998-140

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

Proposal Title: Sacramento River Bypass Floodplain Habitat Restoration Program
Applicant Name: National Audubon Society- California
Mailing Address: 555 Audubon Place, Sacramento, CA 95825
Telephone: 916-481-6332
Fax: 916-481-6228
Email: dtaylor@audubon.org

Amount of funding requested: $ 422,496.00 for 2 years

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

- ☐ Fish Passage/Fish Screens
- ■ Habitat Restoration
- ☐ Local Watershed Stewardship
- ☐ Water Quality
- ☐ Introduced Species
- ☐ Fish Management/Hatchery
- ☐ Environmental Education

Does the proposal address a specified Focused Action? x yes _____ no

What county or counties is the project located in? Colusa, Sacramento, Sutter, Yolo, Yuba

Indicate the geographic area of your proposal (check only one box):

- ■ Sacramento River Mainstem
- ☐ Sacramento Trib: _____
- ☐ San Joaquin River Mainstem
- ☐ San Joaquin Trib: _____
- ☐ *Delta*: _____
- ☐ East Side Trib: _____
- ☐ Suisun Marsh and Bay
- ☐ North Bay/South Bay: _____
- ☐ Landscape (entire Bay-Delta watershed)
- ☐ Other: _____

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

- ☐ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- ■ Winter-run chinook salmon
- ■ Late-fall run chinook salmon
- ☐ Delta smelt
- ■ Splittail
- ■ Green sturgeon
- ■ Migratory birds
- ☐ Other: _____
- ■ Spring-run chinook salmon
- ■ Fall-run chinook salmon
- ☐ Longfin smelt
- ■ Steelhead trout
- ☐ Striped bass
- ☐ All chinook species
- ☐ All anadromous salmonids

Specify the ERP strategic objective and target (s) that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II:

Restore Natural Floodplain and Flood Processes: (ERPP Vol 1, page 43). Restore Habitats: (ERPP Vol 1, page 103). Reduce Stranding: (ERPP Vol 1, page 421). Restore Priority Species including chinook salmon, steelhead and splittail (ERPP Vol 1, page 177) and Swainson's hawk (ERPP Vol 1, page 178).

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Telephone: 916-481-5332
Fax: 916-481-6228
Email: dtay_or@audubon.org

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- ■ Habitat Restoration
- ☐ Local Watershed Stewardship
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- ☐ Environmental Education

Does the proposal address a specified Focused Action? _x_ yes _____no

What county or counties is the project located in? Colusa, Sacramento, Sutter, Yolo, Yuba

Indicate the geographic area of your proposal (check only one box):

- ■ Sacramento River Mainstem
- ☐ Sacramento Trib: _____
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- ☐ San Joaquin Trib: _____
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Indicate the primary species which the proposal addresses (check all that apply):

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- ■ Splittail
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- ■ Spring-run chinook salmon
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- ■ Steelhead trout
- ☐ Striped bass
- ☐ All chinook species
- ☐ All anadromous salmonids

Specify the ERP strategic objective and target (s) that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II:

Restore Natural Floodplain and Flood Processes: (ERPP Vol 1, page 43). Restore Habitats: (ERPP Vol 1, page 103). Reduce Stranding: (ERPP Vol 1, page 471). Restore Priority Species including chinook salmon, steelhead and splittail (ERPP Vol 1, page 147) and Swainson's hawk (ERPP Vol 1, page 178).

II. Title Page

Lower Sacramento River Bypass and Floodplain Habitat Restoration Program

Applicant:

National Audubon Society- California
555 Audubon Place
Sacramento, CA 95825
Contact: Daniel Taylor
Telephone: (916) 481-5332

Co-Applicants

California Reclamation Board
California Department of Water Resources
Foster Wheeler Environmental

With cooperation from the Sacramento National Wildlife Refuge (USFWS), California Department of Fish and Game, Riparian Habitat Joint Venture, U.S. Fish and Wildlife Service - Partners for Wildlife Program, Natural Resources Conservation Service, Yuba-Sutter Land Trust, U.S. Army Corps of Engineers, and California Waterfowl Association

Type of Organization: Non-profit Organization
Tax Identification Number: 13-1624102

RFP Project Group Type: Habitat Restoration

April 16, 1999

III. Executive Summary

a. Project Title and Applicant Name: The Lower Sacramento River Bypass and Floodplain Habitat Restoration Program (restoration program) is submitted by the National Audubon Society of California (Audubon) in association with and participation from the California Reclamation Board, and the California Department of Water Resources.

b. Project Description and Biological/Ecological Objectives: The restoration program is intended to improve fish passage, reduce fish stranding, restore floodplain habitats, and improve the flood management system in the lower Sacramento River bypasses and floodplain. This initial phase of the restoration program (Phase 1) proposed herein will develop a consensus based plan and implement pilot habitat restoration projects by involving local landowners, water users, resource agencies, conservation organizations and other stakeholders in planning and implementing restoration activities. Habitat restoration will focus on protecting, enhancing, and restoring natural habitat features and ecosystem processes that sustain the habitats of important fish and wildlife, including chinook salmon, green and white sturgeon, splittail, striped bass, American shad, and steelhead. The proposed program has the following objectives:

- Characterize the existing environment, ecological processes, fish passage, fish stranding, habitats, species, and stressors.
- Determine factors that limit ecosystem function, population size and health, and habitats.
- Enlist the support of stakeholders in developing a habitat restoration plan.
- Develop a restoration plan and implementation strategy that is consistent with existing flood control and other urban and agricultural land uses in the floodplain corridor.
- Develop a plan that protects, enhances, and restores rare, threatened, or endangered species and their habitats, and ecological processes that maintain the species and their habitats.
- Develop a plan that yields improvements in levee system integrity and flood control capacity.
- Evaluate options to expand the floodplain corridor and improve flood control and habitats.
- Determine information needed to address the above objectives.

c. Approach/Tasks/Schedule: The restoration program plan will be based on an ecosystem approach that focuses on restoring floodplain processes that allows the natural regeneration of aquatic, riparian, and wetland habitats. The restoration program will implement an adaptive management framework wherein planned actions for which there is uncertainty relative to benefits or logistical feasibility will first be initiated on an experiment or pilot basis to determine constraints, cost-benefits, and efficacy before full-scale manipulation. The tasks included in Phase 1 of the restoration program are: (1) organize stakeholder stewardship group, (2) collect, analyze, and present information needed to develop the restoration strategy, (3) conduct meetings and workshops, (4) solicit technical input from resource agencies, (5) prepare restoration plan and implementation strategy, and (6) project management. The proposed program will be the first phase of a multi-phased, multi-year effort to restore habitat and improve ecosystem health of the lower Sacramento River bypass and floodplain ecosystem. Phase 1 is envisioned as a 2-year effort.

d. Justification for Project and Funding by CALFED: The lower Sacramento River floodplain is a highly disturbed ecosystem being within the primary flood-control corridor of the Feather and Sacramento Rivers with floodplains constrained by major levees and being part of the Sacramento Flood Control System. Despite these stresses the river floodplain has extremely important ecological functions, species, and habitat values. Benefits expected from the long-term restoration program, for which this project is the first phase, include expanding aquatic and terrestrial habitats, and reducing stranding of young fish, and improving fish passage, while maintaining or enhancing the flood-bearing capacity of the floodplain corridor. With CALFED support, Audubon and its partners hope to implement a habitat restoration that will increase public awareness, mutually benefit a wide range of stakeholders, and provide public educational and recreational value.

e. Budget/Cost and Third-Party Impacts: The estimated cost of the restoration program is $422,000. Future restoration projects within the active floodplain and outside the existing levees (e.g. setback levees and overflow basins) may improve the flood capacity of the lower Sacramento River bypass and floodplain corridor, and reduce the risk of flooding to adjacent lands. Changes in existing land uses within and adjacent to the active floodplain will be explored only with the expresses approval of landowners and users.

f. Applicant Qualifications: Audubon is committed to the long-term restoration of fish and wildlife habitats in the lower Sacramento River bypasses and floodplain and owns and operates the Wattis and Bobelaine Sanctuaries in the floodplain. Audubon is actively working with several participating stakeholders to protect remaining habitat values in the Moulton bypass and lower Feather River floodplain adjacent to the Sutter Bypass. Audubon will have the support of staff from DWR's Flood Management Division, Environmental Services Office, and Reclamation Board, and contract services of Foster Wheeler Environmental.

g. Monitoring and Data Evaluation: Early phases of the program will include data collection, review, and analyses. Data included will be fish passage, fish stranding, and aquatic, wetland, riparian, agricultural, and upland habitats, landuse, and physical conditions within the floodplain. These data and analyses will form the baseline for future planning and benefit evaluations.

h. **Local Support/Coodination with Other Programs/Compatility with CALFED Objectives:** The proposed habitat restoration program will be coordinated with other restoration projects on the lower Sacramento River, Feather River, and Sutter and Yolo Bypass including the Butte Creek/Sutter Bypass Anadromous Fish Passage Program, Yolo Bypass Study, and the Nelson Slough Wildlife Area Restoration Demonstration Project.

IV. PROJECT DESCRIPTION

CALFED's Ecosystem Restoration Program (ERP) and the CVPIA Anadromous Fish Restoration Program (AFRP) have expressed strong interest in habitat restoration in the lower Sacramento River floodplain, which includes lands within the Moulton, Colusa, Tisdale, Sutter, Sacramento, and Yolo Bypasses, and the lower Feather River floodplain adjacent to the Sutter Bypass. The above collaborators are seeking a grant for Phase 1 of a program to restore aquatic, wetland, riparian, and upland habitats, reduce fish stranding, and improve fish passage in the Sacramento floodplain system. Phase 1 involves initial planning, pilot studies, and monitoring tasks.

A. Proposed Scope of Work

We propose to conduct a preliminary evaluation of aquatic, wetland, riparian, upland, and agricultural habitats, as well as fish passage and stranding in the bypasses (Moulton, Colusa, Tisdale, Sutter, Yolo, and Sacramento bypasses) and lower Feather River floodplain adjacent to the Sutter Bypass. The project would involve the following tasks:

Task 1. Assemble, Analyze, and Present Available Information.

Assemble and analyze map information, aerial photos, ecological survey data, historical stage and flow data in a GIS format. Assemble information on land use, elevations, soils, habitat types, including agricultural, wetlands, riparian, aquatic, and upland habitats. Identify riparian corridors, floodplain forests and wetlands, and various aquatic habitats including sloughs, borrow pits, irrigation canals and ditches, oxbow lakes, and scour ponds. Determine connectivity of aquatic and riparian habitats or lack thereof. Some field study is included to collect essential information if necessary. Present information in atlas type format.

Task 2. Coordinate and Communicate with Stakeholders

Supplement and augment existing stakeholder programs in the Yolo Bypass, Sutter Bypass, and Butte Sink to involve local stakeholders in the habitat restoration program. Stakeholder processes already started in Butte Sink and Sutter Bypass to cover fish passage could be expanded to cover fish and wildlife habitat and fish stranding issues. We envision coordination with 4 to 5 stakeholder groups. Communication will be facilitated with a newsletter and webpage.

Task 3. Evaluate Potential Fish Passage Problems.

Information from CDFG and private individuals indicates that there is a potentially serious fish passage problem in the bypasses. Adult anadromous fish including salmon, steelhead, and green and white sturgeon are attracted to the flow from the bypasses and migrate upstream into the bypass system. Within the bypasses they may encounter migration barriers which deter or block their upstream migrations. The weirs at the head of the bypasses are the most obvious hinderances to upstream migration. Adult salmon are known to become stranded in sloughs and ponds in the Colusa Bypass when Sacramento River overflows cease. Adult salmon and sturgeon become stranded in ponds immediately below the Fremont Weir at the head of the Yolo

Bypass. A fish ladder in the Fremont Weir does not function adequately to provide passage. Sources will be sought out with knowledge of fish passage problems in the bypasses. Problem sites will be documented. Observations will be made in the field when necessary. Conditions relating to fish passage problems will be documented. Potential solutions will be developed. A GIS database will be developed of all sites evaluated.

Task 4. Evaluate Potential Fish Stranding Problems.
The bypasses and floodplain of the lower Sacramento River system have fish stranding problems. Young salmon and steelhead from the Sacramento River and its tributaries become trapped in floodplain habitats upon cessation of flooding. Detailed maps of each of the bypasses and lower Sacramento River and Feather River floodplain will be developed showing potential stranding areas. Ponding after flood events when weirs cease spilling into the bypasses are indicators of potential stranding areas. How areas potentially drain is also important. Wide, shadeless, and shallow areas are especially a problem as they warm and dry-up quickly, and provide little cover from avian predators. Deep, shaded toe-drains, ponds, sloughs, and borrow pits have greater potential for maintaining stranded fish into early summer, but often have significant numbers of non-native fish predators. Permanent sloughs, canals, and drains with connections to the Sacramento River will be identified. Potential solutions to problems identified will be developed. All waters connected to the lower Sacramento River active floodplain that may be habitat for Sacramento River salmon and steelhead will be mapped and potential for stranding evaluated.

Task 5. Evaluate Fish and Wildlife Habitat Conditions
Map existing habitat areas, habitat types including agricultural, key features that affect habitat (e.g., soils), evaluate condition of habitats, continuity of habitats, and areas of potential habitat restoration. Habitat types will include riparian, aquatic, wetland, and upland.

Task 6. Colusa Bypass Pilot Project
We propose to conduct a pilot project coincident with and in cooperation with upcoming planned operations and maintenance (O&M) work by DWR in the Colusa Bypass. The pilot project may entail experimental habitat restoration or rehabilitation and measures to reduce fish stranding and passage problems in the bypass. DFG has documented adult salmon and steelhead passage and stranding problems, as well as the potential to strand large numbers of juvenile salmon and steelhead. The objective would be to piggy-back on the O&M project in the bypass and create some habitat and reduce fish passage and stranding problems. The results of these experiments will be of general use in Central Valley floodplain habitats.

Task 7. Fremont Weir and Upper Yolo Bypass Pilot Project Design
There are readily identified and resolvable fish passage, stranding, and habitat problems at the Fremont Weir and on lands at the upper end of the Yolo Bypass that could be addressed as a pilot study. Included would be preliminary engineering designs for upgrading the fish ladder in the weir and providing connections from ponds to toe drain canals that connect downstream to

the Delta. Also included in this pilot study will be an evaluation of potential solutions to adult salmon and steelhead attraction into the Knights Landing Ridge Cut at the northwest corner of the bypass.

Task 8. Sacramento Bypass Pilot Project

Fish passage and stranding problems are reasonably easy to resolve in the Sacramento Bypass. Many young young salmon, splittail, and steelhead are stranded each year in the toe of the weir, in scour ponds, and borrow canals. We propose to design a preliminary short-term solution that may involve temporary connections that will allow these fish to escape, and plan longer-term permanent solutions as part of the overall plan for the bypass. Proposed plans to expand the bypass in the future could be modified to accommodate improved fish passage and habitat, and reduced stranding.

Task 9. Prepare Restoration Plan and Implementation Strategy

The project technical team with support and guidance from stakeholders will prepare the draft ecosystem restoration plan and implementation strategy for general distribution, review, and comment. The restoration plan and implementation strategy would potentially include but would not be limited to the items displayed in Figure 1.

Task 10. Project Management

Audubon, DWR, and Foster Wheeler Environmental staff personnel are proposed to manage the project at varying degrees of intensity over the two years of the project. The Audubon project coordinator would coordinate with DWR and Audubon management and project participants, and plan, schedule, over-see, and document all project activities, including contract services support and oversight.

B. Location and/or Geographic Boundaries of the Project

The proposed project area includes the Moulton, Colusa, Tisdale, Sutter, and Sacramento bypasses, the lower Feather River floodplain adjacent to the Sutter Bypass, the northern portion of the Yolo Bypass, the Cross Canal near the mouth of the Feather River, and include areas in Colusa, Sutter and Yolo Counties (Figure 2). The project area extends from the Moulton Weir downstream to the tidal boundary of the Delta at Interstate 80 in the Yolo Bypass. The Moulton and Colusa bypasses include the easement lands from the weirs on the Sacramento River to Butte Creek, including private lands. The Tisdale bypass includes the leveed channel from the Tisdale Weir on the Sacramento River to the West Borrow Canal of the Sutter Bypass. The Sacramento Bypass includes the lands within the leveed channel from the Sacramento Weir on the Sacramento River to the East Drain of the Yolo Bypass. The project boundaries also include floodplain channels connected to the bypasses and lower Sacramento River floodplain including the Cross Canal, Knights Landing Ridge Cut, and Natomas East Main Drain Canal. All of these areas are in the lower Sacramento River active floodplain and connected to the Sacramento River in some way. These areas are also potential rearing habitat for juvenile Sacramento River salmon and steelhead.

Figure 1. List of Items Included in Restoration Plan and Implementation Strategy

- A characterization of the existing environment including bypassest, floodplain, habitat types, species occurrence, physical processes, land use and ownership, and ecological stressors.
- A statement of natural resource and economic problems and causes (i.e., identified by CALFED, CVPIA, U.S. Environmental Protection Agency (USEPA), and agricultural and water user organizations).
- A restoration plan outlining potential restoration needs and options. Specifics will be prepared on options for expanding the bypasses, expanding the floodplain, increasing the volume of the existing floodplain (e.g., removing stored sediment on floodplain terraces), restoring aquatic, wetland, and riparian habitats, increasing floodplain inundation frequency (e.g., by opening channels to lower portions of floodplain, and modifying bypass and floodplain vegetation management practices).
- A statement of stakeholder needs.
- A statement of stakeholder goals and objectives, (integrating those of CALFED, CVPIA, USEPA, and agricultural and water user organizations).
- A future planning approach including principles to follow, process, and local requirements;
- Potential for integration with other habitat restoration, agricultural enhancement, and flood management programs (e.g., CVPIA, SB1086, Prop 70, Central Valley Habitat Joint Venture, Williamson Act, Riparian Habitat Joint Venture, Partners for Fish and Wildlife, and others).
- Potential options for future stewardship program management, how it will be maintained, partnerships, roles, relationships with agencies, funding capabilities, and authorities.
- Potential restoration locations and actions, and the ecological basis for those actions; costs, constraints, and priorities (in compliance with NEPA/CEQA).
- Future agricultural land and water use enhancements, costs, constraints, and priorities.
- A schedule and priorities for implementation (e.g., short-term; long-term).
- An implementation strategy/approach including permitting; public involvement; funding; and how local stakeholder will implement restoration activities in the bypasses and floodplain of the lower Sacramento River.
- Information needs; research and monitoring guidelines and justification.

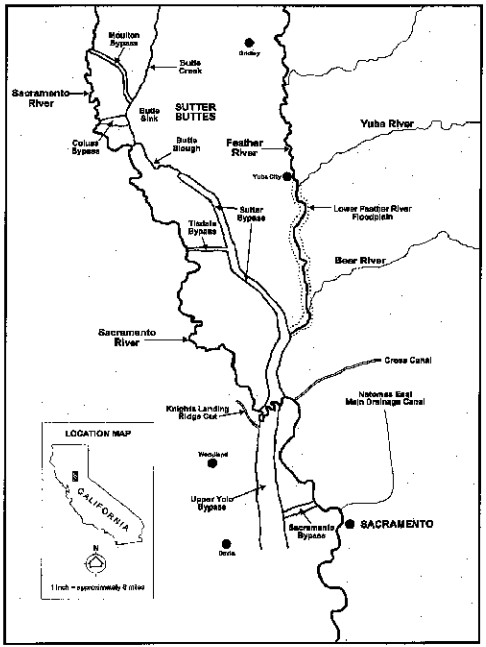

Figure 2. Sacramento River Bypass and Floodplain System

Figure 2. Map of study area.

C. Ecological/Biological Benefits

Ecological/Biological Objectives and Targets

The primary goal of this project is to improve survival and production of salmon, steelhead, splittial, and sturgeon populations of the Sacramento River and its tributaries by improving floodplain rearing habitats, improving adult fish passage, and reducing stranding of juvenile fish in the floodplain. Overall objectives are presented in Figure 3; targets are presented in Figure 4. Specific objectives include the following:

Restore Natural Floodplain and Flood Processes: Reestablish frequent inundation of floodplains by removing, breaching, or setting back levees and , in regulated rivers, by providing flow releases capable of inundating floodplains (ERPP Vol 1, page 43). CALFED Stage 1 objectives would include developing strategies for restoring natural channel and floodplain dynamics, and initiate two large demonstration projects. Several locations in the lower Sacramento River floodplain could be demonstration projects.

Restore Habitats: Restore large expanses of aquatic, wetland, and riparian habitats (ERPP Vol 1, page 103. The Stage 1 objective is to restore seasonal wetlands. Targets include enhancing seasonal wetland and riparian habitats. The proposed project would inventory these habitats and identify potential options for expanding these habitat types within the floodplain. Options would include excavating floodplain terraces to provide aquatic, riparian, and wetland habitats.

Reduce Stranding: The target is to reduce or eliminate stranding of fish in floodplains (ERPP Vol 1, page 421). The proposed project would identify areas of potential stranding based on floodplain elevations, gage data, and floodplain inundation frequency. Options for reducing stranding would be outlined and discussed (e.g., connecting aquatic habitats isolated in the floodplain with the river or filling in the stranding areas).

Reduce Predation and Competition: The objective is to reduce the loss of juvenile native fish from unnatural levels of predation or competition (ERPP Vol 1, page 421). The proposed project would identify potential organisms that may cause unnatural predation or competition. Potential sources include striped bass, black bass, bluegill and white and black crappie. Options for reducing predator populations (e.g., draining or filling permanent ponds periodically) will be developed and discussed with input from area stakeholders and agency technical experts.

Restore Priority Species: Restore priority species including chinook salmon, steelhead, and splittail (ERPP Vol 1, page 177) and Swainson's hawk (ERPP Vol 1, page 178). The proposed project will document the seasonal occurrence, habitat use, and dependence of these species on the floodplain and bypasses. Options for restoring these species would be through restoring processes and habitats, and reducing stressors, as identified above.

Project Need

A puzzling problem encountered in the past 7 year wet period is the lack of response of wild salmon and steelhead populations to the "wet" conditions. While survival of hatchery stocks greatly increased, the wet conditions have been a mixed blessing for wild, naturally produced populations. A suspect in the lack of response of wild fish is poor survival in the river floodplains where the majority of young salmon and steelhead end up in wet years. First, a small

but significant portion of the adult wild winter-run and spring-run chinook salmon and steelhead are lost in the bypasses because they can't negotiate the barriers in the bypasses to return to the main Sacramento River or its tributaries. Second, millions of juvenile salmon and steelhead are stranded and lost each year, but particularly in wet years, in the bypasses as floodwaters recede. Not only are many salmon and steelhead lost, but so are many native resident species that seasonally use floodplain habitats including splittail, a threatened species. Third, floodplain habitats, while offering the young salmon and steelhead excellent winter habitat, are home to millions of non-native predatory fish particularly largemouth bass, striped bass, white and black crappie, and bluegill that eat millions of juvenile salmon and steelhead. The bypasses and floodplain offer unreasonably favorable habitat conditions for these predators.

Restoration of habitats in the bypasses and floodplain offers potential relief to these problems and potential ancillary benefits to other CALFED target species such as Swainson's hawks, giant garter snakes, waterfowl, and neo-tropical songbirds. Connecting waterways and providing for continuous riparian corridors and wetlands would provide many ecosystem benefits. Filling and connecting large, deep ponds, toe drains, borrow pits, and scour holes would provide more shallow water marsh and slough habitats and reduce habitat for non-native predatory fish, and reduce potential stranding of adult and juvenile salmon and steelhead. Providing fish passage facilities at the overflow weirs of the bypasses would alleviate some of the problems.

Expected Benefits

The proposed project will identify existing habitat values in the bypasses, and measures necessary to protect, enhance, and restore important habitats. Benefits expected from the long-term restoration program, for which this project is the first phase, include expanding aquatic and terrestrial habitats, improving fish passage, and reducing stranding of young fish, while maintaining or enhancing the flood-bearing capacity of the bypasses. Benefits can be expected as varying degrees of improvements to anadromous fish runs of all the Sacramento River mainstem rivers and tributaries. Once a plan is developed and restoration funds become available upon completion of the CALFED Program EIR/EIS, then restoration could possibly commence and benefits realized. Habitat improvements from this program will contribute to goals of other programs such as the Central Valley Habitat Joint Venture, the Riparian Habitat Joint Venture, Habitats for Wildlife, and various waterfowl programs.

The expected durability of habitat restoration efforts in the lower Sacramento River bypasses and floodplain is high as evident from existing habitat features being very stable and persistent. High velocity flows and sediment loads are generally confined to the area immediately below the weirs on the Sacramento River. Planned habitat restoration may even reduce the erosive forces of the bypasses by opening the channels via setback levees and material excavation. Once established floodplain habitats such as wetlands and riparian forests would be self-sustaining. Seasonal and permanent wetlands that occur in the bypasses have well established vegetation and many physical features such as sloughs, ponds, irrigation ditches, and toe drains, as well as roads and levees remain consistent from year to year despite flood overflows. Some maintenance of

the floodplain and bypasses will be ongoing and necessary. Maintenance of permanent wetlands may require summer diversions or groundwater pumping.

Adaptive Management Framework and Ecosystem Approach
The proposed restoration plan is based on an ecosystem approach wherein the restoration program would focus on restoring floodplain processes first to allow natural regeneration of aquatic, riparian, and wetland habitats. Connecting sloughs, ponds, and toe drains of the floodplain and bypasses to channels connected to floodplain streams and the Sacramento River would allow escape routes for stranded fish and provide permanent access for fish to backwater habitats even in drier years.

The restoration program plan would adopt an adaptive management framework wherein planned actions for which there is uncertainty relative to benefits or logistical feasibility would first be initiated on an experiment or pilot basis to determine constraints, cost-benefits, and efficacy before full-scale manipulation. Alternative approaches can also be evaluated to determine which are more cost-effective. If in the planning process questions arise, experiments can be undertaken to test alternative hypotheses.

Linkages
The proposed project will provide benefits consistent with the goals and objectives of (1) the CALFED's ERP and Conservation Strategy; (2) the CVPIA-AFRP; (3) the Central Valley Habitat Joint Venture; and (4) Audubon plans for the Wattis and Bobelaine Sanctuaries. The plan will also be integrally linked with DWR Flood Management, Reclamation Board, and Comprehensive Study planning efforts for the Sacramento River floodplain and bypasses.

System-Wide Ecosystem Benefits
The habitat restoration plan will identify habitat restoration locations and management measures for a variety of aquatic and terrestrial species and thereby help achieve multiple objectives of CALFED's ERP. Habitat improvements in the bypass will not only benefit Central Valley wide fish populations, but also the Bay-Delta foodweb by increasing organic production in the bypasses and increasing the inundation frequency of floodplain habitats.

Compatibility with Non-Ecosystem Objectives
A major objective of the proposed program is to maintain or increase the flood control values of the bypass system. Long-term flood control planning in the Central Valley will benefit from the comprehensive ecological planning initiated at the heart of the proposed habitat restoration program. DWR's Flood Management Division and the Reclamation Board will play integral parts in the planning process of the project and ensure that flood control objectives are considered and evaluated. Other non-ecosystem objectives include maintaining land uses such as agriculture and managed seasonal wetlands for waterfowl hunting.

Figure 3. Goals and Objectives of Restoration Program

- Restore anadromous fish populations of the Sacramento River and its tributaries.
- Protect, enhance, and restore habitats of rare, threatened, and endangered wildlife including Swainson's hawk, giant garter snake, and neo-tropical songbirds.
- Reduce stressors on fish and wildlife and their habitats.
- Develop community awareness of the linkage between agricultural viability and natural resource protection.
- Develop a watershed restoration implementation strategy for the lower Sacramento River bypasses and floodplain.
- Develop alternatives to protect and restore floodplain resources and reduce stressors.
- Develop alternatives to maintain and enhance agricultural economic viability in concert with habitat and floodplain restoration activities.
- Improve and maintain water quality for human and natural resources use.
- Provide technical information and flood control consistency analysis methods that can be applied to other similar areas.

Figure 4. ERPP targets

- Increase the average width of the floodplain and linear extent of low areas beyond channel banks subject to bankfull discharge;
- Promote floodwater detention in flood basins;
- Encourage wetland formation;
- Increase the frequency of inundation of vegetated floodplains;
- Reduce the extent of trapezoidal channels within levees and floodways;
- Increase the acreage and connectivity of natural habitat areas within the active floodplain;
- Consider setback levees;
- Acquire flood easements on agricultural and natural lands to allow greater frequency and extent of floodplain inundation;
- Modify bypass and channel vegetation management practices to allow greater vegetative cover on existing floodplains;
- Expand floodplains and bypasses and reduce maximum flood stage in channels.

Technical Feasibility and Timing

Other Alternatives Considered: We considered a more peace-meal approach to restoring habitats and eliminating passage and stranding problems in the bypass. Present and planned stakeholder processes deal with individual areas of bypasses and adjacent lands. Because DWR's responsibilities are toward the entire Sacramento flood control system, we believe it is more effective to plan restoration for the entire lower Sacramento River floodplain and bypass system. Where local efforts have begun, we will work closely with them as we have done with groups in Butte Sink, the Sutter Bypass, and Yolo Bypass.

NEPA/CEQA and Other Environmental Compliance: Audubon and DWR have an established compliance process for bypass and floodplain activities. These processes and experienced staff will be available to the habitat restoration program. Many proposed activities in the bypasses are covered under existing O&M activities.

Ability to Initiate Restoration Activities and Pilot Experiments: DWR has existing mandates to protect habitats and fish and wildlife resources in the flood control system that will allow immediate implementation of program activities including pilot studies.

Other Means of Resolving Flood Control and Ecosystem Restoration Implementation Issues: DWR is presently co-sponsor of the Sacramento Comprehensive Flood Control System evaluation program with the US Army Corps of Engineers Sacramento District. This long-term system program will provide mechanisms, information, and processes from which this habitat restoration program can draw upon, and visa-versa.

Nature and Approach to Resolving Outstanding Implementation Issues: Audubon and DWR propose to have an active stakeholder involvement program that is linked to CALFED's own Ecosystem Restoration Program to resolve issues. We will employ a network of stakeholder interactions with local and regional stakeholders with interest in the project. We will link with the Yolo Basin Foundation's Watershed Stewardship Program just beginning in the Yolo Bypass and similar programs involving stakeholders in Butte Sink and the Sutter Bypass. We will use these forums as well as existing public information forums to openly discuss the proposed program and any issues that may arise. In addition, DWR's Flood Management Division and Reclamation Board have well established programs with local governments and the public regarding flood control issues in the lower Sacramento River floodplain. We plan to tap into this system in involving local stakeholders in the project. Issues regarding fish and wildlife, and their habitat, passage, and stranding will be discussed with technical teams of the USFWS-AFRP, NMFS and USFWS ESA staff, Interagency Ecology Program, and CALFED's Comprehensive Monitoring Assessment Research Program (CMARP).

Monitoring and Data Collection Methodology
Monitoring is an essential element of the program. Phase 1 includes monitoring within the pilot studies, but also limited monitoring to collect basic information needed for the evaluation (Task 2). Limited monitoring is also proposed to supplement the information presently available to develop the restoration strategy. Development of research and monitoring guidelines are proposed as a part of developing the restoration strategy (Task 9). Project staff will obtain key data available from other programs as identified earlier. More intensive monitoring will be necessary during and after implementation of future restoration projects to assess program effectiveness of specific actions. Monitoring is an essential element of each pilot project, because each pilot project and future action will be conducted as a learning experiment under the habitat restoration program's adaptive management framework. Data on aquatic, wetland, riparian, and upland habitats in the study area will collected from ground surveys, aerial photos/videos, and maps.

Biological/Ecological Objectives: The objectives of the monitoring tasks include evaluation of the effectiveness of pilot experiments to improve fish habitat, passage, and stranding in the bypasses. Monitoring would involve assessing pre-project conditions and post-project conditions.

Monitoring Parameters and Data Collection Approach (also see Table 1): Monitoring parameters include density of juvenile salmon, steelhead, and splittail in bypass habitats; as well as habitat conditions including physical configuration of habitats, water temperature, and shaded riverine aquatic (SRA) cover. Data collection techniques will include seining for juvenile fish in aquatic habitats being evaluated. Opportunities may also arise when draining stranded water bodies to employ fyke-type trap nets to capture fish. Numbers, species, size, and conditions of fish will be recorded. Generally all fish will be released after capture; however, there may be opportunities to conduct mark-recapture experiments to provide estimates of abundance. Fish samples may also be retained for agency genetic experiments.

Data Evaluation Approach: The basic statistic of stranded water bodies is density of fish per unit area (usually acre or square feet). Standard protocols will be those employed by IEP study in Yolo Bypass and DFG splittail studies in the Sutter Bypass. Peer review of study design, methods, and analyses will be sought from the IEP Salmon, Resident Fish, and Steelhead teams. Habitat monitoring and cataloguing will be performed within a GIS data base format. Habitat types in the bypasses and floodplain will be mapped.

Table 1. Monitoring and Data Collection Information

Hypothesis/ Question to be Evaluated	Monitoring Parameter(s) and Data Collection Approach	Data Evaluation Approach	Comments/ Data Priority
A.) Monitor Fish Stranding for three pilot studies.			
What is the density of fish stranded in water body by species and life stage/size group.	Density of fish as determined by seining water body or employing fyke trap during draining in areas of pilot studies. Other studies or best guesses from observations may be employed for other mapped aquatic habitats in the bypasses and flooddplain.	Calculate density of fish by species and life stage (size groups) from direct catch per area covered, mark-recapture experiment, or total capture (fyke trap).	Data on stranding are top priority for pilot study areas; for other areas data will be collected on an opportunity basis
B.) Monitor adult fish passage problems for three pilot studies.			
What are the numbers of fish blocked on their migrations below the bypass weirs.	Monitoring will consist of visual observations of standed water bodies below weirs after cessation of flooding. Other techniques may include seining or trapping adult fish, or observations of adult fish in stranded ponds and fish ladders (Fremont Weir only).	Calculate the total number of adult fish by species and race/run (e.g., winter-run and spring-run chinook salmon).	Successful collection of such data may be difficult given small numbers of fish and their illusiveness.
C.) Evaluate the Effectiveness of Habitat Restoration and Stranding Reduction Pilot Studies.			
How effective are habitat restoration actions.	Surveys of habitat conditions pre- and post-project.	Comparison of pre- and post-restoration conditions.	
How effective were the measures employed in reducing or eliminating potential standing.	Comparison of the numbers stranded before and after employing stranding reduction measures.	Numbers per unit area and total numbers of fish will be parameters used in the analysis.	Data on stranding reduction are a top priority for pilot studies.

Local Involvement

Audubon and DWR plan to coordinate with local stakeholders groups (Task 2). In the Butte Basin for Moulton and Colusa Bypasses coordination will be sought with an existing stakeholder group involved in the Butte Creek Project. In the Sutter Bypass for the Tisdale Bypass and Sutter Bypass coordination will be sought with an existing stakeholder group involved in the Butte Creek Project, which include staff of the Sutter National Wildlife Refuge and local land owners and irrigation and reclamation districts. In the Sacramento and Yolo Bypasses coordination will be sought with a local stakeholder group being developed by the Yolo Basin Foundation under a 1998 CALFED grant.

The project team will also involve agency technical teams in the project. DFG staff familiar with the floodplain habitats of the project area include Dale Whitmore and Ron Bertram, DFG Region II. DFG fisheries biologists familiar with the project area and concepts include John Nelson and Paul Ward. USFWS biologists with local familiarity of the project area include Gary Falxa – wildlife biology, and John Icanberry and Carl Mesick – fish biology. These individuals will participate in technical teams including Audubon, DWR-ESO, and Foster Wheeler Environmental technical staff.

Cost

a. Budget Costs: Costs are presented by task in Tables 2 and 3. Of the total of 4,800 direct hours proposed expended over the 24 months of the project, 960 are for DWR staff and 3,840 for Audubon staff.

Audubon and DWR will require funds for project management and oversight, contract administration, technical support, services contracts, and facilitation. Funds are requested the services of experienced personnel of Foster Wheeler Environmental Corporation to be integral members of the project team and an extension of Audubon and DWR staff to support carrying out project tasks. CALFED funding is necessary to implement Phase I of the restoration program. The intent is to develop the necessary resource analysis work simultaneously with stakeholder support and pilot studies during the first 2 years before implementing Phase II restoration actions. Funding of Phase II will be available from a variety of sources including CVPIA, CALFED, and other federal and state programs and private entities.

b. Cost-Sharing: Audubon and DWR will be providing considerable in-kind services to the project. Additionally, DWR has pledged in-kind support by providing considerable data regarding development of floodplain channel cross sections, detailed maps, aerial photos, and longitudinal profiles. Audubon will provide detailed survey data of their Wattis and Bobelaine Sanctuaries. DWR will provide detailed survey and other data on the bypasses and floodplains.

Table 2. Sample Total Budget (CALFED funds only)

Task	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc and other Direct costs	Overhead and Indirect Costs	Total Costs
1	600	10,500	84,924	450.00	450.00	10,500	106,824
2	200	3,500	25,377	150.00	150.00	3,500	32,677
3	200	3,500	8,820	150.00	150.00	3,500	16,120
4	200	3,500	9,001	150.00	150.00	3,500	16,301
5	150	2,625	26,475	112.50	112.50	2,625	31,950
6	150	2,625	12,040	112.50	112.50	2,625	17,515
7	150	2,625	8,913	112.50	112.50	2,625	14,388
8	150	2,625	8,913	112.50	112.50	2,625	14,388
9	600	10,500	40,838	450.00	450.00	10,500	62,738
10	2,400	42,000	21,995	1,800.00	1,800.00	42,000	109,595
Total	4,800	84,000	247,302	3,600.00	3,600.00	84,000	422,496

Table 3. Quarterly Budget

Task	Budget Oct-Dec 99	Budget Jan-Mar 00	Budget Apr-Jun 00	Budget Jul-Sep 00	Budget Oct-Dec 00	Budget Jan-Mar 01	Budget Apr-Jun 01	Budge t Apr-Jun 01	Total Costs
1	53412	26706	26706	0					106,824
2	8169	8169	3268	3268	3268	3,268	1,634	1,634	32,677
3	4030	4030	1612	1612	1612	1,612	806	806	16,120
4	4075	4075	1630	1630	1630	1,630	815	815	16,301
5	7988	7988	3195	3195	3195	3,195	1,598	1,598	31,950
6	2627	2627	1752	1752	1752	1,752	2,627	2,627	17,515
7	2156	2158	1439	1439	1439	1,439	2,158	2,158	14,388
8	2158	2158	1439	1439	1439	1,439	2,158	2,158	14,388
9	3137	3137	3137	3137	3137	3,137	25,095	18,821	62,738
10	16439	16439	10960	10960	10960	10,960	16,439	16,439	109,595
Total	104,194	77,488	55,136	28,430	28,430	28,430	53,331	47,057	422,496

Schedule

The proposed project will be completed under a 2-year schedule with the following Table (Table 4) by task.

Table 4. Schedule of tasks.

Task	Schedule	Deliverables
Task 1. Assemble, Analyze, and Present Available Information.	First three quarters of the First Year.	Atlas type report.
Task 2. Coordinate with Stakeholders	All Quarters of First and Second Year.	Meeting announcements and notices, agendas, and notes. Newsletter and webpage.
Task 3. Evaluate Potential Fish Passage Problems.	First year and as necessary in second year.	Fish passage analysis and report.
Task 4. Evaluate Potential Fish Stranding Problems.	First year and as necessary in second year.	Fish stranding analysis and report.
Task 5. Evaluate Fish And Wildlife Habitat Conditions	First year and as necessary in second year.	Fish and wildlife habitat analysis and report.
Task 6. Colusa Bypass Pilot Project	First and second year.	Pilot Project Report
Task 7. Fremont Weir and Upper Yolo Bypass Pilot Project	First and second year.	Pilot Project Report
Task 8. Sacramento Bypass Pilot Project	First and second year.	Pilot Project Report
Task 9. Prepare Restoration Plan and Implementation Strategy	Second year.	Draft Plan and Strategy, Final Plan and Strategy
Task 10. Project Management	All quarters of both years.	Monthly progress and budget reports.

A. Applicant Qualifications

Audubon: Audubon presently manages the Bobelaine and Wattis Sanctuary programs in the project area. Audubon has the staff project management and scientists capable of managing wetlands and other floodplain habitats from its experiences at the two sanctuaries and many other projects in California and nation wide. Audubon's project coordinator will be under the direction of Dan Taylor, Audubon's California Director.

Department of Water Resources: Flood Management Division, Reclamation Board, and Environmental Services Office (ESO) staff have considerable experience in dealing with floodplain and bypass issues including habitat protection and restoration, permitting, project management, and monitoring. DWR owns considerable property and holds easements to much of the lower Sacramento River floodplain and bypasses. DWR operates and maintains bypasses, weirs, floodways, and levees. ESO has participated in a CALFED grant study of the Yolo Bypass. The Flood Management Division's engineers and construction yards offer the project considerable experience and expertise in planning and implementing construction, operations, and maintenance activities in the floodplain and bypasses. DWR's project coordinator will be under the direction of Rod Mayer, Chief of the Flood Management Division.

Foster Wheeler Environmental: Foster Wheeler Environmental offers scientific, engineering, and project management services to the project. Senior staff in wetlands, riparian, and fisheries ecology will be under the direction of Tom Cannon, project coordinator. Expertise include GIS mapping and data analysis, monitoring, report production, stakeholder facilitation, and fish and wildlife biology.

VII. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The National Audubon Society-California is the beneficiary of a 1998 CALFED watershed grant known as the Union School Slough Watershed Improvement Program. The grant is administered by the National Fish and Wildlife Foundation. Audubon has demonstrated success in working with the Foundation to meet the contracting requirements placed on grantees by the foundation. These requirements include:

- developing a NFWF approved work plan;
- establishing accounting practices that meet federal guidelines for
- grant recipients;
- establishing NFWF approved subcontracting procedures; and
- developing an approved budget and task orders for the project.

All of the above elements are required before grantees are allowed to access NFWF funds for reimbursement of project costs. Our success in working with NFWF in launching the Union School Slough project reflects our ability to meet NFWF's funding requirements as well as our capability to initiate projects on a reimburseable basis. This gives us complete confidence that we would be able to initiate the proposed project in a timely manner and effectively manage the project if this grant is funded.

OMB Approval No. 0348-0040

ASSURANCES - NON-CONSTRUCTION PROGRAMS

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.

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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
Dan	State Director (CA)
APPLICANT ORGANIZATION	DATE SUBMITTED
National Audubon Society	4/16/99

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APPLICATION FOR FEDERAL ASSISTANCE

OMB Approval No. 0348-0043

2. DATE SUBMITTED	Applicant Identifier
4/16/99	
3. DATE RECEIVED BY STATE	**State Application Identifier**
4. DATE RECEIVED BY FEDERAL AGENCY	**Federal Identifier**

1. TYPE OF SUBMISSION:

Application: ☐ Construction ☒ Non-Construction
Preapplication: ☐ Construction ☐ Non-Construction

5. APPLICANT INFORMATION

Legal Name: National Audubon Society
Organizational Unit: California State Office
Address (give city, county, State, and zip code): 555 Audubon Place, Sacramento, CA 95825
Name and telephone number of person to be contacted on matters involving this application (give area code): Daniel Taylor (916) 481-5332

6. EMPLOYER IDENTIFICATION NUMBER (EIN): 13-1624102

7. TYPE OF APPLICANT: (enter appropriate letter in box) ☐

A. State — H. Independent School Dist.
B. County — I. State Controlled Institution of Higher Learning
C. Municipal — J. Private University
D. Township — K. Indian Tribe
E. Interstate — L. Individual
F. Intermunicipal — M. Profit Organization
G. Special District — N. Other (Specify): non-profit

8. TYPE OF APPLICATION:

☒ New ☐ Continuation ☐ Revision

If Revision, enter appropriate letter(s) in box(es) ☐ ☐

A. Increase Award B. Decrease Award C. Increase Duration
D. Decrease Duration Other (specify):

9. NAME OF FEDERAL AGENCY: CALFED

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: ☐☐-☐☐☐

TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: Lower Sacramento River Bypass and Floodplain Habitat Restoration Program

12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.): CA (Sacramento, Yolo, Colusa, Sutter, Yuba Co.)

13. PROPOSED PROJECT

Start Date	Ending Date
Oct 99	Oct 2001

14. CONGRESSIONAL DISTRICTS OF: CA 3/4 (Matsui, Ose)

a. Applicant: National Audubon Society
b. Project: See # 11

15. ESTIMATED FUNDING:

a. Federal	$ 422,496 .00
b. Applicant	$ .00
c. State	$ .00
d. Local	$ .00
e. Other	$ .00
f. Program Income	$ .00
g. TOTAL	$ 422,496 .00

16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:
DATE _____

b. No. ☐ PROGRAM IS NOT COVERED BY E. O. 12372
☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

☐ Yes If "Yes," attach an explanation. ☐ 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
Daniel Taylor	State Director	(916) 481-5332
d. Signature of Authorized Representative		**e. Date Signed**
[signature]		4/16/99

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OMB Approval No. 0348-0044

BUDGET INFORMATION - Non-Construction Programs

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. Lower Sacramento Habitat Restoration		$	$	$ 422,496	$	$ 422,496
2.						
3.						
4.						
5. Totals		$	$	$	$	$

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
a. Personnel	$	$	$ 58,800	$	$ 58,800
b. Fringe Benefits			25,200		25,200
c. Travel			2,000		2,000
d. Equipment			800		800
e. Supplies			800		800
f. Contractual			247,302		247,302
g. Construction					
h. Other			3,600		3,600
i. Total Direct Charges (sum of 6a-6h)			338,502		338,502
j. Indirect Charges			84,000		84,000
k. TOTALS (sum of 6i and 6j)	$	$	$ 422,496	$	$ 422,496
7. Program Income	$	$	$	$	$

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

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 265,248	$ 104,194	$ 77,488	$ 55,136	$ 28,430
14. NonFederal					
15. TOTAL (sum of lines 13 and 14)	265,248	104,194	77,488	55,136	28,430

(a) Grant Program	FUTURE FUNDING PERIODS (Years) (b) First	(c) Second	(d) Third	(e) Fourth
16.	$ 157,248	$	$	$
17.				
18.				
19.				
20. TOTAL (sum of lines 16-19)	$ 157,248	$	$	$

21. Direct Charges: $338496	22. Indirect Charges: $84,000
23. Remarks:	

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National Audubon Society
California

555 Audubon Place
Sacramento, CA 95825
(916) 481-5332
(916) 481-6228 fax

April 16, 1999

Mr. Jerry L. Malbby
Chairman
Colusa County Board of Supervisors
546 Jay Street
Colusa, CA 95932

Subject: Lower Sacramento River Bypass and Floodplain Habitat Restoration CALFED Grant Proposal

Dear Mr Malbby,

Audubon would appreciate your support and involvement in a program to protect, enhance, and restore aquatic, wetland, and riparian habitats in the lower Sacramento and Feather River floodplain. Audubon is submitting a grant proposal to CALFED for funds to develop a habitat restoration plan for the active floodplain within the levee system for the rivers between Marysville at the mouth at Verona, including the lower Sutter Bypass, the Yolo Bypass, the Colusa Bypass, and the Moulton Bypass. It is Audubon's and CALFED's intent to develop a habitat restoration plan that is consistent with present uses of the floodplain including flood control, and that such uses as flood control be protected and enhanced, if possible. CALFED's intent is to allow local stakeholder groups to develop and implement such plans.

Audubon as owner and operator of wildlife sanctuary lands in the effected area proposes to work with other landowners, local, state, and federal agencies, and other interested stakeholders to develop a habitat restoration plan that addresses CALFED objectives and its Ecosystem Restoration Program Plan. The county's support in this endeavor would greatly enhance Audubon's ability to organize stakeholders and conduct an effective plan development process that will address the local interests of county stakeholders.

I have attached additional information about our proposal. I would be pleased to provide you or your staff with additional information about our proposal.

Sincerely,

Daniel Taylor
State Director

Enc.

National Audubon Society
California

555 Audubon Place
Sacramento, CA 95825
(916) 481-5332
(916) 481-6228 fax

April 16, 1999

Ms. Muriel Johnson
Chairperson
Sacramento County Board of Supervisors
700 H Street
Sacramento, CA 95814

Subject: Lower Sacramento River Bypass and Floodplain Habitat Restoration CALFED Grant Proposal

Dear Ms. Johnson,

Audubon would appreciate your support and involvement in a program to protect, enhance, and restore aquatic, wetland, and riparian habitats in the lower Sacramento and Feather River floodplain. Audubon is submitting a grant proposal to CALFED for funds to develop a habitat restoration plan for the active floodplain within the levee system for the rivers between Marysville at the mouth at Verona, including the lower Sutter Bypass, the Yolo Bypass, the Colusa Bypass, and the Moulton Bypass. It is Audubon's and CALFED's intent to develop a habitat restoration plan that is consistent with present uses of the floodplain including flood control, and that such uses as flood control be protected and enhanced, if possible. CALFED's intent is to allow local stakeholder groups to develop and implement such plans.

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I have attached additional information about our proposal. I would be pleased to provide you or your staff with additional information about our proposal.

Sincerely,

Daniel Taylor
State Director

Enc.

National Audubon Society
California

555 Audubon Place
Sacramento, CA 95825
(916) 481-5332
(916) 481-6228 fax

April 16, 1999

Mr. Mike McGowan
Chairman
Yolo County Board of Supervisors
625 Court Street, #204
Woodland, CA 95695

Subject: Lower Sacramento River Bypass and Floodplain Habitat Restoration CALFED Grant Proposal

Dear Mr McGowan,

Audubon would appreciate your support and involvement in a program to protect, enhance, and restore aquatic, wetland, and riparian habitats in the lower Sacramento and Feather River floodplain. Audubon is submitting a grant proposal to CALFED for funds to develop a habitat restoration plan for the active floodplain within the levee system for the rivers between Marysville at the mouth at Verona, including the lower Sutter Bypass, the Yolo Bypass, the Colusa Bypass, and the Moulton Bypass. It is Audubon's and CALFED's intent to develop a habitat restoration plan that is consistent with present uses of the floodplain including flood control, and that such uses as flood control be protected and enhanced, if possible. CALFED's intent is to allow local stakeholder groups to develop and implement such plans.

Audubon as owner and operator of wildlife sanctuary lands in the effected area proposes to work with other landowners, local, state, and federal agencies, and other interested stakeholders to develop a habitat restoration plan that addresses CALFED objectives and its Ecosystem Restoration Program Plan. The county's support in this endeavor would greatly enhance Audubon's ability to organize stakeholders and conduct an effective plan development process that will address the local interests of county stakeholders.

I have attached additional information about our proposal. I would be pleased to provide you or your staff with additional information about our proposal.

Sincerely,

Daniel Taylor
State Director

Enc.

National Audubon Society
California

555 Audubon Place
Sacramento, CA 95825
(916) 481-5332
(916) 481-6228 fax

April 12, 1999

Mr. Dennis Nelson
Chairman
Sutter County Board of Supervisors
1160 Civic Center
Building A
Yuba City, CA 95993

Subject: Lower Feather River Habitat Restoration CALFED Grant Proposal

Dear Mr. Nelson,

Audubon would appreciate your support and involvement in a program to protect, enhance, and restore aquatic, wetland, and riparian habitats in the lower Feather River floodplain. Audubon is submitting a grant proposal to CALFED for funds to develop a habitat restoration plan for the active floodplain withing the levee system for the river between Marysville at the mouth at Verona, including the lower Sutter Bypass. It is Audubon's and CALFED's intent to develop a habitat restoration plan that is consistent with present uses of the floodplain including flood control, and that such uses as flood control be protected and enhanced, if possible. CALFED's intent is to allow local stakeholder groups to develop and implement such plans.

Audubon as owner and operator of the 430 acre Bobelaine Sanctuary (located on the west bank of the Feather River, near Laurel Avenue) proposes to work with other landowners, local, state, and federal agencies, and other interested stakeholders to develop a habitat restoration plan that addresses CALFED objectives and its Ecosystem Restoration Program Plan. The county's support in this endeavor would greatly enhance Audubon's ability to organize stakeholders and conduct an effective plan development process that will address the local interests of county stakeholders.

I have attached additional information about our proposal. Please contact me at your earliest convenience as I would like to add your names to the project sponsors and supporters in the grant proposal.

Sincerely,

Daniel Taylor
State Director

Enc.

National Audubon Society
California

555 Audubon Place
Sacramento, CA 95825
(916) 481-5332
(916) 481-6228 fax

April 12, 1999

Mr. Bill Simmons
Chairman
Yuba County Board of Supervisors
215 5th Street, Floor 3
Marysville, CA 95901

Subject: Lower Feather River Habitat Restoration CALFED Grant Proposal

Dear Mr. Simmons,

Audubon would appreciate your support and involvement in a program to protect, enhance, and restore aquatic, wetland, and riparian habitats in the lower Feather River floodplain. Audubon is submitting a grant proposal to CALFED for funds to develop a habitat restoration plan for the active floodplain withing the levee system for the river between Marysville at the mouth at Verona, including the lower Sutter Bypass. It is Audubon's and CALFED's intent is to develop a habitat restoration plan that is consistent with present uses of the floodplain including flood control, and that such uses as flood control be protected and enhanced, if possible. CALFED's intent is to allow local stakeholder groups to develop and implement such plans.

Audubon as owner and operator of the 430 acre Bobelaine Sanctuary (located on the west bank of the Feather River, near Laurel Avenue) proposes to work with other landowners, local, state, and federal agencies, and other interested stakeholders to develop a habitat restoration plan that addresses CALFED objectives and its Ecosystem Restoration Program Plan. The county's support in this endeavor would greatly enhance Audubon's ability to organize stakeholders and conduct an effective plan development process that will address the local interests of county stakeholders.

I have attached additional information about our proposal. Please contact me at your earliest convenience as I would like to add your names to the project sponsors and supporters in the grant proposal.

Sincerely,

Daniel Taylor
State Director

Enc.

I —0 1 5 0 0 0

I-015000

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

Agreement No. _____

Exhibit _____

STANDARD CLAUSES –
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER

NOTICE TO ALL BIDDERS:

Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

____ Yes* X No

*Attach a copy of your certification approval letter.

DWR 4186 (Rev. 4/94)

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STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) EMC

National Audubon Society

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
Daniel Taylor

DATE EXECUTED
4/16/99

EXECUTED IN THE COUNTY OF
Sacramento

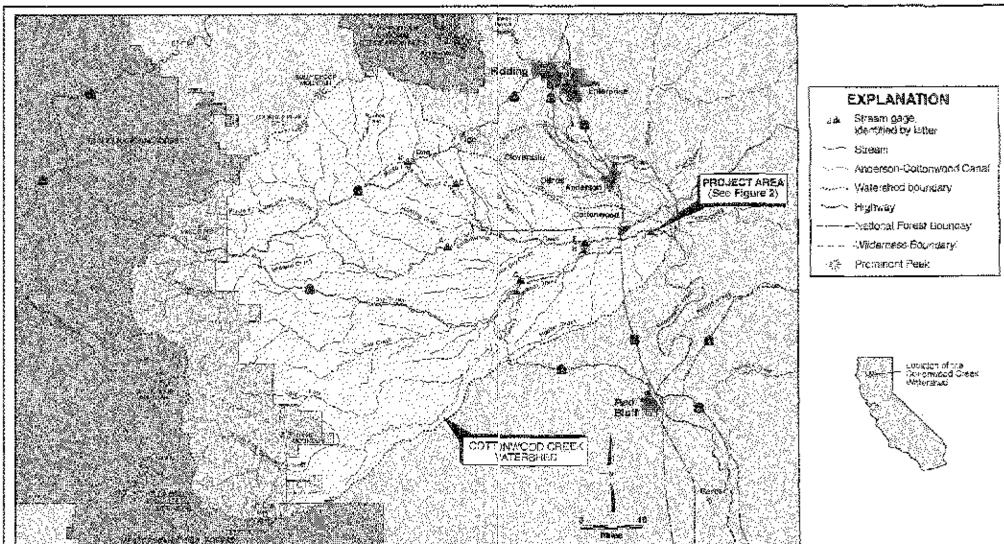
PROSPECTIVE CONTRACTOR'S SIGNATURE
Dan Taylor

PROSPECTIVE CONTRACTOR'S TITLE
California State Director

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME
National Audubon Society, Inc.

I-015002

I-015002



U.S. Geological Survey Stream Gages

A. Middle Fork Cottonwood Creek near Ono (11374400)
B - North Fork Cottonwood Creek at Ono ([illegible])
C - North Fork Cottonwood Creek near Igo ([illegible])
D Cottonwood Creek near Olinda (11375810)
E Cottonwood Creek above South Fork near Cottonwood ([illegible])
F - South Fork Cottonwood Creek near Cottonwood (11375820)
G - South Fork Cottonwood Creek near Olinda (11375870)
H - South Fork Cottonwood Creek at Evergreen Rd. near Cottonwood (11375900)
J - Cottonwood Creek near Cottonwood (11376000)

Jones & Stokes Associates, Inc.

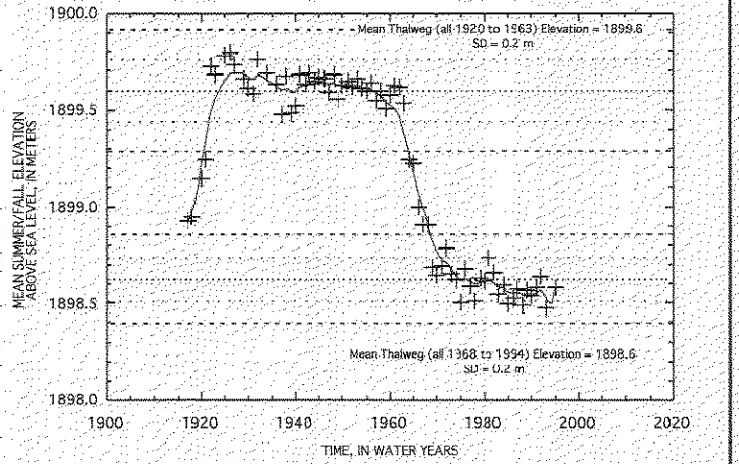
COTTONWOOD CREEK WATERSHED MAP
COTTONWOOD CREEK WATERSHED
MANAGEMENT PLAN

DRAWN BY	SCALE	PROJECT NO.
G	AS SHOWN	[illegible]
CHECKED BY	DATE	FIGURE NO.
[illegible]	APRIL 1999	1

I-015003

I —0 1 5 0 0 4

I-015004



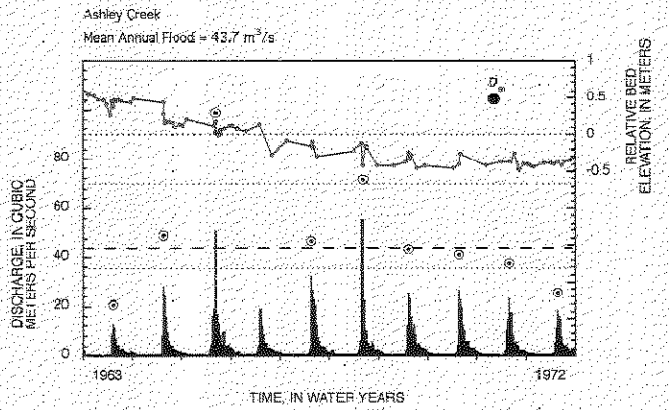
Temporal trend of streambed adjustment of Ashley Creek in the Uinta Mountains of Utah. This time series plot depicts the net annual changes in thalweg elevation, and also shows the temporal trend of stream bed adjustment. For each year, a summer/fall (S/F) thalweg elevation was calculated by averaging the thalweg elevations measured by the USGS in August, September, and October. Consequently, each data point (+) represents the thalweg elevation for a particular year, and a smooth-fit curve through the data show the temporal trend of streambed adjustment. Combined with the S/F elevations are mean and standard deviation statistics calculated from the entire data set. Short dashed lines in the middle of the shaded fields are average thalweg elevations calculated using all data for a specific period of time. The shaded fields represent the limits of one standard deviation (SD) and the longer set of dashed lines denote two standard deviations. In general, this graph indicates that over multiple decades, streambed adjustments typically are within one standard deviation of the average streambed elevation. However, this graph also shows that large abrupt adjustments also occur. At Ashley Creek, the large degradation that occurred in the early 1960's is considered to be the migration of a headcut initiated downstream by a channelization project. *After Smelser, 1998*

COTTON, SHIRES & ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

TEMPORAL TREND OF STREAMBED ADJUSTMENTS
COTTONWOOD CREEK WATERSHED
MANAGEMENT PLAN
SHASTA AND TEHAMA COUNTIES, CALIFORNIA

GEO/ENG. BY	SCALE	PROJECT NO.
MS		P3189
APPROVED BY	DATE	FIGURE NO.
BC	APRIL, 1999	3

I-015005



A decade of daily mean discharge values and coincident streambed adjustments for Ashley Creek in the Uinta Mountains of Utah. Streambed adjustments are shown in the top graph and are quantified along the right ordinate axis. Discharge history is represented by annual hydrographs along the bottom and are quantified by the left ordinate axis. The annual hydrographs were developed using daily mean discharge data. Included in this graph are the instantaneous peak floods for each year (denoted by circled points) and a shaded range of discharge between 0.8 and 1.6 times bankfull discharge. Bankfull discharge is depicted by the heavy dashed line in the shaded region. The filled circle in the upper right portion of the graph is a scaled representation of the mean streambed particle size. Two of the more important conclusions that can be drawn from this graph are that: 1) large floods do not necessarily result in large channel adjustments, and 2) normal range flows are capable of causing significant channel charige. *After Smelser, 1998*

COTTON, SHIRES & ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

DAILY STREAMFLOW AND COINCIDENT STREAMBED ADJUSTEMNTS
COTTONWOOD CREEK WATERSHED MANAGEMENT PLAN
SHASTA AND TEHAMA COUNTIES, CALIFORNIA

GEO/ENG. BY	SCALE	PROJECT NO.
MS		P3189
APPROVED BY	DATE	FIGURE NO.
BC	APRIL, 1999	4

APPENDIX A

Examples of Fluvio-Geomorphic Map and Data Sheets

I-015007

APPENDIX B

Letters to County Board of Supervisors and Planners

I-015008

COTTON, SHIRES & ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

April 14, 1999
P3189

Mr. Jim Cook
Planning Division Manager
Shasta County Planning Division
1855 Placer Street
Redding, CA 95001

FILE COPY

SUBJECT: **Notice of Proposal Submittal**
RE: CALFED Bay-Delta Program,
Sacramento, California

Dear Mr. Jim Cook:

This letter is to inform you that Cotton, Shires and Associates, Inc. has submitted a project proposal to the CALFED Bay-Delta Program.

The goal of our project is to compile fluvio-geomorphic design criteria to assist the Cottonwood Creek Watershed Group with the development of a watershed management plan. Our project will focus on the U.S. Geological Survey stream gaging station on Cottonwood Creek near Cottonwood. This station is located approximately 2.2 miles east of Cottonwood, California.

If you have any questions or comments, please call.

Sincerely,
COTTON, SHIRES AND ASSOCIATES

Mark G. Smelser
Fluvial Geomorphologist

Northern California Office
330 Village Lane
Los Gatos, CA 95030-7718
(408) 354-5542 • Fax (408) 354-1852
e-mail: loser@csa-ceo.com

Southern California Office
5245 Avenida Encinas • Suite A
Carlsbad, CA 92008-4374
(760) 931-2700 • Fax (760) 931-1020
e-mail: carl@csaenv.com

I —015009

I-015009

COTTON, SHIRES & ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

April 14, 1999
P3189

Tehama County Board of Supervisors
P.O. Box 250
Red Bluff, CA 96080

FILE COPY

SUBJECT: **Notice of Proposal Submittal**
RE: CALFED Bay-Delta Program,
Sacramento, California

Dear Honorable Board of Supervisors:

This letter is to inform you that Cotton, Shires and Associates, Inc. has submitted a project proposal to the CALFED Bay-Delta Program.

The goal of our project is to compile fluvio-geomorphic design criteria to assist the Cottonwood Creek Watershed Group with the development of a watershed management plan. Our project will focus on the U.S. Geological Survey stream gaging station on Cottonwood Creek near Cottonwood. This station is located approximately 2.2 miles east of Cottonwood, California.

If you have any questions or comments, please call.

Sincerely,
COTTON, SHIRES AND ASSOCIATES

Mark G. Smelser
Fluvial Geomorphologist

Northern California Office
330 Village Lane
Los Gatos, CA 95030-7218
(408) 354-5542 • Fax (408) 354-1852
e-mail: [illegible]

Southern California Office
5245 Avenida Encinas • Suite A
Carlsbad, CA 92008-4374
(760) 931-2700 • Fax (760) 931-1030

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I-015010

COTTON, SHIRES & ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

April 14, 1999
P3189

Mr. George Robson
Tehama County Planning Department
Room I, Courthouse Annex
444 Oak Street
Red Bluff, CA 96080

FILE COPY

SUBJECT: **Notice of Proposal Submittal**
RE: CALFED Bay-Delta Program,
Sacramento, California

Dear Mr. George Robson:

This letter is to inform you that Cotton, Shires and Associates, Inc. has submitted a project proposal to the CALFED Bay-Delta Program.

The goal of our project is to compile fluvio-geomorphic design criteria to assist the Cottonwood Creek Watershed Group with the development of a watershed management plan. Our project will focus on the U.S. Geological Survey stream gaging station on Cottonwood Creek near Cottonwood. This station is located approximately 2.2 miles east of Cottonwood, California.

If you have any questions or comments, please call.

Sincerely,
COTTON, SHIRES AND ASSOCIATES

Mark G. Smelser
Fluvial Geomorphologist

Northern California Office
330 Village Lane
Los Gatos, CA 95030-7218
(408) 354-5542 • Fax (408) 354-1852
e-mail: losgat@cts.com

Southern California Office
5245 Avenida Encinas • Suite A
Carlsbad, CA 92008-4372
(760) 931-2700 • Fax (760) 931-1020

I —015011

I-015011

COTTON, SHIRES & ASSOCIATES, INC.
CONSULTING ENGINEERS AND GEOLOGISTS

April 14, 1999
P3189

Shasta County Board of Supervisors
1815 Yuba Street
Redding, CA 95001

FILE COPY

SUBJECT: **Notice of Proposal Submittal**
RE: CALFED Bay-Delta Program,
Sacramento, California

Dear Honorable Board of Supervisors:

This letter is to inform you that Cotton, Shires and Associates, Inc. has submitted a project proposal to the CALFED Bay-Delta Program.

The goal of our project is to compile fluvio-geomorphic design criteria to assist the Cottonwood Creek Watershed Group with the development of a watershed management plan. Our project will focus on the U.S. Geological Survey stream gaging station on Cottonwood Creek near Cottonwood. This station is located approximately 2.2 miles east of Cottonwood, California.

If you have any questions or comments, please call.

Sincerely,
COTTON, SHIRES AND ASSOCIATES

Mark G. Smelser
Fluvial Geomorphologist

Northern California Office
330 Village Lane
Los Gatos, CA 95030-7218
(408) 354-5542 • Fax (408) 354-1852
e-mail: losg@csageo.com

Southern California Office
5245 Avenida Encinas • Suite A
Carlsbad, CA 92008-4374
(760) 931-2700 • Fax (760) 931-1020
e-mail: cari@csageo.com

I —015012

I-015012

APPENDIX C

Compliance with Standard Terms and Conditions

I-015013

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME
Cotton, Shires and Associates, Inc.

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.

William R. Cotton

OFFICIAL'S NAME
William R. Cotton

DATE EXECUTED
April 15, 1999

EXECUTED IN THE COUNTY OF
Santa Clara

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

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.

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)

330 Village Lane, Los Gatos, Santa Clara County, CA 95030-7218

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.

I-015016

PART C: 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: William R. Cotton

TYPED NAME AND TITLE: William R. Cotton, President and Principal Engineering Geologist

DATE: April 16, 1999

I —015017

I-015017