



C1002

San Francisco Bay Regional Water Quality Control Board
2101 Webster Street, Suite 500, Oakland, CA 94612 (510) 286-1255 Fax: 286-1380

June 29, 1998

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

Dear CALFED Office,

Enclosed please find ten copies of a grant proposal entitled **Restoring Tidal Marsh Floodplains in the San Francisco Bay-Delta for Native Anadromous Fish, Shorebirds, Waterfowl, Rails, and Mammals**. I have included a cover sheet from the proposal and a stamped, self-addressed envelope and would appreciate your writing "received" on the cover sheet and sending it back to me, so that I can be assured of its arrival. Please note that the San Francisco Bay Regional Water Quality Control Board will be moving over the summer.

Our current address until 8/1/98 is:

San Francisco Bay Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, CA 94612
(510) 286-1277 (Breux)
(510) 286-0780 (Brockbank)
(510) 286-0769 (Cochrane)

After 8/1/98 the address will be:

San Francisco Bay Regional Water Quality Control Board
1515 Clay Street
Oakland, CA 94612
(510) 622-2324 (Breux)
(510) 622-2325 (Brockbank)
(510) 622-2337 (Cochrane)

I will be out of the office for some time in August, but can be reached at (510) 763-3903. Thank you for your consideration.

Sincerely,

Andree Breux, Ph.D.

*Our mission is to preserve and enhance the quality of the water resources of the
San Francisco Bay Region for the benefit of present and future generations*

Attachment H

I. COVER PAGE

COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Restoring Tidal Marsh Floodplains in the San Francisco Bay-Delta for

Proposal Title: Native Anadromous Fish, Shorebirds, Waterfowl, Rails, and Mammals

Applicant Name: Andree Breaux, Ph.D., Regional Water Quality Control Board

Mailing Address: 1515 Clay Street, Suite 1400, Oakland, CA 94612

Telephone: current: (510)286-1277/ after 8/1/98: (510)622-2324/ or (510)763-3903 (home)

Fax: current: (510) 873-6321

Amount of funding requested: \$ 391,500 for 2 years

Indicate the Topic for which you are applying (check only one box). Note that this is an important decision: see page of the Proposal Solicitation Package for more information.

- | | |
|---|---|
| <input type="checkbox"/> Fish Passage Assessment | <input type="checkbox"/> Fish Passage Improvements |
| <input checked="" type="checkbox"/> Floodplain and Habitat Restoration | <input type="checkbox"/> Gravel Restoration |
| <input type="checkbox"/> Fish Harvest | <input type="checkbox"/> Species Life History Studies |
| <input type="checkbox"/> Watershed Planning/Implementation | <input type="checkbox"/> Education |
| <input type="checkbox"/> Fish Screen Evaluations - Alternatives and Biological Priorities | |

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

- | | |
|---|--|
| <input type="checkbox"/> Sacramento River Mainstem | <input type="checkbox"/> Sacramento Tributary: _____ |
| <input type="checkbox"/> Delta | <input type="checkbox"/> East Side Delta Tributary: _____ |
| <input type="checkbox"/> Suisun Marsh and Bay | <input type="checkbox"/> San Joaquin Tributary: _____ |
| <input type="checkbox"/> San Joaquin River Mainstem | <input type="checkbox"/> Other: <u>Central San Francisco Bay</u> |
| <input type="checkbox"/> Landscape (entire Bay-Delta watershed) | <input type="checkbox"/> North Bay: _____ |

Indicate the primary species which the proposal addresses (check no more than two boxes):

- | | |
|---|--|
| <input checked="" type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | |
| <input type="checkbox"/> Winter-run chinook salmon | <input type="checkbox"/> Spring-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Delta smelt | <input type="checkbox"/> Longfin smelt |
| <input type="checkbox"/> Splittail | <input type="checkbox"/> Steelhead trout |
| <input type="checkbox"/> Green sturgeon | <input type="checkbox"/> Striped bass |
| <input checked="" type="checkbox"/> Migratory birds | |

**Restoring Tidal Marsh Floodplains in the San Francisco
Bay-Delta for Native Anadromous Fish, Shorebirds,
Waterfowl, Rails, and Mammals.**

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Restoring Tidal Marsh Floodplains in the San Francisco Bay-Delta for Native Anadromous Fish, Shorebirds, Waterfowl, Rails, and Mammals.

II. EXECUTIVE SUMMARY

a. Applicant Names

Andree Breaux, Ph.D., San Francisco Bay Regional Water Quality Control Board; Marcia Brockbank, San Francisco Estuary Project; Steve Cochrane, Friends of the Estuary.

b. Project Description and Primary Biological/Ecological Objectives

As sensitive fish and wildlife species are increasingly confined to less estuarine habitat, it becomes essential to develop a monitoring strategy for wetland restoration projects, not only to determine whether habitat is successfully being restored, but also to obtain an accurate scientific understanding of how agricultural and industrial practices, and the urban environment, all affect the natural environment. The purpose of this project is to establish a tidal and seasonal wetland pilot study at the Martin Luther King, Jr. Regional Shoreline Park, a recently restored 71 acre site on the San Leandro Bay in Oakland that is expected to provide habitat for several of the CALFED priority species. The San Francisco Bay Ecosystem Goals Project (Resource Managers Group, draft, 1998) has listed the Central Bay, where the site is located, as having important value for foraging, protection from predators, and migration for several of the CALFED priority species including the Chinook Salmon, Steelhead Trout, White Sturgeon, and Striped Bass.

The proposed research project will determine the value of tidal floodplain marshes and creeks in the Central Bay to these migratory fish populations as well as to other estuarine species. The project will (1) develop and test monitoring protocols by the systematic collection of pertinent environmental data from the Martin Luther King, Jr. wetland project; (2) consolidate the information collected, analyze it, and disseminate both the information and conclusions derived from it to as wide a public audience as possible; and (3) train both citizens and agencies to gather and process the information for continued monitoring into the future.

c. Approach/Tasks/Schedule

The site will be monitored and assessed for two years beginning in July 1999. Measurements will be made for hydrologic budgets and of upstream and tidal water quality, sediment quality, contaminants, and use by fish, mammals, and invertebrates. Vegetation assessments and avian use will be monitored as part of a separate monitoring plan being carried out by the Port of Oakland and the East Bay Regional Park District. Food webs will be constructed for resident or migratory species from data gathered through both monitoring programs.

Citizen volunteers will be trained to take over a substantial amount of the data collection once the project has been set up and

established by experienced professionals. Local agencies will also be trained in this way, in order to provide oversight and the consistency and constancy volunteers might not be able to furnish. The data and its analysis will be made available to the public through the use of the Internet, through public workshops, and through presentations and field trips in conjunction with local public schools.

d. Justification for Project and Funding by CALFED

The extended monitoring program will provide beneficial information in regard to high risk species, including the CALFED priority species, and to endangered habitat. The Central San Francisco Bay is a crucial segment of the migratory route for fish and an important habitat for other estuarine species, such as the California Clapper Rail and the Salt Marsh Harvest Mouse. The quality and quantity of this area merits close scrutiny by those interested in preserving wetland and aquatic species. The public outreach aspect of the project will result in increased administrative and political experience, and the combined benefit of all aspects of this project will be useful in establishing other such projects throughout the Bay area and the United States.

e. Budget Costs and Third Party Impacts

No third-party impacts are expected. The overall amount requested for the project will be \$391,500, with an additional \$157,700 contributed in local cost share and matching funds.

f. Applicant Qualifications

The applicants have extensive experience in conducting and reporting on ecological field research and in planning large-scale regional wetland efforts. In addition, they have years of experience in the San Francisco Bay Area designing and executing public outreach and volunteer programs.

g. Monitoring and Data Evaluation

The monitoring data will be collected and analyzed according to accepted quality assurance and quality control procedures, and will be organized, and presented in a manner that is easily understood by the public.

**h. Local Support/Coordination with other Programs/
Compatibility with CALFED objectives**

The restoration project has received considerable support from local politicians, agencies, environmental groups, and the public. This proposed monitoring is consistent with goals of the overall project and should partake of the same broad support. The current property owner, the Port of Oakland, and the likely future property owner, the East Bay Regional Park District, have both given permission to carry out the proposed project, which is compatible with CALFED objectives to restore Bay-Delta ecosystems, habitats, and species. Finally, all minimum requirements have been addressed in the proposal.

III. TITLE PAGE

a. Title: *Restoring Tidal Marsh Floodplains in the San Francisco Bay-Delta for Native Anadromous Fish, Shorebirds, Waterfowl, Rails, and Mammals.*

b. Principle Investigators:

•Andree Breaux, Ph.D., San Francisco Bay Regional Water Quality Control Board (Regional Water Board); Field data collection and overall project management.

•Marcia Brockbank, San Francisco Estuary Project; Outreach Program.

•Steve Cochrane, Friends of the Estuary; Volunteer Monitoring Program.

Until 8/1/98 all three Principle Investigators can be reached at:

Regional Water Quality Control Board, San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612.

phone: (510) 286-1277(Breaux) /286-0780(Brockbank) /286-0769(Cochrane)

fax: (510) 873-6321/286-0928

email: ab@rb2.swrcb.ca.gov

After 8/1/98 all three Principle Investigators can be reached at:

Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400
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phone: (510) 622-2324(Breaux) /622-2325(Brockbank) /622-2337(Cochrane)

fax: (510) 622-2459

email: ab@rb2.swrcb.ca.gov

c. Type of Organization and Tax Status: State Agency.

d. Tax Identification Number: 68-0281986.

e. Participants/Collaborators in Implementation: San Francisco Bay Regional Water Quality Control Board; San Francisco Estuary Project, Friends of the Estuary, Association of Bay Area Governments, Save San Francisco Bay Association, Levine-Fricke-Recon, Pacific EcoRisk Laboratory, San Francisco Estuary Institute, East Bay Regional Park District, and the Port of Oakland.

IV. PROJECT DESCRIPTION**a. Project Description and Approach**

Various ecological categories will be measured or estimated at the Martin Luther King, Jr. Regional Shoreline Wetland Restoration Project site (hereafter referred to as the MLK site) by reviewing previous studies conducted for the site and general watershed, by collecting field measurements, and in collaboration with relevant ongoing studies (e.g., The Regional Monitoring Program for the San Francisco Bay) or planned studies (e.g., The San Leandro Bay Sediment Study). The ecological categories consist of watershed hydrology, water quality, sediment chemistry and toxicity, fish and wildlife surveys, and food webs. Food webs will be constructed from sampling the benthos, vegetation, bird, fish, mammal, amphibian, and reptile communities. Plant and bird populations are being monitored under a separate monitoring program which will be expanded upon under this CALFED grant. Assessments of hydrologic flows from the upper watersheds will be conducted bi-annually during the wet and dry season of the first year, and sediment, benthic communities, and vegetation will be sampled or surveyed annually. Evaluations of animal use will depend on the particular group being studied, with birds surveyed almost every month for two years under the existing monitoring program, and mammals, amphibians, and reptiles only once a year under the proposed extended monitoring program. Fish will be surveyed over a 3-month period for each of the two years. Tidal and upstream water quality will be measured at hourly intervals to accurately represent the frequent changes in a semi-diurnal tidal system. The methods, approaches, and techniques used to assess the major ecological categories are discussed below and listed in Table 1 along with the partners and type of subcontractors responsible for the specific tasks. Table 2 lists additional components already being investigated at the MLK site. All data collected from the site will be studied and analyzed by the project director for trends and use by target species.

A volunteer monitoring program will be initiated in order to train the public to collect ecological data. Public outreach will be achieved through the following means: recruiting and training of volunteers; presentations in local schools, universities and workshops; the use of websites; and the distribution of publications.

b. Proposed Scope of Work

i. The schedule for the project is described in detail in Figure 3 appended to this project description. Generally, each monitoring parameter will be taken at measured intervals over the course of both years. Monitoring will proceed in the same manner in both years, except that in the first year water budgets will be established which do not need to be repeated in the second year. Food webs will be constructed at the end of the second year because they will be predicated on the data already collected. Total costs include work done over two years.

ii. Deliverables will consist of six quarterly reports presented in as timely a fashion as possible. There will also be

one annual report and a final report. The content of these reports will be a summation and analysis of the data collected up to that time.

iii. The specific tasks, which are all separable for funding purposes, may be described as follows:

Task 1: Fish and Wildlife Surveys: Fish will be sampled during May, June, and July of each year. The tidal shoreline and tidal creeks will be surveyed for priority species, particularly the Chinook salmon. Other wildlife, notably amphibians, reptiles and small mammals, will be surveyed twice a year (wet and dry seasons). The mammal surveys will focus in particular on the salt marsh harvest mouse. Finally, the results of avian surveys conducted pursuant to other monitoring projects on the site (waterfowl, shorebirds, and California Clapper Rail) will be recorded and analyzed. **Task 1 Budget: \$5,450** which includes evidence of use surveys for amphibians, reptiles, and small mammals, in addition to the use of Sherman Live Traps for mammals, and whatever standard trapping methods are recommended by the National Marine Fisheries Service (e.g., fyked fish traps, beach seines, or drop nets) for fish.

Task 2: Water Budget and Watershed Hydrology: An attempt will be made to map and explain hydrologic sources and outflows to the tidal marsh ecosystem. Site inspections will be conducted and aerial photographs obtained. Water budgets will be estimated for precipitation, streamflows, tidal inflows, evaporation and infiltration and, if funding allows, for groundwater. Measurements will be taken during one wet and one dry season at the site over a two-week period of water levels, flow rates, and turbidity. **Task 2 budget: \$5,650** which includes personnel costs at \$4,000 and equipment rental at approximately \$650 (water level gauge, flow meter, turbidity meter, surveying equipment, GPS, and weather station) for two weeks.

Task 3: Water Quality: Water quality will be measured both at the tidal end, where semidiurnal tidal inputs from the bay enter the marsh, and from the freshwater end, where there are inputs from the upper watershed. Both tidal and freshwater quality will be measured at half-hour intervals by YSI 6920 (or similar) water quality instrument, which electronically records temperature, salinity, dissolved oxygen, pH, oxidation/reduction potential, turbidity, and depth. The freshwater monitor will also sample for nutrients if the water is not too brackish and if funding allows. In addition to sampling freshwater at its nearest entry into the marsh, the freshwater quality will also be measured conventionally at several stations by trained professionals and volunteers using testing kits to measure for dissolved oxygen, fecal coliform, pH, biochemical oxygen demand, temperature, total phosphates, nitrates, turbidity, and totals solids. Diazinon and chlorpyrifos will be investigated by preliminary screening kits (ELISA analysis) to determine whether more sophisticated sampling techniques should be used in the future. **Task 3 budget: \$52,938** for (a) \$29,150 for equipment and supplies which will

include 2 YSI (or similar) water quality meters, one of which can sample freshwater nutrients, a data logger, 2 water quality test kits, fecal coliform incubator, hand-held salinity, conductivity, and temperature meter, a weather station, computer software, vandal-proof cases, calibration solutions, and field supplies. With proper care, most of these items will be useable for several more years after the two year monitoring program is completed; and (b) \$23,788 for personnel time for set up, data collection from tidal, freshwater, and upstream creek inputs, volunteer monitor training at the creek stations, and data interpretation and reporting for all water quality stations.

Task 4: Sediment Chemistry, Toxicity Tests, Benthic Tissue, Benthic Community: Sediment testing for aluminum, arsenic, cadmium, chromium, copper, iron, lead, mercury, manganese, nickel, selenium, silver, zinc, total pesticides, total PCBs, and total PAHs. An attempt will be made to tie sediment chemistry to plant and invertebrate tissue sampling, to benthic community analysis, to hydrologic inputs from the bay and from the upper watershed, and to climatic events that take over the two year monitoring period. Sediment and benthic samples will be collected in 5 different habitat types within the site (see Table 3). **Task 4 budget: \$50,442** for extensive sediment chemistry in 5 habitat types; toxicity tests in 3 habitat types (using amphipods and topmelt); benthic tissue in 3 habitat types for 6 bioaccumulating or potentially adverse substances (arsenic, lead, mercury, selenium, PCBs, PAHs); and benthic community assessment (identification and abundance) in 3 habitat types. (See Table 3 for a breakdown of the analysis by wetland type.) The constituents selected for the benthic tissue analysis may be changed based on information gained at the site before sample collection.

Task 5: Vegetation Tissue Analysis: Vegetation community composition will be measured under the other monitoring program (not under CALFED) at the end of the growing season (August) during each year. Vegetation tissue sampling will be conducted under this grant in the same habitat types selected for the sediment and benthos sampling (Table 3). **Task 5 budget: \$3300** for tissue analysis of the same constituents selected for benthic tissue analysis.

Task 6: Food Web Modeling: At the end of the second year of monitoring, field data collected at the study site will be evaluated to produce food web models for the marsh ecosystem. **Task 6 budget: \$3500** for assessing the biological uptake of contaminants and the ecological risk posed to aquatic and wetland species in this site-specific Bay-Delta ecosystem.

Task 7: Volunteer Monitoring Program: Volunteer monitors recruited from the public, will be trained adequately before being allowed to collect any data. **Task 7 budget: \$51,600** for the establishment of a part-time Volunteer Coordinator position,

sampling assistance during four creek-sampling episodes using volunteers, and training of the coordinator from Friends of the Estuary. Of this money, \$35,000 is budgeted for the coordinator at \$10,000 with an additional \$7500/yr for benefits.

Task 8: Provide local outreach and education: All data, information, and analysis will be disseminated through agency websites, newsletters, newspapers, and other means of publication. Interaction with public and private school students will be encouraged through field trips and presentations. Public workshops will also be conducted. **Task 8 budget: \$69,000** for an Outreach Assistant, an Outreach Supervisor, an Internet provider, and supplies for duplicating, mailing, and providing presentations.

Task 9: Provide Overall Project Management: In addition to collecting and analyzing the water quality data (Task 3), the information on sediment chemistry, toxicity, benthic tissue, benthic community tissue, plant tissue, surveys for fish, mammals, amphibians, and reptiles, and hydrology will be synthesized and analyzed for presence/absence of species, and trends in hydrology, climate, and wetland development. Data collected from the major study as well as from the volunteers will be passed along to the Outreach Program for general public dissemination. **Task 9 budget: \$93,318** for salary, benefits, overhead, travel, and assistance from student interns.

Task 10: Assist with Contract Management: Due to the numerous number of contracts to be managed under this grant, a contract management assistant will be hired to handle administrative and budget technicalities (e.g., bidding process, ordering equipment through state contract procedures, etc.). **Task 10 budget: \$40,000.**

Task 11: Provide an archive for permanent data storage and provide Geographic Information System resources. **Task 10 budget: 10,000.**

c. Location of Project

The MLK project site is located in Alameda County in the San Leandro Bay Watershed, which is located in the Central San Francisco Bay (Figure 1). It is a tidal and seasonal wetland restoration project of 71 acres located in the city of Oakland.

d. Expected Benefits

Primary benefits will be the scientific knowledge obtained in regard to estuarine habitats and their use by CALFED priority species. The success of the MLK restoration site will be measured and deficiencies corrected. The benefits cannot be quantified in advance, because the purpose of the project is to obtain a basis for quantification. The primary benefits of public outreach, consisting in building a constituency for the preservation of this valuable ecosystem, cannot be quantified at all. The primary

benefits of this project should help in understanding and in mitigating the deleterious affects of the primary stressors surrounding the restored marsh area, which are those typical of urban estuaries: filled wetland areas with human-made structures, bridges, bank protections, levees, dredging activities, contaminants, invasive aquatic plants and organisms, non-native wildlife, and general disturbance from human activities. Finally, the secondary benefits of this project will be the applicability of the knowledge and experience derived to the designing of future projects at other sites in the Bay-Delta. The project will also help establish a stronger constituency for environmental values generally.

e. Background and Ecological/Biological/Technical Justification:

Gaining firsthand information on the complicated physical, chemical, and biological interactions that combine to form habitats rich in carbon and biotic sources will aid in understanding the attractions and repellents of the priority aquatic and wetland species in the Bay-Delta. Within this region, the Central Bay is a crucial passageway for some anadromous priority species, notably Chinook Salmon, Steelhead Trout, White Sturgeon, and Striped Bass, in addition to other visitors and residents, including the California Clapper Rail, Salt Marsh Harvest Mouse, and migratory birds in general. Furthermore, although there are no definitive studies for the San Francisco Bay, studies from other Pacific coast estuaries indicate that salmon do forage in tidal creeks (personal communication, Jim Bybee, National Marine Fisheries Service). A comparison of past records shows that while the Central Bay contained over a quarter of the intertidal mudflats and about 7% of the tidal marsh and pannes in the entire Bay up to the southern border of the Suisun Marsh, now 94% of those historical tidal marshes and 71% of the original mudflats have been lost (RMG, draft, 1998). Investigations such as those conducted pursuant to this project will assist in restoring some of the foraging aquatic and wetland habitat that has been lost for native fish and wildlife in the Bay-Delta.

The objectives of the ERPP assisted and augmented by this project fall under the following headings: Natural Floodplains and Flood Processes (Vol I, p. 40); Bay-Delta Aquatic Foodweb (p. 58); Tidal Perennial Aquatic Habitat (p. 80); Saline Emergent Wetland (p. 94); Fresh Emergent Wetland (98); Seasonal Wetland (102); White Sturgeon (p. 149); Chinook salmon (p. 149); Steelhead Trout (p. 156); Striped Bass (p. 162); Marine/estuarine Fishes and Large Invertebrates (p. 174); Bay-Delta Aquatic Foodweb Organisms (p. 178); California Clapper Rail (p. 233); Salt Marsh Harvest Mouse (p. 249); Shorebird and Wading Bird Guild (p. 255); Waterfowl (p. 258); California Tiger Salamander (p. 221); California Red-legged Frog (p. 224); Western Pond Turtle (p. 227).

Generally, the 71-acre site is expected to be durable and large enough to resist damage or annihilation by extreme hydrologic or climatic events. In measuring the use of restored tidal and seasonal wetlands by anadromous fish, especially by the

Chinook Salmon, the project will address the objectives of the Recovery Plan for the Sacramento/San Joaquin Delta Native Fishes (U.S. FWS 1995).

Finally the project will address the objective of the Anadromous Fish restoration program (U.S. Fish and Wildlife Service 1997) by attempting to improve habitat for all life stages of four anadromous fish (Chinook Salmon, Steelhead Trout, White Sturgeon, and Striped Bass), to collect data for fish population health and habitat, and to evaluate restoration activities. The project also addresses the purpose of the Central Valley Project Improvement Act to contribute to efforts to protect the San Francisco Bay and Sacramento-San Joaquin Delta Estuary.

f. Monitoring and Data Evaluation

The nature and extent of the monitoring has already been discussed above insofar as the proposed tasks consist in monitoring. Vegetation, fish, mammal, amphibian, and reptile use surveys will be conducted according to methods described in Krebs (1989), Mitchell and Stapp (1995), Pacific Estuarine Research Laboratory (1990), Rigney et al. (1996), SFEL (1993), SFEL (1996), U.S. EPA 1993 or based on other sources suggested by the Advisory Committee to be formed for this project. For benthic toxicity studies methods developed for the Bay Protection Program will be followed (Hunt et al., 1998). Sediment methods will follow procedures described in the Regional Monitoring Programs (SFEL 1997). Water quality data collected from the YSI water quality instruments will be downloaded in the field and transferred to an office computer, and freshwater testing will be done through the use of either Hach or LaMott water quality test kits. All water quality data will be entered in an Excel spreadsheet for comparison and evaluation. Sediment and benthic sampling will be conducted simultaneously at the peak of benthic community abundance, and sample collection and analysis will be contracted out to an established laboratory through a bidding process. All data will be analyzed using statistically valid methods such as those proposed by the Pacific Estuarine Research Laboratory (1990). Volunteers used to collect some data will be trained before collection. Their data will be kept separate and compared to the data collected professionally. If there is any significant variation, the training program will be modified accordingly.

g. Implementability

Because the restoration site is part of a legal consent decree involving an environmental lawsuit and the subsequent transfer of property from the Port of Oakland to the East Bay Regional Park District, all laws and regulations including CEQA/NEPA permits have already been complied with. There is currently no known required coordination with other projects and the site is not expected to be unusually sensitive to hydrologic/climatic conditions. Local support has been extensive over the planning stages, and was probably increased with the recently publicized levee breach on June 10, 1998 which was the official kick-off for the restoration.

V. Costs and Schedule to Implement Proposed Project.

a. Budget Costs: CALFED funding is needed because, after spending \$2.5 million to construct the wetland and develop a basic monitoring program, the current property owner (the Port of Oakland) cannot afford to contribute more to what has turned out to be a very exciting wetland restoration project. CALFED could fund this project incrementally by agreeing to fund only portions of the field work, volunteer program, or outreach program, but without all of these less knowledge will be gained and less public awareness will be attained. Field studies should be a priority since there is not much to convey to the public if there is no real knowledge of the ecological components of the restoration site. On the other hand, the site has the potential to be useful not only as a research site, but also as an educational site that can illustrate to the public the importance of anadromous fish and endangered species habitat in the Central Bay. After the two year project is completed, it is assumed that long-term monitoring of this ecological project would be of great benefit to Bay-Delta restoration efforts for years to come. Operation and maintenance of the project site is handled by the Port of Oakland and, after the anticipated land transfer occurs, it will fall to the East Bay Regional Park District.

Permanent partners to this grant involve the three principle investigator agencies and organizations that will enter an Interagency Agreement. The remainder of the work will be accomplished through a subcontract bid process which will seek an environmental engineering firm for hydrological and biological studies; a chemical/ toxicological laboratory for sediment and tissue analyses as well as the benthic community analyses; a Volunteer Monitoring Coordinator; and a Geographic Information System for permanent placement of data acquired from this project. The overall budget presented in Table 4 is described below:

Task 1: These costs were provided by Levine-Fricke-Recon, an Environmental Engineering firm that assisted in designing this project. This estimate includes about 24% in cost sharing which would make this firm's bid very competitive in contract bidding.

Task 2: Same as Task 1 except the cost share is about 17%.

Task 3: Andree Breaux, an Environmental Specialist III at the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) will collect and analyze the water quality data with the assistance of Steven Cochrane of Friends of the Estuary (under service contract). She will also be the major Project Director for this study (Task 9). She will devote 10% of her time to Task 3. (The formula for deriving her cost is based on \$4369/mo for the first fiscal year and \$4500 for the second fiscal year times 32% to derive salary and benefits. Overhead equals that sum, times 76%. Material and acquisition costs are under the Project Description section as space allows.)

Task 4: These costs were provided by Pacific EcoRisk Laboratories, a chemistry/toxicology laboratory that assisted in designing this project. This estimate includes about 17% in cost sharing which would make this firm's bid very competitive in contract bidding.

Task 5: Same as Task 4.

Task 6: Same as Tasks 1 & 2 except that cost share is 12%.

Task 7: The training portion of this task will be conducted by

Steve Cochrane of Friends of the Estuary through an Interagency Agreement, and the Volunteer Coordinator that he trains will be hired based on a bid process. **Task 8:** Outreach and Education will be conducted by Association of Bay Area Governments and the San Francisco Estuary Project through an Interagency Agreement. **Task 9:** Andree Breaux will devote about 4 months time to the technical management and review of the proposed project (see Task 4 above for rate). The Miscellaneous Costs include (a) \$7000 for travel for out-of-state, in-state (professional conferences), and local travel to and from the field site; (b) \$10,000 for student assistance. **Task 10:** For an administrative assistant with training and experience in handling state contracts. **Task 11:** For use of and permanent storage in a geographic information system.

In-kind Services, Match, or Cost-Share: (1) The Advisory Committee's time is estimated at a total cost of \$19,200 (12 active members * 4 meetings at 3 hrs., plus 4 hrs. for reading/advising/yr, all @ \$50/hr); (2) San Francisco Estuary Project's 5% annual contribution for Marsha Brockbank is \$8,000 for two years; (3) \$2,400 for Richard Whitsel of the Regional Water Board to sit on the advisory committee; (4) \$9,600 for volunteer monitors (20 hrs/mo. for 24 months @ \$20/hr).

Two of the four grant partners have agreed to contribute the following costs if they are successful in obtaining any contract work under the proposal (even if they are not, these cost-share prices will still be incorporated into the bidding process): (1) \$3,100 from Levine-Fricke-Recon through a 20% reduction in senior staff charges and use of equipment; and (2) \$9,420 from Pacific Eco-Risk Laboratories for chemical and biological sampling and testing. Another partner, the San Francisco Estuary Institute, is effectively providing a match of \$94,000 with complementary information from samples collected at a nearby Regional Monitoring Program station for water and sediment chemistry and toxicity bioaccumulation (\$47,000 per sample for each of two years). Finally, the fourth partner, Save San Francisco Bay Association, will contribute \$12,000, whether or not it wins the final bid for Volunteer Coordinator, for publicity in its newsletter (10% of a \$1.50 newsletter * 9,000 members * 4 issues * 2 yrs; 60 presentation at 2 hrs. For \$10/hr). The total in-kind contributions from all partners is **\$157,700**.

b. Schedule Milestones: A time line is presented in Figure 3. The project is scheduled to begin in July 1999. Insofar as this is a monitoring project seeking open-ended information, the milestones exist in the process itself. With this qualification, the milestones will be: (1) the completion of the site setup, i.e., installation of the water quality monitors, the weather station, and permanent markers; (2) the establishment of the community volunteer program; (3) the attainment of sufficient data to discern trends and to analyze the effectiveness of the methods; (4) the community response through outreach efforts.

c. Third Party Impacts: Since the proposed project is an extension of an existing project which has already undergone the steps of land acquisition, permitting, and land use changes, no additional third party impacts are known or anticipated.

VI. Applicant Qualifications

The Regional Water Board will have overall responsibility for managing the project. The San Francisco Estuary Project will have overall responsibility for managing the outreach program. The Friends of the Estuary will be responsible for overseeing the Volunteer Monitoring Program. Funding requests by the San Francisco Estuary Project or Friends of the Estuary will be directed through the Regional Water Board. These three organizations are all housed in the same building which makes communication between them direct and easy.

The Regional Water Board regulates surface and ground-water quality in the San Francisco Bay region, with jurisdiction over all of the San Francisco Bay segments extending to the mouth of the Sacramento-San Joaquin Delta. Andree Breaux, Ph.D., Environmental Specialist at the Regional Water Board, will be the Project Manager and will have overall management responsibility to personally conduct the field work or to supervise subcontractors, analyze the data, and write quarterly and annual reports. She has managed two forested wetland ecosystem study sites in Louisiana as a doctoral and post-doctoral student, and is currently managing several projects at the Regional Water Board including a U.S. EPA grant for the study of wetland mitigation projects and the establishment of regional wetland goals. She has led the Mammals, Amphibians, Reptiles, and Terrestrial Invertebrate Team for the Wetland Ecosystem Goals Project for the San Francisco Bay, in addition to serving as a member of the Resource Managers Group and the Hydrogeomorphic Advisory Team for the project. She has recently completed the fifth and final report due to U.S. EPA under the terms of a grant awarded to the Regional Water Board. She is case-handler for large restoration sites, including the Martin Luther King, Jr. Regional Shoreline Wetland Restoration Project and the East Bay Regional Park Property Transfer project.

The San Francisco Estuary Project is a joint federal/state/local partnership that was established in 1987 under the Clean Water Act's National Estuary Program to develop the Comprehensive Conservation and Management Plan (CCMP) for the Bay-Delta Estuary. The San Francisco Estuary Project's purpose is to promote effective management and restore water quality and natural resources, while maintaining economic vitality through implementation of the CCMP. Marsha Brockbank, the director of the Project, has over twenty years of experience in the communications field, and ten of those years have been devoted to providing outreach for programs dealing with pollution, wetland functions, and watershed protection. Ms. Brockbank is currently employed by the Association of Bay Area Governments to provide technical and administrative support for the San Francisco Estuary Project under a cooperative agreement with the U.S. EPA. She is the Principal Communications Officer for the Regional Water Board through an intergovernmental agreement between the Association of Bay Area Governments and the Regional Water Board. Since 1986 Ms. Brockbank has supervised and directed over 40 staff members and consultants, and she currently manages a budget of \$1.5 million/year.

Friends of the Estuary is a non-profit corporation charged with ensuring that the public outreach and educational activities recommended in the Comprehensive Conservation and Management Program's Public Involvement and Education Program are carried out. Steve Cochrane of Friends of the Estuary will direct the volunteer component of the project. Mr. Cochrane has a Master's degree in Nonprofit Administration and extensive experience in directing environmental programs and training volunteers. He has been Director of Education at Friends of the Estuary for 3 years and has been responsible for teacher training, community based habitat restoration groups and outreach programs. He has over 20 years of experience as a grant writer, naturalist, and environmental educator. Mr. Cochrane will assist in setting up a volunteer training program and in selecting a Volunteer Coordinator to run the Tidal Wetland Volunteer Program. The Volunteer Coordinator and the volunteers will be trained to manage the wetland and watershed monitoring after the CALFED grant funds have expired (two years). In addition, to training the Volunteer Coordinator, Mr. Cochrane will have primary responsibility for directing the collection of creek samples for the watershed draining into the pilot wetland study site.

The Association of Bay Area Governments is the San Francisco Estuary's fiscal agent and is a joint powers state agency owned and operated by the cities and counties of the San Francisco Bay Region. It was organized in 1961 to solve environmental, land use, housing, and economic development problems. The agency works cooperatively through interagency agreements, and memoranda of understanding with other regional, state and federal agencies. Terry Bursztynsky, also of the Association of Bay Area Governments, will provide project results of the data collection and analysis through the Internet. Mr. Bursztynsky is Director of Environmental Programs and is responsible for the establishment and development of "abagOnline", the country's first Internet Web site of a council of governments. He directs the agency's programs in environmental matters, organizes the West Coast's oldest hazardous materials conference -- HAZMACON -- and supervises the agency's computer support staff.

Four other organizations have collaborated in writing this proposal but, since they are not "sister agencies" they cannot be guaranteed work under this proposal and they will have to go through a bidding process for outside contractors before becoming future collaborators. Ultimately the contracts will go to the lowest and best bidders. Those four organizations are: Save San Francisco Bay Association, Pacific Eco-Risk Laboratories, Levine-Fricke-Recon, and the San Francisco Estuary Institute. Most of these organizations have agreed to participate as advisors, even if they are not awarded the contracts (Figure 4).

There will be, for the project, an Advisory Board to consist of scientists, natural resource managers, and public and private organizations that have had experience with wetland studies in the Bay-Delta or other areas, or who have an interest in the proposed project. The Board will be involved throughout the project from initial review of data collection, through analysis, and reporting. Board members expected to include researchers from the

San Francisco Estuary Institute, notably Dr. Bruce Thompson, Dr. Josh Collins, and Dr. Jay Davis; Art Feinstein of the Golden Gate Audubon Society; Bob Tasto of the California Department of Fish and Game; Bob Batha of the Bay Conservation and Development Commission; Dr. Steve Granholm of LSA Consultants; Jim McGrath or Jody Zaitlin of the Port of Oakland; Karen Taberski, Susan Gladstone, Dr. Jack Gregg, and Dr. Lynn Suer of the Regional Water Board; Stuart Siegel and Karl Malamud-Roam, both doctoral students in Geography at the University of California, Berkeley; Dr. Rohit Salve of Lawrence Berkeley Laboratory in Berkeley, and Dr. John Callaway of Pacific Estuarine Research Laboratory in San Diego. These persons have been selected for their technical and field experience on one of the study sites, for their general experience in working on ecological projects in the San Francisco Bay region, or for their experience in working with volunteers in environmental programs.

All collaborators have experience in working with projects in the San Francisco Bay region, and some have extensive experience in working with each other. For example, Save San Francisco Bay Association, San Francisco Estuary Project, and Friends of the Estuary have a long history of working together on the San Pablo Baylands project, which was funded by the Regional Water Board for \$0.5 Million with oversight by the San Francisco Estuary Project. Save San Francisco Bay Association has also worked with Friends of the Estuary in establishing the successful program "Canoes in Sloughs" which was funded for \$120,000 to launch a watershed environmental education program with actual experience on the water. The Regional Water Board has worked directly on the MLK project, and has worked extensively with the San Francisco Estuary Institute on the Wetland Ecosystem Goals Project to select appropriate wetland indicator species and wetland habitats for restoration in the San Francisco Bay region, and has also worked with the San Francisco Estuary Institute on developing and carrying out the Regional Monitoring Plan (RMP) for the San Francisco Bay. The Regional Water Board has also directed and funded the Fish Consumption Study (Regional Water Board 1995) and written the Proposed Regional Toxic Hot Spot Cleanup Plan (Regional Water Board 1997). The major contributor from the Regional Water Board for those studies has agreed to serve on the Advisory Committee for the proposed study.

VII. Compliance with standard terms and conditions.

The Floodplain Management and Habitat Restoration Section requires Form DI-2010 which is appended to this grant. Form 424 has also been included to expedite the process in case this proposal is accepted for funding (Cindy Darhling, CALFED, 6/25/98, personal communication). The terms and conditions laid down for federal funding appear to be agreeable and able to be complied with.

References

- CALFED Bay-Delta Program. 1998. Ecosystem Restoration Program Plan, Volumes 1, 2, and 3. Programmatic EIS/EIR, Technical Appendices, drafts 1998, Sacramento, CA.
- Hunt, J., B. Anderson, B. Phillips, J. Newman, M. Stephenson, M. Puckett, R. Fairey, R. Smith, K. Taberski. 1998. Evaluation and use of sediment reference sites and toxicity tests in San Francisco Bay. Bays and Estuaries Unit, Division of Water Quality, California State Water Resources Control Board, Sacramento, CA.
- Krebs, C.J. 1989. Ecological Methodology. Harper & Row. New York.
- Levine-Fricke-Recon. 1998. Monitoring and Maintenance Plan, Port of Oakland's Martin Luther King, Jr. Jr. Regional Shoreline Wetlands Project. LF 3663.97-020.
- Mitchell, M.M. and W.B. Stapp. 1995. Field Manual for Water Quality Monitoring, An Environmental Education Program for Schools. Thomson-Shore Printers, Dexter, Michigan.
- Pacific Estuarine Research Laboratory. 1990. A manual for assessing restored and natural coastal wetlands. San Diego State University, Biology Department, San Diego, CA. California Sea Grant Publication.
- Resource Managers Group. 1998. San Francisco Bay Area Wetlands Ecosystem Goals. Administrative draft, not for distribution. San Francisco Bay Regional Water Quality Control Board. Oakland, CA.
- Rigney, M., C. Fischer, E. Sawyer. 1996. Riparian Station How-To Manual. San Francisco Estuary Project. Funded by EPA Agreement No. C9999182-94-0. Richmond, CA.
- San Francisco Estuary Institute [SFEI]. 1993. Volunteer Monitoring Protocols. Funded by EPA Agreement No. C9999182-94-0. Richmond, CA.
- San Francisco Estuary Institute [SFEI]. 1997. San Francisco Estuary Regional Monitoring Program for Trace Substances, 1996 Annual Report. San Francisco Estuary Institute, Richmond, CA.
- U.S. Environmental Protection Agency. 1993. Volunteer Estuary Monitoring: a Methods Manual. Office of Water, EPA-842-B-93-004. Washington D.C.
- U.S. Fish and Wildlife Service. 1997. Revised Draft Restoration Plan for the Anadromous Fish Restoration Program. A Plan to

CALFED Proposal

Increase Natural Production of Anadromous Fish in the Central Valley of California.

U.S. Fish and Wildlife Service. 1995. Sacramento-San Joaquin Delta Native Fishes Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR.

Table 1: Monitoring Parameters to be Analyzed at the Wetland Pilot Study Site

	Martin Luther King, Jr. Project	Work Performed by:
Water Budget/Watershed Hydrology		
Precipitation	[continuous with weather station?]	Regional Water Board* + EEF*
Tidal Inflows, Streamflows, Evaporation, Infiltration, and additional precipitation	One week in Feb + Sept, during first year only	EEF
Estimates made for: Surface water inflow, Groundwater interactions	Feb + Sept, during first year only	EEF
Water Quality:		
Tidal: conductivity, temperature, salinity, dissolved oxygen, pH, oxidation/reduction potential, turbidity, depth	1-Hour Intervals at 1 location	Regional Water Board
Upper Watershed (i.e., Inflowing Creeks): dissolved oxygen, fecal coliforms, pH, BOD, temperature, phosphates, nitrates, turbidity, total solids	5 stations along 2 major creeks or drainage networks = 10 stations * 2 events = 20 sampling events * 2 yrs = <u>40 samples</u>	FOE* + Volunteer Coordinator + Volunteers
Sediment Chemistry		
Al, Ar, Cd, Cr, Cu, Fe, Pb, Hg, Mn, Ni, Se, Si, Zn. Total pesticides; PCBs; Total PAHs. Ammonia, sulfide, and general porewater quality	5 habitat types * 2 reps * 2 years = <u>20 sediment samples</u>	C/T L*
Benthic Analysis		
Sediment Toxicity Tests. Amphipod whole sediment toxicity test; Sediment water Interface Toxicity tests with Topsmelt	3 habitat types * 2 reps * 2 years = 12 toxicity samples	C/T L
Community Analysis	3 habitat types * 2 reps * 2 years = 12 toxicity samples	C/T L
Benthic Invert Tissue Analysis (One species for Ar, Hg, Pb, total pesticides, PCBs, and PAHs)	3 habitat types * 2 reps * 2 years = 12 toxicity samples	C/T L
Vegetation Tissue Analysis		

(Performed on <i>Spartina</i> and <i>Salicornia</i>)	2 habitat types * 2 reps * 2 years = 8 plant tissue analysis	EEF -- field collection. C/T L -- lab analysis.
Vegetation Community Analysis		
	[see Table 2 below]	EEF
Birds		
	[see Table 2 below]	Regional Water Board EEF, and GGAS*
Fish		
	once/month for 3 months/yr	EEF
Mammals, amphibians, and reptiles		
Surveys for animals or evidence of use will be conducted	2 times/yr * 2 years	Regional Water Board, EEF, and EBRPD
Food Web Modeling		
	last 3 of 24 months	EEF

*EBRPD = East Bay Regional Park District; C/T L = Chemical/Toxicology Laboratory (as contracted by the Regional Water Board); EEF = Environmental Engineering Firm (as contracted by the Regional Water Board); FOE = Friends of the Estuary; GGAS = Golden Gate Audubon Society; Regional Water Board = San Francisco Bay Regional Water Quality Control Board

<p>Table 2: Restoration Objectives and Associated Parameters Measured at the MLK Wetland Restoration Site with other funding sources (i.e., not to be funded by CALFED). (Primary source: Levine-Fricke-Recon, 2/10/97).</p> <p>California Clapper Rail: habitat quality; channel geomorphology; population counts; disturbance.</p> <p>Waterfowl and Shorebirds: resting and foraging migratory species.</p> <p>Vegetation:</p> <p>(1) Intertidal Plant Communities: species composition; density; stature; total habitat acreage determined by aerial photography; erosion and accretion; surface water inundation.</p> <p>(2) Seasonal Ponds and Seasonal Vegetated Wetlands: species composition; density; stature; total habitat acreage determined by aerial photography; erosion and accretion; surface water inundation and depth.</p> <p>(3) Upland Buffer Habitat: species composition; density; stature; burrowing owl occupation.</p> <p>Maintain Required Hydraulic/Tidal Circulation: record tidal levels; velocity, turbidity.</p> <p>Soil Fertility Experiment in <i>Spartina foliosa</i> plots: aboveground biomass; colonization; density; percent cover; height; vigor; soil pH, salinity, redox potential; soil nitrogen, phosphorus, total organic carbon.</p>

Table 3: Sediment and Benthic Analyses to be Performed at MLK Pilot Study Site.

Habitat Type	Analysis	Martin Luther King, Jr. (Replicates)
Pickleweed	plant tissue, sediment chemistry	2
Cordgrass	plant tissue; sediment chemistry	2
Intertidal Area/Pond	sediment chemistry, sediment toxicity, benthic community, resident organism. tissue analysis	2
Seasonal Pond	sediment chemistry, sediment toxicity, benthic community, resident organism. tissue analysis	2
Channel	sediment chemistry, sediment toxicity, benthic community, resident organism. tissue analysis	2

CALFED BUDGET

TABLE 4: Budget for Two Years of CALFED Funding to Monitor and Set Up Volunteer Monitoring for the Martin Luther King, Jr. Regional Shoreline Wetlands Project.

<u>Project Phase and Task</u> (2 Years)	<u>Direct Labor Hours</u>	<u>Direct Salary and Benefits</u>	<u>Overhead Labor (General, Admin. and fee)</u>	<u>Service Contracts</u>	<u>Material + Acquisition Costs</u>	<u>Misc. and other Direct Costs</u>	<u>Total Costs for Two Years</u>
Task 1: Fish + Wildlife Surveys Subtask A: FISH Subtask B: Mammals Subtask C: Amphibians and Reptiles				(A) 3,100 (B) 1,350 (C) 1,000			5,450
Task 2: Hydrology				5,650			5,650
Task 3: Water Quality	176	11,534	8,914	3,340	29,150		52,938
Task 4: Sediment, etc. Subtask A: Sediment Subtask B: Toxicity Subtask C: Benthic Tissue Subtask D: Benthic Community				(A) 16,680 (B) 22,530 (C) 4,944 (D) 6,288			50,442
Task 5: Vegetation Tissue				3,300			3,300
Task 6: Food web Modeling				3,500			3,500
Task 7: Volunteer Monitoring Subtask A: Train Volunteer Coordinator Subtask B: Fund Volunteer Coordinator				(A) 16,600 (B) 35,000			51,600
Task 8: Outreach + Education Subtask A: Package and				(A) 34,000 (B) 15,000	20,000		69,000

6/29/98

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CALFED BUDGET

Project Phase and Task (2 Years)	Direct Labor Hours	Direct Salary and Benefits	Overhead Labor (General, Admin. and fee)	Service Contracts	Material + Acquisition Costs	Misc. and other Direct Costs	Total Costs for Two Years
Disseminate Information and Education Materials Subtask B: Internet Provider							
Task 9: Overall Project Management	1,280	46,828	35,656			17,000	99,484
Task 10: Contract Management Assistance				40,000			40,000
Task 11: Archive data in GIS				10,000			10,000
						TOTAL	391,364

1-008718

23

6/29/98

1-008718

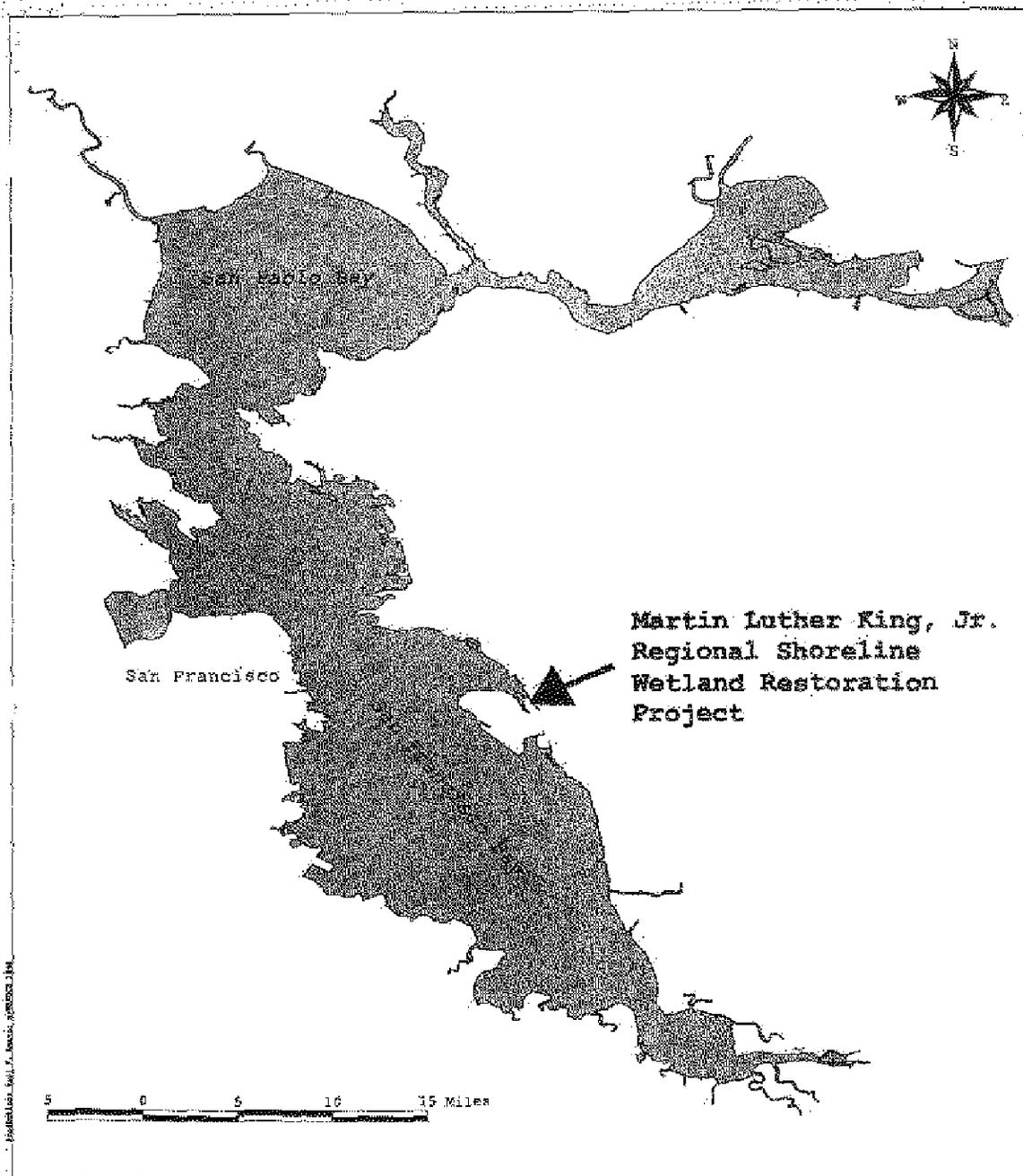


Figure 1: Proposed Study Site

1-008720

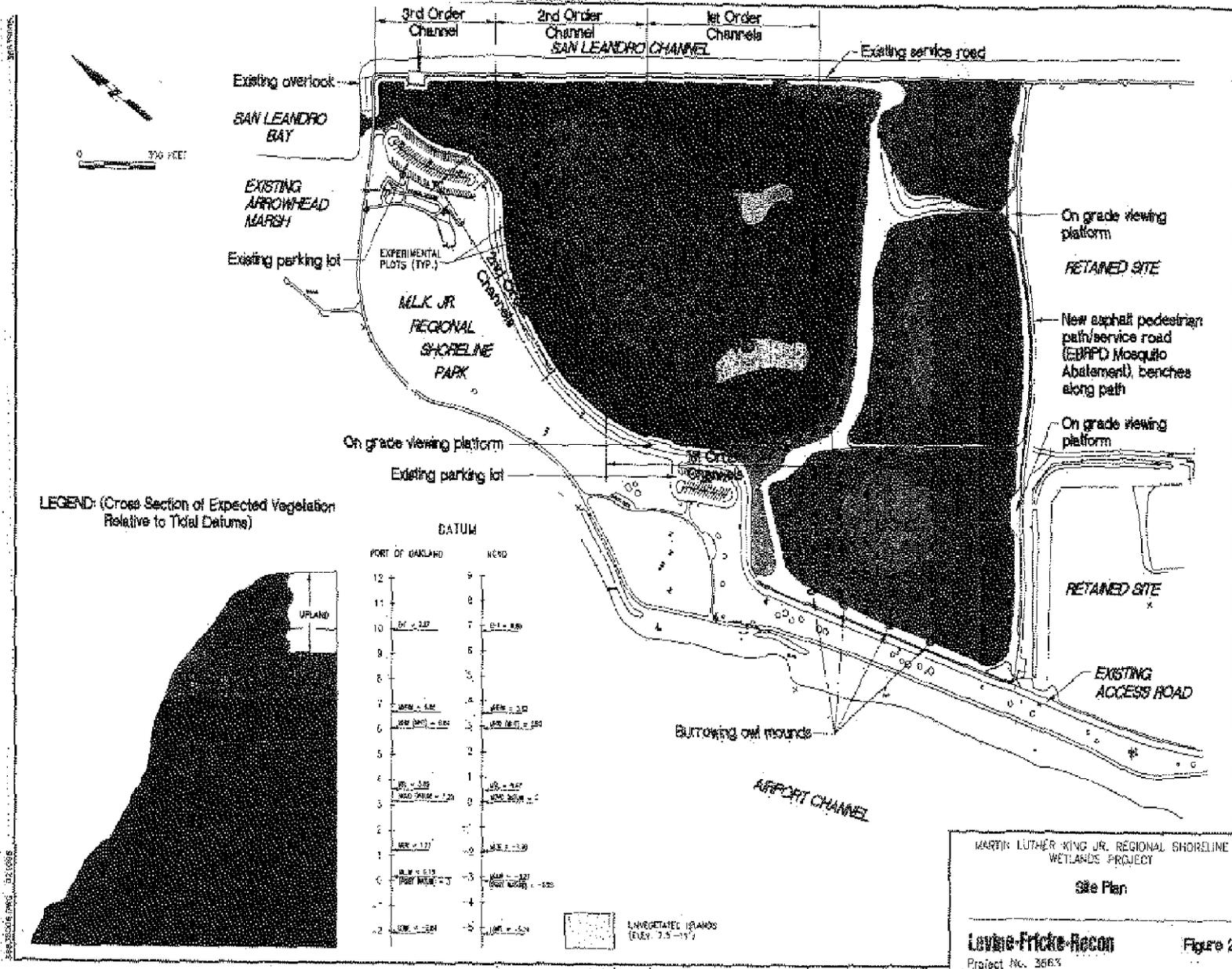


Figure 2

1-008720

FIGURE 3: (a) TIME LINE FOR 1999 -- 2000

	FIELD SAMPLING					ADDITIONAL ANALYSES				REPORTS	OUTREACH			VOLUNTEER PROGRAM			
	Tidal WQ*	Creek WQ*#	Sedi-ment	Vege-tation	Avian	Ben-thos	Mam-mals	R + A^	Fish		Water	Budgets	Food web analysis	Internet	News-letters	Presen-tations	Recruitment
JUL	x										x					x	
AUG	x			•	•						x				x	x	
SEPT	x		x		•	x							QR	x	x	x	x
OCT	x	x			•			x	x					x		x	
NOV	x				•									x		x	
DEC	x				•								QR	x	x	x	x
JAN	x				•					x				x		x	
FEB	x				•									x		x	
MAR	x	x			•			x	x				QR	x	x	x	x
APR	x				•						x			x		x	
MAY	x				•						x			x		x	
JUN	x										x		Annual	x	x	x	x

(b) TIME LINE FOR 2000 -- 2001

	FIELD SAMPLING					ADDITIONAL ANALYSES				REPORTS	OUTREACH			VOLUNTEER PROGRAM			
	Tidal WQ*	Creek WQ*#	Sedi-ment	Vege-tation	Avian	Ben-thos	Mam-mals	R + A^	Fish		Water	Budgets	Food web analysis	Internet	News-letters	Presen-tations	Recruitment
JUL	x													x		x	
AUG	x			•	•									x		x	
SEPT	x		x		•	x							QR	x	x	x	x
OCT	x	x			•			x	x					x		x	
NOV	x				•									x		x	
DEC	x				•								QR	x	x	x	x
JAN	x				•									x		x	
FEB	x				•									x		x	
MAR	x	x			•			x	x				QR	x	x	x	x
APR	x				•						x			x		x	
MAY	x				•						x			x		x	
JUN	x										x		Final	x	x	x	x

WQ* = Water Quality

#Wet season sampling will take place during or immediately after wet weather.

QR = Quarterly Report

Note: (1) schedules are subject to change based on advice from the Advisory Committee
 (2) see text for explanation of milestones

• = Monitoring conducted for Mitigation Project (not with CALFED funds).

^R + A = Reptiles and amphibians

Figure 4: Partners Contributing to CALFED Proposal

Property Owners: Port of Oakland (current); East Bay Regional Park District (anticipated)

Pacific Eco-Risk Laboratories.
Contribution: Benthic and Sediment Study Design

Levine-Fricke-Recon.
Contribution: Watershed hydrology, water budget, and foodweb study design.

San Francisco Estuary Institute.
Contribution: Provided consistency with Regional Monitoring Program.

Save the Bay.
Contribution: Advice on volunteer program

San Francisco Estuary Project.
Responsibility: Communication of project results to community.

Friends of the Estuary.
Responsibility: Technical oversight of creek data collection and direction of the establishment of a volunteer program.

Association of Bay Area Governments.
Responsibility: Provide project results on the Internet and coordinate with national EMPACT Internet homepage.

San Francisco Bay Regional Water Quality Control Board (Regional Water Board).
Responsibility: Technical oversight of wetland data collection, laboratory work, and report writing.



Future Contractors: Chemical/Toxicology Laboratory; Environmental Engineering Firm; Volunteer Coordinator; Geographic Information System and Data Storage.

ADVISORY COMMITTEE:

California Department of Fish & Game -- Bob Tasto
 Golden Gate Audubon Society -- Arthur Feinstein
 Lawrence Berkeley Laboratory -- Dr. Rohit Salve
 LSA Consulting -- Dr. Steve Granholm
 Pacific Estuarine Research Laboratory, San Diego State University -- Dr. John Callaway
 Port of Oakland -- Jim McGrath or Jody Zaitlin
 Regional Water Quality Control Board -- Karen Taberski, Susan Gladstone, Dr. Jack Gregg, Dr. Lynn Suer
 San Francisco Estuary Institute -- Drs. Bruce Thompson, Joshua Collins, Jay Davis
 University of CA., Berkeley -- Stuart Siegel & Karl Malamud-Roam (Doctoral Students in Geography)
 Bay Conservation and Development Commission--Bob Batha

Responsibility: Provide advice through phone, fax, email or attend quarterly meetings to discuss the progress and future direction of the project.

Appendices

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 or use this form for certification and sign. (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

- 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 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.
- 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.

DE-2010
 June 1996
 (This form replaces DE-1963, DE-1964,
 DE-1966, DE-1968 and DE-1967)

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 sites for the performance of work done in connection with the specific grant:

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

Regional Water Quality Control Board, San Francisco Bay Region
1515 Clay Street, Suite 1400, Oakland, CA 94612 (after 8/1/98)

2101 Webster Street, Suite 500, Oakland, CA 94612 (before 8/1/98)

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.

01-2010
June 1998
(This form replaces 01-1983, 01-1984,
01-1985, 01-1988 and 01-1993)

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

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

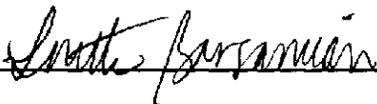
**CHECK IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL
LOAN EXCEEDING THE AMOUNT OF \$100,000, OR A SUBGRANT OR
SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.**

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

Loretta Barsamian, Executive Officer

TYPED NAME AND TITLE

DATE

Figure 1
Standard Form 424

OMB Approval No. 0348-0043

**APPLICATION FOR
FEDERAL ASSISTANCE**

1. TYPE OF SUBMISSION: Application <input type="checkbox"/> Construction <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Non-Construction <input type="checkbox"/> Non-Construction		2. DATE SUBMITTED 6/30/98	Applicant Identifier N/A
3. DATE RECEIVED BY STATE N/A		State Application Identifier N/A	
4. DATE RECEIVED BY FEDERAL AGENCY		Federal Identifier	
5. APPLICANT INFORMATION			
Legal Name: <u>Regional Water Quality Control Board</u>		Organizational Unit: <u>Region 2, San Francisco Bay</u>	
Address (give city, county, state, and zip code): 1515 Clay Street, Suite 1400 Oakland, CA 94612		Name and telephone number of person to be contacted on matters involving this application (give area code): Andree Breaux, Ph.D. (510)286-1277 or (510) 622-2324, email: ab@rb2.swrcb.ca.gov	
6. EMPLOYER IDENTIFICATION NUMBER (EIN): 68 - 0281986		7. TYPE OF APPLICANT: (circle appropriate letter in box) A	
8. TYPE OF APPLICATION: <input type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es) <input type="checkbox"/> <input type="checkbox"/> A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration Other (specify):		A. State B. County C. Municipal D. Township E. Interstate F. Intra-municipal G. Special District H. Independent School Dist. I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify):	
9. NAME OF FEDERAL AGENCY:		10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: TITLE: <u>N/A</u>	
11. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.): San Francisco Bay-Delta		12. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: Restoring Tidal Marsh Floodplains in the San Francisco Bay-Delta for Native Anadromous Fish, Shorebirds, Waterfowl, Rails, and Mammals.	
13. PROPOSED PROJECT		14. CONGRESSIONAL DISTRICTS OF:	
Start Date 7/1/99	Ending Date 7/1/01	a. Applicant 13th District	b. Project 1, 3, 6-10, 12-16
15. ESTIMATED FUNDING:		16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?	
a. Federal	\$ 391,500 .00	a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: DATE _____	
b. Applicant	\$.00	b. NO. <input type="checkbox"/> PROGRAM IS NOT COVERED BY E.O. 12372 <input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW <input checked="" type="checkbox"/> REVIEW	
c. State	\$.00	17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes," attach an explanation <input checked="" type="checkbox"/> No	
d. Local	\$ 157,700 .00		
e. Other	\$.00		
f. Program Income	\$.00		
g. TOTAL	\$ 549,200 .00		
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 <u>Loretta Barsamian</u>		b. Title Executive Officer	c. Telephone Number 708-555-0516 (510)622-2324
Signature of Authorized Representative 		e. Date Signed 6/29/98	

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Standard Form 424 (REV. 4-93)
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