Draft CVPIA Fiscal Year 2010 Annual Work Plan

October 1, 2009

Program Title

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

Responsible Entities

Staff Name	Agency	Role
Douglas Threloff	USFWS	Lead
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Program Goals and Objectives for FY 2010

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 addresses 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 that are identified in the 1997 CAMP Implementation Plan:

- CAMP Program Objective #1 assesses overall (cumulative) effectiveness of actions implemented pursuant to CVPIA Section 3406(b) in meeting AFRP production targets. The CAMP accomplishes Program Objective #1 by monitoring natural production of adult anadromous fish in the Central Valley, and comparing these production estimates with production targets developed by the AFRP.

- 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 relative effectiveness of the four categories of restoration actions.

To better achieve CAMP Program Objective #1, the program will focus part of its effort in

FY 2010 on the collection, analysis, and reporting of data pertaining to the Constant Fractional Marking Program. Data from this program will be used to quantify the proportion of wild- vs. hatchery-origin fall-run Chinook salmon in different Central Valley watersheds. These data in turn will lead to more accurate estimates of the natural production of Chinook salmon, and more robust assessments of whether the AFRP salmon production targets are being met.

The CAMP performance goal and objective is to produce one annual report per year to document monitoring activities and assess the biological results and effectiveness of restoration actions.

The programmatic document that currently 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.

The CAMP's relationship to other entities that share similar goals and objectives varies in intensity, e.g., it is only superficially related to the CALFED program at the present time. The CAMP is heavily dependent, however, on several programs or agencies that collect monitoring data that are summarized by the CAMP, 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 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 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. In 2008, the CAMP completed a peer review of this program objective. The three peer reviewers that critiqued this program objective believe the analytical framework in the 1997 CAMP Implementation Plan will not be able to assess the relative effectiveness of the four categories of restoration actions. Reviewers identified several factors that constrain the ability to identify the most successful restoration categories, e.g., the lack of statistically robust monitoring programs designed to address CAMP Program Objective #2. The CAMP is evaluating the potential that the program will instead assess the cumulative effectiveness of the four categories of restoration actions as a way of measuring overall CVPIA program success.

In FY 2009, the CAMP developed a proposal to develop a Comprehensive Fisheries Assessment and Monitoring Program (CFAMP). As proposed, the CFAMP would engage in activities that have a programmatic focus substantially greater than what historically has been undertaken by the CAMP. The proposed program would also act to integrate CVPIA-funded data collection

activities at a scale that does not currently exist. The proposal states the CAMP would be the entity that leads the CFAMP. The proposal will be critiqued by CVPIA managers and staff, and if deemed to be desirable, the CAMP would lead an effort to develop a CFAMP Implementation Plan that would supersede the CAMP Implementation Plan. The CFAMP Implementation Plan would describe the relative roles and responsibilities of different CVPIA programs pertaining to anadromous fish; establish mechanisms for collecting more robust, integrated data sets; and develop strategies for developing management recommendations that improve the efficacy of future restoration actions.

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 2009 Accomplishments

CAMP staff accomplished several activities in FY 2009. These are summarized in Table A.

FY 2010 Tasks, Costs, Schedules and Deliverables

The anticipated tasks, costs, schedules, and deliverables associated with the CAMP in FY 2010 are summarized in Table 1 below. A budget breakout providing tasks, agency affiliations, labor and contract costs, and total costs in FY 2010 is provided in Table 2.

Three-Year Budget Plan FY 2011 – 2013

Table 3 provides a three-year budget plan for activities that are projected to occur in 2011, 2012, and 2013.

Table A. FY 2009 Accomplishments for CAMP

ACCOMPLISHMENT	THIS ACCOMPLISHMENT PERTAINS TO:
CAMP Annual Report: an annual report analyzing and synthesizing 16 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 2008.	CAMP Program Objective #1
Monitoring Protocols for the Yuba River: CAMP staff worked with Pacific States Marine Fisheries Commission staff to review, revise, and improve protocols for collecting, analyzing, and storing Chinook salmon data from the Yuba River. These data are necessary to calculate production of adult and juvenile Chinook salmon.	CAMP Program Objectives #1 and #2
Constant Fractional Marking Program (CFMP): funds in the amount of $740,000 were provided through the CAMP to mark juvenile Chinook salmon at the Coleman National Fish Hatchery and Nimbus Fish Hatchery. These funds were a separate line item expenditure in addition to the FY 2009 CAMP budget of $500,000, and were used to support the CFMP.	CAMP Program Objective #1
Water Temperature/Stream Discharge Database: a database providing an overview of 112 stations where stream gaging or water temperature data are collected in the Central Valley was developed. The database simplifies the process of understanding where environmental data that are important to anadromous fish are being collected.	CAMP Program Objective #2
Rotary Screw Trap Database: a database that provides detailed information for the 23 locations where rotary screw trap data have been collected in the Central Valley was developed. These data can be used to quantify the abundance or production of juvenile Chinook salmon at different locations within the Central Valley.	CAMP Program Objective #2
Acquire and Analyze Salmonid Data: funds in a cooperative agreement with the Pacific States Marine Fisheries Commission (PSMFC) were obligated to: 1. Acquire/synthesize databases that contain rotary screw trap data pertaining to juvenile Chinook salmon from the Central Valley of California ($85,031), 2. Obtain statistical expertise to assess which restoration activities on Clear Creek in northern California have affected Chinook salmon production ($20,000), and 3. Provide a PSMFC biologist who will provide technical assistance and acquire, refine, and synthesize data relevant to the CAMP ($71,181; of this amount, $25,000 was subsequently re-programmed and provided to the CDFG to assist with the recovery of coded wire tagged adult fall-run Chinook salmon in the Sacramento River in 2009).	CAMP Program Objectives #1 and #2
Collect/Analyze Stanislaus River Rotary Screw Trap Data: funds in a grant agreement with the Cramer Fish Sciences consulting company were obligated to: 1. Develop a report assessing the relationship between hydrologic variables and the production of juvenile Chinook salmon from the Stanislaus River ($56,603), and 2. Collect juvenile Chinook salmon data with a rotary screw trap at Caswell State Park in 2011 ($40,866 + $4,392.72).	CAMP Program Objective #2
Program Management: CAMP staff participated in several meetings and engaged in CVPIA planning exercises, e.g., development of a 10-year Implementation Plan for the CVPIA, developing ranking criteria to assess the priority of CVPIA monitoring activities, etc.	CAMP Program Objectives #1 and #2
Acquisition of a BOR Data Manager: a BOR data manager was hired to assist with activities outlined in Table 1, section 1.2.1 below.	CAMP Program Objective #2

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

Task or Subtask Number	Name of Activity	FTE	Description of Activity	Completion Date	Restoration Fund Anticipated	Water and Related Resources Anticipated	State or Other Sources Anticipated	Total All Sources Anticipated
1.1	**Program Management**							
1.1.1		1.0	CAMP program manager: USFWS. Program management activities in FY 2010 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.	9/30/2010	$210,253	$0	$0	$210,253
	Subtotal Costs	1.0			$210,253	$0	$0	$210,253
1.2	**Program Support**							
1.2.1		1.0	CAMP co-lead manager: USBR. FY 2010 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.	9/30/2010	$190,000	$0	$0	$190,000
1.2.2		0.1	Instream Flow Incremental Methodology staff: USFWS. Provide staff support to evaluate the relationship between hydrologic variables and juvenile Chinook salmon production in the Stanislaus River and/or Clear Creek.	9/30/2010	$20,000	$0	$0	$20,000
1.2.3		0.03	USBR. Assist with data acquisition and reporting activities and manage constant fractional marking contract (details, location, timeframe, etc)	9/30/2010	$7,000	$0	$0	$7,000
	Subtotal Costs	1.13			$217,000	$0	$0	$217,000
1.3	**Technical Support**							

Task or Subtask Number	Name of Activity	FTE	Description of Activity	Completion Date	Restoration Fund Anticipated	Water and Related Resources Anticipated	State or Other Sources Anticipated	Total All Sources Anticipated
1.3.1			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.	9/30/2011	$240,000	$0	$0	$240,000
1.3.2			Provide funding to ensure the timely processing, analysis, and reporting of coded wire tag data pertaining to the Constant Fractional Marking Program. These data are needed to generate robust estimates of the hatchery proportions of Chinook salmon in different Central Valley watersheds.	9/30/2011	$54,534	$0	$0	$54,534
1.3.3			Evaluate recovery efforts to collect coded wire tagged adult salmon returning to the Central Valley and determine if sampling efforts are sufficient to develop statistically robust estimates of watershed-specific hatchery proportions. If the effort to recover adult marked salmon is not adequate to accurately quantify watershed-specific hatchery proportions, additional money may be needed in future years to increase the recovery rate of marked salmon.	9/30/2011	$21,200	$0	$0	$21,200
	Subtotal Costs				$315,734	$0	$0	$315,734
1.12	**Monitoring**							
1.12.1			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.	9/30/2011	$157,013	$0	$0	$157,013
1.12.2			Mark juvenile Chinook salmon at the Coleman National Fish Hatchery and Nimbus Fish Hatchery with coded wire tags. The fish will be marked as part of the Constant Fractional Marking Program, and the activity will lead to more accurate estimates of the natural production of Chinook salmon. A USBR employee will administer the contract for this project.	9/30/2010	$600,000	$0	$0	$600,000
	Subtotal Costs				$757,013	$0	$0	$757,013
	Total Costs	2.13			**$1,500,000**	**$0**	**$0**	**$1,500,000**
	Reclamation Total	**1.03**			$797,000	$0	$0	$797,000
	Service Total	**1.10**			$703,000	$0	$0	$703,000
	Unfunded		Unfunded needs are listed in priority order					

Task or Subtask Number	Name of Activity	FTE	Description of Activity	Completion Date	Restoration Fund Anticipated	Water and Related Resources Anticipated	State or Other Sources Anticipated	Total All Sources Anticipated
	Needs							
1.2.4	Program Support		UNFUNDED NEED #1: Hire a Pacific States Marine Fisheries Commission employee for 12 months that supports the CAMP Program Manager. The employee would develop databases: (1) describing site-specific monitoring activities related to Central Valley restoration activities, and (2) collect/synthesize data characterizing restoration projects in the Central Valley. The first database would provide an accounting of CVPIA Section 3406(b) activities, and the second database would be used to assess effectiveness of restoration activities in the Central Valley.	9/30/2011	$100,000	$0	$0	$100,000
1.12.3	Monitoring		UNFUNDED NEED #2: Provide funding to ensure there is sufficient funding in the 4 Central Valley Project watersheds to recover adult Chinook salmon tagged with coded wire tags. At existing funding levels, there may be insufficient funding to recover optimum numbers of returning adult salmon to accurately quantify the relative proportion of wild- vs. hatchery-origin Chinook salmon.	12/31/2011	$225,000	$0	$0	$225,000
1.2.5	Program Support		UNFUNDED NEED #3: Hire a statistician on a part-time basis to: (1) help with complex statistical analyses, and (2) critique and comment on monitoring plans to ensure they yield statistically robust data. This position could be shared with the CVPIA staff that conduct monitoring activities on the Trinity River.	12/31/2011	$150,000	$0	$0	$150,000
1.12.4	Monitoring		UNFUNDED NEED #4: Develop a collaborative partnership with the California Department of Fish and Game Collect to collect, analyze, and report rotary screw trap data that would be used to estimate the production of juvenile fall- and spring-run Chinook salmon from Butte Creek. Butte Creek typically produces more adult spring-run Chinook salmon than any other Central Valley watershed. The estimation of the production of juvenile salmon from Butte Creek is a CAMP-recommended monitoring activity.	4/30/2011	$350,000	$0	$0	$350,000
1.12.5	Monitoring		UNFUNDED NEED #5: Collect, analyze, and report rotary screw trap data that would be used to estimate production of fall-run Chinook salmon from the American River. This data has not collected during the past 2 years, and a report with trapping results has not been produced in 5+ years. The estimation of juvenile salmon production based on rotary screw data on the American River (i.e., 1 of 4 CVP streams) is a CAMP-recommended monitoring activity, and would likely provided inferences about the effectiveness of ongoing restoration activities in the watershed.	4/30/2011	$170,000	$0	$0	$170,000
	Total Unfunded Need				$995,000	$0	$0	$995,000

The total cost for a USFWS employee in the Sacramento Fish and Wildlife Office in FY 2009 was $200,241. Assuming 5% inflation, the estimated cost for a USFWS employee in FY 2010 will be $210,253.

Table 2. FY 2010 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	$172,338	$37,914	$0	$0		$210,252
	USBR	0.00	$0		$0		$0	$0
1.2 Program Support	FWS	0.10	$16,393	$3,607	$0	$0		$20,000
	USBR	1.03	$197,000		$0		$0	$197,000
1.3 Technical Support	FWS	0.00	$0	$0	$297,862	$17,872		$315,734
	USBR	0.00	$0		$0		$0	$0
1.12 Monitoring	FWS	0.00	$0	$0	$148,125	$8,888		$157,013
	USBR	0.00	$0		$600,000		$0	$600,000
Administrative Total - FWS			$188,731	$41,521		$26,759		$257,011
Contracts, Grants and Agreements Total - FWS					$445,988			$445,988
FWS Total Costs		1.10	$188,731	$41,521	$445,988	$26,759		$702,999
Administrative Total - USBR			$197,000				$0	$197,000
Contracts, Grants and Agreements Total - USBR					$600,000			$600,000
USBR Total Costs		1.03	$197,000	$0	$600,000	$0	$0	$797,000
TOTAL ALL		**2.13**	**$385,731**	**$41,521**	**$1,045,988**	**$26,759**	**$0**	**$1,500,000**

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 $$ rate that is developed and used for estimating project costs. It is an average $$ rate that is developed and used for estimating project costs. It incorporates a biologists' salary and benefits, supervisory, clerical and biologist support costs and all other office operating costs related to completing project tasks.

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

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

($ amounts in thousands)

A budget plan for the CAMP in 2011, 2012, and 2013 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

2011	• Program Management (FWS): $218,700
	• Program Support: $225,700
	• Technical Support
	  • 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
	  • Collaborate with entities recovering marked salmon: $225,000
	  • Collaborate with entities operating RSTs in high priority watersheds: $683,300
	  • Fund Constant Fractional Marking Program $618,800
		$2,322	$0

2012	• Program Management: $227,400
	• Program Support: $213,100
	• Technical Support
	  • Refine rotary screw trap database platform: $100,000
	  • Hire PSMFC employees to support CAMP Program Manager: $104,000
	  • Hire a statistician to help with data analyses: $156,000
	• Monitoring
	  • Collaborate with entities recovering marked salmon: $234,000
	  • Collaborate with entities operating RSTs in high priority watersheds: $710,600
	  • Fund Constant Fractional Marking Program $643,500
		$2,389	$0

2013	• Program Management: $236,500
	• Program Support: $221,600
	• Technical Support
	  • Refine rotary screw trap database platform: $100,000
	  • Hire PSMFC employees to support CAMP Program Manager: $108,200
	  • Hire a statistician to help with data analyses: $162,200
	• Monitoring
	  • Collaborate with entities recovering marked salmon: $243,400
	  • Collaborate with entities operating RSTs in high priority watersheds: $739,000
	  • Fund Constant Fractional Marking Program $669,300
		$2,480	$0

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

Table 4. FY 2010 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.
2010 CVPIA annual work plan subtask number:	1.2.2
Scope of the monitoring effort:	Stanislaus River and/or Clear Creek
Product/deliverable:	Report.
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:	To identify specific hydrologic variables that are correlated with greater numbers of juvenile salmonids in two Central Valley Project watersheds.
Results – expected or actual:	Greater clarity on how hydrologic variables affect the production of juvenile salmon and the abundance of juvenile steelhead.
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:	Access databases and Excel files providing raw and processed habitat data and juvenile production/abundance 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., varying amounts of juvenile rearing habitat).
Use of information in future decision making:	If the analyses establish relationships between the production of juvenile salmon production and the abundance of steelhead, this information will be used to evaluate 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.
2010 CVPIA annual work plan subtask number:	1.3.1
Scope of the monitoring effort:	Central Valley-wide.
Product/deliverable:	Computerized platform that is capable of producing consistently generated juvenile Chinook salmon production estimates with confidence intervals at different temporal scales.
Cost:	$240,000
Questions posed:	The platform will generate data that can be used to answer many questions, e.g., is the production of juvenile Chinook salmon in the Stanislaus River increasing or decreasing over time relative to ongoing habitat restoration actions, is the number of salmon smolts produced per female in the American River related to adult salmon returns, etc.?
Objectives:	To develop a tool/mechanism for producing juvenile Chinook salmon production estimates in a standardized fashion.
Results – expected or actual:	Elimination of the ambiguities and reduction in the QA/QC issues associated with the multiple ways rotary screw trap data are being collected in the Central Valley of California.
Data collection methods:	Not applicable.
Data management:	The platform will be maintained by CAMP staff after it has been constructed by Pacific States Marine Fisheries Commission staff.
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 providing a great ability to understand the extent to which recent declines in Central Valley Chinook salmon abundance is related to the freshwater environment.
NMFS OCAP BO RPA	11.2.1.3

Project Description:	Provide funding to ensure the timely processing, analysis, and reporting of coded wire tag data that will be used to estimate the production of adult Chinook salmon from the Central Valley.
2010 CVPIA annual work plan subtask number:	1.3.2
Scope of the monitoring effort:	Central Valley-wide
Product/deliverable:	Provide additional staff support in facilities that process coded wire tagged Chinook salmon, and a report summarizing data related to the recovery of coded wire tagged Chinook salmon.
Cost:	$56,534
Questions posed:	What is the relative proportion of wild- vs. hatchery-produced Chinook salmon in different watersheds from across the Central Valley?
Objectives:	To offset budget constraints and limited staffing levels in the facilities tasked with processing and reporting the recovery of coded wire tag adult Chinook salmon, and ensure these data are provided in a manner that allows the USFWS to increase the accuracy of Chinook salmon production estimates in different Central Valley watersheds.
Results – expected or actual:	The proposed project will produce empirical data that will replace professional best judgments as to the relative proportion of wild- vs. hatchery-produced Chinook salmon in the Central Valley watersheds.
Data collection methods:	Funds would be provided to California Department of Fish and Game or the Pacific States Marine Fisheries Commission to hire additional staff tasked with compiling, summarizing, and reporting coded wire tag data from across the Central Valley for all runs of hatchery-produced Chinook salmon.
Data management:	The CAMP would acquire a database or spreadsheet compiling, summarizing, and reporting coded wire tag data from across the Central Valley for all runs of hatchery-produced Chinook salmon.
Assessment:	Coded wire tagged adult Chinook salmon that were recovered in the Pacific Ocean, Central Valley fish hatcheries, and inland rivers and streams will be processed to document the relative proportion of wild- to hatchery-produced fish.
Use of information in future decision making:	The data would be used to update the hatchery proportions in the Chinookprod spreadsheet, thereby increasing the accuracy of the Chinook salmon production estimates reported by the CAMP and AFRP.
NMFS OCAP BO RPA	Not applicable.

Project Description:	Evaluate recovery efforts to collect coded wire tagged adult Chinook salmon and determine if sampling efforts are sufficient to develop robust inferences of the hatchery proportions in different Central Valley watersheds.
2010 CVPIA annual work plan subtask number:	1.3.3
Scope of the monitoring effort:	Central Valley-wide.
Product/deliverable:	Report.
Cost:	$21,200
Questions posed:	Is sufficient effort being devoted to recovering marked adult Chinook salmon to accurately quantify the proportion of wild- vs. hatchery-produced salmon in Central Valley rivers and streams?
Objectives:	Evaluate recovery efforts that were undertaken in 2009 to recover marked adult Central Valley Chinook salmon, and determine if additional field staff are required to recover sufficient numbers of coded wire tagged fish to accurately estimate watershed-specific hatchery proportions.
Results – expected or actual:	An independent assessment would be conducted to quantify the additional staff that may be required to recover sufficient numbers of hatchery-marked Chinook salmon to infer watershed-specific hatchery proportions.
Data collection methods:	A biologist would document the level of effort that was expended in 2009 to recover coded wire tagged Chinook salmon from across the Central Valley, and the coded wire tag data associated with the recovery of marked salmon would be complied.
Data management:	Any databases or Excel files generated during this project will be archived by the CAMP. Any reports relating to this project will be disseminated to Department of the Interior and California Department of Fish and Game managers for consideration.
Assessment:	The inferences of how many additional field staff may be needed to recover marked adult Chinook salmon may be made with an existing model that was developed by Ken Newman and Dave Hankin.
Use of information in future decision making:	If insufficient funds are being devoted to recovering salmon that will be used to assess the hatchery proportion of adult Chinook salmon from the Central Valley, then additional funds should be made available to hire additional field staff to recover marked fish.
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 2011.
2010 CVPIA annual work plan subtask number:	Subtask numbers 1.12.1
Scope of the monitoring effort:	Stanislaus River.
Product/deliverable:	Digital database with the raw trap data, and a final report providing an analysis of the trap data.
Cost:	$157,013
Questions posed:	How does the production of juvenile Chinook salmon and the abundance of steelhead in the Stanislaus River in 2011 compare to past years, especially as they 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 2011.
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 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 needed to increase salmonid production.
NMFS OCAP BO RPA	11.2.1.3

Project Description:	Mark juvenile fall-run Chinook salmon at the Coleman National Fish Hatchery and Nimbus Fish Hatchery with coded wire tags.
2010 CVPIA annual work plan subtask number:	Subtask numbers 1.12.2
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:	$595,000.
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 quantified at the two fish hatcheries in the spring of 2010.
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
NMFS OCAP BO RPA	Not applicable.