Workplan for Fiscal Year 2002

March 7, 2002

I. Program Title. Anadromous Fish Restoration Program- CVPIA 3406(b)(1)

II. Responsible Entities.

	Agency	Staff Name	Role
Lead	USFWS	Marty Kjelson	Program Manager, Anadromous Fish Restoration Program
	USBR	Ken Lentz	Program Liaison, USBR/Anadromous Fish Restoration Program
	USFWS	John Icanberry	Assistant Program Manager; also assigned to Butte and Big Chico creeks
	USFWS	Tricia Parker	Habitat Restoration Coordinator; assigned to Cow, Battle, Antelope, Mill, Deer, and Cottonwood creeks
	USFWS	Jack Williamson	Assistant Habitat Restoration Coordinator; assigned to Cow, Battle, Antelope, Mill, Deer, and Cottonwood creeks
	USFWS	Craig Fleming	Habitat Restoration Coordinator; assigned to Feather, Yuba, Bear and American rivers
	USFWS	Gonzalo Castillo	Habitat Restoration Coordinator; assigned to Cosumnes, Calaveras, Mokelumne rivers and the Sacramento-San Joaquin Delta
	USFWS	Cesar Blanco	Habitat Restoration Coordinator; assigned to Merced, Stanislaus, Tuolumne and San Joaquin rivers
	USFWS	Jeff McLain	Habitat Restoration Coordinator; assigned to the Merced, Stanislaus, Tuolumne and San Joaquin rivers
	USFWS	Vacant	Assistant Habitat Restoration Coordinator
	USFWS	Vacant	Assistant Habitat Restoration Coordinator

III. Program Objectives for FY 2002

The objectives for the Anadromous Fish Restoration Program (AFRP) were originally developed as part of the effort to draft the Restoration Plan for the AFRP and can be found in the Final Restoration Plan for the AFRP United States Fish and Wildlife Service (USFWS 2001). These objectives are listed below.

A. Improve habitat for all life stages of anadromous fish through provision of flows of suitable quality, quantity, and timing, and improved physical habitat;
B. Improve survival rates by reducing or eliminating entrainment of juveniles at diversions;
C. Improve the opportunity for adult fish to reach their spawning habitats in a timely manner;
D. Collect fish population, health, and habitat data to facilitate evaluation of restoration actions;
E. Integrate habitat restoration efforts with harvest and hatchery management; and
F. Involve partners in the implementation and evaluation of restoration actions.

The AFRP is one of five Central Valley Project Improvement Act (CVPIA) programs being integrated with the CALFED Ecosystem Restoration Program's (ERP) 2002 Proposal Solicitation and review process. To facilitate this integration, the above objectives are included in the CALFED ERP Draft Stage 1 Implementation Plan. These objectives are also complementary to other goals and objectives listed in the Draft Stage 1 Implementation Plan and would help address the objectives of the CALFED Multi-Species Conservation Strategy and the CVPIA Biological Opinion.

Because the AFRP is being integrated with the ERP's 2002 Proposal Solicitation and review process, the AFRP can not identify all of the projects that the program will support in the coming year. The AFRP expects to identify projects through the Proposal Solicitation and review process. Once the projects have been identified, the AFRP objectives that each of the projects address will be identified in Section VI below.

IV. Status of the Program

The Final Restoration Plan for the Anadromous Fish Restoration Program (Restoration Plan) was developed to guide the long-term development of the AFRP. The Restoration Plan provides a programmatic-level description of the AFRP, and will be used to guide implementation of all sections of the CVPIA that contribute to the goal of making all reasonable efforts to at least double natural production of anadromous fish. The Restoration Plan presents the goal, objectives, and strategies of the AFRP, as well as a list of reasonable actions and evaluations to implement to make progress toward doubling natural production of anadromous fish. The Restoration Plan identifies the need for partners, local involvement, public support, adaptive management, and flexibility as key attributes of the AFRP's approach to making all reasonable efforts to at least double natural production of anadromous fish.

To implement this plan, the USFWS established five Habitat Restoration Coordinator (HRC) positions, each assigned a specific geographic area within California's Central Valley. In their assigned area, each HRC represents the AFRP, develops and nurtures partnerships, develops projects with partners that contribute to making all reasonable efforts to at least double natural production of anadromous fish, and oversees all aspects of implementation of projects in which the AFRP invests funds. In 1998, the AFRP added three more HRCs from the California Department of Fish and Game (CDFG) to this effort, one from each of the CDFG regions within the Central Valley, to provide assistance to the USFWS and to ensure close coordination with the CDFG, the State agency with primary responsibility for restoration of anadromous fish habitat. Together, the USFWS and CDFG HRCs form an interagency team to coordinate, develop and implement restoration projects consistent with the goal, objectives, strategies, processes and priorities described in the Restoration Plan.

The AFRP and several other CVPIA projects are functionally integrated with the CALFED ERP Proposal Solicitation Process (PSP) to select projects for funding in Federal Fiscal Year 2002 (FY). As part of this functional integration, potential CALFED and AFRP and other CVPIA projects underwent concurrent scientific and technical review to ensure that the best and highest priority projects are implemented and to ensure the most efficient use of funds. Potential AFRP project proponents were encouraged to submit their proposal in response to the CALFED 2002 PSP.

The AFRP participated in the project selection process and considered funding program-appropriate projects solicited through the CALFED ERP. The projects listed in this AWP were selected by the AFRP Program Managers and HRC's in coordination with CALFED staff, from the list of projects recommended for funding by the CALFED Selection Panel. For more information on the AFRP and the AFRP's approach to project selection and implementation, see the AFRP's website at: http://www.delta.dfg.ca.gov/afrp/

Based on the target production levels from the Restoration Plan (USFWS 2001), and the most recent year of production or abundance levels of anadromous fish (AFRP data update 2001), there is evidence of increasing production in four of the six anadromous fish species (chinook salmon, striped bass, and white and green sturgeon) and declines in two species (steelhead and American shad) (Table 1). Although short-term monitoring of population response of anadromous fish to habitat improvements is necessary to develop adaptive management strategies, year-to-year variation in population size could be influenced by a variety of factors that may deny or mask the long-term benefits of habitat improvements. Caution must be exercised to assess the performance of restoration efforts for the following reasons: First, most recent statistics are preliminary estimates of production or indices of abundance and are subject to change. Second, monitoring of production levels measured in terms of adult abundance takes 5-6 years per generation in the case of chinook salmon, not enough time to observe population rebuilding in

terms of returning cohorts. Third, the effectiveness of restoration efforts should consider time-lags in population response to habitat improvements and the long-term impacts of previous cumulative adverse habitat modifications (Lindley et al. 2000). Fourth, it is now believed that anadromous populations can experience decadal changes in population size as a result of ocean regime shifts (Hare et al. 1999). In fact, Lawson (1993) stated that a reasonable chance of watershed restoration requires time horizons of 20 to 40 years, with strong commitment of continuing support. In the case of the Central Valley, many watersheds are still severely degraded. Because resources are not sufficient to implement all reasonable actions simultaneously, the AFRP developed watershed priorities based on their capacity to increase fish production (USFWS 2001).

Adaptive Management Forums

The AFRP and CALFED are working through the Information Center for the Environment (University of California-Davis), and are convening adaptive management forums for the Tuolumne and Merced rivers and Clear Creek for the planning and implementation of large-scale riverine habitat restoration projects in the Central Valley. The purpose of the forums is to review and provide input and assistance to the design, implementation, and monitoring of large-scale restoration projects, such as those being implemented on the Tuolumne River. The forums will provide scientific and technical input to project proponents and funding agencies throughout the project planning, design, implementation and monitoring phases; help ensure that funding agencies and project managers maximize the ecological effectiveness of their projects and increase the information learned from the project design and implementation process; and compare similar classes of projects across watersheds to recommend strategies to address key uncertainties associated with channel and floodplain restoration (AFRP/CALFED, 2001).

Upper mainstem Sacramento River and upper Sacramento River tributaries

This AFRP geographic area extends from Cow Creek on the east side of the Sacramento River downstream to Stony Creek on the west side of the Sacramento River. There are currently five AFRP funded federal and state Habitat Restoration Coordinators (HRCs) dedicated to the upper mainstem Sacramento River. AFRP duties in this geographic region are expanding as new watershed groups become organized and greater numbers of restoration activities are started.

Table 1. Existing production or abundance levels of anadromous fish and target production levels in Central Valley rivers and streams as defined in the Final Restoration Plan for the Anadromous Fish Restoration Program (USFWS 2001). Computations were based on USFWS (1995).

Species	Average 1967-1991	Target Production or Abundance Level [5]	Average 1992-2000	Year 2000 (or most recent year)
Chinook salmon (all races) [1]	495,051	990,000	517,866	714,217
Fall run [1]	372,757	750,000	476,933	673,199
Late-Fall run [1]	34,031	68,000	15,669	18,082
Winter Run [1]	54,036	110,000	3,633	3,144
Spring Run [1]	34,227	68,000	21,630	19,792
Steelhead [1]	6,608	13,000	1,233	906
Striped bass [2]	1,217,191	2,500,000	903,416	1,474,909
American shad [3]	2,068	4,300	3,108	764
White sturgeon [4]	5,732	11,000	6,610	11,470
Green sturgeon [4]	983	2,000	754	1,290

[1] Period included: 1967-2000. Chinook salmon only includes natural production estimates. Steelhead only includes production target for fish spawning upstream of Red Bluff Diversion Dam (both hatchery and natural fish are included because prior to 1997 not all hatchery steelhead were fin clipped). Additional steelhead spawned naturally elsewhere in the Central Valley during 1967 through 1991, but no data exist from which to calculate a target production level. Absence of a production target for a species in a specific area (for example, steelhead downstream of Red Bluff Diversion Dam) does not mean that actions to benefit that species in that area will not be considered, and in fact the Restoration Plan includes several actions for species in reaches that do not have associated production targets.

[2] Period included: 1969-1994 and 1998. Production target for striped bass is expressed as the abundance of legal-sized striped bass estimated annually by the CDFG. Estimates of legal-sized fish are used as a surrogate for adult fish because these are the best available data for developing a production target. However, the estimate includes some legal-sized fish that are not sexually mature and does not include some sub-legal-sized fish that are sexually mature.

[3] Period included: 1967-1973, 1975-1978 and 1980-2000. Production target for American shad is expressed as the juvenile index as derived from the CDFG fall midwater trawl in the Delta.

[4] Period included: 1967-1968; 1974; 1979; 1984-1985; 1987; 1990; 1993; 1997. Production target for white sturgeon is based on the abundance of fish at age 15. Production target for green sturgeon is based on the abundance ratio of white sturgeon to green sturgeon observed during tagging each year.

[5] Targets for each of the chinook salmon runs may not add up to combined target due to rounding error.

Restoration efforts in the upper mainstem Sacramento River and Sacramento River tributaries region have focused on the major AFRP objectives listed in Section III, Program Objectives for FY02. While spawning gravel replenishment, flow acquisition and screening projects are funded concurrently through other CVPIA programs, the AFRP funded aquatic habitat restoration, fish passage improvements, education and outreach, and anadromous fish life history studies. The

AFRP developed engineering solutions and environmental documentation for sediment and erosion control projects on the Middle and Deer Creek watersheds. Through leveraging other funding sources, the AFRP completed fish passage projects on Mill, Deer and Butte creeks and others are ongoing on Battle, lower Butte and Big Chico creeks. Riparian acquisitions were made to protect, restore and preserve critical habitat to anadromous salmonids on Battle, Mill, Deer, Butte and Big Chico creeks. On Big Chico Creek, a major acquisition was made to protect a two- mile pristine riparian corridor located adjacent to and upstream of Bidwell Park, Chico, California. Also, several large AFRP funded riparian acquisitions associated with the Sacramento River mainstem (meander belt) were accomplished. A feasibility study of restoring flood plain and riparian processes at the La Barranca Unit of the Sacramento River National Wildlife Refuge on the Sacramento River was recently completed. The AFRP also funded riparian restoration and cattle exclusion projects on several privately-owned riparian properties located on Mill and Deer creeks.

The AFRP funded a community-based Coleman National Fish Hatchery (CNFH) re-evaluation which reviewed all aspects of facility operations in order to ensure the integration of hatchery operations with AFRP-guided restoration efforts in Battle Creek. The AFRP funded watershed education, an important activity for developing local interest and long-term commitment to the local watershed resources. Other funds were provided for the Kids and Creeks: Restoration Ecology In Action Program, a restoration component of the Streaminders Education Program available to students grades 2-12 from Chico, Oroville, Paradise and Durham school districts.

The AFRP funded projects intended to provide anadromous fish restoration benefits Central Valley-wide. Some of these included genetic identification of the endangered winter-run chinook salmon for purposes of artificial propagation and recovery of this species. AFRP also contributed to developing an automated fish tagging and marking system for juvenile fish produced at the CNFH.

<u>Lower Sacramento River and Delta tributaries</u>
This AFRP geographic area extends from the Feather River south to the Calaveras River. Each of the seven watersheds within this area has unique characteristics and limiting factors.

There are currently three AFRP funded federal and state HRCs dedicated to the Lower Sacramento River and Delta tributaries. AFRP duties in this geographic region are expanding as new watershed and stakeholder groups become organized, restoration plans are developed and greater numbers of restoration activities are started.

Restoration efforts in the Lower Sacramento River and Delta tributaries region have focused on the major AFRP objectives listed in Section III, Program Objectives for FY02. As mentioned earlier, spawning gravel replenishment, flow acquisition and screening projects are funded concurrently through other CVPIA programs. However, the AFRP funded aquatic habitat

restoration, fish passage improvements and anadromous fish life history studies. The AFRP funded fish passage studies and improvements on the Yuba, Cosumnes and Mokelumne rivers such as the studies at Daguerre Point Dam. The AFRP also funded a feasibility study for the Hallwood-Cordua Fish Screen on the Yuba River. The AFRP is funding anadromous fish life-history studies in regional tributaries having little or no background data. The AFRP is also funding a two-year salmonid life history and habitat study whose ultimate goal is to help provide the scientific basis for real-time management of the Calaveras River (i.e., downstream of New Hogan dam) to optimize conditions for water supply, flood control, power production and natural production of anadromous fish..

San Joaquin Basin tributaries and mainstem San Joaquin River

This AFRP geographic area includes the Stanislaus, Tuolumne and Merced rivers including the mainstem San Joaquin River. Each of the watersheds within this AFRP geographic region has unique characteristics and limiting factors.

There are currently two AFRP funded federal and one state HRC dedicated to the San Joaquin Basin tributaries and the mainstem San Joaquin River. AFRP duties in this geographic region are expanding as new watershed and stakeholder groups become organized, restoration plans are developed and larger-scale and greater numbers of restoration activities are implemented.

Restoration efforts in the San Joaquin Basin tributaries and mainstem San Joaquin River region have focused on the major AFRP objectives listed in Section III, Program Objectives for FY02. Large-scale channel restoration projects to improve the geomorphological functions of the rivers and to control predation by bass on juvenile salmonids are also being funded. On the Tuolumne River, restoration of the 7-11 reach is nearly completed. Also, on the Tuolumne River, the construction phase of the Special Run-Pool (SRP) 9 restoration project was completed this summer. On the Merced River, the AFRP funded and completed the Ratzlaff segment of the Robinson Ratzlaff Mining Reach in-channel habitat restoration project.

The AFRP is in the process of acquiring Two Mile Bar, a 50 acre riparian parcel in the salmon spawning reaches of the Stanislaus River, for protection and restoration. The AFRP funded anadromous fish life history studies associated with these large-scale in-channel restorations are also underway.

To better understand our restoration efforts, the AFRP developed and sponsored an Adaptive Management Forum on the Tuolomne River to evaluate restoration activities and provide information on scientific design, models and processes. While the physical restoration efforts served to improve the geomorphological functions, their effects on populations of anadromous fish, particularly chinook salmon, are not yet apparent. The forum identified several key deficiencies to our understanding of restoration and impacts to chinook salmon. The Tuolumne River Adaptive Management Forum has been a valuable restoration evaluation tool and,

consequently, is being applied to the Merced River in FY01 and to Clear Creek in FY02.

Butte Creek Restoration Demonstration

Butte Creek is an example of multi-agency cooperation to recover spring-run chinook salmon. This population numbered less than 100 individuals in the mid- 70's and 80's to the present-day estimated numbers of 9,000-11,000 individuals. Such population increase merits special attention as an example of the results that can occur with the efforts the AFRP and its partners are expending on many watersheds throughout the Central Valley.

The vision for Butte Creek is to restore spring-run chinook salmon and steelhead populations by improving fish passage, increasing and improving streamflow, consolidating and screening diversions, and protecting and restoring the riparian corridor. These improvements will help to restore and maintain aquatic habitats needed to support increasing populations of spring-run, fall-run, and late fall-run chinook salmon and steelhead trout. Screening juvenile salmonids allows continued water diversion for agricultural purposes and for the seasonal flooding of private wetlands and adjacent wildlife refuges. To achieve this vision, the strategy is to coordinate with local watershed groups, conservation agencies, stakeholders and the public to plan, implement, and monitor projects.

Restoration actions identified in the Final Restoration Plan for the AFRP include: improving fish passage, screening out juvenile salmonids from diversions, improving instream flows, and developing and reducing fine sediment inputs and protecting and restoring riparian habitat.

Prior to restoration efforts, nine diversion dams on Butte Creek upstream of the Butte Sink impaired and delayed passage of migrating fish (Figure 1). Since 1992, five dams have been removed and the four remaining dams have been retrofitted with state-of-the-art fish ladders and screens. In addition to passage improvements, fishing regulations have been revised and enforcement efforts increased, flows and flow monitoring have been improved, and riparian habitat in areas key to chinook salmon holding, spawning, and rearing have been restored and protected. Several evaluation and research projects are in progress or have been completed that are guiding implementation of restoration projects, and are providing a basis for assessing restoration project effectiveness.

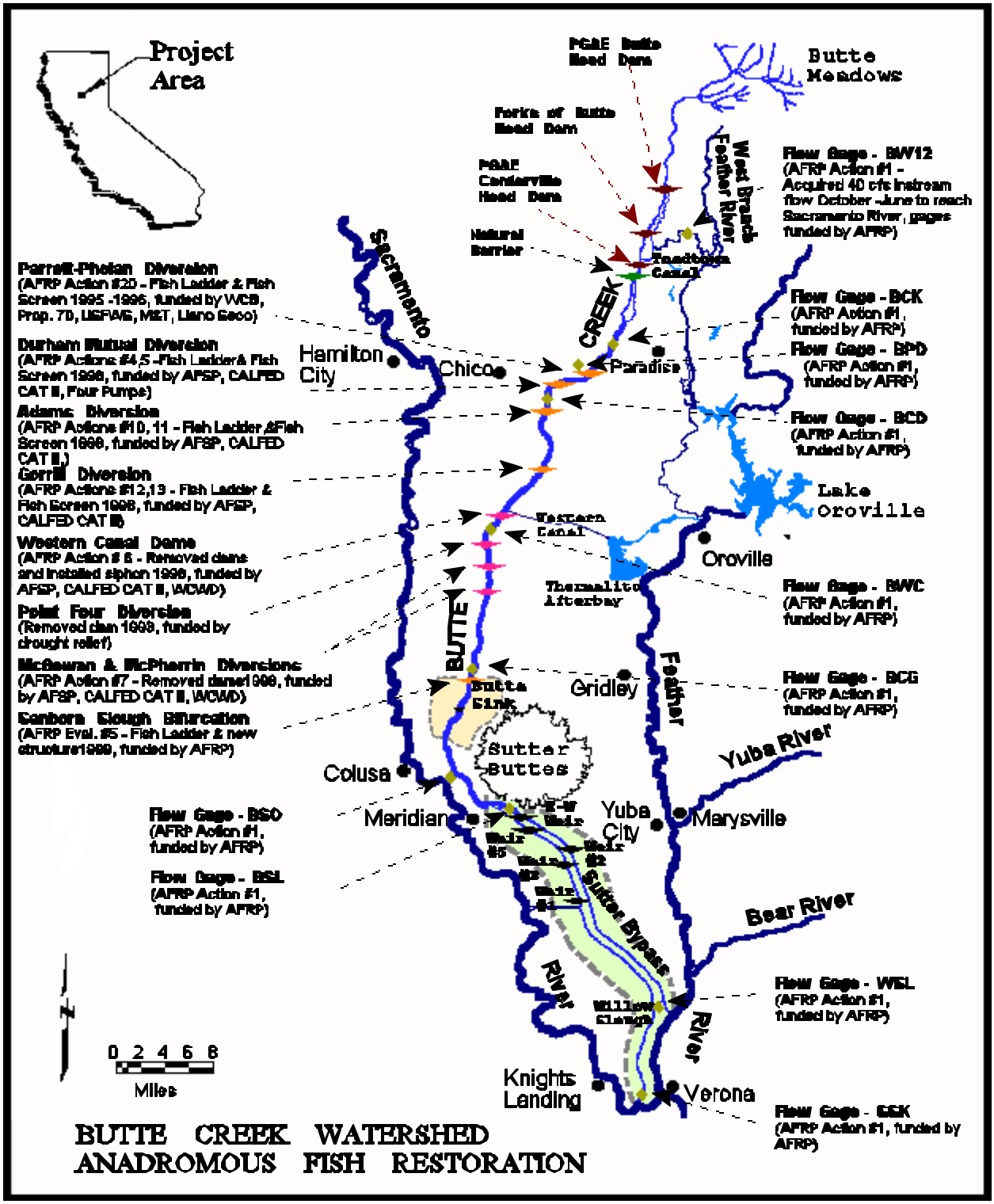

Figure 1. Butte Creek Watershed depicting locations of completed restoration actions.

Within the reach of Butte Creek beginning with the Butte Sink and the Sanborn Slough Bifurcation Structure, that splits flows between Butte Creek and the Butte Sink, are more than 25 additional downstream structures and diversions that impair passage of migrating fish. These are the focus of the Lower Butte Creek Project, which is structured to maximize the participation of local water users, resource agencies and natural resource advocacy stakeholders in the process of designing and implementing fish passage and water delivery alternatives. Most of the planning is completed and the project has moved on to implementation. A key result of the ongoing evaluation and planning process was that fish passage through the Butte Sink could not be confined to the main channel of Butte Creek. Frequent overflows from Butte Creek and the Sacramento River during key periods of fish exposure require the management of multiple routes including flows, through the Butte Sink and Sutter Bypass. To date, two key construction projects are completed: fish passage and flow management have been improved at the Sanborn Slough Bifurcation and adult salmon and steelhead have been excluded from Drumheller Slough and the White Mallard Duck Club outfall.

The primary focus of the completed and planned activities has been the restoration of spring-run chinook salmon. Natural production of spring-run chinook salmon on Butte Creek has increased since restoration efforts were initiated in 1993 (Figure 2). The CDFG reported that the cohort replacement rate for spring-run chinook salmon on Butte Creek has exceeded two over the last three years, and was 6.5 in 2000 (Ward and Reynolds 2001). Natural production of spring-run chinook salmon on Butte Creek is exceeding the production target established in the Restoration Plan for the AFRP (USFWS 2001; AFRP Data Update, 2001). The ongoing life history study conducted by CDFG (Hill and Webber 1999, Ward and McReynolds 2001) has demonstrated that during the period November1995 through April 2001, approximately 504,000 juvenile, primarily spring-run chinook salmon were captured in the fish trap installed within the bypass of the Parrott-Phelan diversion fish screen. Thus, over the six-year period the average annual loss at the site would have been approximately 84,000 juvenile chinook salmon. Additionally, the life-history study has demonstrated that juvenile salmon, primarily spring-run chinook that were captured and marked near Chico, reside and rear in the lower reaches of Butte Creek including the Sutter Bypass. Residence time averaged approximately two months prior to fish exiting into the Sacramento River near Verona. The study also produced a limited evaluation of growth, which suggested that the Butte Sink and Sutter Bypass are significant nursery areas. The limited evaluation showed that growth exceeded that found by other researchers for the mainstem Sacramento River and was equivalent to that for the Delta. Another result of the study was that during years with significant overflow from the Sacramento River, upper river juvenile salmon, including fall, late-fall, winter and spring-run enter and reside in the Sutter Bypass reach of Butte Creek. Those non-natal residents exhibit a similar residence time and growth to that found for natal Butte Creek fish.

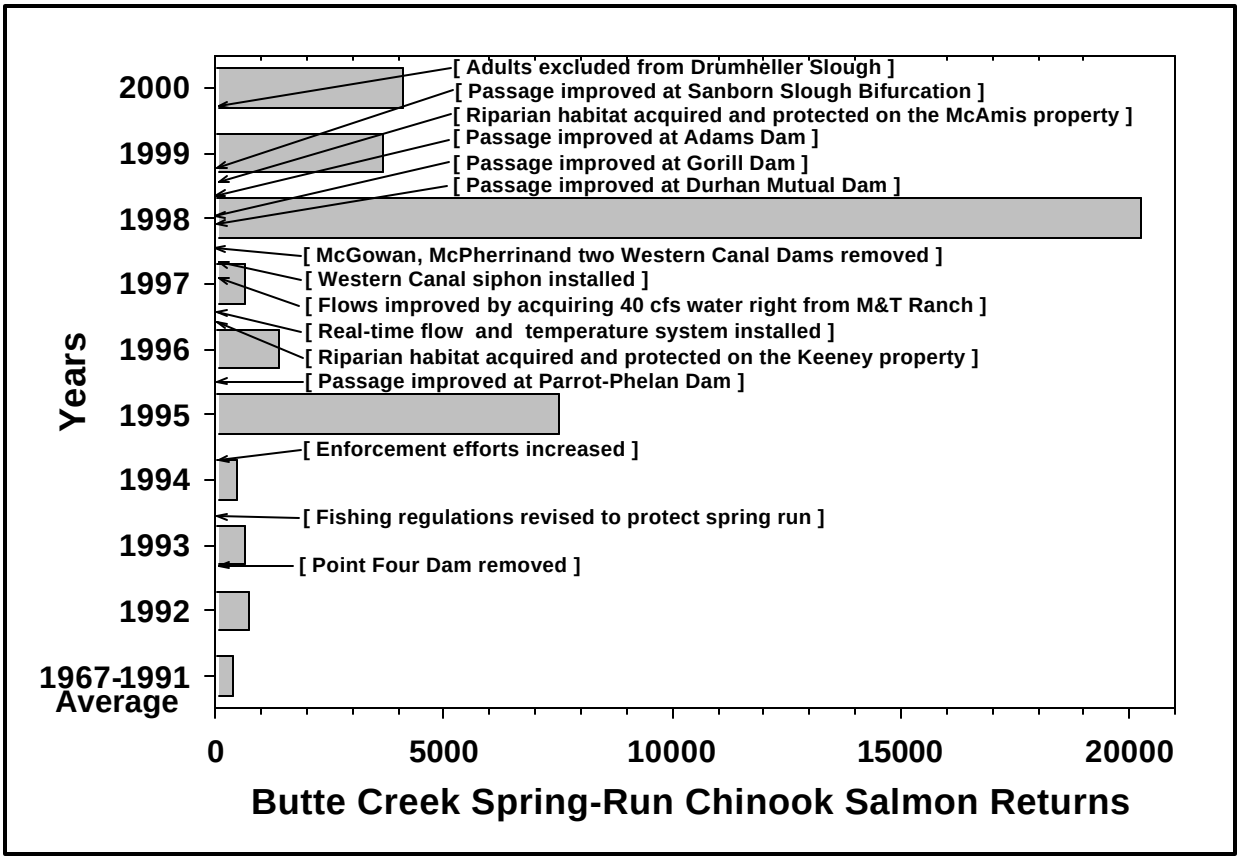

Figure 2. Spring-run chinook salmon returns and restoration actions on Butte Creek. The bottom bar on the graph shows the average returns for 1967 through 1991.

These results suggest that spring-run chinook salmon are responding to restoration efforts on Butte Creek, although other factors such as weather and ocean conditions also play a role. Additional efforts are needed to build on this success by improving the numbers and condition of adult salmon and steelhead returning to Butte Creek as well as the survival and condition of juvenile salmon and steelhead rearing in the creek. Similar efforts are underway in the Lower Sacramento River and Delta tributaries and the San Joaquin River and its tributaries.

V. FY 2001 Accomplishments

Fourteen conservation actions and evaluations were funded in FY01 at a cost of $3,655,982 Seven of them were provided additional funding to continue projects that were initiated by the AFRP in previous years and included: continuing the facilitation, coordination and construction in the Lower Butte Creek Project; continuing PHABSIM/2D modeling of spawning and rearing habitat on Butte Creek; continuing restoration of the Warner-Deardorff segment of the Tuolumne River Mining Reach; developing non-structural alternatives at the San Joaquin River National Wildlife Refuge on the mainstem San Joaquin River; continuing chinook salmon age

determinations on the mainstem San Joaquin River; continuing genetic analyses of endangered chinook salmon; and, continuing the biological assessment of green sturgeon in Central Valley watersheds. The Battle Creek Watershed stewardship project that was initiated and funded by CALFED in the previous year was provided additional funding in FY01.

The seven actions and evaluations that were new to the AFRP in FY01 are listed below:
(1) Funds were provided to the Battle Creek Watershed Conservancy to conduct an assessment of conditions in the watershed; implement a watershed information system to assist the Restoration Project's monitoring; assess adaptive management activities; and, provide outreach to the area's schools and communities, agencies and landowners.
(2) Funds were provided to Yuba County Water Agency to provide a final design to modify the flow bypass facilities at Narrows Two powerplant located on the Yuba River (just downstream of Englebright Dam) from a 650 cfs to a 3400 cfs release capability. In hydroelectric outages, the flow bypass facility is currently limited to a 650 cfs release which can be a significant flow reduction from the normal 3400 cfs flowing through the hydroelectric generating facility and result in stranding salmonid juveniles, dewatering redds or inducing thermal stress.
(3) Funds were provided to support Phase 1 of the Spawning Habitat and Floodplain Restoration in the Stanislaus River. This project will acquire gravel resources and restore spawning and floodplain habitat at Two-Mile Bar. It also evaluates the useful life of restored spawning habitat in the relatively high gradient channel near Two-Mile Bar and its ability to create spawning habitat for steelhead trout.
(4) Funds were provided to the USFWS California - Nevada Fish Health Center to characterize the health and physiological condition of both natural and hatchery juvenile chinook in the San Joaquin River System. Health and fitness of juvenile salmon out-migrants are major determinates of their performance and survival. Hatchery - wild fish interaction is a controversial topic in natural resource management. This information will help describe the criteria used to define a quality hatchery fish which is currently being reviewed and debated among hatchery and fishery biologists.
(5) Funds were provided to the Fishery Foundation of California to provide a life history limiting factor analysis of the Lower Calaveras River (LCR) chinook salmon and steelhead. This analysis will help provide the scientific basis for real-time management of the LCR to optimize conditions for water supply, flood control, power production and natural production of anadromous fish.
(6) Funds were provided to the Tuolumne River Preservation Trust Central Valley Program to create outreach materials to use with landowners and the general public to build awareness, understanding and support for the Tuolumne River Restoration Plan.
(7) Funds were provided to the Merced Irrigation District for support of the Merced River Water Temperature Management Feasibility Study. This project develops information that can be used to evaluate effective options for water temperature management in the Merced River to improve conditions for anadromous salmonids, mainly during the fall and spring seasons. This study will address the issues related to reservoir and dam operations to allow future development of a comprehensive water temperature management plan for the lower Merced River.

Listed below by geographic area are some pre-FY01 restoration project accomplishments.

(1) Accomplishments in the upper mainstem Sacramento River watershed include: 1) a feasibility study for levee removal on the La Barranca unit of the Sacramento National Wildlife Refuge; 2) continued genetic research of winter-run chinook salmon (researchers are developing, molecular genetic techniques focused on the preservation of the genetic integrity of endangered salmon in a supplementation program); and 3) a winter-run chinook salmon carcass survey.

(2) Accomplishments in Battle Creek watershed in FY01 include: 1) continuation of Phase II of the watershed stewardship project and acquisition of a conservation easement on the North Fork of Battle Creek (Pelton Property/Eagle Canyon Ranch); 2) the CNFH re-evaluation where public and interested parties identified 56 alternatives for CNFH management and operation.

(3) Accomplishments in Mill, Deer and Big Chico creek watersheds include: 1) establishment of a three-year contract with Department of Water Resources for the continued operation and maintenance of real-time flow and temperature monitors on Antelope, Mill, Deer, Big Chico and Butte creeks; 2) construction of 14,500 feet of fence to protect riparian habitat on Deer Creek; 3) preliminary engineering and environmental documents for five erosion control projects in the upper Deer Creek watershed; 4) continuation of the 10-year study to evaluate the juvenile life history of spring-run chinook salmon in Butte and Big Chico creeks and its annual report; 5) support for "Kids and Creeks: Restoration Ecology in Action" for students in grades 2 through 12 in Big Chico and Butte creeks and the Feather River watershed; and, 6) final engineering plans for fish passage facilities in Iron Canyon and Bear Hole on Big Chico Creek.

(4) Accomplishments in lower Butte Creek watershed include: 1) continued funding of Ducks Unlimited as the project manager of the Lower Butte Creek; 2) construction of the Drumheller Slough diversion structure, the White Mallard adult exclusion barrier, and the preliminary design and IS/EA for the Five Points Diversion Structure which is part of a larger project funded by CALFED for the design and environmental documentation for fishery upgrades to White Mallard Dam and associated diversions; and, 3) the design and IS/EA for the Sutter Bypass West Side Project including the East West Diversion Weir, Weir #5, Weir #3 and the Giusti Weir. Accomplishments on the Sutter Bypass, Butte Creek include:1) an analysis and development of a list of pumping plants that qualify for public funding; 2) site characterizations for each identified pumping plant site; 3) development with Department of Water Resources (DWR) of flow requirements for the three large DWR diversion points and, 4) two economic impact studies of public land acquisition and habitat restoration in support of anadromous fish production on the economies of Glenn and Butte counties.

(5) Accomplishments in the Yuba River watershed include: 1) a complete year data set of adult salmonid passage at Daguerre Point Dam by the South Yuba Citizens League, 2) a feasibility study for a new fish screen at the Hallwood-Cordua Diversion on Daguerre Point Dam, 3) a

fish passage evaluation, and 4) data collection for steelhead life history and juvenile salmonid out-migration.

(6) Accomplishments in the Cosumnes and Mokelumne river watersheds include: 1) a box culvert to improve passage of fall-run chinook salmon on the lower Cosumnes River; 2) designs, environmental documentation and permitting for two new fish ladders at Granlees Dam in the heart of the Cosumnes River fall-run chinook salmon spawning grounds; 3) field studies to evaluate spawning gravel enhancement projects in the Mokelumne River; 4) initiation of a project to protect 2.3 acres of riparian habitat and reduce streambank erosion along the Mokelumne mainstem and along Murphy Creek; and, 5) initiation of a limiting factors analysis for chinook salmon and steelhead in the Lower Calaveras River.

(7) Accomplishments in the Merced River watershed include: 1) the initiation of an Adaptive Management Forum for Large-Scale Channel Restoration Projects for restoration on the Robinson Ranch, part of the Merced River Salmon Habitat Enhancement Project; 2) initiation of post-project monitoring for the Ratzlaff Reach of the Merced River Salmon Habitat Enhancement Project; 3) a project to restore in-channel habitat at the Ratzlaff Segment of the Robinson-Ratzlaff Mining Reach; 4) identification of 300,000 tons of usable spawning-sized aggregate source material on the Merced River Ranch; 5) evaluation of the PHABSIM/2D modeling of spawning and rearing habitat to assess benefits of channel restoration on the Merced River; and, 6) initiation of a temperature management feasibility study for the Merced River.

(8) Accomplishments in the Tuolumne River watershed include: 1) restoration June start-up of Special Run-Pool (SRP) 9; 2) the placement of the diversion channel and drainage of the SRP; 3) initiation of CEQA documentation for the La Grange gravel addition, Phase II and final NEPA and NFS requests for concurrence documentation; 4) implementation of an Adaptive Coarse Sediment Management Plan for the Tuolumne River; and, 5) the USFWS-AFRP, UC Davis Information Center for the Environment, CALFED and the Tuolumne River Technical Advisory Committee sponsored Adaptive Management Forum for Large-Scale Channel Restoration Projects.

(9) Accomplishments in the Stanislaus River watershed include: 1) annual Rotary Screw Trap monitoring for juvenile salmonids at Oakdale; 2) acquisition of a 50 acre parcel in the spawning reach of the Stanislaus River known as Two Mile; and, 3) extension of stakeholder outreach and community awareness of fishery management issues on the Stanislaus River through funding of the U.S. Army Corps of Engineers- Stanislaus River Parks.

(10) Accomplishments in the mainstem San Joaquin River watershed include: 1) initiation of an evaluation by CDFG to read archived chinook salmon scale samples from the San Joaquin Basin to be used to update a salmon population model to assist flow management alternative evaluations on the tributaries; 2) restoration and post-project monitoring of the Grayson River Ranch Perpetual Conservation Easement on the Tuolumne River; 3) initiated Phase II of a hydraulic modeling effort to evaluate proposed non-structural flood control management alternatives on the San Joaquin River National Wildlife Refuge; and 4) a feasibility study for developing a long-term aggregate source for San Joaquin tributary channel restoration projects.

VI. Tasks, Costs, Schedules and Deliverables

A. Narrative Explanation of Tasks.

1. Program Management (USFWS-Stockton Fish and Wildlife Office (STFWO)) - The USFWS AFRP Program Manager (PM) is responsible for managing the Anadromous Fish Restoration Program (AFRP). The PM is responsible for developing all grants and cooperative agreements; developing and implementing the overall program including outreach, coordinating with stakeholders, and identifying partnering funds; and selecting peer-reviewed restoration projects from the CALFED ERP Proposal Solicitation process for AFRP FY2002 funding .

1.1. Program Management (USBR/AFRP) Liaison - The USBR Liaison coordinates AFRP activities between the AFRP and the USBR and assists in developing and implementing the overall program including outreach, coordinating with stakeholders, and identifying partnering funds.

1.2 Program Management (AFRP-STFWO) - The Assistant Program Manager (APM) reports directly to the AFRP PM and implements the Anadromous Fish Restoration Program (AFRP). The APM is responsible for developing all grants and cooperative agreements; developing and implementing the overall program including outreach, coordinating with stakeholders, and identifying partnering funds; and selecting peer-reviewed restoration projects from the CALFED ERP Proposal Solicitation process for AFRP FY2002 funding .

1.3 Program Implementation (AFRP-STFWO) - The Habitat Restoration Coordinators identify restoration priorities, develop and nurture restoration partnerships, review proposals within the CALFED ERP Proposal Solicitation Process framework, recommend projects for AFRP funding, manage project deadlines and deliverables and implement the AFRP. The Assistant Habitat Restoration Coordinators assist the AFRP Program Manager, the Assistant Program Manager, and Habitat Restoration Coordinators on all AFRP work.

1.4 Program Implementation (AFRP- Red Bluff Fish and Wildlife Office (RBFWO)) - Same as 1.4 above.

1.5 Contracting/Administrative Support (AFRP- STFWO) - AFRP contracting staff process all contracts and contract modifications for projects the Stockton AFRP staff has responsibility on. Computer staff maintains AFRP computer hardware and software.

1.6 Technical Support (SFWO-IFIM) - The Incremental Flow Instream Methodology (IFIM) biologists carry out AFRP directed IFIM studies in the Sacramento and San Joaquin basins rivers and tributaries. These activities, instream flow requirements for CVPIA, are covered under a separate program, 3406 (b)(1)(B).

1.7 Administrative Support (CVPIA- SFWO) - The SFWO provides support to the AFRP in external affairs, administration, and interagency program coordination.

2 Environmental Documentation (USFWS, SFWO-HCD) - AFRP Program Manager

coordinates with Habitat Conservation Division and Endangered Species Program staffs to complete AFRP requested NEPA, ESA, and cultural resource environmental documentation for AFRP projects. Environmental Documentation and Appraisal Review. Program Managers coordinate with appropriate offices and divisions within their respective agencies to ensure necessary environmental documentation and appraisal reviews are completed for the projects they manage as described below.

2.1 Appraisal Review (USFWS-Sacramento Realty Field Office (SRFO)) - AFRP Program Manager coordinates with real estate easement and acquisition appraisal support for any proposed fee title or conservation easement acquisitions the AFRP is lead on.

2.2 Acquisition Planning (USFWS-California/Nevada Refuge Planning Office (CNRPO)) - AFRP Program Manager coordinates with real estate easement and acquisition planning support for any AFRP proposed fee title or conservation easement acquisitions.

2.3. Project Funding and Implementation. As part of efforts to better integrate implementation of CVPIA and CALFED programs consistent with the CALFED Implementation Memorandum of Understanding, the AFRP expects to identify projects through the CALFED ERP's Proposal Solicitation and review process. Therefore, the AFRP can not identify all of the projects that the program will support in 2002 until the ERP's process is complete. Projects will be identified for funding based on their contribution to the program objectives, and consistency with the priorities listed below, and in consideration of the review comments and recommendations resulting from the CALFED ERP Proposal Solicitation process. Some of the specific projects may be a continuation of previously funded projects, others will be new to the program. Project prioritization will also be closely coordinated with the USBR's Central Valley Project Conservation Program. To facilitate integration with the CALFED ERP's 2002 Proposal Solicitation and review process, the priorities listed below were included in the CALFED ERP Draft Stage 1 Implementation Plan and the CALFED ERP 2002 Proposal Solicitation Package.

The AFRP's priorities for 2002 follow:

<u>Upper mainstem Sacramento River and upper Sacramento River tributaries</u>

a) Conduct riparian restoration, repair erosion problems and improve fish passage and protection on the spring-run chinook salmon streams.

b) Develop flow recommendations for anadromous fish passage in the valley sections of the spring-run chinook salmon watersheds.

c) Support "real-time" flow metering and anadromous salmonid life history studies on the spring-run chinook salmon streams.

d) Construct fish passage and protection facilities in Lower Butte Creek and

reconstruct Iron Canyon fish passage facilities on Big Chico Creek.

Lower Sacramento River and Delta tributaries

a) Evaluate limiting factors for sturgeon and salmon pertaining to passage and spawning on the Feather River.

b) Evaluate the introduction of gravels and the impacts of flow fluctuations on anadromous salmonid habitat and construct adult salmonid passage facilities and exclusion barriers in the Feather River watershed.

c) Develop a watershed management plan for the Bear River watershed and a corridor management plan for the American River.

d) Conduct riparian restoration, repair erosion problems, replenish spawning gravel and improve fish passage and protection on the lower Cosumnes, Mokelumne and Calaveras river watersheds.

San Joaquin Basin

a) Develop a watershed stewardship program and support geomorphic and restoration assessments on the Stanislaus River.

b) Support temperature modeling efforts, habitat restoration, gravel rehabilitation, water quality and educational initiatives in the Merced River drainage.

c) Support the Tuolumne River Gravel Mining Reach (Warner/Deardorf), the Tuolumne River Special Run Pool (10) and the Tuolumne River 7/11 Segment Restoration projects.

d) Support anadromous fish life history, habitat studies of salmon and steelhead and riparian easement and acquisition opportunities in the San Joaquin River tributaries and on the mainstem San Joaquin River.

e) Support hydraulic modeling of fish habitat benefits of post-restoration at the Robinson Ranch Reach on the Merced River.

f) Evaluate fish benefits associated with non-structural flood management and restoration actions on the San Joaquin National Wildlife Refuge.

g) Assist in the implementation of sediment management actions on Tuolumne, Merced and Stanislaus rivers.

h) Support the Adaptive Management Forum for large-scale riverine restoration projects.

Sacramento-San Joaquin Delta

Initiate an evaluation of juvenile salmonid distribution, abundance, habitat use and food habits in flooded portions of Chipps Island.

Central Valley-wide

Support the development of local watershed groups to advance technical planning, local education and outreach, and implementation of restoration efforts in support of

the AFRP goal and objectives.

Additional Funding Needs.

Additional projects which meet the above priorities will be implemented as funding allows. Priority will be given to activities that promote natural channel and riparian habitat values and natural processes, such as those affecting stream flow, water temperature, water quality and riparian areas, and to activities if they affect emigration or access to streams, such as sites of entrainment into diversions and migration barriers.

B. Schedule and Deliverables.

#	Task	Dates		Deliverable
		Start	Complete	
1.1	Program Management (USFWS - STFWO)	10/01/01	09/30/02	A revised FY2002 Annual Work Plan, a draft FY2003 AWP and selection of peer-reviewed restoration projects from the CALFED Proposal Solicitation and Review Process for AFRP FY2002 funding (see 1 above).
1.2	USBR/AFRP Liaison (USBR)	10/01/01	09/30/02	Reviews of revised FY2002 Annual Work Plan and a draft FY2003 AWP (see 1 above).
1.3	Program Management (AFRP - STFWO)	10/01/01	09/30/02	Provide grants and cooperative agreements for all selected FY 2002 restoration projects.
1.4	Program Implementation (AFRP - STFWO)	10/01/01	09/30/02	Provide geographical restoration priorities, CALFED Proposal Solicitation and review process proposals, recommend projects for AFRP funding and manage project deadlines and deliverables. Support the AFRP Program Manager, Assistant Program Manager, and Habitat Restoration Coordinators on work relative to the CVPIA.
1.5	Program Implementation (AFRP - RBFWO)	10/01/01	09/30/02	See 1.3 above

1.6	Contracting/Ad minis - trative Support (AFRP - STFWO)	11/01 /01	06/01 /02	Process all contracts and contract modifications and maintain AFRP computer hardware and software.
1.7	Technical Support (SFWO - IFIM)	10/01 /01	06/01 /02	Provide IFIM study results for selected Sacramento and San Joaquin basin rivers and tributaries.
1.8	Administrative Support (CVPIA - SFWO)	01/15 /02	09/30 /02	Provide support to the AFRP in external affairs, administration, and interagency program coordination.
2.0	Environmental Documentation and Real State Planning and Appraisal Review	01/15 /02	09/30 /02	Final NEPA and ESA documents, appraisal review and acquisition planning for AFRP - led project
2.1	Environmental Documentation (USFWS - SFWO - HCD)	01/15 /02	09/30 /02	Provide NEPA, ESA, and cultural resource environmental documentation for AFRP projects. See 2 above
2.2	Appraisal Review (USFWS-SRFO)	01/15 /02	09/30 /02	Final real estate easement and acquisition appraisal support. See 2 above
2.3	Acquisition Planning (USFWS - CNRPO)	01/15 /02	09/30 /02	Provide real estate easement and acquisition planning support. See 2 above
3.0	Project Funding and Implementation	01/15 /02	09/30 /02	Deliverables will be listed in the scopes of work for each of the projects supported by the AFRP, including quarterly reports, draft and final planning documents, monitoring reports, and any environmental documents and appraisals necessary for project implementation.

Schedule and Deliverables - Additional Funding Needs.

To be determined based upon the number of high priority projects which are recommended for implementation through the CALFED Proposal Solicitation and review process and any directed actions proposed after the completion of the CALFED process.

C. Summary of Program Costs and Funding Sources.

#	Task	Total Cost	Funding Sources	
			RF	
	Program Management (Total)	**$ 1,679,064**	**$**	**1,679,064**
1.1	Program Management (USFWS-STFWO)	$ 61,788	$	61,788
1.2	USBR/AFRP Liaison (USBR)	$ 4,500	$	4,500
1.3	Program Management (AFRP- STFWO)	$ 84,390	$	84,390
1.4	Program Implementation (AFRP- STFWO)	$ 520,439	$	520,439
1.5	Program Implementation (AFRP- RBFWO)	$ 300,000	$	300,000
1.6	Contracting/Administrative Support (AFRP-STFWO)	$ 171,204	$	171,204
1.7	Technical Support (SFWO-IFIM)	$ 342,343	$	342,343
1.8	Administrative Support (SWFO-CVPIA)	$ 194,400	$	194,400
2	**Environmental Documentation and Real Estate Planning and Appraisal Review**	**$ 218,229**	**$**	**218,229**
2.1	Environmental Documentation (USFWS-SFWO-HCD)	$ 162,000	$	162,000
2.2	Appraisal Review (USFWS-SRFO)	$ 6,857	$	6,857
2.3	Acquisition Planning (USFWS-CNRPO)	$ 49,371	$	49,371
3	**Project Funding and Implementation**	**$ 3,137,679**	$	3,137,679
Total Program Budget		**$ 5,000,000**	$	5,000,000

Explanatory Notes: Total costs for each of the primary tasks shown in bold (for example, Task 1, Program Management) show the total for each of the sub-tasks shown in normal type directly below the primary task (for Task 1, Sub-tasks are 1.1 through 1.7).

Program Costs and Funding Sources - Additional Funding Needs.

Additional funding needs are dependent upon the number, value and urgency of project proposals submitted after October 1, 2001, which exceed the current budget.

D. CVPIA Program Budget.

#	Task	FTE	Direct Salary and Benefits Costs	Contract Costs	Miscellaneous Costs	Administrative Costs	Total Costs
1	Program Management (Total)	20.64	$1,399,220	$0	$0	$279,844	$1,679,064
1.1	Program Management (USFWS - STFWO)	0.68	$51,490	$0	$0	$10,298	$61,788
1.2	USBR/AFRP Liaison (USBR)	0.53	$3,750	$0	$0	$750	$4,500
1.3	Program Management (AFRP - STFWO)	1.01	$70,325	$0	$0	$14,065	$84,390
1.4	Program Implementation (AFRP - STFWO)	7.60	$433,699	$0	$0	$86,740	$520,439
1.5	Program Implementation (AFRP - RBFWO)	3.23	$250,000	$0	$0	$50,000	$300,000
1.6	Contracting/Administrative Support (AFRP - STFWO)	2.66	$142,670	$0	$0	$28,534	$171,204
1.7	Technical Support (SFWO - IFIM)	2.75	$285,286	$0	$0	$57,057	$342,343
1.8	Administrative Support (CVPIA - SFWO)	1.56	$162,000	$0	$0	$32,400	$194,400

2	Environmental Documentation and Real Estate Planning and Appraisal Review	3.10	$181,857	$0	$0	$36,371	$218,229
2.1	Environmental Documentation (USFWS - SFWO - HCD)	2.00	$135,000	$0	$0	$27,000	$162,000
2.2	Appraisal Review (USFWS - SRFO)	0.13	$5,714	$0	$0	$1,143	$6,857

CVPIA Program Budget (continued).

#	Task	FTE	Direct Salary and Benefits Costs	Contract Costs	Miscellaneous Costs	Administrative Costs	Total Costs
2.3	Acquisition Planning (USFWS - CNRPO)	0.97	$41,143	$0	$0	$8,229	$49,371
3	Project Funding and Implementation	0.00	$0	$2,969,098	$0	$133,609	$3,102,707
Total by Category		26.35	$1,581,077	$2,969,098	$0	$449,825	$5,000,000

Explanatory Notes: Costs for each of the primary tasks shown in bold show the total for each of the sub-tasks shown in normal type directly below the primary task. Contracts and Administrative costs are estimates, actual costs to be based on projects identified in coordination with the CALFED ERP Proposal Solicitation and review process and on the entity managing those projects.

CVPIA Program Budget - Additional Funding Needs.

Additional funding needs are dependent upon the number, value and urgency of project proposals submitted after October 1, 2001, which exceed the current budget.

E. Quarterly Obligation/Expenditures.

#	Task	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1	**Program Management (Total)**	**$351,965**	**$351,965**	**$487,567**	**$487,567**
1.1	Program Management (USFWS-STFWO)	$15,447	$15,447	$15,447	$15,447
1.2	USBR/AFRP Liaison (USBR)	$1,125	$1,125	$1,125	$1,125
1.3	Program Management (AFRP-STFWO)	$21,097	$21,097	$21,097	$21,097
1.4	Program Implementation (AFRP-STFWO)	$130,110	$130,110	$130,110	$130,110
1.5	Program Implementation (AFRP-RBFWO)	$50,000	$50,000	$100,000	$100,000
1.6	Contracting/Administrative Support (AFRP- STFWO)	$0	$0	$85,602	$85,602
1.7	Technical Support (SFWO-IFIM)	$85,586	$85,586	$85,586	$85,586
1.8	Administrative Support (CVPIA-SFWO)	$48,600	$48,600	$48,600	$48,600
2	**Environmental Documentation and Real Estate Planning and Appraisal Review**	**$3,429**	**$24,686**	**$109,114**	**$97,470**
2.1	Environmental Documentation (USFWS-SFWO-HCD)	$0	$0	$81,000	$81,000
2.2	Appraisal Review (USFWS-SRFO)	$3,429	$0	$3,429	$0
2.3	Acquisition Planning (USFWS-CNRPO)	$0	$24,686	$24,686	$0
3	**Project Funding and Implementation**	**$0**	**$775,677**	**$775,677**	**$1,551,354**
Total Program Budget		**$355,394**	**$1,152,328**	**$1,372,358**	**$2,119,921**

Explanatory Notes: Costs for each of the primary tasks shown in bold show the total for each of the sub-tasks shown in normal type directly below the primary task. Distribution of Project Funding and Implementation costs among quarters will depend on the projects identified for funding in coordination with the CALFED ERP Proposal Solicitation and review process and on the entity selected to manage each of the individual projects.

VII. Future Years Commitments/Actions

Some actions planned for FY02 may require maintenance and/or monitoring activities in future years. This is particularly relevant for any proposed restoration projects or any multi-year survey requests. Property acquisitions (fee title or conservation easements) may require future funding for the development and/or implementation of management activities. Continuing activities should contribute towards the recovery of federal and state listed fish species and their habitats.