more information about these activities please refer to Section I of this report (Program Elements).

Table 2. Summary of the implementation of Public Resources Code (PRC) 10000-10005 activities.

Public Resources Code (PRC) Sections	Activities		
	2008	2009	2010
10000-10002. Identify significant streams, develop and transmit flow recommendations for those streams to SWRCB.	Butte Creek identified as significant stream for which stream flow recommendations need to be developed.	Developed and transmitted flow recommendations for Butte Creek to SWRCB in 2009.	Review available data/external studies for possible development of flow recommendations.
10003-10004. Priority streams the Department plans on conducting instream flow studies on.	Twenty-two streams identified for future instream flow studies.	Flow studies initiated for the following streams in 2009: - Santa Maria River - Shasta River - Big Sur River	Continue 2009 flow studies. Begin flow monitoring work on Big Sur River and flow study on San Gregorio Creek pending grant approvals.
10005. Review Environmental Filing fees. Seek funding for Department Instream Flow Program.	Environmental Filing Fees reviewed. Funds for 2008 Department Instream Flow Program were sought from: - Department Fisheries Restoration Grant Program (FRGP: \$454,841) - Ocean Protection Council (OPC: \$1,000,000).	Environmental Filing Fees reviewed. Funds for 2009 Department Instream Flow Program were sought from: - Department Fisheries Restoration Grant Program (FRGP: \$640,402)	Review Environmental Filing Fees. Funds for 2010 Department Instream Flow Program may be sought from: Department Fisheries Restoration Grant Program (FRGP) and other grant programs including the National Fish and Wildlife Federation (NFWF), and others.

III. GENERAL WORKPLAN FOR CALENDAR YEAR 2010

Program Goals and Objectives – Calendar Year 2010

The overall goal of the Instream Flow Program is to develop scientific information to be used in developing flow recommendations that can be provided to SWRCB, as required by Public Resource Code 10000-10005. The primary objective of the Instream Flow Program is to develop scientific information on the relationships between flow and physical stream habitat for indicators of ecosystem health. Flow habitat relationships for critical aquatic species' lifestages would be developed on selected priority streams. Anticipated projects may include development of the following information: relationships of flow to aquatic habitat, aquatic habitat suitability, stream temperature, channel geomorphology, riparian habitat and restoration activities; the temporal and spatial hydrologic characteristics of flow regimes; fish population abundance, distribution and dynamics; and aquatic invertebrate production.

The Department's Instream Flow efforts may also include: performance review of studies and development of flows by the Department or its contractors; consultation regarding study plans with individuals, agencies or corporations performing studies; review of instream flow studies not performed by the Department itself; and development of associated recommendations from studies not performed by the Department.

Priority Tasks, Schedules, and Proposed Budget for 2010

Priority tasks, schedules, and the associated proposed budget for the 2010 general workplan are outlined below. It is important to note that all tasks are deemed a priority for implementing the Instream Flow Program in 2010, with the exception of Task 2. Task 2 was completed in calendar year 2008, and will serve as the basis for the Department's instream flow efforts and investigations in the following years.

A. PRIORITY PROGRAM TASKS FOR 2010

TASK 1. Program Management.

Overall project management and administration includes overseeing and coordinating instream flow workshops, technical focus groups, project coordination meetings, seeking funding through preparation of grant funding proposals, and managing project finances (budgets, contracts, etc.).

TASK 2. Identification of Priority Streams for Instream Flow Assessments.

Identification of instream flow needs includes the development of the Department's Priority Stream List, which will be used to guide the Department's future instream flow investigations. The current list was developed and ranked with input from the Department's Regions, SWRCB, NMFS, and the USFWS. The Director has the discretion to revise the list and may add or delete streams as circumstances require. The current list was developed in August 2008.

TASK 3. Coordination of the Department's Instream Flow Efforts.

Coordination of Department's instream flow efforts includes coordination with the Department's Regions, SWRCB, USFWS, NMFS, other scientists, and other interested parties. The Department is planning to sponsor a five-day training of the Instream Flow Incremental Methodology (IFIM) for Department staff in April 2010. IFIM is an approach used for developing instream flow prescriptions for protection of fish and wildlife. The proposed training may include an overview of 1D Physical Habitat Simulation (PHABSIM) and 2D study design and implementation, site/transect selection, development of species habitat suitability (HSC), field data collection techniques instruction, field data collection, hydraulic modeling, habitat modeling, instream flow study interpretation, development of flow recommendations, technical study review steps, and an overview of common techniques and methods.

TASK 4. Conducting Instream Flow Assessment Investigations.

The Department expects to continue stream flow investigations on the Shasta River, Little Shasta River, Big Sur River, and the Santa Maria River in 2010. The Shasta River flow study will include working with Humboldt State University to conduct two in-stream flow analyses for the mainstem of the Shasta River (Shasta River Canyon reach) and a tributary watershed (Little Shasta River), both of which provide critical coho salmon rearing habitat. The Shasta River flow study involves working with Humboldt State University to determine instream flow needs for salmonids in both rivers. The Big Sur River flow study is primarily an internally Department supported effort focused on adult steelhead migration and juvenile rearing, with some support from the Ocean Protection Council for contracting with Pacific States Marine Fisheries Commission and Thomas R. Payne and Associates to develop steelhead habitat suitability criteria and conduct an assessment of the Big Sur River lagoon. The Santa Maria River flow study includes working with the U.S. Geological Survey to determine flows for passage of steelhead into upper reaches of the Sisquoc River, as well as to determine use and suitability of the lagoon for steelhead habitat.

TASK 5. Identification and Evaluation of Instream Flow Studies.

Identification and evaluation of instream flow studies includes the identification and evaluation of existing, recently completed or on-going studies that could form the basis for flow recommendations. This task also includes data assessment, interpretation, and reporting. Data collected as part of the flow study investigations on the Shasta River, Big Sur River, and Santa Maria River as

outlined in Task 4 will be evaluated and assessed throughout implementation of the studies and reported at technical meetings or through regular contractor progress reports until draft and final technical reports are prepared at termination of each study.

TASK 6. Development and Transmittal of Flow Recommendations.

Development and transmittal of flow recommendations includes the development of flow recommendations from either existing and/or new data, and the transmittal of those flow recommendations to SWRCB. Interim flow recommendations are expected to be developed for up to eight reaches of the Shasta River in 2010.

TASK 7. Partnership with SWRCB.

This task includes maintenance of a partnership with the SWRCB to harmonize priority setting, study availability, and data evaluation. The Department plans to work with SWRCB on developing flow criteria for the Sacramento-San Joaquin River Delta in 2010.

TASK 8. Seek funding for Instream Flow Program.

This task includes seeking funding for the Department's Instream Flow Program. The Department intends to seek funding from various grant sources to implement the Instream Flow Program. The Department also intends to work with USFWS on preparing grant funding proposals for flow study work.

B. SCHEDULES AND DELIVERABLES

#	TASK	Dates		Deliverables ⁵
		Start	Complete	
1	Program Management	1/01/10	12/31/10	Annual Report
2	Identification of Priority Streams for Instream Flow Assessments ⁶	No Action	No Action	No Action
3	Coordination of the Department's Instream Flow Efforts	1/01/10	12/31/10	IFIM Training Materials, Meeting/Workshop Agendas
4	Conducting Instream Flow Assessment Investigations	1/01/10	12/31/10	Project-Specific Study Plans, Field Data, Site Maps, Contractor Progress Reports
5	Identification and Evaluation of Instream Flow Studies	1/01/10	12/31/10	Technical Meeting Agendas, Contractor Progress Reports, Supporting Data
6	Development and Transmittal of Flow Recommendations	1/01/10	12/31/10	Interim Flow Recommendations for up to Eight Reaches of the Shasta River
7	Partnership with SWRCB	1/01/10	12/31/10	Flow Criteria Development for Sacramento-San Joaquin River Delta
8	Seek Funding for Instream Flow Program	1/01/10	12/31/10	Grant Proposals

⁵ All outcomes and deliverables from program tasks will be summarized and reported in subsequent annual reports.

⁶ Task 2 was completed in calendar year 2008, and will serve as the basis for the Department's instream flow efforts and investigations in the following years. If priorities change a new list will be developed.

C. PROPOSED 2010 BUDGET AND FUNDING SOURCES

#	TASK	PROPOSED BUDGET (STAFF)	PROPOSED BUDGET (CONTRACTS)		PROPOSED BUDGET TOTAL 2009
		Existing Funds ⁷	IFIM Training	Grants	
1	Program Management	\$21,300			\$21,300
2	Identification of Instream Flow Needs	\$0			\$0
3	Coordination of the Department's Instream Flow Efforts	\$14,200	\$12,100		\$36,300
4	Coordinating and Conducting Instream Flow Assessment Investigations	\$56,800		\$640,402	\$697,202
5	Identification and Evaluation of Instream Flow Studies	\$7,100			\$7,100
6	Development and Transmittal of Flow Recommendations	\$21,300			\$21,300
7	Partnership with SWRCB	\$7,100			\$7,100
8	Seek Funding for Instream Flow Program	\$14,200			\$14,200
SubTotal		\$142,000	\$12,100	\$640,402	\$794,502
Governors Proposed Budget for 2010-2011					\$1,039,000
Total					\$1,833,502

⁷ It is anticipated that existing funds (\$67,017) and Environmental Filing Fees (\$74,983) will be used to fund one Staff Environmental Scientist at approximately \$142,000 (including administrative overhead and benefits). Environmental Filing Fees are an \$850.00 fee charged for certain types of water rights applications by SWRCB. This fee is transmitted to the Department to fund the instream flow program pursuant to Public Resources Code 10000-10005.