

Project Title: Analysis of alternative management strategies designed to integrate Coleman National Fish Hatchery operations with the restoration of natural populations of salmon and steelhead in Battle Creek.

Applicant: U.S. Fish and Wildlife Service,
Northern Central Valley Fish and Wildlife Office, Red Bluff, CA

Scope: In 1999 the Service formally initiated a Coleman National Fish Hatchery (NFH) Reevaluation Process[®] to objectively review all aspects of facility operations. Among other objectives, the process was designed to solicit open stakeholder involvement to formulate and advance Coleman NFH management alternatives that support AFRP Battle Creek restoration (i.e., restoration of naturally-producing stocks of anadromous salmonids in Battle Creek). During the process approximately 50 management alternatives were raised and now require additional concept design and analysis.

Funding provided through this proposal, will be used to secure a service contract to fully develop and analyze of the feasibility and impacts/benefits of the identified management alternatives. As mentioned, approximately fifty alternative management actions/scenarios have been identified through the Reevaluation Process. Due to the number of alternatives generated, and the complexity of some of the concepts, a service contract is required to fully describe and analyze each alternative in a reasonable timeframe (i.e., consistent with other Battle Creek restoration activities). The exact scope of the service contract will consist of thoroughly describing and analyzing the alternative management strategies to determine their feasibility of implementing (cost, time frame, etc) and assess the impact(s) (positive, neutral or negative) on: 1) natural stocks of salmon and steelhead, 2) mitigation responsibility of the hatchery, and 3) general ecosystem function in Battle Creek (as part of full restoration) and the mainstem Sacramento River.

Deliverables: Detailed reports (quarterly and final) describing the management alternative and outlining the findings of the analysis are the expected deliverables.

Project time-frame: Consistent with the FY 2000 funding cycle (i.e., project completed by Sept 30, 2000).

Many stakeholder groups have been/are represented and have contributed to the reevaluation process by offering alternative management options/strategies to integrate Coleman NFH operations with Battle Creek restoration activities. Due to the collaborative nature of the process, the proposal will likely receive support from the local watershed group (Battle Creek Watershed Conservancy), state and federal government agencies and other stakeholder groups currently involved in the Reevaluation Process, as the stakeholders have been responsible for a number of the alternatives that require further description and a completely objective analysis.

Justification: Many activities associated with AFRP have been ongoing in Battle Creek as part

of the effort to restore populations of salmon and steelhead in that watershed. Many of the restoration activities currently underway are consistent with actions described in the 1995 AFRP Working Paper. In further support of this restoration effort, the Service has initiated a Reevaluation Process of the Coleman National Fish Hatchery to assure the integration of hatchery operations with watershed restoration actions and goals.

The intent to restore the Battle Creek watershed for naturally-produced anadromous salmonids, while integrating hatchery operations, was formally advanced in a Service position paper (Wayne S. White, April 3, 1998). The position paper describes how the Service will fulfill its mission in the Battle Creek watershed through implementation of AFRP. And through AFRP, the Service has been an active participant in all aspects of the previous and current negotiations and restoration activities .

With respect to Coleman NFH, major changes are already underway to integrate the facility with Battle Creek restoration. The changes underway, (barrier weir and ladder modification, water intake improvements, ozone treatment plant) are expected to have a major beneficial result on natural populations in the watershed and are part and parcel of the restoration activities ongoing in the system. To assure further integration (as well to meet obligations due to ESA requirements), the Service initiated the Reevaluation Process allowing open stakeholder involvement to formulate and advance Coleman National Fish Hatchery management alternatives in support of AFRP Battle Creek restoration and integration of the hatchery.

In 1999, the Service's Reevaluation Process engaged stakeholders of the hatchery and the Battle Creek watershed to: 1) collaboratively identify potential impacts of current Coleman National Fish Hatchery operations on natural stocks of anadromous salmonids; and, 2) identify alternative management strategies to minimize or eliminate these impacts. There are four major components or objectives of the reevaluation process:

- 1). Compilation and analysis of historical hatchery operations and evaluation work.***
- 2). Determine mitigation responsibilities***
- 3). Conduct impact analyses of current/proposed production programs on listed stocks of anadromous salmonids***
- 4). Suggest potential management alternatives where appropriate.***

Over eleven meetings were held between June 21 and September 16, 1999, to encourage involvement in the process, and, as part of component 4, approximately fifty alternative management scenarios/options have been identified through the open stakeholder meetings. Some of the management alternatives to reduce impacts on natural stocks are as simple as the addition of ice to transport trucks, or slight redesigns of existing trapping facilities. Others, however, are quite complex, and will require additional concept development and perhaps extensive biological and engineering analyses. The number of management alternatives that have been generated , and complexity of some of those alternatives, requires the securing of a service contract to sufficiently describe each alternative and conduct the analysis. Although the description and

analysis could be conducted by existing Service personnel, the expected time-frame for the completion of the work would be too greatly extended, as current staff in the Hatchery Evaluation program are already fully allocated.

A complete description, and analysis of these management alternatives in regard to the possibility of future investigations and implementation to assure integration with Battle Restoration and perhaps even ecosystem function, through a service contract is the objective of this proposal. AFRP funding for this proposal is justified as this proposal directly supports the following Evaluations from the revised Draft Restoration Plan for the AFRP:

Battle Creek. Evaluation 4. Develop a comprehensive restoration plan for Battle Creek that integrates CNFH operations. ***AFRP Priority=High.***

Central Valley-Wide. Evaluation 2. Evaluate the potential to modify hatchery procedures to benefit native stocks of salmonids.

A number of the specific alternative management strategies also fall within the scope of other Evaluations, and generally support the three additional Evaluations listed below,

Central Valley-Wide. Evaluation 3. Evaluation of the impacts of hatchery juvenile release practices on natural stocks.

Central Valley-Wide. Evaluation 4. Evaluate and implement specific spawning protocols and genetic evaluation programs to maintain genetic diversity in natural and hatchery stocks.

Central Valley-Wide. Evaluation 5. Evaluate disease transfer between hatchery and natural stocks.

Also due to the presence of Coleman National Fish Hatchery as a mitigation feature of the construction of Shasta Dam, the creek is considered to have CVP influence. Management Alternatives which relate to additional fish passage opportunities at Coleman National Fish Hatchery barrier weir are therefore directly tied to CVPIA and AFRP. Other management alternatives requiring analysis (additional ponds to facilitate volitional fish releases) could be directly related to 3406(b)(11).

The completion of the management alternative analysis will aid a decision making process to implement management alternatives at Coleman National Fish Hatchery that reduce impacts of the operation on naturally-produced salmonids. Promotion of natural

stock restoration in the Battle Creek watershed, through the analysis and implementation of the management alternatives that have been generated through the reevaluation process, will support the restoration of natural populations of anadromous salmonids in the Battle Creek Watershed consistent with AFRP restoration goals, including ESA listed stocks (i.e., 4,500 late-fall, 4,500 fall, 2,500 winter, 2,500 spring chinook salmon, and 5,700 steelhead trout; 1995 AFRP Working Paper, Volume 3) .

Monitoring and data evaluation.

Although no monitoring is directly associated with this proposal, completion of the analysis of management alternatives for Coleman National Fish Hatchery as described in this proposal will increase the timeliness and effectiveness of current and future natural stock restoration efforts in the Battle Creek watershed.

Work to be performed and deliverables:

Analysis of the alternative management options/scenarios will require a detailed description of each of the management alternatives, which, in some cases, will require additional concept development (Task 1). An impact analysis of each alternative will also be required to be conducted (Task 2), along with a comparison of the alternative against current operations (baseline) and other alternatives (Task 3). Specific criteria will be used to develop a matrix to assist the impact analysis and the comparison of various scenarios. Criteria used to assist the impact analysis will include, but are not limited to:

- S Effect on natural stocks (positive, neutral, or negative);
- S Effect on the ability of the hatchery to achieve identified production objectives;
- S Impact on general ecosystem function;
- S Feasibility to implement (cost, time-frame).

Research and examination of available published or other literature will be required in the analyses. The described work will be accomplished through a service contract for outside assistance. Quarterly reports and a final report are the expected deliverables.

Budget:

Project Phase and Task	Direct Labor Hours and Salary	Benefits	Overhead Labor (General, Admin. and fee)	Service Contracts	Material and Acquisition Contracts	Misc. Costs	Totals
Task 1				\$5,000			\$5,000
Task 2				\$20,000			\$20,000
Task 3				\$25,000			\$25,000
Total				\$50,000			\$50,000

Cost-sharing Funding for this proposal will be directed at component 4 of the Coleman National Fish Hatchery Reevaluation Process (Note: the description of all four components is presented above in the **Justification** section of this proposal). All other components underway (components 1,2,and 3) are largely funded with Bureau of Reclamation reimbursable funds (i.e., funds provided to the U.S. Fish and Wildlife Service for the operation and evaluation of Coleman National Fish Hatchery). At minimum, approximately \$50,000 will be expended for the Reevaluation Process by the U.S. Fish and Wildlife Service from these Bureau of Reclamation Funds. Additionally, approximately \$50 million (CALFED and P.G. & E.) is expected to be invested into the Battle Creek Watershed for natural stock restoration. Information generated through the funding of this proposal will be in support of these and other investments (current and future) in the Battle Creek Watershed.