

## Work Plan for Fiscal Year 2003

I Program Title. Clear Creek Restoration Program- CVPIA 3406 (b)(12)

II Responsible Entities.

	Agency	Staff Name	Role
Lead	USBR	Jim De Staso	Program Manager
Co-Lead	USFWS	Matt Brown	Program Manager

III Program Objectives for FY 2003

Restore stream channel form and function necessary to optimize habitat for salmon and steelhead and to the aquatic and terrestrial communities on which they are dependent  
 Provide flows of adequate quality and quantity to meet the requirements of all life stages of Chinook salmon and steelhead trout known to use Clear Creek. Provide spawning gravel to replace supply blocked by Whiskeytown Dam Monitor project results.

Source documents supporting each of the above objectives includes the following: 1) CVPIA Section 3406 (b)(12); 2) Record of Decision, Central Valley Project Improvement Act; 3) CALFED Bay-Delta Program Programmatic Record of Decision, proposed Ecosystem Restoration Program stage 1 actions; 4) CALFED Ecosystem Restoration Program Strategic Plan For Ecosystem Restoration, action 3, page D-23; 5) Biological Opinion, Effects of the Central Valley Project and State Water Project Operations from October 1998 through March 2000 on Steelhead and Spring-run Chinook Salmon; and 6) Draft Biological Opinion, for Interim Operations of the CVP and SWP between April 1, 2002 and March 31, 2004.

IV. Status of the Program:

To achieve above objectives, the strategy is to develop an interdisciplinary team that works directly with local entities. The Clear Creek Coordinated Resource Management Planning group comprised of local landowners and stakeholders, and the Clear Creek Technical Team have met since 1995 to plan, implement, and monitor projects using a multi-disciplinary restoration approach to benefit anadromous salmonids and the ecosystems upon which they depend. Many of the projects are implemented by the Western Shasta Resource Conservation District with technical assistance from more than a dozen Federal, State and local agencies. The Clear Creek Restoration Team is adopting an adaptive management approach to improve learning through active experimentation.

Removing McCormick-Saeltzer diversion dam, augmenting the supply of spawning-sized gravel, filling instream and isolating floodplain mining pits, providing scouring flows, refining and implementing a watershed management plan to reduce the transport of fine

sediment to the creek, and evaluating the need to augment flows are all identified as draft Stage 1 actions for Clear Creek in Appendix D of the CALFED Strategic Plan for Ecosystem Restoration and the CVPIA Anadromous Fish Restoration Program. In addition, implementing large-scale restoration projects on Clear Creek and improving fish passage through removal of McCormick-Saeltzer diversion dam are commitments made in the Record of Decision for the CALFED Bay-Delta Program.

Increased minimum flows during the winter are largely responsible for the average 4 fold increase in fall Chinook spawning escapement in Clear Creek over the baseline period. The benefit of increased summer flows for threatened spring Chinook and steelhead were demonstrated in rotary screw trap catches and in snorkel counts of adult spawners and their redds. Spawning gravel augmentation has occurred on at least an annual basis at two or more locations since 1996. Spawning gravel introductions have created high density spawning habitat in areas once bereft of spawning gravel. Four stream channel improvement projects were completed in 1998, 1999, 2001 and 2002. The success of riparian revegetation efforts have greatly exceeded expectations. McCormick-Saeltzer Dam was removed in November 2000.

The current instream flow prescriptions for the creek, based on 1983 conditions, will be updated in the next few years to include temperature concerns, analysis of barriers to fish passage, recent developments in minimum flow setting methodology and changes in the stream channel that have been ongoing since Whiskeytown Dam was closed in 1963. Other ongoing monitoring and research studies involve juvenile salmonid use of restored habitats, fish stranding, juvenile salmonid out-migration, adult population estimates, redd mapping, neotropical migratory bird populations, riparian vegetation, wetlands, groundwater, stream flows, water temperatures, bedload movement, geomorphology, and spawning gravel quality.

Use of gold mining tailings for restoration projects may liberate mercury which could have negative impacts on the environment and human uses. Extensive gold mining in Clear Creek has produced tailings potentially contaminated with mercury. Three teams of interdisciplinary mercury experts from USGS, BLM and the University of Montana are continuing to evaluate the potential risk of using tailings in future restoration projects.

#### IV FY 2002 Accomplishments.

Completed Phase 3A of the Lower Clear Creek Floodplain Channel Rehabilitation Project including 10,200 tons of clean spawning gravel placed in channel

Revegetated 22 acres of floodplain reconstructed in Phase 2B

Presented workshop to Anadromous Fish Restoration Program Adaptive Management Forum for Large Scale Stream Channel Restoration Projects

Provided flows suitable for all life stages of anadromous fish including an experimental pulse flow in September 2002 to minimize hybridization of fall and spring Chinook.

Added by injection method approximately 3,000 tons of spawning gravel to two locations: Placer Bridge and City of Redding

Added by instream placement method approximately 2,173 tons of spawning gravel to 9 locations related to the Channel Rehabilitation Project. Ongoing monitoring involves salmonid use of restored habitat, fish stranding and passage, juvenile salmonid out-migration, adult population estimates, redd mapping, neotropical migratory bird populations, riparian vegetation, wetlands, groundwater, stream flows, water temperatures, bedload movement, channel geomorphology, and spawning gravel quality.

## V. Tasks, Costs, Schedules and Deliverables.

### A. Narrative Explanation of Tasks.

- 1 Program Management
- 2 Implement and maintain Lower Clear Creek Floodplain Channel Rehabilitation Project (objective A)
  - 2.1. Implement Phase 3A revegetation
  - 2.2 Implement Reading Bar Floodplain Restoration Project
  - 2.3 Implement Reading Bar revegetation
  - 2.4. Monitor, evaluate channel constructed in Phase 3A
    - 2.4.1 Geomorphology
    - 2.4.2 Fish
    - 2.4.3 Riparian vegetation
    - 2.4.4 Birds
  - 2.5 Adaptively fine-tune channel constructed in Phase 3A
  - 2.6 Survey and delineate wetlands created by the entire project to date
  - 2.7 Model the potential creation of fish habitat by the overall project
  - 2.8 Synthesize evaluations of potential for mercury contamination due to restoration project
  - 2.9 Design Phase 3B to be implemented in FY 2004
  - 2.10 Evaluate and potentially implement recommendations of the Adaptive management Forum report
- 3 Provide baseline flows for all life stages of anadromous fish, and pursue summer and spring pulse flows (objective B)
  - 3.1. Recommend flows between June and September to maintain water temperature that meet standards established by the NMFS for the protection of endangered spring-run Chinook and steelhead
  - 3.2. Recommend flows between October and May to provide spawning and rearing habitat for Chinook and steelhead
  - 3.3 Determine through Instream Flow Incremental Methodology (IFIM) study, long term flows needed to satisfy requirements of (b)12
  - 3.4 Provide spring experimental pulse flow to distribute spawning gravel and attract spring Chinook
  - 3.5 Finish Clear Creek Decision Analysis Model to evaluate power, sediment, riparian and salmonid impacts from large managed releases of water
  - 3.6 Make Clear Creek Decision Analysis Model more useful and user friendly
- 4 Implement Spawning Gravel Augmentation and Monitoring Program (objective C)
  - 4.1. Implement spawning gravel augmentation at the Whiskeytown Dam, Placer Road,

- and City of Redding injection locations
- 4.2. Monitor geomorphic characteristics of spawning gravel downstream movement
- 4.3 Place gravel at several new gravel instream placement sites
- 5 Monitoring (objective D)
- 5.1. Monitor anadromous fishery including juvenile salmonid use of restored habitats, fish stranding, juvenile salmonid out-migration, adult population estimates, and redd mapping
- 5.2. Monitor stream flows, water temperatures, spawning gravel and stream substrate quality
- 5.3. Monitor response of fishery and stream channel to proposed spring and summer pulse flows

B. Schedule and Deliverables

#	Task	Dates		Deliverable
		Start	Complete	
1	Program Management	10/01/02	09/30/03	
2.4.1	Geomorphological monitoring of Phase 3A.	10/01/02	09/30/03	Annual report and recommendations for future phases
2.4.2	Fish monitoring of Phase 3A	10/01/02	09/30/03	Annual report and recommendations for future phases
2.7	Model the potential creation of fish habitat by the overall project	10/01/02	09/30/03	Annual report of results from 2-D computer model
3.5	Finish Clear Creek Decision Analysis Model to evaluate power, sediment, riparian and salmonid impacts from large managed releases of water	10/01/02	09/30/03	Report including computer model
4	Implement spawning gravel augmentation and monitoring program	10/01/02	09/30/03	Inject and place 10,000 tons of spawning gravel. Annual Report and recommendations for the future.
5	Monitor anadromous fishery	10/01/02	09/30/03	Annual report and recommendations for the future

C. Summary of Program Costs and Funding Sources. -

#	Task	Total Cost	Funding Sources	
			W&RR	RF
1	Program Management	\$100,000	\$50,000	\$50,000
2.4.1	Geomorphological monitoring of Phase 3A	\$25,000	\$0	\$25,000
2.4.2	Fish monitoring of Phase 3A	\$98,000	\$0	\$98,000
2.7	Model the potential creation of fish habitat by the overall project	\$20,000	\$0	\$20,000
3.5	Finish Clear Creek Decision Analysis Model to evaluate power, sediment, riparian and salmonid impacts from large managed releases of water	\$57,000		\$57,000
4	Implement spawning gravel augmentation and monitoring program	\$150,000	\$50,000	\$100,000
5	Monitor anadromous fishery	\$150,000		\$150,000
<b>Total Program Budget</b>		<b>\$600,000</b>	<b>\$100,000</b>	<b>\$500,000</b>

Explanatory Notes: Unfunded tasks referenced on following page.

Program Costs and Funding Sources - Additional Funding Needs.

#	Task	Total Cost	Additional Funding Need CVPIA
2.4.1	Geomorphological monitoring of Phase 3A	\$50,000	\$25,000
2.4.2	Fish monitoring of Phase 3A	\$129,000	\$29,000
2.4.3	Riparian vegetation monitoring of Phase 3A	\$35,000	\$35,000
2.4.4	Neotropical migrants bird monitoring of Phase 3A	\$35,000	\$35,000
2.5	Adaptive fine tuning of Phase 3A	\$100,000	\$100,000
2.6	Survey and delineate wetlands created by entire project to date	\$20,000	\$20,000
2.8	Synthesize evaluations of potential for mercury contamination due to restoration project	\$50,000	\$50,000
2.9	Design Phase 3B to be implemented in FY 2004	\$200,000	\$200,000
3.3	Determine through Instream Flow Incremental Methodology (IFIM) study, long term flows needed to satisfy requirements of (b)12	\$66,000	\$66,000
3.5	Make Clear Creek Decision Analysis Model more useful and user friendly	\$91,000	\$91,000
4	Implement spawning gravel augmentation and monitoring program	\$500,000	\$350,000
5.3	Monitor response of fishery and stream channel to proposed spring and summer pulse flows	\$50,000	\$50,000
<b>Total Additional Funding Needs</b>			<b>\$1,051,000</b>

Explanatory Notes:

- 2.4.1 to 2.4.4 A contract amendment request was submitted by the Western Shasta Resource Conservation District, to CALFED to fund these monitoring tasks.
- 2.5 Additional funding may be needed for minor adaptive changes to the \$3.4 million stream channel restoration project.
- 2.8 Synthesis of mercury investigations being performed by USGS, BLM and Univ. of Montana is needed to assess risks of restoration activities.
4. Limited funds for the Clear Creek Fish Restoration Program in 2003 will require reduced funding for spawning gravel. Clear Creek Gravel Management Plan recommends more gravel than current budget allows.

D. CVPIA Program Budget

#	Task	FTE	Direct Salary and Benefits Costs	Contracts Costs	Miscellaneous Costs	Administrative Costs	Total Costs
1	Program Management						
	BOR	0.5	\$ 32,500			\$ 17,500	\$ 50,000
	FWS	0.5	\$ 35,000			\$ 15,000	\$ 50,000
2.4.1	Geomorphic monitoring of Phase 3A	NA		\$ 25,000			\$ 25,000
2.4.2	Fish monitoring of Phase 3A	NA		\$ 98,000			\$ 98,000
2.7	Model the potential creation of fish habitat by overall product	NA		\$ 20,000			\$ 20,000
3.5	Finish Clear Creek Decision Analysis Model to evaluate power, sediment, riparian and salmonid impacts from large managed releases of water	NA		\$ 57,000			\$ 57,000
4	Implement spawning gravel augmentation and monitoring program	NA		\$ 150,000			\$ 150,000
5	Monitor anadromous fishery	NA		\$ 150,000			\$ 150,000
	<b>Total by Category</b>		<b>\$ 67,500</b>	<b>\$ 500,000</b>		<b>\$ 32,500</b>	<b>\$ 600,000</b>