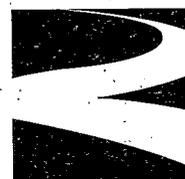


Ecosystem Restoration Projects and Programs

2007 Proposal Solicitation Package



CALFED
BAY-DELTA
PROGRAM

2001 Proposal Solicitation

The CALFED Bay-Delta Program invites proposals for ecosystem restoration programs and projects to improve the health of the Bay-Delta ecosystem. The objective of this Proposal Solicitation Package (PSP) is to solicit and fund actions that implement the CALFED Ecosystem Restoration Program, Strategic Plan, Multi Species Conservation Strategy, and to solicit actions that may be funded through the Central Valley Project Improvement Act (CVPIA).

Notice of Pre-Submittal Workshop

April 12, 2000, 1:00p.m. - 3:00p.m.

Resources Agency Auditorium
1416 Ninth Street, Sacramento

Shortly after the workshop, CALFED staff will provide a written response to common questions from all attendees at the workshop and those who have received this proposal solicitation package via mail.

Where to Submit Questions:

Questions can be submitted in writing until **April 11, 2000**, to the:

CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

or via email: ecosp@water.ca.gov or

Fax (916) 651-6486 Attn: Rebecca Fawver

Where to Submit Proposals:

Submit one original, 10 complete photocopies, and one electronic copy of text and tables on a 3.5" disk in any Word version:

CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento CA, 95814

Proposal Due Date: May 15, 2000

Proposals must be received by the CALFED office no later than **3:00 p.m. on May 15, 2000**. Proposals received after this date and time will be returned unopened.

The 2001 PSP is soliciting proposals in 12 topic areas:

Natural Flow Regimes,
Non-native Invasive Species,
Channel Dynamics
Sediment Transport and
Riparian Vegetation,
Flood Management and
Bypasses as an
Ecosystem Tool,
Shallow Water Tidal and
Freshwater Marsh
Habitat,
Contaminants,
Beyond Riparian Corridor,
Local Watershed
Stewardship,
Environmental Education,
Special Status Species
Surveys and Studies,
Fishery Monitoring,
Assessment and
Research, and
Fish Screens.

TABLE OF CONTENTS

	page
I INTRODUCTION.....	1
1.1 Background on the CALFED Bay-Delta Program.....	1
1.2 Background on Category III and Projects Funded to Date.....	2
1.3 Transition to ERP Implementation.....	3
1.4 Improving Coordination: CALFED/CVPIA Integration.....	3
II 2001 PROPOSAL SOLICITATION.....	5
2.1 2001 Proposal Solicitation Package.....	5
2.2 Who May Apply.....	5
2.3 Geographic Scope.....	6
2.4 Conflict of Interest and Confidentiality.....	7
2.5 Proposal Selection Process and Selection Criteria.....	7
2.6 Schedule.....	12
III 2001 IMPLEMENTATION PLAN.....	13
3.1 Designing Ecosystem Restoration Using an Adaptive Management Approach.....	14
3.2 Ecosystem Restoration Strategic Goals.....	17
3.3 Scientific Uncertainties.....	22
3.4 Other Topic Areas.....	38
3.5 Restoration Actions.....	39
3.6 References Cited.....	48
IV PREPARING A PROPOSAL SOLICITATION PACKAGE.....	49
4.1 Requirements for all Applicants.....	49
4.2 Requirements for Successful Proposals.....	51
4.3 Proposal Format and Content.....	54
V TABLES AND FIGURES	
Figure 1- 2001 Proposal Selection Process.....	8
Figure 2- Diagram of the Adaptive Management Process.....	15
Table 1 - Sample Total Budget.....	60

VI ATTACHMENTS

- Attachment A - Proposal Solicitation Geographic Scope and List of Ecozones
- Attachment B - List of Acronyms
- Attachment C - Quarterly Report Format
- Attachment D - Terms and Conditions for State (CALFED) Funds
- Attachment E - Terms and Conditions for Federal (Dept of Interior) Funds
- Attachment F - Conflict of Interest Requirements for Project Selection Participants
- Attachment G - Central Valley Project Improvement Act Information
- Attachment H - Proposal Cover Sheet, Environmental Checklist, and Land Use Checklist

CHAPTER 1 - INTRODUCTION

1.1 Background on the CALFED Bay-Delta Program

The CALFED Bay-Delta Program is a consortium of State and Federal agencies with management and regulatory responsibilities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

The CALFED Bay-Delta Program's mission is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. The Program has four objectives:

CALFED Agencies

Federal agencies include: U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, National Marine Fisheries Service, Natural Resources Conservation Service, U.S. Forest Service, Bureau of Land Management, U. S. Geological Survey, Western Area Power Administration and the U.S. Army Corps of Engineers.

State agencies include: CA Resources Agency, CA Department of Fish and Game, CA Department of Water Resources, CA Department of Food and Agriculture, Delta Protection Commission, CA Environmental Protection Agency, and State Water Resources Control Board.

Ecosystem Quality. Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species.

Water Supply. Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system.

Water Quality. Provide good water quality for all beneficial uses.

Levee System Integrity. Reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic failure of Delta levees.

The CALFED Bay-Delta Program has prepared a Revised Draft Programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR). This document was released to the public in June 1999, and may be obtained by contacting the CALFED Bay-Delta Program at (916) 657-2666, or by visiting the CALFED website at: <http://calfed.ca.gov>. The Program is preparing to release a Final EIS/EIR in the summer of 2000. All alternatives described in the EIS/EIR contain common programs to address ecosystem health, levee system integrity, water use efficiency, water transfers, water quality and watershed management. The common program to address ecosystem health is described in the Ecosystem Restoration Program (ERP), which is found as an appendix to the Revised Draft

Programmatic EIS/EIR.

The goal of the ERP is to improve and increase aquatic and terrestrial habitats, and to improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species. The ERP is a long-term ecosystem restoration program that will be implemented in phases over several decades, and incorporates the use of adaptive management. Adaptive management acknowledges that there is a need to constantly monitor the system and adapt the actions that are taken to restore ecological health and improve water management. These adaptations will be necessary as conditions change and as more is learned about the system and how it responds to these actions. A strategic plan has also been developed to guide implementation of the ERP. Applicants desiring additional information on the ERP, the Strategic Plan for Ecosystem Restoration or the CALFED Bay-Delta Program can contact the Program at (800) 900-3587 or (916) 657-2666, or by visiting the CALFED website at: <http://calfed.ca.gov>.

1.2 Background on Early Implementation of Ecosystem Restoration Activities

The December 15, 1994, Bay-Delta Accord included a commitment to develop and fund non-flow related ecosystem restoration activities to improve the health of the Bay-Delta ecosystem. This funding source and commitment is commonly referred to as Category III. The Category III Steering Committee was formed to administer the first rounds of Category III funding. In 1996, the administration function for Category III funds was shifted to the CALFED Bay-Delta Program's Restoration Coordination Program, which receives input from the Ecosystem Roundtable, the Bay-Delta Advisory Council (BDAC), and the general public. The Bay-Delta Advisory Council consists of over 30 representative California stakeholder groups. BDAC is chartered under the Federal Advisory Committee Act and provides input to the overall CALFED Program. The Ecosystem Roundtable is a subcommittee of BDAC specifically created to provide input from a broad cross-section of stakeholder interests to the Restoration Coordination Program.

To date, CALFED's Ecosystem Restoration Program has received more than 800 proposals and has funded 272 projects for a total of approximately \$284 million. The Program has funded fish screens, fish ladders, land acquisition, habitat restoration, and focused research and monitoring designed to provide information which will improve future restoration efforts. Funding sources have included contributions from the California Urban Water Agencies, Proposition 204 State bond funds, funding from the Federal Bay-Delta Act, and Federal EPA watershed funding. For additional information on projects funded to date, visit the CALFED website at: <http://calfed.ca.gov> under the Ecosystem Restoration topic.

1.3 Transition to ERP Implementation

In 1999, the Restoration Coordination Program began the transition from early ecosystem restoration to implementation of the long-term Ecosystem Restoration Program. This proposal solicitation represents another step in the transition. Once the Final Programmatic EIS/EIR is completed and the CALFED agencies make a decision on the CALFED Preferred Program Alternative, the agencies will begin full implementation of the long-term Ecosystem Restoration Program.

This proposal contains numerous revisions to previous solicitations. First, the solicitation process will follow an annual federal fiscal year cycle. Annual priorities will be developed in the first quarter of the federal fiscal year. For example FY2002 priorities will be developed in the first quarter of FY2001 (October - December of 2000). The solicitation focused on those annual priorities will be held in the second quarter of each fiscal year (January - March, 2001). Project review and selection will occur prior to the end of the fiscal year (October, 2001) so that selections will be complete at the time the funds become available. Revisions have been made in the project selection process to bolster scientific review and information (see Section 2.5). Narrative information resulting from each step of the process will be made public during the process and sent back to the applicants once the process is complete.

This solicitation focuses on more scientifically-based proposals, specifically projects developed within an adaptive management framework. The Implementation Plan (Chapter III) is based on the Ecosystem Restoration Plan, Strategic Plan for Ecosystem Restoration and the CALFED Multi-Species Conservation Strategy (MSCS). Applicants will be required to develop hypotheses and conceptual models as described in Chapter III.

Funding sources for this PSP could include state and/or federal funds. Funds are dependent upon completion of a Record of Decision for the Final Programmatic EIS/EIR, which is expected in the summer of 2000. Should that occur, some portion of \$390 million dollars identified in Proposition 204 may be used to fund projects from this PSP. Federal funds may also be available under the Federal Bay-Delta Act, given the Act is reauthorized in FY2001. If the CALFED agencies do not reach a Record of Decision in the summer of 2000, funds will be delayed.

1.4 Improving Coordination: CALFED/CVPIA Integration

The Ecosystem Restoration Program also has the responsibility of improving coordination among fish and wildlife restoration programs in the Central Valley such as the Upper Sacramento River Advisory Council, the Wetlands Ecosystems Goal Project, U.S. Army Corps of Engineers Comprehensive Study, and various programs being implemented under the authority of the Central Valley Project Improvement Act (CVPIA). This year, functional integration is occurring between the ERP and the CVPIA. In particular, CVPIA's Anadromous Fish Restoration Program (AFRP),

Anadromous Fish Screen Program and Water Acquisition Program, among others, overlap closely with the ERP.

Proposals submitted through this PSP may be funded through the appropriate CVPIA program. For areas of overlap where funding from both CALFED and CVPIA is being sought, CVPIA project proponents are encouraged to submit their proposal to this solicitation. Participating CVPIA programs will consider funding program-appropriate projects solicited through this PSP. For areas of overlap where funding from only CVPIA is being sought, CVPIA program managers may submit project descriptions for concurrent scientific and technical review along with projects solicited through this PSP. The purpose of submitting potential future CALFED and appropriate CVPIA projects to concurrent scientific and technical review is to ensure that the best and highest priority projects are implemented and to ensure the most efficient use of funds. Information on Department of Interior's approach and focus for their implementation during 1999-2004, and key CVPIA fish and wildlife provisions can be found in Attachment G. For additional information on the Anadromous Fish Restoration Program, including a more detailed description of how the AFRP plans to select projects for implementation in the coming fiscal year, visit the AFRP website at <http://delta.dfg.ca.gov/afrp>.

II. 2001 Proposal
Solicitation

CHAPTER II - 2001 PROPOSAL SOLICITATION

2.1 2001 Proposal Solicitation Package (PSP)

The CALFED Bay-Delta Program invites proposals for ecosystem restoration programs and projects to improve the health of the Bay-Delta ecosystem. The objective of this PSP is to solicit and fund actions that implement the ERP, the Strategic Plan, and the Multi Species Conservation Strategy and to solicit actions that may be funded through the Central Valley Project Improvement Act (CVPIA). Funding provided for this PSP will be directed toward programs and projects that reduce conflicts in the Bay-Delta Ecosystem, focus on at-risk species and habitats, and provide broad ecosystem benefits.

Applicants should submit formal proposals following the instructions and format contained in this announcement. Proposals must be received at the CALFED Bay-Delta Program office, 1416 Ninth Street, Suite 1155, Sacramento, California, 95814, by **3:00 p.m. on May 15, 2000**. Proposals received after this time will be returned unopened. Timely proposals will then be evaluated using the criteria and process described in this PSP, leading to multiple awards in October 2000 dependent upon available state and federal funding.

Proposals submitted but not funded under previous proposal solicitations must be resubmitted in a format that is responsive to this PSP to receive consideration in the 2001 PSP process.

2.2 Who May Apply

Any private or public party with an interest in ecosystem restoration may apply. This includes, but is not limited to (1) State agencies, (2) Universities, (3) Federal agencies, (4) Tribes, (5) Non-profit organizations, (6) Private (for profit) individual entities, (7) Local Government/Districts, and (8) Public/non-profit joint ventures. Applicants must indicate the category on the proposal cover sheet (Attachment H).

Applicants who wish to collaborate on a project may elect to use a contractor-subcontractor relationship or a joint venture partnership. Contracts will only be executed with one applicant. The proposal needs to clearly indicate which applicant will sign the contract and the nature of the agreement between the other applicants, as discussed below.

The contractor-subcontractor relationship approach requires that the proposal discuss the nature of the relationship, the names of subcontractors, if known, and how the applicant will comply with competitive bidding requirements for selecting subcontractors. Specific subcontractors do not necessarily need to be listed in the proposal, except to highlight the qualifications of the proposed team for purposes of evaluation. Some subcontractors may not be known until after the proposal has been

selected for funding, and a subcontract has been put out for bid. The estimated costs for subcontract work, and any necessary overhead for managing subcontractors, must be included in the proposal.

Applicants that are joint venture partnerships must identify one partner as the contracting party responsible for payments, reporting, and accounting. The proposal must include a detailed description of how the partners will operate, including the allocation of decision-making authority and liability. The proposals should identify the tasks to be performed by the different entities and the costs at each task level.

Applicants should be aware of potential Conflict of Interest issues when considering project partners. The Ecosystem Roundtable has adopted a policy that Ecosystem Roundtable members and organizations may not receive funding. The Interim Science Board conflict of interest policy notes that its members may not compete for funding or have any financial interest in proposals for this year. Conflict of Interest policies also exist for Agency/Stakeholder Ecosystem Team (ASET) members and other technical reviewers. Copies of Conflict of Interest policies for all these groups are included in Attachment F.

Limitations on Funding. Because funding may be provided for only a portion of each submitted project, the applicant should clearly show which tasks can be funded separately. When CALFED or CVPIA funds portions of a project, there is no guarantee that the future phases of that project will be funded by CALFED, CVPIA or any other funding source. Future funding will depend on the progress of the project, the nature and extent of proposals competing at that time, ecological priorities, and the availability of funds. Projects can be multi-year efforts if necessary and appropriate. However, funds must generally be expended by a contractor no more than three years after execution of a contract.

Proposals cannot use funds to replace existing funding sources for on-going programs, for political advocacy, or for an applicant's litigation costs. Public agencies and local governments may not use funds to support existing agency requirements or mandates. Proposals that include projects or programs that are regulatory conditions or mitigation requirements for a prior project will be evaluated on a case-by-case basis.

2.3 Geographic Scope

Projects and programs for CALFED and CVPIA funding must generally be within the CALFED ERP study area which includes the Bay-Delta and its tributary watersheds (See map in Attachment A). All applicants must demonstrate a direct benefit to the CALFED and CVPIA priority species and habitats. Proposals for projects outside of the geographic scope identified in this PSP or which do not demonstrate a direct benefit to the CALFED and CVPIA priority species and habitats will not be considered for funding.

2.4 Conflict of Interest and Confidentiality

All applicants are subject to state and federal conflict of interest laws. Failure to comply with these laws, including business and financial disclosure provisions, will result in the proposal being rejected and/or any subsequent contract being declared void. Other legal action may also be taken. Accordingly, before submitting a proposal, applicants are urged to seek legal counsel regarding potential conflict of interest concerns that they may have and requirements for disclosure. Applicable California statutes include, but are not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411.

Applicants should be aware that all proposals will become public information once the solicitation has closed and CALFED Program staff have determined that they are complete and responsive to this PSP (have passed Threshold Review, see Section 2.5). All complete and responsive applications will be placed on the CALFED website, <http://calfed.ca.gov>. By submitting a proposal, the applicant agrees to waives any right to confidentiality of the proposal. As explained in Section 2.5, Project Selection Process, the narrative comments from the scientific and technical reviewers, staff, technical review teams, geographic panelists and selection panel will be publicly available information and will be considered at public meetings. Due to legally mandated public disclosure requirements of the Ecosystem Roundtable and the Bay-Delta Advisory Council, any responsive proposal may be reviewed and discussed by members of the public. When an applicant signs a proposal and submits it for consideration, the applicant waives any rights to privacy and the confidentiality of the proposal.

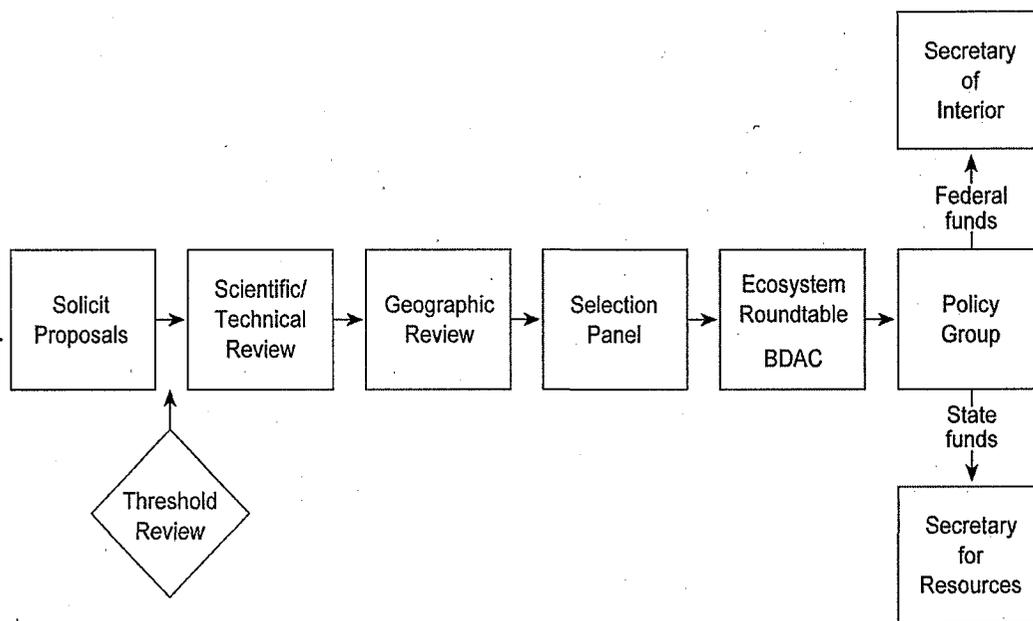
Applicants should note that their submission of a proposal will waive any rights to confidentiality of that proposal.

Applicants should also be aware that certain state and federal agencies may submit proposals that will compete for funding. Employees of state and federal agencies may also sit on the ASET and may participate in the review process as scientific/technical reviewers, or geographic reviewers. All individuals who participate in the review process, however, are subject to conflict of interest laws and rules as set forth in Attachment F.

2.5 Project Selection Process and Selection Criteria

The project selection process will identify potential ecosystem restoration projects that meet the annual Implementation Plan (Chapter III). Figure 1 is a flow chart of the project selection process.

Figure 1. Project Selection Process



Proposals will be reviewed using a multi-step technical evaluation. CALFED will be relying on many scientific and technical experts to assist in the review of ecosystem restoration proposals. There are different levels of scientific involvement:

- Scientific and technical experts will be assisting with the scientific and technical review and geographic review of proposals. Many experts representing diverse scientific and technical fields will be involved including academic, agency and stakeholder scientists.
- The Agency/Stakeholder Ecosystem Team (ASET) is a group of scientific advisors and chief scientists from the CALFED agencies and stakeholder groups who are actively involved in supporting and working with the Interim Science Board and providing a science/policy interface for CALFED ecosystem restoration activities. These scientists are knowledgeable about the CALFED Program, CVPIA, and related ecosystem restoration activities. ASET members helped develop this PSP and will be involved in geographic review and the Selection Panel.
- The Interim Science Board (ISB) is comprised of nationally recognized independent scientists who provide guidance and recommendations to the CALFED ERP. The Interim Science Board (ISB) helped develop this PSP and has been asked to monitor the project selection process to assess if the process gives appropriate weight to science and will likely contribute to science-based implementation of the ERP. The ISB does not expect to participate directly in project selection, but does expect to meet with the Selection Panel before and after a recommendation is developed to provide

the Selection Panel with suggestions or conditions for proposals to enhance information value and better incorporate proposals into an adaptive management framework.

Next-Phase Funding of Existing Projects. Projects may be identified as a next-phase of a previously funded project. They will be required to prepare a complete proposal which will be subjected to the same scientific and staff review as described above. Proposals requesting next-phase funding will be required, in addition to the outlined criteria, to provide status of work to date and will be evaluated on the success of previously funded activities. Successful projects that are ready for next-phase funding will have a higher priority for funding.

Review Steps. The following is a discussion of the proposal review process (see Figure 1) and the criteria that will be evaluated at each step of the process. Additional description of the review criteria is contained in Section 4.3 Proposal Format and Content.

Threshold Review. Once proposals are received, they will undergo an administrative threshold review by staff to determine that they are complete and responsive to the solicitation (see Section 4.1). Proposals that do not meet specified minimum requirements will be returned at this step and not considered for CALFED funding. Proposals that are rejected as nonresponsive may be resubmitted and considered in the next round of funding.

Threshold Requirements include:

- Standard cover sheet completed, attached to front of proposal and signed
- Copy of local notification letter included
- Environmental Compliance and Land Use Checklists completed
- Required contract forms signed and submitted

Scientific and Technical Review. Proposals will next be subjected to review by scientific and technical experts. A large pool of scientists and technical experts will be identified to provide outside technical review of the proposals. Each of these experts will have sufficient expertise to assess the scientific and/or technical qualities of the proposal, but will not need to be familiar with the Bay-Delta system. It is anticipated that each proposal will be evaluated by 3 or more scientists or technical experts. Proposals will be evaluated on their individual scientific and technical merit.

Scientific and Technical review criteria:

- Scientific merit (strengths and weaknesses)
 - Clearly stated objectives and hypotheses/questions
 - Sound approach (conceptual model, design, methods, analyses)
 - Adaptive Management Approach
- Adequacy of monitoring, information assessment, and reporting plans
- Technical feasibility
- Qualifications

The result of this review will be at least a one page narrative evaluating the proposal and a ranking on the overall quality of the proposal from each reviewer.

Technical Review Teams. Teams of two or three scientific and technical experts will

be developed for each topic area to read all the proposals in that topic area and summarize the initial scientific and technical reviews. The review summaries developed by these teams will highlight the most important points identified by the initial reviewers and provide an assessment of how well the proposal meets the stated objectives. If, in the opinion of the review team, the initial reviews are inadequate, the review teams may send individual proposals out for additional technical review. In cases where the reviewers' assessments disagree, the review teams will identify the disagreement and state their consensus judgement as to which of the initial assessments should be given the most weight in subsequent steps in the process.

The results of this review will be at least a one page summary for each proposal.

Staff Review. CALFED ERP staff will evaluate proposals for the potential benefits to the ERP and other CALFED programs and will review non-scientific criteria. CVPIA staff will perform a similar role for potential CVPIA projects.

The results of these reviews will be at least a one page narrative describing how well the proposal meets the outlined criteria.

Geographic Review. The scientific and technical reviews and staff reviews will be forwarded to a set of geographic panels. Five or more panels representing broad geographic areas and landscape-level projects (e.g., research and education) will evaluate proposals and their accompanying reviews. Five to seven regional experts, including ASET members will serve on these panels. The geographic panelists will consider all current and planned ecosystem restoration activities in a specific geographic area in their review of each proposal. The reviewers will evaluate feasibility, or the project's ability to move forward in a timely and successful manner, and will prepare a preliminary ranking for funding.

The result of the geographic reviews will be a narrative describing how well the proposal meets the outlined criteria and justifying the ranking the panel assigned to the proposal.

CALFED staff review criteria:

- Applicability to CALFED ERP goals and Implementation Plan
- Results and progress on previously-funded CALFED projects
- Local involvement
- Cost
- Cost sharing

Geographic panels review criteria:

- Applicability to CALFED ERP goals and Implementation Plan
- Relevance to CALFED ERP priorities in that region
- Linkages/coordination with previously funded projects or other restoration activities in that region
- Feasibility
- Qualifications
- Local Involvement
- Cost
- Cost Sharing

Overall Review and Project Selection. A Selection Panel of experts consisting primarily of ASET, CALFED ERP staff and additional agency and stakeholder scientists who cover a broad range of expertise will make recommendations for funding based on the evaluations conducted at all previous levels. Additionally, they will evaluate proposals across topic and geographic areas for system-wide ecosystem benefits. The Selection Panel will develop a preliminary consensus recommendation of projects to be funded.

Initial recommendations for CALFED funding and summaries of draft Annual Work Plans for appropriate CVPIA programs will be reviewed by the Ecosystem Roundtable and the Bay-Delta Advisory Council (BDAC). The CALFED member agencies, acting through the CALFED Policy Group, will make final CALFED funding recommendations to the Secretary for Resources and the Secretary of the Interior. It is anticipated that CALFED funding decisions will be made by October, 2000. For the CVPIA programs considered in this process, the U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service members of the CALFED Policy Group will coordinate their decisions to finalize the CVPIA Annual Work Plans with the other members of the Policy Group.

Selection Criteria Summary The criteria on which responsive proposals will be evaluated include:

- Scientific merit (conceptual model, hypotheses, study design, methodology)
- Applicability to ERP goals and Implementation Plan and/or CVPIA priorities
- Monitoring and assessment
- Feasibility
- Qualifications
- Linkages with other restoration activities
- Local involvement
- Cost
- Cost sharing
- Next-phase funding
- System-wide ecosystem benefits

It is important that proposals address all evaluation criteria. In summary, proposals will first be evaluated for scientific and technical merit, then for feasibility within a geographic context, and finally proposals will be evaluated on all criteria, including feasibility within a system-wide context.

2.7 Schedule

March 15, 2000	PSP Available to the Public - will be posted on the web
April 11, 2000	Last day to submit questions about the PSP to the CALFED Bay-Delta Program - In writing or to the email address ecosp@water.ca.gov
April 12, 2000	Public Pre-Submittal Workshop, 1:00 pm - 3:00 pm, Resources Agency Auditorium, 1416 Ninth Street, Sacramento
May 15, 2000	Proposal Solicitation Period Closes. (Applications must be received at the CALFED office 1416 Ninth Street Sacramento, CA by 3:00 pm)
September, 2000	Scientific and Technical Review and CALFED recommendations complete, draft CVPIA Work Plans available.
September-October, 2000	Present Recommendations in Public Workshop and to Ecosystem Roundtable and BDAC
October, 2000	CALFED Policy Group Makes Final Recommendations. U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service finalize CVPIA Annual Work Plans.
October, 2000	For CALFED funding, Secretary for Resources/Secretary of the Interior Approve Selections

III. 2001
Implementation Plan

E-033013

E-033014

CHAPTER III - 2001 IMPLEMENTATION PLAN

The 2001 Implementation Plan was developed using the ERP, Strategic Plan for Ecosystem Restoration and the CALFED Multi Species Conservation Strategy (MSCS). The CALFED Interim Science Board (ISB), the Agency/Stakeholder Ecosystem Team (ASET) and CALFED Ecosystem Restoration staff have worked cooperatively to develop the 2001 Implementation Plan and define the priorities for 2001 implementation of the long-term Ecosystem Restoration Program. This PSP contains supporting information about the ERP Strategic Goals and important scientific uncertainties identified in the Strategic Plan which establishes the linkage between the ERP goals, scientific uncertainties and restoration actions that are identified for implementation in 2001. This Implementation Plan and PSP reflects the current thinking of a diverse group of scientific advisors and is based on the best available information relative to ecosystem restoration and the Bay-Delta system. As new information becomes available and conceptual models are tested and refined it is anticipated that priorities will change and new issues or questions will emerge.

The following is a brief guide to Chapter III of this PSP. Additional supporting scientific information is being included this year. In future years it is anticipated that the annual Implementation Plan will be a stand alone document separate from the PSP. However in this transitional year CALFED staff, ISB and ASET all concurred that it was important to establish the supporting rationale to accompany the restoration actions in this PSP.

- Section 3.1 Designing Ecosystem Restoration Using an Adaptive Management Approach.** This section describes the scientific component that all proposals must contain. ISB provided input and guidance on the development of this section.
- Section 3.2 Ecosystem Restoration Strategic Goals.** This section describes the six Strategic Goals and important scientific uncertainties associated with them. Information in this section was taken primarily from the ERP Strategic Plan.
- Section 3.3 Scientific Uncertainties.** This section describes in more detail the scientific uncertainties derived from the Strategic Plan and their relationship to the Strategic Goals. For some uncertainties this section also contains examples of types of projects which could help address the uncertainty. ISB provided input and guidance on the development of this section.
- Section 3.4 Other Important Actions.** This section describes two additional areas that will be considered for funding: local watershed stewardship and environmental education. This section was prepared by CALFED staff with input from the CALFED Watershed Program.

Section 3.5 Restoration Actions. This section describes specific actions for which CALFED is seeking proposals. This section was developed by CALFED staff with input from ASET and the fish and wildlife regulatory agencies. Consistent with their independent advisory role, the ISB has not reviewed or provided guidance on the specific restoration actions in this section. However, most of the restoration actions in this section were based on their consistency with the strategic goals and their contribution to addressing scientific uncertainties.

Section 3.6 Literature Cited.

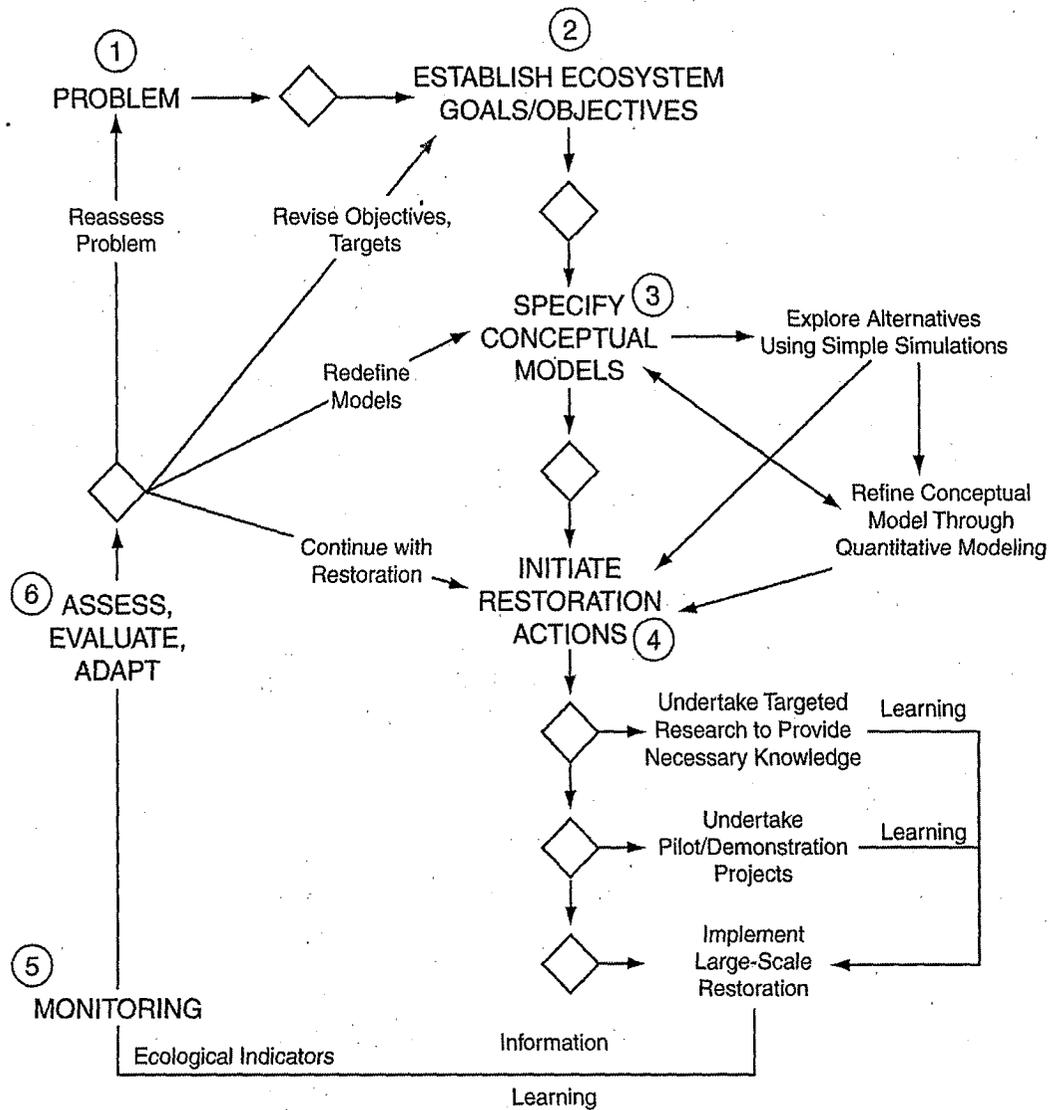
3.1 DESIGNING ECOSYSTEM RESTORATION USING AN ADAPTIVE MANAGEMENT APPROACH

Under an adaptive management approach, ecosystem restoration projects are designed and implemented based upon a hierarchy of knowledge (Figure 2). In areas where there is a high level of uncertainty, projects are designed primarily as research, evaluations or simulation modeling to answer basic ecosystem restoration questions. Where considerable research has been done and more is known about ecosystem functions and processes, projects become more physically oriented toward pilot or demonstration projects and then full scale implementation. All ecosystem restoration actions are treated as experiments so that information generated by ecosystem restoration projects can be used to inform future decision making.

Adaptive Management. Restoring and managing the Bay-Delta ecosystem requires a flexible management framework that can generate, incorporate, and respond to new information and changing Bay-Delta conditions. Adaptive management provides such flexibility and opportunities for enhancing understanding of the ecosystem. Within an adaptive management framework, natural systems are managed in such a way as to ensure their recovery and/or improvement while simultaneously increasing the understanding of how they function. In this manner, future management actions can be revised or refined in light of information generated from previous restoration and management actions.

Adaptive Management provides flexibility and opportunities for enhancing our understanding of the ecosystem. The key to successful ecosystem restoration is learning from all restoration and management actions.

The key to successful ecosystem restoration is learning from all restoration and management actions. Learning allows resource managers and the public to evaluate and update the problems, objectives, and models used to direct restoration actions. Subsequent restoration actions can then be revised or redesigned to be more effective or instructive.



Note:  indicates important decision node in the process. See text for description of the various stages.

Figure 2. Adaptive Management Process

To facilitate learning, adaptive management emphasizes the use of the scientific method to maximize the information value of restoration and management actions. Resource managers explicitly state hypotheses about ecosystem structure and function based upon the best available information, and then they design restoration actions to test these hypotheses. In this respect, adaptive management treats all restoration actions as experiments.

Conceptual Models Many resource managers, scientists, and stakeholders interested in the restoration and management of the Bay-Delta ecosystem have implicit beliefs about how the ecosystem functions, how it has been altered or degraded, and how various actions might improve conditions in the system. Conceptual modeling is the process of articulating these implicit models to make them explicit.

Conceptual models can provide several benefits. The knowledge and hypotheses about ecosystem structure and function summarized in conceptual models can lead directly to potential restoration actions. They can highlight key uncertainties where research or adaptive experimental manipulations might be necessary. Alternative or competing conceptual models can illustrate areas of uncertainty, paving the way for suitably-scaled experimental treatments designed to both restore the system (according to more widely accepted models) and explore it (to test the models). Conceptual models can also help to define monitoring needs, and can provide a basis for quantitative modeling.

There is no recipe for developing conceptual models, nor is there a template for what they should look like. There is no unique set of conceptual models that provides a basis for ecosystem restoration and that can be determined deductively. Conceptual models should be designed for a particular purpose and should contain only those elements relevant to solving a particular problem, including alternative explanations that might yield alternative solutions.

As a feature of a submitted proposal, the applicant should present a conceptual model that describes the causal interconnections among key ecosystem components. The model can be presented graphically or as a narrative, and should demonstrate how physical and biotic system components respond to anticipated stressors or limiting factors.

Defining Restoration Actions. Conceptual models help to shape the character of restoration actions by identifying key uncertainties or by revealing the level of confidence that a particular action will achieve a given objective. Under an adaptive management approach, ecosystem restoration projects are designed and implemented based upon a hierarchy of knowledge. Three types of management actions can be selected for implementation:

Targeted Research may be necessary to resolve critical issues about ecosystem structure and function that preclude us from even defining problems adequately.

Pilot or Demonstration Projects can help to determine the practicality or

Conceptual modeling: the process of articulating implicit models (simplified mental illustrations about the most critical cause-and-effect pathways) to make them explicit. Conceptual models:

- summarize knowledge and hypotheses about ecosystem structure and function
- highlight key uncertainties where research or adaptive experimental manipulations might be necessary

effectiveness of restoration actions, allowing resource managers to evaluate alternative actions or build confidence in the ability of a particular action to achieve an objective.

Full-scale Implementation can begin for those restoration actions which have demonstrated success at the pilot project scale, and for which there is reasonable confidence that the objective will be achieved.

These three types of actions are not mutually exclusive, and all might be used to address a particular problem. All proposals must provide the justification for the type of restoration action proposed. Pilot or demonstration projects should reference appropriate research which supports the base of knowledge to support the project. Full-scale implementation projects should reference the related research and demonstration projects. **Proposals that do not cite specific references and include a supporting base of knowledge will not be funded.**

Proposals that do not cite specific references and include a supporting base of knowledge will not be funded.

3.2 Ecosystem Restoration Strategic Goals

The ERP Strategic Goals provide a basis for the vision of restoring ecological health to the Bay-Delta system and provide the framework for implementing ecosystem restoration actions. Each of the six strategic goals are interrelated. Often accomplishments towards one goal also provide benefits to others.

Goal 1 - At-Risk Species

Achieve recovery of at-risk native species dependent on the Delta and Suisun Bay as the first step toward establishing large, self-sustaining populations of these species; support similar recovery of at-risk native species in San Francisco Bay and the watershed above the estuary; and minimize the need for future endangered species listings by reversing downward population trends of native species that are not listed.

The conflict between protecting endangered species and providing reliable supplies of water for urban and agricultural uses was a major factor leading to the formation of CALFED. "At-risk species" are those native species that are either formally listed as threatened or endangered under State and Federal laws or have been proposed for listing. This goal places highest priority on restoring populations of at-risk species that most strongly affect the operation of the State Water Project and Central Valley Project diversions in the south Delta, such as Delta smelt, all runs of chinook salmon, steelhead trout, and Sacramento splittail. This goal gives highest priority to the legal recovery of species formally listed under the Federal and California Endangered Species Acts (ESAs) because of the high degree of legal protection given the species, especially under Federal law.

There is considerable scientific uncertainty about why at-risk species are in decline,

and how to best proceed with actions to facilitate recovery of these species. In addition, because of critical status of many species, ERP actions must address the immediate needs of the species for protection as well as gain additional information about how these species respond to ecosystem functions and processes through implementation of actions that will lead to long-term recovery. In the early stages of implementation it is critical to make progress towards improving population health of at-risk species. Increasing populations of listed species can provide flexibility in implementing less certain adaptive management interventions. Without improved species health it is possible that some ecosystem restoration actions would not be able to move forward because of regulatory constraints and a lack of certainty about their outcome. The MSCS provides the framework for compliance with the Federal and State Endangered Species Acts for the CALFED Program. Some of the scientific uncertainties about which we know the least, such as X2 relationships, diversion effects of pumps and the importance of the Delta for salmon are thought to have a direct influence on the ability to achieve this goal. Just as the subsequent strategic goals can contribute to the achievement of Goal 1, the scientific uncertainties identified under the other strategic goals can influence the ability to protect and recover at-risk species.

Goal 2 - Ecosystem Processes and Biotic Communities

Rehabilitate natural processes in the Bay-Delta system to support, with minimal ongoing human intervention, natural aquatic and associated terrestrial biotic communities, in ways that favor native members of those communities.

This goal recognizes that an ecosystem restoration plan must include restoration and maintenance of ecosystem processes, such as seasonal fluctuations in flow of streams and salinity of the estuary, to support natural aquatic and associated terrestrial biotic communities. Two key aspects of this goal are to have self-sustaining biotic communities that will persist without continual high levels of human manipulation of ecosystem processes and species abundances, and to have communities in which the dominant species, as much as possible, are native species. This goal emphasizes rehabilitation rather than restoration because so many of the physical and chemical processes in the watershed have been fundamentally altered by human activity. Scientific uncertainties which could influence the ability to achieve this goal include questions about the ability to simulate natural flow regimes and threshold flows for critical ecosystem processes, a better understanding about channel dynamics, particularly how they affect habitat restoration and at-risk species, and declines in foodweb productivity and the implications for restoring ecological health.

Goal 3 - Harvestable Species

Maintain and enhance populations of selected species for sustainable commercial and recreational harvest, consistent with goals 1 and 2.

Many of the actions undertaken to benefit at-risk species as defined in Goal 1, or to achieve the other strategic goals have the potential to benefit harvestable species. Independent of those, Goal 3 will not be a focus of the 2001 Implementation Plan.

Goal 4 - Habitats

Protect or restore functional habitat types throughout the watershed for public values such as recreation, scientific research and aesthetics.

Habitats are usually defined through some combination of physical features and conspicuous or dominant organisms, usually plants (e.g., salt marsh and riparian forest). Plants are often highly visible natural features and have important roles in the function of the ecosystems of which they are part. The ERP identifies major habitat types in the estuary and watershed, and Moyle and Ellison (1991) identify, at a finer scale, freshwater habitat types. By definition, different habitats support different species or combinations of species and play different roles in the dynamics of the Bay-Delta system. It therefore becomes important to protect and restore large expanses of the major habitat types identified in the ERP and at least representative "samples" of other habitat types as identified by Moyle and Ellison (1991) and others.

Many direct benefits arise from protecting a wide array of habitats, including the recovery of endangered species and the production of economically important wild species (e.g., fish and ducks). Equally important are the aesthetic values of natural landscapes containing mosaics of habitats. Less appreciated, but also important, are the ecosystem services provided by natural habitats, such as purification of water and air and delivery of nutrients to systems producing fish and other economically important aquatic organisms. Scientific uncertainties which have direct influence over the ability to achieve this goal include uncertainties associated with the restoration of freshwater wetland, tidal and riparian processes and functions, the value associated with flood bypasses and floodplains for recovery of ecological health and the relationship of upland areas to the riparian zone.

Goal 5: Non-native Invasive Species

Prevent establishment of additional non-native species and reduce the negative biological and economic impacts of established non-native species.

This goal is arguably part of the first four goals because protecting and enhancing species, communities, and habitats in an estuary and its watershed implicitly includes reducing the impact of non-native invasive species. However, the introduction of new species into the system is still occurring so frequently, and the potential for ecological damage by further invasions is so high, that the necessity for halting (not just reducing) further introductions needs to be emphasized. Hobbs and Mooney (1998) document how invasions by non-native species are a major ecological force

for change in California. Cohen and Carlton (1998) have labeled the San Francisco estuary as the most invaded estuarine ecosystem in the world and document the accelerating rate at which new species continue to become established, mostly as the result of their deliberate release through the dumping of ballast water of ships. Other sources include illicit introductions by anglers (e.g., northern pike) and aquarists (e.g., *Hydrilla*). This problem needs to be dealt with quickly and directly because new invading species can negate the effects of millions of dollars spent on habitat or ecosystem restoration. Likewise, already established non-native species, such as water hyacinth and the Asian clam (*Potamocorbula*), continue to have major negative impacts on more desirable species in the system, and methods of control need to be developed. However, control methods must be less harmful to native species than the ecological disruption caused by invading species.

The ERP Strategic Plan identified non-native invasive species (NIS) as one of the most important issues facing the CALFED Ecosystem Restoration Program. Non-native species invade all areas of ecosystem restoration activities. Many questions remain about the competitive relationships between native and non-native species, how non-native species use and colonize existing and restored habitats and the most effective ways to prevent new populations and manage those that already exist. In 1998 CALFED established the Non-Native Invasive Species (NIS) Program. The NIS Program is managed by the U.S. Fish and Wildlife Service with the support of numerous agencies, universities and stakeholder groups. The NIS Program has developed a Strategic Plan for managing non-native invasive species in the Bay-Delta. The NIS Program emphasizes the need for taking a strategic approach to addressing non-native species and recognizes that prevention is the most practical, economic and environmentally safe method of dealing with non-native species. The NIS Program has identified three goals as part of its strategic plan for managing this important ecosystem restoration problem:

- NIS Goal I: Prevent new introductions of NIS into the ecosystems of the San Francisco Bay-Delta, the Sacramento/San Joaquin rivers and their watersheds.
- NIS Goal II: Limit the spread or, when possible and appropriate, eliminating populations of NIS through management.
- NIS Goal III: Reduce the harmful ecological, economic, social and public health impacts resulting from infestation of NIS through appropriate management.

Goal 6: Sediment and Water Quality

Improve and maintain water and sediment quality to eliminate, to the extent possible, toxic impacts on organisms in the system, including humans.

Similar to the difficulty in solving the problem of introduced species, solving the problems associated with aquatic toxicity could be considered part of the first four goals. However, because toxic effects are pervasive and incompletely understood, developing the needed understanding has been identified as a distinct CALFED goal. Problems associated with toxic substances in the aquatic environment include the following:

Persistent toxicants such as methyl mercury and PCBs can accumulate and concentrate in the aquatic food web creating health problems for carnivorous fish and for other predator organisms such as raptors and humans. (Most of the organo-chlorine compounds responsible for these effects, such as DDT and PCBs, are now banned, but residues remain in sediments and tissues of organisms.)

As older organo-chlorine pesticides and PCBs were banned because of their persistence, ability to concentrate in the food web, and harmful biological effects, they were replaced by non-persistent chemicals, some of which are acutely toxic. Residues of these materials from agricultural applications and residential use can enter watercourses and cause temporary toxicity to resident organisms, including those upon which other organisms must depend for food. Though temporary toxicity might have important effect on the aquatic ecosystem, the effects may be too subtle to be easily observed.

Naturally occurring toxic substances, such as extracellular algal metabolites, can also cause toxic effects that may complicate the ability to distinguish toxicity due to activities of humans. Considerable potential exists for ecological disasters caused by large, sudden influxes of toxic materials, such as might be caused by flood-released toxic mine wastes (e.g., Iron Mountain Mine) or by spills of a pesticide carrier (e.g., the Cantara spill on the upper Sacramento River). Some toxic materials can accumulate in sediments where they can negatively affect benthic organisms directly, and indirectly the food webs they support. This is an important mechanism for the continuing entry of DDT and related water-insoluble compounds into aquatic food webs, despite many having been outlawed since the 1970s. Some toxicants, such as some metals, cause relatively little environmental damage when left undisturbed in sediment beds but, when disturbed, can undergo chemical transformation into forms that cause toxicity in the aquatic ecosystem. Substances once thought to be harmless or not previously identified in the aquatic environment can have harmful effects in subtle ways, such as the potential for chronic, low-level stress resulting in increased susceptibility to disease or predation and reduced growth rates or fecundity (e.g., carcinogens or hormone disrupters). The impact of toxic substances is also an area in which there is high public awareness. Considerable concern exists regarding the risks of consuming harvested organisms or of drinking water from the system.

3.3 SCIENTIFIC UNCERTAINTIES

The ERP Strategic Plan identified twelve areas of scientific uncertainty on which better information and understanding is needed in order to proceed with ecosystem restoration and make the critical decisions facing CALFED in the future. While a wide range of uncertainties are in need of adaptive management actions and experimentation, the uncertainties presented here have been identified as potential stumbling blocks to progress in restoration, if not addressed immediately. The following list differs from the Strategic Plan in the following instances. The uncertainty of "Limiting Factors" is treated as an over-arching aspect of inquiry in any number of uncertainty areas. Identification of limiting factors or controlling variables would be part of many conceptual models. An additional uncertainty has been added dealing with areas lying just outside riparian zones.

The concept of limiting factors is an important aspect of many of the scientific uncertainties discussed. The success of restoration efforts are ultimately tied to population and community responses of native species. The appropriateness of any given management action can be assessed on the basis of how favorably these species respond. Many different factors may control responses under different environmental conditions, and those factors most limiting to the distribution and abundance of populations and communities are usually unknown. Effective ecosystem restoration requires a clear understanding of how ecological processes constrain populations and communities, including knowledge of when and where particular factors are limiting. This knowledge can come from empirical relations, simulation models or selected experiments. Focused research could include studies of the basic life histories of species, spatial and temporal dynamics of communities, or other aspects that help understand limits to distribution and abundance.

Proposals should address limiting factors. Proposals should explicitly link the proposed action or study to key native populations, species or communities. Proposals should also identify those biotic attributes that are being addressed in the proposed project, explain why they are important and why they are expected to be limiting within the context of the proposed project.

The following is a description of the uncertainties identified in the Strategic Plan and the explanation of the rationale for proceeding with ecosystem restoration from an adaptive management perspective in these areas. For the first five uncertainties: natural flow regimes; X2 relationships; decline in productivity; diversion effects of pumps and the importance of the delta for salmon there is a high level of uncertainty and little information or consensus about how to proceed with ecosystem restoration. Accordingly the focus for these areas are on targeted research, evaluations and simulation modeling. For the remaining seven uncertainties: non-native invasive species; channel dynamics, flood management as an ecosystem tool, bypasses as habitat; shallow water marsh, contaminants and beyond the riparian zone there remain many outstanding questions but there has been progress in some areas that would lend themselves to demonstration or implementation projects.

Natural Flow Regimes

Human activities have fundamentally, and irreversibly, altered hydrologic processes in the Bay-Delta ecosystem. For example, changes in land use have affected how and when water drains from the land into stream channels; water diversions have changed the amount of water flowing through tributaries and the Delta; and dam development has profoundly altered the timing, frequency, and magnitude of flows. Extensive water development has generally affected the flow regime by reducing the seasonal and inter-annual variability of flows, as reservoirs capture and store stormwater and snowmelt runoff for later release and diversion to satisfy irrigation, municipal water supply, and hydropower demands. Such changes to the flow regime generally stress native habitats and species. For example, reservoirs generally reduce peak flows, which are essential for shaping channels and connecting them with their floodplains. Similarly, summer and fall reservoir releases (generally for irrigation, hydropower, and municipal water supply) often increase base flows, which likely provides a competitive advantage for non-native species over native species that evolved in the context of a variable flow regime. Restoring variability to the flow regime will be an important component of restoring ecological function and supporting native habitats and species in the Bay-Delta ecosystem.

Restoring variability to flow does not imply restoring a pre-disturbance, natural flow regime, which would be impossible considering the human reliance upon the water supply infrastructure that most affects the character of flow in the Bay-Delta ecosystem. Rather, restoring flow variability will generally mean mimicking the natural hydrograph—imitating the relative timing, magnitude, and duration of pre-disturbance flows.

There will likely be limited opportunities for mimicking naturally low base flows since human water supply and quality needs are so reliant upon the water releases that generally increase base flows. Also, in many reaches, re-creating low base flows may not be desirable from an ecological standpoint. Dams have prevented some sensitive anadromous species (principally spring-run chinook salmon, winter-run chinook salmon, and steelhead trout) from accessing historical holding and spawning habitats in upper watersheds, but cold water releases from the dams have permitted these fish to survive in reaches downstream of dams. Overall declines in the populations of native species may have reduced their resiliency to withstand the mortality that occurs during low-flow conditions, despite any competitive advantage they may gain over non-native species. It is important to emphasize here that limited opportunities for generally re-creating low base flows should not preclude experimental management actions that examine how low-flow conditions affect native and non-native species. Generally, we need to better understand the mechanisms underlying native and non-native species responses to hydrologic processes, including low-flow conditions and the role of fall pulse flows as a trigger to upstream migration for adult fall-run salmon.

Restoring flow variability will likely focus on mimicking historical peak flows to

restore some measure of ecological function and to better create and maintain habitats. However, defining a flow schedule to best achieve ecological restoration objectives on streams regulated by dams is a complex task that must account for the fundamental changes that dams create, including trapping sediments and organic material from upper watersheds, as well as downstream channel adjustments to the post-dam flow regime. Historical reference conditions are instructive, but alone are insufficient to define the flow patterns that will best achieve ecological objectives. Defining ecologically functional flow schedules will also require analyzing current downstream channel and habitat conditions, and developing and testing hypotheses regarding flow requirements for various geomorphic and ecological functions. For example, geomorphic functions occur only above certain threshold flows—minimum flows required to initiate geomorphic processes such as bed mobility for habitat quality, overbank flooding for floodplain inundation, and bank erosion for channel migration. Similarly, flow is closely tied to biological and ecological function, such as adult fish passage past flow-related barriers; spawning and rearing habitat availability (areal extent) and quality (depth and velocity parameters); fish migration cues; recruitment of riparian vegetation and concentrations of contaminants and the resultant exposure of fish and wildlife.

Research, monitoring, and implementation projects designed to develop a better understanding of geomorphic flow thresholds and hydrologic-biologic relationships will facilitate estimating environmental flow needs, so that environmental dedications of water are effective and efficient in achieving restoration objectives, thereby minimizing potential impacts upon water supply and hydropower generation.

Mimicking natural hydrographs will require advance planning. CALFED has several planning studies either recently completed, underway, or ready to start that are designed to yield information to better estimate environmental flow needs. For example, the Integrated Storage Investigation recently completed a study of flow needs for geomorphic and riparian regeneration processes for a reach of the mainstem Sacramento River. The ERP is also working with local experts to develop a decision analysis model to define and evaluate experimental flow management options on Clear Creek. CALFED has been conducting modeling exercises to evaluate options for re-operating the State Water Project and Central Valley Project to provide environmental benefits. Also, the ERP will soon convene a panel of experts to begin defining better modeling techniques to better estimate flow-habitat relationships than current modeling allows. The anticipated product of this effort is a design document for a model that may be the focus of a future proposal solicitation. Fiscal year 2000 PSP funds were also awarded to a proposal designed to evaluate environmental water needs, and potential options for obtaining water dedicated to environmental needs, in the San Joaquin Basin.

Early efforts to address this uncertainty will focus on additional research, monitoring, modeling, planning, and feasibility studies to either inform or complement the ERP planning studies. Examples of such projects include:

- Monitoring projects to better estimate geomorphic thresholds, such as the

placement and monitoring of tracer gravels and monitoring of water surface elevations to better estimate bed mobility thresholds and gravel routing.

- Historical analysis and modeling to define or refine the non-linear relationships between flow and bank erosion;
- Monitoring to refine stage-discharge relationships and the availability, quality, and use of resultant microhabitats;
- Monitoring and modeling to determine fish passage flows past flow-related barriers;
- Monitoring and modeling to develop or refine flow-temperature relationships;
- Support studies such as an examination of sources of sediment for restoration purposes;
- Research projects that examine the mechanisms underlying native and exotic species responses to flow;
- Simulation and operational modeling to evaluate options for obtaining water to meet environmental needs;
- Monitoring and modeling to develop or refine relationships between flow and contaminant concentrations, bioavailability, and resultant dose and exposure to biota.

Several of the projects noted above can be incorporated into actions identified under other scientific uncertainties. For example, the placement and monitoring of tracer gravels should be a part of any gravel augmentation project implemented to compensate for historical gravel depletion. Similarly, any riparian re-vegetation project should be structured and monitored to enhance our understanding of how native and/or non-native species of riparian vegetation respond to flow components.

The emphasis upon research, monitoring, modeling, planning, and feasibility studies in the category of flow regime does not preclude the consideration or potential funding of implementation projects. For example, proposals for managed flow release experiments on regulated streams, which may require funds to compensate foregone power production or irrigation supply would be considered. These projects have not been emphasized for 2001 proposal solicitation since they will likely require the advance planning like that underway through the ERP and other programs.

X2 Relationships

Current management of the Bay-Delta system is based largely on a salinity standard

(the "X2" standard). This standard is based on empirical relationships between various species of fish and invertebrates and X2 (or freshwater flow in the estuary). As with all empirical relationships, these are not very useful to predict how the system will respond after it has been altered by various actions in the Delta, including altered conveyance facilities. Positive relationships with flow (negative with X2) have been observed for several estuarine-dependent species as well as some anadromous species during their migration through the Delta. This uncertainty illustrates a broader issue: a lack of predictive capability for determining how the ecosystem might respond to changes in its flow regime. This predictive capability will need to be developed to the point where it can support critical decisions about future restoration actions. This implies a need to determine the underlying mechanisms of the X2 relationships so that the effectiveness of various actions in the Delta can be put in context with this ecosystem-level restorative measure.

Decline in Productivity

Productivity at the base of the foodweb has declined throughout the Delta and northern San Francisco Bay. Although some of this decline can be attributed to the introduced clam *Potamocorbula amurensis*, or Asiatic clam, not all of the decline is explained. The decline at the base of the foodweb has been accompanied by declines in several species and trophic groups, including mysids and longfin smelt. The long-term implications of this seem to be a reduction in the capacity of the system to support higher trophic levels. This implies a limit on the extent to which Bay-Delta fish populations can be restored unless creative solutions can be found to increase foodweb productivity.

It is unclear how actions in the watershed influence estuarine foodweb productivity by affecting the carbon and nutrient loads delivered to the estuary through bypasses and rivers. More frequent inundation of floodplains and bypasses may stimulate estuarine, as well as riverine, productivity by supplying larger loads of carbon and nutrients to the estuary. A better understanding of the relative importance of riverine inputs in stimulating estuarine productivity and foodweb productivity in the tributaries and its potential role as a limiting factor for different species is needed.

Because we know little about the different sources of decline in productivity at the base of the foodweb, and how non-native species have changed, and are changing, foodweb dynamics, early efforts to address this uncertainty will emphasize monitoring, research, and modeling projects that address the issue of decline in foodweb productivity. Examples of projects include:

- Research to examine how introduced species have changed foodweb dynamics, and how efforts to control or eradicate introduced species may affect foodwebs;
- Monitoring and research to identify and examine other potential sources affecting productivity at the base of the foodweb, such as contaminants;

- Monitoring, research, and modeling to examine the role of carbon and nutrients introduced from bypasses and rivers in stimulating estuarine productivity;
- Monitoring and research to understand how the restoration of geomorphic processes (such as bed mobility) and riparian vegetation stimulates aquatic invertebrate production, and how this in turn affect fish survival and growth;

Several of these suggested projects can be structured as part of implementation projects highlighted in other proposal categories. For example, a gravel augmentation project should include monitoring of aquatic invertebrates. Riparian re-vegetation projects could include complementary monitoring to assess the relative role of insect drop and aquatic invertebrates in fish growth. Projects that create shallow-water habitat should monitor the exchange of carbon between open water environments and the restored wetlands.

Diversion Effects of Pumps

Both the State Water Project (SWP) and the Central Valley Project (CVP) have large-capacity pumping facilities located in the southern Delta, where they divert water into the California Aqueduct and the Delta-Mendota Canal for delivery to the San Joaquin Valley and Southern California. Pump operations generally draw water toward the southern Delta, thereby affecting the circulation of water in interior Delta channels and sloughs. The pumps are a source of mortality for several species, including protected fish species. However, it is unclear to what extent pump entrainment affects the population size of any one species of fish or other biota. It is also unclear how pump operations most affect the population size of any given species. For example, the pumps can be a source of direct mortality through diversion, impingement upon fish screens, or handling mortality associated with fish salvage operations. The pumps can also expose fish to higher rates of predation by drawing them into Clifton Court Forebay, which harbors warm water fish species that prey upon native fish species. The pumps can affect the survival of fish by drawing them toward the southern Delta, where there is generally less habitat available to support them. By altering the normal circulation patterns of water in the Delta, the pumps can also affect fish survival by altering migrational cues. Because the mechanisms underlying entrainment are not clear, it is unclear which restoration strategy, or mix of strategies, will most reduce the effects of pump operations on sensitive fish species.

It is also unclear to what extent other sources of Delta mortality affect the population of any given species, which has a bearing upon the relative importance of entrainment in the SWP and CVP pumps as a source of mortality. For example, there are thousands of agricultural diversions located in the Delta, and it is unclear how important they are, both individually and cumulatively, as a source of mortality for any given species of fish. Similarly, it is unclear to what extent water quality affects the survival of biota or the population dynamics of any given species.

Implementation projects conducted as adaptive management experiments will be necessary to better understand the relative importance of entrainment in the SWP and CVP pumps as a source of mortality for individual species, as well as the underlying mechanisms. But such implementation projects will require advance planning to manage risks to important resources, such as protected fish species and water supplies, and since the expense of such implementation projects will likely be significant. The ERP currently has several work efforts underway as part of this advance planning, including scientific white papers concerning salmonids, Delta smelt, splittail, and diversion effects upon fisheries and the use of an Environmental Water Account. The ERP intends to build upon the white paper effort by convening a team of scientific experts to begin developing and evaluating experimental management options pointed at better understanding the effects and mechanisms of entrainment. Because we generally do not know enough to begin large-scale implementation projects related to SWP and CVP diversion effects upon fish, early efforts to address this uncertainty will focus on projects that can complement the advance planning underway. Such projects can include simulation modeling, expanded monitoring, and targeted research.

The Importance of the Delta for Salmon

Scientific opinion varies on the suitability and use of the Delta for rearing by juvenile salmon and steelhead. Although chinook salmon use other estuaries for rearing, most research on salmon in the Delta, and resulting protective measures, focus on smolt passage. However, if substantial numbers of salmon fry rear in the Delta and these fish contribute substantial recruitment to the adult population, actions to enhance Delta rearing of fry would be warranted. Current actions to protect migrating smolts (e.g., pulse flows) might be modified or supplemented by actions designed to protect resident fry (e.g., extended high flows to flood shallow areas).

Early efforts to address this uncertainty will emphasize monitoring, targeted research, modeling, and pilot projects for this topic. Examples of such projects include:

- Expanded monitoring and research to better determine what fraction of salmon fry rear in the delta for different salmonid species, and which tributaries contribute larger fractions of salmon fry;
- Research to evaluate the survival of salmon fry that rear in the Delta versus the survival of fry that rear in tributaries;
- Research and monitoring to determine if Delta fry rearing is a function of lack of rearing habitat in tributaries, a life history strategy, and/or a function of tributary flow patterns;
- Population modeling to evaluate actions that emphasize Delta rearing and actions that emphasize smolt passage through the Delta;

- Pilot projects that provide Delta rearing habitats for salmon fry and monitor their use;

Non-Native Invasive Species

Non-native invasive species (NIS) have had a significant impact throughout the Bay-Delta ecosystem, but it is unclear exactly how they have affected Bay-Delta ecology, such as foodweb productivity, hydrological processes, and populations of native species. It is also unclear to what extent non-native species can be eradicated or controlled effectively and to what extent non-native species may preclude achieving restoration objectives. In order to minimize the risk of potentially massive ecological and biological disruptions associated with non-native species that could threaten to negate the benefits of restoration efforts, it is important to initiate an early program that meets the following goals:

- Prevent new introductions and establishment of NIS into the ecosystems of the Bay-Delta, the Sacramento/San Joaquin rivers and their watersheds.
- Limit the spread or, when possible and appropriate, eliminate populations of NIS through management.
- Reduce the harmful ecological, economic, social, and public health impacts resulting from infestations of NIS through appropriate mitigation.
- Increase our understanding of the invasion process and the role of established NIS in ecosystems in the CALFED region through research and monitoring.

CALFED established the Non-Native Invasive Species program in 1998 and has funded a number of non-native invasive species projects which begin to address some of the numerous non-native invasive species issues. Projects have been funded largely to increase understanding of non-native invasive species such as Chinese Mitten Crab, introduced Clams and effects of invasive species on estuarine systems. Projects have been funded to better understand ballast water composition and possible treatment methods.

The Asiatic clam, *Potamocorbula amurensis*, has essentially changed the ecosystem of Suisun Bay from being one in which most energy flows through pelagic organisms to one where energy is concentrated in the benthos (clams). This change in the ecosystem has reverberated throughout the estuary, (e.g., decline of growth rate and reproductive capacity of delta smelt). The clams are also accumulating heavy metals (esp. selenium) and they may pass the contaminants on to their predators, such as sturgeon and diving ducks, affecting reproduction. Potential projects could include those which increase the understanding of the existing and potential ecological effects of this species and provide insight into opportunities for ecological management to reduce the adverse affects.

The mitten crab, *Eriocheir sinensis*, has become extremely abundant since it was first noted in 1992. It breeds in the estuary but the juveniles migrate upstream to graze in backwater areas (shallow water habitat). One serious problem has been the clogging of fish screens by migratory individuals. This is a species for which many fundamental life history questions need to be answered. There is a need to better understand the habitat usage by this species particularly the potential of this species to weaken levees by burrowing, damage rice crops or colonize temporary shallow water habitat thereby displacing native species. It is important to understand how this species competes with native and commercial species for food and their potential to alter ecological processes by impacting food web productivity.

Non-native vegetation has invaded wetland, riparian and upland habitats. Non-native Tamarisk and *Arundo donax* have invaded widespread riparian and floodplain areas throughout the Bay-delta watershed. Generally these species favor disturbed sites and therefore often have the potential to easily colonize physically restored ecosystem sites. Non-native *Spartina spp.*, *Egeria spp.* and water hyacinth have become common problems throughout the Delta and its tributaries. A few projects have been funded by CALFED which focus on control or eradication of species such as *Arundo donax*, *Spartina spp.* and purple loosestrife. Other projects have focused on education on the risk of importation and distribution of invasive species. Information is needed to better understand how to manage restoration activities including differing physical manipulations, to prevent colonization by non-native plants. Comprehensive surveys and mapping combined with the development and implementation of management and control programs are needed. In planning removal of non-native vegetation, information is needed about how to best colonize native species into areas formerly occupied by non-natives.

Channel Dynamics, Sediment Transport, and Riparian Vegetation

Rivers are naturally dynamic. They carry not only water, but sediment and organic material from the watershed. Alluvial river channels migrate across their valley floors as flows erode banks and deposit sediment on point bars; they occupy different channel alignments through channel avulsion; they periodically inundate floodplains; they recruit and transport sediment; and they drive the establishment and succession of diverse riparian plant communities. These physical processes provide the energy and material necessary to create and maintain healthy and diverse riverine habitats that support native populations of plants, fish, and wildlife. There is a growing recognition that the preservation of existing habitat, and the physical creation of new habitat, must be accompanied by the restoration of physical processes, not only because they help create and maintain these habitats, but also because they are fundamental determinants of habitat conditions in themselves. Restoring ecological processes as a means of restoring habitat conditions is a signature feature of an ecosystem-based management approach.

Human activities have generally reduced the dynamic processes of Central Valley tributaries, with a resultant loss of riverine habitat. Dams have reduced the peak

flows essential for shaping and re-shaping channel forms and for connecting river channels with their floodplains. Dams also trap sediment and woody debris from upstream reaches, depriving downstream reaches of the fundamental building blocks for habitat. Levees and bank protection have also prevented channel migration and reduced connectivity between channels and floodplains.

It is generally infeasible to restore fully dynamic rivers because of irreversible historical changes and continued human uses. However, river channels and floodplains may be dynamic on a smaller scale so as to restore some measure of ecological function. For example, rivers can be scaled down by providing space for its meanders to migrate, though not the full floodplain width that it historically meandered across. Similarly, we can introduce coarse sediment and large woody debris into a channel to compensate for the material trapped by dams, but without attempting to match the historical scale of such material inputs. Channel-floodplain connectivity can be increased without restoring the full extent of historical floodplain inundation. While we may be able to restore ecosystem function by restoring riverine processes at a reduced scale, we cannot scale down a river indefinitely, as there are basic thresholds below which a river will cease to function. For example, there are minimum threshold flows required to initiate important geomorphic functions such as bed mobility, bank erosion, and overbank flooding.

We generally do not know the scale and balance of inputs—flow, sediment, organic material—and channel modifications that will restore riverine ecosystem function. Nor do we know how channels and habitats downstream of dams have adjusted to the post-dam flow regime and how, therefore, the re-invigoration of dynamic riverine processes will affect overall habitat. Restoring geomorphic processes so as to optimize ecosystem benefits will be a matter of both analysis and experimentation.

CALFED has already funded several projects designed to begin restoring geomorphic processes, including gravel augmentation and channel-floodplain reconstruction projects, as well as important floodplain land and easement purchases to provide the space and opportunities for rivers to be more dynamic. Future implementation projects should strive to optimize not only the ecological benefit, but also the information value by addressing geomorphic uncertainties through project design and monitoring.

Gravel augmentation projects implicitly recognize the sediment deficit that dams cause in downstream channels, but these projects should explicitly describe how the scale of the proposed augmentation project fits within the context of sediment deficit caused by the dam or gravel mining activities. Similarly, these projects should place the scale of the augmentation project within the context of the sediment transport capacity of the current, regulated flow regime. And each of these projects should place and monitor the movement of tracer gravels to help develop an understanding of bed mobility thresholds. Gravel augmentation projects could also deliberately vary the scale, rate, depth, and location of gravel injections and monitor gravel movement, habitat conditions (such as intragravel permeability), aquatic invertebrate production, and fish spawning and rearing preferences to help develop a better understanding of

the mechanisms underlying population responses to habitat changes.

Proposed channel-floodplain reconstruction projects should clearly articulate a conceptual model explaining how the proposed channel-floodplain geometry will restore ecosystem function within the context of the regulated flow regime, existing habitat, sediment routing, and companion restoration strategies such as gravel augmentation. Also, because of the expense of most channel-floodplain reconstruction projects, proposed projects should be designed in an open process, incorporating peer review and a clearly articulated mechanism for responding to the peer review comments to increase the likelihood that the project is consistent with overall ERP goals, will be successful and yield useful information for future projects. Proposals should clearly state at what stages peer review will be incorporated, list potential peer reviewers, and state the process for responding to review comments.

Opportunities exist to not only "restore" meander, but to also maintain or protect largely functioning systems, such as on the upper reaches of the Sacramento River. The main target for conservation management is the meanderbelt or area nearest to the main river channel. This meanderbelt will consist of channel and a corridor of floodplain forest, but may not contain the whole width of the floodplain. Projects proposing to purchase floodplain lands or easements should describe the restoration potential that such lands provide, such as: contiguity with other floodplain land dedicated or available for restoring ecological processes, frequency of inundation within the regulated flow regime for the existing or a proposed floodplain elevation, the potential width of riparian corridor that can be restored; potential habitat available for specific life stages of identified species; potential ecological tradeoffs, such as potential for fish stranding or loss of existing habitat.

CALFED has funded floodplain projects that involve planting riparian vegetation, in some cases on reconstructed floodplains. In general, the success of riparian re-vegetation projects is often variable, usually because we do not understand the mechanisms that help dictate success. Developing a better understanding of the factors influencing riparian re-vegetation success could improve the performance of future restoration efforts. For example, recent research in New Zealand on using willows for stabilization of braided rivers indicates that willow root growth patterns and resulting resistance to erosion varies with different layering of gravel and silt. Where silt overlies gravels, or where a layer of silt occurs at depth, root growth tends to be concentrated in the silt layer. This has implications for the ability of seedling root growth to keep pace with declining water tables and the ability for woody riparian plants to resist flood scour. Additional information is needed about the relationship of the declining limb of the hydrograph and its relationship to riparian habitat establishment. This may be a critical missing piece in how dams are operated. It is possible to have apparently functioning processes for overbank flow, and channel meander(erosion and deposition) and still not have willow/cottonwood establishment because the post-flood peak flow is inadequate. The decline may not be timed for when the seed are dispersed, and worse yet, there may be a flow decline, seedlings may start, only to be drowned by summer augmented flows to meet other demands.

Re-vegetation plans for restoration projects can be designed to deliberately vary treatments, such as differing layering of silt, sand, and gravel to provide a range of substrate conditions, different planting patterns, and differing distances of planting from the channel. Monitoring water table elevations, root growth patterns and rates, and riparian establishment success could provide insights into the role of soil texture in root growth, riparian planting success, and ability of riparian plants to resist flood scour. The opportunities are especially important in floodplain reconstruction projects, where grain sizes can be deliberately varied to provide a range of conditions for observation, and water tables can be observed over time.

Flood Management as an Ecosystem Tool

River-floodplain interaction is a vital component of riverine health. When inundated, floodplains provide valuable habitat for a multitude of species. They can also supply sediment, nutrients, and large woody debris to river channels, and provide a place for fine sediment deposition, which is an important function in light of flushing flows designed to cleanse spawning gravels. Inundation of floodplains also contributes to diverse structure of riparian vegetation. Human activities have aggressively and deliberately isolated floodplains from river channels, most clearly through levees designed to confine flows in channels. Dams have also contributed to floodplain isolation by reducing peak flows necessary to inundate floodplains.

Large floods in the Mississippi River Valley and Central Valley this decade have nurtured a growing recognition that we can never eliminate floods, and exposed weaknesses in a purely structural approach to flood management. Levees can pulse floodwaters downstream more quickly, essentially transporting flood burden and risk downstream. These large floods have also reminded us of the vital flood storage function of floodplains. For example, an analysis of hydrologic data for some Central Valley tributaries during the '97 floods indicates rising flows beginning to plateau as upstream levees were breached. The plateau effect demonstrates the ability of the floodplain to absorb part of the discharge, thereby attenuating the peak flow and relieving some flood pressure on downstream reaches. Such lessons have spurred an interest in integrating floodplains as a component of flood management. Indeed, the Army Corps of Engineers, the Department of Water Resources, and the Reclamation Board are engaged in a Comprehensive Study of the Sacramento and San Joaquin River systems to examine opportunities for improving flood management while simultaneously improving ecological benefits.

Types of projects to address this uncertainty would include:

- Acquisition of floodplain land or easements to provide opportunities for restoring channel-floodplain connectivity.
- Quantifying floodplain storage benefits for flood management.

- Examining opportunities for restoring river-floodplain connectivity without compromising development, such as protective ring levees, setback levees, or floodproofing.
- Re-grading existing floodplains so that they inundate more frequently in the context of post-dam flow regime on regulated streams.
- Clarifying how ecosystem restoration efforts, such as riparian re-vegetation, gravel augmentation, and channel reconstruction projects, affect flood conveyance capacity.
- Identifying hydraulic constrictions/choke points that prevent managed flow releases to inundate floodplains, and explore options for addressing them.
- Exploring opportunities to re-construct levees to provide some measure of habitat without reducing levee strength or reducing conveyance capacity.
- Identifying reaches along tributaries of the San Joaquin and Sacramento Rivers that could show positive channel and riparian restoration responses if managed floods were permitted.

Bypasses as Habitat

The Yolo and Sutter Bypasses along the Sacramento River were designed to reduce flooding in urban areas. They are also important areas for farming. The realization of their relatively low-cost benefits to flood control is leading to the consideration of additional bypasses, especially in the San Joaquin Valley. There is also a growing realization that bypasses can be important habitat for waterfowl, for fish spawning and rearing, and possibly as sources of food and nutrients for estuarine foodwebs. For example, when the Yolo Bypass is flooded, it effectively doubles the wetted surface area of the Delta, mostly in shallow-water habitat. Managing the bypasses for the benefit of fish and wildlife, however, may conflict with their use for flood control and farming. Therefore, there is a major need to evaluate existing bypasses as habitat to reduce management conflicts. New or expanded bypasses and managed floodbasins should also be designed with the needs of fish and wildlife in mind.

Shallow Water, Tidal and Freshwater Marsh Habitat

Both tidal and freshwater wetlands (marsh habitats) represent critical areas for many key species, such as those that are threatened and endangered or that have commercial and/or sport value. The assumption that underlies ERP wetland restoration goals is that rehabilitating the appropriate physical-chemical habitat in priority locations will carry with it recovery of sustainable populations of the species of concern. The loss of these habitats is assumed to be causally linked to declines in these key species. These causal links have not been well established and habitat manipulations, designed as careful experiments on differing spatial and temporal scales, hold promise for determining the relationships that can help guide restoration

efforts. However, a major concern remains that the restored habitat will be successfully colonized by non-native rather than native species.

Additional information is needed about life history and species needs relative to inundation (water depth) and salinity regimes in tidal wetlands, required by key native or non-native wetland species. For example, in tidal river/estuaries of the southeastern United States, the salinity regime requirements of specific submerged aquatic plants have been determined with sufficient detail to allow their use as indicators of appropriate saline conditions. The growth and reproduction of selected species of concern and their linkage to inundation-salinity (in tidal marshes) regimes in given wetland plant communities needs to be better understood to facilitate successful wetland restoration projects. For example, detailed field sampling in river floodplain marshes in the southeastern U.S. has established the association between growth and reproduction of certain keystone invertebrate species in beds of particular vascular plant species. Identification of limiting factors which determine the distribution and abundance of selected wetland species of concern for various inundation-salinity regimes will also facilitate increased success of restoration efforts. Evaluation of spatial characteristics (size, shape, and connectivity) for their effect on the population dynamics of selected freshwater or tidal wetland species, especially their colonization or extinction rates should be conducted or included as part of physical interventions. This uncertainty might be addressed by making multi-year observations of arrays of habitats that differ in size, shape, and/or connectivity (nearest neighbor characteristics) or by creating such an array of habitats by planting and/or removing selected habitat patches.

Because of the complexity of wetland habitats it will be important to identify and justify animal species that can be used as indicators of acceptable wetland conditions. For example, the sustainable presence of species with long life cycles that are sessile and/or have poor dispersal habit could be good indicators of acceptable stable conditions.

Contaminants in the Central Valley

The Bay-Delta ecosystem receives a large variety of potential toxicants (Gunther et al., 1987; Davis et al., 1992). These include significant quantities of selenium from agricultural practices, mercury from historical gold mining and refining activities, pesticides from a variety of agricultural and home uses, polynuclear aromatic hydrocarbons from automobiles, and other metals from a variety of geochemical cycles accelerated by human activities. Moreover, there is a legacy of persistent chlorinated hydrocarbons whose effects appear to be as potentially as serious as those from any current practices. High exposures of aquatic organisms to many of these compounds occurs in the late winter and spring, when water runoff from land is greatest and many aquatic species reproduce (Adams et al., 1996) and whose eggs, larvae and juveniles are the most susceptible stages to contaminants.

Many uncertainties remain about contamination in the Delta. It is known that

contaminants enter the Delta: selenium from the Western San Joaquin Valley, pesticides from both the Sacramento and San Joaquin watersheds, mercury from mines and hydraulic mining debris, copper used as an algicide, PAHs, MTBE and perhaps TBT from heavy boat traffic, and metals from mining. Yet not one of these has been studied systematically or in detail in any Delta environment. Although the last several years have seen great advances in our understanding of the distribution and abundance of contaminants in the estuary (e.g., SFEI, 1995), there has not been as much emphasis on defining contaminant exposures in the Sacramento and San Joaquin Rivers and the Delta. Moreover, we have no comprehensive understanding of the risk that contaminants might pose to the health of individuals and populations in the estuary or upstream of the tidal portion of the ecosystem. To improve our understanding, we must determine the degree of contaminant exposure to aquatic organisms, if there is link between exposure and sublethal and chronic toxicity, and then use the exposure-effect relationships to determine the risks to aquatic populations in the catchment of the Bay-Delta.

Contaminants can be directly toxic to reproductive tissues, disrupt endocrine function, or otherwise adversely impact sensitive life stages. Studies have shown that PAH and PCBs affect reproduction of starry flounder, silver and copper caused reproductive failure in resident bivalves, and selenium accumulation has affected bird reproduction. As a result of improvements in advanced waste treatment and source control, metal contamination has receded, and reproduction in the clams has returned to successful levels. Evidence from North Bay also suggests that cadmium and silver might chemically interfere with reproduction in resident fauna. Effects of metals on reproduction of animals are indicated by both studies, but have not been adequately studied. In addition, studies of impairment of physiological processes, e.g., growth and reproduction, and establishing if there is a relationship to contaminant exposure in the organisms are needed. This would include further investigation of apparent toxicity of unknown origin in the ecosystem.

Research will be necessary to understand the links between contaminant cycling or effects and wetlands restoration. Does wetland restoration in locations contaminated with mercury-laden sediments or hydraulic mining debris accelerate mercury methylation? Do Delta and Suisun Bay wetlands near sources of selenium input (e.g. influenced by water from the San Joaquin River) trap this element and increase threats to resource species? What pre-restoration studies or methodologies are necessary to be sure that wetlands are not restored in contaminated environments or do not result in exposure or accentuation of historic contamination?

There appears to be a growing selenium problem in the Central Valley that could impede ecosystem restoration. Historical analyses suggest that selenium can be a cause of the disappearance of native fish species and inhibition of their recovery in an aquatic ecosystem (Hamilton, 1999). Selenium threatens reproduction in important resource species of the Bay-Delta. The most threatened species include sturgeon, starry flounder, splittail, dungeness crab and some migratory birds. The issues surrounding selenium contamination are changing. There are proposals to dispose of selenium from saline soils of the Western San Joaquin Valley directly into

the Bay. As a result of changes in water management, selenium-laden San Joaquin River inflows to the Delta and Bay are already increasing or could increase. Selenium concentrations in bivalves are presently higher than they were in the late 1980's, despite reductions in refinery inputs of the element. The cause of the higher bivalve contamination is not fully known. The full implications of future agricultural selenium discharges to the Bay need to be better studied. The processes that will determine the selenium impacts must be better investigated (e.g. transformation of selenium in the forms that occur in agricultural drainage; selenium movement through the food web). The effects of selenium on reproduction in threatened species need to be better understood. Most important, perhaps, is to better understand selenium fate, effects and transport in and through the Delta as well as the links between the Delta and Suisun Bay.

Additional information is needed about copper, which is used extensively as an herbicide in this system. A few available analyses suggest extensive copper contamination in indicator organisms. Pesticide pulses enter the Delta and superimpose their stress on populations of animals potentially stressed by local herbicide use. The joint effects of this contaminant remain uninvestigated, despite their potential to affect the success of restoration projects.

The sources of water to the Bay, the sinks for particulate material in the Bay and Delta, sedimentation regimes in the Bay and water movement through the Delta all depend upon flows and management of flows. Important links exist between these processes and contaminants. Transport of selenium through the Delta, movement of copper out of the Delta, deposition of historic mining debris in the Delta, uncovering historically contaminated sediments by extensive erosion in the Bay and creation of contaminant hot spots by modern inputs from the river to the Delta all could affect restoration; but none of these are well known. All depend upon better understanding links of contaminants with water movement and sediment movement into and through the Delta.

Metal contamination from mining operations has been identified in the upper Sacramento River. Concentrations of cadmium are sufficient to raise questions about effects on benthic community diversity and salmonids in this system. Sediment bioassays from several studies and programs have documented that toxicity occurs frequently in Bay-Delta sediments. The causes of the observed toxicity are poorly understood, although the cumulative effects of mixtures of contaminants have been implicated in the Bay (Thompson, *et al.* 1996). The interactive effects of numerous sediment-associated contaminants require further study, particularly in combination with dissolved pesticides. Similarly, the relationships between sediment toxicity and other natural stressors (e.g. salinity, flow, elevated suspended sediments) need to be studied.

Beyond the Riparian Corridor

Efforts made to acquire or manage lands beyond the riparian zone can have multiple

benefits. Not only can they be used to expand functional floodplain by allowing natural flooding and stream meander, but they can also be managed or enhanced to provide habitat for a number of native species at risk or in decline. Habitat types found beyond the riparian corridor that support species of concern include a variety of wetland types, including: seasonal wetlands (such as vernal pools and flooded fields), perennial grasslands, and inland dune communities. A number of native species in these "upland" areas such as waterfowl and game birds, Swainson's hawk, greater sandhill crane, California tiger salamander and western pond turtle, appear to thrive in certain agricultural lands managed to benefit wildlife species. Other species exhibit greater habitat specificity and many have suffered population declines or extirpations from past disturbances and conversion of valley bottom areas adjacent to stream channels and riparian zones. Included are such species as salt marsh harvest mouse, valley elderberry longhorn beetle, giant garter snake, and Lange's metalmark butterfly.

It is important that progress is made toward improving and quantifying the understanding of how areas adjacent to riparian zones and in particular agricultural lands influence ecological health. It is currently unknown how most species respond individually to disturbances common in landscape areas adjacent to riverine systems, including crop and dryland agriculture, land development, and invasion of non-native species. In California, ecosystem restoration actions are most often the neighbor to agricultural areas. Important questions remain about how agricultural practices can be enhanced or modified to improve ecological conditions and species health. Alternative pest management and fertilizer practices, cropping patterns, the use of no-till agriculture or winter flooding, and the establishment of buffer zones around cropped areas are all areas where pilot scale projects could yield information about how to best implement these types of practices on a large scale and the benefits associated with them. There are also agricultural lands and other open space which are considered to be important in their current condition adjoining habitat areas or which have potential for future ecosystem restoration that are at risk of urban development. These areas would benefit from conservation or agricultural easements which would preserve the current land use. Another significant concern remains over the potential third party impacts to areas adjoining restoration lands. Rural and agricultural communities have the greatest potential to be influenced by large scale restoration actions. Concerns exist regarding the potential for adverse economic and regulatory effects from converting agricultural lands to ecosystem restoration areas.

3.4 OTHER TOPIC AREAS

Local Watershed Stewardship

Extensive development of watershed lands to accommodate human settlement include timber harvest, grazing, roads, mining, and housing. This development has resulted in fundamental changes in runoff and sediment dynamics, with resultant adjustments in channel form and significant changes in wildlife habitats. Efforts designed to reduce the impacts of these changes such as modifying existing land

management practices, re-vegetation of riparian corridors and/or uplands, meadow restoration, and buffer strips can be an important component of an ecological restoration program by reducing peak flows, prolonging base flows, improving water quality, and normalizing sediment yield. Such watershed restoration actions can be most effective when they are informed by an understanding of historical and current conditions and supported by an aggressive monitoring program. Participation in the development, implementation and monitoring of watershed management activities by local landowners and other watershed stakeholders, including government agencies and academic institutions is essential to effective long-term land stewardship.

All watershed restoration actions should be designed to yield maximum information from projects implemented. This means that all actions should be designed in the context of adaptive management, such that they attempt to vary treatment, spatial, and/or temporal controls to provide sound scientific information on the underlying processes and direct feedback on the performance of various restoration strategies.

Present assumptions are that watershed management can contribute most to CALFED's ecological restoration objectives on undammed rivers, streams or watershed areas that drain to rivers downstream of dams, (i.e., where a more complete set of watershed processes are still connected to the lower reaches). Dams fundamentally isolate some watershed processes upstream, effectively limiting potential contributions from changes in those processes to meet CALFED restoration objectives in downstream reaches.

Environmental Education

Environmental education programs are important to develop a broader understanding of natural resource conservation issues at the individual and community level. In particular, increased public understanding of the resource issues that led to the development of the CALFED Bay-Delta program, will increase awareness of these issues and facilitate creative solutions to environmental problems. CALFED environmental education programs may include support for programs for all age groups in rural and/or urban areas.

3.5 RESTORATION ACTIONS

CALFED's Implementation Plan and the projects selected for CALFED funding in 2001 will be guided by the goals of the ERP, the Multi-species Conservation Strategy (MSCS) and the need to address critical scientific uncertainties. The MSCS provides the framework for compliance with the Federal and State Endangered Species Acts for the CALFED Program. Work on the MSCS has identified several types of ERP

Next Phase Funding

Proposals will be considered for projects identified as a next-phase of previously funded project. They will be required to prepare a complete proposal which will be subjected to the same scientific and staff review as proposals for new projects. Proposals requesting next-phase funding will be required to provide status of work to date and will be evaluated on the success of previously funded activities. **Successful projects which are ready for next-phase funding will have a higher priority for funding.**

actions that are especially necessary, early in implementation of the ERP, to ensure Goal 1 can be met. In addition, implementation of these actions will raise the environmental baseline for at-risk species, an important basis for providing ESA assurances. The actions identified to specifically achieve Goal 1 do not contain any explicit priority in this solicitation, but are noted because of the critical importance in making progress towards recovery of these species. Actions other than those identified to specifically achieve Goal 1 and raise the environmental baseline for at-risk species will be considered for approval in this solicitation, particularly those that make progress towards recovery of these species.

Proposals for CALFED or CVPIA funding may be submitted for any of the topics identified below. Proposals for next phase funding of existing ecosystem restoration projects currently funded by CALFED or CVPIA will also be considered. Proposals other than those identified including those which are identified as examples in Section 3.3 - Scientific Uncertainties, will be considered so long as the applicant identifies the relationship of the project to the Strategic Goals, explains how the project contributes valuable information or helps reduce uncertainty in important areas and explains why it is important to fund this project in the next funding cycle. All proposals should reference previously funded or ongoing restoration activities that relate to the proposal being submitted. Information on previously funded CALFED projects is available on the CALFED website at: <http://calfed.ca.gov>. Proposals should be consistent with all the other requirements of this PSP. Proposals should clearly identify which, if any, of these restoration actions are addressed in the project. All proposals will undergo the same level of scientific review.

Projects listed below are organized by topic area which generally relate to the goals, scientific uncertainties and other topic areas discussed in sections 3.2, 3.3 and 3.4

Natural Flow Regimes

Flow Evaluation and Simulation Modeling. Projects and studies to evaluate the potential for restoring natural flow regimes and biological processes should be designed to develop a better understanding of geomorphic flow thresholds and hydrologic-biologic relationships to facilitate estimating environmental flow needs, so that environmental dedications of water are effective and efficient in achieving restoration objectives. Proposed projects could include historical and geomorphic analysis to bracket threshold flows on regulated streams or simulation modeling to evaluate and refine hypotheses about threshold flows and resultant habitats; monitoring to evaluate bed conditions and food web structure; and evaluation of opportunities for higher managed flow releases on regulated streams. (See Section 3.3 - Natural Flow Regimes)

Developing a better understanding of the biological responses to variable flows is another important step in defining an ecologically optimal flow regime on regulated streams and in the overall Bay-Delta ecosystem. Proposed projects could include evaluation of flows to eliminate flow-related barriers to fish migration, affect habitat

availability and quality for various life stages of fish, or affect concentrations of contaminants and exposure to fish and wildlife; evaluation of flow-temperature relationships under a variety of conditions; and understanding how exotic and native species respond to flows. (See Section 3.3 - Natural Flow Regimes)

Non-Native Invasive Species

Non-Native Invasive Species Surveys and Studies. Conduct NIS research, surveys, and monitoring to address critical uncertainties related to NIS species. Proposals may include species surveys and studying the efficacy of management and control programs for these species. **Proposals should focus on non-native wetland and riparian plant species.**

NIS Control and Eradication Projects. Pilot, demonstration or implementation proposals will be considered which are designed to eradicate non-native invasive species from tidal marshes of San Pablo Bay and riparian areas throughout the Delta and its tributaries to benefit native species. **Focus would be on the eradication of non-native *Spartina spp.* in the tidal areas and *Arundo donax* and Tamarisk in the riparian areas.** Proposals should be designed to generate information about how to manage restoration activities including differing physical manipulations to prevent colonization by non-native plants. Comprehensive surveys and mapping combined with the development and implementation of management and control programs are needed. Once non-native vegetation has been removed information is needed about how to best colonize native species into areas formerly occupied by non-natives. *

Channel Dynamics, Sediment Transport and Riparian Vegetation

Gravel Augmentation Projects. Pilot, demonstration or implementation gravel augmentation proposals will be considered. Gravel augmentation projects to restore salmon spawning habitat should explicitly describe how the scale of the proposed augmentation project fits within the context of sediment deficit caused by the dam or gravel mining activities. Projects should place the scale of the augmentation project within the context of the sediment transport capacity of the current, regulated flow regime and include the placement and monitoring of tracer gravels to help develop an understanding of bed mobility thresholds. Gravel augmentation projects could also deliberately vary the scale, rate, depth, and location of gravel injections and monitor gravel movement, habitat conditions (such as intragravel permeability), aquatic invertebrate production, and fish spawning and rearing preferences to help develop a better understanding of the mechanisms underlying population responses to habitat changes. Proposed projects may also include the evaluation of existing salmon spawning gravel enhancement projects for measurement of hydraulic conditions and channel form before and after high flows, and evaluation of project performance as a basis for informing future projects. Depending upon where the projects are implemented and how the projects are designed, these projects would improve steelhead and chinook salmon spawning and rearing habitat.*

Channel-Floodplain Reconstruction Projects. Pilot, demonstration or implementation channel or floodplain reconstruction proposals will be considered. Proposed projects may include improvements and restoration of riparian areas and floodplains in Central Valley rivers and those which acquire, restore, and manage land along the Sacramento and San Joaquin rivers and their tributaries to provide a mosaic of riparian, seasonal wetland and upland habitats. Examples of appropriate projects include floodplain restoration on the Yuba and Feather Rivers, expansion of the stream meander belt in the lower Stanislaus River to provide for spring pulse flows in excess of 1,500 cfs and restoration of areas along the Colusa Basin Drain. Proposed channel-floodplain reconstruction projects should clearly articulate a conceptual model explaining how the proposed channel-floodplain geometry will restore ecosystem function within the context of the regulated flow regime, existing habitat, sediment routing, and companion restoration strategies such as gravel augmentation. Potential projects could include preparation of channel reaches for high flows, such as removing bank protection, removing encroached trees, setting back levees, or re-grading banks that artificially narrowed due to lack of flood scour. Depending upon where the projects are implemented and how the projects are designed, these actions would benefit a number of ERP and MSCS species, such as rearing anadromous fish, western pond turtle, valley elderberry longhorn beetle, giant garter snake, California red-legged frog, Swainson's hawk, western yellow-billed cuckoo, waterfowl, and riparian songbirds. **Because of the expense of most channel-floodplain reconstruction projects, proposed projects should be designed in an open process, incorporating peer review and a clearly articulated mechanism for responding to the peer review comments to increase the likelihood that the project is consistent with overall ERP goals, will be successful and yield useful information for future projects. Proposals should clearly state at what stages peer review will be incorporated, list potential peer reviewers, and state the process for responding to review comments.**

Riparian Re-vegetation Projects. In general, the success of riparian re-vegetation projects is often variable, usually because we do not understand the mechanisms that help dictate success. Pilot, demonstration or implementation riparian re-vegetation proposals will be considered. Re-vegetation plans for restoration projects can be designed to deliberately vary treatments, such as differing layering of silt, sand, and gravel to provide a range of substrate conditions, different planting patterns, and differing distances of planting from the channel. Monitoring water table elevations, root growth patterns and rates, and riparian establishment success could provide insights into the role of soil texture in root growth, riparian planting success, and ability of riparian plants to resist flood scour. The opportunities are especially important in floodplain reconstruction projects, where grain sizes can be deliberately varied to provide a range of conditions for observation, and water tables can be observed over time.

Proposals should focus on restoration and protection of riparian habitat along the lower San Joaquin River and associated channels and sloughs (such as, but not limited to, Paradise Cut, Middle River, Salmon Slough, and Tom Paine Slough). Proposals should be designed and sized to provide multiple ecosystem

benefits, including habitat for native fishes, riparian mammals, and migratory songbirds in the riparian zone. Successful implementation would considerably improve on the existing conditions for several MSCS and ERP species, including delta smelt, Sacramento splittail, riparian brush rabbit, riparian woodrat, least Bell's vireo, little willow flycatcher, western yellow-billed cuckoo, and Swainson's hawk. Focus should be on restoring dense riparian corridors and implementing a captive breeding program for the riparian brush rabbit that will begin to recover this species and also help reduce uncertainties with respect to management of lands for riparian habitat and lands beyond the riparian corridor. *

Flood Management/Bypasses as an Ecosystem Tool

Bypass/Floodplain Acquisitions or Easements. Pilot, demonstration or implementation proposals to acquire floodplain or bypass lands will be considered. Proposals to purchase floodplain or bypass lands or easements should describe the restoration potential that such lands provide, including the contiguity with other floodplain or bypass land dedicated or available for restoring ecological processes, the frequency of inundation within the regulated flow regime for the existing or a proposed bypass or floodplain, the potential habitat available or planned for specific life stages of identified species and potential ecological tradeoffs, such as potential for fish stranding or loss of existing habitat. The proposal should explicitly address the current flood hydrology and existing flood management practices. The potential for adverse or beneficial flood impacts should be discussed and supported with appropriate modeling or engineering.

Shallow Water, Tidal and Freshwater Marsh Habitat

Wetland Restoration. In general, the success of wetland restoration projects is often variable, usually because we do not understand the mechanisms that help dictate success. Pilot, demonstration or implementation proposals for wetland restoration will be considered. Plans for restoration projects can be designed to deliberately vary treatments, such as differing depths of inundation, extent of tidal influence and different planting patterns. Projects should consider and be designed to test life history and species needs relative to inundation (water depth) and salinity (in tidal wetlands) regimes required by key native or non-native wetland species, evaluate growth and reproduction of selected species of concern and their linkage to inundation-salinity (in tidal marshes) regimes in given wetland plant communities, identify limiting factors which determine the distribution and abundance of selected wetland species of concern for various inundation-salinity regimes. Spatial characteristics of differing treatments (size, shape, and connectivity) should be evaluated for their effect on the population dynamics of selected freshwater or tidal wetland species, especially their colonization or extinction rates. This uncertainty might be addressed by making multi-year observations of arrays of habitats that differ in size, shape, and/or connectivity (nearest neighbor characteristics) or by creating an array of habitats by planting and/or removing selected habitat patches.

Proposals will be considered to restore a mosaic of tidal emergent wetlands, seasonal wetlands, non-tidal emergent wetlands, and associated uplands in the lower San Joaquin River and southern Delta region. Projects should be designed to provide habitat for native fish as well as resident mammals and birds, and rare plants. MSCS and ERP species that may benefit include delta smelt and its critical habitat, splittail, longfin smelt, Chinook salmon, black rail, Swainson's hawk, greater sandhill crane, tri-colored blackbird, shorebirds, waterfowl, *Mason's lilaeopsis*, and Delta tule pea.*

Proposals to acquire and restore large tracts in Suisun Marsh to tidal marsh will be considered. Proposals should be focused in the western and northern portions of the marsh, east of the railroad grade. Projects should be designed to provide habitat for native fish as well as salt marsh resident mammals and birds, and rare plants. Projects should be consistent with CALFED's Suisun Marsh Investigation (for more information see <http://www.iep.ca.gov/suisun> CALFED Suisun Marsh Preliminary Levee Breach Study). Proposals which include the experimental reintroduction of rare plants into suitable habitat will be considered. MSCS and ERP species that may benefit include delta smelt and its critical habitat, Sacramento splittail, longfin smelt, salmon, California clapper rail, black rail, salt marsh harvest mouse, Suisun shrew, Suisun song sparrow, salt marsh common yellowthroat, tri-colored blackbird, Suisun thistle, soft bird's-beak, Mason's lilaeopsis, and Suisun marsh aster.*

Proposals will be considered to restore a mosaic of seasonal and permanent wetlands and associated uplands adjacent to the Sacramento River, northern Delta sloughs, and in the northern portion of Yolo Bypass. Proposals should be designed to provide the habitat requirements of all life stages of native reptiles, especially giant garter snakes. In addition, and depending on the design and location of the projects, other MSCS and ERP species would benefit, such as shorebirds, waterfowl, riparian songbirds, and resident and anadromous fish. Proposals should focus on acquisition and restoration of riparian, seasonal and permanent wetland, and wildlife friendly agriculture on lands in the vicinity of the northeastern Delta, including the East Delta Wildlife Area.*

Because of the expense of most wetland reconstruction projects, proposed projects should be designed in an open process, incorporating peer review and a clearly articulated mechanism for responding to the peer review comments to increase the likelihood that the project is consistent with overall ERP goals, will be successful and yield useful information for future projects. Proposals should clearly state at what stages peer review will be incorporated, list potential peer reviewers, and state the process for responding to review comments.

Contaminants in the Central Valley

Aquatic Toxicity and Pesticides. Proposals should demonstrate the link between contaminants and impacts to aquatic ecosystems, including the evaluation of aquatic

toxicity. Identifying the toxic substances responsible for toxic effects is the first step towards correction of the problem. Additionally studies are needed on pesticide toxicity to invertebrates, which are a primary food source of anadromous fish, and the effect on this loss of food source on the out migrating fish. There are current studies within CALFED and outside of CALFED that address toxicity testing and some pesticide effects on fish. Proposals should build upon current efforts to prevent duplication of effort.

Selenium Studies. Proposals on selenium should include fate and transformation within the food web or causes of selenium impacts and trends within the Bay-Delta. The two major sources of selenium within the watershed are agricultural drainage water from the west side of the San Joaquin Valley and refineries within the Bay-Delta. Both industries have taken strides to reduce selenium loads. Still, selenium concentrations in bivalves have reportedly increased since the 1980's. Identifying impacts of selenium and the sources of the selenium will direct the program towards effective source control measures and will identify appropriate levels of protection.

Mercury and Trace Metals. Proposals should include bench scale testing and pilot scale corrective measures to remove or reduce mercury or trace metals at their source. Sufficient data supports the study and implementation of reduction measures of metals that can cause toxicity to various stages of aquatic life development and can accumulate in the food chain. Proposals should identify low cost methods of reducing these metals from streams and rivers. Additional, full scale remedial efforts should be sought at a later date following program refinement.

Dissolved Oxygen. Within the San Joaquin watershed, proposals are needed to augment CALFED studies currently in progress, to determine the causes of low dissolved oxygen in the San Joaquin River. Building on currently funded efforts, studies are needed to identify corrective measures for industries or environments that contribute to reduction of dissolved oxygen in the San Joaquin River. Both actions, cause identification and control, are needed to prevent these dissolved oxygen depletions from occurring.

Beyond the Riparian Corridor

Third Party Impacts to Agriculture/Economic Evaluations. Proposals for studies which address the potential adverse and beneficial impacts to agricultural communities resulting from ecosystem restoration activities will be considered. Lands taken out of agricultural production for restoration purposes can result in different needs and demands on local communities. Studies should consider the costs and demands of agricultural production compared to implementation and management of ecosystem restoration activities, and consider the economic effects of agriculture compared to alternative activities such as recreation or eco-tourism. Studies can be focused in specific geographic areas such as the Delta or consider effects on a broader basis. Studies should reference and build upon previously funded work in this area.

Agricultural Conservation and Wildlife Friendly Farming Practices. Agricultural lands provide ecosystem benefits. Pilot, demonstration or implementation proposals that address agricultural conservation and wildlife friendly farming will be considered. Agricultural lands which adjoin existing or planned habitat areas, have the potential for future ecosystem restoration, or are at risk of urban development will be considered for agricultural and conservation easements. Proposals will also be considered for agricultural practices which improve or enhance ecological conditions or species health. Proposals for alternative pest management and fertilizer practices, cropping patterns, the use of no-till agriculture or winter flooding, and the establishment of buffer zones around cropped areas designed to yield information about how to best implement these types of practices on a large scale and the benefits associated with them will be considered.

One type of project that will be considered includes conversion of crops in the legal delta to rice. Pilot projects which investigate the feasibility of conversion to rice culture and provide an opportunity to evaluate the wildlife benefits, subsidence management and water quality effects relative to other restoration options will be considered.

Other Topic Areas

Local Watershed Stewardship. Proposals for local watershed stewardship should demonstrate the capacity of local watershed groups to engage local landowners and other watershed stakeholders, including government agencies, and academic institutions in collaborative watershed management. All local watershed stewardship proposals should be community based and be coordinated with and supported at multiple levels including existing watershed groups. Proposals should focus on a sequential approach which calls first for the development of watershed assessments to understand historical and existing conditions and the nature of historical changes in the watershed and their effects upon channels and habitats. The next step is to develop management and conservation plans that evaluate alternative restoration actions. The final step is to prioritize and implement restoration actions consistent with existing watershed management plans and strategies. Proposals should clearly indicate the stage of implementation and provide the basis of support. Proposals for projects that build upon or expand existing watershed activities should clearly state the relationship between the existing and new activities and the relationship with other activities taking place in the watershed.

Environmental Education. Proposals should increase public awareness, knowledge, and appreciation of natural resources and ecosystem restoration activities, foster active participation in conservation and monitoring programs, or encourage individuals to wisely use natural resources. More specifically, education programs should focus on resource issues and activities that foster the goals of the CALFED Bay-Delta program. Where possible, education programs should work with existing educational resources and be coordinated with watershed stewardship groups and other local efforts.

Special Status Species Surveys and Studies. Conduct special status species research, surveys, and monitoring to address critical uncertainties related to non-fish species in the Delta and Suisun Marsh. Compared to resident and anadromous fish, the distribution and abundance of several other important ERP and MSCS species are not well known. Proposals may include special-status species surveys and studying the efficacy of reintroduction programs for these species. This information is important to guide ecosystem restoration projects so that they can provide for the protection and conservation of these species, and to ensure that projects do not inadvertently contribute to the further local decline of these species. **Species for which this information is critically important include giant garter snake, riparian brush rabbit, riparian woodrat, and various rare plants, including soft bird's beak and Suisun thistle.** Projects should be designed to provide information about the species abundance, distribution, habitat use within the Delta and Suisun Marsh, and potential for restoration in the Delta and Suisun Marsh.*

Fishery Monitoring Assessment, and Research. Conduct monitoring, assessment, and research to improve our understanding of the ecological and physical processes affecting the fishery resources of the Central Valley. Proposals should include improving and expanding the inventory and monitoring of fishery resources, assessment to better define correlations and relationships, research to establish the mechanisms that explain observed correlations. Studies should focus upon research designed to help manage the hydrologic regime in the Delta and Central Valley streams to improve streamflows, net Delta channel flows, and temperatures for native anadromous and estuarine fish species. Proposals will be considered which include genetic assessment of Central Valley salmonids, development and implementation of standardized censusing methods for adult and juvenile salmonids, assessment of reservoir operations and/or the use of temperature control devices in the Stanislaus, Tuolumne, and Merced rivers to improve temperatures for chinook salmon spawning and steelhead rearing, investigations regarding the nature and extent of adult and juvenile fish stranding in the Yuba and Feather rivers, and research regarding the importance of the Delta for juvenile salmonids.*

Fish Screens. Implement fish screening projects on high priority agricultural diversions in the Delta, Suisun Marsh, and the Sacramento and San Joaquin rivers, their tributaries and bypasses to reduce entrainment and demonstrate retrievable screen technology, conical screens, bypass systems, and evaluate the impact of agricultural diversions on fish and invertebrates. To protect the infrastructure investment in the fish screens, the adjacent banks are commonly protected by riprap. Along alluvial rivers, this can seriously impair the ability of the channel to migrate, which conflicts with ERP goal of restoring dynamic river processes. This potential conflict should be explicitly addressed in the proposal, and alternative methods of reducing entrainment that do not inhibit channel migration should be explored. **Proposals should focus on diversions in the lower San Joaquin River such as the Patterson diversion, upper Sacramento River diversions such as the Bella Vista diversion at Redding, and a small Delta diversion screening demonstration project to demonstrate retrievable screen technology, conical screens, and**

bypass systems to ensure that normal irrigation is not affected by screens on small Delta diversions. Proposed work should include: characterization of pre-project conditions, testing of alternatives in technology and siting and continuous evaluation and monitoring. Proposals to study the impact of unscreened agricultural diversions of various sizes under normal operation are also encouraged to determine the potential benefits of screening and the potential for methods other than screening (e.g., timing of pumping) to reduce entrainment. *

* These actions have been identified by both the ERP and the MSCS as having the potential to address Goal 1. Implementation of these actions will help ensure Goal 1 can be met and that these actions will raise the environmental baseline for at-risk species, an important basis for providing ESA assurances.

3.6 References Cited

Adams, W., L. Davis, J. Gidings, L. Hall, Jr., R. Smith, K. Solomon and D. Vogel. 1996. An ecological risk assessment of diazinon in the Sacramento and San Joaquin River Basins. Prepared for Ciba-Geigy Corporation, Ciba Crop Protection, Greensboro, North Carolina.

Cohen, A.N., and J.T. Carlton. 1995. Nonindigenous aquatic species in a United States estuary: a case study of the biological invasions of the San Francisco Bay and delta. Report to the U.S. Fish and Wildlife Service, available at <http://nas.er.usgs.gov/sfinvade.htm>.

Davis, J.A., A.J. Gunther and J.M. O'Connor. 1992. Priority pollutant loads from effluent discharges to the San Francisco Estuary. *Water Environment Research*. 64:134-140.

Gunther, A. J., J.A. Davis and D.J.H. Phillips. 1987. An Assessment of The Loading of Toxic Contaminants to The San Francisco Bay-Delta. Prepared for The San Francisco Estuary Project, USEPA, and The State Water Resources Control Board of California by the San Francisco Estuary Institute, 330 pp.

Hobbs, R.J. and H.A. Mooney. 1998. Broadening the extinction debate: population deletions and additions in California and western Australia. *Conservation Biology* 12:271-283.

Moyle, P.B., and J.P. Ellison. 1991. Water resources data for California water year 1990, Volume 4. U.S. Geological Survey Water-Data Report CA-90-4, Sacramento.

San Francisco Estuary Institute. 1995. San Francisco Estuary Regional Monitoring Program for Trace Substances, 1994 Annual Report. San Francisco Estuary Institute, Richmond, CA. 339 pp.

IV. Preparing a
PSP

E-033050

E-033051

CHAPTER IV - PREPARING A PROPOSAL APPLICATION

4.1 Threshold Requirements for all Applicants

Proposals must be received by the CALFED office no later than **3:00 p.m. on May 15, 2000**. Proposals received after this date and time will be returned unopened. Submit one original, 10 complete hard copies, and one electronic copy of text and tables on a 3.5" disk in any Word version to:

CALFED Bay-Delta Program Office
1416 Ninth Street, Suite 1155
Sacramento CA, 95814

One proposal should be clearly marked as the original and contain original signatures for the forms.

The following list describes the threshold requirements of this solicitation package. If the application does not meet the following requirements, the proposal will be deemed nonresponsive and will be returned to the applicant. The following checklists and forms must be filled out and attached to the proposal as described below.

- Completed Proposal Cover Sheet
- A copy of local notification letter(s)
- Environmental Compliance Checklist
- Land Use Checklist
- State and Federal contract forms

Proposal Cover Sheet. The Cover Sheet (Attachment H) provides key information for input into the CALFED and CVPIA databases. The Cover Sheet must be filled out completely and signed.

Local Government Notification. Notification and coordination with local entities are important to the success of any proposal. Applicants must provide a copy of their proposal to the local land use entity(ies) with jurisdiction over land use for that project. For example, restoration or construction projects that are located within an incorporated city must notify the city planning department and clerk of the City Council. Restoration or construction projects that are not within any city limits must notify the county planning department and clerk of the Board of Supervisors. Restoration projects which are proposed on or adjacent to tribal lands must notify the appropriate tribal government. Applicants for any project within jurisdiction of the Delta Protection Commission or the Bay Conservation and Development Commission must provide a copy of the proposal to these entities (see addresses

below). CALFED will also notify the affected counties of the proposals being considered for funding.

Delta Protection Commission
14215 River Road
P.O. Box 530
Walnut Grove, California 95690
(916) 776-2290

Bay Conservation and Development Commission
30 Van Ness Avenue, Room 2011
San Francisco, California 94102
(415) 557-3686

A copy of the submittal letter(s) indicating the entities that have received a copy of the proposal must be included with the proposal. The intent of this requirement is to provide advance notification to the appropriate local entity(ies) regarding potential construction or restoration actions that could occur within its jurisdiction. Failure to provide a copy of the submittal letter(s) will result in disqualification of the proposal. **Projects that do not include any physical action on the ground (e.g. research conducted solely in a laboratory) are not subject to this requirement. Such projects should submit a cover letter describing why they should be exempt from the public notification requirement.**

Environmental Compliance and Land Use Checklists. Environmental Compliance and Land Use Checklists are included in Attachment H to assist applicants in determining environmental compliance needs and to provide accurate land use information. Complete Environmental Compliance and Land Use checklists must be included or the proposal will be considered nonresponsive. Depending on the funding source for the proposal, successful applicants must comply with state and/or federal laws. Because the funding source for successful proposals will not be determined until after the proposals have been selected, all applicants must complete **both** state and federal information with their proposals.

Compliance with Standard Terms and Conditions. Successful applicants must comply with either state or federal standard contractual terms, depending on the funding source for the proposal. Because the funding source for successful proposals will not be determined until after the proposals have been selected, all applicants must submit **both** state and federal forms with their proposals. Copies of the required state forms are included in Attachment D. The required state forms depend on the type of project and type of applicant, as specified in Table D-1. Copies of the required federal forms are included in Attachment E and also depend on the type of project and type of applicant involved in the proposal.

The following forms must be included in the proposal or the proposal will be considered nonresponsive:

State Forms:

1. Nondiscrimination Compliance Statement (for public, private and nonprofit applicants only)
2. Proof of Contractor's License (for private and nonprofit applicants proposing construction projects)
3. Non-collusion Affidavit (for public, private and non-profit applicants proposing construction projects)
4. Bidders bond (for private and non-profit applicants proposing construction projects)

Federal Forms:

1. Standard 424 for all applicants except federal agencies

4.2 Requirements for Successful Proposals

Once a proposal is selected for funding, applicants will be expected to comply with the following additional requirements. **These requirements should be budgeted into each proposal, as necessary.** These requirements will be part of the project contract.

Work Commences Only When Funding Agreement Signed by Contracting Agency. Preparation of contracts or cooperative agreements will begin as soon as projects are approved by the Secretary for Resources or Secretary of Interior. Depending on the complexity of each contract and the readiness of the applicant, it may take considerable time (from four to six months) to develop and finalize the contracts or cooperative agreements for the successful proposals. **Applicants will not commence work on their projects until a funding agreement is signed. Work performed prior to the signing of a funding agreement is done at the risk of the applicant and without expectation of reimbursement.** Funding agreements are not final until signed by the appropriate contracting agency. Depending on available funds, some monies may be allocated later in the fiscal year.

Proposal Complies with Applicable Laws and Regulations. All proposals must comply with applicable laws and regulations, including the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), and other environmental permitting requirements. For proposals that include actions subject to CEQA and NEPA, funding for implementation is contingent upon the applicant providing copies of compliance documents when complete. Project compliance is the responsibility of the project proponent, and proposals may include in their budgets the funding necessary for compliance with legal and regulatory requirements. Recipients will be required to submit copies of NEPA/CEQA and other environmental compliance and permitting documents upon their completion.

Public Outreach and Local Involvement Plan. Project applications should be developed with support of local groups and participation of affected parties. Successful applicants will be required to prepare a plan that indicates how the public, adjoining property owners, and local governments will be informed or be allowed to participate in the project planning and development. Specifically the plan should include:

- The process and timing for notification of adjacent property owners.
- The process and timing for coordination with local government.
- The process and timing for coordination with existing watershed groups or local conservancies.
- The process and timing for notification and involvement of the general public.

Permission for Access. Proposals that involve physical actions (i.e. planting vegetation, grading, installation of monitoring wells) on private or public lands must provide satisfactory evidence that the landowner is a willing participant in the action. Projects proposed on private property or which require access of private property owned by someone other than the applicant must include written permission from the property owner. Research or monitoring projects conducted in the field for which specific locations have not been identified will be required to provide access needs and permission for access within 30 days of notification of approval. Failure to include written permission from the property owner may result in disqualification of the proposal.

Project Monitoring/Data Collection and Analysis Plan. Successful applicants will be required to submit and comply with a Project Monitoring Plan, or, if research, a quality assurance program plan (QAPP). This plan must be reviewed and approved by CALFED or CVPIA, depending of the source of funds, prior to any data collection. The objective of the plan review is to ensure that the project objectives and data collection and analysis approach are adequately presented for all projects. While the emphasis of the monitoring plan is demonstration of project effectiveness, the data collected will also be used to evaluate system level progress and inform future decision making. In addition, current monitoring plans will be used to prepare monitoring protocols for future projects.

The level of detail in the monitoring plan will depend on the nature and status of the project, but all projects will need to provide monitoring information. Successful applicants should develop the plan prior to any data collection, including pre-project fieldwork. As the project progresses, the monitoring plan may be modified based on initial field surveys and evaluations. If existing data are used, provide references or data summaries.

The successful applicant shall submit, at a minimum, annual monitoring reports

presenting findings and addressing project progress. Data should be submitted in hard copy and in an electronic format compatible with Microsoft Access. Staff will work with successful proponents to ensure consistency of nomenclature and units.

Project Presentations. Successful applicants may be required to make oral presentations at annual review meetings. The purposes of the meetings will be to present project status, discuss working hypotheses and project data, discuss how projects are contributing to improved ecosystem health, and to share information among all the funding recipients.

Quarterly Reporting. Successful applicants will be required to submit quarterly fiscal and programmatic reports due by the 10th day of the month following the end of each quarter (January, April, July and October). The information required to describe the financial status of the project includes: the amount invoiced to the contracting agency, the amount invoiced to cost share partners, a description of activities performed during the quarter, the percentage of each task completed, the deliverables produced, problems and delays encountered, and a description of any amendments or modifications to the contract. Sample fiscal and programmatic quarterly reports are included as Attachment C.

Rights in Data, Acknowledgments, and Peer Review. All data and information obtained and/or received under contract shall be in the public domain, including both draft and final data. Successful applicants shall have the right to disclose, disseminate and use, in whole or in part, any final form data and information received, collected, and developed under this Agreement. Successful applicants must obtain prior approval from CALFED or CVPIA, depending on the source of funds, to use draft data and must acknowledge that the data are preliminary and subject to change. Permission to use draft data will not be unreasonably withheld and may be granted for some uses (i.e., university or department-sponsored events) at the outset of the project.

Successful applicants must include appropriate acknowledgment of credit to the contracting agency, to the CALFED Program, or appropriate CVPIA program, and to all cost-sharing partners for their financial support when using data and/or information developed under this Agreement. All presentations, posters, publications, web sites, or other forums for sharing information must provide appropriate acknowledgment to CALFED or CVPIA. Successful applicants shall not sell or grant rights to a third party who intends to sell such product as a profit-making venture.

All data and information submitted to CALFED or CVPIA will be deemed in draft form. CALFED may submit information and/or data to a peer review process prior to requesting the applicant to finalize the information and/or data. **Applicants should be aware that CALFED will not disseminate draft data, but may make draft data available to the public upon request with an explanation that the data have not been finalized.**

Final Reporting. Successful applicants are required to submit a final report to the CALFED Bay-Delta Program or CVPIA at the end of their project.

4.3 Proposal Format and Content

General Instructions The following format and content requirements should be adhered to in order for proposals to be considered responsive to this PSP. Concise yet thorough proposals under the page limitations are encouraged.

- **Page limits** - Page limitations for each section are shown and should not be exceeded. The proposal should be no more than 16 pages. Next-phase projects submitting progress reports should be no more than 18 pages.
- **Format** - The proposal submittal should be on 8 ½" x 11" size paper, with black and white text no smaller than 12 point and tables/graphics with text no smaller than 10 point. The proposals should be stapled on the upper left hand corner. Text and tables shall also be submitted electronically on a 3.5" disk in any Word version.
- **Maps, Photographs and Figures** - Maps, photographs of project site(s) and other figures that clarify the content of the proposal may be submitted in color but at a minimum are required to be reproducible via a black and white copier.
- **Cover letters** - Cover letters will be accepted, but are not required.
- **Original** - One proposal should be clearly marked as the original and contain original signatures for the forms.

Proposal Format

A. PSP Cover Sheet.

The Cover Sheet (Attachment H) provides key information for input into the CALFED or CVPIA database. The Cover Sheet must be filled out completely and signed and attached to the front of the proposal.

Other threshold requirements including the Letters of Notification, Environmental Compliance Checklist, Land Use Checklist and contract forms should be attached to the back of the proposal.

B. Executive Summary. (1 page)

Title of Project, Amount Requested
Applicant Name, Address, Phone, FAX, E-mail of Primary Contact
Participants and collaborators

The executive summary should be a brief but complete summary description of the project: its location, type and objective of the project, the approach being taken, hypotheses being tested, uncertainties involved, the expected outcome, and its applicability to CALFED ERP goals. While the complete proposal will be available through the CALFED website, executive summaries are generally the information that is distributed to the public and therefore should be a concise but informative stand-alone description of the proposed project.

C. Project Description. (no more than 8 pages, not including maps and/or figures)

1. Statement of the Problem

a. Problem - Describe the problem that the project is designed to address. Provide a review of relevant past studies of, and solutions (if any) to the problem, here and elsewhere, with appropriate citations of relevant reports. List the objectives of your proposed study.

b. Conceptual model - Include a clearly articulated conceptual model explaining the underlying technical basis for the work proposed. Conceptual models of any form (narrative, diagrammatic, etc.) are acceptable, provided they clearly delineate the source of the information and the relevant uncertainties.

c. Hypotheses being tested - Clearly state hypotheses to be tested or compared and identify the data needed to test these hypotheses. The proposal must identify the CALFED or CVPIA goals or uncertainties being addressed, either from the list provided in the PSP or based on thorough justification by the proponent, and must explain whether and how the proposed work will result in a substantial improvement in knowledge about the selected topic.

d. Adaptive Management - Relate the conceptual model to the adaptive management design presented in Chapter III. Each proposal must justify the described the research or monitoring project, a pilot or demonstration project, or a full-scale restoration project (refer to Figure 2). This justification must clearly explain how the degree of scientific understanding or uncertainty resulted in this selection of proposed work. Proposals for pilot or full-scale projects must explain the scientific knowledge of the topic that justifies taking action. Conversely, proposals for research or monitoring projects must state why the scientific uncertainty is too great to allow resolution in the context of a pilot or other implementation project. It is important to be clear as to how the experimental design would change, if necessary, as data are gathered, in order to periodically re-focus on the best test of the hypothesis(es) or develop new hypotheses if warranted.

e. Educational Objectives - For those projects with a primarily education focus, as well as sections listed above, specifically indicate how the project

will address increased understanding of CALFED's ERP goals. Describe the potential audience size and diversity, and the importance of the audience if the target audience is limited. Show how there will be integration of activities, lectures, materials, multimedia, etc. and the efficacy of evaluation methodology.

2. Proposed Scope of Work

a. Location and/or Geographic Boundaries of the Project - Identify the county(ies) where the project is located. Identify which ecozones are included (see Appendix A). Provide either an original or high quality copy USGS quad map or maps (1:24,000, 1:100,000 or 1:250,000 depending on the scale of the project and its components) showing an outline of the project or a project footprint or boundary with digital geographic coordinates that can be entered into a geographic information system. Also provide geographic coordinates (latitude/longitude or utm) for a project's center point or centroid. Examples include the approximate center of a parcel of land being acquired, or the location of a screened diversion. For physical projects, provide photographs of the project site.

b. Approach - Describe (where applicable) all sampling, analytical, planning, and construction procedures for each objective as appropriate. Include details on methods/techniques, equipment and facilities, data collection, statistical analysis and quality assurance procedures, and describe the criteria to be used in hypothesis testing.

c. Monitoring and Assessment Plans - In proposals for implementation or pilot/demonstration projects, include a description of monitoring components. The monitoring must be adequate to allow determination of the success of the project in relation to its objectives and its contribution to CALFED or CVPIA goals. The experimental design used to assess the outcome of the project must be clearly described. Alternatively, the proposal may include an initial design phase in which the monitoring program is developed; however, in this case funding of the full project will be contingent on successful completion of the design phase.

d. Data Handling and Storage - Describe how the data and other information will be handled, stored, and made accessible.

e. Expected Products/Outcomes - Provide a list of planned reports, presentations, advances in technology, and information transfers via workshops, seminars, education programs, etc.

f. Work Schedule - (see Section F.1 - Budget) Identify the start and completion dates of each of the tasks discussed above as well as other key milestones (decisions, testing, etc.). Clearly identify which tasks are considered to be inseparable if only a portion of the project were to be

funded. Identify the potential to incrementally fund/implement the proposed scope of work. Identify how payments would relate to milestones, as applicable. Please identify project management as an independent task. Provide an annual time line with expected start and stop dates, and accomplishment of major milestones.

g. Feasibility - Provide demonstration that the described approach is both feasible and appropriate to the proposed work, and that the project can be completed in the time allotted. Methods must be clearly described; where scientific or technical procedures are described, literature citations to the procedures are required. Allowance must be made for weather and other exigencies. Any contingencies or requirements (e.g., dependence on outcome or timing of other projects, dependence on natural or operational conditions, environmental compliance and permitting) must be thoroughly addressed.

Consistent with the environmental checklist, explain what permits or agreements are necessary to proceed with the tasks described. Explain the current status of each permit or agreement. Explain any other constraints that could impact the schedule and implementability of the project such as zoning regulations or county planning ordinances. Identify the nature and approach to resolving other outstanding implementation issues.

Projects proposed on private property or that require access of private property owned by someone other than the applicant must include written permission from the property owner. Research or monitoring projects conducted in the field for which specific locations have not been identified will be required to provide access needs and permission for access within 30 days of notification of approval. Failure to include written permission from the property owner may result in disqualification of the proposal.

D. Applicability to CALFED ERP Goals and Implementation Plan and CVPIA Priorities. (no more than 2 pages)

1. ERP Goals and CVPIA Priorities. The proposal must clearly describe which of the ERP goals and CVPIA priorities are targeted and for what species, life stages, habitats, or stressors. It must describe how the project will result in progress toward the selected goals.

2. Relationship to Other Ecosystem Restoration Projects. Explain the relationship to past and future projects. Explain how this project relates to other previously-funded projects including CALFED, CVPIA and other ecosystem restoration activities.

3. Requests for Next-Phase Funding. Proposals that are requesting next-phase funding for an existing ecosystem restoration project currently funded by CALFED or CVPIA must clearly state the relationship of the proposal to

previously-funded phases of the project. The proposal for next-phase funding must accurately state the current status of the project and the progress and accomplishments of previous phases. Applicants for next-phase funding must include a 2 page summary of the existing project status (as an appendix to the proposal) including:

- A brief project description, including maps and photographs if applicable.
- A summary of the scientific merit of the project including hypotheses, conceptual model, and adaptive management framework.
- Current status of the project, accomplishments to date, information generated, fiscal status, and any outstanding regulatory or implementation issues.
- A summary of the existing data collection and monitoring program.

4. Previous Recipients of CALFED or CVPIA funding. Applicants who have been the recipients of previous funding from CALFED or CVPIA must identify the project for which they received previous funding. The applicant must identify the project title and CALFED or CVPIA project number (if applicable) and accurately state the current status of the project and the progress and accomplishments of the project to date.

5. System-Wide Ecosystem Benefits. Identify any synergistic, system-wide ecosystem benefits. Describe how the proposal complements projects or programs in other areas or within the watershed. Examples of proposals with synergistic, system-wide ecosystem benefits might include a fish passage project on a stream that opened up habitat in the upper watershed, and a second proposal to develop a watershed plan and implement restoration activities that would benefit the fish.

E. Qualifications. (no more than 2 pages, not including tables)

Provide brief biographical sketches of the principal participants that identify qualifications (education, relevant experience) and contributions (completed projects, published reports on the same topic, etc.) consistent with their roles and responsibilities in the proposed project. Disclose and discuss any potential conflicts of interest, and potential problems with availability to do the work within the proposed timeline.

In particular, proposals for demonstration or restoration projects must indicate who will conduct the scientific portions of the project (e.g., monitoring, evaluation). Describe the planned organization of staff and other resources to be used in implementing this project. Identify the nature and extent of other collaborating participants in the implementation of this project. Identify specific individual responsibilities covering technical, administrative and project management roles. .

If the applicant is an agency or other organization, the applicant's signature on the

cover sheet (Attachment H) certifies that the individual signing the application is authorized to do so on behalf of the organization or agency.

F. Cost (no more than 3 pages not including tables)

1. Budget. A detailed budget is required for each year of requested support. In addition, a summary budget is required detailing requested support for the overall project period. Identify all budgeted costs requested for each task listed in the scope of work using the format shown in Table 1. Include subtasks, if needed. An Excel budget spreadsheet can be downloaded from the CALFED website (<http://calfed.ca.gov>).

The proposal budget must be commensurate with the expected benefit of the work and with the effort required to complete the work. All budgeted items must be justified. Under salaries, list each position, pay rate and expected time commitment for each year. Provide the benefits/salaries percentage. The type and extent of travel and its relationship to the project should be briefly specified. The types of supplies (expendable materials) required should be indicated in general terms. Provide appropriate rationale for all service contracts. List the names of consultant(s) and name of their organization(s), if known, and, to the extent possible, a breakdown of the amount being charged to the award (For example: salary, travel, supplies, etc.). Detail equipment purchases. Equipment is defined as an item of property that costs \$1000 or more per unit and has an expected life of 3 years or more.

Explain what is encompassed in the overhead rate. Overhead should include costs associated with general office requirements such as rent, phones, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific other costs. **If overhead costs are different for state and federal funds, please provide both state and federal rates.** Agencies should include any internal agency costs associated with management of project funds.

The Project Management Task description should describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, preparation of periodic reporting requirements, response to project specific questions and necessary costs directly associated with specific project oversight.

2. Cost-Sharing. Identify other funding commitments, the status of these commitments (tentative approval, contract, etc.), source, and any cost-sharing requirements. Successful proposals that commit cost sharing funds must have the commitment of those funds within 30 days of notification of approval. If an applicant fails to secure the cost share funds identified in the proposal, and as a result has insufficient funds to complete the project, CALFED or the appropriate CVPIA program manager (depending on the source of funds) has the option to amend or terminate the award.

Table 1. Sample annual and total budget. Please modify to reflect your institution's invoice categories and overhead policy.

Year	Task	Direct Labor Hours	Subject to Overhead						Exempt from Overhead		Total Cost
			Salary	Benefits	Travel	Supplies	Service Contracts	Overhead (show % here)	Equipment	Graduate Student Fee Remission	
Year 1	Task 1										
	Subtask 1a										
	Subtask 1b										
	Task 2										
	Project Management										
Total Cost Year 1											
Year 2	Task 1										
	Subtask 1a										
	Subtask 1b										
	Task 2										
	Project Management										
Total Cost Year 2											
Total Project Cost											

E - 0 3 3 0 6 2

G. Local Involvement (no more than 1 page)

Applicants are encouraged to coordinate with county and local governments prior to submitting a proposal.

Proposals must describe a plan for public outreach to the groups or individuals who may be affected by the project. Identify which local groups including environmental groups, conservancies and Coordinated Resource Management Plans, landowner groups, or other interested organizations are aware of the project and their level of support or opposition. Identify which adjacent or affected landowners, facility owners, facility operators or other affected parties are aware of the project and if they are supportive or opposed. Identify any potential third party impacts.

H. Compliance with Standard Terms and Conditions

The proposal must indicate whether the applicant will comply with the state and federal standard terms. All applicants should review and understand the standard terms contained in Attachments D (State) and E (Federal). If an applicant cannot agree to any standard clauses, the applicant must disclose this disagreement in its proposal or the standard clauses will be deemed non-negotiable. The funding agencies will determine whether to alter standard clauses after the proposal has been approved for funding. The funding agencies reserve the right to refuse to alter any standard contract language as disclosed herein.

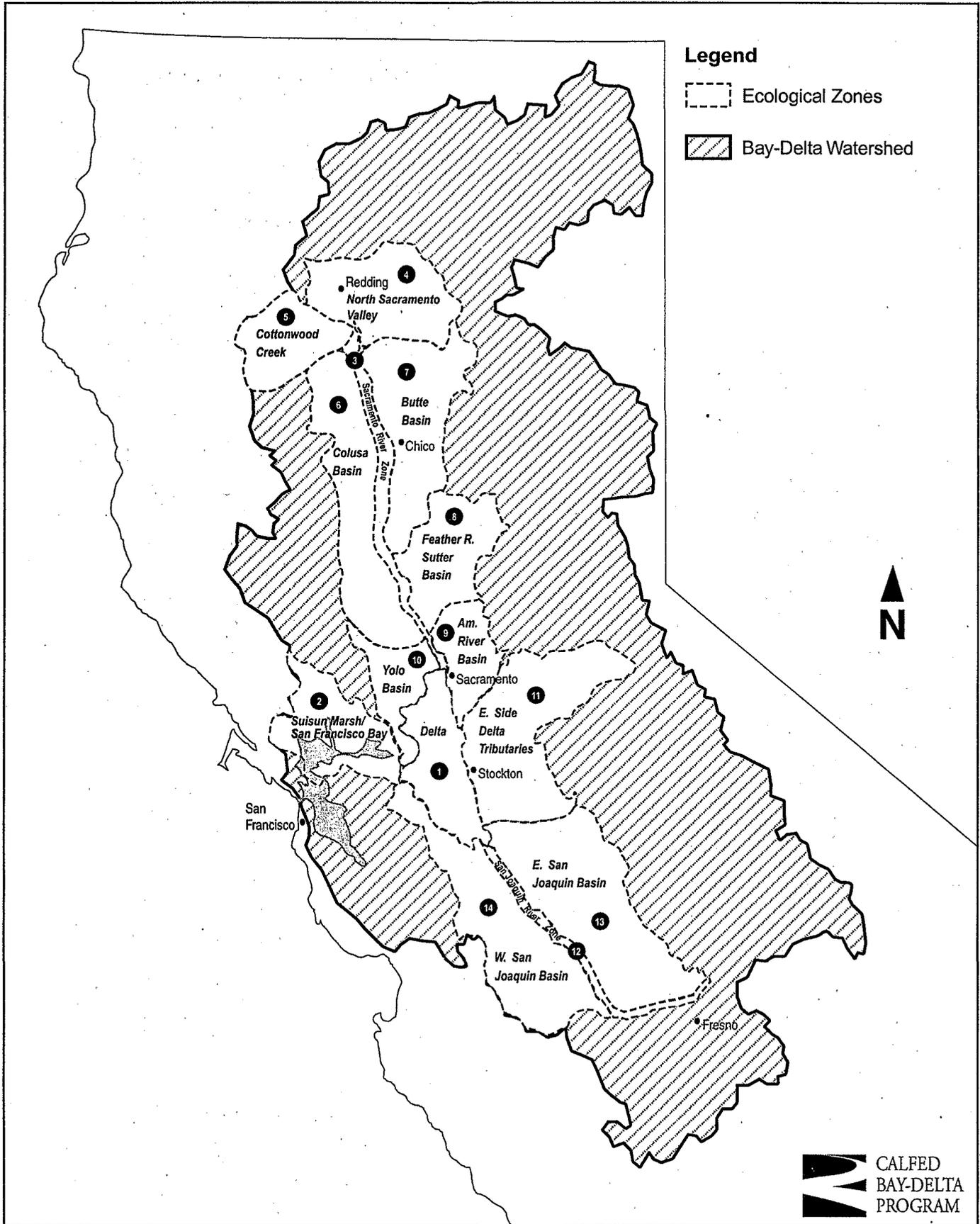
I. Literature Cited

All proposals must include references to related research studies, project reports, scientific reports, and other supporting information cited in the proposal.

J. Threshold Requirements (except for Cover Sheet)

The Letters of Notification, Environmental Compliance Checklist, Land Use Checklist, and contract forms should be attached to the back of the proposal.

2001 Proposal Solicitation Geographic Scope



Ecological Management Zones in the Bay-Delta Watershed

1. Sacramento-San Joaquin Delta

- 1.1 North Delta
- 1.2 East Delta
- 1.3 South Delta
- 1.4 Central and West Delta

2. Suisun Marsh/North San Francisco Bay

- 2.1 Suisun Bay and Marsh
- 2.2 Napa River
- 2.3 Sonoma Creek
- 2.4 Petaluma River
- 2.5 San Pablo Bay

3. Sacramento River

- 3.1 Keswick Dam to Red Bluff Diversion Dam
- 3.2 Red Bluff Diversion Dam to Chico Landing
- 3.3 Chico Landing to Colusa
- 3.4 Colusa to Verona
- 3.5 Verona to Sacramento

4. North Sacramento Valley

- 4.1 Clear Creek
- 4.2 Cow Creek
- 4.3 Bear Creek
- 4.4 Battle Creek

5. Cottonwood Creek

- 5.1 Upper Cottonwood Creek
- 5.2 Lower Cottonwood Creek

6. Colusa Basin

- 6.1 Stony Creek
- 6.2 Elder Creek
- 6.3 Thomas Creek
- 6.4 Colusa Basin

7. Butte Basin

- 7.1 Paynes Creek
- 7.2 Antelope Creek
- 7.3 Mill Creek
- 7.4 Deer Creek
- 7.5 Big Chico Creek
- 7.6 Butte Creek
- 7.7 Butte Sink

8. Feather River and Sutter Basin

- 8.1 Feather River
- 8.2 Yuba River
- 8.3 Bear River and Honcut Creek
- 8.4 Sutter Bypass

9. American River Basin

- 9.1 American Basin
- 9.2 Lower American River

10. Yolo Basin

- 10.1 Cache Creek
- 10.2 Putah Creek
- 10.3 Solano
- 10.4 Willow Slough

11. Eastside Delta Tributaries

- 11.1 Cosumnes River
- 11.2 Mokelumne River
- 11.3 Calaveras River

12. San Joaquin River

- 12.1 Vernalis to Merced
- 12.2 Merced to Mendota Pool
- 12.3 Mendota Pool to Gravelly Ford
- 12.4 Gravelly Ford to Friant Dam

13. East San Joaquin

- 13.1 Stanislaus River
- 13.2 Tuolumne River
- 13.3 Merced River

14. West San Joaquin

15. Landscape

16. Outside CALFED region

**Attachment B
List of Acronyms**

ACOE	U.S. Army Corp of Engineers
ASET	Agency/Stakeholder Ecosystem Team
BOR	U.S. Bureau of Reclamation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CVPIA	Central Valley Project Improvement Act
DFG	California Department of Fish & Game
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
EPA	Environmental Protection Agency
ERPP	Ecosystem Restoration Program Plan
ESA	Endangered Species Act (Federal)
FWS	U.S. Fish & Wildlife Service
ISB	Interim Science Board
MSCS	Multi Species Conservation Strategy
NEPA	National Environmental Policy Act
NFWF	National Fish & Wildlife Federation
NMFS	National Marine Fisheries Service
NRCS	National Resource Conservation Service
PSP	Proposal Solicitation Package
QAPP	Quality Assurance Project Plan
SWRCB	State Water Resources Control Board
USDA	U.S. Department of Agriculture

Attachment C. Example Fiscal Quarterly Report

Title: Project Title
Applicant: Project Proponent
CALFED Project Number: 97-xxx

Federal Fiscal Year: 1999
 Statement Quarter: 1
 Dates: 10/98 - 12/98

Total Estimated Cost of Project (Phase I):	<u>\$957,781</u>
Funding from CALFED Prop. 204 Account	\$957,781
Any other Funding	\$0

Note: In-Kind Services listed here as a total amount. Details of the service provided should be included.

Phase I Schedule: FY'99 through FY '01 3 years
Note: If applicable, other phases listed here.
 Total Project Estimated Completion Time: 3 years
 Total Project Estimated Completion Date: 9/30/01

	PHASE I (Quarterly Budget)			PHASE I (FY '99 Budget)			PHASE I (Three Year Budget)		
	Budget	Accrued Expenditures	Variance **	Budget	Accrued Expenditures	Remaining Balance **	Budget	Accrued Expenditures	Balance to Complete **
Task 1: Matrix Information Synthesis	\$1,300	\$1,265	\$35	\$25,300	\$1,265	\$24,035	\$129,800	\$1,265	\$128,535
Schedule: FY '99 through FY '01									
Percent Work Complete for Task 1: 5%									
<i>Note: If applicable, subtasks listed here under tasks.</i>									
Task 2: Education and Outreach	\$14,000	\$2,371	\$11,629 a	\$47,410	\$2,371	\$45,039	\$143,330	\$2,371	\$140,959
Schedule: FY '99 through FY '01									
Percent Work Complete for Task 2: 5%									
Task 3: Field Studies	\$11,500	\$11,449	\$51	\$228,987	\$11,449	\$217,538	\$684,651	\$11,449	\$673,202
Schedule: FY '99 through FY '01									
Percent Work Complete for Task 3: 5%									
Phase I Total:	\$26,800	\$15,085	\$11,715	\$301,697	\$15,085	\$286,612	\$957,781	\$15,085	\$942,696

We budget to the subtask level only if active during the Quarter in question. If a subtask is complete, the subtask cost rolls-up into the Task level.

** Please explain significant variance.
 a Need to replace staff member who took another job

Attachment D
Terms and Conditions for State Proposition 204 Funds

This section provides terms and other conditions that will apply to contractual agreements for proposals receiving state Proposition 204 funds. Successful applicants receiving Proposition 204 funds will enter into a contract with the California Resources Agency. The specific terms and conditions that will apply to the contract will vary depending on the type of applicant (State agency, federal agency, other public entity, private for-profit, private non-profit) and the type of project receiving a grant (research/planning, construction, land acquisition).

The general contractual terms that apply to all Proposition 204 funds are set forth below. Additional State of California standard clauses will be required, depending on the type of applicant and the type of project. These additional State standard clauses are set forth at the end of this attachment. The applicability of the additional standard clauses is set forth in Table D-1.

All applicants should review the following lists of standard clauses. If an applicant cannot agree to any standard clauses, the applicant must disclose this disagreement in their proposal or the standard clauses will be deemed nonnegotiable. The State and NFWF reserve the right to refuse to alter any standard clauses.

1. Term of Agreement: The term of the Agreement will depend on the type of project and may range from 1 to 3 years. The Agreement shall not become effective until fully executed by the parties and approved by the Department of General Services.
2. Payment Schedule: No funds will be disbursed by the State or NFWF to Grantee without: (1) an executed copy of the Agreement; (2) receipt of an original invoice with supporting documentation; and (3) receipt and satisfactory completion of, or progress toward completion of, deliverables and/or phases of work as set forth in the Agreement, including quarterly financial and programmatic reports. Payments shall be in arrears within 30 days of receipt of an undisputed invoice by CALFED.

Required supporting documentation includes an invoice breakdown by task and line item, including task and line item budget balance. Additional supporting documentation such as payroll detail, receipts for equipment, or general ledger information may be required.

3. Performance Retention: Disbursements shall be made on the basis of costs incurred to date, less ten percent of the total invoice amount. Disbursement of the ten percent retention shall be made either: (1) upon the Grantee's satisfactory completion of a discrete project task (ten percent retention for task will be reimbursed); or (2) upon completion of the project and Grantee's compliance with project closure requirements specified by CALFED (ten percent retention for entire project will be disbursed).
4. Expenditure of Funds & Allocation Among Budget Items: Grantee shall expend funds in the manner described in the approved project budget. Any variance in the budgeted

amount among tasks, or between line items within a task, requires approval in writing by the State or NFWF. The total amount of this contract may not be increased except by amendment of this Agreement. Any increase in the funding for any particular budget item shall mean a decrease in the funding for one or more other budget items unless there is a written amendment to this Agreement.

5. Subcontracts: Grantees are responsible for all subcontracted work. Subcontracts must include all applicable terms and conditions as presented herein. The State or NFWF must approve all subcontracts and all amendments to subcontracts. Unless the subcontract was submitted to CALFED with the proposal, Grantee must obtain at least 3 competitive bids for all subcontracted work; or comply with the provisions of Government Code section 4525 et seq. as applicable; or obtain the State or NFWF's approval for non-compliance with these requirements.
6. Substitution: If Grantee chooses to substitute different subcontractors or employees for those subcontractors or employees approved for the project as part of the Scope of Work, Grantee must notify the State or NFWF and obtain the State's or NFWF's approval.
7. Conflict of Interest: Grantee shall comply with all applicable State laws and rules pertaining to conflict of interest including, but not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411.
8. Standard of Professionalism: Grantee shall conduct all work consistent with the professional standards of the industry and type of work being performed under the Agreement.
9. Rights in Data: All data and information obtained and/or received under this Agreement shall be in the public domain. Grantee shall not sell or grant rights to a third party who intends to sell such product as a profit-making venture. Grantee shall have the right to disclose, disseminate and use, in whole or in part, any final form data and information received, collected, and/or developed under this Agreement, subject to inclusion of appropriate acknowledgment of credit to the State or NFWF, to the CALFED Program, and to all cost-sharing partners for their financial support. Grantee must obtain prior approval from CALFED to use draft data. Permission to use draft data will not be unreasonably withheld. CALFED will not disseminate draft data, but may make draft data available to the public upon request with an explanation that the data have not been finalized.
10. Acknowledgment of Credit: Grantee shall include appropriate acknowledgment of credit to the State or NFWF, to the CALFED Program, and to all cost-sharing partners for their financial support when using any data and/or information developed under this Agreement.
11. Indemnification: The Grantee agrees to indemnify, defend, and save harmless the CALFED agencies, the State of California, the Resources Agency, the Department of Water Resources, and the National Fish and Wildlife Foundation and their officers,

agents, and employees from any and all claims and losses accruing or resulting to any or all contractors, subcontractors, material persons, laborers, and any other person, firm, or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm, or corporation who may be injured or damaged by the Grantee in the performance of this Agreement.

12. Independent Status: Grantee, and the officers, agents, and employees of Grantee, in the performance of the Agreement, shall act in an independent capacity and not as officers or employees or agents of the State of California, NFWF, the CALFED agencies, the Resources Agency, or the Department of Water Resources.
13. Termination Clause: The State or NFWF may terminate this Agreement by providing notice to Grantee in writing and be relieved of the payment of any consideration to Grantee should Grantee fail to perform the covenants herein contained at the time and in the manner herein provided. The State or NFWF will reimburse Grantee for reasonable obligations incurred by Grantee in performance of this Agreement prior to the date of the notice to terminate. In the event of such termination, the State or NFWF may proceed with the work specified in this Agreement in any manner deemed proper by the State. The cost to the State shall be deducted from any sum due the Grantee under this Agreement, and the balance, if any, shall be paid the Grantee upon demand.
14. Assignment: Grantee may not assign this Agreement, in whole or in part, without the written consent of the State.
15. Integration Clause: No alteration or variation of the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein shall be binding on any of the parties hereto. The parties may amend this Agreement by mutual written consent and with approval by the State or NFWF.
16. Consideration: The consideration to be paid Grantee as provided in this Agreement, shall be in compensation for all of the Contractor's expenses incurred in the performance of this Agreement, including travel and per diem, unless otherwise expressly so provided.
17. Dispute Resolution: Any claim that Grantee may have regarding the performance of this Agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the Executive Director, CALFED, within thirty days of its accrual. CALFED and Grantee shall then attempt to negotiate a resolution of claim and process an amendment to this Agreement to implement the terms of any such resolution.
18. Severability: If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.
19. Time is of the essence in this Agreement.

FOR PROJECTS INVOLVING LAND ACQUISITION

The following terms will be required for projects that involve land acquisition, either in fee or by a conservation easement. CALFED may require certain of these terms to be included in the real property conveyance instruments for those projects involving land acquisition.

20. Purpose of Acquisition: The [describe interest in real property] that is the subject of this Agreement is being acquired by the Grantee pursuant to a grant of funds from the Resources Agency through the CALFED Bay-Delta Program for the purpose of implementing the CALFED Ecosystem Restoration Program. No use of the real property inconsistent with this purpose is permitted.
21. Approval of Land Acquisition Terms: The State shall approve the terms under which the interest in real property is being acquired pursuant to this Agreement.
22. Mitigation: The Grantee shall not use or allow the use of any portion of the real property acquired pursuant to this Agreement for mitigation to compensate for adverse changes to the environment elsewhere.
23. Fair Market Value: The purchase price of any interest in real property purchased under this Agreement shall not exceed the fair market value as established by an appraisal approved by the State.
24. Use, Management, Operation, and Maintenance: The Grantee shall use, manage, operate, and maintain the real property in a manner consistent with the purpose of the acquisition. The Grantee further assumes all management, operation, and maintenance costs associated with the real property, including the costs of ordinary repairs and replacements of a recurring nature, and costs of enforcement of regulations. The CALFED Program shall not be liable for any cost of such management, operation, or maintenance. The Grantee shall refrain from developing or otherwise using any other property it owns or controls in the vicinity of the real property in such a way as to interfere with or inconvenience the use, management, operation, or maintenance of the real property or to detract from the purpose of the acquisition. The Grantee may be excused from its obligations for management, operation, and maintenance only upon the written approval of the Executive Director of the CALFED Program, or its successor.
25. Transfer: The Grantee may not transfer the real property, or any interest in the real property, in whole or in part, without the approval of the Executive Director of the CALFED Program, or its successor.

TABLE D-1: PROPOSAL SUBMITTAL REQUIREMENTS AND STANDARD CONTRACT CLAUSES

Item ¹	Standard Clauses and Proposal Requirements ²	Services, Consulting, Preconstruction, Research, Land Acquisition					Public Works, Construction				
		State	Federal	Public	Non-profit	Private	State	Federal	Public	Non-profit	Private
PROPOSAL REQUIREMENTS											
19	Nondiscrimination Compliance			✓	✓	✓			✓	✓	✓
4021	Bidders Bond or other Security (if contract values > \$107,000) ³								✓	✓	
4206	Non Collusion Affidavit							✓	✓	✓	
n/a	Proof of Contractor's License								✓	✓	
CONTRACT REQUIREMENTS											
4100	Contracts with Public Entities			✓					✓		
4099	Service & Consultant Service Contracts with Nonpublic Entity				✓	✓				✓	✓
4099a	Additional Standard Clauses		✓	✓	✓	✓		✓	✓	✓	✓
4187	Interagency Agreements	✓					✓				
4247	Contracts with United States		✓					✓			
4197	General Conditions for Public Works Contracts								✓	✓	✓
4196	Insurance Requirements								✓	✓	✓
18	Nondiscrimination Construction Contract Specifications								✓	✓	✓
807	Payment Bond								✓	✓	✓
156	Performance Bond								✓	✓	✓
n/a	Certificate of Insurance								✓	✓	✓

Legend: State = State of California agencies, including State (California) Universities.
 Federal = Federal agencies.
 Public = Public entities, such as city, county, other local government entities, resource conservation districts, and out-of-state public entities.
 Private = For-profit and non-profit organizations, and individuals.

¹ Item numbering refers to documents following this table.
² All contract terms and standard clauses apply to any subcontracts made by Contractor.
³ Types of security include cashiers check, cash, certified check, or bidder's bond in an amount equal to 10 percent of the proposed amount.

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME

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

DATE EXECUTED

EXECUTED IN THE COUNTY OF

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

BIDDER'S BOND

We _____

_____, as PRINCIPAL, and

as SURETY, are held and firmly bound unto the State of California in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named submitted by said Principal to the State of California, acting by and through the Department of Water Resources, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, to the Director of the Department to which said bid was submitted, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the surety here under exceed the sum of \$ _____.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above-mentioned bid to the State of California, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at

_____, California, on _____
(Insert name of city where bids will be opened) (Insert date of bid opening)

for _____

Copy here the exact description of work, including location, as it appears on the proposal)

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Department, one to guarantee faithful performance and the other to guarantee payment for labor materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this _____

day of _____, 19 ____.

_____ [Seal]

_____ [Seal]

_____ [Seal]

Principal

_____ [Seal]

_____ [Seal]

_____ [Seal]

Surety

Address _____

NOTE: Signatures of those executing for the surety must be properly acknowledged.

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA)
)ss.
COUNTY OF _____)

_____, being first duly sworn, deposes and
(name)

says that he or she is _____ of
(position title)

(the bidder)

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: _____

By _____
(person signing for bidder)

Subscribed and sworn to before me on

(Notary Public)

(Notarial Seal)

STANDARD CLAUSES - CONTRACTS WITH PUBLIC ENTITIES

Workers' Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of the work under this contract.

Nondiscrimination Clause. During the performance of this contract, the recipient, Contractor and its subcontractors shall not deny the contract's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, age (over 40), or sex. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.), the regulations promulgated thereunder (California Administrative Code, Title 2, Sections 7285.0 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code Sections 11135 - 11139.5), and the regulations or standards adopted by the awarding State agency to implement such article. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding State agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause. Recipient, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

Availability of Funds. Work to be performed under this contract is subject to availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of \$10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract. (Government Code Section 8546.7).

Payment Retention Clause. Ten percent of any progress payments that may be provided for under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: _____.

Drug-Free Workplace Certification. By signing this contract, the Contractor or grantee hereby certifies under penalty of perjury under the laws of the State of California that the Contractor or grantee will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and will provide a drug-free workplace by taking the following actions:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.
2. Establish a Drug-Free Awareness Program to inform employees about all of the following:
 - (a) The dangers of drug abuse in the workplace,
 - (b) The person's or organization's policy of maintaining a drug-free workplace,
 - (c) Any available counseling, rehabilitation and employee assistance programs, and
 - (d) Penalties that may be imposed upon employees for drug abuse violations.
3. Every employee who works on the proposed contract or grant:
 - (a) Will receive a copy of the company's drug-free policy statement, and
 - (b) Will agree to abide by terms of the company's statement as a condition of employment on the contract or grant.

This contract or grant may be subject to suspension of payments or termination, or both, and the Contractor or grantee may be subject to debarment if the department determines that: (1) the Contractor or grantee has made a false certification, or (2) the Contractor or grantee violates the certification by failing to carry out the requirements noted above.

Americans With Disabilities Act. By signing this contract, Contractor assures the State that it complies with the Americans With Disabilities Act (ADA) of 1990, (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Former State Employees: a) For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

**STANDARD CLAUSES -
SERVICE & CONSULTANT SERVICE CONTRACTS FOR \$5,000 & OVER WITH NONPUBLIC ENTITIES**

Workers' Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of the work under this contract.

National Labor Relations Board Clause. In accordance with Public Contract Code Section 10296, Contractor declares under penalty of perjury that no more than one final, unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of Contractor's failure to comply with an order of a federal court which orders Contractor to comply with an order of the national Labor Relations Board.

Nondiscrimination Clause. During the performance of this contract, the recipient, Contractor and its subcontractors shall not deny the contract's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, age (over 40), or sex. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.), the regulations promulgated thereunder (California Administrative Code, Title 2, Sections 7285.0 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code Sections 11135 - 11139.5), and the regulations or standards adopted by the awarding State agency to implement such article. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding State agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause. Recipient, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

Statement of Compliance. The Contractor's signature affixed hereon and dated shall constitute a certification under penalty of perjury under the laws of the State of California that the Contractor has, unless exempted, complied with the nondiscrimination program requirements of Government Code Section 12990 and Title 2, California Code of Regulations, Section 8103.

Performance Evaluation. For consulting service agreements, Contractor's performance under this contract will be evaluated after completion. A negative evaluation will be filed with the Department of General Services.

Availability of Funds. Work to be performed under this contract is subject to availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of \$10,000, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract. (Government Code Section 8546.7).

Payment Retention Clause. Ten percent of any progress payments that may be provided for under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: _____.

Disabled Veteran Business Enterprise Participation Requirement Audit Clause. Contractor or vendor agrees that the awarding department or its delegates will have the right to review, obtain, and copy all records pertaining to performance of the contract. Contractor or vendor agrees to provide the awarding department or its delegate access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with Public Contract Code Section 10115 et seq. Contractor or vendor further agrees to maintain such records for a period of three (3) years after final payment under the contract. Title 2 CCR Section 1896.75.

Priority Hiring Considerations. For contracts in excess of \$200,000, the Contractor shall give priority consideration in filling vacancies in positions funded by the contract to qualified recipients of aid under Welfare and Institutions Code Section 11200. (Public Contract Code Section 10353).

Drug-Free Workplace Certification. By signing this contract, the Contractor or grantee hereby certifies under penalty of perjury under the laws of the State of California that the Contractor or grantee will comply with the requirements of the Drug-Free Workplace Act of 1990 (Government Code Section 8350 et seq.) and will provide a drug-free workplace by taking the following actions:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.
2. Establish a Drug-Free Awareness Program to inform employees about all of the following:
 - (a) The dangers of drug abuse in the workplace,
 - (b) The person's or organization's policy of maintaining a drug-free workplace,
 - (c) Any available counseling, rehabilitation and employee assistance programs, and
 - (d) Penalties that may be imposed upon employees for drug abuse violations.
3. Every employee who works on the proposed contract or grant:
 - (a) Will receive a copy of the company's drug-free policy statement, and
 - (b) Will agree to abide by terms of the company's statement as a condition of employment on the contract or grant.

This contract or grant may be subject to suspension of payments or termination, or both, and the Contractor or grantee may be subject to debarment if the department determines that: (1) the Contractor or grantee has made a false certification, or (2) the Contractor or grantee violates the certification by failing to carry out the requirements noted above.

Antitrust Claims. In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder. See Government Code Section 4552.

If an awarding body or public purchasing body received, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery. See Government Code Section 4553.

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action. See Government Code Section 4554.

Americans With Disabilities Act. By signing this contract, Contractor assures the state that it complies with the Americans With Disabilities Act (ADA) of 1990, (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Corporate Qualifications To Do Business in California. Contractor must be currently qualified to do business in California as defined by the Revenue & Taxation Code, Section 23101 unless exempted. Both domestic and foreign corporations (those incorporated outside of California) must be in good standing in order to be qualified to do business in California.

Former State Employees: a) For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

Agreement No. _____

Exhibit _____

ADDITIONAL STANDARD CLAUSES

Recycled Materials. Contractor hereby certifies under penalty of perjury that ____ (enter value or "0" here) percent of the materials, goods and supplies offered or products used in the performance of this Agreement meets or exceeds the minimum percentage of recycled material as defined in Sections 12161 and 12200 of the Public Contract Code.

Severability. If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.

Governing Law. This Agreement is governed by and shall be interpreted in accordance with the laws of the State of California.

Y2K Language. The Contractor warrants and represents that the goods or services sold, leased, or licensed to the State of California, its agencies, or its political subdivisions, pursuant to this Agreement are "Year 2000 compliant." For purposes of this Agreement a good or service is Year 2000 compliant if it will continue to fully function before, at, and after the Year 2000 without interruption and, if applicable, with full ability to accurately and unambiguously process, display, compare, calculate, manipulate, and otherwise utilize date information. This warranty and representation supersedes all warranty disclaimers and limitations and all limitations on liability provided by or through the Contractor.

Child Support Compliance Act. For any Agreement in excess of \$100,000, the Contractor acknowledges in accordance therewith, that:

1. The Contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with Section 5200) of Part 5 of Division 9 of the Family Code; and
2. The Contractor, to the best of its knowledge, is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

Agreement No.: _____

Exhibit: _____

**STANDARD CLAUSES –
INTERAGENCY AGREEMENTS**

Audit Clause. For Agreements in excess of \$10,000, the parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the Agreement. (Government Code Section 8546.7).

Availability of Funds. Work to be performed under this Agreement is subject to availability of funds through the State's normal budget process.

Interagency Payment Clause. For services provided under this Agreement, charges will be computed in accordance with State Administrative Manual Sections 8752 and 8752.1.

Termination Clause. Either State agency may terminate this Agreement upon thirty (30) days' advance written notice. The State agency providing the services shall be reimbursed for all reasonable expenses incurred up to the date of termination.

Severability. If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.

Y2K Language. The Contractor warrants and represents that the goods or services sold, leased, or licensed to the State of California, its agencies, or its political subdivisions, pursuant to this Agreement are "Year 2000 compliant" For purposes of this Agreement, a good or service is Year 2000 compliant if it will continue to fully function before, at, and after the Year 2000 without interruption and, if applicable, with full ability to accurately and unambiguously process, display, compare, calculate, manipulate, and otherwise utilize date information. This warranty and representation supersedes all warranty disclaimers and limitations and all limitations on liability provided by or through the Contractor.

STANDARD CLAUSES - CONTRACTS WITH THE UNITED STATES

Workers' Compensation Clause. Contractor affirms that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that Code, and Contractor affirms that it will comply with such provisions before commencing the performance of the work under this contract. This provision shall apply to the extent provided by federal laws, rules and regulations.

Claims Dispute Clause. Any claim that Contractor may have regarding the performance of this agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the Director, Department of Water Resources, within thirty days of its accrual. State and Contractor shall then attempt to negotiate a resolution of such claim and process an amendment to this agreement to implement the terms of any such resolution. However, Contractor does not waive any rights or duties it may have as may be provided by federal laws, rules and regulations.

Nondiscrimination Clause. During the performance of this contract, the recipient, contractor and its subcontractors shall not deny the contract's benefits to any person on the basis of religion, color, ethnic group identification, sex, age, physical or mental disability, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, mental disability, medical condition, marital status, age (over 40), or sex. Contractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination. Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12900 et seq.), the regulations promulgated thereunder (California Administrative Code, Title 2, Sections 7285.0 et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (Government Code Sections 11135 - 11139.5), and the regulations or standards adopted by the awarding State agency to implement such article. Contractor or recipient shall permit access by representatives of the Department of Fair Employment and Housing and the awarding State agency upon reasonable notice at any time during the normal business hours, but in no case less than 24 hours' notice, to such of its books, records, accounts, other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause. Recipient, Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

Availability of Funds. Work to be performed under this contract is subject to availability of funds through the State's normal budget process.

Audit Clause. For contracts in excess of \$10,000, unless otherwise provided by federal laws, rules or regulations, the contracting parties shall be subject to the examination and audit of the State Auditor for a period of three years after final payment under the contract. (Government Code Section 8546.7).

Payment Retention Clause. Ten percent of any progress payments that may be provided for under this contract shall be withheld per Public Contract Code Sections 10346 and 10379 pending satisfactory completion of all services under the contract.

Reimbursement Clause. If applicable, travel and per diem expenses to be reimbursed under this contract shall be at the same rates the State provides for unrepresented employees in accordance with the provisions of Title 2, Chapter 3, of the California Code of Regulations. Contractor's designated headquarters for the purpose of computing such expenses shall be: _____

Americans With Disabilities Act. By signing this contract, Contractor assures the State that it complies with the Americans With Disabilities Act (ADA) of 1990, (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA.

Conflict of Interest. Current State Employees: a) No State officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any State agency, unless the employment, activity or enterprise is required as a condition of regular State employment. b) No State officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

Former State Employees: a) For the two-year period from the date he or she left State employment, no former State officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency. b) For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by that State agency in a policy-making position in the same general subject area as the proposed contract within the twelve-month period prior to his or her leaving State service.

**STANDARD CLAUSES -
GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS**

LICENSE. No bidder may bid on work for which it is not properly licensed by the Contractor's State License Board. Joint Venture bidders must possess a Joint Venture License. Bidders for this Agreement must have _____ classification(s) of contractor's license, provide license number and expiration date and certify under penalty of perjury that the foregoing is true and correct.

EXAMINATION OF BID DOCUMENTS AND SITE. Bidder shall carefully examine site of work, plans and specifications. The bidder shall investigate conditions, character, quality of surface, or subsurface materials or obstacles to be encountered. No additions to the contract amount will be made because of the Contractor's failure to examine the site of work, plans and specifications.

SUBCONTRACTORS. (See Public Contract Code Section 4104.) The bidder shall set forth in its bid:

- a. The name and business address of each subcontractor who will perform work or labor or render services in an amount in excess of one-half of one percent (.5%) of the General Contractor's total bid; and
- b. The portion of work to be done by each subcontractor. (See Public Contract Code Section 4104.)

PAYMENT BOND. The Contractor shall furnish, concurrently with signing the contract, a Payment Bond to Accompany Construction Contract, Standard Form 807, in an amount not less than fifty percent (50%) of the amount of the contract when its bid exceeds \$5000. Such bond shall be executed by the Contractor and a corporate surety approved by the State.

WORKERS' COMPENSATION INSURANCE CERTIFICATION. Upon execution of the contract, the Contractor shall provide the State either with a certificate of insurance issued by an insurance carrier licensed to write workers' compensation insurance in the State of California, including the name of the carrier and date of expiration of the insurance, or a certificate of consent to self insure issued by the Director of the Department of Industrial Relations.

PREVAILING WAGE. It is hereby mutually agreed that the Contractor shall forfeit to the State a penalty of \$50 for each calendar day, or portion thereof, for each worker paid by it, or subcontractor under it, less than the prevailing wage so stipulated. In addition the Contractor further agrees to pay to each worker the difference between the actual amount paid for each calendar day, or portion thereof, and the stipulated prevailing wage rate for the same. This provision shall not apply to properly registered apprentices.

MAXIMUM HOURS. It is further agreed that the maximum hours a worker is to be employed is limited to 8 hours a day and 40 hours a week and the Contractor shall forfeit, as a penalty to the State, \$25 for each worker employed in the execution of the contract for each calendar day during which a worker is required or permitted to labor more than 8 hours in any calendar day or more than 40 hours in any calendar week in violation of Labor Code Sections 1810-1815, inclusive.

TRAVEL AND SUBSISTENCE PAYMENTS. Travel and subsistence payments shall be paid to each worker needed to execute the work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Labor Code Section 1773.8.

APPRENTICES. Properly registered apprentices may be employed in the prosecution of the work. Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he or she is employed, and shall be employed only at the work of the craft or trade to which he or she is registered. The Contractor and each subcontractor must comply with the requirements of Labor Code Section 1777.5 and any related regulations regarding the employment of registered apprentices.

SUBSTITUTIONS. Pursuant to Section 3400 of the Public Contract Code, should the Contractor seek to substitute a brand of materials other than specified, the Contractor shall submit data substantiating the request for substitution of "an equal" item. The substantiating data must be presented for approval within thirty-five (35) days after the award of the agreement. The State shall be the sole judge as to the comparative quality and suitability of "an equal" item.

ANTI-TRUST CLAIMS. The Contractor offers and agrees and will require all of his subcontractors and suppliers to agree to assign to the awarding body all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act [Chapter 2 (commencing with Sec. 165700) of Part 2 of Division 7 of the Business and Professions Code], arising from purchases of goods, services, or materials, pursuant to the public works contract or the subcontract. The assignment made by the Contractor and all additional assignments made by the subcontractors and suppliers shall be deemed to have been made and will become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment or the necessity of tendering to the awarding body any written assignments.

If an awarding body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Government Code Sections 4550-4554, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under Government Code Sections 4550-4554, if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

PROGRESS PAYMENTS

- a. Ten percent of any progress payments that may be provided for under this contract shall be withheld pending satisfactory completion of all services under the contract. The Contractor may substitute securities for such retentions and receive any interest accrued provided in Section 22300 of the Public Contract Code.
- b. No progress payments shall be made unless the Contractor, upon execution of the contract, furnishes a faithful performance bond for not less than one-half the total amount payable under the contract.

PAYROLL RECORDS. The Contractor and each subcontractor shall comply with Labor Code Section 1776 regarding payroll records.

NONCOLLUSION AFFIDAVIT. All bidders shall submit with their bids a signed and notarized Noncollusion Affidavit (DWR 4206).

LABOR CODE PROVISIONS. Pursuant to Sections 1770 et seq. of the California Labor Code, the Director of the State Department of Industrial Relations has made the general prevailing wage determination covering the locality where work for this contract is to be performed. A copy of the publication **General Prevailing Wage Rates** is on file for inspection at the State Department of Water Resources, Contract Services Office, 1416 Ninth Street, Sacramento, CA.

The Contractor agrees to post a copy of the **General Prevailing Wage Determination** for the locality of each job site. The Contractor also agrees to comply with all requirements of the California Labor Code and to pay the forfeiture penalties and monies which may become due as provided in Sections 1775 and 1813 of that Code.

UNDOCUMENTED ALIENS. No bidder or Contractor shall be eligible to bid for or receive a public works or purchase contract, who has, in the preceding five years, been convicted of violating a State or federal law respecting the employment of undocumented aliens.

Agreement No.: _____

Exhibit: _____

**STANDARD CLAUSES –
INSURANCE REQUIREMENTS**

Contractor shall furnish to the State a certificate of insurance stating that there is liability insurance presently in effect for the Contractor of not less than \$1,000,000 per occurrence for bodily injury and property damage liability combined.

The certificate of insurance must include the following provisions:

1. The insurer will not cancel the insured's coverage without thirty (30) days' prior written notice to the State.
2. The State of California, its officers, agents, employees, and servants are included as additional insured, but only insofar as the operations under this Agreement are concerned.

Contractor agrees that the bodily injury liability insurance herein provided for shall be in effect at all times during the term of this Agreement. In the event said insurance coverage expires at any time or times during the time of this Agreement, Contractor agrees to provide at least thirty (30) days prior to said expiration date, a new certificate of insurance evidencing insurance coverage as provided for herein for not less than the remainder of the term of this Agreement, or for a period of not less than one (1) year. New certificates of insurance are subject to the approval of the Department of General Services and Contractor agrees that no work or services shall be performed prior to the giving of such approval. In the event Contractor fails to keep insurance coverage in effect at all times as herein provided, in addition to any other remedies it may have, State may terminate this Agreement upon the occurrence of such event.

Insurance certificates must have an original signature.

**STANDARD CALIFORNIA NONDISCRIMINATION
CONSTRUCTION CONTRACT SPECIFICATIONS
(GOVERNMENT CODE, SECTION 12990)**

STD. 18 (REV. 1-95) *AKC*

These specifications are applicable to all state contractors and subcontractors having a construction contract or subcontract of \$5,000 or more.

1. As used in the specifications:
 - a. "Administrator" means Administrator, Office of Compliance Programs, California Department of Fair Employment and Housing (DFEH), or any person to whom the Administrator delegates authority;
 - b. "Minority" includes:
 - (i) **Black** (all persons having primary origins in any of the black racial groups of Africa, but not of Hispanic origin);
 - (ii) **Hispanic** (all persons of primary culture or origin in Mexico, Puerto Rico, Cuba, Central or South America or other Spanish derived culture or origin regardless of race);
 - (iii) **Asian/Pacific Islander** (all persons having primary origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the Pacific Islands); and
 - (iv) **American Indian/Alaskan Native** (all persons having primary origins in any of the original peoples of North America and who maintain culture identification through tribal affiliation or community recognition).
2. Whenever the contractor or any subcontractor subcontracts a portion of the work, it shall physically include in each subcontract of \$5,000 or more the nondiscrimination clause in this contract directly or through incorporation by reference. Any subcontract for work involving a construction trade shall also include the Standard California Construction Contract Specifications, either directly or through incorporation by reference. Any subcontract for work involving a construction trade shall also include the Standard California Construction Contract Specifications, either directly or through incorporation by reference.
3. The contractor shall implement the specific nondiscrimination standards provided in paragraphs 6(a) through (e) of these specifications.
4. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Government Code, Section 12990, or the regulations promulgated pursuant thereto.
5. In order for the nonworking training hours of apprentices and trainees to be counted, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor or the California Department of Industrial Relations.
6. The contractor shall take specific actions to implement its nondiscrimination program. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor must be able to demonstrate fully its efforts under Steps a. through e. below:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and at all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all leadpersons, superintendents, and other on-site supervisory personnel are aware of and carry out the contractor's obligations to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Provide written notification within seven days to the director of DFEH when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - c. Disseminate the Contractor's equal employment opportunity policy by providing notice of the policy to unions and training, recruitment and outreach programs and requesting their cooperation in assisting the Contractor to meet its obligations; and by posting the company policy on bulletin boards accessible to all employees at each location where construction work is performed.

(Continue on reverse)

**STANDARD CALIFORNIA NONDISCRIMINATION
CONSTRUCTION CONTRACT SPECIFICATIONS
(GOVERNMENT CODE, SECTION 12990)**STD. 18 (REV. 1-85) (REVERSE) **ABC**

- d. Ensure all personnel making management and employment decisions regarding hiring, assignment, layoff, termination, conditions of work, training, rates of pay or other employment decisions, including all supervisory personnel, superintendents, general leadpersons, on-site leadpersons, etc., are aware of the Contractor's equal employment opportunity policy and obligations, and discharge their responsibilities accordingly.
 - e. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the equal employment opportunity policy and the Contractor's obligations under these specifications are being carried out.
7. Contractors are encouraged to participate in voluntary associations which assist in fulfilling their equal employment opportunity obligations. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's.
 8. The Contractor is required to provide equal employment opportunity for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Fair Employment and Housing Act (Gov. Code Section 12990 et seq.) if a particular group is employed in a substantially disparate manner.
 9. Establishment and implementation of a bona fide affirmative action plan pursuant to Section 8104(b) of this Chapter shall create a rebuttable presumption that a contractor is in compliance with the requirements of Section 12990 of the Government Code and its implementing regulations.
 10. The Contractor shall not use the nondiscrimination standards to discriminate, harass or allow harassment against any person because of race, color, religious creed, sex, national origin, ancestry, disability (including HIV and AIDS), medical condition (cancer), age, marital status, or denial of family and medical care leave and denial of pregnancy disability leave.
 11. The Contractor shall not enter into any subcontract with any person or firm decertified from state contracts pursuant to Government Code Section 12990.
 12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the nondiscrimination clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Government Code Section 12990 and its implementing regulations by the awarding agency. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Government Code Section 12990.
 13. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by OCP and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status, (e.g., mechanic, apprentice trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in any easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

PAYMENT BOND TO ACCOMPANY CONSTRUCTION CONTRACT
(CIVIL CODE SECTION 3247)

BOND NO. _____

The premium on this bond is _____ for the term _____

Know All Men By These Presents:

That The State of California, acting by and through the _____

has awarded to _____ whose address is

(CONTRACTOR / PRINCIPLE)

_____ as Principle, a contract for the work described as follows:

WHEREAS, The provisions of Civil Code Section 3247 require that the Principle file a bond in connection with said contract and this bond is executed and tendered in accordance therewith.

NOW THEREFORE, Principle and _____, a corporation organized under the laws of _____ (SURETY), and authorized to transact a general surety business in the State of California, as Surety, are held and firmly bound to the People of the State of California in the penal sum of _____ (_____), for which payment we bind ourselves, our heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

1. That if said Principle or its subcontractors shall fail to pay any of the persons named in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principle and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, that the Surety herein will pay for the same, otherwise this obligation is to be void. In case suit is brought upon this bond, the Surety will pay a reasonable attorney's fee to be fixed by the court.

2. This bond shall insure to the benefit of any persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.

3. The aggregate liability of the Surety hereunder, including costs and attorney fees, on all claims whatsoever shall not exceed the penal sum of the bond in accordance with the provisions of Section 996.470(a) of the Code of Civil Procedure.

4. This bond is executed by the Surety, to comply with the provisions of Chapter 7, Title 15, Part 4, Division 3 of the Civil Code and of Chapter 2, Title 14, Part 2 of the Code of Civil Procedure and said bond shall be subject to all of the terms and provisions thereof.

5. This bond may be cancelled by the Surety in accordance with the provisions of Section 996.310 et seq. of the Code of Civil Procedure.

6. This bond to become effective _____

(NAME OF SURETY)

(ADDRESS)

I certify (or declare) under penalty of perjury that I have executed the foregoing bond under an unrevoked power of attorney.

Executed in _____ on _____

(CITY AND STATE)

(DATE)

under the laws of the State of California.

(SIGNATURE OF ATTORNEY IN FACT)

(PRINTED OR TYPED NAME OF ATTORNEY IN FACT)

PERFORMANCE BOND TO ACCOMPANY CONTRACT

WHEREAS, The State of California acting by and through the

_____ , has awarded
(insert name of the Department awarding the contract)

to _____ ,

as principal hereinafter designated as the "Contractor," a contract for

AND WHEREAS, The Contractor is required to furnish a bond in connection with said contract guaranteeing the faithful performance thereof;

NOW, THEREFORE, We the undersigned Contractor and surety are held and firmly bound unto the State of California in the sum of _____

_____ dollars
(\$ _____), to be paid to the said State or its certain attorney, its successors and assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors or assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

That if the Contractor, his or its heirs, executors and administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the foregoing contract and any alteration thereof made as therein provided, on his or its part to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless the State of California, its officers and agents, as therein stipulated, then this obligation shall become and be null and void; otherwise it shall be and remain in full force and effect.

IN WITNESS WHEREOF, We have hereto set our hands and seals on this _____
day of _____, 19 ____.

_____ [Seal]

_____ [Seal]
Contractor

_____ [Seal]

_____ [Seal]
Name of Surety

[Seal] By _____ [Seal]
Attorney-in-Fact

NOTE: Signatures of those executing for surety must be properly acknowledged.

If you would like to research the governing circulars or would like copies of them, the OMB website is "<http://www.whitehouse.gov/OMB/circulars/index.html>". The Washington, D.C. publications ordering telephone number, (202) 395-7332. The following circulars may be relevant to your proposal.

- Circular A-21, Revised October 27, 1998, "Cost Principles For Educational Institutions"
- Circular A-110, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-profit Organizations"
- Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Non-profit Organizations"
- Circular A-87, Revised August 29, 1997, "Cost Principles for State, Local and Indian Tribal Governments"
- Circular A-102, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Cooperative Agreements with State and Local Governments"
- Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Non-profit Organizations"
- Circular A-110, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-profit Organizations"
- Circular A-122, Revised May 19, 1998, "Cost Principles for Non-profit Organizations"
- Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Non-profit Organizations"
- All agreements with organizations other than those indicated above shall be in accordance with the basic principles of OMB Circular A-110, and cost principles shall be in accordance with Part 31 of the Federal Acquisition Regulations, Subpart 31.2 entitled, "Contracts with Commercial Organizations."

Standard USBR Financial Assistance Agreement Language.

REGULATIONS AND GUIDANCE. The regulations at 43 CFR, Part 12, Subparts A - F are hereby incorporated by reference as though set forth in full text. The following Office of Management and Budget (OMB) Circulars, as applicable, and as implemented by 43 CFR Part 12, are also incorporated by reference and made a part of this agreement. Failure of a recipient to comply with any provision may be the basis for withholding payments for proper charges made by the recipient and for termination of support. Copies of OMB Circulars are available on the Internet at <http://www.whitehouse.gov/OMB/circulars/index.html>. The implementation of the circulars at 43 CFR Part 12 is available at <http://www.access.gpo.gov/nara/cfr/index.html>.

a. Agreements with colleges and universities shall be in accordance with the following circulars:

Circular A-21, Revised October 27, 1998, "Cost Principles For Educational Institutions"

Circular A-110, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-profit Organizations"

Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Non-profit Organizations"

b. Agreements with State and local governments shall be in accordance with the provisions of the following circulars:

Circular A-87, Revised August 29, 1997, "Cost Principles for State, Local and Indian Tribal Governments"

Circular A-102, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Cooperative Agreements with State and Local Governments"

Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Non-profit Organizations"

c. Agreements made with non-profit organizations shall be in accordance with the following circulars and provisions:

Circular A-110, Revised August 29, 1997, "Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-profit Organizations"

Circular A-122, Revised May 19, 1998, "Cost Principles for Non-profit Organizations"

Circular A-133, Revised June 24, 1997, "Audits of States, Local Governments, and Non-profit Organizations"

d. All agreements with organizations other than those indicated above shall be in accordance with the basic principles of OMB Circular A-110, and cost principles shall be in accordance with Part 31 of the Federal Acquisition Regulations, Subpart 31.2 entitled, "Contracts with Commercial Organizations."

MODIFICATIONS. Any changes to this Agreement shall be made by means of a written modification. Changes dealing with administrative matters (such as in paying office, changes of address, etc.) may be made by a unilateral modification. A modification issued solely for funding a Federal Fiscal Year may also be made unilaterally. Any other changes shall be made by a bilateral modification (signed by both parties). No written statement by any other person than the Grants and Cooperative Agreements Officer, and no oral statement of any person, shall be allowed in any manner or degree to modify or otherwise effect the terms of the Agreement.

ELECTRONIC FUNDS TRANSFER. In accordance with the Debt Collection Improvement Act of 1996, 31 CFR 208, effective January 2, 1999 all Federal payments to recipients must be made by

Electronic Funds Transfer (EFT) unless a waiver has been granted in accordance with 31 CFR 208.4. Upon award of a financial assistance agreement, Reclamation will provide the recipient with further instructions for implementation of EFT payments or a certification form to request exemption from EFT.

ASSURANCES INCORPORATED BY REFERENCE. The provisions of the Assurances executed by the Recipient in connection with this agreement shall apply with full force and effect to this agreement as if fully set forth in these General Provisions. Such Assurances include, but are not limited to, the promise to comply with all applicable Federal statutes and orders relating to nondiscrimination in employment, assistance, and housing; the Hatch Act; Federal wage and hour laws and regulations and work place safety standards; Federal environmental laws and regulations and the Endangered Species Act; and Federal protection of rivers and waterways and historic and archeological preservation.

COVENANT AGAINST CONTINGENT FEES. The recipient warrants that no person or agency has been employed or retained to solicit or secure this agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide offices established and maintained by the recipient for the purpose of securing agreements or business. For breach or violation of this warranty, the Government shall have the right to annul this agreement without liability or, in its discretion, to deduct from the agreement amount, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

CONTRACTING WITH SMALL AND MINORITY FIRMS, AND WOMEN'S BUSINESS ENTERPRISES. It is a national policy to award a fair share of contracts to small and minority business firms. The Department of the Interior is strongly committed to the objectives of this policy and encourages all recipients of its grants and cooperative agreements to take affirmative steps to ensure such fairness.

a. The grantee and subgrantee shall take all necessary affirmative steps to assure that minority firms, and women's business enterprises are used when possible.

b. Affirmative steps shall include:

(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;

(4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;

(5) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce as appropriate, and

(6) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in b.(1) through (5) above.

NOTICE REGARDING BUY AMERICAN ACT. In accordance with Section 502 of Pub.L. 105-245 (112 STAT. 1855), as implemented by 43 CFR 12.710, please be advised of the following:

It is the sense of the Congress that, to the greatest extent practicable, all equipment and products purchased with funds made available in this Act should be American-made.

RESOLVING DISAGREEMENTS. When entering into a cooperative agreement with a recipient, Reclamation commits itself to working with the recipient in a harmonious manner to achieve the objectives of the project successfully. When disagreements arise between the parties, they must be resolved according to the procedures discussed below:

a. Reclamation shall attempt first to resolve disagreements with the recipient through informal discussion among the Grants or Contract Specialist, the Program Officer, and the recipient's Project Director.

b. If the disagreement cannot be resolved through informal discussion between these parties, the Grants Specialist and the Program Officer shall document the nature of the disagreement and bring it to the attention of the Grants Officer.

c. After reviewing the facts of the disagreement, as presented by the Grants and Program Offices, the Grants Officer will arrange a formal meeting. If agreement still cannot be reached, the parties will collectively decide on any varied approaches which might be used to resolve the disagreement. The parties shall be responsible for their individual expenses related to any approach utilized to resolve the disagreement. If attempts at resolving the disagreement fail, the Regional Director shall make a decision which shall be final and conclusive.

d. Nothing herein shall be construed to delay or limit Reclamation's right to take immediate and appropriate action, as set forth at 43 CFR, Subpart 12.83, in the event of material noncompliance by the recipient, and no attempts at informal resolution shall be necessary.

Any post award issue will be open for resolution in accordance with the above procedures, with the exception of disagreements regarding continuation of the agreement (since either party may terminate the agreement with the specified notice), or other matters specifically addressed by the agreement itself.

TERMINATION OF THE AGREEMENT . Termination of this agreement, either for cause or convenience, will be in accordance with the termination provisions of the applicable OMB Circular.

LOBBYING RESTRICTIONS. In accordance with Section 501 of Pub.L. 105-245, Energy and Water Development Appropriation Act, FY 1999, as implemented by 43 CFR Part 12, Subpart A, please be advised of the following:

Recipient shall not use any of the funds from the Energy and Water Development Appropriation Act, FY 2000, directly or indirectly, to influence Congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in section 1913 of Title 18, United States Code.

APPLICATION FOR FEDERAL ASSISTANCE

OMB Approval No. 0348-0043

1. TYPE OF SUBMISSION: Application <input type="checkbox"/> Construction <input type="checkbox"/> Non-Construction		2. DATE SUBMITTED		Applicant Identifier	
		3. DATE RECEIVED BY STATE		State Application Identifier	
Preapplication <input type="checkbox"/> Construction <input type="checkbox"/> Non-Construction		4. DATE RECEIVED BY FEDERAL AGENCY		Federal Identifier	
5. APPLICANT INFORMATION					
Legal Name:			Organizational Unit:		
Address (give city, county, State, and zip code):			Name and telephone number of person to be contacted on matters involving this application (give area code)		
6. EMPLOYER IDENTIFICATION NUMBER (EIN): <input type="text"/> <input type="text"/> - <input type="text"/>			7. TYPE OF APPLICANT: (enter appropriate letter in box) <input type="checkbox"/>		
8. TYPE OF APPLICATION: <input type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es) <input type="checkbox"/> <input type="checkbox"/> A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration Other(specify): _____			A. State B. County C. Municipal D. Township E. Interstate F. Intermunicipal G. Special District H. Independent School Dist. I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify) _____		
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> - <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>			9. NAME OF FEDERAL AGENCY:		
12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.):			11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:		
13. PROPOSED PROJECT		14. CONGRESSIONAL DISTRICTS OF:			
Start Date	Ending Date	a. Applicant		b. Project	
15. ESTIMATED FUNDING:		16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?			
a. Federal	\$	.		.00	
b. Applicant	\$	.		.00	
c. State	\$	.		.00	
d. Local	\$	.		.00	
e. Other	\$	.		.00	
f. Program Income	\$	.		.00	
g. TOTAL	\$	.		.00	
17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes," attach an explanation. <input type="checkbox"/> No					
18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.					
a. Type Name of Authorized Representative		b. Title		c. Telephone Number	
d. Signature of Authorized Representative		e. Date Signed			

Previous Edition Usable
Authorized for Local Reproduction

Standard Form 424 (Rev. 7-97)
Prescribed by OMB Circular A-102

INSTRUCTIONS FOR THE SF-424

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0043), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

- | Item: | Entry: | Item: | Entry: |
|-------|---|-------|--|
| 1. | Self-explanatory. | 12. | List only the largest political entities affected (e.g., State, counties, cities). |
| 2. | Date application submitted to Federal agency (or State if applicable) and applicant's control number (if applicable). | 13. | Self-explanatory. |
| 3. | State use only (if applicable). | 14. | List the applicant's Congressional District and any District(s) affected by the program or project. |
| 4. | If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank. | 15. | Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate <i>only</i> the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15. |
| 5. | Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application. | 16. | Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process. |
| 6. | Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service. | 17. | This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes. |
| 7. | Enter the appropriate letter in the space provided. | 18. | To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.) |
| 8. | Check appropriate box and enter appropriate letter(s) in the space(s) provided:

-- "New" means a new assistance award.

-- "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date.

-- "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation. | | |
| 9. | Name of Federal agency from which assistance is being requested with this application. | | |
| 10. | Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested. | | |
| 11. | Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project. | | |

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

E-033098

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.		\$	\$	\$	\$	\$
2.						
3.						
4.						
5. Totals		\$	\$	\$	\$	\$

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
a. Personnel	\$	\$	\$	\$	\$
b. Fringe Benefits					
c. Travel					
d. Equipment					
e. Supplies					
f. Contractual					
g. Construction					
h. Other					
i. Total Direct Charges (sum of 6a-6h)					
j. Indirect Charges					
k. TOTALS (sum of 6i and 6j)	\$	\$	\$	\$	\$
7. Program Income	\$	\$	\$	\$	\$

E - 0 3 3 0 9 7

Authorized for Local Reproduction

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.		\$	\$	\$
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)		\$	\$	\$

SECTION D - FORECASTED CASH NEEDS

	SECTION D - FORECASTED CASH NEEDS				
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$	\$	\$	\$	\$
14. Non-Federal					
15. TOTAL (sum of lines 13 and 14)	\$	\$	\$	\$	\$

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16.	\$	\$	\$	\$
17.				
18.				
19.				
20. TOTAL (sum of lines 16-19)	\$	\$	\$	\$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:	22. Indirect Charges:
---------------------	-----------------------

23. Remarks:

E 0 3 3 0 9 8

INSTRUCTIONS FOR THE SF-424A

Public reporting burden for this collection of information is estimated to average 180 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0044), Washington, DC 20503.

**PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET.
SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.**

General Instructions

This form is designed so that application can be made for funds from one or more grant programs. In preparing the budget, adhere to any existing Federal grantor agency guidelines which prescribe how and whether budgeted amounts should be separately shown for different functions or activities within the program. For some programs, grantor agencies may require budgets to be separately shown by function or activity. For other programs, grantor agencies may require a breakdown by function or activity. Sections A, B, C, and D should include budget estimates for the whole project except when applying for assistance which requires Federal authorization in annual or other funding period increments. In the latter case, Sections A, B, C, and D should provide the budget for the first budget period (usually a year) and Section E should present the need for Federal assistance in the subsequent budget periods. All applications should contain a breakdown by the object class categories shown in Lines a-k of Section B.

Section A. Budget Summary Lines 1-4 Columns (a) and (b)

For applications pertaining to a *single* Federal grant program (Federal Domestic Assistance Catalog number) and *not requiring* a functional or activity breakdown, enter on Line 1 under Column (a) the Catalog program title and the Catalog number in Column (b).

For applications pertaining to a *single* program *requiring* budget amounts by multiple functions or activities, enter the name of each activity or function on each line in Column (a), and enter the Catalog number in Column (b). For applications pertaining to multiple programs where none of the programs require a breakdown by function or activity, enter the Catalog program title on each line in Column (a) and the respective Catalog number on each line in Column (b).

For applications pertaining to *multiple* programs where one or more programs *require* a breakdown by function or activity, prepare a separate sheet for each program requiring the breakdown. Additional sheets should be used when one form does not provide adequate space for all breakdown of data required. However, when more than one sheet is used, the first page should provide the summary totals by programs.

Lines 1-4, Columns (c) through (g)

For new applications, leave Column (c) and (d) blank. For each line entry in Columns (a) and (b), enter in Columns (e), (f), and (g) the appropriate amounts of funds needed to support the project for the first funding period (usually a year).

For continuing grant program applications, submit these forms before the end of each funding period as required by the grantor agency. Enter in Columns (c) and (d) the estimated amounts of funds which will remain unobligated at the end of the grant funding period only if the Federal grantor agency instructions provide for this. Otherwise, leave these columns blank. Enter in columns (e) and (f) the amounts of funds needed for the upcoming period. The amount(s) in Column (g) should be the sum of amounts in Columns (e) and (f).

For supplemental grants and changes to existing grants, do not use Columns (c) and (d). Enter in Column (e) the amount of the increase or decrease of Federal funds and enter in Column (f) the amount of the increase or decrease of non-Federal funds. In Column (g) enter the new total budgeted amount (Federal and non-Federal) which includes the total previous authorized budgeted amounts plus or minus, as appropriate, the amounts shown in Columns (e) and (f). The amount(s) in Column (g) should not equal the sum of amounts in Columns (e) and (f).

Line 5 - Show the totals for all columns used.

Section B Budget Categories

In the column headings (1) through (4), enter the titles of the same programs, functions, and activities shown on Lines 1-4, Column (a), Section A. When additional sheets are prepared for Section A, provide similar column headings on each sheet. For each program, function or activity, fill in the total requirements for funds (both Federal and non-Federal) by object class categories.

Line 6a-i - Show the totals of Lines 6a to 6h in each column.

Line 6j - Show the amount of indirect cost.

Line 6k - Enter the total of amounts on Lines 6i and 6j. For all applications for new grants and continuation grants the total amount in column (5), Line 6k, should be the same as the total amount shown in Section A, Column (g), Line 5. For supplemental grants and changes to grants, the total amount of the increase or decrease as shown in Columns (1)-(4), Line 6k should be the same as the sum of the amounts in Section A, Columns (e) and (f) on Line 5.

Line 7 - Enter the estimated amount of income, if any, expected to be generated from this project. Do not add or subtract this amount from the total project amount, Show under the program

INSTRUCTIONS FOR THE SF-424A (continued)

narrative statement the nature and source of income. The estimated amount of program income may be considered by the Federal grantor agency in determining the total amount of the grant.

Section C. Non-Federal Resources

Lines 8-11 Enter amounts of non-Federal resources that will be used on the grant. If in-kind contributions are included, provide a brief explanation on a separate sheet.

Column (a) - Enter the program titles identical to Column (a), Section A. A breakdown by function or activity is not necessary.

Column (b) - Enter the contribution to be made by the applicant.

Column (c) - Enter the amount of the State's cash and in-kind contribution if the applicant is not a State or State agency. Applicants which are a State or State agencies should leave this column blank.

Column (d) - Enter the amount of cash and in-kind contributions to be made from all other sources.

Column (e) - Enter totals of Columns (b), (c), and (d).

Line 12 - Enter the total for each of Columns (b)-(e). The amount in Column (e) should be equal to the amount on Line 5, Column (f), Section A.

Section D. Forecasted Cash Needs

Line 13 - Enter the amount of cash needed by quarter from the grantor agency during the first year.

Line 14 - Enter the amount of cash from all other sources needed by quarter during the first year.

Line 15 - Enter the totals of amounts on Lines 13 and 14.

Section E. Budget Estimates of Federal Funds Needed for Balance of the Project

Lines 16-19 - Enter in Column (a) the same grant program titles shown in Column (a), Section A. A breakdown by function or activity is not necessary. For new applications and continuation grant applications, enter in the proper columns amounts of Federal funds which will be needed to complete the program or project over the succeeding funding periods (usually in years). This section need not be completed for revisions (amendments, changes, or supplements) to funds for the current year of existing grants.

If more than four lines are needed to list the program titles, submit additional schedules as necessary.

Line 20 - Enter the total for each of the Columns (b)-(e). When additional schedules are prepared for this Section, annotate accordingly and show the overall totals on this line.

Section F. Other Budget Information

Line 21 - Use this space to explain amounts for individual direct object class cost categories that may appear to be out of the ordinary or to explain the details as required by the Federal grantor agency.

Line 22 - Enter the type of indirect rate (provisional, predetermined, final or fixed) that will be in effect during the funding period, the estimated amount of the base to which the rate is applied, and the total indirect expense.

Line 23 - Provide any other explanations or comments deemed necessary.

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
APPLICANT ORGANIZATION	DATE SUBMITTED

Standard Form 424B (Rev. 7-97) Back

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	\$.00	\$.00	\$.00
2. Land, structures, rights-of-way, appraisals, etc.	\$.00	\$.00	\$.00
3. Relocation expenses and payments	\$.00	\$.00	\$.00
4. Architectural and engineering fees	\$.00	\$.00	\$.00
5. Other architectural and engineering fees	\$.00	\$.00	\$.00
6. Project inspection fees	\$.00	\$.00	\$.00
7. Site work	\$.00	\$.00	\$.00
8. Demolition and removal	\$.00	\$.00	\$.00
9. Construction	\$.00	\$.00	\$.00
10. Equipment	\$.00	\$.00	\$.00
11. Miscellaneous	\$.00	\$.00	\$.00
12. SUBTOTAL (sum of lines 1-11)	\$.00	\$.00	\$.00
13. Contingencies	\$.00	\$.00	\$.00
14. SUBTOTAL	\$.00	\$.00	\$.00
15. Project (program) income	\$.00	\$.00	\$.00
16. TOTAL PROJECT COSTS (subtract #15 from #14)	\$.00	\$.00	\$.00
FEDERAL FUNDING			
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible costs from line 16c Multiply X _____%		\$.00

INSTRUCTIONS FOR THE SF-424C

Public reporting burden for this collection of information is estimated to average 180 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0041), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This sheet is to be used for the following types of applications: (1) "New" (means a new [previously unfunded] assistance award); (2) "Continuation" (means funding in a succeeding budget period which stemmed from a prior agreement to fund); and (3) "Revised" (means any changes in the Federal Government's financial obligations or contingent liability from an existing obligation). If there is no change in the award amount, there is no need to complete this form. Certain Federal agencies may require only an explanatory letter to effect minor (no cost) changes. If you have questions, please contact the Federal agency.

Column a. - If this is an application for a "New" project, enter the total estimated cost of each of the items listed on lines 1 through 16 (as applicable) under "COST CLASSIFICATION."

If this application entails a change to an existing award, enter the eligible amounts *approved under the previous award* for the items under "COST CLASSIFICATION."

Column b. - If this is an application for a "New" project, enter that portion of the cost of each item in Column a. which is *not* allowable for Federal assistance. Contact the Federal agency for assistance in determining the allowability of specific costs.

If this application entails a change to an existing award, enter the adjustment [+ or (-)] to the previously approved costs (from column a.) reflected in this application.

Column. - This is the net of lines 1 through 16 in columns "a." and "b."

Line 1 - Enter estimated amounts needed to cover administrative expenses. Do not include costs which are related to the normal functions of government. Allowable legal costs are generally only those associated with the purchases of land which is allowable for Federal participation and certain services in support of construction of the project.

Line 2 - Enter estimated site and right(s)-of-way acquisition costs (this includes purchase, lease, and/or easements).

Line 3 - Enter estimated costs related to relocation advisory assistance, replacement housing, relocation payments to displaced persons and businesses, etc.

Line 4 - Enter estimated basic engineering fees related to construction (this includes start-up services and preparation of project performance work plan).

Line 5 - Enter estimated engineering costs, such as surveys, tests, soil borings, etc.

Line 6 - Enter estimated engineering inspection costs.

Line 7 - Enter estimated costs of site preparation and restoration which are not included in the basic construction contract.

Line 9 - Enter estimated cost of the construction contract.

Line 10 - Enter estimated cost of office, shop, laboratory, safety equipment, etc. to be used at the facility, if such costs are not included in the construction contract.

Line 11 - Enter estimated miscellaneous costs.

Line 12 - Total of items 1 through 11.

Line 13 - Enter estimated contingency costs. (Consult the Federal agency for the percentage of the estimated construction cost to use.)

Line 14 - Enter the total of lines 12 and 13.

Line 15 - Enter estimated program income to be earned during the grant period, e.g., salvaged materials, etc.

Line 16 - Subtract line 15 from line 14.

Line 17 - This block is for the computation of the Federal share. Multiply the total allowable project costs from line 16, column "c." by the Federal percentage share (this may be up to 100 percent; consult Federal agency for Federal percentage share) and enter the product on line 17.

ASSURANCES - CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.
14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE	
APPLICANT ORGANIZATION		DATE SUBMITTED

SF-424D (Rev. 7-97) Back

U.S. Department of the Interior

**Certifications Regarding Debarment, Suspension and
Other Responsibility Matters, Drug-Free Workplace
Requirements and Lobbying**

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - **The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.** See below for language to be used; use this form for certification and sign; or use Department of the Interior Form 1954 (DI-1954). (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12.)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

**PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters -
Primary Covered Transactions**

CHECK IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -
Lower Tier Covered Transactions**

CHECK IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2010
March 1995
(This form consolidates DI-1953, DI-1954,
DI-1955, DI-1956 and DI-1963)

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK __ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL.

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
- (b) Establishing an ongoing drug-free awareness program to inform employees about--
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --
 - (1) Abide by the terms of the statement; and
 - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --
 - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Check __ if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK __ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL.

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

DI-2010
March 1995
(This form consolidates DI-1953, DI-1954,
DI-1955, DI-1956 and DI-1963)

**PART E: Certification Regarding Lobbying
Certification for Contracts, Grants, Loans, and Cooperative Agreements**

*CHECK __ IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND
THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT,
SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.*

*CHECK __ IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL
LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR
SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.*

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL _____

TYPED NAME AND TITLE _____

DATE _____

DI-2010

March 1995

(This form consolidates DI-1953, DI-1954,

DI-1955, DI-1956 and DI-1963)

ATTACHMENT F

CONFLICT OF INTEREST RULES For Participants in Proposal Review Process

The Ecosystem Restoration Program grant selection process involves multiple levels of review that result in final funding decisions by the Secretary of the Interior (for federal funds) and the Secretary for Resources (for state funds). Participants in the review process include: the Interim Science Board, individual scientific/technical reviewers, CALFED staff, the Agency/Stakeholder Ecosystem Team (ASET), panels of topical and geographic reviewers, the Ecosystem Roundtable, and the Bay-Delta Advisory Council. The CALFED Policy Group will make a recommendation to the Secretaries. Individuals participating in each step of the review process must comply with Federal and State conflict of interest laws. Applicable statutes include, but are not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411 for State conflict of interest requirements.

The participants in the project review process have been selected based on their scientific and technical expertise, not the agency or organization they work with. To ensure objectivity in the review process, the CALFED Program will impose the following rules in addition to the legal prohibitions on conflicts of interest to protect against perceived bias in the selection process.

Interim Science Board Members: Members of the Interim Science Board, or its successor, may not apply for grant funds in any year in which they serve on the Board for all or part of the year. Members with an institutional connection to a proposal will be required to reveal that institutional connection at the outset of discussions on the proposals.

Agency/Stakeholder Ecosystem Team Members: Members of the Agency/Stakeholder Ecosystem Team may not apply for grant funds in any year in which they serve on the Team for all or part of the year. In addition, members of the Agency/Stakeholder Ecosystem Team may not receive financial benefits under a proposal in any year in which they serve on the Team for all or part of the year. Members with an institutional connection to a proposal will be required to reveal that institutional connection at the outset of discussions on the proposals.

Scientific/Technical Reviewers: Individual scientific and technical reviewers may not review a proposal with which they have an institutional connection. Individual scientific and technical reviewers are expected to review proposals independently and without delegating the review task in whole or in part to any other person.

Topical and Geographic Review Panelists: Topical and geographic panelists with an institutional connection to a proposal will be required to reveal that institutional connection at the outset of discussions on the proposals.

An institutional connection exists between employees and their employers. For example, an employee of a state or federal agency will have an institutional connection with a proposal submitted by that agency, even if the applicant is in a different division of the agency than reviewer. Similarly, a university faculty member will have an institutional connection with a proposal submitted by a co-faculty member or graduate student. **If a reviewer has an institutional connection with a proposal they may recuse themselves, or they may be asked to recuse themselves.**

Ecosystem Roundtable Members: The Ecosystem Roundtable adopted the following policy to govern the participation of its membership in the CALFED Bay-Delta Program's grant funding for ecosystem restoration activities:

Conflict Policy for Proposal Solicitation Process

Ecosystem Roundtable members and their affiliate organizations may not apply for grant funding through the CALFED Bay-Delta Program's proposal solicitation process for any ecosystem restoration activity that is subject to consideration and recommendation by the Ecosystem Roundtable. Ecosystem Roundtable members and their affiliate organizations may not receive grant funds as a subcontractor, partner, or participant in any proposal submitted by another individual or organization for funding through the CALFED Bay-Delta Program's proposal solicitation process for any ecosystem restoration activity that is subject to consideration and recommendation by the Ecosystem Roundtable.

Ecosystem Roundtable members and their affiliate organizations may participate, collaborate, endorse, share information, or participate in any other way in projects or proposals that will compete for funding in the CALFED Bay-Delta Program's proposal solicitation process, as long as there is no direct financial gain to the member or the affiliate organization if the proposal receives grant funds.

Any proposal for ecosystem restoration activities submitted to the CALFED Bay-Delta Program in violation of this policy will be returned to the applicant without further consideration.

Conflict Policy for CALFED Directed Actions

Organizations represented on the Ecosystem Roundtable may receive grant funds from the CALFED Bay-Delta Program for "Directed Actions" that further the Ecosystem Restoration Program. Any Ecosystem Roundtable member whose affiliate organization may receive grant funds for a "Directed Action" shall recuse himself or herself from participating in the Ecosystem Roundtable's discussion and recommendation on the "Directed Action" in which their organization is involved.

Attachment G

Approach and Focus for Implementing the Central Valley Project Improvement Act 1999-2004

**Excerpted from
*Six-Year Plan and Budget
for Implementing the
Central Valley Project Improvement Act
Fiscal Years 1999-2004 (dated June 1999)***

Basic Approach and Focus of Plan

Approach: The Fish and Wildlife Service (Service) and the Bureau of Reclamation (Reclamation) work very closely and collaboratively in implementing the CVPIA's many specific provisions. This cooperative relationship formed the foundation for development of this six-year plan and budget and will continue to be reflected in Interior's work to implement the CVPIA. The basic procedural objectives which Interior has identified to guide its efforts are:

- Achieve the stated goals and specific requirements of the CVPIA.
- Implement the provisions of the CVPIA in a manner providing the greatest public benefit, consistent with its purposes.
- Work to minimize possible adverse impacts to affected interests.
- Coordinate and integrate CVPIA implementation with related or similar non-CVPIA efforts.
- Develop partnerships with others in implementing actions to achieve CVPIA goals.
- Fully involve the public and stakeholders in the implementation process.
- Use the funds available in the most efficient and cost-effective manner.

Interior is striving to implement the CVPIA in a purposeful, proactive manner, addressing first those things that are most important, that are most urgent, or that will provide the greatest biological benefit. To do this, biological "focus areas" guide efforts over the short term (3-6 years). These focus areas consider three parameters: (1) the species of greatest concern, (2) the factors most influencing these fish and wildlife populations, and (3) the geographic areas or habitats critical to these populations.

Interior is channeling a major portion of its efforts where the three parameters overlap. Some programs cannot proceed exclusively in this fashion, however. For example, authority, funding, or information may be inadequate to implement a particular action immediately, even if it has a high priority. In some cases, deadlines or sunset provisions in the CVPIA may influence the budget and implementation schedule for certain measures, irrespective of the measure's inherent priority ranking. And finally, financial considerations must be taken into account, such as cost efficiencies realized by continuing rather than interrupting ongoing projects, and the availability of cost-sharing partners.

The CVPIA established three fish and wildlife restoration goals requiring focus and action by the Secretary:

- Make all reasonable efforts to at least double natural production of anadromous fish
- Provide water supplies to Central Valley refuges and other migratory waterfowl habitats
- Mitigate for other identified adverse fish and wildlife impacts of the CVP

Each required action in the CVPIA is related to others because together they are designed to collectively mitigate for CVP impacts and to enhance fish and wildlife resources. To achieve both the procedural and fish and wildlife restoration objectives, Interior is using an implementation approach consisting of two components--one based on biological principles, and the other based on nonbiological principles which emphasize administrative efficiency, partnerships, and public involvement.

Biological Principles:

- Priority for implementation of CVPIA measures will be based primarily on biological benefits to be derived and on the technical feasibility and readiness of the measure for implementation.
- Natural habitat components and the restoration of ecosystem function and viability will be emphasized in the planning and implementation of fish and wildlife provisions of the CVPIA. With this emphasis, it is expected that actions will provide benefits to a greater variety of organisms over a broad geographical area and promote enhancement and stability of a self-sustaining ecosystem.
- Ecosystem factors that are known to constrain or limit key populations of fish and wildlife will be addressed first. This requires focusing on Central Valley fish and wildlife problems "holistically" and on sequencing activities to first address any limiting factors. For example, if mortality of outmigration juvenile salmon is the key factor limiting population abundance, that factor should be addressed before more juveniles are produced (when they would be subjected to the same limiting outmigration mortality).
- Consistent with the above three principles and within statutory constraints, primary emphasis will be given to sections and provisions of the CVPIA which are of greatest utility in solving the most important fish and wildlife problems in the Central Valley.
- Consistent with the need to address as many limiting or constraining factors within the ecosystem as possible, Interior expects to develop packages or projects in geographic areas or watersheds in order to maximize potential benefits.

Non-biological Principles:

- Deadlines and sunset provisions of the CVPIA will influence the implementation schedules and budget requests for certain measures, irrespective of a measure's biological priority ranking.
- The Service and Reclamation will seek additional sources of funds to facilitate implementation of CVPIA measures and the attainment of its goals. Although the Restoration Fund will remain the primary funding source, funds will also be requested in agency budgets to expedite implementation of key provisions. Assistance from other agencies or funding sources will also be sought. However, if requested funding from agency budgets or other sources does not materialize, Restoration Funds will be applied based on priority of the proposed action.
- To the extent possible, partnerships with others will be developed to help implement provisions of the CVPIA. Partners can bring expertise, financial resources, or additional authority that can greatly facilitate efforts. However, the interests and priorities of prospective partners may not

coincide precisely with CVPIA priorities, so partnerships may therefore influence implementation of CVPIA measures. The benefits of such partnerships will be balanced against any associated limits or delays these partnerships might cause in implementing priority CVPIA measures.

- Extensive coordination with related non-CVPIA programs will make efficient use of scarce resources and avoid overlap of efforts. For example, the very close coordination and partnering with the CALFED program will continue. This program was initiated in December 1994 as part of the Bay/Delta Accord to supplement the establishment and implementation of water quality objectives for the estuary by improving habitat conditions for fish and wildlife both within and upstream of the estuary. Coordination also continues with CDFG's efforts to restore salmon and steelhead populations, ensuring optimal use of limited funds available to each agency.
- Maximum flexibility will be maintained in the allocation of Restoration Funds in order to accommodate unanticipated opportunities and changing conditions or circumstances. This is especially important since limited authority currently exists to implement some programs and measures without relying, in large part, on the authority of others or on the willingness of potential partners. Provisions of the CVPIA that will be most opportunistic and require the greatest budgetary flexibility include the acquisition of supplemental water supplies, land retirement, and the screening of unscreened or inadequately screened diversions.
- Whenever opportunities exist, implementation of CVPIA programs and measures will be expedited by streamlining regulatory and environmental compliance processes. For example, maximum use will be made of general permits whenever compliance with Section 404 of the Clean Water Act is likely to be required. Programmatic environmental documents will also be used to the greatest extent possible to cover multiple actions of the same or similar sort.

Partnerships and Public Involvement: The Service and Reclamation believe that implementing the CVPIA through partnerships will be the most effective means for success. Voluntary collaborations to achieve mutual goals and objectives will accelerate accomplishments, increase available resources, reduce duplication, encourage innovative solutions, improve communication, and increase public involvement and support through shared authority and ownership of restoration actions.

Public support is both a product and a prerequisite of partnerships. Public support for an action will facilitate implementation and attract partners for future actions. The Service and Reclamation will seek opportunities for the public to assist in planning and implementing CVPIA restoration actions.

There are two levels of public involvement for CVPIA implementation. The first level is programmatic and involves planning a comprehensive program. At this level, all areas of the Central Valley are included. The second level is action-specific and involves implementing specific measures in individual watersheds.

Cooperation through partnerships is very important to the success of the CVPIA in restoring fish and wildlife resources throughout the Central Valley. CVPIA implementation is (and will continue to be) coordinated with existing and ongoing restoration efforts such as the State's efforts to restore salmon and steelhead populations, the State Water Resource Control Board's Water Quality Control Plan, and the CALFED Bay-Delta Program process striving to find long-term solutions in the Delta. At a more local level, the Mill Creek Watershed and Deer Creek Conservancies are good examples of local watershed

partnerships successfully working in the Central Valley.

The Service and Reclamation encourage potential partners to enter into cooperative relationships to implement appropriate CVPIA measures. Through various mechanisms, they can provide funds and services to these partners, allowing for the completion of preapproved restoration actions. The CVPIA [Section 3407(e)] provides the Secretary the flexibility to use several mechanisms for funding non-Federal entities:

If the Secretary determines that the State of California or an agency or subdivision thereof, an Indian tribe, or a non-profit entity concerned with restoration, protection, or enhancement of fish, wildlife, habitat, or environmental values is able to assist in implementing any action authorized by this title in an efficient, timely, and cost effective manner, the Secretary is authorized to provide funding to such entity on such terms and conditions as he deems necessary to assist in implementing the identified action.

State agencies: Agencies of the State of California, such as the CDFG and CDWR, SWRCB, Reclamation Board, and others, are willing to assist in implementing many restoration actions. Where applicable, the Service and Reclamation will enter into procurement arrangements including cost-share agreements, memoranda of understanding, grants, and cooperative agreements with State agencies to assist in implementation of the CVPIA.

Local agencies and groups: Watershed conservancies, conservation groups, water districts, non-profit entities, and individual property owners can help implement restoration actions. Agreements can be reached with these groups or funds and CVPIA services can be directed to them through memoranda of understanding, grants, cooperative agreements, and challenge cost-sharing. In areas with local support but no watershed conservation group, the Service and Reclamation may provide funds and assistance in forming one. Information on forming and supporting local watershed conservation groups is contained in the *California Coordinated Resource Management and Planning Handbook* (1990).

Native American tribes: The United States holds many assets in trust for Native American tribes or individuals. The Secretary serves as trustee for these assets, as defined by treaties, Executive orders, statutes, regulations, and court decisions. Within the CVP service area, the Hoopa Valley Tribe has resource co-management responsibility for its natural resources. The Tribal Fisheries Department staff has expertise in fisheries management and restoration, hydrology, and channel and floodplain maintenance flows in the Trinity River.

Considerations for Ranking Specific Actions: To assist in ranking specific actions and assigning priorities for measures within a specific program focus, Interior established a list of biological, implementation, and economic considerations (Table 1). These considerations are used to supplement agency judgement and public input in developing priorities, budgets, and implementation schedules.

Table 1
Considerations for Ranking Specific Actions
for the CVPIA

A. Biological Resource Considerations

- **Magnitude of Benefits to Biological Resources:** Programs/projects with the greatest biological benefit and which address major limiting/constraining factors will generally receive the highest priority.
- **Benefits to Special-Status Species:** Programs/projects which benefit species of special concern will generally be a higher priority than those which do not.
- **Ecosystem or Multiple Species Benefits:** Programs/projects which have ecosystem, community, or multiple-species benefits will generally be a higher priority than those with only site-specific or single-species benefits.
- **Protection/Restoration of Natural Habitats and Habitat Values:** Programs/projects that restore and/or protect natural habitats or habitat values will generally be a higher priority than those that do not.
- **Long-term Benefits:** Programs/projects which have continuing or long-term benefits will generally be a higher priority than those which provide only one-time or short-term benefits.
- **Immediate Benefits:** Programs/projects which result in immediate biological benefits will generally be a higher priority than those which have delayed biological benefits.
- **Effectiveness:** Programs/projects that are expected to be biologically effective will generally be a higher priority than those whose effectiveness is questionable.
- **Permanence and "Mitigability" of Adverse Impacts:** Programs/projects for which adverse environmental impacts are reversible and mitigable will generally be a higher priority than those with irreversible or unmitigable adverse impacts.
- **Studies/Investigations:** Studies will generally receive a lower priority than implementation actions unless the study is a necessary precursor to an implementation action.

B. Implementation Considerations

- **Continuing/Ongoing Efforts:** Programs/projects that are continuing or ongoing will generally be a higher priority than new starts.
- **Technical Feasibility:** Programs/projects which can be implemented using proven and existing technology will generally be a higher priority than those which rely on unproven or experimental technology.
- **Timeliness:** Programs/projects which can be implemented in a timely fashion will generally be a higher priority than those where protracted delays are anticipated.
- **Partnerships/Opportunities:** Availability of cost-sharing funds, and opportunities to implement programs/projects in partnership with other agencies or organizations should be considered when developing priorities. Those with willing partners will generally have a higher priority.
- **"Implementability":** Legal, regulatory, or technical obstacles to implementation should be considered when establishing priorities.
- **Public Support:** The degree of public support for a project or a proposal should be considered in establishing priorities.
- **Compatibility:** Programs/projects which are compatible with other programs or projects, are part of an integrated program, or which have synergistic effects with ongoing programs will generally be given a higher priority than those that do not or which conflict with ongoing programs. Interdependence and sequencing will be a prime consideration in establishing priorities or scheduling activities.

C. Economic Considerations

- **Economic Effects:** Programs/projects that have positive economic effects will generally be a higher priority than those which have negative economic effects.
- **Project Costs:** The total cost, cost effectiveness, and ongoing (O&M) costs should be considered when developing priorities. Programs/projects with a greater cost effectiveness will generally be a higher priority than those with lower cost effectiveness.
- **Impact to Water Supply:** Programs/projects which benefit or have less adverse impact on water supply for project purposes will generally be a higher priority than those which adversely affect water supply.
- **Impact to Water Quality:** Programs/projects which benefit water quality for all uses will generally be a higher priority than those which do not.
- **Impact to Power:** Programs/projects which benefit or have less adverse impact on project power generation will generally be a higher priority than those which adversely affect power generation.
- **Immediate Benefits:** Programs/projects which have immediate benefits to water supplies and/or power generation will generally be a higher priority than projects which have only delayed benefits.

Focus: Implementation of the CVPIA for FY 1999-2004 focuses on species and habitats determined to have the highest biological priority at this time and believed to contribute most to achieving fish and wildlife restoration goals as outlined below in the section on approach. Background information about how CVPIA programs are selected and how priorities are set is also detailed in this section.

Anadromous fish species have experienced major impacts in the Central Valley of California, most significantly in the Sacramento-San Joaquin River Delta (Delta). For these species, this plan focuses on fixing flow, temperature, habitat, predator, and diversion-related problems with an emphasis on the Delta. The focus for Central Valley refuges and other waterfowl habitat is on providing Level 2 and appropriate Level 4 water supplies, two-thirds of the water supplies necessary for San Joaquin Basin Action Plan lands, and incentives which will encourage farmers to flood fields for waterfowl. The focus for other fish, wildlife, and habitats is on restoring, protecting, and better managing significantly affected habitats, including those necessary for special-status species within the Central Valley.

Focus for Anadromous Fish Species: Since settlement of California's Central Valley in the mid-1800's, populations of native anadromous fishes have declined dramatically, with some stocks on the verge of extinction. Many factors contributed to this decline, including hydraulic mining; ocean and freshwater harvest; water quality degradation; the introduction of exotic fish species; construction of dams, dikes and levees; water diversions; and river and stream channelization.

Table 2 shows status and trend information for various species and races of anadromous fish addressed in the CVPIA. The species are not listed in order of priority; however, efforts focus first on those species in greatest decline or in greatest danger of extirpation over all or part of their range in the Central Valley. This approach will be reevaluated, allowing for adaptive management as status and conditions change.

Table 3 identifies specific limiting factors (also called stressors), in estimated order of significance, affecting anadromous fish species in the Central Valley of California as determined by the Service. This list, while not all-inclusive, represents what the Service believes to be major problems influencing populations and critical habitats of various species and races of anadromous fish in the Central Valley today. Table 3 takes into account improvements in habitat and project operations that have been accomplished to date. Of course, not all factors influence all species all of the time throughout their range in the Central Valley. Therefore, the intent is to capture the relative significance of various factors to each species and race and then to summarize that information in an overall ranking for anadromous fishes as a group.

Based on species of greatest concern at this time, an assessment of factors limiting natural production of those species, and an emphasis on those geographic areas where the greatest number of species and factors can be addressed concurrently, the areas listed below will be the focus for the next 5 years. This focus describes how and where Interior hopes to concentrate the most significant portion of its efforts for FY 1999 through 2004. Priorities among anadromous fish species and races will be reevaluated throughout implementation of the CVPIA.

- The Delta is among the highest priority focus areas because of its highly altered and degraded condition. All species and races of anadromous fish migrate through the Delta as adults moving to upstream spawning areas and as juveniles on their way to the San Francisco Bay and open ocean.

Also, juveniles of many anadromous species rear in the Delta. The 1994 Bay-Delta Accord¹ provided improvement for some species and races of anadromous fish, but not all. Steelhead, and spring-run and San Joaquin fall-run chinook salmon, in particular, remain in urgent need of additional protections.

- Another primary focus of FY 1999-2004 is restoration actions for Sacramento River basin spring-run chinook salmon (proposed for Federal listing as endangered) and steelhead (federally listed as threatened). Emphasis will be on the acquisition of additional instream flows; riparian and shaded riverine aquatic habitat restoration, primarily on tributaries; improved access to upstream habitat; and reduction of losses at diversions, especially on the mainstem (below Red Bluff) and tributaries of the Sacramento River and the Yuba River. Tributaries to the upper Sacramento River with the potential for sustaining natural production and promoting genetic diversity for these species include Clear, Battle, Antelope, Mill, Deer, Big Chico, and Butte Creeks. The American River will also be emphasized, because it provides habitat for steelhead as well as several other anadromous species.

Table 2
Anadromous Fish Status and Trends²

Species or Race	Geographic Extent				Status and Trends (1967-1991)
	SRB	SJRB	Bay/ Delta	Delta Tributaries	
Sacramento fall-run chinook salmon (Proposed Federal Threatened)	X		X	X	Annual fluctuation between 100,000 and 300,000 adults.
San Joaquin fall-run chinook salmon (Proposed Federal Threatened)		X	X		High annual fluctuation between 900 and 77,000 adults.
Late Fall-run chinook salmon (Proposed Federal Threatened)	X	O	X		75-80% losses, high annual fluctuation between 7,000 and 35,000 adults.
Winter-run chinook salmon (Federal Endangered)	X		X	O	Over 90% decline, current population below 500 adults annually.
Spring-run chinook salmon (Proposed Federal Endangered)	X		X		Low population and high degree of annual fluctuation between 770 and 28,000 adults.
Steelhead (Federal Threatened in Central Valley)	X	O	X	O	80-90% losses, annual fluctuation between 3,500 and 25,000 adults.
Striped bass	X	O	X		60-70% decline, annual fluctuation between 680,000 and 1.7 million adults.
White Sturgeon	X	X	X		60-70% losses, annual fluctuation between 20,000 and 100,000 adults.
Green Sturgeon (Federal Species of Concern)	X	O	X		Continuous low annual occurrence between 500 and 1,000 adults.
American shad	X	O	X	O	Over a 50% decline from peak abundance during the period.

¹ 1994 result of the Principles of Agreement on Bay-Delta Standards process.

² Source - *Central Valley Anadromous Fish Annual Run-Size, Harvest, and Population Estimates, 1967 Through 1991*, CDFG, August, 1994 Revision

SRB = Sacramento River Basin
SJRB = San Joaquin River Basin
Bay/Delta = San Francisco Bay and Sacramento-San Joaquin
River Delta area

Delta Tributaries = Calaveras, Mokelumne, and Cosumnes rivers
X = Indicates primary occurrence
O = Indicates minor or potential occurrence

Table 3
Anadromous Fish Limiting Factor Importance

Anadromous Fish Limiting Factors (in current estimated order of significance) ^{1/}	Limiting Factor Significance by Species and/or Race									Summary Rating of Factors ^{2/}
	SJFCS	SFCS	LFCS	WRCS	SRCS	ST	SG	SB	AS	
Delta Conditions - Delta inflow, outflow, export pumping, water temperature and quality, residence time, and flushing characteristics have all been modified.	H	H	H	H	H	H	H	H	H	High
Instream Flows and Temperatures - Frequency, magnitude, and timing of flows, upstream of the Delta, have been greatly modified (includes flow fluctuations).	H	H	M	M	H	H	H	H	H	High
Quality of Accessible Stream Channel and Riparian Habitat - Diminished quality limits capability of available habitat to meet essential species needs such as spawning, rearing, feeding, predator avoidance, etc.	H	H	H	H	H	H	M	M	M	High
Blockage of or Reduced Access to Suitable Habitat - Quantity of available habitat has been greatly reduced by blockages and access to remaining habitats are restricted by the lack of, or inoperative fish ladders, low flows, etc.	H	H	H	H	H	H	H	M	M	High
Availability of Data on Which to Base Fisheries Management Decisions - Essential for planning and implementation.	M	M	M	M	H	H	H	M	H	Moderate
Unscreened or Inadequately Screened Diversions - Causes entrainment, impingement, and losses from handling fish at facilities.	M	H	M	M	M	M	?	M	M	Moderate
Spawning Gravel Availability/Suitability - Further limits anadromous fish production capabilities.	M	M	M	M	M	M	?	NA	NA	Moderate
Pollution/Water Quality - Degraded water quality (including toxics, sedimentation, turbidity, etc.) affects all species.	H	M	M	M	M	M	H	M	M	Moderate
Poaching/Excessive Sport and Commercial Harvest - Harvest and escapement goals need to be carefully balanced to support legitimate consumptive uses and population restoration efforts.	M	L	L	L	M	L	M	L	L	Low
Excessive Predation - Increased predation, due to alteration of habitat conditions and/or adverse management practices, upsets natural predator/prey relationships.	M	L	L	L	L	L	?	L	L	Low
Introduction/Presence of Nuisance Exotic Species - Compete with native fish species for food, cover, spawning substrate and other biological functions.	L	L	L	L	L	L	L	L	L	Low
Disease - Potency tends to increase as species resistance is reduced due to stress caused by other limiting factors.	L	L	L	L	L	L	L	L	L	Low

¹ = Assumes all existing Biological Opinions are in place
² = Determined by USFWS
H = Highly significant limiting factor for species and/or race
M = Moderately significant limiting factor for species and/or race
L = Low significance as limiting factor for species and/or race
NA = Not Applicable
? = Unknown

SFCS = Sacramento Basin fall-run chinook salmon
SJFCS = San Joaquin Basin fall-run chinook salmon
LFCS = late fall-run chinook salmon
SRCS = spring-run chinook salmon
WRCS = winter-run chinook salmon
ST = steelhead
SG = sturgeon (white and green)
SB = striped bass
AS = American shad

- Winter-run chinook salmon (federally listed as endangered), although already afforded protection under the Endangered Species Act, have not shown substantial progress towards recovery. When possible, measures additional to those required by the Endangered Species Act will be applied. Actions will continue or increase as appropriate and will focus on providing additional flows when necessary, modification of facility operations, improvement of instream temperatures, reductions in diversion, and the restoration of spawning habitat.
- FY 1999-20004 actions will also emphasize San Joaquin River basin fall-run chinook salmon. Central Valley fall-run chinook salmon have been proposed for Federal listing as threatened, and the San Joaquin population is particularly worrisome. As indicated, population levels fluctuate dramatically and have been at extremely low levels for many years. Good adult returns appear significantly correlated to high springtime flows for outmigrating juveniles down the mainstem and through the Delta 2½ years prior. Restoration actions will focus on providing additional flows on tributaries to the mainstem and past the Delta pumps; restoration of river and tributary channels, spawning gravels and riparian cover; and the elimination of predator ponds on tributaries.

Focus Central Valley Refuges and Other Waterfowl Habitats: Central Valley wetlands have declined more than 90 percent from historic levels (Table 4). Waterfowl and other wetland-dependent species, including many listed species, have been noticeably affected, prompting inclusion of wetland restoration measures in the CVPIA to deal with the long-term problems of an insufficient habitat base and inadequate water supplies for remaining Central Valley wetlands. Additional water will allow wetland managers to dramatically expand and enhance wetland habitat.

The primary focus will be to provide the requisite firm water supplies through long-term contractual agreements to Central Valley National Wildlife Refuges, State Wildlife Management Areas, the Grasslands Resource Conservation District, and the San Joaquin Basin Action Plan lands and to develop or acquire the conveyance capacity necessary to deliver those supplies. Full supplies to the areas are authorized to be provided by October 2002.

In addition, the intent is to maximize, consistent with priorities and other demands on CVPIA funds, the acreage of additional wetland habitats that can be achieved by providing incentives to farmers to keep agricultural fields flooded in winter for waterfowl purposes. This program will expire by the year 2002 unless otherwise reauthorized and funded, and the objective is to achieve the maximum potential benefit for the resource while authority still exists.

Focus for Other Fish, Wildlife and Associated Habitats: The Central Valley contains some of the most varied natural habitats and highest biodiversity in North America. Many of these resources have been severely reduced or degraded by human settlement, population growth, and economic development. With the development of the Federal and State water projects, thousands of acres of upland, wetland, and riparian habitats were inundated by construction of major reservoirs; wetland, riparian, and aquatic habitats downstream of reservoirs were affected by associated changes in timing and extent of riverflows; and additional upland and seasonal wetland habitats were converted to agricultural, municipal, and industrial uses as a result of additional water made available by these projects. Fish and

wildlife species native to the Central Valley ecosystem are greatly dependent on native habitats for meeting their biological needs. As the extent of these native habitats have declined over the years, so have the extent of native fish and wildlife dependent on them. Because of this connection, native habitat trends can be used as an indicator of associated species well-being for estimating species trends. It can also be reasonably assumed that protection and restoration of these habitats will benefit dependent native species, including many listed under the Federal and State Endangered Species Acts, and some on the verge of extinction.

**Table 4
Habitat and Representative Species Associated with Construction
and Operation of the Central Valley Project**

Priority Habitats	Geographic Extent	Estimated Habitat Trends ^{1/} and Representative Species, Including Special-Status Species
Hardwood Woodlands	Central Valley to 9,000 feet, and Central Coast from sea level to 5,000 feet where soil types allow the formation of a tree layer dominated by oaks. Typically found in sloped areas, valleys, raised stream benches and terraces with shallow, moderately to excessively drained soils.	Habitat losses associated with CVP construction and deliveries have occurred at various locations. Although the majority of the losses occurred prior to construction of the CVP, significant local losses have occurred both within the Central Valley and in the Central Coast since 1940. Many upland species like deer, bear, and the California quail frequent this habitat. Hardwoods are essential for many special-status species including the Shasta salamander, Bohart's blue (butterfly), and the Greenhorn adobe-lily.
Chaparral	Central Valley and Central Coast areas from 3,000 to 10,000 feet generally on north facing slopes where soil type and hydrology allow for the presence of woody, often hard-leaved shrubs.	Over 50% decline in some areas. For example, El Dorado County, receiving some of its water supply from the CVP, has experienced rapid urbanization and related losses in chaparral and associated habitats. This has resulted in the listing of several plant species including Stebbins' morning glory, Pine Hill ceanothus, Pine Hill flannel bush, El Dorado bedstraw, and Layne's butterweed.
Riparian	Central Valley and Central Coast areas from sea level to 8,000 feet associated with water sources and containing various tree and shrub species.	Over 90% decline compared to historic levels with additional losses in quantity and quality over the last 50 years. CVP impacts were estimated to have occurred as a result of facility construction and modification of flow patterns below dams. Riparian habitats are one of the most productive areas for migratory bird species. Riparian-endemic special-status species include the western yellow-billed cuckoo, southwestern willow flycatcher, and riparian brush rabbit.
Alkali Desert Scrub	Limited to the southern and western part of the San Joaquin Valley where historic soil condition in remaining relatively unimpacted sites, allow for its continued existence.	Decreased by as much as 68% compared to historic levels, of which 240,000 acres may have been lost since the 1940's. Many historic sites for this habitat are now converted to agriculture and/or urban development, partially a result of CVP water deliveries. Essential for many special-status species including the San Joaquin kit fox, kangaroo rats (spps.), and the blunt-nosed leopard lizard.
Grasslands	Central Valley and Central Coast areas from sea level to about 3,900 feet within flat plains to gently rolling foothills. These areas contain a much different vegetation composition than during historic conditions. ^{2/}	Decreased by over 50% from historic levels. Within the Central Valley, nearly 2,000,000 acres have been lost since the 1940's within areas receiving CVP water. Grassland dependent species include, the coyote, badger, and migratory birds such as the western meadowlark. Special-status species include the Aleutian Canada goose, San Joaquin kit fox, and California tiger salamander.
Wetlands	Central Valley and Central Coast areas from sea level to areas above 5,900 feet where soils are saturated or at least periodically flooded.	Over 90% loss from historic levels with an estimated 400,000 acre loss since the 1940's within areas receiving CVP deliveries. Wetland dependent species include waterfowl, shorebirds, and a host of mammals like the racoon. Representative special-status species include the giant garter snake, California red-legged frog, tricolored blackbird, and the salt marsh harvest mouse.
Vernal Pools	Central Valley-wide in areas with an impervious substrate insuring a perchable water table. Typically located in grassland areas.	Due to agricultural and development practices Central Valley-wide, several associated plant and invertebrate species have been federally listed, including several species of fairy shrimps, the vernal pool tadpole shrimp, and Sacramento Orcutt grass.

<p>Central Valley Aquatic Habitats</p>	<p>Central Valley and Central Coast areas from sea level to the top of watersheds.</p>	<p>By actions including the construction and operation of the CVP, the natural hydrology of the Central Valley and Central Coast areas has been profoundly changed. These changes have resulted in the alteration of estuarine habitat hydrology and productivity; while impacts to riverine habitats include the inundation and adverse modification of hundreds of river miles, and the loss of access for many species to thousands of river miles. Aquatic habitat-dependant species include resident fishes, the beaver, river otter, and American dipper. Special-status species inhabiting these areas include the bald eagle, Shasta crayfish and delta smelt.</p>
---	--	--

⁽¹⁾ = Source of trend estimations:

- GIS evaluations using digitized Wieslander (1945) 1:1,000,000 scale maps compared to GAP Program digital information from 1990 LANDSAT Thematic Mapper satellite imagery (approx. 1:100,000 scale).
- Existing literature - Frayer et al. 1989; Katibah 1984; Central Valley Habitat Joint Venture 1990; various CDFG documents.

⁽²⁾ = Today, most existing grassland areas in California's Central Valley consist primarily of nonnative grass species (greater than 99%). Less than 1% of remaining grassland areas in the Central Valley contain enough native grass species, in aggregate, to be labeled either valley sacaton or valley needlegrass grasslands within publicly released and available GAP Program digital data (GAP, 1996).

Table 4 shows estimates of loss of native habitats in areas associated with CVP construction, operation, and delivery of water to service areas³. The table is not intended to suggest that the CVP caused these losses, but rather to identify those habitat types and losses to which it is believed the CVP has contributed. These habitats were determined to be priorities as a result of their significant reductions, fragmentation, and the existence of associated special-status species⁴. An analysis of existing databases indicate that approximately 187 special-status species occur in these habitat types within and adjacent to the areas directly affected by construction and operation of the CVP and areas receiving CVP water supplies. Another 640 species are considered species of concern.⁵ These numbers help to demonstrate magnitude of the ecosystem-level problems and needs in Central Valley and central coast areas. Without efforts to address the current trend, such as those provided by the CVPIA, additional species will undoubtedly be added to the special-status list.

The initial focus of the Habitat Restoration Program [3406 (b)(1) "other"] is based on the Service's ranking of habitats and species of concern; assessment of factors limiting native fish, wildlife, and associated habitats; and geographic areas where those habitats, species, and factors converge to the greatest degree. Priorities for species and habitat will be reevaluated throughout implementation of the CVPIA.

- Habitats known or believed to have experienced the greatest percentage decline in quantity and quality since construction of the CVP, and whose impacts can be attributed at least partially to its

³ CVP service areas currently include the Central Valley and areas of the central coast of California.

⁴ "Special-status species" are those species federally listed, proposed for listing, or candidates for listing under the Endangered Species Act of 1973, and/or those listed as threatened or endangered by the State of California.

⁵ For this purpose, "species of concern" are those species formerly considered category 2 or category 3 candidates for listing under the Endangered Species Act; those identified but not listed as threatened or endangered under the California Endangered Species Act; plant species in severe decline as identified by the California Native Plant Society Database; and certain migratory bird species identified as being in severe decline by the California Natural Diversity Database.

construction and operation⁶, are a focus for the Habitat Restoration Program. These habitats include riparian, alkali desert scrub, wetlands (including vernal pools), chaparral (including El Dorado County gabbro soil habitats), hardwood woodlands, grasslands, and aquatic habitats.

- Populations of native species affected by the CVP and not specifically addressed in other portions of section 3406 of the CVPIA, will be addressed in the Habitat Restoration Program. Initial focus is on federally listed, proposed, or candidate species; other unlisted species of special concern including resident fish and migratory birds; and other native wildlife species associated with the habitat types listed above.

Additional CVPIA Provisional Benefits: In addition to the three biological areas of emphasis described above, other actions under Section 3406(b), 3408(h), and other sections of the CVPIA will further enhance habitat for fish and wildlife resources, including endangered species. As habitat and diversity improve, the overall quality of the entire ecosystem will benefit.

⁶ Based on direct and indirect losses of habitat from CVP facility construction and operation, and the associated expansion of irrigation.

**A SUMMARY OF THE KEY FISH AND WILDLIFE PROVISIONS OF THE
CENTRAL VALLEY PROJECT IMPROVEMENT ACT**

TITLE 34, PUBLIC LAW 102-575

The following is a summary paraphrasing the key provisions of the Central Valley Project Improvement Act dealing specifically with fish and wildlife resources and their restoration. This summary is provided by the United States Fish and Wildlife Service to enable the reader to quickly understand the environmental importance of this monumental statute. It is intended as an accurate representation of the statute itself but should not be relied on for any specific legal interpretation. If that is desired, the reader should refer to the specific language in the statute itself. For additional information, please contact the United States Fish and Wildlife Service or the Bureau of Reclamation at 2800 Cottage Way, Sacramento, California 95825.

SECTION 3401 TITLE - CENTRAL VALLEY PROJECT IMPROVEMENT ACT

SECTION 3402 PURPOSES

- (a) **TO PROTECT, RESTORE, AND ENHANCE FISH, WILDLIFE, AND ASSOCIATED HABITATS IN THE CENTRAL VALLEY AND TRINITY RIVER BASINS OF CALIFORNIA;**
- (b) **TO ADDRESS IMPACTS OF THE CENTRAL VALLEY PROJECT ON FISH, WILDLIFE AND ASSOCIATED HABITATS;**
- (c) **TO IMPROVE THE OPERATIONAL FLEXIBILITY OF THE CENTRAL VALLEY PROJECT;**
- (d) **TO INCREASE WATER-RELATED BENEFITS PROVIDED BY THE CENTRAL VALLEY PROJECT TO THE STATE OF CALIFORNIA THROUGH EXPANDED USE OF VOLUNTARY WATER TRANSFERS AND IMPROVED WATER CONSERVATION;**
- (e) **TO CONTRIBUTE TO THE STATE OF CALIFORNIA'S INTERIM AND LONG-TERM EFFORTS TO PROTECT THE SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY;**
- (f) **TO ACHIEVE A REASONABLE BALANCE AMONG COMPETING DEMANDS FOR USE OF CENTRAL VALLEY**

Provided by: U.S. Fish & Wildlife Service, Central Valley Fish & Wildlife Restoration Program, 2800 Cottage Way, Room W-2605, Sacramento, California 95825. Phone: (916) 414-6535.

PROJECT WATER, INCLUDING THE REQUIREMENTS OF FISH AND WILDLIFE, AGRICULTURAL, MUNICIPAL AND INDUSTRIAL AND POWER CONTRACTORS.

SECTION 3406

FISH, WILDLIFE, AND HABITAT RESTORATION

- (a) **AMENDS CENTRAL VALLEY PROJECT TO MAKE "FISH AND WILDLIFE MITIGATION, PROTECTION, AND RESTORATION" PROJECT PURPOSES.**
- (b) **FISH AND WILDLIFE RESTORATION ACTIVITIES. SECRETARY REQUIRED TO OPERATE CVP TO MEET ALL OBLIGATIONS UNDER STATE AND FEDERAL LAW, INCLUDING WATER QUALITY DECISIONS AND ENDANGERED SPECIES ACT REQUIREMENTS. THE SECRETARY IS FURTHER AUTHORIZED AND DIRECTED TO:**
 - (1) **DEVELOP AND IMPLEMENT A PROGRAM TO DOUBLE THE NATURAL PRODUCTION OF ANADROMOUS FISH IN THE CENTRAL VALLEY OVER LEVELS THAT EXISTED 1967-1991**
 - (a) **FIRST PRIORITY GIVEN TO MEASURES WHICH PROTECT AND RESTORE NATURAL CHANNEL AND RIPARIAN HABITAT VALUES**
 - (b) **SECRETARY IS AUTHORIZED AND DIRECTED TO MODIFY CVP OPERATIONS TO PROVIDE FLOWS OF SUITABLE QUALITY, QUANTITY, AND TIMING TO PROTECT ALL LIFE STAGES OF ANADROMOUS FISH. INSTREAM FLOW NEEDS FOR ALL CVP STREAMS TO BE DETERMINED BASED ON RECOMMENDATIONS FROM FWS IN CONSULTATION WITH CDFG.**
 - (c) **SECRETARY SHALL SEEK TO RECEIVE CREDIT FOR WATER PROVIDED TO FISH AND WILDLIFE AGAINST ADDITIONAL OBLIGATIONS IMPOSED ON CVP BY STATE OF CALIFORNIA.**
 - (d) **UNNEEDED WATER RETURNED TO PROJECT.**

IN THE COURSE OF DEVELOPING THE ANADROMOUS FISH RESTORATION PROGRAM DESCRIBED ABOVE, THE SECRETARY IS ALSO TO MAKE ALL REASONABLE EFFORTS TO ADDRESS OTHER IDENTIFIED ADVERSE ENVIRONMENTAL IMPACTS OF THE CENTRAL VALLEY PROJECT NOT SPECIFICALLY ADDRESSED ELSEWHERE IN THE STATUTE.

(2) DEDICATE AND MANAGE ANNUALLY 800,000 ACRE- FEET OF CVP YIELD FOR THE PRIMARY PURPOSE OF IMPLEMENTING THE FISH AND WILDLIFE PURPOSES AND MEASURES AUTHORIZED BY ACT; TO ASSIST IN PROTECTING THE WATERS OF THE ESTUARY; AND TO HELP TO MEET NEW ENDANGERED SPECIES ACT REQUIREMENTS.

(a) WATER IS IN ADDITION TO WATER NEEDED FOR TRINITY RIVER AND FOR WILDLIFE REFUGES, AND IS TO BE SUPPLEMENTED AS NEEDED.

(b) WATER IS TO BE MANAGED PURSUANT TO CONDITIONS SPECIFIED BY FWS.

(c) WATER MAY BE TEMPORARILY REDUCED BY UP TO 25 PERCENT DUE TO "HYDROLOGIC CIRCUMSTANCES".

(3) DEVELOP AND IMPLEMENT A PROGRAM FOR THE ACQUISITION OF A WATER SUPPLY TO SUPPLEMENT THE QUANTITY OF WATER DEDICATED TO FISH AND WILDLIFE.

PROGRAM SHOULD IDENTIFY HOW SECRETARY INTENDS TO UTILIZE, IN PARTICULAR, THE FOLLOWING OPTIONS:

- IMPROVEMENTS IN OR MODIFICATIONS OF THE OPERATIONS OF THE CENTRAL VALLEY PROJECT.**
- WATER BANKING**
- CONSERVATION**

Provided by: U.S. Fish & Wildlife Service, Central Valley Fish & Wildlife Restoration Program, 2800 Cottage Way, Room W-2605, Sacramento, California 95825. Phone: (916) 414-6535.

- TRANSFERS
- CONJUNCTIVE USE
- LAND FOLLOWING, INCLUDING PURCHASE, LEASE AND OPTION OF WATER, WATER RIGHTS AND ASSOCIATED AGRICULTURAL LAND

- (4) DEVELOP AND IMPLEMENT A PROGRAM TO MITIGATE FISHERY IMPACTS ASSOCIATED WITH THE TRACY PUMPING PLANT.
- (5) DEVELOP AND IMPLEMENT A PROGRAM TO MITIGATE FISHERY IMPACTS ASSOCIATED WITH THE CONTRA COSTA PUMPING PLANT.
- (6) INSTALL AND OPERATE A TEMPERATURE CONTROL DEVICE AT SHASTA DAM.
- (7) MEET FLOW STANDARDS AND OBJECTIVES AND DIVERSION LIMITS SET FORTH IN LAWS AND JUDICIAL DECISIONS THAT APPLY TO CVP.
- (8) USE PULSE FLOWS TO INCREASE SURVIVAL OF MIGRATING ANADROMOUS FISH.
- (9) DEVELOP AND IMPLEMENT A PROGRAM TO ELIMINATE LOSSES OF ANADROMOUS FISH DUE TO FLOW FLUCTUATIONS CAUSED BY CVP.
- (10) DEVELOP AND IMPLEMENT A PROGRAM TO MINIMIZE FISH PASSAGE PROBLEMS AT RED BLUFF DIVERSION DAM.
- (11) REHABILITATE AND EXPAND COLEMAN NATIONAL FISH HATCHERY, MODIFY KESWICK FISH TRAP, AND IMPROVE KESWICK DAM SPILLWAY TO PREVENT TRAPPING OF FISH.
- (12) DEVELOP AND IMPLEMENT A PROGRAM TO PROVIDE ADEQUATE FLOW AND RESTORE PASSAGE ON CLEAR CREEK.

Provided by: U.S. Fish & Wildlife Service, Central Valley Fish & Wildlife Restoration Program, 2800 Cottage Way, Room W-2605, Sacramento, California 95825. Phone: (916) 414-6535.

- (13) DEVELOP AND IMPLEMENT A PROGRAM TO RESTORE AND REPLENISH, AS NEEDED, SPAWNING GRAVELS ON THE UPPER SACRAMENTO, AMERICAN, AND STANISLAUS RIVERS. PROGRAM SHALL INCLUDE RE-ESTABLISHMENT OF MEANDER BELTS AND LIMITS ON BANK PROTECTION TO AVOID FURTHER LOSSES OF INSTREAM AND RIPARIAN HABITAT.**
- (14) DEVELOP AND IMPLEMENT A PROGRAM FOR MODIFIED OPERATIONS AND NEW OR IMPROVED FACILITIES AT DELTA CROSS CHANNEL AND GEORGIANA SLOUGH "WHEN STRIPED BASS EGGS AND LARVAE ARE PRESENT".**
- (15) CONSTRUCT A SEASONAL BARRIER AT THE HEAD OF OLD RIVER IN THE DELTA TO INCREASE SURVIVAL OF YOUNG OUTMIGRATING SALMON.**
- (16) ESTABLISH A COMPREHENSIVE FISH AND WILDLIFE MONITORING PROGRAM TO ASSESS RESULTS AND EFFECTIVENESS OF ACTIONS.**
- (17) DEVELOP AND IMPLEMENT A PROGRAM TO RESOLVE FISH PASSAGE PROBLEMS AT ANDERSON COTTONWOOD IRRIGATION DISTRICT DIVERSION DAM.**
- (18) IF REQUESTED, ASSIST CALIFORNIA TO RESTORE STRIPED BASS FISHERY IN THE ESTUARY.**
- (19) RE-EVALUATE CRITERIA FOR CARRY OVER STORAGE AT SACRAMENTO AND TRINITY RIVER RESERVOIRS TO PROTECT AND RESTORE ANADROMOUS FISH.**
- (20) ASSIST IN PROGRAM TO MITIGATE THE FISHERY IMPACTS AT THE GLENN-COLUSA IRRIGATION DISTRICT PUMPING PLANT. PARTICIPATION SHALL INCLUDE REPLACEMENT OF DEFECTIVE FISH SCREENS.**

Provided by: U.S. Fish & Wildlife Service, Central Valley Fish & Wildlife Restoration Program, 2800 Cottage Way, Room W-2605, Sacramento, California 95825. Phone: (916) 414-6535.

- (21) ASSIST STATE IN PROGRAM TO AVOID LOSSES OF JUVENILE ANADROMOUS FISH AT UNSCREENED OR INADEQUATELY SCREENED DIVERSIONS.
- (22) DEVELOP A PROGRAM TO ENCOURAGE FARMERS TO KEEP FIELDS FLOODED FOR WATERFOWL HABITAT CREATION AND CVP YIELD ENHANCEMENT. UP TO \$2,000,000 ANNUALLY MAY BE PROVIDED AS INCENTIVES. THIS PROVISION SHALL TERMINATE BY THE YEAR 2002.
- (23) PROVIDE INSTREAM RELEASES OF NOT LESS THAN 340,000 ACRE-FEET PER YEAR TO THE TRINITY RIVER THROUGH 1996 FOR FISHERY PURPOSES.

BY SEPTEMBER 30, 1996, COMPLETE THE ONGOING TRINITY RIVER FLOW EVALUATION PROGRAM. RECOMMENDATIONS OF THE TRINITY RIVER FLOW EVALUATION PROGRAM ARE TO BE FORWARDED TO CONGRESS BY DECEMBER 31, 1996. IF THE SECRETARY AND THE HOOPA VALLEY TRIBE CONCUR IN THESE RECOMMENDATIONS, ANY INCREASE INFLOW IS TO BE IMPLEMENTED ACCORDINGLY. IF THE SECRETARY AND THE TRIBE DO NOT CONCUR, RELEASES SHALL REMAIN AT 340,000 ACRE-FEET PER YEAR UNLESS OR UNTIL INCREASED BY ACT OF CONGRESS, JUDICIAL DECREE, OR AGREEMENT BETWEEN THE SECRETARY AND THE TRIBE IS REACHED.

- (c) THE SECRETARY SHALL, BY SEPTEMBER 30, 1996:
 - (1) DEVELOP AND REPORT TO CONGRESS ON A COMPREHENSIVE PLAN TO ADDRESS THE FISH, WILDLIFE AND HABITAT CONCERNS ON THE SAN JOAQUIN RIVER BELOW FRIANT DAM. THIS SHALL INCLUDE FLOWS AND IMPROVEMENTS TO RESTORE THE ANADROMOUS FISHERY. DURING PLAN DEVELOPMENT AND UNTIL CONGRESS AUTHORIZES, RELEASES FROM FRIANT DAM FOR SUCH RESTORATION ARE NOT PERMITTED.

(THIS PARAGRAPH ALSO PROVIDES FOR A SURCHARGE ON FRIANT CONTRACTORS UNTIL SUCH FLOWS ARE PROVIDED.)

- (2) DETERMINE THE EXISTING AND FUTURE IN-BASIN NEEDS OF THE STANISLAUS RIVER BASIN, INCLUDING NEEDS FOR WATER SUPPLY, WATER QUALITY, AND FISH AND WILDLIFE.**
- (d) THE SECRETARY SHALL PROVIDE FIRM WATER SUPPLIES TO NATIONAL WILDLIFE REFUGES, STATE WILDLIFE MANAGEMENT AREAS, AND THE GRASSLANDS RESOURCE CONSERVATION DISTRICT.**
- (1) LEVEL 2 SUPPLIES (364,000 ACRE-FEET) TO STATE AND FEDERAL REFUGES AND THE GRASSLANDS AND TWO-THIRDS OF THE FULL SUPPLY NEEDED FOR THE SAN JOAQUIN ACTION PLAN (41,221 ACRE-FEET) ARE TO BE PROVIDED IMMEDIATELY. AMOUNTS ARE TO BE DELIVERED TO THE BOUNDARIES OF EACH WETLAND HABITAT AREA. THESE SUPPLIES MAY BE TEMPORARILY REDUCED BY UP TO 25 PERCENT "DUE TO HYDROLOGIC CIRCUMSTANCES."**
 - (2) WITHIN 10 YEARS, THE QUANTITIES TO BE DELIVERED SHALL BE INCREASED TO LEVEL 4 FOR STATE AND FEDERAL REFUGES AND THE GRASSLANDS (505,650 ACRE-FEET) AND FULL SUPPLY FOR THE SAN JOAQUIN ACTION PLAN (61,830 ACRE-FEET). INCREASES SHALL BE IN INCREMENTS OF NOT LESS THAN 10 PERCENT PER YEAR. THESE INCREASES SHALL BE PROVIDED FROM SUPPLIES THAT DO NOT REQUIRE AN INVOLUNTARY REALLOCATION OF CVP YIELD. SHORTAGES ASSIGNED TO THIS INCREMENT SHALL BE THE SAME AS ATTACHED TO THE WATER PRIOR TO ITS ACQUISITION.**
 - (5) THE SECRETARY IS AUTHORIZED AND DIRECTED TO CONSTRUCT OR ACQUIRE CONVEYANCE CAPACITY TO IMPLEMENT THIS PROVISION. THIS DOES NOT APPLY TO FACILITIES IN OR AROUND THE DELTA.**

Provided by: U.S. Fish & Wildlife Service, Central Valley Fish & Wildlife Restoration Program, 2800 Cottage Way, Room W-2605, Sacramento, California 95825. Phone: (916) 414-6535.

- (6) BY 1997, THE SECRETARY SHALL REPORT ON:
- (A) MEANS OF IMPROVING THE QUALITY AND QUANTITY OF WATER TO PRIVATE WETLANDS IN THE CENTRAL VALLEY; AND
 - (B) WATER SUPPLY AND DELIVERY REQUIREMENTS TO PERMIT FULL HABITAT DEVELOPMENT ON 120,000 ACRES SUPPLEMENTAL TO EXISTING WETLAND HABITAT ACREAGE IDENTIFIED IN THE CENTRAL VALLEY HABITAT JOINT VENTURE "IMPLEMENTATION PLAN".
- (e) WITHIN FIVE YEARS, THE SECRETARY SHALL INVESTIGATE AND REPORT TO CONGRESS, WITH RECOMMENDATIONS ON THE FOLLOWING:
- (1) MEASURES TO MAINTAIN SUITABLE TEMPERATURES FOR ANADROMOUS FISH BY CONTROLLING OR RELOCATING DISCHARGES OF IRRIGATION RETURN FLOWS OR SEWAGE EFFLUENT, AND BY RESTORING RIPARIAN FORESTS;
 - (2) OPPORTUNITIES FOR ADDITIONAL HATCHERY PRODUCTION AS NEEDED TO SUPPLEMENT OR RE-ESTABLISH NATURAL PRODUCTION;
 - (3) MEASURES TO ELIMINATE BARRIERS TO SALMONID MIGRATION;
 - (4) THE NEED FOR INSTALLATION AND OPERATION OF A TEMPERATURE CONTROL DEVICE AT TRINITY DAM;
 - (5) THE NEED FOR MODIFIED OPERATIONS AND NEW OR IMPROVED FACILITIES AT DELTA CROSS CHANNEL AND GEORGIANA SLOUGH "TO ASSIST IN THE SUCCESSFUL MIGRATION OF ANADROMOUS FISH"; AND
 - (6) OTHER MEASURES TO PROTECT, RESTORE, AND ENHANCE NATURAL PRODUCTION OF SALMON AND

**STEELHEAD IN CENTRAL VALLEY TRIBUTARY
STREAMS.**

- (f) **WITHIN TWO YEARS, THE SECRETARY SHALL INVESTIGATE AND REPORT TO CONGRESS ON THE IMPACT THE CENTRAL VALLEY PROJECT HAS HAD ON ANADROMOUS FISH POPULATIONS AND THE FISHERIES, COMMUNITIES, TRIBES, BUSINESSES, ETC. ASSOCIATED WITH THEM.**
- (g) **THE SECRETARY SHALL DEVELOP ECOLOGIC AND HYDROLOGIC MODELS, WITH SUPPORTING DATA, FOR THE FACILITIES AND SYSTEMS IN THE CENTRAL VALLEY AND TRINITY RIVER WATERSHEDS.**
- (h) **THIS PARAGRAPH DIRECTS THE SECRETARY TO ENTER INTO A BINDING COST-SHARE AGREEMENT WITH THE STATE OF CALIFORNIA.**

SECTION 3407 RESTORATION FUND

THIS SECTION ESTABLISHES IN THE TREASURY A RESTORATION FUND TO BE DERIVED FROM CHARGES AND SURCHARGES ON PROJECT BENEFICIARIES, AND FROM DONATIONS. IT AUTHORIZES THE APPROPRIATION TO THE SECRETARY OF UP TO \$50,000,000 ANNUALLY TO CARRY OUT PROVISIONS OF THE ACT. NOT LESS THAN 67 PERCENT OF THE FUNDS APPROPRIATED TO THE SECRETARY SHALL BE TO CARRY OUT THE HABITAT RESTORATION, IMPROVEMENT, AND ACQUISITION PROVISIONS OF THE ACT. NOT MORE THAN 33 PERCENT OF THE FUNDS APPROPRIATED SHALL BE TO IMPLEMENT THE STRUCTURAL FEATURES, SPECIFICALLY 3406(B)(4)-(6), (10)-(18), AND (20)-(22). RESTORATION FUND MONIES ARE TO BE INDEXED. THE \$50,000,000 LIMIT IS TO BE ON A THREE-YEAR ROLLING AVERAGE BASIS. COLLECTIONS TO THE FUND IN ANY ONE YEAR SHALL BE LIMITED TO THE AMOUNT REASONABLY EXPECTED TO BE APPROPRIATED.

SECTION 3408 ADDITIONAL AUTHORITIES

Provided by: U.S. Fish & Wildlife Service, Central Valley Fish & Wildlife Restoration Program, 2800 Cottage Way, Room W-2605, Sacramento, California 95825. Phone: (916) 414-6535.

THIS SECTION INCLUDES THE FOLLOWING:

- (b) ELECTRICAL ENERGY REQUIRED FOR FISH AND WILDLIFE FACILITIES DEVELOPED PURSUANT TO THE ACT SHALL BE DEEMED CVP POWER.**
- (d) PROJECT FACILITIES MAY BE USED TO BANK WATER, INCLUDING ALL OR A PORTION OF THE WATER PROVIDED FOR FISH AND WILDLIFE.**
- (h) THE SECRETARY IS AUTHORIZED TO PURCHASE LAND AND ASSOCIATED WATER RIGHTS FROM WILLING SELLERS TO IMPLEMENT THE PURPOSES OF THE ACT. SECRETARY IS DIRECTED TO EMPHASIZE LANDS WHICH, IF RETIRED, WOULD IMPROVE THE QUALITY OF AGRICULTURAL DISCHARGES.**
- (i) SECRETARY IS AUTHORIZED TO HELP FUND WATER CONSERVATION MEASURES PROVIDED THAT THE WATER CONSERVED WILL BE MADE AVAILABLE TO THE SECRETARY IN PROPORTION TO HIS CONTRIBUTION.**

SECTION 3409 ENVIRONMENTAL REVIEW

THIS SECTION DIRECTS THE SECRETARY TO PREPARE AND COMPLETE A PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON THE IMPACTS AND BENEFITS OF IMPLEMENTING THE ACT.

Proposal # 2001-_____ (Office Use Only)

PSP Cover Sheet (Attach to the front of each proposal)

Proposal Title: _____
Applicant Name: _____
Contact Name: _____
Mailing Address: _____
Telephone: _____
Fax: _____
Email: _____

Amount of funding requested: \$ _____

Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds list below.

State cost _____ Federal cost _____

Cost share partners? _____ Yes _____ No

Identify partners and amount contributed by each _____

Indicate the Topic for which you are applying (check only one box).

- Natural Flow Regimes
- Nonnative Invasive Species
- Channel Dynamics/Sediment Transport
- Flood Management
- Shallow Water Tidal/ Marsh Habitat
- Contaminants
- Beyond the Riparian Corridor
- Local Watershed Stewardship
- Environmental Education
- Special Status Species Surveys and Studies
- Fishery Monitoring, Assessment and Research
- Fish Screens

What county or counties is the project located in? _____

What CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible _____

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

- State agency
- Public/Non-profit joint venture
- Local government/district
- University
- Other: _____
- Federal agency
- Non-profit
- Tribes
- Private party

Indicate the primary species which the proposal addresses (check all that apply):

- | | |
|--|--|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | <input type="checkbox"/> Spring-run chinook salmon |
| <input type="checkbox"/> Winter-run chinook salmon | <input type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input type="checkbox"/> Longfin smelt |
| <input type="checkbox"/> Delta smelt | <input type="checkbox"/> Steelhead trout |
| <input type="checkbox"/> Splittail | <input type="checkbox"/> Striped bass |
| <input type="checkbox"/> Green sturgeon | <input type="checkbox"/> All chinook species |
| <input type="checkbox"/> White Sturgeon | <input type="checkbox"/> All anadromous salmonids |
| <input type="checkbox"/> Waterfowl and Shorebirds | <input type="checkbox"/> American shad |
| <input type="checkbox"/> Migratory birds | |
| <input type="checkbox"/> Other listed T/E species: _____ | |

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

- | | |
|--|---|
| <input type="checkbox"/> Research/Monitoring | <input type="checkbox"/> Watershed Planning |
| <input type="checkbox"/> Pilot/Demo Project | <input type="checkbox"/> Education |
| <input type="checkbox"/> Full-scale Implementation | |

Is this a next-phase of an ongoing project? Yes ___ No ___
Have you received funding from CALFED before? Yes ___ No ___

If yes, list project title and CALFED number _____

Have you received funding from CVPIA before? Yes ___ No ___

If yes, list CVPIA program providing funding, project title and CVPIA number (if applicable):

By signing below, the applicant declares the following:

- The truthfulness of all representations in their proposal;
- 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
- 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.

Printed name of applicant

Signature of applicant

Environmental Compliance Checklist

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?

YES

NO

2. If you answered yes to # 1, identify the lead governmental agency for CEQA/NEPA compliance.

Lead Agency

3. If you answered no to # 1, explain why CEQA/NEPA compliance is not required for the actions in the proposal.

4. If CEQA/NEPA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion.

5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

YES

NO

If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access with 30 days of notification of approval.

6. Please indicate what permits or other approvals may be required for the activities contained in your proposal. Check all boxes that apply.

LOCAL

- Conditional use permit
- Variance
- Subdivision Map Act approval
- Grading permit
- General plan amendment
- Specific plan approval
- Rezone
- Williamson Act Contract cancellation
- Other _____
(please specify)
- None required

STATE

- CESA Compliance (CDFG)
- Streambed alteration permit (CDFG)
- CWA § 401 certification (RWQCB)
- Coastal development permit (Coastal Commission/BCDC)
- Reclamation Board approval
- Notification (DPC, BCDC)
- Other _____
(please specify)
- None required

FEDERAL

- ESA Consultation (USFWS)
- Rivers & Harbors Act permit (ACOE)
- CWA § 404 permit (ACOE)
- Other _____
(please specify)
- None required

DPC = Delta Protection Commission
 CWA = Clean Water Act
 CESA = California Endangered Species Act
 USFWS = U.S. Fish and Wildlife Service
 ACOE = U.S. Army Corps of Engineers

ESA = Endangered Species Act
 CDFG = California Department of Fish and Game
 RWQCB = Regional Water Quality Control Board
 BCDC = Bay Conservation and Development Comm.

Land Use Checklist

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Do the actions in the proposal involve physical changes to the land (i.e. grading, planting vegetation, or breaching levees) or restrictions in land use (i.e. conservation easement or placement of land in a wildlife refuge)?

YES

NO

2. If NO to # 1, explain what type of actions are involved in the proposal (i.e., research only, planning only).

3. If YES to # 1, what is the proposed land use change or restriction under the proposal?

4. If YES to # 1, is the land currently under a Williamson Act contract?

YES

NO

5. If YES to # 1, answer the following:

Current land use _____

Current zoning _____

Current general plan designation _____

6. If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps?

YES

NO

DON'T KNOW

7. If YES to # 1, how many acres of land will be subject to physical change or land use restrictions under the proposal?

8. If YES to # 1, is the property currently being commercially farmed or grazed?

YES

NO

9. If YES to #8, what are

the number of employees/acre _____

the total number of employees _____

10. Will the applicant acquire any interest in land under the proposal (fee title or a conservation easement)?

YES

NO

11. What entity/organization will hold the interest? _____

12. If YES to # 10, answer the following:

Total number of acres to be acquired under proposal _____

Number of acres to be acquired in fee _____

Number of acres to be subject to conservation easement _____

13. For all proposals involving physical changes to the land or restriction in land use, describe what entity or organization will:

manage the property _____

provide operations and maintenance services _____

conduct monitoring _____

14. For land acquisitions (fee title or easements), will existing water rights also be acquired?

YES

NO

15. Does the applicant propose any modifications to the water right or change in the delivery of the water?

YES

NO

16. If YES to # 15, describe _____