

Draft CVPIA Fiscal Year 2012 Annual Work Plan

December 8, 2011

Program Title:

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

Responsible Entities:

Staff Name	Agency	Role
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
Alice Low	California Department of Fish and Game	State Partner

Program Goals and Objectives for FY 2012

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.

Section 3406(b) of the CVPIA directs the Secretary to conduct activities that will result in the restoration of fish and wildlife species and their habitats in the Central Valley. The Anadromous Fish Restoration Program (AFRP) is a program that conducts restoration activities to benefit anadromous fish in the Central Valley pursuant to CVPIA Section 3406(b)(1).

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 actions implemented pursuant to CVPIA Section 3406(b) in meeting AFRP fish production targets. The CAMP accomplishes Program Objective #1 by: (a) collecting a limited amount of monitoring data for the adult life stage of anadromous fish species identified in the CVPIA, (b) assisting other entities as they monitor these species, (c) using the monitoring data from both sources to develop fish production estimates, and (d) comparing the production estimates with fish production targets developed by the AFRP.

- 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 production targets. The CAMP implements 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 restoration actions.
- 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 CAMP performance goal and objective is to produce one annual report per year.

Status of the Program

The CAMP has produced eight annual reports (1997, 1998, 1999, 2000, 2007, 2008, 2009, and 2010) that address CAMP Program Objective #1. These reports show the majority of the AFRP fish production targets have not been met on a regular basis. There are a number of causes for this lack of success in achieving the AFRP fish production targets. Insufficient breeding and rearing habitat, water quality, ocean conditions, and over harvest are among the primary reasons for not meeting the production targets. The degree that these, and other causes, have affected the fish production has not been quantified. Substantial increases in analysis efforts will be required to identify the most important factors and to promote measurable increases in Chinook salmon production and thereby achieve the AFRP fish production targets.

To evaluate cumulative effectiveness of restoration actions, i.e., CAMP Program Objective #2, the CAMP initiated a substantial effort in FY 2010 to acquire and synthesize RST data collected by several entities in the Central Valley since 1992. In FY 2011, the CAMP and Pacific States Marine Fisheries Commission (PSMFC) initiated an effort to develop a database and computer programming code, i.e., a RST platform, which will standardize the storage, analysis and reporting of historical and future RST data. In addition to being used to evaluate the cumulative effectiveness of 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. A functional version of the RST platform should be available for storing new RST data in the fall of 2011.

The CAMP is currently working with entities that collect data, e.g., the California Department of Fish and Game and U.S. Fish and Wildlife Service, to improve the documentation associated with data summarized in CAMP reports. These efforts are intended to: (1) clarify how data have or will be collected; (2) provide templates for reporting data, analyses, and results to CAMP; and (3) provide more robust data collection techniques that describe the accuracy and precision of data being collected.

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; that platform will produce standardized, statistically robust estimates of the natural production of juvenile salmon. By comparing trends in juvenile salmon production 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 restoration projects in a watershed. If the results derived from the RST platform suggest that increases in juvenile salmon production did not occur after habitat restoration activities occurred, it will be necessary to reassess the way in which restoration projects were conducted, and whether the magnitude or scope of future restoration activities need to be substantially changed to elicit an increase in juvenile salmon production.

The documentation (through metadata) of data sets and the distribution and sharing of data via an easily accessible database will enable more collaboration and enhance our ability to determine which restoration activities result in the most improvement in the anadromous fish populations. As with the RST example, 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.

Table 1. FY2012 Activities and Costs

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

	2012 Requested Funding					
	State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
Total Funding	\$0	\$600,000	\$1,600,000	\$0	\$0	\$2,200,000
<i>Reclamation</i>			\$660,354	\$0	\$0	\$660,354
<i>Service</i>			\$939,646	\$0	\$0	\$939,646
<i>CA DFG</i>	\$0	\$0			\$0	\$0
<i>CA DWR</i>	\$0	\$600,000			\$0	\$600,000
<i>Other</i>	\$0	\$0			\$0	\$0

AWP Activity Number	Type of Activity	# of FTE's	Activity Name & Description	Agency	NMFS OCAP RPA#	Performance Metric	Performance Target	2012 Requested Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
1.1	Program Management												
1.1.1		1.00	CAMP program manager: Program management activities in FY 2012 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. See footnote at the bottom of this table for an explanation of the estimated employee salary cost. CAMP Program Objective # 1 & 2.	FWS	-	b16:Annual Report	100%	\$0	\$0	\$218,663	\$0	\$0	\$218,663
								Anticipated Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
								\$0	\$0	\$218,663	\$0	\$0	\$218,663
										\$0	\$0	\$0	\$0
										\$218,663	\$0	\$0	\$218,663
								CA DFG	\$0	\$0		\$0	\$0
								CA DWR	\$0	\$0		\$0	\$0
Other*	\$0	\$0	\$0	\$0									
						* List other funding source here: None							

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

	2012 Requested Funding					
	State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
Total Funding	\$0	\$600,000	\$1,600,000	\$0	\$0	\$2,200,000
<i>Reclamation</i>			\$660,354	\$0	\$0	\$660,354
<i>Service</i>			\$939,646	\$0	\$0	\$939,646
<i>CA DFG</i>	\$0	\$0			\$0	\$0
<i>CA DWR</i>	\$0	\$600,000			\$0	\$600,000
<i>Other</i>	\$0	\$0			\$0	\$0

AWP Activity Number	Type of Activity	# of FTE's	Activity Name & Description	Agency	NMFS OCAP RPA#	Performance Metric	Performance Target	2012 Requested Funding								
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources			
1.2	Program Support															
1.2.1	CAMP co-lead manager: FY 2012 activities will include: (1) assessing current data being collected by all CVPIA programs; (2) conducting management and program manager meetings to determine data needs for decision making; (3) coordinating data management activities with other Federal and state agencies and other organizations; (4) conducting data management training; (5) developing the CVPIA Data Management plan; and (6) developing the CVPIA Accomplishments Database							BOR	-	-	\$0	\$0	\$224,000	\$0	\$0	\$224,000
								Anticipated Funding								
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources			
								\$0	\$0	\$224,000	\$0	\$0	\$224,000			
								Subtotal Funding				\$224,000	\$0	\$0	\$224,000	
								Reclamation Service				\$0	\$0	\$0	\$0	
								CA DFG		\$0	\$0		\$0	\$0		
								CA DWR		\$0	\$0		\$0	\$0		
Other*		\$0	\$0	\$0	\$0											

* List other funding source here: None

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

	2012 Requested Funding					
	State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
Total Funding	\$0	\$600,000	\$1,600,000	\$0	\$0	\$2,200,000
Reclamation			\$660,354	\$0	\$0	\$660,354
Service			\$939,646	\$0	\$0	\$939,646
CA DFG	\$0	\$0			\$0	\$0
CA DWR	\$0	\$600,000			\$0	\$600,000
Other	\$0	\$0			\$0	\$0

AWP Activity Number	Type of Activity	# of FTE's	Activity Name & Description	Agency	NMFS OCAP RPA#	Performance Metric	Performance Target	2012 Requested Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
1.3	Technical Support												
1.3.1	0.03	Budget and contract support		FWS	-	-		\$0	\$0	\$5,852	\$0	\$0	\$5,852
1.3.2	0.04	FWS R8 FY2012 Program Administration		FWS	-	-		\$0	\$0	\$7,631	\$0	\$0	\$7,631
1.3.3	0.00	Rotary Screw Trap Platform (RSTP): With the assistance of the Pacific States Marine Fisheries Commission, maintain and expand the database and programming code necessary to generate statistically robust, consistently generated juvenile Chinook salmon production estimates for multiple watersheds in the Central Valley. CAMP Program Objective # 1 & 2.		FWS	-	-		\$0	\$0	\$50,000	\$0	\$0	\$50,000
1.3.4	0.00	Hatchery Analysis and Framework Tool (HAT-AFT): Continue development of an analytical framework and tool that can quantify the proportion of adult hatchery- vs. wild-origin Chinook salmon in watersheds and streams across the Central Valley. CAMP Program Objective # 1 & 2.		FWS	-	-		\$0	\$0	\$75,000	\$0	\$0	\$75,000
1.3.5	0.00	Chinookprod Update Program (CUP): Provide supplemental funding to augment California Department of Fish and Game's efforts to compile and make available historical adult Chinook salmon production and/or the hatchery proportion data for different salmon runs and watersheds. CAMP Program Objective # 1 & 2.		FWS	-	-		\$0	\$0	\$100,000	\$0	\$0	\$100,000
1.3.6	0.00	Summarize Data & Projects (SDP): Hire one Pacific States Marine Fisheries Commission employee to develop products that : (1) consolidate and summarize site-specific monitoring data associated with CVPIA-funded habitat restoration activities, and (2) characterize habitat restoration projects in one or more of the four Central Valley Project watersheds (American, Sacramento, and Stanislaus rivers, and Clear Creek). CAMP Program Objective # 1 & 2.		FWS	-	-		\$0	\$0	\$60,000	\$0	\$0	\$60,000
								Anticipated Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources
								\$0	\$0	\$298,483	\$0	\$0	\$298,483
										\$0	\$0	\$0	\$0
										\$298,483	\$0	\$0	\$298,483
								CA DFG	\$0	\$0		\$0	\$0
								CA DWR	\$0	\$0		\$0	\$0
								Other*	\$0	\$0		\$0	\$0

* List other funding source here: None

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

	2012 Requested Funding					
	State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
Total Funding	\$0	\$600,000	\$1,600,000	\$0	\$0	\$2,200,000
Reclamation			\$660,354	\$0	\$0	\$660,354
Service			\$939,646	\$0	\$0	\$939,646
CA DFG	\$0	\$0			\$0	\$0
CA DWR	\$0	\$600,000			\$0	\$600,000
Other	\$0	\$0			\$0	\$0

AWP Activity Number	Type of Activity	# of FTE's	Activity Name & Description	Agency	NMFS OCAP RPA#	Performance Metric	Performance Target	2012 Requested Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
1.12	Monitoring												
1.12.1		0.00	Stanislaus River Rotary Screw Trap (SRRST): Quantify production of juvenile Chinook salmon from the Stanislaus River using a rotary screw trap. 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.	FWS	-	-		\$0	\$0	\$192,500	\$0	\$0	\$192,500
1.12.2		0.00	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	\$600,000	\$0	\$0	\$0	\$600,000
1.12.3		0.00	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 operation of the American 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.	FWS	-	-		\$0	\$0	\$200,000	\$0	\$0	\$200,000
1.12.4		0.00	Cow/Cottonwood Creeks Escapement (CCE): Estimate the escapement of adult fall-run Chinook salmon on Cow and/or Cottonwood creeks. CAMP Program Objective #1.	FWS	-	-		\$0	\$0	\$30,000	\$0	\$0	\$30,000
1.12.5		0.00	Constant Fractional Marking-Nimbus and Coleman (CFM-NC) (\$306,354 does not cover the total costs of \$700,000; the remainder will need to be covered in subsequent years.): Mark 25% of the fall-run Chinook salmon at Nimbus and Coleman Fish Hatcheries as part of the Constant Fractional Marking Program. CAMP Program Objective #1.	BOR	-	-		\$0	\$0	\$306,354	\$0	\$0	\$306,354
								Anticipated Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources
								\$0	\$600,000	\$728,854	\$0	\$0	\$1,328,854
										\$306,354	\$0	\$0	\$306,354
										\$422,500	\$0	\$0	\$422,500
								CA DFG	\$0	\$0		\$0	\$0
								CA DWR	\$0	\$600,000		\$0	\$600,000
Other*	\$0	\$0	\$0	\$0									

* List other funding source here: None

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

	2012 Requested Funding					
	State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
Total Funding	\$0	\$600,000	\$1,600,000	\$0	\$0	\$2,200,000
Reclamation			\$660,354	\$0	\$0	\$660,354
Service			\$939,646	\$0	\$0	\$939,646
CA DFG	\$0	\$0			\$0	\$0
CA DWR	\$0	\$600,000			\$0	\$600,000
Other	\$0	\$0			\$0	\$0

AWP Activity Number	Type of Activity	# of FTE's	Activity Name & Description	Agency	NMFS OCAP RPA#	Performance Metric	Performance Target	2012 Requested Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	Other Sources*	Total All Sources
1.15	Data Management												
1.15.1	-		Accomplishment Database Maintenance (contract)	BOR	-	b16:Data Mgmt	compliance	\$0	\$0	\$80,000	\$0	\$0	\$80,000
1.15.2	0.60		Document DB GIS/Cloud interface. A GIS interface to the CVPIA Document database will be developed by BOR staff. This will allow users to search by keyword and geographic location via GIS.	BOR	-	b16:Data Mgmt	compliance	\$0	\$0	\$45,000	\$0	\$0	\$45,000
1.15.3	0.00		Funding for BOR Data Stewardship Technical Team to aid in Development of a Reclamation Directive and Standard for Data Acquisition and Management Plans.	BOR	-	b16:Data Mgmt	compliance	\$0	\$0	\$5,000	\$0	\$0	\$5,000
								Anticipated Funding					
								State Cash	State In-Kind	Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources
								\$0	\$0	\$130,000	\$0	\$0	\$130,000
										\$130,000	\$0	\$0	\$130,000
										\$0	\$0	\$0	\$0
										\$0	\$0	\$0	\$0
										\$0	\$0	\$0	\$0
						* List other funding source here: None							

Table 2. Three-Year Budget Plan FY 2013 – 2015

A description of the individual elements in a three-year FY 2013 - 2015 budget plan is summarized below. Unless otherwise noted, all the program management and program support costs, technical assistance projects, monitoring activities, and data management activities are recurring elements that continue into FY 2013-2015 from FY 2012. Costs estimates for recurring elements include a 4% annual increase to adjust for inflation above the FY 2012 cost, and cost values in parentheses below reflect the estimated FY 2013 cost.

1.1 Program Management: provide funds to pay the FWS program manager salary (\$227,409). The priority for this element is high, because the employee develops the annual report that represents the Performance Measure for the CAMP, and the employee will be involved in maintaining the Chinookprod database that tracks anadromous fish production in the Central Valley. The FWS program manager routinely coordinates activities and interacts with other CVPIA staff, and is one of the lead points of contact between CVPIA staff and state agencies that collect data required to assess progress toward the AFRP's fish production targets.

1.2 Program Support: provide funds to pay the BOR program co-lead manager salary (\$233,000). The priority for this element is high, because the employee coordinates data management activities with other Federal and state agencies and other organizations. The BOR co-lead assesses current data being collected by all CVPIA programs, conducts meetings with management and program managers to determine data needs, provides data management training, develops data management tools, and coordinates with other agencies.

1.3 Technical Assistance: provide funds to pay for three projects involving the synthesis, analysis, reporting, and storage of data pertaining to Chinook salmon. The specific projects involve: (1) maintaining and expanding the abovementioned RST platform involving juvenile Chinook salmon (\$52,000), (2) developing a database and programming code that will calculate the relative proportion of hatchery- vs. wild-origin adult Chinook salmon (i.e., the hatchery proportion) for different runs in several Central Valley watersheds (1-year project in FY2013 @ \$78,000), and (3) acquiring raw data that can be used to calculate the hatchery proportions for adult Chinook salmon (\$121,000). The data derived from the RST platform is a prerequisite to assessing the effects of habitat restoration activities, and is therefore a priority project. The other two projects provide data needed to assess progress toward some of the AFRP's Chinook salmon production targets.

1.12 Monitoring: provide funds to pay for four projects involving the collection, analysis, and reporting of new field data pertaining to Chinook salmon. Two monitoring projects were identified as priorities because they will monitor production of juvenile Chinook salmon on two of the four rivers involving the Central Valley Project. These monitoring projects will occur on the American River (\$208,000) and Stanislaus River (\$200,200). The collection of data during these two projects is expected to provide a basis for assessing the effectiveness of habitat restoration activities. The third project involves the use of a video camera that would monitor the escapement of fall-run Chinook salmon on Cow and/or Cottonwood Creeks (\$31,200); that data is necessary to determine if the AFRP's fish production targets for those watersheds are being met. The fourth project provides partial funding to continue the constant fractional marking of hatchery fish from Nimbus and Coleman hatcheries (\$321,000); that project relates to determining if AFRP fish production targets are being met.

Project 1.12.2 (marking and tagging of juvenile fall- and spring-run Chinook salmon at the Feather River Fish Hatchery) represents the state of California's in-kind cost share contribution in the context of the SCAMPI agreement; that project has a value of \$600,000. The marking of salmon at the Feather River Fish Hatchery is an essential component in the process to calculate the hatchery proportion of hatchery- vs. wild-origin adult salmon that return to the Central Valley to spawn.

1.15 Data Management: provides funds to pay for two projects involving the documentation and distribution of data. The first project pays for maintenance for the CVPIA Accomplishments Database (AD). The second project pays part of the salaries of BOR and other personnel to develop a GIS interface to CVPIA data and documents and to create a web connection to this interface.

The following codes appear in the "Description of Activities" column for Table 2, and indicate the relationship between different activities and the CAMP's program objectives:
O1=CAMP Program Objective #1, O2=CAMP Program Objective #2, and O3=CAMP Program Objective #3.

Table 2. Three-Year Funding Plan FY 2013 – 2015						
(\$ amounts in thousands)						
FY Year	Description of Activities	Funding Needs				
		RF	W&RR	Other	DFG	DWR
2013	1.1 Program Management (O1, O2) (see above)	\$227				
	1.2 Program Support (O1, O2, O3) (see above)	\$233				
	1.3 Technical Support (O1, O2) (see above)	\$251				
	1.4 Restoration Actions					
	1.5 Research (Evaluations, Studies, Investigations)					
	1.6 Land, Water, Conveyance Acquisitions					
	1.7 Outreach and Public Involvement					
	1.8 Planning					
	1.9 Environmental Compliance					
	1.10 Design					
	1.11 Construction					
	1.12 Monitoring (O1, O2) (see above)	\$760				
	1.13 Modeling					
	1.14 Adaptive Management					
	1.15 Data Management (O3) (see above)	\$325				
	Total	\$1,796				
2014	1.1 Program Management (O1, O2) (see above)	\$237				
	1.2 Program Support (O1, O2, O3) (see above)	\$242				
	1.3 Technical Support (O1, O2) (see above)	\$180				
	1.4 Restoration Actions					
	1.5 Research (Evaluations, Studies, Investigations)					
	1.6 Land, Water, Conveyance Acquisitions					
	1.7 Outreach and Public Involvement					
	1.8 Planning					
	1.9 Environmental Compliance					
	1.10 Design					
	1.11 Construction					
	1.12 Monitoring (O1, O2) (see above)	\$791				

Table 2. Three-Year Funding Plan FY 2013 – 2015 (\$ amounts in thousands)						
FY Year	Description of Activities	Funding Needs				
		RF	W&RR	Other	DFG	DWR
	1.13 Modeling 1.14 Adaptive Management 1.15 Data Management (O3) (see above) Total	\$330 \$1,780				
2015	1.1 Program Management (O1, O2) (see above) 1.2 Program Support (O1, O2, O3) (see above) 1.3 Technical Support (O1, O2) (see above) 1.4 Restoration Actions 1.5 Research (Evaluations, Studies, Investigations) 1.6 Land, Water, Conveyance Acquisitions 1.7 Outreach and Public Involvement 1.8 Planning 1.9 Environmental Compliance 1.10 Design 1.11 Construction 1.12 Monitoring (O1, O2) (see above) 1.13 Modeling 1.14 Adaptive Management 1.15 Data Management (O3) (see above) Total	\$246 \$252 \$187 \$822 \$323 \$1,830				

Note: The FY 2013 – 2015 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 pending appropriations and annual Restoration Fund collections are realized.

Table 3 – Proposed FY2012 CAMP Activity (1.3.3)	
Project Description:	Rotary Screw Trap Platform (RSTP): Maintain and expand the database and programming code, i.e., platform, necessary to generate statistically robust, consistently generated juvenile Chinook salmon production estimates and confidence intervals from watersheds in the Central Valley
FY 2012 Project Complete?	No.
CVPIA annual work plan subtask number:	1.3.3.
Scope of the monitoring effort:	Central Valley-wide.
Product/deliverable:	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.
Cost:	\$50,000.
Questions posed:	The platform will generate data that can be used to answer many questions. For example: (1) “Is the production of juvenile Chinook salmon in the Stanislaus River increasing or decreasing over time relative to ongoing habitat restoration actions?” Or (2) “Is the number of adult Chinook salmon returning to spawn in the American River related to the number of smolt-size or fry-size emigrants?”
Objectives:	Develop a tool/mechanism that produces statistically robust 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 in producing juvenile Chinook salmon.
Results – expected or actual:	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.
Data collection methods:	Not applicable.
Data management:	The platform will be maintained by CAMP and Pacific States Marine Fisheries Commission staff after it has been constructed.
Assessment:	To be determined, based on the questions posed.
Use of information in future decision making:	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 FY2012 CAMP Activity (1.3.4)	
Project Description:	Hatchery Analysis and Framework Tool (HAT-AFT): Continue development of an analytical framework and tool that quantifies the proportion of hatchery- vs. wild-origin adult Chinook salmon in watersheds and streams across the Central Valley.
FY 2012 Project Complete?	Yes.
CVPIA annual work plan subtask number:	1.3.4.
Scope of the monitoring effort:	Central Valley-wide.
Product/deliverable:	The analytical framework and tool will likely consist of an Excel spreadsheet or Access database containing a framework, formulas, and processes that consolidate and synthesize adult salmonid monitoring data, and quantifies the proportion of hatchery- vs. wild-origin Chinook salmon in watersheds and streams in the Central Valley.
Cost:	\$75,000.
Questions posed:	What is the relative proportion of wild- vs. hatchery-produced adult Chinook salmon in different watersheds across the Central Valley?
Objectives:	To develop a framework and tool that synthesizes previously collected and future data (including data from fish escapement surveys, fish hatcheries, and angler surveys), and produces empirically based watershed-specific estimates of the ratio of hatchery- vs. wild-origin adult Chinook salmon.
Results – expected or actual:	The proposed product will produce watershed-specific hatchery proportions that are based on empirical values. As such, the empirical values will be more accurate than the “professional best judgments” that are currently referenced by different fisheries biologists in the Central Valley.
Data collection methods:	The proposed project does not result in the acquisition and compilation of raw historical data; that task is addressed in task 1.3.5.
Data management:	The analytical framework and tool would be maintained by CAMP staff, and as new field data become available, that data would be stored in, and processed by, the analytical framework and tool.
Assessment:	The proposed product would produce values that would be reflected in future CAMP annual reports, and therefore be included in the assessment of changes in the production of adult Chinook salmon in different Central Valley watersheds.
Use of information in future decision making:	The data generated by the proposed analytical framework and tool would be used to update the hatchery proportions in the Chinookprod spreadsheet, thereby increase the accuracy of Chinook salmon production estimates reported by the CAMP and AFRP.

Table 3 – Proposed FY2012 CAMP Activity (1.3.5)	
Project Description:	Chinookprod Update Program (CUP): Provide supplemental funding to augment California Department of Fish and Game's efforts to compile and disseminate historical adult Chinook salmon production and/or hatchery proportion data for different salmon runs and watersheds.
FY 2012 Project Complete?	No.
CVPIA annual work plan subtask number:	1.3.5.
Scope of the monitoring effort:	Central Valley.
Product/deliverable:	Digital raw data that quantify the abundance of adult Chinook salmon in Central Valley rivers and streams, and estimate the proportion of wild- vs. hatchery-produced adult Chinook salmon.
Cost:	\$100,000.
Questions posed:	The compiled data will be used to answer questions such as “What is the precision and accuracy of the adult Chinook salmon production estimates for different rivers and streams?”, “What techniques and processes can be used to improve those estimates?”, and “What fraction of those salmon were of natural origin and therefore contribute to an AFRP doubling target?”
Objectives:	Provide supplemental funds that can be used to augment and enhance the California Department of Fish and Game files used to store and retrieve historical Chinook salmon escapement data, and develop standardized formats for storing historical and future escapement data.
Results – expected or actual:	Standardize data storage formats that facilitate storage and recovery of data; enhanced ability to query data and make inferences about Chinook salmon abundance levels, escapement estimate confidence intervals, the proportion of hatchery- vs. wild-origin adult salmon in a watershed.
Data collection methods:	The activity will facilitate the retrieval and storage of historical and future data.
Data management:	Multiple spreadsheets and databases with escapement data will be produced, with a special focus on data that is needed to calculate the Chinook salmon population estimates and the proportion of hatchery- vs. wild-origin adult Chinook salmon in Central Valley rivers and streams.
Assessment:	The data from the proposed activity will be incorporated into a CAMP annual report, and provide a basis for determining if an AFRP fish production target is being met.
Use of information in future decision making:	The data from the proposed project will produce more robust salmon production estimates which in turn can be used to make more informed management decisions about potential tradeoffs in field operations and the allocation of budgets.

Table 3 – Proposed FY2012 CAMP Activity (1.3.6)

Project Description:	Summarize Data & Projects (SDP): Hire one Pacific States Marine Fisheries Commission employee to develop products that: (1) consolidate and summarize site-specific monitoring data that were collected during CVPIA-funded habitat restoration projects, and (2) characterize the timing, geographic extent, nature, and magnitude of habitat restoration projects in the four Central Valley Project watersheds.
FY 2012 Project Complete?	No.
CVPIA annual work plan subtask number:	1.3.6.
Scope of the monitoring effort:	American, Sacramento, and Stanislaus rivers, and Clear Creek.
Product/deliverable:	Summary reports that compile and synthesize other reports; spreadsheets and databases that compile data from various sources.
Cost:	\$60,000.
Questions posed:	“What site-specific monitoring data were collected during CVPIA-funded habitat restoration activities?” And, “What was the timing, geographic extent, nature, and magnitude of the habitat restoration activities conducted thus far in four Central Valley Project watersheds?”
Objectives:	(1) Provide data and reports that can be used to characterize the biological response of juvenile Chinook salmon to habitat restoration activities (i.e., CAMP Program Objective #2), and (2) provide documents that provide a comprehensive synthesis and description of habitat restoration activities conducted in the Central Valley Project watersheds.
Results – expected or actual:	Greater access to data and reports that are currently stored in several remote locations or are not widely available, and comprehensive documents that describe, in detail, habitat restoration activities completed to the present time.
Data collection methods:	Reports and data from a variety of sources will be acquired and compiled.
Data management:	Multiple spreadsheets, databases, and reports will be produced, with a special emphasis on providing data and information that can then be used to assess the biological response to habitat restoration activities.
Assessment:	Fisheries data and data/information documenting habitat restoration activities will eventually be integrated to infer the biological response to habitat restoration activities.
Use of information in future decision making:	The proposed project will provide references that can be used to assess the benefits of completed habitat restoration activities, and may indicate that future habitat restoration activities require modifications or an enhanced magnitude to produce a biological response in terms of producing more juvenile Chinook salmon in different watersheds.

Table 3 – Proposed FY2012 CAMP Activity (1.12.1)	
Project Description:	Stanislaus River Rotary Screw Trap (SRRST): Quantify the production of juvenile Chinook salmon and the abundance of steelhead that emigrate from the Stanislaus River.
FY 2012 Project Complete?	No.
CVPIA annual work plan subtask number:	1.12.1
Scope of the monitoring effort:	Stanislaus River.
Product/deliverable:	Digital database with raw trap data, and a final report providing an analysis of the trap data.
Cost:	\$192,500.
Questions posed:	How does the production of juvenile Chinook salmon and the abundance of steelhead in the Stanislaus River in 2013 compare to previous years, and how do changes in those numbers relate to ongoing restoration activities?
Objectives:	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.
Results – expected or actual:	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.
Data collection methods:	One or more rotary screw traps will be used to collect juvenile salmonid data between January and June of 2013.
Data management:	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.
Assessment:	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.
Use of information in future decision making:	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 FY2012 CAMP Activity (1.12.2)	
Project Description:	<u>Constant Fractional Marking-Feather River (CFM-FR)</u>: 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.
FY 2012 Project Complete?	No.
CVPIA annual work plan subtask number:	1.12.2.
Scope of the monitoring effort:	Feather River.
Product/deliverable:	Report and Excel spreadsheet summarizing the number of fall- and spring-run Chinook salmon marked at the Feather River Fish Hatchery.
Cost:	\$600,000. 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).
Questions posed:	What is the proportion of wild- vs. hatchery-produced fall- and spring-run Chinook salmon in the Feather River?
Objectives:	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.
Results – expected or actual:	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.
Data collection methods:	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 2012.
Data management:	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.
Assessment:	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.
Use of information in future decision making:	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 FY2012 CAMP Activity (1.12.3)	
Project Description:	American River Rotary Screw Trap (ARRST): Monitor the abundance of juvenile Chinook salmon and steelhead in the American River using a rotary screw trap.
FY 2012 Project Complete?	No.
CVPIA annual work plan subtask number:	1.12.3.
Scope of the monitoring effort:	American River.
Product/deliverable:	Digital database with raw trap data, and a final report providing an analysis of the trap data.
Cost:	\$200,000.
Questions posed:	“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?”
Objectives:	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.
Results – expected or actual:	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.
Data collection methods:	One or more rotary screw traps will be used to collect juvenile salmonid data between January and June of 2013.
Data management:	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.
Assessment:	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.
Use of information in future decision making:	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 FY2012 CAMP Activity (1.12.4)

Project Description:	<u>Cow/Cottonwood Creeks Escapement (CCE)</u> : Estimate the escapement of adult fall-run Chinook salmon on Cow and/or Cottonwood creeks.
FY 2012 Project Complete?	No. The CAMP intermittently provides funding for this activity as CAMP program funds are available, and when California Department of Fish and Game funds are not available.
CVPIA annual work plan subtask number:	1.12.4.
Scope of the monitoring effort:	Cow and/or Cottonwood Creeks.
Product/deliverable:	Digital spreadsheets with raw escapement data, and a final report providing an analysis of that data.
Cost:	\$30,000.
Questions posed:	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?
Objectives:	Determine if one of the Anadromous Fish Restoration Program salmon production target for that Cow and/or Cottonwood Creeks is being met.
Results – expected or actual:	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.
Data collection methods:	A video monitoring station would be installed and maintained to collect salmon passage data.
Data management:	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.
Assessment:	The relative magnitude of salmon abundance in 2012 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.
Use of information in future decision making:	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.

Table 3 – Proposed FY2012 CAMP Activity (1.12.5)

Project Description:	<u>Constant Fractional Marking-Nimbus and Coleman (CFM-NC)</u>: Mark 25% of the fall-run Chinook salmon at Nimbus and Coleman Fish Hatcheries as part of the Constant Fractional Marking Program.
FY 2012 Project Complete?	No.
CVPIA annual work plan subtask number:	1.12.5.
Scope of the monitoring effort:	Battle Creek and the American River.
Product/deliverable:	Report and Excel spreadsheet summarizing the number of fall-run Chinook salmon marked at each fish hatchery.
Cost:	\$306,354. Note: this is not the total amount of money needed to conduct this activity in FY 2012.
Questions posed:	What is the proportion of wild- vs. hatchery-produced fall-run Chinook salmon in Battle Creek and the American River?
Objectives:	Mark juvenile salmon produced at the two hatcheries so the hatchery proportions in two Central Valley watersheds can be quantified and those data can be used to develop more accurate estimates of the natural production of Chinook salmon.
Results – expected or actual:	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 fish return to their natal watersheds to spawn.
Data collection methods:	The number of different lots of juvenile Chinook salmon that are marked with different coded wire tag codes will be quantified at the two fish hatcheries in the spring of 2012.
Data management:	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.
Assessment:	As adult Chinook salmon that were marked as juvenile fish at the two hatcheries return to spawn, biologists will recover the marked fish and use the ratio of marked to unmarked fish to develop empirical estimates of the hatchery proportions in each watershed.
Use of information in future decision making:	The data resulting from the marking of the hatchery-produced fish will provide more accurate estimates of the natural production of Chinook salmon in the two watersheds and thereby provide a stronger basis for determining if two of the doubling goals described in the CVPIA are being met.