



Indicate the type of applicant (check only one box):

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|--|---|
| <input type="checkbox"/> State agency                    | <input type="checkbox"/> Federal agency           |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit               |
| <input type="checkbox"/> Local government/district       | <input checked="" type="checkbox"/> Private party |
| <input type="checkbox"/> University                      | <input type="checkbox"/> Other: _____             |

Indicate the type of project (check only one box):

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Planning | <input type="checkbox"/> Implementation |
| <input type="checkbox"/> Monitoring          | <input type="checkbox"/> Education      |
| <input type="checkbox"/> Research            |   |

By signing below, the applicant declares the following:

- 1.) The truthfulness of all representations in their proposal;
- 2.) The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- 3.) The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Randy Bailey  
Printed name of applicant

Randy Bailey  
Signature of applicant

## TITLE PAGE

**Title of Project:** Development of a Comprehensive Implementation Plan for the Statistically Based Marking and Tagging Program for Chinook Salmon Originating from Central Valley Facilities

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**Participants and Collaborators:**

Randy Bailey, Owner/Principal, Bailey Environmental  
Dr. James Buell, Owner/Principal, J.W. Buell and Associates, Inc.  
Dr. Jud Monroe, Owner/Principal, Environmental Planning,  
Documentation, and Coordination

**Type of Organization & Tax Status:** Private for profit sole proprietor and corporation.

**Tax Identification Number of Primary Contact:** 560-80-5248

99F-104

## EXECUTIVE SUMMARY

This project is designed to develop an implementation plan that will provide CALFED a time schedule and estimated costs to implement a comprehensive marking and tagging program for chinook salmon in the Central Valley. Implementation of the new marking and tagging program will give CALFED member agencies and stakeholders and unprecedented marked and tagged chinook salmon database on which to adaptively manage into the future. Finally we will have a statistically based program that will provide the data to help restore chinook salmon stocks in the Central Valley. In addition, the program will provide opportunities for new water management strategies, assist in the evaluation of CALFED actions, and provide management options not currently available. This is the first step in allowing this scientifically based management approach to begin, but it must begin with a road map on how to implement such a program. That is the purpose of this implementation plan. This plan will identify the needs and costs associated with putting this new marking and tagging program into place.

Implementation of this plan will address three of the primary goals identified in the ERP and Strategic Plan. This proposal specifically addresses ERP goals 1-3 which are found on pages 27-30 of the Strategic Plan and objectives for Priority Group 1 found in Table 5-1 of the Strategic Plan. Since this is a project that would affect all drainages in the Central Valley with chinook salmon and the Bay-Delta, listing of all actions and page numbers from Volumes I and II would be redundant. All watersheds will benefit, as will in-Delta and water project operators and diverters since sound scientific data will now be available for decision makers. In addition, implementation of the marking and tagging program will benefit fishery managers along the Pacific Coast and assist National Marine Fisheries Service in endangered species issues.

The estimated cost of this project is \$152,400. The project will be completed by three very well qualified individuals thoroughly familiar with the Central Valley, fisheries personnel in the Valley, hatchery facilities, and the entire CALFED process.

No third party impacts are anticipated, and the door for cooperation with agency and stakeholder personnel has already been opened. This is a focused action requested in the PSP. Everyone will benefit from the development of a strategic implementation plan that will facilitate restoration of chinook salmon populations.

## **PROJECT DESCRIPTION**

### **Proposed Scope of Work**

This project is designed to develop an implementation plan that identifies the physical modifications to artificial propagation facilities and associated tag reading facilities and estimates the equipment, personnel, and associated logistical needs to mark and tag fish at the various facilities. This plan will also address the equipment, personnel, and associated logistics costs associated with recovering marked and tagged fish, including tag reading, at ports, instream recoveries, and at hatchery locations. Recommendations for data acquisition, QA/QC procedures, analysis, and management will be included in the final report. A separate section of the report will address release strategies that might be appropriate for each artificial propagation facility. The final section of the report would be a strategic plan for implementation of the recommendations contained in the earlier portions of the implementation plan. The strategic plan portion of this document would address issues such as phasing of implementation at each facility based on needed modifications and/or equipment needs, timing and magnitude of instream and ocean recoveries, and tag reading and data handling needs and timing.

### **Project Approach**

The approach to this project assumes that CALFED's previously funded development of a statistically based marking and tagging program report will serve as the foundation for development of the logistical and implementation needs that will be identified in this implementation plan.

Given that foundation, the approach to developing the implementation plan is relatively simple. First, agency and certain stakeholder representatives would be interviewed to determine the scope of needs to be included in an implementation plan. The needs identification process would include any legal constraints associated with each facility, agency policies associated with each facility, personnel restrictions, an enumeration of activities each agency is now conducting that are associated with marking and tagging programs, and agency activities or plans that may influence the ability of any facility to accommodate a statistically based marking and tagging program. This group would also be questioned about appropriate or suitable release strategies. The purpose of interviewing this first group of representatives is to insure that all aspects of the program are identified and the "art of the possible" is defined. It is estimated that this task will take 3 weeks.

Second, we would conduct a site visit at each of the six artificial production facilities in the Central Valley. The purpose of these site visit is to develop a list of the physical modifications needed, identify any physical or other constraints that might eliminate certain options for implementation and/or determine or dictate specific release or phasing strategies. Also, this phase would include a documentation of each facilities' needs and constraints from a personnel and administrative perspective that would need to be considered in any overall implementation strategy. Rough cost estimates for construction and non-tagging and marking needs would be obtained from knowledgeable facility managers, CALFED estimates, CVPIA estimates, or by the

investigators. No engineering drawings or formal cost estimates would be generated for any modifications and specific equipment costs would be for illustrative and general cost estimate purposes only. It is estimated that this task will take 8 weeks.

Third, we would visit the administrative units responsible for recovery and reading of marked and tagged fish. The purpose of these visits would be to identify and document additional equipment, personnel, and logistical needs associated with implementing the proposed marking and tagging program. Also included in this visit would be identification of additional data handling and administrative costs associated with recovering, processing, data entry, QA/QC procedures, and data transfer to the appropriate entity. It is estimated that this task will take 6 weeks.

Fourth, we would assemble all of the information collected from the three groups of interviewees. Next we would develop, for each facility and administrative unit, a listing and cost estimate for the items necessary to implement the proposed plan. For each facility and administrative unit, we would verify all assumptions and conclusions and develop an initial phasing strategy. Each facility and administrative unit plan would then be reviewed by them and additions and corrections made. Also, during this time, we would develop all of the data handling and management needs and release strategies. It is estimated that this task will take 12 weeks.

Finally, all of the information would be consolidated into a final implementation plan that would consist of three major components:

- Documentation of modifications, equipment, personnel, and administrative needs for each facility and administrative unit.
- Documentation of the preferred release strategy for each facility.
- Documentation of an integrated phasing and implementation strategy

It is estimated that this task will take 4 weeks. Overall, we estimate that this task can be accomplished within 8 months after contract signing.

### **Location and/or Geographic Boundaries of the Project**

This project consists of developing an implementation plan for a marking and tagging program at six Central Valley facilities and tag reading facilities in Stockton and Healdsburg. Agency administrative units are located throughout northern California. Since this is a planning effort, specific county listings are not applicable.

## **ECOLOGICAL/BIOLOGICAL BENEFITS**

### **Ecological/Biological Objectives**

CALFED has already funded the development of a statistically based marking and tagging program for Central Valley artificial production facilities. The piece that is missing is the road map to implement this program. The purpose of this project is to develop that road map.

Historically, marking and tagging efforts at individual facilities were ad hoc and driven by short term needs. These research needs have included timing of release, release location, race evaluations and performance, contribution rates to ocean fisheries, and experimental releases to evaluate smolt captures at Chipps Island. All of these marking and tagging programs have been opportunistic and directed at answering specific questions or needs. The results of these investigations have been used to develop hatchery management practices, release strategies, water management actions, and set numerous regulatory requirements. At the present time, all facilities in the Central Valley, with the exception of Nimbus Fish Hatchery, have some degree of marking and tagging occurring. However, with the completion of the new marking and tagging program, there is a need to develop a master plan on how to implement this new program. That is the purpose of this implementation plan.

Implementation of a new marking and tagging program is the first step in providing protection to remaining wild and naturally spawning chinook salmon stocks in the Central Valley. A variety of factors have jointly reduced the populations of native stocks to levels that have resulted in listings under state or federal Endangered Species acts or proposals to list these species. All chinook salmon species in the Central Valley are listed or proposed for listing. Current hatchery management practices, management objectives, ocean fishery objectives, and release strategies have contributed to problem. Water management and diversion practices have also contributed to the decline of chinook salmon stocks.

While this situation has resulted in declines, massive state and federal efforts are underway to address all of the problems currently identified as responsible for declines in chinook salmon stocks. The missing piece in this grand restoration scheme is solid scientific data on which to evaluate restoration actions, allow development of new water management and diversion practices, accommodate any needed changes in artificial propagation facility management, and facilitate needed changes in ocean fisheries management. This program is the cog that drives all of the restoration wheels.

Successfully implementing the new marking and tagging program is the key to an entirely new era in data collection and management flexibility with respect to chinook salmon stocks. The new marking and tagging program, will for the first time, provide a comprehensive and consistent effort at each artificial production facility in the Central Valley. This level of marking and tagging will allow managers and decision makers unprecedented opportunities to make decisions based on sound and scientifically based information. A tremendous improvement over the current ad hoc and issue specific approach now available. This new program will provide better estimates of ocean distribution, the contributions of artificially produced fish to various

fisheries and spawning escapements, straying rates, and harvest rates. In addition, we will be able to evaluate juvenile salvage at the CVP and SWP, increase our knowledge about in-river survival of juveniles, more accurately determine juvenile habitat use and distribution in the Delta, and evaluate juvenile chinook salmon use of new habitat areas created by the CALFED program. Finally, for the first time, we will have the scientific data to adaptively manage the various fisheries and water management facilities to protect remaining wild and naturally spawning stocks.

### **Linkages**

This project is the final planning step before implementation of a comprehensive marking and tagging program is in place. CALFED has already funded the development of a statistically based marking and tagging program. The development of this implementation plan is the next logical step. Once this plan is complete, CALFED will have a complete picture of what it will take to implement the program. The development of the marking and tagging program is expected to be completed by July 1999, so the timing of funding this plan will allow continuity and shorten the time period until marking and tagging can begin. Also, the time period necessary for completion matches perfectly with CALFED's desire to implement a program in the spring of 2001.

This project is directly linked to Strategic Plan Goals one, two, and three which deal with achieving recovery of at-risk native species, restoring natural processes, and maintaining and enhancing populations of selected species for sustainable commercial and recreational harvest, respectively. This proposal specifically addresses ERP goals 1-3 which are found on pages 27-30 of the Strategic Plan and objectives for Priority Group 1 found in Table 5-1 of the Strategic Plan. Since this is a project that would affect all drainages in the Central Valley with chinook salmon and the Bay-Delta, listing of all actions and page numbers from Volumes I and II would be redundant.

Once this implementation plan is in place, CALFED will have the ability to initiate a comprehensive marking and tagging program. Once the fish are marked and tagged, CALFED will have a management and evaluation tool that meets many of its objectives. CALFED will be able to evaluate chinook salmon contributions to the various fisheries, make scientifically based decisions that protect and restore native species at-risk, evaluate new created habitats use by chinook salmon, and evaluate new water management practices. These types of evaluations will be available for the entire Bay-Delta watershed since chinook salmon from these six facilities are found throughout the watershed.

This project will help meet state and federal agency responsibilities under the state and federal endangered species acts, which require state and federal agencies to recover listed species as a part of their project operations. This project applies to all stakeholders in the Bay-Delta process because all stakeholders are affected by species listings.

## **System-wide Ecosystem Benefits**

Implementation of the comprehensive marking and tagging program will provide benefits throughout the entire watershed. Chinook salmon carcasses are an important nutrient sources in most drainages. Restoration of chinook stocks will increase the nutrient contribution and allow fisheries to occur throughout the basin. In addition, implementation of the marking and tagging program will provide CALFED with an evaluation tool that touches on nearly every CALFED objective and proposed action.

## **Compatibility with Non-Ecosystem Objectives**

This project is fully compatible with non-ecosystem objectives identified by CALFED. This project will help increase water supply reliability by allowing water management decisions to be based on scientifically based data regarding salvage. Third party benefits will be substantial since implementation of the program will allow commercial fishermen to continue to fish on hatchery origin stocks while providing protection for wild and naturally spawning fish. Other benefits include better evaluations of water management practices, identifying additional screening needs, and providing additional food sources for wildlife and aquatic invertebrates in stream systems.

## **TECHNICAL FEASIBILITY AND TIMING**

There is really no other alternative approach that is suitable for this project. The focused action is specific in providing an implementation plan for the new marking and tagging program. The only realistic and practical way to develop this plan is to obtain input from the people who will be required to implement it. It is important to discuss the boundaries and needs with management level personnel in order to make the plan comprehensive. It is essential that the personnel at the various facilities and administrative units that are responsible for fish production, tag reading, data management, and ocean and inland recoveries be queried regarding the practical aspects of implementing this new program. They really define the art of the possible and what's real.

No permits or environmental documentation are needed. Since this approach is based on cooperation by implementing agencies, a meeting was held recently in which agency representatives all agreed to cooperate and provide the needed information to a third party facilitator and technical report writer.

## **MONITORING AND DATA COLLECTION METHODOLOGY**

Since this is a planning effort, no monitoring is required. However, the data collection methodology to be used to generate the information eventually to be used in the development of the plan is straightforward. Data will be collected by interviewing various levels of agency personnel to assess various logistic and equipment needs. Facility staff will be interviewed to assess any needed modifications. Individuals responsible for tag recovery and reading, as well as administrative units responsible for instream recovery, will be interviewed to assess their needs.

Cost estimates will be developed based on personal data, previously published cost estimates (e.g., CAMP cost estimates), CALFED cost estimates, and review of previous purchases or construction costs. Release strategies will be discussed with management and regulatory agencies and selected stakeholders. Data management recommendations will be coordinated and consistent with CMARP. Data collected will be organized on a facility by facility basis and by administrative unit. An overall needs assessment will be used to define a comprehensive strategic approach to implementation phasing.

I) Biological/Ecological Objectives		
Hypothesis/Question to be Evaluated	Monitoring Parameter(s) and Data Collection Approach	Data Evaluation Approach
What are your requirements to fully implement the new marking and tagging program developed by CALFED?	Interviews with a variety of agency staff and appropriate stakeholders	Professional evaluation by experienced investigators combined with review by interviewees prior to a final report.

### LOCAL INVOLVEMENT

Since this is a planning effort that really only applies to CALFED agencies and selected stakeholders, local involvement, as defined in the Proposal Solicitation Package, is really not applicable to this project. Although implementation of the marking and tagging program could include local involvement, it is really beyond the scope of this planning effort.

### COST

All budget costs are included in Tables 3 and 4. This project is scheduled to be completed within 8 months after contract signing. Anticipated start is October 1, 1999. Given the normal holiday schedules and review times, an 8 month process is appropriate

### COST SHARING

This project is essentially an agency planning effort. Therefore, cost sharing is not applicable.

**Table 3. Project Budget**

<b>Tasks</b>	<b>Direct Labor Hours</b>	<b>Direct Salary and Benefits</b>	<b>Service Contracts</b>	<b>Material and Acquisition Costs</b>	<b>Miscellaneous and other Direct Cost<sup>1</sup></b>	<b>Overhead and Indirect Costs</b>	<b>Total Costs</b>
Task 1 - Scoping with agency managers and stakeholders, develop release strategies	240	23,200	0	0	3,000	0	26,200
Task 2 - Visit facilities, develop needs assessment for facilities, complete preliminary site drawings	440	42,300	0	0	18,500	0	60,800
Task 3 - Develop needs assessment for tag recovery and reading units, develop data management and handling procedures	200	19,500	0	0	1,000	0	20,500
Task 4 - Organize and collate information, develop strategic plan, provide review time, revise strategic plan as needed.	360	34,800	0	0	2,500	0	37,300
Project Mgt.	80	7,600	0	0	0	0	7,600
<b>Total</b>	<b>1,320</b>	<b>127,400</b>	<b>0</b>	<b>0</b>	<b>25,000</b>	<b>0</b>	<b>152,400</b>

<sup>1</sup> All Miscellaneous and Direct Costs are travel costs, except for and estimated \$12,000 to produce preliminary site plans for any needed modifications at each facility as appropriate.

**Table 4. Quarterly Budget**

<b>Tasks</b>	<b>Oct-Dec. 99</b>	<b>Jan-Mar 00</b>	<b>Apr-Jun 00</b>	<b>Total Budget</b>
Task 1 - Scoping with agency managers and stakeholders, develop release strategies	26,200	0	0	26,200
Task 2 - Visit facilities, develop needs assessment for facilities, complete preliminary site drawings	20,000	40,800	0	60,800
Task 3 - Develop needs assessment for tag recovery and reading units, develop data management and handling procedures	20,500	0	0	20,500
Task 4 - Organize and collate information, develop strategic plan, provide review time, revise strategic plan as needed.	0	15,000	22,300	37,300
Project Mgt.	2,000	2,000	3,600	7,600
<b>Total</b>	<b>68,700</b>	<b>57,800</b>	<b>25,900</b>	<b>152,400</b>

## APPLICANT QUALIFICATIONS

We propose to complete this project as a team of three extremely well qualified individuals completely familiar with CALFED, the Bay-Delta, and agency facilities and staff. In addition, we all have at least 5 years experience working directly with CALFED issues, objectives and needs. All appropriate agency personnel and stakeholders recently met and discussed an approach to completing a task such as this. All have agreed to cooperate and provide information to the entity that completes this implementation plan.

Mr. Randy Bailey will be the project manager for this effort. He has 27 years of professional experience in fisheries in California, Oregon, Nevada, and Alaska. He is extremely familiar with hatchery operations, as well as the recovery efforts and sampling protocols used by CALFED member agencies to recover tagged fish. Mr. Bailey is currently the CALFED contractor helping to develop a comprehensive marking and tagging program. As a result, he is intimately familiar with tagging technology, equipment needs, costs of marking and tagging, and data management needs associated with a marking and tagging program. Mr. Bailey is also familiar with all of the agency staff that will need to be interviewed for this effort. In addition, he is also familiar with CALFED's strategic plan and restoration goals. He was also involved in development and review of CVPIA's CAMP program. In his previous position, Mr. Bailey was Chief, Fisheries Division, Alaska Region, U.S. Fish and Wildlife Service. Mr. Bailey will assist in the scoping effort, help develop the release strategies, assist with the individual facilities needs assessment, develop the needs assessment for tag recovery and reading efforts, help develop the strategic plan, and provide project management.

Dr. James Buell has over thirty years of experience working on Pacific salmon issues in California and the Pacific Northwest and Alaska. Dr. Buell has been involved in the CALFED process from the beginning and has served on numerous technical teams in various capacities. Dr. Buell is especially well qualified for this project. He has helped design a number of hatchery facilities including the McCall Hatchery in Idaho, was a major participant in the development of plans for the Livingston Stone NFH at Redding, and has provided consulting services to various entities regarding Columbia River hatcheries. In addition, Dr. Buell is serving on several CALFED technical committees regarding screening and facilities development. He is particularly well qualified to address fish handling issues at the various facilities. Dr. Buell will assist in the scoping effort, evaluation of release strategies, assume lead responsibilities for the individual facilities needs assessment, and help develop the final strategic plan.

Dr. Jud Monroe is a professional technical writer with over 30 years of experience in developing planning documents and technical reports. He has extensive experience in dealing with fisheries technical issues and is thoroughly familiar with the fisheries community in the Bay-Delta. Dr. Monroe is also working on the existing CALFED funded program to develop a statistically based marking and tagging program and the evaluation of the potential for selective fisheries. As a result, he is familiar with all of the needs and components of the new marking and tagging program. He is also familiar with the data management needs associated with a tagging program. Dr. Monroe has extensive experience in Bay-Delta issues and is intimately familiar with CALFED's recovery and restoration objectives.

# NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME

*Bailey Environmental*

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

## CERTIFICATION

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.*

OFFICIAL'S NAME

*Randy Bailey*

DATE EXECUTED

*4/16/99*

EXECUTED IN THE COUNTY OF

*Placer*

PROSPECTIVE CONTRACTOR'S SIGNATURE

*Randy Bailey*

PROSPECTIVE CONTRACTOR'S TITLE

*Principal Owner*

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

*Bailey Environmental*