Draft CVPIA Fiscal Year 2010 Annual Work Plan

October 1, 2009

Program Title: Anadromous Fish Restoration Program 3406(b)(1)

Responsible Entities

Staff Name	Agency	Role
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Program Goals and Objectives for FY 2010

The goal of the Anadromous Fish Restoration Program (AFRP), as stated in Section 3406(b)(1) of the Central Valley Project Improvement Act (CVPIA), is to "develop within three years of enactment and implement a program which makes all reasonable efforts to ensure that, by the year 2002, natural production of anadromous fish in Central Valley rivers and streams will be sustainable, on a long-term basis, at levels not less than twice the average levels attained during the period of 1967-1991". Section 3406(b)(1) also states that "this goal shall not apply to the San Joaquin River between Friant Dam and the Mendota Pool".

The objectives for the AFRP can be found in the Final Restoration Plan for the Anadromous Fish Restoration Program (Restoration Plan)[1].

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.
6. Involve partners in the implementation and evaluation of restoration actions.

The Restoration Plan was completed in 2001 to guide the long-term development of the AFRP. The Restoration Plan provides a programmatic-level description of the AFRP and, is used to guide the implementation of all of the provisions of the CVPIA that contribute to the goal of making all reasonable efforts to at least double natural production of anadromous fish (AFRP doubling-goal). The following provisions contribute to accomplishing the goal of the AFRP (b)(1) program: (b)(1)(B), (b)(2), (b)(3), (b)(12), (b)(13), (b)(16), and (b)(21). The Restoration Plan presents a list of reasonable actions and evaluations for each Central Valley watershed and a process by which actions and evaluations were determined to be reasonable. The Restoration Plan identifies the need for partners, local involvement, public support, adaptive management, and flexibility as key attributes of the AFRP approach.

[1] Final Restoration Plan for the Anadromous Fish Restoration Program, A Plan to Increase Natural Production of Anadromous Fish in the Central Valley of California. Released as a Revised Draft on May 30, 1997 and adopted as final on January 9, 2001. CVPIA, AFRP, Stockton, CA. [http://www.fws.gov/stockton/afrp/restplan_final.cfm].

The AFRP is one of five CVPIA programs that has been integrated with the California Bay-Delta Authority (CBDA) Ecosystem Restoration Program (ERP) (Record of Decision, 2000)[2]. To facilitate this integration, the above objectives are included in the CBDA ERP Draft Stage 1 Implementation Plan.[3] 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 CBDA's Multi-Species Conservation Strategy[4] and the Biological Opinion on the Long Term Operations of the Central Valley Project and State Water Project[5]. The AFRP shares CBDA's vision of the Single Blueprint concept which provides a unified and cooperative approach to restoration. The AFRP is committed to integrating its activities with the Ecosystem Restoration Program's actions and evaluations and using a scientifically-based adaptive management approach, consistent with the CALFED Science Program, to achieve AFRP objectives.

During FY 10 the AFRP will be carefully reviewing and evaluating opportunities to adopt the recommendations of the Fisheries Independent Panel review (http://www.cvpiaindependentreview.com/fisheriesReports.html). In particular, AFRP is well poised to review the Ecological Risk Assessment/Ecosystem Management approach discussed in Section 3a of the review report. Some of the elements AFRP will consider in FY 10 include conceptual models, hypotheses, metrics to capture ecosystem function, standardized methods and data management. AFRP also supports recommendations to improve collaboration and coordination both within the CVPIA Programs, as well as with other programs focused on similar goals. AFRP will be working diligently to increase our efforts to meet this need.

Status of the Program

The Restoration Plan presents the goal, objectives, and strategies of the AFRP, as well as a list of reasonable actions and evaluations for each Central Valley watershed. The Restoration Plan identifies the need for partners, local involvement, public support, adaptive management, and flexibility as key attributes of the AFRP approach to making all reasonable efforts to at least double natural production of anadromous fish.

AFRP projects implemented from actions and evaluations in the Restoration Plan since 1995 have addressed environmental limiting factor categories that were derived from Central Valley watershed limiting factors listed in the AFRP Working Paper (Working Paper)[6]. In the early program years, the AFRP emphasized planning and environmental inventories. These were followed by implementation of habitat restoration projects. Restoration projects are implemented throughout the Central Valley watersheds in accordance with AFRP restoration priority criteria.

Progress made towards addressing the environmental limiting factor categories identified in the Working Paper and implementation of the restoration actions and evaluations in the Restoration Plan is available on the AFRP website (http://www.fws.gov/stockton/afrp/). Note that addressing actions is not synonymous with "completed"; it means that one or more projects or activities have been initiated that are necessary to change the status of the Limiting Factor or Action or Evaluation. About 38% of the

[2] Programmatic Record of Decision, CALFED Bay-Delta Program, August 28, 2000. Sacramento, CA
[3] Draft Stage 1 Implementation Plan, August 2001. Ecosystem Restoration Program, CALFED Bay- Delta Program. Sacramento, CA
[4] CALFED Bay-Delta Program Multi-Species Conservation Strategy. August 28, 2000. California Bay-Delta Program. Sacramento, CA
[5] Biological Opinion on the Long Term Operations of the Central Valley Project and State Water Project. June 4, 2009. USBR Sacramento, CA
[6] USFWS, 1995. Working paper on restoration needs, habitat restoration actions to double natural production of anadromous fish in the Central Valley of California, Volume 3, AFRP. [http://www.fws.gov/stockton/afrp/workingpaper.cfm].

watershed specific environmental limiting factors (200) in the Working Paper have been addressed and 34% of all Restoration Plan actions (289) and evaluations have been implemented in the 1995 to 2009 time period. Of the 73 high and medium priority structural actions and evaluations in the Restoration Plan, 30 (41%) have been completed. Of the 128 Restoration Plan actions with endpoints, 43 (34%) have been completed. Actions requiring annual or in perpetuity projects such as gravel augmentation (replacing gravel lost behind dams) and flow augmentation are not considered to have endpoints. Status of these actions are reported under other provisions of the CVPIA such as the (b)(2), (b)(3), and (b)(13) programs.

The AFRP also documents its progress toward achieving its doubling goal targets by calculating anadromous fish natural production estimates that incorporate in-river and hatchery escapement, ocean and in-stream harvest, and the proportion of hatchery returns that spawn in-river[6]. The doubling goal targets for fall, late-fall, winter, and spring runs of Central Valley Chinook salmon are 750,000, 68,000, 110,000, and 68,000 respectively. Central Valley Chinook salmon production (all races) dropped slightly below the baseline (1967-1991) production as a result of the low returns of fall run fish in 2008. Average Chinook salmon production for the period 1992-2008 has exceeded the doubling goal target on Clear, Butte, and Battle Creeks and is just below the goal on the Mokelumne River. Substantial gains in fish populations have occurred where investment in flow and passage has occurred (Butte & Clear Creeks). Clear Creek has also had a substantial investment in habitat. Winter-run production numbers had continued to trend upward since 1996 until the 2007 and 2008 returns. Spring-run numbers have trended upwards since 1991, but production was reduced in 2008. Fall-run production is up from the baseline by 9%, but has declined in recent years. Late fall-run production has increased greatly since the low period (1993-1997). Data on Chinook salmon doubling can be found in the Chinookprod file on the AFRP website (http://www.fws.gov/stockton/afrp). 2009 production numbers are not yet reported but will be updated when the data becomes available in April 2010.

FY 2009 Accomplishments

The AFRP continued to accomplish the objectives of developing restoration projects with partners, overseeing implementation of AFRP funded projects, working with local landowners, sharing restoration and anadromous fish expertise, and representing program goals at public and technical meetings. Note that Final Restoration Plan Action numbers indicated in parentheses refer to the Action specific to a stream.

Accomplishments for FY 2009 in the Sacramento Basin

Antelope Creek The Juvenile Fish Passage Improvement Project at Edwards Diversion Dam (Action 1) was initiated in FY08 to have environmental compliance and construction plans developed. The juvenile fish passage improvement will prevent out-migrating salmonids from becoming entrained in the two diversion canals at Edwards Diversion Dam. Although the diversions are screened, no bypass system was installed during construction due to site complexity. The Tehama County Resource Conservation District (TCRCD) completed a feasibility study, the environmental compliance documents, and project designs during this reporting period. FY 09 funds have been obligated for implementation, and construction is expected to begin in the summer of 2010. This project is a cooperative effort between the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), National Marine Fisheries Service (NMFS), TCRCD, Los Molinos Mutual Water Company, and the Edwards Ranch.

A road crossing in the CDFG Tehama Wildlife Area is currently a barrier to spring- and fall-run Chinook salmon during dry years. In FY08, this project received USFWS National Fish Passage Program funds to develop the environmental compliance and construction designs for the Antelope Creek Crossing Repair Project in the Tehama Wildlife Area (Action 1). FY09 AFRP funds were added to this project to

obtain formal permissions, permits, and complete a bid package. This project is a cooperative effort between the USFWS and CDFG.

Battle Creek The Battle Creek Salmon and Steelhead Restoration Project (Restoration Project)(Actions 2, 6, and 7) has seen significant progress in the past two years. For more information on the progress of these collaborative efforts go to http://www.usbr.gov/mp/battlecreek/index.html.

FY09 funds were provided to continue an adult escapement survey of natural-origin steelhead trout and winter, spring, and late-fall Chinook salmon to monitor progress towards meeting the AFRP doubling goal production targets in Battle Creek. Monitoring occurred at the Coleman National Fish Hatchery's barrier weir fish ladder between March 1 and August 1, 2009. This is the first year for testing the motion-detection capabilities on a Digital Video Recorder and preliminary data suggest that motion–detection is capturing nearly 100% of adult salmonid passage. This new technology promises to provide significant time and cost savings in the future. A rotary screw trap was also operated to measure downstream passage of natural-origin juvenile salmonids. These studies assist with evaluating benefits resulting from habitat restoration actions and summary reports are available at http://www.fws.gov/redbluff/cvpia.html.

Big Chico Creek The permitting and environmental documentation for the Iron Canyon Fish Ladder Project (Action 2) that was funded in FY07 are almost complete. The California Environmental Quality Act (CEQA) Initial Study was completed in FY09 and progress is being made on the other permits. Construction funds are being sought by Chico State University Foundation, but so far have not been fully attained. Completion of the new passage facility at Iron Canyon will provide access to an estimated 8 miles of quality spring-run Chinook salmon habitat.

Butte Creek Over the past several years many projects, which benefit salmonid survival and production, have been funded by AFRP to facilitate passage and reduce entrainment at facilities in the Butte Creek watershed. Two final reports evaluating juvenile spring-run Chinook salmon entrainment were completed in FY09. The Lower Butte Creek Project, Phase III Consolidated Action Summary Report (July 2009 draft) is currently under review. For more information on these activities and recently completed final reports (Evaluations 1-9) visit the AFRP website at http://www.fws.gov/stockton/afrp/.

Cottonwood Creek The Nonnative Invasive Plant Management and Control Project (Action 5) was funded in FY 09 to complete the environmental compliance documents and permitting to eradicate non-native noxious and invasive (NIS) plants within the riparian corridor of Cottonwood Creek.

The Anderson-Cottonwood Irrigation District (ACID) siphon is becoming exposed once again in Cottonwood Creek and poses a passage problem for adult salmonids. The environmental documentation, permits, and design for the Cottonwood Creek ACID Siphon Project (Action 2) are being completed. This is a cooperative project with USFWS, CDFG, ACID, NMFS, and the landowners.

The Cottonwood Creek Geomorphological Analysis Project (Action 1) was funded in FY09 to develop a sediment budget and assist in determining the cause of streambed instability. The study is to include analyses of geomorphological data from 1939 to present; quantify spatial and temporal characteristics of sediment supply, storage, and transport in the system; and to identify the effects of sediment transport dynamics on perceived channel and watershed changes.

Cow Creek AFRP provided FY07 funds to the Western Shasta Resource Conservation District (WSRCD) for the Millville Diversion Environmental Compliance Project (Action 3) to complete all environmental compliance documents necessary to obtain permits to modify the diversion dam for fish passage. The conceptual design for a boulder weir fishway was developed in FY09. This project will open up 10 miles of historic habitat to fall-run Chinook salmon and Central Valley steelhead trout. The California Department of Water Resources (DWR) Fish Passage Improvement Program is providing

initial engineering design. This is an interagency effort with DWR, CDFG, CALFED Ecosystem Restoration Program (ERP), and the Natural Resource Conservation Service (NRCS).

Bear, Cottonwood, and Cow Creeks The video weir monitoring project for Bear, Cottonwood, and Cow creeks was implemented from October to December 2008. As an additional element in FY09, the Bear Creek site was operated for a longer time period (through April 2009) to determine the feasibility of determining adult steelhead escapement. The information is utilized to calculate natural production estimates and is used to guide AFRP restoration efforts and evaluate program performance. Annual summary reports are available on the AFRP website (http://www.fws.gov/stockton/afrp/). This work was completed through a cooperative effort of the USFWS, CDFG, WSRCD, and the Cottonwood Creek Watershed Group.

Clear Creek AFRP FY09 funds were provided for the Clear Creek Anadromous Salmonid Monitoring Program (Program) to continue to evaluate progress towards meeting the AFRP doubling goal production targets in this watershed. The Program consists of seven ongoing, long-term monitoring tasks which include the operation of a segregation weir for spring and fall Chinook salmon; adult Chinook salmon (spring and late-fall) and steelhead escapement monitoring; juvenile salmonid production monitoring; fall Chinook spawning area mapping; and juvenile Chinook habitat use evaluation. Annual reports for these activities are available at http://www.fws.gov/redbluff/cvpia.html.

Mill Creek The AFRP provided FY07 funding to implement a pilot study to assess the feasibility of counting adult Chinook salmon escapement in Mill Creek using fixed-location hydroacoustic techniques. The final report for this project was submitted February 2009 and is available on the AFRP website (http://www.fws.gov/stockton/afrp).

Sacramento River. AFRP FY09 funds were provided to monitor juvenile green sturgeon and winter Chinook salmon escapement and juvenile production on the mainstem Sacramento River. These activities will evaluate progress towards meeting the AFRP doubling goal production targets for these species. Annual reports are available at http://baydelta.ca.gov/Php/Special_Reports/red_bluff.php.

Yuba River. A pre-project assessment was completed at Hammon Bar, upstream of Daguerre Point Dam, for potential riparian habitat restoration targeting juvenile Chinook salmon and steelhead. This assessment involved geomorphic, hydrologic, hydraulic, and vegetational components, and included substantial public outreach. A topographic map for restoration planning and preliminary conceptual diagrams for restoration projects at Hammon Bar and locations upstream as far as Parks Bar have been developed. The Hammon Bar Habitat Restoration Project Phase 2, of 4 phases, (Evaluation 4) was funded in FY09 to complete a juvenile fish habitat assessment, land use analysis, permits, and designs. This project is a cooperative effort between the USFWS, CDFG, the South Yuba River Citizens League (SYRCL), Western Aggregates Inc., Yuba Outdoor Adventures, and the Yuba Preservation Foundation.

Two VAKI Riverwatcher fish counting systems were operated in 2009 and used to count the number of fish passing upstream of the North and South fish ladders at the Daguerre Point Dam as a demonstration project. This data was collected to better understand the timing, abundance, population trends, and response to changing flow and temperature conditions of adult spring and fall- run Chinook salmon, and Central Valley steelhead in the Lower Yuba River (Action 7). This information will help improve management of these species in the Lower Yuba River, including actions such as salmonid habitat restoration projects and providing appropriate in-stream flow regimes. A draft Monitoring and Evaluation Plan was developed to evaluate instream flows as part of the Lower Yuba River Accord.

Accomplishments for FY 2009 in the San Joaquin Basin

Mokelumne River. AFRP FY09 funds were provided for the Mokelumne River Spawning Habitat Improvement Project (Action 7) to purchase, place, and monitor spawning gravel to improve natural production of Chinook salmon and steelhead at several spawning sites. This project area is rigorously characterized each year for spawning use, bed form and function and provides a foundation project for the Spawning Habitat Integrated Rehabilitation Approach (SHIRA) as conducted by UC Davis. This information will be available in the final report after the project is completed in 2012. This project is a cooperative effort between the USWFS and the East Bay Municipal Utility District.

A final report was completed documenting the proportion of hatchery versus natural origin Chinook salmon for the 2004 escapement estimate. The study used otolith microstructure and microchemistry data to demonstrate that hatchery origin Chinook salmon are much more dominant than expected. This study was funded in FY06 and the report is available on the AFRP website (http://www.fws.gov/stockton/afrp).

Calaveras River. The Calaveras River Passage Improvement Project (Action 3) will begin implementation to replace and/or retrofit one or more migration impediments to salmon and steelhead trout in the lower Calaveras River. This project will restore access to about 10 miles of habitat. Final designs for the Budiselich Flashboard Dam boulder weir fishway were completed this year and permits are currently being finalized. This project is a cooperative effort between the USFWS, Stockton East Water District, Fisheries Foundation of California (FFC), the University of the Pacific, CDFG, and DWR.

Cosumnes River. The Cosumnes River Passage Improvement Project (Evaluation 2) was funded in FY09 to improve fish passage at Rooney Dam. This project will eliminate this migration barrier by constructing a four tiered boulder weir fishway. The environmental documents and designs were completed this year and construction is to begin in the fall of 2009. The Spawning Habitat Restoration Project (Action 6 and Evaluation 3) received additional FY09 funds to purchase and place more and higher quality spawning gravel in the restored channel area, as well as place additional gravel upstream for gravel recruitment. The site was monitored and characterized for spawning use, bed form and function during this reporting period. This information will be available in the final report after the project is completed in 2010. AFRP is collaborating with FFC, Omochumne-Hartnell Water District, Robertson-Bryan, Inc., and CDFG and has leveraged $232,500 in cost share and in-kind services to date.

Stanislaus River. FY09 accomplishments included the collection of both juvenile and adult passage data via rotary screw trapping (juveniles) and a fish counting weir (adults) operated in partnership with Tri-Dam (Action 1). The rotary screw trapping was funded with FY07 (b)(16) CAMP and (b)(2) Dedicated Project Yield funds. These studies assist with evaluating benefits resulting from habitat restoration actions and summary reports are available in the AFRP website (http://www.fws.gov/stockton/afrp). Outreach and surveys were conducted for two new floodplain and side-channel enhancement projects (Honolulu Bar and Lancaster Road) to increase juvenile salmonid rearing habitat and decrease predation (Action 2). AFRP attended various outreach festivals and planning for a Stanislaus River Salmon Festival was initiated during this reporting period. AFRP is partnering with the U.S. Army Corps of Engineers, USBR, NRCS, CDFG, East Stanislaus Resource Conservation District, Tri-Dam, and FFC to host this event. A study to determine the relative contribution rates of juvenile Chinook salmon that migrate as fry versus smolt out-migrants to adult escapement was initiated this year with USBR funding. The study uses state of the art microchemistry and microstructure techniques to assess juvenile migratory history from adult otoliths recovered in the river by CDFG.

Merced River. AFRP staff continued to administer the agreement for rotary screw trap monitoring of outmigrant juvenile salmon that was funded with FY08 FWS Fisheries Program funds. Outreach, education, permitting and planning for three different floodplain and channel restoration projects (Action

3) began in FY09. The Merced River Ranch Project final designs were completed in FY09. A draft Environmental Assessment/Initial Study has been completed. The flow parameters, topographic surveys, benthic macro-invertebrate sampling, and substrate quality assessments were completed for all three floodplain and channel restoration projects. AFRP is collaborating with Santa Fe Aggregates, Inc., CDFG, CALFED ERP, and DWR.

Tuolumne River. The Bobcat Flat Restoration Project (Action 2) funds an ongoing project that restores spawning, rearing, and floodplain habitats in the Tuolumne River. In FY09 survey work began for pre-project assessment, and permitting was initiated. AFRP is collaborating with Friends of the Tuolumne and the CDFG.

Table 1. FY 2010 Tasks, Costs, Schedules and Deliverables

Task or Subtask Number	Name of Activity	FTE	Description of Activity	Restoration Fund Anticipated	Total All Sources Anticipated
1.1	**Program Management**				
1.1.1		1	Regional Office staff - USFWS Pacific Southwest Management/Admin	$210,253	$210,253
1.1.2		0.95	USFWS co-lead - Program manager	$216,432	$216,432
1.1.3		0.2	USBR Northern Valley HRC Coordination	$40,000	$40,000
1.1.4		1	USFWS Assistant Program Manager - Directs the day to day program activities, develops annual work plan, manages program budget.	$227,823	$227,823
	Subtotal Costs	3.15		$694,508	$694,508
t **1.2**	**Program Support**		HRCs manage contracts and grants, develop projects, facilitate communication, provide outreach, and analyze and report on data. Assistants assist in these duties.		
1.2.1		0.85	Habitat Restoration Coordinator (Mokelumne, Cosumnes, and Calaveras rivers) - USFWS - Stockton	$193,650	$193,650
1.2.2		0.5	Habitat Restoration Coordinator (Merced, Tuolumne, and San Joaquin rivers) - USFWS - Stockton	$113,912	$113,912
1.2.3		1	Habitat Restoration Coordinator (Feather, Yuba, Bear, and American rivers) - USFWS - Stockton	$227,823	$227,823
1.2.4		1	Habitat Restoration Coordinator (Stanislaus River) - USFWS - Stockton	$227,823	$227,823
1.2.5		1	Assistant Habitat Restoration Coordinator - USFWS - Stockton	$227,823	$227,823
1.2.6		1	Assistant Habitat Restoration Coordinator - USFWS - Stockton	$227,823	$227,823
1.2.7		1	Habitat Restoration Coordinator (Antelope, Bear, Cottonwood, Cow, Deer, Elder, Mill, Paynes, Stony, and Thomes Creeks) - USFWS - Red Bluff	$230,392	$230,392
1.2.8		1	Habitat Restoration Coordinator (Battle, Big Chico, Butte Creeks and the Sacramento River - USFWS - Red Bluff	$230,392	$230,392
1.2.9		0.07	Regional Contracting, Budget, and Finance Support	$15,000	$15,000
	Subtotal Costs	7.42		$1,694,638	$1,694,638
1.4	**Restoration Actions**				
1.4.1			Tuolumne River Bobcat Flat (Complete Permitting and begin Implementation with Gravel Augmentation on Patch 3); gravel, habitat; Fall Chinook and Steelhead; A2(high) structural N, endpoint N; restore up to 120 acres of riparian floodplain; Stockton FWS	$95,400	$95,400

Task or Subtask Number	Name of Activity	FTE	Description of Activity	Restoration Fund Anticipated	Total All Sources Anticipated
1.4.2			Stanislaus River Floodplain and Sidechannel Restoration Lancaster Rd (Post Project Monitoring and Evaluation); habitat; Fall Chinook and Steelhead; A2(high) structural N, endpoint N; restore up to 2 acres of riparian floodplain; Stockton FWS; NMFS OCAP BO Action III.2.3, p. 627 (see table 4)	$123,569	$123,569
1.4.3			Merced River Ranch Floodplain Enhancement (Complete Phase I, Reclamation Plan, and Phase 2 of 3 begin implementation and process 16,000 tons of gravel); gravel, habitat; Fall Chinook and Steelhead; A3(high) structural N, endpoint N; restore 6 acres of riparian floodplain, 5.5 acres of spawning habitat; Stockton FWS	$295,220	$295,220
1.4.4			Stanislaus River Honolulu Bar Floodplain Restoration (Post Project Monitoring); habitat; Fall Chinook and Steelhead; A2(high) structural N, endpoint N; restore up to 15 acres of riparian floodplain; Stockton FWS; NMFS OCAP BO Action III.2.3, p. 627 (see table 4)	$55,057	$55,057
1.4.5			Antelope Creek Wildlife Area Crossing Repair (Total cost $800,000); passage; Fall and Spring Chinook, Steelhead; A1(high) structural N, endpoint N; Improve passage to 13 miles of spawning and holding habitat; Red Bluff FWS; NMFS OCAP BO Action I.3.5, p. 606 and Appendix 2-B ,Table 1	$424,000	$424,000
1.4.6			Lower Antelope Creek Geomorphological Analysis; gravel, habitat; Fall and Spring Chinook, Steelhead; E1(medium) structural N, endpoint Y; Red Bluff FWS; NMFS OCAP BO Action I.3.5, p. 606 and Appendix 2-B ,Table 1	$58,300	$58,300
1.4.7			Lower American River Spawning and Rearing Habitat Restoration Project (Implementation); gravel, habitat; Fall Chinook and Steelhead; A5 (high) structural N, endpoint N; Restore up to 1 acre of spawning and rearing habitat; Stockton FWS	$157,617	$157,617
	Subtotal Costs			$1,209,163	$1,209,163
1.5	**Evaluations, Studies, Investigations, Research**				
1.5.1		**0**	Sacramento River: Fall Chinook Redd Dewatering; A2(high); CDFG (see table 4)	$16,218	$16,218
1.5.2		**0.05**	San Joaquin: Sturgeon Acoustic Study; E4(high); (Small Craft Operator) Stockton FWS (see table 4)	$12,200	$12,200
	Subtotal Costs	0.05		$28,418	$28,418
1.8	**Planning**				
1.8.1			CDFG Habitat Restoration Coordinators; Funding is for the continued support of three CDFG senior or equivalent biologists, one each from the Cooperator's Region 1 (Upper mainstem Sacramento River and tributaries from Keswick Dam south to, and including, Butte Creek on the east side and to Colusa Basin Drain on the west side of the upper mainstem of the Sacramento River) , Region 2 (Lower Sacramento River and Delta tributaries from the Feather River south to the Calaveras River (including the Feather, Yuba, American, Cosumnes, and Mokelumne rivers), and Region 4 (Sacramento-San Joaquin Delta and mainstem San Joaquin River including the Merced, Tuolumne, and the	$293,273	$293,273

Task or Subtask Number	Name of Activity	FTE	Description of Activity	Restoration Fund Anticipated	Total All Sources Anticipated
			Stanislaus rivers), to act as Habitat Restoration Coordinators (HRCs). The State HRCs will continue to play a role in the interagency team with the AFRP to coordinate, develop, and implement restoration actions consistent with the Final Restoration Plan. CDFG will cost share 44% of the total cost of $498,169.		
	Subtotal Costs			$293,273	$293,273
1.12	**Monitoring**		Monitoring is included as part of the project and is summarized in Table 4.		
	Subtotal Costs			$0	$0
1.13	**Modeling**				
1.13.1		0.35	IFIM staffing costs to support work on South Cow Creek ($50,000) and the Yuba River ($20,000).	$70,000	$70,000
	Subtotal Costs	0.35		$70,000	$70,000
	Total Costs	**10.97**		**$3,990,000**	**$3,990,000**
	Reclamation Total	**0.20**		$40,000	$40,000
	Service Total	**10.77**		$3,950,000	$3,950,000
1.4.8	**Unfunded Needs**		Antelope Creek Wildlife Area Crossing Repair (Total cost $800,000); passage; Fall and Spring Chinook, Steelhead; A1(high) structural N, endpoint N; Improve passage to 13 miles of spawning and holding habitat; Red Bluff FWS	$400,000	$400,000
1.4.9			Stanislaus River: Lovers Leap Floodplain Restoration – A2(high) structural N, endpoint N	$200,000	$200,000
1.4.10			Deer Creek Fish Passage – A1 (high) structural N, endpoint N	$225,000	$225,000
1.4.11			Mill (A1(high)), Deer (A1(high)), Butte (A9(high)), Big Chico creeks: Flow Gages – structural N, endpoint N	$110,000	$110,000
1.4.12			Mill Creek: Riparian Habitat Maintenance & Restoration – A4 (high) structural Y endpoint Y	$100,000	$100,000
1.4.13			Stanislaus River: Steelhead Acoustic Study – E3(high) structural N, endpoint N	$26,000	$26,000
1.4.14			South Fork Cottonwood Creek fish assessment – A4(high) structural N, endpoint N	$25,000	$25,000
1.4.15			Yuba River: YCRCD Narrows Habitat Enhancement – E4(high) structural N, endpoint Y	$150,000	$150,000
1.4.16			Stanislaus River: Fish Health Study – E1(high) structural N. endpoint N	$27,000	$27,000
1.4.17			Stanislaus River: juvenile mortality study in the lower river – E2(medium) structural N, endpoint N	$150,000	$150,000

Task or Subtask Number	Name of Activity	FTE	Description of Activity	Restoration Fund Anticipated	Total All Sources Anticipated
1.4.18			Cow Creek: Riparian Inventory – A4(high) structural Y, endpoint Y	$100,000	$100,000
1.4.19			Cow Creek: Barrier Assessment – A3(medium) structural Y, endpoint Y	$200,000	$200,000
	Total Unfunded Need			$1,713,000	$1,713,000

Table 2. Budget Breakout

Task	Agency	FTE	LABOR		CONTRACTS		USBR Only Misc. Costs	Total Costs
			Direct Salary, Benefits, and Admin. Costs [1/]	FWS Only Overhead Assess: 22% of Direct Salary and Benefits Costs [2/]	Contract, Grant, and Agreement Costs	FWS Only Overhead Assess: 6% Contract Costs [2/]		
1.1 Program Management	FWS	2.95	$536,482	$118,026	$0	$0		$654,508
	USBR	0.2	$40,000		$0		$0	$40,000
1.2 Program Support	FWS	7.42	$1,389,047	$305,591	$0	$0		$1,694,638
	USBR		$0		$0		$0	$0
1.4 Restoration Actions	FWS		$0	$0	$1,140,719	$68,444		$1,209,163
	USBR		$0		$0		$0	$0
1.5 Evaluations, Studies, Investigations, Research	FWS	0.05	$10,000	$2,200	$15,300	$918		$28,418
	USBR		$0		$0		$0	$0
1.8 Planning	FWS		$0	$0	$276,673	$16,600		$293,273
	USBR		$0		$0		$0	$0
1.13 Modeling	FWS	0.35	$57,377	$12,623	$0	$0		$70,000
	USBR		$0		$0		$0	$0
Administrative Total - FWS			$1,992,906	$438,440		$85,962		$2,517,308
Contracts, Grants and Agreements Total - FWS					$1,432,692			$1,432,692
FWS Total Costs		10.77	$1,992,906	$438,440	$1,432,692	$85,962		$3,950,000
Administrative Total - USBR			$40,000				$0	$40,000
Contracts, Grants and Agreements Total - USBR					$0			$0
USBR Total Costs		0.2	$40,000		$0		$0	$40,000
TOTAL ALL		**10.97**	**$2,032,906**	**$438,440**	**$1,432,692**	**$85,962**	**$0**	**$3,990,000**

1/ For FWS only: The FWS develops a bio-rate which is the combination of both the salary/benefit and related administrative costs. The FWS simple definition reads, "It is an average $$ rate that is developed and used for estimating project costs. It incorporates a biologists' salary and benefits, supervisory, clerical and biologist support costs and all other office operating costs related to completing project tasks.

2/ FWS assesses an O/H Burden charge of 6% on all contracts/agreements related to budget object codes starting with 25, 41, and 32, and a charge of 22% on costs under all other budget object codes.

Table 3. Three-Year Budget Plan FY 2011 – 2013

($ amounts in thousands)

Year	Description of Activities	Requested RF Funding	Requested W&RR Funds
2011	Complete ongoing projects including the floodplain restoration projects on the Tuolumne River Bobcat Flat, Merced River Ranch, Merced River Snelling, Yuba River Hammon Bar, and American River Sailor Bar; and the fish passage projects in Antelope Creek Wildlife Area Crossing and the Calaveras River (Caprini and Hosie Dams). High priority projects in focus watersheds such as the Stanislaus River Lovers Leap floodplain restoration project, Yuba River Narrows habitat enhancement, Deer Creek Fish Passage, Mill Creek Riparian Habitat Restoration, Cottonwood Creek fish assessment, and Cow Creek habitat assessments will begin.	$5,950	$0
2012	The highest priority projects will be to complete ongoing projects and continue or begin high priority projects in our focus areas consistent with our Implementation Plan. The ongoing floodplain restoration projects on the Tuolumne River Bobcat Flat, Merced River Ranch, Merced River Snelling, and Yuba River Hammon Bar; and the high priority projects in focus watersheds such as the Stanislaus River Lovers Leap floodplain restoration project, Yuba River Narrows habitat enhancement, Deer Creek Fish Passage, Mill Creek riparian habitat restoration, Cottonwood Creek fish assessment, and Cow Creek habitat assessments will be implemented	$6,500	$0
2013	The highest priority projects will be to complete ongoing projects and continue or begin high priority projects in our focus areas consistent with our Implementation Plan. The ongoing floodplain restoration projects on the Merced River Ranch, Merced River Snelling, and Yuba River Hammon Bar; and the high priority projects in focus watersheds such as the American River riparian and floodplain restoration, Yuba River Narrows habitat enhancement, Stanislaus River Lovers Leap floodplain restoration project, Deer Creek Fish Passage, Mill Creek Riparian Habitat Restoration, Cottonwood Creek fish assessment, and Cow Creek habitat assessments will be implemented.	$6,900	$0

Note: The FY 2011 – 2013 Budget Plan provides estimates of capability only. The amounts are displayed are those that might be reasonably appropriated each year. These figures do not reflect the future Congressional Appropriations process. All of these estimates will be adjusted annually as RF collections are realized.

Table 4. 2010 AFRP Monitoring Projects

Project Description:	Stanislaus River Floodplain and Side-channel Restoration Lancaster Rd (Post Project Monitoring and Evaluation)
FY 2009 Project Complete?	No
CVPIA annual work plan subtask number:	FY10 AWP subtask 1.4.2

Scope of the monitoring effort:	Implementation, Effectiveness, Validation.
Product/deliverable:	Monitoring report
Cost:	$123,569 for 1 year of monitoring [an additional year of funding will be required]
Questions posed:	The primary question to be answered by the implementation monitoring is: was the project installed as designed? The primary question to be answered by the effectiveness monitoring is: was the project effective at meeting restoration objectives? The primary question to be answered by the validation monitoring is: are the basic assumptions behind the project's conceptual model valid (i.e., does the project contribute to increased productivity for juvenile salmonid populations in the Stanislaus River)?
Objectives:	Assess the project using the three tiered approach described above.
Results – expected or actual:	Data and analysis
Data collection methods:	Photo point monitoring of vegetation (photographs), discharge and inundation (USGS and pressure transducers on site), groundwater (wells with pressure transducers), topography (ground survey), water temperature (data logger), water velocity/depth (flow meter), dissolved oxygen (D.O. meter), turbidity (turbidity meter), invertebrates (drift, benthic, and fallout sampling), fish use/diets (electrofishing, gastric lavage, photonic dye marking), growth (enclosure nets).
Data management:	Data recorded electronically in a database or spreadsheet.
Assessment:	The monitoring will assess implementation, effectiveness and validation of the project.
Use of information in future decision making:	Results will allow for improvement of future projects via adaptive management.
NMFS OCAP BO RPA	Action III.2.3, p. 627

Project Description:	Stanislaus River Floodplain and Side-channel Restoration Honolulu Bar
FY 2009 Project Complete?	No
CVPIA annual work plan subtask number:	FY10 AWP subtask 1.4.4

Scope of the monitoring effort:	Post-project topographic surveys, cross-sections with pebble counts, flora success and succession, water temperature, stage, invertebrates, and fish use.
Product/deliverable:	Final Report
Cost:	$55,057 (matched by Oakdale Irrigation District).
Questions posed:	What are the new topography and water temp and elevation parameters? Was revegetation/recolonization successful? Did fish & macro-invertebrates use the site?
Objectives:	Verify as-built, revegetation success, fish and macro-invertebrate use.
Results – expected or actual:	Topographic map. Water data. Biological data.
Data collection methods:	Standard survey techniques, pebble counts, temperature and pressure sensors with loggers, seining or electro-fishing, standard invertebrate sampling,
Data management:	Data recorded electronically in a database or spreadsheet.
Assessment:	The monitoring will assess project success and attempt to quantify change in available rearing habitat.
Use of information in future decision making:	Results will allow for improvement of future projects via adaptive management.
NMFS OCAP BO RPA	Action III.2.3, p. 627

Project Description:	Sacramento River Fall Chinook Redd Dewatering Project
FY 2009 Project Complete?	No
CVPIA annual work plan subtask number:	FY10 AWP subtask 1.5.1
Scope of the monitoring effort:	Sacramento River
Product/deliverable:	Digital database with raw data files, and a final report that provides an analysis of the data.
Cost:	The total FY2010 cost is approximately $16,218. This project is a collaborative project between AFRP, CDFG, DWR, and Pacific States Marine Fisheries Commission (PSMFC).
Questions posed:	At what flows and dam releases does Fall Chinook Redds become dewatered? What locations are dewatering most prevalent?
Objectives:	Determine when/where fall Chinook redds are dewatered and map the locations correlated to river flows and dam releases.

Results – expected or actual:	The proposed activity will produce digital files and maps and a final report documenting the results of the monitoring activity.
Data collection methods:	Two PSMFC field biologists will conduct redd surveys by boat in the Sacramento River in October.
Data management:	Digital files with raw data (i.e. GPS points) will be archived by the AFRP in an Excel database. A final report will be available on the AFRP website.
Assessment:	Dewatered redds will be mapped and correlated with river flows and dam releases.
Use of information in future decision making:	Redd dewatering information will assist with the identification of flow management strategies/recommendations (e.g. to prevent dewatering of redds and therefore assist with doubling natural production of fall Chinook salmon).
NMFS OCAP BO RPA	None

Project Description:	San Joaquin River System Sturgeon Tagging and Acoustic Receiver Installation Project
FY 2009 Project Complete?	No
CVPIA annual work plan subtask number:	FY10 AWP subtask 1.5.2
Scope of the monitoring effort:	San Joaquin River
Product/deliverable:	Digital database with raw data files, and a final report that provides an analysis of the data.
Cost:	The total cost for conducting this project in FY 2010 is approximately $12,200. This project is a collaborative project between Central Valley Fish Tracking Consortium (CVFTC), CDFG, and the USFWS.
Questions posed:	Do white or green sturgeon currently utilize the San Joaquin River for spawning? What is the migratory behavior of these species in the San Joaquin River system? How do movements relate to flows, temperature, or other parameters?
Objectives:	Identify white sturgeon and green sturgeon spawning habitat and use in the San Joaquin River system.
Results – expected or actual:	The proposed activity will produce digital files with raw telemetry data and a final report documenting the results of the monitoring activity.
Data collection methods:	A sonar array will be deployed in the San Joaquin River and collect telemetry data (i.e. movement, time, temperature, etc.) on tagged fish.

Data management:	Digital files with raw data will be archived by the AFRP in an Excel database. A final report documenting the results of the project will be available on the AFRP website.
Assessment:	The timing and duration of movements of adult green sturgeon or other species of interest during their spawning migration in the San Joaquin River will be evaluated. The environmental characteristics of sturgeon spawning habitat and juvenile rearing habitat will be described.
Use of information in future decision making:	Movement and habitat use data will assist AFRP with identifying future restoration actions for these species in the San Joaquin River. Green sturgeon is listed as threatened under the ESA and distribution data will assist AFRP with recovery efforts.
NMFS OCAP BO RPA	None