

**September 30, 2005**  
**Work Plan for Fiscal Year 2006**

**I. Comprehensive Assessment & Monitoring Program – CVPIA Section 3406(b)(16)**

**II. Responsible Entities**

	<b>Agency</b>	<b>Staff Name</b>	<b>Role</b>
Lead	FWS	Bart Prose	Program Manager
Co-Lead	USBR	Ken Lentz	Reclamation Coordinator

**III. Program Objectives for FY 2006**

The Comprehensive Assessment and Monitoring Program (CAMP) is the vehicle intended to comprehensively assess the effects of all actions under section 3406(b) of the CVPIA. The program has two main objectives:

- A. Assess the overall (cumulative) effectiveness of actions implemented under Section 3406(b) of the CVPIA so that progress toward restoration goals can be ascertained.
- B. Assess the relative effectiveness of categories of actions under Section 3406(b) of the CVPIA so restoration can proceed in most effective manner through adaptive management.

One major CVPIA restoration goal being addressed by CAMP is the AFRP goal to make all reasonable efforts to ensure that natural production of anadromous fish in Central Valley rivers and streams will be sustainable on a long-term basis at levels not less than twice the average levels attained during the period of 1967-1991. CAMP-funded monitoring activities for anadromous fish will emphasize the overall effectiveness of restoration activities at system-wide levels (e.g., entire watersheds or regions), while other assessment efforts will rely on monitoring data provided by individual restoration actions.

Another major CVPIA restoration goal being addressed by CAMP is that for the Habitat Restoration Program (HRP; a.k.a. “b1 other” Program), which is to protect and restore native habitats and stabilize and improve populations of native species impacted by the CVP that are not specifically addressed in section 3406(b) of the CVPIA. Again, the emphasis of CAMP-funded monitoring activities will be at the cumulative level, while relying on individual restoration projects to provide site-specific data for inclusion into comprehensive assessments.

In addition to the mandate in CVPIA section 3406(b)(16), these objectives are supported

by the CVPIA Programmatic Record of Decision, CAMP Conceptual Plan, and CAMP Implementation Plan.

#### **IV. Status of the Program**

The Comprehensive Assessment and Monitoring Program has funded or partially funded a variety of monitoring efforts in the past, including:

1. California Department of Fish and Game (CDFG) summer Delta tow-net survey, elements of the adult striped bass monitoring program, and juvenile migration monitoring on the Yuba, Merced, and Tuolumne rivers;
2. The Interagency Ecological Program (IEP) database;
3. CAMP internet homepage on the CDFG web server in Stockton;
4. CDFG Central Valley angler survey which estimated inland catch of Chinook salmon and steelhead. Along with spawning population surveys and ocean catch estimates, this survey is a necessary component of credible salmonid stock monitoring.

As a result of fiscal constraints, CAMP funding for the Delta tow-net survey and striped bass monitoring was discontinued in FY 2003. Funding for the juvenile studies on the Yuba, Merced, and Tuolumne rivers had been discontinued the previous year. Lack of program funding and the State budget cuts combined to eliminate the Central Valley angler survey in 2004. Lack of consistent monitoring over time has hindered the progress of CAMP toward achieving its objectives.

From 2002 to present, CAMP funded a fish population visual observation monitoring program on the American River to provide information on existing habitat use by anadromous fish as a baseline for determining restoration needs and measuring restoration benefits. The habitat use information also has been valuable to agencies making decisions on American River water operations (i.e., instream flow management to benefit fish).

Annual reports on adult anadromous salmonid production and juvenile salmon migration have been prepared after escapement data were approved by the CDFG. This approval usually has occurred 1 or 2 years after data were collected. These reports have provided insight into changes in salmonid population levels since the start of CVPIA restoration activities. Thus far, results are mixed, with apparent population increases reported on Clear Creek, Butte Creek, and Battle Creek, and declines reported in other areas, such as San Joaquin River tributaries. Results are can be found on-line at the AFRP web site (<http://www.delta.dfg.ca.gov/afrp/logopage.asp>).

CAMP is further investigating methods to ascertain sustainability of observed population levels of anadromous fish, as required to meet program objective A. In 2004, CAMP funded a report on statistical procedures for assessing progress toward the AFRP Chinook

salmon production doubling goal and determining sustainability of production increases (<http://www.fws.gov/pacific/sacramento/reports.htm>). The report is to be used in further development of methods to assess population changes. Preliminary conclusions cite a need for better data, including watershed specific escapement estimates for naturally spawned and hatchery fish; watershed specific juvenile production; and ocean, mainstem, and tributary catches.

CAMP currently is undergoing reevaluation to identify and implement the best selection of CVPIA-related monitoring activities to meet the objects listed above. CAMP's capability for funding staffing and monitoring activities are described in this work plan for fiscal years 2006 through 2011. Program expansion is needed to better address CAMP objectives A and B. Additional monitoring and assessment needs have been identified for anadromous fish in rivers and streams throughout the Central Valley. Monitoring and assessment needs also have been identified to evaluate effectiveness of restoration targeting other adverse impacts of the CVP not specifically enumerated in CVPIA section 3406(b), such as those being addressed by the HRP.

Certain monitoring activities of interest to CAMP may be conducted under the CALFED Bay-Delta Program. Coordination with CALFED Bay-Delta Program monitoring activities will be necessary to most efficiently meet the monitoring needs of both programs.

## V. FY 2005 Accomplishments

1. Estimates of Central Valley Chinook salmon adult production were updated, covering the years 1952 through 2003. These data were submitted in support of the State Water Resources Control Board hearings on the Implementation and Monitoring of the San Joaquin River Agreement and the Vernalis Adaptive Management Plan. The pertinent documents comprised Exhibit 17 for the hearings and are located on the Internet web site for the AFRP (<http://www.delta.dfg.ca.gov/afrp/SWRCB17.asp>). These documents include:
  - *Adult Chinook salmon escapement and natural production estimates for the Sacramento and San Joaquin River systems* (Powerpoint presentation)
  - *Spreadsheet, used to generate adult Chinook salmon production estimates using both in-river and hatchery escapement numbers from Grand Tab* (Lotus 123 spreadsheet)
  - *Notes and Caveats for Exhibit 17 Figures* (MS Word document)
2. Completed a third year of visual habitat use monitoring for Chinook salmon and steelhead on the lower American River to help determine restoration needs and provide a baseline for measuring restoration benefits. The habitat use information also has been

useful to agencies making decisions on American River water operations (i.e., adjusting instream flow below Folsom Dam to benefit fish).

## **VI. Tasks, Costs, Schedules and Deliverables**

### **A. Narrative Explanation of Tasks.**

1. Program management: The Fish and Wildlife Service is responsible for arranging monitoring and assessment activities and will establish contracts, oversee these contracts, and determine program direction. The Bureau of Reclamation participates in program planning and oversight.
2. Evaluation of restoration project effectiveness for anadromous fish: The Fish and Wildlife Service will continue to evaluate the cumulative effects of restoration actions toward accomplishment of program objective A for anadromous fish. Evaluations generally will involve estimation of population parameters, such as adult escapement numbers and juvenile production and survival rates, at the level of whole streams and rivers (i.e., geographic areas involved transcend those of individual restoration projects and effects of more than one restoration project may be evident in the evaluation data).

The Fish and Wildlife Service also will continue to evaluate restoration actions implemented under CVPIA section 3406(b) toward accomplishment of CAMP objective B for anadromous fish. Evaluations will consist primarily of data compilation from ongoing project-specific and general monitoring and analyzing the data to ascertain which restoration activities appear most effective given relevant environmental conditions, such as geographic location, stream flow, channel geomorphology, and population limiting factors.

Monitoring and assessment for program objectives A and B will address the needs other programs involved with restoration under CVPIA section 3406(b). These could include the Anadromous Fish Restoration Program, Anadromous Fish Screen Program, Dedicated yield management, Water Acquisition Program, and Gravel Replenishment Program.

3. Field evaluations and monitoring on the lower American River: Selected sites along the lower American River will be regularly sampled throughout the year to provide timely information on the effects of Folsom Dam operations and provide baseline information as a benchmark and guide for planning and monitoring of future restoration projects on the lower American River.
4. Identify and monitor measurable outcomes of the Habitat Restoration Program and provide recommendations for future program actions: This task is directed at both CAMP objectives A and B. To accomplish this task it will be necessary to identify and monitor measurable outcomes of HRP actions, based on specific habitats and species, and identify quantitative targets for these outcomes. Previous restoration efforts of the HRP will be summarized and ongoing and future efforts will be

monitored to assess progress toward mitigation targets.

5. Annual Report: An annual report will be prepared to summarize production estimates for adult anadromous salmonids, emigration monitoring results for juvenile salmonids, progress toward measurable outcomes for the HRP, and other pertinent data for progress toward CAMP objectives A and B. Recommendations will be included for further mitigation needs with respect to fish and wildlife species, habitat types, types of actions, and geographic areas.

**B. Schedule and Deliverables.**

#	Task	Dates		Deliverable
		Start	Complete	
1.1	Manage Program (FWS)	10/01/05	09/30/06	Revised FY 2006 Annual Work Plan, as necessary. Draft FY07 Annual Work Plan. Completion of contracts and agreements for activities in the Annual Work Plan. Completion of activities for FY06 Annual Work Plan.
1.2	Manage Program (USBR)	10/01/05	09/30/06	Completion of activities assigned to USBR staff in FY06 Annual Work Plan, as scheduled. Perform as Program Manager when necessary.
2	Monitor and assess restoration effectiveness for anadromous fish (FWS and USBR)	10/01/05	09/30/06	Acquisition of data. Completion of data analyses. Report on results.
3	Monitor and assess American River habitat use (FWS and USBR)	10/01/05	9/30/06	Completion of surveys and report.
4	Identify, monitor, and assess measurable outcomes of Habitat Restoration Program (FWS and USBR)	10/01/05	09/30/06	Acquisition of data. Completion of data analyses. Report on results.
5	Develop Recommendations (FWS and USBR)	10/01/05	09/30/06	Recommendations for future monitoring efforts based on results of monitoring during previous years.

6	Annual Report (FWS)	10/01/05	09/30/06	Annual report, including monitoring results and recommendations for future work.
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**C. Summary of Program Costs and Funding Sources.**

#	Task	Total Cost	Funding Source: Restoration Fund
1.1	Manage program, assess data, develop recommendations and annual report (FWS)	\$189,682	\$189,682
1.2	Manage program, assess data, develop recommendations (USBR)	\$5,000	\$5,000
2	Monitor and assess effectiveness of restoration for anadromous fish on highest priority streams (e.g., Yuba, Stanislaus, and Tuolumne rivers) (FWS and USBR)	\$150,000	\$150,000
3	Monitor and assess American River habitat use (FWS and USBR)	\$0 <sup>1</sup>	\$0
4	Monitor and assess effectiveness of restoration for anadromous fish (second priority streams) (FWS and USBR)	\$86,163	\$86,163
5	Identify, monitor, and assess measurable outcomes of the Habitat Restoration Program (FWS and USBR)	\$69,155	\$69,155
	<b>Total Program Budget</b>	\$500,000	500,000

<sup>1</sup> Funding provided in 2005 will cover costs for 2006 American River Monitoring.

**D. CVPIA Program Budget**

<b>#</b>	<b>Task</b>	<b>FTE</b>	<b>Direct Salary and Benefits Costs</b>	<b>Contracts Costs</b>	<b>Miscellaneous Costs</b>	<b>Administrative Costs</b>	<b>Total Costs</b>
1.1	Manage program, assess data, develop recommendations and annual report (FWS)	1.00	\$155,477	\$0.00	\$0.00	\$34,205	\$189,682
1.2	Manage program, assess data, develop recommendations (BOR)	0.03	\$5,000	\$0.00	\$0.00	\$0.00	\$5,000
2	Monitor and assess effectiveness of restoration for anadromous fish on highest priority streams (e.g., Yuba, Stanislaus, and Tuolumne rivers)	0.00	\$0.00	\$141,509	\$0.00	\$8,491	\$150,000
3	Monitor and assess American River habitat use	0.00	\$0.00	\$0	\$0.00	\$0	\$0
4	Monitor and assess restoration project effectiveness for anadromous fish on second priority streams	0.00	0.00	\$81,286	0.00	\$4,877	\$86,163
5	Identify, monitor, and assess measurable outcomes of the Habitat Restoration Program	0.36	\$56,684	\$0	\$0.00	\$12,471	\$69,155
<b>Total by Category</b>		<b>1.36</b>	<b>\$217,161</b>	<b>\$222,795</b>	<b>\$0.00</b>	<b>\$60,044</b>	<b>\$500,000</b>

**E. DRAFT CVPIA 5-Year Capability Budget Plan FY 2007 – 2011 (\$ thousands)**

<b>Program Description and CVPIA Section</b>	<b>Fund Source</b>	<b>Potential Priority Expenditures (In order of Priority)</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>Total (\$)</b>
Comprehensive Assessment and Monitoring Program (CAMP) CVPIA Section 3406(b)(16)	Restoration Fund	Manage Program (1.5 FTE/year)	284.6	284.6	284.6	284.6	284.6	948.5
	Restoration Fund	Monitor and assess effectiveness of habitat restoration through monitoring of adult escapement, juvenile production and survival, and/or other measures, for anadromous fish on highest priority streams (e.g., Yuba, Stanislaus, and Tuolumne rivers)	413.9	1,029.5	1,664.7	1,726.3	1,726.3	6,560.7
	Restoration Fund	Identify, monitor, and assess measurable outcomes of the Habitat Restoration Program	61.6	92.4	92.4	92.4	92.4	431.2
	Restoration Fund	Monitor and assess American River habitat use	97.0	97.0	97.0	0.0	0.0	291.0
	Restoration Fund	Monitor and assess effectiveness of habitat restoration through monitoring of adult escapement, juvenile production and survival, and/or other measures, for anadromous fish on (second priority streams)	142.9	496.5	861.3	896.7	896.7	3,294.1
	<b>Total:</b>	Restoration Fund		<b>1,000</b>	<b>2,000</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>