Attachment H

Proposal # 2001- E202 (Office Use Only)

PSP Cover Sheet (Attach to the front of eachproposal)

Proposal Title: Rhode Island Floodplain Management and Habitat Restoration
Applicant Name: State of Caliifornia, Department of Fish and Game
Contact Name: Ed Littrell
Mailing Address: 1701 Nimbus Road, Rancho Cordova, California 95670
Telephone: (916) 358-2924
Fax: (916) 358-2912
Email: elittrel at dfg.ca.gov

Amount of funding requested: $1,092,000
Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds list below.
State cost na Federal cost na

Cost share partners? x Yes ___ No
Identify partners and amount contributed by each California Department of Fish and Game, Contract administrator

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

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

What county or counties is the project located in? Contra Costa County

What CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible (1,4) Central and West Delta

Indicate the type ofapplicant (check only one box):

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

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

- ☐ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- o Winter-run chinook salmon
- ☐ Spring-run chinook salmon
- ☐ Late-fall run chinook salmon
- ☐ Fall-run chinook salmon
- ☒ Delta smelt
- ☐ Longfin smelt
- ☒ Splittail
- ☐ Steelhead'trout
- ☐ Green sturgeon
- ☒ Striped bass
- ☐ White Sturgeon
- ☐ All chinook species
- ☒ Waterfowl and Shorebirds
- ☒ **All** anadromous salmonids
- ☒ Migratory birds
- ☒ American shad
- ☐ Other listed T/E species: Mason, lilaeopsis, swainsons Hawk

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

- ☐ Research/Monitoring
- ☐ Watershed Planning
- ☒ Pilot/Demo Project
- ☐ Education
- ☐ Full-scale Implementation

Is this a next-phase of an ongoing project? Yes XX No___

Have you received funding from CALFED before? Yes XX No___

If yes, list project title and CALFED number Rhode Island Floodplain Management and Habitat Restoration 98-C1006

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

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

By signing below, the **applicant declares** the **following:**

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

Ed Littrell

Printed name of applicant

Ed Littrell

Signature of applicant

B. EXECUTIVE SUMMARY

Rhode Island Floodplain Management and Habitat Restoration, $1,092,000

California Department of Fish and Game attn.: Ed Littrell
1701 Nimbus Road, Rancho Cordova, CA 95670
916-358-2924 916-358-2912 FAX elittrel@dfg.ca.gov

Participants and collaborators: **A** contributing collaborator is the Department of Fish and Game, Delta Flood Protection Program (***AB*** 360) for contract administration, oversight, and some monitoring. The San Francisco Estuary Project, Delta In-Channel Island Workgroup may participate at a later date. Bitterroot Restoration, a private company, may use this site for field trials of the propagation of "special status" plant species, contingent upon the approval of their CALFED grant.

This is a proposal to improve the fish and wildlife carrying capacity of Rhode Island, a breached (in 1971) ***67*** acre island in the Old River channel between Holland Tract and the northern end of Bacon Island. Rhode Island is owned in fee by the DFG. Improvement would occur by restoring the width, height, and stability of the island's eroding and breached levees. Increased width, height and stability would allow the planting of additional woody SRA. Non-native invasive species (*Arundo donax* and Himalayan blackberry, ***Rubus discolor)*** would be removed. These plant community modifications would benefit plants and animals listed in the Multi Species Conservation Strategy (MSCS). Habitat would be improved for terrestrial species such as shorebirds, waterfowl, Swainson's hawk, Mason's lilaeopsis, Delta tule pea, Suisun marsh aster, and neotropical migrant songbirds. Aquatic species such as Delta smelt, all runs of anadromous salmonids, splittail, and striped bass will benefit.

An abandoned barge would be removed from the west levee breach,

The breaches would not be filled. The interior of the island would remain as a shallow tidal marsh. Later studies could determine if the interior should be improved for terrestrial and aquatic species.

These goals are consistent with the DFG's long term objectives in the island's 1990 management plan, "To maintain Delta riparian habitat and tidal freshwater marsh habitat."

C. PROJECT DESCRIPTION

1. Statement of the Problem

a. Problem - Terrestrial landforms in the Delta are eroding away due to many factors. This erosion is clearly documented by aerial and ground photographs of the region. With the loss of higher ground comes the loss of related plant communities. In turn, the animals associated with these communities also disappear. Non-native invasive plant species do not support the prehistoric assemblage of animals CALFED is trying to restore in the Delta. Data are scanty, but natural higher ground landforms did exist in the Delta prior to the modifications of the current era. Places like Steamboat Slough were sources of wood fuel for the steamers plying the waters between San Francisco and Sacramento. Early paintings of the region produced during the gold rush show us wooded areas along the waterways leading to Sacramento and Stockton. It is therefore appropriate to restore some of these palustrine forests as examples of the pristine Delta.

b. Conceptual model - Hydrological processes in the Delta have been are greatly altered from pristine times. We believe the construction of dams, alteration of seasonal flow patterns, trapping of sediment behind dams, export of water, and human recreation in the Delta have led to the loss of natural landforms through erosion. These natural landforms would, naturally, have supported a certain assemblage of plants and animals which CALFED is seeking to preserve and expand.

Some higher ground was a feature of the pristine Delta. Higher elevations provide habitat for neotropical migrant buds, other native birds, land adapted and water adapted mammals, native plants, and near the water provided food and cover for native fishes. Higher ground, in turn, provided woody cover including dead snag cover for strictly aquatic organisms. Animals such as kingfishers perching on living and dead trees could forage in the tule marsh that made up most of the Delta.

These concepts are straightforward and provide the basis for declarations found in CALFED's ERPP and in the MSCP for the Delta.

c. Hypotheses being *tested* - We propose that native plant and animal communities can be preserved and restored using available techniques. This proposal is particularly consistent with "Goal 4 - Habitats", but other goals are also served. Our proposal is also consistent with many elements of the ERPP.

Our work will build upon other projects we have participated in. These include berms attached to levees (Canal Ranch/Beaver Slough), set back levees at Twitchell Island, Decker Island reconstruction, Staten Island tule berms, Staten Island attached berms, and others.

This is typical temperate climate habitat restoration. The disappearing high ground would be restored by placement of fill on existing elevations. Erosion sites would be protected by "soft" protection where appropriate. These "soft fixes" typically consist of coconut rolls, brush boxes, root wads, and the like. "Hard fixes" using quarry rock will be used where necessary.

Non-native invasive plant species would be removed. ***Arundo donax*** and ***Rubus discolor*** are the principle problems at Rhode Island. The removed exotics will be replaced by native species of shrubs and hardwood trees.

A sunken barge at the western opening to the flooded island will be removed. The barge is not consistent with the restoration goals of CALFED. Current law (Abandoned Watercraft Abatement Fund) prohibits funding towards the removal of commercial vessels. Removal of the barge would have to funded by other sources such as this CALFED grant.

Monitoring of these sites will provide the improvement in knowledge that is solicited in the PSP.

d. Adaptive Management - We are "adapting" our reconstructive techniques based on prior experiences listed above. We have found that quarry rock is appropriate for energy dissipation in certain locales. Since it is not "native" to the Delta, it is appropriate to adapt "soft" protection to certain sites. We have "adapted" our design for earthen fill based on results on our projects and others such as the U.S. Army, Corps of Engineers dredged fill demonstration sites at Donolon Island and at Venice Tip in the San Joaquin River.

e Educational Objectives - Not directly applicable, although all these habitat restorations are "learning experiences."

2. Proposed Scope **of Work**

a. Location **and/or** Geographic Boundaries **of** the Project - This project is located in Contra Costa County. It is located in the "Sacramento-San Joaquin Delta, Central and West Delta" zone

b. Approach - ***As*** previously stated in our prior grant application and funded project of 1998 (98-C1006) and in the ***Feasibility Study Report*** (1999, attached) which resulted, this project is broken down into four **(4)** tasks.

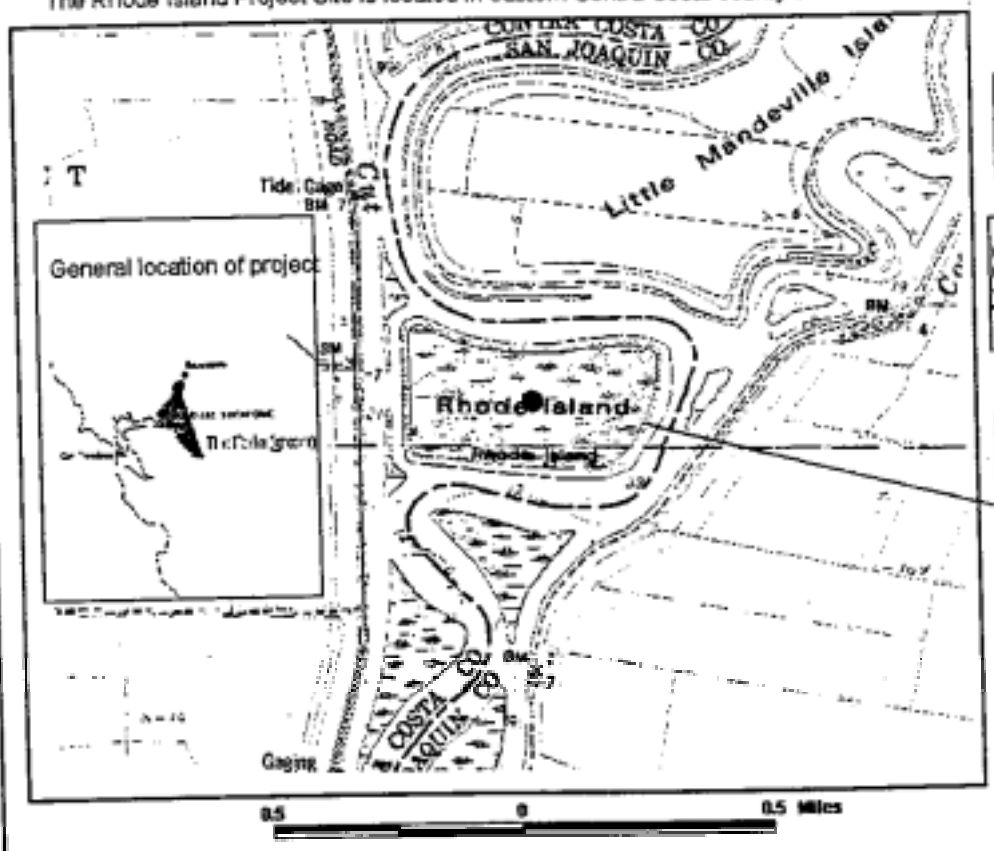
Task one has been completed. Task one was the feasibility study report (attached) to further refine the approach to ecological restoration of this larger channel island. We now know that a levee based project is feasible. We also know that more data are needed to address fisheries issues.

Task two will be to administer **any** CALFED grant received. The Department of Fish and Game will develop contract criteria, request qualifications from bidders, and administer the resultant contract(s). No charge to CALFED except DFG overhead.

Task three will be for the contractor to build the agreed upon features.

Task four will be for the contractor(s) to monitor the results for two years.

The Rhode Island Project Site is located in eastern Contra Costa county on the Contra Costa/San Joaquin county border



Rhode Island center.shp

Center of Rhode Island :
N 38.0011 E -121.5731

Rhode Island is located at the southern border of the "Bouldin Island" 7.5 min quad and at the northern border of the "Woodward Island" 7.5 min quad.

N
W
E
S

c. Monitoring and Assessment **Plans** - Baseline data have been generated by our phase one feasibility study (attached). Two years of post construction monitoring will be conducted by contract biologists. A monitoring plan **will** be developed by our contractor to determine if modifications to the island result in increases in resident and anadromous fishes. Bird species will be determined and counted. Responses of aquatic species, in particular, may be used to help assess the validity of certain types of restoration activities *in* the tidal Delta.

d. Data Handling and Storage -

Data will be placed in the files of the California Department of Fish and Game, Sacramento Valley and Central Sierra Region, Delta Flood Protection Program. The practice of this program has been to publish booklets on it's activities.

e. Expected Products/Outcomes -

The sponsor of this application, the California Department of Fish and Game, Sacramento Valley - Central Sierra Region, Delta Flood Protection Program (AB 360 Program), has a record of development of habitat projects in the Delta. As these are constructed, we typically produce documents describing these sites. We are currently preparing an "Enhancement Guidance Document" which describes "how to" develop habitat sites in the Delta. We will be providing this to CALFED when it is completed in about a month's time. It's other audience includes the Reclamation Districts of the Delta, the U.S. Army, Corps of Engineers, the **U.S.** Fish and Wildlife Service, the National Marine Fisheries Service, and other elements of the DFG.

We previously prepared and distributed a "Mitigation Guidance Document" to these same recipients when "mitigation" was the standard of the AB 360 program (enhancement **is** now the standard).

Currently at the Governor's office is a draft report to the Legislature on our activities. The "Delta Flood Protection Program *Summary* of Habitat Activities" describes in detail the results of 14 years of habitat development in the Delta by this program. **This** report was prepared jointly by the DFG and the Department of Water Resources.

Program personnel occasionally make presentations to a variety of audiences interested in developing habitat in the Delta.

We anticipate this project will stabilize and restore an area of high ground in the central Delta. Even though this site is partially artificial, having levees around the periphery, it is a remnant of the prehistoric Delta. High ground is a feature of the prehistoric Delta, and endemic plants and animals are adapted to this feature.

Non-native invasion plant species will be removed and replaced with native plant species.

Approximately 4,700 lineal feet of the total 7,000 lineal feet of existing levee will be augmented by fill. About 19,000 cubic yards of fill will be placed. Emergent aquatic plant species will be

planted on the levee to assist in levee soil stability and reduce wind and wave erosion. Upper 'elevations of 2.5' to 4.0' above MLLW will be planted with native scrub-shrub species such as wild rose, blue elderberry, willows and grape. The higher of these elevations may be planted with sycamore, *oak* and walnut as indicated.

Willow wattliig bundles will be placed along 1600 feet of levee to reinforce weak spots. If engineering analysis shows a higher level of protection is needed, rock rip-rap may be placed

The derelict barge at the west opening to island will be removed.

Monitoring will be carried out for *two* years to determine short-term results

f. Work' Schedule -

Task 1. Literature search: **Completed.** This task was funded by **CALFED** grant " 98-C1006". The resultant *Feasibility* ***Study Report*** is attached.

Task **2.** Request for qualifications: Request qualifications of interested bidders

Schedule: Completion at six months from receipt of a signed contract from **CALFED.**
Budget: Performed **as** in-kind services by the DFG. Contract administration by DFG support staff for three years **will** cost $182,000 at an estimated **20%** overhead rate..
Deliverables: Potential contractor(s)

Task **3.** Awarding of a contract, final design, permit acquisition, construction. Details of the contract will be determined by the "Requestfor Qualifications." Proposals to the prime contractor, the DFG, **will** be based on the feasibility report. Bidders will be required to submit a package which **will** fulfill all requirements of this PSP. In that way, a small staff section of the DFG can leverage its skills with the permit acquisition, construction and monitoring skills of the successful subcontractor.

In general, this task will be a package. The actual project will consist of removal of undesirable vegetation, addition of **soil,** planting of woody vegetation, and stabilization of levees with biodegradable materials or rock riprap.

Schedule: One calendar year from the awarding of the subcontract.
Budget: $850,000.
Deliverables: Permit acquisition and construction of restoration features including removal of sunken barge, levee stabition and planting of woody growth.

Task 4. The site **will** be monitored for two years to determine initial success. This monitoring schedule is limited to two years, even **though** five years are desirable because of CALFED funding constraints.

Schedule: Two years of monitoring after completion of construction
Budget: $60,000.
Deliverables: Data reports.

g. Feasibility - A *Feasibility Study* **Report,** funded by CALFED (98-C1006) is attached. The feasibility study has provided it's intended purpose which was to determine if a project is warranted at this site. A project is feasible, and is proposed here.

This project is s i i a r to others conducted under the general direction of the Project Manager in his role as Project Manager for the Department of Fish and Game's legal responsibilities to implement the Delta Flood Protection program (AB360, 1996).

DFG staff have completed, or are currently developing, similar projects, some using CALFED money, in the Sacramento-SanJoaquin Delta at Decker Island, Sherman island, Twitchell Island, Staten Island, Canal Ranch, and localized levee sites. Prospective contractors are familiar with the concepts presented in this application. We have experience that will allow us to budget sufficient personnel, time and money to complete the proposed project.

Start dates are difficult to establish when it is contingent upon a signed contact. However, work can only touch the water in the summer and early fall due to Federal permitting considerations (work windows). This applies to any applicant's project which may affect Delta smelt and protected runs of salmon.

This project will be constructed on DFG owned land; no other landowners are involved.

D. APPLICABILITY TO CALFED ERP *GOALS AND* IMPLEMENTATION PLAN AND CVPIA PRIORITIES

1. ERP Goals and CVPIA Priorities

The Ecosystem Program Plan "vision" for the Central and West Delta Ecological Management unit states, "Restoring habitat is the primary focus of the restoration program in ... (this) Unit." This project would maintain and restore tidal emergent wetlands, shoals, shallow-water aquatic habitat and SRA habitat. It will provide resources for many endemic and valued introduced species.

This proposal is also consistent with the "Visions for Habitats" found in the ERPP. Several of the listed habitats would benefit fkom this project. We believe the following habitats will benefit: 1. Tidal Perennial Aquatic Habitat, 2. Midchannel Islands and Shoals, 3. Fresh emergent Wetland Habitat, 4. Riparian and Riverine Aquatic Habitat, and 5. Essential Fish Habitat.

Some fill will be imported to maintain and develop higher elevation lands. We anticipate beneficial reuse of dredged materials and materials obtained from the restoration of Decker Island.

This project will carry out the ERPP goal of removal of non-native invasive species of plants: Arundo and Himalayan blackberry.

2. Relationship *to* Other Ecosystem Restoration Projects

This project is consistent with the ERPP goal of integration with other restoration programs.

This project is similar to others which will fulfill the same CALFED goals for this ecological zone.

The Delta Flood Protection Program, and the program manager himself, are involved in similar proposals and projects throughout the Delta. We are involved with the previously approved: 1. In-Channel Islands Restoration/Demonstration Project (K 185), 2. Franks Tract Restoration (K 216), 3. Twitchell Island Restoration (K 250), and 4. Tyler Island Levee Protection and Habitat Restoration Pilot Project (K 38).

We anticipate this project will aid in the recovery of endangered species, will protect and enhance neotropical migrant bird habitat consistent with the goals of the Central Valley Habitat Joint Venture, and is consistent with the Delta Wildlife Habitat Protection and Restoration Plan (Madrone Report, December, 1980).

3. Requests for Next-Phase Funding

This is a request for next-phase funding. The first funded "project" was a feasibility study to

determine if construction was warranted at this site. The report, ***Feasibility Study Report,*** is attached. It describes the project, summarizes the project, and provides data generated by sampling and observations.

4. Previous Recipients **of CALFED or** CVPIA Funding

We previously received funding for the feasibility determination phase/Task 1. associated with this proposal. We received $25,000 from CALFED by grant number 98-C1006. **A *Feasibility Study Report*** (attached) was produced. We are basing the current application on the results of that study. **A** project at Rhode Island to restore and protect high ground for the perpetuation of riparian vegetation and the continued protection of the interior tidal marsh is feasible and desirable.

The title of the application remains the same: ***Rhode Island Floodplain Management and Habitat Restoration.***

5. System-Wide Ecosystem Benefits

Maintenance and restoration of riparian habitat at this site supports fish and wildlife whose home range may be several thousands of miles in diameter. Anadromous fish, of course, travel **from** this area to'the open ocean and upstream to their headwaters spawning areas. Neotropical migrant birds winter in central America. Riparian preservation and restoration **will** profit local fish and wildlife which travel up and down local habitat comdors.

The Ecosystem Restoration Program **Plan** describes a "vision"for the Central and West Delta Ecological Management Unit. This proposal for Rhode Island is absolutely consistent with the "vision"described. "Restoring habitat is the primary focus of the restoration program in the Central and West Delta Ecological Management Unit:"

E. QUALIFICATIONS

The Project Manager is Ed Littrell, a thirty-one year DFG employee. He has been Project Manager of the DFG's Delta Flood Protection Program for eight years. In that time he has overseen construction of $2,000,000 of direct habitat improvement. He has overseen the disbursement of approximately $50,000,000 in Delta Flood Protection funds. The disbursement has included oversight of habitat development on reclamation district levees and the maintenance of no net long-term loss of habitat associated with levee work.

He has been a participant with the Department of Water Resources in similar CALFED Category III (ERPP early implementation) proposals: Sherman Island offshore berm, Decker Island restoration, Prospect Island restoration, and with the San Francisco Estuary Project (Association of Bay Area Governments) proposal to stabilize channel islands at Webb Tract and Little Tinsley islands.

Mr. Littrell's role will be of contract manager. Support will proceed from the available resources of the DFG.

F. COST

1. Budget

Table 1. (Next page)

2. Cost-Sharing

The California Department of Fish and Game is providing these cost offsetting activities.

1. Contract management
2. Real property: the island itself.
3. Monitoring of the site in the long-term.
4. Property management.
5. Limited equipment use such as boats, vehicles.

2001 PSP Budget Table. Please use this Excel worksheet for preparing your budget and for your electronic proposal submittal.

Table 1. Annual and total budget. Task 1, Year 1 completed under prior contract 98-C1006.

			Subject to Overhead				
Year	Task	Direct Labor Hours	Salary & Benefits	Supplies & Expendables	Service Contracts	Overhead	Total Cost
Year 2	Task 2: Organization						$0
	Subtask 2a: DFG will Notify bidders of qualification request						$0
	Subtask 2b: DFG will Review qualifications of bidders						$0
	Account/contract management					$60,667	$60,667
Total Cost Year 2			$0	$0	$0	$60,667	$60,667
Year 3	Task 3: Administration/Construction						$0
	Subtask 3a: DFG will award contract						$0
	Subtask 3b: Contractor will develop final design including monitoring plan				$9,000		$9,000
	Subtask 3c: Contractor will obtain permits				$1,000		$1,000
	Subtask 3d: Construction				$840,000		$840,000
	Account/contract management					$60,667	$60,667
Total Cost Year 3			$0	$0	$850,000	$60,667	$910,667
Year 4	Task 4: Monitoring				$45,000	$5,000	$50,000
	Subtask 4a: Contractor will provide report on short-term status				$10,000		$10,000
	Account/contract management					$60,666	$60,666
Total Cost Year 4			$0	$0	$10,000	$65,666	$120,666
Total Project Cost			$0	$0	$850,000	$121,334	$1,092,000

G. LOCAL INVOLVEMENT

No outside parties will be affected by this project. This project will restore and improve (for fish and wildlife) an existing feature in the Delta. Rhode Island is currently open to the public for their use and will continue to be so in the foreseeable future.

H. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

The applicant will comply with State and Federal standard terms.

I. LITERATURE CITED

California Department of Fish and Game/ U.S. Fish & Wildlife Service. 1980. Delta wildlife habitat protection & restoration plan. Prepared by Madrone Associates.

California Department of Fish and Game. 1995. SB 34 Delta levees mitigation guidance document. Calif. Dept. Fish and Game, Rancho Cordova, CA 34 p.

California Department of Fish and Game. In Preparation. Enhancement guidance document. Calif. Dept. Fish and Game, Rancho Cordova, CA.

California Department of Water Resources/ California Department of Fish and Game. In Preparation. The Delta flood protection program summary of habitat activities. Sacramento, CA.

J. THRESHOLD REQUIREMENTS

Attached

STATE OF CALIFORNIA. THE RESOURCES AGENCY GRAY DAVIS. Governor

DEPARTMENT OF FISH AND GAME
Sacramento Valley and Central Sierra Region
1701 NIMBUS ROAD. SUITE A
RANCHO CORDOVA. CALIFORNIA 95670
Telephone (916) 358-2900

May 15,2000

Margit Aramburu, Executive Director
Delta Protection Commission
P.O. Box 530
Walnut Grove, California 95690

Subject: Notification of Application for CALFED Funds for a Project
Located Within the Jurisdiction of the Delta Protection Commission

Dear Ms. Aramburu:

Enclosed for your information is a copy of a proposal from the California Department of Fish and Game (DFG), Sacramento Valley-Central Sierra Region, for a project to stabilize and improve a habitat island in Old River in the Delta.

The proposed project will improve the fish and wildlife carrying capacity of Rhode Island, a breached 67 acre island between Holland Tract and Bacon Island. Rhode Island is owned in fee by the DFG. Improvement would occur by restoring the width, height, and stability of the island's eroding and breached levees. This would allow the planting of additional woody native vegetation. Non-native invasive species ***(Arundo*** *donax* and Himalayan blackberry, ***Rubus*** *discolor)* would be removed.

An abandoned barge would be removed from the west levee breach.

The breaches would not be filled. The interior of the island would remain as a shallow tidal marsh.

We look forward to obtaining funding for this project from CALFED. If we proceed we will keep the Commission informed as work progresses. If you have any questions please call me at (916) 358-2924.

Sincerely,

Ed Littrell

Ed Littrell, Project Manager
Delta Flood Protection Program

STATE OF CALIFORNIA - THE RESOURCES AGENCY GRAY DAVIS, Governo

DEPARTMENT OF FISH AND GAME
Sacramento Valley and Central Sierra Region
1701 NIMBUS ROAD. SUITE A
RANCHO CORDOVA, CALIFORNIA 95670
Telephone (9161 358-2900

May 15,2000

Dennis Barry, Community Development Director
Contra Costa County Community Development Department
651 Pine Street, 4th Floor-North wing
Martinez, California 94533

Subject: Notification of Application for CALFED Funds for a Project
Located Within the Jurisdiction of Contra Costa County

Dear Mr. Barry:

Enclosed for your information is a copy of a proposal from the California Department of Fish and Game (DFG), Sacramento Valley-Central Sierra Region, for a project to stabilize and improve a habitat island in Old River in the Delta.

The proposed project will improve the fish and wildlife carrying capacity of Rhode Island, a breached 67 acre island between Holland Tract and Bacon Island. Rhode Island is owned in fee by the DFG. Improvement would occur by restoring the width, height, and stability of the island's eroding and breached levees. This would allow the planting of additional woody native vegetation. Non-native invasive species (*Arundo donax* and Himalayan blackberry, *Rubus discolor)* would be removed.

An abandoned barge would be removed from the west levee breach.

The breaches would not be filled. The interior of the island would remain as a shallow tidal marsh.

We look forward to obtaining funding for this project from CALFED. If we proceed we will keep the County informed as work progresses. If you have any questions please call me at (916) 358-2924.

Sincerely,

Ed Littrell

Ed Littrell, Project Manager
Delta Flood Protection Program

STATE OF CALIFORNIA. THE RESOURCES AGENCY GRAY DAVIS, Governor

DEPARTMENT OF FISH AND GAME
Sacramento Valley and Central Sierra Region
1701 NIMBUS ROAD. SUITE A
RANCHO CORDOVA. CALIFORNIA 95670
Telephone (916) 358-2900

May 15,2000

Clerk of the Board of Supervisors
Contra Costa County
651 Pine Street, Room 106
Martinez, California 94533

Subject: Notification of Application for CALFED Funds for a Project
Located Within the Jurisdiction of Contra Costa County

Honorable Members of the Board:

Enclosed for your information is a copy of a proposal from the California Department of Fish and Game (DFG), Sacramento Valley-Central Sierra Region, for a project to stabilize and improve a habitat island in Old River in the Delta.

The proposed project will improve the fish and wildlife carrying capacity of Rhode Island, a breached 67 acre island between Holland Tract and Bacon Island. Rhode Island is owned in fee by the DFG. Improvement would occur by restoring the width, height, and stability of the island's eroding and breached levees. This would allow the planting of additional woody native vegetation. Non-native invasive species (*Arundo donax* and Himalayan blackberry, *Rubus discolor)* would be removed.

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We look forward to obtaining funding for this project from CALFED. If we proceed we will keep the County informed as work progresses. If you have any questions please call me at (916)358-2924.

Sincerely,

Ed Littrell

Ed Littrell, Project Manager
Delta Flood Protection Program

Environmental Compliance Checklist

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

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

   XX
   YES

   _____
   NO

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

   California Department of Fish and Game
   Lead Agency

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

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

   Outside contractor will provide documents to lead agency for compliance after CalFed. award grant and DFG awards subcontract six months after receipt of maney.

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

   _____
   YES

   XX
   NO,

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

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

LOCAL		
Conditional use permit	—	
Variance	—	
Subdivision Map Act approval	—	
Grading permit	—	
General plan amendment	—	
Specific plan approval	—	
Rezone		—
Williamson Act Contract cancellation	—	
Other _____ (please specify)		
None required	XX	
STATE		
CESA Compliance	XX	(CDFG)
Streambed alteration permit	XX	(CDFG)
CWA § 401 certification	XX	(RWQCB)
Coastal development permit	—	(Coastal Commission/BCDC)
Reclamation Board approval	—	
Notification	XX	(DPC, BCDC)
Other _____ (please specify)		
None required	—	
FEDERAL		
ESA Consultation	XX	(USFWS)
Rivers & Harbors Act permit	XX	(ACOE)
CWA § 404 permit	XX	(ACOE)
Other _____ (please specify)		
None required	—	

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

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

Land .Use Checklist

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

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

   XX
   YES _____ **NO** _____

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

   Rebuilding levees and planting vegetation on them.

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

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

   YES _____ XX **NO**

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

   Current land use: Open water recreation
   Current zoning: open space
   Current general plan designation: oven space

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

   YES _____ XX **NO** DON'T **KNOW** _____

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

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

   YES _____ XX **NO**

9. If YES to #8, **what** are the number **of** employees/acre_____
   the total number of employees_____

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

_____ YES

XX NO

11. What entity/organization **will** hold the interest? na

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

Total number of acres to be acquired under proposal	na
Number of acres to be acquired in fee	na
Number of acres to be subject to conservation easement	na

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

manage the property	California Fish and Game
provide operations and maintenance services	California Fis h a m e
conduct monitoring	California Fish and Game

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

na *YES*

na NO

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

na YES

NO

16. **If YES to # 15, describe** na

Agreement No.:_____

Exhibit:_____

STANDARD CLAUSES –
INTERAGENCY AGREEMENTS

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

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

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

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

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

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

OMB Approval No. 0348-0042

ASSURANCES - CONSTRUCTION PROGRAMS

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

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

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

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

1. Has the legal authority to apply for Federal assistance, and the institutional. managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers. or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property aquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.

4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.

5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.

6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5C.F.R. 900, Subpart F).

9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972. as amended (20 U.S.C. §§1681 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps: (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended. relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocatibn Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

12. Will comply with the provisions of the Hatch Act (5 'U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.

14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance 'if the total cost of insurable construction and acquisition is $10,000 or more.

15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.): (9 conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

16. Will comply with the Wild and Scenic, Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Nan-Profit Organizations.'

19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
For Ed Cittrell	Environmental Specialist IV
APPLICANT ORGANIZATION	DATE SUBMITTED
State of California Department of Fish and Game	May 5, 2000

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 prospectiwe 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 cowered transaction. without modification, in all lower tier cowered transactions and in all solicitations for lower tier cowered transactions. See below for language to be used; use this form for certification and sign; or use Department of the Interior Form 1954 (DI-19541. (See Appendix A of Subpart D of 43 CFR Part 12.1

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.1

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals1and 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 . Primarv Covered Transactions

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

(1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft. forgery. bribery, falsification or destruction of records, making false statements. or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal. State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal. State or local) terminated for cause or default.

(2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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

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

III The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK ✓ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INOIVIOUAL.

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) Notifv 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), (dl. (e) and (f).

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

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

California Department of Fish and Game
1701 Nimbus Road
Rancho Cordova, CA 95670

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.

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 AWARO OF A FEDERAL LOAN EXCEEDING THE AMOUNT OF $150.000, OR A SUBGRANT OR SUBCONTRACT EXCEEDING $ 100.000. UNDER THE LOAN.

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

(1) No Federal appropriated funds have been paid or will he 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 Ed Littrell

Ed Littrell, Environmental Specialist IV
TYPED NAME AND TITLE

May 5, 2000
DATE

DI-2010

March 1995

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

APPLICATION FOR FEDERAL ASSISTANCE

OMB Approval NO. 0348-0043

2. DATE SUBMITTED (May 5, 2000		Applicant Identifier
3. DATE RECEIVED BY STATE		Stale Application Identifier
4. DATE RECEIVED BY FEDERAL AGENCY		Federal Identifier

1. TYPE OF SUBMISSION:

Application [X] Construction [ ] Non-Construction

Preapplication [ ] Construction [ ] Non-Construction

APPLICANT INFORMATION

Legal Name: California Department of Fish and Game

Organizational Unit: Region 2

Address (give city, county, Slate, and zip code): Rancho Cordova Sacramento California 95670

Name and telephone number of person to be contacted on matters involvin this application (give area code): Ed Littrell (916) 358-2924

EMPLOYER IDENTIFICATION NUMBER (EIN): 94-1691756 7

TYPE OF APPLICATION

[ ] New [X] continuation [ ] Revision

Revision. enter appropriate letter(s) in box(es) [A] [ ]

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

7. TYPE OF APPLICANT: (enter appropriate letter in box) [A]

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

9. NAME OF FEDERAL AGENCY: Rhode Island Flood Plain Management and Habitat Restoration

3. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: XX – XXX

TITLE

2. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.): Contra Costa County

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

13. PROPOSED PROJECT

Start Date: ASAP
Ending Oate: 2004

14. CONGRESSIONAL DISTRICTS OF

a. Applicant: Pombo
b. Project: Tauscher

15. ESTIMATED FUNDING

a. Federal	$ 1,092,000 .m
b. Applicant	$ .00
c. State	$ .m
d. Local	$ .00
e. Other	$ .00
f. Program Income	$ .00
g. TOTAL	$ 1,092,000 .00

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

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

DATE _____

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

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

[ ] Yes If "Yes," attach an explanation. [X] No

18. TO THE BEST OF MY KNOWLEDGE AND BEUEF, 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: Ed Littrell	b. Title: Environmental Specialist IV	c. Telephone Number: (916) 358-2924
d. Signature of Authorized Representative: Ed Littrell		e. Date Signed: May 5, 2000

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

INSTRUCTIONS FOR THE SF-424

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

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

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

Item:	Entry:
1.	Self-explanatory.
2.	Date application submitted lo Federal agency (or State if applicable) and applicant's control number (if applicable).
3.	State use only (if applicable).
4.	If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project. leave blank.
5.	Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application.
6.	Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service.
7.	Enter the appropriate letter in the space provided.
8.	Check appropriate box and enter appropriate letter(s) in the space(s) provided: – "New" means a new assistance award. -- "Continuation* means an extension for an additional funding/budget period for a project with a projected completion date. -- "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation.
9.	Name of Federal agency from which assistance is being requested with this application.
10.	Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested.
11.	Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects). attach a map showing project location. For preapplications. use a separate sheet to provide a summary description of this project.

Item:	Entry:
12.	List only the largest political entities affected (e.g., State, counties, cities).
13.	Self-explanatory.
14.	List the applicant's Congressional District and any District(s) affected by the program or project.
15.	Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate only the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15.
16.	Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process.
17.	This question applies to the applicant organization. not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes.
18.	To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office, (Certain Federal agencies may require that this authorization be submitted as part of the application.)

OMB Approval N. 0348-004

BUDGET INFORMATION - Construction Programs

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

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	$ 182,000 .00	$ .00	$ 182,000 .00
2. Land, structures. rights-of-way, appraisals, etc.	$ .00	$ .00	$ .00
3. Relocation expenses and payments	$ .00	$ .00	$ .00
4. Architectural and engineering fees	$ .00	$ .00	$ .00
5. Other architectural and engineering fees	$ 9,000 .00	$ .00	$ 9,000 .00
6. Project inspection fees	$ .00	$ .00	$ .00
7. Site work	$ .00	$ .00	$ .00
8. Demolition and removal	$ .00	$ .00	$ .00
9. Construction	$ 840,000 .00	$ .00	$ 840,000 .00
10. Equipment	$ .00	$ .00	$ .00
11. Miscellaneous	$ 61,000 .00	$ .00	$ 61,000 .00
12. SUBTOTAL *(sum of lines 1-11)*	$ 1,092,000 .00	$ .00	$ 1,092,000 .00
13. Contingencies	$ .00	$ .00	$ .00
14. SUBTOTAL	$ 1,092,000 .00	$ .00	$ 1,092,000 .00
15. Project (program) income	$ .00	$ .00	$ .00
16. TOTAL PROJECT COSTS *(subtract #15 from #14)*	$ 1,092,000 .00	$ .00	$ 1,092,000 .00

FEDERAL FUNDING		
17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible **costs** from line 16c Multiply X 100 %	$ 1,092,000 .00

INSTRUCTIONS FOR THE SF-424C

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

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

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

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

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

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

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

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

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

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

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

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

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

Line 6 - Enter estimated engineering inspection costs.

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

Line 9 - Enter estimated cost of the construction contract.

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

Line 11 - Enter estimated miscellaneous costs.

Line 12 - Total of items 1 through 11.

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

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

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

Line 16 - Subtract line 15 from line 14.

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

Rhode Island

Feasibility Study Report
10/15/99

The State of California
Resources Agency
Department of Fish and Game

Feasibility Study Report
for

Rhode Island

Floodplain Management and
Habitat Restoration Project
Contra Costa County, California
CALFED Grant No. C1106

Date:
10115199

Prepared for:
The State of California
Resources Agency
Department of Fish and Game
Sacramento Valley / Central Sierra Region
Environmental Services Division
Delta Flood Protection Program
1701 Nimbus Rd., Suite A
Rancho Cordova, CA 95670

Prepared by:
Todd Gardner
Jennifer Meffe

Under the Supervision of:
Ed Littrell - Environmental Specialist IV
The State of California Resources Agency
California Department of Fish and Game
Delta Flood Protection Program
1701 Nimbus Rd., Rancho Cordova, Ca. 95670

FEASIBILITY STUDY REPORT FOR RHODE ISLAND FLOODPLAIN MANAGEMENT AND HABITAT RESTORATION PROJECT

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Feasibility Study Report for Rhode Island Floodplain Management and Habitat Restoration Project

Abstract

The Rhode Island feasibility study is designed to quantitatively evaluate baseline habitat conditions, structural integrity, and fish and wildlife use associated with a flooded island located in the south - central Delta. This report provides baseline resource data and project recommendations conclusive to identifying a project designed for enhancing and restoring the islands fish and wildlife values. This report provides the following data:

- Structural analysis
- Baseline habitat analysis
- Bathymetric analysis
- Wildlife use
- Fisheries use
- Sensitive species use
- Recreational use

FEASIBILITY STUDY REPORT FOR RHODE ISLAND FLOODPLAIN MANAGEMENT AND HABITAT RESTORATION PROJECT

1. INTRODUCTION

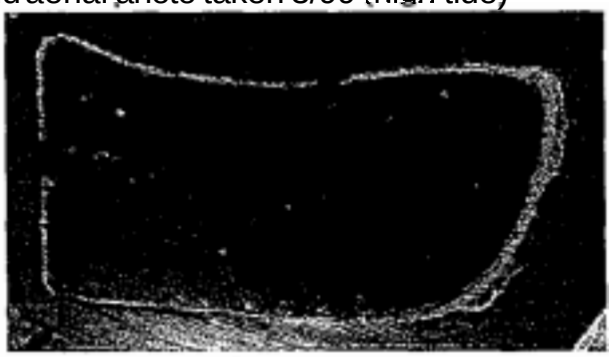
This report provides a quantitative evaluation of the key baseline habitat conditions, island structural integrity, and fish and wildlife use associated with Rhode Island (the island). It is anticipated that this information will provide the basis for selecting a habitat restoration and enhancement project to sustain and expand the islands fish and wildlife carrying capacity, species diversity within each key habitat type, as well as guide future habitat management decisions.

1.1 Location of Project

Rhode Island is a permanently flooded 67 acre island located in the south-central Sacramento/San Joaquin river delta (the delta). The island is located east of Holland Tract, south of Little Mandeville island, and west of Bacon island, within the Old River system of the delta.

1.2 Background and Description of Site

Fiaure **1.** Rhode Island aerial ahoto taken 3/99 (high tide)



'The island is owned and managed by the Department of Fish and Game (DFG). The department acquired the island in 1985. This island was historically under private ownership and farmed until *1971.* In 1971 the western levee breached, flooding the interior of the island (Smith, Pers Comm). Subsequently, no attempts were made to reclaim this island for agricultural production, and the islands ownership transferred to a private waterfowl hunting club. In 1981 the department purchased fifty five acres, and in 1985 the remaining 12 acres. Rhode Island currently consists of four key habitat types including 0.47 acres of riparian forest, 3.40 acres of scrub-shrub, 5.25 acres of freshwater marsh, and 530 linear feet of shaded riverine aquatic habitat.

2. STUDY DESIGN

2.1 Structural Analysis

Upland acreage associated with the island currently consists of a rectangular shaped remnant levee (Plate 7, Photo 10), with two large breached areas located on the north-central and western sections of the existing levee (Figure 1, Plate 7 Photo 11). The islands flooded status allows for water exchange and provides for inter-tidal habitat and shallowwater habitat. The island's levee profile range is from +2.5 feet to +9.1 feet above mean lower low water, and can be compared to tide ranges found in Table 1. The Islands levees are presently eroding primarily on the western and southwestern portions of the levee system. Many breached areas can easily be identified throughout this section (see Plate 2 and Plate 7, Photos 7 and 8). The south-central portion of the island has recently burned along a 200 foot section of the levee. This burned area does not show signs of expansion and is now void of vegetation (Plate 7, Photo 9).

The islands interior elevation during agricultural production was approximately six feet below low tide (Smith, Pers Comm). Presently the elevation of the interior of the island is approximately at mean sea level, or approximately two feet below mean lower low water (MLLW). The four foot increase in the islands interior elevation indicates a possible expansion of peat soils, as well as possible mineral soil accretion. The islands substrate consists of fluvaquents, which are "stratified fine sandy loam, loam, silt loam, and silty clay loam, and have lenses of organic material as much as four inches thick. The surface layer is about four inches thick and generally contains many fibrous roots" (USDA Soil Conservation Service, 1977). Fluvaquent soil types are " suited to wildlife habitat and recreation areas" (USDA Soil Conservation Service, 1977). A lack of time and resources prevented the DFG from performing a thorough substrate analysis to determine soil compaction rates for construction activities associated with these mineral-organic soil types.

All references to tidal information are presented in relation to mean lower low water. The National Oceanic and Atmospheric Administration (NOAA) defines mean lower low water (MLLW) as the average levels of the lower low water of the day over a 19 year period for a given site. Tidal prediction information was gathered from Nautical Software, Inc. Nautical Software Inc. publishes this information with values obtained 'from NOAA.

Table 1. Tide Datum Information

Tide Stage	Feet Above Mean Lower Low Water
Extreme High Tide	+6.5'
Mean Higher High Water	+3.6'
Mean Tide	+1.8'
Mean Lower Low Water	+0.0'
Extreme Low Tide	-2.0

2.2 Baseline Habitat Analysis

A baseline habitat analysis was conducted to depict accurate acreage values for four key habitat types located throughout the island (Plate 2). Key habitat types include freshwater marsh, scrub-shrub, riparian forest, and shaded riverine aquatic. The bare ground component was also quantified to depict many small levee breaches present during high tide. The base map for Plate 1 was created using ARC-View version 3.1 (Appendix I). This map was used to select specific pixels of vegetation reflectance in order to discern individual habitat types and spatially quantify these key habitat types. Key habitat types were ground-truthed to insure proper assessment of accurate acreage values.

Each habitat type consisted of several species, and species composition by habitat type, location, and abundance is found in Appendix 3. Species diversity on the island consists of 18 species of grasses and forbs, five species of aquatic vegetation, three species of riparian forest, six species of scrub-shrub, and seven species of freshwater marsh. Grasses and forbs occur throughout all upland regions from +2.5' to +9.1' above MLLW, yet are not spatially quantified in this report (Appendix 3). Habitat types in relation to tidal range are located in Table 2. Giant Reed (*Arundo donax*) was found in two areas on the island, and this species expansion is quantified on Plate 3. This habitat analysis may be used as baseline information to measure future accumulation or depletion of habitat.

Table 2. Habitat Type Tidal Zones

Cover Type	Tidal Ranae (above mean lower lowwater)
Riparian Forest	2.5 - 9.1'
Freshwater Marsh	-4.6' - 2.7'
Scrub - shrub	2.5 - 9.1'

2.3 Bathymetric Analysis

A bathymetric analysis was conducted to depict elevations of the interior flooded portion of Rhode Island relative to mean lower low water. The islands interior elevation during agricultural production was approximately six feet below low tide (Smith, Pers Comm). Presently the elevation of the interior of the island is approximately at mean sea level, or approximately two feet below MLLW. The four foot increase in the island's interior elevation indicates a possible expansion of peat soils, as well as possible mineral soil accretion. This map may be used as baseline information to measure future sediment accretion.

347 x,y coordinates were recorded throughout the flooded portion of the island utilizing a Garmin 12 XL geographical positioning system (GPS) unit in combination with a real time differential correction incorporation (DCI) services unit to achieve an average 7.06 *foot* accuracy for each coordinate. Depth values at each x,y coordinate were gathered using a Lowrance X-I6 sonar depth finder. Tidal stage information utilized was published by NOAA for the dates that the data was collected. Depth values were corrected according to a 4 foot tidal stage. Data were collected on 6-30-99 between 07:15 and 09:20 hours, on 7-1-99 between 06:51 and 09:57 hours, and on 7-15-99 between 07:20 and 09:57 hours. All x,y coordinates were downloaded into Waypoint Plus, and utilizing ARC -View version 3.1 and the AV Garmin extension, all x,y coordinates were incorporated into a shapefile. A corrected depth value was assigned to each x,y coordinate within the shapefile's theme table.

The base map for the bathymetric map was created using ARC-View version 3.1 (see Appendix 1). Depth values and ranges as well as contour lines were created according to nearest neighbors and *Z* (depth) field. The final map includes depth value ranges and two foot contour intervals at a tidal stage of four feet above MLLW (Plate 4).

2.4 Wildlife

The primary objective of the study conducted on Rhode Island was to determine the use of the existing habitat by wildlife species. Field investigations focused on bird observations. The presence of mammals and reptiles were recorded when encountered. Samples were collected on a total of 14 dates. One survey each was conducted in January and March, while the rest were carried out June through mid September 1999. The surveys were conducted at various times of the day, and therefore different tidal levels. All observations were made from watercraft.
When an individual bird or group was encountered, the species and sex if possible were identified, in addition to activity and habitat use. The habitat types are as follows (Holley 1999):

Riparian Forest	Woody plants greater than 20 ft. tall.
Scrub Shrub	Woody trees and shrubs less than 20 ft. tall.
Freshwater Marsh	Slow moving water where tules and cattails are established.
Open Water	Standing water lacking emergent vegetation.
Artificial Habitat	Man made structures including duck blinds and barge.

If the species was flying over the area, no habitat type was recorded. Behavior of the bird was also recorded when the observer first encountered **it.** The seven different activity classes used are defined below (Kjeldsen et al 1997; England and Naley 1989):

Foraging	Actively foraging, including aerial.
Nesting	Evidence of nesting.
Perched	Roosting, nesting or preening.
React	Reacting to observer.
Singing	Singing or actively defending territory.
Swimming	Moving through the water not in response to observer
Fly Over	Flying over study area.

A total of 2715 birds, of **44** different species were observed on Rhode island during the surveys (Table 3; Plate 6 Photos 1 and 2). Activity classes were grouped together for each observed species, and are presented in Table **4.** The star represents an activity performed by the species, and is not a quantitative measure. Habitat types were also grouped for each species, using the same method (Table 5). This representation was chosen because of the variance in time of day and year in which the bird surveys were conducted.

Raccoon (Procyon *lotor*), muskrat (Ondafra *Zibethicus*), river otter (Lonfra canadensis), and beaver (*Castor* canadensis) tracks were found on the island, all located on the southern edge along the sandy beaches during low tide. A beaver was also observed on the southern side of the island. Two otter latrines were found on the island, one east of the northern levee break. and one on the interior southeastern corner.

Table 3: Bird species observed on Rhode Island for 14 sample dates.

BIRD SPECIES		Number of Sightings
Cliff Swallow	*Hirundo pyrrhonota*	1625
American Coot	*Fulica americans*	224
Ruddy Duck	*Oxyura jamaicensis*	112
Yellow-rumped Warbler	*Dendroica coronata*	104
Bufflehead	*Bucephala albeola*	100
Canada Goose	*Branta canadensis*	100
American Goldfinch	*Carduelis tristis*	100
Mallard	*Anas platyrhynchos*	89
Barn Swallow	*Hirundo rustica*	38
Red-winged Blackbird	*Agelaius phoeniceus*	33
Tree Swallow	*Tachycineta bicolor*	30
Marsh Wren	*Cistothorus palustris*	21
Great Blue Heron	*Ardea herodias*	18
Double-crested Cormorant	*Phalacrocorax auritus*	13
Pied-billed Grebe	*Podilymbus podiceps*	11
Great Egret	*Casmerodius albus*	9
American White Pelican	*Pelecanus erythrorhynchos*	8
Black Phoebe	*Sayornis nigricans*	8
Gadwall	*Anas strepera*	8
Caspian Tern	*Sterna caspia*	7
Swainson's Hawk	*Buteo swainsoni*	5
Spotted Towhee	*Pipilo maculatus*	4
Snowy Egret	*Egretta thula*	4
Brown-headed Cowbird	*Molothrus ater*	4
Song Sparrow	*Melospiza melodia*	4
Western Scrub-Jay	*Aphelocoma californica*	4
Brewer's Blackbird	*Euphagus cyanocephalus*	3
Belted Kingfisher	*Ceryle alcyon*	3
American Wigeon	*Anas americans*	3
Red-tailed Hawk	*Buteo jamaicensis*	2
Ring Necked Duck	*Aythya collaris*	2
Forster's Tern	*Sterna forsteri*	2
Northern Flicker	*Colaptes auratus*	2
Common Yellowthroat	*Geothypis trichas*	2
White-crowned Sparrow	*Zonotrichia leucophrys*	2
Bullock's Oriole	*Icterus bullockii*	2
Downy Woodpecker	*Picoides pubescens*	2
Sora	*Porzana carolina*	1
Common Moorhen	*Gallinula chloropus*	1
Black-crowned Night-Heron	*Nycticorax nycticorax*	1
Northern Mockingbird	*Mimus polyglottos*	1
American Crow	*Corvus caurinus*	1
Mourning Dove	*Zenaida macroura*	1
California Gull	*Larus californicus*	1
	Total Number	**2715**
	Total Species	**44**

Table 4: Distribution of activity classes for bird species observed on Rhode Island.

BIRD SPECIES	Total Number	ACTIVITY						
		Foraging	Nesting	Reacting	Perched	Singing	Swimming	Flying Over
Cliff Swallow	1625	*			*			
American Coot	224	*					*	
Ruddy Duck	112	*					*	
Yellow-rumped Warbler	104	*			*	*		
Bufflehead	100	*					*	
Canada Goose	100						*	
American Goldfinch	100	*						
Mallard	89				*		*	*
Barn Swallow	38	*	*			*		
Red-winged Blackbird	33	*			*			*
Tree Swallow	30	*						
Marsh Wren	21	*	*	*		*		
Great Blue Heron	18	*		*	*			
Double-crested Cormorant	13	*			*		*	*
Pied-billed Grebe	11	*					*	
Great Egret	9	*			*			
Amercian White Pelican	8						*	
Black Phoebe	8	*			*			
Gadwall	8						*	
Caspian Tern	7				*			*
Swainson's Hawk	5	*			*			*
Spotted Towhee	4					*		
Snowy Egret	4				*			
Brown-headed Cowbird	4							*
Song Sparrow	4					*		
Western Scrub-Jay	4				*			
Brewer's Blackbird	3				*			
Belted Kingfisher	3			*	*			
American Wigeon	3						*	
Red-tailed Hawk	2				*			*
Ring Necked Duck	2			*				
Forster's Tern	2				*			*
Northern Flicker	2				*			*
Common Yellowthroat	2			*				*
White-crowned Sparrow	2	*			*			
Bullock's Oriole	2				*			
Downy Woodpecker	2	*						
Sora	1			*				
Common Moorhen	1						*	
Black-crowned Night-Heron	1				*			
Northern Mockingbird	1							*
American Crow	1				*			
Mourning Dove	1							
California Gull	1							
GRAND TOTAL	2715							

3

Table 5: Distribution *of* habitat types for bird species observed on Rhode Island.

BIRD SPECIES	Total Number	HABITAT TYPE					
		Riparian Forest	Scrub shrub	Freshwater marsh	Open water	None	Artificial habitat
Cliff Swallow	1625			★	★		
American Coot	224				★		
Ruddy Duck	112				★		
Yellow-rumped Warbler	104	★	★	★			
Bufflehead	100				★		
Canada Goose	100				★		
American Goldfinch	100	★	★				
Mallard	89			★	★		
Barn Swallow	38		★	★			
Red-winged Blackbird	33	★	★	★			
Tree Swallow	30				★		
Marsh Wren	21			★			
Great Blue Heron	18		★	★	★		★
Double-crested Cormorant	13				★	★	★
Pied-billed Grebe	11				★		
Great Egret	9	★	★	★	★		
Amercian White Pelican	8				★	★	
Black Phoebe	8	★	★	★			
Gadwall	8				★		
Caspian Tern	7				★	★	★
Swainson's Hawk	5	★			★		
Spotted Towhee	4		★				
Snowy Egret	4		★				
Brown-headed Cowbird	4		★				
Song Sparrow	4		★	★			
Western Scrub-Jay	4	★	★				
Brewer's Blackbird	3		★				
Belted Kingfisher	3		★				
American Wigeon	3				★		
Red-tailed Hawk	2	★				★	
Ring Necked Duck	2				★		
Forster's Tern	2					★	
Northern Flicker	2		★			★	
Common Yellowthroat	2			★		★	
White-crowned Sparrow	2		★				
Bullock's Oriole	2	★					
Downy Woodpecker	2		★				
Sora	1			★			
Common Moorhen	1				★		
Black-crowned Night-Heron	1			★			
Northern Mockingbird	1	★					
American Crow	1					★	
Mourning Dove	1		★				
California Gull	1					★	
GRAND TOTAL	2715						

2.5 Fisheries

The interior of the island may offer critical shallow water habitat for several fish species. The levee has been breached in two separate places, the first on the western side, and the second on the northern side. The majority of the interior depth ranges from zero to seven feet in relation to mean lower low water at a tidal stage of four feet. Most of the bottom is covered with a peat layer. There is a good amount of emergent vegetation along the interior levee, consisting mostly of Typha and Scirpus species. There is also a fair amount of submerged vegetation, primarily water Myriophyllum and Elodea species in the center of the flooded portion. An incidental take permit could not be obtained within the study time frame to allow for fish surveys. However, several studies have been performed in surrounding areas that can be used for insight into possible fish usage of the island.

Flooded islands were one of the researched habitats in the delta electrofishing survey performed from May 1980 to April 1983 by the Department of Fish and Game. In a comparison of fish species within channel types, flooded islands showed the lowest number of total fish as compared to other channel types, yet were equally or more diverse. Fish species found most often in the flooded island habitats were largemouth bass (*Micropterus* salmoides), carp (*Cyprinus carpio*), golden shiner (Notemigonus *crysoleucas*), Sacramento sucker (*catostomus* occidenfalis), and splittail (*Pogonicnthys* macrolepidofus). Although splittail (Pogonichfhys macrolepidofus) were found in relatively low numbers in all channel types, the highest concentration was in flooded islands (California Department of Fish and Game 1987).

Currently, Department of Water Resources (DWR) staff is sampling shallow-water areas in the central delta for the Sacramento/San Joaquin Delta Breached Levee Wetland Study. Fish sampling is occurring at four sites: Upper Mandeville Tip (reference site), Lower Mandeville Tip, Venice Cut Island and Mildred Island. The similar location and habitat of these islands to the study site offer an indication of the fish species that may be using the island. Early results indicate the presence of several native delta species including "fall run and spring run chinook salmon, delta smelt (larvae and adult), splittail (larvae and juvenile), tule perch, prickly sculpin, Sacramento sucker, Sacramento blackfish, and squawfish. High numbers of centrarchids (e.g., bluegill and redear sunfish) are captured at all sites each month. Young of the year splittail and tule perch were abundant in May 1998" (Grimaldo et al. 1998).

The location of the island is also near several Interagency Ecological Program (IEP) sample sites that have collected delta smelt (Hypomesus transpacificus). Results from the 1998 IEP Real Time Monitoring Program indicate that "Delta smelt distribution in the spring extended from the lower Sacramento and San Joaquin rivers to Montezuma Slough and Napa River. By mid-May, the main distribution shifted to Suisun Bay and remained there throughout the summer, although a portion of the population remained in Montezuma Slough and the Napa River," while the 1997 distribution was concentrated above the confluence for most of the spring and summer (Sweetnam

1999). Wang (1993) found the area near Bradford Island to have high concentrations of spawning smelt because of the adequate freshwater flows, aquatic vegetation in the shore zone of Webb and Franks Tract, and adequate feeding grounds and sanctuary offer by Franks Tract which is a submerged island with multiple inlets at breaks in the levee (from Pafford 1996). Rhode Island is just southeast of this area, and has similar habitat components. Most smelt spawning occurs in shallow water channels which contain vegetation, logs, branches or gravel beds for the eggs to adhere to, which is consistent with the-interior conditions of the island.--The shallow-water-areas in the interior of Rhode Island could be critical habitat for delta smelt, as well as offering habitat for several other delta fish species.

2.6 Sensitive Species

Three special status plant species were located on the island:

Mason's lilaeopsis, Lilaeopsis masonii
Delta mudwort, Limosella *subulata*
Suisun marsh aster, *Aster lentus*

Mason's lilaeopsis (Plate 6 Photo 3) is state listed aware, and a federal species of concern. Delta mudwort is listed on the California Native Plant Society's (CNPS) List 2, which includes plants considered rare or endangered in California, and more common elsewhere. Suisun marsh aster (Plate 6 Photo **4)** is a federal species of concern and on the CNPS list 1B, which includes plants rare or endangered in California and elsewhere (www.dfg.ca..whdab/cnddb.htm). Past California Natural Diversity Database (CNDDB) findings in the area of the Island include Mason's lilaeopsis, Suisun marsh aster, Rose-mallow *(Hibiscus lasiocarpus*), and the California black rail (*Laterallus jamaicensis coturniculus*) (Plate 5). A CNNDB form was completed and submitted to the California Department of Fish and Game for each special status species located on Rhode Island.

Upon location of the species, x, y coordinates were recorded using a Garmin 12 **XL** Geographical Positioning Unit (GPS) in combination with a real time Differential Correction Incorporation (DCI) unit. All x,y coordinates were downloaded into Waypoint Plus, and using ArcView version 3.1, and the AV Garmin extension, the coordinates were incorporated into a shapefile. These coordinates were then placed on the base map created using the geographically rectified scanned aerial photo from March 11, 1999 (Plate 1). Area (ft^2) and percent covers were determined for each of the locations (Table 6). At all locations where Mason's lilaeopsis is indicated, delta mudwort was also present; percent cover and area is indicative of both species. Areas labeled as delta mudwort contained this species only. All three species were found in the greatest concentration on the northwestern side of the island.

Swainson's Hawks (*Buteo swainsoni)* were the only special status wildlife species directly observed using the island. The Swainson's Hawk is state-listed as threatened. During the sampling period, five hawk sightings occurred. During two of the observations, the hawks were using the riparian forest habitat for perching, the others were either flying over or foraging.

Table 6: Rhode Island sensitive plant species.

Species	Number	Northing	Easting	Plot Area (feet squared)	Percent Coverage (within plot)
Mason's lilaeopsis	M1	38.0034839	-121.5778866	2	60%
Mason's lilaeopsis	M2	38.0035429	-121.5778652	1	25%
Mason's lilaeopsis	M3	38.0031352	-121.5779349	2	75%
Mason's lilaeopsis	M4	38.0014777	-121.5775916	200	60%
Mason's lilaeopsis	M5	37.9996536	-121.5777257	2	60%
Mudwort	MU1	38.0031405	-121.5779242	3	60%
Mudwort	MU2	38.0029259	-121.5722595	6	50%
Suisun marsh aster	S1	38.0033497	-121.5779242	1	25%
Suisun marsh aster	S2	38.0031352	-121.5779349	3	75%
Suisun marsh aster	S3	38.0031674	-121.5779134	4	50%
Suisun marsh aster	S4	38.0029259	-121.5779134	3	40%
Suisun marsh aster	S5	38.0028884	-121.5778974	2	80%
Suisun marsh aster	S6	38.0025987	-121.5779188	2	60%
Suisun marsh aster	S7	38.0025451	-121.5779135	2	50%
Suisun marsh aster	S8	38.0024324	-121.5778813	4	50%
Suisun marsh aster	S8	38.0023359	-121.5778759	7	60%
Suisun marsh aster	S10	38.0022983	-121.5779027	12	70%
Suisun marsh aster	S11	38.0014472	-121.5776361	250	80%

2.7 Recreation

Rhode Island receives a moderate amount of recreational use. Fishermen were seen on numerous instances along the exterior of the levee, and around the two levee breaks (Plate 6 Photos 5 and 6). There was a notable increase in fishing activity after the reclamation of Little Mandeville, a flooded island directly to the north of Rhode Island. During waterfowl season, the island receives a moderate amount of use from hunters; there is a duck blind located within the interior of the island (Plate 7 Photo 12). Houseboats also minimally use Rhode Island. Holland Cut, to the west of Rhode Island, is a highly used area by power boaters, on route to other locations. It should be noted that recreational observations were all taken on the weekdays, and there is most likely a greater amount of use on the weekend.

RECOMMENDATIONS

Throughout the course of completing this feasibility study and gathering suggestions from colleagues, the following recommendations are presented to contribute to the future enhancement/restoration project.

Erosion Control and Revegetation

Rhode Island's existing levee is influenced by erosional forces including boating activity (wakes), wind (waves), and stream flow. Wind erosion is produced from a predominant westerly wind influence, which in turn creates waves exhibiting a constant erosional force on the western side of the island. Boating activity produces wakes which in turn accelerate erosion on the western side of the island. Stream flow erosion is produced from influences including Old River, Holland Cut, and varying tide levels. Predominant stream flow occurs through Holland Cut from north to south, and through Old River in a clockwise manner around the island. These streams influence sediment transfer away from the western side of the island, and deposit sediments on the exterior eastern side of the island. It is proposed to maintain the two current large north-central and western levee breaches to support soil accretion on the interior of the island, water turn-over, and tidal influence.

Approximately 4700 linear feet of the total 7000 linear feet of existing levee is in need of supporting fill material (Plate 6). Levee support is required in order to preserve and enhance the total acreage of key habitat types. It should be noted that varying levels of levee support are required throughout this section of levee. It is anticipated that a total of 19,000 cubic yards of supporting fill material, at a materials cost estimate of $190,000 (table 7), will be required in order to fulfill this task (Plate 6). installation of 1600 feet of wattling bundles is proposed to reduce erosion and sediment transfer along the entire western exterior levee at a total cost of $8640 for labor. Levee reinforcement materials will be placed along a linear distance of 3100 feet along the northern and southern section in need of supporting fill material (Plate 6), at a total cost of $400,000 for materials.

Emergent aquatic species including California tule (Scirpus *californicus*), tule (Scirpus *acutus* var. occidenfalis), and broad-leaf cattail (Typha *latifolia*) will be planted on the exterior of the total 4700 feet area of concern to assist in levee soil stability, and reduce wind/wave erosion. Various methods of biotechnical support will be utilized to aid in soil stabilization within this area. It is proposed to support the interior of the existing northwestern levee with 3500 (included *in* total estimate of 19,000) cubic yards of fill material within a range of 0 to 4.0' above MLLW, and 50 feet wide (Plate 6). This placement of fill material would exist at a 12:1 slope transition, and would exist higher than the 3.6 mean higher high water mark. This area would be reinforced with bio-technical support and native plantings for long term erosion control. The upper level within a range of ***2.5'*** to 4.0 above MLLW will be planted with native scrub-shrub species such as

California wild rose (Rosa californica), blue elderberry (Sambucus mexicana), arroyo willow (Salix *lasiolepis*), and California wild grape (*Vitis* californica). The upper level within a range of 2.5 to **4.0** above MLLW will also be planted with native riparian forest species such as Northern California black walnut (*Juglans* californica var. *hindsii*), California sycamore (*Platanus* racemosa), Valley oak (*Quercus* lobafa), and Gooding's black willow (*Salix goodingii*). The inter-tidal level within a range of 0 to *2.5* above MLLW will be planted with native emergent aquatic species such as tule, California tule, cattail, and Santa Barbara sedge (Carex *barbarae*). Bio-technical support will be incorporated into the installation of this planting effort. This planting activity will increase species diversity within these habitat types. It is anticipated that with planting efforts, this process can be completed to primarily provide immediate inter-tidal, freshwater marsh, and riparian forest habitat types. Grasses and forbs within the freshwater marsh, riparian forest, and shaded riverine aquatic habitat types will be produced through natural volunteer efforts. The resulting habitat types would provide critical habitat for sensitive plant species including Mason's lilaeopsis, Delta mudwort, and Suisun marsh aster. The resulting habitat types would also provide for listed fish species including fall and spring run chinook salmon (*Oncorhynchos tshawytscha*) , delta smelt (Hypomesus transpacificus), and splittail (Pogonichfhys *macrolepidotus*), as these are likely species to utilize these habitat types within this geographical region of the delta.

Re-vegetation of scrub-shrub and riparian forest species within the burned section of levee is proposed. Scrub-shrub species proposed to be planted include California wild rose, blue elderberry, arroyo willow, and California wild ,grape. Riparian forest species proposed to be planted include Northern California black walnut, California sycamore, Valley oak, and Gooding's black willow. Bio-technical support will be utilized to aid in soil stabilization. Grasses and forbs within these habitat types will be produced through volunteer efforts.

Substrate Analysis

A thorough substrate analysis of the interior of the island will be performed to determine micro-site soil profile and inherent compaction rates for placement of fill material as well as soil accretion. The islands substrate consists of silts and loams and includes "lenses of organic material as much as four inches thick" (USDA Soil Conservation Service, 1977).

Fish Surveys

A thorough fish survey is required to determine fisheries use throughout the interior of the island. Fisheries surveys will use multiform methods of sampling to determine the best representation of fish populations including: electro-shocking, box traps, creel census, and possibly use of a variable mesh gill net. The Delta Flood Protection Program is presently in the acquisition phase of obtaining an incidental take permit which is required for these sampling methodologies.

Rubus discolor removal

Himalayan blackberry *(Rubus discolor)* is an aggressive exotic, which can rapidly turn an area of diverse riparian shrubs and forbs into a low productive monoculture. A colony of blackberries can widen by 10 feet or more a year, out competing almost anything in its path. This persistent exotic has spread over much of the islands levees. In order to increase the scrub shrub species diversity, and prevent the blackberry from further- infesting the island, a combination of mechanical and chemical treatment is advised. After the treatment, the planting of fast growing shrubs and trees in the area is recommended, since the species is intolerant of shade. This action would also encourage the growth of native California blackberry *(Rubus ursinus)* which prefers shady areas.

First, cutting of the plant should be attempted with any number of manually operated tools. This is an important first step because it removes the above ground portion of the plant, and allows access *to* the base of the plant. The great amount of blackberry on the island may prevent manual removal on a large scale, but manual removal will increase the treatment effectiveness. A broadcast herbicide method should also be used. This is considered the best application method when the weed infestation is very dense. Many different herbicides have been used in the treatment of Himalayan blackberry (Hoshovsky 1999). Fosamine is recommended in this situation, because it is approved for use on "land adjacent to and surrounding domestic water supply reservoirs, supply stations, lakes and ponds" (Fosamine ammonium (Krenite) herbicide profile 1999). The herbicide should be applied when the plants are in full leaf, and after seed set, which occurs in the summer. To estimate the cost of this treatment, price of the product **was** obtained from the Dupont company website. From the habitat analysis, it **was** determined that 3.40 acres of scrub shrub habitat exist on the island. Since the majority of scrub shrub is Himalayan blackberry, this number will used as a high estimate of the amount of weed needed to be eradicated. The recommended application of fosamine is 1.5 to 3 gallons an acre, which would require 5.1 to 10.2 gallons per acre. At a price of **$46.88** for 15 gallons, expecting the need for three treatments, the price for the total treatment would be $140.64 plus tax. Further expenses would include the cost of manual cutting tools.

Arundo donax removal

A. donax has been called the greatest threat to the remaining riparian corridors of California. This weed quickly invades riparian channels, especially in disturbed areas, and is very difficult to control (Bell 1999). It is not known to provide any food or nesting habitat *to* nesting animals, and lacks the canopy structure that is necessary to provided SRA. At present, there are only 1525 ft^2 of Arundo on Rhode island. In order to prevent the weed from further infestation, the problem needs *to* be addressed immediately. *A* foliar application

of a 2-5% solution of Rodeo applied post-dormancy and pre-flowering (usually mid-August to early November) is recommended. This allows for the translocation of the herbicide with nutrients to the rootmass in preparation for winter dormancy. A gallon of Rodeo costs from $38 - $44. One gallon would allow for a couple hundred applications, which would be more than needed for the treatment on Rhode Island.

Removal of sunken barge

The Department of Boating and Waterways administers a program called the Abandoned Watercraft Abatement Fund. Through this program, public local agencies (usually a law enforcement agency) that have jurisdiction over waterways in California can apply for funding for the removal of abandoned watercraft. The law prohibits grant funding towards the removal of commercial vessels, therefore removal of the barge would have to be contracted and funded directly from project funds.

General

Maintenance considerations, labor and overhead, and monitoring protocol cost estimates and procedures will be addressed within the next phase of this project. The next phase of this process includes gathering estimated costs from engineering firms for all activities mentioned in this section. Contract specifications, re-vegetation plans, and fill activity will closely adhere to appropriate agency guidelines.

Table 7. Materials Cost Estimate

Activity	Estimated Cost of Materials
Northwest Corner Fill Material Installation (figured @ $10/cubic yard of material)	$190,000
Bio-technical Support	$18,650
Planting Effort	$5,000
Levee Reinforcement Materials	$400,000
Arundo donax Removal	$44
Himalayan Blackberry Removal'	$141
	$613,835 Total

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DFG Region II Headquarters, Delta Flood Protection Program. Scientific Aid Richard DeHaven set up, worked on and contributed considerable time to all sections of this study.

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APPENDIX 1

Basemap Location:
The base map for the island is found on a Jaz 1GB disk with the Delta Flood Protection Program at the DFG - Region II Headquarters. Associated metadata is located on 3 ½" floppy disk with the Delta Flood Protection Program.

Plate I, Plate 2, Plate 3, Plate 4 Location:
Each of these maps are found on a Jaz 1GB disk with the Delta Flood Protection Program at the DFG - Region II Headquarters. Associated metadata is located on 3 ½" floppy disk with the Delta Flood Protection Program.

Methods:
A base map was created using a scanned color infrared aerial photograph taken at 1:45pm on 3-11-99 (high tide), and geographically rectified to the appropriate 1:24,000 digital ortho-photo quadrangle map. The base map was created using ARC-View version 3.1. The base map was used to create plates 1,2,3,and 4.

Base-map vital statistics:

Datum:	NAD27
Projection:	Albers
Units:	Meters
1st Std. Parallel:	34 00 00
2nd Std. Parallel:	40 30 00
Longitude of Origin:	-120 00 00
Latitude of Origin:	00 00 00
False Easting:	0
False Northing:	-4,000,000

APPENDIX 2

Defining habitat significant to the AB 360 program assessment procedures (taken from Holley, 1999).

Definitions of AB 360 – Significant Habitat Types

Shaded Riverine Aquatic (SRA): This habitat is unique, near shore area occurring at the interface between Delta channels and levees. The primary characteristic (and the one most commonly measured) is the presence of woody shoreline vegetation overhanging the water and creating shade. Other characteristics which nearly always increase habitat values include: (a) live or dead woody vegetation protruding into or out of the water; (b) leaves, twigs, or other detritus accumulation; and (c) naturally eroding banks. *No direct* Cowardin counterpart.

Scrub – shrub (SS): This includes woody trees and shrubs and vines (alder, willow, wild rose, buttonbush, boxelder, etc.) predominantly less than 20 feet tall. The counterpart in the Cowardin system is *PSS1* (Palustrine scrub shrub).

Freshwater Marsh (FM): This occurs along tidal or non-tidal freshwater marshes. Freshwater marsh may be on the waterside toe of the levee. It typically occurs in the slowest moving waters where tules have become established. The counterpart in the Cowardin system is *L2EM1* (lacustrine emergent wetland), *L2EM2* (lacustrine emergent) and *R2EM1* (Riverine emergent wetland).

Riparian Forest (RF): This includes woody plants (including isolated trees or shrubs) greater than 20 feet tall. Often there is a dense, shrubby understory. The *counterpart* in the Cowardin system is PFOI (Palustrine Forest).

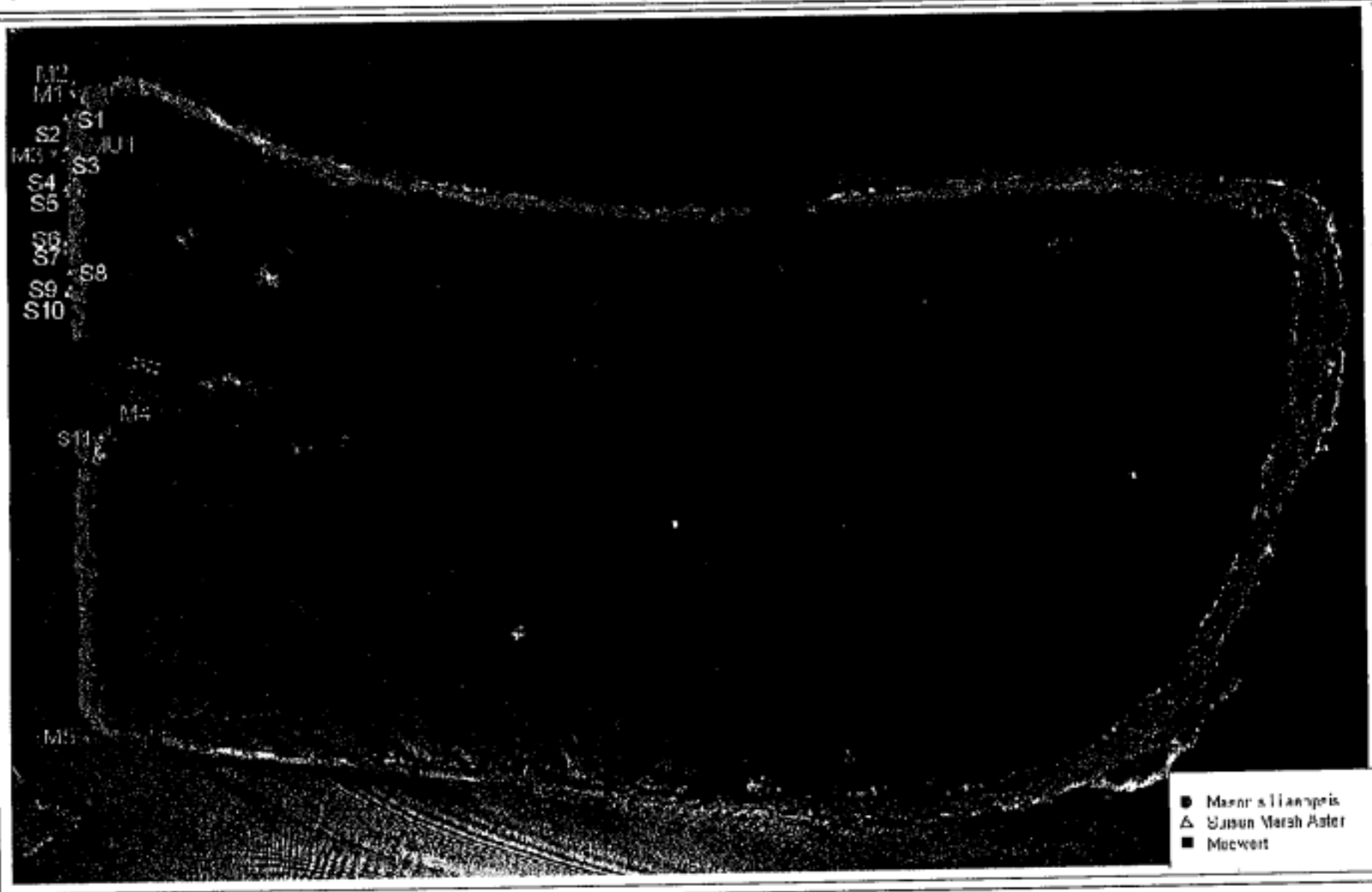
APPENDIX 3

Rhode Island Vegetation

Scientific Name	Common Name	Location and Abundance			
		Interior	Interior levee	Levee	Channelside
Freshwater marsh					
Cyperus sp.	Nutsedge		**	**	
Lilaeopsis masonii	Mason's lilaeopsis				**
Polygonum *spp.*	Smartweed		*	*	*
Limosella *subulata*	Delta mudwort	*	*	**	*
Scirpus *acutus* var. occidentalis	Tule		***	*	***
Scirpus califomicus	California tule		**	*	**
Typha *latifolia*	Broad-leaf cattail		**	*	**
Scrub shrub					
Cephalanthus occidenfalis var. califomicus	California button willow		*	*	*
Comus sericea ssp. sericea	American dogwood		*	*	
Ficus *carica*	Edible fig			*	
Fraxinus veluntina	Velvet ash			*	
Rubus *ursinus*	California blackberry			*	
Rubus discolor	Himalayan blackberry			**	
Riparian forest					
Populus alba	White poplar			*	
Salix exigua	Sandbar willow			**	
Salix *lasiolepsis*	Arroyo willow	**		**	
Aquatic vegetation					
Ceratophyllum demersum	Hornwort	***	**		**
Eichhomia *crassipes*	Water hyacinth				
Elodea canadensis	Common waterweed	***			
Myriophyllum *sibricum*	Water milfoil		**		
Potamogeton sp.	Pondweed				
Grasses **and** forbs					
Artemisia *douglasiana*	Mugwort			*	
Arundo donax	Giant reed			*	
Calystegia *sepium* ssp. limnophila	Hedge bindweed			*	
Cortaderia *selloana*	Pampas grass			*	
Crassula aquatica	Pigmy weed			*	
Echinochloa crus-galli	Water grass			*	
Helenium puberulum	Sneezeweed			*	
Hydrocofyle *ranunculoides*	Pennywort	*	*		*
Hydrocofyle *verticillata*	Marsh pennywort		*	*	*
Iris pseudacorus	Iris		*	*	*
Juncus sp.	Rush		*		*
Ludwigia peploides ssp. peploides	Yellow waterweed			*	
Lycopus americanus	Water horehound		*		
Mimulus guttatus	Common monkeyflower	**		*	
Paspalum dilatatum	Dallis grass			*	
Raphanus sativus	Wild radish			*	
Rumex *crispus*	Curly dock			**	
Urtica dioica ssp. holosericea	Hoary nettle				

* uncommon
** common
*** abundant

Plate 1.



Delta Flood Protection Program

Sensitive Plant Species Located on
Rhode Island - 9/22/99

500 0 500 Feet

N
W E
S

Plate 2.

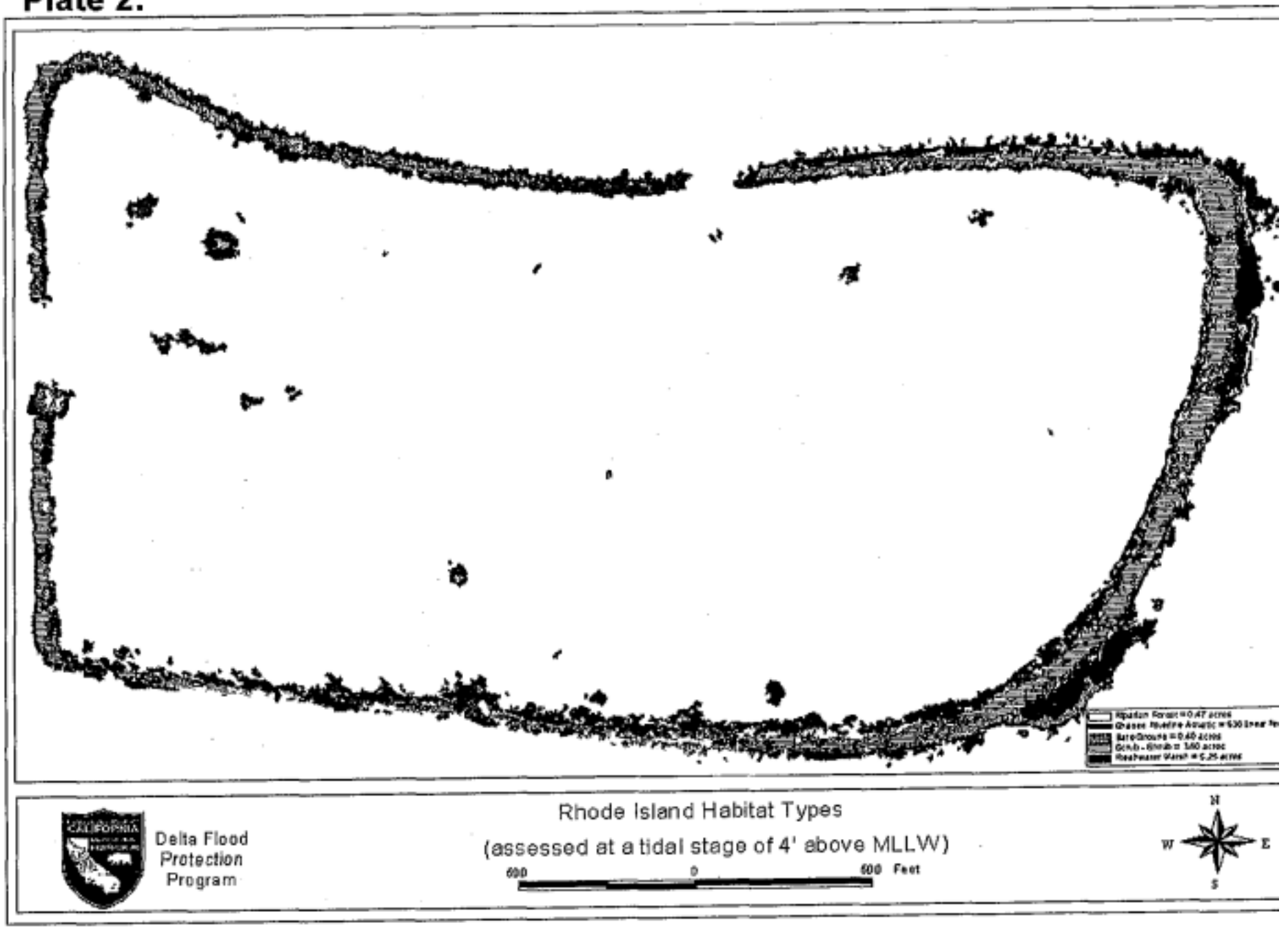
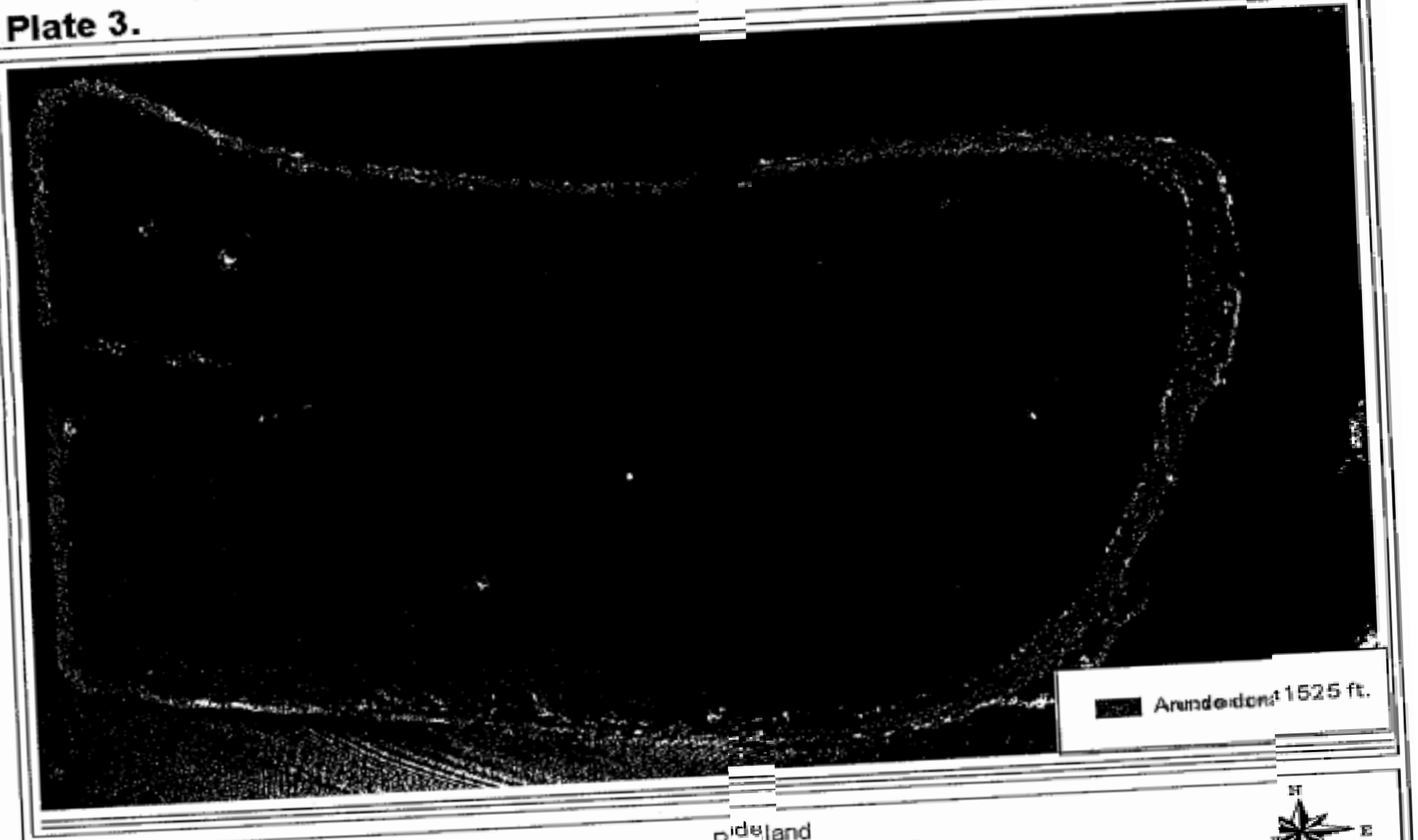

Delta Flood
Protection
Program
Rhode Island Habitat Types
(assessed at a tidal stage of 4' above MLLW)
600
0
600 Feet
N
W
E
S

Plate 3.



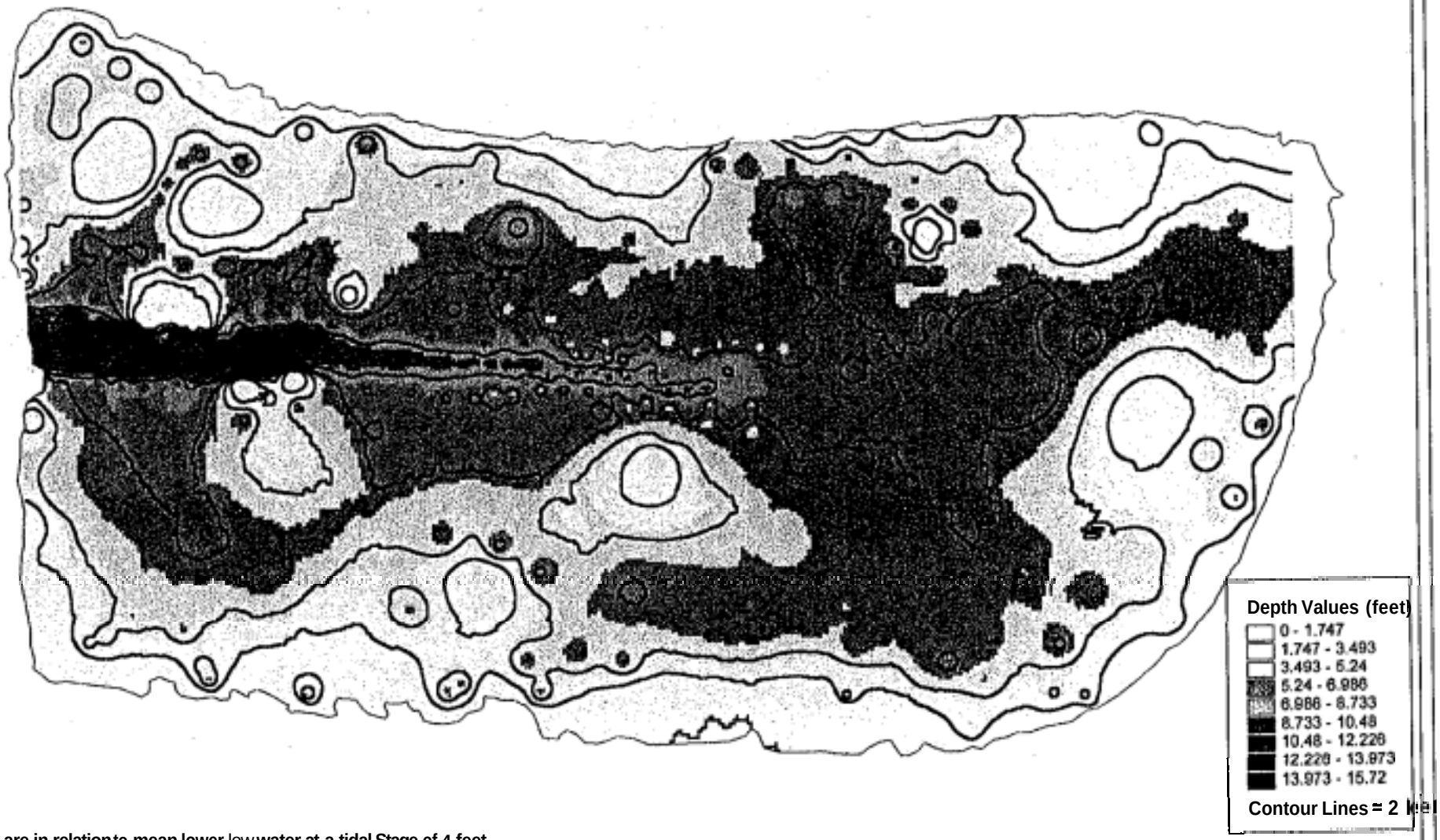
Riparian
Arundo donax Inventory - 9/22/99

Delta Flood
Protection
Program

400 Feet

N
W
E
S

Plate 4.



Depth values are in relation to mean lower low water at a tidal Stage of 4 feet.

Delta Flood Protection Program

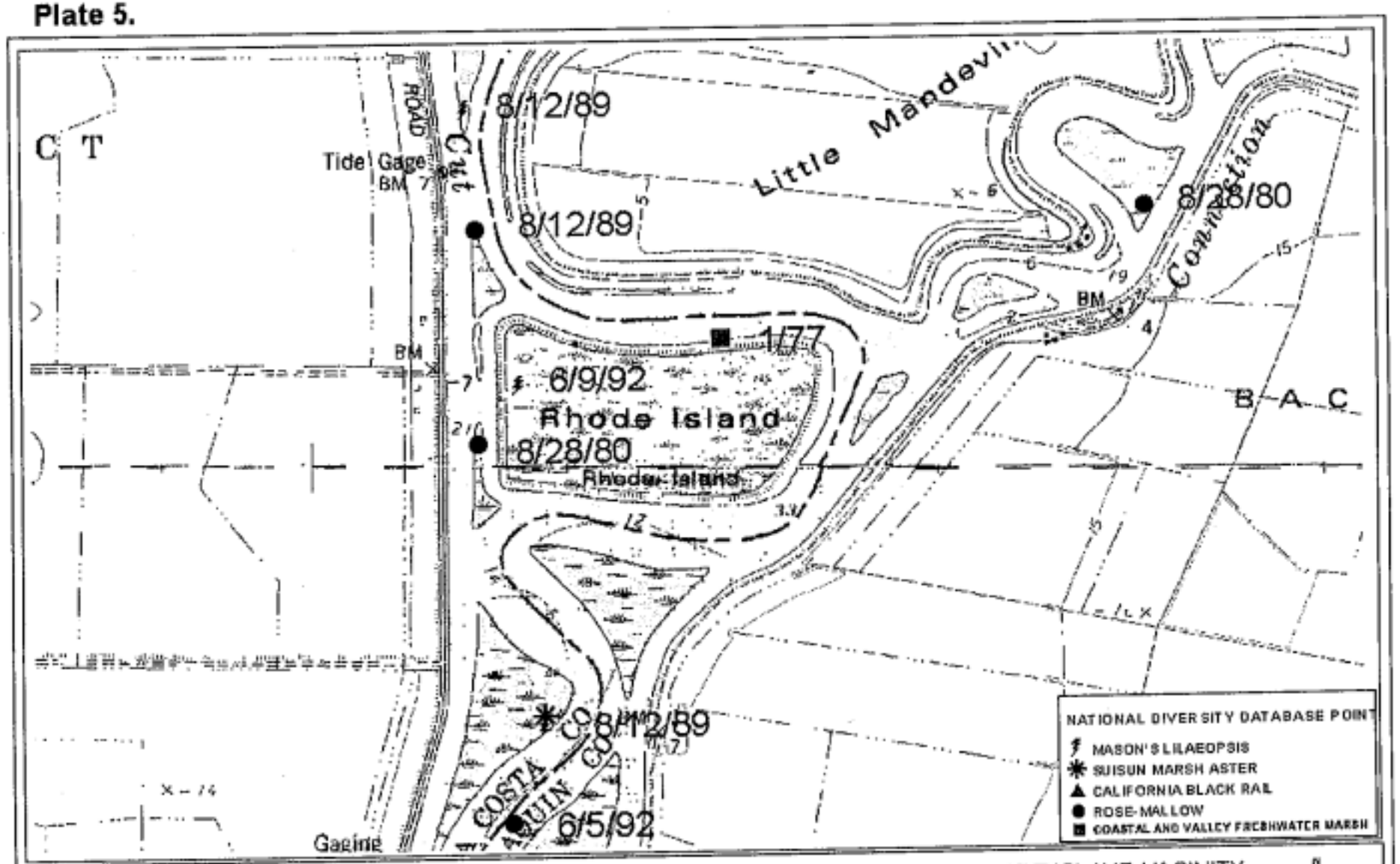
Rhode **Island** Bathymetric **Map**

9122199

500 **0** 500 Feet

N W E S

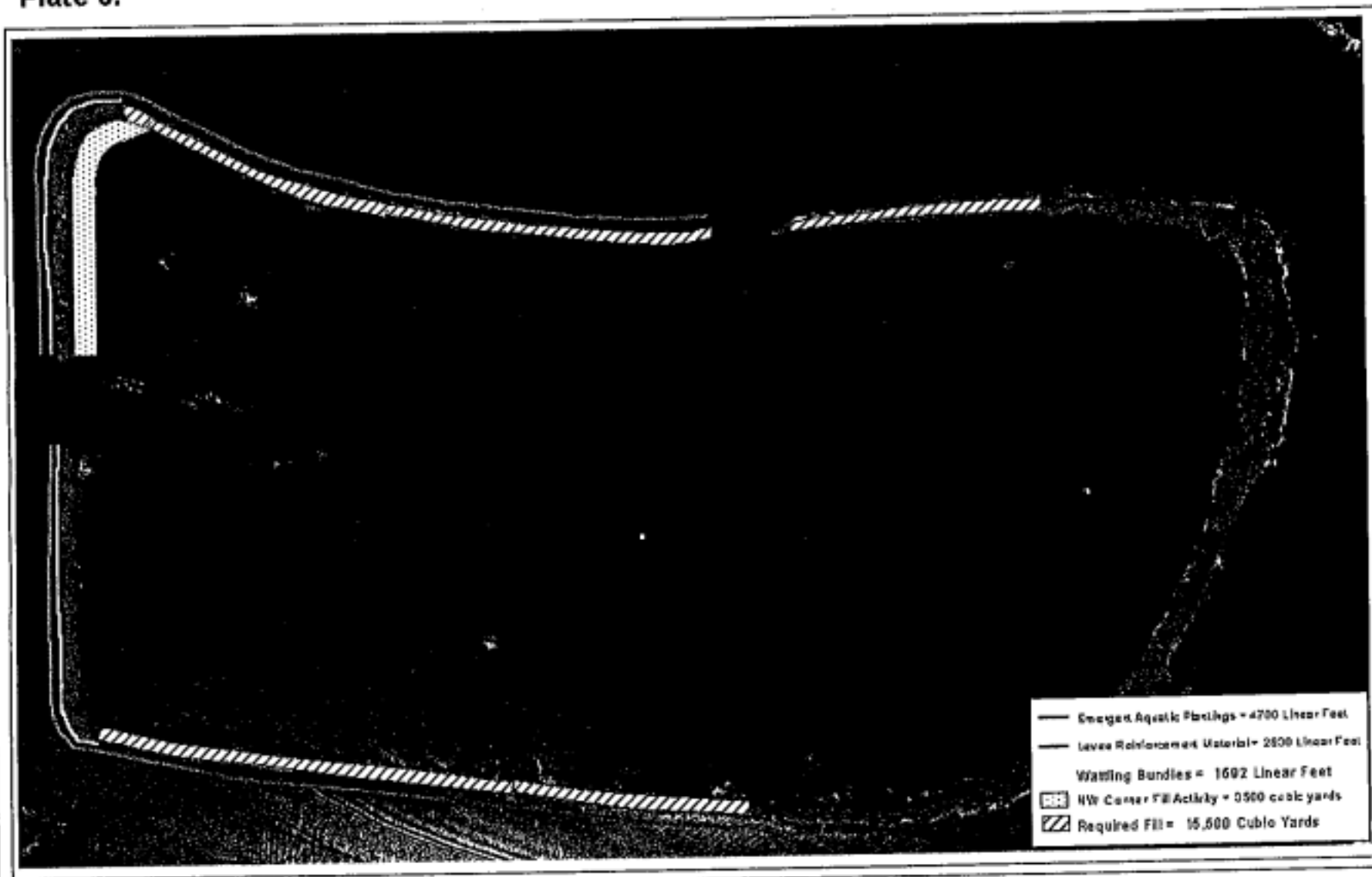
Plate 5.



HISTORIC NATIONAL DIVERSITY DATABASE INFORMATION - RHODE ISLAND VACINITY

Delta Flood Protection Program

Plate 6.



Delta Flood Protection Program

Rhode Island Habitat Restoration/Enhancement Project

Proposed Construction Activity

500 0 500 Feet

N W E S

Plate 7. Rhode Island Photos

Photo 1. Canada Geese

Photo 2. Great Egret

Photo 3. Mason's Lilaeopsis

Photo 4. Suisun Marsh Aster

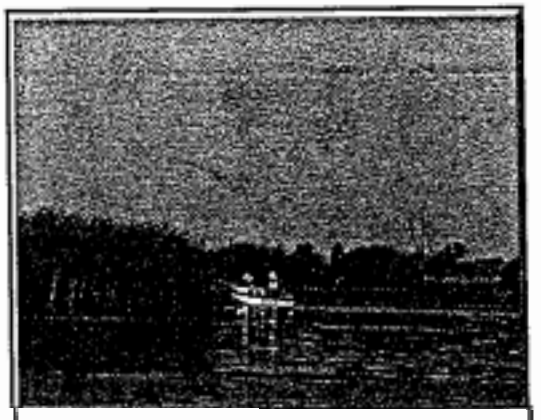


Photo 5. Recreational Use of Rhode Island

Photo 6. Recreational Use of Rhode Island