



U.S. Department of the Interior Water Acquisition Program



Anadromous Fish Restoration Program Fact Sheet

November 2003

The Central Valley Project Improvement Act (CVPIA) directs the Secretary of the U.S. Department of the Interior (Interior) to develop and implement a program that makes all reasonable efforts to at least double the natural production of anadromous fish (fish that return to rivers to reproduce) in California's Central Valley streams. This program, known as the Anadromous Fish Restoration Program (AFRP), is being implemented by the Bureau of Reclamation (Reclamation) and the U.S. Fish and Wildlife Service (FWS). The AFRP targets the following anadromous species: chinook salmon (*Oncorhynchus tshawytscha*); steelhead (*O. mykiss*); striped bass (*Morone saxatilis*); American shad (*Alosa sapidissima*); white sturgeon (*Acipenser transmontanus*); and green sturgeon (*A. Medirostris*).

The AFRP has six objectives:

1. Improve habitat for all life stages of anadromous fish through provision of flows of suitable quality, quantity, and timing, and improved physical habitat;
2. Improve survival rates by reducing or eliminating entrainment of juveniles at diversions;
3. Improve the opportunity for adult fish to reach their spawning habitats in a timely manner;
4. Collect fish population, health, and habitat data to facilitate evaluation of restoration actions;
5. Integrate habitat restoration efforts with harvest and hatchery management; and
6. Involve partners (local restoration groups and public support) in the implementation and evaluation of restoration actions.

CVPIA contains numerous tools for achieving the objectives of the AFRP. These tools include flow-related actions on Central Valley streams and rivers. The flow-related actions include acquisition of water from willing sellers in order to increase instream flows for fish. To meet these water acquisition needs, Interior has developed a Water Acquisition Program (WAP), a joint effort by Reclamation and FWS. Additional information on the WAP can be found at www.usbr.gov/mp/cvpia/3405b3_wap.

As a part of CVPIA long-range planning efforts to acquire water to increase stream flows for environmental purposes, FWS is currently conducting studies involving three key issues: biological needs of anadromous fish, hydrological characteristics of targeted streams (including reservoir operations), and economic considerations. This information will be used to establish which streams will have priority for acquiring additional flows and how much water is needed on each stream to help meet fishery objectives of the AFRP.

The AFRP gives first priority to restoration activities that protect and restore natural channel and riparian habitat values. AFRP-funded projects to improve habitat include removing artificial barriers to migration, installing or upgrading fish ladders, expanding or improving the quality of spawning grounds, rearing habitat and riparian habitat, and acquiring permanent easements in floodplains and riparian corridors. Since 1995, the AFRP has helped implement over 70 projects to restore natural production of anadromous fish. The following table provide a summary of restoration actions either have been completed or are currently being implemented. Additional information on AFRP can be found at www.delta.dfg.ca.gov/afrp/logopage.html.

For additional information on the WAP, call Reclamation at 916-978-5203, TDD 916/978-5608, or visit the WAP website at www.usbr.gov/mp/cvpia/3406b3_wap. You can also write to the Bureau of Reclamation, WAP Program Manager, MP-410, Division of Resources Management, 2800 Cottage Way, Sacramento, California 95825-1898 or e-mail LColella@usbr.gov

STREAM	ANADROMOUS SPECIES PRESENT	MAJOR RESTORATION ACTIONS TAKEN/IN-PROCESS
American River	Fall-run chinook salmon, steelhead, striped bass, American shad	Instream flow studies
Antelope Creek	Fall and spring-run chinook salmon	Flow and temperature monitoring
Battle Creek	Fall, late-fall, winter, and spring-run chinook salmon, steelhead	Survey and monitor salmon, educational outreach program, conservation plan, screen Coleman National Fish Hatchery, community-based watershed plan
Bear River	Fall-run chinook salmon and white sturgeon	
Big Chico Creek	Fall, late-fall, and spring-run chinook salmon, steelhead	Land procurement and restoration, water quality enhancement, evaluate juvenile life history, flow and temperature monitoring, education outreach programs, fish passage analysis
Butte Creek	Fall, late-fall, and spring-run chinook salmon, steelhead	Land procurement and restoration, evaluate juvenile life history, fish ladder and screens on Durham Mutual Diversion Dam, watershed management strategy plan, pumping plant screening, fish passage enhancement, education outreach programs, flow and temperature monitoring, revegetation, geomorphic study, upgrade exclusion weir
Calaveras River	Fall and winter (until mid-1980's)-run chinook salmon, steelhead	Spawning habitat survey of salmon
Cosumnes River	Fall-run chinook salmon	Hydrologic model development; fish passage improvement; distribution, fish habits, and habitat use of salmon and steelhead within preserve floodplain
Cottonwood Creek	Fall and spring-run chinook salmon	
Cow Creek	Fall-run chinook salmon	Habitat surveys
Deer Creek	Fall, late fall, and spring-run chinook salmon, steelhead	Riparian easement acquisitions, watershed management strategy development, water quality monitoring program, temperature and flow monitoring, erosion control projects
Feather River	Spring, fall, late-fall run chinook salmon, steelhead, green and white sturgeon, American shad, striped bass	Educational outreach programs
Merced River	Fall-run chinook salmon, steelhead	Analysis of salmon scale samples and development of database, restoration planning development, instream flow studies, salmon habitat enhancement, evaluation of model to assess channel restoration benefits, in-channel habitat restoration, educational outreach programs, update and validation of spawning riffle atlas

STREAM	ANADROMOUS SPECIES PRESENT	MAJOR RESTORATION ACTIONS TAKEN/IN-PROCESS
Mill Creek	Fall and spring-run chinook salmon, steelhead	Riparian easement acquisitions and restorations, water quality monitoring program, flow and temperature monitoring, fluvial geomorphology study
Mokelumne River	Fall-run chinook salmon, steelhead	Spawning gravel evaluation, cleansing and replenishment; riparian habitat protection and streambank erosion reduction; educational outreach programs
Sacramento River	Fall, late-fall, winter, and spring-run chinook salmon; steelhead; striped bass; American shad; green and white sturgeon.	Genetic analysis and monitoring of winter-run salmon, juvenile steelhead and salmon monitoring, winter-run carcass survey, floodplain and riparian habitat restoration, salmon tagging, increased law enforcement of fish and habitat, small tributary restoration, riparian easement acquisitions and restoration, flow monitoring and study
San Joaquin River	Fall-run chinook salmon, steelhead, striped bass, American shad, white sturgeon (Spring-run chinook salmon was extirpated with completion of Friant Dam in 1946)	Analysis of salmon scale samples and development of database, development of floodplain property acquisition criteria, evaluation of non-structural flood control management alternatives on the wildlife refuge
Sacramento-San Joaquin Delta	Fall, late-fall, winter, and spring-run chinook salmon; steelhead; striped bass; American shad; green and white sturgeon.	Riparian habitat acquisitions, juvenile shad monitoring, pilot study on fish ages, evaluation of survival, distribution, and contribution of fall-run salmon
Stanislaus River	Fall-run chinook salmon, steelhead	Property acquisition and restoration, analysis of salmon scale samples and development of database, development of habitat assessment and restoration plan, channel restoration, evaluate radio tagging for locating and causation of mortality in juvenile salmon, outreach and community awareness program, screw trap monitoring, update and validation of spawning riffle atlas
Tuolumne River	Fall-run chinook salmon, steelhead	Riparian habitat acquisition and restoration, analysis of salmon scale samples and development of database, development of a sediment management plan, enhancement of spawning habitat, educational outreach programs, update and validation of spawning riffle atlas
Yuba River	Fall, late-fall, and spring-run chinook salmon; steelhead; striped bass; American shad; white sturgeon.	Fish ladder modifications, diversion improvements, fish screens, evaluation of life history and status of steelhead, extension of outmigrant and salvage at diversion, modeling of water temperatures, engineering evaluation of Goldfields barrier