

Draft CVPIA Fiscal Year 2011 Annual Work Plan

January 31, 2011

Program Title

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

Responsible Entities

Staff Name	Agency	Role
Douglas Threlhoff	USFWS	Lead
Robert Evans	USBR	Co-Lead

Program Goals and Objectives for FY 2011

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 monitoring natural production of adult anadromous fish species in the Central Valley, and comparing these production estimates with the AFRP fish production targets.
- CAMP Program Objective #2 assesses the relative effectiveness of categories of CVPIA Section 3406(b) actions (e.g., water management modifications, structural modifications, habitat restoration, and fish screens) toward meeting AFRP production targets. The CAMP currently implements Program Objective #2 by monitoring production of juvenile 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.

During FY 2011 a Science Based Management Framework (SBMF) will be developed. The SBMF will emphasize the design of experiments to address key uncertainties, monitoring of the outcomes, analyzing and learning, improving management actions, and continually evaluating and repeating the process. The process will be facilitated by the use of independent review panels comprised of a Scientific Advisory Board and a separate Review Committee. Results will be reviewed by a full-time data analyst who will present data and statistics to the panels.

The CAMP performance goal and objective is to produce one annual report per year.

The programmatic document that articulates the CAMP's goals, methods, and objectives is the 1997 CAMP Implementation Plan. This document describes how the CAMP will achieve the aforementioned program objectives in the context of nine anadromous fish taxa. These taxa are fall-, late fall-, winter-, and spring-run Chinook salmon, steelhead, striped bass, American shad, white sturgeon, and green sturgeon.

Because the CAMP has a relatively small budget that can be used to acquire new data, the program's success is heavily dependent on several other programs or agencies that collect monitoring data, e.g., the California Department of Fish and Game.

Status of the Program

To meet the CAMP performance goal and objective identified above, the CAMP has produced reports that address CAMP Program Objective #1, i.e., compare the estimated production of anadromous fish with fish production targets developed by the AFRP. Thus far, the program has produced these reports in 1997, 1998, 1999, 2000, 2007, 2008, and 2009. These reports suggest the majority of the AFRP fish production targets have not been met on a regular basis, and a substantial increase in habitat restoration efforts will be required to promote measurable increases in Chinook salmon production and thereby achieve the AFRP fish production targets.

Entities within and outside the Department of the Interior have expressed concern it may not be feasible to achieve CAMP Program Objective #2 as it is presently defined. The CAMP has therefore evolved, such that it is working to assess the cumulative (instead of relative) effectiveness of the four categories of restoration actions as a way of measuring overall CVPIA program success. To evaluate cumulative effectiveness of restoration actions, the CAMP initiated a substantial effort in FY 2010 to acquire, understand, and refine the historical rotary screw (RST) trap data collected by various entities in the Central Valley since 1992. These RST data will form the basis, in concert with other data, to evaluate the effectiveness of restoration actions, and provide a rich source of information for documenting and evaluating changes in the abundance, demography, and ecology of juvenile Chinook salmon. The CAMP is also working with various partners to develop a database and computer programming code that would

standardize the collection, storage, and analysis of RST data that would be collected in the future.

The CAMP is currently working with entities that collect data summarized in CAMP reports. These efforts are intended to: (1) clarify how data have historically been 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.

FY 2010 Accomplishments

CAMP staff accomplished several activities in FY 2010. These are summarized in Table A.

Table A. FY 2010 Accomplishments for CAMP

ACCOMPLISHMENT	OBJECTIVE THIS ACCOMPLISHMENT PERTAINS TO:
<p>CAMP Annual Report: an annual report analyzing and synthesizing 18 years of monitoring data pertaining to eight anadromous fish taxa in the Central Valley of California was prepared. The report also describes how often each taxon’s AFRP fish production target was met between 1992 and 2009.</p>	<p>CAMP Program Objective #1</p>
<p>Catalog of Rotary Screw Trap (RST) Operations in the Central Valley: a catalog was developed that provides detailed information for the 27 locations where rotary screw trap data have been collected in the Central Valley since 1992. This document is unique because there are no other comparable references that describe the RST operations that form the foundation of data collection activities involving juvenile Chinook salmon in the Central Valley.</p>	<p>CAMP Program Objective #2</p>
<p>Acquired New Adult and Juvenile Salmonid Data: in FY 2010, the CAMP provided funds that facilitated the acquisition of new data or activities that provide a basis for addressing CAMP Program Objectives #1 and #2. These new data or activities include:</p> <ol style="list-style-type: none"> 1. Acquiring RST databases with juvenile Chinook salmon data that were collected in 12 watersheds across the Central Valley. Much of this data will be used to estimate the production of juvenile Chinook salmon from several Central Valley watersheds. 2. Collecting 2009 fall-run Chinook salmon escapement survey data from the Sacramento River mainstem. These data provide a basis for determining if an AFRP production target was met and what fraction of the fall-run Chinook salmon in that watershed were naturally produced. 3. Marking and coded wire tagging juvenile Chinook salmon at the Coleman National Fish Hatchery and Nimbus Fish hatchery in the spring of 2010 as part of the Constant Fractional Marking Program. That activity provides a basis for quantifying the proportion of wild- vs. hatchery-origin salmon as adults return to spawn in the Central Valley. 	<p>CAMP Program Objectives #1 and #2</p>
<p>Completed two RST feasibility reports: with the assistance of the Pacific States Marine Fisheries Commission, completed two reports evaluating the feasibility of developing one centralized RST database - platform for compiling, storing, and analyzing much of the juvenile Chinook salmon data from the Central Valley.</p>	<p>CAMP Program Objective #2</p>
<p>Disseminate Chinook salmon data and reports: CAMP program staff updated a website that distributes CAMP-related data and documents to the public and interested stakeholders, e.g., the CAMP annual report, Constant Fractional Marking Program data, etc.</p>	<p>CAMP Program Objectives #1 and #2</p>

ACCOMPLISHMENT	OBJECTIVE THIS ACCOMPLISHMENT PERTAINS TO:
<p>Program Management: CAMP staff participated in several meetings and engaged in CVPIA planning exercises, e.g., development of the FY 2010 CAMP annual work plan, etc.</p>	<p>CAMP Program Objectives #1 and #2</p>
<p>CAMP Data Manager Activities: the following activities were completed by the CAMP Data Manager:</p> <ol style="list-style-type: none"> 1. Performed an assessment of data currently being collected by all CVPIA programs. 2. Designed a 2.5 hour Data Stewardship class and held 6 sessions with a total of 46 students. 3. Began the development of a GIS tool to provide CVPIA data stewards easily obtained geographic information on streams, dams, and other geo-features related to their projects. 4. Began the development of the CVPIA Data Management Plan. 5. Began the development of an Excel spreadsheet to allow users to enter metadata related to data sets for their project. This will be used as an aid in developing the metadata database. 6. Updated the CVPIA Documents Database (found missing documents, replaced web links with digital documents). 	<p>CAMP Program Objective #3</p>

Table 1. FY 2011 Activities and Costs

AWP Activity Number	Type of Activity	# of FTEs	Activity Name & Description	NMFS OCAP RPA#	Performance Metric	Performance Target	Complete this FY? Y/N	Total Project Cost	FY2011 Anticipated Funding				
									Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources	
1.1	Program Management												
1.1.1		1.00	CAMP program manager: USFWS. Program management activities in FY 2011 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.		produce one annual report each year to document monitoring activities/ assess the biological results and effectiveness of restoration actions	one report		\$218,663	\$218,663	\$0	\$0	\$218,663	
								Subtotal Funding	\$218,663	\$218,663	\$0	\$0	\$218,663
								Reclamation	\$0	\$0	\$0	\$0	\$0
								Service	\$218,663	\$218,663	\$0	\$0	\$218,663
								Other	\$0	\$0	\$0	\$0	\$0
1.2	Program Support												
1.2.1		1.00	CAMP co-lead manager: USBR. FY 2011 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; and (5) developing short-term and long-term data management plans.					\$224,000	\$224,000	\$0	\$0	\$224,000	

AWP Activity Number	Type of Activity	# of FTEs	Activity Name & Description	NMFS OCAP RPA#	Performance Metric	Performance Target	Complete this FY? Y/N	Total Project Cost	FY2011 Anticipated Funding				
									Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources	
1.2	Program Support continued												
1.2.2		0.09	Instream Flow Incremental Methodology staff: USFWS. Provide staff support to evaluate the relationship betw een hydrologic variables and juvenile Chinook salmon production in the Stanislaus River and/or Clear Creek.	III 1.3 p. 622 in BO				\$20,000	\$20,000	\$0	\$0	\$20,000	
								Subtotal Funding	\$244,000	\$244,000	\$0	\$0	\$244,000
								Reclamation	\$224,000	\$224,000	\$0	\$0	\$224,000
								Service	\$20,000	\$20,000	\$0	\$0	\$20,000
								Other	\$0	\$0	\$0	\$0	\$0
1.3	Technical Support												
1.3.1		0.03	Budget and contract support					\$7,314	\$7,314	\$0	\$0	\$7,314	
1.3.2		0.04	FWS R8 Fy2011 Program Administration					\$8,769	\$8,769			\$8,769	
1.3.3		0.00	With the assistance of the Pacific States Marine Fisheries Commission, develop the database and programming code necessary to generate statistically robust, consistently generated juvenile Chinook salmon production estimates for multiple watersheds in the Central Valley.	II.2.1.3. 6 and II.2.1.3.8 a, c, d, & e p. 585 and 586 in BO			N	\$150,000	\$150,000	\$0	\$0	\$150,000	
1.3.4		0.00	Develop an analytical framew ork and tool that can quantify the proportion of hatchery- vs. w ild-origin Chinook salmon in w atersheds and streams across the Central Valley.	II.2.1.3.8e p. 586 in BO			Y	\$74,200	\$74,200	\$0	\$0	\$74,200	
								Subtotal Funding	\$240,283	\$240,283	\$0	\$0	\$240,283
								Reclamation	\$0	\$0	\$0	\$0	\$0
								Service	\$240,283	\$240,283	\$0	\$0	\$240,283
								Other	\$0	\$0	\$0	\$0	\$0

AWP Activity Number	Type of Activity	# of FTEs	Activity Name & Description	NMFS OCAP RPA#	Performance Metric	Performance Target	Complete this FY? Y/N	Total Project Cost	FY2011 Anticipated Funding				
									Restoration Fund	Water and Related Resources	0	Total All Sources	
1.12	Monitoring												
1.12.1		0.00	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.				N	\$185,000	\$185,000	\$0	\$0	\$185,000	
1.12.2		0.00	Provide supplemental funding to estimate Chinook salmon production and/or the hatchery proportion for different watersheds and salmon runs.				N	\$45,054	\$45,054	\$0	\$0	\$45,054	
								Subtotal Funding	\$230,054	\$230,054	\$0	\$0	\$230,054
								Reclamation	\$0	\$0	\$0	\$0	\$0
								Service	\$230,054	\$230,054	\$0	\$0	\$230,054
								Other	\$0	\$0	\$0	\$0	\$0
1.15	Data Management												
1.15.1		0.00	Science Based Management Framework. Phase 1 is to form a team that includes staff from USBR, USFWS, NOAA, USGS, and the state of CA to develop a science-based management framework that will be a guide to an adaptive management process. This framework emphasizes designing experiments to address key uncertainties, monitoring of the outcomes, analyzing and learning, improving management actions, and continually evaluating and repeating the process. Phase 2 will implement the framework and will commence in FY2012; USBR.				N	\$102,600	\$102,600	\$0	\$0	\$102,600	

AWP Activity Number	Type of Activity	# of FTEs	Activity Name & Description	NMFS OCAP RPA#	Performance Metric	Performance Target	Complete this FY? Y/N	Total Project Cost	FY2011 Anticipated Funding			
									Restoration Fund	Water and Related Resources	State or Other Sources*	Total All Sources
TOTAL FUNDING								\$1,283,000	\$1,283,000	\$0	\$0	\$1,283,000
<i>Total Funding Breakdown by Agency:</i>												
<i>Reclamation</i>								\$574,000	\$574,000	\$0	\$0	\$574,000
<i>Service</i>								\$709,000	\$709,000	\$0	\$0	\$709,000
<i>Other</i>								\$0	\$0	\$0	\$0	\$0
Unfunded needs												
1.3.5		0.00	Hire two Pacific States Marine Fisheries Commission employees to develop products that : (1) consolidate and summarize site-specific monitoring data that are associated with CVPIA habitat restoration activities, and (2) characterize habitat restoration projects in select watersheds in the Central Valley.				N	\$120,000	\$120,000	\$0	\$0	\$120,000
1.12.3		0.00	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.	II.2.1.3.8a p. 585 in BO			N	\$200,000	\$200,000	\$0	\$0	\$200,000
1.12.4		0.00	Provide supplemental funding to operate a video camera on Cow or Cottonwood Creek to assess fall-run Chinook salmon abundance and collect data to calculate the hatchery proportion for the run and watershed.				N	\$26,500	\$26,500	\$0	\$0	\$26,500
1.15.2		0.00	Refuge Water Supply Database. This project will contract with the original developer of the Refuge Water Supply Database (RWSD) to write a user's manual and to provide training and demonstrations of the system. In addition, for the system to be usable the QA/QC process must be completed and the most recent data entered; USBR				Y	\$32,000.00	\$32,000.00	\$0	\$0	\$32,000
Total Unfunded Need								\$378,500	\$378,500	\$0	\$0	\$378,500

Table 2. FY 2011 Budget Breakout

Task	Agency	FTE	LABOR		CONTRACTS		USBR Only Misc. Costs	Total Costs
			Direct Salary and Benefits Costs ^{1/}	FWS Only Overhead Assess: 22% of Direct Salary and Benefits Costs ^{2/}	Contract, Grant, and Agreement Costs	FWS Only Overhead Assess: 6% Contract Costs ^{2/}		
1.1 Program Management	FWS	1.00	\$179,232	\$39,431	\$0	\$0		\$218,663
	USBR	0.00	\$0		\$0		\$0	\$0
1.2 Program Support	FWS	0.09	\$16,393	\$3,607	\$0	\$0		\$20,000
	USBR	1.00	\$224,000		\$0		\$0	\$224,000
1.3 Technical Support	FWS	0.07	\$13,183	\$2,900	\$211,509	\$12,691		\$240,283
	USBR	0.00	\$0		\$0		\$0	\$0
1.12 Monitoring	FWS	0.00	\$0	\$0	\$217,032	\$13,022		\$230,054
	USBR	0.00	\$0		\$0		\$0	\$0
1.15 Data Management	FWS	0.00	\$0	\$0	\$0	\$0		\$0
	USBR	0.16	\$0		\$350,000		\$0	\$350,000
Administrative Total - FWS			\$208,808	\$45,938		\$25,713		\$280,459
Contracts, Grants and Agreements Total - FWS					\$428,541			\$428,541
FWS Total Costs		1.16	\$208,808	\$45,938	\$428,541	\$25,713		\$709,000
Administrative Total - USBR			\$224,000				\$0	\$224,000
Contracts, Grants and Agreements Total - USBR					\$350,000			\$350,000
USBR Total Costs		1.16	\$224,000		\$350,000		\$0	\$574,000
TOTAL ALL		2.32	\$432,808	\$45,938	\$778,541	\$25,713	\$0	\$1,283,000

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

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

Table 3. FY 2012 – 2014 Three-Year Budget Plan

A budget plan for the CAMP in 2012, 2013, and 2014 is presented in the table below. RST = rotary screw trap. Costs account for a 4% inflation factor each year.

Year	Description of Activities	Requested RF Funding	Requested W&RR Funding
2012	<ul style="list-style-type: none"> • Program Management (FWS): \$227,000 • Program Support: \$253,800 • Technical Support <ul style="list-style-type: none"> • Refine rotary screw trap database platform: \$100,000 • Hire PSMFC employees to support CAMP Program Manager: \$100,000 • Hire a statistician to help with data analyses: \$150,000 • Monitoring <ul style="list-style-type: none"> • Provide supplemental funding to entities that monitor Chinook salmon: \$200,000 • Collaborate with entities operating RSTs in high priority watersheds: \$378,000 • Fund Constant Fractional Marking Program \$619,000 • Data Management <ul style="list-style-type: none"> • Science Based Management Framework \$296,088 • CVPIA Accomplishments Database \$10,400 • CVPIA Documents Database \$10,400 • CVPIA Metadata (STEP/SCEP) \$60,008 • CVPIA Project Locations GIS Tool \$1,560 • CVPIA Data Portal Creation \$208,000 	\$2,614,256	\$0
2013	<ul style="list-style-type: none"> • Program Management: \$237,000 • Program Support: \$263,900 • Technical Support <ul style="list-style-type: none"> • Maintain rotary screw trap database platform: \$50,000 • Hire PSMFC employees to support CAMP Program Manager: \$104,000 • Hire a statistician to help with data analyses: \$156,000 • Monitoring <ul style="list-style-type: none"> • Provide supplemental funding to entities that monitor Chinook salmon: \$208,000 • Collaborate with entities operating RSTs in high priority watersheds: \$393,000 • Fund Constant Fractional Marking Program \$644,000 • Data Management <ul style="list-style-type: none"> • Science Based Management Framework \$307,932 • CVPIA Accomplishments Database \$5,408 • CVPIA Documents Database \$5,408 • CVPIA Metadata (STEP/SCEP) \$66,410 • CVPIA Project Locations GIS Tool \$1,622 • CVPIA Data Portal Maintenance \$21,632 	\$2,464,312	\$0
2014	<ul style="list-style-type: none"> • Program Management: \$246,000 • Program Support: \$274,500 • Technical Support <ul style="list-style-type: none"> • Maintain rotary screw trap database platform: \$50,000 • Hire PSMFC employees to support CAMP Program 	\$2,555,660	\$0

Year	Description of Activities	Requested RF Funding	Requested W&RR Funding
	Manager: \$108,000 <ul style="list-style-type: none"> • Hire a statistician to help with data analyses: \$162,000 • Monitoring <ul style="list-style-type: none"> • Provide supplemental funding to entities that monitor Chinook salmon: \$216,000 • Collaborate with entities operating RSTs in high priority watersheds: \$408,000 • Fund Constant Fractional Marking Program \$669,000 • Data Management <ul style="list-style-type: none"> • Science Based Management Framework \$320,249 • CVPIA Accomplishments Database \$5,624 • CVPIA Documents Database \$5,624 • CVPIA Metadata (STEP/SCEP) \$66,479 • CVPIA Project Locations GIS Tool \$1,687 • CVPIA Data Portal Maintenance \$22,497 		

Note: The FY 2012 – 2014 Budget Plan provides estimates of capability only. The amounts are displayed are those that might be reasonably appropriated each year. These figures do not reflect the future Congressional Appropriations process. All of these estimates will be adjusted annually as RF collections are realized.

Table 4. FY 2011 CVPIA Monitoring Projects

Project Description:	Acquire Instream Flow Incremental Methodology (IFIM) staff support to evaluate relationships between hydrologic variables and the production of juvenile Chinook salmon and the abundance of juvenile steelhead in the Stanislaus River and/or Clear Creek.
2011 CVPIA annual work plan subtask number:	1.2.2
Scope of the monitoring effort:	Stanislaus River and/or Clear Creek
Product/deliverable:	Report and synthesized digital data.
Cost:	\$20,000
Questions posed:	What is the relationship between different hydrologic variables and the production of juvenile Chinook salmon and the abundance of steelhead in the Stanislaus River or Clear Creek?
Objectives:	Identify specific hydrologic variables that are correlated with greater numbers of juvenile salmonids in two Central Valley Project watersheds.
Results – expected or actual:	Enhanced understanding of one of the dominant habitat-related characteristics that is likely to influence the number of juvenile salmonids.
Data collection methods:	This project will rely on habitat-related data and rotary screw trap data previously collected USFWS staff or private consulting companies.
Data management:	The report associated with this project will be posted on the CAMP website. Any refined Access databases, Excel files, or geospatial data will be archived by CAMP.
Assessment:	Juvenile Chinook salmon production estimates and steelhead abundance estimates will be compared to different hydrologic variables (e.g., the amount of juvenile rearing habitat that occurs under different hydrologic regimes).
Use of information in future decision making:	If the analyses establish that relationships between the production/abundance of juvenile salmonids and hydrologic variables do exist, this information could be used to formulate different alternatives for managing instream flows that are designed to be beneficial for juvenile salmonids.
NMFS OCAP BO RPA	III.1.3 (Stanislaus River).

Project Description:	Develop the database and programming code necessary to generate statistically robust, consistently generated juvenile Chinook salmon production estimates and confidence intervals from across the Central Valley of California.
2011 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.
Cost:	\$150,000
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, (2) is the number of adult Chinook salmon that return to spawn in the American River related to the number of smolt-size juveniles or fry-size juveniles, (3) etc.
Objectives:	To develop a tool/mechanism for producing statistically robust juvenile Chinook salmon production estimates in a standardized fashion.
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 (PSMFC) 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, having consistently generated juvenile production estimates and confidence intervals will provide a basis for inferring which restoration activities are more likely to lead to the production of juvenile Chinook salmon, and there will be a greater ability to understand the extent to which recent declines in Central Valley Chinook salmon abundance are related to the marine or freshwater environments.
NMFS OCAP BO RPA	11.2.1.3

Project Description:	Develop an analytical framework and tool that quantifies the proportion of hatchery- vs. wild-origin Chinook salmon in watersheds and streams across the Central Valley.
2011 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 that contains 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:	\$74,200
Questions posed:	What is the relative proportion of wild- vs. hatchery-produced 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 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 collection of historical or new field data; that task would be undertaken as a separate project.
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 presented 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.
NMFS OCAP BO RPA	Not applicable.

Project Description:	Quantify the production of juvenile Chinook salmon and the abundance of steelhead that emigrate from the Stanislaus River in 2012.
2011 CVPIA annual work plan subtask number:	Subtask numbers 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:	\$185,000
Questions posed:	How do the production of juvenile Chinook salmon and the abundance of steelhead in the Stanislaus River in 2012 compare to previous years, and how do changes in those numbers relate to ongoing restoration activities?
Objectives:	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 2012.
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 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.
NMFS OCAP BO RPA	11.2.1.3

Project Description:	Provide supplemental funding to estimate Chinook salmon production and/or the hatchery proportion for different salmon runs and watersheds.
2011 CVPIA annual work plan subtask number:	1.12.2
Scope of the monitoring effort:	Central Valley.
Product/deliverable:	Report that quantifies the production of adult Chinook salmon in one or more rivers and streams and estimate the proportion of wild- vs. hatchery-produced Chinook salmon.
Cost:	\$45,054
Questions posed:	How many adult Chinook salmon were produced in a river or stream where insufficient funds were available to conduct monitoring activities, and what fraction of those fish were of natural origin and therefore contribute to an AFRP doubling target?
Objectives:	Provide cost share funds that can be used to augment and enhance the California Department of Fish and Game's ability to quantify the number of adult Chinook salmon that return to a Central Valley river or stream.
Results – expected or actual:	Maintain continuity of data collection activities and enhance the quality of escapement data from one or more salmon - producing streams in the Central Valley. Ensure that the investment of funds in the Constant Fractional Marking program is matched by recovery operations that collect tagged adult salmon as they return to a Central Valley Project river.
Data collection methods:	Mark-recapture techniques will be used to develop an escapement estimate for fall-run Chinook salmon and observations of the ratio of fish with and without adipose fin clips will be used to quantify the proportion of salmon that are of hatchery origin.
Data management:	A final report documenting the results of the escapement survey and proportion of wild- vs. hatchery origin fish will be posted on the CAMP website.
Assessment:	The data from the proposed survey 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 be used to determine if a CVPIA mandate is meeting met, i.e., is the number of Chinook salmon produced in a Central Valley river or stream in 2012 at least double the average number that existed between 1967 and 1991.
NMFS OCAP BO RPA	Not applicable.