

# Draft CVPIA Fiscal Year 2013 Annual Work Plan

*July 27, 2012*

## ***Program Title:***

Comprehensive Assessment and Monitoring Program (CAMP) – CVPIA Section 3406(b)(16)

## ***Responsible Entities:***

<b>Staff Name</b>	<b>Agency</b>	<b>Role</b>
Douglas Threlhoff	U.S. Fish and Wildlife Service	CAMP Lead
Robert Evans	U.S. Bureau of Reclamation	CAMP Co-Lead
Jason Kindopp	California Department of Water Resources	State Partner
Doug Killam	California Department of Fish and Game	State Partner

## ***Program Goals and Objectives for FY 2013***

Section 3406(b)(16) of the Central Valley Project Improvement Act (CVPIA) authorizes and directs the Secretary of the Interior (Secretary) to establish, in cooperation with independent entities and the State of California, a comprehensive assessment program to monitor fish and wildlife resources in the Central Valley and assess the biological results and effectiveness of actions implemented pursuant to CVPIA Section 3406(b). The Comprehensive Assessment and Monitoring Program (CAMP) was developed to address this requirement.

To address its mandate in the CVPIA, the CAMP focuses on two program objectives identified in the 1997 CAMP Implementation Plan, and a third objective identified in the 2008 Independent Review of the CVPIA Fisheries Program:

CAMP Program Objective #1 assesses overall (cumulative) effectiveness of restoration actions implemented pursuant to CVPIA Section 3406(b) in meeting fish production targets developed by the Anadromous Fish Restoration Program (AFRP).

The AFRP fish production targets pertain to the adult life stage of fall-, late-fall-, winter-, and spring-run Chinook salmon; steelhead; striped bass; American shad; white sturgeon; and green sturgeon. The targets involve one broader area and 22 Central Valley watersheds. The broader area includes San Pablo Bay, Suisun Bay, and Sacramento-San Joaquin River Delta. The 22 watersheds are the American River, Antelope Creek, Battle Creek, Bear River, Big Chico Creek, Butte Creek, Calaveras River, Clear Creek, Cosumnes River, Cottonwood Creek, Cow Creek, Deer Creek, Feather River, Merced River, Mill Creek, seven “Miscellaneous Creeks” upstream from the Red Bluff Diversion Dam on the Sacramento River mainstem, Mokelumne River,

Paynes Creek, Sacramento River mainstem, Stanislaus River, Tuolumne River, and Yuba River. Each year, the CAMP produces one annual report relating to Program Objective #1. That report uses monitoring data to develop annual fish production estimates, and the fish production estimates are then compared to the AFRP fish production targets to determine if the targets are being met.

As funding is available, the CAMP provides financial support to entities that collect Chinook salmon monitoring data that can be used to determine if the AFRP's Chinook salmon production targets are being met. On rare occasions, the CAMP has also provided funds that were used to collect monitoring data involving non-salmon species so that data could be used to determine if the AFRP's non-salmon fish production targets were met.

CAMP Program Objective #2 assesses the relative effectiveness of categories of CVPIA Section 3406(b) restoration actions (e.g., water management modifications, structural modifications, habitat restoration, and fish screens) toward meeting AFRP fish production targets.

Conceptually, the CAMP would implement Program Objective #2 by collecting, compiling, and summarizing rotary screw trap (RST) data for the juvenile life stage of Chinook salmon with the expectation these data can be used to assess the effectiveness of the four categories of habitat restoration actions. The CAMP's Implementation Plan describes a general process where juvenile salmon production estimates are used in combination with monitoring data from habitat restoration activities and chronologies of habitat restoration activities to assess the relative effectiveness of the four categories of habitat restoration activities.

The CAMP Implementation Plan recommends that juvenile Chinook salmon production be monitored in the following 14 watersheds. These are the American River, Battle Creek, Big Chico Creek, Butte Creek, Clear Creek, Deer Creek, Feather River, Merced River, Mill Creek, Mokelumne River, Sacramento River mainstem, Stanislaus River, Tuolumne River, and Yuba River.

Historically, the CAMP, AFRP, and Dedicated Project Yield Program have individually or collectively provided funding to monitor juvenile Chinook salmon production on the Stanislaus River. That river is considered to be a high priority because it is one of four watersheds identified in legislation authorizing the Central Valley Project (CVP). The CAMP plans to provide FY 2013 funding to continue juvenile salmon monitoring in that watershed. Beginning in 2013, the CAMP will initiate an effort to begin juvenile salmon monitoring on the American River with CAMP funds. The American River is also one of the four CVP watersheds. The monitoring of juvenile salmon in the American River was historically conducted by the California Department of Fish and Game until 2008, when trapping was terminated due to lack of funds.

Thus far, the CAMP has been hampered in addressing Program Objective #2 because there is no unified standardized effort to collect, analyze, report, and store RST data where RSTs have been

deployed since 1995. To address these issues, the CAMP has initiated an effort to develop the RST “platform” described in greater detail below. The data summaries from the platform are

expected to provide the foundation that is necessary (in combination with other data) to conduct the analyses pertaining to CAMP Program Objective #2.

CAMP Program Objective #3 is to establish a data management program to manage CVPIA data as a resource available to all interested parties, provide training in data management, ensure compliance with relevant federal laws and regulations, and to ensure the effective and economical management of the resource. The documentation (through metadata) of data sets and the distribution and sharing of data via easily accessible databases will enable more collaboration and enhance our ability to determine which restoration activities result in the greatest improvement in anadromous fish populations. Results that suggest positive correlation between restoration activities and anadromous fish populations will be continued and possibly expanded; those that suggest negative or no correlation will be reassessed to determine if those activities are the best use of scarce resources. Actions with marginal results could be modified or refined and subjected to future analysis.

The CAMP performance measure is to produce one annual report per year.

### ***Status of the Program***

CAMP Program Objective #1: The CAMP has produced nine annual reports addressing CAMP Program Objective #1. Those reports were prepared in 1997, 1998, 1999, 2000, 2007, 2008, 2009, 2010, and 2011. To produce the reports, the CAMP: (a) acquires and compiles monitoring data collected by other entities and that pertain to the adult life stage of the nine anadromous fish species identified in the CVPIA, (b) collects a limited amount of monitoring data using its own funding, (c) uses the monitoring data to develop fish production estimates for the nine aforementioned anadromous fish species, (d) compares the fish production estimates with fish production targets developed by the AFRP to determine if the fish production estimates are greater, or less, than the AFRP fish production targets, and (e) produces an annual report with its findings. If the fish production targets have not been met, it indicates that previous habitat restoration activities were insufficient to accomplish the restoration goals outlined in the CVPIA.

The CAMP annual reports addressing CAMP Program Objective #1 demonstrate the majority of the AFRP fish production targets have not been met on a regular basis. There are multiple causes for this lack of success in achieving the AFRP fish production targets. In any one year, the following factors, either individually or collectively, may lead to depressed fish production estimates: insufficient breeding and rearing habitat, water quality issues, ocean conditions, and over harvest. The degree to which these and other causes affect fish production have not been quantified. Substantial increases in data analysis efforts will be required to identify the most important factors that promote measurable increases in anadromous fish production and thereby lead to the achievement of the AFRP fish production targets.

CAMP Program Objective #2: To evaluate the relative effectiveness of restoration actions, i.e., CAMP Program Objective #2, the CAMP took the initiative in FY 2010 to acquire and synthesize RST data collected by several entities in the Central Valley. In FY 2011, the CAMP and Pacific States Marine Fisheries Commission (PSMFC) began the process of developing a database and computer programming code, i.e., a RST platform, that will standardize the storage, analysis, and reporting of historical and future juvenile salmon production estimates from seven watersheds in the Central Valley. Those “core” watersheds are the American River, Battle Creek, Clear Creek, Feather River, Mokelumne River, Sacramento River at the Red Bluff Diversion Dam, and Stanislaus River. Those watersheds were chosen because they have long-term data sets spanning many years, and the trap efficiency tests that are required to develop juvenile salmon production estimates were conducted in those watersheds. The platform has been designed, however, to accommodate all of the historical and future RST data collected from every watershed in the Central Valley. As funding is available, the CAMP will pursue importing additional RST data into the platform that does not involve the seven core watersheds.

By comparing trends in standardized juvenile salmon production estimates with chronologies of completed restoration projects, it should be possible to determine if there was a biological response (i.e., increased juvenile salmon production) following one or more habitat restoration projects in a watershed. If the results derived from the RST platform suggest increases in juvenile salmon production did not occur after habitat restoration activities occurred, it may be necessary to reassess the way in which restoration projects were conducted and/or how juvenile salmon monitoring activities were conducted, and whether the design, magnitude, or geographic scope of future restoration activities needs to be substantially changed to elicit an increase in juvenile salmon production.

The development of the RST platform has progressed to the point where a final database structure for storing RST data has been created, a user interface with various forms for entering new RST data has been created, the migration of historical data from three watersheds to the CAMP database is nearly complete, the process of migrating historical data from three other watersheds is under way, and computer programming code is being developed that will produce tabular and graphical summaries of juvenile salmon production estimates based on the raw data in the database.

In addition to being used to evaluate the relative effectiveness of habitat restoration actions, the RST data will also provide a rich source of information for documenting and evaluating changes in the abundance, demography, and ecology of juvenile Chinook salmon in the Central Valley.

CAMP Program Objective #3: The CAMP currently has three ongoing, data management programs. These are the Data Acquisition and Management Plan, the Accomplishments Database, and the GIS Network Access Tool.

The purpose of the first data management program, i.e., the Data Acquisition and Management Plan (DAMP), is to provide guidelines for all of the CVPIA Program's current, and future, data management efforts throughout the data lifecycle. The data lifecycle is a formal process consisting of phases that, when followed consistently, will result in accurate, standardized, shareable data for our work and our customers.

A secondary purpose of the DAMP is to implement procedures in which the pertinent laws and regulations are followed with more ease and consistency. This will help to insure that data are legally defensible in critical decisions.

There are two objectives of the CVPIA DAMP. The first is to provide instructions to all data stewards on properly documenting their data according to the standards of the Federal Geographic Data Committee (FGDC), pertinent Federal laws and regulations, and the Bureau of Reclamation regulations. The second is to aid in the restoration of the Central Valley ecosystems by providing accurate data for proper decision-making. Preliminary instruction on data management has been provided in previous fiscal years. Currently a data documentation form has been created that follows the BOR data life cycle. The documentation of data sets that answer specific CVPIA Program management questions is emphasized.

The second data management program is the CVPIA Accomplishments Database (AD). The CVPIA Program requires the ability to view various accomplishments data sets from within a single application, i.e., the AD. The purpose is to store past and current program and project data, to preserve institutional knowledge, to ensure consistent reporting of data, to provide multiple users (internal and external to the Department of Interior) access to the data, and to create standard and custom reports.

The objective of the AD is to identify the available data sets managed by program partners such as agencies within the Department of Interior, the State of California, Tribes, and other entities; and to enter or link interagency data sets and databases to a centralized database.

The AD is currently in the first phase of a contract where a survey of existing and similar databases operated by program partners is performed. Many program partners have an existing and similar database, thus it will be necessary during this project to determine whether to use and expand an existing database or create a new one. The results of this survey will determine the final development phase. The final deliverable of this contract will be an a browser based AD application that allows users to easily access up-to-date CVPIA information, including historical and program partners' data, and create reports from their desktop.

The third data management program in the CAMP is the CVPIA GIS Network Access Tool (GNAT). The CVPIA has a document database that was created in 2010 and was based on Microsoft Access. Documents pertinent to the CVPIA Program are stored within this database. This method of data storage is no longer efficient. A central database storage that allows for remote access is required. The CVPIA database will need to have a link to spatial data that

portrays the location of the CVPIA project locations. A web based Geographic Information System that allows the user to see spatial relationships and locations of CVPIA projects will be of benefit. The interface will be designed to be intuitive for a wide audience ranging from DOI staff to public users. A cloud based service is recommended for hosting this service. The GNAT is being developed using both in-house and contract personnel. Many documents from the previous Access database have been assigned geographic coordinates and a GIS database is being developed. A web access tool is in the beginning stages of development, with implementation in late 2012.

### ***Adaptive Management***

The CAMP strives to collect and report data that can be used to enhance the success of future restoration projects. Because the production of juvenile salmon is a primary indicator that can be used to determine restoration project success, the CAMP has focused on developing the abovementioned RST platform. In contrast, monitoring data for adult salmon provide less of a basis for inferring the effectiveness of habitat restoration activities because adult salmon spend a substantial portion of their life in the ocean where their survival and growth are affected by many factors that are beyond the influence of CVPIA managers. The adult data is important, however, because it indicates if the AFRP fish production targets were met.

As the juvenile salmon production estimates from the CAMP RST become available, they will be: (1) used to determine if juvenile salmon production levels are increasing over time, which may indicate that CVPIA habitat restoration activities are collectively producing a biological response, (2) used to determine if the number of juveniles produced per adult female is stable, increasing, or declining, thereby providing a more refined understanding of whether habitat restoration activities are producing a biological response, and (3) integrated with chronologies of habitat restoration activities to identify periods when substantial changes in juvenile salmon coincided with the suite of historical habitat restoration activities that were conducted. If a positive correlation between juvenile salmon production and habitat restoration activities is found during these three types of analyses, it would suggest that habitat restoration activities are creating a measurable beneficial response. If a negative or neutral correlation is found, CVPIA staff may need to revisit basic assumptions about the nature, geographic scope, or intensity of the future habitat restoration activities that are needed if they are to be successful in meeting the restoration goals identified in the CVPIA.

Due to advancement in ecosystem restoration approaches and ecological changes in the Sacramento and San Joaquin River systems since the CVPIA was enacted, an enhanced science-based process for decision making, implementation, and performance measurement is needed to ensure that implementation of the CVPIA continues to meet its intended purposes. The CAMP, in conjunction with a variety of partners, will therefore begin developing a Science Based Framework (SBF) in FY 2013. The SBF is in an early stage of development. A general description of the SBF and its process of development is provided below, subject to revision as its development proceeds.

This SBF will result in more integrated operations and additional science-based information which will better inform restoration decisions while meeting the water and power needs of the public most effectively. The framework will be implemented in close coordination with other ongoing efforts including, but not limited to, the Bay Delta Conservation Plan, the San Joaquin River Restoration Program, and consultations involving the Federal Endangered Species Act (ESA).

To coordinate the implementation of activities relating to fish protection and restoration efforts, DOI will develop an overarching strategy to address the species' needs using insights gained through the Bay Delta Conservation Plan planning process, Interagency Ecological Program research investigations, and other recovery efforts in the Central Valley. The SBF will facilitate future decisions using a scientific framework that connects restoration actions to environmental and population responses across watersheds.

The recommendations in the Independent Review of the CVPIA Fisheries Program in the "Listen to the River" report (CVPIA 2008) and the CVPIA's goals in light of the current regulatory and ecosystem conditions will guide the development of the SBF. Specifically, the initial steps include developing the science-based decision process and producing an updated CVPIA Implementation Plan. The science-based decision process recommended for the CVPIA Fisheries Program by the independent panel of experts (CVPIA 2008) will require: (1) revisiting Fisheries Program objectives and performance measures with State and Federal agencies as well as other stakeholders, (2) developing a system-wide conceptual/quantitative model from the Bay-Delta to tributary headwaters to help guide Fisheries Program decisions from a holistic scientific understanding, (3) reassessing monitoring and evaluation efforts given revised objectives and system-wide model, and (4) integrating independent scientific reviews into the organizational structure of the Fisheries Program. The results from the science-based decision process will provide the strategic approach and foundational pieces for the CVPIA Implementation Plan that will serve as the Program's longer-term guiding document. The results from these initial steps will also provide guidance on how the organizational structure of the CVPIA Fisheries Program could be realigned to best support modifications to the science-based program.

Table 1. FY2013 Proposed Activities and Costs

CVPIA Section 3406 (b)(16), Comprehensive Assessment & Monitoring Program

	3406 (b)(16) Requested Funding for Fiscal Year 2013				
	Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources
<b>Total Funding</b>	\$1,300,000	\$0	\$0	\$638,000	\$1,938,000
Reclamation	\$468,354	\$0			\$468,354
Service	\$831,646	\$0			\$831,646
CA DFG			\$0	\$0	\$0
CA DWR			\$0	\$638,000	\$638,000

1.1 Program Management												
AWP Activity Number	Activity Name	Activity Description	Agency		Program Performance Goal	FY2013 Projected Performance	3406 (b)(16) Requested Funding for Fiscal Year 2013					
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources	
1.1.1	CAMP Program Manager	Program management activities in FY 2013 will include: (1) developing an annual report assessing and reporting overall (cumulative) effectiveness of restoration actions implemented pursuant to CVPIA Section 3406(b); (2) participating in planning exercises relating to the CVPIA; (3) managing contracts and/or cooperative agreements; (4) acquiring, refining, and synthesizing data that address CAMP Program Objectives #1 and #2; and (5) identifying new CVPIA data collection activities necessary to ensure program success. CAMP Program Objective # 1 & 2. (FRFR4833-0833AMO).	FWS	1.00			\$218,663					\$218,663
							<b>Sub-Total for Program Management, FY2013</b>					
							<b>Subtotal Funding</b>	\$218,663	\$0	\$0	\$0	\$218,663
							<b>Reclamation</b>	\$0	\$0			\$0
							<b>Service</b>	\$218,663	\$0			\$218,663
							<b>CA DFG</b>			\$0	\$0	\$0
							<b>CA DWR</b>			\$0	\$0	\$0



1.2	Program Support												
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2013 Projected Performance	3406 (b)(16) Requested Funding for Fiscal Year 2013						
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources		
1.2.1	CAMP Co-Lead Manager	FY 2013 activities will include: (1) developing the CVPIA Data Management plan; (2) developing the CVPIA Accomplishments Database; (3) Creating and maintaining Annual Accomplishment Tables; (4) Maintaining and updating the Annual Work Plan tables; (5) Assisting in the development of the Annual Accomplishments Report; (6) assessing current data being collected by all CVPIA programs; (7) coordinating data management activities with other Federal and state agencies and other organizations; and (8) Assisting in the planning and development of the Science Based Management Framework (SBMF). (CA# H3002142065)	BOR	1.00			\$204,569					\$204,569	
							Sub-Total for Program Support, FY2013						
							Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources		
							<i>Subtotal Funding</i>	\$204,569	\$0	\$0	\$0	\$204,569	
							<i>Reclamation Service</i>	\$204,569	\$0			\$204,569	
							<i>CA DFG</i>	\$0	\$0			\$0	
							<i>CA DWR</i>			\$0	\$0	\$0	

1.3		Technical Support									
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2013 Projected Performance	3406 (b)(16) Requested Funding for Fiscal Year 2013				
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources
1.3.1	FWS Financial Support	Provide FWS budget and finance support. (P2O). (FRFR4833-0833AMO).	FWS	0.03			\$5,852	\$0			\$5,852
1.3.2	FWS Regional Program Administration	Provide FWS Region 8 management/administration. (PA). (FRFR4833-0833AMO).	FWS	0.03			\$7,631	\$0			\$7,631
1.3.3	CAMP Rotary Screw Trap Platform (RSTP)	Rotary Screw Trap Platform : The platform has 2 components that include a database to store rotary screw trap data, and programming code designed to analyze data in a standardized manner and produce tabular and graphical summaries of juvenile salmon production estimates. The summaries will be used to assess the effects of habitat restoration activities and formulate adaptive management strategies designed to improve the efficacy of future restoration activities. Data from the following locations is being migrated into the database: American River, Battle Creek, Clear Creek, Feather River, Mokelumne River, Red Bluff Diversion Dam on the Sacramento River, and Stanislaus River. In 2013 and with the assistance of the Pacific States Marine Fisheries Commission, work will be conducted to maintain and expand the database and programming code necessary to generate consistently generated juvenile salmon production estimates with confidence intervals. CAMP Program Objective # 2. Costs include 6% FWS contract administration (\$3,679). (FRFR4833-08C3AMO).	FWS	0.00			\$65,000	\$0			\$65,000
1.3.4	Accomplishment Database IT support	BOR IT support for development and contract oversight of the Accomplishment database. (CA# H30-0214-2050-000-00-0-0-2)	BOR	0.15			\$28,294				\$28,294
							<b>Sub-Total for Technical Support, FY2013</b>				
							<b>Restoration Fund</b>	<b>Water and Related Resources</b>	<b>State Cash</b>	<b>State In-Kind</b>	<b>Total All Sources</b>
							\$106,777	\$0	\$0	\$0	\$106,777
							<b>Reclamation Service</b>	\$28,294	\$0		\$28,294
							<b>CA DFG</b>	\$78,483	\$0		\$78,483
							<b>CA DWR</b>		\$0	\$0	\$0

4.1		Monitoring (Programmatic)										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2013 Projected Performance	3406 (b)(16) Requested Funding for Fiscal Year 2013					
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources	
4.1.1	Stanislaus River Rotary Screw Trap (SRRST)	Quantify production of juvenile Chinook salmon from the Stanislaus River (Caswell State Park) using a rotary screw trap. The work to be done in 2014 will be the 19th year data have been collected at Caswell State Park. The operation of the Stanislaus River RST is identified as a recommended monitoring element in the CAMP Implementation Plan (i.e., CAMP monitoring element # 78), and supports a CAMP and CVPIA-related need to accurately quantify production of juvenile Chinook salmon in a Central Valley Project watershed. CAMP Program Objective #2. Costs include 6% FWS contract administration (\$10,896). (FRFR4833-08C3AMO).	FWS	0.00	Write 1 Annual Report	Contribute to the CAMP Annual Report	\$192,500					\$192,500
4.1.2	American River Rotary Screw Trap (ARRST)	Monitor the abundance of juvenile Chinook salmon and steelhead in the American River using a rotary screw trap. The work to be done in 2014 will be the first year data have been collected on the American River with CVPIA-CAMP funds. The operation of the American River RST is identified as a recommended monitoring element in the CAMP Implementation Plan (i.e., CAMP monitoring element # 76), and supports a CAMP and CVPIA-related need to accurately quantify production of juvenile Chinook salmon in a Central Valley Project watershed. CAMP Program Objective #2. Costs include 6% FWS contract administration (\$12,000). (FRFR4833-08C3AMO).	FWS	0.00	Write 1 Annual Report	Contribute to the CAMP Annual Report	\$212,000					\$212,000
4.1.3	CFM Feather	Constant Fractional Marking-Feather River (CFM-FR): Mark 25% of the fall-run Chinook salmon at the Feather River Fish Hatchery, and mark 100% of the spring-run Chinook salmon produced at that hatchery. CAMP Program Objective #1.	CDWR	0.00	Write 1 Annual Report	Contribute to the CAMP Annual Report				\$638,000		\$638,000

4.1		Monitoring (Programmatic)										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2013 Projected Performance	3406 (b)(16) Requested Funding for Fiscal Year 2013					
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources	
4.1.4	Cow Creek Escapement (CCE)	Collect biological samples that can be used to assess the proportion of wild- vs. hatchery-origin salmon in the Cow Creek watershed. The data will be used to improve the accuracy of natural production estimates in that watershed, and determine if an AFRP salmon production estimate is being met. CAMP Program Objective #1, not originally identified as a monitoring element. Costs include 6% FWS contract administration (\$849). (FRFR4833-08C3AMO).	FWS	0.00	Write 1 Annual Report	Contribute to the CAMP Annual Report	\$15,000					\$15,000
4.1.5	Cottonwood Creek Escapement (CCE)	Collect biological samples that can be used to assess the proportion of wild- vs. hatchery-origin salmon in the Cottonwood Creek watershed. The data will be used to improve the accuracy of natural production estimates in that watershed, and determine if an AFRP salmon production estimate is being met. CAMP Program Objective #1. Costs include 6% FWS contract administration (\$849). (FRFR4833-08C3AMO).	FWS	0.00	Write 1 Annual Report	Contribute to the CAMP Annual Report	\$15,000					\$15,000
							<b>Sub-Total for Monitoring (Programmatic), FY2013</b>					
							<b>Restoration Fund</b>	<b>Water and Related Resources</b>	<b>State Cash</b>	<b>State In-Kind</b>	<b>Total All Sources</b>	
							\$434,500	\$0	\$0	\$638,000	\$1,072,500	
							<i>Subtotal Funding</i>					
							<i>Reclamation</i>	\$0	\$0		\$0	\$0
							<i>Service</i>	\$434,500	\$0		\$0	\$434,500
							<i>CA DFG</i>			\$0	\$0	\$0
							<i>CA DWR</i>			\$0	\$638,000	\$638,000

4.4		Data Management										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2013 Projected Performance	3406 (b)(16) Requested Funding for Fiscal Year 2013					
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources	
4.4.1	CVPIA Accomplishments Database	Phase 1 of the CVPIA Accomplishment Database (AD) is due for completion in October 2012. Phase 1 of the contract is an investigation of existing databases and web applications to determine if any can be adopted for the AD. Depending on the results of Phase 1 (cost estimates and time), modifications to the contract and additional database development will occur during FY2013. (CA# H30-0214-2065-000-00-0-0)	BOR	0.00	Management of CVPIA Data	Establishment of an online accomplishment database	\$75,000					\$75,000
4.4.2	CVPIA GIS Network Access Tool (GNAT)	This activity is for continued GIS support of the CVPIA GIS Network Access Tool (GNAT). The activity will cover continued development of the GIS data sets, addition of new documents (2012, 2013, and historical), project locations for accomplishments and proposed projects. (CA# H30-0214-2065-000-00-0-0)	BOR	0.08	Management of CVPIA Data	Updating and maintenance of GNAT	\$20,000					\$20,000
4.4.3	CVPIA GIS Network Access Tool (GNAT)	This activity is for the maintenance and update of the CVPIA GIS Network Access Tool (GNAT) web interface and database. This will allow users to search by keyword and geographic location via GIS. Funds will be used for: continued refinement of the interface; development of a user's manual, documentation of the system. (CA# H30-0214-2065-000-00-0-0)	BOR	0.00	Management of CVPIA Data	Updating and maintenance of GNAT	\$30,000					\$30,000
							<b>Sub-Total for Data Management, FY2013</b>					
							<b>Restoration Fund</b>	<b>Water and Related Resources</b>	<b>State Cash</b>	<b>State In-Kind</b>	<b>Total All Sources</b>	
							<i>Subtotal Funding</i>	\$125,000	\$0	\$0	\$0	\$125,000
							<i>Reclamation Service</i>	\$125,000	\$0			\$125,000
							<i>CA DFG</i>	\$0	\$0			\$0
							<i>CA DWR</i>			\$0	\$0	\$0

4.5		Adaptive Management										
AWP Activity Number	Activity	Activity Name & Description	Agency		Program Performance Goal	FY2013 Projected Performance	3406 (b)(16) Requested Funding for Fiscal Year 2013					
			Name	Fractional FTE			Restoration Fund	Water and Related Resources	State Cash	State In-Kind	Total All Sources	
4.5.1	BOR Science Based Management Framework (SBMF)	BOR will fund aspects of the Science Based Management Framework (SBMF), an opportunity to revise the way in which CVPIA is being implemented, the CVP is operated, and how mitigation and restoration activities are undertaken. This new science-based decision making process will enhance the manner in which CVPIA is implemented and its performance measured by focusing on the following steps: (1) revisiting Program objectives and performance measures with State and Federal agencies as well as other stakeholders and reframing these, where appropriate, with explicitly stated hypotheses with measurable criteria; (2) updating/developing a system-wide conceptual/quantitative model from the Bay-Delta to the headwaters to help guide Program decisions; (3) reassessing monitoring and evaluation efforts within the context of revised objectives and a system-wide model; and (4) utilizing scientific reviews into the organizational structure of the Program to evaluate the programs progress.	BOR	0.00	0	0	\$110,491					\$110,491
4.5.2	FWS Science Based Management Framework (SBMF)	FWS will fund complimentary aspects of the Science Based Management Framework (SBMF). See 4.5.1, above. (FRFR4833-08C3AMO).	FWS	0.00	0	0	\$100,000					\$100,000
							<b>Sub-Total for Adaptive Management, FY2013</b>					
							<b>Restoration Fund</b>	<b>Water and Related Resources</b>	<b>State Cash</b>	<b>State In-Kind</b>	<b>Total All Sources</b>	
							\$210,491	\$0	\$0	\$0	\$210,491	
							<i>Reclamation</i>	\$110,491	\$0		\$110,491	
							<i>Service</i>	\$100,000	\$0		\$100,000	
							<i>CA DFG</i>			\$0	\$0	
							<i>CA DWR</i>			\$0	\$0	

Table 2 – Intentionally left blank

**Table 3 – Proposed FY 2013 CAMP Activity (1.3.3)**

<b>Project Description:</b>	<b>Rotary Screw Trap Platform (RSTP):</b> Maintain and expand the database and programming code, i.e., platform, necessary to generate consistently generated juvenile Chinook salmon production estimates and confidence intervals from watersheds in the Central Valley
<b>FY 2013 Project Complete?</b>	No.
<b>CVPIA annual work plan subtask number:</b>	1.3.3.
<b>Scope of the monitoring effort:</b>	Central Valley-wide.
<b>Product/deliverable:</b>	Computerized platform capable of producing consistently generated juvenile Chinook salmon production estimates with confidence intervals at different temporal scales. Data will be available to interested parties.
<b>Cost:</b>	\$65,000.
<b>Questions posed:</b>	The platform will generate data that can be used to answer many questions. For example: “Is the production of juvenile Chinook salmon in the Stanislaus River increasing or decreasing over time relative to ongoing habitat restoration actions?”
<b>Objectives:</b>	Maintain and expand a tool/mechanism that produces juvenile Chinook salmon production estimates in a standardized fashion. The estimates will be used to address CAMP Program Objective #2, i.e., infer the biological response to habitat restoration activities, and provide a basis to adaptively manage future restoration projects so they are more successful.
<b>Results – expected or actual:</b>	Multiple benefits. Elimination of the ambiguities, and reduction in the QA/QC issues, associated with the multiple ways rotary screw trap data are currently being collected in the Central Valley of California. Refinements in the precision and accuracy of juvenile Chinook salmon production estimates will occur. Enhanced ability to identify the habitat restoration activities most beneficial for juvenile salmonids.
<b>Data collection methods:</b>	Not applicable.
<b>Data management:</b>	The platform will be maintained by CAMP and Pacific States Marine Fisheries Commission staff after it has been constructed.
<b>Assessment:</b>	To be determined, based on the questions posed.
<b>Use of information in future decision making:</b>	Multiple benefits. For example, (1) having consistently generated juvenile production estimates and confidence intervals will provide a basis to infer which restoration activities are more likely to lead to the production of juvenile Chinook salmon, and (2) a greater ability to understand how recent declines in Central Valley Chinook salmon abundance are related to the marine or freshwater environments.



**Table 3 – Proposed FY 2013 CAMP Activity (4.1.1)**

<b>Project Description:</b>	<b>Stanislaus River Rotary Screw Trap (SRRST):</b> Quantify the production of juvenile Chinook salmon and the abundance of steelhead that emigrate from the Stanislaus River.
<b>FY 2013 Project Complete?</b>	No.
<b>CVPIA annual work plan subtask number:</b>	4.1.1
<b>Scope of the monitoring effort:</b>	Stanislaus River.
<b>Product/deliverable:</b>	Digital database with raw trap data, and a final report providing an analysis of the trap data.
<b>Cost:</b>	\$192,500.
<b>Questions posed:</b>	How does the production of juvenile Chinook salmon and the abundance of steelhead in the Stanislaus River in 2014 compare to previous years, and how do changes in those numbers relate to ongoing restoration activities?
<b>Objectives:</b>	Collect RST data to quantify the number of juvenile salmonids migrating past a RST during most days between January and June, conduct trap efficiency tests that will be used to quantify daily salmon production estimates, produce a report and digital data that will estimate the production of juvenile fall-run Chinook salmon and the abundance of steelhead in the Stanislaus River.
<b>Results – expected or actual:</b>	The proposed activity will produce digital files with raw data and a final report documenting the results of rotary screw trap operations on the Stanislaus River.
<b>Data collection methods:</b>	One or more rotary screw traps will be used to collect juvenile salmonid data between January and June of 2014.
<b>Data management:</b>	Digital files with raw data will be archived by the CAMP in a Microsoft Excel or Access format. A final report documenting the results of trapping activities will be available on the CAMP website.
<b>Assessment:</b>	A time series of the production of juvenile Chinook salmon and the abundance of steelhead in the Stanislaus River will be developed to assess temporal trends in abundance, and determine if restoration activities are leading to overall increases in the production of juvenile salmonids.
<b>Use of information in future decision making:</b>	If the assessment does not suggest restoration actions are leading to increases in the production of juvenile salmonids, alternative restoration strategies may be necessary to increase juvenile salmonid production.

**Table 3 – Proposed FY 2013 CAMP Activity (4.1.2)**

<b>Project Description:</b>	<b>American River Rotary Screw Trap (ARRST):</b> Monitor the abundance of juvenile Chinook salmon and steelhead in the American River using a rotary screw trap.
<b>FY 2013 Project Complete?</b>	No.
<b>CVPIA annual work plan subtask number:</b>	4.1.2.
<b>Scope of the monitoring effort:</b>	American River.
<b>Product/deliverable:</b>	Digital database with raw trap data, and a final report providing an analysis of the trap data.
<b>Cost:</b>	\$212,000.
<b>Questions posed:</b>	“How does the production of juvenile Chinook salmon and the abundance of steelhead in the American River in 2013 compare to previous years?” And “How do changes in those numbers relate to ongoing restoration activities?”
<b>Objectives:</b>	Collect RST data to quantify the number of juvenile salmonids migrating past a RST during most days between January and June, conduct trap efficiency tests that will be used to quantify daily salmon production estimates, produce a report and digital data that will estimate the production of juvenile fall-run Chinook salmon and the abundance of steelhead in the American River.
<b>Results – expected or actual:</b>	The proposed activity will produce digital files with raw data and a final report documenting the results of rotary screw trap operations on the American River.
<b>Data collection methods:</b>	One or more rotary screw traps will be used to collect juvenile salmonid data between January and June of 2014.
<b>Data management:</b>	Digital files with raw data will be archived by the CAMP in a Microsoft Excel or Access format. A final report documenting the results of trapping activities will be available on the CAMP website.
<b>Assessment:</b>	A time series of the production of juvenile Chinook salmon and the abundance of steelhead in the American River will be developed to assess temporal trends in abundance. Once sufficient data have been acquired over multiple years, determine if restoration activities are leading to increases in the production of juvenile salmonids.
<b>Use of information in future decision making:</b>	If the assessment does not suggest restoration actions are leading to increases in the production of juvenile salmonids, alternative restoration strategies may be necessary to increase salmonid production.

**Table 3 – Proposed FY 2013 CAMP Activity (4.1.3.)**

<b>Project Description:</b>	<b>Constant Fractional Marking-Feather River (CFM-FR):</b> Mark 25% of the fall-run Chinook salmon at the Feather River Fish Hatchery, and mark 100% of the spring-run Chinook salmon produced at that hatchery.
<b>FY 2013 Project Complete?</b>	No.
<b>CVPIA annual work plan subtask number:</b>	4.1.3.
<b>Scope of the monitoring effort:</b>	Feather River.
<b>Product/deliverable:</b>	Report and Excel spreadsheet summarizing the number of fall- and spring-run Chinook salmon marked at the Feather River Fish Hatchery.
<b>Cost:</b>	\$638,000. Funding associated with this project represents the state of California’s in-kind credit (cost share) pursuant to the Sharing of Costs Agreement for Mitigation Projects and Improvements (SCAMPI).
<b>Questions posed:</b>	What is the proportion of wild- vs. hatchery-produced fall- and spring-run Chinook salmon in the Feather River?
<b>Objectives:</b>	Mark juvenile salmon produced at the hatchery so the hatchery proportions for the two runs can be quantified and those data can be used to develop more accurate estimates of the natural production of Chinook salmon.
<b>Results – expected or actual:</b>	The marking of the fish with coded wire tag and an adipose fin clip will provide a mechanism for differentiating between wild- and hatchery-produced salmon as the adult salmon return to their natal watersheds to spawn.
<b>Data collection methods:</b>	The number of different lots of juvenile Chinook salmon that are marked with different coded wire tag codes will be quantified at the hatchery in the spring of 2014.
<b>Data management:</b>	Digital files with raw data will be archived by the CAMP in a Microsoft Excel spreadsheet. A final report documenting the results of marking activities will be available on the CAMP website.
<b>Assessment:</b>	As adult Chinook salmon that were marked as juvenile fish at the hatchery return to spawn, biologists will recover marked fish and use the ratio of marked to unmarked fish to develop empirical estimates of the hatchery proportions in various watersheds.
<b>Use of information in future decision making:</b>	The data resulting from the marking of the hatchery-produced fish will provide more accurate estimates of the natural production of Chinook salmon and thereby provide a stronger basis for determining if doubling goals for the Feather River watershed are being met.

**Table 3 – Proposed FY 2013 CAMP Activity (4.1.4 and 4.1.5)**

<b>Project Description:</b>	<b>Cow/Cottonwood Creeks Escapement (CCE):</b> Estimate the escapement of adult fall-run Chinook salmon on Cow and/or Cottonwood creeks.
<b>FY 2013 Project Complete?</b>	Yes, the project will be completed at the end of FY 2013.
<b>CVPIA annual work plan subtask number:</b>	4.1.4 (Cow Creek) and 4.1.5 (Cottonwood Creek).
<b>Scope of the monitoring effort:</b>	Cow and/or Cottonwood Creeks.
<b>Product/deliverable:</b>	Digital spreadsheets with raw escapement data, and a final report providing an analysis of that data.
<b>Cost:</b>	\$30,000 total; \$15,000 for Cow Creek and \$15,000 for Cottonwood Creek.
<b>Questions posed:</b>	Does the production of adult fall-run Chinook salmon from Cow and/or Cottonwood Creeks meet the Anadromous Fish Restoration Program salmon production target for that watershed?
<b>Objectives:</b>	Determine if the Anadromous Fish Restoration Program salmon production targets for Cow and/or Cottonwood Creeks are being met.
<b>Results – expected or actual:</b>	One-time assessment of the abundance of Chinook salmon in a watershed that was classified as a “Little D” watershed in the draft CVPIA Long-term Implementation Plan.
<b>Data collection methods:</b>	A video monitoring station would be installed and maintained to collect salmon passage data.
<b>Data management:</b>	Digital files with summaries of the salmon observed by the monitoring station would be developed. A final report documenting the results of video survey would be posted on the CAMP website.
<b>Assessment:</b>	The relative magnitude of salmon abundance in 2013 would be compared with prior years to determine if the numbers of adult salmon returning to Cow and/or Cottonwood creeks is increasing over time or is static.
<b>Use of information in future decision making:</b>	Determination of whether an AFRP Chinook salmon doubling goal is being met. If the goal is not being met, additional restoration activities in the watershed will likely be needed to increase salmon production and meet the goal.