State of California

The Resources Agency

Memorandum

DA4

Date : January 13, 1999

To : Wendy Halverson Martin
CALFED Bay-Delta Program
1416 Ninth Street, Suite 1155
Sacramento, California 95814

From : **Department of Water Resources**

Subject: CALFED's FY 99 Early Implementation Program

This memo is in response to Cindy Darling's December 16, 1998 letter to Bob Potter regarding CALFED's FY 99 Early Implementation Program. The letter has been forwarded to me for response.

As requested, we are enclosing our Prospect Island monitoring proposal. Please consider our monitoring proposal as a designated action. This proposal summarizes nine monitoring elements. Fewer than the nine elements could be funded or some of the elements could be reduced in scope and cost; however, all elements are necessary for a complete ecological evaluation of the project.

The Department of Fish and Game will be providing the requested proposals for the designated actions on the Merced River (Number 51) to isolate dredger pits from the active river channel. The two projects listed under this action are the Western Stone Project and the Ratzlaff Project. DFG is the lead agency for these projects with DWR acting as the financial coordinator to receive funds for project implementation.

The Western Stone Project is actually the Lower Western Stone Project which has been identified for $125,000 in funding from CVPIA for project design and engineering. The $125,000 identified by CALFED would match this funding. Design activities are scheduled to begin in January 2000 for the Lower Western Stone Project.

Construction of the Ratzlaff Project is scheduled for spring-summer 1999. CALFED funding is crucial to implementing this project. We would prefer that any approved funding for this project be either all State or all federal funds to reduce the need for two separate CALFED contracts. The Delta Pumping Plant Fish Protection (Four Pumps) Agreement will be providing $3 million in cost-share funding for the Ratzlaff Project. CVPIA has identified $250,000 for this project also.

If you have any questions, please call me at (916) 227-7531 or Leo Winternitz at (916) 227-7548.

Randall L. Brown, Chief
Environmental Services Office

Enclosure

(5)

Version: 1/12/99

I. TITLE PAGE

A. Title of Project: Prospect Island Monitoring Project

B. Applicant:

	Leo Winternitz
Address:	Department of Water Resources
	3251 "S" Street
	Sac., CA 95816
Phone:	(916) 227-7548
FAX:	(916) 227-7554
E-Mail	lwintern@water.ca.gov

C. Participants/Collaborators:

Fish:	Dale Sweetnam (DFG) and Randy Baxter (DFG)
Wildlife:	Frank Wernette (DFG)
Vegetation:	Kent Nelson (DWR) and Jean Witzman (DWR)
Water Quality:	Hank Gebhard (DWR) and Katie Wadsworth (DWR)
Phytoplankton:	Peggy Lehman (DWR)
Zooplankton:	Jim Orsi (DFG)
Benthic:	Cindy Messer (DWR)
Bathymetry:	Howard Mann (DWR)
Organic Carbon:	Peggy Lehman (DWR) and Collette Zemitis (DWR)

D. General Project Description/Executive Summary

The Prospect Island Habitat Restoration Project is a project to restore approximately 1300 acres of shallow-water habitat in the northern Sacramento-San Joaquin Delta. The land was once part of the Yolo Bypass and has flooded repeatedly, including major flooding in the winter storms of January 1997. Category III funds have been obtained for construction and operations and maintenance of the project. Presently, no funds have been allocated for monitoring. DWR is requesting that Category III fund one year of post-project monitoring.

Biological/ecological objectives of the project are to create shallow-water, freshwater emergent marsh, mudflat, shaded riverine aquatic, riparian and upland habitat that will be beneficial to a variety of aquatic, avian and terrestrial species including threatened and endangered species such as Delta smelt, Sacramento splittail, and Swainson's hawk. Many CALFED objectives will be addressed such as those to improve floodplain function, establish a hydraulic regime to provide migratory cues and facilitate species transport, to improve the amount of basic nutrients available to the foodweb, to increase tidal perennial habitats, to increase freshwater emergent wetland

and to target specific species such as Delta smelt, splittail, chinook salmon, and Bay-Delta aquatic foodweb organisms. Monitoring will provide CALFED with important information to guide further restoration efforts in the Delta.

II. Proposed Scope of Work

The following nine tasks will be conducted. Deliverables include quarterly reports for each element published in the IEP newsletter and an annual report to CALFED. Project construction will occur from Fall 1999- Fall 2000. Monitoring begins Fall 2000 and lasts for one year, until Fall 2001. Specific sampling schedules are noted below.

Task	Sub-tasks	Sampling Schedule
1. Fish Monitoring	A. Quantify/quality general fish species use year round. Document ratio of native to non-native species.	Quarterly (January 2001, April 2001, July 2001, October 2001). Once per quarter on spring and neap tides.
	B. Quantify spawner use by delta smelt and splittail	Mid-February to mid-June 2001. Bi-monthly on spring and neap tidal cycles.
	C. Quantify larval rearing by delta smelt and splittail.	Mid February to mid-June 2001. Weekly.
	D. Quantify salmon fry/smolt use	December 2000- May 2001. Weekly
2. Wildlife Monitoring	Quantify/qualify wildlife use in open water, mudflats and emergent marsh, and riparian habitats.	Quarterly (January 2001, April 2001, July 2001, October 2001).
3. Water Quality Monitoring	A. Characterize water quality conditions at the breaches on a real-time basis.	Continuous sampling from Fall 2000-Fall 2001.
	B. Characterize water quality conditions in open water, mudflats and emergent marsh, and riparian habitats.	Four portable stations will monitor on a continuous basis year-round.
4. Vegetation Monitoring	A. Characterize plant communities in different habitats and how they change over time. Document the ratio of native to exotic species.	Take color aerial photos and delineate community types at beginning and end of monitoring (Fall 2000, Fall 2001)
	B. Establish whether plant communities are sustaining and functional.	Fall 2001
5. Phytoplankton/ Sediments/Nutrients Monitoring	Evaluate phytoplankton production, species composition and growth rates, nutrients and sediment concentrations and their flux to the Delta.	Monthly sampling. Flux measurements will be taken daily for 2 weeks between April and September 2001 at the two levee breaches.
6. Zooplankton Monitoring	Evaluate zooplankton species composition, mysid shrimp, and amphipods	Monthly sampling.
7. Benthic Monitoring	Evaluate benthic macrofauna and substrate composition.	Monthly sampling.
8. Bathymetry Monitoring	Monitor changes in different habitats and features within Prospect Island due to siltation and erosion.	Baseline survey Fall 2000 and annual survey Fall 2001.
9. Organic Carbon Monitoring	A. Determine if the island is a source of organic carbon to the Delta.	Daily for a two-week period each month between April-September 2001.

	B. Quantify carbon and potential THM production.	Monthly. THMFP and HAAFP analyses will be conducted twice over the year.
10. Project Management	Inspection of work in progress, validation of costs, preparation and review of reports and responses to project specific questions.	Ongoing

III. Location and/or Geographic Boundaries of Project:

Prospect Island is located in Solano County in the northwestern part of the Sacramento-San Joaquin Delta (Figure 1). As defined in the ERPP, the project is in the Sacramento River Watershed Region, Sacramento-San Joaquin Delta Ecological Zone, North Delta Ecological Unit. Prospect Island is bounded by the Sacramento Deep Water Ship Channel to the west, the remnants of Little Holland Tract to the northwest, Miner Slough to the east, and the confluence of the Ship Channel and Miner Slough to the south. Monitoring is proposed for the project area only, which encompasses the 1,316-acre northern portion of the island. The 309-acre southern portion is owned by the Port of Sacramento.

IV. Ecological Objectives and Related Benefits:

A. Ecological/ Biological Objectives:

The Prospect Island project will restore approximately 1300 acres of tidal perennial aquatic habitat, some shaded riverine aquatic habitat and midchannel islands and shoals habitat. Vegetation monitoring will quantify the number of acres of each type of habitat created, measure vegetation survival, and document changes in habitat type over time.

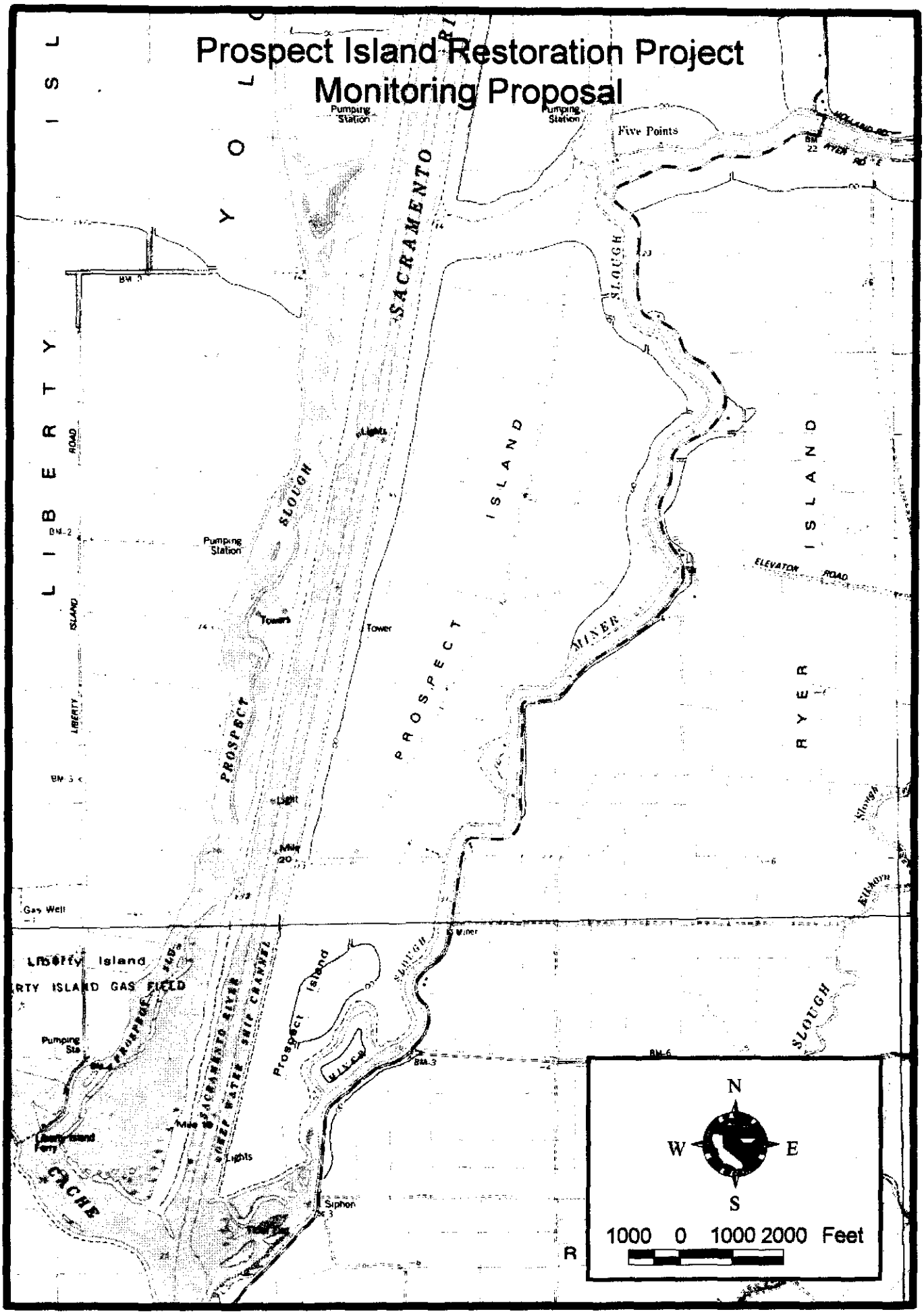
By restoring shallow-water habitat, the Prospect Island project will increase potential spawning and rearing habitat for delta smelt, longfin smelt, splittail and striped bass. The levee breaches are intended to provide a migration corridor and resting area for anadromous fish such as chinook salmon. The project also targets migratory birds by providing riparian habitat and feeding areas. Monitoring is necessary to measure the benefits to these species.

B. Related Benefits:

The monitoring program will provide CALFED and Category III with information to guide future restoration projects. A comparison of the numbers and types of species found on Prospect Island will help decision makers decide whether there is more benefit in creating a $6 million restoration site (Prospect Island), or allowing islands to flood naturally (Liberty Island).

A secondary benefit of monitoring Prospect Island includes the information that will be provided and used for purposes of adaptive management. For example, if post-project monitoring of the island shows the need for increased water circulation and greater water exchange, adaptive management can be applied by creating additional breaches to improve the overall success of the project. Without monitoring, it would be impossible to determine whether any alteration or improvements should be made to the project design.

Prospect Island Restoration Project
Monitoring Proposal



I-021209

Monitoring of Prospect Island would benefit other restoration programs by providing a baseline plan that could be used as a guideline for future projects. The IEP Project Work Team formed to monitor Prospect Island could also be used to evaluate and critique future monitoring plans. Furthermore, the data and reports generated from the information collected on Prospect Island could be used by scientists and decision-makers in the field of restoration.

C. Status of Prospect Island Project:

Project construction will occur from Fall 1999- Fall 2000. Funding for land acquisition, operations and maintenance, and construction has been obtained. The monitoring portion of the project, however, has not yet been funded.

V. Monitoring and Data Collection Methodology:

Table 1. Summary of ecological/biological objectives, associated hypotheses and monitoring parameters and approaches

Biological/Ecological Objective

Question to be Evaluated/Hypothesis	**Monitoring Parameter(s) and Data Collection Approach**	**Data Evaluation Approach**
Fish: Quantify use of habitat by various fish species. Compare relative fish abundance between habitats in Prospect Island and adjacent channels.	Monitor larval, juvenile, and adult life stages Data collection includes use of purse seine (delta smelt), gill nets (splittail), push nets, beach seine, light traps, egg and larval nets and electrofishing	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements
Wildlife: Quantify wildlife use in each of the following habitats: open water, mudflats, emergent marsh and riparian. Assess conditions of use and/or non-use to vegetation, water quality conditions, physical changes of project	Data collection approaches include point counts, canoe surveys, incidental surveys, rail counts, walking transects, live trapping, pit fall traps will be used to determine the types of wildlife in various habitats of Prospect Island	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements
Water Quality: Determine water quality conditions in different aquatic habitats on Prospect Island. Assess water quality conditions resulting from placement of levee breaches	Monitoring parameters include specific conductance, water temp, dissolved oxygen, pH, turbidity, stage, chlorophyll, wind speed and direction, solar radiation, air temp, barometric pressure, and humidity will be measured on a continuous basis year round basis. Five portable systems will be used.	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements

Vegetation: Track quality and quantity of plant communities that develop .	Baseline plant communities within the project site will be compared with the developing plant communities. Site specific plant community characterization will also be conducted.	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements
Phytoplankton: Evaluate phytoplankton species composition, biomass, primary productivity, nutrients, and sediments concentrations and their flux to the Delta.	Discrete monitoring will be conducted year round on a monthly basis. Samples for chlorophyll *a* will be taken at 1 m depths. Additional water samples will be taken for phytoplankton species identification.	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements
Zooplankton: Determine which zooplankton species, mysid shrimp, and amphipods are utilizing the input channels, main channels, open water, sloughs, and shallow water.	Zooplankton samples will be collected year-round on a monthly basis with Clark-Bumpus nets, a ski mounted Neomysis net or egg and larval net w/ 505 um mesh and a 15 l/min. capacity pump.	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements
Benthic: Evaluate benthic macrofauna and substrate composition in the main channel, open water, vegetated shallow water, dead-end sloughs. Assess benthic community development with substrate composition.	Benthic samples will be collected on a monthly basis. Four benthic samples will be collected at each site with a Birge-Ekman dredge. Samples will then be washed and preserved in formalin.	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements
Bathymetry: Evaluate changes in habitat features due to siltation and erosion.	A horizontal and vertical control around the project will be complete before the island is flooded. Baseline evaluation of representative project features (berms, island levees, shallow water, excavated channel) will be established after flooding. Quarterly elevation surveys will be conducted to monitor erosion, accretion, and subsidence.	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements
Organic Carbon: Determine if Prospect Island is a source of organic carbon to the Delta channels. Quantify organic carbon and potential THM production.	Continuous samples will be collected by autosamplers at the levee breaches during incoming and outgoing tides. Samples will be analyzed for dissolved and particulate organic carbon and ultraviolet absorbance. Grab samples, collected at various stations, will also be analyzed for trihalomethane formation potential, haloacetic acid formation potential and dissolved ammonia.	Data collected, data analyzed, and reports prepared will adhere to the IEP QA/QC requirements

VI. Technical Feasibility and Timing:

A. Briefly explain what alternatives were evaluated and why they were not selected.

The monitoring plan originally focused on fish sampling. However, after substantial review by Si Simenstad of the University of Washington, Josh Collins of SFEI, and

various IEP Project Work Teams, it was decided that a more comprehensive monitoring plan was needed. After comments were incorporated, the document was re-circulated for a second review. The monitoring plan, as summarized in this proposal, was finalized in July 1998.

B. Explain what CEQA and NEPA documents have or will be prepared for the project.

A draft Environmental Assessment/Initial study, fulfilling CEQA/NEPA requirements, has undergone public review and will be finalized in February 1999.

C. Explain what permits or agreements need to be in place to proceed with any of the tasks described above under Scope of Work. Explain the current status of each permit or agreement. Explain any other constraints that could impact the schedule and implementability of the project.

Environmental permits are currently being obtained for the project as a whole, including the construction and post-project monitoring. A Biological Assessment has been submitted to the USFWS and NMFS, initiating Section 7 endangered species consultation. DWR has re-initiated consultation with DFG, and it is expected that DFG will concur with the findings in the federal Biological Opinion.

There does not appear to be any constraints that could impact the schedule or implementability of the project.

D. Identify the nature and approach to resolving other outstanding implementation issues.

There do not appear to be any outstanding implementation issues.

VII. Cost and Cost-Sharing

Table 2. Total Budget

Project Task	Direct Labor (Hrs)	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc and other direct costs	Overhead and Indirect Costs	Total Cost
Task 1. Fish Monitoring							
A. General species fish use	1,632 perm. 1,232 temp.	$47,980	0	$4,000	$3,000	$21,796	$76,776
B. Estimate spawner use by smelt and splittail	1,408 perm. 1,600 temp.	$53,748	0	$8,000	$11,200	$25,216	$98,164

Project Task	Direct Labor (Hrs)	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc and other direct costs	Overhead and Indirect Costs	Total Cost
C. Estimate larval rearing by smelt and splittail	3,904 perm. 3,008 temp.	$108,824	0	$2,000	$3,200	$47,740	$161,764
D. Quantify salmon fry/smolt use	608 perm. 896 temp.	$26,348	0	$2,000	$2,400	$10,700	$41,448
Total (Task 1)	7,552 perm. 6,736 temp.	$236,900	0	$16,000	$19,800	$105,452	$378,152
Task 2. Wildlife Monitoring							
Quantify/qualify wildlife use in open water, mudflats and emergent marsh, and riparian habitats	744 perm. 480 temp.	$15,558	0	0	$1,500	$3,080	$20,138
Task 3. Water Quality Monitoring							
A. Characterize water quality conditions at the breaches on a real-time basis	200 perm.	$10,000	0	$35,000	$,500	$4,800	$49,800
B. Characterize water quality in different habitats	576 perm. 720 temp.	$21,518	$50,450	0	0	$6,959	$78,927
Total (Task 3)	776 perm. 720 temp.	$31,518	$50,450	$35,000	0	$11,759	$128,727
Task 4. Vegetation Monitoring							
A. Characterize plant communities in different habitats and how they change over time.	334 perm.	$8,430	0	$650	0	$4,055	$13,135
B. Establish whether plant communities are sustaining and functional	200 perm. 534 temp.	$7,471	0	0	0	$3,593	$11,064
Total (Task 4)	534 perm.	$15,901	0	$650	0	$7,648	$24,199

Project Task	Direct Labor (Hrs)	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Misc and other direct costs	Overhead and Indirect Costs	Total Cost
Task 5. Phytoplankton/Sediments/Nutrients Monitoring							
Evaluate phytoplankton production, species composition and growth rates, nutrients and sediment concentrations and their flux to the Delta.	635 perm.	$12,000	$59,052	0	0	$12,000	$83,052
Task 6. Zooplankton Monitoring							
Evaluate zooplankton species composition, mysid shrimp and amphipods	345 perm.	$6,374	0	0	$3,050	$1,447	$10,871
Task 7. Benthic Monitoring							
Evaluate benthic macrofauna and substrate composition	396 perm.	$8,256	$35,640	$2,625	0	$3,957	$50,478
Task 8. Bathymetry Monitoring							
Monitor changes in different habitat and features within Prospect Island due to siltation and erosion.	616 perm.	$21,400	0	$13,300	$3,900	$17,400	$56,000
Task 9. Organic Carbon Monitoring							
A. Determine if the island is a source of organic carbon to the Delta.	168 perm.	$4,120	$41,040	$25,000	0	$1,070	$71,230
B. Quantify carbon and potential THM production	525 perm.	$12,300	$14,350	0	0	$3,240	$29,890
Total (Task 9)	693 perm.	$16,420	$55,390	$25,000	0	$4,310	$101,120
Task 10. Project Management							
Inspection of work in progress, validation of costs, preparation and review of reports and responses to project specific questions.	500 perm.	$25,400	0	0	0	$7,600	$33,000

I-021214

Table 3. Quarterly Budget

Project Task	**Quarterly Budget Oct-Dec 00**	**Quarterly Budget Jan-Mar 01**	**Quarterly Budget Apr-Jun 01**	**Quarterly Budget Jul-Sep 01**	**Total Cost**
Task 1- Fish Monitoring	$94,538	$94,538	$94,538	$94,538	$378,152
Task 2- Wildlife Monitoring	$5,034	$5,034	$5,035	$5,035	$20,138
Task 3- Water Quality Monitoring	$32,182	$32,182	$32,182	$32,182	$128,727
Task 4- Vegetation Monitoring	$6,050	$6,050	$6,050	$6,050	$24,199
Task 5- Phtyoplankton/Sediments/Nutrients Monitoring	$20,763	$20,763	$20,763	$20,763	$83,052
Task 6- Zooplankton Monitoring	$2,718	$2,718	$2,718	$2,718	$10,871
Task 7- Benthic Monitoring	$12,619	$12,619	$12,620	$12,620	$50,478
Task 8- Bathymetry Monitoring	$14,000	$14,000	$14,000	$14,000	$56,000
Task 9- Organic Carbon Monitoring	$25,280	$25,280	$25,280	$25,280	$101,120
Task 10- Project Management	$8,250	$8,250	$8,250	$8,250	$33,000
Total Project Cost					**$885,737**

B. Funding:

Funds for acquisition, construction, and operation and maintenance of the project have been obtained from the legislature, the Army Corps of Engineers Section 1135 program and the Category III program. Post-project monitoring is yet to be funded.

C. Potential for incremental funding:

This proposal summarizes nine monitoring elements. Fewer than the nine elements could be funded or some of the elements could be reduced in scope and cost; however, all elements are necessary for a complete ecological evaluation of the project. Furthermore, the elements are interrelated. Principal investigators will be analyzing relationships between data collected for all elements.

VIII. Local Impacts, Support and Involvement:

A. Overall awareness:

Solano County, where Prospect Island is located, is aware of the project. Favorable articles have appeared in the local newspaper, The Daily Republic. Public meetings and other forms of communication have occurred in compliance with environmental regulation. Overall, there appears to be support of the project and post-project monitoring.

B. Support/Opposition:

The Prospect Island Project has support from the following environmental groups and interested organizations: Trust for Public Lands, Ducks Unlimited, University of California at Davis, Aquatic Habitat Institute, Wildlife Conservation Board, and Coastal America.

Department of Agriculture has voiced opposition to the project due to the fact that agricultural land will be taken out of use.

C. Adjacent landowners:

Ryer Island farmers are concerned that the flooding of Prospect Island causes seepage onto Ryer Island. Monitoring well data has been collected from both islands. Preliminary results indicate that seepage onto Ryer Island is not caused by flooding of Prospect Island.

D. Public Outreach:

The Prospect Island Reconnaissance report and Project Modification Report were released for public review. The final Ecosystem Restoration Report, including the environmental assessment and initial study, will be released by the Corps in February 1999.

E. Third Party Impacts:

No third party impacts are expected.

IX. Applicant's Ability:

Program Coordination

Leo Winternitz (DWR) is the program coordinator. He will coordinate the individual monitoring elements. Although the principal investigators are responsible for reporting on the individual elements, the program coordinator will integrate all elements into comprehensive annual reports.

Leo Winternitz: B.S. and M.S. in Environmental Science. Environmental Program Manager I with DWR. Relevant experience includes: administering major portions of the $2 million Sacramento-San Joaquin Ecological Studies Project Agreement between DWR and DFG; participating as a member of the Delta Native Fishes Recovery Team chaired by Dr. Peter Moyle whereby recovery objectives for seven species of native fish were developed; acting as DWR's program manager for the Prospect Island

Restoration Project; supervising the Interagency Section of the Ecological Studies Branch within DWR for five years; and currently overseeing the Monitoring and Analysis Branch of DWR's Environmental Services Office which includes the Bay-Delta Section and the Water Quality Control Systems Section.

Fisheries Monitoring: Field work to be conducted by one DFG biologist and two scientific aides. Data analysis and report writing to be prepared by:

Dale Sweetnam: M.S. Biology and B.A. Biology.
Associate Marine Biologist with DFG
11 years experience in the Delta including the design, collection, analysis, and interpretation of data.

Randy Baxter: M.S. Natural Resources and B.S. Biology
Associate Marine Biologist with DFG
10 years of experience in the Delta as the lead biologist for the Delta Outflow/SF Bay Study including data compilation, analysis, and interpretation of fisheries data.

Wildlife Monitoring: Field work to be conducted by one DFG biologist and one scientific aide. Data analysis and report writing to be prepared by:

Laurie Briden: B.A. Environmental Biology
Associate Wildlife Biologist with DFG
12 years of experience conducting threatened and endangered avian, mammalian, and herp field surveys

Laureen Thompson: B.S. Wildlife and Fisheries Biology
Range B Wildlife Biologist with DFG
7 years of technical and practical experience with the identification, management and collection of ecological data associated with avian, and mammal species. Experience includes implementing wildlife surveys, inventories, and scientific research projects and 3 years conducting threatened and endangered avian, mammalian, and herp field surveys.

Water quality: Field work to be conducted by one DWR Control Systems Engineer, one biologist, and one scientific aide. Data analysis and report writing to be prepared by Katie Wadsworth.

Katie Wadsworth: M.S. Environmental Science and B.S. Environmental Biology
Environmental Specialist III
6 years of experience in the Delta, including the design, collection, analysis, and interpretation of data.

Vegetation: Field work to be conducted by one DWR biologist and one scientific aide. Data analysis and report writing to be prepared by:

Jean Witzman: M.S. Botany and B.A. Biology Education
Environmental Specialist III with DWR
10 years experience as a professional botanist; experience in vegetation mapping, sensitive plant surveys, collection of ecological data; monitoring species and plant community response to project operations; wetland delineation; and permitting and report writing for environmental compliance.

Kent Nelson: B.S. Wildlife and Fisheries Biology
Recreation and Wildlife Resources Advisor with DWR
Eight years of experience on the Delta Flood Protection Program (SB 34), a $12 million per year program to provide improved flood protection through levee maintenance and improvement, including comprehensive biological monitoring programs to determine benefits for fish and wildlife resources.

Phytoplankton: Field work to be conducted by one DWR biologist and one scientific aide. Data analysis and report writing to be prepared by:

Peggy Lehman: Ph.D. Ecology (aquatic ecology), M.S. Ecology,
B.S. Renewable Natural Resources
Environmental Specialist IV with DWR
15 years experience conducting research and data analysis on the influence of water quality variables on phytoplankton biomass and species composition in the Sacramento-San Joaquin Delta. Published reports and peer-reviewed journal articles on long-term trends in phytoplankton ecology and water quality.

Zooplankton: Field work to be conducted by one DWR biologist and one scientific aide. Data analysis and report writing to be prepared by:

James J. Orsi: M.S. Marine Fisheries, B.S. Biology
Senior Specialist, DFG
26 years experience as the project leader for Neomysis and zooplankton studies in the Sacramento-San Joaquin Estuary . Author of 14 published articles on mysid shrimp and zooplankton and 3 articles on fish.

Benthic Community Monitoring: Field work to be conducted by one DWR bilogist and one scientific aide.

Cindy Messer: B.S. Environmental Policy Analysis and Planning
Environmental Specialist, DWR
Lead biologist for the DWR D-1485 water quality and benthic monitoring project.

Bathymetry: Field work to be conducted by two DWR engineers and one scientific aide. Data analysis and report writing to be prepared by:

Howard Mann: B.S. Civil Engineering
Senior Engineer, DWR
23 years experience including surveying, operation and maintenance of gauging stations, managing various scour monitoring programs, performing channel bottom soundings and other special studies in the Delta.

Organic Carbon: Field work to be conducted by one DWR biologist and one scientific aide. Data analysis and report writing to be prepared by Peggy Lehman and Collette Zemitis:

Peggy Lehman: Ph.D. Ecology. Environmental Specialist IV.
15 years experience in water quality in the Sacramento-San Joaquin Delta including studies in food-web ecology. (see also Phytoplankton).

Collette Zemitis: M.S. Agricultural and Environmental Chemistry and B.S. Biology.
Environmental Specialist III with DWR
4 years experience in Municipal Water Quality Investigations unit studying organic carbon and disinfection by-product precursors in the Sacramento-San Joaquin Delta.

X. Compatibility with Non-Ecosystem Objectives:

Explain whether the project also provides benefits for or conflicts with other CALFED objectives including water quality, water supply reliability, and levee system integrity.

The Prospect Island Project and post-project monitoring does not appear to conflict with any other CALFED objectives.
A. Water quality will be monitored to assess any water quality impacts or improvements.
B. Water supply reliability will not be affected.
C. USFWS will conduct ongoing operations and maintenance of the project, including levees. The bathymetry monitoring element will assess erosion and sedimentation of project features, including the designed levee breaches.