10TH PRIORITY PROJECT LIST REPORT

PREPARED BY:

LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION TASK FORCE

APRIL 2003

Breaux Act

(Coastal Wetlands Planning, Protection and Restoration Act)

10th Priority Project List Report

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I. INTRODUCTION

Approximately 80 percent of the total coastal marsh loss within the lower 48 states occurs in the State of Louisiana. These losses are due to a combination of human and natural factors, including subsidence, shoreline erosion, freshwater and sediment deprivation, saltwater intrusion, oil and gas canals, navigation channels, and herbivory. While Louisiana still contains 40 percent of all the coastal marshes in the lower 48 states, dramatic annual losses of 25-35 square miles per year in the state continue to threaten the resource. Concern over this loss exists because of the living resources and national economies dependent on Louisiana's coastal wetlands. Louisiana's coastal wetlands provide habitat for fisheries, waterfowl, Neotropical birds and furbearers, protection for oil and gas exploration and production, and water-borne commerce; amenities for recreation, tourism, flood protection; and the context for a culture unique to the world. Benefits go well beyond the local and state levels by providing positive economic impacts to the entire nation.

The coastal wetland loss problem in Louisiana is extensive and complex. Agencies of diverse purpose and mission that are involved with addressing the problem have proposed many alternative solutions. These proposals have had a wide spectrum of approaches for diminishing, neutralizing, or reversing these losses. A global observation of these efforts by Federal, state and local governments and the public has led to the conclusion that a comprehensive approach is needed to address this significant environmental problem. In response to this, the Coastal Wetlands Planning, Protection and Restoration Act (Public Law 101-646) – also known as the Breaux Act – was signed into law by President Bush on November 29, 1990. This report documents the implementation of Section 303(a) of the cited legislation.

STUDY AUTHORITY

Section 303(a) of the Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA, or the Breaux Act), displayed in Appendix A, directs the Secretary of the Army to convene the Louisiana Coastal Wetlands Conservation and Restoration Task Force to:

> . . . initiate a process to identify and prepare a list of coastal wetlands restoration projects in Louisiana to provide for the long-term conservation of such wetlands and dependent fish and wildlife populations in order of priority, based upon the cost-effectiveness of such projects in creating, restoring, protecting, or enhancing coastal wetlands, taking into account the quality of such coastal wetlands, with due allowance

for small-scale projects necessary to demonstrate the use of new techniques or materials for coastal wetlands restoration.

STUDY PURPOSE

The purpose of this study effort was to prepare the 10th Priority Project List (PPL) and transmit the list to Congress, as specified in Section 303(a)(3) of the CWPPRA. Section 303(b) of the Act calls for preparation of a comprehensive restoration plan for coastal Louisiana. In November 1993, the Louisiana Coastal Wetlands Restoration Plan was submitted. In December 1998, *Coast 2050: Toward a Sustainable Coastal Louisiana* was signed by all Federal and state Task Force members. This plan consisted of several regional ecosystem strategies, that if all implemented would achieve no net loss of coastal marsh in Louisiana by the year 2050. A broad coalition of Federal, state, and local entities, landowners, environmentalists, and wetland scientists developed the plan. In addition, all 20 coastal parishes approved the Coast 2050 plan.

PROJECT AREA

A map of the Louisiana coastal zone is presented in Plate 1, indicating project locations by number of Priority Project Lists 1 through 10. Plate 2 contains a listing of these project names, referenced by number and grouped by sponsoring agency, for each PPL. The entire coastal area, which comprises all or part of 20 Louisiana parishes, is considered to be the CWPPRA project area. To facilitate the study process, the coastal zone was divided into nine hydrologic basins (refer to Plate 1).

STUDY PROCESS

<u>The Interagency Planning Groups</u>. Section 303(a)(1) of the CWPPRA directs the Secretary of the Army to convene the Louisiana Coastal Wetlands Conservation and Restoration Task Force, to consist of the following members:

- The Secretary of the Army (Chairman)
- The Administrator, Environmental Protection Agency
- The Governor, State of Louisiana
- The Secretary of the Interior
- The Secretary of Agriculture
- The Secretary of Commerce

The State of Louisiana is a full voting member of the Task Force, with the exception of budget matters, as stipulated in President Bush's November 29, 1990, signing statement (Appendix A). In addition, the State of Louisiana may not serve as a "lead" Task Force member for design and construction of wetlands projects of the Priority Project List.

In practice, the Task Force members named by the law have delegated their responsibilities to other members of their organizations. For instance, the Secretary of the Army authorized the commander of the Corps of Engineers New Orleans District to act in his place as chairman of the Task Force.

The Task Force established the Technical Committee and the Planning and Evaluation Subcommittee, to assist it in putting the CWPPRA into action. Each of these bodies contains the same representation as the Task Force – one member from each of the five Federal agencies and one from the State. The Planning and Evaluation Subcommittee is responsible for the actual planning of projects, as well as the other details involved in the CWPPRA process (such as development of schedules, budgets, etc.). This subcommittee makes recommendations to the Technical Committee and lays the groundwork for decisions that will ultimately be made by the Task Force. The Technical Committee reviews all materials prepared by the subcommittee, makes appropriate revisions, and provide recommendations to the Task Force. The Technical Committee operates at an intermediate level between the planning details considered by the subcommittee and the policy matters dealt with by the Task Force, and often formalizes procedures and formulates policy for the Task Force.

The Planning and Evaluation Subcommittee established several working groups to evaluate projects for priority project lists. The Environmental Work Group was charged with estimating the benefits (in terms of wetlands created, protected, enhanced, or restored) associated with various projects. The Engineering Work Group reviewed project cost estimates for consistency. The Economic Work Group performed the economic analysis, which permitted comparison of projects on the basis of their cost effectiveness. The Monitoring Work Group established a standard procedure for monitoring of CWPPRA projects, developed a monitoring cost estimating procedure based on project type, and a review of all monitoring plans.

The Task Force also established a Citizen Participation Group to provide general input from the diverse interests across the coastal zone: local officials, landowners, farmers, sportsmen, commercial fishermen, oil and gas developers, navigation interests, and environmental organizations. The Citizen Participation Group was formed to promote citizen participation and involvement in formulating priority project lists and the restoration plan. The group meets at its own discretion, but may at times meet in conjunction with other CWPPRA elements, such as the Technical Committee. The purpose of the Citizen Participation Group is to maintain consistent public review and input into the plans and projects being considered by the Task Force and to assist and participate in the public involvement program.

Involvement of the Academic Community. While the agencies sitting on the Task Force possess considerable expertise regarding Louisiana's coastal wetlands problems, the Task Force recognized the need to incorporate another invaluable resource: the state's academic community. The Task Force therefore retained the services of the Louisiana Universities Marine Consortium (LUMCON) to provide scientific advisors to aid the Environmental Work Group in performing Wetland Value Assessments. This Academic Advisory Group also assists in carrying out feasibility studies authorized by the Task Force. These include:

- The Louisiana Barrier Shoreline study – March 1995 - March 1999 (managed by the Louisiana Department of Natural Resources), and

- The Mississippi River Sediment, Nutrient, and Freshwater Redistribution study – March 1995 – July 2000 (managed by the Corps of Engineers).

Public Involvement. Even with its widespread membership, the Citizen Participation Group cannot represent all of the diverse interests concerned about by Louisiana's coastal wetlands. The CWPPRA public involvement program provides an opportunity for all interested parties to express their concerns and opinions and to submit their ideas concerning the problems facing Louisiana's wetlands. The Task Force has held at least eight public meetings each of the last eight years to obtain input from the public. In addition, the Task Force distributes a quarterly newsletter ("Watermarks") with information on the CWPPRA program and on individual projects.

II. PLAN FORMULATION PROCESS FOR THE 10th PRIORITY PROJECT LIST

IDENTIFICATION & SELECTION OF CANDIDATE PROJECTS

Regional meetings were held from February 14-17, 2000 to provide a forum for the public and their local government representatives to prioritize Coast 2050 strategies for implementation under the priority list process. Regional Planning Teams (RPTs), together with members of the Citizen Participation Group (CPG), met during this period to rank all Regional Ecosystem Strategies by hydrologic basin, using Coast 2050 Strategy Objectives. During prioritization, sequencing of strategies were considered. Mapping unit and coastwide strategies were not considered in this prioritization effort. A schedule of meetings is shown in Table 1.

Table 1: RPT Meetings for Prioritization of Coast 2050 Strategies

Region 1: Hammond, Louisiana	February 14, 2000
Region 2: New Orleans, Louisiana	February 15, 2000
Region 3: Morgan City, Louisiana	February 16, 2000
Region 4: Grand Cheniere, Louisiana	February 17, 2000

The CWPPRA Technical Committee met on February 24, 2000 to place each strategy into one of the following categories: (a) candidate for CWPPRA funding; (b) candidate for Water Resources Development Act (WRDA) funding; (c) programmatic strategy (such as "Maintain Atchafalaya Mudstream"). The Technical Committee then reviewed, adjusted, and approved the strategies submitted by the RPT. The Technical Committee chose a manageable number of the prioritized regional strategies in each basin for project development.

The RPTs convened Basin Subcommittees during the period spanning February 29, 2000 – March 13, 2000 to develop the projects for CWPPRA strategies chosen by the Technical Committee as having a high priority in each basin. The Basin Subcommittees included the CWPPRA agencies, academic advisors, landowners, environmental groups, parish/community officials, members of the CPG, and the general public. The subcommittees evaluated each high priority strategy and listed all projects necessary to accomplish each strategy. Demonstration projects were also identified. A schedule of meetings is shown in Table 2. Following the meetings, Basin Subcommittees prepared preliminary maps and brief fact sheets for each project that accomplished the high-priority strategies.

Table 2: Basin Subcommittee Meetings to Develop Projects

Region 1, Pontchartain Basin: Hammond, Louisiana	February 29, 2000
Region 2, Breton Sound and Mississippi River Delta Basins: New Orleans, Louisiana	March 9, 2000
Region 2, Barataria Basin: Hahnville, Louisiana	March 13, 2000
Region 3, Teche/Vermilion Basin: Abbeville, Louisiana	February 29, 2000
Region 3, Terrebonne and Atchafalaya Basins: Thibodaux, Louisiana	March 1, 2000
Region 4, Mermentau and Calcasieu/Sabine Basins: Grand Cheniere, Louisiana	March 2, 2000

The CWPPRA Engineering Work Group calculated preliminary first cost (in ranges) for each project, based upon engineering judgment and historical costs. The Environmental/ Engineering Work Groups applied the Coast 2050 Criteria to each project. This information, along with the maps and fact sheets prepared by the Basin Subcommittees, was used by the CWPPRA Planning and Engineering (P&E) Subcommittee for their May 4, 2000 meeting. The purpose of this P&E meeting was to prepare a matrix of projects by basin that lists cost ranges and Coast 2050 Criteria score. This matrix was furnished to the CWPPRA Technical Committee and the State Wetlands Authority.

The CWPPRA Technical Committee met publicly on May 17, 2000 to consider the preliminary costs and Coast 2050 Criteria score of the projects. They selected 25 projects and 5 demonstration projects as Phase 0 candidates for further analysis.

Phase 0 analysis of the candidates took place from mid-May 2000 through November 2000. Interagency field visits were conducted at each project site/area with members of the Engineering and Environmental Work Groups, academics, and Louisiana Department of Natural Resources (LDNR) monitoring staff. The Environmental/Engineering Work Groups and academics met to refine the projects based on site visits. Detailed Project Information Sheets were developed by evaluating agencies, using the standard format developed by the Economics, Environmental/ Engineering Work Groups. These sheets included addressing "compatibility with Coast 2050" and Phase I and II engineering and design, and cost estimates. The Engineering Work Group met to review/approve the Phase I and II cost estimated developed by the agencies. The Economics Work Group reviewed the cost estimates, added monitoring, O&M, etc. and developed annualized costs. The Environmental Work Group finalized Wetland Value Assessments (WVAs) for each project. The Environmental/Engineering/Monitoring Work Group met to refine the goals and objectives and developed costs to monitor parameters of interest and opportunity. The Environmental/Engineering Work Groups reviewed, and revised, the Coast 2050 Criteria score previously developed, considering all new information.

The CWPPRA P&E Subcommittee prepared a candidate project information package for the CWPPRA Technical Committee and State Wetlands Authority, consisting of: updated Project Information Sheets and matrix for each basin (listing projects in order of ranked strategies). The matrix included cost, WVA results (acres created, restored, and/or protected), Coast 2050 Criteria, and Supporting Partnerships. The following was discussed qualitatively: public support, risk/uncertainty, and longevity/sustainability. Three public meetings were held in the coastal zone to present projects to the public for comment.

The CWPPRA Technical Committee met publicly on December 12, 2000 to select projects for recommendation to the CWPPRA Task Force for Phase I funding. Each agency received a total of 15 weighted votes, used to rank the 25 candidate projects. Demonstration projects were also ranked, with each agency receiving a total of 3 weighted votes. The top 11 projects and 1 demonstration project were selected for recommendation to the CWPPRA Task Force for final Phase I funding approval on January 10, 2001. The results of the CWPPRA Technical Committee vote are outlined in Table 3.

Table 3: 10th Priority Project List Candidate Selection Process – Agency Voting Record

Project No.	Nominee Project Name	Coast 2050 Region	EPA	COE	FWS	DNR	NRCS	NMFS	Total
*BA-34	Small Freshwater Diversion to the Northwestern Barataria Basin	R2	15	10	10	13	14	11	73
MR-13	Benny's Bay 50,000 cfs Diversion with Outfall Management	R2	14	12	14	14	2	14	70
BS-10	Delta-Building Diversion North of Fort St. Philip	R2	13	15	15	11	1	13	68
PO-30	Shore Protection/Marsh Restoration in Lake Borgne at Shell Beach	R1	10	13	9	12	13	5	62
BA-33	Delta-Building Diversion at Myrtle Grove	R2	12	11	6	15	3	15	62
TE-44	North Lake Mechant Landbridge Restoration	R3	6	14	13	1	9	10	53
ME-19	Grand-White Lake Landbridge Protection Project	R4	9	7	7	9	11	8	51
TE-43	GIWW Bank Restoration of Critical Areas in Terrebonne	R3	3	8	8	7	10	7	43
BS-11	Delta Management at Fort St. Philip	R2	5	5	11	2	7	12	42
CS-32	Hydrologic Restoration East of Sabine Lake (with terraces)	R4	1	9	12	3	15		40
ME-18	Rockefeller Refuge Gulf Shoreline Stabilization – Beach Prong to Joseph's Harbor	R4	11	8	4	8	4	6	39
	Phase II – Raccoon Island Breakwaters and North Shore	R3			5		12	3	20
	Restore Barrier Shoreline from Pass Chaland to Grand	R2		4		6		9	19

* Each project received a two-letter code to identify its basin; these codes are: PO - Ponchartrain, BS - Breton Sound, MR - Mississippi River Delta, BA - Barataria, TE - Terrebonne, AT - Atchafalaya, TV - Teche/Vermilion, ME - Mermentau, CS - Calcasieu/Sabine.

Project No.	Nominee Project Name	Coast 2050 Region	EPA	COE	FWS	DNR	NRCS	NMFS	Total
	Bayou Pass								
	Isles Dernieres Restoration – Whiskey Island West Flank	R3	8			10		1	19
	Pecan Island Freshwater Introduction Enlargement	R4	2		3		8	4	17
	South Lake Salvador Shoreline Protection and Marsh Creation	R2		3	2	5	6		16
	Shoreline Protection Cheniere au Tigre to Southwest Pass	R3	4			4	5		13
	Grand Lake Shoreline Stabilization –Superior Canal to Tebo Point (Rock & Marsh Creation)	R4	7	1	1				9
	Beneficial Use of Dredged Material on Breton and Grand Gosier Islands	R1		2				2	4
	Bonnet Carre Sediment Trap	R1							0
	Benny's Bay 20,000 cfs Diversion (with Outfall Management)	R2							0
	Shell Island Pass Marsh Creation	R3							0
	Grand Lake Shoreline Stabilization – Superior Canal to Tebo Point (Rock Only)	R4							0
	Grand Lake Shoreline Stabilization –Tebo Point (Rock Only)	R4							0
	Hydrologic Restoration East of Sabine Lake (without terraces)	R4							0

Demonstration Projects

	Terrebonne Bay Shore Protection Demo		1	3	3	3	3	3	16
	Oyster Reef Demonstration – Lake Athanasio		3			2	2	2	9
	Matted Submerged Aquatic Vegetation Established for Marsh and Low Energy Beach		2	2	2				6
	Restoration Effectiveness of Couple Terraces with Pre-Vegetated Mats				1	1	1	1	4
	Deep Hole Demo Project			1					1

EVALUATION OF CANDIDATE PROJECTS

Benefit Analysis (WVA). The WVA is a quantitative, habitat-based assessment methodology developed for use in prioritizing project proposals submitted for funding under the Breaux Act. The WVA quantifies changes in fish and wildlife habitat quality and quantity that are projected to emerge or develop as a result of a proposed wetland enhancement project. The results of the WVA, measured in Average Annual Habitat Units (AAHUs), can be combined with economic data to provide a measure of the effectiveness of a proposed project in terms of annualized cost per AAHU protected and/or gained.

The Environmental Work Group developed a WVA for each project. The WVA has been developed strictly for use in ranking proposed CWPPRA projects; it is not intended to provide a detailed, comprehensive methodology for establishing baseline conditions within a project area. It is a modification of the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service (FWS) (U.S. Fish and Wildlife Service, 1980). HEP is widely used by the FWS and other Federal and state agencies in evaluating the impacts of development projects on fish and wildlife resources. A notable difference exists between the two methodologies. The HEP generally uses a species-oriented approach, whereas the WVA uses a community approach.

The following coastal Louisiana wetland types can be evaluated using WVA models: fresh marsh (including intermediate marsh), brackish marsh, saline marsh, and cypress-tupelo swamp. Future reference in this document to "wetland" or "wetland type" refers to one or more of these four communities.

These models operate under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated or expressed through the use of a mathematical model developed specifically for each wetland type. Each model consists of the following components:

1. A list of variables that are considered important in characterizing fish and wildlife habitat:
   a. V_1--percent of wetland covered by emergent vegetation,
   b. V_2--percent open water dominated by submerged aquatic vegetation,
   c. V_3--marsh edge and interspersion,
   d. V_4--percent open water less than or equal to 1.5 feet deep,
   e. V_5--salinity, and
   f. V_6--aquatic organism access.
2. A Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values; and
3. A mathematical formula that combines the Suitability Index for each variable into a single value for wetland habitat quality; that single value is referred to as the Habitat Suitability Index, or HSI.

The WVA models have been developed for determining the suitability of Louisiana coastal wetlands for providing resting, foraging, breeding and nursery habitat to a diverse assemblage of fish and wildlife species. Models have been designed to function at a community level and therefore attempt to define an optimum combination of habitat conditions for all fish and wildlife species utilizing a given marsh type over a year or longer.

The output of each model (the HSI) is assumed to have a linear relationship with the suitability of a coastal wetland system in providing fish and wildlife habitat.

A comprehensive discussion of the WVA methodology is presented in Appendix E.

<u>Designs and Cost Analysis.</u> During the plan formulation process, each of the Task Force agencies assumed responsibility for developing designs, and estimates of costs and benefits for a number of candidate projects. The cost estimates for the projects were to be itemized as follows:

1. Construction Cost
2. Contingencies Cost (25%)
3. Engineering and Design
4. Environmental Compliance
5. Supervision and Administration (Corps ($500/yr administrative and $30,000 minimum, up to 6% of construction per project for project management, and the LDNR Project Management (2% of construction)
6. Supervision and Inspection (Construction Contract)
7. Real Estate
8. Operations and Maintenance
9. Monitoring

In addition, each lead agency provided a detailed itemized construction cost estimate for each project. These estimates are shown in Appendix C.

An Engineering Work Group was established by the P&E Subcommittee, with each Federal agency and the State of Louisiana represented. The work group reviewed each estimate for accuracy and consistency.

When reviewing the construction cost estimates, the work group verified that each project feature had an associated cost and that the quantity and unit prices for those items were reasonable. In addition, the work group reviewed the design of the projects to determine whether the method of construction was appropriate and the design was feasible.

All of the projects were assigned a contingency cost of 25 percent because detailed information such as soil borings, surveys, and – to a major extent – hydrologic data were not available, in addition to allowing for variations in unit prices.

Engineering and design, environmental compliance, supervision and administration, and supervision and inspection costs were reviewed for consistency, but ordinarily were not changed from what was presented by the lead agency.

Economic Analysis. The Breaux Act directed the Task Force to develop a prioritized list of wetland projects "based on the cost-effectiveness of such projects in creating, restoring, protecting, or enhancing coastal wetlands, taking into account the quality of such coastal wetlands." The Task Force satisfied this requirement through the integration of a traditional time-value analysis of life-cycle project costs and other economic impacts and an evaluation of wetlands benefits using the WVA. The product of these two analyses was an Average Annual Cost per AAHU figure for each project. These values are used as the primary ranking criterion. The method permits incremental analysis of varying scales of investment and also accommodates the varying salinity types and habitat quality characteristics of projected wetland outputs.

The major inputs to the cost effectiveness analysis are the products of the lead Task Force agencies and the Engineering and Environmental Work Groups. The various plans were refined into estimates of annual implementation costs and respective AAHUs.

Financial costs chiefly consist of the resources needed to plan, design, construct, operate, monitor, and maintain the project. These are the costs, when adjusted for inflation, which the Task Force uses in budgeting decisions. The economic costs include, in addition to the financial cost, monetary indirect impacts of the plans not accounted for in the financial costs. Examples would include impacts on dredging in nearby commercial navigation channels, effects on water supplies, and effects on nearby facilities and structures not reflected in right-of-way and acquisition costs.

The stream of costs for each project was brought to present value and annualized at the current discount rate, based on a 20-year project life. Beneficial environmental outputs were annualized at a zero discount rate and expressed as AAHUs. These data were then used to rank each plan based on cost per AAHU produced. Annual costs were also calculated on a per acre basis. Costs were adjusted to account for projected levels of inflation and used to monitor overall budgeting and any future cost escalations in accordance with rules established by the Task Force.

Following the review by the Engineering Work Group, costs were expressed as first costs, fully funded costs, present worth costs, and average annual costs. The Cost per Habitat Unit criterion was derived by dividing the average annual cost for each wetland project by the AAHU for each wetland project. The average annual cost figures are based on price levels for the current year, the most current published discount rate, and a project life of 20 years. The fully funded cost estimates include operation and maintenance and other compensated financial costs. The fully funded cost estimates developed for each project were used to determine how many projects could be supported by the funds expected to be available in the current fiscal year.

III. DESCRIPTION OF CANDIDATE PROJECTS

This section provides a concise narrative of each candidate project. The project details provided include the project sponsor, strategy, problem, goals, solution, public support, benefits, cost, and a map identifying the project area and features.

Project: Shore Protection & Marsh Creation in Lake Borgne at Shell Beach

Project Sponsor: U.S. Environmental Protection Agency

Regional Strategy: Maintain shoreline integrity of Lakes Pontchartrain and Borgne and protect shoreline of Biloxi Marshes.

Location: Region 1, Pontchartrain Basin, St. Bernard Parish, LA. The project is located along the southern shoreline of Lake Borgne from Doulluts Canal to Fort Bayou.

Problem: The project is necessary to maintain the integrity of the narrow strip of marsh that separates Lake Borgne from the Mississippi River Gulf Outlet (MRGO). This narrow marsh rim along the south Lake Borgne shoreline protects the communities of Shell Beach, Yscloskey, and Hopedale from direct exposure to lake wave energies and storm surge. The MRGO, with its direct connection to the Gulf of Mexico, brings high salinity water and increased tidal amplitudes far into interior wetlands. In the Shell Beach area, the marshes separating the MRGO from Lake Borgne are broken by many ponds and are suffering from both shoreline and bank erosion.

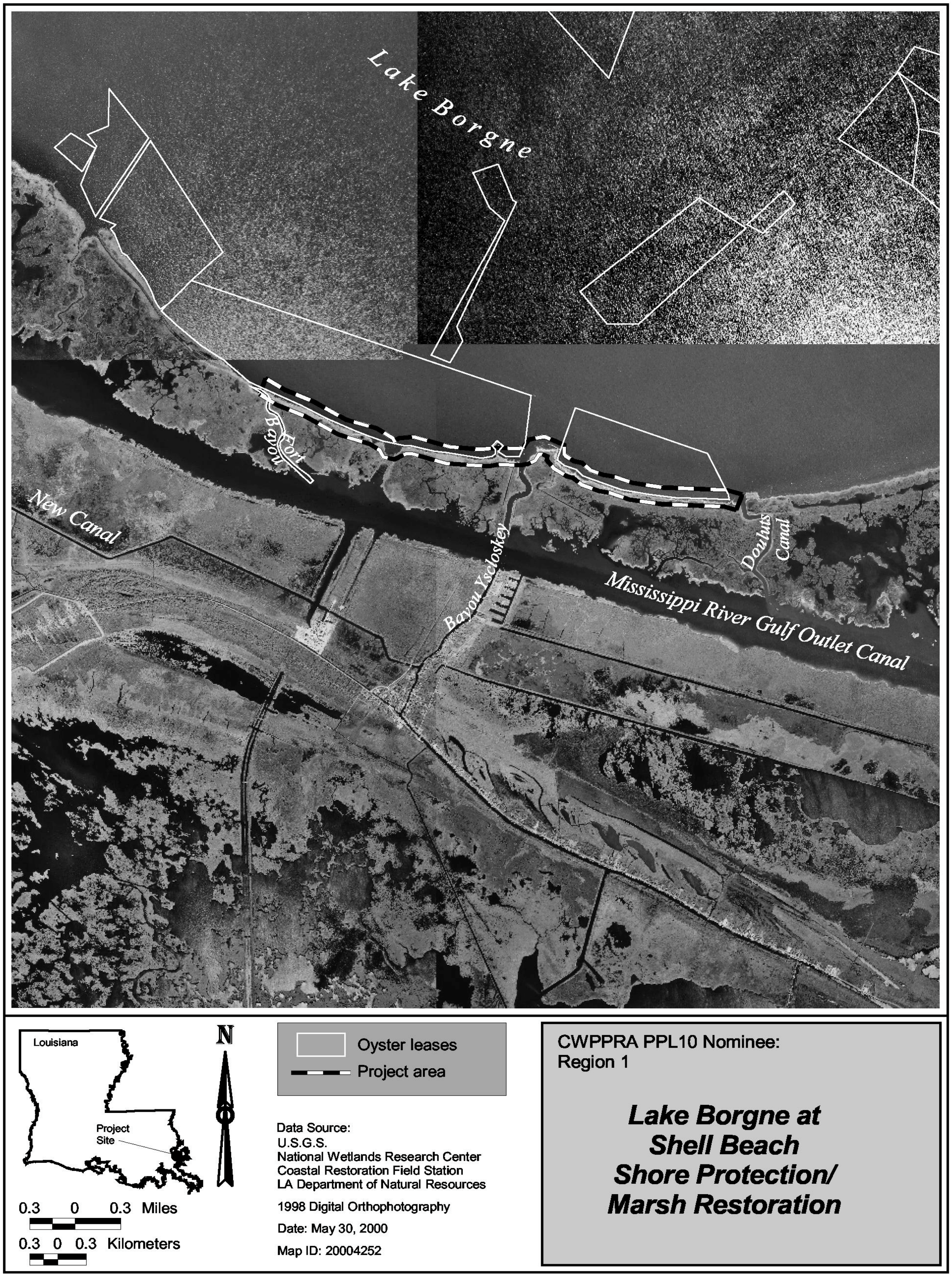
Goals: 1) Halt Lake Borgne shoreline retreat and direct marsh loss in the vicinity of Shell Beach, 2) restore saline marsh habitat, and 3) enhance fish and wildlife habitat.

Proposed Solution: The project would entail construction of a continuous nearshore rock breakwater 300' out along the south rim of Lake Borgne, extending approximately 17,700' from Doulluts Canal to Fort Bayou. The proposed structure would be tied into the west bank of Doulluts Canal, the east bank of Fort Bayou, and on either side of Bayou Yscloskey. It would be designed to attenuate shoreline retreat along this stretch of Lake Borgne, as well as promote shallowing, settling out, and natural vegetative colonization of overwash material landward of the proposed structure. An additional project feature includes creation of up to 122 acres of emergent marsh platform behind the rock breakwater. This would be done in conjunction with USACE maintenance dredging of miles 49 to 38 of the MRGO, just south of Shell Beach. It is estimated that approximately 4 MCY of material could be dredged from this reach in approximately 10 years. It is proposed that with the rock shoreline protection feature in place, serving as containment, marsh platform creation could proceed at no additional cost to CWPPRA.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The proposed project is expected to continue providing substantial wetland benefits 30 to 40 years after construction, and there is a high degree of probability that the project will meet its objectives. This project has received statements of support from local, state, and Federal elected officials.

Project Benefits: This project is anticipated to benefit 229 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $8,893,000.



Lake Borgne
Bayou Fort
New Canal
Bayou Yscloskey
Mississippi River Gulf Outlet Canal
Douluts Canal
Louisiana
Project Site
N
0.3 0 0.3 Miles
0.3 0 0.3 Kilometers
Oyster leases
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004252
CWPPRA PPL10 Nominee:
Region 1
Lake Borgne at Shell Beach Shore Protection/ Marsh Restoration

Project: Bonnet Carre Sediment Trap (shoreline protection from Frenier to the LaBranche Marsh Creation Site)

Project Sponsor: National Marine Fisheries Service

Regional Strategy: Maintain shoreline integrity of Lake Pontchartrain

Location: This project is located in Region 1 within the Pontchartrain basin in St. Charles Parish, Louisiana, at the mouth of the Bonnet Carre Spillway.

Problem: Since the early 1900s, coastal wetlands along the southern shore of the lake have been impacted by human development and natural processes of wetland change. Storm driven wave erosion and other factors have combined to consume almost 1,000 feet of shoreline and approximately 400 acres of wetlands in the project area since the 1930s. The result of this wetland loss is a large expanse of shallow open water extending more than 1,000 feet from the current shoreline. Several studies have documented shoreline erosion rates along this section of Lake Pontchartrain (Adams et al 1978; Corps of Engineers 1983; Saucier 1986; and Britsch and Dunbar 1996). Adams et al determined that the highest rates of shoreline erosion around Lake Pontchartrain occur in a portion of the project area.

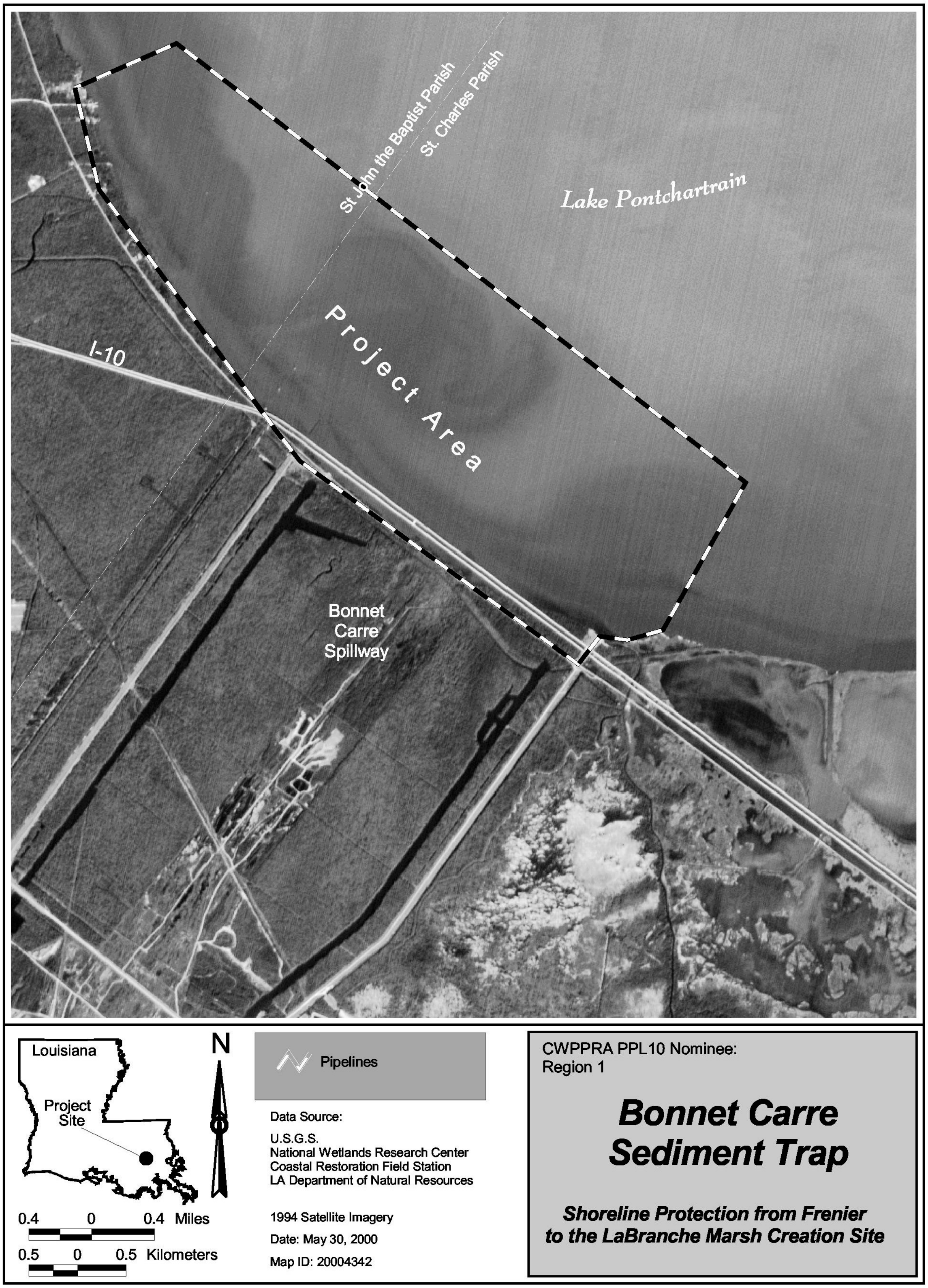
Goals: 1) Protect and maintain the shoreline of Lake Pontchartrain between Frenier and the LaBranche marsh creation site; 2) trap and retain riverine sediments in a system of distributary channels and marsh terraces, and 3) enhance the natural formation of marsh through sediment trapping.

Proposed solution: During each flood control opening of the spillway, the river deposits an average of 9 million cubic yards of sediment. As a result of sediment deposition, a 30-square mile, subaqueous, deltaic fan has formed in the lake near the mouth of the spillway. Construct staggered riprap breakwaters following the 4.5 ft bottom contour of the lake from near the community of Frenier to the eastern boundary of the LaBranche CWPPRA site. Dredge 36,000 ft of distributary channels in Lake Pontchartrain at the mouth of the spillway to create approximately 100 acres of marsh terraces behind the riprap structure. Designs have been developed to address preliminary concerns of the USACE and settlement and erosion issues.

Public Support, Risk/Uncertainty and Longevity/Sustainability: There is potential project risk and uncertainty due to the future need for approval by the USACE Hydraulic Section to construct the project while avoiding impacts to operation of the spillway and potential settlement problems of the rock breakwater. However, preliminary designs and costs have addressed these concerns as best as possible at this time. There also is uncertainty on project longevity and sustainability with regards to wetland accretion because the affects of eddy flow dynamics on sediment trapping and variable deposition rates with spillway openings.

Project Benefits: This project is anticipated to benefit 2,034 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $55,815,979.


St John the Baptist Parish
St. Charles Parish
Lake Pontchartrain
Project Area
I-10
Bonnet Carre Spillway
Louisiana
Project Site
N
Pipelines
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1994 Satellite Imagery
Date: May 30, 2000
Map ID: 20004342
0.4 0 0.4 Miles
0.5 0 0.5 Kilometers
CWPPRA PPL10 Nominee:
Region 1
Bonnet Carre Sediment Trap
Shoreline Protection from Frenier to the LaBranche Marsh Creation Site

Project Name: Beneficial Use of Dredged Material on Breton and Grand Gosier Islands

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Restore and maintain barrier islands, Strategy 10; Maintain Chandeleur Islands, if necessary

Location: Region 1, Breton Sound Basin, Plaquemines Parish, LA

Problem: This project will help restore barrier island habitat that has fragmented significantly over the past 20 years. Information in the atlas of shoreline change (Williams, et al, 1992) and data provided by the University of New Orleans indicates that these three islands have experienced retreat and significant fragmentation over the years.

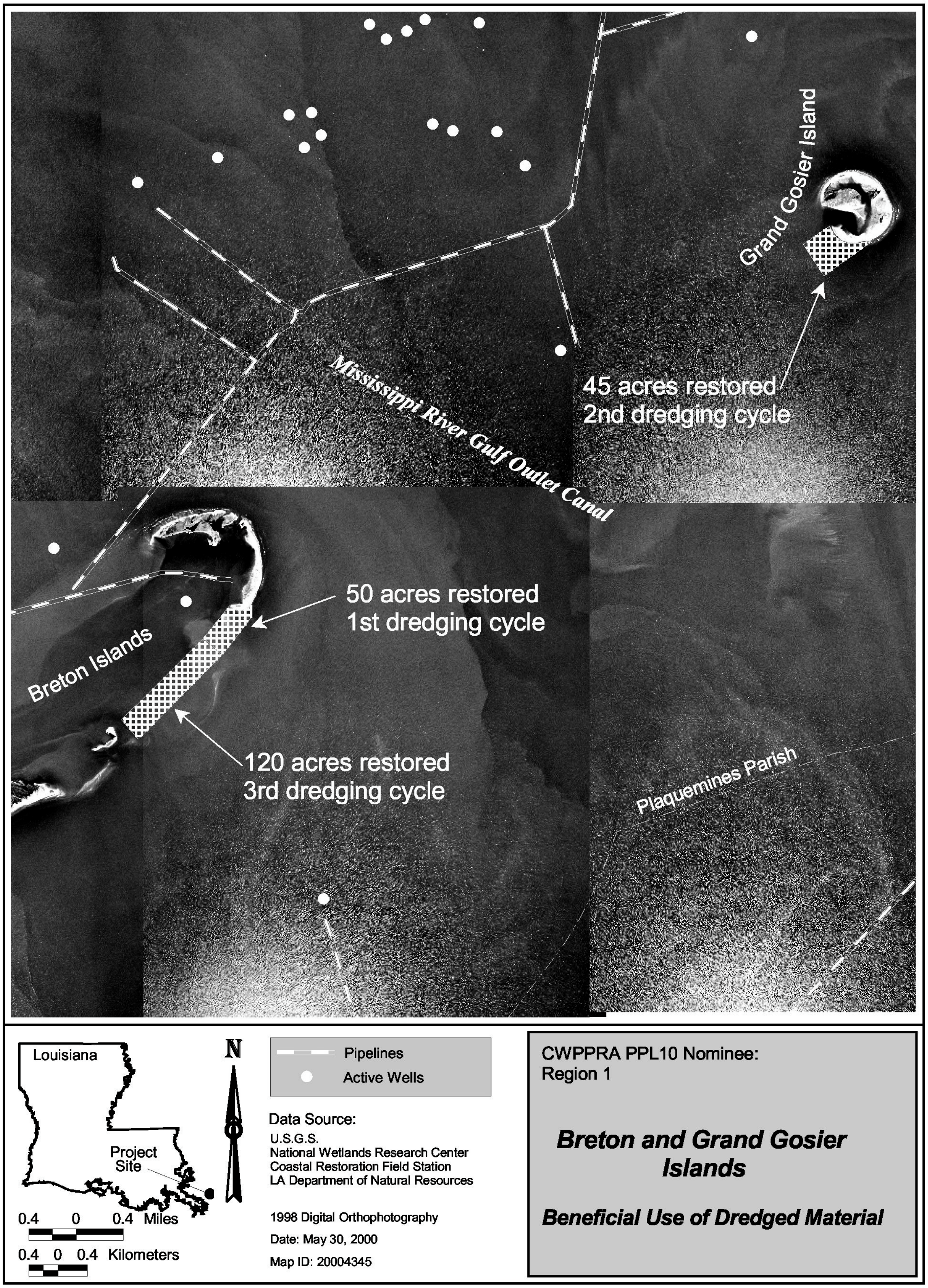
Goals: Create barrier island habitat on Breton and Grand Gosier Islands.

Proposed Solution: Because of the proximity of the federally-maintained Mississippi River-Gulf Outlet (MRGO) to the islands, there is an opportunity to use dredged material from the channel beneficially to create barrier island habitat. Material dredged from the MRGO in this area has historically been placed in single-point, open water discharge sites; a feeder berm offshore from Breton Island; or in the ocean dumping site offshore from Breton Island. In 1999, Section 204 funds were used to place dredged material in cuts made through Breton Island by Hurricane Georges. This project would use CWPPRA funding so that a portion of that material not used beneficially for the feeder berm would be used to create barrier island habitat on Breton and Gosier Islands. The material dredged from mile 0 to mile –3 (offshore) would continue to be used beneficially for the feeder berm near Breton Island through the O&M maintenance dredging program or through Section 204 funds. The material dredged from mile –3 to mile –6 of the offshore channel, which is about 1,100,000 cubic yards, would be placed on Breton Island during one dredging cycle and on Gosier Island during another dredging cycle. The dredging cycles are assumed to be one year apart. Material dredged during maintenance of the channel reach between mile 0 and mile +6, estimated at 3,125,000 cubic yards, would be placed on Breton Island. This dredging cycle is assumed to be 2 years after the initial dredging cycle.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The level of public support for this project is unknown. Because no oyster leases occur in the area and the islands are heavily used by recreational fishermen, there should be no opposition to the project from oyster fishermen and recreational fishermen should support it. The project is expected to provide substantial wetland benefits for 20 to 30 years after construction. The risk and uncertainty associated with the project is low. Barrier island restoration with dredged material is a proven technology; however, there is always the risk of a major hurricane destroying restored barrier islands.

Project Benefits: This project is anticipated to benefit 124 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $16,245,000.


Grand Gosier Island
Mississippi River Gulf Outlet Canal
45 acres restored
2nd dredging cycle
50 acres restored
1st dredging cycle
Breton Islands
120 acres restored
3rd dredging cycle
Plaquemines Parish
Louisiana
Project Site
N
0.4 0 0.4 Miles
0.4 0 0.4 Kilometers
Pipelines
Active Wells
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004345
CWPPRA PPL10 Nominee:
Region 1
Breton and Grand Gosier Islands
Beneficial Use of Dredged Material

Project Name: Delta-building Diversion North of Fort St. Philip

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Construct delta-building diversion through controlled crevasses to Quarantine Bay

Location: Region 2, Breton Sound Basin, Plaquemines Parish, LA

Problem: The wetlands in the area are deteriorating from shoreline erosion, subsidence, and insufficient sediment input. Some delta building is occurring in the downstream end of the project area from overbank flow of the Mississippi River. However, most of the project area is deteriorating from lack of sediment. The project area contains all four marsh types, with fresh marsh near the river and saline marsh near Breton Sound. Most of the project area is saline marsh and open water. The proximity of open, shallow, estuarine water to the Mississippi River, coupled with the low level of development and infrastructure at this site, presents a rare opportunity to construct a major sediment diversion project for a reasonable construction cost. Oyster leases in the project area and nearby in Breton Sound would be impacted by the project. Also, oil and gas well access canals and pipeline canals may be silted-in, causing access problems for the companies operating in the area.

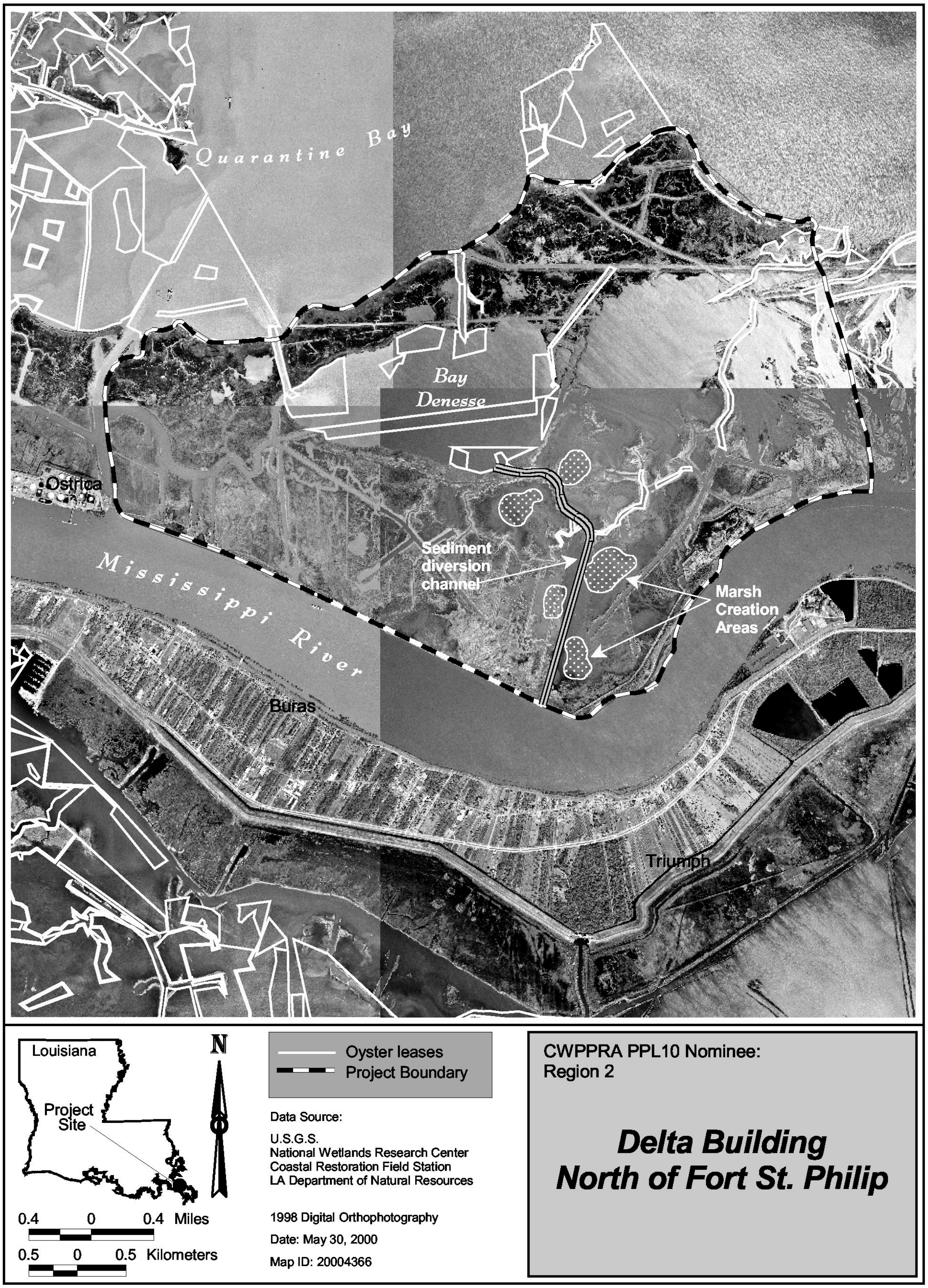
Goals: The goal of this project is to utilize sediment and freshwater from the Mississippi River to create a new subdelta.

Proposed Solution: A new channel would be dredged through the east bank of the Mississippi River about 2.5 miles upstream from Fort St. Philip. The diversion channel would be 500 feet wide by 10 feet deep. The channel would be excavated with a hydraulic dredge and the material would be used beneficially to create about 378 acres of brackish and intermediate marsh. The diversion channel would be about 9,800 feet land with its terminus at Bay Denesse. Cuts would be made at several locations along the diversion channel to divert water and sediments into adjacent open water areas. The channel has been designed to create approximately 2,000 acres of marsh over the project life through sediment deposition into open water areas. In addition, the project would significantly reduce the loss of existing marsh in the project area.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The level of public support for the project is unknown. There are oyster leases in the area that could be adversely affected and saltwater fishing could be adversely affected in the area, so there may be some opposition from certain segments of the public. The project is expected to provide substantial wetland benefits for more than 40 years after project construction. The risk and uncertainty associated with this project is low. The building of sub-deltas with artificial crevasses is a proven technology.

Project Benefits: This project is anticipated to benefit 2,473 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $6,355,000.


Quarantine Bay
Bay Denesse
Ostrica
Mississippi River
Sediment diversion channel
Marsh Creation Areas
Buras
Triumph
Louisiana
Project Site
N
0.4 0 0.4 Miles
0.5 0 0.5 Kilometers
Oyster leases
Project Boundary
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004366
CWPPRA PPL10 Nominee:
Region 2
Delta Building
North of Fort St. Philip

Project Name: Delta Management at Fort St. Philip

Project Sponsor: U.S. Fish and Wildlife Service

Regional Strategy: Construct most effective small diversions

Location: Region 2, Breton Sound Basin, Plaquemines Parish, LA. The project area is 1,305 acres and is located on the east side of the Mississippi River near the crevasse at Fort St. Phillip.

Problem: Since the early 1970s, this area has undergone a transition from an organic, low-energy system consisting of brackish/saline marsh to a deltaic environment dominated by the formation of fresh and intermediate marsh types. Recent aerial photography indicate that marsh loss has decreased considerably in the project area and marsh building now occurs over a substantial portion of the area. Many areas of historic marsh loss are now becoming shallower with the introduction of river sediments. Emergent marsh is forming throughout the area on the newly-accreted mineral soils. Even though this area is experiencing a net gain in emergent marsh, this project proposes to enhance the natural marsh-building processes occurring in the area and increase the growth rate of emergent wetlands.

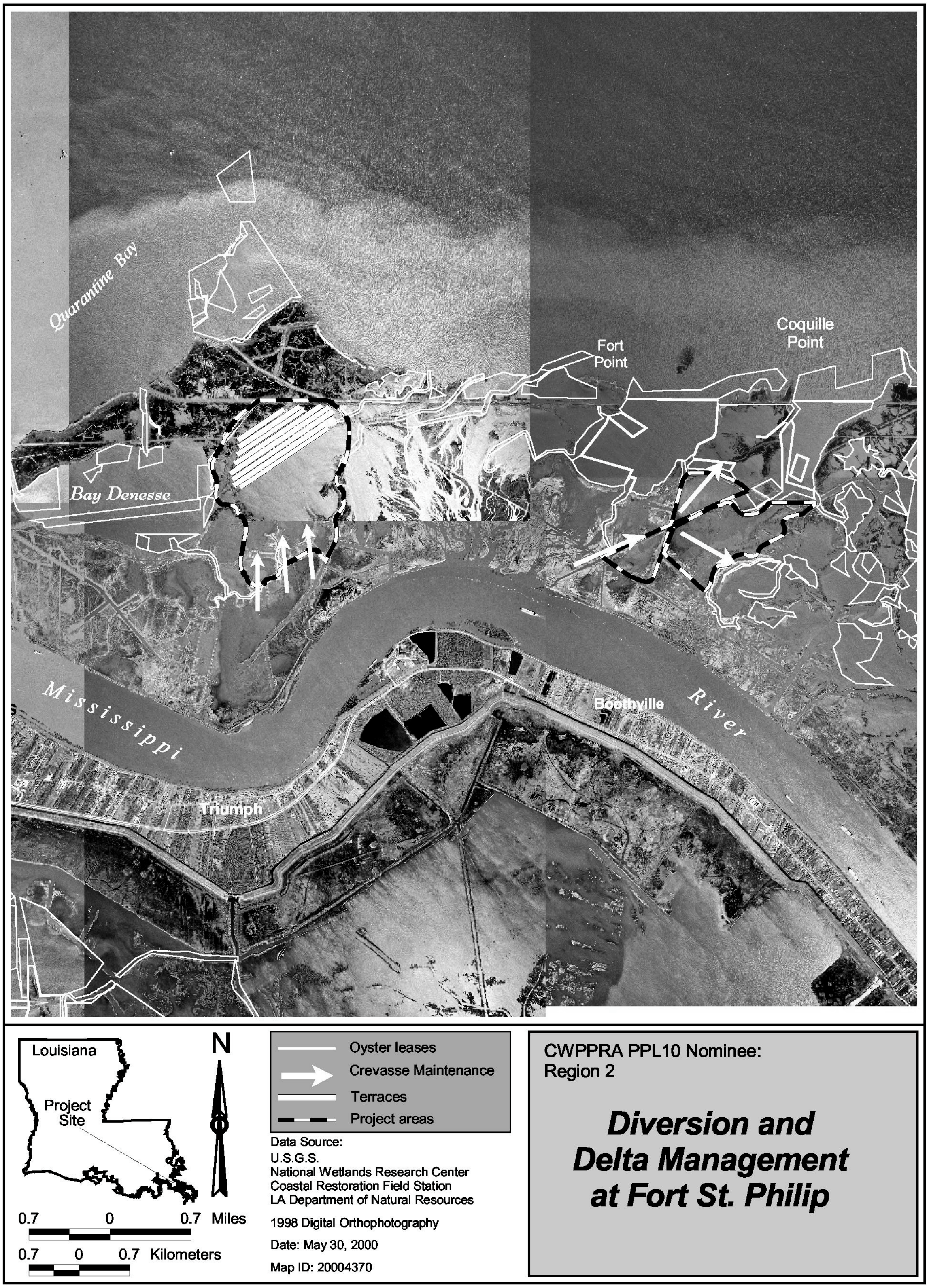
Goals: 1) Increase the flow of fresh water and sediments into shallow, open-water habitat, and 2) increase sedimentation and marsh building by means of artificial crevasses.

Proposed Solution: The project will include the construction of 31,200 linear feet of terraces in open water habitat and the construction of 6 crevasses to increase marsh-building processes. Crevasse dimensions are generally 75 feet wide and 8 feet deep and will be constructed at a 60-degree angle from the parent pass. Terraces will be constructed in nine staggered rows across the northern half of Area 1. The terraces will be 200 feet long with 50 foot gaps between terraces, and the rows will be 200 feet apart. Terraces will be planted with seashore paspalum and smooth cordgrass.

Public Support, Risk/Uncertainty and Longevity/Sustainability: Written endorsement or testimony by an elected public official has not been received for this project. Public support was expressed for the project at the Region 2 project nomination meeting. This project is expected to provide substantial wetland benefits 20 to 30 years after construction. There is a low degree of risk and uncertainty with this project as artificial crevasses and terraces have been used successfully in coastal Louisiana to create emergent wetlands.

Project Benefits: This project is anticipated to benefit 267 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $2,962,000.


Quarantine Bay
Bay Denesse
Fort
Point
Coquille
Point
Mississippi
River
Boothville
Triumph
Louisiana
Project
Site
N
0.7 0 0.7 Miles
0.7 0 0.7 Kilometers
Oyster leases
Crevasse Maintenance
Terraces
Project areas
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004370
CWPPRA PPL10 Nominee:
Region 2
Diversion and
Delta Management
at Fort St. Philip

Project Name: Delta-building Diversion at Benny's Bay, 20,000 cfs, with Outfall Management

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Construct delta-building diversion into Benny's Bay.

Problem: The project area lost over 15,000 acres of emergent wetlands since 1932, due mainly to subsidence and sediment deprivation. The 1983-90 loss rate was 2.39%/year.

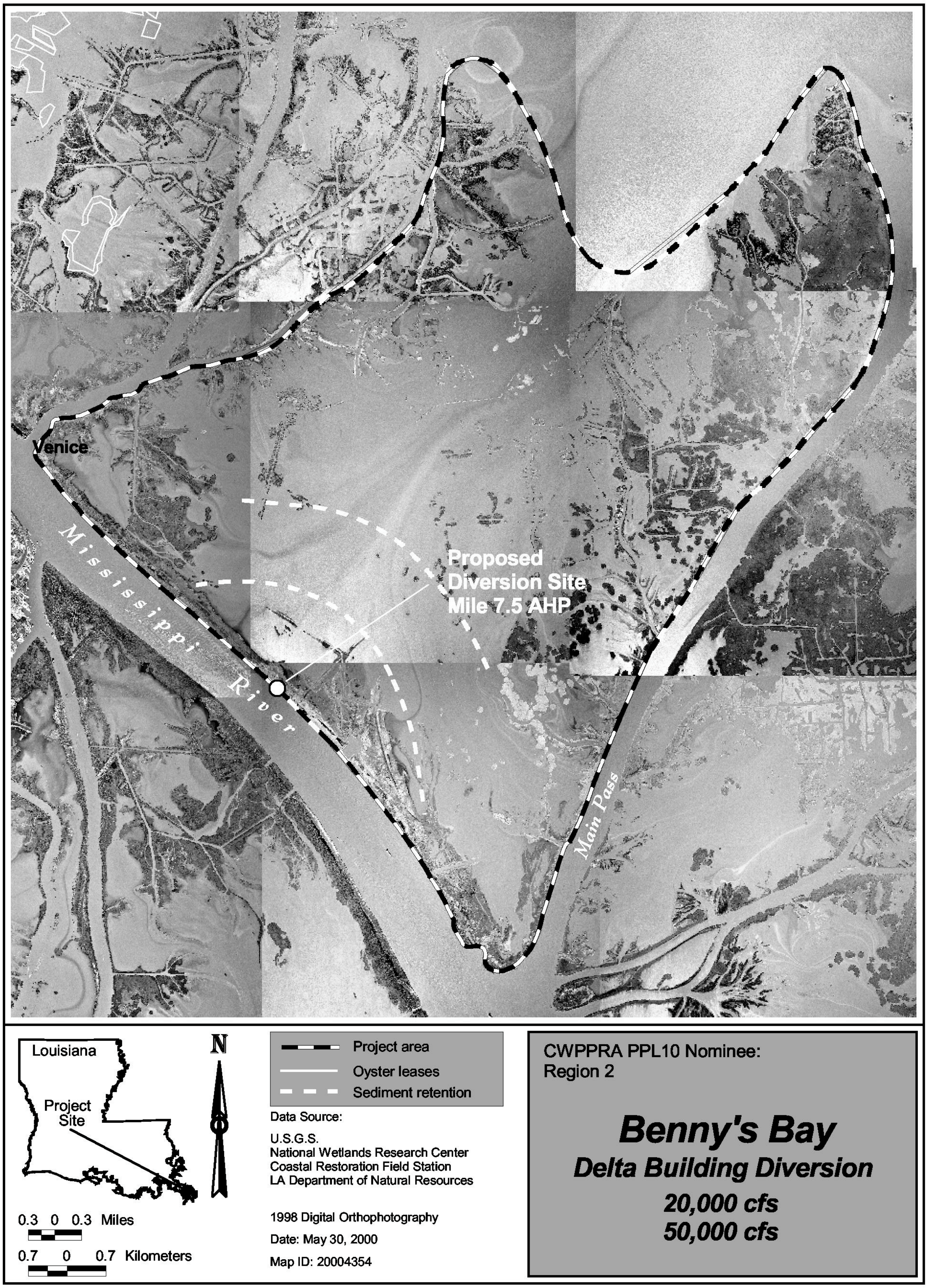
Goals: Through deposition of sediments and reduction of marsh loss, create/preserve 3,218 additional acres of marsh at the end of 20 years compared to without project conditions.

Proposed Solution: A 20,000 cfs uncontrolled sediment diversion near mile 7.5 AHP in the Mississippi River is proposed. This site was chosen because it is at the trailing end of a sandbar where sediment capture would be maximized. The conveyance channel would be approximately 400 to 500 feet wide and 25 feet deep and slope up to the existing bottom depth of the receiving area (-2 ft). Some dredged material would be placed on either side of the cut for stabilization and the remainder would be placed in shallow open water to create marsh. To aid in delta growth, bifurcation channels would be dredged about every five years. Two facilities would require relocation: a 16-inch crude oil pipeline owned by Shell and power lines owned by Entergy and Bell South. In addition, approximately 1,100 feet of foreshore dike would need to be removed. This diversion would cause induced dredging downstream in the Mississippi River. Outfall management would be done with sediment retention devices. These would be 3-foot high earthen dikes with 1 on 2 side slopes and a 4-foot crown. They would have low-level weirs at 1,000-foot intervals to allow natural water level fluctuations and fisheries access. They would be built from the receiving area with either a barge-mounted or marsh buggy dragline. The first dikes would be placed fairly near the river. As the area fills, a second set of dikes would be built further out.

Public Support, Risk/Uncertainty and Longevity/Sustainability: Plaquemines Parish and the U.S. Fish and Wildlife Service, owners of the Delta National Wildlife Refuge, support this project. The only likely risk is possible landrights problems. Much of the project is on the Delta National Wildlife Refuge, but a portion is on private property, which may present problems. There is little uncertainty regarding the results of this project since sediment diversion is a tried technique, although on a smaller scale. This project restores natural processes and should provide wetland benefits beyond 40 years without further maintenance and should maintain marsh elevation sufficient to withstand subsidence.

Project Benefits: This project is anticipated to benefit 5,828 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $37,618,000.


Venice
Mississippi River
Proposed
Diversion Site
Mile 7.5 AHP
Main Pass
Louisiana
Project
Site
N
0.3 0 0.3 Miles
0.7 0 0.7 Kilometers
Project area
Oyster leases
Sediment retention
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004354
CWPPRA PPL10 Nominee:
Region 2
Benny's Bay
Delta Building Diversion
20,000 cfs
50,000 cfs

Project Name: Delta-building Diversion at Benny's Bay, 50,000 cfs, with Outfall Management

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Construct delta-building diversion into Benny's Bay.

Problem: The project area lost over 15,000 acres of emergent wetlands since 1932, due mainly to subsidence and sediment deprivation. The 1983-90 loss rate was 2.39%/year.

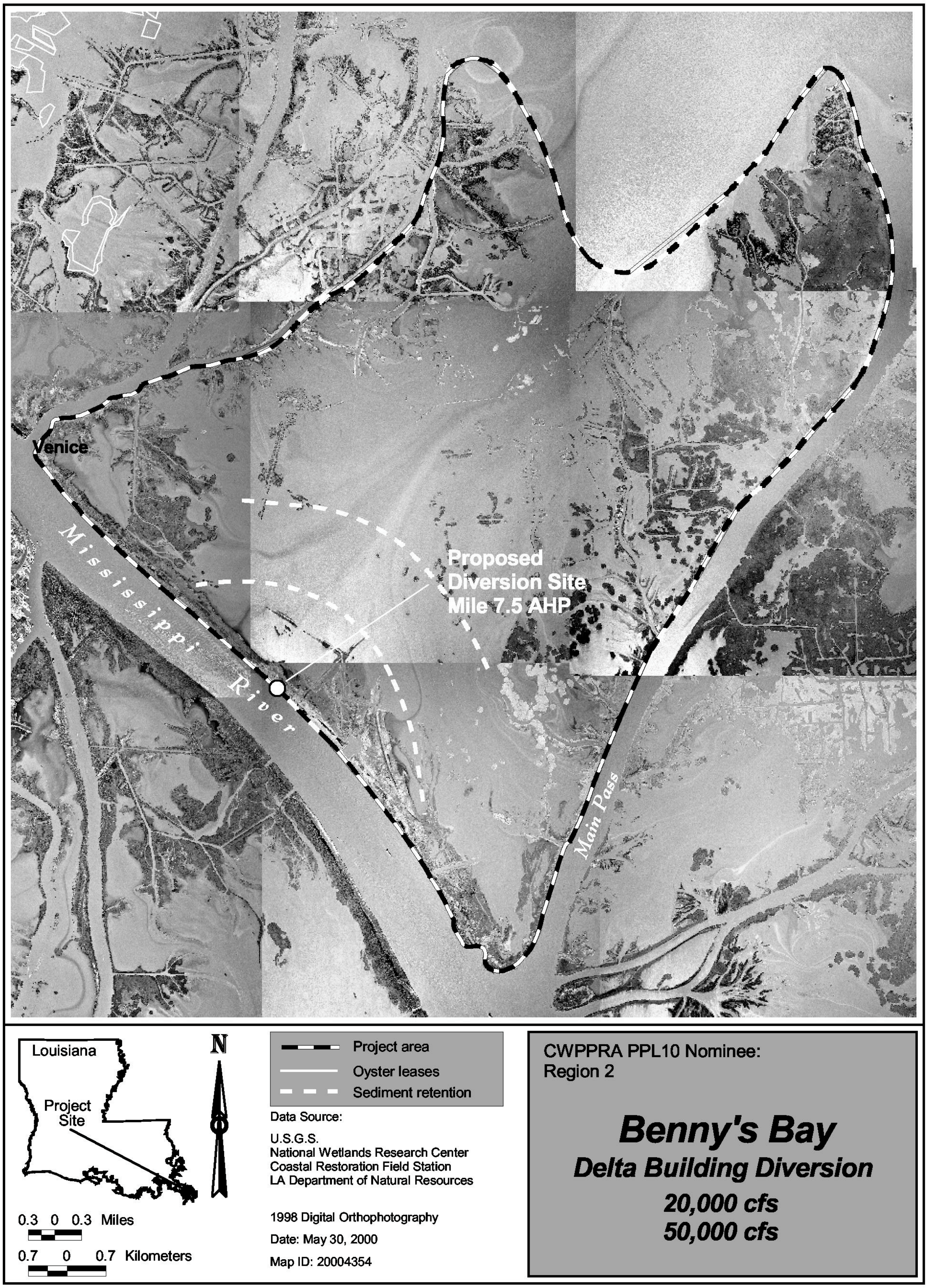
Goals: Through deposition of sediments and reduction of marsh loss, create/preserve 5,828 additional acres of marsh at the end of 20 years compared to without project conditions.

Proposed Solution: A 50,000 cfs uncontrolled sediment diversion near mile 7.5 AHP in the Mississippi River is proposed. This site was chosen because it is at the trailing end of a sandbar where sediment capture would be maximized. The conveyance channel would be approximately 670 feet wide and 47 feet deep and slope up to the existing bottom depth of the receiving area (-2 ft). Some dredged material would be placed on either side of the cut for stabilization and the remainder would be placed in shallow open water to create about 100 acres of marsh. To aid in delta growth, bifurcation channels would be dredged about every five years. Two facilities would require relocation: a 16-inch crude oil pipeline owned by Shell and power lines owned by Entergy and Bell South. In addition, approximately 1,100 feet of foreshore dike would need to be removed. This diversion would cause induced dredging downstream in the Mississippi River. Outfall management would be done with sediment retention devices. These would be ten 3-foot high earthen dikes with 1 on 2 side slopes, a 4-foot crown and 27,400 feet in length. They would have low-level weirs at 1,000-foot intervals to allow natural water level fluctuations and fisheries access. They would be built from the receiving area with either a barge-mounted or marsh buggy dragline. The first dikes would be placed fairly near the river. After the area fills, a second set of dikes would be built further out.

Public Support, Risk/Uncertainty and Longevity/Sustainability: Plaquemines Parish and the U. S. Fish and Wildlife Service, owners of Delta National Wildlife Refuge, support this project. The only likely risk is possible landrights problems. Much of the project is on the Delta National Wildlife Refuge, but a portion is on private property, which may present problems. There is little uncertainty regarding the results of this project since sediment diversion is a tried technique, although on a smaller scale. This project restores natural processes and should provide wetland benefits beyond 40 years without further maintenance and should maintain marsh elevation sufficient to withstand subsidence.

Project Benefits: This project is anticipated to benefit 5,828 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $37,613,000.


Venice
Mississippi River
Proposed
Diversion Site
Mile 7.5 AHP
Main Pass
Louisiana
Project
Site
N
Project area
Oyster leases
Sediment retention
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004354
0.3 0 0.3 Miles
0.7 0 0.7 Kilometers
CWPPRA PPL10 Nominee:
Region 2
Benny's Bay
Delta Building Diversion
20,000 cfs
50,000 cfs

Project Name: Delta-building Diversion at Myrtle Grove

Project Sponsor: National Marine Fisheries Service

Regional Strategy: Construct a delta-building diversion in Myrtle Grove/Naomi Area (15,000cfs)

Location: Region 2; Barataria Basin; Plaquemines, Jefferson and Lafourche Parishes

Problem: The project area has undergone substantial loss of wetlands and significant habitat shift to more saline marshes in the last 50 years. The project area has moderately high wetlands loss rates which are primarily caused by high subsidence rates and altered hydrology associated with navigation and flood control projects as well as oil and gas activities. It is anticipated that approximately 14,500 acres of wetlands will be lost in the project area over the next 20 years, and that wetland types will continue to shift toward more saline habitats.

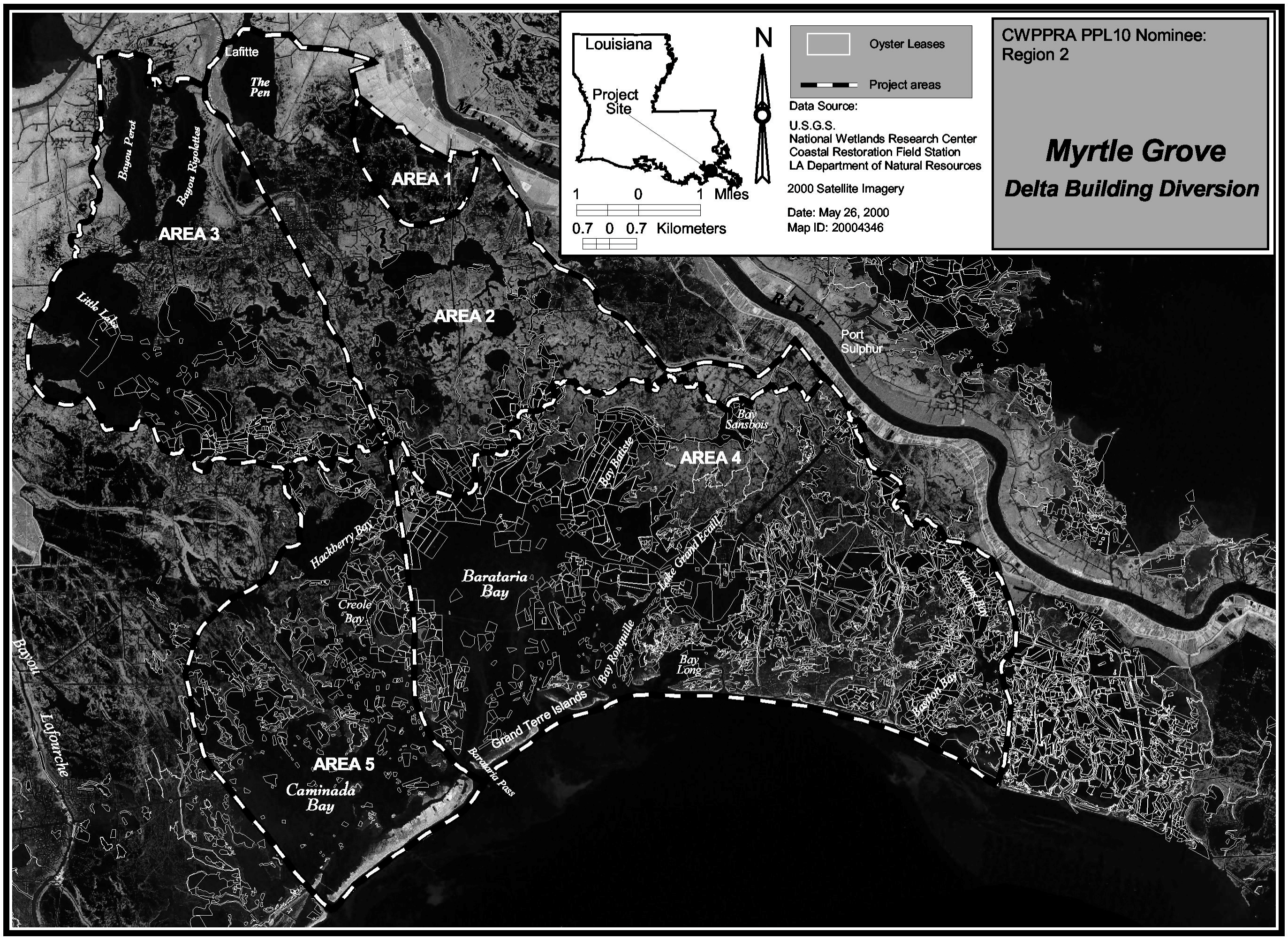
Goals: 1) Create intermediate marsh in northern portion of project area; 2) reduce land loss rates in southern portion of project area; and, 3) reduce average annual salinities throughout the majority of the project area.

Proposed solution: The project would involve installation of five 16' x 16' gated box culverts on the right descending bank of the Mississippi River in the vicinity of Myrtle Grove. The structure would be set at an elevation of -15' NGVD, resulting in a maximum conveyance capacity of 15,000 cfs. A reversed-curve inflow channel would maximize sediment capture. Additional project features would include a conveyance channel with parallel mainline flood control levees and an outflow channel with guide levees. Dredging to create adequate outfall in the headwaters of Bayou Dupont and construction of a pump station may be required.

Public Support, Risk/Uncertainty and Longevity/Sustainability: This project is expected to provide substantial wetland benefits for at least 20 years after construction, and depending on continued operation of the diversion, could provide benefits for as long as 50 years. There is a medium degree of risk and uncertainty with this project due to the uncertainty of the accuracy associated with large-scale sediment diversions.

Project Benefits: This project is anticipated to benefit 8,891 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $149,206,000, including the estimated costs associated with oyster relocations and $81,781,000 without oyster relocation costs.


CWPPRA PPL10 Nominee:
Region 2
Myrtle Grove
Delta Building Diversion
Louisiana
Project Site
N
Oyster Leases
Project areas
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: May 26, 2000
Map ID: 20004346
1 0 1 Miles
0.7 0 0.7 Kilometers
Lafitte
The Pen
Bayou Perot
Bayou Rigolettes
AREA 1
AREA 2
AREA 3
AREA 4
AREA 5
Little Lake
Port Sulphur
Bay Sansbois
Bay Batiste
Hackberry Bay
Barataria Bay
Creole Bay
Lake Grand Ecaille
Bay Ronquille
Bay Long
Grand Terre Islands
Barataria Pass
Caminada Bay
Bastian Bay
Bayou Lafourche

Project Name: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration

Project Sponsor: National Marine Fisheries Service

Regional Strategy: Restore and maintain barrier headlands, islands, and shorelines.

Location: This project is located in Region 2 within the Barataria basin and Plaquemines Parish.

Problem: Wetlands, dune and swale habitats within the project area have undergone substantial loss to oil and gas activities (e.g., pipeline construction), subsidence, absolute sea-level rise, and marine and wind induced shoreline erosion (e.g., gulfside and bayside). Marine processes acting on the abandoned deltaic headland rework and redistribute the previously deposited sediment. Development of fragmentary islands from breaches in the barrier headland and subsequent inlet/pass formation has resulted from increased tidal prism storage and storm related impact. The Bay Joe Wise shoreline has receded and decreased to a critical width that is susceptible to breaching during storms with a return frequency of 8.3 years for the Barataria Shoreline. Land area and loss rates show that land in the project area has decreased from 1932 to 2000 at an increasing rate of 7.8 acres/year to 14.4 acres/year. Approximately 60% of the existing wetlands in the project area would be lost in the future without the project.

Goals: 1) Prevent the breaching of the Bay Joe Wise shoreline by increasing barrier shoreline width; 2) increase back-barrier, emergent marsh acreage to maintain the barrier shoreline, and 3) create tidal emergent marsh containing tidal aquatic habitats.

Proposed solution: 1) Use 2,704,000 cubic yards of hydraulically dredged sand to create 226 acres of back barrier marsh platform at an elevation of +2.0 ft NAVD that would increase the average width of the Bay Joe Wise Shoreline by 1,000 ft. The platform would be contiguous with the existing Bay Joe Wise Shoreline and tie into the marshes along Bayou Huertes and Grand Bayou. Habitat diversity would be designed into the created marsh platform by constructing 10,000 ft of tidal creeks and 6, 1-acre ponds. The marsh platform would be aerially seeded with Japanese Millet, Browntop Millet, or Rye Grass and later planted with Smooth Cordgrass, Black Mangrove, and Marshhay Cordgrass.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The project is expected to have a low risk/uncertainty factor based on the detailed geotechnical analysis and survey information of the borrow and fill sites already completed under the NMFS Complex Project and the USACE Feasibility Study. Dedicated dredging projects of this type and scope have been completed successfully when the fill area is semi-confined against a continuous shoreline as proposed. Most of the created acreage and associated benefits are expected throughout the 20-year project because increasing the width of the barrier shoreline would eliminate breaching during hurricanes.

Project Benefits: This project is anticipated to benefit 176 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $14,424,000.


Bayou Huertes
Bay Joe Wise
1040 ft.
Grand Bayou Pass
Gulf of Mexico
Louisiana
Project Site
N
0.2 0 0.2 Miles
0.4 0 0.4 Kilometers
Oyster leases
Project area
Marsh Creation
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004352
CWPPRA PPL10 Nominee:
Region 2
Chaland Pass to
Grand Bayou Pass
Restore Barrier Shoreline

Project Name: Small Freshwater Diversion to the Northwestern Barataria Basin

Project Sponsor: U. S. Environmental Protection Agency

Regional Strategy: Construct small diversions (to swamps) with outfall management; prevent diversion-related flooding and remove diverted waters from upper basin.

Location: Region 2, Upper Barataria Basin, St. James and Lafourche Parishes, LA. The project is proposed for Lac des Allemands drainage basin. The 5,134 acre project boundary is divided into 6 sub-areas (see map). Most of the areas to be benefitted by the project are downstream of LA 20 (2 small areas are located just upstream of it). The project is located northwest of Lac des Allemands with the prospective siphon location identified at Pikes Peak.

Problem: The Lac Des Allemands River Basin Initiative identified the following specific problems within the Lac des Allemands Watershed: 1) drainage impairments, 2) water quality impairments, and 3) loss of marsh and decline of cypress forest. Many years of research by LSU researchers in these swamps have demonstrated: 1) the swamps throughout the basin will eventually change to open water, floating aquatic plants, or fresh marsh, due to the effects of subsidence and inadequate accretion of sediments and organic matter; and 2) some areas are highly stressed and converting to open water, floating aquatic plants, and fresh marsh. These problems are caused by the loss of river water, and its associated sediment and nutrients, due to the leveeing of the Mississippi River, and by impoundment, caused by roads, drainage canals, and spoil banks.

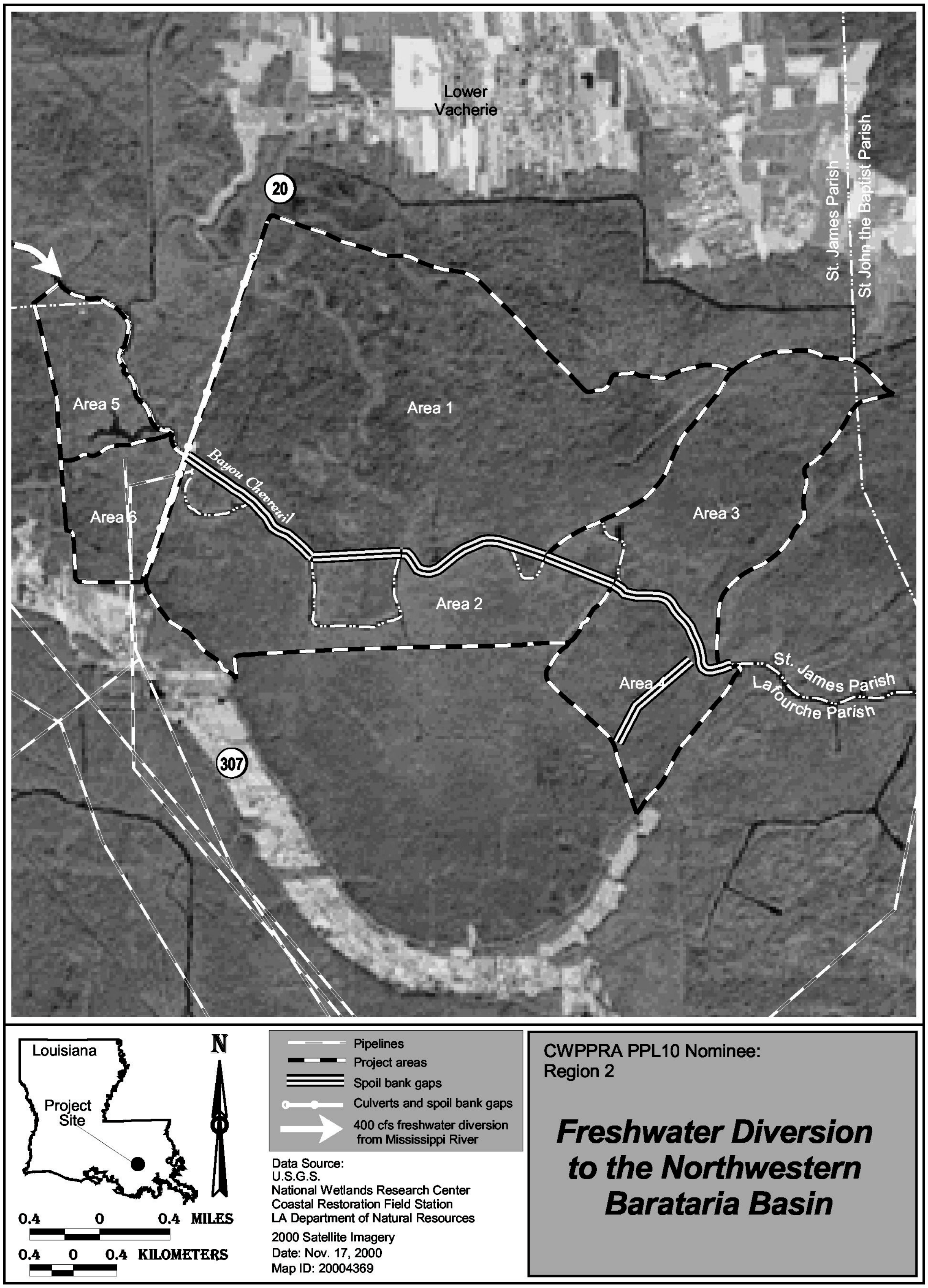
Goals: 1) Restore and maintain selected cypress-tupelo swamp tracts in the upper Barataria Basin,
2) restore and maintain water quality in the swamp and in Bayou Chevreuil, and 3) contribute to reduction in nutrient loading from the Mississippi River to the Gulf of Mexico.

Proposed Solution: The project consists of the installation of two 6 foot diameter siphon pipes, vacuum pipes, and associated diversion canals placed over the Mississippi River levee at Pikes Peak. Very importantly, the project also consists of gapping spoil banks along Bayou Chevreuil downstream from LA 20, gapping of spoil banks along the borrow canal along LA 20, and culverts under LA 20.

Public Support, Risk/Uncertainty and Longevity/Sustainability: It is anticipated that this project will receive statements of support from local and state elected officials, and Congressional representatives. The proposed project is expected to continue providing substantial wetland benefits 30 to 40 years after construction, and there is a high degree of probability that the project will meet its objectives.

Project Benefits: Over time, project benefits should include reduced swamp submergence, increased regrowth of young trees, denser forests in currently stressed areas, increased swamp productivity, and improved water quality. Exact benefited acres have not been calculated.

Total Fully Funded Cost: The total fully funded cost of this project is $14,281,000.


Lower
Vacherie
20
St. James Parish
St John the Baptist Parish
Area 5
Area 1
Bayou Chevreuil
Area 6
Area 3
Area 2
Area 4
St. James Parish
Lafourche Parish
307
Louisiana
Project
Site
N
0.4 0 0.4 MILES
0.4 0 0.4 KILOMETERS
Pipelines
Project areas
Spoil bank gaps
Culverts and spoil bank gaps
400 cfs freshwater diversion from Mississippi River
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: Nov. 17, 2000
Map ID: 20004369
CWPPRA PPL10 Nominee:
Region 2
Freshwater Diversion
to the Northwestern
Barataria Basin

Project Name: South Lake Salvador Shoreline Protection and Marsh Creation

Project Sponsor: National Marine Fisheries Service

Regional Strategy: Dedicated dredging to create marsh on the landbridge.

Location: Region 2, Barataria Basin, Lafourche Parish

Problem: The major cause of land loss in the project area is shoreline erosion. An analysis of land loss was undertaken by reviewing historic aerial photography and further interpretation of the Britsch and Dunbar (1996) data. Based on the land loss analyses, field data, soil and vegetation types, and best professional judgement, Area A is undergoing approximately -4 feet/year, Area B is undergoing -34 feet/year, and area C is undergoing -53 feet/year. The project would address shoreline erosion and coalescence of Catahoula Bay and Lake Salvador with the GIWW by constructing rock shoreline protection and marsh creation with dredged material.

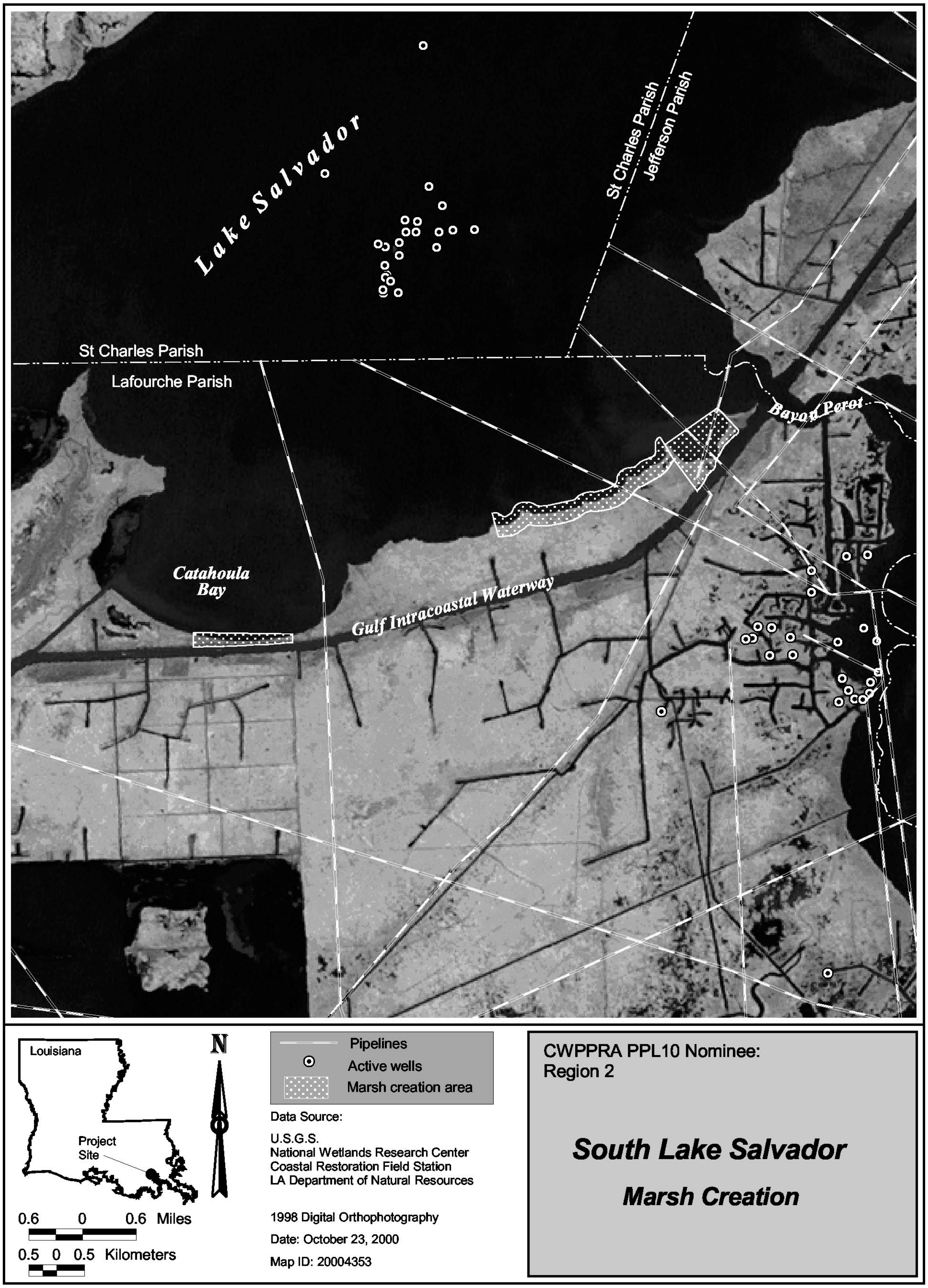
Goals: 1) Prevent coalescence of Lake Salvador and the GIWW from shoreline erosion; 2) increase emergent marsh acreage to maintain the integrity of the Barataria Landbridge (that portion between the GIWW and Lake Salvador and Catahoula Bay and Bayou Perot), and 3) prevent or reduce conversion of emergent marsh to open water.

Proposed Solution: Area A - Shoreline protection in the form of a rock containment dike, one mile in length, would be constructed along the narrowest portion of the landbridge between Catahoula Bay and the GIWW. Sediment hydraulically dredged from the lake bottoms would be used to create 24 acres of elevations conducive to the establishment of wetlands. The area would be aerially seeded with Japanese Millet immediately following construction and one row of Giant Cutgrass would be planted on 10 foot centers along the southside of the rock containment. Area B – Approximately two miles of continuous rock breakwater would be constructed beginning just west of the midpoint between Catahoula Bay and Bayou Perot and terminate at Area C. The breakwater would be constructed 200 feet from shore and sediment dredged from the flotation canal would be sidecast to create a strip of emergent marsh elevations. Area C – Approximately 140 acres of marsh elevations would be created in the developing cove and breached area west of Bayou Perot behind a 3,600 foot rock dike at Lake Salvador and a 1,100 foot rock dike along the GIWW. This site would include six, one-acre marsh ponds and be aerially seeded with Japanese Millet and later planted with two rows of Giant Cutgrass on 10 foot centers that would be planted along the backside of the dikes and on 20 foot centers throughout the remainder of the area.

Public Support, Risk/Uncertainty and Longevity/Sustainability: Preliminary field data and the performance of past demonstration and state only restoration projects in the area suggests that there would be low risk/uncertainty because soils are firm enough to support riprap dikes without settlement failure. Based on these past projects, the proposed shoreline protection and dedicated dredging would last the 20 year project life.

Project Benefits: This project is anticipated to benefit 480 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $19,389,000.


Lake Salvador
St Charles Parish
Jefferson Parish
St Charles Parish
Lafourche Parish
Bayou Perot
Catahoula Bay
Gulf Intracoastal Waterway
Louisiana
Project Site
N
0.6 0 0.6 Miles
0.5 0 0.5 Kilometers
Pipelines
Active wells
Marsh creation area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: October 23, 2000
Map ID: 20004353
CWPPRA PPL10 Nominee:
Region 2
South Lake Salvador
Marsh Creation

Project Name: Phase II – Raccoon Island Breakwaters & North Shore Marsh Creation

Project Sponsor: National Resources Conservation Service

Regional Strategy: Restore and maintain the Isles Dernieres & Timbalier barrier island chains

Location: Region 3, Terrebonne Basin, Terrebonne Parish, LA. Raccoon Island is the most western island of the Isles Dernieres barrier island chain.

Problem: The project will reduce the rate of deterioration and loss of Raccoon Island caused by shoreline erosion and loss of elevation by overwash. Raccoon Island is now the largest and most westerly nesting site for Brown Pelicans in the state, and has the greatest nesting avian diversity of all Louisiana barrier islands. Nevertheless, the life expectancy of the portion of island currently left unprotected could be as little as five years if left unattended. In addition, other areas, such as Grand Gossier Islands, that once supported larger nesting populations have severely deteriorated or been destroyed by storms. Consequently, restoration of Raccoon Island is even more critical to the efforts of preserving this rapidly dwindling habitat. Areal and elevational loss of the island has resulted in destruction of habitat for rookery and seabird colony utilization. The current rate of erosion is also decreasing the island chain's ability to protect adjacent mainland wetlands from the effects of storm surge, salt water intrusion, an increased tidal prism, and energetic storm waves (McBride and Byrnes, 1997).

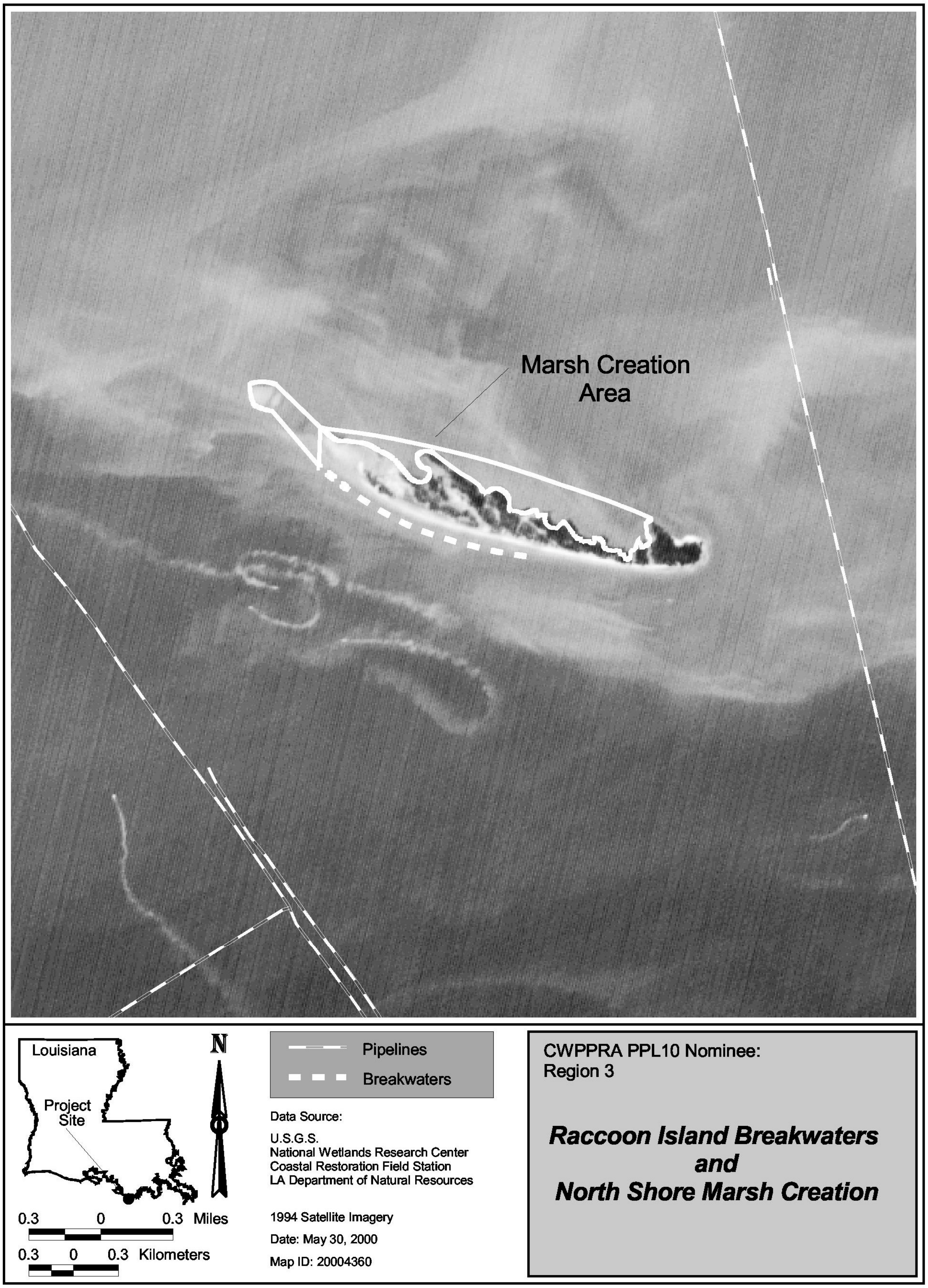
Goals: The project goal is to protect Raccoon Island from an encroaching shoreline by reducing the rate of shoreline erosion west of the existing Breakwater Restoration Demo Project (TE-29), and creating more land along the entire northern shoreline.

Proposed Solution: 1) Construct eight additional segmented breakwaters along the Gulf side of the island, to continue west from the existing TE-29 project, 2) construct an earthen dike along the northern shore (bayside), which will be filled with material dredged from the bay, and 3) establish vegetative plantings on the acreage newly created by dredge deposition.

Public Support, Risk/Uncertainty and Longevity/Sustainability: This project is supported by the public and local officials. The project is expected to provide substantial wetland benefits for 20 to 30 years after construction. Considering the success of the existing demonstration project, the risk and uncertainty associated with this project is low; however, there is always the risk of hurricane or other storm damage within the project area.

Project Benefits: This project is anticipated to benefit 166 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $9,887,000.



Marsh Creation Area
Louisiana
Project Site
N
0.3 0 0.3 Miles
0.3 0 0.3 Kilometers
Pipelines
Breakwaters
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1994 Satellite Imagery
Date: May 30, 2000
Map ID: 20004360
CWPPRA PPL10 Nominee:
Region 3
Raccoon Island Breakwaters
and
North Shore Marsh Creation

Project Name: Isles Dernieres Restoration, Whiskey Island West Flank

Project Sponsor: U. S. Environmental Protection Agency

Regional Strategy: Restore and maintain the Isles Dernieres and Timbalier barrier island chains.

Location: Region 3, Terrebonne Basin, Terrebonne Parish, LA. The west flank of Whiskey Island of the Isles Dernieres barrier chain is at the southern extreme of Terrebonne Parish, approximately 18 miles southwest of Cocodrie, Louisiana.

Problem: The Isles Dernieres have one of the most rapidly deteriorating barrier shorelines in the United States. This barrier island chain serves as a storm buffer for inland bays, estuaries and wetlands, provides an important habitat for one of the world's most productive fisheries, and protects human populations as well as oil and gas infrastructure. Area change rates for Whiskey Island between 1978 and 1988 have been documented at -31.1 acres per year. More specifically, the short spit located on the western end of Whiskey Island is experiencing landward rollover at approximately 65 feet per year (McBride and Byrnes, 1997).

Goals: 1) Provide sustainable barrier island habitat for numerous biological species, including endangered species, and 2) provide a continued protective barrier for back bays and inland marshes to reduce wave and tidal energies and ultimately reduce land loss.

Proposed Solution: The project would entail mining and transporting offshore Ship Shoal sand to rebuild the west flank of Whiskey Island. A cutterhead suction dredge and/or hopper dredge would be used at Ship Shoal. Material would be transported a distance of approximately 10 miles with pipeline and booster pumps or as necessary to the island area. The diameter and length of pipe would be determined at the site. Conventional earth moving equipment would be used to obtain design elevations, widths and slopes. Design features include the following: 150 foot beach platform with an elevation of +2 feet on the Gulf side, +5 feet dune with a top width of 300 feet and side slopes of 1 to 10, 970 foot marsh platform on the bay side built to a +2 foot, vegetative planting and/or seeding, and sand fencing.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The project is supported by local and state elected officials, and Congressional representatives. The proposed project is expected to continue providing substantial wetland benefits 30 to 40 years after construction, and there is a high degree of probability that the project will meet its objectives.

Project Benefits: This project is anticipated to benefit 87 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $35,083,000.


Caillou Bay
Whiskey Island
Isles Dernieres
Gulf of Mexico
Louisiana
Project
Site
N
0.2 0 0.2 Miles
0.2 0 0.2 Kilometers
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004371
CWPPRA PPL10 Nominee:
Region 3
Isles Dernieres Restoration
Whiskey Island
West Flank

Project Name: GIWW Bank Restoration of Critical Areas in Terrebonne

Project Sponsor: National Resources Conservation Service

Regional Strategy: Stabilize the banks of navigation channels for water conveyance.

Location: Region 3, Terrebonne Basin, Terrebonne and Lafourche Parishes, LA

Problem: In the past 20 years as the efficiency of the Lower Atchafalaya River has decreased, Verrett subbasin flooding and Atchafalaya River flows via the GIWW have increased. Deterioration of fresh and intermediate wetlands, particularly of the floating marshes, in the upper Penchant Basin has been attributed to sustained elevated water levels. In addition, floating marshes in some areas have become directly exposed to increased circulation through unnatural connections formed where channel banks deteriorated. Conversely, losses in the central Terrebonne marshes have been attributed to the elimination of riverine inflow coupled with subsidence and altered hydrology from canal dredging that facilitated saltwater intrusion (Coast 2050, Appendix E). Large areas of floating marshes in the northwest Penchant basin have converted from thick-mat maidencane floating marsh to more fragile thin-mat spikerush floating marsh (Visser, et al. 1999), or to open water. In addition, landowners in the upper Penchant Basin can testify that increased flow of the GIWW and wave pulses from navigation traffic causes additional breakup and loss of floating marshes in unprotected areas.

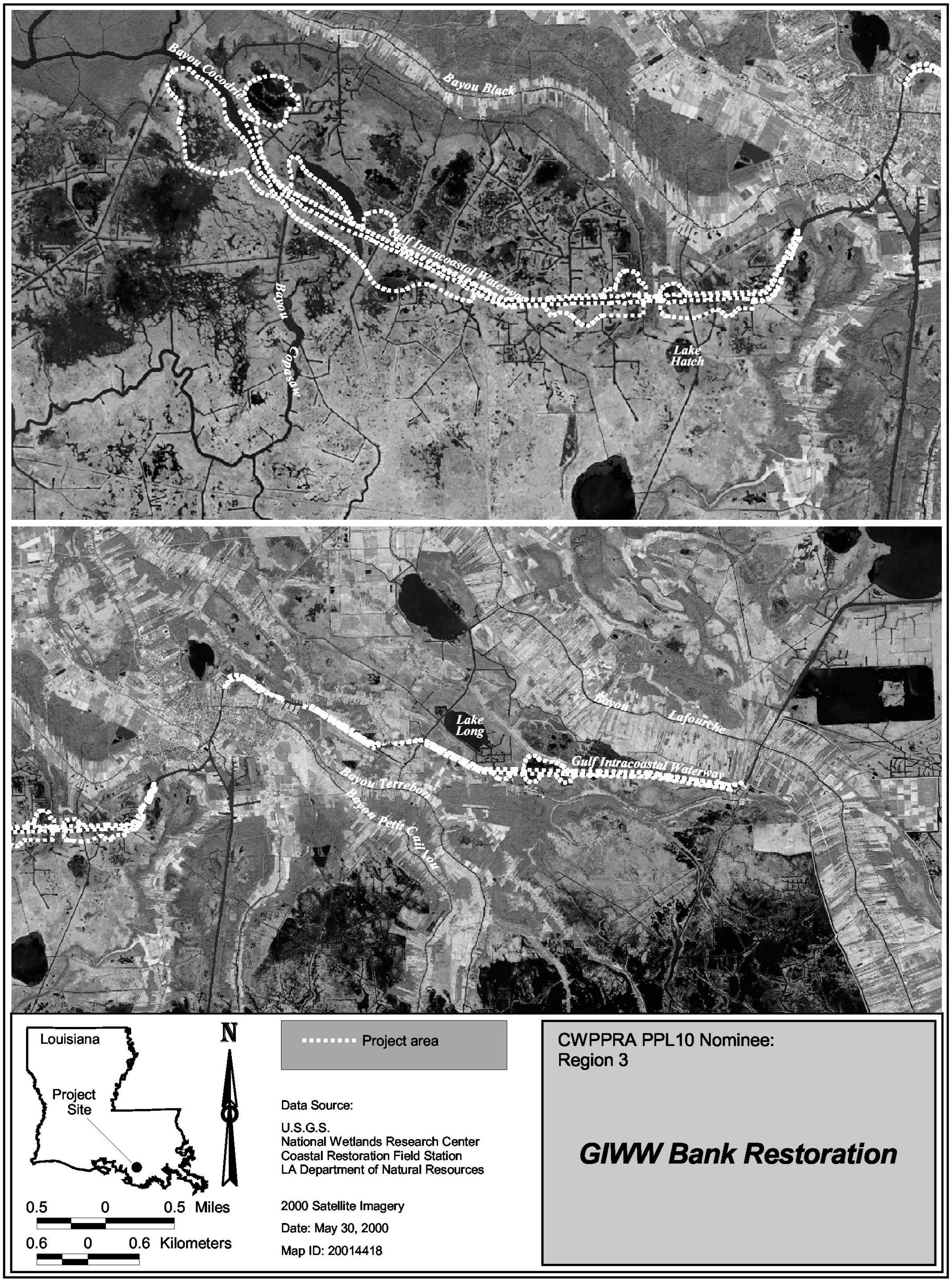
Goals: The project goal is to enable the GIWW to function as a conveyance channel to direct Atchafalaya freshwater flow to specific locations that would benefit from increased flows of fresh water and nutrients while providing relief to the Penchant marshes currently suffering from prolonged inundation.

Proposed Solution: This project will restore critical lengths of deteriorated channel banks, and stabilize/armor selected critical lengths of deteriorated channel banks with hard shoreline stabilization materials.

Public Support, Risk/Uncertainty and Longevity/Sustainability: At present local and state support is available, Congressional representatives have not yet been contacted in order to elicit their support. This project includes planned maintenance that will ensure its ability to provide benefits at least through the project's 20 year life. It is designed to provide the ability of sediment entrapment and therefore build up behind the rock dike. The material proposed is as of yet untested in this fragile soil environment; however, maintenance is included to lessen the inherent risk in organic soil conditions.

Project Benefits: This project is anticipated to benefit 2,019 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $19,658,000.


Bayou Cocodrie
Bayou Black
Gulf Intracoastal Waterway
Bayou Copasaw
Lake Hatch
Lake Long
Bayou Lafourche
Gulf Intracoastal Waterway
Bayou Terrebonne
Bayou Petit Caillou
Louisiana
Project Site
N
0.5 0 0.5 Miles
0.6 0 0.6 Kilometers
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: May 30, 2000
Map ID: 20014418
CWPPRA PPL10 Nominee:
Region 3
GIWW Bank Restoration

Project Name: North Lake Mechant Land Bridge Restoration

Project Sponsor: U.S. Fish and Wildlife Service

Regional Strategy: Dedicated sediment delivery for marsh building

Location: Region 3, Terrebonne Basin, Terrebonne Parish, LA

Problem: The project would protect and restore a critical land bridge barrier between the easily erodible fresh marshes north of Bayou Decade and the marine processes of Lake Mechant. At the present shoreline erosion rate of 7.5 feet/year, a 500-1,000 foot long section of the north Lake Mechant shore will fail, allowing the hydrologic connection of organic interior open water/marsh areas with Lake Mechant. Additionally, erosion and deterioration along the banks of Raccourci Bayou are threatening to enlarge and straighten this sinuous tidal pass into a major conduit for water exchange. These changes will accelerate loss of remaining interior marshes and extend lake-like conditions and increased salinities north to Bayou Decade. Maximum tidal amplitudes along the north shore of Lake Mechant are approximately 1.25 feet. Should shoreline breaching and enlargement of tidal channels allow those high tidal energy conditions to intrude into the project area, the organic interior marshes would likely experience increased loss rates. Oyster leases occupy the southern half of Lake Mechant, indicating that relatively high salinity conditions occur in Lake Mechant. The project would also restore landbridge function by plugging several existing canals through the land bridge.

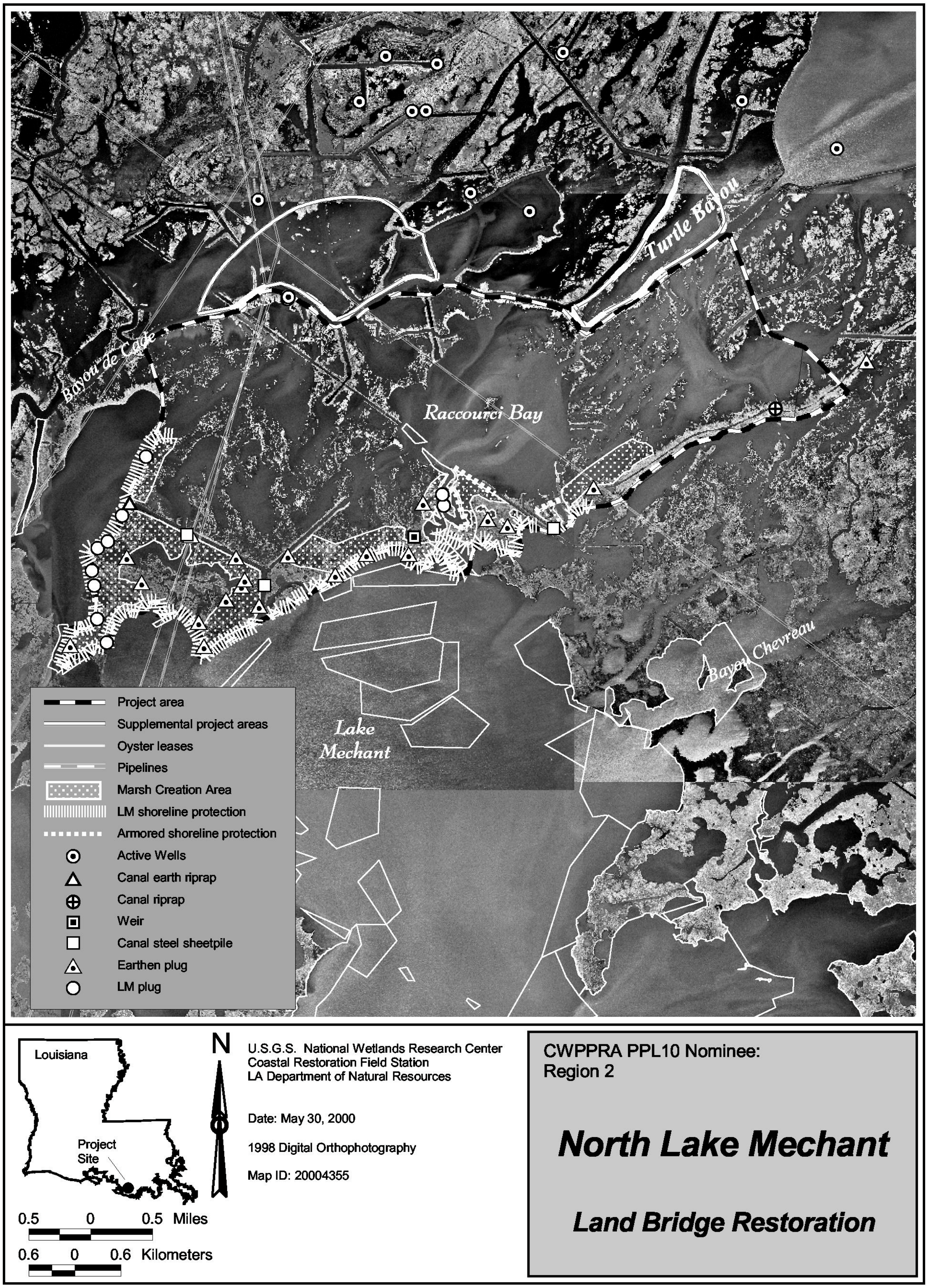
Goals: Protect and restore the north Lake Mechant land bridge and Small Bayou LaPointe Ridge.

Proposed Solution: Dredge material from northern Lake Mechant to create approximately 534 acres of marsh. This will include armoring 6,600 linear feet of containment dike. Smooth cordgrass will also be planted along 44,300 linear feet of Lake Mechant, Goose Bay and Lake Pagie. One armored earthen plug, 3 sheetpile plugs, and 1 rip-rap plug will be installed. Also, one existing fixed-crest weir will be repaired.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The project is known to be supported by local officials. The project would provide benefits for 20 to 30 years after construction. Given the known soil conditions and the information already obtained, risk and uncertainty for this project is low.

Project Benefits: This project is anticipated to benefit 604 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $26,009,000.



Turtle Bayou
Bayou de Cade
Raccourci Bay
Bayou Chevreau
Lake Mechant
Project area
Supplemental project areas
Oyster leases
Pipelines
Marsh Creation Area
LM shoreline protection
Armored shoreline protection
Active Wells
Canal earth riprap
Canal riprap
Weir
Canal steel sheetpile
Earthen plug
LM plug
Louisiana
Project Site
N
0.5 0 0.5 Miles
0.6 0 0.6 Kilometers
U.S.G.S. National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
Date: May 30, 2000
1998 Digital Orthophotography
Map ID: 20004355
CWPPRA PPL10 Nominee:
Region 2
North Lake Mechant
Land Bridge Restoration

Project Name: Shell Island Pass Marsh Creation

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Maximize land building in Atchafalaya Bay

Problem: In March 2000, it appeared that there would be no wetland creation disposal site within the Federal Standard available for material to be removed from the Lower Atchafalaya River at the Horseshoe after FY 2000. Federal and state agencies opposed upland disposal.

Goals: Create intertidal marsh with dredged material in the area where Shell Island Pass enters Atchafalaya Bay.

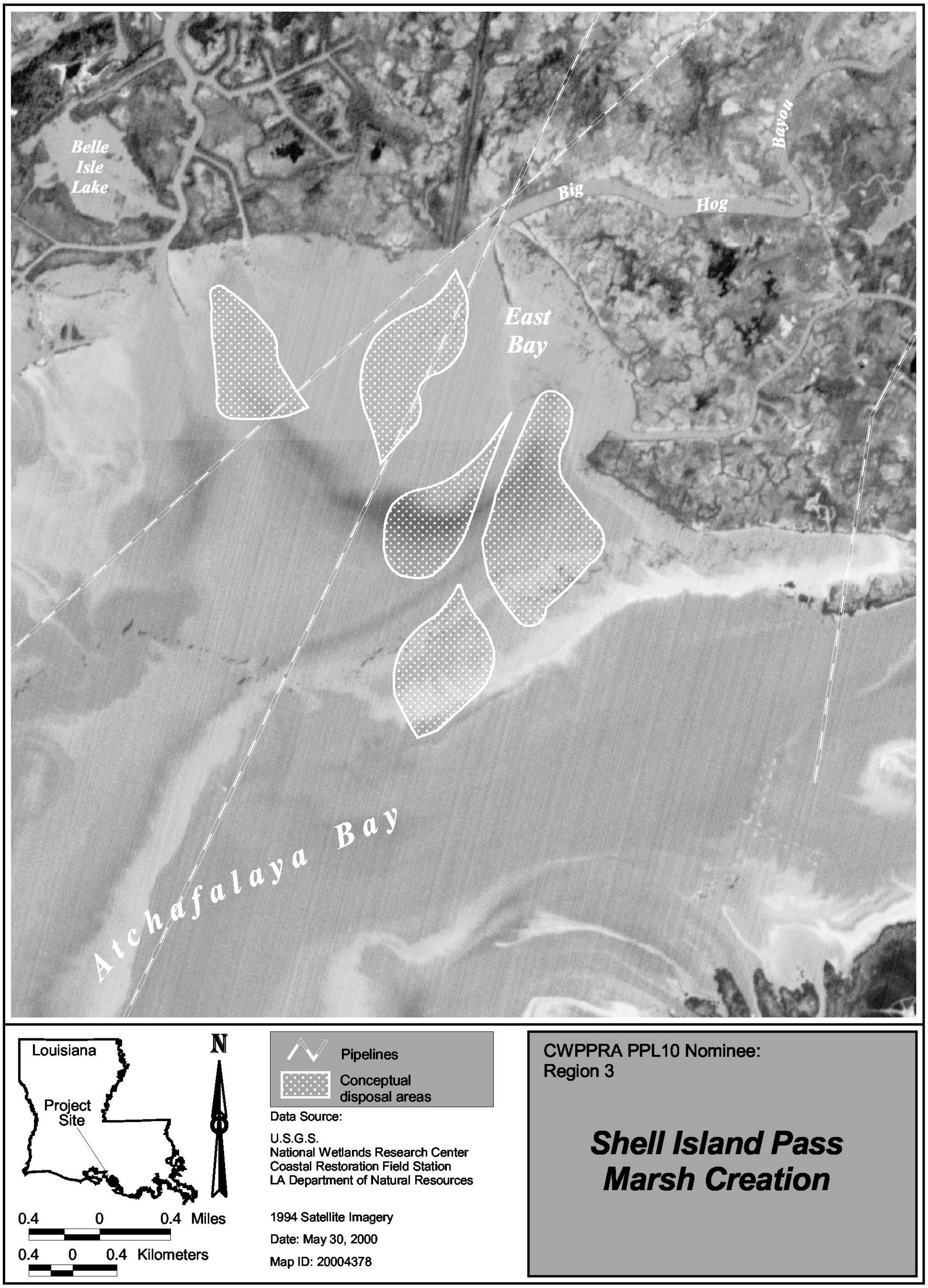
Proposed Solution: In the plan nominated for PPL 10, the USACE would maintenance dredge the Horseshoe reach, removing about 1 million cy each year. CWPPRA would then pay costs above the Federal Standard for pipeline installation down Shell Island Pass, pumping, and disposal in Atchafalaya Bay. The sediment would be placed semi-confined, and primarily create intertidal marsh elevations, with lesser amounts at natural levee elevations. Any containment dikes would be mechanically breached in strategic locations prior to contractor demobilization.

After further study, the USACE developed a wetland creation disposal plan at the Horseshoe that was within the Federal Standard and acceptable to the agencies. This site was estimated to hold about 3 million cy. Personnel of the Atchafalaya Delta WMA suggested that it might be possible to install a pipeline down the Lower Atchafalaya River to the point where Shell Island Pass left the river. Then, dredged material could be disposed into the pass and carried to Atchafalya Bay by the currents. The USACE determined that such a plan would be within the Federal Standard.

Thus, the USACE recommends that the plan nominated for PPL 10 not be considered for funding. Instead, the USACE would utilize the wetland disposal site at the Horseshoe until it is full (2-3 years). After that, the material would be disposed into Shell Island Pass for one or two cycles and the results studied. If deltaic marsh were created in the bay, this program would be continued. If not, the project nominated for PPL 10 would be reconsidered. The other federal agencies and personnel of the Atchafalaya Bay WMA concur with this recommendation.

Benefits: No WVA was conducted for this project since it is not recommended for funding.

Total Fully Funded Cost: Should this project be built, the total fully funded cost would be $3,058,000.


Belle
Isle
Lake
Big
Hog
Bayou
East
Bay
Atchafalaya Bay
Louisiana
Project
Site
N
0.4 0 0.4 Miles
0.4 0 0.4 Kilometers
Pipelines
Conceptual
disposal areas
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1994 Satellite Imagery
Date: May 30, 2000
Map ID: 20004378
CWPPRA PPL10 Nominee:
Region 3
Shell Island Pass
Marsh Creation

Project Name: Shoreline Protection Cheniere au Tigre to Southwest Pass

Project Sponsor: National Resources Conservation Service

Regional Strategy: Maintain shoreline integrity & stabilize critical areas of Teche/Vermilion Bay systems including the Gulf Shoreline

Location: Region 3, Teche/Vermilion Basin, Vermilion Parish, LA. The project includes approximately 43,460 linear feet of shoreline along the Gulf of Mexico, east of Cheniere au Tigre (beginning on the eastern boundary of TV-16) and west of Southwest Pass. In addition, the project area includes marsh creation sites along the bay shoreline of the landbridge.

Problem: Shoreline erosion is a major cause of land loss in the Teche/Vermilion Basin. Between 1932 and 1990, over 7,000 acres of emergent marsh were lost in the Rainey Marsh Mapping Unit. Wave and tidal action from the Gulf of Mexico has eroded this shoreline. Due to increasing erosion, the shoreline in this area has deteriorated to the point that the beach rim no longer exists, allowing sheet flow of high salinity water to enter fragile wetlands, creating ponding and interior marsh loss. This coastline will continue to suffer from erosive actions which may lead to a widening of Southwest pass and/or breaches in critical areas. In addition, this beach protects thousands of acres of wetlands, and is critical to diverse communities of fish and wildlife populations.

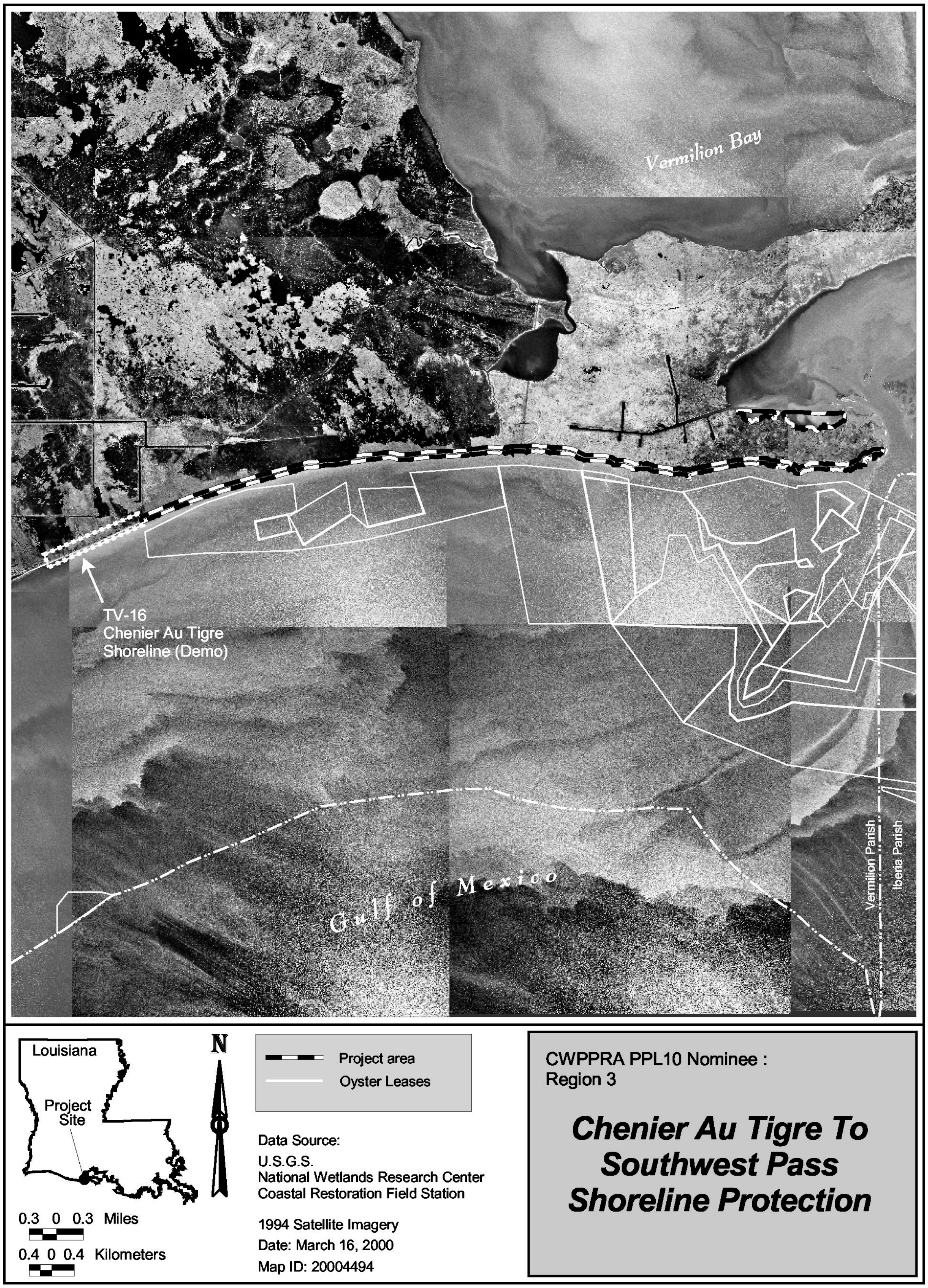
Goals: The goals of this project include stabilizing the gulf shoreline, which will reduce interior marsh erosion and saltwater intrusion. In addition, a goal of this project is to directly create marsh on the bay side to further fortify the landbridge protecting interior marshes from gulf strength salinities and tidal scour.

Proposed Solution: This project will install a continuous onshore revetment as a wave dampening device to halt or reduce shoreline erosion. In addition, marsh will be directly created on the bayside of the landbridge using vegetative plantings and material dredged from the adjacent pipeline canal.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The Vermilion Parish Coastal Restoration Advisory Committee has received letters of support for this project from federal , state, and local officials. This project should provide wetland benefits 20 to 30 years after the project's construction. Onshore revetments have successfully halted shoreline erosion, and for that reason the risk associated with this project is very small. The longevity of the project does, however, depend upon the occurrence of hurricanes or other storm activity within the area.

Project Benefits: This project is anticipated to benefit 309 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $25,112,000.


Vermilion Bay
TV-16
Chenier Au Tigre
Shoreline (Demo)
Gulf of Mexico
Vermilion Parish
Iberia Parish
Louisiana
Project
Site
0.3 0 0.3 Miles
0.4 0 0.4 Kilometers
N
Project area
Oyster Leases
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
1994 Satellite Imagery
Date: March 16, 2000
Map ID: 20004494
CWPPRA PPL10 Nominee :
Region 3
Chenier Au Tigre To
Southwest Pass
Shoreline Protection

Project Name: Pecan Island Freshwater Introduction Enlargement

Project Sponsor: National Resources Conservation Service

Regional Strategy: Move water north to south across LA Highway 82, with associated drainage improvements south of LA Highway 82.

Location: Region 4, Mermentau Basin, Vermilion Parish, LA. The project is located south of LA Hwy 82 at Pecan Island, and is 10,754 acres (3,720 acres brackish marsh and 7,034 acres open water). The project is located on Miami Corporation, Vermilion Corporation, and Miller Estate property. The area is bounded by LA Hwy 82 to the north, Rockefeller Refuge to the west, a pipeline canal to the east, and Fur Canal to the south.

Problem: Historically, Rollover Bayou was the main avenue of drainage, which limited the amount of salt water that entered the marsh from the Gulf of Mexico. The Louisiana Fur Canal was constructed intersecting the northeast branch of Rollover Bayou and continuing east to the Freshwater Bayou Channel. Salt water gains entry into the marsh interior via the Fur Canal's small access canals. In addition, Rollover Bayou became an avenue for salt water in 1957 after Hurricane Audrey damaged its water control structure (Raynie, 1994).

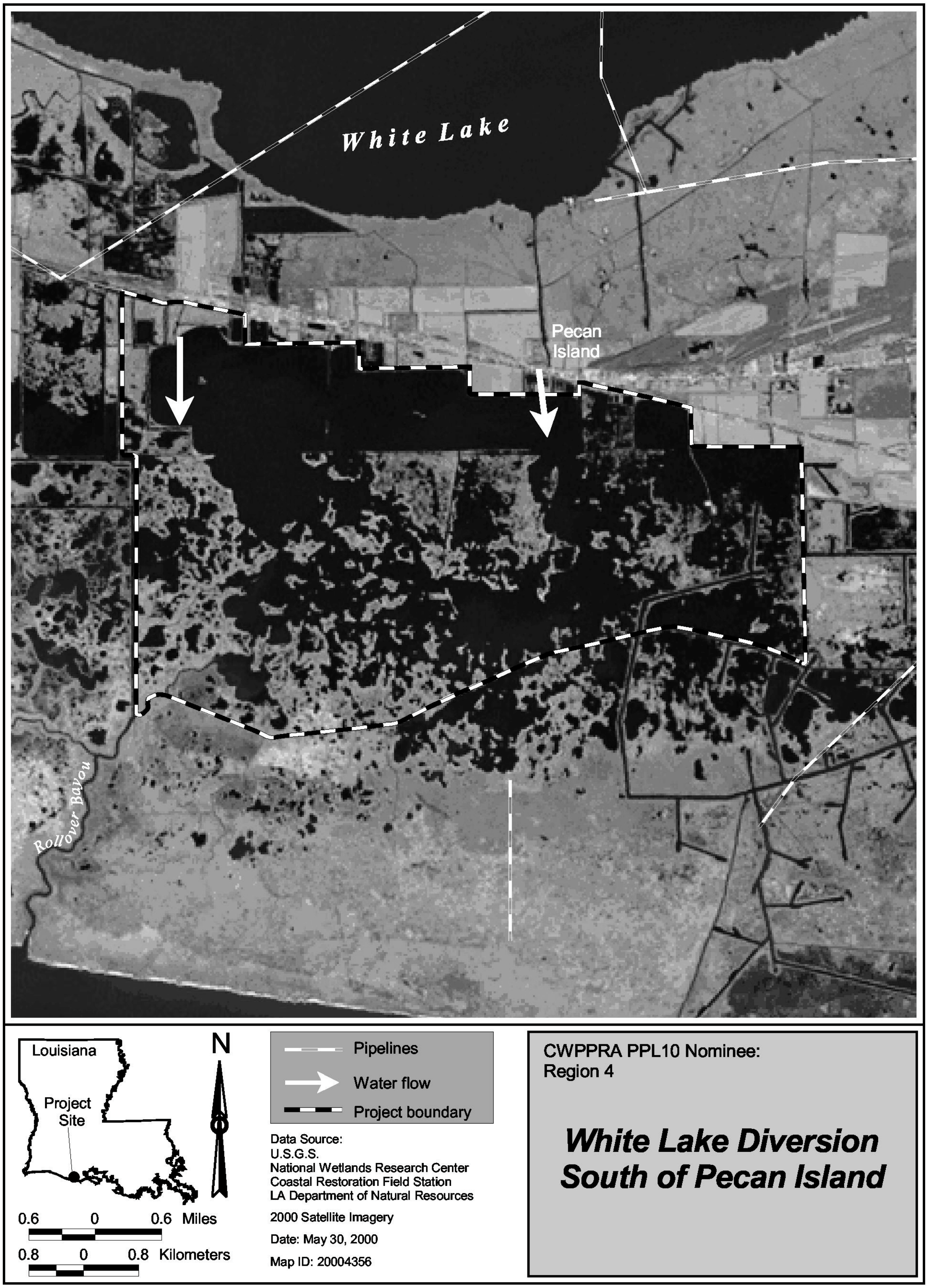
Goals: 1) Decrease salinities in the marshes south of LA Hwy 82, 2) move freshwater flow from the area north of LA Hwy 82 where water elevations are high, into the marshes south of LA Hwy 82 where a deficiency in freshwater has resulted in increased salinity, and 3) enhance existing marsh and increase the quantity of SAVs.

Project Features: This project will double the size of the existing two structures, and will be placed at either the location of the current structure, or at Broussard's Landing immediately west of Pecan Island. The Mail Canal, which provides access to White Lake, was utilized to provide freshwater access into the project area by constructing a diversion canal from the western Mail Canal levee southward toward the project area. The Mail Canal structure consists of three 48 inch culverts with outside screw gates. The LA Hwy 82 structure consists of three 48 inch culverts with screw gates on the outside and flapgates on the inside. The diversion canal features include 5,700 feet of channel improvements to introduce freshwater flows from the Mail Canal through the LA Hwy 82 structure to reduce salinity levels in the marsh. Structure operation schedules were designed to maximize freshwater introduction and to be compatible with objectives of existing management plans north (Grand Lake/White Lake watershed) and south (Vermilion Corp.) of LA Hwy 82.

Public Support, Risk/Uncertainty and Longevity/Sustainability: Public support was expressed for the project at the Region 4 project nomination meeting. This project is expected to provide substantial wetland benefits more than 40 years after construction. Because of varying degrees of success among hydrologic restoration projects, there is a moderate degree of risk and uncertainty as to whether or not this project will achieve the desired results.

Project Benefits: This project is anticipated to benefit 212 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $3,206,000.


White Lake
Pecan Island
Rollover Bayou
Louisiana
Project Site
N
Pipelines
Water flow
Project boundary
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: May 30, 2000
Map ID: 20004356
0.6 0 0.6 Miles
0.8 0 0.8 Kilometers
CWPPRA PPL10 Nominee:
Region 4
White Lake Diversion
South of Pecan Island

Project Name: Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joseph Harbor

Project Sponsor: U. S. Environmental Protection Agency

Regional Strategy: Stabilize the Gulf shoreline in the vicinity of Rockefeller Refuge (including the eroded Gulf shoreline from Lower Mud Lake to east of Rockefeller Refuge).

Location: Region 4, Mermentau Basin, Cameron Parish, LA. Along the Rockefeller Refuge Gulf shoreline from Beach Prong to Joseph Harbor (#1 Gulf shoreline priority for Rockefeller Refuge).

Problem: The project will be designed to address Rockefeller Refuge Gulf shoreline retreat averaging approximately 39 feet per year with subsequent direct loss of saline emergent marsh. Byrnes, McBride, et al (1995) have documented long term 1883-1994 Gulf shoreline retreat rates ranging from 30 feet – 40 feet per year from Beach Prong to Joseph Harbor. Tropical Storm Francis in September 1998 caused 60 feet to 65 feet of shoreline loss along this stretch over a four day period (Tom Hess personal communication).

Goals: 1) Halt Gulf shoreline retreat and direct marsh loss from Beach Prong to Joseph Harbor, 2) protect saline marsh habitat, and 3) enhance fish and wildlife habitat.

Proposed Solution: The project would entail construction of a continuous nearshore rock breakwater along the Gulf of Mexico shoreline, extending approximately 50,691 feet from Beach Prong to Joseph Harbor. The proposed structure would be tied into the west bank of Joseph Harbor and the east bank of Beach Prong. It would be designed to attenuate shoreline retreat along this stretch of Gulf shoreline, as well as promote shallowing, settling out, and natural vegetative colonization of overwash material landward of the proposed structure. The resultant design would be placed approximately 400 feet offshore along the 5 foot contour. Proposed dimensions are: 10 foot height (+5 feet freeboard), 10 foot top width, 50 foot bottom width, and 2.0H:1.0V side slopes. Fish dips placed within the rock breakwater are also proposed to facilitate material and organism linkages.

Public Support, Risk/Uncertainty and Longevity/Sustainability: It is anticipated that this project will receive statements of support from local and state elected officials, and Congressional representatives. The proposed project is expected to continue providing substantial wetland benefits 30 to 40 years after construction, and there is a high degree of probability that the project will meet its objectives.

Project Benefits: This project is anticipated to benefit 920 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $95,989,000.

Grand Chenier Ridge
Beach Prong
Rockefeller State Wildlife Refuge
and Game Reserv e
Joseph Harbor Bayou
Gulf of Mexico
Louisiana
Project Site
0.6 0 0.6 Miles
0.6 0 0.6 Kilometers
N
Pipelines
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: May 30, 2000
Map ID: 20004357
CWPPRA PPL10 Nominee:
Region 4
Rockefeller Refuge
Gulf Shoreline Stabilization
Beach Prong to Joseph Harbor

Project Name: Grand-White Lake Land Bridge Protection Project

Project Sponsor: U.S. Fish and Wildlife Service

Regional Strategy: Stabilize shorelines and prevent the coalescence of Grand-White Lake.

Location: Region 4, Mermentau Basin/Lakes Sub-basin, Cameron Parish, LA. The project is located on the southeast shore of Grand Lake just north of the old GIWW eastward to Collicon Lake.

Problem: Erosion of the southeast shoreline of Grand Lake and the western shoreline of Collicon Lake has removed the lake rims and is endangering the narrow land bridge between the two lakes (24 to 36 feet/year). Collicon Lake (3,000 ac) is in imminent danger of breaching, (< 500 feet), into the eastern portion of Grand Lake endangering the entire 13,281 acre Grand-White Lake Land Bridge. The size of Grand Lake could increase by over 4,800 acres and the width of the land bridge could be reduced by 2 miles. Shoreline erosion would accelerate in the remaining land bridge marshes.

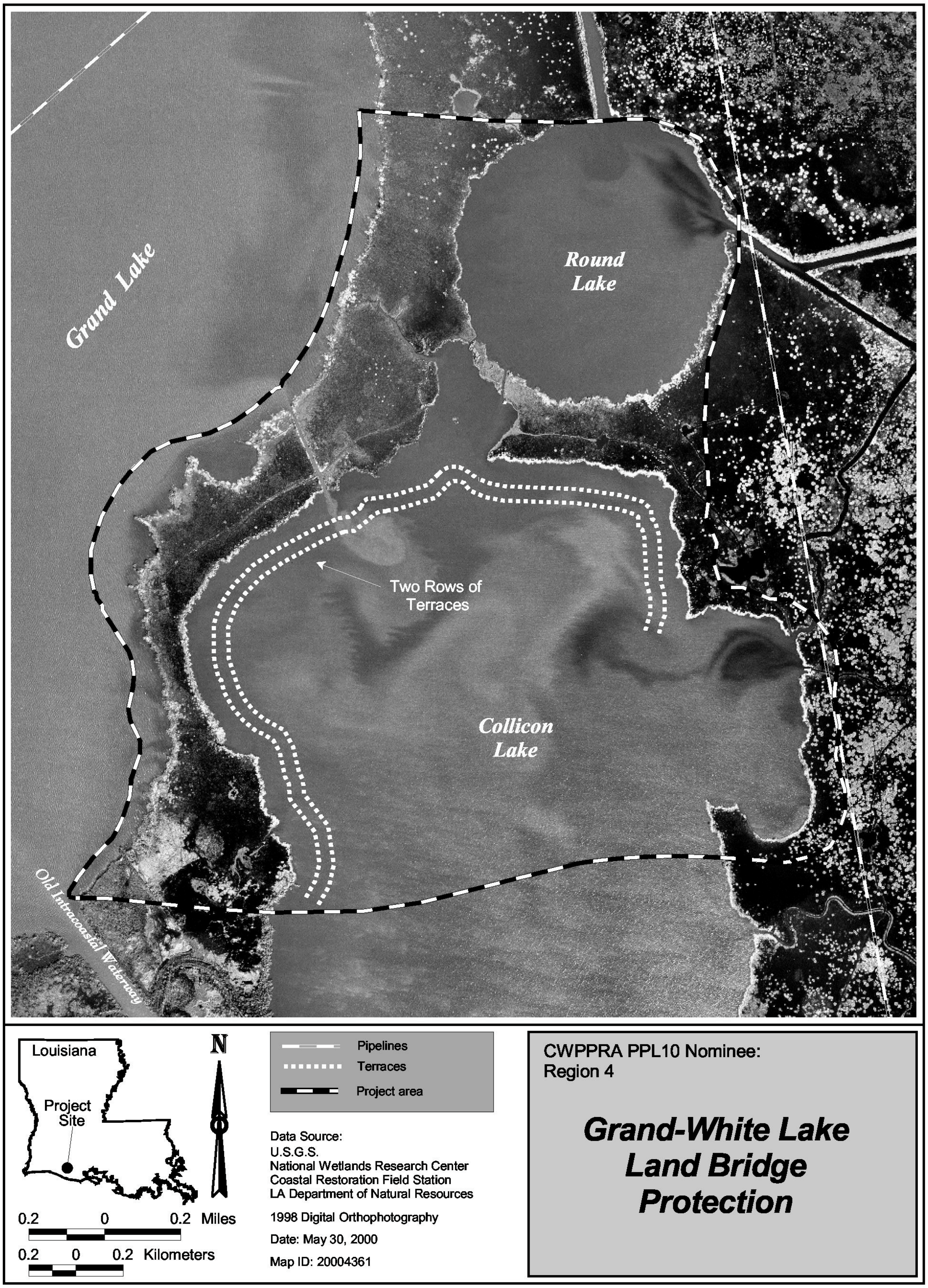
Goals: 1) Protect fresh water wetlands by stopping the erosion of the southeast shoreline of Grand Lake and western shoreline of Collicon Lake, 2) allow for vertical accretion of sediment and organic substrate along historical shorelines, and 3) allow for the access of aquatic organisms, water, sediment and nutrient exchange between the protected wetlands and Grand and Collicon Lakes.

Proposed Solution: 1) Hard Shoreline Stabilization - Install 11,000 feet of hard shoreline stabilization material (limestone or jacks-like concrete material) along the southeast shore of Grand Lake from 1,000 feet north of the Old Intracoastal Waterway to the Round Lake northern shoreline. The stabilization material will be placed about 100 feet lakeward from shore in shallow water 1 foot deep. 2) Linear Terraces - Install two 9,240 foot rows of linear earthen terraces along the northwest to north shore of Collicon Lake. This will include two rows of 37 - 200 foot long X 10 foot wide terraces with 50 foot gaps between terraces. The first row will be located approximately 50 feet from the shoreline in about 2.5 feet of water; the second row will be approximately 200 feet lakeward of the first row in about 3.5 feet of water (total 64 acres). The terraces will be vegetated with gallon containers of seashore paspalum (*Paspalum vaginatum*) and bullwhip (*Scirpus californicus*).

Public Support, Risk/Uncertainty and Longevity/Sustainability: Written endorsement or testimony by an elected public official has not been received for this project. However, public support was expressed for the project at the Region 4 project nomination meeting. This project is expected to provide substantial wetland benefits 20 to 30 years after construction. There is a low degree of risk and uncertainty with this project as the proposed shoreline protection features and terraces have been used successfully in coastal Louisiana to protect emergent wetlands.

Project Benefits: This project is anticipated to benefit 213 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $9,422,000.



Grand Lake
Round Lake
Two Rows of Terraces
Collicon Lake
Old Intracoastal Waterway
Louisiana
Project Site
N
0.2 0 0.2 Miles
0.2 0 0.2 Kilometers
Pipelines
Terraces
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004361
CWPPRA PPL10 Nominee:
Region 4
Grand-White Lake Land Bridge Protection

Project: Grand Lake Shoreline Protection/Marsh Creation, Superior Canal/Mermentau River

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Stabilize Grand/White Lake shoreline; Prevent coalescence of Grand and White Lakes.

Problem: Shoreline erosion is the cause of marsh loss in the project area. The old lake rim has eroded away and the more fragile marshes are eroding more rapidly. Erosion rates vary from 0 to 32 feet per year.

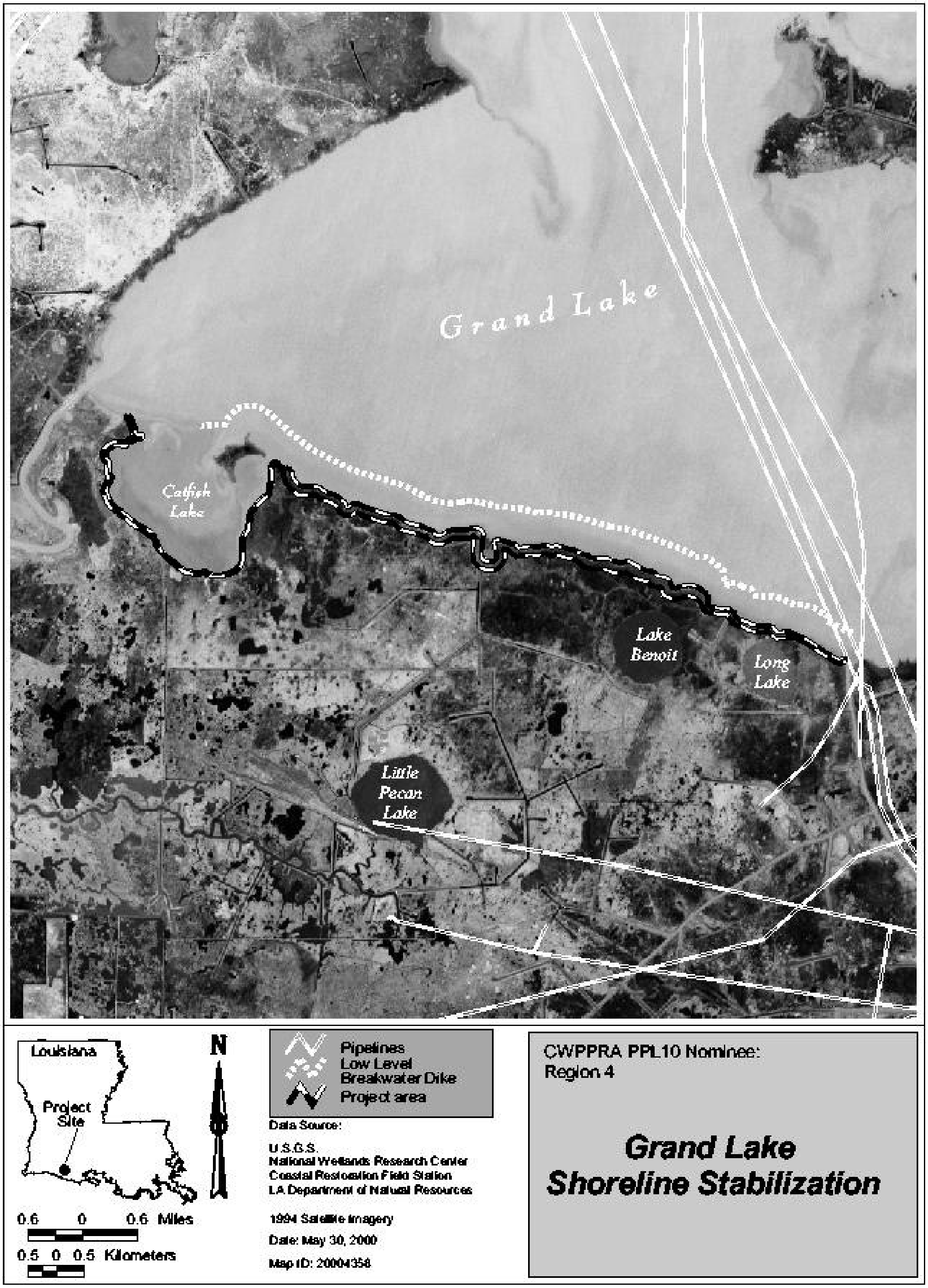
Goals: To stop shoreline erosion along the south shore of Grand Lake and around the perimeter of Catfish Lake. With Increment 2, to create marsh with dredged material.

Proposed Solution: For Increment 1, approximately 39,000 feet of breakwater would be built and maintained in Grand Lake at the outer edge of the –3 foot contour from the Superior Canal to Tebo Point. The crest elevation would be +2.5 feet NGVD, crest width would be 4 feet, front and back slopes would be 1:2, and stone size would be 24-inch riprap gradation. Scour at the toe would be addressed by either a 24-inch stone blanket or a nine-inch Gabion mattress. Either would extend out 9 feet from the toe of the structure The breakwater would tie back to shore to keep 1) the channel into Betty Lake open, 2) the canal between Lake Benoit and Long Lake open and 3) the canal between East Lake and Long Lake open. There would be 25-foot wide "fish dips" at 750-foot intervals to facilitate organism and materials linkages. There would be no rock at the bottom of the dips, instead the bottom would be lined with a concrete mat. Increment 2 includes the breakwater and in addition, the 708-acre area between the breakwater and the shore would be filled to a height of 2.5 feet NGVD with material dredged from Grand Lake. In this case, timbers would be placed in the fish dips and then removed once the dredged material consolidated. In Increment 3, approximately 5,000 feet of stone breakwater would be built and maintained across the mouth of Catfish Lake at the –3 foot contour from Tebo Point west to the next point. The breakwater/fish dips would be built as described in Increment 1.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The affected landowners and Cameron Parish support this project. There is little risk or uncertainty associated with this project. Monitoring results from several Breaux Act projects indicate that breakwaters essentially stop shoreline erosion and that marsh creation with dredged material is an effective technique. For this reason both the shoreline protection and marsh creation features of this project are expected to provide benefits 30 to 40 years after construction.

Project Benefits: This project is anticipated to benefit 1,562 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $56,478,000 with the marsh creation component, and $40,915,000 without marsh creation.



Grand Lake
Catfish Lake
Lake Benoit
Long Lake
Little Pecan Lake
Louisiana
Project Site
N
0.6 0 0.6 Miles
0.5 0 0.5 Kilometers
Pipelines
Low Level Breakwater Dike
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1994 Satellite Imagery
Date: May 30, 2000
Map ID: 20004358
CWPPRA PPL10 Nominee:
Region 4
Grand Lake
Shoreline Stabilization

Project Name: East Sabine Lake Hydrologic Restoration Project

Project Sponsor: National Resources Conservation Service /U.S. Fish and Wildlife Service

Regional Strategy: Salinity control on the east shoreline of Sabine Lake.

Location: Region 4, Calcasieu/Sabine Basin, Cameron Parish, LA. Western portion of Sabine National Wildlife Refuge from Pool 3 to the Sabine Lake eastern shoreline.

Problem: Marsh conversion to shallow open water due to higher salinity events caused by navigation and boundary line channels. These canals provide a direct route for saltwater to infiltrate the project area and allow rapid run off of freshwater. The larger Sabine-Neches Waterway and the Gulf Intracoastal Waterway have allowed salt water intrusion into the project area's fresh and intermediate marshes. Channels have circumvented the natural circulation of water in the project area. Increased tidal fluctuations in these channels have led to increased energy which has added to the conversion of marsh to open water.

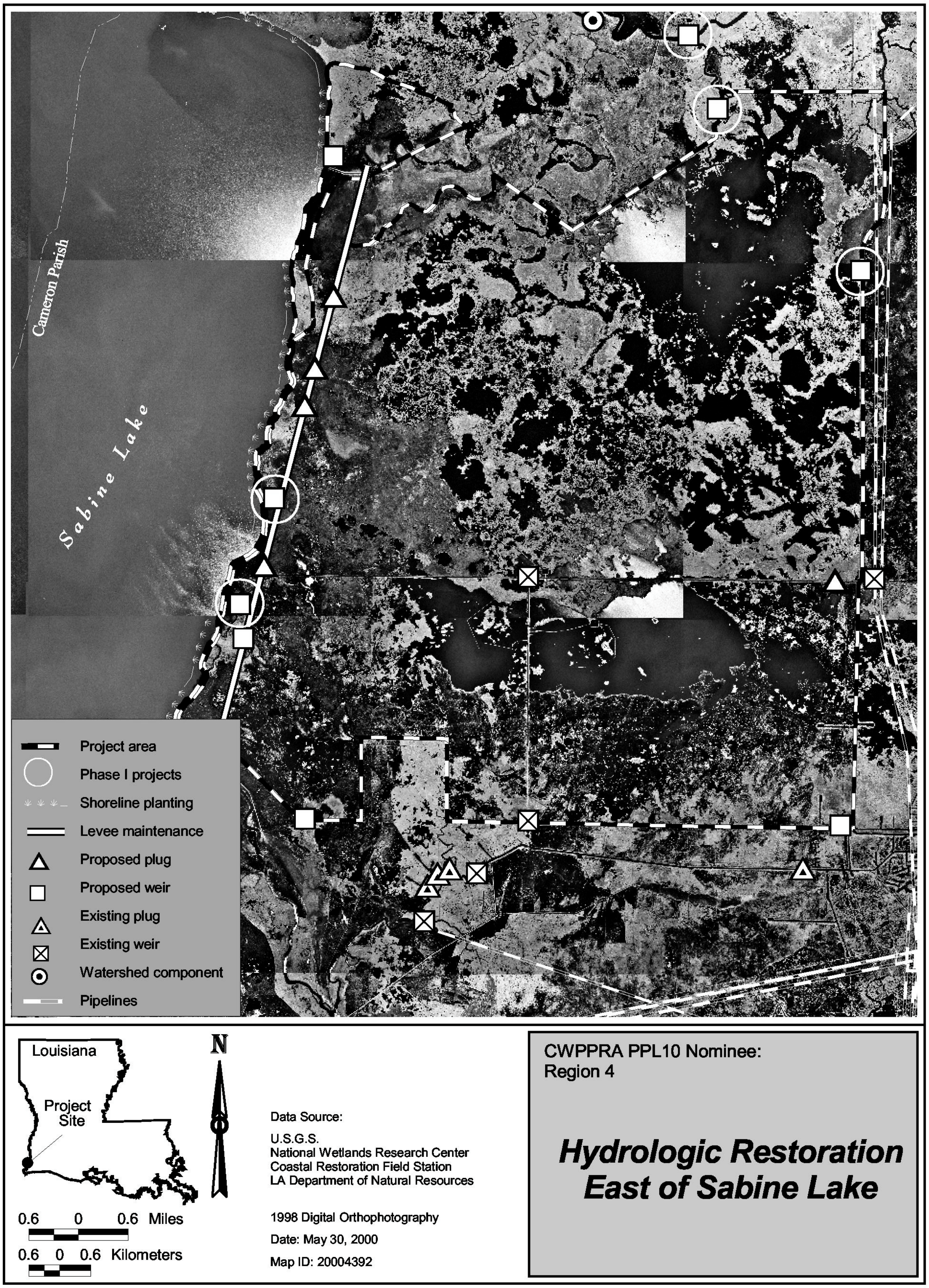
Goals: 1) Reduce excessive elevated salinities within fresh and intermediate marshes; prevent elevated salinities from adversely affecting the project area, 2) restore altered hydrology to represent a more historic water flow, 3) reduce excessive tidal scour within the project area by decreasing tidal influx and circulation patterns, 4) decrease salinities in fresh and intermediate areas to encourage submerged aquatic vegetation (SAV) development, 5) reduce erosion on the eastern shore of Sabine Lake through vegetative plantings, and 6) reduce the turbidity of open water areas, provide more marsh edge, and restore and protect marsh through vegetative terraces.

Proposed Solution: 1) Install adjustable control structures with boat bays and boat bays in Right Prong of Black , Green, Three and Willow Bayou, 2) install a rock weir in the bayou at Pines Ridge, 3) install a plug across Gray's Ditch near Three Bayou, 4) install 2 – 36 inch culverts with stop logs or sluice gates at Bridge Bayou, 5) install 800 feet of rock rip rap along the Sabine Lake shoreline at Willow Bayou, 6) install plug and rock weir at the openings near the southeast Section 16 and Starks South Canal, 7) maintain protective barrier levee at cattle walkway from future erosion, 8) plant 11 miles of smooth cordgrass along Sabine Lake's eastern shore from Johnston's Bayou to north of Pines Ridge, and 9) install vegetated earthen terraces in shallow water areas, north and possibly south of Willow Bayou Canal, as a project increment.

Public Support, Risk/Uncertainty and Longevity/Sustainability: This project has received widespread support from federal, state, and local officials. Also, public support was expressed for the project at the Region 4 project nomination meeting. Assuming Sabine NWR will assume maintenance of the structures after the 20-year project life, this project is expected to provide substantial wetland benefits more than 40 years after construction. Because of varying degrees of success among hydrologic restoration projects, there is a moderate degree of risk and uncertainty as to whether or not this project will achieve the desired results.

Project Benefits: This project is anticipated to benefit 325 total net acres without the terracing component, and 393 with the terracing component.

Total Fully Funded Cost: The total fully funded cost of this project is $19,433,000 with the terracing component, and $16,821,000 without the terracing component.


Cameron Parish
Sabine Lake
Project area
Phase I projects
Shoreline planting
Levee maintenance
Proposed plug
Proposed weir
Existing plug
Existing weir
Watershed component
Pipelines
Louisiana
Project Site
N
0.6 0 0.6 Miles
0.6 0 0.6 Kilometers
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004392
CWPPRA PPL10 Nominee:
Region 4
Hydrologic Restoration
East of Sabine Lake

Project Name: Deep Hole Breakwaters Demonstration Project

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Location: The site will be along the Plaquemines shoreline. The exact site will be determined during detailed design but for estimating purposes it was assumed to be along the Chenier Ronquelle shoreline.

Problem: Numerous tools are needed to deal with the magnitude of erosion occurring on the open coasts within the coastal Louisiana system. More tools are needed for areas where traditional approaches for shoreline protection have failed or are very costly. In addition, restoration and marsh creation efforts on barrier islands require the excavation of large holes for borrow material which in the past have provided no positive benefit in and of themselves.

Goals: To lower the cost of preventing shoreline erosion and create an additional benefit for borrow holes resulting from barrier shoreline restoration projects.

Proposed Solution: The concept is to dredge a series of holes off of the shoreline in relatively shallow water (but outside of the breaking wave zone). The dredged material will be pumped to the shoreline and used beneficially either for marsh creation or, if the material is sand, for beach nourishment. Placing the sediment on the shoreline is not a primary purpose but rather an auxiliary of the project. Our estimate is based on 10 holes per mile along the 10 foot contour, which is approximately a half mile from the shore. The holes (or segmented trenches) will be dug 20 feet below the bottom and have a bottom dimension of 100 by 300 feet with 1 on 3 side slopes. The purpose of the demo project is to assess whether the deep holes will function similar to segmented breakwaters. It is hoped that the deep holes will act as inverted breakwaters, because it is well known that waves traveling from a shallow region to a deeper region will be partially reflected. Reflection of incoming wave energy diminishes the wave energy that reaches the shore.

Project Benefits: The potential environmental benefits are two fold. Firstly, shoreline protection will be afforded on the open coast. Secondly, the dredged material will be used for marsh creation in the interior protected areas. The holes could also become structures for numerous Gulf organisms such as benthic invertebrate, crustaceans, and fishes.

Total Fully Funded Cost: The total fully funded cost of this project is $2,485,000.

Project Name: Enhancing Salt Marsh Creation by Coupling Bay Bottom Terracing with Innovative SAV Planting Demonstration Project

Project Sponsor: National Marine Fisheries Service

Location: Shallow bay bottom habitat, mesohaline or higher salinity conditions appropriate for revegetation with *Spartina alterniflora* and *Ruppia maritima*. Could be constructed in any region.

Problem: 1) Design criteria of terracing based on restoration effectiveness, ecological functioning and cost efficiency have not been developed. 2) Additionally, research suggests that restored marsh habitats support significantly reduced densities of wetland dependent resources than natural marsh. Possible explanations include lack of access, poor development of infauna, loss of soil nutrients, disturbance during construction and regular maintenance, and lack of appropriate habitat (shelter) for marsh dependent organisms. Reduced habitat value will cause long-term losses in productivity of the economically and culturally important finfish, crab, and shrimp fisheries in coastal Louisiana and throughout the northern Gulf.

Goals: The project objective is to define criteria, linking local conditions (e.g., water depth and wind fetch) to terrace cell size, that can be used to improve restoration effectiveness of bay bottom terracing projects. The design tests a novel SAV planting technique that should improve cost effectiveness of larger cells under a broader range of conditions and increase the habitat value of terraces. The goals are 1) evaluating the effectiveness of different terrace cell sizes for salt marsh restoration under measured environmental conditions; 2) evaluating whether biodegradable mats, pre-vegetated with the SAV *Ruppia maritima*, can compensate for any reductions in restoration effectiveness or habitat value caused by the increase in terrace cell size; and 3) confirming and documenting that the pre-vegetated mats can successfully establish SAV, boosting nursery habitat value for fishery species and thus enhancing the ecological functioning of the restored salt marsh.

Proposed Solution: Using a backhoe, approximately 156,593 cubic yards of sediment will be dredged to construct 60,400 linear feet of open ended terraces, covering approximately 336 acres in a checkerboard pattern. Both sides of the terraces will be planted with *Spartina alterniflora* plugs. Experimental treatments will be randomly assigned to 8 acre plots: terraces with 1 acre cells vs 4 acre cells; and terraces with vs without SAV plantings using biodegradable mats vegetated in the greenhouse with *Ruppia.* Five replicates of the basic treatments will add statistical power and account for location effects that might confound the results.

Project Benefits: Project benefits include the restoration of more than 300 acres of restored salt marsh, and improved cost effectiveness and ecological functioning of future terracing projects. In addition, this project will evaluate ecological functioning and sustainability of restored salt marsh as a function of habitat (SAV) availability.

Total Fully Funded Cost: The total fully funded cost of this project is $1,642,000.

Project Name: Fibre Mat Demo for Erosion Control and SAV and Marsh Creation Demonstration Project

Project Sponsor: U.S. Environmental Protection Agency

Proposed Strategy: To arrest wave-induced erosion and create SAV habitat and marsh.

Location: Four example sites - Terrebonne Bay back barrier shorelines and interior marsh islands

Problem: Coastal environments flanking Louisiana interior bays and lakes experience wave-induced erosion in excess of 15 feet per year. As these open areas increase in size, the increase in fetch length permits larger waves resulting in further acceleration in erosion rates.

Goals: This innovative and unique project will combine a technology for beach and marsh edge erosion control with an aggressive technology for restoration of SAV. This technique will reduce wave erosion, thus establishing SAV communities, stabilizing marsh shorelines, and promoting development of emergent vegetation. An additional goal is to test the feasibility of this method for SAV restoration as an effective means of erosion control. The process involves reducing wave energy to provide a uniform, textured bottom surface from which to grow self-sustaining SAV populations. Increased submerged aquatics can trap sediment within its mats and promote new emergent marsh growth in accreted sediment.

Proposed Solution: This project will establish 2,700 square feet of fibre mat coverage and SAV communities at four potential sites including back barrier marsh, back barrier sandy, interior marsh island, and small interior bay edge environments. The project will include monitoring the effects of the established sites on wave energy dissipation and subsequent effects on sedimentation and erosion as a result of the fibre mats. Coconut fibre mats are presently prepared in New Orleans. The potential for use of Louisiana created bagasse fibre mats are now being developed and will also be investigated. Mats planted with bare root species suitable for the different locations will be rolled out from the shore and held in place by rebar staples. Specific species will be determined in conjunction with monitoring and environmental work groups, USGS National Wetland Research and LSU researchers developing the project for EPA and Terrebonne Parish Coastal Zone Coordinator.

Project Benefits: One of strongest reasons to try this method is to promote sustainability of the essential functions and values of a natural ecosystem. To reestablish SAV is to rebuild an intact functional ecosystem with high value in terms of habitat development and biodiversity. In addition, the fibre mats are biodegradable and will breakdown/dissolve within 2-3 years allowing adequate time for plant establishment.

Total Fully Funded Cost: The total fully funded cost of this project is $1,602,000.

Project Name: Oyster Reef (Erosion Control and Habitat Restoration) Demonstration Project

Project Sponsor: U.S. Environmental Protection Agency

Project Location: The demonstration is proposed within Lake Athanasio, east of the MRGO, in St. Bernard Parish. The project will be constructed where directed by the USACE Engineering Work Group.

Problem: The primary threat to many small salt marsh islands in the tidal marsh ecosystem is edge erosion, resulting from wave action. Marsh buffer is needed to buffer coastal towns that are leveed and unleveed. More restoration tools are needed to counteract this type of wetland loss. Area marsh shore erosion is 10-15 feet per year.

Goals: The major goal is to develop a tool that will initiate a vertical reef structure which will continue to grow and absorb wave energy to reduce shoreline erosion, while enhancing/creating near shore area and habitats. The project will test and evaluate 1) the effectiveness of the vertical developed oyster reefs in reducing shore erosion; 2) the vigor of growth of seed oysters in the reef configuration; 3) effectiveness of new reef geometry compared to design of small pilot; 4) near shore sedimentation and oyster fragment accumulation; 5) enhancement of fisheries habitat; and 6) increased usage by birds and other wildlife. In addition, area farmers would like to test: oyster growth and shell accumulation in areas not infected with hooked mussels, growth of seed oysters brought from several sources, and compatibility of developed oyster reefs for restoration and oyster farming. The industry will be invited to participate in/fund such monitoring activities.

Proposed Solution: A reef skeleton will be constructed of individual reef units in the basic form of a hollow core cylinder with a triangular cross-section. The geometry is to provide high strength, a stable base, and large reef-face surface area. The units may be assembled in various configurations and accommodate differences in site conditions. A chain of units, each weighing about 350 pounds, would be created around at least two sides of a marsh island. Each unit frame forms three panels which support a series of heavy gauge plastic bags loaded with natural shell cultch and seed oysters. The reef would be placed in about 2 feet of water offshore of the marsh island with 50 foot openings on each side. The design around the island will provide comparison of wave protection and reef growth from different quadrants of wind and wave attack. The vertical configuration above the bottom allows greater exposure to tidal currents and allows more potential to obtain food to accelerate growth of oysters and shell. New shell growth will protrude through the mesh and cement together to form a reef mass. New spat will attach to the initial cultch and to new growing shells to develop and perpetuate the reef.

Project Benefits: The primary benefit is prevention of shoreline erosion, which is achieved by the honey comb design reef structure absorbing wave energy, thus allowing sediment deposition and shell accumulation behind the reef and along the shore. The reef will protect and diversify the shore zone habitat in the area. Increased fisheries production around the reef and island will also provide enhanced food supply for birds and other wildlife. In addition, oyster production in the area will be enhanced. This technology is transferable to other tidal salt marsh areas, and provides wetland protection structures using materials naturally occurring in Louisiana.

Total Fully Funded Cost: The total fully funded cost of this project is $816,000.

Project Name: Terrebonne Bay Shore Protection Demonstration Project

Project Sponsor: U.S. Fish and Wildlife Service

Location: A specific location is proposed along the eastern bank of Bayou Terrebonne.

Problem: Erosion of bay shore marshes results in substantial losses of saline marshes throughout Region 3. Additionally, it allows marine processes to intrude northward, and ultimately this process threatens low-salinity habitats at the northern ends of area interdistributary basins. Given the great linear distances involved in implementing this strategy, techniques less costly than traditional rip-rap armoring will likely be needed to effectively address this problem. This demonstration project would seek to demonstrate the cost and effectiveness of alternative shore protection methods including artificial oyster reefs. Each protection measure would be installed near or on marsh shorelines to provide wave-protection.

Goals: Demonstrate cost and effectiveness of alternative shore protection methods through the installation of shoreline protection materials and monitoring its effectiveness in reducing shoreline erosion/retreat.

Proposed Solution: Concrete matting is one of the proposed techniques. Apparently successful applications exist at Falgout Canal, Commercial Canal, and Point Chevreuil. As a potentially more natural alternative to concrete matting, two artificial oyster reefs techniques would also be tested. Unlike traditional rip-rap armoring, or the use of concrete matting, the establishment of artificial oyster reefs may allow one to utilize natural processes to grow on site, to varying degrees, a reef capable of providing wave protection to nearby marshes. The use of concrete Ajacks is also proposed. They would provide more immediate erosion protection as well as an ideal substrate for oyster attachment. Hence, Ajacks might provide both a hard-structure erosion protection function and serve as an artificial oyster reef. Of the techniques chosen, five techniques have been chosen based on anticipated effectiveness and cost. Three 300-foot-long replicates of each technique will be installed as recommended by DNR monitoring section personnel. To better assess the effect of the oyster reef techniques, monitoring will be conducted over an 8-year-long period, rather than the usual 5 years.

Project Benefits: Benefits have not been projected. Should inexpensive and effective techniques be developed, the widescale application of those techniques could provide substantial benefits throughout much of coastal Louisiana.

Total Fully Funded Cost: The total fully funded cost of this project is $1,477,000.

IV. PROJECT SELECTION

On January 10, 2001, the Louisiana Coastal Wetlands Conservation and Restoration Task Force made its selection for the 10th Priority Project List. The Task Force selection for the 10th Priority Project List is shown in Table 4.

Table 4: The 10th Priority Projects List

1	2	3	4	5	6	7	8	9	10	11	12
Project Number	**Project Name**	**Physical Type**	**Sponsoring Agency**	**Fully Funded Total Cost**	**Fully Funded Phase I Total Cost**	**Cumulative Fully Funded Phase I Total Cost**	**Fully Funded Phase II Total Cost**	**Cumulative Fully Funded Phase II Total Cost**	**Fully Funded Phase II Total Cost (3 Yr C+O&M+M)**	**Cumulative Fully Funded Phase II Total Cost (3 yr C+O&M+M)**	**Average Annual Habitat Units (AAHUs)**
PO-30	Shore Protection - Lake Borgne at Shell Beach	TR	EPA	$8,893,000	$527,000	$527,000	$8,366,000	$8,366,000	$5,594,000	$5,594,000	73
BS-10	Delta Building Divr. N. of Fort St. Philip	SD	COE	6,355,000	$1,155,000	$1,682,000	$5,200,000	$13,566,000	$4,899,000	$10,493,000	779
BS-11	Delta Management at Fort St. Philip	SD	USFWS	$2,962,000	$363,000	$2,045,000	$2,599,000	$16,165,000	$1,690,000	$12,183,,000	77
MR-13	Benny's Bay Divr. 50,000 cfs	SD	COE	$37,618,000	$1,076,000	$3,121,000	$36,542,000	$52,707,000	$10,472,000	$22,655,000	1,474
BA-33	Delta Build. Divr. at Myrtle Grove	SD	NMFS	149,206,000	$7,904,000	$11,025,000	$141,302,000	$194,009,000	$127,351,000	$150,006,000	5,797
BA-34	Small Freshwater Divr. NW Barataria Basin	BI	EPA	$14,281,000	$2,932,000	$13,957,000	$11,349,000	$205,358,000	$8,656,000	$158,662,000	781
TE-43	GIWW Bank Rest. Of Critical Areas in Terre.	SP	NRCS	$19,658,000	$1,736,000	$15,693,000	$17,922,000	$223,280,000	$15,766,000	$174,428,000	579
TE-44	N. Lake Mechant Land Bridge Rest.	SP	USFWS	$26,009,000	$1,881,000	$17,574,000	$24,128,000	$247,408,000	$20,964,000	$195,392,000	367
ME-18	Shoreline Stablization Rockefeller Refuge	BI	EPA	$95,989,000	$1,930,000	$19,504,000	$94,059,000	$341,467,000	$84,534,000	$279,926,000	344
ME-19	Grand - White Lake Land Bridge Protection	SP	USFWS	$9,422,000	$528,000	$20,032,000	$8,894,000	$350,361,000	$5,021,000	$284,947,000	38
CS-32	E. Sabine Lake Restoration W/ Terraces	HR	NRCS/ USFWS	$19,433,000	$1,425,000	$21,457,000	$18,008,000	$368,369,000	$14,301,000	$299,248,000	630

Demonstration Project

	Terrebonne Bay Shore Protection Demo	DM	USFWS	$2,000,000

Sponsoring Agencies:
COE=US Army Corps of Engineers
EPA=Environmental Protection Agency
NMFS=National Marine Fisheries Service
NRCS=Natural Resources Conservation Service
FWS=US Fish and Wildlife Service

Project Physical Type:

FD=Freshwater Diversion
HR=Hydrologic Restoration
MC=Marsh Creation
SD=Sediment Diversion
SP=Shoreline Protection
TR=Terracing
BI=Barrier Island
SNT=Sediment Trap

V. DESCRIPTION OF PROJECTS SELECTED FOR PHASE I FUNDING

This section provides a concise narrative of each selected project that was funded for Phase I. The project details provided include the project sponsor, strategy, problem, goals, solution, public support, benefits, cost, and a map identifying the project area and features.

Project: Shore Protection & Marsh Creation in Lake Borgne at Shell Beach (PO-30)

Project Sponsor: U.S. Environmental Protection Agency

Regional Strategy: Maintain shoreline integrity of Lakes Pontchartrain and Borgne and protect shoreline of Biloxi Marshes

Location: Region 1, Pontchartrain Basin, St. Bernard Parish, LA. The project is located along the southern shoreline of Lake Borgne from Doulluts Canal to Fort Bayou.

Problem: The project is necessary to maintain the integrity of the narrow strip of marsh that separates Lake Borgne from the Mississippi River Gulf Outlet (MRGO). This narrow marsh rim along the south Lake Borgne shoreline protects the communities of Shell Beach, Yscloskey, and Hopedale from direct exposure to lake wave energies and storm surge. The MRGO, with its direct connection to the Gulf of Mexico, brings high salinity water and increased tidal amplitudes far into interior wetlands. In the Shell Beach area, the marshes separating the MRGO from Lake Borgne are broken by many ponds and are suffering from both shoreline and bank erosion.

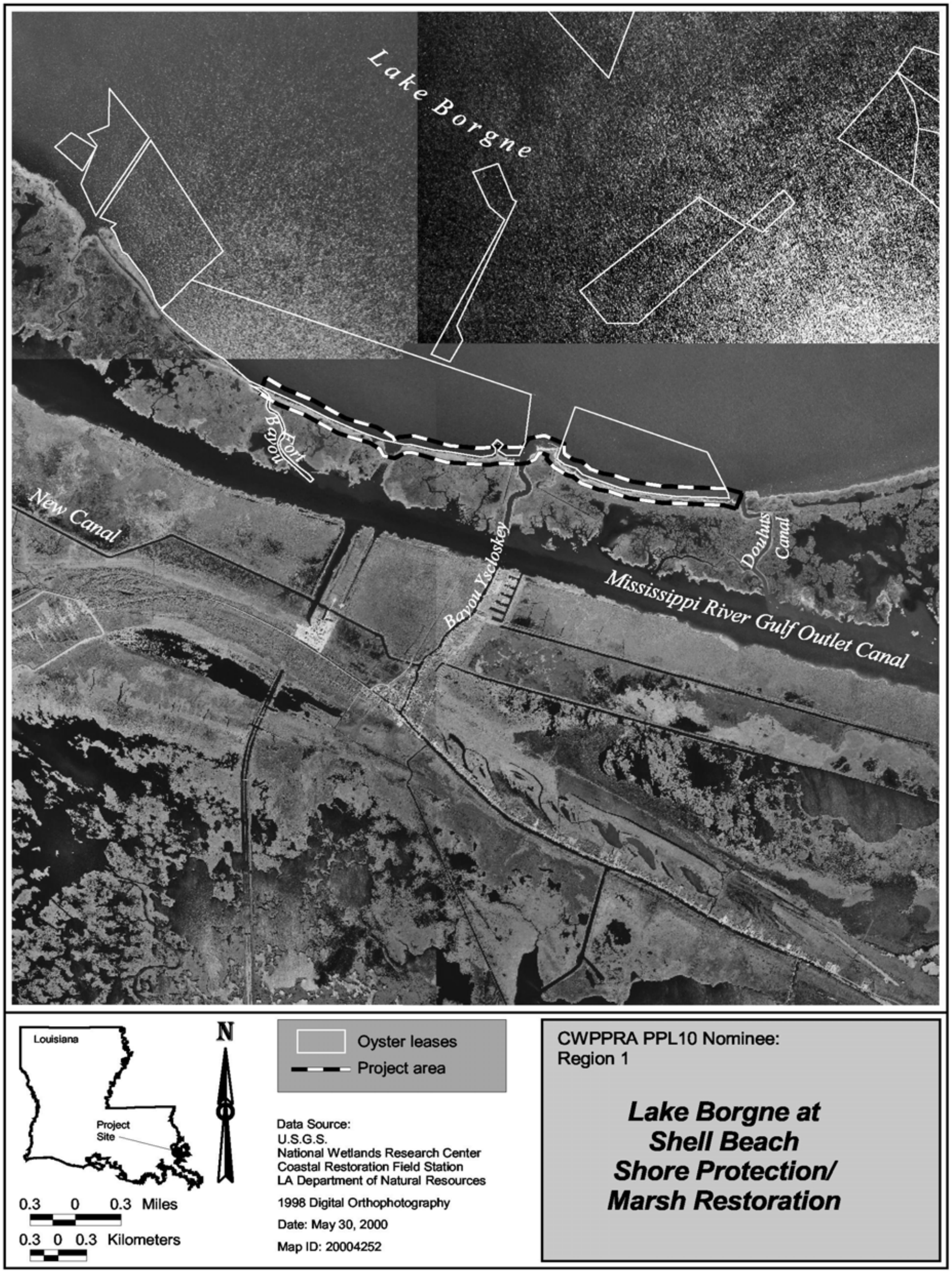
Goals: 1) Halt Lake Borgne shoreline retreat and direct marsh loss in the vicinity of Shell Beach, 2) restore saline marsh habitat, and 3) enhance fish and wildlife habitat.

Proposed Solution: The project would entail construction of a continuous nearshore rock breakwater 300 fee out along the south rim of Lake Borgne, extending approximately 17,700 feet from Doulluts Canal to Fort Bayou. The proposed structure would be tied into the west bank of Doulluts Canal, the east bank of Fort Bayou, and on either side of Bayou Yscloskey. It would be designed to attenuate shoreline retreat along this stretch of Lake Borgne, as well as promote shallowing, settling out, and natural vegetative colonization of overwash material landward of the proposed structure. An additional project feature includes creation of up to 122 acres of emergent marsh platform behind the rock breakwater. This would be done in conjunction with USACE maintenance dredging of miles 49 to 38 of the MRGO, just south of Shell Beach. It is estimated that approximately 4 MCY of material could be dredged from this reach in approximately 10 years. It is proposed that with the rock shoreline protection feature in place, serving as containment, marsh platform creation could proceed at no additional cost to CWPPRA.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The proposed project is expected to continue providing substantial wetland benefits 30 to 40 years after construction, and there is a high degree of probability that the project will meet its objectives. This project has received statements of support from local, state, and federal elected officials.

Project Benefits : This project is anticipated to benefit 229 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $8,893,000.


Lake Borgne
Bayou Fort
New Canal
Bayou Yscloskey
Douluts Canal
Mississippi River Gulf Outlet Canal
Louisiana
Project Site
N
0.3 0 0.3 Miles
0.3 0 0.3 Kilometers
Oyster leases
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004252
CWPPRA PPL10 Nominee:
Region 1
Lake Borgne at
Shell Beach
Shore Protection/
Marsh Restoration

Project Name: Small Freshwater Diversion to the Northwestern Barataria Basin (BA-34)

Project Sponsor: U.S. Environmental Protection Agency

Regional Strategy: Construct small diversions (to swamps) with outfall management; prevent diversion-related flooding and remove diverted waters from upper basin.

Location: Region 2, Upper Barataria Basin, St. James and Lafourche Parishes, LA. The project is proposed for Lac des Allemands drainage basin. The 5,134 acre project boundary is divided into 6 sub-areas (see map). Most of the areas to be benefited by the project are downstream of LA 20 (2 small areas are located just upstream of it). The project is located northwest of Lac des Allemands with the prospective siphon location identified at Pikes Peak.

Problem: The Lac des Allemands River Basin Initiative identified the following specific problems within the Lac des Allemands Watershed: 1) drainage impairments, 2) water quality impairments, and 3) loss of marsh and decline of cypress forest. Many years of research by LSU researchers in these swamps have demonstrated: 1) the swamps throughout the basin will eventually change to open water, floating aquatic plants, or fresh marsh, due to the effects of subsidence and inadequate accretion of sediments and organic matter; and 2) some areas are highly stressed and converting to open water, floating aquatic plants, and fresh marsh. These problems are caused by the loss of river water, and its associated sediment and nutrients, due to the leveeing of the Mississippi River, and by impoundment, caused by roads, drainage canals, and spoil banks.

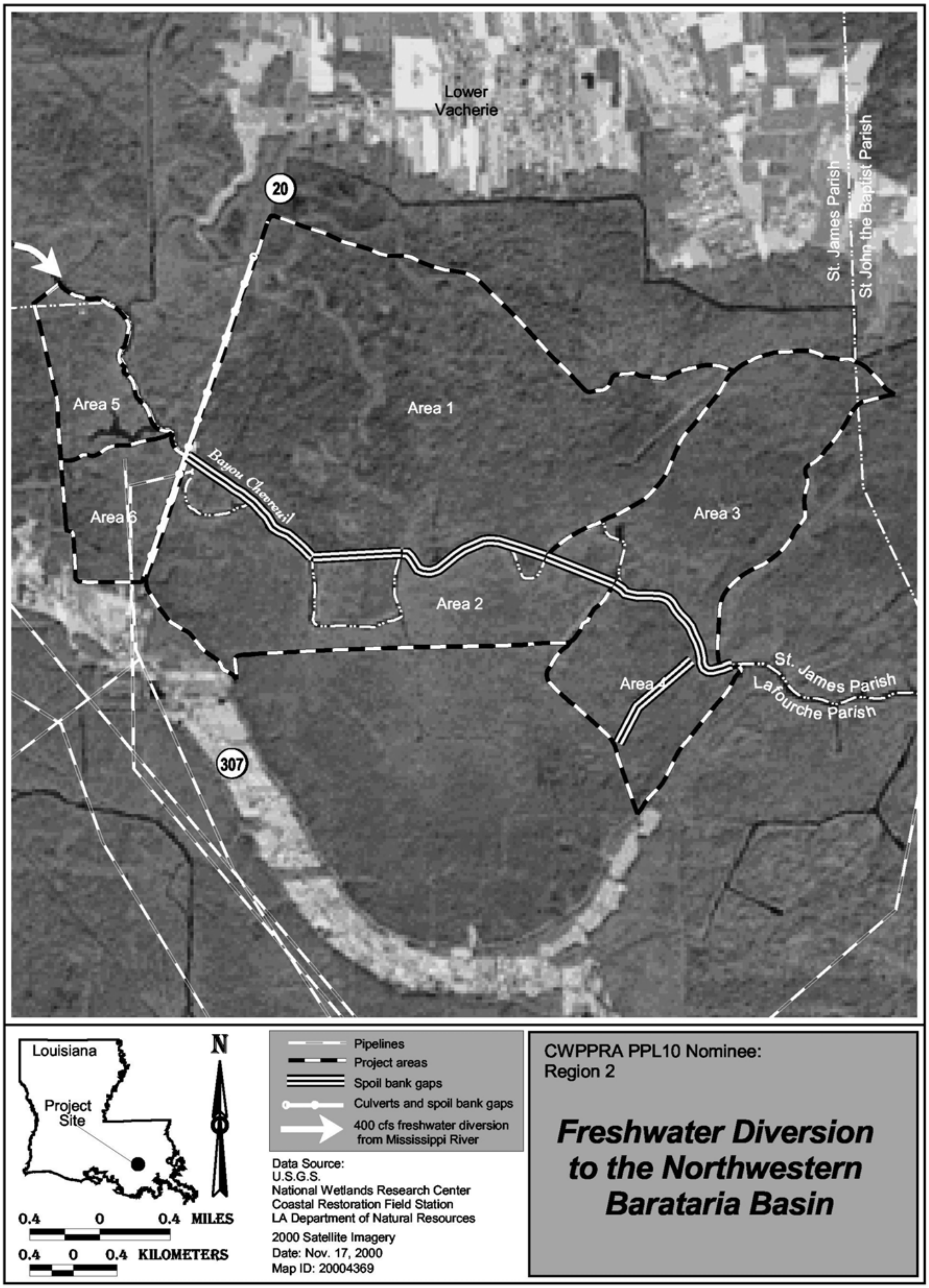
Goals: 1) Restore and maintain selected cypress-tupelo swamp tracts in the upper Barataria Basin, 2) restore and maintain water quality in the swamp and in Bayou Chevreuil, and 3) contribute to reduction in nutrient loading from the Mississippi River to the Gulf of Mexico.

Proposed Solution: The project consists of the installation of two 6 foot diameter siphon pipes, vacuum pipes, and associated diversion canals placed over the Mississippi River levee at Pikes Peak. Very importantly, the project also consists of gapping spoil banks along Bayou Chevreuil downstream from LA 20, gapping of spoil banks along the borrow canal along LA 20, and culverts under LA 20.

Public Support, Risk/Uncertainty and Longevity/Sustainability: It is anticipated that this project will receive statements of support from local and state elected officials, and Congressional representatives. The proposed project is expected to continue providing substantial wetland benefits 30 to 40 years after construction, and there is a high degree of probability that the project will meet its objectives.

Project Benefits: Over time, project benefits should include reduced swamp submergence, increased regrowth of young trees, denser forests in currently stressed areas, increased swamp productivity, and improved water quality. Exact benefited acres have not been calculated.

Total Fully Funded Cost: The total fully funded cost of this project is $14,281,000.


Lower Vacherie
20
St. James Parish
St John the Baptist Parish
Area 1
Area 5
Area 6
Bayou Chevreuil
Area 3
Area 2
Area 4
St. James Parish
Larourche Parish
307
Louisiana
Project Site
N
0.4 0 0.4 MILES
0.4 0 0.4 KILOMETERS
Pipelines
Project areas
Spoil bank gaps
Culverts and spoil bank gaps
400 cfs freshwater diversion from Mississippi River
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: Nov. 17, 2000
Map ID: 20004369
CWPPRA PPL10 Nominee:
Region 2
Freshwater Diversion to the Northwestern Barataria Basin

Project Name: Delta-building Diversion at Benny's Bay, 50,000 cfs, with Outfall Management (MR-13)

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Construct delta-building diversion into Benny's Bay.

Problem: The project area lost over 15,000 acres of emergent wetlands since 1932, due mainly to subsidence and sediment deprivation. The 1983-90 loss rate was 2.39%/year.

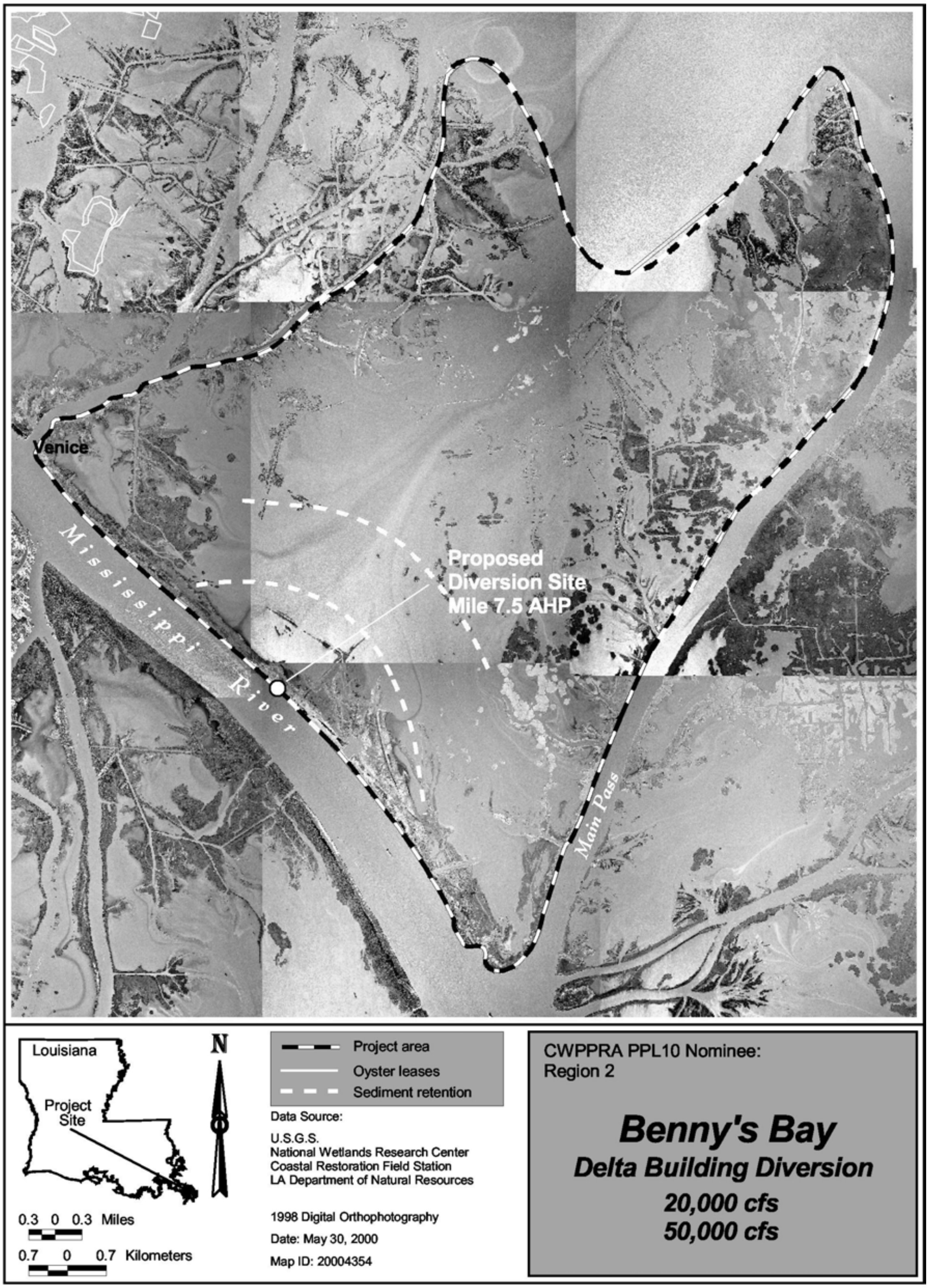
Goals: Through deposition of sediments and reduction of marsh loss, create/preserve 5,828 additional acres of marsh at the end of 20 years compared to without project conditions.

Proposed Solution: A 50,000 cfs uncontrolled sediment diversion near mile 7.5 AHP in the Mississippi River is proposed. This site was chosen because it is at the trailing end of a sandbar where sediment capture would be maximized. The conveyance channel would be approximately 670 feet wide and 47 feet deep and slope up to the existing bottom depth of the receiving area (-2 feet). Some dredged material would be placed on either side of the cut for stabilization and the remainder would be placed in shallow open water to create about 100 acres of marsh. To aid in delta growth, bifurcation channels would be dredged about every five years. Two facilities would require relocation: a 16-inch crude oil pipeline owned by Shell and power lines owned by Entergy and Bell South. In addition, approximately 1,100 feet of foreshore dike would need to be removed. This diversion would cause induced dredging downstream in the Mississippi River. Outfall management would be done with sediment retention devices. These would be ten 3-foot high earthen dikes with 1 on 2 side slopes, a 4-foot crown and 27,400 feet in length. They would have low-level weirs at 1,000-foot intervals to allow natural water level fluctuations and fisheries access. They would be built from the receiving area with either a barge-mounted or marsh buggy dragline. The first dikes would be placed fairly near the river. After the area fills, a second set of dikes would be built further out.

Public Support, Risk/Uncertainty and Longevity/Sustainability: Plaquemines Parish and the U.S. Fish and Wildlife Service, owners of Delta National Wildlife Refuge, support this project. The only likely risk is possible landrights problems. Much of the project is on the Delta National Wildlife Refuge, but a portion is on private property, which may present problems. There is little uncertainty regarding the results of this project since sediment diversion is a tried technique, although on a smaller scale. This project restores natural processes and should provide wetland benefits beyond 40 years without further maintenance and should maintain marsh elevation sufficient to withstand subsidence.

Project Benefits: This project is anticipated to benefit 5,828 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $37,613,000.



Venice
Mississippi River
Proposed Diversion Site Mile 7.5 AHP
Main Pass
Louisiana
Project Site
N
Project area
Oyster leases
Sediment retention
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004354
0.3 0 0.3 Miles
0.7 0 0.7 Kilometers
CWPPRA PPL10 Nominee:
Region 2
Benny's Bay
Delta Building Diversion
20,000 cfs
50,000 cfs

Project Name: Delta-building Diversion at Myrtle Grove (BA-33)

Project Sponsor: National Marine Fisheries Service

Regional Strategy: Construct a delta-building diversion in Myrtle Grove/Naomi Area (15,000cfs)

Location: Region 2; Barataria Basin; Plaquemines, Jefferson and Lafourche Parishes

Problem: The project area has undergone substantial loss of wetlands and significant habitat shift to more saline marshes in the last 50 years. The project area has moderately high wetlands loss rates which are primarily caused by high subsidence rates and altered hydrology associated with navigation and flood control projects as well as oil and gas activities. It is anticipated that approximately 14,500 acres of wetlands will be lost in the project area over the next 20 years, and that wetland types will continue to shift toward more saline habitats.

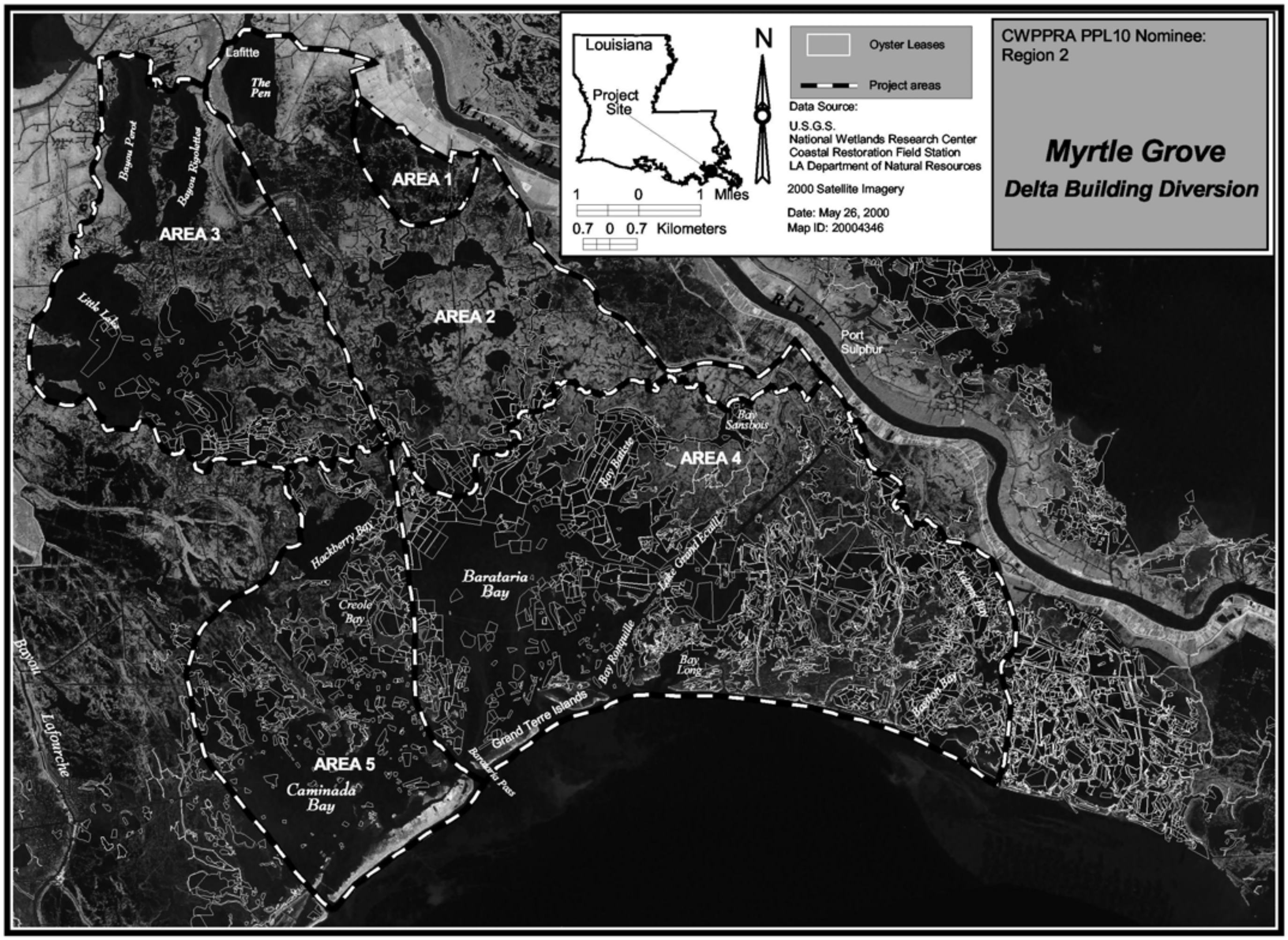
Goals: 1) Create intermediate marsh in northern portion of project area; 2) reduce land loss rates in southern portion of project area; and, 3) reduce average annual salinities throughout the majority of the project area.

Proposed solution: The project would involve installation of five 16 foot x 16 foot gated box culverts on the right descending bank of the Mississippi River in the vicinity of Myrtle Grove. The structure would be set at an elevation of –15 feet NGVD, resulting in a maximum conveyance capacity of 15,000 cfs. A reversed-curve inflow channel would maximize sediment capture. Additional project features would include a conveyance channel with parallel mainline flood control levees and an outflow channel with guide levees. Dredging to create adequate outfall in the headwaters of Bayou Dupont and construction of a pump station may be required.

Public Support, Risk/Uncertainty and Longevity/Sustainability: This project is expected to provide substantial wetland benefits for at least 20 years after construction, and depending on continued operation of the diversion, could provide benefits for as long as 50 years. There is a medium degree of risk and uncertainty with this project due to the uncertainty of the accuracy associated with large-scale sediment diversions.

Project Benefits: This project is anticipated to benefit 8,891 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $149,206,000, including the estimated costs associated with oyster relocations and $81,781,000 without oyster relocation costs.


Louisiana
Project Site
N
1 0 1 Miles
0.7 0 0.7 Kilometers
Oyster Leases
Project areas
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: May 26, 2000
Map ID: 20004346
CWPPRA PPL10 Nominee:
Region 2
Myrtle Grove
Delta Building Diversion
Lafitte
The Pen
Bayou Perot
Bayou Rigolettes
AREA 1
AREA 2
AREA 3
AREA 4
AREA 5
Little Lake
Port Sulphur
Bay Sansbois
Bay Batiste
Hackberry Bay
Barataria Bay
Creole Bay
Lake Grand Ecaille
Bay Ronquille
Bay Long
Grand Terre Islands
Barataria Pass
Caminada Bay
Bayou Lafourche

Project Name: Delta-building Diversion North of Fort St. Philip (BS-10)

Project Sponsor: U.S. Corps of Engineers, New Orleans District

Regional Strategy: Construct delta-building diversion through controlled crevasses to Quarantine Bay.

Location: Region 2, Breton Sound Basin, Plaquemines Parish, LA

Problem: The wetlands in the area are deteriorating from shoreline erosion, subsidence, and insufficient sediment input. Some delta building is occurring in the downstream end of the project area from overbank flow of the Mississippi River. However, most of the project area is deteriorating from lack of sediment. The project area contains all four marsh types, with fresh marsh near the river and saline marsh near Breton Sound. Most of the project area is saline marsh and open water. The proximity of open, shallow, estuarine water to the Mississippi River, coupled with the low level of development and infrastructure at this site, presents a rare opportunity to construct a major sediment diversion project for a reasonable construction cost. Oyster leases in the project area and nearby in Breton Sound would be impacted by the project. Also, oil and gas well access canals and pipeline canals may be silted-in, causing access problems for the companies operating in the area.

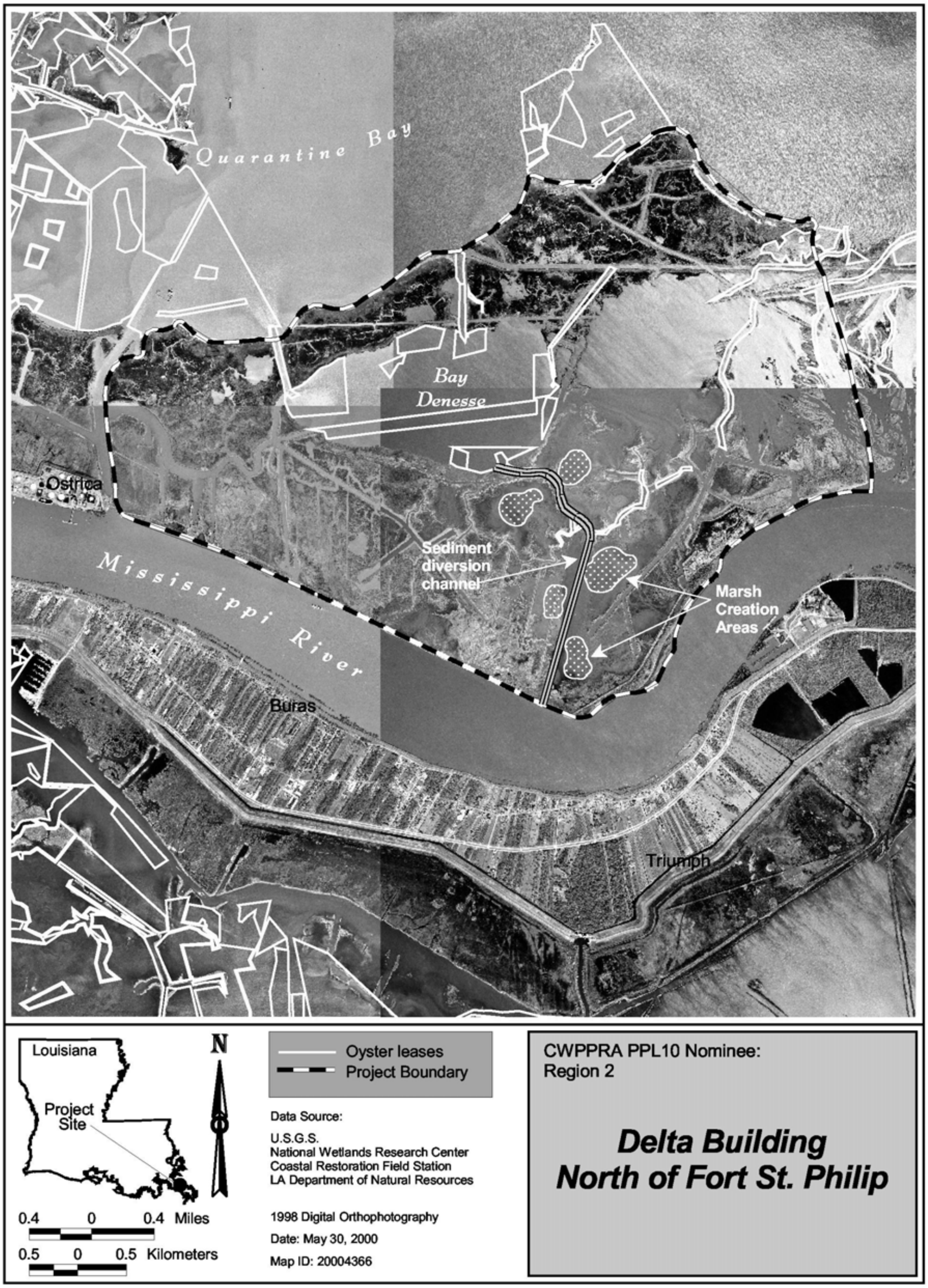
Goals: The goal of this project is to utilize sediment and freshwater from the Mississippi River to create a new subdelta.

Proposed Solution: A new channel would be dredged through the east bank of the Mississippi River about 2.5 miles upstream from Fort St. Phillip. The diversion channel would be 500 feet wide by 10 feet deep. The channel would be excavated with a hydraulic dredge and the material would be used beneficially to create about 378 acres of brackish and intermediate marsh. The diversion channel would be about 9,800 feet land with its terminus at Bay Denesse. Cuts would be made at several locations along the diversion channel to divert water and sediments into adjacent open water areas. The channel has been designed to create approximately 2,000 acres of marsh over the project life through sediment deposition into open water areas. In addition, the project would significantly reduce the loss of existing marsh in the project area.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The level of public support for the project is unknown. There are oyster leases in the area that could be adversely affected and saltwater fishing could be adversely affected in the area, so there may be some opposition from certain segments of the public. The project is expected to provide substantial wetland benefits for more than 40 years after project construction. The risk and uncertainty associated with this project is low. The building of sub-deltas with artificial crevasses is a proven technology.

Project Benefits: This project is anticipated to benefit 2,473 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $6,355,000.


Quarantine Bay
Bay Denesse
Ostrica
Mississippi River
Sediment diversion channel
Marsh Creation Areas
Buras
Triumph
Louisiana
Project Site
N
0.4 0 0.4 Miles
0.5 0 0.5 Kilometers
Oyster leases
Project Boundary
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004366
CWPPRA PPL10 Nominee:
Region 2
Delta Building
North of Fort St. Philip

Project Name: Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joseph Harbor (ME-18)

Project Sponsor: U.S. Environmental Protection Agency

Regional Strategy: Stabilize the Gulf shoreline in the vicinity of Rockefeller Refuge (includes the eroded Gulf shoreline from Lower Mud Lake to east of Rockefeller Refuge)

Location: Region 4, Mermentau Basin, Cameron Parish, LA. Along the Rockefeller Refuge Gulf shoreline from Beach Prong to Joseph Harbor (#1 Gulf shoreline priority for Rockefeller Refuge).

Problem: The project will be designed to address Rockefeller Refuge Gulf shoreline retreat averaging approximately 39 feet per year with subsequent direct loss of saline emergent marsh. Byrnes, McBride, et al (1995) have documented long term 1883-1994 Gulf shoreline retreat rates ranging from 30 feet – 40 feet per year from Beach Prong to Joseph Harbor. Tropical Storm Francis in September 1998 caused 60 feet – 65 feet of shoreline loss along this stretch over a four day period (Tom Hess personal communication).

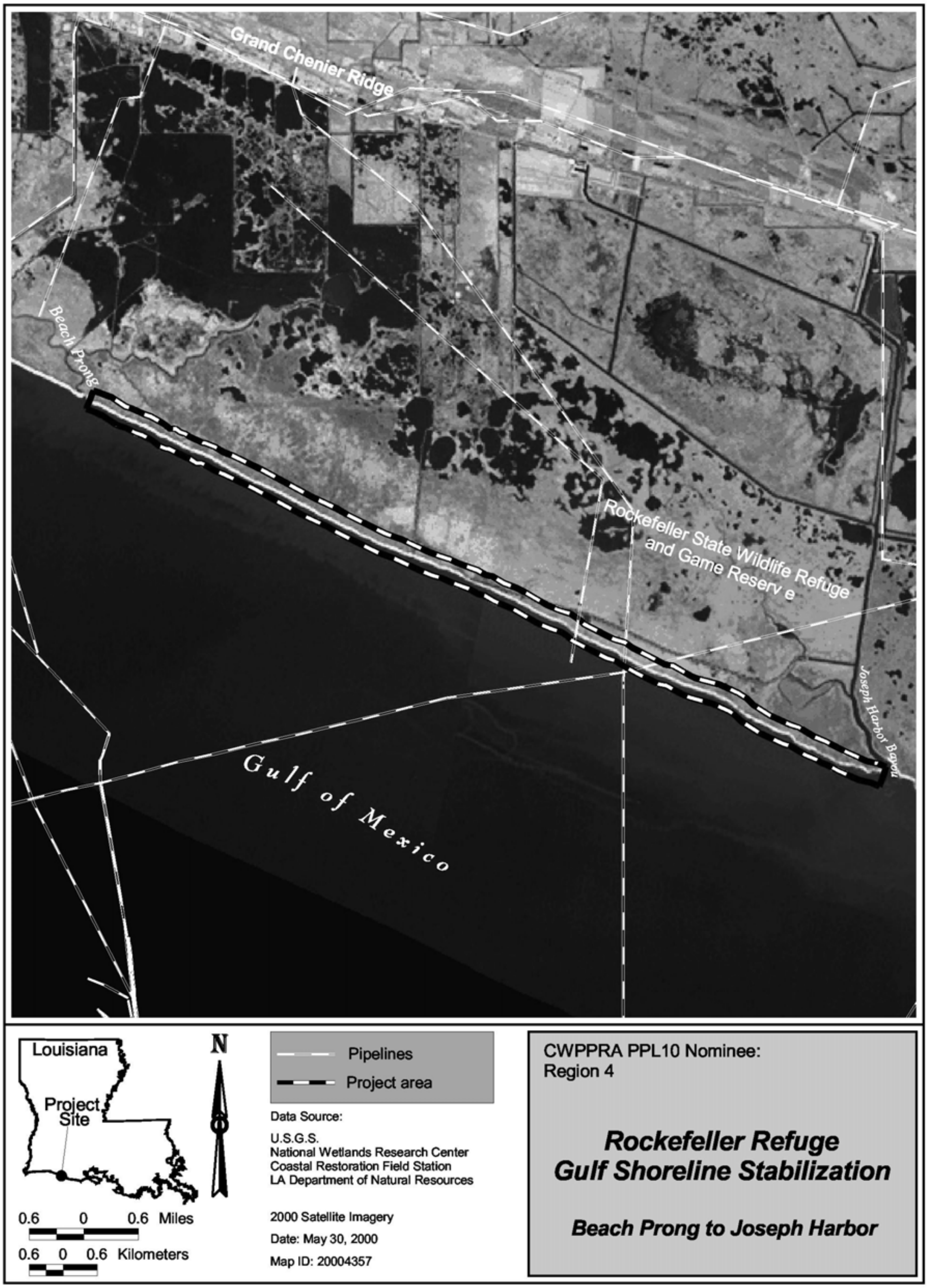
Goals: 1) Halt Gulf shoreline retreat and direct marsh loss from Beach Prong to Joseph Harbor, 2) protect saline marsh habitat, and 3) enhance fish and wildlife habitat

Proposed Solution: The project would entail construction of a continuous nearshore rock breakwater along the Gulf of Mexico shoreline, extending approximately 50,691 feet from Beach Prong to Joseph Harbor. The proposed structure would be tied into the west bank of Joseph Harbor, and the east bank of Beach Prong. It would be designed to attenuate shoreline retreat along this stretch of Gulf shoreline, as well as promote shallowing, settling out, and natural vegetative colonization of overwash material landward of the proposed structure. The resultant design would be placed approximately 400 feet offshore along the 5 foot contour. Proposed dimensions are: 10 foot height (+5 feet freeboard), 10 foot top width, 50 foot bottom width, and 2.0H:1.0V side slopes. Fish dips placed within the rock breakwater are also proposed to facilitate material and organism linkages.

Public Support, Risk/Uncertainty and Longevity/Sustainability: It is anticipated that this project will receive statements of support from local and state elected officials, and Congressional representatives. The proposed project is expected to continue providing substantial wetland benefits 30 to 40 years after construction, and there is a high degree of probability that the project will meet its objectives.

Project Benefits: This project is anticipated to benefit 920 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $95,989,000.


Grand Chenier Ridge
Beach Prong
Rockefeller State Wildlife Refuge
and Game Reserv e
Joseph Harbor Bayou
Gulf of Mexico
Louisiana
Project
Site
0.6 0 0.6 Miles
0.6 0 0.6 Kilometers
N
Pipelines
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: May 30, 2000
Map ID: 20004357
CWPPRA PPL10 Nominee:
Region 4
Rockefeller Refuge
Gulf Shoreline Stabilization
Beach Prong to Joseph Harbor

Project Name: GIWW Bank Restoration of Critical Areas in Terrebonne (TE-43)

Project Sponsor: National Resources Conservation Service

Regional Strategy: Stabilize the banks of navigation channels for water conveyance

Location: Region 3, Terrebonne Basin, Terrebonne and Lafourche Parishes, LA

Problem: In the past 20 years as the efficiency of the Lower Atchafalaya River has decreased, Verrett subbasin flooding and Atchafalaya River flows via the GIWW have increased. Deterioration of fresh and intermediate wetlands, particularly of the floating marshes, in the upper Penchant Basin has been attributed to sustained elevated water levels. In addition, floating marshes in some areas have become directly exposed to increased circulation through unnatural connections formed where channel banks deteriorated. Conversely, losses in the central Terrebonne marshes have been attributed to the elimination of riverine inflow coupled with subsidence and altered hydrology from canal dredging that facilitated saltwater intrusion (Coast 2050, Appendix E). Large areas of floating marshes in the northwest Penchant basin have converted from thick-mat maidencane floating marsh to more fragile thin-mat spikerush floating marsh (Visser, et al. 1999), or to open water. In addition, landowners in the upper Penchant Basin can testify that increased flow of the GIWW and wave pulses from navigation traffic causes additional breakup and loss of floating marshes in unprotected areas.

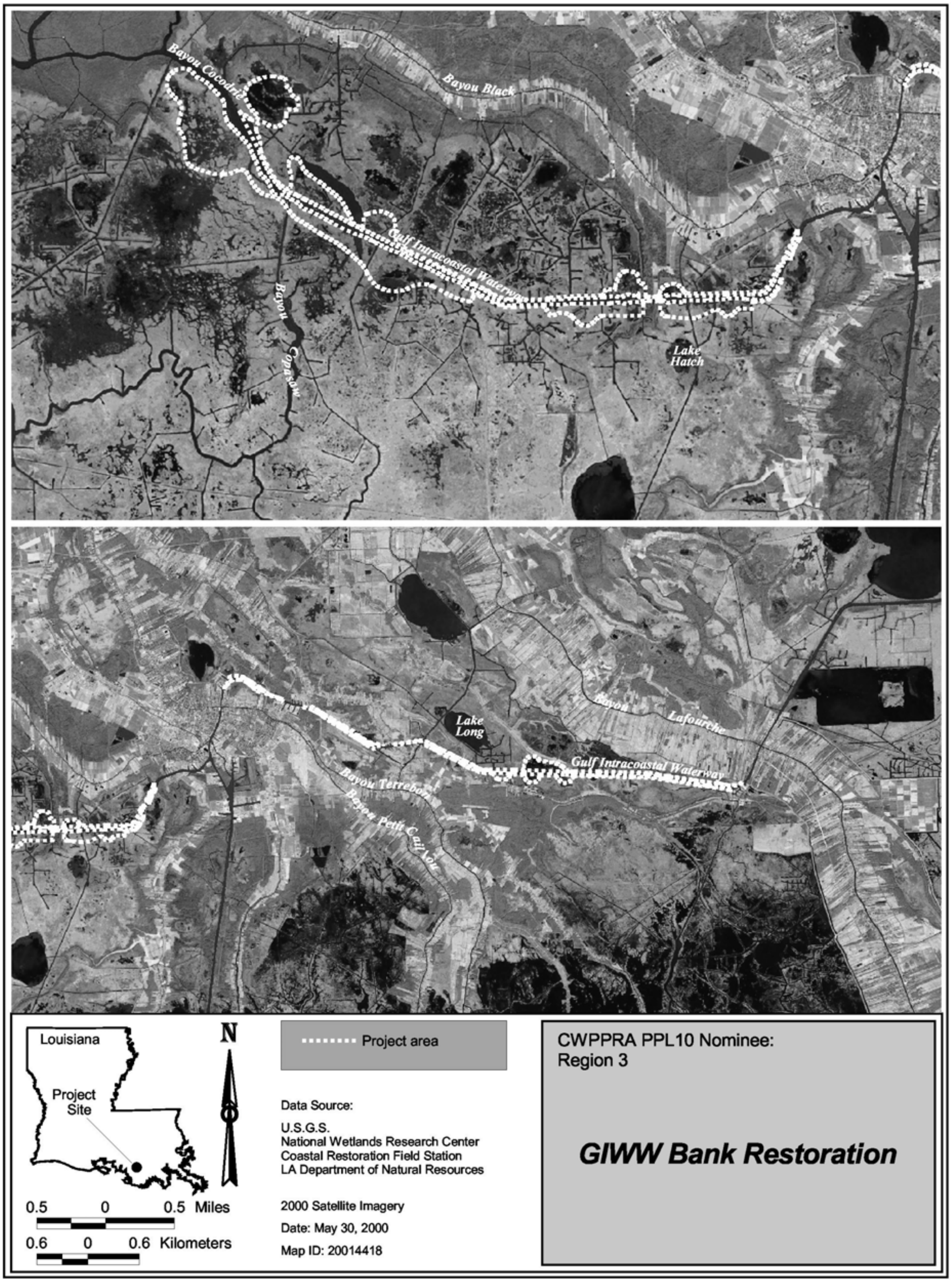
Goals: The project goal is to enable the GIWW to function as a conveyance channel to direct Atchafalaya freshwater flow to specific locations that would benefit from increased flows of fresh water and nutrients while providing relief to the Penchant marshes currently suffering from prolonged inundation.

Proposed Solution: This project will restore critical lengths of deteriorated channel banks, and stabilize/armor selected critical lengths of deteriorated channel banks with hard shoreline stabilization materials.

Public Support, Risk/Uncertainty and Longevity/Sustainability: At present local and state support is available, Congressional representatives have not yet been contacted in order to elicit their support. This project includes planned maintenance that will ensure its ability to provide benefits at least through the project's 20 year life. It is designed to provide the ability of sediment entrapment and therefore build up behind the rock dike. The material proposed is as of yet untested in this fragile soil environment; however, maintenance is included to lessen the inherent risk in organic soil conditions.

Project Benefits: This project is anticipated to benefit 2,019 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $19,658,000.



Bayou Cocodrie
Bayou Black
Gulf Intracoastal Waterway
Bayou Copasaw
Lake Hatch
Lake Long
Bayou Lafourche
Gulf Intracoastal Waterway
Bayou Terrebonne
Bayou Petit Caillou
Louisiana
Project Site
N
0.5 0 0.5 Miles
0.6 0 0.6 Kilometers
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
2000 Satellite Imagery
Date: May 30, 2000
Map ID: 20014418
CWPPRA PPL10 Nominee:
Region 3
GIWW Bank Restoration

Project Name: Grand-White Lake Land Bridge Protection Project (ME-19)

Project Sponsor: U.S. Fish and Wildlife Service

Regional Strategy: Stabilize shorelines and prevent the coalescence of Grand-White Lake.

Location: Region 4, Mermentau Basin/Lakes Sub-basin, Cameron Parish, LA. The project is located on the southeast shore of Grand Lake just north of the old GIWW eastward to Collicon Lake.

Problem: Erosion of the southeast shoreline of Grand Lake and the western shoreline of Collicon Lake has removed the lake rims and is endangering the narrow land bridge between the two lakes (24 to 36 feet/year). Collicon Lake (3,000 ac) is in imminent danger of breaching (< 500 ft) into the eastern portion of Grand Lake endangering the entire 13,281 acre Grand-White Lake Land Bridge. The size of Grand Lake could increase by over 4,800 acres and the width of the land bridge could be reduced by 2 miles. Shoreline erosion would accelerate in the remaining land bridge marshes.

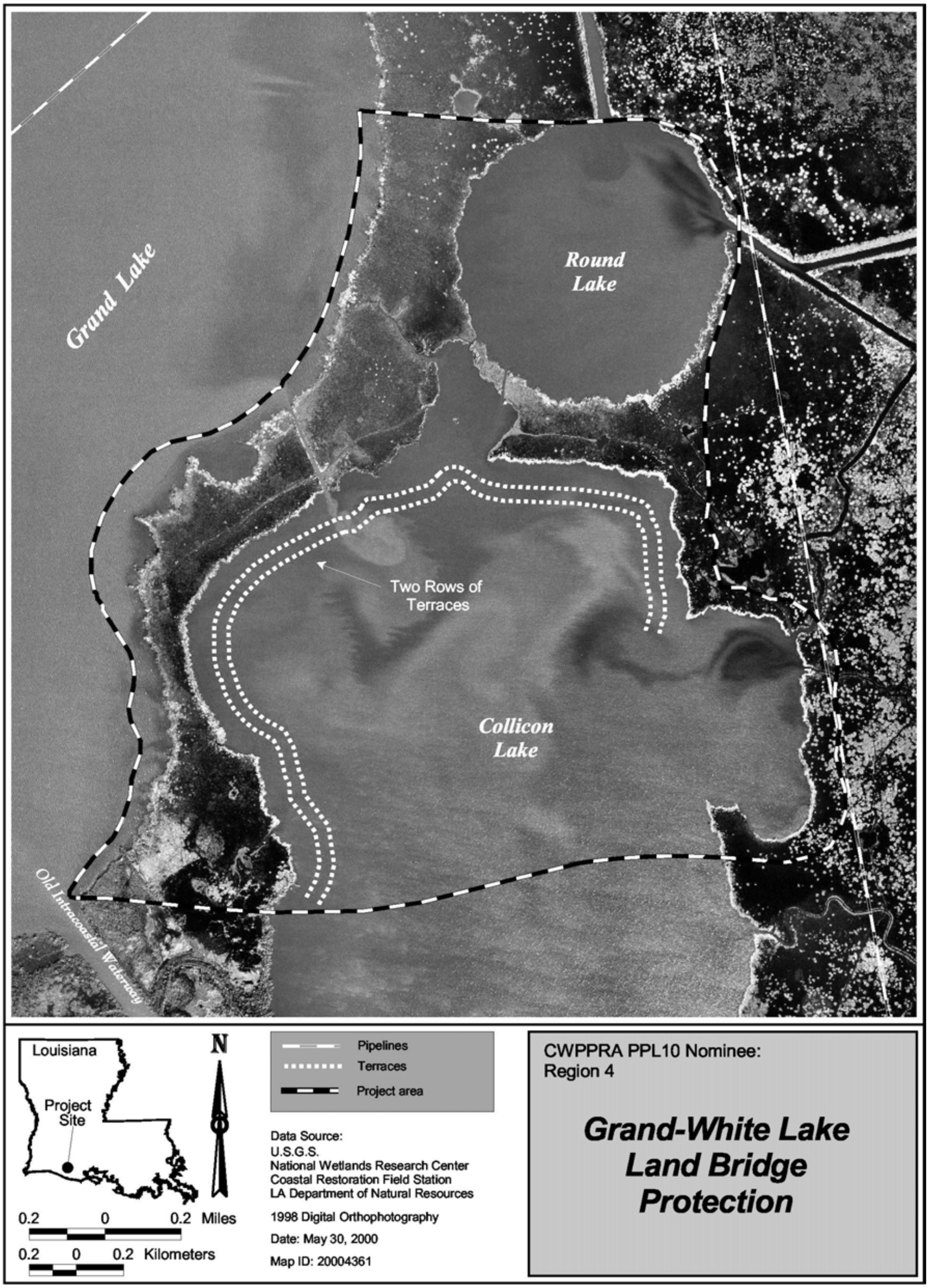
Goals: 1) Protect fresh water wetlands by stopping the erosion of the southeast shoreline of Grand Lake and western shoreline of Collicon Lake, 2) allow for vertical accretion of sediment and organic substrate along historical shorelines, and 3) allow for the access of aquatic organisms, water, sediment and nutrient exchange between the protected wetlands and Grand and Collicon Lakes.

Proposed Solution: 1) Hard Shoreline Stabilization - Install 11,000 feet of hard shoreline stabilization material (limestone or jacks-like concrete material) along the southeast shore of Grand Lake from 1,000 feet north of the Old Intracoastal Waterway to the Round Lake northern shoreline. The stabilization material will be placed about 100 feet lakeward from shore in shallow water 1 foot deep. 2) Linear Terraces - Install two 9,240 foot rows of linear earthen terraces along the northwest to north shore of Collicon Lake. This will include two rows of 37 - 200 feet long X 10 feet wide terraces with 50 foot gaps between terraces. The first row will be located approximately 50 feet from the shoreline in about 2.5 feet of water; the second row will be approximately 200 feet lakeward of the first row in about 3.5 feet of water (total 64 acres). The terraces will be vegetated with gallon containers of seashore paspalum (*Paspalum vaginatum*) and bullwhip (*Scirpus californicus*).

Public Support, Risk/Uncertainty and Longevity/Sustainability: Written endorsement or testimony by an elected public official has not been received for this project. However, public support was expressed for the project at the Region 4 project nomination meeting. This project is expected to provide substantial wetland benefits 20 to 30 years after construction. There is a low degree of risk and uncertainty with this project as the proposed shoreline protection features and terraces have been used successfully in coastal Louisiana to protect emergent wetlands.

Project Benefits: This project is anticipated to benefit 213 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $9,422,000.


Grand Lake
Round Lake
Two Rows of Terraces
Collicon Lake
Old Intracoastal Waterway
Louisiana
Project Site
N
0.2 0 0.2 Miles
0.2 0 0.2 Kilometers
Pipelines
Terraces
Project area
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004361
CWPPRA PPL10 Nominee:
Region 4
Grand-White Lake Land Bridge Protection

Project Name: North Lake Mechant Land Bridge Restoration (TE-44)

Project Sponsor: U.S. Fish and Wildlife Service

Regional Strategy: Dedicated sediment delivery for marsh building

Location: Region 3, Terrebonne Basin, Terrebonne Parish, LA

Problem: The project would protect and restore a critical land bridge barrier between the easily erodible fresh marshes north of Bayou Decade and the marine processes of Lake Mechant. At the present shoreline erosion rate of 7.5 feet/year, a 500-1,000 foot long section of the north Lake Mechant shore will fail, allowing the hydrologic connection of organic interior open water/marsh areas with Lake Mechant. Additionally, erosion and deterioration along the banks of Raccourci Bayou are threatening to enlarge and straighten this sinuous tidal pass into a major conduit for water exchange. These changes will accelerate loss of remaining interior marshes and extend lake-like conditions and increased salinities north to Bayou Decade. Maximum tidal amplitudes along the north shore of Lake Mechant are approximately 1.25 feet. Should shoreline breaching and enlargement of tidal channels allow those high tidal energy conditions to intrude into the project area, the organic interior marshes would likely experience increased loss rates. Oyster leases occupy the southern half of Lake Mechant, indicating that relatively high salinity conditions occur in Lake Mechant. The project would also restore landbridge function by plugging several existing canals through the land bridge.

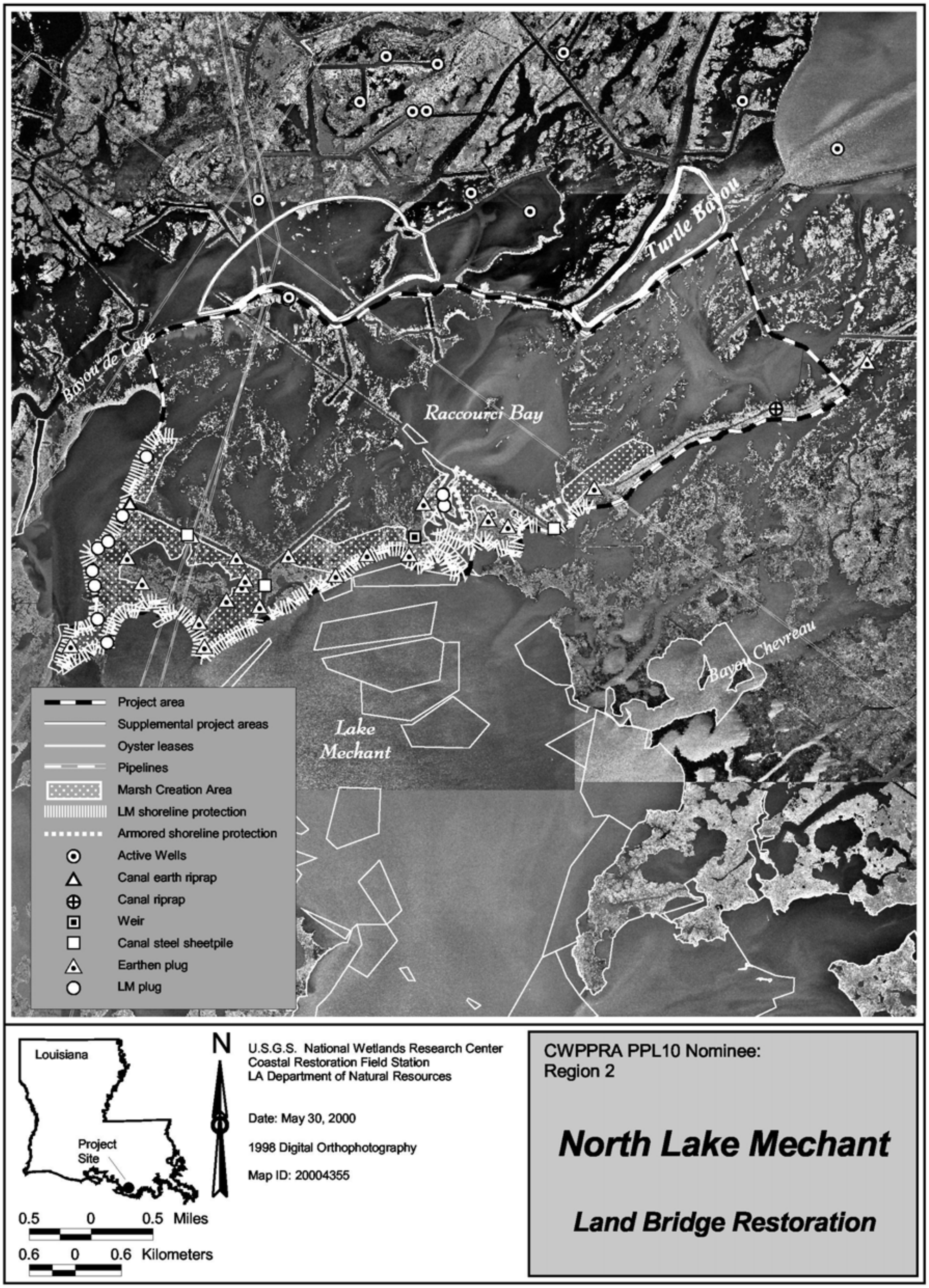
Goals: Protect and restore the north Lake Mechant land bridge and Small Bayou LaPointe Ridge.

Proposed Solution: Dredge material from northern Lake Mechant to create approximately 534 acres of marsh. This will include armoring 6,600 linear feet of containment dike. Smooth cordgrass will also be planted along 44,300 linear feet of Lake Mechant, Goose Bay and Lake Pagie. One armored earthen plug, 3 sheetpile plugs, and 1 rip-rap plug will be installed. Also, one existing fixed-crest weir will be repaired.

Public Support, Risk/Uncertainty and Longevity/Sustainability: The project is known to be supported by local officials. The project would provide benefits for 20 to 30 years after construction. Given the known soil conditions and the information already obtained, risk and uncertainty for this project is low.

Project Benefits: This project is anticipated to benefit 604 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $26,009,000.


Turtle Bayou
Bayou de Cade
Raccourci Bay
Bayou Chevreau
Lake Mechant
Project area
Supplemental project areas
Oyster leases
Pipelines
Marsh Creation Area
LM shoreline protection
Armored shoreline protection
Active Wells
Canal earth riprap
Canal riprap
Weir
Canal steel sheetpile
Earthen plug
LM plug
Louisiana
Project Site
0.5 0 0.5 Miles
0.6 0 0.6 Kilometers
N
U.S.G.S. National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
Date: May 30, 2000
1998 Digital Orthophotography
Map ID: 20004355
CWPPRA PPL10 Nominee:
Region 2
North Lake Mechant
Land Bridge Restoration

Project Name: Delta Management at Fort St. Philip (BS-11)

Project Sponsor: U.S. Fish and Wildlife Service

Regional Strategy: Construct most effective small diversions

Location: Region 2, Breton Sound Basin, Plaquemines Parish, LA. The project area is 1,305 acres and is located on the east side of the Mississippi River near the crevasse at Fort St. Phillip.

Problem: Since the early 1970s, this area has undergone a transition from an organic, low-energy system consisting of brackish/saline marsh to a deltaic environment dominated by the formation of fresh and intermediate marsh types. Recent aerial photography indicates that marsh loss has decreased considerably in the project area and marsh building now occurs over a substantial portion of the area. Many areas of historic marsh loss are now becoming shallower with the introduction of river sediments. Emergent marsh is forming throughout the area on the newly-accreted mineral soils. Even though this area is experiencing a net gain in emergent marsh, this project proposes to enhance the natural marsh-building processes occurring in the area and increase the growth rate of emergent wetlands.

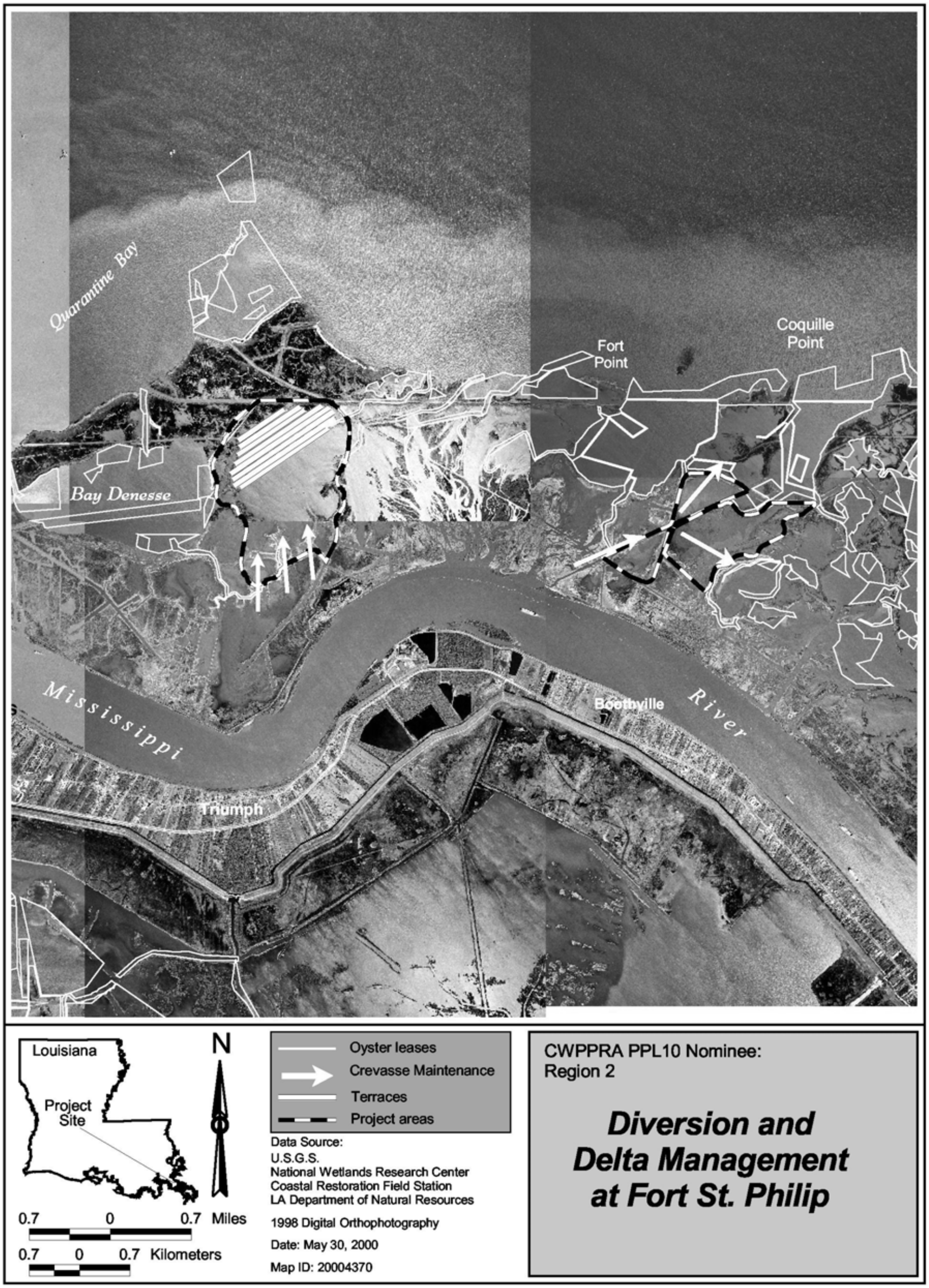
Goals: 1) Increase the flow of fresh water and sediments into shallow, open-water habitat, and 2) increase sedimentation and marsh building by means of artificial crevasses.

Proposed Solution: The project will include the construction of 31,200 linear feet of terraces in open water habitat and the construction of 6 crevasses to increase marsh-building processes. Crevasse dimensions are generally 75 feet wide and 8 feet deep and will be constructed at a 60-degree angle from the parent pass. Terraces will be constructed in nine staggered rows across the northern half of Area 1. The terraces will be 200 feet long with 50 foot gaps between terraces and the rows will be 200 feet apart. Terraces will be planted with seashore paspalum and smooth cordgrass.

Public Support, Risk/Uncertainty and Longevity/Sustainability: Written endorsement or testimony by an elected public official has not been received for this project. Public support was expressed for the project at the Region 2 project nomination meeting. This project is expected to provide substantial wetland benefits 20 to 30 years after construction. There is a low degree of risk and uncertainty with this project as artificial crevasses and terraces have been used successfully in coastal Louisiana to create emergent wetlands.

Project Benefits: This project is anticipated to benefit 267 total net acres.

Total Fully Funded Cost: The total fully funded cost of this project is $2,962,000.


Quarantine Bay
Bay Denesse
Fort Point
Coquille Point
Mississippi
River
Boothville
Triumph
Louisiana
Project Site
N
0.7 0 0.7 Miles
0.7 0 0.7 Kilometers
Oyster leases
Crevasse Maintenance
Terraces
Project areas
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004370
CWPPRA PPL10 Nominee:
Region 2
Diversion and Delta Management at Fort St. Philip

Project Name: East Sabine Lake Hydrologic Restoration Project (CS-32)

Project Sponsor: National Resources Conservation Service /U.S. Fish and Wildlife Service

Regional Strategy: Salinity control on the east shoreline of Sabine Lake

Location: Region 4, Calcasieu/Sabine Basin, Cameron Parish, LA. Western portion of Sabine National Wildlife Refuge from Pool 3 to the Sabine Lake eastern shoreline.

Problem: Marsh conversion to shallow open water due to higher salinity events caused by navigation and boundary line channels. These canals provide a direct route for saltwater to infiltrate the project area and allow rapid run off of freshwater. The larger Sabine-Neches Waterway and the GIWW have allowed salt water intrusion into the project area's fresh and intermediate marshes. Channels have circumvented the natural circulation of water in the project area. Increased tidal fluctuations in these channels have led to increased energy which has added to the conversion of marsh to open water.

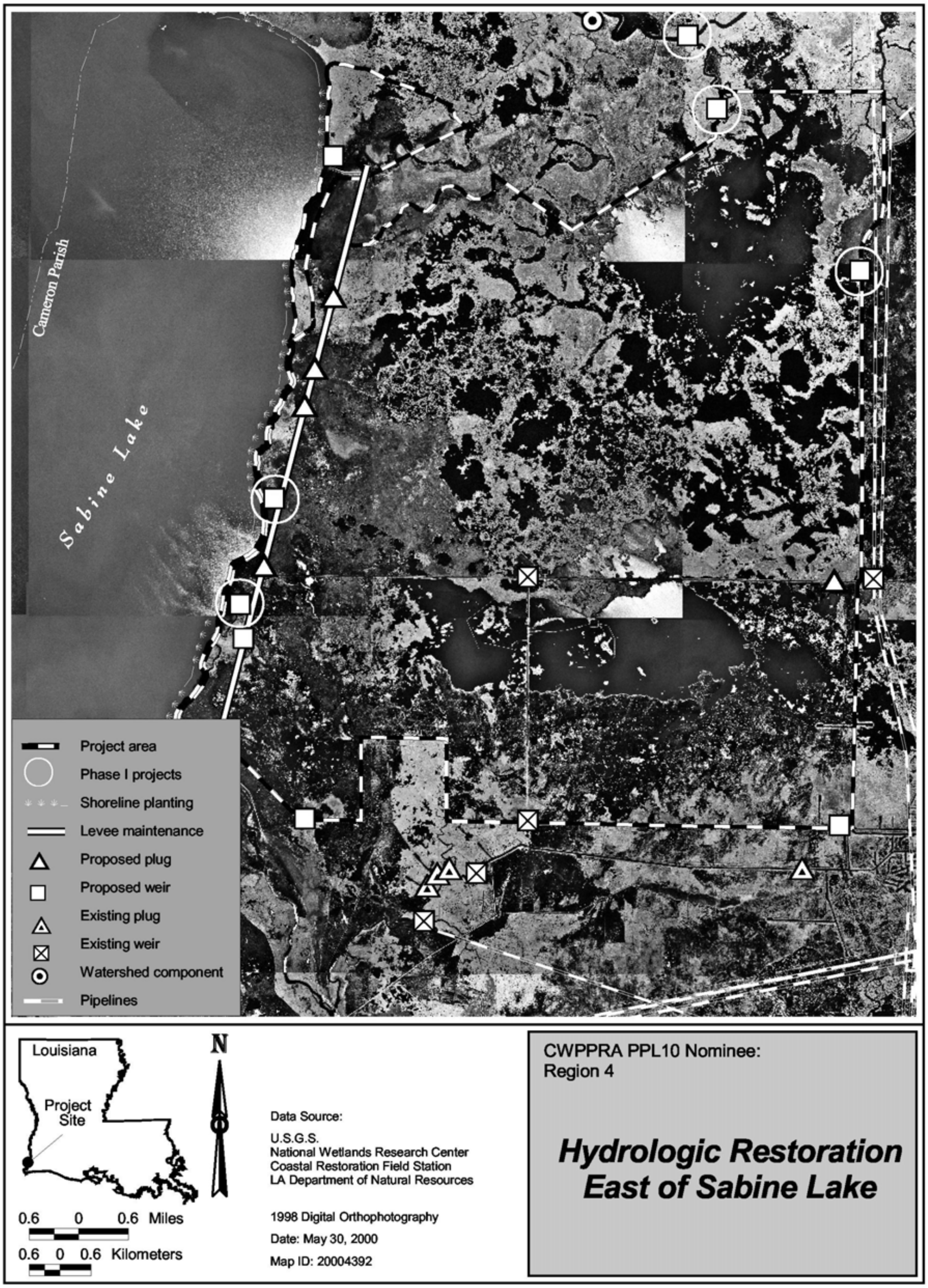
Goals: 1) Reduce excessive elevated salinities within fresh and intermediate marshes. Prevent elevated salinities from adversely affecting the project area, 2) restore altered hydrology to represent a more historic water flow, 3) reduce excessive tidal scour within the project area by decreasing tidal influx and circulation patterns, 4) decrease salinities in fresh and intermediate areas to encourage submerged aquatic vegetation (SAV) development, 5) reduce erosion on the eastern shore of Sabine Lake through vegetative plantings, and 6) reduce the turbidity of open water areas, provide more marsh edge, and restore and protect marsh through vegetative terraces.

Proposed Solution: 1) Install adjustable control structures with boat bays and boat bays in Right Prong of Black , Green, Three and Willow Bayou, 2) install a rock weir in the bayou at Pines Ridge, 3) install a plug across Gray's Ditch near Three Bayou, 4) Install 2 – 36 inch culverts with stop logs or sluice gates at Bridge Bayou, 5) install 800 feet of rock rip rap along the Sabine Lake shoreline at Willow Bayou, 6) install plug and rock weir at the openings near the southeast Section 16 and Starks South Canal, 7) maintain protective barrier levee at cattle walkway from future erosion, 8) plant 11 miles of smooth cordgrass along Sabine Lake's eastern shore from Johnston's Bayou to north of Pines Ridge, and 9) install vegetated earthen terraces in shallow water areas, north and possibly south of Willow Bayou Canal, as a project <u>increment</u>.

Public Support, Risk/Uncertainty and Longevity/Sustainability: This project has received widespread support from federal, state, and local officials. Also, public support was expressed for the project at the Region 4 project nomination meeting. Assuming Sabine NWR will assume maintenance of the structures after the 20-year project life, this project is expected to provide substantial wetland benefits more than 40 years after construction. Because of varying degrees of success among hydrologic restoration projects, there is a moderate degree of risk and uncertainty as to whether or not this project will achieve the desired results.

Project Benefits: This project is anticipated to benefit 325 total net acres without the terracing component, and 393 with the terracing component.

Total Fully Funded Cost: The total fully funded cost of this project is $19,433,000 with the terracing component and $16,821,000 without the terracing component.



Cameron Parish
Sabine Lake
Project area
Phase I projects
Shoreline planting
Levee maintenance
Proposed plug
Proposed weir
Existing plug
Existing weir
Watershed component
Pipelines
Louisiana
Project Site
0.6 0 0.6 Miles
0.6 0 0.6 Kilometers
N
Data Source:
U.S.G.S.
National Wetlands Research Center
Coastal Restoration Field Station
LA Department of Natural Resources
1998 Digital Orthophotography
Date: May 30, 2000
Map ID: 20004392
CWPPRA PPL10 Nominee:
Region 4
Hydrologic Restoration
East of Sabine Lake

Project Name: Terrebonne Bay Shore Protection Demonstration Project (Project combined with Oyster Reef Demonstration Project and renamed Terrebonne Bay Shore Protection Demonstration Project.)

Project Sponsor: U.S. Fish and Wildlife Service

Location: A specific location is proposed along the eastern bank of Bayou Terrebonne.

Problem: Erosion of bay shore marshes results in substantial losses of saline marshes throughout Region 3. Additionally, it allows marine processes to intrude northward, and ultimately this process threatens low-salinity habitats at the northern ends of area interdistributary basins. Given the great linear distances involved in implementing this strategy, techniques less costly than traditional rip-rap armoring will likely be needed to effectively address this problem. This demonstration project would seek to demonstrate the cost and effectiveness of alternative shore protection methods including artificial oyster reefs. Each protection measure would be installed near or on marsh shorelines to provide wave-protection.

Goals: Demonstrate cost and effectiveness of alternative shore protection methods through the installation of shoreline protection materials and monitoring its effectiveness in reducing shoreline erosion/retreat.

Proposed Solution: Concrete matting is one of the proposed techniques. Apparently successful applications exist at Falgout Canal, Commercial Canal, and Point Chevreuil. As a potentially more natural alternative to concrete matting, two artificial oyster reefs techniques would also be tested. Unlike traditional rip-rap armoring, or the use of concrete matting, the establishment of artificial oyster reefs may allow one to utilize natural processes to grow on site, to varying degrees, a reef capable of providing wave protection to nearby marshes. The use of concrete Ajacks is also proposed. They would provide more immediate erosion protection as well as an ideal substrate for oyster attachment. Hence, Ajacks might provide both a hard-structure erosion protection function and serve as an artificial oyster reef. Of the techniques chosen, five techniques have been chosen based on anticipated effectiveness and cost. Three 300-foot-long replicates of each technique will be installed as recommended by DNR monitoring section personnel. To better assess the effect of the oyster reef techniques, monitoring will be conducted over an 8-year-long period, rather than the usual 5 years.

Project Benefits: Benefits have not been projected. Should inexpensive and effective techniques be developed, the widescale application of those techniques could provide substantial benefits throughout much of coastal Louisiana.

Total Fully Funded Cost: The total fully funded cost of this combined project is $2,000,000.

Project Name: Oyster Reef Demonstration (Erosion Control and Habitat Restoration) (Project combined with Terrebonne Bay Shore Protection Demonstration Project and renamed Terrebonne Bay Shore Protection Project.)

Project Sponsor: U.S. Environmental Protection Agency

Project Location: The demonstration is proposed within Lake Athanasio, east of the Mississippi River Gulf Outlet, in St. Bernard Parish. The project will be constructed where directed by the USACE Engineering Work Group.

Problem: The primary threat to many small salt marsh islands in the tidal marsh ecosystem is edge erosion, resulting from wave action. Marsh buffer is needed to buffer coastal towns that are leveed and unleveed. More restoration tools are needed to counteract this type of wetland loss. Area marsh shore erosion is 10-15 feet per year.

Goals: The major goal is to develop a tool that will initiate a vertical reef structure which will continue to grow and absorb wave energy to reduce shoreline erosion, while enhancing/creating near shore area and habitats. The project will test and evaluate 1) the effectiveness of the vertical developed oyster reefs in reducing shore erosion; 2) the vigor of growth of seed oysters in the reef configuration; 3) effectiveness of new reef geometry compared to design of small pilot; 4) near shore sedimentation and oyster fragment accumulation; 5) enhancement of fisheries habitat; and 6) increased usage by birds and other wildlife. In addition, area farmers would like to test: oyster growth and shell accumulation in areas not infected with hooked mussels, growth of seed oysters brought from several sources, and compatibility of developed oyster reefs for restoration and oyster farming. The industry will be invited to participate in/fund such monitoring activities.

Proposed Solution: A reef skeleton will be constructed of individual reef units in the basic form of a hollow core cylinder with a triangular cross-section. The geometry is to provide high strength, a stable base, and large reef-face surface area. The units may be assembled in various configurations and accommodate differences in site conditions. A chain of units, each weighing about 350 pounds, would be created around at least two sides of a marsh island. Each unit frame forms three panels which support a series of heavy gauge plastic bags loaded with natural shell cultch and seed oysters. The reef would be placed in about 2 feet of water offshore of the marsh island with 50 foot openings on each side. The design around the island will provide comparison of wave protection and reef growth from different quadrants of wind and wave attack. The vertical configuration above the bottom allows greater exposure to tidal currents and allows more potential to obtain food to accelerate growth of oysters and shell. New shell growth will protrude through the mesh and cement together to form a reef mass. New spat will attach to the initial cultch and to new growing shells to develop and perpetuate the reef.

Project Benefits: The primary benefit is prevention of shoreline erosion, which is achieved by the honey comb design reef structure absorbing wave energy, thus allowing sediment deposition and shell accumulation behind the reef and along the shore. The reef will protect and diversify the shore zone habitat in the area. Increased fisheries production around the reef and island will also provide enhanced food supply for birds and other wildlife. In addition, oyster production in the area will be enhanced. This technology is transferrable to other tidal salt marsh areas, and provides wetland protection structures using materials naturally occurring in Louisiana.

Total Fully Funded Cost: The total fully funded cost of this combined project is $2,000,000.

VI. SUMMARY AND CONCLUSIONS

The 10th Priority Project List consists of 11 projects, for a Phase I cost of $21,457,000 and a Phase II cost of $368,369,000 which will be funded as these projects mature. The total benefits of the projects are estimated to be 10,939 AAHUs, based on a comparison of future with and without-project conditions over the 20-year project life. The 10th Priority Project List also includes one demonstration project with a fully funded total cost of $2,000,000.

The Task Force believes the recommended projects represent the best strategy for addressing the immediate needs of Louisiana's coastal wetlands. The Task Force will conduct a final review of the plans and specifications for each project prior to the award of construction contracts by the lead Task Force agency and the allocation of construction funds by the Task Force chairman.

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1st Priority Project List (deauthorized = *underlined*)

Environmental Protection Agency

TE-20 Eastern Isles Dernieres Barrier Island Restoration Demonstration

U.S. Department of the Army

FMR-3 West Bay Sediment Diversion for Marsh Creation
PPO-10 Bayou LaBranche Wetland Marsh Creation
BA-19 Barataria Bay Waterway Marsh Creation
FTV-3 Vermillion River Cutoff Wetland Creation

U.S. Department of Commerce

BA-18 Fourchon Hydrologic Restoration
TE-19 Lower Bayou La Cache Wetland Hydrologic Restoration

U.S. Department of Agriculture

BA-2 G.I.W.W. to Clovelly Hydrologic Restoration Coastal Vegetation Program
TE-18 Timbalier Island Planting Demonstration
TE-17 Falgout Canal Planting Demonstration
FCS-19 West Hackberry Vegetative Planting
ME-8 Dewitt-Rollover Shore Protection Demo *(Vegetative Planting de-authorized)*

U.S. Department of the Interior

XPO-52a Bayou Sauvage NWR Hydrologic Restoration
ME-9 Cameron Prairie Refuge NWR Erosion Prevention
FCS-18 Sabine Refuge Pool 3 Unit Protection
FCS-17 Cameron-Creole Watershed Project Borrow Canal Plug

2nd Priority Project List

Environmental Protection Agency

XTE-41 Isles Dernieres Island Restoration

U.S. Department of the Army

PTE-27 West Belle Pass Headland Restoration
PCS-27 Clear Marais Shore Protection

U.S. Department of Commerce

PAT-2 East Atchafalaya Crevasse Creation
PTE-2/24 Pointe Au Fer Canal Plugs
XAT-7 Big Island Sediment Distribution

U.S. Department of Agriculture

CS-9 Brown Lake Hydrologic Restoration
ME-4/XME-21 Freshwater Bayou Wetlands and Shore Protection
PBA-35 Jonathon Davis Wetlands Protection
PCS-24 East Mud Lake Hydrologic Restoration
PCS-25 Hwy. 384 Hydrologic Restoration
PO-6 Fritchie Marsh Creation
PTV-18/TV-9 Vermillion Bay/Boston Canal Shoreline Stabilization
BS-3a Caernarvon Diversion Outfall Management

U.S. Department of the Interior

XPO-52b Bayou Sauvage NWR Hydrologic Restoration

3rd Priority Project List (deauthorized = *underlined*)

Environmental Protection Agency

PTE-15bi Whiskey Island Restoration
XTE-43 Modified Red Mud Demonstration

U.S. Department of the Army

XPO-71 M.R.G.O. Disposal Area Marsh Protection
XMR-10 Channel Armor Gap Crevasse
MR-8/9a Pass-a-Loutre Crevasse

U.S. Department of Commerce

XBA-65a Restoration of Bayou Perot/Bayou Rigolettes Marsh
XTE-67 East Timbalier Sediment Restoration
PTE-23 Lake Chapeau Marsh Creation & Hydrologic Restoration, Pointe au Fer Isle
BA-15 Lake Salvador Shoreline Protection Demonstration

U.S. Department of Agriculture

BA-4c West Pointe-a-la-Hache Outfall Management
TV-4 Cote Blanche Marsh Management
CS4a Cameron – Creole Maintenance
BS-4a White's Ditch Diversion Outfall Management
PTE-26b Brady Canal Hydrologic Restoration
PO-9a Violet Freshwater Distribution, Central Wetlands
PME-6 Southwest Shore White Lake Shore Protection Demonstration

U.S. Department of the Interior

XCS-47 / 481 Replace Hog Island, West Cove and Headquarters Canal at Sabine Refuge Water Control Structures

4th Priority Project List (deauthorized = *underlined*)

Environmental Protection Agency

XCS-36 Compost Demonstration

U.S. Department of the Army

PBS-9 Grand Bay Crevasse

XMR-12 Beneficial Use of Hopper Dredged Material Demonstration

U.S. Department of Commerce

PPO-4 Eden Isles Marsh Sediment Restoration

XTE-45 / 67b East Timbalier Barrier Island Sediment Restoration

U.S. Department of Agriculture

PCS-26 Perry Ridge Shore Protection

PBA-34 Bayou L'Ours Ridge Hydrologic Restoration

PBA-12a Barataria Bay Waterway Bank Protection (west)

XCS-56 Plowed Terraces Demonstration

XTE-54b Flotant Marsh Fencing Demonstration

5th Priority Project List

Environmental Protection Agency

PBA-20 Bayou Lafourche Siphon (w/o cutoff structure)

U.S. Department of the Army

XPO-69 Marsh Creation at Bayou Chevee

U.S. Department of Commerce

PTV-19 Little Vermillion Bay Sediment Trapping

XBA-48a Siphon at Myrtle Grove

U.S. Department of Agriculture

BA-3c Naomi Outfall Management

CS-11b Sweet Lake/ Willow Lake Hydrologic Restoration

PTE-15bii Raccoon Island Breakwater Demonstration

XME-29 Freshwater Bayou Bank Stabilization

U.S. Department of the Interior

TE-10/XTE-49 Grand Bayou/GIWW freshwater diversion

6th Priority Project List (deauthorized = *underlined*)

Environmental Protection Agency

XTE-321 Bayou Boeuf Pump Station Increment 1

U.S. Department of the Army

TV-5/7 Marsh Island Hydrologic Restoration

CW-5i Marsh Creation east of the Atchafalaya River – Avoca Island (Increment 2)

XMR-12b Flexible Dustpan (DEMO) Dredging for Marsh Creation the Miss. Delta Region

U.S. Department of Commerce

XCS- 48 Black Bayou Hydrologic Restoration

PMR-10 Delta-Wide Crevasses

PTV-19b Sediment Trapping at the Jaws

U.S. Department of Agriculture

PTE-261 Penchant Natural Resources Plan Increment I

XTV-251 Oaks/Avery Canals Hydrologic Restoration Increment I (Bank stabilization)

PBA-12b Barataria Bay Waterway "Dupre Cut" Bank Protection (east)

PTV-5 Cheniere au Tigre Sediment Trapping Device

U.S. Department of the Interior

TE-7f Lake Boudreaux Basin Freshwater Introduction and Hydrologic Management – Alternative B

CW-7 Nutria Harvest for Wetland Restoration

7th Priority Project List

Environmental Protection Agency

TE11a Lake Pelto Dedicated Dredging at New Cut Closure*

U.S. Department of the Army

PPO-2d/h Lake Borgne Shore Protection – Base Near Shell Beach*
XCS-48 Sabine Refuge Marsh Creation*
PO-11 Cut Off Bayou Marsh Creation*
XTE_62 Wine Island Extension*

U.S. Department of Commerce

XBA-1a Vegetative Planting of Dredged Material Disposal Site on Grande Terre Isl.
XME-22 Pecan Island Terracing Project

U.S. Department of Agriculture

PBS-1 Upper Oak River FW Introduction Siphon*
XBA-63 Barataria Basin Landbridge, Shoreline Stabilization – Phase 1
BA-2ii Along Bayou Perot and Rigolettes, Phase 1*
BA-2ii Along Bayou Perot and Rigolettes, Phase 2*
XME-42 South Grand Cheniere Freshwater Introduction*
Te-36 Thin Mat Flotant Marsh (DEMO)

* - unfunded

8th Priority Project List (deauthorized = *underlined*)

Environmental Protection Agency

U.S. Department of the Army

XCS-48 Sabine Refuge Marsh Creation (Alternative 1)

U.S. Department of Commerce

XPO-74a Bayou Bienvenue Pump Outfall Management and Marsh Creation
PPO-38 Hopedale Hydrologic Restoration

U.S. Department of Agriculture

XBA-63ii Barataria Basin Land Bridge, Shore line Protection, Phase 2 Increment A
XBA-63ii Barataria Basin Land Bridge, Shore line Protection, Phase 2 Increment B
XBA-63ii Barataria Basin Land Bridge, Shore line Protection, Phase 2 Increment C
PME-15 Humble Canal Hydrologic Restoration
PBS-1 Upper Oak River Freshwater Introduction Siphon
PTV-20 Lake Portage Land Bridge Phase 1

U.S. Department of the Interior

9th Priority Project List

Environmental Protection Agency

BA-32a LA Highway 1 Marsh Creation
XTE-45a Timbalier Island Dune/Marsh Restoration
TE-11a New Cut Dune/Marsh Restoration

U.S. Department of the Army

XPO-55a Opportunistic Use of the Bonnet Carre Spillway
XTV-27 Freshwater Bayou Canal HR/Sp – Belle Isle to Lock
MR-Demo Periodic Introduction of Sediment and Nutrients at Selected Diversion Sites
PTV-13 Weeks Bay/Commercial Canal/GIWW

U.S. Department of Commerce

XPO-95 Chandeleur Islands Restoration
XTV-30 Four-Mile Cut/Little Vermillion Bay HR
XAT-11 Castille Pass Sediment Delivery
PPO-7a LaBranche Wetlands Terracing/Plantings
XBA-1 East/West Grand Terre Islands Restoration

U.S. Department of Agriculture

PTE-28 South Lake DeCade/Atch. Freshwater Introduction
CS-16 Black Bayou Bypass Culverts
PCS-26ii GIWW Bank Stabilization (Perry Ridge to Texas)
XME-42a Little Pecan Bayou Control Structure
XBA-63iii Barataria Basin Land Bridge Shore Protection Phase 3

U.S. Department of the Interior

PME-7a FW Introduction South of Hwy. 82
XTE-DEMO Mandalay Bank Protection Demonstration

10th Priority Project List

Environmental Protection Agency

PO-30 Shore Prot./Marsh Restoration in Lake Borgne at Shell Beach
BA-34 Small Freshwater Diversion to the NW Barataria Basin

U.S. Department of the Army

MR-13 Benny's Bay 50,000 cfs Diversion
BA-33 Delta Building Diversion at Myrtle Grove
BS-10 Delta Building Diversion North of Fort St. Philip

U.S. Department of Commerce

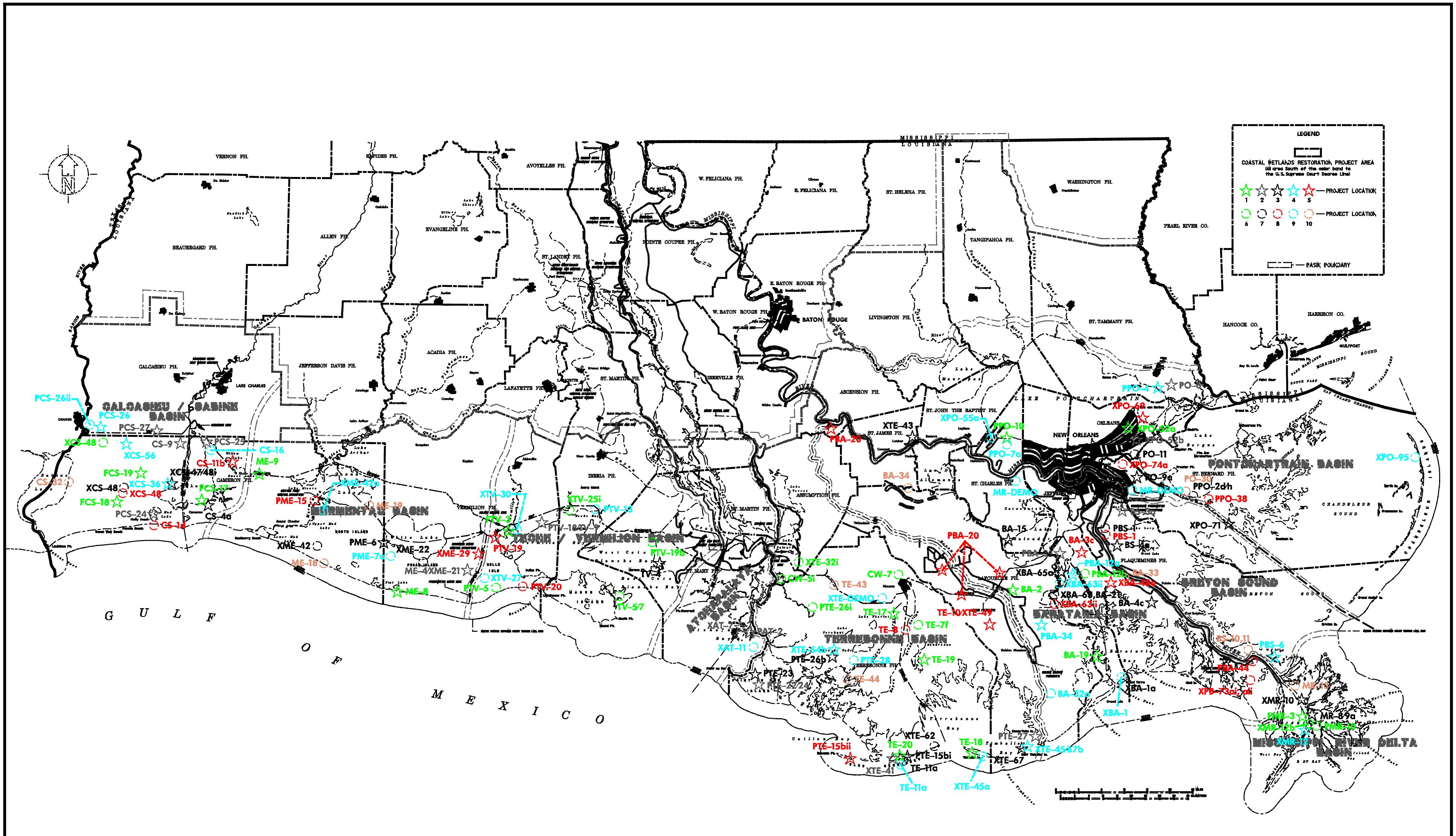
ME-18 Rockefeller Refuge Gulf Shoreline Stabilization

U.S. Department of Agriculture

TE-43 GIWW Bank Restoration of Critical Areas in Terrebonne

U.S. Department of the Interior

ME-19 Grand-White Lake Land Bridge Protection Project
TE-44 North Lake Mechant Land Bridge Restoration
BS-11 Delta Management at Fort St. Philip
CS-32 East Sabine Lake Hydrologic Restoration (with Terraces)



1st thru 11th Priority Project List

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

10^{TH} PRIORITY PROJECT LIST REPORT (APPENDICES)

PREPARED BY:

LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION TASK FORCE

APRIL 2003

Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

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Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

Appendix A

Summary and Complete Text of the CWPPRA

COASTAL WETLANDS PLANNING, PROTECTION & RESTORATION ACT
Public Law 101-646, Title III

SECTION 303. Priority Louisiana Coastal Wetlands Restoration Projects.

- Section 303a. Priority Project List
- NLT 13 Jan 91, Sec. Of Army (Secretary) will convene a Task Force
    - Secretary
    - Administrator, EPA
    - Governor, Louisiana
    - Secretary, Interior
    - Secretary, Agriculture
    - Secretary, Commerce
- NLT 28 Nov. 91, Task Force will prepare and transmit to Congress a Priority List of wetland restoration projects based on cost effectiveness and wetland quality.
- Priority List is revised and submitted annually as part of President's budget.
- Section 303b. Federal and State Project Planning
    - NLT 28 Nov. 93, Task Force will prepare a comprehensive coastal wetlands Restoration Plan for Louisiana.
    - Restoration Plan will consist of a list of wetland projects, ranked by cost effectiveness and wetland quality.
    - Completed Restoration Plan will become Priority List.
    - Secretary will ensure that navigation and flood control projects are consistent with the purpose of the Restoration Plan.
    - Upon submission of the Restoration Plan to Congress, the Task Force will conduct a scientific evaluation of the completed wetland restoration projects every 3 years and report findings to Congress.

SECTION 304. Louisiana Coastal Wetlands Conservation Planning.

- Secretary; Administrator, EPA; and Director, USFWS will:
    - Sign an agreement with the Governor specifying how Louisiana will develop and implement the Conservation Plan.
    - Approve the Conservation Plan.
    - Provide Congress with periodic status reports on Plan implementation.
- NLT 3 years after agreement is signed. Louisiana will develop a Wetland Conservation Plan to achieve no net loss of wetlands resulting from development.

SECTION 305. National Coastal Wetlands Conservation Grants.

- Director, USFWS, will make matching grants to any coastal state to implement Wetland Conservation Projects (projects to acquire, restore, manage, and enhance real property interest in coastal lands and waters).
- Cost sharing is 50% Federal/50% State.

SECTION 306. Distribution of Appropriations.

- 70% of annual appropriations not to exceed (NTE) $70 million used as follows:
    - NTE $15 million to fund Task Force completion of Priority List and Restoration Plan—Secretary disburses the funds.
    - NTE $10 million to fund 75% of Louisiana's cost to complete Conservation Plan—Administrator disburses funds.
    - Balance to fund wetland restoration projects at 75% Federal/25% Louisiana-Secretary disburses funds.
- 15% of annual appropriations, NTE $15 million for Wetland Conservation Grants—Director, USFWS disburses funds.
- 15% of annual appropriations, NTE $15 million for projects authorized by the North American Wetlands Conservation Act—Secretary, Interior disburses funds.

SECTION 307. Additional Authority for the Corps of Engineers.

- Section 307a. Secretary authorized to:
    - Carry out projects to protect, restore, and enhance wetlands and aquatic/coastal ecosystems.
- Section 307b. Secretary authorized and directed to study feasibility of modifying MR&T to increase flows and sediment to the Atchafalaya River for land building wetland nourishment.
    - 25% if the state has dedicated trust fund from which principal is not spent.

- 15% when Louisiana’s Conservation Plan is approved.

TITLE III--WETLANDS

Sec. 301. SHORT TITLE.

This title may be cited as the "Coastal Wetlands Planning, Protection and Restoration Act".

Sec. 302. DEFINITIONS.

As used in this title, the term--

(1) "Secretary" means the Secretary of the Army;
(2) "Administrator" means the Administrator of the Environmental Protection Agency;
(3) "development activities" means any activity, including the discharge of dredged or fill material, which results directly in a more than de minimus change in the hydrologic regime, bottom contour, or the type, distribution or diversity of hydrophytic vegetation, or which impairs the flow, reach, or circulation of surface water within wetlands or other waters;
(4) "State" means the State of Louisiana;
(5) "coastal State" means a State of the United States in, or bordering on, the Atlantic, Pacific, or Arctic Ocean, the Gulf of Mexico, Long Island Sound, or one or more of the Great Lakes; for the purposes of this title, the term also includes Puerto Rico, the Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, and the Trust Territories of the Pacific Islands, and American Samoa;
(6) "coastal wetlands restoration project" means any technically feasible activity to create, restore, protect, or enhance coastal wetlands through sediment and freshwater diversion, water management, or other measures that the Task Force finds will significantly contribute to the long-term restoration or protection of the physical, chemical and biological integrity of coastal wetlands in the State of Louisiana, and includes any such activity authorized under this title or under any other provision of law, including, but not limited to, new projects, completion or expansion of existing or on-going projects, individual phases, portions, or components of projects and operation, maintenance and rehabilitation of completed projects; the primary purpose of a "coastal wetlands restoration project" shall not be to provide navigation, irrigation or flood control benefits;
(7) "coastal wetlands conservation project" means--
(A) the obtaining of a real property interest in coastal lands or waters, if the obtaining of such interest is subject to terms and conditions that will ensure that the real property will be administered for the long-term conservation of such lands and waters and the hydrology, water quality and fish and wildlife dependent thereon; and
(B) the restoration, management, or enhancement of coastal wetlands ecosystems if such restoration, management, or enhancement is conducted on coastal lands and waters that are administered for the long-term conservation of such lands and waters and the hydrology, water quality and fish and wildlife dependent thereon;
(8) "Governor" means the Governor of Louisiana;
(9) "Task Force" means the Louisiana Coastal Wetlands Conservation and Restoration Task Force which shall consist of the Secretary, who shall serve as chairman, the Administrator, the Governor, the Secretary of the Interior, the Secretary of Agriculture and the Secretary of Commerce; and

(10) "Director" means the Director of the United States Fish and Wildlife Service.

SEC. 303. PRIORITY LOUISIANA COASTAL WETLANDS RESTORATION PROJECTS.

(a) PRIORITY PROJECT LIST.--

(1) PREPARATION OF LIST.--Within forty-five days after the date of enactment of this title, the Secretary shall convene the Task Force to initiate a process to identify and prepare a list of coastal wetlands restoration projects in Louisiana to provide for the long-term conservation of such wetlands and dependent fish and wildlife populations in order of priority, based on the cost-effectiveness of such projects in creating, restoring, protecting, or enhancing coastal wetlands, taking into account the quality of such coastal wetlands, with due allowance for small-scale projects necessary to demonstrate the use of new techniques or materials for coastal wetlands restoration.

(2) TASK FORCE PROCEDURES.--The Secretary shall convene meetings of the Task Force as appropriate to ensure that the list is produced and transmitted annually to the Congress as required by this subsection. If necessary to ensure transmittal of the list on a timely basis, the Task Force shall produce the list by a majority vote of those Task Force members who are present and voting; except that no coastal wetlands restoration project shall be placed on the list without the concurrence of the lead Task Force member that the project is cost effective and sound from an engineering perspective. Those projects which potentially impact navigation or flood control on the lower Mississippi River System shall be constructed consistent with section 304 of this Act.

(3) TRANSMITTAL OF LIST.--No later than one year after the date of enactment of this title, the Secretary shall transmit to the Congress the list of priority coastal wetlands restoration projects required by paragraph (1) of this subsection. Thereafter, the list shall be updated annually by the Task Force members and transmitted by the Secretary to the Congress as part of the President's annual budget submission. Annual transmittals of the list to the Congress shall include a status report on each project and a statement from the Secretary of the Treasury indicating the amounts available for expenditure to carry out this title.

(4) LIST OF CONTENTS.--

(A) AREA IDENTIFICATION; PROJECT DESCRIPTION--The list of priority coastal wetlands restoration projects shall include, but not be limited to--

(i) identification, by map or other means, of the coastal area to be covered by the coastal wetlands restoration project; and

(ii) a detailed description of each proposed coastal wetlands restoration project including a justification for including such project on the list, the proposed activities to be carried out pursuant to each coastal wetlands restoration project, the benefits to be realized by such project, the identification of the lead Task Force member to undertake each proposed coastal wetlands restoration project and the responsibilities of each other participating Task Force member, an estimated timetable for the completion of each coastal wetlands restoration project, and the estimated cost of each project.

(B) PRE-PLAN.--Prior to the date on which the plan required by subsection (b) of this section becomes effective, such list shall include only those coastal wetlands restoration projects that can be substantially completed during a five-year period commencing on the date the project is placed on the list.

(C) Subsequent to the date on which the plan required by subsection (b) of this section becomes effective, such list shall include only those coastal wetlands restoration projects that have been identified in such plan.

(5) FUNDING.--The Secretary shall, with the funds made available in accordance with section 306 of this title, allocate funds among the members of the Task Force based on the need for such funds and such other factors as the Task Force deems appropriate to carry out the purposes of this subsection.

(b) FEDERAL AND STATE PROJECT PLANNING.--

(1) PLAN PREPARATION.--The Task Force shall prepare a plan to identify coastal wetlands restoration projects, in order of priority, based on the cost-effectiveness of such projects in creating, restoring, protecting, or enhancing the long-term conservation of coastal wetlands, taking into account the quality of such coastal wetlands, with due allowance for small-scale projects necessary to demonstrate the use of new techniques or materials for coastal wetlands restoration. Such restoration plan shall be completed within three years from the date of enactment of this title.

(2) PURPOSE OF THE PLAN.--The purpose of the restoration plan is to develop a comprehensive approach to restore and prevent the loss of, coastal wetlands in Louisiana. Such plan shall coordinate and integrate coastal wetlands restoration projects in a manner that will ensure the long-term conservation of the coastal wetlands of Louisiana.

(3) INTEGRATION OF EXISTING PLANS.--In developing the restoration plan, the Task Force shall seek to integrate the "Louisiana Comprehensive Coastal Wetlands Feasibility Study" conducted by the Secretary of the Army and the "Coastal Wetlands Conservation and Restoration Plan" prepared by the State of Louisiana's Wetlands Conservation and Restoration Task Force.

(4) ELEMENTS OF THE PLAN.--The restoration plan developed pursuant to this subsection shall include--

(A) identification of the entire area in the State that contains coastal wetlands;

(B) identification, by map or other means, of coastal areas in Louisiana in need of coastal wetlands restoration projects;

(C) identification of high priority coastal wetlands restoration projects in Louisiana needed to address the areas identified in subparagraph (B) and that would provide for the long-term conservation of restored wetlands and dependent fish and wildlife populations;

(D) a listing of such coastal wetlands restoration projects, in order of priority, to be submitted annually, incorporating any project identified previously in lists produced and submitted under subsection (a) of this section;

(E) a detailed description of each proposed coastal wetlands restoration project, including a justification for including such project on the list;

(F) the proposed activities to be carried out pursuant to each coastal wetlands restoration project;

(G) the benefits to be realized by each such project;

(H) an estimated timetable for completion of each coastal wetlands restoration project;

(I) an estimate of the cost of each coastal wetlands restoration project;

(J) identification of a lead Task Force member to undertake each proposed coastal wetlands restoration project listed in the plan;

(K) consultation with the public and provision for public review during development of the plan; and

(L) evaluation of the effectiveness of each coastal wetlands restoration project in achieving long-term solutions to arresting coastal wetlands loss in Louisiana.

(5) PLAN MODIFICATION.--The Task Force may modify the restoration plan from time to time as necessary to carry out the purposes of this section.
(6) PLAN SUBMISSION.--Upon completion of the restoration plan, the Secretary shall submit the plan to the Congress. The restoration plan shall become effective ninety days after the date of its submission to the Congress.
(7) PLAN EVALUATION.--Not less than three years after the completion and submission of the restoration plan required by this subsection and at least every three years thereafter, the Task Force shall provide a report to the Congress containing a scientific evaluation of the effectiveness of the coastal wetlands restoration projects carried out under the plan in creating, restoring, protecting and enhancing coastal wetlands in Louisiana.
(c) COASTAL WETLANDS RESTORATION PROJECT BENEFITS.--Where such a determination is required under applicable law, the net ecological, aesthetic, and cultural benefits, together with the economic benefits, shall be deemed to exceed the costs of any coastal wetlands restoration project within the State which the Task Force finds to contribute significantly to wetlands restoration.
(d) CONSISTENCY.--(1) In implementing, maintaining, modifying, or rehabilitating navigation, flood control or irrigation projects, other than emergency actions, under other authorities, the Secretary, in consultation with the Director and the Administrator, shall ensure that such actions are consistent with the purposes of the restoration plan submitted pursuant to this section.
(2) At the request of the Governor of the State of Louisiana, the Secretary of Commerce shall approve the plan as an amendment to the State's coastal zone management program approved under section 306 of the Coastal Zone Management Act of 1972 (16 U.S.C. 1455).
(e) FUNDING OF WETLANDS RESTORATION PROJECTS.--The Secretary shall, with the funds made available in accordance with this title, allocate such funds among the members of the Task Force to carry out coastal wetlands restoration projects in accordance with the priorities set forth in the list transmitted in accordance with this section. The Secretary shall not fund a coastal wetlands restoration project unless that project is subject to such terms and conditions as necessary to ensure that wetlands restored, enhanced or managed through that project will be administered for the long-term conservation of such lands and waters and dependent fish and wildlife populations.
(f) COST-SHARING.--
(1) FEDERAL SHARE.--Amounts made available in accordance with section 306 of this title to carry out coastal wetlands restoration projects under this title shall provide 75 percent of the cost of such projects.
(2) FEDERAL SHARE UPON CONSERVATION PLAN APPROVAL.--Notwithstanding the previous paragraph, if the State develops a Coastal Wetlands Conservation Plan pursuant to this title, and such conservation plan is approved pursuant to section 304 of this title, amounts made available in accordance with section 306 of this title for any coastal wetlands restoration project under this section shall be 85 percent of the cost of the project. In the event that the Secretary, the Director, and the Administrator jointly determine that the State is not taking reasonable steps to implement and administer a conservation plan developed and approved pursuant to this title, amounts made available in accordance with section 306 of this title for any coastal wetlands restoration project shall revert to 75 percent of the cost of the project: Provided, however, that such reversion to the lower cost share level shall not occur until the Governor, has been provided notice of, and opportunity for hearing on, any such determination by the Secretary, the Director, and Administrator, and the State has been given ninety days from such notice or hearing to take corrective action.

(3) FORM OF STATE SHARE.--The share of the cost required of the State shall be from a non-Federal source. Such State share shall consist of a cash contribution of not less than 5 percent of the cost of the project. The balance of such State share may take the form of lands, easements, or right-of-way, or any other form of in-kind contribution determined to be appropriate by the lead Task Force member.
(4) Paragraphs (1), (2), and (3) of this subsection shall not affect the existing cost-sharing agreements for the following projects: Caernarvon Freshwater Diversion, Davis Pond Freshwater Diversion, and Bonnet Carre Freshwater Diversion.

SEC. 304. LOUISIANA COASTAL WETLANDS CONSERVATION PLANNING.

(a) DEVELOPMENT OF CONSERVATION PLAN.--
(1) AGREEMENT.--The Secretary, the Director, and the Administrator are directed to enter into an agreement with the Governor, as set forth in paragraph (2) of this subsection, upon notification of the Governor's willingness to enter into such agreement.
(2) TERMS OF AGREEMENT.--
(A) Upon receiving notification pursuant to paragraph (1) of this subsection, the Secretary, the Director, and the Administrator shall promptly enter into an agreement (hereafter in this section referred to as the "agreement") with the State under the terms set forth in subparagraph (B) of this paragraph.
(B) The agreement shall--
(i) set forth a process by which the State agrees to develop, in accordance with this section, a coastal wetlands conservation plan (hereafter in this section referred to as the "conservation plan");
(ii) designate a single agency of the State to develop the conservation plan;
(iii) assure an opportunity for participation in the development of the conservation plan, during the planning period, by the public and by Federal and State agencies;
(iv) obligate the State, not later than three years after the date of signing the agreement, unless extended by the parties thereto, to submit the conservation plan to the Secretary, the Director, and the Administrator for their approval; and
(v) upon approval of the conservation plan, obligate the State to implement the conservation plan.
(3) GRANTS AND ASSISTANCE.--Upon the date of signing the agreement--
(A) the Administrator shall, in consultation with the Director, with the funds made available in accordance with section 306 of this title, make grants during the development of the conservation plan to assist the designated State agency in developing such plan. Such grants shall not exceed 75 percent of the cost of developing the plan; and
(B) the Secretary, the Director, and the Administrator shall provide technical assistance to the State to assist it in the development of the plan.
(b) CONSERVATION PLAN GOAL.--If a conservation plan is developed pursuant to this section, it shall have a goal of achieving no net loss of wetlands in the coastal areas of Louisiana as a result of development activities initiated subsequent to approval of the plan, exclusive of any wetlands gains achieved through implementation of the preceding section of this title.
(c) ELEMENTS OF CONSERVATION PLAN.--The conservation plan authorized by this section shall include--
(1) identification of the entire coastal area in the State that contains coastal wetlands;
(2) designation of a single State agency with the responsibility for implementing and enforcing the plan;

(3) identification of measures that the State shall take in addition to existing Federal authority to achieve a goal of no net loss of wetlands as a result of development activities, exclusive of any wetlands gains achieved through implementation of the preceding section of this title;
(4) a system that the State shall implement to account for gains and losses of coastal wetlands within coastal areas for purposes of evaluating the degree to which the goal of no net loss of wetlands as a result of development activities in such wetlands or other waters has been attained;
(5) satisfactory assurance that the State will have adequate personnel, funding, and authority to implement the plan;
(6) a program to be carried out by the State for the purpose of educating the public concerning the necessity to conserve wetlands;
(7) a program to encourage the use of technology by persons engaged in development activities that will result in negligible impact on wetlands; and
(8) a program for the review, evaluation, and identification of regulatory and nonregulatory options that will be adopted by the State to encourage and assist private owners of wetlands to continue to maintain those lands as wetlands.
(d) APPROVAL OF CONSERVATION PLAN.--
(1) IN GENERAL.--If the Governor submits a conservation plan to the Secretary, the Director, and the Administrator for their approval, the Secretary, the Director, and the Administrator shall, within one hundred and eighty days following receipt of such plan, approve or disapprove it.
(2) APPROVAL CRITERIA.--The Secretary, the Director, and the Administrator shall approve a conservation plan submitted by the Governor, if they determine that -
(A) the State has adequate authority to fully implement all provisions of such a plan;
(B) such a plan is adequate to attain the goal of no net loss of coastal wetlands as a result of development activities and complies with the other requirements of this section; and
(C) the plan was developed in accordance with terms of the agreement set forth in subsection (a) of this section.
(e) MODIFICATION OF CONSERVATION PLAN.--
(1) NONCOMPLIANCE.--If the Secretary, the Director, and the Administrator determine that a conservation plan submitted by the Governor does not comply with the requirements of subsection (d) of this section, they shall submit to the Governor a statement explaining why the plan is not in compliance and how the plan should be changed to be in compliance.
(2) RECONSIDERATION.--If the Governor submits a modified conservation plan to the Secretary, the Director, and the Administrator for their reconsideration, the Secretary, the Director, and Administrator shall have ninety days to determine whether the modifications are sufficient to bring the plan into compliance with requirements of subsection (d) of this section.
(3) APPROVAL OF MODIFIED PLAN.--If the Secretary, the Director, and the Administrator fail to approve or disapprove the conservation plan, as modified, within the ninety-day period following the date on which it was submitted to them by the Governor, such plan, as modified, shall be deemed to be approved effective upon the expiration of such ninety-day period.
(f) AMENDMENTS TO CONSERVATION PLAN.--If the Governor amends the conservation plan approved under this section, any such amended plan shall be considered a new plan and shall be subject to the requirements of this section; except that minor changes to such plan shall not be subject to the requirements of this section.
(g) IMPLEMENTATION OF CONSERVATION PLAN.--A conservation plan approved under this section shall be implemented as provided therein.
(h) FEDERAL OVERSIGHT.--

(1) INITIAL REPORT TO CONGRESS.--Within one hundred and eighty days after entering into the agreement required under subsection (a) of this section, the Secretary, the Director, and the Administrator shall report to the Congress as to the status of a conservation plan approved under this section and the progress of the State in carrying out such a plan, including and accounting, as required under subsection (c) of this section, of the gains and losses of coastal wetlands as a result of development activities.
(2) REPORT TO CONGRESS.--Twenty-four months after the initial one hundred and eighty day period set forth in paragraph (1), and at the end of each twenty-four-month period thereafter, the Secretary, the Director, and the Administrator shall, report to the Congress on the status of the conservation plan and provide an evaluation of the effectiveness of the plan in meeting the goal of this section.

SEC. 305 NATIONAL COASTAL WETLANDS CONSERVATION GRANTS.

(a) MATCHING GRANTS.--The Director shall, with the funds made available in accordance with the next following section of this title, make matching grants to any coastal State to carry out coastal wetlands conservation projects from funds made available for that purpose.
(b) PRIORITY.--Subject to the cost-sharing requirements of this section, the Director may grant or otherwise provide any matching moneys to any coastal State which submits a proposal substantial in character and design to carry out a coastal wetlands conservation project. In awarding such matching grants, the Director shall give priority to coastal wetlands conservation projects that are--
(1) consistent with the National Wetlands Priority Conservation Plan developed under section 301 of the Emergency Wetlands Resources Act (16 U.S.C. 3921); and
(2) in coastal States that have established dedicated funding for programs to acquire coastal wetlands, natural areas and open spaces. In addition, priority consideration shall be given to coastal wetlands conservation projects in maritime forests on coastal barrier islands.
(c) CONDITIONS.--The Director may only grant or otherwise provide matching moneys to a coastal State for purposes of carrying out a coastal wetlands conservation project if the grant or provision is subject to terms and conditions that will ensure that any real property interest acquired in whole or in part, or enhanced, managed, or restored with such moneys will be administered for the long-term conservation of such lands and waters and the fish and wildlife dependent thereon.
(d) COST-SHARING.--
(1) FEDERAL SHARE.--Grants to coastal States of matching moneys by the Director for any fiscal year to carry out coastal wetlands conservation projects shall be used for the payment of not to exceed 50 percent of the total costs of such projects: except that such matching moneys may be used for payment of not to exceed 75 percent of the costs of such projects if a coastal State has established a trust fund, from which the principal is not spent, for the purpose of acquiring coastal wetlands, other natural area or open spaces.
(2) FORM OF STATE SHARE.--The matching moneys required of a coastal State to carry out a coastal wetlands conservation project shall be derived from a non-Federal source.
(3) IN-KIND CONTRIBUTIONS.--In addition to cash outlays and payments, in-kind contributions of property or personnel services by non-Federal interests for activities under this section may be used for the non-Federal share of the cost of those activities.
(e) PARTIAL PAYMENTS.--

(1) The Director may from time to time make matching payments to carry out coastal wetlands conservation projects as such projects progress, but such payments, including previous payments, if any, shall not be more than the Federal pro rata share of any such project in conformity with subsection (d) of this section.
(2) The Director may enter into agreements to make matching payments on an initial portion of a coastal wetlands conservation project and to agree to make payments on the remaining Federal share of the costs of such project from subsequent moneys if and when they become available. The liability of the United States under such an agreement is contingent upon the continued availability of funds for the purpose of this section.
(f) WETLANDS ASSESSMENT.--The Director shall, with the funds made available in accordance with the next following section of this title, direct the U.S. Fish and Wildlife Service's National Wetlands Inventory to update and digitize wetlands maps in the State of Texas and to conduct an assessment of the status, condition, and trends of wetlands in that State.

SEC. 306. DISTRIBUTION OF APPROPRIATIONS.

(a) PRIORITY PROJECT AND CONSERVATION PLANNING EXPENDITURES.--Of the total amount appropriated during a given fiscal year to carry out this title, 70 percent, not to exceed $70,000,000, shall be available, and shall remain available until expended, for the purposes of making expenditures--
(1) not to exceed the aggregate amount of $5,000,000 annually to assist the Task Force in the preparation of the list required under this title and the plan required under this title, including preparation of--
(A) preliminary assessments;
(B) general or site-specific inventories;
(C) reconnaissance, engineering or other studies;
(D) preliminary design work; and
(E) such other studies as may be necessary to identify and evaluate the feasibility of coastal wetlands restoration projects;
(2) to carry out coastal wetlands restoration projects in accordance with the priorities set forth on the list prepared under this title;
(3) to carry out wetlands restoration projects in accordance with the priorities set forth in the restoration plan prepared under this title;
(4) to make grants not to exceed $2,500,000 annually or $10,000,000 in total, to assist the agency designated by the State in development of the Coastal Wetlands Conservation Plan pursuant to this title.
(b) COASTAL WETLANDS CONSERVATION GRANTS.--Of the total amount appropriated during a given fiscal year to carry out this title, 15 percent, not to exceed $15,000,000 shall be available, and shall remain available to the Director, for purposes of making grants--
(1) to any coastal State, except States eligible to receive funding under section 306(a), to carry out coastal wetlands conservation projects in accordance with section 305 of this title; and
(2) in the amount of $2,500,000 in total for an assessment of the status, condition, and trends of wetlands in the State of Texas.
(c) NORTH AMERICAN WETLANDS CONSERVATION.--Of the total amount appropriated during a given fiscal year to carry out this title, 15 percent, not to exceed $15,000,000, shall be available to, and shall remain available until expended by, the Secretary of the Interior for allocation to carry out wetlands conservation projects in any coastal State under section 8 of the North

American Wetlands Conservation Act (Public Law 101-233, 103 Stat. 1968, December 13, 1989).

SEC. 307. GENERAL PROVISIONS.

(a) ADDITIONAL AUTHORITY FOR THE CORPS OF ENGINEERS.--The Secretary is authorized to carry out projects for the protection, restoration, or enhancement of aquatic and associated ecosystems, including projects for the protection, restoration, or creation of wetlands and coastal ecosystems. In carrying out such projects, the Secretary shall give such projects equal consideration with projects relating to irrigation, navigation, or flood control.
(b) STUDY.--The Secretary is hereby authorized and directed to study the feasibility of modifying the operation of existing navigation and flood control projects to allow for an increase in the share of the Mississippi River flows and sediment sent down the Atchafalaya River for purposes of land building and wetlands nourishment.

SEC.308. CONFORMING AMENDMENT.

16 U.S.C. 777c is amended by adding the following after the first sentence: "The Secretary shall distribute 18 per centum of each annual appropriation made in accordance with the provisions of section 777b of this title as provided in the Coastal Wetlands Planning, Protection and Restoration Act: Provided, That, notwithstanding the provisions of section 777b, such sums shall remain available to carry out such Act through fiscal year 1999."

LEGISLATIVE HISTORY – H.R. 5390 (S. 2244):

SENATE REPORTS: No. 101-523 accompanying S. 2244 (Comm. On Environmental and Public Works).
CONGRESSIONAL RECORD, Vol. 136 (1990):
Oct. 1, considered and passed House.
Oct. 26, considered and passed Senate, amended, in lieu of S. 2244.
Oct. 27, House concurred in Senate amendment.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 26 (1990):
Nov. 29, Presidential statement.

Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

Appendix B

Wetland Value Assessment Methodology and Community Models

COASTAL WETLANDS PLANNING, PROTECTION,

AND RESTORATION ACT

WETLAND VALUE ASSESSMENT METHODOLOGY

AND COMMUNITY MODELS

Developed by the Environmental Work Group,
Coastal Wetlands Planning, Protection, and Restoration Act

Point of Contact: Kevin J. Roy
U.S. Fish and Wildlife Service
825 Kaliste Saloom
Building II, Suite 102
Lafayette, LA 70508
(318) 262-6630

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(Marsh Model for PPL 10 per Kevin Roy)

Wetland Value Assessment Methodology and Community Models

I. INTRODUCTION

The Wetland Value Assessment (WVA) methodology is a quantitative habitat-based assessment methodology developed for use in prioritizing project proposals submitted for funding under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990. The WVA quantifies changes in fish and wildlife habitat quality and quantity that are projected to be brought about as a result of a proposed wetland enhancement project. The results of the WVA, measured in Average Annual Habitat Units (AAHUs), can be combined with economic data to provide a measure of the effectiveness of a proposed project in terms of annualized cost per AAHU gained.

The WVA was developed by the Environmental Work Group (EnvWG) assembled under the Planning and Evaluation Subcommittee of the CWPPRA Technical Committee; the EnvWG includes members from each agency represented on the CWPPRA Task Force and members of the Academic Advisory Group. The WVA was designed to be applied, to the greatest extent possible, using only existing or readily obtainable data.

The WVA has been developed strictly for use in ranking proposed CWPPRA projects; it is not intended to provide a detailed, comprehensive methodology for establishing baseline conditions within a project area. Some aspects of the WVA have been defined by policy and/or functional considerations of the CWPPRA; therefore, user-specific modifications may be necessary if the WVA is used for other purposes.

The WVA is a modification of the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service 1980). HEP is widely used by the Fish and Wildlife Service and other Federal and State agencies in evaluating the impacts of development projects on fish and wildlife resources. A notable difference exists between the two methodologies, however, in that HEP generally uses a species-oriented approach, whereas the WVA utilizes a community approach.

The WVA has been developed for application to the following coastal Louisiana wetland types: fresh marsh (including intermediate marsh), brackish marsh, saline marsh, and fresh swamp. Future reference in this document to "wetland" or "wetland type" refers to one or more of those four communities.

II. WVA CONCEPT

The WVA operates under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated or expressed through the use of mathematical models developed specifically for each wetland type. Each model consists of 1) a list of variables that are considered important in characterizing fish and wildlife habitat, 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values, and 3) a mathematical formula that combines the Suitability Index for each variable into a single value for wetland habitat quality; that single value is referred to as the Habitat Suitability Index, or HSI.

The Wetland Value Assessment models (Attachments 1-3) have been developed for determining the suitability of Louisiana coastal wetlands in providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. Models have been designed to function at a community level and therefore attempt to define an optimum combination of habitat conditions for all fish and wildlife species utilizing a given marsh type over a year or longer. Earlier attempts to capture other wetland functions and values such as storm-surge protection, flood water storage, water quality functions and nutrient import/export were abandoned due to the difficulty in defining unified model relationships and meaningful model outputs for such a variety of wetland benefits. However, the ability of a Louisiana coastal wetland to provide those functions and values may be generally assumed to be positively correlated with fish and wildlife habitat quality as predicted through the WVA.

The output of each model (the HSI) is assumed to have a linear relationship with the suitability of a coastal wetland system in providing fish and wildlife habitat.

III. COMMUNITY MODEL VARIABLE SELECTION

Habitat variables considered appropriate for describing habitat quality in each wetland type were selected according to the following criteria:

1) the condition described by the variable had to be important in characterizing fish and wildlife habitat quality in the wetland type under consideration;

2) values had to be easily estimated and predicted based on existing data (e.g., aerial photography, LANDSAT, GIS systems, water quality monitoring stations, and interviews with knowledgeable individuals); and

3) the variable had to be sensitive to the types of changes expected to be brought about by typical wetland projects proposed under the CWPPRA.

Variables for each model were selected through a two part procedure. The first involved a listing of environmental variables thought to be important in characterizing fish and wildlife habitat in coastal marsh and swamp ecosystems.

The second part of the selection procedure involved reviewing variables used in species-specific HSI models published by the U.S. Fish and Wildlife Service. Review was limited to models for those fish and wildlife species known to inhabit Louisiana coastal wetlands, and included models for 10 estuarine fish and shellfish, 4 freshwater fish, 15 birds, 3 reptiles and amphibians, and 3 mammals (Attachment 6). The number of models included from each species group was dictated by model availability.

Selected HSI models were then grouped according to the wetland type(s) used by each species. Because most species for which models were considered are not restricted to one wetland type, most models were included in more than one wetland type group. Within each wetland type group, variables from all models were then grouped according to similarity (e.g., water quality, vegetation, etc.). Each variable was evaluated based on 1) whether it met the variable selection criteria; 2) whether another, more easily measured/predicted variable in the same or a different similarity group functioned as a surrogate; and 3) whether it was deemed suitable for the WVA application (e.g., some freshwater fish model variables dealt with riverine or lacustrine environments). Variables that did not satisfy those conditions were eliminated from further consideration. The remaining variables, still in their similarity groups, were then further eliminated or refined by combining similar variables and/or culling those that were functionally duplicated by variables from other models (i.e., some variables were used frequently in different models in only slightly different format, such as percent marsh coverage, salinity, etc.).

Variables selected from the HSI models were then compared to those identified in the first part of the selection procedure to arrive at a final list of variables to describe wetland habitat quality. That list includes six variables for each marsh type (Attachments 1-3).

IV. SUITABILITY INDEX GRAPHS

Suitability Index (SI) graphs were constructed for each variable selected within a wetland type. A suitability index graph is a graphical representation of how fish and wildlife habitat quality or "suitability" of a given wetland type is predicted to change as values of the given variable change, and allows the model user to numerically describe, through a Suitability Index, the habitat quality of a wetland area for any variable value. Each Suitability Index ranges from 0.0 to 1.0, with 1.0 representing the optimum condition for the variable in question. However, because the mathematical formula that combines Suitability Indices into a single HSI involves multiplication of all Suitability Indices, a 0.0 for any Suitability Index would produce 0.0 for the HSI in these draft models. Therefore, in practice the lowest possible Suitability Index for these draft models is 0.01.

A variety of resources were utilized to construct each SI graph, including personal knowledge of EnvWG members, the HSI models from which the final list of variables was partially derived, consultation with other professionals and researchers outside the EnvWG, and published and unpublished data and studies. An important "non-biological" constraint on SI graph development was the need to insure that graph relationships were not counter to the purpose of the CWPPRA, that is, the long term creation, restoration, protection, or enhancement of coastal vegetated wetlands. That constraint was most operative in defining SI graphs for Variable V_1 under each marsh model (see discussion below).

The process of SI graph development was one of constant evolution, feedback, and refinement; the form of each SI graph was decided upon through consensus among EnvWG members.

V. SUITABILITY INDEX GRAPH ASSUMPTIONS

Suitability Index graphs were developed according to the following assumptions:

1. Fresh/Intermediate Marsh Model

Variable V_1- Percent of wetland covered by persistent emergent vegetation (≥ 10 percent canopy cover). Persistent emergent vegetation plays an important role in coastal wetlands by providing foraging, resting, and breeding habitat for a variety of fish and wildlife species; and by providing a source of detritus and energy for lower trophic organisms that form the basis for the food chain. An area with no marsh (i.e., shallow open water) is assumed to have minimal habitat suitability in terms of this variable, and is assigned an SI of 0.1.

Optimum vegetation coverage in a fresh/intermediate marsh is assumed to occur at 100 percent persistent emergent vegetation cover (SI=1.0). That assumption is dictated primarily by the constraint of not having graph relationships conflict with the CWPPRA's purpose of long term creation, restoration, protection, or enhancement of vegetated wetlands. The EnvWG had originally developed a strictly biologically-based graph defining optimum habitat conditions at marsh cover values between 60 and 80 percent, and sub-optimum habitat conditions at 100 percent cover. However, application of that graph, in combination with the time analysis used later in the evaluation process, often reduced project benefits or generated a net loss of habitat quality through time with the project. Those situations arose primarily when: existing (baseline) emergent vegetation cover exceeded the optimum (> 80 percent); the project was predicted to maintain baseline cover values; and without the project the marsh was predicted to degrade, with a concurrent decline in percent emergent vegetation cover into the optimum range (60-80 percent). The time factor aggravated the situation when the without-project degradation was not rapid enough to reduce marsh cover values significantly below the optimum range, or below the baseline SI, within the 20-year evaluation period. In those cases, the analysis would show net negative benefits for the project, and positive benefits for letting the marsh degrade rather than maintaining the existing marsh. Coupling that situation with the presumption that marsh conditions are not static, and that Louisiana will continue to lose coastal emergent marsh; and taking into account the purpose of the CWPPRA, the EnvWG decided that, all other factors being equal, the WVA should favor projects that maximize emergent marsh creation, maintenance, and protection. Therefore, the EnvWG agreed to deviate from a strictly biologically-based habitat suitability graph for V_1 setting optimum habitat conditions at 100 percent marsh cover.

Variable V_2- Percent of open water area dominated (> 50 percent canopy cover) by aquatic vegetation. Fresh and intermediate marshes often support diverse communities of floating-leaved and submerged aquatic plants that provide important food and cover to a wide variety of fish and wildlife species. A fresh/intermediate open water area with no aquatics is assumed to have low suitability (SI=0.1). Optimum condition (SI=1.0) is assumed to occur when 100 percent of the open water is dominated by aquatic vegetation. Habitat suitability may be assumed to decrease with aquatic plant coverage approaching 100 percent due to the potential for mats of aquatic vegetation to hinder fish and wildlife utilization; to adversely affect water quality by reducing photosynthesis by phytoplankton and other plant forms due to shading; and contribute to oxygen depletion spurred by warm-season decay of large quantities of aquatic vegetation. The EnvWG recognized, however, that those effects were highly dependent on the dominant aquatic plant species, their growth forms, and their arrangement in the water column; thus, it is possible to have 100 percent cover of a variety of floating and submerged aquatic plants without the above-mentioned problems due to differences in plant growth form and stratification of plants through the water column. Because predictions of which species may dominate at any time in the future would be tenuous, at best, the EnvWG decided to simplify the graph and define optimum conditions at 100 percent aquatic cover.

Variable V_3- Marsh edge and interspersion. This variable takes into account the relative juxtaposition of marsh and open water for a given marsh:open water ratio, and is measured by comparing the project area to sample illustrations (Attachment 4) depicting different degrees of interspersion. Interspersion is assumed to be especially important when considering the value of an area as foraging and nursery habitat for freshwater and estuarine fish and shellfish; the marsh/open water interface represents an ecotone where prey species often concentrate, and where post-larval and juvenile organisms can find cover. Isolated marsh ponds are often more productive in terms of aquatic vegetation than are larger ponds due to decreased turbidities, and, thus, may provide more suitable waterfowl habitat. However, interspersion can be indicative of marsh degradation, a factor taken into consideration in assigning suitability indices to the various Interspersion Types.

A relatively high degree of interspersion in the form of stream courses and tidal channels (Interspersion Type 1, Attachment 4) is assumed to be optimal (SI=1.0); streams and channels offer interspersion, yet are not indicative of active marsh deterioration. Areas exhibiting a high degree of marsh cover are also ranked as optimum, even though interspersion may be low, to avoid conflicts with the premises underlying the SI graph for variable V_1. Without such an allowance, areas of relatively healthy, solid marsh, or projects designed to create marsh, would be penalized with respect to interspersion. Numerous small marsh ponds (Interspersion Type 2) offer a high degree of interspersion, but are also usually indicative of the beginnings of marsh break-up and degradation, and are therefore assigned a more moderate SI of 0.6. Large open water areas (Interspersion Types 3 and 4) offer lower interspersion values and usually indicate advanced stages of marsh loss, and are thus assigned SI's of 0.4 and 0.2, respectively. The lowest expression of interspersion, Type 5 (i.e., no emergent marsh at all within the project area), is assumed to be least desirable and is assigned an SI=0.1.

Variable V_4- Percent of open water area ≤ 1.5 feet deep in relation to marsh surface. Shallow water areas are assumed to be more biologically productive than deeper water due to a general reduction in sunlight, oxygen, and temperature as water depth increases. Also, shallower water provides greater bottom accessibility for certain species of waterfowl, better foraging habitat for wading birds, and more favorable conditions for aquatic plant growth. Optimum depth in a fresh/intermediate marsh is assumed to occur when 80 to 90 percent of the open water area is less than or equal to 1.5 feet deep. The value of deeper areas in providing drought refugia for fish, alligators and other marsh life is recognized by assigning an SI=0.6 (i.e., sub-optimal) if all of the open water is less than or equal to 1.5 feet deep.

Variable V_5- Mean high salinity during the growing season. It is assumed that periods of high salinity are most detrimental in a fresh/intermediate marsh when they occur during the growing season (defined as March through November, based on dates of first and last frost contained in Soil Conservation Service soil surveys for coastal Louisiana). Mean high salinity is defined as the average of the upper 33 percent of salinity readings taken during a specified period of record. Optimum condition in fresh marsh is assumed to occur when mean high salinity during the growing season is less than 2 parts per thousand (ppt). Optimum condition in intermediate marsh is assumed to occur when mean high salinity during the growing season is less than 4 ppt.

Variable V_6- Aquatic organism access. Access by aquatic organisms, particularly estuarine-dependent fishes and shellfishes, is considered to be a critical component in assessing the quality or suitability of a given marsh system to provide habitat to those species. Additionally, a marsh with a relatively high degree of access by default also exhibits a relatively high degree of hydrologic connectivity with adjacent systems, and therefore may be considered to contribute more to nutrient exchange than would a marsh exhibiting a lesser degree of access. The Suitability Index for V_6 is determined by calculating an "Access Value" based on the interaction between the percentage of the project area wetlands considered accessible by estuarine organisms during normal tidal fluctuations, and the type of man-made structures (if any) across identified points of ingress/egress (bayous, canals, etc.). Standardized procedures for calculating the Access Value have been established (Attachment 5). It should be noted that access ratings for man-made structures were determined by consensus among Environmental Work Group members and that scientific research has not been conducted to determine the actual access value for each of those structures. Optimum condition is assumed to exist when all of the study area is accessible and the access points are entirely open and unobstructed. A fresh marsh with no access is assigned a SI=0.3, reflecting the assumption that, while fresh marshes are important to some species of estuarine-dependent fishes and shellfish, such a marsh lacking access continues to provide benefits to a wide variety of other wildlife and fish species, and is not without habitat value. An intermediate marsh with no access is assigned a SI=0.2, reflecting that intermediate marshes are somewhat more important to estuarine organisms than fresh marshes.

2. Brackish Marsh Model

Variable V_1- Percent of wetland covered by persistent emergent vegetation (≥ 10 percent canopy cover). Refer to the V_1 discussion under the fresh/intermediate marsh model for a discussion of the importance of persistent emergent vegetation in coastal marshes. The V_1 Suitability Index graph in the brackish marsh model is identical to that in the fresh/intermediate model.

Variable V_2- Percent of open water area dominated (> 50 percent canopy cover) by aquatic vegetation. Like fresh/intermediate marshes, brackish marshes have the potential to support aquatic plants that serve as important sources of food and cover for several species of fish and wildlife. Although brackish marshes generally do not support the amounts and kinds of aquatic plants that occur in fresh/intermediate marshes, certain species, such as widgeon-grass, and coontail and milfoil in lower salinity brackish marshes, can occur abundantly under certain conditions. Those species, particulary widgeon-grass, provide important food and cover for many species of fish and wildlife. Therefore, the V_2 Suitability Index graph in the brackish marsh model is identical to that in the fresh/intermediate model. A brackish marsh entirely lacking aquatic plants is assigned an SI=0.1. It is assumed that optimum open water coverage of aquatic plants in a brackish marsh occurs at 100 percent aquatic cover.

Variable V_3- Marsh edge and interspersion. The Suitability Index graph for edge and interspersion in the brackish marsh model is the same as that in the fresh/intermediate marsh model.

Variable V_4- Open water depth in relation to marsh surface. As in the fresh/intermediate model, shallow water areas in brackish marsh habitat are assumed to be important. However, brackish marsh generally exhibits deeper open water areas than fresh marsh due to tidal scouring. Therefore, the SI graph is constructed so that lower percentages of shallow water receive higher SI values relative to fresh/intermediate marsh. Optimum open water depth condition in a brackish marsh is assumed to occur when 70 to 80 percent of the open water area is less than or equal to 1.5 feet deep.

Variable V_5- Average annual salinity. The suitability index graph is constructed to represent optimum average annual salinity condition at between 0 ppt and 10 ppt. The EnvWG acknowledges that average annual salinites below 6 ppt will effectively define a marsh as fresh or intermediate, not brackish. However, the suitability index graph makes allowances for lower salinities (i.e., < 6 ppt) to account for occasions when there is a trend of decreasing salinities through time toward a more intermediate condition. Implicit in keeping the graph at optimum for salinites less than 6 ppt is the assumption that lower salinites are not detrimental to a bracksih marsh. However, average annual salinites greater than 10 ppt are assumed to be progressively more harmful to brackish marsh vegetation, as illustrated in the downward sloping right leg of the suitability index graph. Average annual salinities greater than 16 ppt are assumed to be representative of those found in a saline marsh, and thus are not considered in the brackish marsh model.

Variable V_6- Aquatic organism access. The general rationale and procedure behind the V_6 Suitability Index graph for the brackish marsh model is identical to that established for the fresh/intermediate model. However, brackish marshes are assumed to be more important as habitat for estuarine fish and shellfish than fresh/intermediate marshes. Therefore, a brackish marsh providing no access is assigned an SI of 0.1.

3. Saline Marsh Model

Variable V_1- Percent of wetland covered by persistent emergent vegetation (≥ 10 percent canopy cover). Refer to the V_1 discussion under the fresh/intermediate marsh model for a discussion of the importance of persistent emergent vegetation in coastal marshes. The V_1 Suitability Index graph in the saline marsh model is identical to that in the fresh/intermediate and brackish models.

Variable V_2- Percent of open water area dominated (> 50 percent canopy cover) by aquatic vegetation. Some low-salintiy saline marshes may contain beds of widgeon-grass and open water areas behind some barrier islands may contain dense stands of seagrasses (e.g., *Halodule wrightii* and *Thalassia testudinum*). However, saline marshes typically do not contain an abundance of aquatic vegetation as often found in fresh/intermediate marshes and brackish marshes. Open water areas in saline marshes typically contain sparse aquatic vegetation and are primarily important as nursery areas for marine organisms. Therefore, in order to reflect the importance of those open water areas to marine organisms, a saline marsh lacking aquatic vegetation is assigned a SI=0.3. It is assumed that optimum coverage of aquatic plants occurs at 100 percent aquatic cover.

Variable V_3- Marsh edge and interspersion. The Suitability Index graph for edge and interspersion in the saline marsh model is the same as that in the fresh/intermediate and brackish marsh models.

Variable V_4- Open water depth in relation to marsh surface. The Suitability Index graph for open water depth in the saline marsh is similar to that for brackish marsh, where optimum conditions are assumed to occur when 70 to 80 percent of the open water area is less than or equal to 1.5 feet deep. However, at 100 percent shallow water, the saline graph yields an SI= 0.5 rather than 0.6 for the brackish model. That change reflects the increased abundance of tidal channels and generally deeper water conditions prevailing in a saline marsh due to increased tidal influences, and the importance of those tidal channels to estuarine organisms.

Variable V_5- Average annual salinity. The Suitability Index graph is constructed to represent optimum salinity conditions at between 9 ppt and 21 ppt. The Group acknowledges that average annual salinites between 9 and 12 ppt will effectively define a marsh as brackish, not saline. However, the suitability index graph makes allowances for lower salinities (i.e., < 12 ppt) to account for occasions when there is a trend of decreasing salinities through time toward a more brackish condition. Implicit in keeping the graph at optimum for salinites less than 12 ppt is the assumption that lower salinites (9-12 ppt) are not detrimental to a saline marsh. Average annual salinites greater than 21 ppt are assumed to be slightly stressful to saline marsh vegetation, as illustrated in the downward sloping right leg of the suitability index graph.

Variable V_6- Aquatic organism access. The Suitability Index graph for aquatic organism access in the saline marsh model is the same as that in the brackish marsh model.

4. Fresh Swamp see attachment

VI. HABITAT SUITABILITY INDEX FORMULA

The final step in WVA model development was to construct a mathematical formula that combines all Suitability Indices for each wetland type into a single Habitat Suitability Index (HSI) value. Because the Suitability Indices range in value from 0.0 to 1.0, the HSI also ranges in value from 0.0 to 1.0, and is a numerical representation of the overall or "composite" habitat quality of the particular wetland area being evaluated. The HSI formula defines the aggregation of Suitability Indices in a manner unique to each wetland type depending on how the formula is constructed.

Within an HSI formula, any Suitability Index can be weighted by various means to increase the power or "importance" of that variable relative to the other variables in determining the HSI. Additionally, two or more variables can be grouped together into subgroups to further isolate variables for weighting.

In developing the HSI formulas for the emergent marsh models, the EnvWG recognized that the primary focus of the CWPPRA is on vegetated wetlands, and that some marsh protection strategies could have adverse impacts to estuarine organism access. Therefore, the EnvWG made an *a priori* decision to emphasize variables V_1, V_2, and V_6 by grouping them together, when possible, and weighting them greater than the remaining variables. Weighting was facilitated by treating the grouped variables as a geometric mean. Variables V_3, V_4, and V_5 were grouped to isolate their influence relative to V_1, V_2, and V_6.

For all marsh models, V_1 receives the strongest weighting. The relative weights of V_1, V_2, and V_6 differ by marsh model to reflect differing levels of importance for those variables between the marsh types. For example, the amount of aquatic vegetation was deemed more important in the context of a fresh/intermediate marsh than in a saline marsh, due to the relative contributions of aquatic vegetation between the two marsh types in terms of providing food and cover. Therefore, V_2 receives more weight in the fresh/intermediate HSI formula than in the saline HSI formula. Similarly, the degree of estuarine organism access was considered more important in a saline marsh than a fresh/intermediate marsh, and V_6 receives more weight in the saline HSI formula than in the fresh/intermediate formula. As with the Suitability Index graphs, the Habitat Suitability Index formulas were developed by consensus among the EnvWG members.

For several years, 1991 through 1996, the EnvWG utilized one HSI formula specific to each marsh type (i.e., fresh/intermediate, brackish, and saline) to characterize habitat quality. However, it was noted that Variables V_2 and V_4, which characterize open water areas only, often resulted in an “artificially inflated” HSI when those variable values were optimum (i.e., SI = 1.0) and open water comprised a very small portion of the project area. For example, Project Area A contains 90 percent emergent marsh and 10 percent open water. Project Area B contains 10 percent emergent marsh and 90 percent open water. Assume the open water in each project area is completely covered by submerged aquatic vegetation and is entirely less than 1.5 feet in depth. Under those conditions, the Suitability Index values for V_2 and V_4 would each equal 1.0 for both project areas even though open water only accounts for 10 percent of Project Area A. The EnvWG has commonly referred to this as a “scaling” problem; the Suitability Index values for V_2 and V_4 are not "scaled" in respect to the proportion of the project area they describe. This allows those variables to contribute disproportionately to the HSI in instances when open water constitutes a small portion of the project area.

The EnvWG acknowledged that the scaling problem presented a flaw in the WVA methodology resulting in unrealistic HSI values for certain project areas and eventually resulting in inflated wetland benefits for those projects. During 1996 and 1997, Dr. Gary Shaffer assisted the EnvWG in developing potential solutions to the scaling problem. After several unsuccessful attempts to develop a single HSI formula for each wetland type which scaled the Suitability Index values for V_2 and V_4 based on the ratio of emergent marsh to open water, the EnvWG decided to develop a "split" model for each wetland type. The split model concept utilizes two HSI formulas for each wetland type; one HSI formula characterizes the emergent marsh habitat within the project area and another HSI formula characterizes the open water habitat. The HSI formula for the emergent habitat contains only those variables important in assessing habitat quality for emergent marsh (i.e., V_1, V_3, V_5, and V_6). Likewise, the open water HSI formula contains only those variables important in characterizing the open water habitat (i.e., V_2, V_3, V_4, V_5, and V_6). Individual HSI formulas were developed for emergent marsh and open water habitats for fresh/intermediate, brackish, and saline wetlands.

As with the development of a single HSI model for each marsh type, the split models follow the same conventions for weighting and grouping of variables, to increase their importance, as previously discussed.

VII. BENEFIT ASSESSMENT

The net benefits of a proposed project are estimated by predicting future habitat conditions under two scenarios: with the proposed project and without the proposed project. Specifically, predictions are made as to how the model variables will change through time under the two scenarios. Through that process, HSI's are established for baseline (pre-project) conditions and for future with- and future without-project scenarios for selected "target years" throughout the expected life of the project for the emergent marsh and open water habitat. Those HSIs are then multiplied by the acreage of emergent marsh and open water present at each target year to arrive at Habitat Units. Habitat Units (HUs) represent a numerical combination of quality (HSI) and quantity (acres) existing at any given point in time. The HUs resulting from the future with- and future without-project scenarios are annualized, averaged over the project life, to determine average annual HUs (AAHUs) for the emergent marsh and open water habitats. The "benefit" of a project can be quantified by comparing AAHUs between the future with- and future without-project scenarios. The difference in AAHUs between the two scenarios represents the net benefit attributable to the project in terms of habitat quantity <u>and</u> quality for the emergent marsh and open water habitats.

As previously stated, the primary focus of the CWPPRA is on **vegetated** wetlands. Therefore, in order to place greater emphasis on wetland benefits to emergent marsh, a weighted average of the net benefits (net AAHUs) for emergent marsh and open water is calculated with the emergent marsh AAHUs weighted proportionately higher than the open water AAHUs. The weighted formulas to determine net benefits or net AAHUs for each wetland type are shown below:

Fresh Marsh: $$\frac{2.1(\text{Emergent Marsh AAHUs}) + \text{Open Water AAHUs}}{3.1}$$

Brackish Marsh: $$\frac{2.6(\text{Emergent Marsh AAHUs}) + \text{Open Water AAHUs}}{3.6}$$

Saline Marsh: $$\frac{3.5(\text{Emergent Marsh AAHUs}) + \text{Open Water AAHUs}}{4.5}$$

Net gain in AAHUs is then combined with annualized cost data to arrive at a cost per AAHU ($/AAHU) or cost-effectiveness figure for the evaluated project. The cost-effectivenss figure, as well as other criteria, are then compared between projects in order to provide a ranked list of candidate projects.

LITERATURE CITED

U. S. Fish and Wildlife Service. 1980. Habitat evaluation procedures (HEP). Div. Ecol. Serv. ESM 102, U. S. Fish and Wildl. Serv., Washington, DC. 141pp.

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Fresh/Intermediate Marsh

Vegetation:

Variable V_1 Percent of wetland area covered by emergent vegetation (≥ 10% canopy cover).

Variable V_2 Percent of open water area dominated (> 50% canopy cover) by aquatic vegetation.

Interspersion:

Variable V_3 Marsh edge and interspersion.

Water Depth:

Variable V_4 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.

Water Quality:

Variable V_5 Mean high salinity during the growing season (March through November).

Aquatic Organism Access:

Variable V_6 Aquatic organism access.

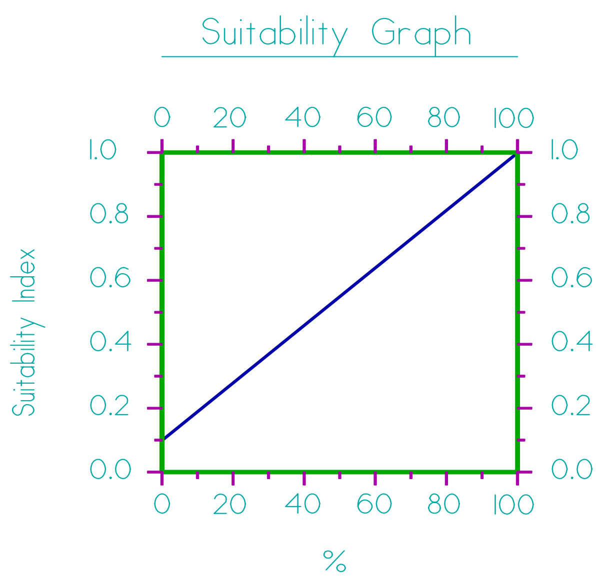
HSI Calculations:

$$Emergent\ Marsh\ HSI = \frac{\left(3.5\ x\,(SIV_1^{\,5}\ x\ SIV_6^{\,1})^{(1/6)}\right) + \left(\dfrac{(SIV_3 + SIV_5)}{2}\right)}{4.5}$$

$$Open\ Water\ HSI = \frac{\left(3.5\ x\,(SIV_2^{\,3}\ x\ SIV_6^{\,1})^{(1/4)}\right) + \left(\dfrac{(SIV_3 + SIV_4 + SIV_5)}{3}\right)}{4.5}$$

FRESH/INTERMEDIATE MARSH

Variable V_1 Percent of wetland area covered by emergent vegetation (≥ 10% canopy cover).

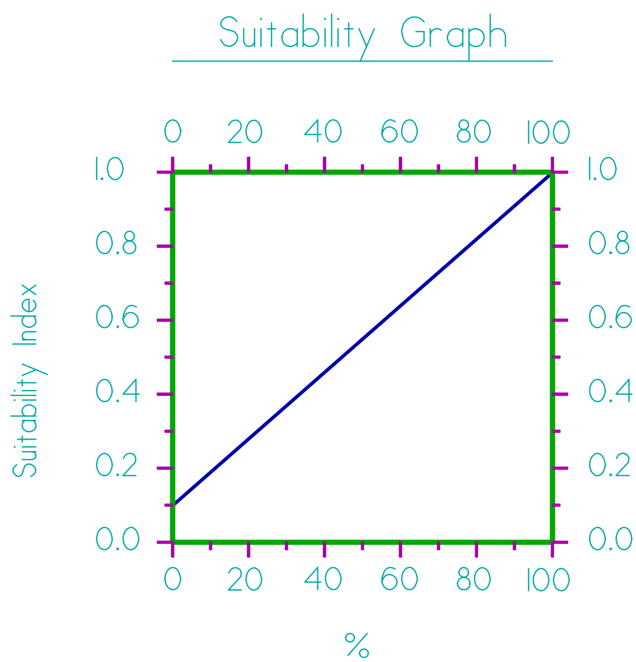


Line Formula

SI = (0.009 * %) + 0.1

FRESH/INTERMEDIATE MARSH

Variable V_2 Percent of open water area dominated (> 50% canopy cover) by aquatic vegetation.

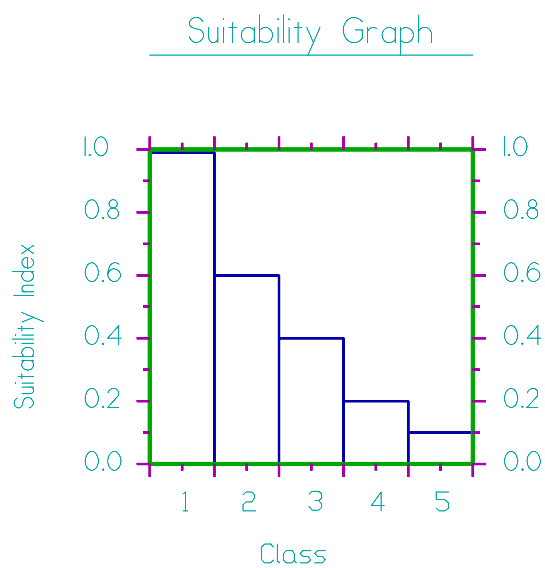


Line Formula

SI = (0.009 * %) + 0.1

FRESH/INTERMEDIATE MARSH

Variable V_3 Marsh edge and interspersion.



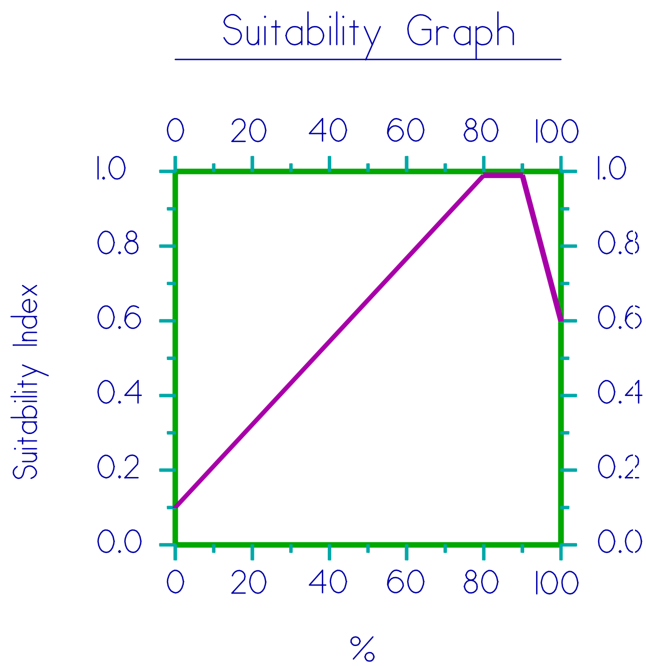
<u>Instructions for Calculating SI for Variable V_3:</u>

1. Refer to Attachment 4 for examples of the different interspersion classes (=types).

2. Estimate percent of project area in each class and compute a weighted average to arrive at SIV_3. If the <u>entire</u> project area is solid marsh, assign an interspersion class #1 (SI=1.0). Conversely, if the <u>entire</u> project area is open water, assign an interspersion class #5 (SI=0.1).

FRESH/INTERMEDIATE MARSH

Variable V_4 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.



Line Formulas

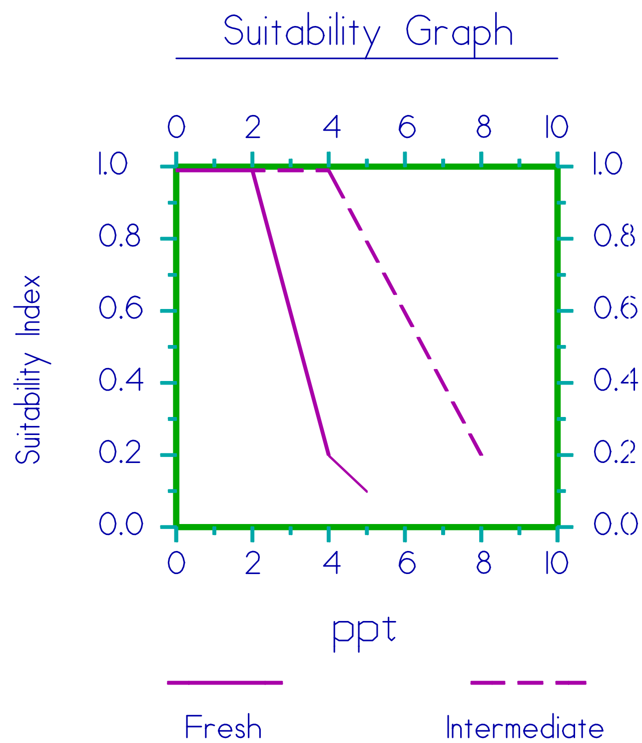
If $0 \leq \% < 80$, then SI = (0.01125 * %) + 0.1

If $80 \leq \% \leq 90$, then SI = 1.0

If % > 90, then SI = (-0.04 * %) + 4.6

FRESH/INTERMEDIATE MARSH

Variable V_5 Mean high salinity during the growing season (March through November).



Line Formulas

Fresh Marsh:

If $0 \leq ppt \leq 2$, then SI = 1.0
If $2 < ppt \leq 4$, then SI = (-0.4 * ppt) + 1.8
If $4 < ppt \leq 5$ then SI = (-0.1 * ppt) + 0.6

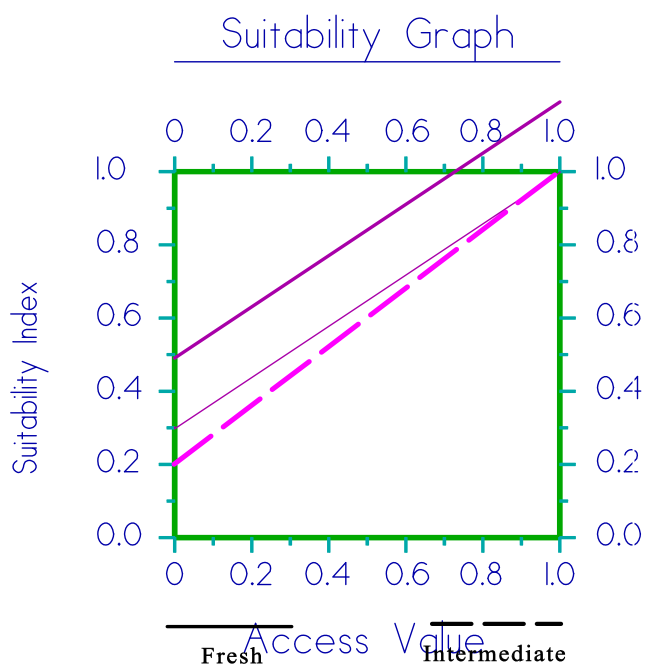
Intermediate Marsh:

If $0 \leq ppt \leq 4$, then SI = 1.0
If $4 < ppt \leq 8$, then SI = (-0.2 * ppt) + 1.8

NOTE: Mean high salinity is defined as the average of the upper 33 percent of salinity readings taken during the period of record.

FRESH/INTERMEDIATE MARSH

Variable V_6 Aquatic organism access.



Line Formulas

Fresh Marsh:

SI = (0.7 * Access Value) + 0.3

Intermediate Marsh:

SI = (0.8 * Access Value) + 0.2

NOTE: Access Value = P * R, where "P" = percentage of wetland area considered accessible by estuarine organisms during normal tidal fluctuations, and "R" = Structure Rating.

Refer to Attachment 5 "Procedure For Calculating Access Value" for complete information on calculating "P" and "R" values.

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Brackish Marsh

Vegetation:

Variable V_1 Percent of wetland area covered by emergent vegetation (≥ 10% canopy cover).

Variable V_2 Percent of open water area dominated (> 50% canopy cover) by aquatic vegetation.

Interspersion:

Variable V_3 Marsh edge and interspersion.

Water Depth:

Variable V_4 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.

Water Quality:

Variable V_5 Average annual salinity.

Aquatic Organism Access:

Variable V_6 Aquatic organism access.

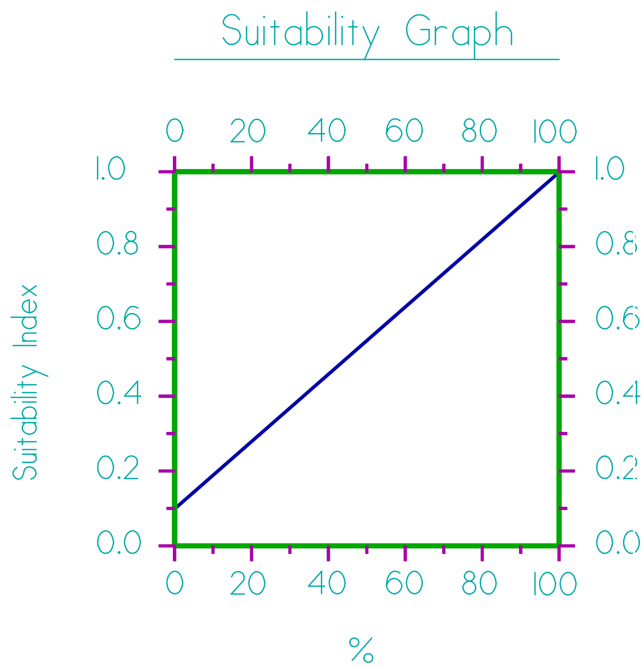
HSI Calculations:

$$Emergent\ Marsh\ HSI = \frac{\left(3.5\ x\ (SIV_1^{\,5}\ x\ SIV_6^{\,1.5})^{(1/6.5)}\right) + \left(\frac{(SIV_3 + SIV_5)}{2}\right)}{4.5}$$

$$Open\ Water\ HSI = \frac{\left(3.5\ x\ (SIV_2^{\,3}\ x\ SIV_6^{\,2})^{(1/5)}\right) + \left(\frac{(SIV_3 + SIV_4 + SIV_5)}{3}\right)}{4.5}$$

BRACKISH MARSH

Variable V_1 Percent of wetland area covered by emergent vegetation (≥ 10% canopy cover).

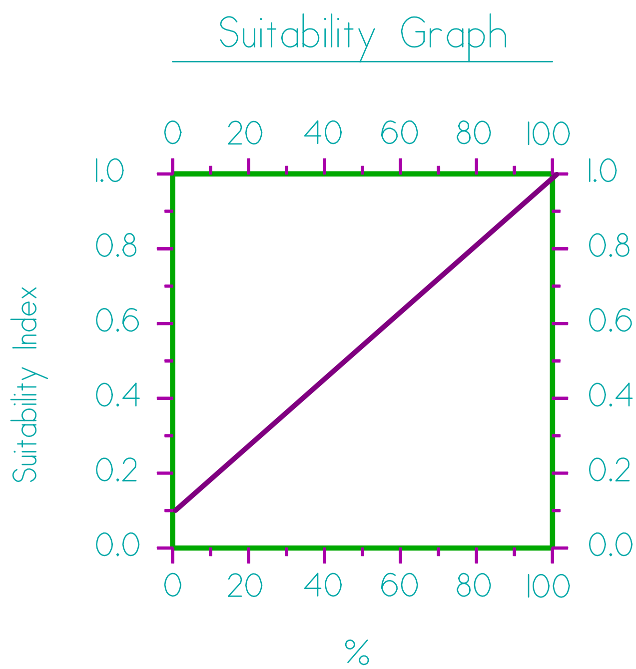


<u>Line Formula</u>

SI = (0.009 * %) + 0.1

BRACKISH MARSH

Variable V_2 Percent of open water area dominated (> 50% canopy cover) by aquatic vegetation.

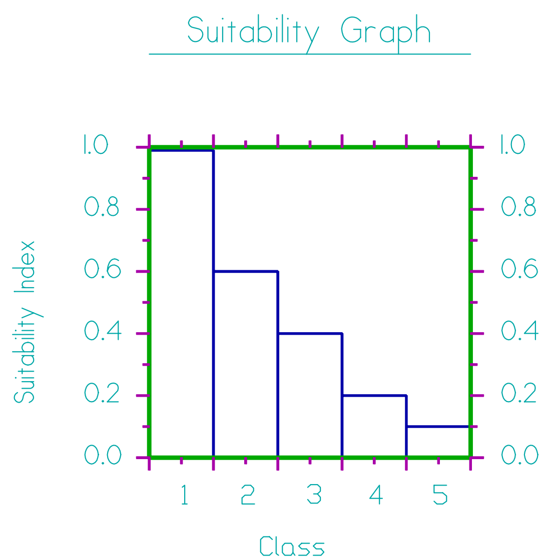


Line Formula

SI = (0.009 * %) + 0.1

BRACKISH MARSH

Variable V_3 Marsh edge and interspersion.



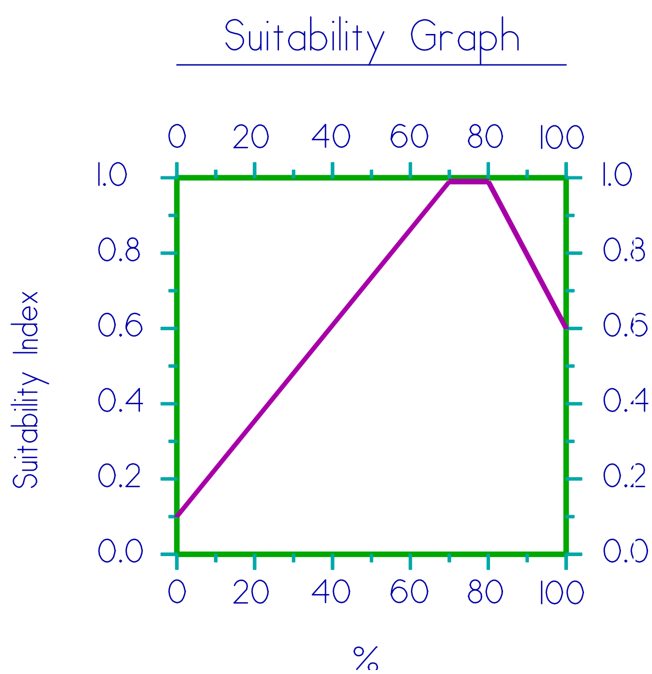
<u>Instructions for Calculating SI for Variable V_3:</u>

1. Refer to Attachment 4 for examples of the different interspersion classes (=types).

2. Estimate percent of project area in each class and compute a weighted average to arrive at SIV_3. If the <u>entire</u> project area is solid marsh, assign an interspersion class #1 (SI=1.0). Conversely, if the <u>entire</u> project area is open water, assign an interspersion class #5 (SI=0.1).

BRACKISH MARSH

Variable V_4 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.



Line Formulas

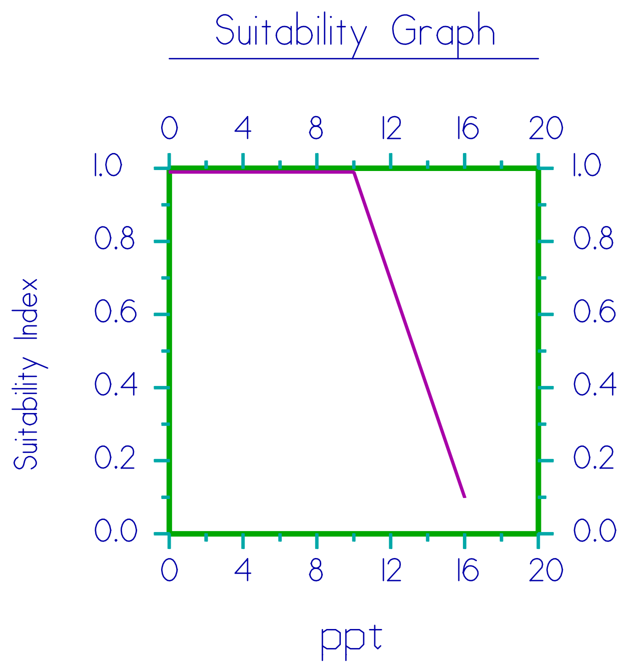
If $0 \leq \% < 70$, then $SI = (0.01286 * \%) + 0.1$

If $70 \leq \% \leq 80$, then $SI = 1.0$

If $\% > 80$, then $SI = (-0.02 * \%) + 2.6$

BRACKISH MARSH

Variable V_5 Average annual salinity.



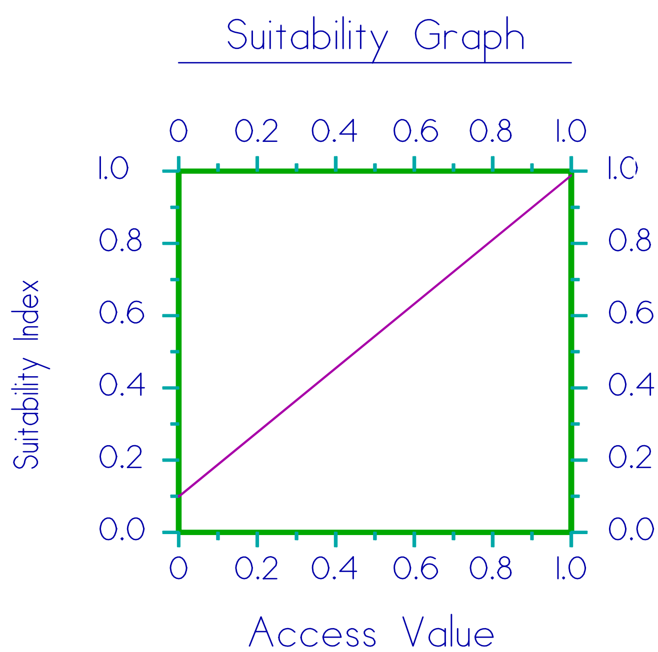
<u>Line Formulas</u>

If $0 \leq ppt \leq 10$, then SI = 1.0

If ppt > 10, then SI = (-0.15 * ppt) + 2.5

BRACKISH MARSH

Variable V_6 Aquatic organism access.



Line Formula

SI = (0.9 * Access Value) + 0.1

Note: Access Value = P * R, where "P" = percentage of wetland area considered accessible by estuarine organisms during normal tidal fluctuations, and "R" = Structure Rating.

Refer to Attachment 5 "Procedure For Calculating Access Value" for complete information on calculating "P" and "R" values.

WETLAND VALUE ASSESSMENT COMMUNITY MODEL

Saline Marsh

Vegetation:

Variable V_1 Percent of wetland area covered by emergent vegetation (≥ 10% canopy cover).

Variable V_2 Percent of open water area dominated (> 50% canopy cover) by aquatic vegetation.

Interspersion:

Variable V_3 Marsh edge and interspersion.

Water Depth:

Variable V_4 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.

Water Quality:

Variable V_5 Average annual salinity.

Aquatic Organism Access:

Variable V_6 Aquatic organism access.

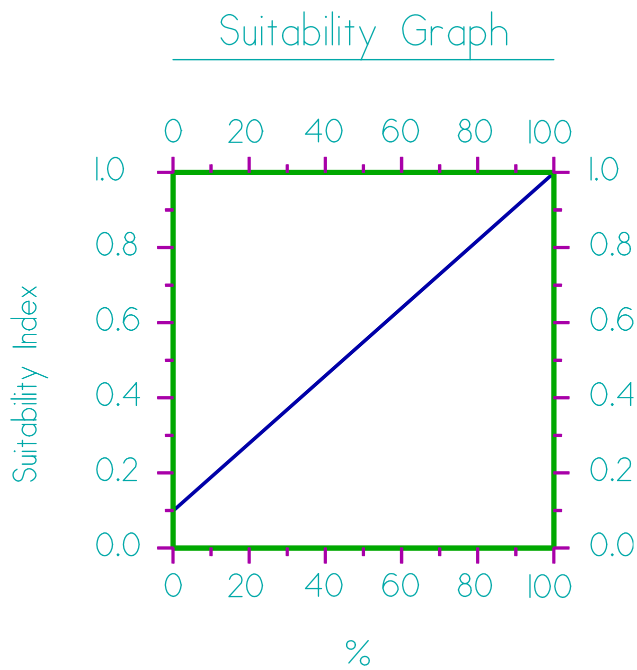
HSI Calculation:

$$Emergent\ Marsh\ HSI = \frac{\left(3.5\ x\ (SIV_1^{\,3}\ x\ SIV_6^{\,1})^{(1/4)}\right) + \left(\frac{(SIV_3 + SIV_5)}{2}\right)}{4.5}$$

$$Open\ Water\ HSI = \frac{\left(3.5\ x\ (SIV_2^{\,1}\ x\ SIV_6^{\,2.5})^{(1/3.5)}\right) + \left(\frac{(SIV_3 + SIV_4 + SIV_5)}{3}\right)}{4.5}$$

SALINE MARSH

Variable V_1 Percent of wetland area covered by emergent vegetation (≥ 10% canopy cover).

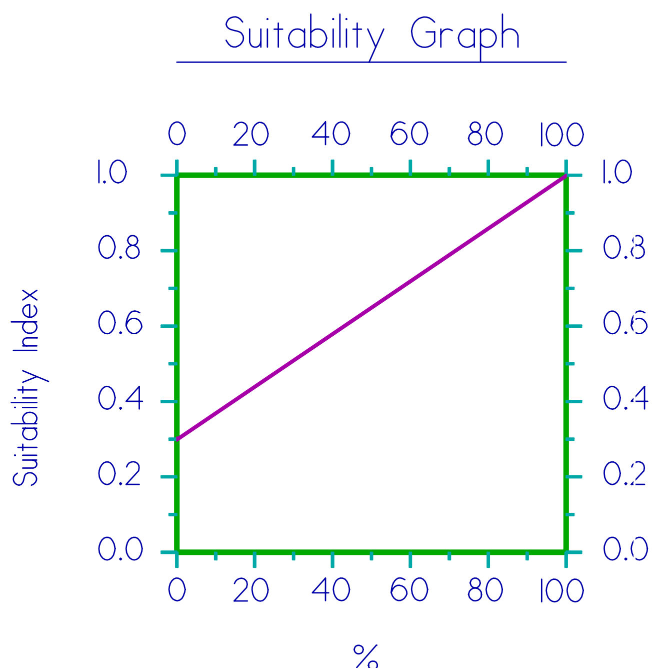


Line Formula

SI = (0.009 * %) + 0.1

SALINE MARSH

Variable V_2 Percent of open water area dominated (> 50% canopy cover) by aquatic vegetation.

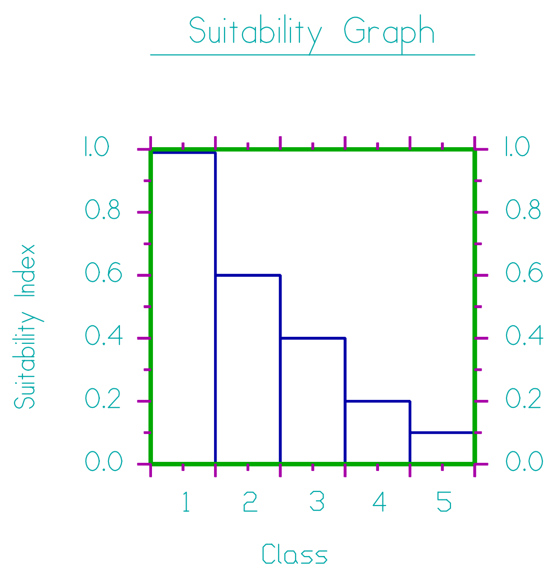


Line Formula

SI = (0.007 * %) + 0.3

SALINE MARSH

Variable V_3 Marsh edge and interspersion.



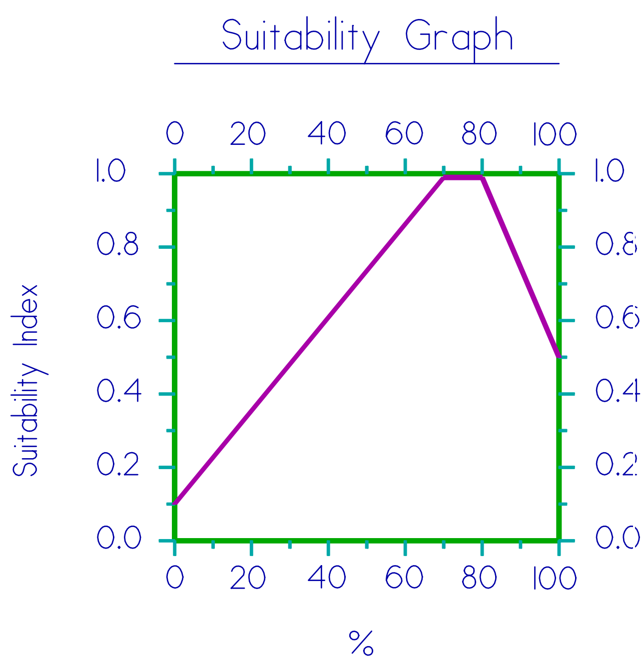
<u>Instructions for Calculating SI for Variable V_3:</u>

1. Refer to Attachment 4 for examples of the different interspersion classes (=types).

2. Estimate percent of project area in each class and compute a weighted average to arrive at SIV_3. If the <u>entire</u> project area is solid marsh, assign an interspersion class #1 (SI=1.0). Conversely, if the <u>entire</u> project area is open water, assign an interspersion class #5 (SI=0.1).

SALINE MARSH

Variable V_4 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.



Line Formulas

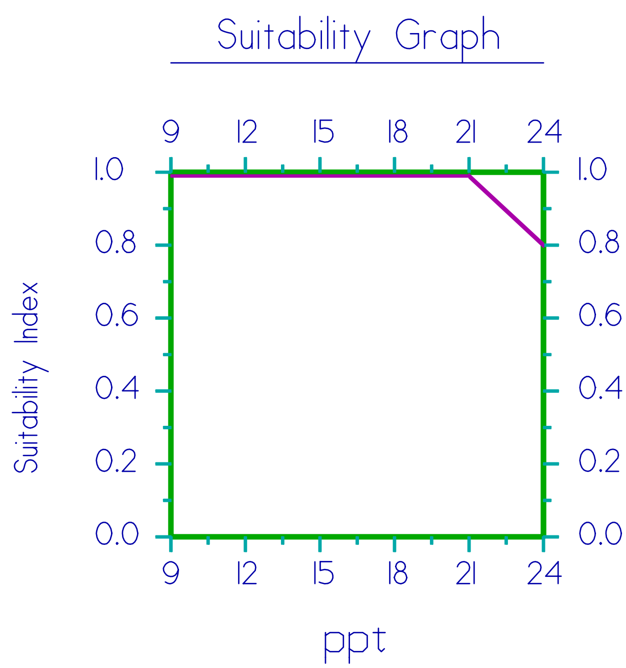
If $0 \leq \% < 70$, then $SI = (0.01286 * \%) + 0.1$

If $70 \leq \% \leq 80$, then $SI = 1.0$

If $\% > 80$, then $SI = (-0.025 * \%) + 3.0$

SALINE MARSH

Variable V_5 Average annual salinity.



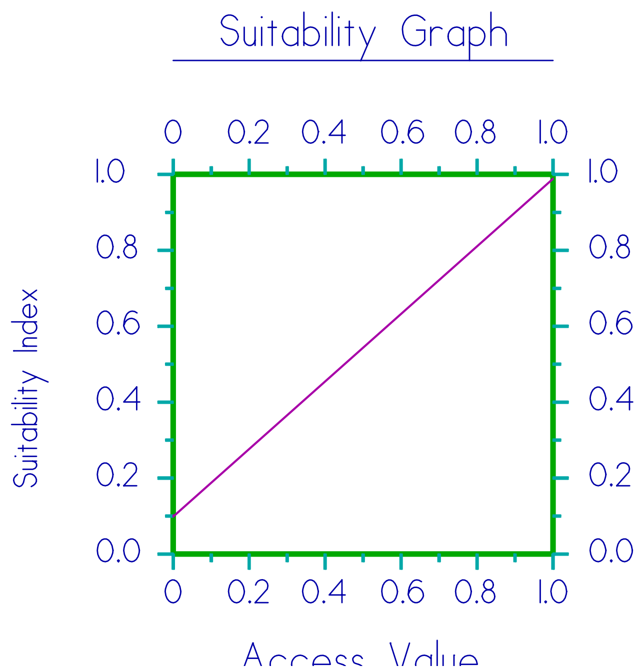
Line Formulas

If $9 \leq ppt \leq 21$, then SI = 1.0

If ppt > 21, then SI = (-0.067 * ppt) + 2.4

SALINE MARSH

Variable V_6 Aquatic organism access.



<u>Line Formula</u>

SI = (0.9 * Access Value) + 0.1

<u>Note</u>: Access Value = P * R, where "P" = percentage of wetland area considered accessible by estuarine organisms during normal tidal fluctuations, and "R" = Structure Rating.

Refer to Attachment 5 "Procedure For Calculating Access Value" for complete information on calculating "P" and "R" values.

PROCEDURE FOR CALCULATING ACCESS VALUE

1. Determine the percent of wetland area accessible by estuarine organisms during normal tidal fluctuations (P) for baseline (TY0) conditions. P may be determined by examination of aerial photography, knowledge of field conditions, or other appropriate methods.

2. Determine the Structure Rating (R) for each project structure as follows:

Structure Type	Rating
open system	1.0
rock weir set at 1ft BML[1], w/ boat bay	0.8
rock weir with boat bay	0.6
rock weir set at ≥ 1ft BML	0.6
slotted weir with boat bay	0.6
open culverts	0.5
weir with boat bay	0.5
weir set at ≥1ft BML	0.5
slotted weir	0.4
flapgated culvert with slotted weir	0.35
variable crest weir	0.3
flapgated variable crest weir	0.25
flapgated culvert	0.2
rock weir	0.15
fixed crest weir	0.1
solid plug	0.0001

For each structure type, the rating listed above pertains only to the standard structure configuration and assumes that the structure is operated according to common operating schedules consistent with the purpose for which that structure is designed. In the case of a "hybrid" structure or a unique application of one of the above-listed types (including unique or "non-standard" operational schemes), the WVA analyst(s) may assign an appropriate Structure Rating between 0.0001 and 1.0 that most closely approximates the relative degree to which the structure in question would allow ingress/egress of estuarine

[1] **B**elow **M**arsh **L**evel

organisms. In those cases, the rationale used in developing the new Structure Rating shall be documented.

3. Determine the Access Value. Where multiple openings equally affect a common "accessible unit", the Structure Rating (R) of the structure proposed for the "major" access point for the unit will be used to calculate Access Value. The designation of "major" will be made by the Environmental Work Group. An "accessible unit" is defined as a portion of the total accessible area that is served by one or more access routes (canals, bayous, etc.), yet is isolated in terms of estuarine organism access to or from other units of the project area. Isolation factors include physical barriers that prohibit further movement of estuarine organisms, such as natural levee ridges, and spoil banks; and dense marsh that lacks channels, trenasses, and similar small connections that would, if present, provide access and intertidal refugia for estuarine organisms.

Access Value should be calculated according to the following examples (Note: for all examples, P for TY0 = 90%. That designation is arbitrary and is used only for illustrative purposes; P could be any percentage from 0% to 100%):

a. One opening into area; no structure.

Access Value = P
= .90

b. One opening into area that provides access to the entire 90% of the project area deemed accessible. A flapgated culvert with slotted weir is placed across the opening.

Access Value = P * R
= .90 * .35
= .32

c. Two openings into area, each capable by itself of providing full access to the 90% of the project area deemed accessible in TY0. Opening #2 is determined to be the major access route relative to opening #1. A flapgated culvert with slotted weir is placed across opening #1. Opening #2 is left unaltered.

Access Value = P
= .90

Note: Structure #1 had no bearing on the Access Value calculation because its presence did not reduce access (opening #2 was determined to be the major access route, and access through that route was not altered).

d. Two openings into area. Opening #1 provides access to an accessible unit comprising 30% of the area. Opening #2 provides access to an accessible unit comprising the remaining 60% of the project area. A flapgated culvert with slotted weir is placed across #1. Opening #2 is left open.

Access Value = weighted avg. of Access Values of the two accessible units

$$= ([P_1*R_1] + [P_2*R_2])/(P_1+P_2)$$
$$= ([.30*0.35] + [.60*1.0])/(.30+.60)$$
$$= (.11 + .60)/.90$$
$$= .71/.90$$
$$= .79$$

Note: $P_1 + P_2 = .90$, because only 90 percent of the study area was determined to be accessible at TY0.

e. Three openings into area, each capable of providing full access to the entire area independent of the others. Opening #3 is determined to be the major access route relative to openings #1 and #2. Opening #1 is blocked with a solid plug. Opening #2 is fitted with a flapgated culvert with slotted weir, and opening #3 is left open.

Access Value = P
= .90

Note: Structures #1 and #2 had no bearing on the Access Value calculation because their presence did not reduce access (opening #3 was determined to be the major access route, and access through that route was not altered).

f. Three openings into area, each capable of providing full access to the entire area independent of the others. Opening #2 is determined to be the major access route relative to openings #1 and #3. Opening #1 is blocked with a solid plug. Opening #2 is fitted with a flapgated culvert with slotted weir, and opening #3 is fitted with a fixed crest weir.

Access Value $= P * R_2$
$= .90 * .35$
$= .32$

Note: Structures #1 and #3 had no bearing on the Access Value calculation because their presence did not reduce access. Opening #2 was determined beforehand to be the major access route; thus, it was the flapgated culvert with slotted weir across that opening that actually served to limit access.

g. Three openings into area. Opening #1 provides access to an accessible unit comprising 20% of the area. Openings #2 and #3 provide access to an accessible unit comprising the remaining 70% of the area, and within that area, each is capable by itself of providing full access. However, opening #3 is determined to be the major access route relative to opening #2. Opening #1 is fitted with an open culvert, #2 with a flapgated culvert with slotted weir, and #3 with a fixed crest weir.

Access Value $= ([P_1*R_1] + [P_2*R_3])/(P_1+P_2)$

$= ([.20*.5]+[.70*.35])/(.20+.70)$
$= (.10 + .25)/.90$
$= .35/.90$
$= .39$

h. Three openings into area. Opening #1 provides access to an accessible unit comprising 20% of the area. Opening #2 provides access to an accessible unit comprising 40% of the area, and opening #3 provides access to the remaining 30% of the area. Opening #1 is fitted with an open culvert, #2 a flapgated culvert with slotted weir, and #3 a fixed crest weir.

Access Value $= ([P_1*R_1]+[P_2*R_2]+[P_3*R_3])/(P_1+P_2+P_3)$

$= ([.20*.5]+[.40*.35]+[.30*.1])/(.20+.40+.30)$
$= (.10+.14+.03)/.90$
$= .27/.90$
$= .30$

Published Habitat Suitability Index (HSI) Models Consulted
for Variables for Possible Use in the Wetland Value Assessment Models

Estuarine Fish and Shellfish

pink shrimp
white shrimp
brown shrimp
spotted seatrout
Gulf flounder
southern flounder
Gulf menhaden
juvenile spot
juvenile Atlantic croaker
red drum

Reptiles and Amphibians

American alligator
slider turtle
bullfrog

Mammals

mink
muskrat
swamp rabbit

Freshwater Fish

channel catfish
largemouth bass
red ear sunfish
bluegill

Birds

clapper rail
great egret
northern pintail
mottled duck
American coot
marsh wren
great blue heron
laughing gull
snow goose
red-winged blackbird
roseate spoonbill
white-fronted goose
wood duck
barred owl
downy woodpecker

COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT

FRESH SWAMP

WETLAND VALUE ASSESSMENT METHODOLOGY AND COMMUNITY MODELS

Developed by the Environmental Work Group,
Coastal Wetlands Planning, Protection, and Restoration Act

Point of Contact: Kevin J. Roy
U.S. Fish and Wildlife Service
646 Cajundome Blvd., Suite 400
Lafayette, LA 70506
(337) 291-3120

November 2000
(Swamp model used for PPL 10 per Kevin Roy)

Attachment 6

Wetland Value Assessment Methodology and Community Models

I. INTRODUCTION

The Wetland Value Assessment (WVA) methodology is a quantitative habitat-based assessment methodology developed for use in prioritizing project proposals submitted for funding under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990. The WVA quantifies changes in fish and wildlife habitat quality and quantity that are projected to be brought about as a result of a proposed wetland enhancement project. The results of the WVA, measured in Average Annual Habitat Units (AAHUs), can be combined with economic data to provide a measure of the effectiveness of a proposed project in terms of annualized cost per AAHU gained.

The WVA was developed by the Environmental Work Group (EWG) assembled under the Planning and Evaluation Subcommittee of the CWPPRA Technical Committee; the EWG includes members from each agency represented on the CWPPRA Task Force and members of the Academic Advisory Group. The WVA was designed to be applied, to the greatest extent possible, using only existing or readily obtainable data.

The WVA has been developed strictly for use in ranking proposed CWPPRA projects; it is not intended to provide a detailed, comprehensive methodology for establishing baseline conditions within a project area. Some aspects of the WVA have been defined by policy and/or functional considerations of the CWPPRA; therefore, user-specific modifications may be necessary if the WVA is used for other purposes.

The WVA is a modification of the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service 1980). HEP is widely used by the Fish and Wildlife Service and other Federal and State agencies in evaluating the impacts of development projects on fish and wildlife resources. A notable difference exists between the two methodologies, however, in that HEP generally uses a species-oriented approach, whereas the WVA utilizes a community approach.

The WVA model discussed in this document has been developed for application to swamp habitats within the Louisiana coastal zone. In previous years, a swamp community model developed by the Louisiana Department of Natural Resources was used to evaluate swamp restoration projects. However, during Priority Project List 10 evaluations, a revised swamp model was developed by the EWG.

II. WVA CONCEPT

The WVA operates under the assumption that optimal conditions for fish and wildlife habitat within a given coastal wetland type can be characterized, and that existing or predicted conditions can be compared to that optimum to provide an index of habitat quality. Habitat quality is estimated or expressed through the use of mathematical models developed specifically for each wetland type. Each model consists of 1) a list of variables that are considered important in characterizing fish and wildlife habitat, 2) a Suitability Index graph for each variable, which defines the assumed relationship between habitat quality (Suitability Index) and different variable values, and 3) a mathematical formula that combines the Suitability Index for each variable into a single value for wetland habitat quality; that single value is referred to as the Habitat Suitability Index, or HSI.

The Wetland Value Assessment models have been developed for determining the suitability of Louisiana coastal wetlands in providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. Models have been designed to function at a community level and therefore attempt to define an optimum combination of habitat conditions for <u>all</u> fish and wildlife species utilizing a given marsh type over a year or longer. Earlier attempts to capture other wetland functions and values such as storm-surge protection, flood water storage, water quality functions and nutrient import/export were abandoned due to the difficulty in defining unified model relationships and meaningful model outputs for such a variety of wetland benefits. However, the ability of a Louisiana coastal wetland to provide those functions and values may be generally assumed to be positively correlated with fish and wildlife habitat quality as predicted through the WVA.

The output of each model (the HSI) is assumed to have a linear relationship with the suitability of a coastal wetland system in providing fish and wildlife habitat.

III. COMMUNITY MODEL VARIABLE SELECTION

Habitat variables considered appropriate for describing habitat quality in each wetland type were selected according to the following criteria:

1) the condition described by the variable had to be important in characterizing fish and wildlife habitat quality in the wetland type under consideration;

2) values had to be easily estimated and predicted based on existing data (e.g., aerial photography, LANDSAT, GIS systems, water quality monitoring stations, and interviews with knowledgeable individuals); and

3) the variable had to be sensitive to the types of changes expected to be brought about by typical wetland projects proposed under the CWPPRA.

Variables for each model were selected through a two part procedure. The first involved a listing of environmental variables thought to be important in characterizing fish and wildlife habitat in coastal marsh or swamp systems.
The second part of the selection procedure involved reviewing variables used in species-specific HSI models published by the U.S. Fish and Wildlife Service. Review was limited to models for those fish and wildlife species known to inhabit Louisiana coastal wetlands, and included models for 10 estuarine fish and shellfish, 4 freshwater fish, 12 birds, 3 reptiles and amphibians, and 2 mammals (Attachment 6). The number of models included from each species group was dictated by model availability.

Selected HSI models were then grouped according to the wetland type(s) used by each species. Because most species for which models were considered are not restricted to one wetland type, most models were included in more than one wetland type group. Within each wetland type group, variables from all models were then grouped according to similarity (e.g., water quality, vegetation, etc.). Each variable was evaluated based on 1) whether it met the variable selection criteria; 2) whether another, more easily measured/predicted variable in the same or a different similarity group functioned as a surrogate; and 3) whether it was deemed suitable for the WVA application (e.g., some freshwater fish model variables dealt with riverine or lacustrine environments). Variables that did not satisfy those conditions were eliminated from further consideration. The remaining variables, still in their similarity groups, were then further eliminated or refined by combining similar variables and/or culling those that were functionally duplicated by variables from other models (i.e., some variables were used frequently in different models in only slightly different format, such as percent marsh coverage, salinity, etc.).

Variables selected from the HSI models were then compared to those identified in the first part of the selection procedure to arrive at a final list of variables to describe wetland habitat quality.

IV. SUITABILITY INDEX GRAPHS

Suitability Index (SI) graphs were constructed for each variable selected within a wetland type. A suitability index graph is a graphical representation of how fish and wildlife habitat quality or "suitability" of a given wetland type is predicted to change as values of the given variable change, and allows the model user to numerically describe, through a Suitability Index, the habitat quality of a wetland area for any variable value. Each Suitability Index ranges from 0.1 to 1.0, with 1.0 representing the optimum condition for the variable in question.

A variety of resources were utilized to construct each SI graph, including personal knowledge of EWG members, the HSI models from which the final list of variables was partially derived, consultation with other professionals and researchers outside the EWG, and published and unpublished data and studies. An important "non-biological" constraint on SI graph development was the need to insure that graph relationships were not counter to the purpose of the CWPPRA, that is, the long term creation, restoration, protection, or enhancement of coastal vegetated wetlands.

The process of SI graph development was one of constant evolution, feedback, and refinement; the form of each SI graph was decided upon through consensus among Group members.

V. SUITABILITY INDEX GRAPH ASSUMPTIONS

Fresh swamp is defined as an area supporting or capable of supporting a canopy of woody vegetation which covers at least 33 percent of the area's surface, and with at least 60 percent of that canopy consisting of any combination of baldcypress, tupelogum, red maple, buttonbush, and/or planertree. If woody vegetation is present but the canopy covers less than 33 percent of the area, the fresh marsh model shall be applied. If greater than 40 percent of the woody vegetation canopy consists of other tree species such as oaks, hickories, American elm, cedar elm, green ash, sweetgum, sugarberry, boxelder, common persimmon, honeylocust, red mulberry, eastern cottonwood, black willow, American sycamore, etc., the bottomland hardwood model shall be applied.

Variable V1 - Stand Structure

Fresh swamp tree species do not produce hard mast; consequently, wildlife foods predominantly consist of soft mast, other edible seeds, invertebrates, and vegetation. Because most swamp tree species produce some soft mast or other edible seeds, the actual tree species composition is not usually a limiting factor. More limiting is the presence of stand structure to provide resting, foraging, breeding, nesting, and nursery habitat and the medium for invertebrate production. This medium can exist as herbaceous vegetation, shrub-scrub/midstory cover, or overstory canopy and preferably as a combination of all three. This variable assigns the lowest suitability to sites with a limited amount of all three stand structure components, the highest suitability to sites with a significant amount of all three stand structure components, and mid-range suitability to various combinations when one or two stand structure components are present.

Variable V2 - Stand Maturity

Because of man's historical conversion of fresh swamp, the loss of fresh swamp to saltwater intrusion, historical and ongoing timber harvesting within fresh swamp, and slow tree growth rate in the subsiding Coastal Zone, fresh swamps with mature sizeable trees are a unique but ecologically important feature. These older (mature) trees provide important wildlife requisites such as tree snags and nesting cavities and the medium for invertebrate (wildlife food) production. Additionally, as the stronger trees establish themselves in the canopy, weaker trees are out-competed and eventually die, forming additional snags and downed treetops that would not be present in younger stands. The suitability graph for this variable assumes that snags, cavities, downed treetops, and invertebrate production are present in suitable amounts beginning at about age 50. Therefore, stands with a canopy of trees with an average age of 50 years or greater are considered optimal for this variable (SI = 1.0). Below age 50, it is assumed that the above-mentioned wildlife requisites become more available with increasing age. When the average age of canopy-dominant and canopy-codominant trees is unknown, average tree diameter at breast height (dbh) can be used to determine the Suitability Index for this variable.

Variable V3 - Water Regime

Four water regime categories are described for the cypress-tupelo swamp model. The optimum water regime for a cypress-tupelo swamp is assumed to be seasonal flooding (SI=1.0); seasonal flooding with periodic drying cycles is assumed to contribute to increased nutrient cycling (primarily through oxidation and decomposition of accumulated detritus), increased vertical structure complexity (due to growth of other plants on the swamp floor), and increased recruitment of dominant overstory trees. Semipermanent flooding is also assumed to be desirable, as reflected in the SI=0.8 for that water regime category. Permanent flooding is assumed to be the least desirable (SI=0.2).

Variable V4- Water Flow/exchange

This variable attempts to take into consideration the amounts and types of water inputs into a cypress-tupelo swamp. The Suitability Index graph is constructed under the assumption that abundant and consistent riverine input and water flow-through is optimum (SI=1.0), because under that regime the full functions and values of a cypress-tupelo swamp in providing fish and wildlife habitat are assumed to be maximized. Habitat suitability is assumed to decrease as water exchange between the swamp and adjacent systems is reduced. A swamp system with no water exchange (e.g., an impounded swamp where the only water input is through rainfall and the only water loss is through evapotranspiration and ground seepage) is assumed to be least desirable, and is assigned an SI= 0.2.

Variable V_3- Average High Salinity

Average high salinity is defined as the average of the upper 33 percent of salinity measurements taken during a specified period of record. Because baldcypress is salinity-sensitive, optimum conditions for baldcypress survival are assumed to occur at average high salinities less than 1 ppt. Habitat suitability is assumed to decrease rapidly at average high salinities in excess of 1 ppt.

VI. HABITAT SUITABILITY INDEX FORMULA

The final step in WVA model development was to construct a mathematical formula that combines all Suitability Indices into a single Habitat Suitability Index (HSI) value. Because the Suitability Indices range in value from 0.0 to 1.0, the HSI also ranges in from 0.0 to 1.0, and is a numerical representation of the overall or "composite" habitat quality of the particular wetland study area being evaluated. The HSI formula defines the aggregation of Suitability Indices in a manner unique to each wetland type depending on how the formula is constructed.

Within an HSI formula, any Suitability Index can be weighted by various means to increase the power or "importance" of that variable relative to the other variables in determining the HSI. Additionally, two or more variables can be grouped together into subgroups to further isolate variables for weighting.

As with the Suitability Index graphs, the Habitat Suitability Index formula was developed by consensus among the EWG.

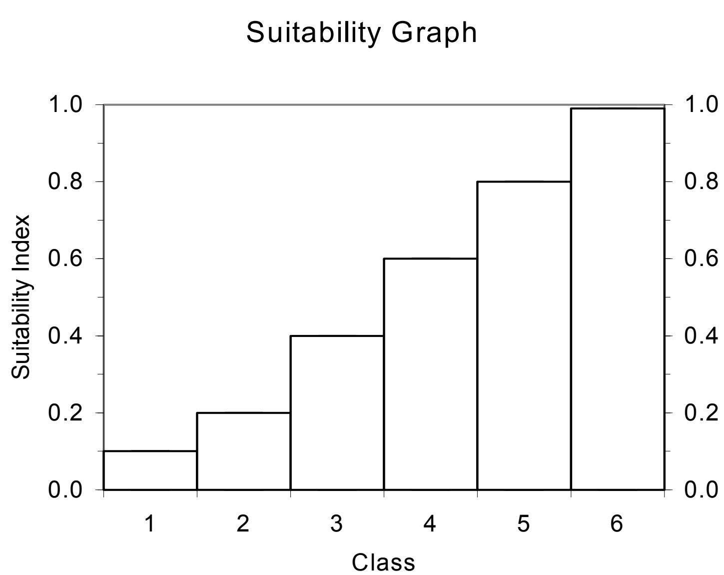
$$HSI = (SI_{V1}^2 \times SI_{V2}^2 \times SI_{V3} \times SI_{V4} \times SI_{V5})^{1/7}$$

SWAMP

Variable V_1 Stand structure.

Each component of stand structure should be viewed independently to determine the percent closure or coverage.

	Overstory Closure		Scrub-Shrub/ Midstory Cover		**Herbaceous Cover**
Class 1	<33%				
Class 2	33%<50%	and	<33%	and	<33%
Class 3	33%<50%	and	>33%	or	>33%
Class 4	50%-75%	and	>33%	or	>33%
Class 5	33%<50%	and	>33%	and	>33%
Class 6.	≥50%	and	>33%	and	>33%



SWAMP

Variable V_2 Stand maturity.

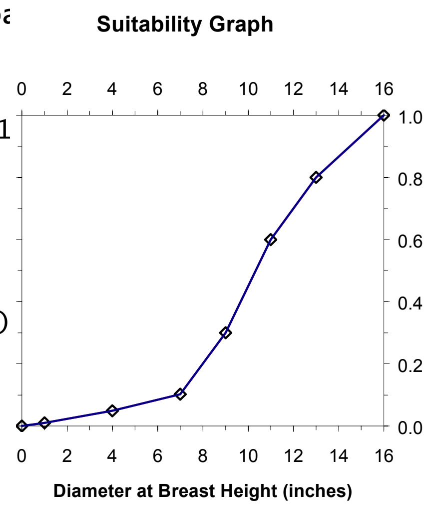
Average dbh of canopy-dominant and canopy-codominant trees.

Notes:

1. Canopy-dominant and codominant trees are those whose crowns rise above or is an integral part of the overstory.
2. For trees with buttress swell, dbh is the diameter measured at 12" above the swell.

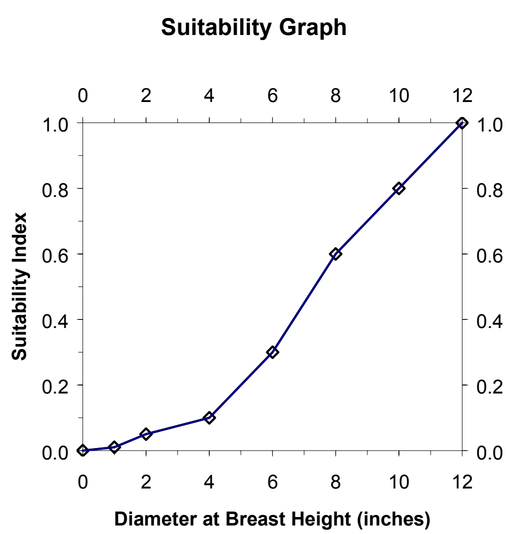
Suitability Index Line Formulas for ba

If dbh = 0 then SI = 0
If 0 < dbh ≤ 1 then SI = .01 * dbhIf 1
If 4 < dbh ≤ 7 then SI = (.017 * dbh)
If 7 < dbh ≤ 9 then SI = (.1 * dbh) -
If 9 < dbh ≤ 11 then SI = (.15 * dbh)
If 11 < dbh ≤ 13 then SI = (.1 * dbh)
If 13 < dbh ≤ 16 then SI= (.067 * dbh)
If dbh > 16 then SI = 1.0



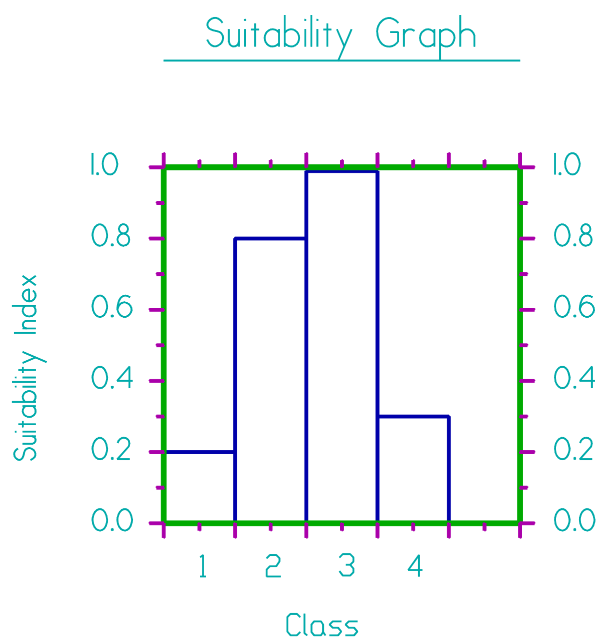
Suitability Index Line Formulas for tup

If dbh = 0 then SI = 0
If 0 < dbh ≤ 1 then SI = .01 * dbh
If 1 < dbh ≤ 2 then SI = (.04 * dbh) -
If 2 < dbh ≤ 4 then SI = .025 * dbh
If 4 < dbh ≤ 6 then SI = (.1 * dbh) -
If 6 < dbh ≤ 8 then SI = (.15 * dbh) -
If 8 < dbh ≤ 12 then SI = (.1 * dbh) -
If dbh > 12 then SI = 1.0



SWAMP

Variable V_3 Water regime.



1 - <u>Permanently</u> <u>Flooded</u>: water covers the substrate throughout the year in all years.

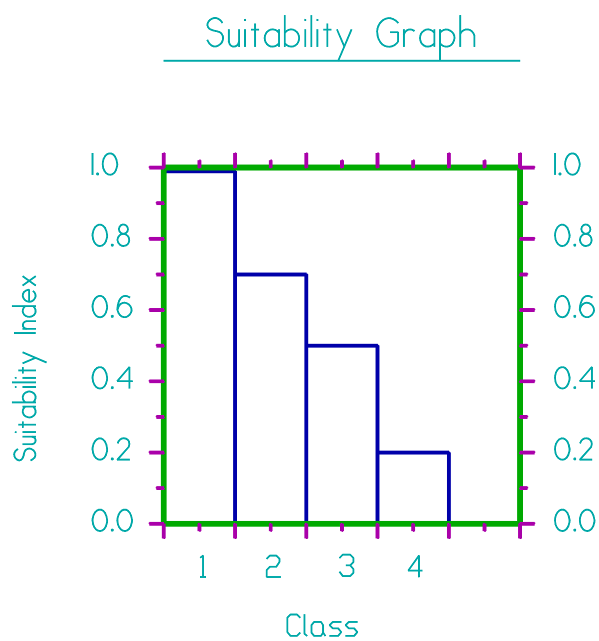
2 - <u>Semipermanently</u> <u>Flooded</u>: surface water is present throughout the growing season in most years.

3 - <u>Seasonally</u> <u>Flooded</u>: surface water is present for extended periods, especially in the growing season, but is absent by the end of the growing season in most years.

4 - <u>Temporarily</u> <u>Flooded</u>: surface water is present for brief periods during the growing season, but the water table usually lies well below the surface for most of the season.

SWAMP

Variable V_4 Water flow/exchange.



1 - Receives abundant and consistent riverine input and through-flow.

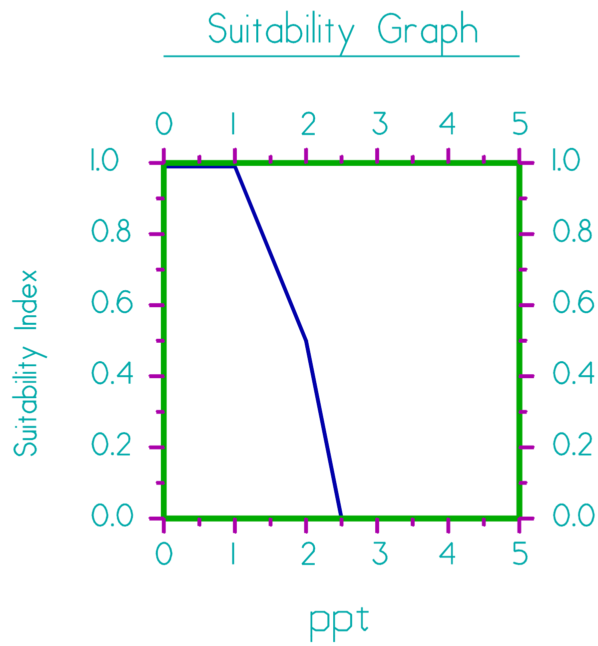
2 - Moderate water exchange, through riverine and/or tidal input.

3 - Limited water exchange, through riverine and/or tidal input.

4 - No water exchange (stagnant, impounded).

SWAMP

Variable V_5 Average high salinity.



__Line Formulas__

If 0 # ppt < 1, then SI = 1.0

If 1 # ppt < 2, then SI = (-0.5 * ppt) + 1.5

If 2 # ppt < 2.5, then SI = (-1.0 * ppt) + 2.5

If ppt ∃ 2.5, then SI = 0

Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

Appendix C

Engineering Designs and Cost Estimates For Candidate Projects

Appendix C

Engineering Designs and Cost Estimates for Candidate Projects

Table of Contents

APPENDIX C

LEGEND

LF = Linear Foot

SF = Square Foot

EA = Each

CY = Cubic Yard

SY = Square Yard

TN = Ton

LS = Lump Sum

LB = Pound

ST = 100 ft station

AC = Acre

Project: Shore Protection & Marsh Creation in Lake Borgne at Shell Beach

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**2,709,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**3,386,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design			$336,000
Engineering	$221,000		
Geotechnical Investigati	$50,000		
Hydrologic Modeling	$0		
Data Collection or Surve	$25,000		
HTRW	$0		
Cultural Resources	$10,000		
NEPA Compliance	$30,000		
Supervision and Administration			$67,500

State Costs

Supervision and Administration			$67,500
Easements and Land Rights			$25,000
Monitoring			$14,131
Monitoring Plan Develo	$11,361		
Monitoring Protocal Cos	$0		
		Total Phase I Cost Estimate	**$510,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$3,386,000
Supervision and Inspecti	100 days	@	$816 per day	$81,600
Supervision and Administration				$67,500

State Costs

Supervision and Administration		$67,500
	Total Phase II Cost Estimate	**$3,603,000**

TOTAL ESTIMATED PROJECT FIRST COST	**4,113,000**

Project: Sediment Trap at the Mouth of the Bonnet Carre Spillway	Date: 11/17/2000

CONSTRUCTION - Summary

tem No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mobilization/Demobilization	1	LS	$500,000	$500,000
2	Rock Riprap	438,000	tons	$30	$13,140,000
3	Geotextile Fabric	180,500	sq. yd.	$4.0	$722,000
4	Settlement Plates	28	each	$500	$14,000
5	Navigation Warning Signs	55	each	$1,000	$55,000
6	Terrace Borrow	682,000	c.y.	$3	$2,046,000

ESTIMATED CONSTRUCTION COST	**16,477,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**20,596,250**

TOTAL ESTIMATED PROJECT COSTS

PHASE I		
Engineering and Design		$1,573,876
Engineering	$1,203,876	
Geotechnical Investigation	$60,000	
Hydrologic Modeling and Data Collection	$200,000	
Surveying (hydrographic, land based, and as-built)	$110,000	
Federal Supervision and Administration (Includes NEPA, Cultural Resources, etc.)		$332,552
State Supervision and Administration		$358,944
** Easements and Land Rights*		$50,000
Monitoring		$19,505
Monitoring Plan Development	$13,933	
Pre-construction monitoring cost - one year	$5,572	
TOTAL PHASE I COST ESTIMATE		**$2,334,878**
PHASE II		
Estimated Construction Cost +25% Contingency		$20,596,250
Supervision and Inspection (400 days at $816/day;)		$326,400
Federal Supervision and Administration		$332,552
State Supervision and Administration		$358,944
TOTAL PHASE II COST ESTIMATE		**$21,614,146**
TOTAL ESTIMATED PROJECT FIRST COST		**$23,949,000**

Project:	Beneficial Placement on Breton and Grand Gosier Islands	Date:	11/01/2000 Revised:		
Computed by:		Checked by:			
Will change from all under one contract to At least 2 contracts, possibly 3					
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Hydraulic Dredging (miles -3 to -6, placement: Breton)	1,450,000	CY	1.83	2,654,000
	Plantings	50	acres	3,000.00	150,000
2	Hydraulic Dredging (miles -3 to -6, placement: Gossier)	1,450,000	CY	2.31	3,350,000
	Plantings	45	acres	3,000.00	135,000
3	Hydraulic Dredging (miles 0 to 6, placement: Breton)	3,125,000	CY	1.06	3,313,000
	Plantings	120	acres	3,000.00	360,000

ESTIMATED CONSTRUCTION COST	**9,962,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**12,453,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design		$1,298,400
Engineering @10% (includes Geotech and Surveys)	$1,245,000	
HTRW	$2,000	
Cultural Resources	$10,000	
NEPA Compliance	$41,400	
Federal Supervision and Administration		$249,000
State Supervision and Administration		$249,000
Easements and Land Rights (Includes Relocations)		$4,000
Monitoring		$18,515
Monitoring Plan Development	$12,943	
Monitoring Protocal Cost *	$5,572	
	Total Phase I Cost Estimate	**$1,819,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Estimated Construction Cost +25% Contingency			$12,453,000
Supervision and Inspection	300 days @	$816 per day	$245,000
Federal Supervision and Administration			$249,000
State Supervision and Administration			$249,000
	Total Phase II Cost Estimate		**$13,196,000**

TOTAL ESTIMATED PROJECT FIRST COST **15,015,000**

Project:	Delta Building Diversion North of Fort St. Philip	Date:	11/01/2000 Revised:		
Computed by:		Checked by:			
Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mob and Demob	1	LS	235,000	235,000
2	Hydraulic Dredging	1,625,500	CY	1.10	1,788,000
3	Armour Stone	56,000	TN	22	1,232,000

ESTIMATED CONSTRUCTION COST	**3,255,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**4,069,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design			$896,000
Engineering @10% (includes Geotech and Surveys)	$407,000		
Geotechnical Investigation			
Hydrologic Modeling (includes data collection)	$300,000		
HTRW	$5,000		
Cultural Resources	$132,200		
NEPA Compliance	$52,000		
Federal Supervision and Administration			$81,500
State Supervision and Administration			$81,500
Easements and Land Rights			$32,000
Monitoring			$25,821
Monitoring Plan Development	$14,708		
Monitoring Protocal Cost *	$11,113		
		Total Phase I Cost Estimate	**$1,117,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Easements and Land Rights				$152,000
Estimated Construction Cost +25% Contingency				$4,069,000
Supervision and Inspection	120 days	@	$816 per day	$98,000
Federal Supervision and Administration				$81,500
State Supervision and Administration				$81,500
			Total Phase II Cost Estimate	**$4,482,000**

TOTAL ESTIMATED PROJECT FIRST COST	**5,599,000**

Project: Diversion and Delta Management at Fort St. Philip

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**1,041,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**1,301,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$191,000
	Engineering	$91,000	
	Geotechnical Investigatio	$10,000	
	Hydrologic Modeling	$0	
	Data Collection or Surve	$50,000	
	HTRW	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$26,000
State Costs			
Supervision and Administration			$26,000
Easements and Land Rights			$75,000
Monitoring			$27,983
	Monitoring Plan Develop	$16,870	
	Monitoring Protocal Cos	$11,113	
	Total Phase I Cost Estimate		**$346,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$1,301,000
Supervision and Inspecti	167 days @	$816 per day	$136,272
Supervision and Administration			$26,000
State Costs			
Supervision and Administration			$13,000
	Total Phase II Cost Estimate		**$1,476,000**

TOTAL ESTIMATED PROJECT FIRST COST	**1,822,000**

Project:	**Bennies Bay 20,000 cfs Diversion with SREDS**	**Date:**	**11/01/2000 Revised:**		
Computed by:		**Checked by:**			
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Mob and Demob	1	LS	270,000.00	270,000
2	Hydraulic Dredging	595,000	CY	1.10	655,000
3	Remove Existing Forshore Dike	700	LF	45.00	32,000
4	Relocation of Pipeline and Telephone	800	LF	570.00	456,000
5	Sediment Retention Dike Construction	17,250	CY	3.00	52,000

ESTIMATED CONSTRUCTION COST	**1,465,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**1,831,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design		$673,000
Engineering @10% (includes Geotech and Surveys)	$183,000	
Hydrologic Modeling (includes data collection)	$300,000	
HTRW	$5,000	
Cultural Resources	$99,000	
NEPA Compliance	$86,000	
Federal Supervision and Administration		$36,500
State Supervision and Administration		$36,500
Easements and Land Rights (Includes Relocations)		$30,000
Monitoring		$28,000
Monitoring Plan Development	$16,870	
Monitoring Protocal Cost *	$11,113	
	Total Phase I Cost Estimate	**$804,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Easements and Land Rights (Includes Relocations)			$46,000
Estimated Construction Cost +25% Contingency			$1,831,000
Supervision and Inspection	75 days @	$816 per day	$61,000
Federal Supervision and Administration			$36,500
State Supervision and Administration			$36,500
	Total Phase II Cost Estimate		**$2,011,000**

TOTAL ESTIMATED PROJECT FIRST COST **2,815,000**

Project:	**Bennies Bay 50,000 cfs Diversion with SREDS**	**Date:**	**11/01/2000**	**Revised:**	
Computed by:		**Checked by:**			

Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mob and Demob	1	LS	270,000.00	270,000
2	Hydraulic Dredging	1,730,000	CY	1.10	1,903,000
3	Remove Existing Forshore Dike	1,100	LF	45.00	50,000
4	Relocation of Pipeline and Telephone	800	LF	570.00	456,000
4	Sediment Retention Dike Construction	29,444	CY	3.00	88,000

ESTIMATED CONSTRUCTION COST	**2,767,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**3,459,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design		$836,000
Engineering @10% (includes Geotech and Surveys)	$346,000	
Hydrologic Modeling (includes data collection)	$300,000	
HTRW	$5,000	
Cultural Resources	$99,000	
NEPA Compliance	$86,000	
Federal Supervision and Administration		$69,000
State Supervision and Administration		$69,000
Easements and Land Rights (Includes Relocations)		$30,000
Monitoring		$27,983
Monitoring Plan Development	$16,870	
Monitoring Protocal Cost *	$11,113	
	Total Phase I Cost Estimate	**$1,032,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Easements and Land Rights (Includes Relocations)					$46,000
Estimated Construction Cost +25% Contingency					$3,459,000
Supervision and Inspection	120 days	@	$816	per day	$98,000
Federal Supervision and Administration					$69,000
State Supervision and Administration					$69,000
		Total Phase II Cost Estimate			**$3,741,000**

TOTAL ESTIMATED PROJECT FIRST COST **4,773,000**

Project:	DELTA-BUILDING DIVERSION AT MYRTLE GROVE, 15,000 cfs

CONSTRUCTION - Summary

Item	Work	Amount
1	* Structure (Table A-7-9)	13,537,500
2	* Levees and Floodwalls (Table A-7-11)	2,682,200
3	* Channel Excavation (Table A-7-4)	3,910,000
4	Conveyance Channel and levees	4,007,500
5	Access/Outfall dredging	635,510
6	*Pump Station	4,700,000
7	* Relocations	1,995,855
	ESTIMATED CONSTRUCTION COST	**31,468,565**
	ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**39,336,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I			
Engineering and Design			$2,919,000
	Engineering	$2,214,000	
	Geotechnical Investigation	$150,000	
	Hydrologic Modeling	$200,000	
	Navigation channel modeling (induced dr	$80,000	
	Data Collection ($200,000 for hydrolgic and $75,000 for CH3D)	$275,000	
Federal Supervision and Administration (inlcudes Cultural Resources)			$500,000
State Supervision and Administration			$400,000
Easements and Land Rights			$2,600,000
NEPA			$700,000
	Fisheries modeling	$400,000	
	Environmental Impact Statement	$300,000	
Monitoring			
	Monitoring Plan Development	$24,087	$424,087
	Pre-construction monitoring cost - ($200,000/yr for TYs -1 and -2 only)	$400,000	
	Pre-contruction fisheries monitoring ($200.000/yr for TYs -1, -2, and -3)	$600,000	
TOTAL PHASE I COST ESTIMATE			**$7,543,087**
PHASE II			
Estimated Construction Cost +25% Contingency			$39,336,000
Oyster relocations ($3,000/acre for 106,000 acres)			$288,000,000
Supervision and Inspection (5% Construction)			$1,966,800
Federal Supervision and Administration			$500,000
State Supervision and Administration			$400,000
TOTAL PHASE II COST ESTIMATE			**$330,202,800**
TOTAL ESTIMATED PROJECT FIRST COST			**$337,745,887**

OMRR&R AND MONITORING

Annual Project Costs:

**Operations and Maintenance*	$191,800
Corps Administration	$644
Monitoring ($200,000/yr TYs 1 - 20)	$200,000
Fisheries monitoring ($200,000/yr forTYs 1, 2, and 3 only)	$200,000
Federal S&A (3%OMRR&R and monitoring)	$17,773
	$610,217

Specific Intermittant Costs (Additive to annual costs @ TY 5, 10, 15, and 20)

Outfall maintenance at TY 5, 10, 15, and 20 (20% construction item #5)	**$127,102**

CONSTRUCTION SCHEDULE

PED Start	**January-02**
PED End	**January-05**
Const. Start	**June-05**
Const. End	**June-12**

* Costs taken directly from MRSNFR

1. E&D estimate figured using ASCE log scale
2. NMFS S&A estimated based on E&D and construction + contigency
   < $5,000,000 use 5%
   < $10,000,000 use 4%
   > $10,000,000 use 3% with a $1,000,000 cap
3. State S&A estimated $0 - $10 M: 4% of the Construction Costs
   > $10M: 4% of the 1st $10M + 3% everything over $10M
   Maximum cap of $800,000.

Project:	DELTA-BUILDING DIVERSION AT MYRTLE GROVE-Increment 1, 15,000 cfs

CONSTRUCTION - Summary

Item	Work	Amount
1	* Structure (Table A-7-9)	13,537,500
2	* Levees and Floodwalls (Table A-7-11)	2,682,200
3	* Channel Excavation (Table A-7-4)	3,910,000
4	Conveyance Channel and levees	4,007,500
5	Access/Outfall dredging	635,510
6	*Pump Station	4,700,000
7	* Relocations	1,995,855
	ESTIMATED CONSTRUCTION COST	**31,468,565**
	ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**39,336,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I			
Engineering and Design			$2,919,000
	Engineering	$2,214,000	
	Geotechnical Investigation	$150,000	
	Hydrologic Modeling	$200,000	
	Navigation channel modeling (induced dredging)	$80,000	
	Data Collection ($200,000 for hydrolgic and $75,000 for CH3D)	$275,000	
Federal Supervision and Administration (inlcudes Cultural Resources)			$500,000
State Supervision and Administration			$400,000
Easements and Land Rights			$2,600,000
NEPA			$700,000
	Fisheries modeling	$400,000	
	Environmental Impact Statement	$300,000	
Monitoring			
	Monitoring Plan Development	$24,087	$424,087
	Pre-construction monitoring cost - ($200,000/yr for TYs -1 and -2 only)	$400,000	
	Pre-contruction fisheries monitoring ($200.000/yr for TYs -1, -2, and -3)	$600,000	
TOTAL PHASE I COST ESTIMATE			**$7,543,087**
PHASE II			
Estimated Construction Cost +25% Contingency			$39,336,000
Oyster relocations ($3,000/acre for ± 20% of 96,000 acres)			$57,600,000
Supervision and Inspection (5% Construction)			$1,966,800
Federal Supervision and Administration			$500,000
State Supervision and Administration			$400,000
TOTAL PHASE II COST ESTIMATE			**$99,802,800**
TOTAL ESTIMATED PROJECT FIRST COST			**$107,345,887**

OMRR&R AND MONITORING

Annual Project Costs:

**Operations and Maintenance*	$191,800
Corps Administration	$644
Monitoring ($200,000/yr TYs 1 - 20)	$200,000
Fisheries monitoring ($200,000/yr forTYs 1, 2, and 3 only)	$200,000
Federal S&A (3%OMRR&R and monitoring)	$17,773
	$610,217

Specific Intermittant Costs (Additive to annual costs @ TY 5, 10, 15, and 20)

Outfall maintenance at TY 5, 10, 15, and 20 (20% construction item #5)	**$127,102**

CONSTRUCTION SCHEDULE

PED Start	**January-02**
PED End	**January-05**
Const. Start	**June-05**
Const. End	**June-12**

1. E&D estimate figured using ASCE log scale
2. NMFS S&A estimated based on E&D and construction + contigency
   < $5,000,000 use 5%
   < $10,000,000 use 4%
   > $10,000,000 use 3% with a $1,000,000 cap
3. State S&A estimated as $0 - $10 M: 4% of the Construction Costs
   > $10M: 4% of the 1st $10M + 3% everything over $10M
   Maximum cap of $800,000.

* Costs taken directly from MRSNFR

Project:	Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration	Date:	11/17/2000

CONSTRUCTION - Summary

Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mobilization/Demobilization	1	LS	$1,000,000	$1,000,000
2	Bucket Dredging	9,750	ft	$32	$312,000
3	Hydraulic Dredging	2,704,000	cy	$2.3	$6,219,200
4	Grading/Shaping (per 100 ft station)	97.50	ft	$1,000	$97,500
5	Aerial Seeding	233	ac	$230	$53,590
6	Plantings	233	ac	$3,000	$699,000
7	Tidal Creeks (4 ft w)(2 ft d)(3:1 slope)	7,407	cy	$3	$22,221
8	Tidal Ponds (6, 1 ac ponds 2 ft deep)	19,360	cy	$3	$58,080

ESTIMATED CONSTRUCTION COST	**8,461,591**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**10,576,989**

TOTAL ESTIMATED PROJECT COSTS

PHASE I		
Engineering and Design		$784,000
Engineering	$644,000	
Geotechnical Investigation	$30,000	
Surveying (hydrographic, land based, & as-built)	$110,000	
Federal Supervision and Administration (inlcudes NEPA, Cultural Resources, etc.)		$170,415
State Supervision and Administration		$208,655
Easements and Land Rights		50,000
Monitoring		$18,515
Monitoring Plan Development	$12,943	
Pre-construction monitoring cost - one year	$5,572	
TOTAL PHASE I COST ESTIMATE		**$1,231,585**
PHASE II		
Estimated Construction Cost +25% Contingency		$10,576,989
Oyster relocation ($3,000/acre for 233 acres)		$699,000
Supervision and Inspection (200 days at $1500/day; 40 days @ $816/day)		$332,640
Federal Supervision and Administration		$170,415
State Supervision and Administration		$208,655
TOTAL PHASE II COST ESTIMATE		**$11,987,699**
TOTAL ESTIMATED PROJECT FIRST COST		**$13,219,283**

Project: Small Freshwater & Sediment Diversion to Northwest Barataria Basin

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**5,582,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**6,978,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$1,415,000
	Engineering	$600,000	
	Geotechnical Investigati	$100,000	
	Hydrologic Modeling	$300,000	
	Data Collection or Surve	$350,000	
	HTRW	$0	
	Cultural Resources	$20,000	
	NEPA Compliance	$45,000	
Supervision and Administration			$139,500
State Costs			
Supervision and Administration			$139,500
Easements and Land Rights			$1,100,000
Monitoring			$46,281
	Monitoring Plan Develo	$12,943	
	Monitoring Protocal Cos	$33,338	
		Total Phase I Cost Estimate	**$2,840,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs					
Easements and Land Rights					$0
Estimated Construction Cost +25% Contingency					$6,978,000
Supervision and Inspection	0 days	@	$816	per day	$349,000
Supervision and Administration					$139,500
State Costs					
Supervision and Administration					$139,500
		Total Phase II Cost Estimate			**$7,606,000**

TOTAL ESTIMATED PROJECT FIRST COST	**10,446,000**

Project:	**South Lake Salvador Shoreline Protection and Marsh Creation**

Date: Eeng

CONSTRUCTION - Summary

Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mobilization/Demobilization	1	LS	$275,000	$275,000
2	Geotextile	86,647	SY	$6.33	$548,476
3	Settlement Plates	25	Each	$500	$12,500
4	Riprap Class 250 (10% spillage with flotation)	100,644	Tons	$35	$3,522,540
5	Riprap Class 250 (10% spillage)	55,817	Tons	$30	$1,674,510
6	Navigation Warning Signs	31	Each	$1,000	$31,000
7	Hydraulic Dredging	2,223,000	cy	$2	$4,446,000
8	Bucket Dredging	183,222	cy	$3	$549,666
9	Aerial Seeding	146	ac	$150	$21,900
10	Plantings	16,702	Each	$7	$116,914
11	Tidal Ponds (7, 1 ac ponds 2 ft deep)	22,587	cy	$3	$67,761

ESTIMATED CONSTRUCTION COST	**11,266,267**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**14,082,833**

TOTAL ESTIMATED PROJECT COSTS		
PHASE I		
Engineering and Design		$999,968
Engineering	$842,000	
Geotechnical Investigation	$60,000	
Surveying (pre-construction and as-built)	$97,968	
Federal Supervision and Administration (inlcudes NEPA, Cultural Resources, etc.)		$226,242
State Supervision and Administration		$261,242
Easements and Land Rights		$50,000
Monitoring		$21,285
Monitoring Plan Development	$12,943	
Pre-construction monitoring cost (VP + SP)	$8,342	
TOTAL PHASE I COST ESTIMATE		**$1,558,737**
PHASE II		
Estimated Construction Cost +25% Contingency		$14,082,833
Supervision and Inspection (200 days @ $816)		$163,200
Federal Supervision and Administration		$226,242
State Supervision and Administration		$261,242
TOTAL PHASE II COST ESTIMATE		**$14,733,517**
TOTAL ESTIMATED PROJECT FIRST COST		**$16,292,254**

Project: Raccoon Island Breakwaters			Date: 09/25/2000 Revised:		11/01/2000
Computed by: L Broussard			Checked by:		{Final}
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Mobilization/Demobilization	1	LS	1,000,000	1,000,000
2	Segmented Breakwaters (8 Sections)	L.S.	Job	1,900,000	1,900,000
3	Breakwater 0,1,&2 Modification	3	Each	100,000	300,000
4	Containment Dike	31,000	CY	3.00	93,000
5	Dredge Material	1,000,000	CY	2.15	2,150,000
6	Containment Dike Breaching	770	CY	3.00	3,000
7	Vegetative Plantings	86	Ac	3,000	258,000

ESTIMATED CONSTRUCTION COST **5,704,000**

ESTIMATED CONSTRUCTION + 25% CONTINGENCY **7,130,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design		$515,000
Engineering	$445,000	
Geotechnical Investigation	$10,000	
Surveying	$20,000	
Hydrologic Modeling	$0	
Data Collection	$0	
Cultural Resources	$10,000	
NEPA Compliance	$30,000	
Supervision and Administration		$142,600

State Costs

Supervision and Administration		$142,600
Easements and Land Rights		$10,000
Monitoring		$18,515
Monitoring Plan Development	$12,943	
Monitoring Protocal Cost *	$5,572	

Total Phase I Cost Estimate **$829,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Estimated Construction Cost +25% Contingency			$7,130,000
Supervision and Inspection	264 days @	1500 per day	$396,000
Supervision and Administration			$142,600

State Costs

Supervision and Administration $142,600

Total Phase II Cost Estimate **$7,811,000**

TOTAL ESTIMATED PROJECT FIRST COST **8,640,000**

Project: Isles Dernieres Restoration-Whiskey Island West Flank

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**24,248,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**30,310,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$640,000
	Engineering	$500,000		
	Geotechnical Investigatio	$100,000		
	Hydrologic Modeling	$0		
	Data Collection or Surve	$0		
	HTRW	$0		
	Cultural Resources	$10,000		
	NEPA Compliance	$30,000		
Supervision and Administration				$400,000
State Costs				
Supervision and Administration				$400,000
Easements and Land Rights				$10,000
Monitoring				$18,515
	Monitoring Plan Develop	$12,943		
	Monitoring Protocal Cos	$5,572		
			Total Phase I Cost Estimate	**$1,469,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$30,310,000
Supervision and Inspection	90 days	@	$1,500 per day	$135,000
Supervision and Administration				$400,000
State Costs				
Supervision and Administration				$400,000
			Total Phase II Cost Estimate	**$31,245,000**

TOTAL ESTIMATED PROJECT FIRST COST	**32,714,000**

Project:	GIWW Bank Restoration (Incr 1)	Date:	10/23/2000	Revised:	11/07/2000
	Terrebonne Parish	Checked by:			{Final}
Computed by: Broussard					

Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mobilization/Demobilization	1	LS	600,000	600,000
2	Gabions/Mattress Configuration	36,720	LF	280	10,282,000
3	Settlement Plates	37	Each	500	19,000

ESTIMATED CONSTRUCTION COST **10,901,000**

ESTIMATED CONSTRUCTION + 25% CONTINGENCY **13,626,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design		$1,060,000
Engineering	$816,000	
Geotechnical Investigation	$150,000	
Surveying	$54,000	
Hydrologic Modeling	$0	
Data Collection	$0	
Cultural Resources	$10,000	
NEPA Compliance	$30,000	
Supervision and Administration		$272,500

State Costs

Supervision and Administration		$254,390
Easements and Land Rights		$50,000
Monitoring		$14,402
Monitoring Plan Development	$11,632	
Monitoring Protocal Cost *	$2,770	

Total Phase I Cost Estimate **$1,651,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Estimated Construction Cost +25% Contingency				$13,626,000
Supervision and Inspection	204 days	@	816 per day	$166,000
Supervision and Administration				$272,500

State Costs

Supervision and Administration	$254,390

Total Phase II Cost Estimate **$14,319,000**

TOTAL ESTIMATED PROJECT FIRST COST **15,970,000**

North Lake Mechant Landbridge Restoration Project

FINAL REVISION

Estimated Construction Costs

Create 534 acres of marsh		11,383,598
Install 44,307 lin ft of caged lakeshore plantings		658,021
Construct 1 armored earth plug		35,287
Construct 3 steel sheetpile plugs		788,836
Construct Little Deuce rip-rap plug		861,440
Repair existing weir		80,450
Install signage for canal plugs		16,000
Total Construction Costs	$	**13,823,631**
Total Construction Costs + 25% contingency	$	**17,279,539**

Phase I Costs

Engineering & Design (6% of constr. + contingency)	1,036,772
FWS Supervision & Administration (1.0% of constr. + contingency)	172,795
Geotechnical	120,000
Cultural Resources	30,000
NEPA Compliance	20,000
Permitting	15,000
DNR Supervision & Administration	309,193
Land Rights	45,000
Monitoring plan development	12,154
Pre-construction monitoring (1 year)...	33,338
Total Phase I Costs $	**1,794,252**

Phase II Costs

Construction + 25% Contingency	17,279,539
FWS Supervision & Administration (0.75% of constr. + contingency)......................	129,597
Inspection ($816/day x 500 days)..	408,000
DNR Supervision & Administration	309,193
Oyster relocation/impacts (73 ac destroyed @ $3000 ea).......................................	219,000
Oyster relocation/impacts (200 ac temp constr. impacts @ $1000 ea).....................	200,000
Total Phase II Costs $	**18,545,328**
Total Project First Costs	**20,339,581**

Annual Post-Construction Project Costs

Engineering inspections (annual one-day inspections)..	3,546
Monitoring (hydro. restoration)..	33,338
Corps Administration	644
Construction Schudule $	**37,528**

Begin P&D	Mar 2001
End P&D	Mar 2002
Begin Constr.	July 2002
End Constr.	Jan. 2004

North Lake Mechant Landbridge Restoration Project

Summary of Maintenance Costs

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TY2	Replant 25% of caged vegetative plantings			
	A. Plants 11,077 lin.ft. x $ 14.4/lin.ft	159,505		
	B. mob/demob	20,000		
	C. E&D (10% of $159,5K)	17,951		
	D. Inspection ($765/day x 26 days)	19,890		
	Subtotal $	**217,346**		
TY3	Cut open containment dikes for marsh creation areas			
	A. Make twenty 20' wide cuts in dike			
	20((5 x 6)+(6 x 30))/27 156 cyds each x 20 =		3111 cyds x $3/cyd =	9,333
	B. Mob/demob:			20,000
	Eng and Design (.10% x construction + mob) or $5,000 min			5,000
	C. Inspection: $765/day X 3 days ($816)			2,448
			Subtotal $	**36,781**
TY10	Maintain armored spoil containment dikes			
	A. Replace 25% rock:			
	5,625 cyds x 1.6ton/cyd @ $50	450,016		
	B. Access: 5700' x 160 sq.ft. @ $3/cyd	101,333		
	C. Mob/demob	30,000		
	D. E&D (10% of constr.)	55,135		
	E. Inspection ($765/day x 10 days) ($816).	8,164		
	Subtotal $	**644,648**		
TY10	Maintain armored canal plug at Little Deuce			
	A. Replace 25% rock:			
	2,536 cyds x 1.6ton/cyd @ $50	202,860		
	B. Access: 3000' x 150 sqft @ $3.cyd	50,000		
	C. E&D (10% of constr.)	25,286		
	C. Inspection ($765/day x 4 days) ($816)	3,265		
	note: mob/demob in above dike maintenance **Subtotal $**	**281,411**		
TY10	Maintain sheetpile plugs			
	A. Replace/add 76 lin ft of sheetpile (approx. 15% of total sheetpile length)			
	76'L x 40'D = 3040 sq. ft. @ $30/sq. ft.	91,200		
	B. Washout repair/misc earthwork (1000 cyds x 3 strs.)			
	3000 cyds x $3.00/cyd	9,000		
	C. Replace rip-rap (20% of original amount)			
	304 cyds x 1.6ton/cyd @ $50/ton	32,374		
	D. Access: 4000' x 150 sqft @ $3/cyd	66,667		
	D. Paint sheetpile	100,000		
	E. Mob/demob	30,000		
	F. E&D (10% of constr.)	19,924		
	G. Inspection ($765/day x 30 days) ($816).	24,491		
	Subtotal $	**373,655**		
TY10	Replace signage			
	A. Signs 12 signs @ $500/sign	6000		
	B. Mob/demob	10,000		
	Subtotal $	**16,000**		

Project:	Shell Island Pass Marsh Creation	Date:	11/01/2000 Revised: 17 NOV 2000		
Computed by:	M. Falk	Checked by:	G. Rauber		
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Mob and Demob	1	LS	56,700.00	57,000
2	Hydraulic Dredging (incremental costs)	1,400,000	CY	0.48	674,000
3	Additional pumping Capacity	1	LS	995,676.00	996,000
	- Additional 23,500 ft. combination of floating, submerged,				
	or shore pipeline with additional plant capacity as needed.				

ESTIMATED CONSTRUCTION COST	**1,727,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**2,158,750**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design		$270,000
Engineering @10% (includes Geotech and Surveys)	$215,875	
HTRW	$2,400	
Cultural Resources	$10,000	
NEPA Compliance	$41,400	
Federal Supervision and Administration		$43,000
State Supervision and Administration		$43,000
Easements and Land Rights (Includes Relocations)		$4,000
Monitoring		$19,000
Monitoring Plan Development	$12,943	
Monitoring Protocal Cost *	$5,572	
	Total Phase I Cost Estimate	**$109,000**

* Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.

PHASE II

Estimated Construction Cost +25% Contingency		$2,158,750
Supervision and Inspection	300 days @ $816 per day	$245,000
Federal Supervision and Administration		$43,000
State Supervision and Administration		$43,000
	Total Phase II Cost Estimate	**$2,489,750**

TOTAL ESTIMATED PROJECT FIRST COST	**2,598,750**

Project: Shoreline Protection
Cheniere Au Tigre to
Southwest Pass

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**13,808,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**17,260,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$1,130,000
	Engineering	$1,020,000	
	Geotechnical Investigati	$70,000	
	Hydrologic Modeling	$0	
	Data Collection	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$259,000
State Costs			
Supervision and Administration			$309,000
Easements and Land Rights			$35,000
Monitoring			$16,933
	Monitoring Plan Develo	$11,361	
	Monitoring Protocal Cos	$5,572	
		Total Phase I Cost Estimate	**$1,750,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Estimated Construction Cost +25% Contingency				$17,260,000
Oyster Relocation				$55,000
Supervision and Inspection	126 days	@	816 per day	$103,000
Supervision and Administration				$259,000
State Costs				
Supervision and Administration				$309,000
		Total Phase II Cost Estimate		**$17,986,000**

TOTAL ESTIMATED PROJECT FIRST COST	**19,736,000**

Project:	Pecan Island Freshwater Introduction	Date:	09/26/2000	Revised:	11/13/2000
Computed by: Faulkner		Checked by:			
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Water Control Structures + Channel Excavation	1	LS	900,000	900,000
	ESTIMATED CONSTRUCTION COST				**900,000**
	ESTIMATED CONSTRUCTION + 25% CONTINGENCY				**1,125,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design		$319,479
Engineering	$79,479	
Geotechnical Investigation	$50,000	
Hydrologic Modeling	$100,000	
Data Collection	$50,000	
Cultural Resources	$10,000	
NEPA Compliance	$30,000	
Supervision and Administration		$22,500

State Costs

Supervision and Administration		$22,500
Easements and Land Rights		$100,000
Monitoring		$36,873
Monitoring Plan Development	$16,870	
Monitoring Protocal Cost *	$20,003	

Total Phase I Cost Estimate **$501,352**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Estimated Construction Cost +25% Contingency					$1,125,000
Supervision and Inspection	90 days	@	816	per day	$73,440
Supervision and Administration					$22,500

State Costs

Supervision and Administration	$22,500

Total Phase II Cost Estimate **$1,243,440**

TOTAL ESTIMATED PROJECT FIRST COST **1,744,792**

Project: Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joseph's Harbor (Continuous Breakwater)

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**47,268,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**59,085,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design			$1,040,000
	Engineering	$1,000,000	
	Geotechnical Investigatio	$0	
	Hydrologic Modeling	$0	
	Data Collection or Surve	$0	
	HTRW	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$400,000

State Costs

Supervision and Administration			$400,000
Easements and Land Rights			$15,000
Monitoring			$11,632
	Monitoring Plan Develop	$11,632	
	Monitoring Protocal Cos	$0	

Total Phase I Cost Estimate **$1,867,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$59,085,000
Supervision and Inspection	530 days	@	$816 per day	$432,480
Supervision and Administration				$400,000

State Costs

Supervision and Administration	$400,000

Total Phase II Cost Estimate **$60,318,000**

TOTAL ESTIMATED PROJECT FIRST COST **62,185,000**

Project:	Grand/White Lake Land Bridge	Date:	11/02/2000 Revised:		11/15/2000
Computed by: Jurgensen	Clark Allen	Checked by:	Finalized in Engeering Working Group		
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Mobilization/Demobilization	1	LS	$200,000	$200,000
2	Rock Riprap	52,586	tons	$30	$1,578,000
3	Geotextile	51,555	sq yd	$4	$206,000
4	Settlement Plates	12	Each	$500	$6,000
5	Navigation Warning Signs	11	Each	$1,000	$11,000
6	Terrance Borrow	168491	cu yd	$3	$505,000
7	Plantings Gallon Containers	8530	each	$7	$60,000

ESTIMATED CONSTRUCTION COST **2,566,000**

ESTIMATED CONSTRUCTION + 25% CONTINGENCY **3,208,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design			$321,000
	Engineering	$210,790	
	Geotechnical Investigation	$30,000	
	Hydrologic Modeling	$0	
	Surveying	$40,000	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$64,000

State Costs

Supervision and Administration			$64,000
Easements and Land Rights			$35,000
Monitoring			$17,726
	Monitoring Plan Development	$12,154	
	Monitoring Protocal Cost *	$5,572	

Total Phase I Cost Estimate **$502,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Estimated Construction Cost +25% Contingency			$3,208,000
Supervision and Inspection	220 days @	816 per day	$180,000
Supervision and Administration			$64,000

State Costs

Supervision and Administration $64,000

Total Phase II Cost Estimate **$3,516,000**

TOTAL ESTIMATED PROJECT FIRST COST **4,018,000**

Project:	**Grand Lake Shoreline Stab (Superior Canal to Catfish Lake) (Rock Only)**	**Date:**	**11/01/2000**	**Revised:**	
Computed by:		**Checked by:**			
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Mob and Demob (Superior Canal to Tebo Point)	1	LS	60,000.00	60,000
2	Stone (2200 lb max) (Superior Canal to Tebo Point)	290,000	TN	26.00	7,540,000
3	Geotextile (300 lb/max) (Superior Canal to Tebo Point)	175,000	SY	4.00	700,000
4	Signs (Superior Canal to Tebo Point)	40	EA	1,000.00	40,000
5	Settlement Plates (Superior Canal to Tebo Point)	40	EA	500.00	20,000
6	Mob and Demob (Hydraulic Dredging)	1	LS	50,000.00	50,000
7	Hydraulic Dredging	5,720,000	SY	1.60	9,152,000
8	Mob and Demob (Tebo Point to Mouth of Catfish Lake)	1	LS	50,000.00	50,000
9	Stone (2200 lb max) (Tebo Point to Mouth of Catfish Lake)	75000	TN	26.00	1,950,000
10	Geotextile (300 lb/max) (Tebo Point to Catfish Lake)	40,000	SY	4.00	160,000
11	Signs (Tebo Point to Mouth of Catfish Lake)	10	EA	1,000.00	10,000
12	Settlement Plates (Tebo Point to Mouth of Catfish Lake`	10	EA	500.00	5,000

ESTIMATED CONSTRUCTION COST	**19,737,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**24,671,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design		$2,525,000
Engineering @10% (Includes Geotech and surveys)	$2,467,000	
HTRW	$2,400	
Cultural Resources	$11,200	
NEPA Compliance	$44,400	
Federal Supervision and Administration		$493,500
State Supervision and Administration		$400,000
Easements and Land Rights (Includes Relocations)		$5,000
Monitoring		$16,933
Monitoring Plan Development	$11,361	
Monitoring Protocal Cost*	$5,572	
	Total Phase I Cost Estimate	**$3,440,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Easements and Land Rights (Includes Relocations)			$13,000
Estimated Construction Cost +25% Contingency			$24,671,000
Supervision and Inspection	370 days @	833 per day	$308,000
Federal Supervision and Administration			$493,500
State Supervision and Administration			$400,000
	Total Phase II Cost Estimate		**$25,886,000**

TOTAL ESTIMATED PROJECT FIRST COST	**29,326,000**

Project:	Grand Lake Shoreline Stab (Rock and Marsh)	Date:	11/01/2000 Revised:		
Computed by:		Checked by:			
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Mob and Demob (Superior Canal to Tebo Point)	1	LS	60,000.00	60,000
2	Stone (2200 lb max) (Superior Canal to Tebo Point)	290,000	TN	26.00	7,540,000
3	Geotextile (300 lb/max) (Superior Canal to Tebo Point)	175,000	SY	4.00	700,000
4	Signs (Superior Canal to Tebo Point)	40	EA	1,000.00	40,000
5	Settlement Plates (Superior Canal to Tebo Point)	40	EA	500.00	20,000
6	Mob and Demob (Tebo Point to Mouth of Catfish Lake)	1	LS	50,000.00	50,000
7	Stone (2200 lb max) (Tebo Point to Mouth of Catfish Lake)	75000	TN	26.00	1,950,000
8	Geotextile (300 lb/max) (Tebo Point to Catfish Lake)	40,000	SY	4.00	160,000
9	Signs(Tebo Point to Mouth of Catfish Lake)	10	EA	1,000.00	10,000
10	Settlement Plates (Tebo Point to Mouth of Catfish Lake)	10	EA	500.00	5,000

ESTIMATED CONSTRUCTION COST	**10,535,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**13,169,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design		$1,375,000
Engineering @10% (Includes Geotech and surveys)	$1,317,000	
HTRW	$2,400	
Cultural Resources	$11,200	
NEPA Compliance	$44,400	
Federal Supervision and Administration		$263,500
State Supervision and Administration		$248,000
Easements and Land Rights (Includes Relocations)		$5,000
Monitoring		$14,131
Monitoring Plan Development	$11,361	
Monitoring Protocal Cost *	$2,770	
	Total Phase I Cost Estimate	**$1,906,000**

** Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Easements and Land Rights (Includes Relocations)			$13,000
Estimated Construction Cost +25% Contingency			$13,169,000
Supervision and Inspection	305 days @	$833 per day	$254,000
Federal Supervision and Administration			$263,500
State Supervision and Administration			$248,000
		Total Phase II Cost Estimate	**$13,948,000**

TOTAL ESTIMATED PROJECT FIRST COST **15,854,000**

Project:	East Sabine Lake With Terraces	Date:		Revised:	11/13/2000
Computed by: Faulkner		Checked by:			
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Four Active Control Strs, Components 1, 2, 4 & 7.	515	LF	9,710.00	5,000,650
2	Automation Control for Active Strs	4	Each	86,250.00	345,000
2a	Automation Control for Head Quarters	1	LS	174,816.00	174,816
3	Solar Power for Active Strs	4	Each	232,529.00	930,116
4	Rock RipRap, Weir @ Pines Ridge, Component 3	230	Tons	50.00	11,500
5	Rock RipRap, Plug @ Gray's Ditch, Component 5	440	Tons	50.00	22,000
6	Aluminum CMP (2), Bridge Bayou, Component 6	80	LF	120.00	9,600
7	Aluminum Screw Gate, Bridge Bayou, Component 6	2	Each	12,000.00	24,000
8	Rock RipRap, Lake Shorline Armor, Component 8	4,300	Tons	50.00	215,000
9	Rock RipRap, Plug @ Double Is Gully, Component 9a	1	LS	1,000.00	1,000
11a	Vegetative Planting, Lake Shorline, Component 11	16,896	Each	7.00	118,272
12a	Veg Terraces, Earthfill, Component 12	267,360	CY	3.00	802,080
12b	Veg Terraces, Plantings, Component 12, Smooth Cord	60,000	Each	7.00	420,000
12b	Veg Terraces, Plantings, Component 12, Marsh Hay	50,000	Each	3.00	150,000
12c	Veg Terraces, Mob/Demob	1	LS	100000	100,000
	ESTIMATED CONSTRUCTION COST				**8,324,034**
	ESTIMATED CONSTRUCTION + 25% CONTINGENCY				**10,092,543**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design		$841,014
Engineering	$616,014	
Geotechnical Investigation	$85,000	
Hydrologic Modeling	$75,000	
Data Collection	$25,000	
Cultural Resources	$10,000	
NEPA Compliance	$30,000	
Supervision and Administration		$201,851

State Costs

Supervision and Administration		$201,388
Easements and Land Rights		$50,000
Monitoring		$50,208
Monitoring Plan Development	$16,870	
Monitoring Protocal Cost *	$33,338	
	Total Phase I Cost Estimate	**$1,344,461**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Estimated Construction Cost +25% Contingency						$10,092,543
Supervision and Inspection	365	days	@	816	per day	$297,840
Supervision and Administration						$201,851

State Costs

Supervision and Administration		$201,388
	Total Phase II Cost Estimate	**$10,793,622**

TOTAL ESTIMATED PROJECT FIRST COST **12,138,083**

Project:	East Sabine Lake Without Terraces	Date:		Revised:	11/13/2000
Computed by: Faulkner		Checked by:			
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Four Active Control Strs, Components 1, 2, 4 & 7.	515	LF	9,710.00	5,000,650
2	Automation Control for Active Strs	4	Each	86,250.00	345,000
2a	Automation Control for Head Quarters	1	LS	174,816.00	174,816
3	Solar Power for Active Strs	4	Each	232,529.00	930,116
4	Rock RipRap, Weir @ Pines Ridge, Component 3	230	Tons	50.00	11,500
5	Rock RipRap, Plug @ Gray's Ditch, Component 5	440	Tons	50.00	22,000
6	Aluminum CMP (2), Bridge Bayou, Component 6	80	LF	120.00	9,600
7	Aluminum Screw Gate, Bridge Bayou, Component 6	2	Each	12,000.00	24,000
8	Rock RipRap, Lake Shorline Armor, Component 8	4,300	Tons	50.00	215,000
9	Rock RipRap, Plug @ Double Is Gully, Component 9a	1	LS	1,000.00	1,000
11a	Vegetative Planting, Lake Shorline, Component 11	16,896	Each	7.00	118,272
	ESTIMATED CONSTRUCTION COST				**6,851,954**
	ESTIMATED CONSTRUCTION + 25% CONTINGENCY				**8,564,943**

TOTAL ESTIMATED PROJECT COSTS

PHASE I				
Federal Costs				
Engineering and Design				$753,149
	Engineering	$528,149		
	Geotechnical Investigation	$85,000		
	Hydrologic Modeling	$75,000		
	Data Collection	$25,000		
	Cultural Resources	$10,000		
	NEPA Compliance	$30,000		
Supervision and Administration				$171,299
State Costs				
Supervision and Administration				$171,299
Easements and Land Rights				$50,000
Monitoring				$50,208
	Monitoring Plan Development	$16,870		
	Monitoring Protocal Cost *	$33,338		
			Total Phase I Cost Estimate	**$1,195,954**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II				
Federal Costs				
Estimated Construction Cost +25% Contingency				$8,564,943
Supervision and Inspection	365 days	@	816 per day	$297,840
Supervision and Administration				$171,299
State Costs				
Supervision and Administration				$171,299
			Total Phase II Cost Estimate	**$9,205,381**

TOTAL ESTIMATED PROJECT FIRST COST	**10,401,335**

Project:	Deep Hole Demo Project	Date:	11/15/2000	Revised: NOV 2000	
Computed b	M Falk	Checked by	G Rauber		
Item No.	**Work or Material**	**Quantity**	**Unit**	**Unit Cost**	**Amount**
1	Mob and Demob	1	LS	375,000	375,000
2	Hydraulic Dredging	360,000	CY	2.30	828,000

ESTIMATED CONSTRUCTION COST	**1,203,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**1,504,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Engineering and Design		$240,000
Engineering @10% (includes Geotech and Surveys)	$150,000	
Numerical Modeling	$50,000	
Cultural Resources	$10,000	
NEPA Compliance	$30,000	
Federal Supervision and Administration		$30,000
State Supervision and Administration		$30,000
Easements and Land Rights		
Monitoring		$73,000
Monitoring Plan Development	$12,943	
Monitoring Protocal Cost *	$60,000	
	Total Phase I Cost Estimate	**$373,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Estimated Construction Cost +25% Contingency		$1,504,000
Supervision and Inspection		$150,400
Federal Supervision and Administration		$30,000
State Supervision and Administration		$30,000
	Total Phase II Cost Estimate	**$1,714,000**

TOTAL ESTIMATED PROJECT FIRST COST	**2,087,000**

Terrebonne Bay Shore Protection Demonstration Project

FINAL REVISION

for PPL10 submission

Estimated Material and Installation Costs

Material/Treatment	Linear Distance (feet)	Cost per Lin. Dist. ($)	Total Cost ($)
foreshore concr matt with PVC core	900	70	63,000
onbank concr matt	900	63	56,700
side by side row 2' Ajacks	900	50	45,000
grating reef	900	80	72,000
concr matt reef	900	57	51,300
settlement plates	15 plates	500 each	7,500
mob/demob			100,000
Total Construction Costs		$	395,500
Total Construction Costs + 25% contingency		**$**	**494,375**

Phase 1 Costs

Engineering & Design (8%)	49,438
FWS Supervision & Administration (4.0%)	19,775
Geotechnical and surveying	120,000
Cultural Resources	10,000
NEPA Compliance	15,000
Permitting	15,000
DNR Supervision & Administration (2.0%)	9,888
Land Rights	100,000
Monitoring plan development	13,000
Pre-construction monitoring	70,000
Total Phase 1 Cost $	**422,100**

Phase 2 Costs

Construction + 25% Contingency	494,375
FWS Supervision & Administration (4.0%)	19,775
Inspection ($816/day x 66 days)	53,856
DNR Supervision & Administration (2.0%)	9,888
Temparary oyster lease impacts (20 ac x $1000/ac)	20,000
Total Phase 2 Cost $	**597,894**
Total Project First Costs	**1,019,994**

Annual Post-Construction Project Costs (8 years)

Maintenance	0
Annual Engineering inspections ($6000/yr)	4,000
Monitoring ($70K at Ty1, Ty3, Ty5, and Ty8)	70,000
Corps Administration ($644/yr)	644

Construction Schudule

Begin P&D	Mar 2001
End P&D	Oct 2001
Begin Constr.	Jul 2002
End Constr.	Nov 2002

Project: Oyster Reef Demonstration Project at Lake Athanasio

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**400,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**500,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design		$59,000
Engineering	$24,000	
Geotechnical Investigation	$3,000	
Hydrologic Modeling	$0	
Data Collection or Surveying	$12,000	
HTRW	$0	
Cultural Resources	$0	
NEPA Compliance	$20,000	
Supervision and Administration		$8,000

State Costs

Supervision and Administration		$9,000
Easements and Land Rights		$10,000
Monitoring		$31,632
Monitoring Plan Development	$11,632	
Monitoring Protocal Cost *	$20,000	
	Total Phase I Cost Estimate	**$118,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$500,000
Supervision and Inspecti	44 days @	$816 per day	$36,000
Supervision and Administration			$4,000

State Costs

Supervision and Administration		$9,000
	Total Phase II Cost Estimate	**$549,000**

TOTAL ESTIMATED PROJECT FIRST COST	**667,000**

Project: Matted Submerged Aquatic Vegetation Establishment for Marsh and Low Energy Beach Erosion Control

Construction Cost Estimate Breakdown Unavailable at the Time of Report Compilation.

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**175,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**219,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$61,000
Engineering	$25,000		
Geotechnical Investigation	$0		
Hydrologic Modeling	$0		
Data Collection or Surveying	$15,000		
HTRW	$0		
Cultural Resources	$500		
NEPA Compliance	$20,000		
Supervision and Administration			$3,291
State Costs			
Supervision and Administration			$4,388
Easements and Land Rights			$15,000
Monitoring			$386,800
Monitoring Plan Development	$10,000		
Monitoring Protocal Cost *	$376,800		
		Total Phase I Cost Estimate	**$470,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$219,000
Supervision and Inspecti	0 days	@	$816 per day	$5,000
Supervision and Administration				$3,291
State Costs				
Supervision and Administration				$4,388
			Total Phase II Cost Estimate	**$232,000**

TOTAL ESTIMATED PROJECT FIRST COST	**702,000**

Project: Restoration Effectiveness of Coupled Terraces with Pre-vegetated Mats

CONSTRUCTION - Summary

Item No.	Work or Material	Quantity	Unit	Unit Cost	Amount
1	Mobilization/Demobilization	1	LS	$15,000	$15,000
2	Backhoe Terrace Construction	156,593	cy	$3	$470,000
3	Vegetated mats	44	each	$110	$4,840
4	Plantings	40,266	Each	$3	$121,000

ESTIMATED CONSTRUCTION COST	**610,840**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**763,550**

TOTAL ESTIMATED PROJECT COSTS

PHASE I - Engineering and Design

Engineering and Design		$144,355
Engineering (10% of construction + conting	$76,355	
Geotechnical Investigation	$20,000	
Surveying (pre-construction and as-built)	$48,000	
Federal Supervision and Admin. (inlcudes NEPA, Cultural Resources, etc.) (1/2 of 5% of constr.+contingency)		$22,698
State Supervision and Administration (1/2 of 4% of construction + contingency)		$15,271
** Easements and Land Rights (est.)*		$50,000
Monitoring		$11,644
Monitoring Plan Development	$11,644	
Pre-construction monitoring cost - one year	see below	
TOTAL PHASE I COST ESTIMATE		**$243,968**

PHASE II - Construction

Estimated Construction Cost +25% Contingency	$763,550
Supervision and Inspection (90 days @ $816)	$73,440
Federal Supervision and Administration	$22,698
State Supervision and Administration (1/2 of 4% of construction + contingency)	$15,271
TOTAL PHASE II COST ESTIMATE	**$874,959**

PHASE III - Monitoring

Salaries

Principal Investigators (no charge to project)
L.P. Rozas (6 months, $46k, in-kind)
R.L Hill (8 months, $40k, in-kind)
Fishery Biologist (no charge to project)
J. Ditty (3 month, $12k, in-kind)

Contract Employees (provided by subcontractors) $193,500
4.5 contract biologist (@ $43,000/yr)
--Field sampling (vegetative and fisheries)
--Lab sorting and identification
--Greenhouse work with mats

<u>Pre-construction</u>

Travel

Pre-construction recon	$1,000
Field Sampling (Pre-construction)	
- Fisheries	$8,500
- Vegetation/Environmental	$2,500
Supplies	$5,000
Equipment	$5,000

Recurring LDNR monitoring costs	
water quality (temp, salinity) ($300 x 5 years)	$1,500
vegetative health ($2000 x 5 years)	$10,000
erosion/accretion - GPS/stakes ($2500 x 5 years)	$12,500
Year 1 Post Construction	
Travel	
Field Sampling	
- Vegetation/Environmental	$3,000
Supplies	$1,000
Equipment	$2,000
Year 2 Post Construction	
Travel	
Field Sampling	
- Fisheries (Spring & Fall)	$16,500
- Vegetation/Environmental	$1,000
Supplies	$3,000
Equipment	$2,000
Year 3 Post Construction	
Travel	
Field Sampling	
- Vegetation/Environmental	$3,000
Supplies	$1,000
Equipment	$2,000
Year 5 Post Construction	
Travel	
Field Sampling	
- Fisheries (Spring & Fall)	$16,500
- Vegetation/Environmental	$1,000
Reports to CWPPRA	$1,000
Supplies	$3,000
Equipment	$5,000
TOTAL PHASE III COST ESTIMATE	**$300,500**
TOTAL ESTIMATED PROJECT FIRST COST	**$1,119,000**

Annual Project Costs:	
Corps Administration	$644
Federal S&A (3%OMRR&R and monitoring)	$1,909
Monitoring (total costs/5 yrs) details above)	$60,100
ANNUAL COST ESTIMATE	**$62,653**

Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

Appendix D

Economics Computational Summary For Candidate Projects

Appendix D

Economics Computational Summary For Candidate Projects

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Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Shore Protection & Marsh Creation in Lake Borgne at Shell Beach

Project Construction Years:	2	Total Project Years	22
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$4,367,900	Total Fully Funded Costs	$8,893,000

Annual Charges	Present Worth	Average Annual
First Costs	$4,414,177	$396,646
Monitoring	$30,023	$2,698
O & M Costs	$2,439,019	$219,164
Other Costs	$7,169	$644
Total	$6,890,400	$619,200

Average Annual Habitat Units	73
Cost Per Habitat Unit	$8,482
Total Net Acres	229

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Shore Protection & Marsh Creation in Lake Borgne at Shell Beach

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
2	Compound	2001	$336,000	$25,000	$67,500	$67,500	$644	$14,131	-	$0		$510,775
1	Compound	2002	$0	$0	$0	$0	$0	$0	-	$0		$0
		TOTAL	$336,000	$25,000	$67,500	$67,500	$644	$14,131	$0	$0	$0	$510,775
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
0	Compound		-	$0	$0	$0		$0	$0	$0	$0	$0
2	Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	Compound	2002	-	$0	$67,500	$67,500	$644	$2,770	$81,636	$677,250	$2,709,000	$3,606,300
		TOTAL	$0	$0	$67,500	$67,500	$644	$2,770	$81,636	$677,250	$2,709,000	$3,606,300
Total First Costs			$336,000	$25,000	$135,000	$135,000	$1,288	$16,901	$81,636	$677,250	$2,709,000	$4,117,076

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2003	$2,770	$3,546	$644	-
2	Discount	2004	$2,770	$1,528,638	$644	-
3	Discount	2005	$2,770	$3,546	$644	-
4	Discount	2006	$2,770	$3,546	$644	-
5	Discount	2007	$2,770	$1,017,442	$644	-
6	Discount	2008	$2,770	$3,546	$644	-
7	Discount	2009	$2,770	$3,546	$644	-
8	Discount	2010	$2,770	$3,546	$644	-
9	Discount	2011	$2,770	$3,546	$644	-
10	Discount	2012	$2,770	$3,546	$644	-
11	Discount	2013	$2,770	$3,546	$644	-
12	Discount	2014	$2,770	$3,546	$644	-
13	Discount	2015	$2,770	$3,546	$644	-
14	Discount	2016	$2,770	$3,546	$644	-
15	Discount	2017	$2,770	$780,330	$644	-
16	Discount	2018	$2,770	$3,546	$644	-
17	Discount	2019	$2,770	$3,546	$644	-
18	Discount	2020	$2,770	$3,546	$644	-
19	Discount	2021	$2,770	$3,546	$644	-
20	Discount	2022	$0	$3,546	$644	-
		Total	$52,631	$3,386,692	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Shore Protection & Marsh Creation in Lake Borgne at Shell Beach

Present Valued Costs Total Discounted Costs $6,890,388 Amortized Costs $619,152

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$380,206	$28,289	$76,381	$76,381	$729	$15,990	$0	$0	$0	$577,975
1	1.064	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$380,206	$28,289	$76,381	$76,381	$729	$15,990	$0	$0	$0	$577,975
Phase 2												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2002	$0	$0	$71,803	$71,803	$685	$2,947	$86,840	$720,425	$2,881,699	$3,836,202
		Total	$0	$0	$71,803	$71,803	$685	$2,947	$86,840	$720,425	$2,881,699	$3,836,202
Total First Cost			$380,206	$28,289	$148,184	$148,184	$1,414	$18,937	$86,840	$720,425	$2,881,699	$4,414,177

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2003	$2,604	$3,333	$606	
-2	0.884	2004	$2,448	$1,350,907	$569	
-3	0.831	2005	$2,301	$2,946	$535	
-4	0.781	2006	$2,163	$2,769	$503	
-5	0.734	2007	$2,034	$746,985	$473	
-6	0.690	2008	$1,912	$2,447	$445	
-7	0.649	2009	$1,797	$2,301	$418	
-8	0.610	2010	$1,690	$2,163	$393	
-9	0.573	2011	$1,588	$2,033	$369	
-10	0.539	2012	$1,493	$1,911	$347	
-11	0.507	2013	$1,404	$1,797	$326	
-12	0.476	2014	$1,320	$1,689	$307	
-13	0.448	2015	$1,240	$1,588	$288	
-14	0.421	2016	$1,166	$1,493	$271	
-15	0.396	2017	$1,096	$308,805	$255	
-16	0.372	2018	$1,031	$1,319	$240	
-17	0.350	2019	$969	$1,240	$225	
-18	0.329	2020	$911	$1,166	$212	
-19	0.309	2021	$856	$1,096	$199	
-20	0.291	2022	$0	$1,030	$187	
		Total	$30,023	$2,439,019	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Shore Protection & Marsh Creation in Lake Borgne at Shell Beach

Fully Funded Costs Total Fully Funded Costs $8,893,000 Amortized Costs $799,101

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.032	2001	$346,752	$25,800	$69,660	$69,660	$665	$14,583	$0	$0	$0	$527,120
	1	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			TOTAL	$346,752	$25,800	$69,660	$69,660	$665	$14,583	$0	$0	$0	$527,120
Phase 2													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	1	1.065	2002	$0	$0	$71,889	$71,889	$686	$2,950	$86,944	$721,288	$2,885,150	$3,840,796
			TOTAL	$0	$0	$71,889	$71,889	$686	$2,950	$86,944	$721,288	$2,885,150	$3,840,796
Total Cost				$346,800	$25,800	$141,500	$141,500	$1,400	$17,500	$86,900	$721,300	$2,885,200	$4,367,900

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.099	2003	$3,045	$3,897	$708	
-2	1.134	2004	$3,142	$1,733,897	$731	
-3	1.171	2005	$3,243	$4,151	$754	
-4	1.208	2006	$3,346	$4,284	$778	
-5	1.247	2007	$3,453	$1,268,433	$803	
-6	1.287	2008	$3,564	$4,562	$829	
-7	1.328	2009	$3,678	$4,708	$855	
-8	1.370	2010	$3,796	$4,859	$883	
-9	1.414	2011	$3,917	$5,014	$911	
-10	1.459	2012	$4,042	$5,175	$940	
-11	1.506	2013	$4,172	$5,340	$970	
-12	1.554	2014	$4,305	$5,511	$1,001	
-13	1.604	2015	$4,443	$5,688	$1,033	
-14	1.655	2016	$4,585	$5,870	$1,066	
-15	1.708	2017	$4,732	$1,333,009	$1,100	
-16	1.763	2018	$4,883	$6,251	$1,136	
-17	1.819	2019	$5,040	$6,451	$1,172	
-18	1.878	2020	$5,201	$6,658	$1,210	
-19	1.938	2021	$5,367	$6,871	$1,248	
-20	2.000	2022	$0	$7,091	$1,288	
		Total	$78,000	$4,427,700	$19,400	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**2,709,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**3,386,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs

Engineering and Design			$336,000
	Engineering	$221,000	
	Geotechnical Investigation	$50,000	
	Hydrologic Modeling	$0	
	Data Collection or Surveying	$25,000	
	HTRW	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$67,500

State Costs

Supervision and Administration			$67,500
Easements and Land Rights			$25,000
Monitoring			$14,131
	Monitoring Plan Development	$11,361	
	Monitoring Protocal Cost *****	$2,770	
		Total Phase I Cost Estimate	**$510,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs

Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$3,386,000
Supervision and Inspection	100 days @	$816 per day	$81,636
Supervision and Administration			$67,500

State Costs

Supervision and Administration		$67,500
	Total Phase II Cost Estimate	**$3,603,000**

TOTAL ESTIMATED PROJECT FIRST COST	**4,113,000**

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items					Year 2	Year 5	Year 15	
Contractor Mobilization/Demobilization					$0	$0	$0	$0
Replace Rock Reach A					$701,180	$462,780	$350,600	$0
Replace Rock Reach B					$560,940	$370,220	$280,480	$0
Other Rock work					$0	$0	$0	$0
Sheetpile					$0	$0	$0	$0
Replace signs					$0	$0	$0	$0
				Subtotal	$1,262,120	$833,000	$631,080	$0
				Subtotal w/ 10% contin.	***$1,388,000***	***$916,000***	***$694,000***	***$0***
Engineer, Design & Administrative Costs								
Engineering and Design Cost					$97,000	$66,000	$51,000	$0
Administrative Cost					$4,384	$4,384	$4,384	$0
Eng Survey	**8** days	@	**$1,361**	per day	$10,885	$10,885	$10,885	$0
Construction Inspection	**30** days	@	**$816**	per day	$24,491	$16,327	$16,327	$0
				Subtotal	***$137,000***	***$98,000***	***$83,000***	***$0***
				Total	**$1,525,000**	**$1,014,000**	**$777,000**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$2,770**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**April-01**	6	0	0		6
Planning & Design End	**September-01**					
Const. Start	**January-02**					0
Const. End	**April-02**	0	4	0	0	4

All dates are in Federal Fiscal Years (October 1 to September 30)

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Bonnet Carre Sediment Trap

Project Construction Years:	5	Total Project Years	25
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$26,608,800	Total Fully Funded Costs	$55,815,900

Annual Charges	Present Worth	Average Annual
First Costs	$28,372,233	$2,549,452
Monitoring	$56,840	$5,108
O & M Costs	$15,302,003	$1,374,997
Other Costs	$7,169	$644
Total	$43,738,200	$3,930,200
Average Annual Habitat Units		694
Cost Per Habitat Unit		$5,663
Total Net Acres		2,034

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Bonnet Carre Sediment Trap

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
	0 Compound									$0		$0
	0 Compound								-	$0		$0
	5 Compound	2001	$847,538	$26,923	$179,066	$193,278	$644	$13,933	-	$0		$1,261,383
	4 Compound	2002	$726,462	$23,077	$153,485	$165,666	$322	$5,572	-	$0		$1,074,585
		TOTAL	$1,574,000	$50,000	$332,552	$358,944	$966	$19,505	$0	$0	$0	$2,335,968
Phase II												
	4 Compound	2002	-	-	$33,255	$35,894	$322	-	$32,640	$411,925	$1,647,700	$2,161,737
	3 Compound	2003	-	$0	$133,021	$143,578	$644	$5,572	$130,560	$1,647,700	$6,590,800	$8,651,875
	2 Compound	2004	-	$0	$133,021	$143,578	$644	$5,572	$130,560	$1,647,700	$6,590,800	$8,651,875
	1 Compound	2005	-	$0	$33,255	$35,894	$644	$5,572	$32,640	$411,925	$1,647,700	$2,167,631
		TOTAL	$0	$0	$332,552	$358,944	$2,255	$16,717	$326,400	$4,119,250	$16,477,000	$21,633,118
Total First Costs			$1,574,000	$50,000	$665,104	$717,888	$3,221	$36,222	$326,400	$4,119,250	$16,477,000	$23,969,085

Year		FY	Monitoring	O&M	Corps PM	Other
	1 Discount	2006	$5,572	$167	$644	-
	2 Discount	2007	$5,572	$9,765,204	$644	-
	3 Discount	2008	$5,572	$167	$644	-
	4 Discount	2009	$5,572	$167	$644	-
	5 Discount	2010	$5,572	$5,973,504	$644	-
	6 Discount	2011	$5,572	$167	$644	-
	7 Discount	2012	$5,572	$167	$644	-
	8 Discount	2013	$5,572	$3,820	$644	-
	9 Discount	2014	$5,572	$167	$644	-
	10 Discount	2015	$5,572	$2,268,351	$644	-
	11 Discount	2016	$5,572	$3,820	$644	-
	12 Discount	2017	$5,572	$167	$644	-
	13 Discount	2018	$5,572	$167	$644	-
	14 Discount	2019	$5,572	$3,820	$644	-
	15 Discount	2020	$5,572	$2,667,654	$644	-
	16 Discount	2021	$5,572	$167	$644	-
	17 Discount	2022	$5,572	$167	$644	-
	18 Discount	2023	$0	$167	$644	-
	19 Discount	2024	$0	$3,820	$644	-
	20 Discount	2025	$0	$167	$644	-
		Total	$94,730	$20,691,997	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Bonnet Carre Sediment Trap

Present Valued Costs

Total Discounted Costs $43,738,246

Amortized Costs $3,930,200

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	1.362	2001	$1,154,403	$36,671	$243,900	$263,257	$877	$18,978	$0	$0	$0	$1,718,085
4	1.280	2002	$930,188	$29,549	$196,529	$212,126	$412	$7,135	$0	$0	$0	$1,375,938
	Total		$2,084,591	$66,220	$440,429	$475,382	$1,290	$26,113	$0	$0	$0	$3,094,024
Phase 2												
4	1.280	2002	$0	$0	$42,581	$45,961	$412	$0	$41,793	$527,444	$2,109,776	$2,767,968
3	1.204	2003	$0	$0	$160,117	$172,825	$775	$6,707	$157,155	$1,983,339	$7,933,354	$10,414,273
2	1.132	2004	$0	$0	$150,522	$162,467	$729	$6,305	$147,737	$1,864,478	$7,457,912	$9,790,151
1	1.064	2005	$0	$0	$35,375	$38,183	$685	$5,928	$34,721	$438,185	$1,752,741	$2,305,818
	Total		$0	$0	$388,595	$419,435	$2,602	$18,941	$381,407	$4,813,446	$19,253,784	$25,278,209
Total First Cost			$2,084,591	$66,220	$829,024	$894,817	$3,892	$45,053	$381,407	$4,813,446	$19,253,784	$28,372,233

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2006	$5,238	$157	$606	
-2	0.884	2007	$4,924	$8,629,828	$569	
-3	0.831	2008	$4,629	$139	$535	
-4	0.781	2009	$4,352	$131	$503	
-5	0.734	2010	$4,091	$4,385,623	$473	
-6	0.690	2011	$3,846	$115	$445	
-7	0.649	2012	$3,615	$108	$418	
-8	0.610	2013	$3,399	$2,330	$393	
-9	0.573	2014	$3,195	$96	$369	
-10	0.539	2015	$3,004	$1,222,685	$347	
-11	0.507	2016	$2,824	$1,935	$326	
-12	0.476	2017	$2,654	$80	$307	
-13	0.448	2018	$2,495	$75	$288	
-14	0.421	2019	$2,346	$1,608	$271	
-15	0.396	2020	$2,205	$1,055,689	$255	
-16	0.372	2021	$2,073	$62	$240	
-17	0.350	2022	$1,949	$58	$225	
-18	0.329	2023	$0	$55	$212	
-19	0.309	2024	$0	$1,180	$199	
-20	0.291	2025	$0	$49	$187	
	Total		$56,840	$15,302,003	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Bonnet Carre Sediment Trap

Fully Funded Costs Total Fully Funded Costs $55,815,900 Amortized Costs $5,015,466

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	5	1.032	2001	$874,660	$27,785	$184,797	$199,462	$665	$14,379	$0	$0	$0	$1,301,747
	4	1.065	2002	$773,699	$24,577	$163,466	$176,439	$343	$5,935	$0	$0	$0	$1,144,459
			TOTAL	$1,648,359	$52,362	$348,262	$375,901	$1,008	$20,314	$0	$0	$0	$2,446,206
Phase 2													
	4	1.065	2002	$0	$0	$35,418	$38,228	$343	$0	$34,762	$438,710	$1,754,840	$2,302,301
	3	1.099	2003	$0	$0	$146,204	$157,807	$708	$6,125	$143,499	$1,810,995	$7,243,980	$9,509,317
	2	1.134	2004	$0	$0	$150,882	$162,857	$731	$6,321	$148,091	$1,868,947	$7,475,787	$9,813,615
	1	1.171	2005	$0	$0	$38,928	$42,017	$754	$6,523	$38,208	$482,188	$1,928,753	$2,537,370
			TOTAL	$0	$0	$371,431	$400,909	$2,536	$18,968	$364,560	$4,600,840	$18,403,360	$24,162,604
Total Cost				$1,648,400	$52,400	$719,700	$776,800	$3,500	$39,300	$364,600	$4,600,800	$18,403,400	$26,608,800

Year			FY	Monitoring	O&M	Corps PM	Other
	-1	1.208	2006	$6,732	$202	$778	
	-2	1.247	2007	$6,947	$12,174,165	$803	
	-3	1.287	2008	$7,169	$215	$829	
	-4	1.328	2009	$7,399	$222	$855	
	-5	1.370	2010	$7,635	$8,185,140	$883	
	-6	1.414	2011	$7,880	$236	$911	
	-7	1.459	2012	$8,132	$244	$940	
	-8	1.506	2013	$8,392	$5,752	$970	
	-9	1.554	2014	$8,661	$260	$1,001	
	-10	1.604	2015	$8,938	$3,638,361	$1,033	
	-11	1.655	2016	$9,224	$6,322	$1,066	
	-12	1.708	2017	$9,519	$286	$1,100	
	-13	1.763	2018	$9,824	$295	$1,136	
	-14	1.819	2019	$10,138	$6,949	$1,172	
	-15	1.878	2020	$10,462	$5,008,682	$1,210	
	-16	1.938	2021	$10,797	$324	$1,248	
	-17	2.000	2022	$11,143	$334	$1,288	
	-18	2.064	2023	$0	$345	$1,329	
	-19	2.130	2024	$0	$8,134	$1,372	
	-20	2.198	2025	$0	$367	$1,416	
			Total	$149,000	$29,036,800	$21,300	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**16,477,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**20,596,250**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$1,574,000
	Engineering	$1,203,876		
	Geotechnical Investigation	$60,000		
	Hydrologic Modeling	$200,000		
	Data Collection or Surveying	$110,000		
	HTRW	$0		
	Cultural Resources	$0		
	NEPA Compliance	$0		
Supervision and Administration				$332,552
State Costs				
Supervision and Administration				$358,944
Easements and Land Rights				$50,000
Monitoring				$19,505
	Monitoring Plan Development	$13,933		
	Monitoring Protocal Cost *	$5,572		
		Total Phase I Cost Estimate		**$2,335,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$20,596,250
Supervision and Inspection	400 days @	$816 per day	$326,400
Supervision and Administration			$332,552
State Costs			
Supervision and Administration			$358,944
	Total Phase II Cost Estimate		**$21,614,000**

TOTAL ESTIMATED PROJECT FIRST COST	**23,949,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items		Year 2	Year 5	Year 10	Year 15
Contractor Mob/Demob		$50,000	$50,000	$50,000	$50,000
Replace Rock lost to settlement		$8,820,000	$4,350,000	$1,980,000	$1,320,000
Replace Terraces		$0	$1,023,000	$0	$1,023,000
Sheetpile					
Replace Signs (50% or 28 signs)		$0	$0	$28,000	$28,000
	Subtotal	$8,870,000	$5,423,000	$2,058,000	$2,421,000
	Subtotal w/ 10% contin.	***$9,757,000***	***$5,965,000***	***$2,264,000***	***$2,663,000***

Engineer, Design & Administrative Costs							
Engineering and Design Cost				$0	$0	$0	$0
Administrative Cost				$4,384	$4,384	$4,384	$4,384
Eng Survey	**0** days	@	**$1,361** per day	$0	$0	$0	$0
Construction Inspection	**0** days	@	**$816** per day	$0	$0	$0	$3
			Subtotal	***$4,000***	***$4,000***	***$4,000***	***$4,000***
			Total	**$9,761,000**	**$5,969,000**	**$2,268,000**	**$2,667,000**

Annual Project Costs:

Corps Administration	**$644**	
Federal S&A (3% monitoring)	**$167**	
Federal S&A	**$106**	(3% O&M @2,5,8,11,14, and 19)
Monitoring	**$5,572**	

Construction Schedule:

		2001	2002	2003	2004	2005	Total	
Planning & Design Start	**March-01**	7	6	0				13
Planning & Design End	**March-02**							
Const. Start	**July-02**							0
Const. End	**December-04**	0	3	12	12		3	30

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Beneficial Placement on Breton and Grand Gosier Islands

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$16,074,600	Total Fully Funded Costs	$16,245,300

Annual Charges	Present Worth	Average Annual
First Costs	$16,887,184	$1,517,437
Monitoring	$58,672	$5,272
O & M Costs	$0	$0
Other Costs	$7,169	$644
Total	$16,953,000	$1,523,400
Average Annual Habitat Units		94
Cost Per Habitat Unit		$16,206
Total Net Acres		124

Coastal Wetlands Conservation and Restoration Plan
Beneficial Placement on Breton and Grand Gosier Islands

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
	6 Compound									$0		$0
	5 Compound		$0	$0	$0	$0	$0	$0	-	$0		$0
	4 Compound		$0	$0	$0	$0	$0	$0	-	$0		$0
	3 Compound	2001	$1,298,000	$4,000	$249,000	$249,000	$644	$18,515	-	$0		$1,819,160
		TOTAL	$1,298,000	$4,000	$249,000	$249,000	$644	$18,515	$0	$0	$0	$1,819,160
Phase II												
	4 Compound		-	-	-	-	-	-	-	$0	$0	$0
	3 Compound	2001	-	-	$35,571	$35,571	-	-	$34,971	$355,786	$1,423,143	$1,885,043
	2 Compound	2002	-	$0	$106,714	$106,714	$644	$5,572	$104,914	$1,067,357	$4,269,429	$5,661,345
	1 Compound	2003	-	$0	$106,714	$106,714	$644	$5,572	$104,914	$1,067,357	$4,269,429	$5,661,345
		TOTAL	$0	$0	$249,000	$249,000	$1,288	$11,145	$244,800	$2,490,500	$9,962,000	$13,207,733
Total First Costs			$1,298,000	$4,000	$498,000	$498,000	$1,933	$29,660	$244,800	$2,490,500	$9,962,000	$15,026,893

Year		FY	Monitoring	O&M	Corps PM	Other
	1 Discount	2004	$5,572	$0	$644	-
	2 Discount	2005	$5,572	$0	$644	-
	3 Discount	2006	$5,572	$0	$644	-
	4 Discount	2007	$5,572	$0	$644	-
	5 Discount	2008	$5,572	$0	$644	-
	6 Discount	2009	$5,572	$0	$644	-
	7 Discount	2010	$5,572	$0	$644	-
	8 Discount	2011	$5,572	$0	$644	-
	9 Discount	2012	$5,572	$0	$644	-
	10 Discount	2013	$5,572	$0	$644	-
	11 Discount	2014	$5,572	$0	$644	-
	12 Discount	2015	$5,572	$0	$644	-
	13 Discount	2016	$5,572	$0	$644	-
	14 Discount	2017	$5,572	$0	$644	-
	15 Discount	2018	$5,572	$0	$644	-
	16 Discount	2019	$5,572	$0	$644	-
	17 Discount	2020	$5,572	$0	$644	-
	18 Discount	2021	$5,572	$0	$644	-
	19 Discount	2022	$0	$0	$644	-
	20 Discount	2023	$0	$0	$644	-
		Total	$100,303	$0	$12,884	$0

All dates are in Federal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Beneficial Placement on Breton and Grand Gosier Islands

Present Valued Costs Total Discounted Costs $16,953,025 Amortized Costs $1,523,353

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
6	1.449	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
5	1.362	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$1,562,404	$4,815	$299,722	$299,722	$775	$22,287	$0	$0	$0	$2,189,725
		Total	$1,562,404	$4,815	$299,722	$299,722	$775	$22,287	$0	$0	$0	$2,189,725
Phase II												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$42,817	$42,817	$0	$0	$42,095	$428,260	$1,713,039	$2,269,028
2	1.132	2002	$0	$0	$120,754	$120,754	$729	$6,305	$118,717	$1,207,783	$4,831,132	$6,406,175
1	1.064	2003	$0	$0	$113,517	$113,517	$685	$5,928	$111,603	$1,135,401	$4,541,605	$6,022,256
		Total	$0	$0	$277,089	$277,089	$1,414	$12,233	$272,415	$2,771,444	$11,085,775	$14,697,459
Total First Cost			$1,562,404	$4,815	$576,810	$576,810	$2,190	$34,520	$272,415	$2,771,444	$11,085,775	$16,887,184

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$5,238	$0	$606	
-2	0.884	2005	$4,924	$0	$569	
-3	0.831	2006	$4,629	$0	$535	
-4	0.781	2007	$4,352	$0	$503	
-5	0.734	2008	$4,091	$0	$473	
-6	0.690	2009	$3,846	$0	$445	
-7	0.649	2010	$3,615	$0	$418	
-8	0.610	2011	$3,399	$0	$393	
-9	0.573	2012	$3,195	$0	$369	
-10	0.539	2013	$3,004	$0	$347	
-11	0.507	2014	$2,824	$0	$326	
-12	0.476	2015	$2,654	$0	$307	
-13	0.448	2016	$2,495	$0	$288	
-14	0.421	2017	$2,346	$0	$271	
-15	0.396	2018	$2,205	$0	$255	
-16	0.372	2019	$2,073	$0	$240	
-17	0.350	2020	$1,949	$0	$225	
-18	0.329	2021	$1,832	$0	$212	
-19	0.309	2022	$0	$0	$199	
-20	0.291	2023	$0	$0	$187	
		Total	$58,672	$0	$7,169	$0

All dates are in Federal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Beneficial Placement on Breton and Grand Gosier Islands

Fully Funded Costs Total Fully Funded Costs $16,245,300 Amortized Costs $1,459,759

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.032	2001	$1,339,536	$4,128	$256,968	$256,968	$665	$19,108	$0	$0	$0	$1,877,373
		TOTAL	$1,339,536	$4,128	$256,968	$256,968	$665	$19,108	$0	$0	$0	$1,877,373
Phase II												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$36,710	$36,710	$0	$0	$36,091	$367,171	$1,468,683	$1,945,364
2	1.065	2002	$0	$0	$113,653	$113,653	$686	$5,935	$111,736	$1,136,761	$4,547,044	$6,029,468
1	1.099	2003	$0	$0	$117,290	$117,290	$708	$6,125	$115,312	$1,173,137	$4,692,549	$6,222,411
		TOTAL	$0	$0	$267,653	$267,653	$1,394	$12,059	$263,139	$2,677,069	$10,708,277	$14,197,244
Total Cost			$1,339,500	$4,100	$524,600	$524,600	$2,100	$31,200	$263,100	$2,677,100	$10,708,300	$16,074,600

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$6,321	$0	$731	
-2	1.171	2005	$6,523	$0	$754	
-3	1.208	2006	$6,732	$0	$778	
-4	1.247	2007	$6,947	$0	$803	
-5	1.287	2008	$7,169	$0	$829	
-6	1.328	2009	$7,399	$0	$855	
-7	1.370	2010	$7,635	$0	$883	
-8	1.414	2011	$7,880	$0	$911	
-9	1.459	2012	$8,132	$0	$940	
-10	1.506	2013	$8,392	$0	$970	
-11	1.554	2014	$8,661	$0	$1,001	
-12	1.604	2015	$8,938	$0	$1,033	
-13	1.655	2016	$9,224	$0	$1,066	
-14	1.708	2017	$9,519	$0	$1,100	
-15	1.763	2018	$9,824	$0	$1,136	
-16	1.819	2019	$10,138	$0	$1,172	
-17	1.878	2020	$10,462	$0	$1,210	
-18	1.938	2021	$10,797	$0	$1,248	
-19	2.000	2022	$0	$0	$1,288	
-20	2.064	2023	$0	$0	$1,329	
		Total	$150,700	$0	$20,000	$0

All dates are in Federal Years (October 1 to September 30)

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E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**9,962,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**12,453,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$1,298,000
	Engineering	$1,245,000		
	Geotechnical Investigation	$0		
	Hydrologic Modeling	$0		
	Data Collection	$0		
	HTRW	$2,000		
	Cultural Resources	$10,000		
	NEPA Compliance	$41,400		
Supervision and Administration				$249,000
State Costs				
Supervision and Administration				$249,000
Easements and Land Rights				$4,000
Monitoring				$18,515
	Monitoring Plan Development	$12,943		
	Monitoring Protocal Cost *****	$5,572		
			Total Phase I Cost Estimate	**$1,819,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$12,453,000
Supervision and Inspection	300 days @	**816** per day	$244,800
Supervision and Administration			$249,000
State Costs			
Supervision and Administration			$249,000
		Total Phase II Cost Estimate	**$13,196,000**

TOTAL ESTIMATED PROJECT FIRST COST	**15,015,000**

O&M Data

Annual Costs

Inspections @ years 5, 10 and 15	**$0**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items				**Year 1**	**Year 5**	**Year 10**	**Year 15**
Contingency Channel Closure				$0	$0	$0	$0
Bifurcation Dredging				$0	$0	$0	$0
Sediment Retention Dike					$0	$0	$0
			Subtotal	$0	$0	$0	$0
			Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs							
Engineering and Design Cost				$0	$0	$0	$0
Administrative Cost				$0	$0	$0	$0
Eng Survey	**0** days	@	**$1,361** per day	$0	$0	$0	$0
Construction Inspection	**0** days	@	**$816** per day	$0	$0	$0	$0
			Subtotal	***$0***	***$0***	***$0***	***$0***
			Total	**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$5,572**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	3	0	0		3
Planning & Design End	**May-01**					
Const. Start	**June-01**					0
Const. End	**September-03**	4	12	12	0	28

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Delta Building Diversion North of Fort St. Philip

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$6,012,500	Total Fully Funded Costs	$6,355,200

Annual Charges	Present Worth	Average Annual
First Costs	$6,282,849	$564,560
Monitoring	$120,440	$10,822
O & M Costs	$0	$0
Other Costs	$7,169	$644
Total	$6,410,500	$576,000
Average Annual Habitat Units		779
Cost Per Habitat Unit		$739
Total Net Acres		2,473

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Delta Building Diversion North of Fort St. Philip

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
4 Compound									$0		$0
3 Compound	2001	$570,182	$20,364	$51,864	$51,864	$644	$14,708	-	$0		$709,625
2 Compound	2002	$325,818	$11,636	$29,636	$29,636	$322	$0	-	$0		$397,049
1 Compound	2003	$0	$0	$0	$0		$0	-	$0		$0
	TOTAL	$896,000	$32,000	$81,500	$81,500	$966	$14,708	$0	$0	$0	$1,106,674
Phase II											
4 Compound		-	-	-	-	-	-	-	$0	$0	$0
3 Compound	2001	-	$0	$0	$0		-	$0	$0	$0	$0
2 Compound	2002	-	$152,000	$48,900	$48,900	$322	$11,113	$58,800	$488,250	$1,953,000	$2,761,285
1 Compound	2003	-	$0	$32,600	$32,600	$644	$11,113	$39,200	$325,500	$1,302,000	$1,743,657
	TOTAL	$0	$152,000	$81,500	$81,500	$966	$22,226	$98,000	$813,750	$3,255,000	$4,504,942
Total First Costs		$896,000	$184,000	$163,000	$163,000	$1,933	$36,934	$98,000	$813,750	$3,255,000	$5,611,616

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2004	$11,113	$0	$644	-
2 Discount	2005	$11,113	$0	$644	-
3 Discount	2006	$11,113	$0	$644	-
4 Discount	2007	$11,113	$0	$644	-
5 Discount	2008	$11,113	$0	$644	-
6 Discount	2009	$11,113	$0	$644	-
7 Discount	2010	$11,113	$0	$644	-
8 Discount	2011	$11,113	$0	$644	-
9 Discount	2012	$11,113	$0	$644	-
10 Discount	2013	$11,113	$0	$644	-
11 Discount	2014	$11,113	$0	$644	-
12 Discount	2015	$11,113	$0	$644	-
13 Discount	2016	$11,113	$0	$644	-
14 Discount	2017	$11,113	$0	$644	-
15 Discount	2018	$11,113	$0	$644	-
16 Discount	2019	$11,113	$0	$644	-
17 Discount	2020	$11,113	$0	$644	-
18 Discount	2021	$11,113	$0	$644	-
19 Discount	2022	$11,113	$0	$644	-
20 Discount	2023	$0	$0	$644	-
	Total	$211,138	$0	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Delta Building Diversion North of Fort St. Philip

Present Valued Costs

Total Discounted Costs $6,410,458

Amortized Costs $576,026

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$686,329	$24,512	$62,428	$62,428	$775	$17,704	$0	$0	$0	$854,176
2	1.132	2002	$368,684	$13,167	$33,535	$33,535	$364	$0	$0	$0	$0	$449,287
1	1.064	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$1,055,013	$37,679	$95,964	$95,964	$1,140	$17,704	$0	$0	$0	$1,303,463
Phase II												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$171,998	$55,333	$55,333	$364	$12,575	$66,536	$552,486	$2,209,945	$3,124,571
1	1.064	2003	$0	$0	$34,678	$34,678	$685	$11,821	$41,699	$346,251	$1,385,003	$1,854,815
		Total	$0	$171,998	$90,012	$90,012	$1,050	$24,396	$108,235	$898,737	$3,594,947	$4,979,386
Total First Cost			$1,055,013	$209,677	$185,976	$185,976	$2,190	$42,100	$108,235	$898,737	$3,594,947	$6,282,849

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$10,447	$0	$606	
-2	0.884	2005	$9,820	$0	$569	
-3	0.831	2006	$9,232	$0	$535	
-4	0.781	2007	$8,679	$0	$503	
-5	0.734	2008	$8,159	$0	$473	
-6	0.690	2009	$7,670	$0	$445	
-7	0.649	2010	$7,210	$0	$418	
-8	0.610	2011	$6,778	$0	$393	
-9	0.573	2012	$6,372	$0	$369	
-10	0.539	2013	$5,990	$0	$347	
-11	0.507	2014	$5,631	$0	$326	
-12	0.476	2015	$5,293	$0	$307	
-13	0.448	2016	$4,976	$0	$288	
-14	0.421	2017	$4,678	$0	$271	
-15	0.396	2018	$4,398	$0	$255	
-16	0.372	2019	$4,134	$0	$240	
-17	0.350	2020	$3,886	$0	$225	
-18	0.329	2021	$3,653	$0	$212	
-19	0.309	2022	$3,434	$0	$199	
-20	0.291	2023	$0	$0	$187	
		Total	$120,440	$0	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Delta Building Diversion North of Fort St. Philip

Fully Funded Costs Total Fully Funded Costs $6,355,200 Amortized Costs $571,061

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$588,428	$21,015	$53,523	$53,523	$665	$15,179	$0	$0	$0	$732,333
2	1.065	2002	$347,004	$12,393	$31,563	$31,563	$343	$0	$0	$0	$0	$422,867
1	1.099	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$935,432	$33,408	$85,087	$85,087	$1,008	$15,179	$0	$0	$0	$1,155,200
Phase II												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$161,884	$52,080	$52,080	$343	$11,836	$62,623	$519,998	$2,079,992	$2,940,835
1	1.099	2003	$0	$0	$35,831	$35,831	$708	$12,214	$43,085	$357,759	$1,431,034	$1,916,461
		TOTAL	$0	$161,884	$87,910	$87,910	$1,051	$24,049	$105,708	$877,757	$3,511,026	$4,857,296
Total Cost			$935,400	$195,300	$173,000	$173,000	$2,100	$39,200	$105,700	$877,800	$3,511,000	$6,012,500

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$12,605	$0	$731	
-2	1.171	2005	$13,008	$0	$754	
-3	1.208	2006	$13,424	$0	$778	
-4	1.247	2007	$13,854	$0	$803	
-5	1.287	2008	$14,297	$0	$829	
-6	1.328	2009	$14,755	$0	$855	
-7	1.370	2010	$15,227	$0	$883	
-8	1.414	2011	$15,714	$0	$911	
-9	1.459	2012	$16,217	$0	$940	
-10	1.506	2013	$16,736	$0	$970	
-11	1.554	2014	$17,271	$0	$1,001	
-12	1.604	2015	$17,824	$0	$1,033	
-13	1.655	2016	$18,394	$0	$1,066	
-14	1.708	2017	$18,983	$0	$1,100	
-15	1.763	2018	$19,591	$0	$1,136	
-16	1.819	2019	$20,217	$0	$1,172	
-17	1.878	2020	$20,864	$0	$1,210	
-18	1.938	2021	$21,532	$0	$1,248	
-19	2.000	2022	$22,221	$0	$1,288	
-20	2.064	2023	$0	$0	$1,329	
		Total	$322,700	$0	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**3,255,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**4,069,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$896,000
	Engineering	$407,000	
	Geotechnical Investigation	$0	
	Hydrologic Modeling	$300,000	
	Data Collection	$0	
	HTRW	$5,000	
	Cultural Resources	$132,200	
	NEPA Compliance	$52,000	
Supervision and Administration			$81,500
State Costs			
Supervision and Administration			$81,500
Easements and Land Rights			$32,000
Monitoring			$25,821
	Monitoring Plan Development	$14,708	
	Monitoring Protocal Cost *****	$11,113	
		Total Phase I Cost Estimate	**$1,117,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$152,000
Estimated Construction Cost +25% Contingency			$4,069,000
Supervision and Inspection	120 days @	**816** per day	$98,000
Supervision and Administration			$81,500
State Costs			
Supervision and Administration			$81,500
		Total Phase II Cost Estimate	**$4,482,000**

TOTAL ESTIMATED PROJECT FIRST COST	**5,599,000**

O&M Data

Annual Costs

Inspections @ years 5, 10, and 15	**$4,138**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items		Year 2	Year4	Year 7	Year 15
Dredging		$0	$0	$0	$0
Rock Replacement		$0	$0	$0	$0
			$0	$0	$0
	Subtotal	$0	$0	$0	$0
	Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs					
Engineering and Design Cost		$0	$0	$0	$0
Administrative Cost		$0	$0	$0	$0
S&I	**0** days @ **$816** per day	$0	$0	$0	$0
Survey Services	**0** days @ **$1,361** per day	$0	$0	$0	$0
	Subtotal	***$0***	***$0***	***$0***	***$0***
	Total	**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$11,113**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**Mar-01**	7	4	0		11
Planning & Design End	**Jan-02**					
Const. Start	**Jul-02**					0
Const. End	**Nov-02**		3	2	0	5

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Delta Management at Fort St. Philip

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$1,999,500	Total Fully Funded Costs	$2,962,100

Annual Charges	Present Worth	Average Annual
First Costs	$1,989,795	$178,798
Monitoring	$120,440	$10,822
O & M Costs	$244,534	$21,973
Other Costs	$7,169	$644
Total	$2,361,900	$212,200
Average Annual Habitat Units		77
Cost Per Habitat Unit		$2,756
Total Net Acres		267

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Delta Management at Fort St. Philip

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
3	Compound	2001	$102,846	$40,385	$14,000	$14,000	$644	$16,870	-	$0		$188,745
2	Compound	2002	$88,154	$34,615	$12,000	$12,000	$322	$11,113	-	$0		$158,204
		TOTAL	$191,000	$75,000	$26,000	$26,000	$966	$27,983	$0	$0	$0	$346,949
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2001	-	$0	$0	$0		$0	$0	$0	$0	$0
2	Compound	2002	-	$0	$0	$0	$322	$0	$0	$0	$0	$322
1	Compound	2003	-	$0	$26,000	$13,000	$644	$11,113	$136,332	$260,250	$1,041,000	$1,488,339
		TOTAL	$0	$0	$26,000	$13,000	$966	$11,113	$136,332	$260,250	$1,041,000	$1,488,661
Total First Costs			$191,000	$75,000	$52,000	$39,000	$1,933	$39,095	$136,332	$260,250	$1,041,000	$1,835,610

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2004	$11,113	$3,546	$644	-
2	Discount	2005	$11,113	$3,546	$644	-
3	Discount	2006	$11,113	$3,546	$644	-
4	Discount	2007	$11,113	$3,546	$644	-
5	Discount	2008	$11,113	$207,167	$644	-
6	Discount	2009	$11,113	$3,546	$644	-
7	Discount	2010	$11,113	$3,546	$644	-
8	Discount	2011	$11,113	$3,546	$644	-
9	Discount	2012	$11,113	$3,546	$644	-
10	Discount	2013	$11,113	$3,546	$644	-
11	Discount	2014	$11,113	$3,546	$644	-
12	Discount	2015	$11,113	$3,546	$644	-
13	Discount	2016	$11,113	$3,546	$644	-
14	Discount	2017	$11,113	$3,546	$644	-
15	Discount	2018	$11,113	$143,986	$644	-
16	Discount	2019	$11,113	$3,546	$644	-
17	Discount	2020	$11,113	$3,546	$644	-
18	Discount	2021	$11,113	$3,546	$644	-
19	Discount	2022	$11,113	$3,546	$644	-
20	Discount	2023	$0	$3,546	$644	-
		Total	$211,138	$414,981	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Delta Management at Fort St. Philip

Present Valued Costs

Total Discounted Costs $2,361,939

Amortized Costs $212,237

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$123,796	$48,611	$16,852	$16,852	$775	$20,306	$0	$0	$0	$227,193
2	1.132	2002	$99,752	$39,170	$13,579	$13,579	$364	$12,575	$0	$0	$0	$179,018
		Total	$223,548	$87,781	$30,431	$30,431	$1,140	$32,881	$0	$0	$0	$406,210
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$0	$0	$0	$364	$0	$0	$0	$0	$364
1	1.064	2003	$0	$0	$27,658	$13,829	$685	$11,821	$145,023	$276,841	$1,107,364	$1,583,220
		Total	$0	$0	$27,658	$13,829	$1,050	$11,821	$145,023	$276,841	$1,107,364	$1,583,585
Total First Cost			$223,548	$87,781	$58,088	$44,259	$2,190	$44,702	$145,023	$276,841	$1,107,364	$1,989,795

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$10,447	$3,333	$606	
-2	0.884	2005	$9,820	$3,134	$569	
-3	0.831	2006	$9,232	$2,946	$535	
-4	0.781	2007	$8,679	$2,769	$503	
-5	0.734	2008	$8,159	$152,098	$473	
-6	0.690	2009	$7,670	$2,447	$445	
-7	0.649	2010	$7,210	$2,301	$418	
-8	0.610	2011	$6,778	$2,163	$393	
-9	0.573	2012	$6,372	$2,033	$369	
-10	0.539	2013	$5,990	$1,911	$347	
-11	0.507	2014	$5,631	$1,797	$326	
-12	0.476	2015	$5,293	$1,689	$307	
-13	0.448	2016	$4,976	$1,588	$288	
-14	0.421	2017	$4,678	$1,493	$271	
-15	0.396	2018	$4,398	$56,981	$255	
-16	0.372	2019	$4,134	$1,319	$240	
-17	0.350	2020	$3,886	$1,240	$225	
-18	0.329	2021	$3,653	$1,166	$212	
-19	0.309	2022	$3,434	$1,096	$199	
-20	0.291	2023	$0	$1,030	$187	
		Total	$120,440	$244,534	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Delta Management at Fort St. Philip

Fully Funded Costs Total Fully Funded Costs $2,962,100 Amortized Costs $266,166

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$106,137	$41,677	$14,448	$14,448	$665	$17,410	$0	$0	$0	$194,785
2	1.065	2002	$93,886	$36,866	$12,780	$12,780	$343	$11,835	$0	$0	$0	$168,491
		TOTAL	$200,023	$78,543	$27,228	$27,228	$1,008	$29,245	$0	$0	$0	$363,276
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$0	$0	$0	$343	$0	$0	$0	$0	$343
1	1.099	2003	$0	$0	$28,577	$14,288	$708	$12,214	$149,843	$286,042	$1,144,168	$1,635,840
		TOTAL	$0	$0	$28,577	$14,288	$1,051	$12,214	$149,843	$286,042	$1,144,168	$1,636,183
Total Cost			$200,000	$78,500	$55,800	$41,500	$2,100	$41,500	$149,800	$286,000	$1,144,200	$1,999,500

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$12,605	$4,022	$731	
-2	1.171	2005	$13,008	$4,151	$754	
-3	1.208	2006	$13,424	$4,284	$778	
-4	1.247	2007	$13,854	$4,421	$803	
-5	1.287	2008	$14,297	$266,538	$829	
-6	1.328	2009	$14,755	$4,708	$855	
-7	1.370	2010	$15,227	$4,859	$883	
-8	1.414	2011	$15,714	$5,014	$911	
-9	1.459	2012	$16,217	$5,175	$940	
-10	1.506	2013	$16,736	$5,340	$970	
-11	1.554	2014	$17,271	$5,511	$1,001	
-12	1.604	2015	$17,824	$5,688	$1,033	
-13	1.655	2016	$18,394	$5,870	$1,066	
-14	1.708	2017	$18,983	$6,058	$1,100	
-15	1.763	2018	$19,591	$253,837	$1,136	
-16	1.819	2019	$20,217	$6,451	$1,172	
-17	1.878	2020	$20,864	$6,658	$1,210	
-18	1.938	2021	$21,532	$6,871	$1,248	
-19	2.000	2022	$22,221	$7,091	$1,288	
-20	2.064	2023	$0	$7,318	$1,329	
		Total	$322,700	$619,900	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**1,041,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**1,301,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$191,000
	Engineering	$91,000	
	Geotechnical Investigation	$10,000	
	Hydrologic Modeling	$0	
	Data Collection or Surveying	$50,000	
	HTRW	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$26,000
State Costs			
Supervision and Administration			$26,000
Easements and Land Rights			$75,000
Monitoring			$27,983
	Monitoring Plan Development	$16,870	
	Monitoring Protocal Cost *****	$11,113	
		Total Phase I Cost Estimate	**$346,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$1,301,000
Supervision and Inspection	167 days	@	$816 per day	$136,332
Supervision and Administration				$26,000
State Costs				
Supervision and Administration				$13,000
		Total Phase II Cost Estimate		**$1,476,000**

TOTAL ESTIMATED PROJECT FIRST COST	**1,822,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items	**Year 5**	**Year 15**		
Contractor Mobilization/Demobilization	$18,800	$18,800	$0	$0
Bucket Dredge (50% of initial Crevasse)	$127,500	$0	$0	$0
Bucket Dredge (30% of initial Crevasse)	$0	$76,000	$0	$0
Rock work	$0	$0	$0	$0
Sheetpile			$0	$0
Replace signs	$0	$0	$0	$0
Subtotal	$146,300	$94,800	$0	$0
Subtotal w/ 10% contin.	***$161,000***	***$104,000***	***$0***	***$0***

Engineer, Design & Administrative Costs								
Engineering and Design Cost					$13,000	$13,000	$0	$0
Administrative Cost					$4,384	$4,384	$0	$0
Eng Survey	**6** days	@	**$1,361**	per day	$8,163.60	$8,164	$0	$0
Construction Inspection	**21** days	@	**$816**	per day	$17,144	$10,613	$0	$0
Subtotal					***$43,000***	***$36,000***	***$0***	***$0***
Total					**$204,000**	**$140,000**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$11,113**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	6	0		13
Planning & Design End	**March-02**					
Const. Start	**January-03**					0
Const. End	**May-03**	0	0	5	0	5

All dates are in Federal Fiscal Years (October 1 to September 30)

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Benny's Bay 20,000 cfs Diversion With Outfall Mangement

Project Construction Years:	2	Total Project Years	22
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$2,992,600	Total Fully Funded Costs	$21,440,700

Annual Charges	Present Worth	Average Annual
First Costs	$3,046,673	$273,766
Monitoring	$303,281	$27,252
O & M Costs	$7,282,360	$654,373
Other Costs	$7,169	$644
Total	$10,639,500	$956,000
Average Annual Habitat Units		713
Cost Per Habitat Unit		$1,341
Total Net Acres		3,219

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Benny's Bay 20,000 cfs Diversion With Outfall Mangement

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
0 Compound									$0		$0
0 Compound								-	$0		$0
2 Compound	2001	$471,100	$21,000	$25,550	$25,550	$644	$27,983	-	$0		$571,827
1 Compound	2002	$201,900	$9,000	$10,950	$10,950	$322	$0	-	$0		$233,122
	TOTAL	$673,000	$30,000	$36,500	$36,500	$966	$27,983	$0	$0	$0	$804,949
Phase II											
0 Compound		-	-	-	-	-	-	-	$0	$0	$0
0 Compound		-	-	-	-	-	-		$0	$0	$0
2 Compound	2001	-	-	-	-	-	-	$0	$0	$0	$0
1 Compound	2002	-	$46,000	$36,500	$36,500	$322	$11,113	$61,000	$366,250	$1,465,000	$2,022,685
	TOTAL	$0	$46,000	$36,500	$36,500	$322	$11,113	$61,000	$366,250	$1,465,000	$2,022,685
Total First Costs		$673,000	$76,000	$73,000	$73,000	$1,288	$39,095	$61,000	$366,250	$1,465,000	$2,827,633

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2003	$27,983	$1,850,950	$644	-
2 Discount	2004	$27,983	$485,000	$644	-
3 Discount	2005	$27,983	$485,000	$644	-
4 Discount	2006	$27,983	$489,138	$644	-
5 Discount	2007	$27,983	$790,550	$644	-
6 Discount	2008	$27,983	$485,000	$644	-
7 Discount	2009	$27,983	$485,000	$644	-
8 Discount	2010	$27,983	$485,000	$644	-
9 Discount	2011	$27,983	$489,138	$644	-
10 Discount	2012	$27,983	$849,000	$644	-
11 Discount	2013	$27,983	$485,000	$644	-
12 Discount	2014	$27,983	$485,000	$644	-
13 Discount	2015	$27,983	$485,000	$644	-
14 Discount	2016	$27,983	$489,138	$644	-
15 Discount	2017	$27,983	$814,300	$644	-
16 Discount	2018	$27,983	$620,000	$644	-
17 Discount	2019	$27,983	$620,000	$644	-
18 Discount	2020	$27,983	$620,000	$644	-
19 Discount	2021	$27,983	$620,000	$644	-
20 Discount	2022	$0	$0	$644	-
	Total	$531,668	$12,132,214	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Benny's Bay 20,000 cfs Diversion With Outfall Mangement

Present Valued Costs Total Discounted Costs $10,639,483 Amortized Costs $956,035

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$533,080	$23,763	$28,911	$28,911	$729	$31,664	$0	$0	$0	$647,059
1	1.064	2002	$214,771	$9,574	$11,648	$11,648	$343	$0	$0	$0	$0	$247,984
		Total	$747,851	$33,337	$40,560	$40,560	$1,072	$31,664	$0	$0	$0	$895,042
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2002	$0	$48,933	$38,827	$38,827	$343	$11,821	$64,889	$389,598	$1,558,394	$2,151,631
		Total	$0	$48,933	$38,827	$38,827	$343	$11,821	$64,889	$389,598	$1,558,394	$2,151,631
Total First Cost			$747,851	$82,269	$79,386	$79,386	$1,414	$43,485	$64,889	$389,598	$1,558,394	$3,046,673

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2003	$26,306	$1,740,024	$606	
-2	0.884	2004	$24,729	$428,610	$569	
-3	0.831	2005	$23,247	$402,924	$535	
-4	0.781	2006	$21,854	$382,009	$503	
-5	0.734	2007	$20,544	$580,405	$473	
-6	0.690	2008	$19,313	$334,737	$445	
-7	0.649	2009	$18,156	$314,677	$418	
-8	0.610	2010	$17,068	$295,818	$393	
-9	0.573	2011	$16,045	$280,463	$369	
-10	0.539	2012	$15,083	$457,627	$347	
-11	0.507	2013	$14,179	$245,757	$326	
-12	0.476	2014	$13,329	$231,029	$307	
-13	0.448	2015	$12,531	$217,184	$288	
-14	0.421	2016	$11,780	$205,910	$271	
-15	0.396	2017	$11,074	$322,248	$255	
-16	0.372	2018	$10,410	$230,653	$240	
-17	0.350	2019	$9,786	$216,830	$225	
-18	0.329	2020	$9,200	$203,835	$212	
-19	0.309	2021	$8,648	$191,620	$199	
-20	0.291	2022	$0	$0	$187	
		Total	$303,281	$7,282,360	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Benny's Bay 20,000 cfs Diversion With Outfall Mangement

Fully Funded Costs | Total Fully Funded Costs $21,440,700 | Amortized Costs $1,926,603

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$486,175	$21,672	$26,368	$26,368	$665	$28,878	$0	$0	$0	$590,125
1	1.065	2002	$215,028	$9,585	$11,662	$11,662	$343	$0	$0	$0	$0	$248,281
		TOTAL	$701,204	$31,257	$38,030	$38,030	$1,008	$28,878	$0	$0	$0	$838,406
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.065	2002	$0	$48,991	$38,873	$38,873	$343	$11,835	$64,966	$390,065	$1,560,260	$2,154,208
		TOTAL	$0	$48,991	$38,873	$38,873	$343	$11,835	$64,966	$390,065	$1,560,260	$2,154,208
Total Cost			$701,200	$80,200	$76,900	$76,900	$1,400	$40,700	$65,000	$390,100	$1,560,300	$2,992,600

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.099	2003	$30,756	$2,034,388	$708	
-2	1.134	2004	$31,740	$550,124	$731	
-3	1.171	2005	$32,756	$567,728	$754	
-4	1.208	2006	$33,804	$590,894	$778	
-5	1.247	2007	$34,885	$985,569	$803	
-6	1.287	2008	$36,002	$623,992	$829	
-7	1.328	2009	$37,154	$643,960	$855	
-8	1.370	2010	$38,343	$664,567	$883	
-9	1.414	2011	$39,570	$691,685	$911	
-10	1.459	2012	$40,836	$1,238,979	$940	
-11	1.506	2013	$42,143	$730,429	$970	
-12	1.554	2014	$43,491	$753,802	$1,001	
-13	1.604	2015	$44,883	$777,924	$1,033	
-14	1.655	2016	$46,319	$809,667	$1,066	
-15	1.708	2017	$47,802	$1,391,039	$1,100	
-16	1.763	2018	$49,331	$1,093,015	$1,136	
-17	1.819	2019	$50,910	$1,127,992	$1,172	
-18	1.878	2020	$52,539	$1,164,088	$1,210	
-19	1.938	2021	$54,220	$1,201,338	$1,248	
-20	2.000	2022	$0	$0	$1,288	
		Total	$787,500	$17,641,200	$19,400	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**1,465,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**1,831,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$673,000
	Engineering	$183,000	
	Geotechnical Investigation	$0	
	Hydrologic Modeling	$300,000	
	Data Collection	$0	
	HTRW	$5,000	
	Cultural Resources	$99,000	
	NEPA Compliance	$86,000	
Supervision and Administration			$36,500
State Costs			
Supervision and Administration			$36,500
Easements and Land Rights			$30,000
Monitoring			$28,000
	Monitoring Plan Development	$16,870	
	Monitoring Protocal Cost *****	$11,113	
		Total Phase I Cost Estimate	**$804,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$46,000
Estimated Construction Cost +25% Contingency				$1,831,000
Supervision and Inspection	0 days	@	**816** per day	$61,000
Supervision and Administration				$36,500
State Costs				
Supervision and Administration				$36,500
		Total Phase II Cost Estimate		**$2,011,000**

TOTAL ESTIMATED PROJECT FIRST COST	**2,815,000**

O&M Data

Annual Costs

Inspections @ years 5, 10 and 15	**$4,138**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$300,000**

Specific Intermittent Costs

Maintain Access to Oil and Gas Facilities (annual cost Years 1-15)	$185,000
Maintain Access to Oil and Gas Facilities (annual cost Years 16-19)	$320,000

Construction Items		**Year 1**	**Year 5**	**Year 10**	**Year 15**
Contingency Channel Closure		$987,400	$0	$0	$0
Bifurcation Dredging		$0	$144,000	$144,000	$144,000
Sediment Retention Dike			$69,000	$85,000	$86,000
	Subtotal	$987,400	$213,000	$229,000	$230,000
	Subtotal w/ 10% contin.	***$1,234,000***	***$266,000***	***$286,000***	***$288,000***

Engineer, Design & Administrative Costs

Engineering and Design Cost				$87,000	$21,000	$22,000	$23,000
Administrative Cost				$24,700	$5,300	$6,500	$5,800
Eng Survey	**0** days	@	**$1,361** per day	$20,000	$13,000	$13,000	$13,000
Construction Inspection	**0** days	@	**$816** per day	$0	$0	$0	$0
			Subtotal	***$132,000***	***$39,000***	***$42,000***	***$42,000***
			Total	**$1,366,000**	**$305,000**	**$328,000**	**$330,000**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$11,113**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	3	0		10
Planning & Design End	**December-01**					
Const. Start	**July-02**					0
Const. End	**September-02**		3	0	0	3

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Benny's Bay 50,000 cfs Diversion With Outfall Mangement

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$5,123,900	Total Fully Funded Costs	$37,618,300

Annual Charges	Present Worth	Average Annual
First Costs	$5,366,356	$482,206
Monitoring	$120,440	$10,822
O & M Costs	$13,362,047	$1,200,677
Other Costs	$7,169	$644
Total	$18,856,000	$1,694,400
Average Annual Habitat Units		1,474
Cost Per Habitat Unit		$1,150
Total Net Acres		5,828

Coastal Wetlands Conservation and Restoration Plan

Benny's Bay 50,000 cfs Diversion With Outfall Mangement

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
4 Compound									$0		$0
3 Compound	2001	$585,200	$21,000	$48,300	$48,300	$644	**$16,870**	-	$0		$720,314
2 Compound	2002	$250,800	$9,000	$20,700	$20,700	$322	$11,113	-	$0		$312,635
1 Compound	2003	$0	$0	$0	$0	$0	$0	-	$0		$0
TOTAL		$836,000	$30,000	$69,000	$69,000	$966	$27,983	$0	$0	$0	$1,032,949
Phase II											
4 Compound		-	-	-	-	-	-	-	$0	$0	$0
3 Compound	2001	-	-	-	-	-	-		$0	$0	$0
2 Compound	2002	-	$46,000	$41,400	$41,400	$322	-	$58,800	$415,050	$1,660,200	$2,263,172
1 Compound	2003	-		$27,600	$27,600	$644	$11,113	$39,200	$276,700	$1,106,800	$1,489,657
TOTAL		$0	$46,000	$69,000	$69,000	$966	$11,113	$98,000	$691,750	$2,767,000	$3,752,829
Total First Costs		$836,000	$76,000	$138,000	$138,000	$1,933	$39,095	$98,000	$691,750	$2,767,000	$4,785,778

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2004	$11,113	$3,614,000	$644	-
2 Discount	2005	$11,113	$960,000	$644	-
3 Discount	2006	$11,113	$960,000	$644	-
4 Discount	2007	$11,113	$964,138	$644	-
5 Discount	2008	$11,113	$1,231,700	$644	-
6 Discount	2009	$11,113	$960,000	$644	-
7 Discount	2010	$11,113	$960,000	$644	-
8 Discount	2011	$11,113	$960,000	$644	-
9 Discount	2012	$11,113	$964,138	$644	-
10 Discount	2013	$11,113	$1,234,700	$644	-
11 Discount	2014	$11,113	$960,000	$644	-
12 Discount	2015	$11,113	$960,000	$644	-
13 Discount	2016	$11,113	$960,000	$644	-
14 Discount	2017	$11,113	$964,138	$644	-
15 Discount	2018	$11,113	$1,231,700	$644	-
16 Discount	2019	$11,113	$960,000	$644	-
17 Discount	2020	$11,113	$960,000	$644	-
18 Discount	2021	$11,113	$960,000	$644	-
19 Discount	2022	$11,113	$960,000	$644	-
20 Discount	2023	$0	$0	$644	-
Total		$211,138	$21,724,514	$12,884	$0

Coastal Wetlands Conservation and Restoration Plan

Benny's Bay 50,000 cfs Diversion With Outfall Mangement

Present Valued Costs Total Discounted Costs $18,856,012 Amortized Costs $1,694,350

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$704,406	$25,278	$58,139	$58,139	$775	$20,306	$0	$0	$0	$867,043
2	1.132	2002	$283,796	$10,184	$23,423	$23,423	$364	$12,575	$0	$0	$0	$353,766
1	1.064	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$988,202	$35,462	$81,562	$81,562	$1,140	$32,881	$0	$0	$0	$1,220,809
Phase II												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$52,052	$46,847	$46,847	$364	$0	$66,536	$469,656	$1,878,623	$2,560,924
1	1.064	2003	$0	$0	$29,360	$29,360	$685	$11,821	$41,699	$294,340	$1,177,359	$1,584,622
		Total	$0	$52,052	$76,206	$76,206	$1,050	$11,821	$108,235	$763,995	$3,055,981	$4,145,547
Total First Cost			$988,202	$87,514	$157,768	$157,768	$2,190	$44,702	$108,235	$763,995	$3,055,981	$5,366,356

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$10,447	$3,397,415	$606	
-2	0.884	2005	$9,820	$848,383	$569	
-3	0.831	2006	$9,232	$797,540	$535	
-4	0.781	2007	$8,679	$752,976	$503	
-5	0.734	2008	$8,159	$904,289	$473	
-6	0.690	2009	$7,670	$662,573	$445	
-7	0.649	2010	$7,210	$622,865	$418	
-8	0.610	2011	$6,778	$585,537	$393	
-9	0.573	2012	$6,372	$552,819	$369	
-10	0.539	2013	$5,990	$665,527	$347	
-11	0.507	2014	$5,631	$486,447	$326	
-12	0.476	2015	$5,293	$457,295	$307	
-13	0.448	2016	$4,976	$429,889	$288	
-14	0.421	2017	$4,678	$405,868	$271	
-15	0.396	2018	$4,398	$487,429	$255	
-16	0.372	2019	$4,134	$357,140	$240	
-17	0.350	2020	$3,886	$335,736	$225	
-18	0.329	2021	$3,653	$315,616	$212	
-19	0.309	2022	$3,434	$296,701	$199	
-20	0.291	2023	$0	$0	$187	
		Total	$120,440	$13,362,047	$7,169	$0

Coastal Wetlands Conservation and Restoration Plan

Benny's Bay 50,000 cfs Diversion With Outfall Mangement

Fully Funded Costs

Total Fully Funded Costs $37,618,300

Amortized Costs $3,380,279

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$603,926	$21,672	$49,846	$49,846	$665	$17,410	$0	$0	$0	$743,364
2	1.065	2002	$267,108	$9,585	$22,046	$22,046	$343	$11,835	$0	$0	$0	$332,963
1	1.099	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$871,034	$31,257	$71,892	$71,892	$1,008	$29,245	$0	$0	$0	$1,076,328
Phase II												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$48,991	$44,092	$44,092	$343	$0	$62,623	$442,038	$1,768,153	$2,410,333
1	1.099	2003	$0	$0	$30,335	$30,335	$708	$12,214	$43,085	$304,122	$1,216,489	$1,637,289
		TOTAL	$0	$48,991	$74,427	$74,427	$1,051	$12,214	$105,708	$746,161	$2,984,642	$4,047,621
Total Cost			$871,000	$80,200	$146,300	$146,300	$2,100	$41,500	$105,700	$746,200	$2,984,600	$5,123,900

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$12,605	$4,099,274	$731	
-2	1.171	2005	$13,008	$1,123,750	$754	
-3	1.208	2006	$13,424	$1,159,710	$778	
-4	1.247	2007	$13,854	$1,201,980	$803	
-5	1.287	2008	$14,297	$1,584,683	$829	
-6	1.328	2009	$14,755	$1,274,643	$855	
-7	1.370	2010	$15,227	$1,315,431	$883	
-8	1.414	2011	$15,714	$1,357,525	$911	
-9	1.459	2012	$16,217	$1,407,005	$940	
-10	1.506	2013	$16,736	$1,859,506	$970	
-11	1.554	2014	$17,271	$1,492,062	$1,001	
-12	1.604	2015	$17,824	$1,539,808	$1,033	
-13	1.655	2016	$18,394	$1,589,082	$1,066	
-14	1.708	2017	$18,983	$1,647,002	$1,100	
-15	1.763	2018	$19,591	$2,171,398	$1,136	
-16	1.819	2019	$20,217	$1,746,568	$1,172	
-17	1.878	2020	$20,864	$1,802,458	$1,210	
-18	1.938	2021	$21,532	$1,860,137	$1,248	
-19	2.000	2022	$22,221	$1,919,661	$1,288	
-20	2.064	2023	$0	$0	$1,329	
		Total	$322,700	$32,151,700	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**2,767,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**3,459,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$836,000
	Engineering	$346,000		
	Geotechnical Investigation	$0		
	Hydrologic Modeling	$300,000		
	Data Collection	$0		
	HTRW	$5,000		
	Cultural Resources	$99,000		
	NEPA Compliance	$86,000		
Supervision and Administration				$69,000
State Costs				
Supervision and Administration				$69,000
Easements and Land Rights				$30,000
Monitoring				$27,983
	Monitoring Plan Development	$16,870		
	Monitoring Protocal Cost *	$11,113		
			Total Phase I Cost Estimate	**$1,032,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

D-41

Federal Costs				
Easements and Land Rights				$46,000
Estimated Construction Cost +25% Contingency				$3,459,000
Supervision and Inspection	0 days @		**816** per day	$98,000
Supervision and Administration				$69,000
State Costs				
Supervision and Administration				$69,000
			Total Phase II Cost Estimate	**$3,741,000**

TOTAL ESTIMATED PROJECT FIRST COST	**4,773,000**

O&M Data

Annual Costs

Inspections @ years 5, 10 and 15	**$4,138**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$610,000**

Specific Intermittent Costs

Maintain Access to Oil and Gas Facilities (annual cost Years 1-15)	$350,000
Maintain Access to Oil and Gas Facilities (annual cost Years 16-19)	$350,000

Construction Items		**Year 1**	**Year 5**	**Year 10**	**Year 15**
Contingency Channel Closure		$2,360,000	$0	$0	$0
Bifurcation Dredging		$0	$144,000	$144,000	$144,000
Sediment Retention Dike			$85,000	$114,000	$85,000
	Subtotal	$2,360,000	$229,000	$258,000	$229,000
	Subtotal w/ 10% contin.	***$2,950,000***	***$286,000***	***$323,000***	***$286,000***

Engineer, Design & Administrative Costs								
Engineering and Design Cost					$195,000	$22,000	$25,000	$22,000
Administrative Cost					$59,000	$5,700	$5,700	$5,700
Eng Survey	**0** days	@	**$1,361** per day		$40,000	$15,000	$15,000	$15,000
Construction Inspection	**0** days	@	**$816** per day		$0	$0	$0	$0
				Subtotal	***$294,000***	***$43,000***	***$46,000***	***$43,000***
				Total	**$3,244,000**	**$329,000**	**$369,000**	

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$11,113**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	3	0		10
Planning & Design End	**December-01**					
Const. Start	**July-02**					0
Const. End	**November-02**		3	2	0	5

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Delta-Building Diversion at Myrtle Grove-Increment 1

Project Construction Years:	12	Total Project Years	32
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$132,409,500	Total Fully Funded Costs	$149,205,800

Annual Charges	Present Worth	Average Annual
First Costs	$164,096,272	$14,745,247
Monitoring	$2,636,745	$236,931
O & M Costs	$2,332,291	$209,573
Other Costs	$7,169	$644
Total	$169,072,500	$15,192,400
Average Annual Habitat Units		5,797
Cost Per Habitat Unit		$2,621
Total Net Acres		8,891

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Delta-Building Diversion at Myrtle Grove-Increment 1

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
12 Compound		2001	$0	$0	$0	$0	$0	$0	-	$0		$0
11 Compound		2002	$880,297	$632,432	$121,622	$97,297	$644	$0	-	$0		$1,732,293
10 Compound		2003	$1,173,730	$843,243	$162,162	$129,730	$644	$0	-	$0		$2,309,509
9 Compound		2004	$1,173,730	$843,243	$162,162	$129,730	$644	$0	-	$0		$2,309,509
8 Compound		2005	$391,243	$281,081	$54,054	$43,243	$322	$0	-	$0		$769,944
	TOTAL		$3,619,000	$2,600,000	$500,000	$400,000	$2,255	$0	$0	$0	$0	$7,121,255
Phase II												
8 Compound		2005	-	$57,600,000	$23,529	$18,824	$322	$0	$92,555	$370,218	$1,480,874	$59,586,322
7 Compound		2006	-	$0	$70,588	$56,471	$644	$0	$277,666	$1,110,655	$4,442,621	$5,958,645
6 Compound		2007	-	$0	$70,588	$56,471	$644	$0	$277,666	$1,110,655	$4,442,621	$5,958,645
5 Compound		2008	-	$0	$70,588	$56,471	$644	$0	$277,666	$1,110,655	$4,442,621	$5,958,645
4 Compound		2009	-	$0	$70,588	$56,471	$644	$24,087	$277,666	$1,110,655	$4,442,621	$5,982,732
3 Compound		2010	-	$0	$70,588	$56,471	$644	$400,000	$277,666	$1,110,655	$4,442,621	$6,358,645
2 Compound		2011	-	$0	$70,588	$56,471	$644	$400,000	$277,666	$1,110,655	$4,442,621	$6,358,645
1 Compound		2012	-	$0	$52,941	$42,353	$644	$200,000	$208,249	$832,991	$3,331,966	$4,669,145
	TOTAL		$0	$57,600,000	$500,000	$400,000	$4,832	$1,024,087	$1,966,800	$7,867,141	$31,468,565	$100,831,425
Total First Costs			$3,619,000	$60,200,000	$1,000,000	$800,000	$7,086	$1,024,087	$1,966,800	$7,867,141	$31,468,565	$107,952,679

Year		FY	Monitoring	O&M	Corps PM	Other
1 Discount		2013	$400,000	$209,573	$644	-
2 Discount		2014	$400,000	$209,573	$644	-
3 Discount		2015	$400,000	$209,573	$644	-
4 Discount		2016	$200,000	$209,573	$644	-
5 Discount		2017	$200,000	$209,573	$644	-
6 Discount		2018	$200,000	$209,573	$644	-
7 Discount		2019	$200,000	$209,573	$644	-
8 Discount		2020	$200,000	$209,573	$644	-
9 Discount		2021	$200,000	$209,573	$644	-
10 Discount		2022	$200,000	$209,573	$644	-
11 Discount		2023	$200,000	$209,573	$644	-
12 Discount		2024	$200,000	$209,573	$644	-
13 Discount		2025	$200,000	$209,573	$644	-
14 Discount		2026	$200,000	$209,573	$644	-
15 Discount		2027	$200,000	$209,573	$644	-
16 Discount		2028	$200,000	$209,573	$644	-
17 Discount		2029	$200,000	$209,573	$644	-
18 Discount		2030	$200,000	$209,573	$644	-
19 Discount		2031	$0	$209,573	$644	-
20 Discount		2032	$0	$209,573	$644	-
	Total		$4,200,000	$4,191,466	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Delta-Building Diversion at Myrtle Grove-Increment 1

Present Valued Costs | Total Discounted Costs $169,072,477 | Amortized Costs $15,192,395

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
12	2.099	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
11	1.973	2002	$1,737,259	$1,248,100	$240,019	$192,015	$1,271	$0	$0	$0	$0	$3,418,666
10	1.855	2003	$2,177,528	$1,564,403	$300,847	$240,677	$1,195	$0	$0	$0	$0	$4,284,651
9	1.744	2004	$2,047,030	$1,470,649	$282,817	$226,254	$1,124	$0	$0	$0	$0	$4,027,874
8	1.640	2005	$641,451	$460,838	$88,623	$70,898	$528	$0	$0	$0	$0	$1,262,338
	Total		$6,603,269	$4,743,990	$912,306	$729,845	$4,118	$0	$0	$0	$0	$12,993,527
Phase II												
8	1.640	2005	$0	$94,436,323	$38,577	$30,862	$528	$0	$151,746	$606,980	$2,427,921	$97,692,937
7	1.541	2006	$0	$0	$108,795	$87,036	$993	$0	$427,956	$1,711,813	$6,847,251	$9,183,845
6	1.449	2007	$0	$0	$102,275	$81,820	$933	$0	$402,309	$1,609,225	$6,436,899	$8,633,462
5	1.362	2008	$0	$0	$96,146	$76,917	$877	$0	$378,199	$1,512,785	$6,051,139	$8,116,063
4	1.280	2009	$0	$0	$90,384	$72,307	$825	$30,842	$355,534	$1,422,124	$5,688,497	$7,660,513
3	1.204	2010	$0	$0	$84,967	$67,974	$775	$481,481	$334,227	$1,336,897	$5,347,588	$7,653,909
2	1.132	2011	$0	$0	$79,875	$63,900	$729	$452,626	$314,197	$1,256,778	$5,027,110	$7,195,214
1	1.064	2012	$0	$0	$56,316	$45,053	$685	$212,750	$221,525	$886,095	$3,544,379	$4,966,803
	Total		$0	$94,436,323	$657,335	$525,868	$6,346	$1,177,698	$2,585,693	$10,342,696	$41,370,785	$151,102,745
Total First Cost			$6,603,269	$99,180,313	$1,569,641	$1,255,713	$10,464	$1,177,698	$2,585,693	$10,342,696	$41,370,785	$164,096,272

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2013	$376,028	$197,014	$606	
-2	0.884	2014	$353,493	$185,207	$569	
-3	0.831	2015	$332,308	$174,107	$535	
-4	0.781	2016	$156,197	$163,673	$503	
-5	0.734	2017	$146,836	$153,864	$473	
-6	0.690	2018	$138,036	$144,643	$445	
-7	0.649	2019	$129,764	$135,975	$418	
-8	0.610	2020	$121,987	$127,826	$393	
-9	0.573	2021	$114,676	$120,166	$369	
-10	0.539	2022	$107,804	$112,964	$347	
-11	0.507	2023	$101,343	$106,194	$326	
-12	0.476	2024	$95,270	$99,830	$307	
-13	0.448	2025	$89,560	$93,847	$288	
-14	0.421	2026	$84,193	$88,223	$271	
-15	0.396	2027	$79,147	$82,936	$255	
-16	0.372	2028	$74,404	$77,966	$240	
-17	0.350	2029	$69,945	$73,293	$225	
-18	0.329	2030	$65,753	$68,901	$212	
-19	0.309	2031	$0	$64,772	$199	
-20	0.291	2032	$0	$60,890	$187	
	Total		$2,636,745	$2,332,291	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Delta-Building Diversion at Myrtle Grove-Increment 1

Fully Funded Costs — Total Fully Funded Costs $149,205,800 — Amortized Costs $13,407,230

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
12	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
11	1.065	2002	$937,538	$673,556	$129,530	$103,624	$686	$0	$0	$0	$0	$1,844,933
10	1.099	2003	$1,290,052	$926,813	$178,233	$142,587	$708	$0	$0	$0	$0	$2,538,392
9	1.134	2004	$1,331,334	$956,471	$183,937	$147,149	$731	$0	$0	$0	$0	$2,619,621
8	1.171	2005	$457,979	$329,026	$63,274	$50,619	$377	$0	$0	$0	$0	$901,275
	TOTAL		$4,016,902	$2,885,865	$554,974	$443,979	$2,502	$0	$0	$0	$0	$7,904,222
Phase II												
8	1.171	2005	$0	$67,425,002	$27,543	$22,034	$377	$0	$108,343	$433,368	$1,733,471	$69,750,138
7	1.208	2006	$0	$0	$85,273	$68,218	$778	$0	$335,429	$1,341,706	$5,366,825	$7,198,230
6	1.247	2007	$0	$0	$88,002	$70,401	$803	$0	$346,163	$1,384,641	$5,538,564	$7,428,573
5	1.287	2008	$0	$0	$90,818	$72,654	$829	$0	$357,240	$1,428,949	$5,715,798	$7,666,287
4	1.328	2009	$0	$0	$93,724	$74,979	$855	$31,982	$368,672	$1,474,676	$5,898,703	$7,943,590
3	1.370	2010	$0	$0	$96,723	$77,378	$883	$548,096	$380,469	$1,521,865	$6,087,462	$8,712,876
2	1.414	2011	$0	$0	$99,818	$79,854	$911	$565,636	$392,644	$1,570,565	$6,282,260	$8,991,689
1	1.459	2012	$0	$0	$77,259	$61,807	$940	$291,868	$303,907	$1,215,617	$4,862,470	$6,813,868
	TOTAL		$0	$67,425,002	$659,159	$527,327	$6,376	$1,437,581	$2,592,866	$10,371,388	$41,485,551	$124,505,251
Total Cost			$4,016,900	$70,310,900	$1,214,100	$971,300	$8,900	$1,437,600	$2,592,900	$10,371,400	$41,485,600	$132,409,500

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.506	2013	$602,415	$315,625	$970	
-2	1.554	2014	$621,693	$325,725	$1,001	
-3	1.604	2015	$641,587	$336,149	$1,033	
-4	1.655	2016	$331,059	$346,905	$1,066	
-5	1.708	2017	$341,653	$358,006	$1,100	
-6	1.763	2018	$352,586	$369,463	$1,136	
-7	1.819	2019	$363,868	$381,285	$1,172	
-8	1.878	2020	$375,512	$393,487	$1,210	
-9	1.938	2021	$387,528	$406,078	$1,248	
-10	2.000	2022	$399,929	$419,073	$1,288	
-11	2.064	2023	$412,727	$432,483	$1,329	
-12	2.130	2024	$425,934	$446,322	$1,372	
-13	2.198	2025	$439,564	$460,605	$1,416	
-14	2.268	2026	$453,630	$475,344	$1,461	
-15	2.341	2027	$468,147	$490,555	$1,508	
-16	2.416	2028	$483,127	$506,253	$1,556	
-17	2.493	2029	$498,587	$522,453	$1,606	
-18	2.573	2030	$514,542	$539,171	$1,657	
-19	2.655	2031	$0	$556,425	$1,710	
-20	2.740	2032	$0	$574,231	$1,765	
	Total		$8,114,100	$8,655,600	$26,600	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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E&D and Construction Data

	ESTIMATED CONSTRUCTION COST			**31,468,565**
	ESTIMATED CONSTRUCTION + 25% CONTINGENCY			**39,336,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$3,619,000
	Engineering	$2,214,000		
	Geotechnical Investigation	$150,000		
	Hydrologic Modeling	$200,000		
	Navigation channel modeling (induced dredging)	$80,000		
	0	$275,000		
	Cultural Resources	$0		
	NEPA Compliance	$700,000		
Supervision and Administration				$500,000
State Costs				
Supervision and Administration				$400,000
Easements and Land Rights				$2,600,000
Monitoring				$1,024,087
	Monitoring Plan Development	$24,087		
	Monitoring Year (1-2)	$400,000	Special calculation	
	Fisheries monitoring ($200,000/yr forTYs 1, 2, and 3 only)	$600,000	Special calculation	
		Total Phase I Cost Estimate		**$8,143,000**

** Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$57,600,000
Estimated Construction Cost +25% Contingency				$39,336,000
Supervision and Inspection		0 days @	$816 per day	$1,966,800
Supervision and Administration				$500,000
State Costs				
Supervision and Administration				$400,000
		Total Phase II Cost Estimate		**$99,803,000**

TOTAL ESTIMATED PROJECT FIRST COST	**107,946,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$0**
Annual Cost for Operations	**$191,800**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items			**Year 2**	**Year 5**	**Year 10**	**Year 15**
Contractor Mob/Demob			$0	$0	$0	$0
Replace Rock lost to settlement			$0	$0	$0	$0
Replace Terraces			$0	$0	$0	$0
Sheetpile						
Replace Signs (50% or 28 signs)			$0	$0	$0	$0
		Subtotal	$0	$0	$0	$0
		Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs						
Engineering and Design Cost			$0	$0	$0	$0
Administrative Cost			$0	$0	$0	$0
Eng Survey	**0** days @	**$1,361** per day	$0	$0	$0	$0
Construction Inspection	**0** days @	**$816** per day	$0	$0	$0	$3
		Subtotal	***$0***	***$0***	***$0***	***$0***
		Total	**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Federal S&A (3% monitoring)	**$0**
Federal S&A	**$17,773**
Monitoring	**$200,000**

Construction Schedule:

			2001	2002	2003	2004	2005	2006	2007	Total
Planning & Design Start	**January-02**		0	9	12	12	4			37
Planning & Design End	**January-05**									
Const. Start	**June-05**	**June-02**					4	12	12	0
Const. End	**June-12**		12	12	12	12	9	0	0	85
			2008	2009	2010	2011	2012			

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Restore Barrier Shoreline from Chaland Pass to Grand Bayou Pass

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$14,134,300	Total Fully Funded Costs	$14,423,800

Annual Charges	Present Worth	Average Annual
First Costs	$14,896,292	$1,338,541
Monitoring	$58,672	$5,272
O & M Costs	$42,507	$3,820
Other Costs	$7,169	$644
Total	$15,004,600	$1,348,300

Average Annual Habitat Units	47
Cost Per Habitat Unit	$28,687
Total Net Acres	176

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Restore Barrier Shoreline from Chaland Pass to Grand Bayou Pass

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
3	Compound	2001	$548,800	$35,000	$119,290	$146,059	$644	$18,515	-	$0		$868,308
2	Compound	2002	$235,200	$15,000	$51,124	$62,597	$322	$0	-	$0		$364,243
		TOTAL	$784,000	$50,000	$170,415	$208,655	$966	$18,515	$0	$0	$0	$1,232,552
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2001	-	$0	$0	$0		$0	$0	$0	$0	$0
2	Compound	2002	-	$699,000	$139,430	$170,718	$322	$5,572	$272,160	$1,730,780	$6,923,120	$9,941,102
1	Compound	2003	-	$0	$30,985	$37,937	$644	$5,572	$60,480	$384,618	$1,538,471	$2,058,707
		TOTAL	$0	$699,000	$170,415	$208,655	$966	$11,145	$332,640	$2,115,398	$8,461,591	$11,999,810
Total First Costs			$784,000	$749,000	$340,830	$417,310	$1,933	$29,660	$332,640	$2,115,398	$8,461,591	$13,232,361

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2004	$5,572	$3,820	$644	-
2	Discount	2005	$5,572	$3,820	$644	-
3	Discount	2006	$5,572	$3,820	$644	-
4	Discount	2007	$5,572	$3,820	$644	-
5	Discount	2008	$5,572	$3,820	$644	-
6	Discount	2009	$5,572	$3,820	$644	-
7	Discount	2010	$5,572	$3,820	$644	-
8	Discount	2011	$5,572	$3,820	$644	-
9	Discount	2012	$5,572	$3,820	$644	-
10	Discount	2013	$5,572	$3,820	$644	-
11	Discount	2014	$5,572	$3,820	$644	-
12	Discount	2015	$5,572	$3,820	$644	-
13	Discount	2016	$5,572	$3,820	$644	-
14	Discount	2017	$5,572	$3,820	$644	-
15	Discount	2018	$5,572	$3,820	$644	-
16	Discount	2019	$5,572	$3,820	$644	-
17	Discount	2020	$5,572	$3,820	$644	-
18	Discount	2021	$5,572	$3,820	$644	-
19	Discount	2022	$0	$3,820	$644	-
20	Discount	2023	$0	$3,820	$644	-
		Total	$100,303	$76,391	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Restore Barrier Shoreline from Chaland Pass to Grand Bayou Pass

Present Valued Costs

Total Discounted Costs $15,004,641

Amortized Costs $1,348,276

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$660,591	$42,130	$143,590	$175,811	$775	$22,287	$0	$0	$0	$1,045,184
2	1.132	2002	$266,144	$16,973	$57,851	$70,832	$364	$0	$0	$0	$0	$412,164
		Total	$926,735	$59,103	$201,441	$246,643	$1,140	$22,287	$0	$0	$0	$1,457,348
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$790,963	$157,774	$193,178	$364	$6,305	$307,966	$1,958,488	$7,833,954	$11,248,994
1	1.064	2003	$0	$0	$32,960	$40,356	$685	$5,928	$64,336	$409,137	$1,636,549	$2,189,950
		Total	$0	$790,963	$190,734	$233,534	$1,050	$12,233	$372,302	$2,367,626	$9,470,502	$13,438,944
Total First Cost			$926,735	$850,066	$392,175	$480,177	$2,190	$34,520	$372,302	$2,367,626	$9,470,502	$14,896,292

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$5,238	$3,591	$606	
-2	0.884	2005	$4,924	$3,375	$569	
-3	0.831	2006	$4,629	$3,173	$535	
-4	0.781	2007	$4,352	$2,983	$503	
-5	0.734	2008	$4,091	$2,804	$473	
-6	0.690	2009	$3,846	$2,636	$445	
-7	0.649	2010	$3,615	$2,478	$418	
-8	0.610	2011	$3,399	$2,330	$393	
-9	0.573	2012	$3,195	$2,190	$369	
-10	0.539	2013	$3,004	$2,059	$347	
-11	0.507	2014	$2,824	$1,935	$326	
-12	0.476	2015	$2,654	$1,819	$307	
-13	0.448	2016	$2,495	$1,710	$288	
-14	0.421	2017	$2,346	$1,608	$271	
-15	0.396	2018	$2,205	$1,512	$255	
-16	0.372	2019	$2,073	$1,421	$240	
-17	0.350	2020	$1,949	$1,336	$225	
-18	0.329	2021	$1,832	$1,256	$212	
-19	0.309	2022	$0	$1,180	$199	
-20	0.291	2023	$0	$1,110	$187	
		Total	$58,672	$42,507	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Restore Barrier Shoreline from Chaland Pass to Grand Bayou Pass

Fully Funded Costs Total Fully Funded Costs $14,423,800 Amortized Costs $1,296,084

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	3	1.032	2001	$566,362	$36,120	$123,108	$150,732	$665	$19,108	$0	$0	$0	$896,094
	2	1.065	2002	$250,494	$15,975	$54,449	$66,667	$343	$0	$0	$0	$0	$387,928
			TOTAL	$816,855	$52,095	$177,556	$217,399	$1,008	$19,108	$0	$0	$0	$1,284,022
Phase II													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.065	2002	$0	$744,452	$148,497	$181,818	$343	$5,935	$289,857	$1,843,322	$7,373,289	$10,587,513
	1	1.099	2003	$0	$0	$34,055	$41,697	$708	$6,125	$66,474	$422,735	$1,690,941	$2,262,735
			TOTAL	$0	$744,452	$182,552	$223,516	$1,051	$12,059	$356,331	$2,266,057	$9,064,230	$12,850,248
Total Cost				$816,900	$796,500	$360,100	$440,900	$2,100	$31,200	$356,300	$2,266,100	$9,064,200	$14,134,300

Year			FY	Monitoring	O&M	Corps PM	Other
	-1	1.134	2004	$6,321	$4,332	$731	
	-2	1.171	2005	$6,523	$4,471	$754	
	-3	1.208	2006	$6,732	$4,614	$778	
	-4	1.247	2007	$6,947	$4,762	$803	
	-5	1.287	2008	$7,169	$4,914	$829	
	-6	1.328	2009	$7,399	$5,071	$855	
	-7	1.370	2010	$7,635	$5,234	$883	
	-8	1.414	2011	$7,880	$5,401	$911	
	-9	1.459	2012	$8,132	$5,574	$940	
	-10	1.506	2013	$8,392	$5,752	$970	
	-11	1.554	2014	$8,661	$5,936	$1,001	
	-12	1.604	2015	$8,938	$6,126	$1,033	
	-13	1.655	2016	$9,224	$6,322	$1,066	
	-14	1.708	2017	$9,519	$6,525	$1,100	
	-15	1.763	2018	$9,824	$6,734	$1,136	
	-16	1.819	2019	$10,138	$6,949	$1,172	
	-17	1.878	2020	$10,462	$7,171	$1,210	
	-18	1.938	2021	$10,797	$7,401	$1,248	
	-19	2.000	2022	$0	$7,638	$1,288	
	-20	2.064	2023	$0	$7,882	$1,329	
			Total	$150,700	$118,800	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**8,461,591**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**10,576,989**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$784,000
	Engineering	$644,000		
	Geotechnical Investigation	$30,000		
	Hydrologic Modeling	$0		
	Data Collection or Surveying	$110,000		
	HTRW	$0		
	Cultural Resources	$0		
	NEPA Compliance	$0		
Supervision and Administration				$170,415
State Costs				
Supervision and Administration				$208,655
Easements and Land Rights				$50,000
Monitoring				$18,515
	Monitoring Plan Development	$12,943		
	Monitoring Protocal Cost *****	$5,572		
			Total Phase I Cost Estimate	**$1,232,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$699,000
Estimated Construction Cost +25% Contingency				$10,576,989
Supervision and Inspection	400 days @		$816 per day	$332,640
Supervision and Administration				$170,415
State Costs				
Supervision and Administration				$208,655
			Total Phase II Cost Estimate	**$11,988,000**

TOTAL ESTIMATED PROJECT FIRST COST	**13,220,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items						Year 2	Year 5	Year 10	Year 15
Contractor Mob/Demob						$0	$0	$0	$0
Replace Rock lost to settlement						$0	$0	$0	$0
Replace Terraces						$0	$0	$0	$0
Sheetpile									
Replace Signs (50% or 28 signs)						$0	$0	$0	$0
					Subtotal	$0	$0	$0	$0
					Subtotal w/ 10% contin.	*$0*	*$0*	*$0*	*$0*
Engineer, Design & Administrative Costs									
Engineering and Design Cost						$0	$0	$0	$0
Administrative Cost						$0	$0	$0	$0
Eng Survey	**0** days	@	**$1,361**	per day		$0	$0	$0	$0
Construction Inspection	**0** days	@	**$816**	per day		$0	$0	$0	$3
					Subtotal	*$0*	*$0*	*$0*	*$0*
					Total	$0	$0	$0	$0

Annual Project Costs:

Corps Administration	**$644**
Federal S&A (3% monitoring)	**$0**
Federal S&A	**$274**
Monitoring	**$5,572**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	3	0		10
Planning & Design End	**December-01**					
Const. Start	**January-02**					0
Const. End	**November-02**	0	9	2	0	11

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Small Freshwater Diversion to the Northwestern Barataria Basin

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$11,227,400	Total Fully Funded Costs	$14,281,100

Annual Charges	Present Worth	Average Annual
First Costs	$11,857,625	$1,065,494
Monitoring	$351,016	$31,541
O & M Costs	$762,832	$68,546
Other Costs	$7,169	$644
Total	$12,978,600	$1,166,226

Average Annual Habitat Units	781
Cost Per Habitat Unit	$1,493
Total Net Acres	0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Small Freshwater Diversion to the Northwestern Barataria Basin

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
3	Compound	2001	$1,415,000	$1,100,000	$139,500	$139,500	$644	$46,281	-	$0		$2,840,925
2	Compound	2002	$0	$0	$0	$0	$0	$0	-	$0		$0
		TOTAL	$1,415,000	$1,100,000	$139,500	$139,500	$644	$46,281	$0	$0	$0	$2,840,925
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Compound	2002	-	$0	$73,853	$73,853	$644	$33,338	$184,765	$738,794	$2,955,176	$4,060,423
1	Compound	2003	-	$0	$65,647	$65,647	$644	$33,338	$164,235	$656,706	$2,626,824	$3,613,041
		TOTAL	$0	$0	$139,500	$139,500	$1,288	$66,675	$349,000	$1,395,500	$5,582,000	$7,673,464
Total First Costs			$1,415,000	$1,100,000	$279,000	$279,000	$1,933	$112,956	$349,000	$1,395,500	$5,582,000	$10,514,388

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2004	$33,338	$68,546	$644	-
2	Discount	2005	$33,338	$68,546	$644	-
3	Discount	2006	$33,338	$68,546	$644	-
4	Discount	2007	$33,338	$68,546	$644	-
5	Discount	2008	$33,338	$68,546	$644	-
6	Discount	2009	$33,338	$68,546	$644	-
7	Discount	2010	$33,338	$68,546	$644	-
8	Discount	2011	$33,338	$68,546	$644	-
9	Discount	2012	$33,338	$68,546	$644	-
10	Discount	2013	$33,338	$68,546	$644	-
11	Discount	2014	$33,338	$68,546	$644	-
12	Discount	2015	$33,338	$68,546	$644	-
13	Discount	2016	$33,338	$68,546	$644	-
14	Discount	2017	$33,338	$68,546	$644	-
15	Discount	2018	$33,338	$68,546	$644	-
16	Discount	2019	$33,338	$68,546	$644	-
17	Discount	2020	$33,338	$68,546	$644	-
18	Discount	2021	$33,338	$68,546	$644	-
19	Discount	2022	$0	$68,546	$644	-
20	Discount	2023	$0	$68,546	$644	-
		Total	$600,076	$1,370,920	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Small Freshwater Diversion to the Northwestern Barataria Basin

Present Valued Costs

Total Discounted Costs $12,978,642

Amortized Costs $1,166,226

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$1,703,237	$1,324,071	$167,916	$167,916	$775	$55,708	$0	$0	$0	$3,419,625
2	1.132	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$1,703,237	$1,324,071	$167,916	$167,916	$775	$55,708	$0	$0	$0	$3,419,625
Phase 2												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$0	$83,569	$83,569	$729	$37,724	$209,073	$835,993	$3,343,971	$4,594,629
1	1.064	2003	$0	$0	$69,832	$69,832	$685	$35,463	$174,705	$698,571	$2,794,284	$3,843,372
		Total	$0	$0	$153,401	$153,401	$1,414	$73,186	$383,778	$1,534,564	$6,138,255	$8,438,001
Total First Cost			$1,703,237	$1,324,071	$321,318	$321,318	$2,190	$128,894	$383,778	$1,534,564	$6,138,255	$11,857,625

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$31,340	$64,438	$606	
-2	0.884	2005	$29,461	$60,576	$569	
-3	0.831	2006	$27,696	$56,946	$535	
-4	0.781	2007	$26,036	$53,533	$503	
-5	0.734	2008	$24,476	$50,325	$473	
-6	0.690	2009	$23,009	$47,309	$445	
-7	0.649	2010	$21,630	$44,474	$418	
-8	0.610	2011	$20,334	$41,809	$393	
-9	0.573	2012	$19,115	$39,303	$369	
-10	0.539	2013	$17,970	$36,948	$347	
-11	0.507	2014	$16,893	$34,733	$326	
-12	0.476	2015	$15,880	$32,652	$307	
-13	0.448	2016	$14,929	$30,695	$288	
-14	0.421	2017	$14,034	$28,855	$271	
-15	0.396	2018	$13,193	$27,126	$255	
-16	0.372	2019	$12,402	$25,501	$240	
-17	0.350	2020	$11,659	$23,972	$225	
-18	0.329	2021	$10,960	$22,536	$212	
-19	0.309	2022	$0	$21,185	$199	
-20	0.291	2023	$0	$19,915	$187	
		Total	$351,016	$762,832	$7,169	$0

Coastal Wetlands Conservation and Restoration Plan

Small Freshwater Diversion to the Northwestern Barataria Basin

Fully Funded Costs Total Fully Funded Costs $14,281,100 Amortized Costs $1,283,261

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$1,460,280	$1,135,200	$143,964	$143,964	$665	$47,762	$0	$0	$0	$2,931,834
2	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$1,460,280	$1,135,200	$143,964	$143,964	$665	$47,762	$0	$0	$0	$2,931,834
Phase 2												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$0	$78,655	$78,655	$686	$35,505	$196,779	$786,833	$3,147,334	$4,324,448
1	1.099	2003	$0	$0	$72,153	$72,153	$708	$36,641	$180,512	$721,789	$2,887,154	$3,971,110
		TOTAL	$0	$0	$150,808	$150,808	$1,394	$72,147	$377,291	$1,508,622	$6,034,488	$8,295,558
Total Cost			$1,460,300	$1,135,200	$294,800	$294,800	$2,100	$119,900	$377,300	$1,508,600	$6,034,500	$11,227,400

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$37,814	$77,750	$731	
-2	1.171	2005	$39,024	$80,238	$754	
-3	1.208	2006	$40,273	$82,806	$778	
-4	1.247	2007	$41,562	$85,455	$803	
-5	1.287	2008	$42,892	$88,190	$829	
-6	1.328	2009	$44,264	$91,012	$855	
-7	1.370	2010	$45,680	$93,925	$883	
-8	1.414	2011	$47,142	$96,930	$911	
-9	1.459	2012	$48,651	$100,032	$940	
-10	1.506	2013	$50,208	$103,233	$970	
-11	1.554	2014	$51,814	$106,536	$1,001	
-12	1.604	2015	$53,472	$109,946	$1,033	
-13	1.655	2016	$55,183	$113,464	$1,066	
-14	1.708	2017	$56,949	$117,095	$1,100	
-15	1.763	2018	$58,772	$120,842	$1,136	
-16	1.819	2019	$60,652	$124,709	$1,172	
-17	1.878	2020	$62,593	$128,699	$1,210	
-18	1.938	2021	$64,596	$132,818	$1,248	
-19	2.000	2022	$0	$137,068	$1,288	
-20	2.064	2023	$0	$141,454	$1,329	
		Total	$901,500	$2,132,200	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**5,582,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**6,978,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$1,415,000
	Engineering	$600,000		
	Geotechnical Investigation	$100,000		
	Hydrologic Modeling	$300,000		
	Data Collection or Surveying	$350,000		
	HTRW	$0		
	Cultural Resources	$20,000		
	NEPA Compliance	$45,000		
Supervision and Administration				$139,500
State Costs				
Supervision and Administration				$139,500
Easements and Land Rights				$1,100,000
Monitoring				$46,281
	Monitoring Plan Development	$12,943		
	Monitoring Protocal Cost *****	$33,338		
			Total Phase I Cost Estimate	**$2,840,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$6,978,000
Supervision and Inspection	0 days @	$816 per day	$349,000
Supervision and Administration			$139,500
State Costs			
Supervision and Administration			$139,500
		Total Phase II Cost Estimate	**$7,606,000**

TOTAL ESTIMATED PROJECT FIRST COST	**10,446,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$50,000**
Monitoring Stations	**$15,000**

Specific Intermittent Costs

Construction Items	Year 2	Year 5	Year 15	
Contractor Mobilization/Demobilization	$0	$0	$0	$0
Replace Rock Reach A	$0	$0	$0	$0
Replace Rock Reach B	$0	$0	$0	$0
Other Rock work	$0	$0	$0	$0
Sheetpile	$0	$0	$0	$0
Replace signs	$0	$0	$0	$0
Subtotal	$0	$0	$0	$0
Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***

Engineer, Design & Administrative Costs

Engineering and Design Cost						$0	$0	$0	$0
Administrative Cost						$0	$0	$0	$0
Eng Survey	**0**	days	@	**$1,361**	per day	$0	$0	$0	$0
Construction Inspection	**0**	days	@	**$816**	per day	$0	$0	$0	$0
Subtotal						***$0***	***$0***	***$0***	***$0***
Total						**$0**	**$0**	**$0**	**$0**

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Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$33,338**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**April-01**	6	0	0		6
Planning & Design End	**September-01**					
Const. Start	**January-02**					0
Const. End	**May-03**	0	9	8	0	17

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

South Lake Salvador Shoreline Protection and Marsh Creation

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$17,822,800	Total Fully Funded Costs	$19,389,300

Annual Charges	Present Worth	Average Annual
First Costs	$17,479,041	$1,570,619
Monitoring	$90,417	$8,125
O & M Costs	$466,763	$41,942
Other Costs	$7,169	$644
Total	$18,043,400	$1,621,300

Average Annual Habitat Units	216
Cost Per Habitat Unit	$7,506
Total Net Acres	480

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

South Lake Salvador Shoreline Protection and Marsh Creation

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
0 Compound									$0		$0
0 Compound								-	$0		$0
3 Compound	2001	$437,500	$21,875	$98,981	$114,293	$644	$21,285	-	$0		$694,579
2 Compound	2002	$562,500	$28,125	$127,261	$146,949	$644	$0	-	$0		$865,479
TOTAL		$1,000,000	$50,000	$226,242	$261,242	$1,288	$21,285	$0	$0	$0	$1,560,058
Phase II											
0 Compound		-	-	-	-	-	-	-	$0	$0	$0
3 Compound	2001	-	-	$0	$0		$0	$0	$0	$0	$0
2 Compound	2002	-	-	$0	$0	$0	$0	$0	$0	$0	$0
1 Compound	2003	-	-	$261,242	$208,655	$644	$8,342	$163,200	$2,816,567	$11,266,267	$14,724,917
TOTAL		$0	$0	$261,242	$208,655	$644	$8,342	$163,200	$2,816,567	$11,266,267	$14,724,917
Total First Costs		$1,000,000	$50,000	$487,484	$469,897	$1,933	$29,628	$163,200	$2,816,567	$11,266,267	$16,284,975

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2004	$8,342	$3,903	$644	-
2 Discount	2005	$8,342	$3,903	$644	-
3 Discount	2006	$8,342	$3,903	$644	-
4 Discount	2007	$8,342	$3,903	$644	-
5 Discount	2008	$8,342	$3,903	$644	-
6 Discount	2009	$8,342	$3,903	$644	-
7 Discount	2010	$8,342	$3,903	$644	-
8 Discount	2011	$8,342	$3,903	$644	-
9 Discount	2012	$8,342	$3,903	$644	-
10 Discount	2013	$8,342	$789,277	$644	-
11 Discount	2014	$8,342	$3,903	$644	-
12 Discount	2015	$8,342	$3,903	$644	-
13 Discount	2016	$8,342	$3,903	$644	-
14 Discount	2017	$8,342	$3,903	$644	-
15 Discount	2018	$8,342	$3,903	$644	-
16 Discount	2019	$8,342	$3,903	$644	-
17 Discount	2020	$8,342	$3,903	$644	-
18 Discount	2021	$8,342	$3,903	$644	-
19 Discount	2022	$8,342	$3,903	$644	-
20 Discount	2023	$0	$3,903	$644	-
Total		$158,506	$863,427	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

South Lake Salvador Shoreline Protection and Marsh Creation

Present Valued Costs

Total Discounted Costs $18,043,390

Amortized Costs $1,621,330

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$526,619	$26,331	$119,143	$137,575	$775	$25,621	$0	$0	$0	$836,066
2	1.132	2002	$636,505	$31,825	$144,004	$166,282	$729	$0	$0	$0	$0	$979,345
	Total		$1,163,124	$58,156	$263,148	$303,857	$1,504	$25,621	$0	$0	$0	$1,815,410
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2003	$0	$0	$277,896	$221,957	$685	$8,874	$173,604	$2,996,123	$11,984,491	$15,663,630
	Total		$0	$0	$277,896	$221,957	$685	$8,874	$173,604	$2,996,123	$11,984,491	$15,663,630
Total First Cost			$1,163,124	$58,156	$541,044	$525,814	$2,190	$34,496	$173,604	$2,996,123	$11,984,491	$17,479,041

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$7,842	$3,669	$606	
-2	0.884	2005	$7,372	$3,449	$569	
-3	0.831	2006	$6,931	$3,242	$535	
-4	0.781	2007	$6,515	$3,048	$503	
-5	0.734	2008	$6,125	$2,865	$473	
-6	0.690	2009	$5,758	$2,694	$445	
-7	0.649	2010	$5,413	$2,532	$418	
-8	0.610	2011	$5,088	$2,380	$393	
-9	0.573	2012	$4,783	$2,238	$369	
-10	0.539	2013	$4,497	$425,435	$347	
-11	0.507	2014	$4,227	$1,978	$326	
-12	0.476	2015	$3,974	$1,859	$307	
-13	0.448	2016	$3,736	$1,748	$288	
-14	0.421	2017	$3,512	$1,643	$271	
-15	0.396	2018	$3,301	$1,544	$255	
-16	0.372	2019	$3,104	$1,452	$240	
-17	0.350	2020	$2,918	$1,365	$225	
-18	0.329	2021	$2,743	$1,283	$212	
-19	0.309	2022	$2,578	$1,206	$199	
-20	0.291	2023	$0	$1,134	$187	
	Total		$90,417	$466,763	$7,169	$0

Coastal Wetlands Conservation and Restoration Plan

South Lake Salvador Shoreline Protection and Marsh Creation

Fully Funded Costs Total Fully Funded Costs $19,389,300 Amortized Costs $1,742,270

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$451,500	$22,575	$102,148	$117,951	$665	$21,967	$0	$0	$0	$716,805
2	1.065	2002	$599,076	$29,954	$135,536	$156,504	$686	$0	$0	$0	$0	$921,756
		TOTAL	$1,050,576	$52,529	$237,684	$274,455	$1,351	$21,967	$0	$0	$0	$1,638,561
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.099	2003	$0	$0	$287,132	$229,334	$708	$9,169	$179,374	$3,095,702	$12,382,807	$16,184,226
		TOTAL	$0	$0	$287,132	$229,334	$708	$9,169	$179,374	$3,095,702	$12,382,807	$16,184,226
Total Cost			$1,050,600	$52,500	$524,800	$503,800	$2,100	$31,100	$179,400	$3,095,700	$12,382,800	$17,822,800

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$9,463	$4,427	$731	
-2	1.171	2005	$9,765	$4,568	$754	
-3	1.208	2006	$10,078	$4,715	$778	
-4	1.247	2007	$10,400	$4,865	$803	
-5	1.287	2008	$10,733	$5,021	$829	
-6	1.328	2009	$11,077	$5,182	$855	
-7	1.370	2010	$11,431	$5,348	$883	
-8	1.414	2011	$11,797	$5,519	$911	
-9	1.459	2012	$12,174	$5,695	$940	
-10	1.506	2013	$12,564	$1,188,681	$970	
-11	1.554	2014	$12,966	$6,066	$1,001	
-12	1.604	2015	$13,381	$6,260	$1,033	
-13	1.655	2016	$13,809	$6,460	$1,066	
-14	1.708	2017	$14,251	$6,667	$1,100	
-15	1.763	2018	$14,707	$6,880	$1,136	
-16	1.819	2019	$15,178	$7,100	$1,172	
-17	1.878	2020	$15,663	$7,327	$1,210	
-18	1.938	2021	$16,165	$7,562	$1,248	
-19	2.000	2022	$16,682	$7,804	$1,288	
-20	2.064	2023	$0	$8,054	$1,329	$0
		Total	$242,300	$1,304,200	$20,000	$0

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E&D and Construction Data

ESTIMATED CONSTRUCTION COST		**11,266,267**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY		**14,082,833**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$1,000,000
	Engineering	$842,000		
	Geotechnical Investigation	$60,000		
	Hydrologic Modeling	$0		
	Data Collection or Surveying	$97,968		
	HTRW	$0		
	Cultural Resources	$0		
	NEPA Compliance	$0		
Supervision and Administration				$226,242
State Costs				
Supervision and Administration				$261,242
Easements and Land Rights				$50,000
Monitoring				$21,285
	Monitoring Plan Development	$12,943		
	Monitoring Protocal Cost *	$8,342		
			Total Phase I Cost Estimate	**$1,559,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$14,082,833
Supervision and Inspection	200 days @		$816 per day	$163,200
Supervision and Administration				$261,242
State Costs				
Supervision and Administration				$208,655
			Total Phase II Cost Estimate	**$14,716,000**

TOTAL ESTIMATED PROJECT FIRST COST	**16,275,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items			**Year 10**	**Year**	**Year**	**Year**
Contractor Mob/Demob			$40,000	$0	$0	$0
Replace Rock lost to settlement			$587,696	$0	$0	$0
Replace Terraces			$0	$0	$0	$0
Sheetpile						
Replace Signs			$15,500	$0	$0	$0
		Subtotal	$643,196	$0	$0	$0
		Subtotal w/ 10% contin.	***$708,000***	***$0***	***$0***	***$0***

Engineer, Design & Administrative Costs							
Engineering and Design Cost				$51,705	$0	$0	$0
Administrative Cost				$4,384	$0	$0	$0
Eng Survey	**7** days	@	**$1,361** per day	$9,527	$0	$0	$0
Construction Inspection	**15** days	@	**$816** per day	$12,240	$0	$0	$3
			Subtotal	***$78,000***	***$0***	***$0***	***$0***
			Total	**$786,000**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Federal S&A (3% monitoring)	**$0**
Federal S&A	**$357**
Monitoring	**$8,342**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	9	0		16
Planning & Design End	**June-02**					
Const. Start	**November-02**					0
Const. End	**July-03**	0	0	9	0	9

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Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Phase II - Raccoon Island Breakwaters and North Shore Marsh Creation

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$9,596,900	Total Fully Funded Costs	$9,886,900

Annual Charges	Present Worth	Average Annual
First Costs	$9,636,050	$865,869
Monitoring	$58,668	$5,272
O & M Costs	$39,463	$3,546
Other Costs	$7,169	$644
Total	$9,741,400	$875,300

Average Annual Habitat Units	83
Cost Per Habitat Unit	$10,546
Total Net Acres	166

Coastal Wetlands Conservation and Restoration Plan

Phase II - Raccoon Island Breakwaters and North Shore Marsh Creation

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
4 Compound	2001	$180,250	$3,500	$49,910	$49,910	$644	$12,943	-	$0		$297,157
3 Compound	2002	$309,000	$6,000	$85,560	$85,560	$644	$5,572	-	$0		$492,336
2 Compound	2003	$25,750	$500	$7,130	$7,130	$322	$0	-	$0		$40,832
1 Compound	2004	$0	$0	$0	$0	$0	$0	-	$0		$0
	TOTAL	$515,000	$10,000	$142,600	$142,600	$1,611	$18,515	$0	$0	$0	$830,326
Phase II											
4 Compound	2001	-	-	-	-	-	-	-	$0	$0	$0
3 Compound	2002	-	-	-	-	-	-		$0	$0	$0
2 Compound	2003	-	-	$79,222	$79,222	$322	$5,572	$220,000	$792,222	$3,168,889	$4,345,450
1 Compound	2004	-	-	$63,378	$63,378	$644	$5,572	$176,000	$633,778	$2,535,111	$3,477,861
	TOTAL	$0	$0	$142,600	$142,600	$966	$11,144	$396,000	$1,426,000	$5,704,000	$7,823,310
Total First Costs		$515,000	$10,000	$285,200	$285,200	$2,577	$29,659	$396,000	$1,426,000	$5,704,000	$8,653,636

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2005	$5,572	$3,546	$644	-
2 Discount	2006	$5,572	$3,546	$644	-
3 Discount	2007	$5,572	$3,546	$644	-
4 Discount	2008	$5,572	$3,546	$644	-
5 Discount	2009	$5,572	$3,546	$644	-
6 Discount	2010	$5,572	$3,546	$644	-
7 Discount	2011	$5,572	$3,546	$644	-
8 Discount	2012	$5,572	$3,546	$644	-
9 Discount	2013	$5,572	$3,546	$644	-
10 Discount	2014	$5,572	$3,546	$644	-
11 Discount	2015	$5,572	$3,546	$644	-
12 Discount	2016	$5,572	$3,546	$644	-
13 Discount	2017	$5,572	$3,546	$644	-
14 Discount	2018	$5,572	$3,546	$644	-
15 Discount	2019	$5,572	$3,546	$644	-
16 Discount	2020	$5,572	$3,546	$644	-
17 Discount	2021	$5,572	$3,546	$644	-
18 Discount	2022	$5,572	$3,546	$644	-
19 Discount	2023	$0	$3,546	$644	-
20 Discount	2024	$0	$3,546	$644	-
	Total	$100,296	$70,920	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Phase II - Raccoon Island Breakwaters and North Shore Marsh Creation

Present Valued Costs

Total Discounted Costs $9,741,350

Amortized Costs $875,331

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	1.280	2001	$230,799	$4,482	$63,907	$63,907	$825	$16,573	$0	$0	$0	$380,491
3	1.204	2002	$371,944	$7,222	$102,989	$102,989	$775	$6,707	$0	$0	$0	$592,626
2	1.132	2003	$29,138	$566	$8,068	$8,068	$364	$0	$0	$0	$0	$46,204
1	1.064	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$631,880	$12,270	$174,963	$174,963	$1,965	$23,280	$0	$0	$0	$1,019,321
Phase II												
4	1.280	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2003	$0	$0	$89,645	$89,645	$364	$6,305	$248,944	$896,450	$3,585,801	$4,917,155
1	1.064	2004	$0	$0	$67,418	$67,418	$685	$5,927	$187,220	$674,181	$2,696,724	$3,699,574
		Total	$0	$0	$157,063	$157,063	$1,050	$12,232	$436,164	$1,570,631	$6,282,525	$8,616,729
Total First Cost			$631,880	$12,270	$332,026	$332,026	$3,015	$35,512	$436,164	$1,570,631	$6,282,525	$9,636,050

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2005	$5,238	$3,333	$606	
-2	0.884	2006	$4,924	$3,134	$569	
-3	0.831	2007	$4,629	$2,946	$535	
-4	0.781	2008	$4,352	$2,769	$503	
-5	0.734	2009	$4,091	$2,603	$473	
-6	0.690	2010	$3,846	$2,447	$445	
-7	0.649	2011	$3,615	$2,301	$418	
-8	0.610	2012	$3,399	$2,163	$393	
-9	0.573	2013	$3,195	$2,033	$369	
-10	0.539	2014	$3,003	$1,911	$347	
-11	0.507	2015	$2,823	$1,797	$326	
-12	0.476	2016	$2,654	$1,689	$307	
-13	0.448	2017	$2,495	$1,588	$288	
-14	0.421	2018	$2,346	$1,493	$271	
-15	0.396	2019	$2,205	$1,403	$255	
-16	0.372	2020	$2,073	$1,319	$240	
-17	0.350	2021	$1,949	$1,240	$225	
-18	0.329	2022	$1,832	$1,166	$212	
-19	0.309	2023	$0	$1,096	$199	
-20	0.291	2024	$0	$1,030	$187	
		Total	$58,668	$39,463	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Phase II - Raccoon Island Breakwaters and North Shore Marsh Creation

Fully Funded Costs — Total Fully Funded Costs $9,886,900 — Amortized Costs $888,410

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I													
	4	1.032	2001	$186,018	$3,612	$51,507	$51,507	$665	$13,357	$0	$0	$0	$306,666
	3	1.065	2002	$329,092	$6,390	$91,123	$91,123	$686	$5,934	$0	$0	$0	$524,350
	2	1.099	2003	$28,302	$550	$7,837	$7,837	$354	$0	$0	$0	$0	$44,879
	1	1.134	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			TOTAL	$543,412	$10,552	$150,467	$150,467	$1,705	$19,291	$0	$0	$0	$875,895
Phase II													
	4	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	3	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.099	2003	$0	$0	$87,074	$87,074	$354	$6,124	$241,803	$870,735	$3,482,941	$4,776,104
	1	1.134	2004	$0	$0	$71,888	$71,888	$731	$6,320	$199,633	$718,879	$2,875,516	$3,944,854
			TOTAL	$0	$0	$158,961	$158,961	$1,085	$12,444	$441,436	$1,589,614	$6,358,457	$8,720,959
Total Cost				$543,400	$10,600	$309,400	$309,400	$2,800	$31,700	$441,400	$1,589,600	$6,358,500	$9,596,900

Year			FY	Monitoring	O&M	Corps PM	Other
	-1	1.171	2005	$6,522	$4,151	$754	
	-2	1.208	2006	$6,731	$4,284	$778	
	-3	1.247	2007	$6,947	$4,421	$803	
	-4	1.287	2008	$7,169	$4,562	$829	
	-5	1.328	2009	$7,398	$4,708	$855	
	-6	1.370	2010	$7,635	$4,859	$883	
	-7	1.414	2011	$7,879	$5,014	$911	
	-8	1.459	2012	$8,131	$5,175	$940	
	-9	1.506	2013	$8,392	$5,340	$970	
	-10	1.554	2014	$8,660	$5,511	$1,001	
	-11	1.604	2015	$8,937	$5,688	$1,033	
	-12	1.655	2016	$9,223	$5,870	$1,066	
	-13	1.708	2017	$9,518	$6,058	$1,100	
	-14	1.763	2018	$9,823	$6,251	$1,136	
	-15	1.819	2019	$10,137	$6,451	$1,172	
	-16	1.878	2020	$10,462	$6,658	$1,210	
	-17	1.938	2021	$10,797	$6,871	$1,248	
	-18	2.000	2022	$11,142	$7,091	$1,288	
	-19	2.064	2023	$0	$7,318	$1,329	
	-20	2.130	2024	$0	$7,552	$1,372	
			Total	$155,500	$113,800	$20,700	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**5,704,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**7,130,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$515,000
	Engineering	$445,000		
	Geotechnical Investigation	$10,000		
	Surveying	$20,000		
	Hydrologic Modeling	$0		
	Data Collection	$0		
	Cultural Resources	$10,000		
	NEPA Compliance	$30,000		
Supervision and Administration				$142,600
State Costs				
Supervision and Administration				$142,600
Easements and Land Rights				$10,000
Monitoring				$18,515
	Monitoring Plan Developmen	$12,943		
	Monitoring Protocal Cost *****	$5,572		
			Total Phase I Cost Estimate	**$829,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Estimated Construction Cost +25% Contingency				$7,130,000
Supervision and Inspection	264 days	@	1500 per day	$396,000
Supervision and Administration				$142,600
State Costs				
Supervision and Administration				$142,600
			Total Phase II Cost Estimate	**$7,811,000**

TOTAL ESTIMATED PROJECT FIRST COST	**8,640,000**

O&M Data

Annual Costs

Annual Inspections	$3,546
Annual Cost for Operations	$0
Preventive Maintenance (Included in Annual Cost for Operations)	$0

Specific Intermittent Costs: NONE

Construction Items					**Year 5**	**Year 10**	**Year 15**
General Structure Maintaince and Repair					$0	$0	$0
Contractor Mobilization/Demobilization					$0	$0	$0
				Subtotal	$0	$0	$0
				Subtotal w/ 10% contin.	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs							
Engineering and Design Cost					$0	$0	$0
Administrative Cost					$0	$0	$0
Eng Survey	0 days	@	$1,361 per day		$0	$0	$0
Construction Inspection	0 days	@	$816 per day		$0	$0	$0
				Subtotal	***$0***	***$0***	***$0***
				Total	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	$644
Monitoring	$5,572

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	12	1		20
Planning & Design End	**October-02**					
Const. Start	**May-03**					0
Const. End	**January-04**			5	4	9

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Isle Dernieres Restoration-Whiskey Island West Flank

Project Construction Years:	2	Total Project Years	22
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$34,799,500	Total Fully Funded Costs	$35,082,600

Annual Charges	Present Worth	Average Annual
First Costs	$34,905,930	$3,136,552
Monitoring	$60,394	$5,427
O & M Costs	$39,463	$3,546
Other Costs	$7,169	$644
Total	$35,013,000	$3,146,200

Average Annual Habitat Units	93
Cost Per Habitat Unit	$33,830
Total Net Acres	87

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Isle Dernieres Restoration-Whiskey Island West Flank

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
2	Compound	2001	$640,000	$10,000	$400,000	$400,000	$644	$18,515	-	$0		$1,469,160
1	Compound	2002	$0	$0	$0	$0	$0	$0	-	$0		$0
		TOTAL	$640,000	$10,000	$400,000	$400,000	$644	$18,515	$0	$0	$0	$1,469,160
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
0	Compound		-	$0	$0	$0		$0	$0	$0	$0	$0
2	Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	Compound	2002	-	$0	$400,000	$400,000	$644	$5,572	$135,000	$6,062,000	$24,248,000	$31,251,217
		TOTAL	$0	$0	$400,000	$400,000	$644	$5,572	$135,000	$6,062,000	$24,248,000	$31,251,217
Total First Costs			$640,000	$10,000	$800,000	$800,000	$1,288	$24,088	$135,000	$6,062,000	$24,248,000	$32,720,376

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2003	$5,572	$3,546	$644	-
2	Discount	2004	$5,572	$3,546	$644	-
3	Discount	2005	$5,572	$3,546	$644	-
4	Discount	2006	$5,572	$3,546	$644	-
5	Discount	2007	$5,572	$3,546	$644	-
6	Discount	2008	$5,572	$3,546	$644	-
7	Discount	2009	$5,572	$3,546	$644	-
8	Discount	2010	$5,572	$3,546	$644	-
9	Discount	2011	$5,572	$3,546	$644	-
10	Discount	2012	$5,572	$3,546	$644	-
11	Discount	2013	$5,572	$3,546	$644	-
12	Discount	2014	$5,572	$3,546	$644	-
13	Discount	2015	$5,572	$3,546	$644	-
14	Discount	2016	$5,572	$3,546	$644	-
15	Discount	2017	$5,572	$3,546	$644	-
16	Discount	2018	$5,572	$3,546	$644	-
17	Discount	2019	$5,572	$3,546	$644	-
18	Discount	2020	$5,572	$3,546	$644	-
19	Discount	2021	$5,572	$3,546	$644	-
20	Discount	2022	$0	$3,546	$644	-
		Total	$105,875	$70,920	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Isle Dernieres Restoration-Whiskey Island West Flank

Present Valued Costs Total Discounted Costs $35,012,956 Amortized Costs $3,146,170

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$724,201	$11,316	$452,626	$452,626	$729	$20,951	$0	$0	$0	$1,662,448
1	1.064	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$724,201	$11,316	$452,626	$452,626	$729	$20,951	$0	$0	$0	$1,662,448
Phase 2												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2002	$0	$0	$425,500	$425,500	$685	$5,928	$143,606	$6,448,453	$25,793,810	$33,243,482
		Total	$0	$0	$425,500	$425,500	$685	$5,928	$143,606	$6,448,453	$25,793,810	$33,243,482
Total First Cost			$724,201	$11,316	$878,126	$878,126	$1,414	$26,879	$143,606	$6,448,453	$25,793,810	$34,905,930

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2003	$5,238	$3,333	$606	
-2	0.884	2004	$4,924	$3,134	$569	
-3	0.831	2005	$4,629	$2,946	$535	
-4	0.781	2006	$4,352	$2,769	$503	
-5	0.734	2007	$4,091	$2,603	$473	
-6	0.690	2008	$3,846	$2,447	$445	
-7	0.649	2009	$3,615	$2,301	$418	
-8	0.610	2010	$3,399	$2,163	$393	
-9	0.573	2011	$3,195	$2,033	$369	
-10	0.539	2012	$3,004	$1,911	$347	
-11	0.507	2013	$2,824	$1,797	$326	
-12	0.476	2014	$2,654	$1,689	$307	
-13	0.448	2015	$2,495	$1,588	$288	
-14	0.421	2016	$2,346	$1,493	$271	
-15	0.396	2017	$2,205	$1,403	$255	
-16	0.372	2018	$2,073	$1,319	$240	
-17	0.350	2019	$1,949	$1,240	$225	
-18	0.329	2020	$1,832	$1,166	$212	
-19	0.309	2021	$1,722	$1,096	$199	
-20	0.291	2022	$0	$1,030	$187	
		Total	$60,394	$39,463	$7,169	$0

Coastal Wetlands Conservation and Restoration Plan

Isle Dernieres Restoration-Whiskey Island West Flank

Fully Funded Costs | Total Fully Funded Costs $35,082,600 | Amortized Costs $3,152,428

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.032	2001	$660,480	$10,320	$412,800	$412,800	$665	$19,108	$0	$0	$0	$1,516,173
	1	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			TOTAL	$660,480	$10,320	$412,800	$412,800	$665	$19,108	$0	$0	$0	$1,516,173
Phase 2													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	1	1.065	2002	$0	$0	$426,010	$426,010	$686	$5,935	$143,778	$6,456,175	$25,824,702	$33,283,296
			TOTAL	$0	$0	$426,010	$426,010	$686	$5,935	$143,778	$6,456,175	$25,824,702	$33,283,296
Total Cost				$660,500	$10,300	$838,800	$838,800	$1,400	$25,000	$143,800	$6,456,200	$25,824,700	$34,799,500

Year			FY	Monitoring	O&M	Corps PM	Other
	-1	1.099	2003	$6,125	$3,897	$708	
	-2	1.134	2004	$6,321	$4,022	$731	
	-3	1.171	2005	$6,523	$4,151	$754	
	-4	1.208	2006	$6,732	$4,284	$778	
	-5	1.247	2007	$6,947	$4,421	$803	
	-6	1.287	2008	$7,169	$4,562	$829	
	-7	1.328	2009	$7,399	$4,708	$855	
	-8	1.370	2010	$7,635	$4,859	$883	
	-9	1.414	2011	$7,880	$5,014	$911	
	-10	1.459	2012	$8,132	$5,175	$940	
	-11	1.506	2013	$8,392	$5,340	$970	
	-12	1.554	2014	$8,661	$5,511	$1,001	
	-13	1.604	2015	$8,938	$5,688	$1,033	
	-14	1.655	2016	$9,224	$5,870	$1,066	
	-15	1.708	2017	$9,519	$6,058	$1,100	
	-16	1.763	2018	$9,824	$6,251	$1,136	
	-17	1.819	2019	$10,138	$6,451	$1,172	
	-18	1.878	2020	$10,462	$6,658	$1,210	
	-19	1.938	2021	$10,797	$6,871	$1,248	
	-20	2.000	2022	$0	$7,091	$1,288	
			Total	$156,800	$106,900	$19,400	$0

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**24,248,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**30,310,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$640,000
	Engineering	$500,000	
	Geotechnical Investigation	$100,000	
	Hydrologic Modeling	$0	
	Data Collection or Surveying	$0	
	HTRW	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$400,000
State Costs			
Supervision and Administration			$400,000
Easements and Land Rights			$10,000
Monitoring			$18,515
	Monitoring Plan Development	$12,943	
	Monitoring Protocal Cost *****	$5,572	
		Total Phase I Cost Estimate	**$1,469,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$30,310,000
Supervision and Inspection	90 days @	$1,500 per day	$135,000
Supervision and Administration			$400,000
State Costs			
Supervision and Administration			$400,000
		Total Phase II Cost Estimate	**$31,245,000**

TOTAL ESTIMATED PROJECT FIRST COST	**32,714,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items				Year 5	Year 15		
Contractor Mobilization/Demobilization				$0	$0	$0	$0
Dredging 1				$0	$0	$0	$0
Dredging 2				$0	$0	$0	$0
Rock work				$0	$0	$0	$0
Sheetpile						$0	$0
Replace signs				$0	$0	$0	$0
			Subtotal	$0	$0	$0	$0
			Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs							
Engineering and Design Cost				$0	$0	$0	$0
Administrative Cost				$0	$0	$0	$0
Eng Survey	**0** days	@	**$1,361** per day	$0.00	$0	$0	$0
Construction Inspection	**0** days	@	**$816** per day	$0	$0	$0	$0
			Subtotal	***$0***	***$0***	***$0***	***$0***
			Total	**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$5,572**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**April-01**	6	0	0		6
Planning & Design End	**September-01**					
Const. Start	**May-02**					0
Const. End	**July-02**	0	3	0	0	3

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan Priority Project List X
GIWW Bank Restoration of Critical Areas in Terrebonne

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$17,478,000	Total Fully Funded Costs	$19,657,900

Annual Charges	Present Worth	Average Annual
First Costs	$17,158,164	$1,541,786
Monitoring	$30,022	$2,698
O & M Costs	$744,266	$66,878
Other Costs	$7,167	$644
Total	$17,939,600	$1,612,000

Average Annual Habitat Units	183
Cost Per Habitat Unit	$8,809
Total Net Acres	366

Coastal Wetlands Conservation and Restoration Plan

GIWW Bank Restoration of Critical Areas in Terrebonne

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
3	Compound	2001	$463,750	$21,875	$119,219	$111,296	$644	$11,632	-	$0		$728,416
2	Compound	2002	$596,250	$28,125	$153,281	$143,094	$644	$2,770	-	$0		$924,165
1	Compound	2003	$0	$0	$0	$0	$0	$0	-	$0		$0
0	Compound	2004	$0	$0	$0	$0	$0	$0	-	$0		$0
		TOTAL	$1,060,000	$50,000	$272,500	$254,390	$1,288	$14,402	$0	$0	$0	$1,652,580
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2001	-	-	$0	$0	$0	-	$0	$0	$0	$0
2	Compound	2002	-	-	$0	$0	$0	-	$0	$0	$0	$0
1	Compound	2003	-	-	$272,500	$254,390	$644	$2,770	$166,000	$2,725,250	$10,901,000	$14,322,554
		TOTAL	$0	$0	$272,500	$254,390	$0	$2,770	$166,000	$2,725,250	$10,901,000	$14,322,554
Total First Costs			$1,060,000	$50,000	$545,000	$508,780	$1,288	$17,172	$166,000	$2,725,250	$10,901,000	$15,975,135

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2004	$2,770	$3,546	$644	-
2	Discount	2005	$2,770	$3,546	$644	-
3	Discount	2006	$2,770	$3,546	$644	-
4	Discount	2007	$2,770	$3,546	$644	-
5	Discount	2008	$2,770	$3,546	$644	-
6	Discount	2009	$2,770	$3,546	$644	-
7	Discount	2010	$2,770	$3,546	$644	-
8	Discount	2011	$2,770	$3,546	$644	-
9	Discount	2012	$2,770	$3,546	$644	-
10	Discount	2013	$2,770	$1,311,113	$644	-
11	Discount	2014	$2,770	$3,546	$644	-
12	Discount	2015	$2,770	$3,546	$644	-
13	Discount	2016	$2,770	$3,546	$644	-
14	Discount	2017	$2,770	$3,546	$644	-
15	Discount	2018	$2,770	$3,546	$644	-
16	Discount	2019	$2,770	$3,546	$644	-
17	Discount	2020	$2,770	$3,546	$644	-
18	Discount	2021	$2,770	$3,546	$644	-
19	Discount	2022	$2,770	$3,546	$644	-
20	Discount	2023	$0	$3,546	$644	-
		Total	$52,630	$1,378,487	$12,880	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

GIWW Bank Restoration of Critical Areas in Terrebonne

Present Valued Costs

Total Discounted Costs $17,939,619

Amortized Costs $1,612,006

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
3	1.204	2001	$558,216	$26,331	$143,504	$133,967	$775	$14,001	$0	$0	$0	$876,795
2	1.132	2002	$674,695	$31,825	$173,448	$161,920	$729	$3,134	$0	$0	$0	$1,045,752
1	1.064	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$1,232,912	$58,156	$316,951	$295,887	$1,504	$17,136	$0	$0	$0	$1,922,546
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2003	$0	$0	$289,872	$270,607	$685	$2,947	$176,583	$2,898,985	$11,595,939	$15,235,617
		Total	$0	$0	$289,872	$270,607	$685	$2,947	$176,583	$2,898,985	$11,595,939	$15,235,617
Total First Cost			$1,232,912	$58,156	$606,823	$566,495	$2,190	$20,082	$176,583	$2,898,985	$11,595,939	$17,158,164

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$2,604	$3,333	$605	
-2	0.884	2005	$2,448	$3,134	$569	
-3	0.831	2006	$2,301	$2,946	$535	
-4	0.781	2007	$2,163	$2,769	$503	
-5	0.734	2008	$2,034	$2,603	$473	
-6	0.690	2009	$1,912	$2,447	$444	
-7	0.649	2010	$1,797	$2,301	$418	
-8	0.610	2011	$1,690	$2,163	$393	
-9	0.573	2012	$1,588	$2,033	$369	
-10	0.539	2013	$1,493	$706,715	$347	
-11	0.507	2014	$1,404	$1,797	$326	
-12	0.476	2015	$1,319	$1,689	$307	
-13	0.448	2016	$1,240	$1,588	$288	
-14	0.421	2017	$1,166	$1,493	$271	
-15	0.396	2018	$1,096	$1,403	$255	
-16	0.372	2019	$1,030	$1,319	$240	
-17	0.350	2020	$969	$1,240	$225	
-18	0.329	2021	$911	$1,166	$212	
-19	0.309	2022	$856	$1,096	$199	
-20	0.291	2023	$0	$1,030	$187	
		Total	$30,022	$744,266	$7,167	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

GIWW Bank Restoration of Critical Areas in Terrebonne

Fully Funded Costs Total Fully Funded Costs $19,657,900 Amortized Costs $1,766,406

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
3	1.032	2001	$478,590	$22,575	$123,034	$114,857	$665	$12,004	$0	$0	$0	$751,725
2	1.065	2002	$635,021	$29,954	$163,248	$152,399	$686	$2,950	$0	$0	$0	$984,258
1	1.099	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.134	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$1,113,611	$52,529	$286,282	$267,256	$1,351	$14,954	$0	$0	$0	$1,735,983
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.099	2003	$0	$0	$299,506	$279,601	$708	$3,045	$182,451	$2,995,335	$11,981,341	$15,741,988
		TOTAL	$0	$0	$299,506	$279,601	$708	$3,045	$182,451	$2,995,335	$11,981,341	$15,741,988
Total First Cost			$1,113,600	$52,500	$585,800	$546,900	$2,100	$18,000	$182,500	$2,995,300	$11,981,300	$17,478,000

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$3,142	$4,022	$730	
-2	1.171	2005	$3,242	$4,151	$754	
-3	1.208	2006	$3,346	$4,284	$778	
-4	1.247	2007	$3,453	$4,421	$803	
-5	1.287	2008	$3,564	$4,562	$829	
-6	1.328	2009	$3,678	$4,708	$855	
-7	1.370	2010	$3,796	$4,859	$882	
-8	1.414	2011	$3,917	$5,014	$911	
-9	1.459	2012	$4,042	$5,175	$940	
-10	1.506	2013	$4,172	$1,974,586	$970	
-11	1.554	2014	$4,305	$5,511	$1,001	
-12	1.604	2015	$4,443	$5,688	$1,033	
-13	1.655	2016	$4,585	$5,870	$1,066	
-14	1.708	2017	$4,732	$6,058	$1,100	
-15	1.763	2018	$4,883	$6,251	$1,135	
-16	1.819	2019	$5,040	$6,451	$1,172	
-17	1.878	2020	$5,201	$6,658	$1,209	
-18	1.938	2021	$5,367	$6,871	$1,248	
-19	2.000	2022	$5,539	$7,091	$1,288	
-20	2.064	2023	$0	$7,318	$1,329	
		Total	$80,400	$2,079,500	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST			**10,901,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY			**13,626,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$1,060,000
	Engineering	$816,000	
	Geotechnical Investigation	$150,000	
	Surveying	$54,000	
	Hydrologic Modeling	$0	
	Data Collection	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$272,500
State Costs			
Supervision and Administration			$254,390
Easements and Land Rights			$50,000
Monitoring			$14,402
	Monitoring Plan Developn	$11,632	
	Monitoring Protocal Cost *	$2,770	
	Total Phase I Cost Estimate		**$1,651,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

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PHASE II

Federal Costs			
Estimated Construction Cost +25% Contingency			$13,626,000
Supervision and Inspection	204 days @	816 per day	$166,000
Supervision and Administration			$272,500
State Costs			
Supervision and Administration			$254,390
	Total Phase II Cost Estimate		**$14,319,000**

TOTAL ESTIMATED PROJECT FIRST COST	**15,970,000**

O&M Data

Annual Costs

Annual Inspections	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Included in Annual Cost for Operations)	**$0**

Specific Intermittent Costs

Construction Items	Year 5	Year 10	Year 15
Replace 33.3% of original rock section for entire length	$0	$1,010,000	$0
Contractor Mobilization/Demobilization	$0	$45,000	$0
Subtotal	$0	$1,055,000	$0
Subtotal w/ 10% contin.	***$0***	***$1,161,000***	***$0***

Engineer, Design & Administrative Costs					
Engineering and Design Cost			$0	$82,000	$0
Administrative Cost			$0	$4,384	$0
Eng Survey	26 days	$1,361 per day	$0	$35,386	$0
Construction Inspection	31 days	$816 per day	$0	$25,296	$0
Subtotal			***$0***	***$147,000***	***$0***
Total			**$0**	**$1,308,000**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$2,770**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	9			16
Planning & Design End	**June-02**					
Const. Start	**November-02**					0
Const. End	**August-03**			10	0	10

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
North Lake Mechant Landbridge Restoration

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$22,362,600	Total Fully Funded Costs	$26,008,700

Annual Charges	Present Worth	Average Annual
First Costs	$23,272,548	$2,091,208
Monitoring	$351,016	$31,541
O & M Costs	$1,064,225	$95,628
Other Costs	$7,169	$644
Total	$24,695,000	$2,219,000

Average Annual Habitat Units	367
Cost Per Habitat Unit	$6,046
Total Net Acres	604

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

North Lake Mechant Landbridge Restoration

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
4	Compound	2001	$658,000	$24,231	$93,044	$166,489	$644	$12,154	-	$0		$954,561
3	Compound	2002	$564,000	$20,769	$79,752	$142,704	$322	$33,338	-	$0		$840,885
		TOTAL	$1,222,000	$45,000	$172,795	$309,193	$966	$45,492	$0	$0	$0	$1,795,446
Phase II												
4	Compound	2001	-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2002	-	$419,000	$20,463	$48,820	$322	$0	$64,421	$545,670	$2,182,679	$3,281,374
2	Compound	2003	-	$0	$81,850	$195,280	$644	$33,338	$257,684	$2,182,679	$8,730,714	$11,482,189
1	Compound	2004	-	$0	$27,283	$65,093	$644	$33,338	$85,895	$727,560	$2,910,238	$3,850,051
		TOTAL	$0	$419,000	$129,597	$309,193	$1,611	$66,675	$408,000	$3,455,908	$13,823,631	$18,613,614
Total First Costs			$1,222,000	$464,000	$302,392	$618,386	$2,577	$112,167	$408,000	$3,455,908	$13,823,631	$20,409,060

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2005	$33,338	$3,546	$644	-
2	Discount	2006	$33,338	$244,562	$644	-
3	Discount	2007	$33,338	$47,644	$644	-
4	Discount	2008	$33,338	$3,546	$644	-
5	Discount	2009	$33,338	$3,546	$644	-
6	Discount	2010	$33,338	$3,546	$644	-
7	Discount	2011	$33,338	$3,546	$644	-
8	Discount	2012	$33,338	$3,546	$644	-
9	Discount	2013	$33,338	$3,546	$644	-
10	Discount	2014	$33,338	$1,441,590	$644	-
11	Discount	2015	$33,338	$3,546	$644	-
12	Discount	2016	$33,338	$3,546	$644	-
13	Discount	2017	$33,338	$3,546	$644	-
14	Discount	2018	$33,338	$3,546	$644	-
15	Discount	2019	$33,338	$3,546	$644	-
16	Discount	2020	$33,338	$3,546	$644	-
17	Discount	2021	$33,338	$3,546	$644	-
18	Discount	2022	$33,338	$3,546	$644	-
19	Discount	2023	$0	$3,546	$644	-
20	Discount	2024	$0	$3,546	$644	-
		Total	$600,076	$1,794,078	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

North Lake Mechant Landbridge Restoration

Present Valued Costs — Total Discounted Costs $24,694,959 — Amortized Costs $2,219,022

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	1.280	2001	$842,528	$31,026	$119,137	$213,178	$825	$15,562	$0	$0	$0	$1,222,256
3	1.204	2002	$678,888	$25,000	$95,997	$171,774	$388	$40,128	$0	$0	$0	$1,012,174
		Total	$1,521,415	$56,026	$215,134	$384,952	$1,213	$55,691	$0	$0	$0	$2,234,430
Phase II												
4	1.280	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2002	$0	$504,351	$24,631	$58,765	$388	$0	$77,544	$656,823	$2,627,293	$3,949,794
2	1.132	2003	$0	$0	$92,619	$220,972	$729	$37,724	$291,586	$2,469,841	$9,879,363	$12,992,833
1	1.064	2004	$0	$0	$29,023	$69,243	$685	$35,463	$91,371	$773,941	$3,095,766	$4,095,492
		Total	$0	$504,351	$146,273	$348,979	$1,802	$73,186	$460,500	$3,900,605	$15,602,421	$21,038,118
Total First Cost			$1,521,415	$560,377	$361,407	$733,931	$3,015	$128,877	$460,500	$3,900,605	$15,602,421	$23,272,548

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2005	$31,340	$3,333	$606	
-2	0.884	2006	$29,461	$216,127	$569	
-3	0.831	2007	$27,696	$39,581	$535	
-4	0.781	2008	$26,036	$2,769	$503	
-5	0.734	2009	$24,476	$2,603	$473	
-6	0.690	2010	$23,009	$2,447	$445	
-7	0.649	2011	$21,630	$2,301	$418	
-8	0.610	2012	$20,334	$2,163	$393	
-9	0.573	2013	$19,115	$2,033	$369	
-10	0.539	2014	$17,970	$777,045	$347	
-11	0.507	2015	$16,893	$1,797	$326	
-12	0.476	2016	$15,880	$1,689	$307	
-13	0.448	2017	$14,929	$1,588	$288	
-14	0.421	2018	$14,034	$1,493	$271	
-15	0.396	2019	$13,193	$1,403	$255	
-16	0.372	2020	$12,402	$1,319	$240	
-17	0.350	2021	$11,659	$1,240	$225	
-18	0.329	2022	$10,960	$1,166	$212	
-19	0.309	2023	$0	$1,096	$199	
-20	0.291	2024	$0	$1,030	$187	
		Total	$351,016	$1,064,225	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

North Lake Mechant Landbridge Restoration

Fully Funded Costs Total Fully Funded Costs $26,008,700 Amortized Costs $2,337,071

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	1.032	2001	$679,056	$25,006	$96,021	$171,816	$665	$12,543	$0	$0	$0	$985,107
3	1.065	2002	$600,674	$22,120	$84,937	$151,984	$343	$35,505	$0	$0	$0	$895,563
		TOTAL	$1,279,730	$47,126	$180,959	$323,800	$1,008	$48,048	$0	$0	$0	$1,880,670
Phase II												
4	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.065	2002	$0	$446,245	$21,793	$51,994	$343	$0	$68,610	$581,151	$2,324,605	$3,494,742
2	1.099	2003	$0	$0	$89,962	$214,633	$708	$36,641	$283,222	$2,398,992	$9,595,970	$12,620,129
1	1.134	2004	$0	$0	$30,947	$73,834	$731	$37,814	$97,428	$825,253	$3,301,014	$4,367,021
		TOTAL	$0	$446,245	$142,702	$340,461	$1,782	$74,455	$449,260	$3,805,397	$15,221,589	$20,481,892
Total Cost			$1,279,700	$493,400	$323,700	$664,300	$2,800	$122,500	$449,300	$3,805,400	$15,221,600	$22,362,600

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.171	2005	$39,024	$4,151	$754	
-2	1.208	2006	$40,273	$295,438	$778	
-3	1.247	2007	$41,562	$59,398	$803	
-4	1.287	2008	$42,892	$4,562	$829	
-5	1.328	2009	$44,264	$4,708	$855	
-6	1.370	2010	$45,680	$4,859	$883	
-7	1.414	2011	$47,142	$5,014	$911	
-8	1.459	2012	$48,651	$5,175	$940	
-9	1.506	2013	$50,208	$5,340	$970	
-10	1.554	2014	$51,814	$2,240,565	$1,001	
-11	1.604	2015	$53,472	$5,688	$1,033	
-12	1.655	2016	$55,183	$5,870	$1,066	
-13	1.708	2017	$56,949	$6,058	$1,100	
-14	1.763	2018	$58,772	$6,251	$1,136	
-15	1.819	2019	$60,652	$6,451	$1,172	
-16	1.878	2020	$62,593	$6,658	$1,210	
-17	1.938	2021	$64,596	$6,871	$1,248	
-18	2.000	2022	$66,663	$7,091	$1,288	
-19	2.064	2023	$0	$7,318	$1,329	
-20	2.130	2024	$0	$7,552	$1,372	
		Total	$930,400	$2,695,000	$20,700	$0

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**13,823,631**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**17,279,539**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$1,222,000
	Engineering	$1,051,772		
	Geotechnical Investigation	$120,000		
	Hydrologic Modeling	$0		
	Data Collection or Surveying	$0		
	HTRW	$0		
	Cultural Resources	$30,000		
	NEPA Compliance	$20,000		
Supervision and Administration				$172,795
State Costs				
Supervision and Administration				$309,193
Easements and Land Rights				$45,000
Monitoring				$45,492
	Monitoring Plan Development	$12,154		
	Monitoring Protocal Cost *	$33,338		
			Total Phase I Cost Estimate	**$1,794,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$419,000
Estimated Construction Cost +25% Contingency				$17,279,539
Supervision and Inspection	500 days	@	$816 per day	$408,000
Supervision and Administration				$129,597
State Costs				
Supervision and Administration				$309,193
			Total Phase II Cost Estimate	**$18,545,000**

TOTAL ESTIMATED PROJECT FIRST COST	**20,339,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items				**Year 2**	**Year 3**	**Year 10**	
Contractor Mobilization/Demobilization				$20,000	$20,000	$288,000	$0
Planting				$159,505	$0	$0	$0
Dike cutting				$0	$9,333	$0	$0
Rock work				$0	$0	$685,250	$0
Sheetpile						$200,200	
Replace signs				$0	$0	$6,000	$0
			Subtotal	$179,505	$29,333	$1,179,450	$0
			Subtotal w/ 10% contin.	***$197,000***	***$32,000***	***$1,297,000***	***$0***
Engineer, Design & Administrative Costs							
Engineering and Design Cost				$17,951	$5,000	$100,345	$0
Administrative Cost				$4,384	$4,384	$4,384	$0
Eng Survey	**0** days	@	**$1,361** per day	$0	$0	$0	$0
Construction Inspection	**26** days	@	**$816** per day	$21,225	$2,448	$35,920	$0
			Subtotal	***$44,000***	***$12,000***	***$141,000***	***$0***
			Total	**$241,000**	**$44,000**	**$1,438,000**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$33,338**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**Mar 2001**	7	6	0		13
Planning & Design End	**Mar 2002**					
Const. Start	**July 2002**					0
Const. End	**Jan. 2004**	0	3	12	4	19

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Shell Island Pass Marsh Creation

Project Construction Years:	1	Total Project Years	21
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$2,957,800	Total Fully Funded Costs	$3,057,500

Annual Charges	Present Worth	Average Annual
First Costs	$3,048,822	$273,959
Monitoring	$30,828	$2,770
O & M Costs	$0	$0
Other Costs	$7,169	$644
Total	$3,086,800	$277,400
Average Annual Habitat Units		NA
Cost Per Habitat Unit		#VALUE!
Total Net Acres		NA

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Shell Island Pass Marsh Creation

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
0 Compound									$0		$0
0 Compound		$0	$0	$0	$0	$0	$0	-	$0		$0
0 Compound		$0	$0	$0	$0	$0	$0	-	$0		$0
1 Compound	2001	$270,000	$4,000	$43,000	$43,000	$644	$15,713	-	$0		$376,357
TOTAL		$270,000	$4,000	$43,000	$43,000	$644	$15,713	$0	$0	$0	$376,357
Phase II											
0 Compound		-	-	-	-	-	-	-	$0	$0	$0
0 Compound		-	$0	$0	$0	$0	$0	$0	$0	$0	$0
0 Compound		-	$0	$0	$0	$0	$0	$0	$0	$0	$0
1 Compound	2001	-	$0	$43,000	$43,000	$0	$0	$245,000	$431,750	$1,727,000	$2,489,750
TOTAL		$0	$0	$43,000	$43,000	$0	$0	$245,000	$431,750	$1,727,000	$2,489,750
Total First Costs		$270,000	$4,000	$86,000	$86,000	$644	$15,713	$245,000	$431,750	$1,727,000	$2,866,107

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2002	$2,770	$0	$644	-
2 Discount	2003	$2,770	$0	$644	-
3 Discount	2004	$2,770	$0	$644	-
4 Discount	2005	$2,770	$0	$644	-
5 Discount	2006	$2,770	$0	$644	-
6 Discount	2007	$2,770	$0	$644	-
7 Discount	2008	$2,770	$0	$644	-
8 Discount	2009	$2,770	$0	$644	-
9 Discount	2010	$2,770	$0	$644	-
10 Discount	2011	$2,770	$0	$644	-
11 Discount	2012	$2,770	$0	$644	-
12 Discount	2013	$2,770	$0	$644	-
13 Discount	2014	$2,770	$0	$644	-
14 Discount	2015	$2,770	$0	$644	-
15 Discount	2016	$2,770	$0	$644	-
16 Discount	2017	$2,770	$0	$644	-
17 Discount	2018	$2,770	$0	$644	-
18 Discount	2019	$2,770	$0	$644	-
19 Discount	2020	$2,770	$0	$644	-
20 Discount	2021	$2,770	$0	$644	-
Total		$55,402	$0	$12,884	$0

Coastal Wetlands Conservation and Restoration Plan

Shell Island Pass Marsh Creation

Present Valued Costs

Total Discounted Costs $3,086,818

Amortized Costs $277,373

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2001	$287,213	$4,255	$45,741	$45,741	$685	$16,715	$0	$0	$0	$400,350
		Total	$287,213	$4,255	$45,741	$45,741	$685	$16,715	$0	$0	$0	$400,350
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2001	$0	$0	$45,741	$45,741	$0	$0	$260,619	$459,274	$1,837,096	$2,648,472
		Total	$0	$0	$45,741	$45,741	$0	$0	$260,619	$459,274	$1,837,096	$2,648,472
Total First Cost			$287,213	$4,255	$91,483	$91,483	$685	$16,715	$260,619	$459,274	$1,837,096	$3,048,822

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2002	$2,604	$0	$606	
-2	0.884	2003	$2,448	$0	$569	
-3	0.831	2004	$2,301	$0	$535	
-4	0.781	2005	$2,163	$0	$503	
-5	0.734	2006	$2,034	$0	$473	
-6	0.690	2007	$1,912	$0	$445	
-7	0.649	2008	$1,797	$0	$418	
-8	0.610	2009	$1,690	$0	$393	
-9	0.573	2010	$1,588	$0	$369	
-10	0.539	2011	$1,493	$0	$347	
-11	0.507	2012	$1,404	$0	$326	
-12	0.476	2013	$1,320	$0	$307	
-13	0.448	2014	$1,240	$0	$288	
-14	0.421	2015	$1,166	$0	$271	
-15	0.396	2016	$1,096	$0	$255	
-16	0.372	2017	$1,031	$0	$240	
-17	0.350	2018	$969	$0	$225	
-18	0.329	2019	$911	$0	$212	
-19	0.309	2020	$856	$0	$199	
-20	0.291	2021	$805	$0	$187	
		Total	$30,828	$0	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Shell Island Pass Marsh Creation

Fully Funded Costs — Total Fully Funded Costs $3,057,500 — Amortized Costs $274,739

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.032	2001	$278,640	$4,128	$44,376	$44,376	$665	$16,216	$0	$0	$0	$388,401
		TOTAL	$278,640	$4,128	$44,376	$44,376	$665	$16,216	$0	$0	$0	$388,401
Phase II												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.032	2001	$0	$0	$44,376	$44,376	$0	$0	$252,840	$445,566	$1,782,264	$2,569,422
		TOTAL	$0	$0	$44,376	$44,376	$0	$0	$252,840	$445,566	$1,782,264	$2,569,422
Total Cost			$278,600	$4,100	$88,800	$88,800	$700	$16,200	$252,800	$445,600	$1,782,300	$2,957,800

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.065	2002	$2,950	$0	$686	
-2	1.099	2003	$3,045	$0	$708	
-3	1.134	2004	$3,142	$0	$731	
-4	1.171	2005	$3,243	$0	$754	
-5	1.208	2006	$3,346	$0	$778	
-6	1.247	2007	$3,453	$0	$803	
-7	1.287	2008	$3,564	$0	$829	
-8	1.328	2009	$3,678	$0	$855	
-9	1.370	2010	$3,796	$0	$883	
-10	1.414	2011	$3,917	$0	$911	
-11	1.459	2012	$4,042	$0	$940	
-12	1.506	2013	$4,172	$0	$970	
-13	1.554	2014	$4,305	$0	$1,001	
-14	1.604	2015	$4,443	$0	$1,033	
-15	1.655	2016	$4,585	$0	$1,066	
-16	1.708	2017	$4,732	$0	$1,100	
-17	1.763	2018	$4,883	$0	$1,136	
-18	1.819	2019	$5,040	$0	$1,172	
-19	1.878	2020	$5,201	$0	$1,210	
-20	1.938	2021	$5,367	$0	$1,248	
		Total	$80,900	$0	$18,800	

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**1,727,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**2,158,750**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$270,000
	Engineering	$215,875	
	Geotechnical Investigation	$0	
	Hydrologic Modeling	$0	
	Data Collection	$0	
	HTRW	$2,400	
	Cultural Resources	$10,000	
	NEPA Compliance	$41,400	
Supervision and Administration			$43,000
State Costs			
Supervision and Administration			$43,000
Easements and Land Rights			$4,000
Monitoring			$19,000
	Monitoring Plan Development	$12,943	
	Monitoring Protocal Cost *	$5,572	
		Total Phase I Cost Estimate	**$379,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$2,158,750
Supervision and Inspection	300 days @	**816** per day	$245,000
Supervision and Administration			$43,000
State Costs			
Supervision and Administration			$43,000
		Total Phase II Cost Estimate	**$2,490,000**

TOTAL ESTIMATED PROJECT FIRST COST	**2,869,000**

O&M Data

Annual Costs

Inspections @ years 5, 10 and 15	**$0**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items					**Year 1**	**Year 5**	**Year 10**	**Year 15**
Contingency Channel Closure					$0	$0	$0	$0
Bifurcation Dredging					$0	$0	$0	$0
Sediment Retention Dike					$0	$0	$0	$0
				Subtotal	$0	$0	$0	$0
				Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs								
Engineering and Design Cost					$0	$0	$0	$0
Administrative Cost					$0	$0	$0	$0
Eng Survey	**0** days	@	**$1,361** per day		$0	$0	$0	$0
Construction Inspection	**0** days	@	**$816** per day		$0	$0	$0	$0
				Subtotal	***$0***	***$0***	***$0***	***$0***
				Total	**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$2,770**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	3	0	0		3
Planning & Design End	**May-01**					
Const. Start	**June-01**					0
Const. End	**September-01**	4	0	0	0	4

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Shoreline Protection Cheniere Au Tigre to Southwest Pass

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$21,167,300	Total Fully Funded Costs	$25,112,300

Annual Charges	Present Worth	Average Annual
First Costs	$22,088,204	$1,984,786
Monitoring	$58,668	$5,272
O & M Costs	$1,381,773	$124,162
Other Costs	$7,167	$644
Total	$23,535,800	$2,114,900

Average Annual Habitat Units	132
Cost Per Habitat Unit	$16,022
Total Net Acres	309

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Shoreline Protection Cheniere Au Tigre to Southwest Pass

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound		$0	$0	$0	$0	$0	$0	-	$0		$0
3	Compound	2001	$791,000	$24,500	$181,300	$216,300	$644	$16,933	-	$0		$1,230,677
2	Compound	2002	$339,000	$10,500	$77,700	$92,700	$322	$0	-	$0		$520,222
1	Compound	2003	$0	$0	$0	$0	$0	$0	-	$0		$0
	TOTAL		$1,130,000	$35,000	$259,000	$309,000	$966	$16,933	$0	$0	$0	$1,750,899
Phase II												
0	Compound		-	-	-	-	-	-	$0	$0	$0	$0
3	Compound	2001	-	-	$0	$0	$0	$0	$0	$0	$0	$0
2	Compound	2002	-	$55,000	$185,000	$220,714	$322	$5,572	$73,571	$2,465,714	$9,862,857	$12,868,751
1	Compound	2003	-	-	$74,000	$88,286	$644	$5,572	$29,429	$986,286	$3,945,143	$5,129,359
	TOTAL		$0	$55,000	$259,000	$309,000	$966	$11,144	$103,000	$3,452,000	$13,808,000	$12,868,751
Total First Costs			$1,130,000	$90,000	$518,000	$618,000	$1,933	$28,077	$103,000	$3,452,000	$13,808,000	$14,619,651

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2004	$5,572	$3,546	$644	-
2	Discount	2005	$5,572	$3,546	$644	-
3	Discount	2006	$5,572	$3,546	$644	-
4	Discount	2007	$5,572	$3,546	$644	-
5	Discount	2008	$5,572	$807,838	$644	-
6	Discount	2009	$5,572	$3,546	$644	-
7	Discount	2010	$5,572	$3,546	$644	-
8	Discount	2011	$5,572	$3,546	$644	-
9	Discount	2012	$5,572	$3,546	$644	-
10	Discount	2013	$5,572	$807,838	$644	-
11	Discount	2014	$5,572	$3,546	$644	-
12	Discount	2015	$5,572	$3,546	$644	-
13	Discount	2016	$5,572	$3,546	$644	-
14	Discount	2017	$5,572	$3,546	$644	-
15	Discount	2018	$5,572	$807,838	$644	-
16	Discount	2019	$5,572	$3,546	$644	-
17	Discount	2020	$5,572	$3,546	$644	-
18	Discount	2021	$5,572	$3,546	$644	-
19	Discount	2022	$0	$3,546	$644	-
20	Discount	2023	$0	$3,546	$644	-
	Total		$100,296	$2,483,795	$12,880	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Shoreline Protection Cheniere Au Tigre to Southwest Pass

Present Valued Costs — Total Discounted Costs $23,535,813 — Amortized Costs $2,114,865

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$952,128	$29,491	$218,231	$260,361	$775	$20,382	$0	$0	$0	$1,481,368
2	1.132	2002	$383,600	$11,881	$87,923	$104,896	$364	$0	$0	$0	$0	$588,665
1	1.064	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total		$1,335,728	$41,372	$306,154	$365,257	$1,140	$20,382	$0	$0	$0	$2,070,032
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$62,236	$209,339	$249,752	$364	$6,305	$83,251	$2,790,114	$11,160,455	$14,561,816
1	1.064	2003	$0	$0	$78,718	$93,914	$685	$5,927	$31,305	$1,049,161	$4,196,646	$5,456,356
	Total		$0	$62,236	$288,057	$343,666	$1,050	$12,232	$114,555	$3,839,275	$15,357,100	$20,018,172
Total First Cost			$1,335,728	$103,608	$594,210	$708,923	$2,190	$32,615	$114,555	$3,839,275	$15,357,100	$22,088,204

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$5,238	$3,333	$605	
-2	0.884	2005	$4,924	$3,134	$569	
-3	0.831	2006	$4,629	$2,946	$535	
-4	0.781	2007	$4,352	$2,769	$503	
-5	0.734	2008	$4,091	$593,098	$473	
-6	0.690	2009	$3,846	$2,447	$444	
-7	0.649	2010	$3,615	$2,301	$418	
-8	0.610	2011	$3,399	$2,163	$393	
-9	0.573	2012	$3,195	$2,033	$369	
-10	0.539	2013	$3,003	$435,440	$347	
-11	0.507	2014	$2,823	$1,797	$326	
-12	0.476	2015	$2,654	$1,689	$307	
-13	0.448	2016	$2,495	$1,588	$288	
-14	0.421	2017	$2,346	$1,493	$271	
-15	0.396	2018	$2,205	$319,691	$255	
-16	0.372	2019	$2,073	$1,319	$240	
-17	0.350	2020	$1,949	$1,240	$225	
-18	0.329	2021	$1,832	$1,166	$212	
-19	0.309	2022	$0	$1,096	$199	
-20	0.291	2023	$0	$1,030	$187	
	Total		$58,668	$1,381,773	$7,167	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Shoreline Protection Cheniere Au Tigre to Southwest Pass

Fully Funded Costs — Total Fully Funded Costs $25,112,300 — Amortized Costs $2,256,523

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$816,312	$25,284	$187,102	$223,222	$665	$17,475	$0	$0	$0	$1,270,059
2	1.065	2002	$361,043	$11,183	$82,752	$98,728	$343	$0	$0	$0	$0	$554,049
1	1.099	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$1,177,355	$36,467	$269,854	$321,949	$1,008	$17,475	$0	$0	$0	$1,824,108
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$58,576	$197,029	$235,066	$343	$5,934	$78,355	$2,626,045	$10,504,180	$13,705,529
1	1.099	2003	$0	$0	$81,334	$97,035	$708	$6,124	$32,345	$1,084,031	$4,336,125	$5,637,703
		TOTAL	$0	$58,576	$278,363	$332,101	$1,051	$12,059	$110,700	$3,710,076	$14,840,305	$19,343,232
Total First Cost			$1,177,400	$95,000	$548,200	$654,100	$2,100	$29,500	$110,700	$3,710,100	$14,840,300	$21,167,300

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$6,320	$4,022	$730	
-2	1.171	2005	$6,522	$4,151	$754	
-3	1.208	2006	$6,731	$4,284	$778	
-4	1.247	2007	$6,947	$4,421	$803	
-5	1.287	2008	$7,169	$1,039,350	$829	
-6	1.328	2009	$7,398	$4,708	$855	
-7	1.370	2010	$7,635	$4,859	$882	
-8	1.414	2011	$7,879	$5,014	$911	
-9	1.459	2012	$8,131	$5,175	$940	
-10	1.506	2013	$8,392	$1,216,635	$970	
-11	1.554	2014	$8,660	$5,511	$1,001	
-12	1.604	2015	$8,937	$5,688	$1,033	
-13	1.655	2016	$9,223	$5,870	$1,066	
-14	1.708	2017	$9,518	$6,058	$1,100	
-15	1.763	2018	$9,823	$1,424,160	$1,135	
-16	1.819	2019	$10,137	$6,451	$1,172	
-17	1.878	2020	$10,462	$6,658	$1,209	
-18	1.938	2021	$10,797	$6,871	$1,248	
-19	2.000	2022	$0	$7,091	$1,288	
-20	2.064	2023	$0	$7,318	$1,329	
		Total	$150,700	$3,774,300	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30) — December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST			**13,808,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY			**17,260,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$1,130,000
	Engineering	$1,020,000	
	Geotechnical Investigation	$70,000	
	Hydrologic Modeling	$0	
	Data Collection	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$259,000
State Costs			
Supervision and Administration			$309,000
Easements and Land Rights			$35,000
Monitoring			$16,933
	Monitoring Plan Development	$11,361	
	Monitoring Protocal Cost *****	$5,572	
		Total Phase I Cost Estimate	**$1,750,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

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PHASE II

Federal Costs			
Estimated Construction Cost +25% Contingency			$17,260,000
Oyster Relocation			$55,000
Supervision and Inspection	126 days @	816 per day	$103,000
Supervision and Administration			$259,000
State Costs			
Supervision and Administration			$309,000
		Total Phase II Cost Estimate	**$17,986,000**

TOTAL ESTIMATED PROJECT FIRST COST	**19,736,000**

O&M Data

Annual Costs

Annual Inspections	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Included in Annual Cost for Operations)	**$0**

Specific Intermittent Costs

Construction Items			**Year 5**	**Year 10**	**Year 15**
Replace 5% Original Concrete Mat			$618,450	$618,450	$618,450
Automation & Solar Maintaince & Repair, (5% @ YRS 5, 10 & 15)			$0	$0	$0
Replace 10% of original rockfill/rock riprap section			$0	$0	$0
Contractor Mobilization/Demobilization			$50,000	$50,000	$50,000
		Subtotal	$668,450	$668,450	$668,450
		Subtotal w/ 10% contin.	***$735,000***	***$735,000***	***$735,000***
Engineer, Design & Administrative Costs					
Engineering and Design Cost			$54,000	$54,000	$54,000
Administrative Cost			$4,384	$4,384	$4,384
Eng Survey	3 days @	$1,361 per day	$4,082	$4,082	$4,082
Construction Inspection	8 days @	$816 per day	$6,531	$6,531	$6,531
		Subtotal	***$69,000***	***$69,000***	***$69,000***
		Total	**$804,000**	**$804,000**	**$804,000**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$5,572**

Construction Schedule:

		2001	2002	2003	2004	2005	Total
Planning & Design Start	**March-01**	7	3				10
Planning & Design End	**December-01**						
Const. Start	**May-02**						0
Const. End	**November-02**		5	2			7

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Pecan Island Freshwater Introduction Enlargement

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$1,971,200	Total Fully Funded Costs	$3,206,000

Annual Charges	Present Worth	Average Annual
First Costs	$2,013,132	$180,895
Monitoring	$210,610	$18,925
O & M Costs	$222,793	$20,020
Other Costs	$7,167	$644
Total	$2,453,700	$220,500
Average Annual Habitat Units		135
Cost Per Habitat Unit		$1,633
Total Net Acres		212

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Pecan Island Freshwater Introduction Enlargement

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	Compound	2001	$101,652	$31,818	$7,159	$7,159	$644	$16,870	-	$0		$165,303
3	Compound	2002	$174,261	$54,545	$12,273	$12,273	$644	$20,003	-	$0		$273,999
2	Compound	2003	$43,565	$13,636	$3,068	$3,068	$322	$0	-	$0		$63,660
1	Compound	2004	$0	$0	$0	$0	$0	$0	-	$0		$0
	TOTAL		$319,479	$100,000	$22,500	$22,500	$1,611	$36,873	$0	$0	$0	$502,962
Phase II												
4	Compound	2001	-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2002	-	-	$0	$0	$0	-	$0	$0	$0	$0
2	Compound	2003	-	-	$8,654	$8,654	$322	$20,003	$28,077	$86,538	$346,154	$498,402
1	Compound	2004	-	-	$13,846	$13,846	$644	$20,003	$44,923	$138,462	$553,846	$785,570
	TOTAL		$0	$0	$22,500	$22,500	$966	$40,005	$73,000	$225,000	$900,000	$1,283,971
Total First Costs			$319,479	$100,000	$45,000	$45,000	$2,577	$76,878	$73,000	$225,000	$900,000	$1,786,933

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2005	$20,003	$10,546	$644	-
2	Discount	2006	$20,003	$10,546	$644	-
3	Discount	2007	$20,003	$10,546	$644	-
4	Discount	2008	$20,003	$10,546	$644	-
5	Discount	2009	$20,003	$58,315	$644	-
6	Discount	2010	$20,003	$10,546	$644	-
7	Discount	2011	$20,003	$10,546	$644	-
8	Discount	2012	$20,003	$10,546	$644	-
9	Discount	2013	$20,003	$10,546	$644	-
10	Discount	2014	$20,003	$85,815	$644	-
11	Discount	2015	$20,003	$10,546	$644	-
12	Discount	2016	$20,003	$10,546	$644	-
13	Discount	2017	$20,003	$10,546	$644	-
14	Discount	2018	$20,003	$10,546	$644	-
15	Discount	2019	$20,003	$85,815	$644	-
16	Discount	2020	$20,003	$10,546	$644	-
17	Discount	2021	$20,003	$10,546	$644	-
18	Discount	2022	$20,003	$10,546	$644	-
19	Discount	2023	$0	$10,546	$644	-
20	Discount	2024	$0	$10,546	$644	-
	Total		$360,046	$409,226	$12,880	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Pecan Island Freshwater Introduction Enlargement

Present Valued Costs Total Discounted Costs $2,453,701 Amortized Costs $220,483

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	1.280	2001	$130,160	$40,741	$9,167	$9,167	$825	$21,601	$0	$0	$0	$211,660
3	1.204	2002	$209,759	$65,656	$14,773	$14,773	$775	$24,077	$0	$0	$0	$329,813
2	1.132	2003	$49,297	$15,430	$3,472	$3,472	$364	$0	$0	$0	$0	$72,036
1	1.064	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$389,215	$121,828	$27,411	$27,411	$1,965	$45,678	$0	$0	$0	$613,508
Phase II												
4	1.280	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2003	$0	$0	$9,792	$9,792	$364	$22,634	$31,771	$97,924	$391,695	$563,973
1	1.064	2004	$0	$0	$14,729	$14,729	$685	$21,278	$47,787	$147,288	$589,154	$835,650
		Total	$0	$0	$24,521	$24,521	$1,050	$43,912	$79,558	$245,212	$980,849	$1,399,623
Total First Cost			$389,215	$121,828	$51,933	$51,933	$3,015	$89,590	$79,558	$245,212	$980,849	$2,013,132

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2005	$18,804	$9,914	$605	
-2	0.884	2006	$17,677	$9,320	$569	
-3	0.831	2007	$16,618	$8,761	$535	
-4	0.781	2008	$15,622	$8,236	$503	
-5	0.734	2009	$14,685	$42,814	$473	
-6	0.690	2010	$13,805	$7,279	$444	
-7	0.649	2011	$12,978	$6,842	$418	
-8	0.610	2012	$12,200	$6,432	$393	
-9	0.573	2013	$11,469	$6,047	$369	
-10	0.539	2014	$10,782	$46,256	$347	
-11	0.507	2015	$10,136	$5,344	$326	
-12	0.476	2016	$9,528	$5,024	$307	
-13	0.448	2017	$8,957	$4,723	$288	
-14	0.421	2018	$8,420	$4,439	$271	
-15	0.396	2019	$7,916	$33,960	$255	
-16	0.372	2020	$7,441	$3,923	$240	
-17	0.350	2021	$6,995	$3,688	$225	
-18	0.329	2022	$6,576	$3,467	$212	
-19	0.309	2023	$0	$3,259	$199	
-20	0.291	2024	$0	$3,064	$187	
		Total	$210,610	$222,793	$7,167	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Pecan Island Freshwater Introduction Enlargement

Fully Funded Costs Total Fully Funded Costs $3,206,000 Amortized Costs $288,082

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	1.032	2001	$104,905	$32,836	$7,388	$7,388	$665	$17,410	$0	$0	$0	$170,593
3	1.065	2002	$185,592	$58,092	$13,071	$13,071	$686	$21,303	$0	$0	$0	$291,815
2	1.099	2003	$47,883	$14,988	$3,372	$3,372	$354	$0	$0	$0	$0	$69,969
1	1.134	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$338,381	$105,916	$23,831	$23,831	$1,705	$38,713	$0	$0	$0	$532,377
Phase II												
4	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.099	2003	$0	$0	$9,511	$9,511	$354	$21,985	$30,859	$95,115	$380,459	$547,796
1	1.134	2004	$0	$0	$15,705	$15,705	$731	$22,688	$50,955	$157,054	$628,214	$891,053
		TOTAL	$0	$0	$25,217	$25,217	$1,085	$44,673	$81,815	$252,168	$1,008,674	$1,438,849
Total First Cost			$338,400	$105,900	$49,000	$49,000	$2,800	$83,400	$81,800	$252,200	$1,008,700	$1,971,200

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.171	2005	$23,414	$12,345	$754	
-2	1.208	2006	$24,164	$12,740	$778	
-3	1.247	2007	$24,937	$13,148	$803	
-4	1.287	2008	$25,735	$13,568	$829	
-5	1.328	2009	$26,558	$77,428	$855	
-6	1.370	2010	$27,408	$14,451	$882	
-7	1.414	2011	$28,285	$14,913	$911	
-8	1.459	2012	$29,190	$15,390	$940	
-9	1.506	2013	$30,125	$15,883	$970	
-10	1.554	2014	$31,089	$133,376	$1,001	
-11	1.604	2015	$32,083	$16,915	$1,033	
-12	1.655	2016	$33,110	$17,457	$1,066	
-13	1.708	2017	$34,170	$18,015	$1,100	
-14	1.763	2018	$35,263	$18,592	$1,135	
-15	1.819	2019	$36,391	$156,126	$1,172	
-16	1.878	2020	$37,556	$19,801	$1,209	
-17	1.938	2021	$38,758	$20,434	$1,248	
-18	2.000	2022	$39,998	$21,088	$1,288	
-19	2.064	2023	$0	$21,763	$1,329	
-20	2.130	2024	$0	$22,460	$1,372	
	Total		$558,200	$655,900	$20,700	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**900,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**1,125,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$319,479
	Engineering	$79,479	
	Geotechnical Investigation	$50,000	
	Hydrologic Modeling	$100,000	
	Data Collection	$50,000	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$22,500
State Costs			
Supervision and Administration			$22,500
Easements and Land Rights			$100,000
Monitoring			$36,873
	Monitoring Plan Development	$16,870	
	Monitoring Protocal Cost *****	$20,003	
		Total Phase I Cost Estimate	**$501,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Estimated Construction Cost +25% Contingency				$1,125,000
Supervision and Inspection	90 days	@	**816** per day	$73,000
Supervision and Administration				$22,500
State Costs				
Supervision and Administration				$22,500
		Total Phase II Cost Estimate		**$1,243,000**

TOTAL ESTIMATED PROJECT FIRST COST	**1,744,000**

O&M Data

Annual Costs

Annual Inspections	**$3,546**
Annual Cost for Operations	**$4,000**
Preventive Maintenance (Included in Annual Cost for Operations)	**$3,000**

Specific Intermittent Costs

Construction Items					Year 5	Year 10	Year 15
General Structure Maintaince and Repair					$20,000	$40,000	$40,000
Contractor Mobilization/Demobilization					$5,000	$10,000	$10,000
				Subtotal	$25,000	$50,000	$50,000
				Subtotal w/ 10% contin.	***$28,000***	***$55,000***	***$55,000***
Engineer, Design & Administrative Costs							
Engineering and Design Cost					$5,000	$5,000	$5,000
Administrative Cost					$4,000	$4,000	$4,000
Eng Survey	2 days	@	**$1,361**	per day	$2,721	$2,721	$2,721
Construction Inspection	10 days	@	**$816**	per day	$8,164	$8,164	$8,164
				Subtotal	***$20,000***	***$20,000***	***$20,000***
				Total	**$48,000**	**$75,000**	**$75,000**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$20,003**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	12	3		22
Planning & Design End	**December-02**					
Const. Start	**May-03**					0
Const. End	**May-04**			5	8	13

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joesph's Harbor (Continuous Breakwater)

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$67,836,000	Total Fully Funded Costs	$95,988,700

Annual Charges	Present Worth	Average Annual
First Costs	$71,571,342	$6,431,207
Monitoring	$28,256	$2,539
O & M Costs	$15,676,543	$1,408,652
Other Costs	$7,169	$644
Total	$87,283,300	$7,843,000
Average Annual Habitat Units		344
Cost Per Habitat Unit		$22,799
Total Net Acres		920

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joesph's Harbor (Continuous Breakwater)

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
0 Compound									$0		$0
0 Compound								-	$0		$0
4 Compound	2001	$1,040,000	$15,000	$400,000	$400,000	$644	$14,402	-	$0		$1,870,046
3 Compound	2002	$0	$0	$0	$0	$0	$0	-	$0		$0
	TOTAL	$1,040,000	$15,000	$400,000	$400,000	$644	$14,402	$0	$0	$0	$1,870,046
Phase II											
4 Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
3 Compound	2002	-	$0	$144,000	$144,000	$644	$2,770	$155,762	$4,254,120	$17,016,480	$21,717,776
2 Compound	2003	-	$0	$192,000	$192,000	$644	$2,770	$207,682	$5,672,160	$22,688,640	$28,955,896
1 Compound	2004	-	$0	$64,000	$64,000	$644	$2,770	$69,227	$1,890,720	$7,562,880	$9,654,242
	TOTAL	$0	$0	$400,000	$400,000	$1,933	$8,310	$432,671	$11,817,000	$47,268,000	$60,327,914
Total First Costs		$1,040,000	$15,000	$800,000	$800,000	$2,577	$22,712	$432,671	$11,817,000	$47,268,000	$62,197,960

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2005	$2,770	$3,546	$644	-
2 Discount	2006	$2,770	$3,546	$644	-
3 Discount	2007	$2,770	$14,925,527	$644	-
4 Discount	2008	$2,770	$3,546	$644	-
5 Discount	2009	$2,770	$3,546	$644	-
6 Discount	2010	$2,770	$3,546	$644	-
7 Discount	2011	$2,770	$3,546	$644	-
8 Discount	2012	$2,770	$3,546	$644	-
9 Discount	2013	$2,770	$3,546	$644	-
10 Discount	2014	$2,770	$6,015,081	$644	-
11 Discount	2015	$2,770	$3,546	$644	-
12 Discount	2016	$2,770	$3,546	$644	-
13 Discount	2017	$2,770	$3,546	$644	-
14 Discount	2018	$2,770	$3,546	$644	-
15 Discount	2019	$2,770	$3,546	$644	-
16 Discount	2020	$2,770	$3,546	$644	-
17 Discount	2021	$2,770	$3,546	$644	-
18 Discount	2022	$0	$3,546	$644	-
19 Discount	2023	$0	$3,546	$644	-
20 Discount	2024	$0	$3,546	$644	-
	Total	$47,091	$21,004,436	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joesph's Harbor (Continuous Breakwater)

Present Valued Costs Total Discounted Costs $87,283,311 Amortized Costs $7,843,042

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	1.280	2001	$1,331,655	$19,207	$512,175	$512,175	$825	$18,441	$0	$0	$0	$2,394,477
3	1.204	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total		$1,331,655	$19,207	$512,175	$512,175	$825	$18,441	$0	$0	$0	$2,394,477
Phase 2												
4	1.280	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2002	$0	$0	$173,333	$173,333	$775	$3,334	$187,490	$5,120,690	$20,482,759	$26,141,714
2	1.132	2003	$0	$0	$217,260	$217,260	$729	$3,135	$235,006	$6,418,412	$25,673,650	$32,765,452
1	1.064	2004	$0	$0	$68,080	$68,080	$685	$2,947	$73,641	$2,011,253	$8,045,014	$10,269,700
	Total		$0	$0	$458,673	$458,673	$2,190	$9,416	$496,136	$13,550,355	$54,201,422	$69,176,866
Total First Cost			$1,331,655	$19,207	$970,848	$970,848	$3,015	$27,856	$496,136	$13,550,355	$54,201,422	$71,571,342

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2005	$2,604	$3,333	$606	
-2	0.884	2006	$2,448	$3,134	$569	
-3	0.831	2007	$2,301	$12,399,694	$535	
-4	0.781	2008	$2,163	$2,769	$503	
-5	0.734	2009	$2,034	$2,603	$473	
-6	0.690	2010	$1,912	$2,447	$445	
-7	0.649	2011	$1,797	$2,301	$418	
-8	0.610	2012	$1,690	$2,163	$393	
-9	0.573	2013	$1,588	$2,033	$369	
-10	0.539	2014	$1,493	$3,242,244	$347	
-11	0.507	2015	$1,404	$1,797	$326	
-12	0.476	2016	$1,320	$1,689	$307	
-13	0.448	2017	$1,240	$1,588	$288	
-14	0.421	2018	$1,166	$1,493	$271	
-15	0.396	2019	$1,096	$1,403	$255	
-16	0.372	2020	$1,031	$1,319	$240	
-17	0.350	2021	$969	$1,240	$225	
-18	0.329	2022	$0	$1,166	$212	
-19	0.309	2023	$0	$1,096	$199	
-20	0.291	2024	$0	$1,030	$187	
	Total		$28,256	$15,676,543	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joesph's Harbor (Continuous Breakwater)

Fully Funded Costs Total Fully Funded Costs $95,988,700 Amortized Costs $8,625,285

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	1.032	2001	$1,073,280	$15,480	$412,800	$412,800	$665	$14,863	$0	$0	$0	$1,929,888
3	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$1,073,280	$15,480	$412,800	$412,800	$665	$14,863	$0	$0	$0	$1,929,888
Phase 2												
4	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.065	2002	$0	$0	$153,363	$153,363	$686	$2,950	$165,890	$4,530,740	$18,122,960	$23,129,952
2	1.099	2003	$0	$0	$211,028	$211,028	$708	$3,045	$228,264	$6,234,298	$24,937,192	$31,825,564
1	1.134	2004	$0	$0	$72,594	$72,594	$731	$3,142	$78,523	$2,144,599	$8,578,394	$10,950,576
		TOTAL	$0	$0	$436,985	$436,985	$2,125	$9,137	$472,677	$12,909,637	$51,638,546	$65,906,092
Total Cost			$1,073,300	$15,500	$849,800	$849,800	$2,800	$24,000	$472,700	$12,909,600	$51,638,500	$67,836,000

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.171	2005	$3,243	$4,151	$754	
-2	1.208	2006	$3,346	$4,284	$778	
-3	1.247	2007	$3,453	$18,607,480	$803	
-4	1.287	2008	$3,564	$4,562	$829	
-5	1.328	2009	$3,678	$4,708	$855	
-6	1.370	2010	$3,796	$4,859	$883	
-7	1.414	2011	$3,917	$5,014	$911	
-8	1.459	2012	$4,042	$5,175	$940	
-9	1.506	2013	$4,172	$5,340	$970	
-10	1.554	2014	$4,305	$9,348,829	$1,001	
-11	1.604	2015	$4,443	$5,688	$1,033	
-12	1.655	2016	$4,585	$5,870	$1,066	
-13	1.708	2017	$4,732	$6,058	$1,100	
-14	1.763	2018	$4,883	$6,251	$1,136	
-15	1.819	2019	$5,040	$6,451	$1,172	
-16	1.878	2020	$5,201	$6,658	$1,210	
-17	1.938	2021	$5,367	$6,871	$1,248	
-18	2.000	2022	$0	$7,091	$1,288	
-19	2.064	2023	$0	$7,318	$1,329	
-20	2.130	2024	$0	$7,552	$1,372	
		Total	$71,800	$28,060,200	$20,700	

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**47,268,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**59,085,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs					
Engineering and Design					$1,040,000
	Engineering	$1,000,000			
	Geotechnical Investigation	$0			
	Hydrologic Modeling	$0			
	Data Collection or Surveying	$0			
	HTRW	$0			
	Cultural Resources	$10,000			
	NEPA Compliance	$30,000			
Supervision and Administration					$400,000
State Costs					
Supervision and Administration					$400,000
Easements and Land Rights					$15,000
Monitoring					$14,402
	Monitoring Plan Development	$11,632			
	Monitoring Protocal Cost *	$2,770			
			Total Phase I Cost Estimate		**$1,869,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$59,085,000
Supervision and Inspection	530 days	@	$816 per day	$432,671
Supervision and Administration				$400,000
State Costs				
Supervision and Administration				$400,000
		Total Phase II Cost Estimate		**$60,318,000**

TOTAL ESTIMATED PROJECT FIRST COST	**62,187,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Monitoring Stations	**$0**

Specific Intermittent Costs

Construction Items					**Year 3**	**Year 10**	**Year 15**	
Contractor Mobilization/Demobilization					$0	$0	$0	$0
Replace Rock year 3					$12,667,210	$0	$0	$0
Replace Rock year 10					$0	$5,070,870	$0	$0
Other Rock work					$0	$0	$0	$0
Sheetpile					$0	$0	$0	$0
Replace signs					$0	$0	$0	$0
				Subtotal	$12,667,210	$5,070,870	$0	$0
				Subtotal w/ 10% contin.	***$13,934,000***	***$5,578,000***	***$0***	***$0***
Engineer, Design & Administrative Costs								
Engineering and Design Cost					$834,000	$353,000	$0	$0
Administrative Cost					$4,384	$4,384	$0	$0
Eng Survey	**20** days	@	**$1,361** per day		$27,212	$27,212	$0	$0
Construction Inspection	**150** days	@	**$816** per day		$122,454	$48,982	$0	$0
				Subtotal	***$988,000***	***$434,000***	***$0***	***$0***
				Total	**$14,922,000**	**$6,012,000**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$2,770**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**April-01**	6	0	0		6
Planning & Design End	**September-01**					
Const. Start	**January-02**					0
Const. End	**January-04**	0	9	12	4	25

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Grand-White Lake Landbridge Protection Project

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$4,398,600	Total Fully Funded Costs	$9,421,500

Annual Charges	Present Worth	Average Annual
First Costs	$4,332,636	$389,319
Monitoring	$60,394	$5,427
O & M Costs	$1,912,181	$171,823
Other Costs	$7,169	$644
Total	$6,312,400	$567,200
Average Annual Habitat Units		38
Cost Per Habitat Unit		$14,926
Total Net Acres		

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Grand-White Lake Landbridge Protection Project

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
3	Compound	2001	$149,800	$16,333	$29,867	$29,867	$644	$12,154	-	$0		$238,665
2	Compound	2002	$171,200	$18,667	$34,133	$34,133	$644	$5,572	-	$0		$264,350
		TOTAL	$321,000	$35,000	$64,000	$64,000	$1,288	$17,726	$0	$0	$0	$503,015
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Compound	2002	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	Compound	2003	-	$0	$64,000	$64,000	$644	$5,572	$180,000	$641,500	$2,566,000	$3,521,717
		TOTAL	$0	$0	$64,000	$64,000	$644	$5,572	$180,000	$641,500	$2,566,000	$3,521,717
Total First Costs			$321,000	$35,000	$128,000	$128,000	$1,933	$23,299	$180,000	$641,500	$2,566,000	$4,024,731

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2004	$5,572	$0	$644	-
2	Discount	2005	$5,572	$963,794	$644	-
3	Discount	2006	$5,572	$0	$644	-
4	Discount	2007	$5,572	$0	$644	-
5	Discount	2008	$5,572	$3,546	$644	-
6	Discount	2009	$5,572	$0	$644	-
7	Discount	2010	$5,572	$0	$644	-
8	Discount	2011	$5,572	$3,546	$644	-
9	Discount	2012	$5,572	$0	$644	-
10	Discount	2013	$5,572	$1,289,010	$644	-
11	Discount	2014	$5,572	$3,546	$644	-
12	Discount	2015	$5,572	$0	$644	-
13	Discount	2016	$5,572	$0	$644	-
14	Discount	2017	$5,572	$3,546	$644	-
15	Discount	2018	$5,572	$0	$644	-
16	Discount	2019	$5,572	$958,260	$644	-
17	Discount	2020	$5,572	$0	$644	-
18	Discount	2021	$5,572	$0	$644	-
19	Discount	2022	$5,572	$3,546	$644	-
20	Discount	2023	$0	$0	$644	-
		Total	$105,875	$3,228,793	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Grand-White Lake Landbridge Protection Project

Present Valued Costs

Total Discounted Costs $6,312,380

Amortized Costs $567,213

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I													
	0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	3	1.204	2001	$180,314	$19,660	$35,951	$35,951	$775	$14,630	$0	$0	$0	$287,281
	2	1.132	2002	$193,724	$21,123	$38,624	$38,624	$729	$6,305	$0	$0	$0	$299,129
			Total	$374,038	$40,783	$74,575	$74,575	$1,504	$20,935	$0	$0	$0	$586,410
Phase II													
	0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.132	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	1	1.064	2003	$0	$0	$68,080	$68,080	$685	$5,928	$191,475	$682,396	$2,729,583	$3,746,226
			Total	$0	$0	$68,080	$68,080	$685	$5,928	$191,475	$682,396	$2,729,583	$3,746,226
Total First Cost				$374,038	$40,783	$142,655	$142,655	$2,190	$26,863	$191,475	$682,396	$2,729,583	$4,332,636

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$5,238	$0	$606	
-2	0.884	2005	$4,924	$851,736	$569	
-3	0.831	2006	$4,629	$0	$535	
-4	0.781	2007	$4,352	$0	$503	
-5	0.734	2008	$4,091	$2,603	$473	
-6	0.690	2009	$3,846	$0	$445	
-7	0.649	2010	$3,615	$0	$418	
-8	0.610	2011	$3,399	$2,163	$393	
-9	0.573	2012	$3,195	$0	$369	
-10	0.539	2013	$3,004	$694,801	$347	
-11	0.507	2014	$2,824	$1,797	$326	
-12	0.476	2015	$2,654	$0	$307	
-13	0.448	2016	$2,495	$0	$288	
-14	0.421	2017	$2,346	$1,493	$271	
-15	0.396	2018	$2,205	$0	$255	
-16	0.372	2019	$2,073	$356,492	$240	
-17	0.350	2020	$1,949	$0	$225	
-18	0.329	2021	$1,832	$0	$212	
-19	0.309	2022	$1,722	$1,096	$199	
-20	0.291	2023	$0	$0	$187	
		Total	$60,394	$1,912,181	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Grand-White Lake Landbridge Protection Project

Fully Funded Costs Total Fully Funded Costs $9,421,500 Amortized Costs $846,591

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	3	1.032	2001	$154,594	$16,856	$30,822	$30,822	$665	$12,543	$0	$0	$0	$246,302
	2	1.065	2002	$182,332	$19,880	$36,353	$36,353	$686	$5,935	$0	$0	$0	$281,539
			TOTAL	$336,926	$36,736	$67,175	$67,175	$1,351	$18,478	$0	$0	$0	$527,841
Phase II													
	0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	1	1.099	2003	$0	$0	$70,343	$70,343	$708	$6,125	$197,839	$705,076	$2,820,303	$3,870,735
			TOTAL	$0	$0	$70,343	$70,343	$708	$6,125	$197,839	$705,076	$2,820,303	$3,870,735
Total Cost				$336,900	$36,700	$137,500	$137,500	$2,100	$24,600	$197,800	$705,100	$2,820,300	$4,398,600

Year			FY	Monitoring	O&M	Corps PM	Other
	-1	1.134	2004	$6,321	$0	$731	
	-2	1.171	2005	$6,523	$1,128,191	$754	
	-3	1.208	2006	$6,732	$0	$778	
	-4	1.247	2007	$6,947	$0	$803	
	-5	1.287	2008	$7,169	$4,562	$829	
	-6	1.328	2009	$7,399	$0	$855	
	-7	1.370	2010	$7,635	$0	$883	
	-8	1.414	2011	$7,880	$5,014	$911	
	-9	1.459	2012	$8,132	$0	$940	
	-10	1.506	2013	$8,392	$1,941,298	$970	
	-11	1.554	2014	$8,661	$5,511	$1,001	
	-12	1.604	2015	$8,938	$0	$1,033	
	-13	1.655	2016	$9,224	$0	$1,066	
	-14	1.708	2017	$9,519	$6,058	$1,100	
	-15	1.763	2018	$9,824	$0	$1,136	
	-16	1.819	2019	$10,138	$1,743,402	$1,172	
	-17	1.878	2020	$10,462	$0	$1,210	
	-18	1.938	2021	$10,797	$0	$1,248	
	-19	2.000	2022	$11,143	$7,091	$1,288	
	-20	2.064	2023	$0	$0	$1,329	
			Total	$161,800	$4,841,100	$20,000	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**2,566,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**3,208,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs			
Engineering and Design			$321,000
	Engineering	$210,790	
	Geotechnical Investigation	$30,000	
	Hydrologic Modeling	$0	
	Data Collection or Surveying	$40,000	
	HTRW	$0	
	Cultural Resources	$10,000	
	NEPA Compliance	$30,000	
Supervision and Administration			$64,000
State Costs			
Supervision and Administration			$64,000
Easements and Land Rights			$35,000
Monitoring			$17,726
	Monitoring Plan Development	$12,154	
	Monitoring Protocal Cost *	$5,572	
		Total Phase I Cost Estimate	**$502,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs			
Easements and Land Rights			$0
Estimated Construction Cost +25% Contingency			$3,208,000
Supervision and Inspection	220 days @	$816 per day	$180,000
Supervision and Administration			$64,000
State Costs			
Supervision and Administration			$64,000
		Total Phase II Cost Estimate	**$3,516,000**

TOTAL ESTIMATED PROJECT FIRST COST **4,018,000**

O&M Data

Annual Costs

Inspections at years 2, 5,8,11, 14, 19 (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items				**Year 2**	**Year 10**	**Year 15**	
Contractor Mobilization/Demobilization				$100,000	$100,000	$100,000	$0
Planting	Replacing 25% at year 2	$2,133	$7	$13,000	$0	$0	$0
Replace 50% of terraces at year 10				$0	$282,500	$0	$0
Place one lift of rockfill/rock riprap section		$8,055	$30/ton	$674,000	$674,000	$674,000	$0
Replace signs				$0	$11,000	$11,000	$0
		Subtotal		$787,000	$1,067,500	$785,000	$0
		Subtotal w/ 10% contin.		***$866,000***	***$1,174,000***	***$864,000***	***$0***
Engineer, Design & Administrative Costs							
Engineering and Design Cost				$55,000	$75,000	$55,000	$0
Administrative Cost				$4,000	$4,000	$4,000	$0
Eng Survey	**20** days @	**$1,361** per day		$27,000	$27,000	$27,000	$0
Construction Inspection	**10** days @	**$816** per day		$8,164	$8,164	$8,164	$0
		Subtotal		***$94,000***	***$114,000***	***$94,000***	***$0***
			Total	**$960,000**	**$1,288,000**	**$958,000**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$5,572**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	8	0		15
Planning & Design End	**May-02**					
Const. Start	**October-02**					0
Const. End	**May-03**	0	0	8	0	8

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Grand Lake Shoreline Stabalization - Superior Canal to Tebo Point (Rock Only)

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$17,227,900	Total Fully Funded Costs	$40,914,900

Annual Charges	Present Worth	Average Annual
First Costs	$17,275,527	$1,552,332
Monitoring	$30,023	$2,698
O & M Costs	$11,514,134	$1,034,629
Other Costs	$7,169	$644
Total	$28,826,900	$2,590,300
Average Annual Habitat Units		142
Cost Per Habitat Unit		$18,242
Total Net Acres		495

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Grand Lake Shoreline Stabalization - Superior Canal to Tebo Point (Rock Only)

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	Compound									$0		$0
3	Compound	2001	$740,385	$2,692	$141,885	$133,538	$644	$11,361	-	$0		$1,030,505
2	Compound	2002	$634,615	$2,308	$121,615	$114,462	$322	$2,770	-	$0		$876,092
1	Compound	2003	$0	$0	$0	$0		$0	-	$0		$0
		TOTAL	$1,375,000	$5,000	$263,500	$248,000	$966	$14,131	$0	$0	$0	$1,906,597
Phase II												
4	Compound		-	-	-	-	-	-	-	$0	$0	$0
3	Compound	2001	-	-	$0	$0	-	-	$0	$0	$0	$0
2	Compound	2002	-	$13,000	$56,464	$53,143	$322	$0	$54,429	$564,375	$2,257,500	$2,999,233
1	Compound	2003	-	$0	$207,036	$194,857	$644	$2,770	$199,571	$2,069,375	$8,277,500	$10,951,754
		TOTAL	$0	$13,000	$263,500	$248,000	$966	$2,770	$254,000	$2,633,750	$10,535,000	$13,950,986
Total First Costs			$1,375,000	$18,000	$527,000	$496,000	$1,933	$16,901	$254,000	$2,633,750	$10,535,000	$15,857,584

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2004	$2,770	$4,138	$644	-
2	Discount	2005	$2,770	$4,245,500	$644	-
3	Discount	2006	$2,770	$4,138	$644	-
4	Discount	2007	$2,770	$4,245,500	$644	-
5	Discount	2008	$2,770	$0	$644	-
6	Discount	2009	$2,770	$4,138	$644	-
7	Discount	2010	$2,770	$4,245,500	$644	-
8	Discount	2011	$2,770	$0	$644	-
9	Discount	2012	$2,770	$0	$644	-
10	Discount	2013	$2,770	$0	$644	-
11	Discount	2014	$2,770	$0	$644	-
12	Discount	2015	$2,770	$0	$644	-
13	Discount	2016	$2,770	$0	$644	-
14	Discount	2017	$2,770	$4,138	$644	-
15	Discount	2018	$2,770	$4,245,500	$644	-
16	Discount	2019	$2,770	$0	$644	-
17	Discount	2020	$2,770	$0	$644	-
18	Discount	2021	$2,770	$0	$644	-
19	Discount	2022	$2,770	$0	$644	-
20	Discount	2023	$0	$0	$644	-
		Total	$52,631	$16,998,552	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

Coastal Wetlands Conservation and Restoration Plan

Grand Lake Shoreline Stabalization - Superior Canal to Tebo Point (Rock Only)

Present Valued Costs Total Discounted Costs $28,826,853 Amortized Costs $2,590,303

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$891,202	$3,241	$170,787	$160,740	$775	$13,675	$0	$0	$0	$1,240,420
2	1.132	2002	$718,108	$2,611	$137,616	$129,521	$364	$3,135	$0	$0	$0	$991,354
1	1.064	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$1,609,310	$5,852	$308,402	$290,261	$1,140	$16,810	$0	$0	$0	$2,231,775
Phase II												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$14,710	$63,893	$60,135	$364	$0	$61,589	$638,626	$2,554,506	$3,393,824
1	1.064	2003	$0	$0	$220,234	$207,279	$685	$2,947	$212,294	$2,201,298	$8,805,191	$11,649,928
		Total	$0	$14,710	$284,127	$267,414	$1,050	$2,947	$273,884	$2,839,924	$11,359,696	$15,043,752
Total First Cost			$1,609,310	$20,562	$592,529	$557,675	$2,190	$19,756	$273,884	$2,839,924	$11,359,696	$17,275,527

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$2,604	$3,890	$606	
-2	0.884	2005	$2,448	$3,751,887	$569	
-3	0.831	2006	$2,301	$3,438	$535	
-4	0.781	2007	$2,163	$3,315,664	$503	
-5	0.734	2008	$2,034	$0	$473	
-6	0.690	2009	$1,912	$2,856	$445	
-7	0.649	2010	$1,797	$2,754,557	$418	
-8	0.610	2011	$1,690	$0	$393	
-9	0.573	2012	$1,588	$0	$369	
-10	0.539	2013	$1,493	$0	$347	
-11	0.507	2014	$1,404	$0	$326	
-12	0.476	2015	$1,320	$0	$307	
-13	0.448	2016	$1,240	$0	$288	
-14	0.421	2017	$1,166	$1,742	$271	
-15	0.396	2018	$1,096	$1,680,100	$255	
-16	0.372	2019	$1,031	$0	$240	
-17	0.350	2020	$969	$0	$225	
-18	0.329	2021	$911	$0	$212	
-19	0.309	2022	$856	$0	$199	
-20	0.291	2023	$0	$0	$187	
		Total	$30,023	$11,514,134	$7,169	$0

Coastal Wetlands Conservation and Restoration Plan

Grand Lake Shoreline Stabalization - Superior Canal to Tebo Point (Rock Only)

Fully Funded Costs Total Fully Funded Costs $40,914,900 Amortized Costs $3,676,502

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$764,077	$2,778	$146,425	$137,812	$665	$11,725	$0	$0	$0	$1,063,481
2	1.065	2002	$675,881	$2,458	$129,523	$121,904	$343	$2,950	$0	$0	$0	$933,059
1	1.099	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$1,439,958	$5,236	$275,948	$259,716	$1,008	$14,675	$0	$0	$0	$1,996,541
Phase II												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$13,845	$60,136	$56,598	$343	$0	$57,968	$601,073	$2,404,292	$3,194,255
1	1.099	2003	$0	$0	$227,554	$214,168	$708	$3,045	$219,350	$2,274,460	$9,097,840	$12,037,125
		TOTAL	$0	$13,845	$287,690	$270,767	$1,051	$3,045	$277,318	$2,875,533	$11,502,131	$15,231,379
Total Cost			$1,440,000	$19,100	$563,600	$530,500	$2,100	$17,700	$277,300	$2,875,500	$11,502,100	$17,227,900

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$3,142	$4,694	$731	
-2	1.171	2005	$3,243	$4,969,667	$754	
-3	1.208	2006	$3,346	$4,999	$778	
-4	1.247	2007	$3,453	$5,292,815	$803	
-5	1.287	2008	$3,564	$0	$829	
-6	1.328	2009	$3,678	$5,494	$855	
-7	1.370	2010	$3,796	$5,817,358	$883	
-8	1.414	2011	$3,917	$0	$911	
-9	1.459	2012	$4,042	$0	$940	
-10	1.506	2013	$4,172	$0	$970	
-11	1.554	2014	$4,305	$0	$1,001	
-12	1.604	2015	$4,443	$0	$1,033	
-13	1.655	2016	$4,585	$0	$1,066	
-14	1.708	2017	$4,732	$7,069	$1,100	
-15	1.763	2018	$4,883	$7,484,510	$1,136	
-16	1.819	2019	$5,040	$0	$1,172	
-17	1.878	2020	$5,201	$0	$1,210	
-18	1.938	2021	$5,367	$0	$1,248	
-19	2.000	2022	$5,539	$0	$1,288	
-20	2.064	2023	$0	$0	$1,329	
		Total	$80,400	$23,586,600	$20,000	$0

E&D and Construction Data

ESTIMATED CONSTRUCTION COST		**10,535,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY		**13,169,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$1,375,000
	Engineering	$1,317,000		
	Geotechnical Investigation	$0		
	Hydrologic Modeling	$0		
	Data Collection	$0		
	HTRW	$2,400		
	Cultural Resources	$11,200		
	NEPA Compliance	$44,400		
Supervision and Administration				$263,500
State Costs				
Supervision and Administration				$248,000
Easements and Land Rights				$5,000
Monitoring				$14,131
	Monitoring Plan Development	$11,361		
	Monitoring Protocal Cost *	$2,770		
			Total Phase I Cost Estimate	**$1,906,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

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PHASE II

Federal Costs				
Easements and Land Rights				$13,000
Estimated Construction Cost +25% Contingency				$13,169,000
Supervision and Inspection	300 days @		**816** per day	$254,000
Supervision and Administration				$263,500
State Costs				
Supervision and Administration				$248,000
		Total Phase II Cost Estimate		**$13,948,000**

TOTAL ESTIMATED PROJECT FIRST COST	**15,854,000**

O&M Data

Annual Costs

Inspections @ years 1, 3, 6, and 14	**$4,138**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items							**Year 2**	**Year4**	**Year 7**	**Year 15**
Superior Canal to Tebo Point (30%)							$2,350,000	$2,350,000	$2,350,000	$2,350,000
Tebo Point to Mouth of Catfish Lake (40%)							$720,000	$720,000	$720,000	$720,000
								$0	$0	$0
					Subtotal		$3,070,000	$3,070,000	$3,070,000	$3,070,000
					Subtotal w/ 10% contin.		***$3,838,000***	***$3,838,000***	***$3,838,000***	***$3,838,000***
Engineer, Design & Administrative Costs										
Engineering and Design Cost							$249,000	$249,000	$249,000	$249,000
Administrative Cost							$76,000	$76,000	$76,000	$76,000
S&I	**0**	days	@	**$816**	per day		$83,000	$83,000	$83,000	$83,000
Survey Services	**0**	days	@	**$1,361**	per day		$0	$0	$0	$0
					Subtotal		***$408,000***	***$408,000***	***$408,000***	***$408,000***
						Total	**$4,246,000**	**$4,246,000**	**$4,246,000**	**$4,246,000**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$2,770**

Construction Schedule:

			2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	6	0			13
Planning & Design End	**March-02**						
Const. Start	**July-02**						0
Const. End	**August-03**		3	11	0		14

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Grand Lake Shoreline Stabilization - Superior Canal to Tebo Point (Rock and Marsh Creation)

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$31,960,400	Total Fully Funded Costs	$56,478,000

Annual Charges	Present Worth	Average Annual
First Costs	$33,831,442	$3,040,002
Monitoring	$58,672	$5,272
O & M Costs	$11,514,134	$1,034,629
Other Costs	$7,169	$644
Total	$45,411,400	$4,080,500
Average Annual Habitat Units		473
Cost Per Habitat Unit		$8,627
Total Net Acres		1,011

Coastal Wetlands Conservation and Restoration Plan

Grand Lake Shoreline Stabilization - Superior Canal to Tebo Point (Rock and Marsh Creation)

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
	5 Compound									$0		$0
	4 Compound	2001	$1,359,615	$2,692	$265,731	$215,385	$644	$11,361	-	$0		$1,855,428
	3 Compound	2002	$1,165,385	$2,308	$227,769	$184,615	$322	$5,572	-	$0		$1,585,971
	2 Compound	2003	$0	$0	$0	$0	$0	$0	-	$0		$0
		TOTAL	$2,525,000	$5,000	$493,500	$400,000	$966	$16,933	$0	$0	$0	$3,441,400
Phase II												
	4 Compound		-	-	-	-	-	-	-	$0	$0	$0
	3 Compound	2002	-	$13,000	$92,531	$75,000	$322	-	$57,750	$925,172	$3,700,688	$4,864,463
	2 Compound	2003	-	-	$370,125	$300,000	$644	$5,572	$231,000	$3,700,688	$14,802,750	$19,410,779
	1 Compound	2004	-	$0	$30,844	$25,000	$644	$5,572	$19,250	$308,391	$1,233,563	$1,623,263
		TOTAL	$0	$13,000	$493,500	$400,000	$1,611	$11,145	$308,000	$4,934,250	$19,737,000	$25,898,505
Total First Costs			$2,525,000	$18,000	$987,000	$800,000	$2,577	$28,078	$308,000	$4,934,250	$19,737,000	$29,339,905

Year		FY	Monitoring	O&M	Corps PM	Other
	1 Discount	2005	$5,572	$4,138	$644	-
	2 Discount	2006	$5,572	$4,245,500	$644	-
	3 Discount	2007	$5,572	$4,138	$644	-
	4 Discount	2008	$5,572	$4,245,500	$644	-
	5 Discount	2009	$5,572	$0	$644	-
	6 Discount	2010	$5,572	$4,138	$644	-
	7 Discount	2011	$5,572	$4,245,500	$644	-
	8 Discount	2012	$5,572	$0	$644	-
	9 Discount	2013	$5,572	$0	$644	-
	10 Discount	2014	$5,572	$0	$644	-
	11 Discount	2015	$5,572	$0	$644	-
	12 Discount	2016	$5,572	$0	$644	-
	13 Discount	2017	$5,572	$0	$644	-
	14 Discount	2018	$5,572	$4,138	$644	-
	15 Discount	2019	$5,572	$4,245,500	$644	-
	16 Discount	2020	$5,572	$0	$644	-
	17 Discount	2021	$5,572	$0	$644	-
	18 Discount	2022	$5,572	$0	$644	-
	19 Discount	2023	$0	$0	$644	-
	20 Discount	2024	$0	$0	$644	-
		Total	$100,303	$16,998,552	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Grand Lake Shoreline Stabilization - Superior Canal to Tebo Point (Rock and Marsh Creation)

Present Valued Costs

Total Discounted Costs $45,411,418

Amortized Costs $4,080,547

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
5	1.362	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	1.280	2001	$1,740,902	$3,447	$340,252	$275,786	$825	$14,547	$0	$0	$0	$2,375,759
3	1.204	2002	$1,402,775	$2,778	$274,166	$222,222	$388	$6,707	$0	$0	$0	$1,909,036
2	1.132	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$3,143,677	$6,225	$614,418	$498,008	$1,213	$21,255	$0	$0	$0	$4,284,795
Phase II												
4	1.280	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2002	$0	$15,648	$111,380	$90,278	$388	$0	$69,514	$1,113,631	$4,454,522	$5,855,360
2	1.132	2003	$0	$0	$418,820	$339,469	$729	$6,305	$261,391	$4,187,565	$16,750,260	$21,964,540
1	1.064	2004	$0	$0	$32,810	$26,594	$685	$5,928	$20,477	$328,051	$1,312,202	$1,726,746
		Total	$0	$15,648	$563,010	$456,341	$1,802	$12,233	$351,382	$5,629,246	$22,516,984	$29,546,646
Total First Cost			$3,143,677	$21,873	$1,177,428	$954,349	$3,015	$33,488	$351,382	$5,629,246	$22,516,984	$33,831,442

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2005	$5,238	$3,890	$606	
-2	0.884	2006	$4,924	$3,751,887	$569	
-3	0.831	2007	$4,629	$3,438	$535	
-4	0.781	2008	$4,352	$3,315,664	$503	
-5	0.734	2009	$4,091	$0	$473	
-6	0.690	2010	$3,846	$2,856	$445	
-7	0.649	2011	$3,615	$2,754,557	$418	
-8	0.610	2012	$3,399	$0	$393	
-9	0.573	2013	$3,195	$0	$369	
-10	0.539	2014	$3,004	$0	$347	
-11	0.507	2015	$2,824	$0	$326	
-12	0.476	2016	$2,654	$0	$307	
-13	0.448	2017	$2,495	$0	$288	
-14	0.421	2018	$2,346	$1,742	$271	
-15	0.396	2019	$2,205	$1,680,100	$255	
-16	0.372	2020	$2,073	$0	$240	
-17	0.350	2021	$1,949	$0	$225	
-18	0.329	2022	$1,832	$0	$212	
-19	0.309	2023	$0	$0	$199	
-20	0.291	2024	$0	$0	$187	
		Total	$58,672	$11,514,134	$7,169	$0

Coastal Wetlands Conservation and Restoration Plan

Grand Lake Shoreline Stabilization - Superior Canal to Tebo Point (Rock and Marsh Creation)

Fully Funded Costs — Total Fully Funded Costs $56,478,000 — Amortized Costs $5,074,960

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
5	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
4	1.032	2001	$1,403,123	$2,778	$274,234	$222,277	$665	$11,725	$0	$0	$0	$1,914,802
3	1.065	2002	$1,241,163	$2,458	$242,580	$196,620	$343	$5,935	$0	$0	$0	$1,689,098
2	1.099	2003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$2,644,286	$5,236	$516,814	$418,897	$1,008	$17,659	$0	$0	$0	$3,603,900
Phase II												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.065	2002	$0	$13,845	$98,548	$79,877	$343	$0	$61,505	$985,330	$3,941,321	$5,180,770
2	1.099	2003	$0	$0	$406,806	$329,731	$708	$6,125	$253,893	$4,067,443	$16,269,773	$21,334,480
1	1.134	2004	$0	$0	$34,985	$28,357	$731	$6,321	$21,835	$349,800	$1,399,200	$1,841,229
		TOTAL	$0	$13,845	$540,339	$437,965	$1,782	$12,445	$337,233	$5,402,574	$21,610,295	$28,356,478
Total Cost			$2,644,300	$19,100	$1,057,200	$856,900	$2,800	$30,100	$337,200	$5,402,600	$21,610,300	$31,960,400

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.171	2005	$6,523	$4,844	$754	
-2	1.208	2006	$6,732	$5,128,697	$778	
-3	1.247	2007	$6,947	$5,159	$803	
-4	1.287	2008	$7,169	$5,462,185	$829	
-5	1.328	2009	$7,399	$0	$855	
-6	1.370	2010	$7,635	$5,670	$883	
-7	1.414	2011	$7,880	$6,003,514	$911	
-8	1.459	2012	$8,132	$0	$940	
-9	1.506	2013	$8,392	$0	$970	
-10	1.554	2014	$8,661	$0	$1,001	
-11	1.604	2015	$8,938	$0	$1,033	
-12	1.655	2016	$9,224	$0	$1,066	
-13	1.708	2017	$9,519	$0	$1,100	
-14	1.763	2018	$9,824	$7,295	$1,136	
-15	1.819	2019	$10,138	$7,724,015	$1,172	
-16	1.878	2020	$10,462	$0	$1,210	
-17	1.938	2021	$10,797	$0	$1,248	
-18	2.000	2022	$11,143	$0	$1,288	
-19	2.064	2023	$0	$0	$1,329	
-20	2.130	2024	$0	$0	$1,372	
		Total	$155,500	$24,341,400	$20,700	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST				**19,737,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY				**24,671,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$2,525,000
	Engineering	$2,467,000		
	Geotechnical Investigation	$0		
	Hydrologic Modeling	$0		
	Data Collection	$0		
	HTRW	$2,400		
	Cultural Resources	$11,200		
	NEPA Compliance	$44,400		
Supervision and Administration				$493,500
State Costs				
Supervision and Administration				$400,000
Easements and Land Rights				$5,000
Monitoring				$16,933
	Monitoring Plan Development	$11,361		
	Monitoring Protocal Cost *****	$5,572		
		Total Phase I Cost Estimate		**$3,440,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$13,000
Estimated Construction Cost +25% Contingency				$24,671,000
Supervision and Inspection		370 days @	**816** per day	$308,000
Supervision and Administration				$493,500
State Costs				
Supervision and Administration				$400,000
		Total Phase II Cost Estimate		**$25,886,000**

TOTAL ESTIMATED PROJECT FIRST COST	**29,326,000**

O&M Data

Annual Costs

Inspections @ years 1, 3, 6, and 14	**$4,138**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items					Year 2	Year4	Year 7	Year 15
Superior Canal to Tebo Point (30%)					$2,350,000	$2,350,000	$2,350,000	$2,350,000
Tebo Point to Mouth of Catfish Lake (40%)					$720,000	$720,000	$720,000	$720,000
						$0	$0	$0
				Subtotal	$3,070,000	$3,070,000	$3,070,000	$3,070,000
				Subtotal w/ 10% contin.	***$3,838,000***	***$3,838,000***	***$3,838,000***	***$3,838,000***
Engineer, Design & Administrative Costs								
Engineering and Design Cost					$249,000	$249,000	$249,000	$249,000
Administrative Cost					$76,000	$76,000	$76,000	$76,000
S&I	**0** days	@	**$816** per day		$83,000	$83,000	$83,000	$83,000
Survey Services	**0** days	@	**$1,361** per day		$0	$0	$0	$0
				Subtotal	***$408,000***	***$408,000***	***$408,000***	***$408,000***
				Total	**$4,246,000**	**$4,246,000**	**$4,246,000**	**$4,246,000**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$5,572**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	6	0		13
Planning & Design End	**March-02**					
Const. Start	**July-02**					0
Const. End	**October-03**		3	12	1	16

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Hydrologic Restoration East of Sabine Lake With Terraces

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$15,553,000	Total Fully Funded Costs	$19,433,200

Annual Charges	Present Worth	Average Annual
First Costs	$16,053,183	$1,442,496
Monitoring	$340,060	$30,557
O & M Costs	$972,025	$87,343
Other Costs	$7,167	$644
Total	$17,372,400	$1,561,000
Average Annual Habitat Units		630
Cost Per Habitat Unit		$2,478
Total Net Acres		393

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan
Hydrologic Restoration East of Sabine Lake With Terraces

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
5	Compound	2001	$267,595	$15,909	$64,225	$64,078	$644	$16,870	-	$0		$429,322
4	Compound	2002	$458,735	$27,273	$110,101	$109,848	$644	$33,338	-	$0		$739,938
3	Compound	2003	$114,684	$6,818	$27,525	$27,462	$322	$0	-	$0		$176,811
2	Compound	2004	$0	$0	$0	$0	$0	$0	-	$0		$0
	TOTAL		$841,014	$50,000	$201,851	$201,388	$1,611	$50,208	$0	$0	$0	$1,346,072
Phase II												
4	Compound	2002	-	-	$0	$0	$0	-	$0	$0	$0	$0
3	Compound	2003	-	-	$59,368	$59,232	$322	$33,338	$87,647	$612,061	$2,448,245	$3,300,214
2	Compound	2004	-	-	$142,483	$142,156	$644	$33,338	$210,353	$1,468,947	$5,875,789	$7,873,710
1	Compound	2005	-	-	$23,747	$23,693	$644	$33,338	$35,059	$244,825	$979,298	$1,340,604
	TOTAL		$0	$0	$201,851	$201,388	$966	$66,676	$298,000	$2,081,009	$8,324,034	$11,173,924
Total First Costs			$841,014	$50,000	$403,702	$402,776	$2,577	$116,884	$298,000	$2,081,009	$8,324,034	$12,519,996

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2006	$33,338	$12,397	$644	-
2	Discount	2007	$33,338	$12,397	$644	-
3	Discount	2008	$33,338	$12,397	$644	-
4	Discount	2009	$33,338	$12,397	$644	-
5	Discount	2010	$33,338	$259,593	$644	-
6	Discount	2011	$33,338	$12,397	$644	-
7	Discount	2012	$33,338	$12,397	$644	-
8	Discount	2013	$33,338	$12,397	$644	-
9	Discount	2014	$33,338	$12,397	$644	-
10	Discount	2015	$33,338	$933,347	$644	-
11	Discount	2016	$33,338	$12,397	$644	-
12	Discount	2017	$33,338	$12,397	$644	-
13	Discount	2018	$33,338	$12,397	$644	-
14	Discount	2019	$33,338	$12,397	$644	-
15	Discount	2020	$33,338	$407,016	$644	-
16	Discount	2021	$33,338	$12,397	$644	-
17	Discount	2022	$33,338	$12,397	$644	-
18	Discount	2023	$0	$12,397	$644	-
19	Discount	2024	$0	$12,397	$644	-
20	Discount	2025	$0	$12,397	$644	-
	Total		$566,746	$1,810,705	$12,880	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Hydrologic Restoration East of Sabine Lake With Terraces

Present Valued Costs Total Discounted Costs $17,372,435 Amortized Costs $1,561,040

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
5	1.362	2001	$364,482	$21,669	$87,479	$87,278	$877	$22,978	$0	$0	$0	$584,765
4	1.280	2002	$587,381	$34,921	$140,977	$140,654	$825	$42,687	$0	$0	$0	$947,445
3	1.204	2003	$138,045	$8,207	$33,132	$33,056	$388	$0	$0	$0	$0	$212,828
2	1.132	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total		$1,089,909	$64,797	$261,588	$260,988	$2,090	$65,665	$0	$0	$0	$1,745,037
Phase II												
4	1.280	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2003	$0	$0	$71,461	$71,297	$388	$40,129	$105,501	$736,739	$2,946,956	$3,972,471
2	1.132	2004	$0	$0	$161,229	$160,859	$729	$37,724	$238,028	$1,662,208	$6,648,831	$8,909,608
1	1.064	2005	$0	$0	$25,261	$25,203	$685	$35,463	$37,294	$260,432	$1,041,728	$1,426,067
	Total		$0	$0	$257,951	$257,360	$1,802	$113,316	$380,823	$2,659,379	$10,637,516	$14,308,146
Total First Cost			$1,089,909	$64,797	$519,539	$518,348	$3,892	$178,982	$380,823	$2,659,379	$10,637,516	$16,053,183

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2006	$31,340	$11,654	$605	
-2	0.884	2007	$29,462	$10,956	$569	
-3	0.831	2008	$27,696	$10,299	$535	
-4	0.781	2009	$26,036	$9,682	$503	
-5	0.734	2010	$24,476	$190,588	$473	
-6	0.690	2011	$23,009	$8,556	$444	
-7	0.649	2012	$21,630	$8,043	$418	
-8	0.610	2013	$20,334	$7,561	$393	
-9	0.573	2014	$19,115	$7,108	$369	
-10	0.539	2015	$17,970	$503,092	$347	
-11	0.507	2016	$16,893	$6,282	$326	
-12	0.476	2017	$15,881	$5,905	$307	
-13	0.448	2018	$14,929	$5,551	$288	
-14	0.421	2019	$14,034	$5,219	$271	
-15	0.396	2020	$13,193	$161,071	$255	
-16	0.372	2021	$12,402	$4,612	$240	
-17	0.350	2022	$11,659	$4,336	$225	
-18	0.329	2023	$0	$4,076	$212	
-19	0.309	2024	$0	$3,831	$199	
-20	0.291	2025	$0	$3,602	$187	
	Total		$340,060	$972,025	$7,167	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Hydrologic Restoration East of Sabine Lake With Terraces

Fully Funded Costs Total Fully Funded Costs $19,433,200 Amortized Costs $1,746,215

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
5	1.032	2001	$276,158	$16,418	$66,281	$66,129	$665	$17,410	$0	$0	$0	$443,060
4	1.065	2002	$488,564	$29,046	$117,260	$116,991	$686	$35,506	$0	$0	$0	$788,052
3	1.099	2003	$126,049	$7,494	$30,253	$30,184	$354	$0	$0	$0	$0	$194,334
2	1.134	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	TOTAL		$890,772	$52,958	$213,793	$213,303	$1,705	$52,916	$0	$0	$0	$1,425,447
Phase II												
4	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.099	2003	$0	$0	$65,252	$65,102	$354	$36,642	$96,333	$672,720	$2,690,878	$3,627,280
2	1.134	2004	$0	$0	$161,615	$161,245	$731	$37,814	$238,598	$1,666,192	$6,664,767	$8,930,962
1	1.171	2005	$0	$0	$27,798	$27,734	$754	$39,025	$41,039	$286,585	$1,146,340	$1,569,274
	TOTAL		$0	$0	$254,665	$254,081	$1,839	$113,481	$375,971	$2,625,496	$10,501,985	$14,127,516
Total First Cost			$890,800	$53,000	$468,500	$467,400	$3,500	$166,400	$376,000	$2,625,500	$10,502,000	$15,553,000

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.208	2006	$40,273	$14,976	$778	
-2	1.247	2007	$41,562	$15,455	$803	
-3	1.287	2008	$42,892	$15,950	$829	
-4	1.328	2009	$44,265	$16,460	$855	
-5	1.370	2010	$45,681	$355,705	$882	
-6	1.414	2011	$47,143	$17,530	$911	
-7	1.459	2012	$48,651	$18,091	$940	
-8	1.506	2013	$50,208	$18,670	$970	
-9	1.554	2014	$51,815	$19,268	$1,001	
-10	1.604	2015	$53,473	$1,497,059	$1,033	
-11	1.655	2016	$55,184	$20,521	$1,066	
-12	1.708	2017	$56,950	$21,177	$1,100	
-13	1.763	2018	$58,772	$21,855	$1,135	
-14	1.819	2019	$60,653	$22,554	$1,172	
-15	1.878	2020	$62,594	$764,197	$1,209	
-16	1.938	2021	$64,597	$24,021	$1,248	
-17	2.000	2022	$66,664	$24,790	$1,288	
-18	2.064	2023	$0	$25,583	$1,329	
-19	2.130	2024	$0	$26,402	$1,372	
-20	2.198	2025	$0	$27,246	$1,415	
	Total		$891,400	$2,967,500	$21,300	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**8,324,034**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**10,092,543**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$841,014
	Engineering	$616,014		
	Geotechnical Investigation	$85,000		
	Hydrologic Modeling	$75,000		
	Data Collection	$25,000		
	Cultural Resources	$10,000		
	NEPA Compliance	$30,000		
Supervision and Administration				$201,851
State Costs				
Supervision and Administration				$201,388
Easements and Land Rights				$50,000
Monitoring				$50,208
	Monitoring Plan Development	$16,870		
	Monitoring Protocal Cost *****	$33,338		
		Total Phase I Cost Estimate		**$1,344,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Estimated Construction Cost +25% Contingency				$10,092,543
Supervision and Inspection	365 days @		816 per day	$298,000
Supervision and Administration				$201,851
State Costs				
Supervision and Administration				$201,388
	Total Phase II Cost Estimate			**$10,794,000**

TOTAL ESTIMATED PROJECT FIRST COST	**12,138,000**

O&M Data

Annual Costs

Annual Inspections	**$3,546**
Annual Cost for Operations	**$5,851**
Preventive Maintenance (Included in Annual Cost for Operations)	**$3,000**

Specific Intermittent Costs

Construction Items					**Year 5**	**Year 10**	**Year 15**
General Structure Maintaince and Repair					$100,000	$200,000	$200,000
Automation & Solar Maintaince & Repair, (5% @ YRS 5, 10 & 15)					$72,497	$72,497	$72,497
Replace 10% of original rockfill/rock riprap section					$0	$24,850	$0
Replace 30% of original Terrace fill					$0	$366,624	$0
Contractor Mobilization/Demobilization					$25,000	$75,000	$50,000
				Subtotal	$197,497	$738,971	$322,497
				Subtotal w/ 10% contin.	***$217,000***	***$813,000***	***$355,000***
Engineer, Design & Administrative Costs							
Engineering and Design Cost					$17,402	$58,799	$27,325
Administrative Cost					$4,384	$4,384	$4,384
Eng Survey	15 days	@	$1,361 per day		$0	$20,415	$0
Construction Inspection	10 days	@	$816 per day		$8,160		$8,160
Construction Inspection	30 days	@	816 per day			$24,480	
				Subtotal	***$30,000***	***$108,000***	***$40,000***
				Total	**$247,000**	**$921,000**	**$395,000**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$33,338**

Construction Schedule:

		2001	2002	2003	2004	2005	Total
Planning & Design Start	**March-01**	7	12	3			22
Planning & Design End	**December-02**						
Const. Start	**May-03**						0
Const. End	**December-04**			5	12	2	17

All dates are in Federal Fiscal Years (October 1 to September 30)

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Hydrologic Restoration East of Sabine Lake Without Terraces

Project Construction Years:	4	Total Project Years	24
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$13,631,500	Total Fully Funded Costs	$16,820,600

Annual Charges	Present Worth	Average Annual
First Costs	$14,007,740	$1,258,698
Monitoring	$340,060	$30,557
O & M Costs	$739,768	$66,474
Other Costs	$7,167	$644
Total	$15,094,700	$1,356,400
Average Annual Habitat Units		444
Cost Per Habitat Unit		$3,055
Total Net Acres		325

Coastal Wetlands Conservation and Restoration Plan

Hydrologic Restoration East of Sabine Lake Without Terraces

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
5 Compound	2001	$239,638	$15,909	$54,504	$54,504	$644	$16,870	-	$0		$382,070
4 Compound	2002	$410,809	$27,273	$93,436	$93,436	$644	$33,338	-	$0		$658,935
3 Compound	2003	$102,702	$6,818	$23,359	$23,359	$322	$0	-	$0		$156,560
2 Compound	2004	$0	$0	$0	$0	$0	$0	-	$0		$0
	TOTAL	$753,149	$50,000	$171,299	$171,299	$1,611	$50,208	$0	$0	$0	$1,197,565
Phase II											
4 Compound	2002	-	-	$0	$0	$0	-	$0	$0	$0	$0
3 Compound	2003	-	-	$50,382	$50,382	$322	$33,338	$87,647	$503,820	$2,015,281	$2,741,172
2 Compound	2004	-	-	$120,917	$120,917	$644	$33,338	$210,353	$1,209,168	$4,836,673	$6,532,011
1 Compound	2005	-	-	$30,229	$30,229	$644	$33,338	$52,588	$302,292	$1,209,168	$1,658,489
	TOTAL	$0	$0	$171,299	$171,299	$966	$66,676	$298,000	$1,712,989	$6,851,954	$9,273,183
Total First Costs		$753,149	$50,000	$342,598	$342,598	$2,577	$116,884	$298,000	$1,712,989	$6,851,954	$10,470,748

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2006	$33,338	$12,397	$644	-
2 Discount	2007	$33,338	$12,397	$644	-
3 Discount	2008	$33,338	$12,397	$644	-
4 Discount	2009	$33,338	$12,397	$644	-
5 Discount	2010	$33,338	$259,593	$644	-
6 Discount	2011	$33,338	$12,397	$644	-
7 Discount	2012	$33,338	$12,397	$644	-
8 Discount	2013	$33,338	$12,397	$644	-
9 Discount	2014	$33,338	$12,397	$644	-
10 Discount	2015	$33,338	$502,460	$644	-
11 Discount	2016	$33,338	$12,397	$644	-
12 Discount	2017	$33,338	$12,397	$644	-
13 Discount	2018	$33,338	$12,397	$644	-
14 Discount	2019	$33,338	$12,397	$644	-
15 Discount	2020	$33,338	$407,016	$644	-
16 Discount	2021	$33,338	$12,397	$644	-
17 Discount	2022	$33,338	$12,397	$644	-
18 Discount	2023	$0	$12,397	$644	-
19 Discount	2024	$0	$12,397	$644	-
20 Discount	2025	$0	$12,397	$644	-
	Total	$566,746	$1,379,818	$12,880	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Hydrologic Restoration East of Sabine Lake Without Terraces

Present Valued Costs Total Discounted Costs $15,094,735 Amortized Costs $1,356,372

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
5	1.362	2001	$326,403	$21,669	$74,238	$74,238	$877	$22,978	$0	$0	$0	$520,404
4	1.280	2002	$526,015	$34,921	$119,639	$119,639	$825	$42,687	$0	$0	$0	$843,725
3	1.204	2003	$123,623	$8,207	$28,117	$28,117	$388	$0	$0	$0	$0	$188,452
2	1.132	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$976,040	$64,797	$221,994	$221,994	$2,090	$65,665	$0	$0	$0	$1,552,581
Phase II												
4	1.280	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2003	$0	$0	$60,645	$60,645	$388	$40,129	$105,501	$606,449	$2,425,796	$3,299,552
2	1.132	2004	$0	$0	$136,825	$136,825	$729	$37,724	$238,028	$1,368,251	$5,473,006	$7,391,388
1	1.064	2005	$0	$0	$32,156	$32,156	$685	$35,463	$55,941	$321,563	$1,286,253	$1,764,218
		Total	$0	$0	$229,626	$229,626	$1,802	$113,316	$399,469	$2,296,264	$9,185,054	$12,455,159
Total First Cost			$976,040	$64,797	$451,621	$451,620	$3,892	$178,982	$399,469	$2,296,264	$9,185,054	$14,007,740

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2006	$31,340	$11,654	$605	
-2	0.884	2007	$29,462	$10,956	$569	
-3	0.831	2008	$27,696	$10,299	$535	
-4	0.781	2009	$26,036	$9,682	$503	
-5	0.734	2010	$24,476	$190,588	$473	
-6	0.690	2011	$23,009	$8,556	$444	
-7	0.649	2012	$21,630	$8,043	$418	
-8	0.610	2013	$20,334	$7,561	$393	
-9	0.573	2014	$19,115	$7,108	$369	
-10	0.539	2015	$17,970	$270,836	$347	
-11	0.507	2016	$16,893	$6,282	$326	
-12	0.476	2017	$15,881	$5,905	$307	
-13	0.448	2018	$14,929	$5,551	$288	
-14	0.421	2019	$14,034	$5,219	$271	
-15	0.396	2020	$13,193	$161,071	$255	
-16	0.372	2021	$12,402	$4,612	$240	
-17	0.350	2022	$11,659	$4,336	$225	
-18	0.329	2023	$0	$4,076	$212	
-19	0.309	2024	$0	$3,831	$199	
-20	0.291	2025	$0	$3,602	$187	
		Total	$340,060	$739,768	$7,167	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Hydrologic Restoration East of Sabine Lake Without Terraces

Fully Funded Costs | Total Fully Funded Costs $16,820,600 | Amortized Costs $1,511,454

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
5	1.032	2001	$247,307	$16,418	$56,248	$56,248	$665	$17,410	$0	$0	$0	$394,296
4	1.065	2002	$437,521	$29,046	$99,511	$99,511	$686	$35,506	$0	$0	$0	$701,782
3	1.099	2003	$112,880	$7,494	$25,674	$25,674	$354	$0	$0	$0	$0	$172,076
2	1.134	2004	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$797,708	$52,958	$181,434	$181,434	$1,705	$52,916	$0	$0	$0	$1,268,154
Phase II												
4	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	0
3	1.099	2003	$0	$0	$55,375	$55,375	$354	$36,642	$96,333	$553,751	$2,215,005	$3,012,835
2	1.134	2004	$0	$0	$137,153	$137,153	$731	$37,814	$238,598	$1,371,531	$5,486,123	$7,409,104
1	1.171	2005	$0	$0	$35,385	$35,385	$754	$39,025	$61,558	$353,855	$1,415,420	$1,941,383
		TOTAL	$0	$0	$227,914	$227,914	$1,839	$113,481	$396,490	$2,279,137	$9,116,547	$12,363,322
Total First Cost			$797,700	$53,000	$409,300	$409,300	$3,500	$166,400	$396,500	$2,279,100	$9,116,500	$13,631,500

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.208	2006	$40,273	$14,976	$778	
-2	1.247	2007	$41,562	$15,455	$803	
-3	1.287	2008	$42,892	$15,950	$829	
-4	1.328	2009	$44,265	$16,460	$855	
-5	1.370	2010	$45,681	$355,705	$882	
-6	1.414	2011	$47,143	$17,530	$911	
-7	1.459	2012	$48,651	$18,091	$940	
-8	1.506	2013	$50,208	$18,670	$970	
-9	1.554	2014	$51,815	$19,268	$1,001	
-10	1.604	2015	$53,473	$805,929	$1,033	
-11	1.655	2016	$55,184	$20,521	$1,066	
-12	1.708	2017	$56,950	$21,177	$1,100	
-13	1.763	2018	$58,772	$21,855	$1,135	
-14	1.819	2019	$60,653	$22,554	$1,172	
-15	1.878	2020	$62,594	$764,197	$1,209	
-16	1.938	2021	$64,597	$24,021	$1,248	
-17	2.000	2022	$66,664	$24,790	$1,288	
-18	2.064	2023	$0	$25,583	$1,329	
-19	2.130	2024	$0	$26,402	$1,372	
-20	2.198	2025	$0	$27,246	$1,415	
		Total	$891,400	$2,276,400	$21,300	$0

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**6,851,954**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**8,564,943**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$753,149
	Engineering	$528,149		
	Geotechnical Investigation	$85,000		
	Hydrologic Modeling	$75,000		
	Data Collection	$25,000		
	Cultural Resources	$10,000		
	NEPA Compliance	$30,000		
Supervision and Administration				$171,299
State Costs				
Supervision and Administration				$171,299
Easements and Land Rights				$50,000
Monitoring				$50,208
	Monitoring Plan Development	$16,870		
	Monitoring Protocal Cost *****	$33,338		
			Total Phase I Cost Estimate	**$1,196,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Estimated Construction Cost +25% Contingency				$8,564,943
Supervision and Inspection	365 days	@	816 per day	$298,000
Supervision and Administration				$171,299
State Costs				
Supervision and Administration				$171,299
			Total Phase II Cost Estimate	**$9,206,000**

TOTAL ESTIMATED PROJECT FIRST COST	**10,402,000**

O&M Data

Annual Costs

Annual Inspections	**$3,546**
Annual Cost for Operations	**$5,851**
Preventive Maintenance (Included in Annual Cost for Operations)	**$3,000**

Specific Intermittent Costs

Construction Items					**Year 5**	**Year 10**	**Year 15**
General Structure Maintaince and Repair					$100,000	$200,000	$200,000
Automation & Solar Maintaince & Repair, (5% @ YRS 5, 10 & 15)					$72,497	$72,497	$72,497
Replace 10% of original rockfill/rock riprap section					$0	$24,850	$0
Contractor Mobilization/Demobilization					$25,000	$75,000	$50,000
				Subtotal	$197,497	$372,347	$322,497
				Subtotal w/ 10% contin.	***$217,000***	***$410,000***	***$355,000***
Engineer, Design & Administrative Costs							
Engineering and Design Cost					$17,402	$31,198	$27,325
Administrative Cost					$4,384	$4,384	$4,384
Eng Survey	15 days	@	$1,361 per day		$0	$20,415	$0
Construction Inspection	10 days	@	$816 per day		$8,160	$0	$8,160
Construction Inspection	30 days	@	816 per day		$0	$24,480	$0
				Subtotal	***$30,000***	***$80,000***	***$40,000***
				Total	**$247,000**	**$490,000**	**$395,000**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$33,338**

Construction Schedule:

		2001	2002	2003	2004	2005	Total
Planning & Design Start	**March-01**	7	12	3			22
Planning & Design End	**December-02**						
Const. Start	**May-03**						0
Const. End	**December-04**			5	12	3	17

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Deep Hole Demo Project

Project Construction Years:	2	Total Project Years	22
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$2,278,700	Total Fully Funded Costs	$2,485,100

Annual Charges	Present Worth	Average Annual
First Costs	$2,304,572	$207,083
Monitoring	$159,274	$14,312
O & M Costs	$0	$0
Other Costs	$1,710	$154
Total	$2,465,600	$221,500
Average Annual Habitat Units		NA
Cost Per Habitat Unit		#VALUE!
Total Net Acres		NA

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Deep Hole Demo Project

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
2	Compound	2001	$168,000	$0	$21,000	$21,000	$644	$72,943	-	$0		$283,587
1	Compound	2002	$72,000	$0	$9,000	$9,000	$322	$0	-	$0		$90,322
		TOTAL	$240,000	$0	$30,000	$30,000	$966	$72,943	$0	$0	$0	$373,909
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
0	Compound		-	-	-	-	-	-		$0	$0	$0
2	Compound	2001	-	-	-	-	-	-	$0	$0	$0	$0
1	Compound	2002	-	$0	$30,000	$30,000	$322	$60,000	$150,400	$300,750	$1,203,000	$1,774,472
		TOTAL	$0	$0	$30,000	$30,000	$322	$60,000	$150,400	$300,750	$1,203,000	$1,774,472
Total First Costs			$240,000	$0	$60,000	$60,000	$1,288	$132,943	$150,400	$300,750	$1,203,000	$2,148,381

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2003	$60,000	$0	$644	-
2	Discount	2004	$60,000	$0	$644	-
3	Discount	2005	$60,000	$0	$644	-
4	Discount	2006	$0	$0	$0	-
5	Discount	2007	$0	$0	$0	-
6	Discount	2008	$0	$0	$0	-
7	Discount	2009	$0	$0	$0	-
8	Discount	2010	$0	$0	$0	-
9	Discount	2011	$0	$0	$0	-
10	Discount	2012	$0	$0	$0	-
11	Discount	2013	$0	$0	$0	-
12	Discount	2014	$0	$0	$0	-
13	Discount	2015	$0	$0	$0	-
14	Discount	2016	$0	$0	$0	-
15	Discount	2017	$0	$0	$0	-
16	Discount	2018	$0	$0	$0	-
17	Discount	2019	$0	$0	$0	-
18	Discount	2020	$0	$0	$0	-
19	Discount	2021	$0	$0	$0	-
20	Discount	2022	$0	$0	$0	-
		Total	$180,000	$0	$1,933	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Deep Hole Demo Project

Present Valued Costs

Total Discounted Costs $2,465,556

Amortized Costs $221,548

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$190,103	$0	$23,763	$23,763	$729	$82,540	$0	$0	$0	$320,897
1	1.064	2002	$76,590	$0	$9,574	$9,574	$343	$0	$0	$0	$0	$96,080
		Total	$266,693	$0	$33,337	$33,337	$1,072	$82,540	$0	$0	$0	$416,977
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2002	$0	$0	$31,913	$31,913	$343	$63,825	$159,988	$319,923	$1,279,691	$1,887,595
		Total	$0	$0	$31,913	$31,913	$343	$63,825	$159,988	$319,923	$1,279,691	$1,887,595
Total First Cost			$266,693	$0	$65,249	$65,249	$1,414	$146,365	$159,988	$319,923	$1,279,691	$2,304,572

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2003	$56,404	$0	$606	
-2	0.884	2004	$53,024	$0	$569	
-3	0.831	2005	$49,846	$0	$535	
-4	0.781	2006	$0	$0	$0	
-5	0.734	2007	$0	$0	$0	
-6	0.690	2008	$0	$0	$0	
-7	0.649	2009	$0	$0	$0	
-8	0.610	2010	$0	$0	$0	
-9	0.573	2011	$0	$0	$0	
-10	0.539	2012	$0	$0	$0	
-11	0.507	2013	$0	$0	$0	
-12	0.476	2014	$0	$0	$0	
-13	0.448	2015	$0	$0	$0	
-14	0.421	2016	$0	$0	$0	
-15	0.396	2017	$0	$0	$0	
-16	0.372	2018	$0	$0	$0	
-17	0.350	2019	$0	$0	$0	
-18	0.329	2020	$0	$0	$0	
-19	0.309	2021	$0	$0	$0	
-20	0.291	2022	$0	$0	$0	
		Total	$159,274	$0	$1,710	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan
Deep Hole Demo Project

Fully Funded Costs Total Fully Funded Costs $2,485,100 Amortized Costs $223,304

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$173,376	$0	$21,672	$21,672	$665	$75,277	$0	$0	$0	$292,662
1	1.065	2002	$76,682	$0	$9,585	$9,585	$343	$0	$0	$0	$0	$96,195
		TOTAL	$250,058	$0	$31,257	$31,257	$1,008	$75,277	$0	$0	$0	$388,857
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.065	2002	$0	$0	$31,951	$31,951	$343	$63,901	$160,180	$320,306	$1,281,224	$1,889,855
		TOTAL	$0	$0	$31,951	$31,951	$343	$63,901	$160,180	$320,306	$1,281,224	$1,889,855
Total Cost			$250,100	$0	$63,200	$63,200	$1,400	$139,200	$160,200	$320,300	$1,281,200	$2,278,700

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.099	2003	$65,946	$0	$708	
-2	1.134	2004	$68,057	$0	$731	
-3	1.171	2005	$70,234	$0	$754	
-4	1.208	2006	$0	$0	$0	
-5	1.247	2007	$0	$0	$0	
-6	1.287	2008	$0	$0	$0	
-7	1.328	2009	$0	$0	$0	
-8	1.370	2010	$0	$0	$0	
-9	1.414	2011	$0	$0	$0	
-10	1.459	2012	$0	$0	$0	
-11	1.506	2013	$0	$0	$0	
-12	1.554	2014	$0	$0	$0	
-13	1.604	2015	$0	$0	$0	
-14	1.655	2016	$0	$0	$0	
-15	1.708	2017	$0	$0	$0	
-16	1.763	2018	$0	$0	$0	
-17	1.819	2019	$0	$0	$0	
-18	1.878	2020	$0	$0	$0	
-19	1.938	2021	$0	$0	$0	
-20	2.000	2022	$0	$0	$0	
		Total	$204,200	$0	$2,200	

All dates are in Federal Fiscal Years (October 1 to September 30)

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E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**1,203,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**1,504,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$240,000
	Engineering	$150,000		
	Geotechnical Investigation	$0		
	Hydrologic Modeling	$50,000		
	Data Collection	$0		
	HTRW	$0		
	Cultural Resources	$10,000		
	NEPA Compliance	$30,000		
Supervision and Administration				$30,000
State Costs				
Supervision and Administration				$30,000
Easements and Land Rights				$0
Monitoring				$72,943
	Monitoring Plan Development	$12,943		
	Monitoring Protocal Cost *****	$60,000		
			Total Phase I Cost Estimate	**$373,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$1,504,000
Supervision and Inspection	0 days @		**816** per day	$150,400
Supervision and Administration				$30,000
State Costs				
Supervision and Administration				$30,000
			Total Phase II Cost Estimate	**$1,714,000**

TOTAL ESTIMATED PROJECT FIRST COST	**2,087,000**

O&M Data

Annual Costs

Inspections @ years 5, 10 and 15	**$0**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Maintain Access to Oil and Gas Facilities (annual cost Years 1-15)	$0
Maintain Access to Oil and Gas Facilities (annual cost Years 16-19)	$0

Construction Items		Year 1	Year 5	Year 10	Year 15
Contingency Channel Closure		$0	$0	$0	$0
Bifurcation Dredging		$0	$0	$0	$0
Sediment Retention Dike		$0	$0	$0	$0
	Subtotal	$0	$0	$0	$0
	Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs					
Engineering and Design Cost		$0	$0	$0	$0
Administrative Cost		$0	$0	$0	$0
Eng Survey	**0** days @ **$1,361** per day	$0	$0	$0	$0
Construction Inspection	**0** days @ **$816** per day	$0	$0	$0	$0
	Subtotal	***$0***	***$0***	***$0***	***$0***
	Total	**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$60,000**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	7	3	0		10
Planning & Design End	**December-01**					
Const. Start	**January-02**					0
Const. End	**June-02**		6	0	0	6

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Terrebonne Bay Shore Protection Demonstration

Project Construction Years:	3	Total Project Years	23
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$1,081,900	Total Fully Funded Costs	$1,477,400

Annual Charges	Present Worth	Average Annual
First Costs	$1,170,651	$105,192
Monitoring	$218,047	$19,593
O & M Costs	$21,697	$1,950
Other Costs	$3,942	$354
Total	$1,414,300	$127,100
Average Annual Habitat Units		NA
Cost Per Habitat Unit		#VALUE!
Total Net Acres		NA

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Terrebonne Bay Shore Protection Demonstration

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
0 Compound									$0		$0
0 Compound								-	$0		$0
3 Compound	2001	$209,000	$100,000	$19,775	$9,888	$644	$83,000	-	$0		$422,307
2 Compound	2002	$0	$0	$0	$0	$0	$0	-	$0		$0
	TOTAL	$209,000	$100,000	$19,775	$9,888	$644	$83,000	$0	$0	$0	$422,307
Phase II											
0 Compound		-	-	-	-	-	-	-	$0	$0	$0
3 Compound	2001	-	-	$0	$0		$0	$0	$0	$0	$0
2 Compound	2002	-	$20,000	$11,865	$5,933	$644	$0	$32,328	$59,325	$237,300	$367,395
1 Compound	2003	-	$0	$7,910	$3,955	$644	$0	$21,552	$39,550	$158,200	$231,811
	TOTAL	$0	$20,000	$19,775	$9,888	$1,288	$0	$53,880	$98,875	$395,500	$599,206
Total First Costs		$209,000	$120,000	$39,550	$19,775	$1,933	$83,000	$53,880	$98,875	$395,500	$1,021,512

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2004	$70,000	$3,546	$644	-
2 Discount	2005	$0	$3,546	$644	-
3 Discount	2006	$70,000	$3,546	$644	-
4 Discount	2007	$0	$3,546	$644	-
5 Discount	2008	$70,000	$3,546	$644	-
6 Discount	2009	$0	$3,546	$644	-
7 Discount	2010	$0	$3,546	$644	-
8 Discount	2011	$70,000	$3,546	$644	-
9 Discount	2012	$0	$0	$0	-
10 Discount	2013	$0	$0	$0	-
11 Discount	2014	$0	$0	$0	-
12 Discount	2015	$0	$0	$0	-
13 Discount	2016	$0	$0	$0	-
14 Discount	2017	$0	$0	$0	-
15 Discount	2018	$0	$0	$0	-
16 Discount	2019	$0	$0	$0	-
17 Discount	2020	$0	$0	$0	-
18 Discount	2021	$0	$0	$0	-
19 Discount	2022	$0	$0	$0	-
20 Discount	2023	$0	$0	$0	-
	Total	$280,000	$28,368	$5,154	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Terrebonne Bay Shore Protection Demonstration

Present Valued Costs Total Discounted Costs $1,414,336 Amortized Costs $127,088

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$251,574	$120,370	$23,803	$11,902	$775	$99,907	$0	$0	$0	$508,331
2	1.132	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$251,574	$120,370	$23,803	$11,902	$775	$99,907	$0	$0	$0	$508,331
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.204	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2002	$0	$22,631	$13,426	$6,713	$729	$0	$36,581	$67,130	$268,520	$415,730
1	1.064	2003	$0	$0	$8,414	$4,207	$685	$0	$22,926	$42,071	$168,285	$246,589
		Total	$0	$22,631	$21,840	$10,920	$1,414	$0	$59,507	$109,201	$436,805	$662,320
Total First Cost			$251,574	$143,001	$45,643	$22,822	$2,190	$99,907	$59,507	$109,201	$436,805	$1,170,651

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2004	$65,805	$3,333	$606	
-2	0.884	2005	$0	$3,134	$569	
-3	0.831	2006	$58,154	$2,946	$535	
-4	0.781	2007	$0	$2,769	$503	
-5	0.734	2008	$51,393	$2,603	$473	
-6	0.690	2009	$0	$2,447	$445	
-7	0.649	2010	$0	$2,301	$418	
-8	0.610	2011	$42,695	$2,163	$393	
-9	0.573	2012	$0	$0	$0	
-10	0.539	2013	$0	$0	$0	
-11	0.507	2014	$0	$0	$0	
-12	0.476	2015	$0	$0	$0	
-13	0.448	2016	$0	$0	$0	
-14	0.421	2017	$0	$0	$0	
-15	0.396	2018	$0	$0	$0	
-16	0.372	2019	$0	$0	$0	
-17	0.350	2020	$0	$0	$0	
-18	0.329	2021	$0	$0	$0	
-19	0.309	2022	$0	$0	$0	
-20	0.291	2023	$0	$0	$0	
		Total	$218,047	$21,697	$3,942	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Terrebonne Bay Shore Protection Demonstration

Fully Funded Costs — Total Fully Funded Costs $1,477,400 — Amortized Costs $132,755

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$215,688	$103,200	$20,408	$10,204	$665	$85,656	$0	$0	$0	$435,821
2	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$215,688	$103,200	$20,408	$10,204	$665	$85,656	$0	$0	$0	$435,821
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
3	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.065	2002	$0	$21,300	$12,637	$6,318	$686	$0	$34,430	$63,183	$252,730	$391,284
1	1.099	2003	$0	$0	$8,694	$4,347	$708	$0	$23,688	$43,470	$173,878	$254,785
		TOTAL	$0	$21,300	$21,330	$10,665	$1,394	$0	$58,118	$106,652	$426,609	$646,069
Total Cost			$215,700	$124,500	$41,700	$20,900	$2,100	$85,700	$58,100	$106,700	$426,600	$1,081,900

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.134	2004	$79,399	$4,022	$731	
-2	1.171	2005	$0	$4,151	$754	
-3	1.208	2006	$84,562	$4,284	$778	
-4	1.247	2007	$0	$4,421	$803	
-5	1.287	2008	$90,061	$4,562	$829	
-6	1.328	2009	$0	$4,708	$855	
-7	1.370	2010	$0	$4,859	$883	
-8	1.414	2011	$98,986	$5,014	$911	
-9	1.459	2012	$0	$0	$0	
-10	1.506	2013	$0	$0	$0	
-11	1.554	2014	$0	$0	$0	
-12	1.604	2015	$0	$0	$0	
-13	1.655	2016	$0	$0	$0	
-14	1.708	2017	$0	$0	$0	
-15	1.763	2018	$0	$0	$0	
-16	1.819	2019	$0	$0	$0	
-17	1.878	2020	$0	$0	$0	
-18	1.938	2021	$0	$0	$0	
-19	2.000	2022	$0	$0	$0	
-20	2.064	2023	$0	$0	$0	
		Total	$353,000	$36,000	$6,500	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**395,500**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**494,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$209,000
	Engineering	$49,438		
	Geotechnical Investigation	$120,000		
	Hydrologic Modeling	$0		
	Data Collection or Surveying	$0		
	HTRW	$0		
	Cultural Resources	$10,000		
	NEPA Compliance	$30,000		
Supervision and Administration				$19,775
State Costs				
Supervision and Administration				$9,888
Easements and Land Rights				$100,000
Monitoring				$83,000
	Monitoring Plan Development	$13,000		
	Monitoring Protocal Cost *****	$70,000		
		Total Phase I Cost Estimate		**$422,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$20,000
Estimated Construction Cost +25% Contingency				$494,000
Supervision and Inspection	66 days	@	$816 per day	$53,880
Supervision and Administration				$19,775
State Costs				
Supervision and Administration				$9,888
		Total Phase II Cost Estimate		**$598,000**

TOTAL ESTIMATED PROJECT FIRST COST **1,020,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items				**Year 5**	**Year 15**		
Contractor Mobilization/Demobilization				$0	$0	$0	$0
Bucket Dredge (50% of initial Crevasse)				$0	$0	$0	$0
Bucket Dredge (30% of initial Crevasse)				$0	$0	$0	$0
Rock work				$0	$0	$0	$0
Sheetpile						$0	$0
Replace signs				$0	$0	$0	$0
			Subtotal	$0	$0	$0	$0
			Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs							
Engineering and Design Cost				$0	$0	$0	$0
Administrative Cost				$0	$0	$0	$0
Eng Survey	**0** days	@	**$1,361** per day	$0.00	$0	$0	$0
Construction Inspection	**0** days	@	**$816** per day	$0	$0	$0	$0
			Subtotal	***$0***	***$0***	***$0***	***$0***
			Total	**$0**	**$0**	**$0**	**$0**

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Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$70,000**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**Mar 2001**	7	0	0		7
Planning & Design End	**September-01**					
Const. Start	**Jul 2002**					0
Const. End	**Nov 2002**	0	3	2	0	5

Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Oyster Reef Demonstration Project at Lake Athanasio

Project Construction Years:	2	Total Project Years	22
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$708,100	Total Fully Funded Costs	$823,400

Annual Charges	Present Worth	Average Annual
First Costs	$717,165	$64,442
Monitoring	$89,038	$8,001
O & M Costs	$0	$0
Other Costs	$1,710	$154
Total	$807,900	$72,600
Average Annual Habitat Units		NA
Cost Per Habitat Unit		#VALUE!
Total Net Acres		NA

Coastal Wetlands Conservation and Restoration Plan

Oyster Reef Demonstration Project at Lake Athanasio

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
2	Compound	2001	$59,000	$10,000	$8,000	$9,000	$644	$11,632	-	$0		$98,276
1	Compound	2002	$0	$0	$0	$0	$0	$0	-	$0		$0
		TOTAL	$59,000	$10,000	$8,000	$9,000	$644	$11,632	$0	$0	$0	$98,276
Phase II												
0	Compound		-	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	Compound		-	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	Compound	2002	-	$0	$4,000	$9,000	$644	$20,000	$36,000	$100,000	$400,000	$569,644
		TOTAL	$0	$0	$4,000	$9,000	$644	$20,000	$36,000	$100,000	$400,000	$569,644

			E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Total First Costs			$59,000	$10,000	$12,000	$18,000	$1,288	$31,632	$36,000	$100,000	$400,000	$667,920

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2003	$40,000	$0	$644	-
2	Discount	2004	$30,000	$0	$644	-
3	Discount	2005	$30,000	$0	$644	-
4	Discount	2006	$0	$0	$0	-
5	Discount	2007	$0	$0	$0	-
6	Discount	2008	$0	$0	$0	-
7	Discount	2009	$0	$0	$0	-
8	Discount	2010	$0	$0	$0	-
9	Discount	2011	$0	$0	$0	-
10	Discount	2012	$0	$0	$0	-
11	Discount	2013	$0	$0	$0	-
12	Discount	2014	$0	$0	$0	-
13	Discount	2015	$0	$0	$0	-
14	Discount	2016	$0	$0	$0	-
15	Discount	2017	$0	$0	$0	-
16	Discount	2018	$0	$0	$0	-
17	Discount	2019	$0	$0	$0	-
18	Discount	2020	$0	$0	$0	-
19	Discount	2021	$0	$0	$0	-
20	Discount	2022	$0	$0	$0	-
		Total	$100,000	$0	$1,933	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Oyster Reef Demonstration Project at Lake Athanasio

Present Valued Costs

Total Discounted Costs $807,913

Amortized Costs $72,597

Year			Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1													
	0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.132	2001	$66,762	$11,316	$9,053	$10,184	$729	$13,162	$0	$0	$0	$111,206
	1	1.064	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
			Total	$66,762	$11,316	$9,053	$10,184	$729	$13,162	$0	$0	$0	$111,206
Phase 2													
	0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	2	1.132	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	1	1.064	2002	$0	$0	$4,255	$9,574	$685	$21,275	$38,295	$106,375	$425,500	$605,959
			Total	$0	$0	$4,255	$9,574	$685	$21,275	$38,295	$106,375	$425,500	$605,959
Total First Cost				$66,762	$11,316	$13,308	$19,758	$1,414	$34,437	$38,295	$106,375	$425,500	$717,165

Year			FY	Monitoring	O&M	Corps PM	Other
	-1	0.940	2003	$37,603	$0	$606	
	-2	0.884	2004	$26,512	$0	$569	
	-3	0.831	2005	$24,923	$0	$535	
	-4	0.781	2006	$0	$0	$0	
	-5	0.734	2007	$0	$0	$0	
	-6	0.690	2008	$0	$0	$0	
	-7	0.649	2009	$0	$0	$0	
	-8	0.610	2010	$0	$0	$0	
	-9	0.573	2011	$0	$0	$0	
	-10	0.539	2012	$0	$0	$0	
	-11	0.507	2013	$0	$0	$0	
	-12	0.476	2014	$0	$0	$0	
	-13	0.448	2015	$0	$0	$0	
	-14	0.421	2016	$0	$0	$0	
	-15	0.396	2017	$0	$0	$0	
	-16	0.372	2018	$0	$0	$0	
	-17	0.350	2019	$0	$0	$0	
	-18	0.329	2020	$0	$0	$0	
	-19	0.309	2021	$0	$0	$0	
	-20	0.291	2022	$0	$0	$0	
			Total	$89,038	$0	$1,710	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Oyster Reef Demonstration Project at Lake Athanasio

Fully Funded Costs

Total Fully Funded Costs $823,400

Amortized Costs $73,988

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Constructior Costs	Total First Cost
Phase 1												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$60,888	$10,320	$8,256	$9,288	$665	$12,004	$0	$0	$0	$101,421
1	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$60,888	$10,320	$8,256	$9,288	$665	$12,004	$0	$0	$0	$101,421
Phase 2												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.065	2002	$0	$0	$4,260	$9,585	$686	$21,300	$38,341	$106,502	$426,010	$606,685
		TOTAL	$0	$0	$4,260	$9,585	$686	$21,300	$38,341	$106,502	$426,010	$606,685
Total Cost			$60,900	$10,300	$12,500	$18,900	$1,400	$33,300	$38,300	$106,500	$426,000	$708,100

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.099	2003	$43,964	$0	$708	
-2	1.134	2004	$34,028	$0	$731	
-3	1.171	2005	$35,117	$0	$754	
-4	1.208	2006	$0	$0	$0	
-5	1.247	2007	$0	$0	$0	
-6	1.287	2008	$0	$0	$0	
-7	1.328	2009	$0	$0	$0	
-8	1.370	2010	$0	$0	$0	
-9	1.414	2011	$0	$0	$0	
-10	1.459	2012	$0	$0	$0	
-11	1.506	2013	$0	$0	$0	
-12	1.554	2014	$0	$0	$0	
-13	1.604	2015	$0	$0	$0	
-14	1.655	2016	$0	$0	$0	
-15	1.708	2017	$0	$0	$0	
-16	1.763	2018	$0	$0	$0	
-17	1.819	2019	$0	$0	$0	
-18	1.878	2020	$0	$0	$0	
-19	1.938	2021	$0	$0	$0	
-20	2.000	2022	$0	$0	$0	
		Total	$113,100	$0	$2,200	$0

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**400,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**500,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$59,000
	Engineering	$24,000		
	Geotechnical Investigation	$3,000		
	Hydrologic Modeling	$0		
	Data Collection or Surveying	$12,000		
	HTRW	$0		
	Cultural Resources	$0		
	NEPA Compliance	$20,000		
Supervision and Administration				$8,000
State Costs				
Supervision and Administration				$9,000
Easements and Land Rights				$10,000
Monitoring				$31,632
	Monitoring Plan Development	$11,632		
	Monitoring Protocal Cost *	$20,000		
		Total Phase I Cost Estimate		**$118,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$500,000
Supervision and Inspection	44 days	@	$816 per day	$36,000
Supervision and Administration				$4,000
State Costs				
Supervision and Administration				$9,000
		Total Phase II Cost Estimate		**$549,000**

TOTAL ESTIMATED PROJECT FIRST COST	**667,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Monitoring Stations	**$0**

Specific Intermittent Costs

Construction Items				**Year 3**	**Year 10**	**Year 15**	
Contractor Mobilization/Demobilization				$0	$0	$0	$0
Replace				$0	$0	$0	$0
Replace				$0	$0	$0	$0
Replace				$0	$0	$0	$0
Sheetpile				$0	$0	$0	$0
Replace signs				$0	$0	$0	$0
			Subtotal	$0	$0	$0	$0
			Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***
Engineer, Design & Administrative Costs							
Engineering and Design Cost				$0	$0	$0	$0
Administrative Cost				$0	$0	$0	$0
Eng Survey	**0** days	@	**$1,361** per day	$0	$0	$0	$0
Construction Inspection	**0** days	@	**$816** per day	$0	$0	$0	$0
			Subtotal	***$0***	***$0***	***$0***	***$0***
			Total	**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$33,333**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	3	0	0		3
Planning & Design End	**May-01**					
Const. Start	**February-02**					0
Const. End	**March-02**	0	3	0	0	3

Coastal Wetlands Conservation and Restoration Plan Priority Project List X

Matted Submerged Aquatic Vegetation Establishment for Marsh and Low Energy Beach Erosion Control

Project Construction Years:	2	Total Project Years	22
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$745,800	Total Fully Funded Costs	$1,612,100

Annual Charges	Present Worth	Average Annual
First Costs	$754,419	$67,790
Monitoring	$661,647	$59,454
O & M Costs	$0	$0
Other Costs	$1,710	$154
Total	$1,417,800	$127,400
Average Annual Habitat Units		NA
Cost Per Habitat Unit		#VALUE!
Total Net Acres		NA

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Matted Submerged Aquatic Vegetation Establishment for Marsh and Low Energy Beach Erosion Control

Project Costs

Year	Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I											
0 Compound									$0		$0
0 Compound								-	$0	-	$0
2 Compound	2001	$61,000	$15,000	$3,291	$4,388	$644	$10,000	-	$0	-	$94,322
1 Compound	2002	$0	$0	$0	$0	$0	$0	-	$0	-	$0
	TOTAL	$61,000	$15,000	$3,291	$4,388	$644	$10,000	$0	$0	$0	$94,322
Phase II											
0 Compound		-	$0	$0	$0	$0	$0	$0	$0	$0	$0
0 Compound		-	$0	$0	$0	$0	$0	$0	$0	$0	$0
2 Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
1 Compound	2002	-	$0	$3,291	$4,388	$644	$376,800	$5,000	$43,750	$175,000	$608,872
	TOTAL	$0	$0	$3,291	$4,388	$644	$376,800	$5,000	$43,750	$175,000	$608,872
Total First Costs		$61,000	$15,000	$6,581	$8,775	$1,288	$386,800	$5,000	$43,750	$175,000	$703,194

Year	FY	Monitoring	O&M	Corps PM	Other
1 Discount	2003	$154,120	$0	$644	-
2 Discount	2004	$301,407	$0	$644	-
3 Discount	2005	$301,407	$0	$644	-
4 Discount	2006	$0	$0	$0	-
5 Discount	2007	$0	$0	$0	-
6 Discount	2008	$0	$0	$0	-
7 Discount	2009	$0	$0	$0	-
8 Discount	2010	$0	$0	$0	-
9 Discount	2011	$0	$0	$0	-
10 Discount	2012	$0	$0	$0	-
11 Discount	2013	$0	$0	$0	-
12 Discount	2014	$0	$0	$0	-
13 Discount	2015	$0	$0	$0	-
14 Discount	2016	$0	$0	$0	-
15 Discount	2017	$0	$0	$0	-
16 Discount	2018	$0	$0	$0	-
17 Discount	2019	$0	$0	$0	-
18 Discount	2020	$0	$0	$0	-
19 Discount	2021	$0	$0	$0	-
20 Discount	2022	$0	$0	$0	-
	Total	$756,934	$0	$1,933	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Matted Submerged Aquatic Vegetation Establishment for Marsh and Low Energy Beach Erosion Control

Present Valued Costs

Total Discounted Costs $1,417,777

Amortized Costs $127,398

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$69,025	$16,973	$3,723	$4,965	$729	$11,316	$0	$0	$0	$106,732
1	1.064	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		Total	$69,025	$16,973	$3,723	$4,965	$729	$11,316	$0	$0	$0	$106,732
Phase 2												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2002	$0	$0	$3,500	$4,667	$685	$400,821	$5,319	$46,539	$186,156	$647,688
		Total	$0	$0	$3,500	$4,667	$685	$400,821	$5,319	$46,539	$186,156	$647,688
Total First Cost			$69,025	$16,973	$7,224	$9,632	$1,414	$412,137	$5,319	$46,539	$186,156	$754,419

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2003	$144,884	$0	$606	
-2	0.884	2004	$266,363	$0	$569	
-3	0.831	2005	$250,400	$0	$535	
-4	0.781	2006	$0	$0	$0	
-5	0.734	2007	$0	$0	$0	
-6	0.690	2008	$0	$0	$0	
-7	0.649	2009	$0	$0	$0	
-8	0.610	2010	$0	$0	$0	
-9	0.573	2011	$0	$0	$0	
-10	0.539	2012	$0	$0	$0	
-11	0.507	2013	$0	$0	$0	
-12	0.476	2014	$0	$0	$0	
-13	0.448	2015	$0	$0	$0	
-14	0.421	2016	$0	$0	$0	
-15	0.396	2017	$0	$0	$0	
-16	0.372	2018	$0	$0	$0	
-17	0.350	2019	$0	$0	$0	
-18	0.329	2020	$0	$0	$0	
-19	0.309	2021	$0	$0	$0	
-20	0.291	2022	$0	$0	$0	
		Total	$661,647	$0	$1,710	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Matted Submerged Aquatic Vegetation Establishment for Marsh and Low Energy Beach Erosion Control

Fully Funded Costs Total Fully Funded Costs $1,612,100 Amortized Costs $144,859

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase 1												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$62,952	$15,480	$3,396	$4,528	$665	$10,320	$0	$0	$0	$97,341
1	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$62,952	$15,480	$3,396	$4,528	$665	$10,320	$0	$0	$0	$97,341
Phase 2												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.065	2002	$0	$0	$3,504	$4,673	$686	$401,301	$5,325	$46,595	$186,379	$648,464
		TOTAL	$0	$0	$3,504	$4,673	$686	$401,301	$5,325	$46,595	$186,379	$648,464
Total Cost			$63,000	$15,500	$6,900	$9,200	$1,400	$411,600	$5,300	$46,600	$186,400	$745,800

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.099	2003	$169,394	$0	$708	
-2	1.134	2004	$341,879	$0	$731	
-3	1.171	2005	$352,819	$0	$754	
-4	1.208	2006	$0	$0	$0	
-5	1.247	2007	$0	$0	$0	
-6	1.287	2008	$0	$0	$0	
-7	1.328	2009	$0	$0	$0	
-8	1.370	2010	$0	$0	$0	
-9	1.414	2011	$0	$0	$0	
-10	1.459	2012	$0	$0	$0	
-11	1.506	2013	$0	$0	$0	
-12	1.554	2014	$0	$0	$0	
-13	1.604	2015	$0	$0	$0	
-14	1.655	2016	$0	$0	$0	
-15	1.708	2017	$0	$0	$0	
-16	1.763	2018	$0	$0	$0	
-17	1.819	2019	$0	$0	$0	
-18	1.878	2020	$0	$0	$0	
-19	1.938	2021	$0	$0	$0	
-20	2.000	2022	$0	$0	$0	
		Total	$864,100	$0	$2,200	$0

All dates are in Federal Fiscal Years (October 1 to September 30) December 11, 2000

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**175,000**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**219,000**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$61,000
	Engineering	$25,000		
	Geotechnical Investigation	$0		
	Hydrologic Modeling	$0		
	Data Collection or Surveying	$15,000		
	HTRW	$0		
	Cultural Resources	$500		
	NEPA Compliance	$20,000		
Supervision and Administration				$3,291
State Costs				
Supervision and Administration				$4,388
Easements and Land Rights				$15,000
Monitoring				$386,800
	Monitoring Plan Development	$10,000		
	Monitoring Protocal Cost *****	$376,800		
			Total Phase I Cost Estimate	**$470,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$219,000
Supervision and Inspection	0 days @		$816 per day	$5,000
Supervision and Administration				$3,291
State Costs				
Supervision and Administration				$4,388
			Total Phase II Cost Estimate	**$232,000**

TOTAL ESTIMATED PROJECT FIRST COST	**702,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Monitoring Stations	**$0**

Specific Intermittent Costs

Construction Items	**Year 3**	**Year 10**	**Year 15**	
Contractor Mobilization/Demobilization	$0	$0	$0	$0
Replace	$0	$0	$0	$0
Replace	$0	$0	$0	$0
Replace	$0	$0	$0	$0
Sheetpile	$0	$0	$0	$0
Replace signs	$0	$0	$0	$0
Subtotal	$0	$0	$0	$0
Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***

Engineer, Design & Administrative Costs

Engineering and Design Cost						$0	$0	$0	$0
Administrative Cost						$0	$0	$0	$0
Eng Survey	**0**	days	@	**$1,361**	per day	$0	$0	$0	$0
Construction Inspection	**0**	days	@	**$816**	per day	$0	$0	$0	$0
Subtotal						***$0***	***$0***	***$0***	***$0***
Total						**$0**	**$0**	**$0**	**$0**

Annual Project Costs:

Corps Administration	**$644**
Monitoring	**$252,311**

Construction Schedule:

		2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	3	0	0		3
Planning & Design End	**April-01**					
Const. Start	**November-01**					0
Const. End	**February-02**	0	3	0	0	3

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan Priority Project List X
Restoration Effectiveness of Coupled Terraces with Pre-vegetated Mats

Project Construction Years:	2	Total Project Years	22
Interest Rate	6.375%	Amortization Factor	0.0898573
Total First Costs	$1,310,600	Total Fully Funded Costs	$1,641,500

Annual Charges	Present Worth	Average Annual
First Costs	$1,339,753	$120,387
Monitoring	$203,664	$18,301
O & M Costs	$22,747	$2,044
Other Costs	$7,169	$644
Total	$1,573,300	$141,400
Average Annual Habitat Units		NA
Cost Per Habitat Unit		#VALUE!
Total Net Acres		NA

All dates are in Federal Fiscal Years (October 1 to September 30)

December 11, 2000

Coastal Wetlands Conservation and Restoration Plan

Restoration Effectiveness of Coupled Terraces with Pre-vegetated Mats

Project Costs

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	Compound									$0		$0
0	Compound								-	$0		$0
2	Compound	2001	$144,000	$50,000	$22,698	$15,271	$644	$71,744	-	$0		$304,357
1	Compound	2002	$0	$0	$0	$0		$0	-	$0		$0
	TOTAL		$144,000	$50,000	$22,698	$15,271	$644	$71,744	$0	$0	$0	$304,357
Phase II												
0	Compound		-	-	-	-	-	-	-	$0	$0	$0
0	Compound		-	$0	$0	$0		$0	$0	$0	$0	$0
2	Compound	2001	-	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	Compound	2002	-	$0	$22,698	$15,271	$644	$60,100	$73,440	$152,710	$610,840	$935,703
	TOTAL		$0	$0	$22,698	$15,271	$644	$60,100	$73,440	$152,710	$610,840	$935,703
Total First Costs			$144,000	$50,000	$45,395	$30,542	$1,288	$131,844	$73,440	$152,710	$610,840	$1,240,060

Year		FY	Monitoring	O&M	Corps PM	Other
1	Discount	2003	$60,100	$5,455	$644	-
2	Discount	2004	$60,100	$5,455	$644	-
3	Discount	2005	$60,100	$5,455	$644	-
4	Discount	2006	$0	$5,455	$644	-
5	Discount	2007	$60,100	$5,455	$644	-
6	Discount	2008	$0	$0	$644	-
7	Discount	2009	$0	$0	$644	-
8	Discount	2010	$0	$0	$644	-
9	Discount	2011	$0	$0	$644	-
10	Discount	2012	$0	$0	$644	-
11	Discount	2013	$0	$0	$644	-
12	Discount	2014	$0	$0	$644	-
13	Discount	2015	$0	$0	$644	-
14	Discount	2016	$0	$0	$644	-
15	Discount	2017	$0	$0	$644	-
16	Discount	2018	$0	$0	$644	-
17	Discount	2019	$0	$0	$644	-
18	Discount	2020	$0	$0	$644	-
19	Discount	2021	$0	$0	$644	-
20	Discount	2022	$0	$0	$644	-
	Total		$240,400	$27,277	$12,884	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Restoration Effectiveness of Coupled Terraces with Pre-vegetated Mats

Present Valued Costs

Total Discounted Costs $1,573,334 | Amortized Costs $141,376

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$162,945	$56,578	$25,684	$17,280	$729	$81,183	$0	$0	$0	$344,399
1	1.064	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Total		$162,945	$56,578	$25,684	$17,280	$729	$81,183	$0	$0	$0	$344,399
Phase II												
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	1.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.132	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.064	2002	$0	$0	$24,145	$16,245	$685	$63,931	$78,122	$162,445	$649,781	$995,354
	Total		$0	$0	$24,145	$16,245	$685	$63,931	$78,122	$162,445	$649,781	$995,354
Total First Cost			$162,945	$56,578	$49,828	$33,525	$1,414	$145,114	$78,122	$162,445	$649,781	$1,339,753

Year		FY	Monitoring	O&M	Corps PM	Other
-1	0.940	2003	$56,498	$5,128	$606	
-2	0.884	2004	$53,112	$4,821	$569	
-3	0.831	2005	$49,929	$4,532	$535	
-4	0.781	2006	$0	$4,261	$503	
-5	0.734	2007	$44,124	$4,005	$473	
-6	0.690	2008	$0	$0	$445	
-7	0.649	2009	$0	$0	$418	
-8	0.610	2010	$0	$0	$393	
-9	0.573	2011	$0	$0	$369	
-10	0.539	2012	$0	$0	$347	
-11	0.507	2013	$0	$0	$326	
-12	0.476	2014	$0	$0	$307	
-13	0.448	2015	$0	$0	$288	
-14	0.421	2016	$0	$0	$271	
-15	0.396	2017	$0	$0	$255	
-16	0.372	2018	$0	$0	$240	
-17	0.350	2019	$0	$0	$225	
-18	0.329	2020	$0	$0	$212	
-19	0.309	2021	$0	$0	$199	
-20	0.291	2022	$0	$0	$187	
	Total		$203,664	$22,747	$7,169	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

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Coastal Wetlands Conservation and Restoration Plan

Restoration Effectiveness of Coupled Terraces with Pre-vegetated Mats

Fully Funded Costs

Total Fully Funded Costs $1,641,500

Amortized Costs $147,501

Year		Fiscal Year	E&D	Land Rights	Federal S&A	LDNR S&A	Corps Proj. Man.	Monitoring	S&I	Contingency	Construction Costs	Total First Cost
Phase I												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$148,608	$51,600	$23,424	$15,760	$665	$74,040	$0	$0	$0	$314,096
1	1.065	2002	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
		TOTAL	$148,608	$51,600	$23,424	$15,760	$665	$74,040	$0	$0	$0	$314,096
Phase II												
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
0	0.000	0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
2	1.032	2001	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
1	1.065	2002	$0	$0	$24,174	$16,264	$686	$64,008	$78,215	$162,640	$650,559	$996,546
		TOTAL	$0	$0	$24,174	$16,264	$686	$64,008	$78,215	$162,640	$650,559	$996,546
Total Cost			$148,600	$51,600	$47,600	$32,000	$1,400	$138,000	$78,200	$162,600	$650,600	$1,310,600

Year		FY	Monitoring	O&M	Corps PM	Other
-1	1.099	2003	$66,056	$5,996	$708	
-2	1.134	2004	$68,170	$6,188	$731	
-3	1.171	2005	$70,351	$6,386	$754	
-4	1.208	2006	$0	$6,590	$778	
-5	1.247	2007	$74,926	$6,801	$803	
-6	1.287	2008	$0	$0	$829	
-7	1.328	2009	$0	$0	$855	
-8	1.370	2010	$0	$0	$883	
-9	1.414	2011	$0	$0	$911	
-10	1.459	2012	$0	$0	$940	
-11	1.506	2013	$0	$0	$970	
-12	1.554	2014	$0	$0	$1,001	
-13	1.604	2015	$0	$0	$1,033	
-14	1.655	2016	$0	$0	$1,066	
-15	1.708	2017	$0	$0	$1,100	
-16	1.763	2018	$0	$0	$1,136	
-17	1.819	2019	$0	$0	$1,172	
-18	1.878	2020	$0	$0	$1,210	
-19	1.938	2021	$0	$0	$1,248	
-20	2.000	2022	$0	$0	$1,288	
		Total	$279,500	$32,000	$19,400	$0

All dates are in Federal Fiscal Years (October 1 to September 30)

E&D and Construction Data

ESTIMATED CONSTRUCTION COST	**610,840**
ESTIMATED CONSTRUCTION + 25% CONTINGENCY	**763,550**

TOTAL ESTIMATED PROJECT COSTS

PHASE I

Federal Costs				
Engineering and Design				$144,000
	Engineering	$76,355		
	Geotechnical Investigation	$20,000		
	Hydrologic Modeling	$0		
	Data Collection or Surveying	$48,000		
	HTRW	$0		
	Cultural Resources	$0		
	NEPA Compliance	$0		
Supervision and Administration				$22,698
State Costs				
Supervision and Administration				$15,271
Easements and Land Rights				$50,000
Monitoring				$71,744
	Monitoring Plan Development	$11,644		
	Monitoring Protocal Cost *****	$60,100		
			Total Phase I Cost Estimate	**$304,000**

* *Monitoring Protocol requires a minimum of one year pre-construction monitoring at a specified cost based on project type and area.*

PHASE II

Federal Costs				
Easements and Land Rights				$0
Estimated Construction Cost +25% Contingency				$763,550
Supervision and Inspection	90 days	@	$816 per day	$73,440
Supervision and Administration				$22,698
State Costs				
Supervision and Administration				$15,271
			Total Phase II Cost Estimate	**$875,000**

TOTAL ESTIMATED PROJECT FIRST COST	**1,179,000**

O&M Data

Annual Costs

Annual Inspections (One Day)	**$3,546**
Annual Cost for Operations	**$0**
Preventive Maintenance (Induced dredging)	**$0**

Specific Intermittent Costs

Construction Items		Year 10	Year	Year	Year
Contractor Mob/Demob		$0	$0	$0	$0
Replace Rock lost to settlement		$0	$0	$0	$0
Replace Terraces		$0	$0	$0	$0
Sheetpile					
Replace Signs		$0	$0	$0	$0
	Subtotal	$0	$0	$0	$0
	Subtotal w/ 10% contin.	***$0***	***$0***	***$0***	***$0***

Engineer, Design & Administrative Costs									
Engineering and Design Cost						$0	$0	$0	$0
Administrative Cost						$0	$0	$0	$0
Eng Survey	**0** days	@	**$1,361** per day			$0	$0	$0	$0
Construction Inspection	**0** days	@	**$816** per day			$0	$0	$0	$3
				Subtotal		***$0***	***$0***	***$0***	***$0***
					Total	**$0**	**$0**	**$0**	**$0**

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Annual Project Costs:

Corps Administration	**$644**
Federal S&A (3% monitoring)	**$0**
Federal S&A	**$1,909**
Monitoring	**$60,100**

Construction Schedule:

			2001	2002	2003	2004	Total
Planning & Design Start	**March-01**	4	0	0			4
Planning & Design End	**June-01**						
Const. Start	**November-01**						0
Const. End	**May-02**	0	7	0	0		7

Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

Appendix E

Wetlands Value Assessment for Candidate Projects

Appendix E
Wetlands Value Assessment For Candidate Projects

Table of Contents

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: **Shore Protection & Marsh Creation in Lake Borgne at Shell Beach**

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	43
2	30

TOTAL BENEFITS = 73 AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Shoreline Protection/Marsh Creation in Lake Borgne Area A — Project Area: 122

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	91	0.92	86	0.87	0	0.10
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	100	1.00	94	0.95		0.10
	Class 2						
	Class 3						
	Class 4			6			
	Class 5					100	
V4	%OW <= 1.5ft	80	1.00	88	0.80	8	0.20
V5	Salinity (ppt)	10	1.00	10	1.00	10	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.95**	**EM HSI =**	**0.92**	**EM HSI =**	**0.26**
	Open Water HSI =		**0.77**	**OW HSI =**	**0.76**	**OW HSI =**	**0.65**

Project: Shoreline Protection/Marsh Creation in Lake Borgne
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Shoreline Protection/Marsh Creation in Lake Borgne
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Shoreline Protection/Marsh Creation in Lake Borgne
Area A
Project Area: 122
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	91	0.92	91	0.92	91	0.92
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	100	1.00	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	80	1.00	80	1.00	80	1.00
V5	Salinity (ppt)	10	1.00	10	1.00	10	1.00
V6	Access Value	1	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.95**	**EM HSI =**	**0.95**	**EM HSI =**	**0.95**
	Open Water HSI =		**0.77**	**OW HSI =**	**0.77**	**OW HSI =**	**0.77**

Project: Shoreline Protection/Marsh Creation in Lake Borgne
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Shoreline Protection/Marsh Creation in Lake Borgne
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Shoreline Protection/Marsh Creation in Lake Borgne
Area A

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	111	0.95	105.70	
1	105	0.92	96.59	101.11
20	0	0.26	0.00	698.39
			AAHUs =	**39.98**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	111	0.95	105.70	
1	111	0.95	105.70	105.70
20	111	0.95	105.70	2008.31
			AAHUs	**105.70**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	105.70
B. Future Without Project Emergent Marsh AAHUs =	39.98
Net Change (FWP - FWOP) =	**65.73**

AAHU CALCULATION - OPEN WATER

Project: Shoreline Protection/Marsh Creation in Lake Borgne
Area A

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	11	0.77	8.51	
1	17	0.76	12.84	10.69
20	122	0.65	79.04	908.58
			AAHUs =	**45.96**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	11	0.77	8.51	
1	11	0.77	8.51	8.51
20	11	0.77	8.51	161.69
			AAHUs	**8.51**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	8.51
B. Future Without Project Open Water AAHUs =	45.96
Net Change (FWP - FWOP) =	**-37.45**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	65.73
B. Open Water Habitat Net AAHUs =	-37.45
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**42.80**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Shoreline Protection/Marsh Creation in Lake Borgne Area B — Project Area: 122

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	0	0.10	0	0.10	0	0.10
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.10		0.10		0.10
	Class 2						
	Class 3						
	Class 4						
	Class 5	100		100		100	
V4	%OW <= 1.5ft	8	0.20	3	0.14	0	0.10
V5	Salinity (ppt)	10	1.00	10	1.00	10	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.26**	**EM HSI =**	**0.26**	**EM HSI =**	**0.26**
	Open Water HSI =		**0.65**	**OW HSI =**	**0.64**	**OW HSI =**	**0.64**

Project: Shoreline Protection/Marsh Creation in Lake Borgne

FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Shoreline Protection/Marsh Creation in Lake Borgne

FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Shoreline Protection/Marsh Creation in Lake Borgne — Project Area: 122
Area B
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 5 Value	TY 5 SI
V1	% Emergent	0	0.10	0	0.10	4	0.14
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.10		0.10		0.20
	Class 2						
	Class 3						
	Class 4					100	
	Class 5	100		100			
V4	%OW <= 1.5ft	8	0.20	8	0.20	13	0.27
V5	Salinity (ppt)	10	1.00	10	1.00	10	1.00
V6	Access Value	1.00	1.00	0.90	0.91	0.90	0.91
	Emergent Marsh HSI =		**0.26**	**EM HSI =**	**0.26**	**EM HSI =**	**0.30**
	Open Water HSI =		**0.65**	**OW HSI =**	**0.61**	**OW HSI =**	**0.62**

Project: Shoreline Protection/Marsh Creation in Lake Borgne
FWP

Variable		TY 9 Value	TY 9 SI	TY 10 Value	TY 10 SI	TY 11 Value	TY 11 SI
V1	% Emergent	7	0.16	100	1.00	100	1.00
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.20	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5ft	16	0.31	0	0.10	0	0.10
V5	Salinity (ppt)	10	1.00	10	1.00	10	1.00
V6	Access Value	0.90	0.91	0.90	0.91	0.90	0.91
		EM HSI =	**0.33**	**EM HSI =**	**0.98**	**EM HSI =**	**0.98**
		OW HSI =	**0.63**	**OW HSI =**	**0.67**	**OW HSI =**	**0.67**

Project: Shoreline Protection/Marsh Creation in Lake Borgne
FWP

Variable		TY 13 Value	TY 13 SI	TY 20 Value	TY 20 SI	Value	SI
V1	% Emergent	99	0.99	97	0.97		
V2	% Aquatic	0	0.30	0	0.30		
V3	Interspersion	%		%		%	
	Class 1	100	1.00	100	1.00		
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	95	0.63	85	0.88		
V5	Salinity (ppt)	10	1.00	10	1.00		
V6	Access Value	0.90	0.91	0.90	0.91		
		EM HSI =	**0.98**	**EM HSI =**	**0.97**	**EM HSI =**	
		OW HSI =	**0.71**	**OW HSI =**	**0.73**	**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Shoreline Protection/Marsh Creation in Lake Borgne
Area B

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	0	0.26	0.00	
1	0	0.26	0.00	0.00
20	0	0.26	0.00	0.00
			AAHUs =	**0.00**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	0	0.26	0.00	
1	0	0.26	0.00	0.00
5	5	0.30	1.52	2.88
9	8	0.33	2.63	8.24
10	9	0.98	8.84	5.62
11	37	0.98	36.33	22.58
13	121	0.98	118.19	154.66
20	118	0.97	114.04	812.75
			AAHUs	**50.34**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	50.34
B. Future Without Project Emergent Marsh AAHUs =	0.00
Net Change (FWP - FWOP) =	**50.34**

AAHU CALCULATION - OPEN WATER

Project: Shoreline Protection/Marsh Creation in Lake Borgne
Area B

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	122	0.65	79.04	
1	122	0.64	78.46	78.75
20	122	0.64	78.11	1487.49
			AAHUs =	**78.31**

Future With Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	122	0.65	79.04	
1	122	0.61	74.66	76.85
5	117	0.62	73.03	295.42
9	114	0.63	71.48	289.02
10	0	0.67	0.00	36.58
11	0	0.67	0.00	0.00
13	1	0.71	0.71	0.70
20	4	0.73	2.91	12.62
			AAHUs	**35.56**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	35.56
B. Future Without Project Open Water AAHUs =	78.31
Net Change (FWP - FWOP) =	**-42.75**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	50.34
B. Open Water Habitat Net AAHUs =	-42.75
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**29.65**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Bonnet Carre Sediment Trap

Area	AAHUs
1	694

TOTAL BENEFITS =	**694**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Southwest Lake Pontchartrain Sediment Trapping Project Area A — Project Area: 2,032

Condition: Future Without Project

		TY 0		TY 1		TY 20	
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	3	0.13	3	0.13	0	0.10
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1	100	0.20		0.20		0.00
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	22	0.38	22	0.38	22	0.38
V5	Salinity (ppt)	4	ERR(<9)	4	ERR(<9)	4	ERR(<9)
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI	**=**	**0.29**	**EM HSI =**	**0.29**	**EM HSI =**	**0.25**
	Open Water HSI	**=**	**0.31**	**OW HSI =**	**0.31**	**OW HSI =**	**0.31**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Southwest Lake Pontchartrain Sediment Trapping Project Area A — Project Area: 2,032

Condition: Future With Project

		TY 0		TY 1		TY 3	
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	3	0.13	8	0.17	29	0.36
V2	% Aquatic	0	0.10	10	0.19	30	0.37
V3	Interspersion	%		%		%	
	Class 1		0.20		0.21		0.25
	Class 2						
	Class 3			5		25	
	Class 4	100		95		75	
	Class 5						
V4	%OW <= 1.5ft	22	0.38	22	0.38	40	0.61
V5	Salinity (ppt)	4	1.00	4	1.00	4	1.00
V6	Access Value	1	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI	**=**	**0.29**	**EM HSI =**	**0.34**	**EM HSI =**	**0.49**
	Open Water HSI	**=**	**0.31**	**OW HSI =**	**0.41**	**OW HSI =**	**0.57**

Project: Southwest Lake Pontchartrain Sediment Trapping Project
FWP

Variable		TY 8 Value	TY 8 SI	TY 13 Value	TY 13 SI	TY 18 Value	TY 18 SI
V1	% Emergent	50	0.55	70	0.73	91	0.92
V2	% Aquatic	40	0.46	50	0.55	50	0.55
V3	Interspersion	%		%		%	
	Class 1	33	0.66	40	0.76	100	100.00
	Class 2	33		60			
	Class 3	34					
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	55	0.81	65	0.94	75	1.00
V5	Salinity (ppt)	4	1.00	4	1.00	4	1.00
V6	Access Value	1	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.68**	**EM HSI =**	**0.81**	**EM HSI =**	**0.95**
	Open Water HSI =		**0.67**	**OW HSI =**	**0.74**	**OW HSI =**	**0.77**

Project: Southwest Lake Pontchartrain Sediment Trapping Project
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	91	0.92	8	0.17	29	0.36
V2	% Aquatic	50	0.55	10	0.19	30	0.37
V3	Interspersion	%		%		%	
	Class 1	100	1.00				
	Class 2						
	Class 3			5		25	
	Class 4	100		95		75	
	Class 5						
V4	%OW <= 1.5ft	75	1.00				
V5	Salinity (ppt)	4	1.00	4	1.00	4	1.00
V6	Access Value	1	1.00				
	Emergent Marsh HSI =		**0.95**	**EM HSI =**		**EM HSI =**	
	Open Water HSI =		**0.77**	**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Southwest Lake Pontchartrain Sediment Trapping Project
Area A

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	71	0.29	20.76	
1	67	0.29	19.59	20.17
20	0	0.29	0.00	178.06
			AAHUs =	**9.91**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	71	0.29	20.76	
1	171	0.34	57.33	38.33
20	590	0.49	291.51	326.66
3	1009	0.68	682.03	2370.37
13	1428	0.81	1151.11	4537.42
18	1847	0.95	1756.63	7218.73
20	1847	0.95	1756.63	3513.25
			AAHUs	**900.24**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	900.24
B. Future Without Project Emergent Marsh AAHUs =	9.91
Net Change (FWP - FWOP) =	**890.33**

AAHU CALCULATION - OPEN WATER

Project: Southwest Lake Pontchartrain Sediment Trapping Project
Area A

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	1961	0.31	613.05	
1	1965	0.31	614.30	613.68
20	2032	0.31	620.20	11729.32
			AAHUs =	**617.15**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1,961	0.31	613.05	
1	1861	0.41	753.97	685.05
3	1442	0.57	816.79	1593.29
8	1023	0.67	686.60	3795.05
13	604	0.74	4488.80	2863.58
18	185	0.77	141.63	1483.93
20	185	0.77	141.63	283.26
			AAHUs	**535.21**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	535.21
B. Future Without Project Open Water AAHUs =	617.15
Net Change (FWP - FWOP) =	**-81.94**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	890.33
B. Open Water Habitat Net AAHUs =	-81.94
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**620.25**

COMMUNITY HABITAT SUITABILITY MODEL
Fresh Swamp

Project: Southwest Lake Pontchartrain Sediment Trapping Project Area B — Project Area: 187

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	Stand Structure						
		% Cover		% Cover		% Cover	
	Overstory	63	0.60	63	0.60		No Swamp Remaining
	Scrub shrub	21		21			
	Herbaceous	79		79			
V2	Maturity	Age		Age		Age	
	(Input age or Species compositon and dbh)	Cypress %		Cypress %		Cypress %	
		74		74		74	
		Cypress dbh		Cypress dbh		Cypress dbh	
		18.4		18.4		18.4	
		Tupelo et al. %		Tupelo et al. %		Tupelo et al. %	
		26		26		26	
		Tupelo et al. Dbh		Tupelo et al. Dbh		Tupelo et al. Dbh	
		7.5	0.88	7.5	0.88	7.5	
		Class		Class		Class	
V3	Hyrology	4	1.00	4	1.00		
		Class		Class		Class	
V4	Forest Size	5	1.00	5	1.00		
V5	Surrounding Land Use	Values %		Values %		Values %	
	Forest/Marsh	100	1.00	100	1.00		
	Abandoned Ag						
	Pasture/Hay						
	Active Ag						
	Development						
V6	Disturbance						
		Class		Class		Class	
	Type	4	1.00	4	1.00		
		Class		Class		Class	
	Distance	3		3			
		HSI =	**0.82**	**HSI =**	**0.82**	**HSI =**	

COMMUNITY HABITAT SUITABILITY MODEL
Fresh Swamp

Project: Southwest Lake Pontchartrain Sediment Trapping Project Area B — Project Area: 187

Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	Stand Structure	% Cover		% Cover		% Cover	
	Overstory	63	0.60	63	0.60	65	0.60
	Scrub shrub	21		21		25	
	Herbaceous	79		80		80	
V2	Maturity	Age		Age		Age	
	(Input age or Species compositon and dbh)	Cypress %		Cypress %		Cypress %	
		74		74		75	
		Cypress dbh		Cypress dbh		Cypress dbh	
		18.4		18.4		21	
		Tupelo et al. %		Tupelo et al. %		Tupelo et al. %	
		26		26		26	
		Tupelo et al. Dbh		Tupelo et al. Dbh		Tupelo et al. Dbh	
		7.5	0.88	7.5	0.88	9.5	0.94
V3	Hyrology	Class 4	1.00	Class 4	1.00	Class	
V4	Forest Size	Class 5	1.00	Class 5	1.00	Class 5	1.00
V5	Surrounding Land Use	Values %		Values %		Values %	
	Forest/Marsh	100	1.00	100	1.00	100	1.00
	Abandoned Ag						
	Pasture/Hay						
	Active Ag						
	Development						
V6	Disturbance						
	Type	Class 4	1.00	Class 4	1.00	Class 4	1.00
	Distance	Class 3		Class 3		Class 3	
		HSI =	**0.82**	**HSI =**	**0.82**	**HSI =**	**0.84**

AAHU CALCULATION - FRESH SWAMP

Project: Southwest Lake Pontchartrain Sediment Trapping Project
Area B

Future Without Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0	187	0.82	153.46	
1	187	0.82	153.45	153.45
20	187	0.84	156.66	2946.03
			Total CHUs=	**3099.48**
			AAHUs =	**154.97**

Future With Project			Total	Cummulative
TY	Acres	x HSI	HUs	HUs
0	187	0.82	153.45	
1	178	0.82	146.06	149.76
20	0	0.00	0.00	925.07
			Total CHUs=	1074.83
			AAHUs	**53.74**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	154.97
B. Future Without Project Open Water AAHUs =	53.74
Net Change (FWP - FWOP) =	**101.23**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Southwest Lake Pontchartrain Sediment Trapping Project — Project Area: 187
Open Water-FWOP Benefits-Area B
Area B
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	100	1.00	95	0.96	0	0.10
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1	100	1.00		1.00		0.10
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	0	0.10	100	0.60	100	0.60
V5	Salinity (ppt)						
	fresh		1.00		1.00		1.00
	intermediate	4		4		4	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI =		**1.00**	**EM HSI =**	**0.97**	**EM HSI =**	**0.24**
	Open Water HSI =		**0.29**	**OW HSI =**	**0.33**	**OW HSI =**	**0.26**

AAHU CALCULATION - OPEN WATER

Project: Southwest Lake Pontchartrain Sediment Trapping Project
Open Water-FWOP Benefits-Area B

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	0	0.29	0.00	
1	9	0.33	2.98	1.43
20	187	0.26	49.41	535.29
			AAHUs =	**26.84**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Beneficial Use of Dredged Material on Breton and Grand Gosier Islands

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	71
2	23

TOTAL BENEFITS = 94 AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands — Project Area: 356
Breton Island
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	44	0.50	42	0.48	23	0.31
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	43	0.54	43	0.54	22	0.38
	Class 2						
	Class 3						
	Class 4	57		57		78	
	Class 5						
V4	%OW <= 1.5ft	5	0.16	5	0.16	4	0.15
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI	**=**	**0.63**	**EM HSI =**	**0.62**	**EM HSI =**	**0.47**
	Open Water HSI	**=**	**0.68**	**OW HSI =**	**0.68**	**OW HSI =**	**0.66**

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWOP

Variable		Value	SI	Value	SI	Value	SI	
V1	% Emergent							
V2	% Aquatic							
V3	Interspersion	%		%		%		
	Class 1							0
	Class 2							0
	Class 3							0
	Class 4							0
	Class 5							
V4	%OW <= 1.5ft							
V5	Salinity (ppt)							
V6	Access Value							
		EM HSI =		**EM HSI =**		**EM HSI =**		
		OW HSI =		**OW HSI =**		**OW HSI =**		

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands — Project Area: 356
Breton Island
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	44	0.50	51	0.56	82	0.84
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	43	0.54	55	0.64	86	0.89
	Class 2						
	Class 3						
	Class 4	57		45		14	
	Class 5						
V4	%OW <= 1.5ft	5	0.16	15	0.29	100	0.50
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1	1.00	0.98	0.98	0.95	0.96
	Emergent Marsh HSI =		**0.63**	**EM HSI =**	**0.68**	**EM HSI =**	**0.88**
	Open Water HSI =		**0.68**	**OW HSI =**	**0.69**	**OW HSI =**	**0.71**

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWP

Variable		TY 5 Value	TY 5 SI	TY 20 Value	TY 20 SI	Value	SI
V1	% Emergent	81	0.83	50	0.55		
V2	% Aquatic	0	0.30	0	0.30		
V3	Interspersion	%		%		%	
	Class 1	80	0.84	49	0.59		
	Class 2						
	Class 3						
	Class 4	20		51			
	Class 5						
V4	%OW <= 1.5ft	90	0.75	18	0.33		
V5	Salinity (ppt)	20	1.00	20	1.00		
V6	Access Value	0.95	0.96	0.95	0.96		
		EM HSI =	**0.87**	**EM HSI =**	**0.67**	**EM HSI =**	
		OW HSI =	**0.73**	**OW HSI =**	**0.68**	**OW HSI =**	

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
Breton Island

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	155	0.63	97.84	
1	150	0.62	92.80	95.31
20	82	0.47	38.84	1219.38
			AAHUs =	**65.73**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	155	0.63	97.84	
1	163	0.68	111.29	104.50
3	218	0.88	192.54	300.15
5	289	0.87	252.13	444.93
20	179	0.67	119.56	2731.48
			AAHUs	**179.05**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	179.05
B. Future Without Project Emergent Marsh AAHUs =	65.73
Net Change (FWP - FWOP) =	**113.32**

AAHU CALCULATION - OPEN WATER

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
Breton Island

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	201	0.68	136.26	
1	206	0.68	139.65	137.96
20	274	0.66	182.08	3059.39
			AAHUs =	**159.87**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	201	0.68	136.26	
1	156	0.69	107.24	121.83
3	48	0.71	34.10	142.17
5	67	0.73	48.60	82.61
20	177	0.68	119.66	1275.53
			AAHUs	**81.11**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	81.11
B. Future Without Project Open Water AAHUs =	159.87
Net Change (FWP - FWOP) =	**-78.76**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	113.32
B. Open Water Habitat Net AAHUs =	-78.76
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**70.63**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands — Project Area: 190
Grand Gosier Island
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	71	0.74	69	0.72	40	0.46
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	70	0.76	70	0.76	39	0.51
	Class 2						
	Class 3						
	Class 4	30		30		61	
	Class 5						
V4	%OW <= 1.5ft	0	0.10	0	0.10	0	0.10
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.82**	**EM HSI =**	**0.80**	**EM HSI =**	**0.60**
	Open Water HSI =		**0.69**	**OW HSI =**	**0.69**	**OW HSI =**	**0.67**

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
Grand Gosier Island
Project Area: 190
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 2 Value	TY 2 SI
V1	% Emergent	71	0.74	69	0.72	89	0.90
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	70	0.76	70	0.76	100	1.00
	Class 2						
	Class 3						
	Class 4	30		30			
	Class 5						
V4	%OW <= 1.5ft	0	0.10	0	0.10	100	0.50
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1	1.00	1.00	1.00	0.97	0.97
	Emergent Marsh HSI	**=**	**0.82**	**EM HSI =**	**0.80**	**EM HSI =**	**0.94**
	Open Water HSI	**=**	**0.69**	**OW HSI =**	**0.69**	**OW HSI =**	**0.73**

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWP

Variable		TY 4 Value	TY 4 SI	TY 20 Value	TY 20 SI	Value	SI
V1	% Emergent	86	0.87	54	0.59		
V2	% Aquatic	0	0.30	0	0.30		
V3	Interspersion	%		%		%	
	Class 1	85	0.88	53	0.62		
	Class 2						
	Class 3						
	Class 4	15		47			
	Class 5						
V4	%OW <= 1.5ft	90	0.75	11	0.24		
V5	Salinity (ppt)	20	1.00	20	1.00		
V6	Access Value	0.97	0.97	0.97	0.97		
		EM HSI =	**0.91**	**EM HSI =**	**0.70**	**EM HSI =**	
		OW HSI =	**0.74**	**OW HSI =**	**0.68**	**OW HSI =**	

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
Grand Gosier Island

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	135	0.82	110.09	
1	131	0.80	105.34	107.71
20	76	0.60	45.78	1400.56
			AAHUs =	**75.41**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	135	0.82	110.09	
1	131	0.80	105.34	107.71
2	139	0.94	130.19	117.59
4	163	0.91	147.87	278.29
20	103	0.70	71.88	1724.43
			AAHUs	**111.40**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	111.40
B. Future Without Project Emergent Marsh AAHUs =	75.41
Net Change (FWP - FWOP) =	**35.99**

AAHU CALCULATION - OPEN WATER

Project: Beneficial Use of Dredged Material on Breton/Grand Gosier Islands
Grand Gosier Island

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	55	0.69	37.90	
1	59	0.69	40.66	39.28
20	114	0.67	76.47	1115.96
			AAHUs =	**57.76**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	55	0.69	37.90	
1	59	0.69	40.66	39.28
2	17	0.73	12.34	26.76
4	27	0.74	19.86	32.17
20	87	0.68	59.06	640.45
			AAHUs	**36.93**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	36.93
B. Future Without Project Open Water AAHUs =	57.76
Net Change (FWP - FWOP) =	**-20.83**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	35.99
B. Open Water Habitat Net AAHUs =	-20.83
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**23.36**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Beneficial Use of Dredged Material on Breton and Grand Gosier Islands - Breton
Date: November 19, 1998
Total Area: 356

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		155	44		155	44	--
1	3.15	150	42	3.15	200	56	50
2	3.15	145	41	3.15	194	54	48
3	3.15	141	40	3.15	308	86	167
4	3.15	136	38	3.15	298	84	162
5	3.15	132	37	3.15	289	81	157
6	3.15	128	36	3.15	280	79	152
7	3.15	124	35	3.15	271	76	147
8	3.15	120	34	3.15	262	74	142
9	3.15	116	33	3.15	254	71	138
10	3.15	113	32	3.15	246	69	133
11	3.15	109	31	3.15	238	67	129
12	3.15	106	30	3.15	231	65	125
13	3.15	102	29	3.15	223	63	121
14	3.15	99	28	3.15	216	61	117
15	3.15	96	27	3.15	210	59	114
16	3.15	93	26	3.15	203	57	110
17	3.15	90	25	3.15	197	55	107
18	3.15	87	24	3.15	190	53	103
19	3.15	84	24	3.15	184	52	100
20	3.15	82	23	3.15	179	50	97
Total Years 1-50		2,253			4,672		
Average Annual Acres		45			93		**48**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Delta Building Diversion North of Fort St. Phillip

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	330
2	449

TOTAL BENEFITS = 779 AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Delta Building Diversion North of Fort St. Philip — Project Area: 1,720
Area A
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	72	0.75	70	0.73	53	0.58
V2	% Aquatic	60	0.64	60	0.64	50	0.55
V3	Interspersion	%		%		%	
	Class 1	15	0.56	15	0.56	5	0.33
	Class 2	35		35			
	Class 3	50		50		45	
	Class 4					50	
	Class 5						
V4	%OW <= 1.5ft	75	1.00	75	1.00	70	1.00
V5	Salinity (ppt)	5	1.00	5	1.00	5	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI	**=**	**0.80**	**EM HSI =**	**0.78**	**EM HSI =**	**0.66**
	Open Water HSI	**=**	**0.78**	**OW HSI =**	**0.78**	**OW HSI =**	**0.72**

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Delta Building Diversion North of Fort St. Philip — Project Area: 1,720
Area A - See intermediate model for TY 3 and TY 20
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	72	0.75	87	0.88		
V2	% Aquatic	60	0.64	75	0.78		
V3	Interspersion	%		%		%	
	Class 1	15	0.56	15	0.66		
	Class 2	35		85			
	Class 3	50					
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	75	1.00	40	0.61		
V5	Salinity (ppt)	5	1.00	3	1.00		
V6	Access Value	1.00	1.00	1.00	1.00		
	Emergent Marsh HSI =		**0.80**	**EM HSI =**	**0.89**	**EM HSI =**	
	Open Water HSI =		**0.78**	**OW HSI =**	**0.84**	**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Delta Building Diversion North of Fort St. Philip
Area A

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1230	0.80	978.38	
1	1212	0.78	950.06	964.19
20	918	0.66	603.38	14639.86
			AAHUs =	**780.20**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1230	0.80	978.38	
1	1306	0.89	1163.94	1069.95
			AAHUs	**53.50**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	53.50
B. Future Without Project Emergent Marsh AAHUs =	780.20
Net Change (FWP - FWOP) =	**-726.70**

AAHU CALCULATION - OPEN WATER

Project: Delta Building Diversion North of Fort St. Philip
Area A

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	490	0.78	384.50	
1	508	0.78	398.62	391.56
20	802	0.72	574.18	9305.65
			AAHUs =	**484.86**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	490	0.78	384.50	
1	188	0.84	157.16	273.41
			AAHUs	**13.67**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	13.67
B. Future Without Project Open Water AAHUs =	484.86
Net Change (FWP - FWOP) =	**-471.19**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	-726.70
B. Open Water Habitat Net AAHUs =	-471.19
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6	**-655.73**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Delta Building Diversion North of Fort St. Philip
Area A
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 1,720

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
	Emergent Marsh HSI =			**EM HSI =**		**EM HSI =**	
	Open Water HSI =			**OW HSI =**		**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Delta Building Diversion North of Fort St. Philip
Area A - See brackish model for TY0 and TY 1
Condition: Future With Project

Project Area:
Fresh.............
Intermediate.... 1,720

		TY 0		TY 1		TY 3	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent					90	0.91
V2	% Aquatic					85	0.87
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		% 15 85	0.66
V4	%OW <= 1.5ft					40	0.55
V5	Salinity (ppt) fresh intermediate					3	1.00
V6	Access Value fresh intermediate					1.00	1.00
	Emergent Marsh HSI =			EM HSI =		EM HSI =	0.90
	Open Water HSI =			OW HSI =		OW HSI =	0.86

Project: Delta Building Diversion North of Fort St. Philip
FWP

		TY 20					
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	94	0.95				
V2	% Aquatic	85	0.87				
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 100	1.00	%		%	
V4	%OW <= 1.5ft	15	0.27				
V5	Salinity (ppt) fresh intermediate	3	1.00				
V6	Access Value fresh intermediate	1.00	1.00				
		EM HSI =	0.96	EM HSI =		EM HSI =	
		OW HSI =	0.87	OW HSI =		OW HSI =	

Project: Delta Building Diversion North of Fort St. Philip
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH
Project: Delta Building Diversion North of Fort St. Philip
Area A

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1230	0.80	978.38	
1	1212	0.78	950.06	964.19
20	918	0.66	603.38	14639.86
			AAHUs =	**780.20**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1230	0.80	978.38	
1	1306	0.89	1163.94	1069.95
3	1541	0.90	1392.19	2555.18
20	1614	0.96	1557.25	25057.57
			AAHUs	**1434.14**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1434.14
B. Future Without Project Emergent Marsh AAHUs =	780.20
Net Change (FWP - FWOP) =	**653.93**

AAHU CALCULATION - OPEN WATER

Project: Delta Building Diversion North of Fort St. Philip
Area A

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	490	0.78	384.50	
1	508	0.78	398.62	391.56
20	802	0.72	574.18	9305.65
			AAHUs =	**484.86**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	490	0.78	384.50	
1	188	0.84	157.16	273.41
3	179	0.86	154.18	311.41
20	106	0.87	91.76	2091.37
			AAHUs	**133.81**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	133.81
B. Future Without Project Open Water AAHUs =	484.86
Net Change (FWP - FWOP) =	**-351.05**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	653.93
B. Open Water Habitat Net AAHUs =	-351.05
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**329.74**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta Building Diversion North of Fort St. Philip - Area A
Date: 19-Oct-00
Total Area: 1,720

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		1,230	72		1,224	71	--
1	1.45	1,212	70	0.36	1,532	89	319
2	1.45	1,195	69	0.36	1,536	89	341
3	1.45	1,177	68	0.36	1,541	90	363
4	1.45	1,160	67	0.36	1,545	90	385
5	1.45	1,143	66	0.36	1,549	90	406
6	1.45	1,127	66	0.36	1,554	90	427
7	1.45	1,110	65	0.36	1,558	91	448
8	1.45	1,094	64	0.36	1,563	91	468
9	1.45	1,078	63	0.36	1,567	91	489
10	1.45	1,063	62	0.36	1,571	91	509
11	1.45	1,047	61	0.36	1,576	92	528
12	1.45	1,032	60	0.36	1,580	92	548
13	1.45	1,017	59	0.36	1,584	92	567
14	1.45	1,003	58	0.36	1,589	92	586
15	1.45	988	57	0.36	1,593	93	605
16	1.45	974	57	0.36	1,597	93	624
17	1.45	960	56	0.36	1,601	93	642
18	1.45	946	55	0.36	1,606	93	660
19	1.45	932	54	0.36	1,610	94	678
20	1.45	918	53	0.36	1,614	94	696
Total Years 1-50		21,177			31,466		
Average Annual Acres		424			629		**206**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Delta Building Diversion North of Fort St. Philip Area B — Project Area: 4,863
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	43	0.49	42	0.48	32	0.39
V2	% Aquatic	25	0.48	25	0.48	20	0.44
V3	Interspersion	%		%		%	
	Class 1	10	0.44	10	0.44	5	0.36
	Class 2	35		35		15	
	Class 3	10		10		30	
	Class 4	45		45		50	
	Class 5						
V4	%OW <= 1.5ft	35	0.55	35	0.55	30	0.49
V5	Salinity (ppt)	9	1.00	9	1.00	9	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.61**	**EM HSI =**	**0.61**	**EM HSI =**	**0.53**
	Open Water HSI =		**0.78**	**OW HSI =**	**0.78**	**OW HSI =**	**0.75**

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Delta Building Diversion North of Fort St. Philip — Project Area: 4,863
Area B - See brackish model for TY3 and TY20
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	43	0.49	45	0.51		
V2	% Aquatic	25	0.48	40	0.58		
V3	Interspersion	%		%		%	
	Class 1	10	0.44	10	0.44		
	Class 2	35		35			
	Class 3	10		10			
	Class 4	45		45			
	Class 5						
V4	%OW <= 1.5ft	35	0.55	35	0.55		
V5	Salinity (ppt)	9	1.00	9	1.00		
V6	Access Value	1	1.00	1.00	1.00		
	Emergent Marsh HSI =		**0.61**	**EM HSI =**	**0.63**	**EM HSI =**	
	Open Water HSI =		**0.78**	**OW HSI =**	**0.81**	**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Delta Building Diversion North of Fort St. Philip
Area B

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	2089	0.61	1281.44	
1	2059	0.61	1250.07	1265.72
20	1560	0.53	832.22	19665.38
			AAHUs =	**1046.55**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	2,089	0.61	1281.44	
1	2141	0.63	1340.12	1310.67
			AAHUs	**65.53**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	65.53
B. Future Without Project Emergent Marsh AAHUs =	1046.55
Net Change (FWP - FWOP) =	**-981.02**

AAHU CALCULATION - OPEN WATER

Project: Delta Building Diversion North of Fort St. Philip
Area B

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	2774	0.78	2153.10	
1	2804	0.78	2176.38	2164.74
20	3303	0.75	2483.46	44306.93
			AAHUs =	**2323.58**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	2,774	0.78	2153.10	
1	2665	0.81	2166.89	2160.66
			AAHUs	**108.03**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	108.03
B. Future Without Project Open Water AAHUs =	2323.58
Net Change (FWP - FWOP) =	**-2215.55**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	-981.02
B. Open Water Habitat Net AAHUs =	-2215.55
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**-1255.36**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Delta Building Diversion North of Fort St. Philip Area B | Project Area: 4,863

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY Value	TY SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
	Emergent Marsh HSI =			EM HSI =		EM HSI =	
	Open Water HSI =			OW HSI =		OW HSI =	

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Delta Building Diversion North of Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Delta Building Diversion North of Fort St. Philip — Project Area: 4,863
Area B - See saline model for TY0 and TY1
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent					48	0.53
V2	% Aquatic					60	0.64
V3	Interspersion	%		%		%	
	Class 1					15	0.46
	Class 2					30	
	Class 3					10	
	Class 4					45	
	Class 5						
V4	%OW <= 1.5ft					40	0.61
V5	Salinity (ppt)					5	1.00
V6	Access Value					1.00	1.00
	Emergent Marsh HSI =			**EM HSI =**		**EM HSI =**	**0.64**
	Open Water HSI =			**OW HSI =**		**OW HSI =**	**0.75**

Project: Delta Building Diversion North of Fort St. Philip
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	69	0.72				
V2	% Aquatic	60	0.64				
V3	Interspersion	%		%		%	
	Class 1	45	0.65				
	Class 2	15					
	Class 3	15					
	Class 4	25					
	Class 5						
V4	%OW <= 1.5ft	50	0.74				
V5	Salinity (ppt)	5	1.00				
V6	Access Value	1.00	1.00				
		EM HSI =	**0.79**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.77**	**OW HSI =**		**OW HSI =**	

Project: Delta Building Diversion North of Fort St. Philip
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Delta Building Diversion North of Fort St. Philip
Area B

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	2089	0.61	1281.44	
1	2059	0.61	1250.07	1265.72
20	1560	0.53	832.22	19665.38
			AAHUs =	**1046.55**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	2089	0.61	1281.44	
1	2141	0.63	1340.12	1310.67
3	2329	0.64	1492.59	2831.78
20	3337	0.79	2629.83	34620.16
			AAHUs	**1938.13**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1938.13
B. Future Without Project Emergent Marsh AAHUs =	1046.55
Net Change (FWP - FWOP) =	**891.58**

AAHU CALCULATION - OPEN WATER

Project: Delta Building Diversion North of Fort St. Philip
Area B

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	2774	0.78	2153.10	
1	2804	0.78	2176.38	2164.74
20	3303	0.75	2483.46	44306.93
			AAHUs =	**2323.58**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	2774	0.78	2153.10	
1	2665	0.81	2166.89	2160.66
3	2534	0.75	1897.26	4061.34
20	1526	0.77	1178.56	26211.95
			AAHUs	**1621.70**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	1621.70
B. Future Without Project Open Water AAHUs =	2323.58
Net Change (FWP - FWOP) =	**-701.89**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	891.58
B. Open Water Habitat Net AAHUs =	-701.89
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6	**448.95**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta Building Diversion North of Fort St. Philip - Area B
Date: 19-Oct-00
Total Area: 4,863

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		2,089	43		2,054	42	--
1	1.45	2,059	42	1.09	2,198	45	139
2	1.45	2,029	42	1.09	2,264	47	235
3	1.45	1,999	41	1.09	2,329	48	330
4	1.45	1,970	41	1.09	2,394	49	423
5	1.45	1,942	40	1.09	2,458	51	516
6	1.45	1,914	39	1.09	2,521	52	607
7	1.45	1,886	39	1.09	2,583	53	697
8	1.45	1,859	38	1.09	2,645	54	786
9	1.45	1,832	38	1.09	2,706	56	875
10	1.45	1,805	37	1.09	2,767	57	962
11	1.45	1,779	37	1.09	2,827	58	1,048
12	1.45	1,753	36	1.09	2,886	59	1,133
13	1.45	1,728	36	1.09	2,944	61	1,217
14	1.45	1,703	35	1.09	3,002	62	1,300
15	1.45	1,678	35	1.09	3,060	63	1,382
16	1.45	1,654	34	1.09	3,116	64	1,463
17	1.45	1,630	34	1.09	3,172	65	1,543
18	1.45	1,606	33	1.09	3,228	66	1,622
19	1.45	1,583	33	1.09	3,282	67	1,700
20	1.45	1,560	32	1.09	3,337	69	1,777
Total Years 1-50		35,967			55,717		
Average Annual Acres		719			1,114		**395**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Delta Management at Fort St. Phillip

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	43
2	34

TOTAL BENEFITS = 77 AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Delta Management at Fort St. Philip
Area 1
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 852

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	20	0.28	21	0.29	37	0.43
V2	% Aquatic	40	0.46	40	0.46	50	0.55
V3	Interspersion	%		%		%	
	Class 1		0.23		0.23		0.27
	Class 2						
	Class 3	15		15		35	
	Class 4	85		85		65	
	Class 5						
V4	%OW <= 1.5ft	60	0.78	60	0.78	70	0.89
V5	Salinity (ppt)						
	fresh		#VALUE!		#VALUE!		#VALUE!
	intermediate	3		3		3	
V6	Access Value						
	fresh		#VALUE!		#VALUE!		#VALUE!
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI =		**#VALUE!**	**EM HSI =**	**#VALUE!**	**EM HSI =**	**#VALUE!**
	Open Water HSI =		**#VALUE!**	**OW HSI =**	**#VALUE!**	**OW HSI =**	**#VALUE!**

Project: Delta Management at Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Delta Management at Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh		#VALUE!				
	intermediate	1					
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Delta Management at Fort St. Philip
Area 1
Condition: Future With Project

Project Area:
Fresh.............
Intermediate.... 852

		TY 0		**TY 1**		**TY 5**	
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	20	0.28	25	0.33	30	0.37
V2	% Aquatic	40	0.46	45	0.51	60	0.64
V3	Interspersion	%		%		%	
	Class 1		0.23		0.29		0.30
	Class 2						
	Class 3	15		45		50	
	Class 4	85		55		50	
	Class 5						
V4	%OW <= 1.5ft	60	0.78	60	0.78	65	0.83
V5	Salinity (ppt)						
	fresh		#VALUE!		#VALUE!		#VALUE!
	intermediate	3		3		3	
V6	Access Value						
	fresh		#VALUE!		#VALUE!		#VALUE!
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI =		**#VALUE!**	**EM HSI =**	**#VALUE!**	**EM HSI =**	**#VALUE!**
	Open Water HSI =		**#VALUE!**	**OW HSI =**	**#VALUE!**	**OW HSI =**	**#VALUE!**

Project: Delta Management at Fort St. Philip
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	52	0.57				
V2	% Aquatic	70	0.73				
V3	Interspersion	%		%		%	
	Class 1		0.40				
	Class 2	30					
	Class 3	40					
	Class 4	30					
	Class 5						
V4	%OW <= 1.5ft	80	1.00				
V5	Salinity (ppt)						
	fresh		#VALUE!				
	intermediate	3					
V6	Access Value						
	fresh		#VALUE!				
	intermediate	1.00					
		EM HSI =	**#VALUE!**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**#VALUE!**	**OW HSI =**		**OW HSI =**	

Project: Delta Management at Fort St. Philip
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Delta Management at Fort St. Philip
Area 1

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	174	#VALUE!	#VALUE!	
1	181	#VALUE!	#VALUE!	#VALUE!
20	318	#VALUE!	#VALUE!	#VALUE!
			AAHUs =	#VALUE!

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	174	#VALUE!	#VALUE!	
1	209	#VALUE!	#VALUE!	#VALUE!
5	252	#VALUE!	#VALUE!	#VALUE!
20	440	#VALUE!	#VALUE!	#VALUE!
			AAHUs	#VALUE!

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	#VALUE!
B. Future Without Project Emergent Marsh AAHUs =	#VALUE!
Net Change (FWP - FWOP) =	**#VALUE!**

AAHU CALCULATION - OPEN WATER

Project: Delta Management at Fort St. Philip
Area 1

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	678	#VALUE!	#VALUE!	
1	671	#VALUE!	#VALUE!	#VALUE!
20	534	#VALUE!	#VALUE!	#VALUE!
			AAHUs =	#VALUE!

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	678	#VALUE!	#VALUE!	
1	643	#VALUE!	#VALUE!	#VALUE!
5	600	#VALUE!	#VALUE!	#VALUE!
20	412	#VALUE!	#VALUE!	#VALUE!
			AAHUs	#VALUE!

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	#VALUE!
B. Future Without Project Open Water AAHUs =	#VALUE!
Net Change (FWP - FWOP) =	**#VALUE!**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	#VALUE!
B. Open Water Habitat Net AAHUs =	#VALUE!
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**#VALUE!**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Delta Management at Fort St. Philip
Area 2
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 453

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	28	0.35	28	0.35	34	0.41
V2	% Aquatic	45	0.51	45	0.51	55	0.60
V3	Interspersion	%		%		%	
	Class 1		0.23		0.23		0.24
	Class 2						
	Class 3	15		15		20	
	Class 4	85		85		80	
	Class 5						
V4	%OW <= 1.5ft	70	0.89	70	0.89	80	1.00
V5	Salinity (ppt)						
	fresh		1.00		1.00		1.00
	intermediate	3		3		3	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI =		**0.46**	**EM HSI =**	**0.46**	**EM HSI =**	**0.50**
	Open Water HSI =		**0.62**	**OW HSI =**	**0.62**	**OW HSI =**	**0.69**

Project: Delta Management at Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Delta Management at Fort St. Philip
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh		1.00				
	intermediate	1					
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Delta Management at Fort St. Philip
Area 2
Condition: Future With Project

Project Area:
Fresh.............
Intermediate.... 453

		TY 0		TY 1		TY 5	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	28	0.35	32	0.39	37	0.43
V2	% Aquatic	45	0.51	50	0.55	60	0.64
V3	Interspersion	%		%		%	
	Class 1		0.23		0.23		0.24
	Class 2						
	Class 3	15		15		20	
	Class 4	85		85		80	
	Class 5						
V4	%OW <= 1.5ft	70	0.89	70	0.89	80	1.00
V5	Salinity (ppt)						
	fresh		1.00		1.00		1.00
	intermediate	3		3		3	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI =		**0.46**	**EM HSI =**	**0.49**	**EM HSI =**	**0.52**
	Open Water HSI =		**0.62**	**OW HSI =**	**0.65**	**OW HSI =**	**0.72**

Project: Delta Management at Fort St. Philip
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	66	0.69				
V2	% Aquatic	75	0.78				
V3	Interspersion	%		%		%	
	Class 1		0.48				
	Class 2	40					
	Class 3	60					
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	90	1.00				
V5	Salinity (ppt)						
	fresh		1.00				
	intermediate	3					
V6	Access Value						
	fresh		1.00				
	intermediate	1.00					
		EM HSI =	**0.74**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.83**	**OW HSI =**		**OW HSI =**	

Project: Delta Management at Fort St. Philip
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Delta Management at Fort St. Philip
Area 2

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	126	0.46	58.27	
1	128	0.46	59.20	58.74
20	156	0.50	78.74	1306.67
			AAHUs =	**68.27**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	126	0.46	58.27	
1	144	0.49	70.56	64.34
5	166	0.52	87.15	314.91
20	301	0.74	222.17	2247.93
			AAHUs	**131.36**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	131.36
B. Future Without Project Emergent Marsh AAHUs =	68.27
Net Change (FWP - FWOP) =	**63.09**

AAHU CALCULATION - OPEN WATER

Project: Delta Management at Fort St. Philip
Area 2

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	327	0.62	203.65	
1	325	0.62	202.41	203.03
20	297	0.69	205.77	3883.92
			AAHUs =	**204.35**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	327	0.62	203.65	
1	309	0.65	201.96	202.90
5	287	0.72	207.35	819.62
20	152	0.83	125.57	2531.89
			AAHUs	**177.72**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	177.72
B. Future Without Project Open Water AAHUs =	204.35
Net Change (FWP - FWOP) =	**-26.63**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	63.09
B. Open Water Habitat Net AAHUs =	-26.63
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**34.15**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Benny's Bay 20,000 cfs Diversion

The WVA for this project includes 3 areas. Total benefits for this project are as follows:

Area	AAHUs
1	604
2	89
3	20

TOTAL BENEFITS =	**713**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 20,000 cfs
Area A
Condition: Future Without Project

Project Area:
Fresh............ 6,616
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	11	0.20	11	0.20	7	0.16
V2	% Aquatic	50	0.55	50	0.55	45	0.51
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	30	0.44	30	0.44	20	0.33
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.34**	**EM HSI =**	**0.34**	**EM HSI =**	**0.30**
	Open Water HSI	**=**	**0.62**	**OW HSI =**	**0.62**	**OW HSI =**	**0.58**

Project: Benny's Bay Diversion - 20,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 20,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 20,000 cfs
Area A
Condition: Future With Project

Project Area:
Fresh............. 6,616
Intermediate....

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	11	0.20	14	0.23	19	0.27
V2	% Aquatic	50	0.55	60	0.64	65	0.69
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20	15	0.32
	Class 2						
	Class 3						
	Class 4	100		100		85	
	Class 5						
V4	%OW <= 1.5ft	30	0.44	30	0.44	35	0.49
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.34**	**EM HSI =**	**0.36**	**EM HSI =**	**0.41**
	Open Water HSI =		**0.62**	**OW HSI =**	**0.68**	**OW HSI =**	**0.72**

Project: Benny's Bay Diversion - 20,000 cfs
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	53	0.58				
V2	% Aquatic	80	0.82				
V3	Interspersion	%		%		%	
	Class 1	50	0.60				
	Class 2						
	Class 3						
	Class 4	50					
	Class 5						
V4	%OW <= 1.5ft	70	0.89				
V5	Salinity (ppt)						
	fresh	0	1.00				
	intermediate						
V6	Access Value						
	fresh	1.00	1.00				
	intermediate						
		EM HSI =	**0.67**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.85**	**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 20,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Benny's Bay Diversion - 20,000 cfs
Area A

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	760	0.34	255.28	
1	740	0.34	248.57	251.92
20	446	0.30	135.97	3624.19
			AAHUs =	**193.81**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	760	0.34	255.28	
1	917	0.36	328.80	291.45
3	1242	0.41	507.59	830.95
20	3529	0.67	2363.13	22710.17
			AAHUs	**1191.63**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1191.63
B. Future Without Project Emergent Marsh AAHUs =	193.81
Net Change (FWP - FWOP) =	**997.82**

AAHU CALCULATION - OPEN WATER

Project: Benny's Bay Diversion - 20,000 cfs
Area A

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	5856	0.62	3619.21	
1	5876	0.62	3631.57	3625.39
20	6170	0.58	3571.79	68468.38
			AAHUs =	**3604.69**

Future With Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	5856	0.62	3619.21	
1	5662	0.68	3837.87	3730.47
3	5374	0.72	3869.18	7711.10
20	3087	0.85	2637.77	56180.61
			AAHUs	**3381.11**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	3381.11
B. Future Without Project Open Water AAHUs =	3604.69
Net Change (FWP - FWOP) =	**-223.58**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	997.82
B. Open Water Habitat Net AAHUs =	-223.58
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**603.82**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta-building Diversion at Benny's Bay - 20,000 cfs - Area A
Date: 25-Oct-00
Total Area: 6,616

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		760	11		760	11	--
1	2.63	740	11	0.66	955	14	215
2	2.63	721	11	0.66	1,099	17	378
3	2.63	702	11	0.66	1,241	19	540
4	2.63	683	10	0.66	1,383	21	700
5	2.63	665	10	0.66	1,524	23	859
6	2.63	648	10	0.66	1,664	25	1,016
7	2.63	631	10	0.66	1,803	27	1,172
8	2.63	614	9	0.66	1,941	29	1,327
9	2.63	598	9	0.66	2,078	31	1,480
10	2.63	582	9	0.66	2,215	33	1,632
11	2.63	567	9	0.66	2,350	36	1,783
12	2.63	552	8	0.66	2,485	38	1,933
13	2.63	537	8	0.66	2,618	40	2,081
14	2.63	523	8	0.66	2,751	42	2,228
15	2.63	510	8	0.66	2,883	44	2,373
16	2.63	496	7	0.66	3,014	46	2,517
17	2.63	483	7	0.66	3,144	48	2,661
18	2.63	470	7	0.66	3,273	49	2,803
19	2.63	458	7	0.66	3,401	51	2,943
20	2.63	446	7	0.66	3,529	53	3,083
Total Years 1-50		11,626			45,351		
Average Annual Acres		233			907		**674**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 20,000 cfs
Area B
Condition: Future Without Project

Project Area:
Fresh............ 14,902
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	12	0.21	11	0.20	7	0.16
V2	% Aquatic	20	0.28	20	0.28	20	0.28
V3	Interspersion	%		%		%	
	Class 1	15	0.39	15	0.39	15	0.38
	Class 2						
	Class 3	35		35		30	
	Class 4	50		50		55	
	Class 5						
V4	%OW <= 1.5ft	15	0.27	15	0.27	10	0.21
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.36**	**EM HSI =**	**0.36**	**EM HSI =**	**0.32**
	Open Water HSI	**=**	**0.42**	**OW HSI =**	**0.42**	**OW HSI =**	**0.42**

Project: Benny's Bay Diversion - 20,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 20,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 20,000 cfs
Area B
Condition: Future With Project

Project Area:
Fresh............. 14,902
Intermediate....

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	12	0.21	11	0.20	8	0.17
V2	% Aquatic	20	0.28	20	0.28	25	0.33
V3	Interspersion	%		%		%	
	Class 1	15	0.39	15	0.39	15	0.38
	Class 2						
	Class 3	35		35		30	
	Class 4	50		50		55	
	Class 5						
V4	%OW <= 1.5ft	15	0.27	15	0.27	15	0.27
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.36**	**EM HSI =**	**0.36**	**EM HSI =**	**0.33**
	Open Water HSI	**=**	**0.42**	**OW HSI =**	**0.42**	**OW HSI =**	**0.46**

Project: Benny's Bay Diversion - 20,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Benny's Bay Diversion - 20,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Benny's Bay Diversion - 20,000 cfs
Area B

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1737	0.36	633.34	
1	1697	0.36	605.85	619.54
20	1093	0.32	355.08	9067.30
			AAHUs =	484.34

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1737	0.36	633.34	
1	1703	0.36	607.99	620.62
20	1171	0.33	389.62	9436.35
			AAHUs	502.85

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	502.85
B. Future Without Project Emergent Marsh AAHUs =	484.34
Net Change (FWP - FWOP) =	18.51

AAHU CALCULATION - OPEN WATER

Project: Benny's Bay Diversion - 20,000 cfs
Area B

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	13165	0.42	5558.94	
1	13205	0.42	5575.83	5567.38
20	13809	0.42	5763.10	107729.21
			AAHUs =	**5664.83**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	13165	0.42	5558.94	
1	13199	0.42	5573.29	5566.12
20	13730	0.46	6273.46	112485.87
			AAHUs	**5902.60**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	5902.60
B. Future Without Project Open Water AAHUs =	5664.83
Net Change (FWP - FWOP) =	**237.77**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	18.51
B. Open Water Habitat Net AAHUs =	237.77
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**89.24**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta-building Diversion at Benny's Bay - 20,000 cfs - Area B
Date: 25-Oct-00
Total Area: 14,902

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		1,737	12		1,737	12	--
1	2.29	1,697	11	1.95	1,703	11	6
2	2.29	1,658	11	1.95	1,670	11	12
3	2.29	1,620	11	1.95	1,637	11	17
4	2.29	1,583	11	1.95	1,605	11	22
5	2.29	1,547	10	1.95	1,574	11	27
6	2.29	1,512	10	1.95	1,543	10	32
7	2.29	1,477	10	1.95	1,513	10	36
8	2.29	1,443	10	1.95	1,484	10	41
9	2.29	1,410	9	1.95	1,455	10	45
10	2.29	1,378	9	1.95	1,427	10	49
11	2.29	1,346	9	1.95	1,399	9	52
12	2.29	1,315	9	1.95	1,371	9	56
13	2.29	1,285	9	1.95	1,345	9	59
14	2.29	1,256	8	1.95	1,318	9	63
15	2.29	1,227	8	1.95	1,293	9	66
16	2.29	1,199	8	1.95	1,268	9	69
17	2.29	1,172	8	1.95	1,243	8	71
18	2.29	1,145	8	1.95	1,219	8	74
19	2.29	1,119	8	1.95	1,195	8	76
20	2.29	1,093	7	1.95	1,172	8	79
Total Years 1-50		27,483			28,433		
Average Annual Acres		550			569		**19**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 20,000 cfs
Area C
Condition: Future Without Project

Project Area:
Fresh............ 2,097
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	52	0.57	53	0.58	83	0.85
V2	% Aquatic	40	0.46	40	0.46	80	0.82
V3	Interspersion	%		%		%	
	Class 1	25	0.50	25	0.50	80	0.92
	Class 2	25		25		20	
	Class 3						
	Class 4	50		50			
	Class 5						
V4	%OW <= 1.5ft	40	0.55	40	0.55	75	0.94
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.65**	**EM HSI =**	**0.66**	**EM HSI =**	**0.89**
	Open Water HSI	**=**	**0.59**	**OW HSI =**	**0.59**	**OW HSI =**	**0.88**

Project: Benny's Bay Diversion - 20,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 20,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 20,000 cfs
Area C
Condition: Future With Project

Project Area:
Fresh............. 2,097
Intermediate....

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	52	0.57	53	0.58	86	0.87
V2	% Aquatic	40	0.46	40	0.46	85	0.87
V3	Interspersion	%		%		%	
	Class 1	25	0.50	25	0.50	90	0.92
	Class 2	25		25			
	Class 3						
	Class 4	50		50		10	
	Class 5						
V4	%OW <= 1.5ft	40	0.55	40	0.55	85	1.00
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.65**	**EM HSI =**	**0.66**	**EM HSI =**	**0.91**
	Open Water HSI =		**0.59**	**OW HSI =**	**0.59**	**OW HSI =**	**0.91**

Project: Benny's Bay Diversion - 20,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 20,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Benny's Bay Diversion - 20,000 cfs
Area C

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1080	0.65	704.29	
1	1117	0.66	735.57	719.89
20	1747	0.89	1555.87	21305.69
			AAHUs =	1101.28

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1080	0.65	704.29	
1	1120	0.66	737.54	720.87
20	1804	0.91	1639.01	22035.69
			AAHUs	1137.83

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1137.83
B. Future Without Project Emergent Marsh AAHUs =	1101.28
Net Change (FWP - FWOP) =	**36.55**

AAHU CALCULATION - OPEN WATER

Project: Benny's Bay Diversion - 20,000 cfs
Area C

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1017	0.59	596.25	
1	980	0.59	574.56	585.41
20	350	0.88	308.82	8982.77
			AAHUs =	478.41

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1017	0.59	596.25	
1	977	0.59	572.80	584.53
20	293	0.91	267.78	8695.14
			AAHUs	463.98

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	463.98
B. Future Without Project Open Water AAHUs =	478.41
Net Change (FWP - FWOP) =	**-14.43**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	36.55
B. Open Water Habitat Net AAHUs =	-14.43
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**20.11**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta-building Diversion at Benny's Bay - 20,000 cfs - Area C
Date: 25-Oct-00
Total Area: 2,097

Target Year	FWOP Loss Rate	FWOP Acres	FWOP %	FWP Loss Rate	FWP Acres	FWP %	Net Acres
0		1,080	52		1,080	52	--
1	1.18	1,117	53	1.10	1,120	53	3
2	1.18	1,154	55	1.10	1,160	55	6
3	1.18	1,190	57	1.10	1,199	57	9
4	1.18	1,226	58	1.10	1,238	59	11
5	1.18	1,262	60	1.10	1,276	61	14
6	1.18	1,297	62	1.10	1,314	63	17
7	1.18	1,332	64	1.10	1,352	64	20
8	1.18	1,366	65	1.10	1,389	66	23
9	1.18	1,400	67	1.10	1,426	68	26
10	1.18	1,433	68	1.10	1,462	70	29
11	1.18	1,466	70	1.10	1,498	71	31
12	1.18	1,499	71	1.10	1,533	73	34
13	1.18	1,531	73	1.10	1,568	75	37
14	1.18	1,563	75	1.10	1,603	76	40
15	1.18	1,595	76	1.10	1,638	78	43
16	1.18	1,626	78	1.10	1,672	80	45
17	1.18	1,657	79	1.10	1,705	81	48
18	1.18	1,687	80	1.10	1,738	83	51
19	1.18	1,717	82	1.10	1,771	84	54
20	1.18	1,747	83	1.10	1,804	86	57
Total Years 1-50		28,869			29,466		
Average Annual Acres		577			589		**12**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Benny's Bay 50,000 cfs Diversion

The WVA for this project includes 3 areas. Total benefits for this project are as follows:

Area	AAHUs
1	1,254
2	171
3	49

TOTAL BENEFITS = 1,474 AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 50,000 cfs
Area A
Condition: Future Without Project

Project Area:
Fresh............ 6,616
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	11	0.20	11	0.20	7	0.16
V2	% Aquatic	50	0.55	50	0.55	45	0.51
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	30	0.44	30	0.44	20	0.33
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.34**	**EM HSI =**	**0.34**	**EM HSI =**	**0.30**
	Open Water HSI =		**0.62**	**OW HSI =**	**0.62**	**OW HSI =**	**0.58**

Project: Benny's Bay Diversion - 50,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 50,000 cfs
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 50,000 cfs
Area A
Condition: Future With Project

Project Area:
Fresh............. 6,616
Intermediate....

Variable		TY 0		TY 1		TY 3	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	11	0.20	16	0.24	25	0.33
V2	% Aquatic	50	0.55	65	0.69	80	0.82
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 100	0.20	% 100	0.20	% 20 80	0.36
V4	%OW <= 1.5ft	30	0.44	30	0.44	40	0.55
V5	Salinity (ppt) fresh intermediate	0	1.00	0	1.00	0	1.00
V6	Access Value fresh intermediate	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI	**=**	**0.34**	**EM HSI =**	**0.37**	**EM HSI =**	**0.46**
	Open Water HSI	**=**	**0.62**	**OW HSI =**	**0.71**	**OW HSI =**	**0.81**

Project: Benny's Bay Diversion - 50,000 cfs
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	91	0.92				
V2	% Aquatic	90	0.91				
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 100	 1.00	%		%	
V4	%OW <= 1.5ft	90	1.00				
V5	Salinity (ppt) fresh intermediate	0	1.00				
V6	Access Value fresh intermediate	1.00	1.00				
		EM HSI =	0.95	EM HSI =		EM HSI =	
		OW HSI =	0.95	OW HSI =		OW HSI =	

Project: Benny's Bay Diversion - 50,000 cfs
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Benny's Bay Diversion - 50,000 cfs
Area A

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	760	0.34	255.28	
1	740	0.34	248.57	251.92
20	446	0.30	135.97	3624.19
			AAHUs =	**193.81**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	760	0.34	255.28	
1	1060	0.37	395.81	323.67
3	1679	0.46	765.57	1144.34
20	6017	0.95	5698.90	48911.04
			AAHUs	**2518.95**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	2518.95
B. Future Without Project Emergent Marsh AAHUs =	193.81
Net Change (FWP - FWOP) =	**2325.15**

AAHU CALCULATION - OPEN WATER

Project: Benny's Bay Diversion - 50,000 cfs
Area A

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	5856	0.62	3619.21	
1	5876	0.62	3631.57	3625.39
20	6170	0.58	3571.79	68468.38
			AAHUs =	**3604.69**

Future With Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	5856	0.62	3619.21	
1	5481	0.71	3874.66	3752.49
3	4937	0.81	4007.36	7901.02
20	599	0.95	567.18	40545.20
			AAHUs	**2609.94**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	2609.94
B. Future Without Project Open Water AAHUs =	3604.69
Net Change (FWP - FWOP) =	**-994.75**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	2325.15
B. Open Water Habitat Net AAHUs =	-994.75
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**1254.21**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta-building Diversion at Benny's Bay - 50,000 cfs - Area A
Date: 25-Oct-00
Total Area: 6,616

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		760	11		760	11	--
1	2.63	740	11	0.66	1,135	17	395
2	2.63	721	11	0.66	1,407	21	687
3	2.63	702	11	0.66	1,678	25	977
4	2.63	683	10	0.66	1,947	29	1,264
5	2.63	665	10	0.66	2,214	33	1,549
6	2.63	648	10	0.66	2,480	37	1,832
7	2.63	631	10	0.66	2,743	41	2,113
8	2.63	614	9	0.66	3,005	45	2,391
9	2.63	598	9	0.66	3,265	49	2,667
10	2.63	582	9	0.66	3,524	53	2,942
11	2.63	567	9	0.66	3,781	57	3,214
12	2.63	552	8	0.66	4,036	61	3,484
13	2.63	537	8	0.66	4,289	65	3,752
14	2.63	523	8	0.66	4,541	69	4,017
15	2.63	510	8	0.66	4,791	72	4,281
16	2.63	496	7	0.66	5,039	76	4,543
17	2.63	483	7	0.66	5,286	80	4,803
18	2.63	470	7	0.66	5,531	84	5,061
19	2.63	458	7	0.66	5,774	87	5,316
20	2.63	446	7	0.66	6,016	91	5,570
Total Years 1-50		11,626			72,482		
Average Annual Acres		233			1,450		**1,217**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 50,000 cfs
Area B
Condition: Future Without Project

Project Area:
Fresh............ 14,902
Intermediate..

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	12	0.21	11	0.20	7	0.16
V2	% Aquatic	20	0.28	20	0.28	20	0.28
V3	Interspersion	%		%		%	
	Class 1	15	0.39	15	0.39	15	0.38
	Class 2						
	Class 3	35		35		30	
	Class 4	50		50		55	
	Class 5						
V4	%OW <= 1.5ft	15	0.27	15	0.27	10	0.21
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.36**	**EM HSI =**	**0.36**	**EM HSI =**	**0.32**
	Open Water HSI =		**0.42**	**OW HSI =**	**0.42**	**OW HSI =**	**0.42**

Project: Benny's Bay Diversion - 50,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Benny's Bay Diversion - 50,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 50,000 cfs
Area B
Condition: Future With Project

Project Area:
Fresh............. 14,902
Intermediate....

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	12	0.21	11	0.20	8	0.17
V2	% Aquatic	20	0.28	20	0.28	30	0.37
V3	Interspersion	%		%		%	
	Class 1	15	0.39	15	0.39	15	0.38
	Class 2						
	Class 3	35		35		30	
	Class 4	50		50		55	
	Class 5						
V4	%OW <= 1.5ft	15	0.27	15	0.27	20	0.33
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.36**	**EM HSI =**	**0.36**	**EM HSI =**	**0.33**
	Open Water HSI	**=**	**0.42**	**OW HSI =**	**0.42**	**OW HSI =**	**0.50**

Project: Benny's Bay Diversion - 50,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 50,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Benny's Bay Diversion - 50,000 cfs
Area B

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1737	0.36	633.34	
1	1697	0.36	605.85	619.54
20	1093	0.32	355.08	9067.30
			AAHUs =	484.34

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1737	0.36	633.34	
1	1707	0.36	609.42	621.34
20	1228	0.33	408.58	9634.16
			AAHUs	512.77

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	512.77
B. Future Without Project Emergent Marsh AAHUs =	484.34
Net Change (FWP - FWOP) =	**28.43**

AAHU CALCULATION - OPEN WATER

Project: Benny's Bay Diversion - 50,000 cfs
Area B

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	13165	0.42	5558.94	
1	13205	0.42	5575.83	5567.38
20	13809	0.42	5763.10	107729.21
			AAHUs =	**5664.83**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	13165	0.42	5558.94	
1	13195	0.42	5571.61	5565.27
20	13674	0.50	6772.45	117157.80
			AAHUs	**6136.15**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	6136.15
B. Future Without Project Open Water AAHUs =	5664.83
Net Change (FWP - FWOP) =	**471.32**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	28.43
B. Open Water Habitat Net AAHUs =	471.32
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**171.30**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta-building Diversion at Benny's Bay - 50,000 cfs - Area B
Date: 25-Oct-00
Total Area: 14,902

Target Year	FWOP Loss Rate	FWOP Acres	FWOP %	FWP Loss Rate	FWP Acres	FWP %	Net Acres
0		1,737	12		1,737	12	--
1	2.29	1,697	11	1.72	1,707	11	10
2	2.29	1,658	11	1.72	1,678	11	19
3	2.29	1,620	11	1.72	1,649	11	29
4	2.29	1,583	11	1.72	1,621	11	37
5	2.29	1,547	10	1.72	1,593	11	46
6	2.29	1,512	10	1.72	1,565	11	54
7	2.29	1,477	10	1.72	1,538	10	61
8	2.29	1,443	10	1.72	1,512	10	69
9	2.29	1,410	9	1.72	1,486	10	76
10	2.29	1,378	9	1.72	1,460	10	83
11	2.29	1,346	9	1.72	1,435	10	89
12	2.29	1,315	9	1.72	1,411	9	95
13	2.29	1,285	9	1.72	1,386	9	101
14	2.29	1,256	8	1.72	1,362	9	107
15	2.29	1,227	8	1.72	1,339	9	112
16	2.29	1,199	8	1.72	1,316	9	117
17	2.29	1,172	8	1.72	1,293	9	122
18	2.29	1,145	8	1.72	1,271	9	126
19	2.29	1,119	8	1.72	1,249	8	131
20	2.29	1,093	7	1.72	1,228	8	135
Total Years 1-50		27,483			29,099		
Average Annual Acres		550			582		**32**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 50,000 cfs
Area C
Condition: Future Without Project

Project Area:
Fresh............ 2,097
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	52	0.57	53	0.58	83	0.85
V2	% Aquatic	40	0.46	40	0.46	80	0.82
V3	Interspersion	%		%		%	
	Class 1	25	0.50	25	0.50	80	0.92
	Class 2	25		25		20	
	Class 3						
	Class 4	50		50			
	Class 5						
V4	%OW <= 1.5ft	40	0.55	40	0.55	75	0.94
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.65**	**EM HSI =**	**0.66**	**EM HSI =**	**0.89**
	Open Water HSI =		**0.59**	**OW HSI =**	**0.59**	**OW HSI =**	**0.88**

Project: Benny's Bay Diversion - 50,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Benny's Bay Diversion - 50,000 cfs
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Benny's Bay Diversion - 50,000 cfs
Area C
Condition: Future With Project

Project Area:
Fresh............. 2,097
Intermediate....

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	52	0.57	54	0.59	89	0.90
V2	% Aquatic	40	0.46	40	0.46	90	0.91
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 25 25 50	0.50	% 25 25 50	0.50	% 100	1.00
V4	%OW <= 1.5ft	40	0.55	40	0.55	90	1.00
V5	Salinity (ppt) fresh intermediate	0	1.00	0	1.00	0	1.00
V6	Access Value fresh intermediate	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI	**=**	**0.65**	**EM HSI =**	**0.66**	**EM HSI =**	**0.94**
	Open Water HSI	**=**	**0.59**	**OW HSI =**	**0.59**	**OW HSI =**	**0.95**

Project: Benny's Bay Diversion - 50,000 cfs
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Benny's Bay Diversion - 50,000 cfs
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Benny's Bay Diversion - 50,000 cfs
Area C

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1080	0.65	704.29	
1	1117	0.66	735.57	719.89
20	1747	0.89	1555.87	21305.69
			AAHUs =	**1101.28**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1080	0.65	704.29	
1	1124	0.66	747.35	725.73
20	1869	0.94	1748.04	23068.39
			AAHUs	**1189.71**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1189.71
B. Future Without Project Emergent Marsh AAHUs =	1101.28
Net Change (FWP - FWOP) =	**88.43**

AAHU CALCULATION - OPEN WATER

Project: Benny's Bay Diversion - 50,000 cfs
Area C

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	1017	0.59	596.25	
1	980	0.59	574.56	585.41
20	350	0.88	308.82	8982.77
			AAHUs =	**478.41**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1017	0.59	596.25	
1	973	0.59	570.46	583.35
20	228	0.95	215.89	8321.01
			AAHUs	445.22

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	445.22
B. Future Without Project Open Water AAHUs =	478.41
Net Change (FWP - FWOP) =	**-33.19**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	88.43
B. Open Water Habitat Net AAHUs =	-33.19
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**49.20**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Delta-building Diversion at Benny's Bay - 50,000 cfs - Area C
Date: 25-Oct-00
Total Area: 2,097

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		1,080	52		1,080	52	--
1	1.18	1,117	53	1.06	1,124	54	6
2	1.18	1,154	55	1.06	1,167	56	13
3	1.18	1,190	57	1.06	1,209	58	19
4	1.18	1,226	58	1.06	1,251	60	25
5	1.18	1,262	60	1.06	1,293	62	31
6	1.18	1,297	62	1.06	1,334	64	37
7	1.18	1,332	64	1.06	1,375	66	44
8	1.18	1,366	65	1.06	1,416	68	50
9	1.18	1,400	67	1.06	1,456	69	56
10	1.18	1,433	68	1.06	1,495	71	62
11	1.18	1,466	70	1.06	1,534	73	68
12	1.18	1,499	71	1.06	1,573	75	74
13	1.18	1,531	73	1.06	1,612	77	80
14	1.18	1,563	75	1.06	1,649	79	86
15	1.18	1,595	76	1.06	1,687	80	92
16	1.18	1,626	78	1.06	1,724	82	98
17	1.18	1,657	79	1.06	1,761	84	104
18	1.18	1,687	80	1.06	1,797	86	110
19	1.18	1,717	82	1.06	1,833	87	116
20	1.18	1,747	83	1.06	1,869	89	121
Total Years 1-50		28,869			30,160		
Average Annual Acres		577			603		**26**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Delta Building Diversion at Myrtle Grove

The WVA for this project includes 5 areas. Total benefits for this project are as follows:

Area	AAHUs
1	802
2	2,733
3	1,976
4	220
5	66

TOTAL BENEFITS = 5,797 AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs | Project Area: 8,121
Area 1
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	21	0.29	20	0.28	15	0.24
V2	% Aquatic	30	0.37	30	0.37	30	0.37
V3	Interspersion	%		%		%	
	Class 1		0.33		0.33		0.28
	Class 2						
	Class 3	65		65		39	
	Class 4	35		35		61	
	Class 5						
V4	%OW <= 1.5ft	50	0.74	50	0.74	40	0.61
V5	Salinity (ppt)	6	1.00	6	1.00	7	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.45**	**EM HSI =**	**0.44**	**EM HSI =**	**0.40**
	Open Water HSI =		**0.58**	**OW HSI =**	**0.58**	**OW HSI =**	**0.57**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs   Project Area: 8,121
Area 1

Condition: Future With Project - see intermediate model for TY3 and TY20

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	21	0.29	22	0.30		
V2	% Aquatic	30	0.37	40	0.46		
V3	Interspersion	%		%		%	
	Class 1		0.33		0.33		
	Class 2						
	Class 3	65		65			
	Class 4	35		35			
	Class 5						
V4	%OW <= 1.5ft	50	0.74	50	0.74		
V5	Salinity (ppt)	6	1.00	2	1.00		
V6	Access Value	1.00	1.00	1.00	1.00		
	Emergent Marsh HSI =		**0.45**	**EM HSI =**	**0.45**	**EM HSI =**	
	Open Water HSI =		**0.58**	**OW HSI =**	**0.64**	**OW HSI =**	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 1

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1691	0.45	756.07	
1	1660	0.44	730.27	743.13
20	1179	0.40	468.42	11322.64
			AAHUs =	603.29

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	1691	0.45	756.07	
1	1806	0.45	820.40	788.10
			AAHUs	39.40

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	39.40
B. Future Without Project Emergent Marsh AAHUs =	603.29
Net Change (FWP - FWOP) =	**-563.88**

AAHU CALCULATION - OPEN WATER

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 1

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	6430	0.58	3741.51	
1	6461	0.58	3759.55	3750.53
20	6942	0.57	3946.57	73228.50
			AAHUs =	3848.95

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	6430	0.58	3741.51	
1	6315	0.64	4052.06	3897.93
			AAHUs	194.90

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	194.90
B. Future Without Project Open Water AAHUs =	3848.95
Net Change (FWP - FWOP) =	**-3654.05**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	-563.88
B. Open Water Habitat Net AAHUs =	-3654.05
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6	**-1422.26**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
Area 1
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 8,121

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh		1.00				
	intermediate	1					
V6	Access Value						
	fresh						
	intermediate						
	Emergent Marsh HSI =			EM HSI =		EM HSI =	
	Open Water HSI =			OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
Area 1
Condition: Future With Project - see brackish model for TY0 and TY1

Project Area:
Fresh.............
Intermediate.... 8,121

		TY 0		TY 1		TY 3	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent					25	0.33
V2	% Aquatic					80	0.82
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		% 5 5 60 30	0.38
V4	%OW <= 1.5ft					55	0.72
V5	Salinity (ppt) fresh intermediate					2	1.00
V6	Access Value fresh intermediate					1.00	1.00
	Emergent Marsh HSI =			EM HSI =		EM HSI =	0.46
	Open Water HSI =			OW HSI =		OW HSI =	0.83

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	49	0.54				
V2	% Aquatic	80	0.82				
V3	Interspersion	%		%		%	
	Class 1	25	0.63				
	Class 2	40					
	Class 3	35					
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	85	1.00				
V5	Salinity (ppt)						
	fresh		1.00				
	intermediate	2					
V6	Access Value						
	fresh		1.00				
	intermediate	1.00					
		EM HSI =	0.65	EM HSI =		EM HSI =	
		OW HSI =	0.87	OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
Area 1

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1691	0.45	756.07	
1	1660	0.44	730.27	743.13
20	1179	0.40	468.42	11322.64
			AAHUs =	**603.29**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1691	0.45	756.07	
1	1806	0.45	820.40	788.10
3	2036	0.46	932.87	1752.96
20	3942	0.65	2551.48	28595.93
			AAHUs	**1556.85**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1556.85
B. Future Without Project Emergent Marsh AAHUs =	603.29
Net Change (FWP - FWOP) =	**953.56**

AAHU CALCULATION - OPEN WATER

Project: Myrtle Grove Sediment Diversion - 15,000 cfs
Area 1

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	6430	0.58	3741.51	
1	6461	0.58	3759.55	3750.53
20	6942	0.57	3946.57	73228.50
			AAHUs =	**3848.95**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	6430	0.58	3741.51	
1	6315	0.64	4052.06	3897.93
3	6085	0.83	5024.27	9090.44
20	4179	0.87	3614.97	73646.04
			AAHUs	**4331.72**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	4331.72
B. Future Without Project Open Water AAHUs =	3848.95
Net Change (FWP - FWOP) =	**482.77**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	953.56
B. Open Water Habitat Net AAHUs =	482.77
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**801.69**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Myrtle Grove 15,000 cfs Sediment Diversion - Area 1
Date: 12-Sep-00
Total Area: 8,121

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		1,691	21		1,691	21	--
1	1.79	1,661	20	0.27	1,806	22	146
2	1.79	1,631	20	0.27	1,922	24	290
3	1.79	1,602	20	0.27	2,036	25	434
4	1.79	1,573	19	0.27	2,151	26	578
5	1.79	1,545	19	0.27	2,265	28	720
6	1.79	1,518	19	0.27	2,379	29	861
7	1.79	1,491	18	0.27	2,493	31	1,002
8	1.79	1,464	18	0.27	2,606	32	1,142
9	1.79	1,438	18	0.27	2,719	33	1,281
10	1.79	1,412	17	0.27	2,832	35	1,420
11	1.79	1,387	17	0.27	2,944	36	1,557
12	1.79	1,362	17	0.27	3,056	38	1,694
13	1.79	1,338	16	0.27	3,168	39	1,830
14	1.79	1,314	16	0.27	3,280	40	1,966
15	1.79	1,291	16	0.27	3,391	42	2,100
16	1.79	1,268	16	0.27	3,502	43	2,234
17	1.79	1,245	15	0.27	3,613	44	2,368
18	1.79	1,223	15	0.27	3,723	46	2,500
19	1.79	1,201	15	0.27	3,833	47	2,632
20	1.79	1,179	15	0.27	3,943	49	2,763
Total Years 1-50		28,143			57,663		
Average Annual Acres		563			1,153		**590**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs — Project Area: 84,883
Area 2
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	47	0.52	47	0.52	42	0.48
V2	% Aquatic	15	0.24	15	0.24	13	0.22
V3	Interspersion	%		%		%	
	Class 1	40	0.68	40	0.68	30	0.62
	Class 2	25		25		29	
	Class 3	30		30		31	
	Class 4	5		5		10	
	Class 5						
V4	%OW <= 1.5ft	25	0.42	25	0.42	20	0.36
V5	Salinity (ppt)	8	1.00	8	1.00	9	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.66**	**EM HSI =**	**0.66**	**EM HSI =**	**0.62**
	Open Water HSI =		**0.48**	**OW HSI =**	**0.48**	**OW HSI =**	**0.46**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs   Project Area: 84,883
Area 2

Condition: Future With Project - see intermediate model for TY7 and TY20

		TY 0		TY 1		TY 7	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	47	0.52	47	0.52		
V2	% Aquatic	15	0.24	20	0.28		
V3	Interspersion	%		%		%	
	Class 1	40	0.68	40	0.68		
	Class 2	25		25			
	Class 3	30		30			
	Class 4	5		5			
	Class 5						
V4	%OW <= 1.5ft	25	0.42	25	0.42		
V5	Salinity (ppt)	8	1.00	3	1.00		
V6	Access Value	1.00	1.00	1.00	1.00		
	Emergent Marsh HSI =		**0.66**	**EM HSI =**	**0.66**	**EM HSI =**	
	Open Water HSI =		**0.48**	**OW HSI =**	**0.52**	**OW HSI =**	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH
Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 2

Future Without Project TY	Marsh Acres	x HSI	Total HUs	Cummulative HUs
0	39825	0.66	26247.70	
1	39605	0.66	26102.70	26175.20
20	35655	0.62	22127.43	457704.90
			AAHUs =	**24194.01**

Future With Project TY	Marsh Acres	x HSI	Total HUs	Cummulative HUs
0	39825	0.66	26247.70	
1	39787	0.66	26222.65	26235.17
			AAHUs	**1311.76**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1311.76
B. Future Without Project Emergent Marsh AAHUs =	24194.01
Net Change (FWP - FWOP) =	**-22882.25**

AAHU CALCULATION - OPEN WATER

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 2

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	45058	0.48	21712.36	
1	45278	0.48	21818.38	21765.37
20	49228	0.46	22511.49	421441.25
			AAHUs =	**22160.33**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	45058	0.48	21712.36	
1	45096	0.52	23361.31	22536.61
			AAHUs	**1126.83**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	1126.83
B. Future Without Project Open Water AAHUs =	22160.33
Net Change (FWP - FWOP) =	**-21033.50**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	-22882.25
B. Open Water Habitat Net AAHUs =	-21033.50
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6	**-22368.71**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 2
Condition: Future With Project - see brackish model for TY0 and TY1

Project Area:
Fresh.............
Intermediate.... 84,883

		TY 0		TY 1		TY 7	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent					47	0.52
V2	% Aquatic					50	0.55
V3	Interspersion	%		%		%	
	Class 1					40	0.68
	Class 2					25	
	Class 3					30	
	Class 4					5	
	Class 5						
V4	%OW <= 1.5ft					25	0.38
V5	Salinity (ppt)						
	fresh						1.00
	intermediate					3	
V6	Access Value						
	fresh						1.00
	intermediate					1.00	
	Emergent Marsh HSI =			**EM HSI =**		**EM HSI =**	**0.64**
	Open Water HSI =			**OW HSI =**		**OW HSI =**	**0.65**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	46	0.51				
V2	% Aquatic	50	0.55				
V3	Interspersion	%		%		%	
	Class 1	40	0.68				
	Class 2	26					
	Class 3	29					
	Class 4	5					
	Class 5						
V4	%OW <= 1.5ft	25	0.38				
V5	Salinity (ppt)						
	fresh		1.00				
	intermediate	4					
V6	Access Value						
	fresh		1.00				
	intermediate	1.00					
		EM HSI =	0.63	EM HSI =		EM HSI =	
		OW HSI =	0.65	OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 2

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	39825	0.66	26247.70	
1	39605	0.66	26102.70	26175.20
20	35655	0.62	22127.43	457704.90
			AAHUs =	**24194.01**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	39825	0.66	26247.70	
1	39787	0.66	26222.65	26235.17
7	39560	0.64	25312.45	154600.95
20	39076	0.63	24757.14	325445.73
			AAHUs	**25314.09**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	25314.09
B. Future Without Project Emergent Marsh AAHUs =	24194.01
Net Change (FWP - FWOP) =	**1120.09**

AAHU CALCULATION - OPEN WATER

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 2

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	45058	0.48	21712.36	
1	45278	0.48	21818.38	21765.37
20	49228	0.46	22511.49	421441.25
			AAHUs =	**22160.33**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	45058	0.48	21712.36	
1	45096	0.52	23361.31	22536.61
7	45323	0.65	29433.82	158355.55
20	45807	0.65	29754.92	384726.64
			AAHUs	**28280.94**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	28280.94
B. Future Without Project Open Water AAHUs =	22160.33
Net Change (FWP - FWOP) =	**6120.61**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	1120.09
B. Open Water Habitat Net AAHUs =	6120.61
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**2733.16**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Myrtle Grove 15,000 cfs Sediment Diversion - Area 2
Date: 12-Sep-00
Total Area: 84,883

Target Year	FWOP Loss Rate	FWOP Acres	FWOP %	FWP Loss Rate	FWP Acres	FWP %	Net Acres
0		38,908	46		38,908	46	--
1	0.57	38,688	46	0.14	38,870	46	182
2	0.57	38,469	45	0.14	38,832	46	363
3	0.57	38,252	45	0.14	38,794	46	542
4	0.57	38,036	45	0.14	38,756	46	721
5	0.57	37,821	45	0.14	38,719	46	898
6	0.57	37,607	44	0.14	38,681	46	1,074
7	0.57	37,395	44	0.14	38,643	46	1,249
8	0.57	37,183	44	0.14	38,606	45	1,423
9	0.57	36,973	44	0.14	38,568	45	1,595
10	0.57	36,764	43	0.14	38,531	45	1,767
11	0.57	36,556	43	0.14	38,493	45	1,937
12	0.57	36,350	43	0.14	38,456	45	2,106
13	0.57	36,144	43	0.14	38,418	45	2,274
14	0.57	35,940	42	0.14	38,381	45	2,441
15	0.57	35,737	42	0.14	38,344	45	2,607
16	0.57	35,535	42	0.14	38,307	45	2,772
17	0.57	35,334	42	0.14	38,270	45	2,936
18	0.57	35,134	41	0.14	38,233	45	3,098
19	0.57	34,936	41	0.14	38,196	45	3,260
20	0.57	34,738	41	0.14	38,159	45	3,420
Total Years 1-50		733,591			770,256		
Average Annual Acres		14,672			15,405		**733**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 3
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 82,919

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	25	0.33	25	0.33	21	0.29
V2	% Aquatic	20	0.28	20	0.28	20	0.28
V3	Interspersion	%		%		%	
	Class 1	5	0.32	5	0.32		0.28
	Class 2	10		10		10	
	Class 3	20		20		20	
	Class 4	65		65		70	
	Class 5						
V4	%OW <= 1.5ft	15	0.27	15	0.27	10	0.21
V5	Salinity (ppt)						
	fresh		1.00		1.00		1.00
	intermediate	3		3		3	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI	**=**	**0.45**	**EM HSI =**	**0.45**	**EM HSI =**	**0.42**
	Open Water HSI	**=**	**0.42**	**OW HSI =**	**0.42**	**OW HSI =**	**0.41**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 3
Condition: Future With Project

Project Area:
Fresh.............
Intermediate.... 82,919

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	25	0.33	25	0.33	23	0.31
V2	% Aquatic	20	0.28	25	0.33	40	0.46
V3	Interspersion	%		%		%	
	Class 1	5	0.32	5	0.32	5	0.32
	Class 2	10		10		10	
	Class 3	20		20		20	
	Class 4	65		65		65	
	Class 5						
V4	%OW <= 1.5ft	15	0.27	15	0.27	15	0.27
V5	Salinity (ppt)						
	fresh		1.00		1.00		1.00
	intermediate	3		2		2	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI	=	0.45	EM HSI =	0.45	EM HSI =	0.44
	Open Water HSI	=	0.42	OW HSI =	0.45	OW HSI =	0.55

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 3

Future Without Project				
TY	**Marsh Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	21012	0.45	9487.35	
1	20832	0.45	9406.08	9446.71
20	17721	0.42	7419.15	159515.91
			AAHUs =	**8448.13**

Future With Project				
TY	**Marsh Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	21012	0.45	9487.35	
1	20922	0.45	9446.71	9467.03
20	19293	0.44	8438.45	169836.10
			AAHUs	**8965.16**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	8965.16
B. Future Without Project Emergent Marsh AAHUs =	8448.13
Net Change (FWP - FWOP) =	**517.03**

AAHU CALCULATION - OPEN WATER

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 3

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	61907	0.42	25819.31	
1	62087	0.42	25894.38	25856.84
20	65198	0.41	26727.04	499973.69
			AAHUs =	26291.53

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	61907	0.42	25819.31	
1	61997	0.45	28051.89	26935.07
20	63626	0.55	35129.14	599705.79
			AAHUs	31332.04

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	31332.04
B. Future Without Project Open Water AAHUs =	26291.53
Net Change (FWP - FWOP) =	**5040.52**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	517.03
B. Open Water Habitat Net AAHUs =	5040.52
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**1976.22**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Myrtle Grove 15,000 cfs Sediment Diversion - Area 3
Date: 12-Sep-00
Total Area: 82,919

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		19,212	23		19,212	23	--
1	0.94	19,032	23	0.47	19,122	23	90
2	0.94	18,854	23	0.47	19,033	23	178
3	0.94	18,678	23	0.47	18,944	23	266
4	0.94	18,503	22	0.47	18,855	23	352
5	0.94	18,330	22	0.47	18,767	23	437
6	0.94	18,159	22	0.47	18,679	23	520
7	0.94	17,989	22	0.47	18,592	22	603
8	0.94	17,821	21	0.47	18,505	22	684
9	0.94	17,654	21	0.47	18,419	22	764
10	0.94	17,489	21	0.47	18,333	22	843
11	0.94	17,326	21	0.47	18,247	22	921
12	0.94	17,164	21	0.47	18,161	22	998
13	0.94	17,003	21	0.47	18,077	22	1,073
14	0.94	16,844	20	0.47	17,992	22	1,148
15	0.94	16,687	20	0.47	17,908	22	1,221
16	0.94	16,531	20	0.47	17,824	21	1,293
17	0.94	16,376	20	0.47	17,741	21	1,365
18	0.94	16,223	20	0.47	17,658	21	1,435
19	0.94	16,072	19	0.47	17,575	21	1,504
20	0.94	15,921	19	0.47	17,493	21	1,572
Total Years 1-50		348,660			365,926		
Average Annual Acres		6,973			7,319		**345**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs — Project Area: 168,605
Area 4
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	17	0.25	17	0.25	15	0.24
V2	% Aquatic	1	0.31	1	0.31	1	0.31
V3	Interspersion	%		%		%	
	Class 1		0.26		0.26		0.24
	Class 2	10		10		6	
	Class 3	10		10		10	
	Class 4	80		80		84	
	Class 5						
V4	%OW <= 1.5ft	5	0.16	5	0.16	3	0.14
V5	Salinity (ppt)	15	1.00	15	1.00	17	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.42**	**EM HSI =**	**0.42**	**EM HSI =**	**0.40**
	Open Water HSI =		**0.66**	**OW HSI =**	**0.66**	**OW HSI =**	**0.66**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 4
Project Area: 168,605
Condition: Future With Project

		TY 0		TY 1		TY 20	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	17	0.25	17	0.25	15	0.24
V2	% Aquatic	1	0.31	1	0.31	3	0.32
V3	Interspersion	%		%		%	
	Class 1		0.26		0.26		0.26
	Class 2	10		10		10	
	Class 3	10		10		10	
	Class 4	80		80		80	
	Class 5						
V4	%OW <= 1.5ft	5	0.16	5	0.16	3	0.14
V5	Salinity (ppt)	15	1.00	10	1.00	10	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.42**	**EM HSI =**	**0.42**	**EM HSI =**	**0.40**
	Open Water HSI =		**0.66**	**OW HSI =**	**0.66**	**OW HSI =**	**0.67**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 4

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	29499	0.42	12314.57	
1	29231	0.42	12202.69	12258.63
20	24590	0.40	9854.16	209294.39
			AAHUs =	11077.65

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	29499	0.42	12314.57	
1	29285	0.42	12225.23	12269.90
20	25505	0.40	10266.18	213489.58
			AAHUs	11287.97

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	11287.97
B. Future Without Project Emergent Marsh AAHUs =	11077.65
Net Change (FWP - FWOP) =	**210.32**

AAHU CALCULATION - OPEN WATER

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 4

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	139106	0.66	91885.48	
1	139374	0.66	92062.50	91973.99
20	144015	0.66	94683.02	1774127.92
			AAHUs =	93305.10

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	139106	0.66	91885.48	
1	139320	0.66	92026.83	91956.16
20	143100	0.67	95269.49	1779252.73
			AAHUs	93560.44

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	93560.44
B. Future Without Project Open Water AAHUs =	93305.10
Net Change (FWP - FWOP) =	**255.35**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	210.32
B. Open Water Habitat Net AAHUs =	255.35
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**220.33**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Myrtle Grove 15,000 cfs Sediment Diversion - Area 4
Date: 12-Sep-00
Total Area: 168,605

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		29,499	17		29,499	17	--
1	0.91	29,232	17	0.72	29,285	17	53
2	0.91	28,967	17	0.72	29,073	17	106
3	0.91	28,705	17	0.72	28,862	17	158
4	0.91	28,445	17	0.72	28,653	17	209
5	0.91	28,187	17	0.72	28,445	17	259
6	0.91	27,931	17	0.72	28,239	17	308
7	0.91	27,678	16	0.72	28,035	17	356
8	0.91	27,428	16	0.72	27,832	17	404
9	0.91	27,179	16	0.72	27,630	16	451
10	0.91	26,933	16	0.72	27,430	16	497
11	0.91	26,689	16	0.72	27,231	16	542
12	0.91	26,447	16	0.72	27,033	16	586
13	0.91	26,208	16	0.72	26,838	16	630
14	0.91	25,970	15	0.72	26,643	16	673
15	0.91	25,735	15	0.72	26,450	16	715
16	0.91	25,502	15	0.72	26,258	16	756
17	0.91	25,271	15	0.72	26,068	15	797
18	0.91	25,042	15	0.72	25,879	15	837
19	0.91	24,815	15	0.72	25,692	15	876
20	0.91	24,590	15	0.72	25,505	15	915
Total Years 1-50		536,954			547,081		
Average Annual Acres		10,739			10,942		**203**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs — Project Area: 72,035
Area 5
Condition: Future Without Project

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	13	0.22	13	0.22	11	0.20
V2	% Aquatic	2	0.31	2	0.31	2	0.31
V3	Interspersion	%		%		%	
	Class 1		0.25		0.25		0.24
	Class 2						
	Class 3	25		25		20	
	Class 4	75		75		80	
	Class 5						
V4	%OW <= 1.5ft	10	0.23	10	0.23	8	0.20
V5	Salinity (ppt)	13	1.00	13	1.00	14	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.39**	**EM HSI =**	**0.39**	**EM HSI =**	**0.37**
	Open Water HSI =		**0.67**	**OW HSI =**	**0.67**	**OW HSI =**	**0.67**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Myrtle Grove Sediment Diversion - 15,000cfs — Project Area: 72,035
Area 5
Condition: Future With Project

		TY 0		TY 1		TY 20	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	13	0.22	13	0.22	11	0.20
V2	% Aquatic	2	0.31	2	0.31	4	0.33
V3	Interspersion	%		%		%	
	Class 1		0.25		0.25		0.24
	Class 2						
	Class 3	25		25		22	
	Class 4	75		75		78	
	Class 5						
V4	%OW <= 1.5ft	10	0.23	10	0.23	8	0.20
V5	Salinity (ppt)	13	1.00	10	1.00	10	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.39**	**EM HSI =**	**0.39**	**EM HSI =**	**0.37**
	Open Water HSI =		**0.67**	**OW HSI =**	**0.67**	**OW HSI =**	**0.67**

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Myrtle Grove Sediment Diversion - 15,000cfs
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 5

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	9224	0.39	3562.08	
1	9137	0.39	3528.48	3545.28
20	7636	0.37	2821.61	60246.75
			AAHUs =	**3189.60**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	9224	0.39	3562.08	
1	9150	0.39	3533.50	3547.79
20	7856	0.37	2906.40	61112.64
			AAHUs	**3233.02**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	3233.02
B. Future Without Project Emergent Marsh AAHUs =	3189.60
Net Change (FWP - FWOP) =	**43.42**

AAHU CALCULATION - OPEN WATER

Project: Myrtle Grove Sediment Diversion - 15,000cfs
Area 5

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	62811	0.67	41967.29	
1	62898	0.67	42025.42	41996.36
20	64399	0.67	42857.92	806404.31
			AAHUs =	42420.03

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	62811	0.67	41967.29	
1	62885	0.67	42016.73	41992.01
20	64179	0.67	43180.15	809351.29
			AAHUs	42567.17

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	42567.17
B. Future Without Project Open Water AAHUs =	42420.03
Net Change (FWP - FWOP) =	**147.13**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	43.42
B. Open Water Habitat Net AAHUs =	147.13
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**66.47**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Myrtle Grove 15,000 cfs Sediment Diversion - Area 5
Date: 12-Sep-00
Total Area: 72,035

Target		FWOP			FWP		
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		9,224	13		9,224	13	--
1	0.94	9,137	13	0.80	9,150	13	13
2	0.94	9,051	13	0.80	9,077	13	26
3	0.94	8,966	12	0.80	9,005	13	38
4	0.94	8,882	12	0.80	8,933	12	51
5	0.94	8,799	12	0.80	8,861	12	63
6	0.94	8,716	12	0.80	8,791	12	75
7	0.94	8,634	12	0.80	8,720	12	86
8	0.94	8,553	12	0.80	8,651	12	98
9	0.94	8,472	12	0.80	8,582	12	109
10	0.94	8,393	12	0.80	8,513	12	120
11	0.94	8,314	12	0.80	8,445	12	131
12	0.94	8,236	11	0.80	8,377	12	142
13	0.94	8,158	11	0.80	8,311	12	152
14	0.94	8,082	11	0.80	8,244	11	163
15	0.94	8,006	11	0.80	8,178	11	173
16	0.94	7,930	11	0.80	8,113	11	183
17	0.94	7,856	11	0.80	8,048	11	192
18	0.94	7,782	11	0.80	7,984	11	202
19	0.94	7,709	11	0.80	7,920	11	211
20	0.94	7,636	11	0.80	7,857	11	220
Total Years 1-50		167,311			169,759		
Average Annual Acres		3,346			3,395		**49**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Restore Barrier Shoreline from Pass Chaland to Grand Bayou Pass

The WVA for this project includes 1 area. Total benefits for this project are as follows:

Area	AAHUs
1	47

TOTAL BENEFITS =	47	AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration — Project Area: 1,779

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 10 Value	TY 10 SI
V1	% Emergent	13	0.22	13	0.22	9	0.18
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	7	0.19	7	0.19	5	0.16
V5	Salinity (ppt)	17	1.00	17	1.00	17	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.38**	**EM HSI =**	**0.38**	**EM HSI =**	**0.35**
	Open Water HSI =		**0.65**	**OW HSI =**	**0.65**	**OW HSI =**	**0.65**

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration
FWOP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	5	0.15				
V2	% Aquatic	0	0.30				
V3	Interspersion	%		%		%	
	Class 1		0.20				
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5ft	5	0.16				
V5	Salinity (ppt)	17	1.00				
V6	Access Value	1.00	1.00				
		EM HSI =	**0.32**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.65**	**OW HSI =**		**OW HSI =**	

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration — Project Area: 1,779

Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	13	0.22	18	0.26	24	0.32
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.20	12	0.30	12	0.30
	Class 2						
	Class 3						
	Class 4	100		88		88	
	Class 5						
V4	%OW <= 1.5ft	7	0.19	7	0.19	7	0.19
V5	Salinity (ppt)	17	1.00	17	1.00	17	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.38**	**EM HSI =**	**0.43**	**EM HSI =**	**0.47**
	Open Water HSI =		**0.65**	**OW HSI =**	**0.66**	**OW HSI =**	**0.66**

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	15	0.24				
V2	% Aquatic	0	0.30				
V3	Interspersion	%		%		%	
	Class 1		0.24				
	Class 2	9					
	Class 3						
	Class 4	91					
	Class 5						
V4	%OW <= 1.5ft	7	0.19				
V5	Salinity (ppt)	17	1.00				
V6	Access Value	1.00	1.00				
		EM HSI =	**0.40**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.66**	**OW HSI =**		**OW HSI =**	

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	240	0.38	91.35	
1	231	0.38	87.92	89.64
10	159	0.35	55.52	642.08
20	92	0.32	29.08	419.30
			AAHUs =	57.55

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	240	0.38	91.35	
1	290	0.43	124.36	107.45
3	431	0.47	203.35	325.69
20	268	0.40	107.16	2606.10
			AAHUs	151.96

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	151.96
B. Future Without Project Emergent Marsh AAHUs =	57.55
Net Change (FWP - FWOP) =	**94.41**

AAHU CALCULATION - OPEN WATER

Project: Pass Chaland to Grand Bayou Pass Barrier Shoreline Restoration

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1539	0.65	1007.06	
1	1548	0.65	1012.95	1010.00
10	1620	0.65	1056.97	9314.84
20	1687	0.65	1100.69	10788.31
			AAHUs =	1055.66

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1539	0.65	1007.06	
1	1320	0.66	873.14	940.36
3	1348	0.66	891.66	1764.80
20	1511	0.66	992.76	16019.66
			AAHUs	936.24

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	936.24
B. Future Without Project Open Water AAHUs =	1055.66
Net Change (FWP - FWOP) =	**-119.42**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	94.41
B. Open Water Habitat Net AAHUs =	-119.42
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**46.89**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: Restore Barrier Shoreline from Chaland Pass to Grand Bayou Pass
Date: 17-Oct-00 FWP loss for natural marsh and created marsh
Total Area: 1,779

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		195	11		226	13	--
1	2.80	190	11	1.76	222	12	32
2	2.80	184	10	1.76	218	12	34
3	2.80	179	10	1.76	214	12	35
4	2.80	174	10	1.76	211	12	36
5	2.80	169	10	1.76	207	12	38
6	2.80	164	9	1.76	203	11	39
7	2.80	160	9	1.76	200	11	40
8	2.80	155	9	1.76	196	11	41
9	2.80	151	8	1.76	193	11	42
10	2.80	147	8	1.76	189	11	42
11	2.80	143	8	1.76	186	10	43
12	2.80	139	8	1.76	183	10	44
13	2.80	135	8	1.76	179	10	45
14	2.80	131	7	1.76	176	10	45
15	2.80	127	7	1.76	173	10	46
16	2.80	124	7	1.76	170	10	46
17	2.80	120	7	1.76	167	9	47
18	2.80	117	7	1.76	164	9	47
19	2.80	114	6	1.76	161	9	48
20	2.80	110	6	1.76	158	9	48
Total Years 1-50		2,933			3,771		
Average Annual Acres		59			75		**17**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Small Freshwater Diversion to Northwestern Barataria Basin

The WVA for this project includes 6 areas. Total benefits for this project are as follows:

Area	AAHUs
1	672
2 thru 6	109

TOTAL BENEFITS =	**781**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Small Freshwater Diversion to NW Barataria Basin
Areas 1 and 2-6 - spreadsheet only used to calculate AAHUs
Condition: Future Without Project

Project Area:
Fresh............
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate	1	#DIV/0!				
V6	Access Value fresh intermediate						
	Emergent Marsh HSI =			**EM HSI =**		**EM HSI =**	
	Open Water HSI =			**OW HSI =**		**OW HSI =**	

Project: Small Freshwater Diversion to NW Barataria Basin
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Small Freshwater Diversion to NW Barataria Basin
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Small Freshwater Diversion to NW Barataria Basin
Areas 1 and 2-6 - spreadsheet only used to calculate AAHUs
Condition: Future With Project

Project Area:
Fresh.............
Intermediate....

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
	Emergent Marsh HSI =			EM HSI =		EM HSI =	
	Open Water HSI =			OW HSI =		OW HSI =	

Project: Small Freshwater Diversion to NW Barataria Basin
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Small Freshwater Diversion to NW Barataria Basin
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION

Project: Small Freshwater Diversion to NW Barataria Basin
Area 1

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	2325	0.47	1092.52	
1	2325	0.50	1161.80	1127.16
20	2325	0.52	1204.12	22476.24
			AAHUs =	**1180.17**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	2325	0.47	1092.52	
1	2325	0.78	1823.27	1457.89
20	2325	0.84	1956.26	35905.44
			AAHUs	**1868.17**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1868.17
B. Future Without Project Emergent Marsh AAHUs =	1180.17
Net Change (FWP - FWOP) =	**688.00**

AAHU CALCULATION

Project: Small Freshwater Diversion to NW Barataria Basin
Areas 2-6

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	2809	0.79	2214.05	
1	2809	0.82	2291.02	2252.54
20	2809	0.78	2195.80	42624.75
			AAHUs =	**2243.86**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	2809	0.79	2214.05	
1	2809	0.84	2347.20	2280.63
20	2809	0.84	2361.81	44735.57
			AAHUs	**2350.81**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	2350.81
B. Future Without Project Open Water AAHUs =	2243.86
Net Change (FWP - FWOP) =	**106.95**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Small Freshwater Diversion to NW Barataria Basin
Areas 1 and 2-6 - spreadsheet only used to calculate AAHUs
Condition: Future Without Project

Project Area:
Fresh............
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate	 1	 #DIV/0!				
V6	Access Value fresh intermediate						
	Emergent Marsh HSI =			**EM HSI =**		**EM HSI =**	
	Open Water HSI =			**OW HSI =**		**OW HSI =**	

Project: Small Freshwater Diversion to NW Barataria Basin
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Small Freshwater Diversion to NW Barataria Basin
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Small Freshwater Diversion to NW Barataria Basin
Areas 1 and 2-6 - spreadsheet only used to calculate AAHUs
Condition: Future With Project

Project Area:
Fresh.............
Intermediate....

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
	Emergent Marsh HSI =			EM HSI =		EM HSI =	
	Open Water HSI =			OW HSI =		OW HSI =	

Project: Small Freshwater Diversion to NW Barataria Basin
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Small Freshwater Diversion to NW Barataria Basin
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION

Project: Small Freshwater Diversion to NW Barataria Basin
Area 1

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	2325	0.4699	1092.52	
1	2325	0.4746	1103.45	1097.98
20	2325	0.4664	1084.38	20784.34
			AAHUs =	**1094.12**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	2325	0.4699	1092.52	
1	2325	0.6962	1618.67	1355.59
20	2325	0.8418	1957.19	33970.58
			AAHUs	**1766.31**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1766.31
B. Future Without Project Emergent Marsh AAHUs =	1094.12
Net Change (FWP - FWOP) =	**672.19**

AAHU CALCULATION

Project: Small Freshwater Diversion to NW Barataria Basin
Areas 2-6

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	2809	0.7882	2214.05	
1	2809	0.7896	2217.99	2216.02
20	2809	0.7690	2160.12	41592.02
			AAHUs =	**2190.40**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	2809	0.7882	2214.05	
1	2809	0.8059	2263.77	2238.91
20	2809	0.8337	2341.86	43753.55
			AAHUs	**2299.62**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	2299.62
B. Future Without Project Open Water AAHUs =	2190.40
Net Change (FWP - FWOP) =	**109.22**

Small Freshwater Diversion to the NW Barataria Basin

Area 1 - 2,235 acres

FWOP	**V1**	**V2**	**V3**	**V4**	**V5**	**HSI**
TY0	0.5	0.711	0.2	0.2	1	**0.4699**
TY1	0.5	0.7365	0.2	0.2	1	**0.4746**
TY20	0.35	0.9901	0.2	0.2	1	**0.4664**
FWP						
TY1	0.5	0.7418	0.9	0.64	1	**0.6962**
TY20	0.72	1	0.9	0.64	1	**0.8414**

Areas 2-6 - 2,809 acres

FWOP	**V1**	**V2**	**V3**	**V4**	**V5**	**HSI**
TY0	0.8	0.853	0.58	0.7	1	**0.7882**
TY1	0.8	0.858	0.58	0.7	1	**0.7896**
TY20	0.7	0.9441	0.52	0.7	1	**0.7690**
FWP						
TY1	0.8	0.8624	0.58	0.8	1	**0.8059**
TY20	0.8	0.9709	0.58	0.8	1	**0.8337**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: South Lake Salvador Shoreline Protection/Marsh Creation

The WVA for this project includes 3 areas. Total benefits for this project are as follows:

Area	AAHUs
1	15
2	79
3	122

TOTAL BENEFITS =	**216**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area A
Condition: Future Without Project

Project Area:
Fresh............ 36
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	31	0.38	28	0.35	0	0.10
V2	% Aquatic	20	0.28	20	0.28	20	0.28
V3	Interspersion	%		%		%	
	Class 1	30	0.44	30	0.44		0.10
	Class 2						
	Class 3						
	Class 4	70		70			
	Class 5					100	
V4	%OW <= 1.5ft	30	0.44	30	0.44	21	0.34
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.51**	**EM HSI =**	**0.49**	**EM HSI =**	**0.24**
	Open Water HSI =		**0.44**	**OW HSI =**	**0.44**	**OW HSI =**	**0.41**

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area A
Condition: Future With Project

Project Area:
Fresh............. 36
Intermediate....

Variable		TY 0		TY 1		TY 2	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	31	0.38	94	0.95	97	0.97
V2	% Aquatic	20	0.28	100	1.00	100	1.00
V3	Interspersion	%		%		%	
	Class 1	30	0.44	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4	70					
	Class 5						
V4	%OW <= 1.5ft	30	0.44	50	0.66	50	0.66
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	0.60	0.72	0.60	0.72
	intermediate						
	Emergent Marsh HSI	**=**	**0.51**	**EM HSI =**	**0.93**	**EM HSI =**	**0.94**
	Open Water HSI	**=**	**0.44**	**OW HSI =**	**0.91**	**OW HSI =**	**0.91**

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	92	0.93				
V2	% Aquatic	100	1.00				
V3	Interspersion	%		%		%	
	Class 1	100	1.00				
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	50	0.66				
V5	Salinity (ppt)						
	fresh	2	1.00				
	intermediate						
V6	Access Value						
	fresh	0.60	0.72				
	intermediate						
		EM HSI =	0.91	EM HSI =		EM HSI =	
		OW HSI =	0.91	OW HSI =		OW HSI =	

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area A

Future Without Project				
TY	**Marsh Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	11	0.51	5.57	
1	10	0.49	4.86	5.21
20	0	0.24	0.00	38.25
			AAHUs =	**2.17**

Future With Project				
TY	**Marsh Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	11	0.51	5.57	
1	17	0.93	15.73	10.23
2	35	0.94	32.97	24.30
20	33	0.91	30.17	568.04
			AAHUs	**30.13**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	30.13
B. Future Without Project Emergent Marsh AAHUs =	2.17
Net Change (FWP - FWOP) =	**27.96**

AAHU CALCULATION - OPEN WATER

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area A

Future Without Project				
TY	**Water Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	25	0.44	10.96	
1	26	0.44	11.40	11.18
20	36	0.41	14.61	248.11
			AAHUs =	**12.96**

Future With Project				
TY	**Water Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	25	0.44	10.96	
1	1	0.91	0.91	7.84
2	1	0.91	0.91	0.91
20	3	0.91	2.74	32.89
			AAHUs	**2.08**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	2.08
B. Future Without Project Open Water AAHUs =	12.96
Net Change (FWP - FWOP) =	**-10.88**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	27.96
B. Open Water Habitat Net AAHUs =	-10.88
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**15.43**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area B
Condition: Future Without Project

Project Area:
Fresh............ 235
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	77	0.79	74	0.77	0	0.10
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1	75	0.80	72	0.78		0.10
	Class 2						
	Class 3						
	Class 4	25		28			
	Class 5					100	
V4	%OW <= 1.5ft	3	0.13	3	0.13	3	0.13
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.84**	**EM HSI =**	**0.82**	**EM HSI =**	**0.24**
	Open Water HSI =		**0.28**	**OW HSI =**	**0.28**	**OW HSI =**	**0.23**

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area B
Condition: Future With Project

Project Area:
Fresh............. 235
Intermediate....

Variable		TY 0		TY 1		TY 2	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	77	0.79	88	0.89	89	0.90
V2	% Aquatic	0	0.10	20	0.28	40	0.46
V3	Interspersion	%		%		%	
	Class 1	75	0.80	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4	25					
	Class 5						
V4	%OW <= 1.5ft	3	0.13	15	0.27	22	0.35
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	0.60	0.72	0.60	0.72
	intermediate						
	Emergent Marsh HSI	**=**	**0.84**	**EM HSI =**	**0.89**	**EM HSI =**	**0.90**
	Open Water HSI	**=**	**0.28**	**OW HSI =**	**0.44**	**OW HSI =**	**0.57**

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	88	0.89				
V2	% Aquatic	80	0.82				
V3	Interspersion	%		%		%	
	Class 1	100	1.00				
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	54	0.71				
V5	Salinity (ppt)						
	fresh	2	1.00				
	intermediate						
V6	Access Value						
	fresh	0.60	0.72				
	intermediate						
		EM HSI =	**0.89**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.82**	**OW HSI =**		**OW HSI =**	

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area B

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	182	0.84	153.08	
1	173	0.82	141.89	147.45
20	0	0.24	0.00	1028.14
			AAHUs =	**58.78**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	182	0.84	153.08	
1	189	0.89	168.53	160.74
2	208	0.90	186.64	177.56
20	206	0.89	183.68	3332.85
			AAHUs	**183.56**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	183.56
B. Future Without Project Emergent Marsh AAHUs =	58.78
Net Change (FWP - FWOP) =	**124.78**

AAHU CALCULATION - OPEN WATER

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area B

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	53	0.28	14.92	
1	62	0.28	17.35	16.14
20	235	0.23	53.98	705.02
			AAHUs =	**36.06**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	53	0.28	14.92	
1	27	0.44	11.98	14.16
2	27	0.57	15.50	13.74
20	29	0.82	23.72	351.52
			AAHUs	**18.97**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	18.97
B. Future Without Project Open Water AAHUs =	36.06
Net Change (FWP - FWOP) =	**-17.09**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	124.78
B. Open Water Habitat Net AAHUs =	-17.09
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**79.01**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area C
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 264

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 15 Value	TY 15 SI
V1	% Emergent	45	0.51	42	0.48	0	0.10
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1	44	0.55	40	0.52		0.10
	Class 2						
	Class 3						
	Class 4	56		60			
	Class 5					100	
V4	%OW <= 1.5ft	0	0.10	0	0.10	0	0.10
V5	Salinity (ppt)						
	fresh		1.00		1.00		1.00
	intermediate	2		2		2	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI =		**0.61**	**EM HSI =**	**0.59**	**EM HSI =**	**0.24**
	Open Water HSI =		**0.26**	**OW HSI =**	**0.26**	**OW HSI =**	**0.23**

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWOP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	0	0.10				
V2	% Aquatic	0	0.10				
V3	Interspersion	%		%		%	
	Class 1		0.10				
	Class 2						
	Class 3						
	Class 4						
	Class 5	100					
V4	%OW <= 1.5ft	0	0.10				
V5	Salinity (ppt)						
	fresh		1.00				
	intermediate	2					
V6	Access Value						
	fresh		1.00				
	intermediate	1.00					
		EM HSI =	**0.24**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.23**	**OW HSI =**		**OW HSI =**	

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area C
Condition: Future With Project

Project Area:
Fresh.............
Intermediate.... 264

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 2 Value	TY 2 SI
V1	% Emergent	45	0.51	96	0.96	97	0.97
V2	% Aquatic	0	0.10	100	1.00	100	1.00
V3	Interspersion	%		%		%	
	Class 1	44	0.55	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4	56					
	Class 5						
V4	%OW <= 1.5ft	0	0.10	50	0.66	50	0.66
V5	Salinity (ppt)						
	fresh		1.00		1.00		1.00
	intermediate	2		2		2	
V6	Access Value						
	fresh		1.00		0.68		0.68
	intermediate	1.00		0.60		0.60	
	Emergent Marsh HSI	**=**	**0.61**	**EM HSI =**	**0.93**	**EM HSI =**	**0.94**
	Open Water HSI	**=**	**0.26**	**OW HSI =**	**0.90**	**OW HSI =**	**0.90**

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	91	0.92				
V2	% Aquatic	100	1.00				
V3	Interspersion	%		%		%	
	Class 1	100	1.00				
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	40	0.55				
V5	Salinity (ppt)						
	fresh		1.00				
	intermediate	2					
V6	Access Value						
	fresh		0.68				
	intermediate	0.60					
		EM HSI =	**0.90**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.90**	**OW HSI =**		**OW HSI =**	

Project: South Lake Salvador Shoreline Protection and Marsh Creation
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: South Lake Salvador Shoreline Protection and Marsh Creation
Area C

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	118	0.61	72.29	
1	110	0.59	64.83	68.53
15	0	0.24	0.00	363.20
20	0	0.24	0.00	0.00
			AAHUs =	**21.59**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	118	0.61	72.29	
1	153	0.93	142.23	105.41
2	256	0.94	239.39	190.72
20	241	0.90	217.38	4109.50
			AAHUs	**220.28**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	220.28
B. Future Without Project Emergent Marsh AAHUs =	21.59
Net Change (FWP - FWOP) =	**198.70**

AAHU CALCULATION - OPEN WATER

Project: South Lake Salvador Shoreline Protection and Marsh Creation Area C

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	146	0.26	38.06	
1	154	0.26	39.78	38.92
15	264	0.23	59.98	706.31
20	264	0.23	59.98	299.90
			AAHUs =	**52.26**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	146	0.26	38.06	
1	6	0.90	5.42	36.74
2	8	0.90	7.23	6.32
20	23	0.90	20.59	250.73
			AAHUs	**14.69**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	14.69
B. Future Without Project Open Water AAHUs =	52.26
Net Change (FWP - FWOP) =	**-37.57**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	198.70
B. Open Water Habitat Net AAHUs =	-37.57
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**122.48**

WETLANDS VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Phase II - Raccoon Island Breakwaters and North Shore Marsh Creation

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Isles Dernieres Restoration - Whiskey Island West Flank

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	87
2	6

TOTAL BENEFITS =	**93**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Whiskey Island West Flank Restoration — Area A　　Project Area: 364

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 15 Value	TY 15 SI
V1	% Emergent	38	0.44	39	0.45	60	0.64
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	37	0.50	38	0.50	59	0.67
	Class 2						
	Class 3						
	Class 4	63		62		41	
	Class 5						
V4	%OW <= 1.5ft	46	0.69	45	0.68	17	0.32
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.59**	**EM HSI =**	**0.60**	**EM HSI =**	**0.74**
	Open Water HSI =		**0.71**	**OW HSI =**	**0.71**	**OW HSI =**	**0.70**

Project: Whiskey Island West Flank Restoration
FWOP

Variable		TY 16 Value	TY 16 SI	TY 20 Value	TY 20 SI	Value	SI
V1	% Emergent	25	0.33	30	0.37		
V2	% Aquatic	0	0.30	0	0.30		
V3	Interspersion	%		%		%	
	Class 1	24	0.39	29	0.43		
	Class 2						
	Class 3						
	Class 4	76		71			
	Class 5						
V4	%OW <= 1.5ft	27	0.45	21	0.37		
V5	Salinity (ppt)	20	1.00	20	1.00		
V6	Access Value	1.00	1.00	1.00	1.00		
		EM HSI =	**0.49**	**EM HSI =**	**0.53**	**EM HSI =**	
		OW HSI =	**0.69**	**OW HSI =**	**0.68**	**OW HSI =**	

Project: Whiskey Island West Flank Restoration
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Whiskey Island West Flank Restoration — Project Area: 364
Area A
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	38	0.44	100	1.00	96	0.96
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	37	0.50	100	1.00	95	0.96
	Class 2						
	Class 3						
	Class 4	63				5	
	Class 5						
V4	%OW <= 1.5ft	46	0.69	0	0.10	100	0.50
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.59**	**EM HSI =**	**1.00**	**EM HSI =**	**0.97**
	Open Water HSI =		**0.71**	**OW HSI =**	**0.71**	**OW HSI =**	**0.73**

Project: Whiskey Island West Flank Restoration
FWP

Variable		TY 15 Value	TY 15 SI	TY 16 Value	TY 16 SI	TY 20 Value	TY 20 SI
V1	% Emergent	80	0.82	57	0.61	51	0.56
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1	79	0.83	56	0.65	50	0.60
	Class 2						
	Class 3						
	Class 4	21		44		50	
	Class 5						
V4	%OW <= 1.5ft	75	1.00	62	0.90	55	0.81
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
		EM HSI =	**0.87**	**EM HSI =**	**0.72**	**EM HSI =**	**0.68**
		OW HSI =	**0.76**	**OW HSI =**	**0.74**	**OW HSI =**	**0.73**

Project: Whiskey Island West Flank Restoration
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Whiskey Island West Flank Restoration
Area A

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	139	0.59	81.71	
1	142	0.60	84.51	83.11
15	218	0.74	161.82	1698.25
16	90	0.49	44.05	97.54
20	111	0.53	58.62	204.80
			AAHUs =	**104.19**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	139	0.59	81.71	
1	91	1.00	91.00	89.65
3	350	0.97	341.06	434.27
15	292	0.87	255.14	3565.54
16	206	0.72	148.72	199.75
20	187	0.68	127.27	551.46
			AAHUs	**242.03**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	242.03
B. Future Without Project Emergent Marsh AAHUs =	104.19
Net Change (FWP - FWOP) =	**137.85**

AAHU CALCULATION - OPEN WATER

Project: Whiskey Island West Flank Restoration
Area A

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	225	0.71	160.52	
1	222	0.71	158.30	159.41
15	146	0.70	102.03	1819.82
16	274	0.69	188.41	145.46
20	253	0.68	173.27	723.33
			AAHUs =	**142.40**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	225	0.71	160.52	
1	0	0.71	0.00	80.02
3	14	0.73	10.27	10.15
15	72	0.76	54.80	387.25
16	158	0.74	116.91	86.16
20	177	0.73	129.16	492.27
			AAHUs	**52.79**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	52.79
B. Future Without Project Open Water AAHUs =	142.40
Net Change (FWP - FWOP) =	**-89.61**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	137.85
B. Open Water Habitat Net AAHUs =	-89.61
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**87.30**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Whiskey Island West Flank Restoration — Project Area: 56
Area B
Condition: Future Without Project

Variable		TY 0		TY 1		TY 15	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	0	0.10	0	0.10	0	0.10
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.10		0.10		0.10
	Class 2						
	Class 3						
	Class 4						
	Class 5	100		100		100	
V4	%OW <= 1.5ft	0	0.10	3	0.14	50	0.74
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.26**	**EM HSI =**	**0.26**	**EM HSI =**	**0.26**
	Open Water HSI =		**0.64**	**OW HSI =**	**0.64**	**OW HSI =**	**0.69**

Project: Whiskey Island West Flank Restoration
FWOP

Variable		TY 16		TY 20			
		Value	SI	Value	SI	Value	SI
V1	% Emergent	0	0.10	0	0.10		
V2	% Aquatic	0	0.30	0	0.30		
V3	Interspersion	%		%		%	
	Class 1		0.10		0.10		
	Class 2						
	Class 3						
	Class 4						
	Class 5	100		100			
V4	%OW <= 1.5ft	0	0.10	12	0.25		
V5	Salinity (ppt)	20	1.00	20	1.00		
V6	Access Value	1.00	1.00	1.00	1.00		
		EM HSI =	**0.26**	**EM HSI =**	**0.26**	**EM HSI =**	
		OW HSI =	**0.64**	**OW HSI =**	**0.65**	**OW HSI =**	

Project: Whiskey Island West Flank Restoration
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Whiskey Island West Flank Restoration
Area B
Condition: Future With Project

Project Area: 56

		TY 0		TY 1		TY 15	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	0	0.10	5	0.15	71	0.74
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.10		0.20	70	0.76
	Class 2						
	Class 3						
	Class 4			100		30	
	Class 5	100					
V4	%OW <= 1.5ft	0	0.10	2	0.13	100	0.50
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.26**	**EM HSI =**	**0.32**	**EM HSI =**	**0.82**
	Open Water HSI =		**0.64**	**OW HSI =**	**0.65**	**OW HSI =**	**0.72**

Project: Whiskey Island West Flank Restoration
FWP

		TY 16		TY 20			
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	0	0.10	20	0.28		
V2	% Aquatic	0	0.30	0	0.30		
V3	Interspersion	%		%		%	
	Class 1		0.10	19	0.35		
	Class 2						
	Class 3						
	Class 4			81			
	Class 5	100					
V4	%OW <= 1.5ft	71	1.00	12	0.25		
V5	Salinity (ppt)	20	1.00	20	1.00		
V6	Access Value	1.00	1.00	1.00	1.00		
		EM HSI =	**0.26**	**EM HSI =**	**0.45**	**EM HSI =**	
		OW HSI =	**0.71**	**OW HSI =**	**0.67**	**OW HSI =**	

Project: Whiskey Island West Flank Restoration
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Whiskey Island West Flank Restoration
Area B

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	0	0.26	0.00	
1	0	0.26	0.00	0.00
15	0	0.26	0.00	0.00
16	0	0.26	0.00	0.00
20	0	0.26	0.00	0.00
			AAHUs =	0.00

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	0	0.26	0.00	
1	3	0.32	0.95	0.45
15	40	0.82	32.62	191.86
16	0	0.26	0.00	12.61
20	11	0.45	4.95	8.50
			AAHUs	10.67

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	10.67
B. Future Without Project Emergent Marsh AAHUs =	0.00
Net Change (FWP - FWOP) =	**10.67**

AAHU CALCULATION - OPEN WATER

Project: Whiskey Island West Flank Restoration
Area B

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	56	0.64	35.86	
1	56	0.64	36.02	35.94
15	56	0.69	38.52	521.77
16	56	0.64	35.86	37.19
20	56	0.65	36.50	144.70
			AAHUs =	**36.98**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	56	0.64	35.86	
1	53	0.65	34.43	35.15
15	16	0.72	11.50	327.48
16	56	0.71	39.59	25.62
20	45	0.67	30.17	139.24
			AAHUs	**26.37**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	26.37
B. Future Without Project Open Water AAHUs =	36.98
Net Change (FWP - FWOP) =	**-10.61**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	10.67
B. Open Water Habitat Net AAHUs =	-10.61
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**5.94**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: GIWW Bank Restoration of Critical Areas in Terrebonne - Increment 1

The WVA for this project includes 1 area. Total benefits for this project are as follows:

Area	AAHUs
1	183

TOTAL BENEFITS =	**183**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: GIWW Bank Stabilization in Critical Areas
Increment 1 - Area G
Condition: Future Without Project

Project Area:
Fresh............ 3,324
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	48	0.53	47	0.52	30	0.37
V2	% Aquatic	25	0.33	25	0.33	20	0.28
V3	Interspersion	%		%		%	
	Class 1		0.34		0.34		0.29
	Class 2	30		30		15	
	Class 3	10		10		15	
	Class 4	60		60		70	
	Class 5						
V4	%OW <= 1.5ft	70	0.89	70	0.89	30	0.44
V5	Salinity (ppt)						
	fresh	1	1.00	1	1.00	1	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.61**	**EM HSI =**	**0.60**	**EM HSI =**	**0.48**
	Open Water HSI	**=**	**0.50**	**OW HSI =**	**0.50**	**OW HSI =**	**0.43**

Project: GIWW Bank Stabilization in Critical Areas
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: GIWW Bank Stabilization in Critical Areas
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: GIWW Bank Stabilization in Critical Areas
Increment 1 - Area G
Condition: Future With Project

Project Area:
Fresh............. 3,324
Intermediate....

		TY 0		**TY 1**		**TY 20**	
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	48	0.53	48	0.53	41	0.47
V2	% Aquatic	25	0.33	30	0.37	65	0.69
V3	Interspersion	%		%		%	
	Class 1		0.34		0.34		0.32
	Class 2	30		30		25	
	Class 3	10		10		10	
	Class 4	60		60		65	
	Class 5						
V4	%OW <= 1.5ft	70	0.89	70	0.89	80	1.00
V5	Salinity (ppt)						
	fresh	1	1.00	1	1.00	1	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.61**	**EM HSI =**	**0.61**	**EM HSI =**	**0.56**
	Open Water HSI	**=**	**0.50**	**OW HSI =**	**0.53**	**OW HSI =**	**0.76**

Project: GIWW Bank Stabilization in Critical Areas
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: GIWW Bank Stabilization in Critical Areas
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: GIWW Bank Stabilization in Critical Areas
Increment 1 - Area G

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1603	0.61	975.52	
1	1571	0.60	945.85	960.65
20	1010	0.48	487.81	13408.22
			AAHUs =	**718.44**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1603	0.61	975.52	
1	1589	0.61	967.00	971.26
20	1376	0.56	771.26	16481.07
			AAHUs	**872.62**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	872.62
B. Future Without Project Emergent Marsh AAHUs =	718.44
Net Change (FWP - FWOP) =	**154.17**

AAHU CALCULATION - OPEN WATER

Project: GIWW Bank Stabilization in Critical Areas
Increment 1 - Area G

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	1721	0.50	860.13	
1	1753	0.50	876.13	868.13
20	2314	0.43	988.87	17846.19
			AAHUs =	**935.72**

Future With Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	1721	0.50	860.13	
1	1735	0.53	926.46	893.22
20	1948	0.76	1475.58	22668.59
			AAHUs	**1178.09**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	1178.09
B. Future Without Project Open Water AAHUs =	935.72
Net Change (FWP - FWOP) =	**242.37**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	154.17
B. Open Water Habitat Net AAHUs =	242.37
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**182.63**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: GIWW Bank Restoration of Critical Areas

Project Area:
Fresh............ 8,092
Intermediate..

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 6 Value	TY 6 SI
V1	% Emergent	55	0.60	53	0.58	48	0.53
V2	% Aquatic	34	0.41	34	0.41	32	0.39
V3	Interspersion	%		%		%	
	Class 1	22	0.45	22	0.45	17	0.41
	Class 2	12		12		12	
	Class 3	13		13		13	
	Class 4	53		53		58	
	Class 5						
V4	%OW <= 1.5ft	73	0.92	70	0.89	55	0.72
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI =		**0.67**	**EM HSI =**	**0.65**	**EM HSI =**	**0.62**
	Open Water HSI =		**0.57**	**OW HSI =**	**0.57**	**OW HSI =**	**0.54**

Project: GIWW Bank Restoration of Critical Areas
FWOP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	30	0.37				
V2	% Aquatic	21	0.29				
V3	Interspersion	%		%		%	
	Class 1	9	0.33				
	Class 2	6					
	Class 3	24					
	Class 4	50					
	Class 5	11					
V4	%OW <= 1.5ft	36	0.51				
V5	Salinity (ppt)						
	fresh	0	1.00				
	intermediate						
V6	Access Value						
	fresh	1.00	1.00				
	intermediate						
		EM HSI =	**0.49**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.44**	**OW HSI =**		**OW HSI =**	

Project: GIWW Bank Restoration of Critical Areas
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: GIWW Bank Restoration of Critical Areas

Project Area:
Fresh............. 8,092
Intermediate....

Condition: Future With Project

		TY 0		TY 1		TY 20	
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	55	0.60	54	0.59	51	0.56
V2	% Aquatic	34	0.41	40	0.46	63	0.67
V3	Interspersion	%		%		%	
	Class 1	22	0.45	22	0.45	22	0.44
	Class 2	12		12		10	
	Class 3	13		13		13	
	Class 4	53		53		55	
	Class 5						
V4	%OW <= 1.5ft	73	0.92	72	0.91	80	1.00
V5	Salinity (ppt)						
	fresh	0	1.00	0	1.00	0	1.00
	intermediate						
V6	Access Value						
	fresh	1.00	1.00	1.00	1.00	1.00	1.00
	intermediate						
	Emergent Marsh HSI	**=**	**0.67**	**EM HSI =**	**0.66**	**EM HSI =**	**0.64**
	Open Water HSI	**=**	**0.57**	**OW HSI =**	**0.61**	**OW HSI =**	**0.75**

Project: GIWW Bank Restoration of Critical Areas
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: GIWW Bank Restoration of Critical Areas
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: GIWW Bank Restoration of Critical Areas

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	4413	0.67	2937.81	
1	4315	0.65	2817.54	2877.47
6	3913	0.62	2411.74	13060.92
20	2437	0.49	1187.85	24753.08
			AAHUs =	**2034.57**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	4413	0.67	2937.81	
1	4392	0.66	2895.86	2916.81
20	4090	0.64	2614.55	52329.73
			AAHUs	**2762.33**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	2762.33
B. Future Without Project Emergent Marsh AAHUs =	2034.57
Net Change (FWP - FWOP) =	**727.75**

AAHU CALCULATION - OPEN WATER

Project: GIWW Bank Restoration of Critical Areas

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	3679	0.57	2101.60	
1	3777	0.57	2148.14	2124.91
6	4179	0.54	2256.87	11022.15
20	5655	0.44	2502.31	33650.28
			AAHUs =	**2339.87**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	3679	0.57	2101.60	
1	3700	0.61	2254.22	2177.78
20	4002	0.75	3021.27	49977.80
			AAHUs	**2607.78**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	2607.78
B. Future Without Project Open Water AAHUs =	2339.87
Net Change (FWP - FWOP) =	**267.91**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	727.75
B. Open Water Habitat Net AAHUs =	267.91
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**579.42**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: **North Lake Mechant Landbridge Restoration**

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	364
2	3

TOTAL BENEFITS =	**367**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: North Lake Mechant Landbridge Protection
Area A
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 6,860

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 9 Value	TY 9 SI
V1	% Emergent	29	0.36	28	0.35	25	0.33
V2	% Aquatic	25	0.33	25	0.33	20	0.28
V3	Interspersion	%		%		%	
	Class 1		0.24		0.24		0.23
	Class 2						
	Class 3	20		20		15	
	Class 4	80		80		85	
	Class 5						
V4	%OW <= 1.5ft	25	0.38	25	0.38	20	0.33
V5	Salinity (ppt)						
	fresh		0.80		0.80		0.60
	intermediate	5		5		6	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI	**=**	**0.45**	**EM HSI =**	**0.44**	**EM HSI =**	**0.40**
	Open Water HSI	**=**	**0.44**	**OW HSI =**	**0.44**	**OW HSI =**	**0.38**

Project: North Lake Mechant Landbridge Protection
FWOP

Variable		TY 10 Value	TY 10 SI	TY 20 Value	TY 20 SI	Value	SI
V1	% Emergent	25	0.33	21	0.29		
V2	% Aquatic	20	0.28	10	0.19		
V3	Interspersion	%		%		%	
	Class 1		0.23		0.22		
	Class 2						
	Class 3	15		10			
	Class 4	85		90			
	Class 5						
V4	%OW <= 1.5ft	20	0.33	10	0.21		
V5	Salinity (ppt)						
	fresh		0.60		0.20		
	intermediate	6		8			
V6	Access Value						
	fresh		1.00		1.00		
	intermediate	1.00		1.00			
		EM HSI =	**0.40**	**EM HSI =**	**0.32**	**EM HSI =**	
		OW HSI =	**0.38**	**OW HSI =**	**0.27**	**OW HSI =**	

Project: North Lake Mechant Landbridge Protection
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: North Lake Mechant Landbridge Protection
Area A
Condition: Future With Project

Project Area:
Fresh.............
Intermediate.... 6,860

Variable		TY 0		TY 1		TY 3	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	29	0.36	32	0.39	36	0.42
V2	% Aquatic	25	0.33	30	0.37	30	0.37
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 20 80	0.24	% 8 12 80	0.29	% 8 12 80	0.29
V4	%OW <= 1.5ft	25	0.38	22	0.35	22	0.35
V5	Salinity (ppt) fresh intermediate	5	0.80	4	1.00	4	1.00
V6	Access Value fresh intermediate	1.00	1.00	0.89	0.91	1.00	1.00
	Emergent Marsh HSI =		0.45	EM HSI =	0.49	EM HSI =	0.52
	Open Water HSI =		0.44	OW HSI =	0.48	OW HSI =	0.49

Project: North Lake Mechant Landbridge Protection
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	29	0.36				
V2	% Aquatic	25	0.33				
V3	Interspersion	%		%		%	
	Class 1		0.26				
	Class 2	8					
	Class 3	12					
	Class 4	80					
	Class 5						
V4	%OW <= 1.5ft	25	0.38				
V5	Salinity (ppt)						
	fresh		0.80				
	intermediate	5					
V6	Access Value						
	fresh		1.00				
	intermediate	1.00					
		EM HSI =	0.45	EM HSI =		EM HSI =	
		OW HSI =	0.44	OW HSI =		OW HSI =	

Project: North Lake Mechant Landbridge Protection
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: North Lake Mechant Landbridge Protection
Area A

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1983	0.45	888.98	
1	1953	0.44	862.00	875.46
9	1729	0.40	686.54	6180.95
10	1698	0.40	674.24	680.39
20	1414	0.32	456.88	5620.54
			AAHUs =	**667.87**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	1983	0.45	888.98	
1	2097	0.49	1029.81	958.58
3	2437	0.52	1275.98	2302.11
20	2018	0.45	908.26	18478.77
			AAHUs	**1086.97**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	1086.97
B. Future Without Project Emergent Marsh AAHUs =	667.87
Net Change (FWP - FWOP) =	**419.11**

AAHU CALCULATION - OPEN WATER

Project: North Lake Mechant Landbridge Protection
Area A

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	4877	0.44	2146.19	
1	4907	0.44	2159.40	2152.79
9	5131	0.38	1975.11	16554.48
10	5162	0.38	1987.04	1981.08
20	5446	0.27	1474.14	17359.99
			AAHUs =	**1902.42**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	4877	0.44	2146.19	
1	4363	0.48	2101.79	2127.56
3	4423	0.49	2167.85	4269.48
20	4842	0.44	2136.53	36645.28
			AAHUs	**2152.12**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	2152.12
B. Future Without Project Open Water AAHUs =	1902.42
Net Change (FWP - FWOP) =	**249.70**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	419.11
B. Open Water Habitat Net AAHUs =	249.70
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**364.46**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: North Lake Mechant Landbridge Protection
Area B
Condition: Future Without Project

Project Area:
Fresh............ 711
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 10 Value	TY 10 SI
V1	% Emergent	10	0.19	10	0.19	10	0.19
V2	% Aquatic	70	0.73	70	0.73	70	0.73
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	35	0.49	35	0.49	35	0.49
V5	Salinity (ppt) fresh intermediate	2	1.00	2	1.00	2	1.00
V6	Access Value fresh intermediate	0.80	0.86	0.80	0.86	0.80	0.86
	Emergent Marsh HSI =		**0.32**	**EM HSI =**	**0.32**	**EM HSI =**	**0.32**
	Open Water HSI =		**0.72**	**OW HSI =**	**0.72**	**OW HSI =**	**0.72**

Project: North Lake Mechant Landbridge Protection
FWOP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	10	0.19				
V2	% Aquatic	65	0.69				
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 100	 0.20	%		%	
V4	%OW <= 1.5ft	35	0.49				
V5	Salinity (ppt) fresh intermediate	3	0.60				
V6	Access Value fresh intermediate	0.80	0.86				
		EM HSI =	0.28	EM HSI =		EM HSI =	
		OW HSI =	0.66	OW HSI =		OW HSI =	

Project: North Lake Mechant Landbridge Protection
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: North Lake Mechant Landbridge Protection
Area B
Condition: Future With Project

Project Area:
Fresh............. 711
Intermediate....

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	10	0.19	10	0.19	10	0.19
V2	% Aquatic	70	0.73	70	0.73	70	0.73
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	35	0.49	35	0.49	35	0.49
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	0.80	0.86	0.80	0.86	0.80	0.86
	intermediate						
	Emergent Marsh HSI =		**0.32**	**EM HSI =**	**0.32**	**EM HSI =**	**0.32**
	Open Water HSI =		**0.72**	**OW HSI =**	**0.72**	**OW HSI =**	**0.72**

Project: North Lake Mechant Landbridge Protection
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: North Lake Mechant Landbridge Protection
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: North Lake Mechant Landbridge Protection
Area B

Future Without Project				
TY	**Marsh Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	74	0.32	23.93	
1	74	0.32	23.93	23.93
10	71	0.32	22.96	211.02
20	68	0.28	18.97	209.43
			AAHUs =	**22.22**

Future With Project				
TY	**Marsh Acres**	**x HSI**	**Total HUs**	**Cummulative HUs**
0	74	0.32	23.93	
1	74	0.32	23.93	23.93
20	68	0.32	21.99	436.26
			AAHUs	**23.01**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	23.01
B. Future Without Project Emergent Marsh AAHUs =	22.22
Net Change (FWP - FWOP) =	**0.79**

AAHU CALCULATION - OPEN WATER

Project: North Lake Mechant Landbridge Protection
Area B

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	637	0.72	456.72	
1	637	0.72	456.72	456.72
10	640	0.72	458.87	4120.16
20	643	0.66	424.25	4415.88
			AAHUs =	**449.64**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	637	0.72	456.72	
1	637	0.72	456.72	456.72
20	643	0.72	461.02	8718.56
			AAHUs	**458.76**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	458.76
B. Future Without Project Open Water AAHUs =	449.64
Net Change (FWP - FWOP) =	**9.13**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	0.79
B. Open Water Habitat Net AAHUs =	9.13
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**3.48**

WETLAND VALUE ASSESSMENT

LAND LOSS CALCULATION WORKSHEET

Project: North Lake Mechant Landbridge Protection - Area A
Date: 26-Sep-00
Total Area: 6,860

Target	FWOP			FWP			
Year	Loss Rate	Acres	%	Loss Rate	Acres	%	Net Acres
0		1,983	29		2,377	35	--
1	1.51	1,953	28	1.13	2,350	34	397
2	1.51	1,924	28	1.13	2,323	34	400
3	1.51	1,895	28	1.13	2,297	33	403
4	1.51	1,866	27	1.13	2,271	33	405
5	1.51	1,838	27	1.13	2,245	33	408
6	1.51	1,810	26	1.13	2,220	32	410
7	1.51	1,783	26	1.13	2,195	32	412
8	1.51	1,756	26	1.13	2,170	32	414
9	1.51	1,729	25	1.13	2,145	31	416
10	1.81	1,698	25	1.13	2,121	31	423
11	1.81	1,667	24	1.13	2,097	31	430
12	1.81	1,637	24	1.13	2,073	30	436
13	1.81	1,607	23	1.13	2,050	30	442
14	1.81	1,578	23	1.13	2,026	30	448
15	1.81	1,550	23	1.13	2,004	29	454
16	1.81	1,522	22	1.13	1,981	29	459
17	1.81	1,494	22	1.13	1,958	29	464
18	1.81	1,467	21	1.13	1,936	28	469
19	1.81	1,441	21	1.13	1,914	28	474
20	1.81	1,414	21	1.13	1,893	28	478
Total Years 1-50		33,628			42,270		
Average Annual Acres		673			845		**173**

WETLANDS VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Shell Island Pass Marsh Creation

No WVA was conducted for this project since it is not recommended for funding.

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Shoreline Protection Cheniere au Tigre to Southwest Pass

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	86
2	46

TOTAL BENEFITS =	132	AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization — Project Area: 252
Area A - Gulf shoreline
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	90	0.91	85	0.87	0	0.10
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1	100	1.00	100	1.00		0.10
	Class 2						
	Class 3						
	Class 4						
	Class 5					100	
V4	%OW <= 1.5ft	90	0.80	90	0.80	2	0.13
V5	Salinity (ppt)	10	1.00	10	1.00	10	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.95**	**EM HSI =**	**0.92**	**EM HSI =**	**0.25**
	Open Water HSI =		**0.40**	**OW HSI =**	**0.40**	**OW HSI =**	**0.29**

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization — Project Area: 252
Area A - Gulf shoreline
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	90	0.91	90	0.91	90	0.91
V2	% Aquatic	0	0.10	0	0.10	0	0.10
V3	Interspersion	%		%		%	
	Class 1	100	1.00	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	90	0.80	90	0.80	90	0.80
V5	Salinity (ppt)	10	1.00	10	1.00	10	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.95**	**EM HSI =**	**0.95**	**EM HSI =**	**0.95**
	Open Water HSI =		**0.40**	**OW HSI =**	**0.40**	**OW HSI =**	**0.40**

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
Area A - Gulf shoreline

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	227	0.95	214.65	
1	214	0.92	196.43	205.48
20	0	0.25	0.00	1416.55
			AAHUs =	**81.10**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	227	0.95	214.65	
1	227	0.95	214.65	214.65
20	227	0.95	214.65	4078.26
			AAHUs	**214.65**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	214.65
B. Future Without Project Emergent Marsh AAHUs =	81.10
Net Change (FWP - FWOP) =	**133.54**

AAHU CALCULATION - OPEN WATER

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
Area A - Gulf shoreline

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	25	0.40	10.07	
1	38	0.40	15.31	12.69
20	252	0.29	72.11	909.50
			AAHUs =	**46.11**

Future With Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	25	0.40	10.07	
1	25	0.40	10.07	10.07
20	25	0.40	10.07	191.32
			AAHUs	**10.07**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	10.07
B. Future Without Project Open Water AAHUs =	46.11
Net Change (FWP - FWOP) =	**-36.04**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	133.54
B. Open Water Habitat Net AAHUs =	-36.04
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6	**86.44**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization — Project Area: 92
Area B
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 5 Value	TY 5 SI
V1	% Emergent	10	0.19	10	0.19	9	0.18
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	80	1.00	80	1.00	80	1.00
V5	Salinity (ppt)	9	1.00	9	1.00	9	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.36**	**EM HSI =**	**0.36**	**EM HSI =**	**0.35**
	Open Water HSI =		**0.71**	**OW HSI =**	**0.71**	**OW HSI =**	**0.71**

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWOP

Variable		TY 10 Value	TY 10 SI	TY 20 Value	TY 20 SI	Value	SI
V1	% Emergent	7	0.16	0	0.10		
V2	% Aquatic	0	0.30	0	0.30		
V3	Interspersion	%		%		%	
	Class 1		0.20		0.10		
	Class 2						
	Class 3						
	Class 4	100					
	Class 5			100			
V4	%OW <= 1.5ft	80	1.00	75	1.00		
V5	Salinity (ppt)	9	1.00	9	1.00		
V6	Access Value	1.00	1.00	1.00	1.00		
		EM HSI =	**0.33**	**EM HSI =**	**0.26**	**EM HSI =**	
		OW HSI =	**0.71**	**OW HSI =**	**0.71**	**OW HSI =**	

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization Area B — Project Area: 92

Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 3 Value	TY 3 SI
V1	% Emergent	10	0.19	100	1.00	99	0.99
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.20	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5ft	80	1.00	80	1.00	80	1.00
V5	Salinity (ppt)	9	1.00	9	1.00	9	1.00
V6	Access Value	1	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.36**	**EM HSI =**	**1.00**	**EM HSI =**	**0.99**
	Open Water HSI =		**0.71**	**OW HSI =**	**0.77**	**OW HSI =**	**0.77**

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	89	0.90				
V2	% Aquatic	0	0.30				
V3	Interspersion	%		%		%	
	Class 1	88	0.90				
	Class 2						
	Class 3						
	Class 4	12					
	Class 5						
V4	%OW <= 1.5ft	80	1.00				
V5	Salinity (ppt)	9	1.00				
V6	Access Value	1.00	1.00				
		EM HSI =	**0.93**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.77**	**OW HSI =**		**OW HSI =**	

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
Area B

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	9	0.36	3.21	
1	9	0.36	3.21	3.21
5	8	0.35	2.79	12.01
10	6	0.33	2.00	11.95
20	0	0.26	0.00	9.26
			AAHUs =	**1.82**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	9	0.36	3.21	
1	30	1.00	30.00	14.36
3	91	0.99	90.52	120.63
20	82	0.93	76.33	1416.60
			AAHUs	**77.58**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	77.58
B. Future Without Project Emergent Marsh AAHUs =	1.82
Net Change (FWP - FWOP) =	**75.76**

AAHU CALCULATION - OPEN WATER

Project: Cheniere au Tigre to Southwest Pass Shoreline Stabilization
Area B

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	83	0.71	59.29	
1	83	0.71	59.29	59.29
5	84	0.71	60.01	238.60
10	86	0.71	61.43	303.60
20	92	0.71	65.04	632.44
			AAHUs =	**61.70**

Future With Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	83	0.71	59.29	
1	0	0.77	0.00	30.47
3	1	0.77	0.77	0.77
20	10	0.77	7.67	71.91
			AAHUs	**5.16**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	5.16
B. Future Without Project Open Water AAHUs =	61.70
Net Change (FWP - FWOP) =	**-56.54**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	75.76
B. Open Water Habitat Net AAHUs =	-56.54
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**46.36**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: **Pecan Island Freshwater Introduction Enlargement**

The WVA for this project includes 1 area. Total benefits for this project are as follows:

Area	AAHUs
1	135

TOTAL BENEFITS =	**135**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Pecan Island Freshwater Introduction Enlargement — Project Area: 10,754

Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	35	0.42	34	0.41	26	0.33
V2	% Aquatic	25	0.33	25	0.33	25	0.33
V3	Interspersion	%		%		%	
	Class 1		0.37		0.37		0.37
	Class 2						
	Class 3	85		85		85	
	Class 4	15		15		15	
	Class 5						
V4	%OW <= 1.5ft	35	0.55	35	0.55	35	0.55
V5	Salinity (ppt)	3.6	1.00	3.6	1.00	3.6	1.00
V6	Access Value	0.51	0.56	0.51	0.56	0.51	0.56
	Emergent Marsh HSI =		**0.50**	EM HSI =	**0.49**	EM HSI =	**0.44**
	Open Water HSI =		**0.46**	OW HSI =	**0.46**	OW HSI =	**0.46**

Project: Pecan Island Freshwater Introduction Enlargement
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Pecan Island Freshwater Introduction Enlargement
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: Pecan Island Freshwater Introduction Enlargement   Project Area: 10,754

Condition: Future With Project

Variable		TY 0		TY 1		TY 20	
		Value	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	35	0.42	34	0.41	28	0.35
V2	% Aquatic	25	0.33	35	0.42	35	0.42
V3	Interspersion	%		%		%	
	Class 1		0.37		0.37		0.37
	Class 2						
	Class 3	85		85		85	
	Class 4	15		15		15	
	Class 5						
V4	%OW <= 1.5ft	35	0.55	35	0.55	35	0.55
V5	Salinity (ppt)	3.6	1.00	2.6	1.00	2.6	1.00
V6	Access Value	0.51	0.56	0.51	0.56	0.51	0.56
	Emergent Marsh HSI =		**0.50**	**EM HSI =**	**0.49**	**EM HSI =**	**0.46**
	Open Water HSI =		**0.46**	**OW HSI =**	**0.51**	**OW HSI =**	**0.51**

Project: Pecan Island Freshwater Introduction Enlargement
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Pecan Island Freshwater Introduction Enlargement
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Pecan Island Freshwater Introduction Enlargement

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	3726	0.50	1855.43	
1	3673	0.49	1807.80	1831.56
20	2793	0.44	1242.28	28843.65
			AAHUs =	**1533.76**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	3726	0.50	1855.43	
1	3686	0.49	1814.20	1834.77
20	3005	0.46	1372.80	30200.22
			AAHUs	**1601.75**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs	1601.75
B. Future Without Project Emergent Marsh AAHUs	1533.76
Net Change (FWP - FWOP) =	**67.99**

AAHU CALCULATION - OPEN WATER

Project: Pecan Island Freshwater Introduction Enlargement

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	7028	0.46	3206.49	
1	7081	0.46	3230.67	3218.58
20	7961	0.46	3632.16	65196.89
			AAHUs =	**3420.77**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	7028	0.46	3206.49	
1	7068	0.51	3575.35	3390.59
20	7749	0.51	3919.84	71204.31
			AAHUs	**3729.75**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	3729.75
B. Future Without Project Open Water AAHUs =	3420.77
Net Change (FWP - FWOP) =	**308.97**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	67.99
B. Open Water Habitat Net AAHUs =	308.97
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6	**134.93**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: **Rockefeller Refuge Gulf Shoreline Stabilization: Beach Prong to Joseph Harbor**

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1	342
2	2

TOTAL BENEFITS =	**344**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Rockefeller Refuge Gulf Shoreline Stabilization
Area A
Project Area: 908

Condition: Future Without Project

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	95	0.96	90	0.91	0	0.10
V2	% Aquatic	10	0.37	9	0.36	0	0.30
V3	Interspersion	%		%		%	
	Class 1	100	1.00	94	0.95		0.10
	Class 2						
	Class 3						
	Class 4			6			
	Class 5					100	
V4	%OW <= 1.5ft	20	0.36	19	0.34	0	0.10
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.97**	**EM HSI =**	**0.94**	**EM HSI =**	**0.26**
	Open Water HSI =		**0.76**	**OW HSI =**	**0.75**	**OW HSI =**	**0.64**

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Rockefeller Refuge Gulf Shoreline Stabilization Area A | Project Area: 908

Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	95	0.96	95	0.96	95	0.96
V2	% Aquatic	10	0.37	10	0.37	10	0.37
V3	Interspersion	%		%		%	
	Class 1	100	1.00	100	1.00	100	1.00
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	20	0.36	20	0.36	20	0.36
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.97**	**EM HSI =**	**0.97**	**EM HSI =**	**0.97**
	Open Water HSI =		**0.76**	**OW HSI =**	**0.76**	**OW HSI =**	**0.76**

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Rockefeller Refuge Gulf Shoreline Stabilization
Area A

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	863	0.97	840.22	
1	818	0.94	770.19	804.96
20	0	0.26	0.00	5552.74
			AAHUs =	**317.89**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	863	0.97	840.22	
1	863	0.97	840.22	840.22
20	863	0.97	840.22	15964.11
			AAHUs	**840.22**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	840.22
B. Future Without Project Emergent Marsh AAHUs =	317.89
Net Change (FWP - FWOP) =	**522.33**

AAHU CALCULATION - OPEN WATER

Project: Rockefeller Refuge Gulf Shoreline Stabilization
Area A

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	45	0.76	34.20	
1	90	0.75	67.71	51.01
20	908	0.64	581.38	6456.65
			AAHUs =	**325.38**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	45	0.76	34.20	
1	45	0.76	34.20	34.20
20	45	0.76	34.20	649.84
			AAHUs	**34.20**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	34.20
B. Future Without Project Open Water AAHUs =	325.38
Net Change (FWP - FWOP) =	**-291.18**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	522.33
B. Open Water Habitat Net AAHUs =	-291.18
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**341.55**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Rockefeller Refuge Gulf Shoreline Stabilization — Project Area: 465
Area B
Condition: Future Without Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	0	0.10	0	0.10	0	0.10
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.10		0.10		0.10
	Class 2						
	Class 3						
	Class 4						
	Class 5	100		100		100	
V4	%OW <= 1.5ft	0	0.10	0	0.10	0	0.10
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
	Emergent Marsh HSI =		**0.26**	**EM HSI =**	**0.26**	**EM HSI =**	**0.26**
	Open Water HSI =		**0.64**	**OW HSI =**	**0.64**	**OW HSI =**	**0.64**

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Saline Marsh

Project: Rockefeller Refuge Gulf Shoreline Stabilization Area B

Project Area: 465

Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 5 Value	TY 5 SI
V1	% Emergent	0	0.10	0	0.10	3	0.13
V2	% Aquatic	0	0.30	0	0.30	0	0.30
V3	Interspersion	%		%		%	
	Class 1		0.10		0.10		0.20
	Class 2						
	Class 3						
	Class 4					100	
	Class 5	100		100			
V4	%OW <= 1.5ft	0	0.10	0	0.10	6	0.18
V5	Salinity (ppt)	20	1.00	20	1.00	20	1.00
V6	Access Value	1.00	1.00	0.90	0.91	0.90	0.91
	Emergent Marsh HSI =		**0.26**	**EM HSI =**	**0.26**	**EM HSI =**	**0.29**
	Open Water HSI =		**0.64**	**OW HSI =**	**0.60**	**OW HSI =**	**0.62**

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	12	0.21				
V2	% Aquatic	0	0.30				
V3	Interspersion	%		%		%	
	Class 1		0.20				
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5ft	28	0.46				
V5	Salinity (ppt)	20	1.00				
V6	Access Value	0.90	0.91				
		EM HSI =	**0.37**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.64**	**OW HSI =**		**OW HSI =**	

Project: Rockefeller Refuge Gulf Shoreline Stabilization
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Rockefeller Refuge Gulf Shoreline Stabilization
Area B

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	0	0.26	0.00	
1	0	0.26	0.00	0.00
20	0	0.26	0.00	0.00
			AAHUs =	0.00

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	0	0.26	0.00	
1	0	0.26	0.00	0.00
5	14	0.29	4.13	7.91
20	57	0.37	20.94	180.21
			AAHUs	9.41

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	9.41
B. Future Without Project Emergent Marsh AAHUs =	0.00
Net Change (FWP - FWOP) =	**9.41**

AAHU CALCULATION - OPEN WATER

Project: Rockefeller Refuge Gulf Shoreline Stabilization
Area B

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	465	0.64	297.73	
1	465	0.64	297.73	297.73
20	465	0.64	297.73	5656.89
			AAHUs =	297.73

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	465	0.64	297.73	
1	465	0.60	281.03	289.38
5	451	0.62	278.49	1119.15
20	408	0.64	260.48	4044.52
			AAHUs	272.65

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	272.65
B. Future Without Project Open Water AAHUs =	297.73
Net Change (FWP - FWOP) =	**-25.08**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	9.41
B. Open Water Habitat Net AAHUs =	-25.08
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**1.74**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: Grand-White Lake Landbridge Protection Project

The WVA for this project includes 1 area. Total benefits for this project are as follows:

Area	AAHUs
1	38

TOTAL BENEFITS = 38 AAHUS

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand/White Lakes Landbridge Protection
Option A-Rock Breakwaters
Condition: Future Without Project

Project Area:
Fresh............ 1,530
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 15 Value	TY 15 SI
V1	% Emergent	29	0.36	29	0.36	17	0.25
V2	% Aquatic	3	0.13	3	0.13	3	0.13
V3	Interspersion	%		%		%	
	Class 1		0.20	35	0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5f	4	0.15	4	0.15	4	0.15
V5	Salinity (ppt)						
	fresh	1	1.00	1	1.00	1	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI		**0.42**	**EM HSI =**	**0.42**	**EM HSI =**	**0.34**
	Open Water HSI	**=**	**0.23**	**OW HSI =**	**0.23**	**OW HSI =**	**0.23**

Project: Grand/White Lakes Landbridge Protection
Option A-Rock Breakwaters
Condition: Future Without Project

Project Area:
Fresh............ 1,530
Intermediate..

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	14	0.23				
V2	% Aquatic	1	0.11				
V3	Interspersion	%		%		%	
	Class 1		0.20				
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5f	2	0.12				
V5	Salinity (ppt)						
	fresh	1	1.00				
	intermediate						
V6	Access Value						
	fresh	0.10	0.37				
	intermediate						
	Emergent Marsh HSI		**0.42**	**EM HSI =**		**EM HSI =**	
	Open Water HSI	**=**	**0.23**	**OW HSI =**		**OW HSI =**	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand/White Lakes Landbridge Protection
Option A-Rock Breakwaters
Condition: Future With Project

Project Area:
Fresh............ 1,530
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 10 Value	TY 10 SI
V1	% Emergent	29	0.36	30	0.37	30	0.37
V2	% Aquatic	3	0.13	3	0.13	5	0.15
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	4	0.15	5	0.16	3	0.13
V5	Salinity (ppt)						
	fresh	1	1.00	1	1.00	1	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI		**0.42**	**EM HSI =**	**0.42**	**EM HSI =**	**0.42**
	Open Water HSI	**=**	**0.23**	**OW HSI =**	**0.23**	**OW HSI =**	**0.24**

Project: Grand/White Lakes Landbridge Protection
Option A-Rock Breakwaters
Condition: Future With Project

Project Area:
Fresh............ 1,530
Intermediate..

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	28	0.35				
V2	% Aquatic	3	0.13				
V3	Interspersion	%		%		%	
	Class 1		0.20				
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5ft	3	0.13				
V5	Salinity (ppt)						
	fresh	1	1.00				
	intermediate						
V6	Access Value						
	fresh	0.10	0.37				
	intermediate						
	Emergent Marsh HSI		**0.41**	**EM HSI =**		**EM HSI =**	
	Open Water HSI	**=**	**0.23**	**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Grand/White Lakes Landbridge Protection
Option A-Rock Breakwaters

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	451	0.42	187.28	
1	441	0.42	183.13	185.21
15	267	0.34	91.58	1893.61
20	216	0.32	70.02	403.19
			AAHUs =	**124.10**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	451	0.26	187.28	
1	460	0.42	193.71	190.49
10	458	0.42	182.87	1739.61
20	429	0.41	175.63	1841.93
			AAHUs	**188.60**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	188.60
B. Future Without Project Emergent Marsh AAHUs =	124.10
Net Change (FWP - FWOP) =	**64.50**

AAHU CALCULATION - OPEN WATER

Project: Grand/White Lakes Landbridge Protection
Option A-Rock Breakwaters

Future Without Project			**Total**	**Cummulative**
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	1079	0.23	246.75	
1	1089	0.23	249.75	247.89
15	1263	0.23	288.82	3764.99
20	1314	0.21	279.93	1422.55
			AAHUs =	**271.77**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1079	0.23	246.75	
1	1070	0.23	245.58	246.16
10	1072	0.24	258.71	2269.27
20	1101	0.23	250.86	2548.50
			AAHUs	**253.20**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	253.20
B. Future Without Project Open Water AAHUs =	271.77
Net Change (FWP - FWOP) =	**-18.57**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	64.50
B. Open Water Habitat Net AAHUs =	-18.57
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**37.70**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand/White Lakes Landbridge Protection
Option B-A-Jacks
Condition: Future Without Project

Project Area:
Fresh............ 1,530
Intermediate..

		TY 0		TY 1		TY 15	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	29	0.36	29	0.36	17	0.25
V2	% Aquatic	3	0.13	3	0.13	3	0.13
V3	Interspersion	%		%		%	
	Class 1		0.20	35	0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5f	4	0.15	4	0.15	4	0.15
V5	Salinity (ppt)						
	fresh	1	1.00	1	1.00	1	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI		**0.42**	**EM HSI =**	**0.42**	**EM HSI =**	**0.34**
	Open Water HSI	**=**	**0.23**	**OW HSI =**	**0.23**	**OW HSI =**	**0.23**

Project: Grand/White Lakes Landbridge Protection
FWOP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	14	0.23				
V2	% Aquatic	1	0.11				
V3	Interspersion	%		%		%	
	Class 1		0.20				
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5f	2	0.12				
V5	Salinity (ppt)						
	fresh	1	1.00				
	intermediate						
V6	Access Value						
	fresh	0.10	0.37				
	intermediate						
	Emergent Marsh HSI		0.42	EM HSI =		EM HSI =	
	Open Water HSI	=	0.23	OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand/White Lakes Landbridge Protection
Option B-A-Jacks
Condition: Future With Project

Project Area:
Fresh............ 1,530
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 10 Value	TY 10 SI
V1	% Emergent	29	0.36	30	0.37	28	0.35
V2	% Aquatic	3	0.13	3	0.13	5	0.15
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5f	4	0.15	5	0.16	3	0.16
V5	Salinity (ppt)						
	fresh	1	1.00	1	1.00	1	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI		0.42	EM HSI =	0.42	EM HSI =	0.41
	Open Water HSI	=	0.23	OW HSI =	0.23	OW HSI =	0.24

Project: Grand/White Lakes Landbridge Protection
Option B-A-Jacks

FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	28	0.33				
V2	% Aquatic	4	0.14				
V3	Interspersion	%		%		%	
	Class 1		0.20				
	Class 2						
	Class 3						
	Class 4	100					
	Class 5						
V4	%OW <= 1.5f	6	0.17				
V5	Salinity (ppt)						
	fresh	1	1.00				
	intermediate						
V6	Access Value						
	fresh	0.10	0.37				
	intermediate						
	Emergent Marsh HSI		**0.40**	**EM HSI =**		**EM HSI =**	
	Open Water HSI	**=**	**0.24**	**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Grand/White Lakes Landbridge Protection
Option B-A-Jacks

Future Without Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	451	0.42	187.28	
1	441	0.42	183.13	185.21
15	267	0.34	91.58	1893.61
20	216	0.32	70.02	403.19
			AAHUs =	**124.10**

Future With Project			**Total**	**Cummulative**
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	451	0.42	187.28	
1	459	0.42	193.29	190.28
10	435	0.41	178.09	1670.78
20	396	0.40	157.44	1676.88
			AAHUs	**176.90**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	176.90
B. Future Without Project Emergent Marsh AAHUs =	124.10
Net Change (FWP - FWOP) =	**52.80**

AAHU CALCULATION - OPEN WATER

Project: Grand/White Lakes Landbridge Protection
Option B-A-Jacks

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1079	0.23	246.75	
1	1089	0.23	249.03	247.89
15	1263	0.23	288.82	3764.99
20	1314	0.21	279.93	1422.55
			AAHUs =	**271.77**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1079	0.23	246.75	
1	1071	0.23	245.81	246.28
10	1095	0.24	266.09	2303.04
20	1134	0.23	268.92	2675.43
			AAHUs	**261.24**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	261.24
B. Future Without Project Open Water AAHUs =	271.77
Net Change (FWP - FWOP) =	**-10.53**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	52.80
B. Open Water Habitat Net AAHUs =	-1053.00
Net Benefits= (3.5xEMAAHUs+OWAAHUs)/4.5	**32.37**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: **Grand Lake Shoreline Stabilization - Superior Canal to Tebo Point - Increment 1**

The WVA for this project includes 1 area. Total benefits for this project are as follows:

Area	AAHUs
1	142

TOTAL BENEFITS =	**142**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 1 - Breakwater Only - Superior Canal to Tebo Point
Condition: Future Without Project

Project Area:
Fresh............ 1,162
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	38	0.44	36	0.42	0	0.10
V2	% Aquatic	10	0.19	10	0.19	8	0.17
V3	Interspersion	%		%		%	
	Class 1	35	0.48	35	0.48		0.10
	Class 2						
	Class 3						
	Class 4	65		65			
	Class 5					100	
V4	%OW <= 1.5ft	14	0.26	13	0.25	8	0.19
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI =		**0.50**	**EM HSI =**	**0.49**	**EM HSI =**	**0.22**
	Open Water HSI =		**0.30**	**OW HSI =**	**0.30**	**OW HSI =**	**0.26**

Project: Grand Lake Shoreline Protection/Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Grand Lake Shoreline Protection/Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 1 - Breakwater Only - Superior Canal to Tebo Point
Condition: Future With Project

Project Area:
Fresh............. 1,162
Intermediate....

		TY 0		TY 1		TY 5	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	38	0.44	38	0.44	39	0.45
V2	% Aquatic	10	0.19	15	0.24	60	0.64
V3	Interspersion	%		%		%	
	Class 1	35	0.48	35	0.48	35	0.48
	Class 2						
	Class 3						
	Class 4	65		65		65	
	Class 5						
V4	%OW <= 1.5ft	14	0.26	14	0.26	14	0.26
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI =		**0.50**	**EM HSI =**	**0.50**	**EM HSI =**	**0.50**
	Open Water HSI =		**0.30**	**OW HSI =**	**0.33**	**OW HSI =**	**0.56**

Project: Grand Lake Shoreline Protection/Marsh Creation
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	43	0.49				
V2	% Aquatic	80	0.82				
V3	Interspersion	%		%		%	
	Class 1	35	0.48				
	Class 2						
	Class 3						
	Class 4	65					
	Class 5						
V4	%OW <= 1.5ft	15	0.27				
V5	Salinity (ppt)						
	fresh	2	1.00				
	intermediate						
V6	Access Value						
	fresh	0.10	0.37				
	intermediate						
		EM HSI =	**0.53**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.65**	**OW HSI =**		**OW HSI =**	

Project: Grand Lake Shoreline Protection/Marsh Creation
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 1 - Breakwater Only - Superior Canal to Tebo Point

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	445	0.50	221.69	
1	423	0.49	205.92	213.77
20	0	0.22	0.00	1597.47
			AAHUs =	**90.56**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	445	0.50	221.69	
1	447	0.50	222.69	222.19
5	455	0.50	229.25	903.84
20	495	0.53	260.50	3670.87
			AAHUs	**239.85**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	239.85
B. Future Without Project Emergent Marsh AAHUs =	90.56
Net Change (FWP - FWOP) =	**149.28**

AAHU CALCULATION - OPEN WATER

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 1 - Breakwater Only - Superior Canal to Tebo Point

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	717	0.30	217.45	
1	739	0.30	223.50	220.48
20	1162	0.26	299.30	5026.70
			AAHUs =	**262.36**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	717	0.30	217.45	
1	715	0.33	238.41	227.94
5	707	0.56	397.87	1273.79
20	667	0.65	435.05	6255.86
			AAHUs	**387.88**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	387.88
B. Future Without Project Open Water AAHUs =	262.36
Net Change (FWP - FWOP) =	**125.52**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	149.28
B. Open Water Habitat Net AAHUs =	125.52
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**141.62**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 3 - Breakwaters Only - Tebo Pt. To Mouth of Merm.
Condition: Future Without Project

Project Area:
Fresh............ 1,080
Intermediate..

		TY 0		TY 1		TY 10	
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	7	0.16	7	0.16	5	0.15
V2	% Aquatic	20	0.28	20	0.28	10	0.19
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	1	0.11	1	0.11	1	0.11
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI =		**0.28**	**EM HSI =**	**0.28**	**EM HSI =**	**0.27**
	Open Water HSI =		**0.33**	**OW HSI =**	**0.33**	**OW HSI =**	**0.27**

Project: Grand Lake Shoreline Protection/Marsh Creation
FWOP

		TY 20					
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	0	0.10				
V2	% Aquatic	10	0.19				
V3	Interspersion	%		%		%	
	Class 1		0.10				
	Class 2						
	Class 3						
	Class 4						
	Class 5	100					
V4	%OW <= 1.5ft	1	0.11				
V5	Salinity (ppt)						
	fresh	2	1.00				
	intermediate						
V6	Access Value						
	fresh	0.10	0.37				
	intermediate						
		EM HSI =	**0.22**	**EM HSI =**		**EM HSI =**	
		OW HSI =	**0.26**	**OW HSI =**		**OW HSI =**	

Project: Grand Lake Shoreline Protection/Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 3 - Breakwaters Only - Tebo Pt. To Mouth of Merm.
Condition: Future With Project

Project Area:
Fresh............. 1,080
Intermediate....

		TY 0		TY 1		TY 20	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	7	0.16	7	0.16	5	0.15
V2	% Aquatic	20	0.28	25	0.33	50	0.55
V3	Interspersion	%		%		%	
	Class 1		0.20		0.20		0.20
	Class 2						
	Class 3						
	Class 4	100		100		100	
	Class 5						
V4	%OW <= 1.5ft	1	0.11	1	0.11	1	0.11
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI =		**0.28**	**EM HSI =**	**0.28**	**EM HSI =**	**0.27**
	Open Water HSI =		**0.33**	**OW HSI =**	**0.36**	**OW HSI =**	**0.48**

Project: Grand Lake Shoreline Protection/Marsh Creation
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: Grand Lake Shoreline Protection/Marsh Creation
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 3 - Breakwaters Only - Tebo Pt. To Mouth of Merm.

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	80	0.28	22.29	
1	77	0.28	21.46	21.88
10	53	0.27	14.05	159.32
20	0	0.22	0.00	66.19
			AAHUs =	**12.37**

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	80	0.28	22.29	
1	79	0.28	22.02	22.15
20	56	0.27	14.85	349.23
			AAHUs	**18.57**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	18.57
B. Future Without Project Emergent Marsh AAHUs =	12.37
Net Change (FWP - FWOP) =	**6.20**

AAHU CALCULATION - OPEN WATER

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 3 - Breakwaters Only - Tebo Pt. To Mouth of Merm.

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1000	0.33	330.62	
1	1003	0.33	331.61	331.12
10	1027	0.27	279.04	2750.05
20	1080	0.26	285.44	2823.02
			AAHUs =	**295.21**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	1000	0.33	330.62	
1	1001	0.36	358.59	344.60
20	1024	0.48	496.18	8111.12
			AAHUs	**422.79**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	422.79
B. Future Without Project Open Water AAHUs =	295.21
Net Change (FWP - FWOP) =	**127.58**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	6.20
B. Open Water Habitat Net AAHUs =	127.58
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**45.35**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: **Grand Lake Shoreline Stabilization - Superior Canal to Tebo Point - Increment 2**

The WVA for this project includes 1 area. Total benefits for this project are as follows:

Area	AAHUs
1	473

TOTAL BENEFITS =	**473**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 2 - Breakwater/MC - Superior Canal to Tebo Point
Condition: Future Without Project

Project Area:
Fresh............ 1,162
Intermediate..

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	38	0.44	36	0.42	0	0.10
V2	% Aquatic	10	0.19	10	0.19	8	0.17
V3	Interspersion	%		%		%	
	Class 1	35	0.48	35	0.48		0.10
	Class 2						
	Class 3						
	Class 4	65		65			
	Class 5					100	
V4	%OW <= 1.5ft	14	0.26	13	0.25	8	0.19
V5	Salinity (ppt)						
	fresh	2	1.00	2	1.00	2	1.00
	intermediate						
V6	Access Value						
	fresh	0.10	0.37	0.10	0.37	0.10	0.37
	intermediate						
	Emergent Marsh HSI =		**0.50**	**EM HSI =**	**0.49**	**EM HSI =**	**0.22**
	Open Water HSI =		**0.30**	**OW HSI =**	**0.30**	**OW HSI =**	**0.26**

Project: Grand Lake Shoreline Protection/Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: Grand Lake Shoreline Protection/Marsh Creation
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 2 - Breakwater/MC - Superior Canal to Tebo Point
Condition: Future With Project

Project Area:
Fresh............ 1,162
Intermediate..

Variable		TY 0		TY 1		TY 2	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	38	0.44	99	0.99	99	0.99
V2	% Aquatic	10	0.19	100	1.00	100	1.00
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 35 65	 0.48	% 100	 1.00	% 100	 1.00
V4	%OW <= 1.5ft	14	0.26	100	0.60	100	0.60
V5	Salinity (ppt) fresh intermediate	2	1.00	2	1.00	2	1.00
V6	Access Value fresh intermediate	0.10	0.37	EM = 0.08 OW = 0.1	0.37 0.36	EM = 0.08 OW = 0.1	0.37 0.36
	Emergent Marsh HSI =		**0.50**	**EM HSI =**	**0.88**	**EM HSI =**	**0.88**
	Open Water HSI =		**0.30**	**OW HSI =**	**0.80**	**OW HSI =**	**0.80**

Project: Grand Lake Shoreline Protection/Marsh Creation
FWP

Variable		TY 20 Value	TY 20 SI	Value	SI	Value	SI
V1	% Emergent	87	0.88				
V2	% Aquatic	100	1.00				
V3	Interspersion	%		%		%	
	Class 1	100	1.00				
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft	100	0.60				
V5	Salinity (ppt)						
	fresh	2	1.00				
	intermediate						
V6	Access Value						
	fresh	EM = 0.08	0.37				
	intermediat	OW = 0.1	0.36				
		EM HSI =	0.82	EM HSI =		EM HSI =	
		OW HSI =	0.80	OW HSI =		OW HSI =	

Project: Grand Lake Shoreline Protection/Marsh Creation
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 2 - Breakwater/MC - Superior Canal to Tebo Point

Future Without Project TY	Marsh Acres	x HSI	Total HUs	Cummulative HUs
0	445	0.50	221.69	
1	423	0.49	205.92	213.77
20	0	0.22	0.00	1597.47
			AAHUs =	90.56

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	445	0.50	221.69	
1	622	0.88	545.05	372.22
2	1153	0.88	1010.35	777.70
20	1011	0.82	825.30	16495.31
			AAHUs	882.26

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs	882.26
B. Future Without Project Emergent Marsh AAHUs	90.56
Net Change (FWP - FWOP) =	**791.70**

AAHU CALCULATION - OPEN WATER

Project: Grand Lake Shoreline Protection/Marsh Creation
Increment 2 - Breakwater/MC - Superior Canal to Tebo Point

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	717	0.30	217.45	
1	739	0.30	223.50	220.48
20	1162	0.26	299.30	5026.70
			AAHUs =	262.36

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	717	0.30	217.45	
1	9	0.80	7.16	170.33
2	9	0.80	7.16	7.16
20	151	0.80	120.05	1144.88
			AAHUs	66.12

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	66.12
B. Future Without Project Open Water AAHUs =	262.36
Net Change (FWP - FWOP) =	**-196.24**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	791.70
B. Open Water Habitat Net AAHUs =	-196.24
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**473.01**

WETLAND VALUE ASSESSMENT

MULTIPLE AREA BENEFITS SUMMARY SHEET

Project: **East Sabine Lake Hydrologic Restoration**

The WVA for this project includes 2 areas. Total benefits for this project are as follows:

Area	AAHUs
1 (with terraces)	677
2	(47)

TOTAL BENEFITS =	**630**	**AAHUS**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: East Sabine Lake Hydrologic Restoration Project
Area A - Terrace Increment
Condition: Future Without Project

Project Area:
Fresh.............
Intermediate.. 32,389

Variable		TY 0		TY 1		TY 20	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	53.8	0.58	53.7	0.58	52	0.57
V2	% Aquatic	25	0.33	25	0.33	25	0.33
V3	Interspersion	%		%		%	
	Class 1		0.38		0.38		0.38
	Class 2	25		25		25	
	Class 3	40		40		40	
	Class 4	35		35		35	
	Class 5						
V4	%OW <= 1.5ft	75	0.94	75	0.94	75	0.94
V5	Salinity (ppt)						
	fresh		0.54		0.54		0.54
	intermediate	6.3		6.3		6.3	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediat	1.00		1.00		1.00	
	Emergent Marsh HSI	**=**	**0.60**	**EM HSI =**	**0.60**	**EM HSI =**	**0.59**
	Open Water HSI	**=**	**0.47**	**OW HSI =**	**0.47**	**OW HSI =**	**0.47**

Project: East Sabine Lake Hydrologic Restoration Project
FWOP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: East Sabine Lake Hydrologic Restoration Project
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: East Sabine Lake Hydrologic Restoration Project
Area A - Terrace Increment
Condition: Future With Project

Project Area:
Fresh............
Intermediate.. 32,389

Variable		TY 0		TY 1		TY 2	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	53.8	0.58	53.8	0.58	53.7	0.58
V2	% Aquatic	25	0.33	35	0.42	37	0.43
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	% 25 40 35	0.38	% 25 40 35	0.38	% 25 40 35	0.38
V4	%OW <= 1.5ft	75	0.94	75	0.94	77	0.97
V5	Salinity (ppt) fresh intermediate	6.3	0.54	4.3	0.94	4.3	0.94
V6	Access Value fresh intermediat	1.00	1.00	0.60	0.68	0.60	0.68
	Emergent Marsh HSI	**=**	**0.60**	**EM HSI =**	**0.61**	**EM HSI =**	**0.61**
	Open Water HSI	**=**	**0.47**	**OW HSI =**	**0.53**	**OW HSI =**	**0.55**

Project: East Sabine Lake Hydrologic Restoration Project
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	53	0.58				
V2	% Aquatic	45	0.51				
V3	Interspersion	%		%		%	
	Class 1		0.38				
	Class 2	25					
	Class 3	40					
	Class 4	35					
	Class 5						
V4	%OW <= 1.5ft	75	0.94				
V5	Salinity (ppt)						
	fresh		0.94				
	intermediate	4.3					
V6	Access Value						
	fresh		0.68				
	intermediat	0.60					
		EM HSI =	0.61	EM HSI =		EM HSI =	
		OW HSI =	0.59	OW HSI =		OW HSI =	

Project: East Sabine Lake Hydrologic Restoration Project
FWP

Variable							
		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: East Sabine Lake Hydrologic Restoration Project
Area A - Terrace Increment

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	17415	0.60	10434.80	
1	17380	0.60	10402.74	10418.76
20	16731	0.59	9832.37	192211.16
			AAHUs =	10131.50

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	17415	0.60	10434.80	
1	17411	0.61	10669.15	10551.98
2	17400	0.61	10651.99	10660.57
20	17002	0.61	10337.04	188896.33
			AAHUs	**10505.44**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs	10505.44
B. Future Without Project Emergent Marsh AAHUs	10131.50
Net Change (FWP - FWOP) =	**373.95**

AAHU CALCULATION - OPEN WATER

Project: East Sabine Lake Hydrologic Restoration Project
Area A - Terrace Increment

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	14974	0.47	7080.34	
1	15009	0.47	7096.89	7088.61
20	15658	0.47	7403.76	137756.18
			AAHUs =	**7242.24**

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	14974	0.47	7080.34	
1	14953	0.53	7969.69	7525.22
2	14989	0.55	8191.02	8080.28
20	15387	0.59	9092.45	155498.20
			AAHUs	**8555.18**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	8555.18
B. Future Without Project Open Water AAHUs =	7242.24
Net Change (FWP - FWOP) =	**1312.95**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	373.95
B. Open Water Habitat Net AAHUs =	1312.95
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1	**676.85**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: East Sabine Lake Hydrologic Restoration Project
Area A
Condition: Future Without Project

Project Area:
Fresh............
Intermediate.. 32,389

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	53.8	0.58	53.7	0.58	51.7	0.57
V2	% Aquatic	25	0.33	25	0.33	25	0.33
V3	Interspersion	%		%		%	
	Class 1		0.38		0.38		0.38
	Class 2	25		25		25	
	Class 3	40		40		40	
	Class 4	35		35		35	
	Class 5						
V4	%OW <= 1.5ft	75	0.94	75	0.94	75	0.94
V5	Salinity (ppt)						
	fresh		0.54		0.54		0.54
	intermediate	6.3		6.3		6.3	
V6	Access Value						
	fresh		1.00		1.00		1.00
	intermediate	1.00		1.00		1.00	
	Emergent Marsh HSI =		**0.60**	**EM HSI =**	**0.60**	**EM HSI =**	**0.59**
	Open Water HSI =		**0.47**	**OW HSI =**	**0.47**	**OW HSI =**	**0.47**

Project: East Sabine Lake Hydrologic Restoration Project
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: East Sabine Lake Hydrologic Restoration Project
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
	fresh						
	intermediate						
V6	Access Value						
	fresh						
	intermediate						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project: East Sabine Lake Hydrologic Restoration Project
Area A
Condition: Future With Project

Project Area:
Fresh.............
Intermediate.... 32,389

		TY 0		TY 1		TY 20	
Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent	53.8	0.58	53.7	0.58	52.3	0.57
V2	% Aquatic	25	0.33	30	0.37	40	0.46
V3	Interspersion	%		%		%	
	Class 1		0.38		0.38		0.38
	Class 2	25		25		25	
	Class 3	40		40		40	
	Class 4	35		35		35	
	Class 5						
V4	%OW <= 1.5ft	75	0.94	75	0.94	77	0.97
V5	Salinity (ppt)						
	fresh		0.54		0.94		0.94
	intermediate	6.3		4.3		4.3	
V6	Access Value						
	fresh		1.00		0.68		0.68
	intermediate	1.00		0.60		0.60	
	Emergent Marsh HSI	**=**	**0.60**	**EM HSI =**	**0.61**	**EM HSI =**	**0.60**
	Open Water HSI	**=**	**0.47**	**OW HSI =**	**0.50**	**OW HSI =**	**0.56**

Project: East Sabine Lake Hydrologic Restoration Project
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: East Sabine Lake Hydrologic Restoration Project
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt) fresh intermediate						
V6	Access Value fresh intermediate						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

AAHU CALCULATION - EMERGENT MARSH

Project: East Sabine Lake Hydrologic Restoration Project
Area A

Future Without Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	17415	0.60	10434.80	
1	17380	0.60	10402.74	10418.76
20	16731	0.59	9800.18	191901.44
			AAHUs =	**10116.01**

Future With Project			Total	Cummulative
TY	**Marsh Acres**	**x HSI**	**HUs**	**HUs**
0	17415	0.60	10434.80	
1	17391	0.61	10646.48	10540.69
20	16934	0.60	10224.56	198262.73
			AAHUs	**10440.17**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	10440.17
B. Future Without Project Emergent Marsh AAHUs =	10116.01
Net Change (FWP - FWOP) =	**324.16**

AAHU CALCULATION - OPEN WATER

Project: East Sabine Lake Hydrologic Restoration Project
Area A

Future Without Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	14974	0.47	7080.34	
1	15009	0.47	7096.89	7088.61
20	15658	0.47	7403.76	137756.18
			AAHUs =	**7242.24**

Future With Project			Total	Cummulative
TY	**Water Acres**	**x HSI**	**HUs**	**HUs**
0	14974	0.47	7080.34	
1	14998	0.50	7541.78	7310.94
20	15455	0.56	8716.18	154362.20
			AAHUs	**8083.66**

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	8083.66
B. Future Without Project Open Water AAHUs =	7242.24
Net Change (FWP - FWOP) =	**841.42**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	324.16
B. Open Water Habitat Net AAHUs =	841.42
Net Benefits=(2.1xEMAAHUs+OWAAHUs)/3.1 =	**491.02**

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: East Sabine Lake Hydrologic Restoration Area B | Project Area: 4,231

Condition: Future Without Project

		TY 0		TY 1		TY 20	
Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent	91	0.92	90.7	0.92	85.3	0.87
V2	% Aquatic	5	0.15	5	0.15	5	0.15
V3	Interspersion	%		%		%	
	Class 1	100	1.00	100	1.00	93	0.94
	Class 2						
	Class 3						
	Class 4					7	
	Class 5						
V4	%OW <= 1.5ft	80	1.00	80	1.00	80	1.00
V5	Salinity (ppt)	7.7	1.00	7.7	1.00	7.7	1.00
V6	Access Value	0.95	0.96	0.95	0.96	0.95	0.96
	Emergent Marsh HSI =		**0.94**	**EM HSI =**	**0.94**	**EM HSI =**	**0.91**
	Open Water HSI =		**0.46**	**OW HSI =**	**0.46**	**OW HSI =**	**0.46**

Project: East Sabine Lake Hydrologic Restoration
FWOP

Variable		**Value**	**SI**	**Value**	**SI**	**Value**	**SI**
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		**EM HSI =**		**EM HSI =**	
		OW HSI =		**OW HSI =**		**OW HSI =**	

Project: East Sabine Lake Hydrologic Restoration
FWOP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion	%		%		%	
	Class 1						
	Class 2						
	Class 3						
	Class 4						
	Class 5						
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Brackish Marsh

Project: East Sabine Lake Hydrologic Restoration — Project Area: 4,231
Area B
Condition: Future With Project

Variable		TY 0 Value	TY 0 SI	TY 1 Value	TY 1 SI	TY 20 Value	TY 20 SI
V1	% Emergent	91	0.92	90.9	0.92	88.2	0.89
V2	% Aquatic	5	0.15	7	0.16	10	0.19
V3	Interspersion	%		%		%	
	Class 1	100	1.00	100	1.00	97	0.98
	Class 2						
	Class 3						
	Class 4					3	
	Class 5						
V4	%OW <= 1.5ft	80	1.00	80	1.00	80	1.00
V5	Salinity (ppt)	7.7	1.00	5.5	1.00	5.5	1.00
V6	Access Value	0.95	0.96	0.72	0.75	0.72	0.75
	Emergent Marsh HSI =		**0.94**	**EM HSI =**	**0.90**	**EM HSI =**	**0.89**
	Open Water HSI =		**0.46**	**OW HSI =**	**0.46**	**OW HSI =**	**0.48**

Project: East Sabine Lake Hydrologic Restoration
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

Project: East Sabine Lake Hydrologic Restoration
FWP

Variable		Value	SI	Value	SI	Value	SI
V1	% Emergent						
V2	% Aquatic						
V3	Interspersion Class 1 Class 2 Class 3 Class 4 Class 5	%		%		%	
V4	%OW <= 1.5ft						
V5	Salinity (ppt)						
V6	Access Value						
		EM HSI =		EM HSI =		EM HSI =	
		OW HSI =		OW HSI =		OW HSI =	

AAHU CALCULATION - EMERGENT MARSH

Project: East Sabine Lake Hydrologic Restoration
Area B

Future Without Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	3850	0.94	3633.77	
1	3838	0.94	3616.18	3624.97
20	3610	0.91	3272.19	65413.71
			AAHUs =	3451.93

Future With Project			Total	Cummulative
TY	Marsh Acres	x HSI	HUs	HUs
0	3850	0.94	3633.77	
1	3844	0.90	3470.91	3552.30
20	3732	0.89	3307.94	64393.23
			AAHUs	3397.28

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Emergent Marsh AAHUs =	3397.28
B. Future Without Project Emergent Marsh AAHUs =	3451.93
Net Change (FWP - FWOP) =	**-54.66**

AAHU CALCULATION - OPEN WATER

Project: East Sabine Lake Hydrologic Restoration
Area B

Future Without Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	381	0.46	176.10	
1	393	0.46	181.64	178.87
20	621	0.46	284.45	4430.88
			AAHUs =	230.49

Future With Project			Total	Cummulative
TY	Water Acres	x HSI	HUs	HUs
0	381	0.46	176.10	
1	387	0.46	176.16	176.14
20	499	0.48	237.45	3922.03
			AAHUs	204.91

NET CHANGE IN AAHUs DUE TO PROJECT	
A. Future With Project Open Water AAHUs =	204.91
B. Future Without Project Open Water AAHUs =	230.49
Net Change (FWP - FWOP) =	**-25.58**

TOTAL BENEFITS IN AAHUs DUE TO PROJECT	
A. Emergent Marsh Habitat Net AAHUs =	-54.66
B. Open Water Habitat Net AAHUs =	-25.58
Net Benefits= (2.6xEMAAHUs+OWAAHUs)/3.6	**-46.58**

Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

Appendix F

Public Support For Candidate Projects

Public Support for Candidate Projects
for the
10th Priority Project List

PO-30
<u>Shore Prot./Marsh Restoration in Lake Borgne at Shell Beach</u>
- St. Bernard Parish Council wrote a letter in support of this project

ME-18
<u>Rockefeller Refuge Gulf Shoreline Stabilization</u>
- Cameron Parish Police Jury wrote a letter in support of this project

CS-32
<u>East Sabine Lake Hydrologic Restoration (with Terraces)</u>
- Cameron Parish Police Jury wrote a letter in support of this project
- Honorable Senator Mary Landrieu wrote a letter in support of this project

ME-19
<u>Grand-White Lake Land Bridge Protection Project</u>
- Cameron Parish Police Jury wrote a letter in support of this project

<u>Shoreline Protection Cheniere aux Tigre to Southwest Pass</u>
- Honorable John Breaux wrote a letter in support of this project, received on July 14, 2000.
- Honorable Representative Chris John wrote a letter in support of this project

<u>Hydrologic Restoration of East Sabine Lake (without terraces)</u>
- Cameron Parish Police Jury wrote a letter in support of this project
- Honorable Senator Mary Landrieu wrote a letter in support of this project

Demonstration Projects

<u>Oyster Reef Demonstration- Lake Athanasio</u>
- Honorable Mary Landrieu wrote a letter in support of this project, received on November 29, 1999.
- Honorable W.J. “Billy” Tauzin wrote a letter in support of this project, received on April 4, 2000.

Coastal Wetlands Planning, Protection, and Restoration Act

10th Priority Project List Report

Appendix G

Status Projects from Previous Project Lists

Appendix G

Status Projects From Previous Priority Lists

Table of Contents

DEPARTMENT OF THE INTERIOR, FISH & WILDLIFE SERVICE

DEPARTMENT OF COMMERCE, NATIONAL MARINE FISHERIES SERVICE

(* - unfunded)

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

PROJECT STATUS SUMMARY REPORT

29 March 2001

Summary report on the status of CWPPRA projects prepared for the Louisiana Coastal Wetlands Conservation and Restoration Task Force.

Reports enclosed:

- Project Details by Lead Agency
- Project Summary by Basin
- Project Summary by Priority List

Information based on data furnished by the Federal Lead Agencies and collected by the Corps of Engineers

Prepared by:

Planning, Programs and Project Management Division
CWPPRA Branch
U.S. Army Corps of Engineers
New Orleans District
P.O. Box 60267
New Orleans, LA 70160-0267

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures

Lead Agency: DEPT. OF THE ARMY, CORPS OF ENGINEERS

Priority List 1

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Barataria Bay Marsh Creation	BARA	JEFF	445	24-Apr-95 A	22-Jul-96 A	31-Dec-00 *	$1,759,257	$1,180,393	67.1	$1,128,864 $1,128,864

Remarks: The enlargement of Queen Bess Island was incorporated into the project and the construction of the 9-acre cell was completed in October 1996. If oyster-related conflicts are removed from the remaining marsh creation sites, they will be incorporated into the Corp's O&M deposit plan for the next maintenance cycle.

Status: Completed Queen Bess Island for $945,678. Remaining funds may be used to clear marsh creation sites of oyster leases.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Bayou Labranche Wetlands Restoration	PONT	STCHA	203	17-Apr-93 A	06-Jan-94 A	07-Apr-94 A	$4,461,301	$3,665,519	82.2	$3,690,712 $3,574,959

Remarks: Contract awarded to T. L. James Co. (Dredge "Tom James") for dredging approximately 2,500,000 cy of Lake Pontchartrain sediments and placing in marsh creation area. Contract final inspection was performed on April 7, 1994. Site visit by Task Force took place on April 13, 1994.

The project site is being monitored. No further work is planned at this time except to address the problem of impaired access for the lease holders in the project area.

Status: Complete.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Lake Salvador Shoreline Protection at Jean Lafitte NHP&P	BARA	JEFF	0	29-Oct-96 A	01-Jun-95 A	21-Mar-96 A	$60,000	$60,000	100.0	$58,753 $58,753

Remarks: This project was added to Priority List 1 at the March 1995 Task Force meeting.

The Task Force approved the expenditures of up to $45,000 in Federal funds and non-Federal funds of $15,000 (25%) for the design of the project.

A design review meeting was held with Jean Lafitte Park personnel in May 1996 to resolve design comments prior to advertisement for the construction contract. The contract was awarded December 4, 1996 for $610,000 to Bertucci Contracting Corp. The contract was completed in March 1997.

Status: Complete. This project was design only.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Vermilion River Cutoff Bank Protection	TECHE	VERMI	65	17-Apr-93 A	10-Jan-96 A	11-Feb-96 A	$1,526,000	$2,046,940	134.1 !	$1,783,969 $1,772,658

Remarks: The project was modified by moving the dike from the west to the east bank of the cutoff to better protect the wetlands. The need for the sediment retention fence on the west bank is still undetermined.

The Task Force approved a revised project estimate of $2,500,000; however, current estimate is less.

Condemnation of real estate easements was required because of unclear ownership titles and significantly lengthened the project schedule. Construction was completed in February 1996.

Status: Complete.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
West Bay Sediment Diversion	DELTA	PLAQ	9,831	30-Jul-01	01-Nov-01	01-Nov-03	$8,517,066	$22,020,409	258.5 !	$918,944 $918,944

Remarks: The major portion of the cost increase is for dredging the anchorage as a result of induced shoaling caused by the diversion of flow from the river. A model study of the river and diversion point was completed, providing a basis for estimating the amount of material to be dredged. However, the State of Louisiana was looking into the issue of State-owned waterbottom vs. private ownership, both before and after project construction, and they requested that we not proceed with easement acquisition through condemnation until that issue was resolved. If no resolution on the land rights issue with LA DNR is reached, project will be proposed for de-authorization.

In a letter dated March 1, 1995, the Local Sponsor, LA DNR, requested deauthorization of the project citing cost overruns and its location on the "bird's foot" delta, which the CWPPRA Restoration Plan calls for a phased-abandonment. A letter requesting deauthorization of the project was issued to the Chairman of the Technical Committee on August 25, 1995.

However, at the February 28, 1996 Task Force meeting, the State withdrew its request for deauthorization and work on the project proceeded. The CSA was sent to LA DNR for signature in March 1997. The current estimate exceeds the Priority List estimate by 125% and, therefore, necessitated Task Force approval, which was granted at the April 14, 1998 meeting.

Status: At the January 10, 2001 Task Force meeting, approval was granted to proceed with the project at the current price of $22 million due to the increased costs of maintaining the anchorage area. A VE study on the project was undertaken the week of August 21, 2000. Draft EIS and for review in April 2001. Draft CSA under review.

Total Priority List 1	10,544	$16,323,624	$28,973,261	177.5	$7,581,243 $7,454,179

5 Project(s)
4 Cost Sharing Agreements Executed
4 Construction Started
3 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 2

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Clear Marais Bank Protection	CALC	CALCA	1,067	29-Apr-96 A	29-Aug-96 A	03-Mar-97 A	$1,741,310	$3,717,443	213.5 !	$2,919,016 $2,871,782

Remarks: The original construction estimate was low, based on the proposed plan in that the rock quantity estimate was less than half of the quantity needed (based on the original design), and the estimate did not include a floatation channel needed for construction. This accounts for most of the cost increase shown. The current estimate is based on the original rock dike design and costs about $89/foot.

The Cost Sharing Agreement was executed and approved and the construction contract awarded on August 1, 1996 to Luhr Bros., Inc. for $2,694,000. Construction was completed in March 1997.

There is an opportunity to create marsh behind the rock dike between Brannon Canal and Alkalie Ditch using material from GIWW maintenance dredging.

Status: Complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
West Belle Pass Headland Restoration	TERRE	LAFOU	474	27-Dec-96 A	10-Feb-98 A	17-Jul-98 A	$4,854,102	$6,751,441	139.1 !	$5,388,301 $5,382,293

Remarks: We have received verbal authority from HQ Counsel to acquire oyster leases, for this project only, directly impacted by the construction of the project. Construction cost increase approved at the January 16, 1998 Task Force meeting.

Status: Construction complete. Agreement reached between COE, DNR, and T.L. James Co. on the remediation of the marsh buggy tracks. Planting proposal requested from the Plant Material Research Center.

Total Priority List 2	**1,541**		**$6,595,412**	**$10,468,884**	**158.7**	**$8,307,316** **$8,254,075**

2 Project(s)
2 Cost Sharing Agreements Executed
2 Construction Started
2 Construction Completed
0 Project(s) Deferred/Deauthorized

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Priority List 3										
Channel Armor Gap Crevasse	DELTA	PLAQ	936	13-Jan-97 A	22-Sep-97 A	02-Nov-97 A	$808,397	$902,720	111.7	$589,102 $565,878

Remarks: The Cost Sharing Agreement is being reviewed by LA DNR.

Cost increase is due to additional project management costs, by both Federal and Local Sponsor.

Surveys identified a pipeline in the crevasse area which would be negatively impacted by the project. US Fish & Wildlife Service reviewed their permit for the pipeline and determined that Shell Pipeline is required to lower it at their own cost. US FWS requested a modification to the alignment and only US FWS-owned lands should be involved.

Status: Complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
MRGO Back Dike Marsh Protection	PONT	STBER	755	17-Jan-97 A	25-Jan-99 A	29-Jan-99 A	$512,198	$342,611	66.9	$318,354 $318,354

Remarks: Cost increase is due to additional project management costs, environmental investigations and local sponsor activities not included in the baseline estimate. Further title research indicates that private ownership titles are unclear, requiring condemnation. This accounts for the long period between CSA execution and project construction.

Status: Scope of work greatly reduced. Work was to be performed via a simplified acquisition contract as estimated construction cost is under $100,000. Bids received were higher than Government estimate by 25%. Subsequently received an in-house labor estimate from Vicksburg District. Vicksburg District completed construction on 29 January 1999.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	SCHEDULES: CSA	SCHEDULES: Const Start	SCHEDULES: Const End	ESTIMATES: Baseline	ESTIMATES: Current	ESTIMATES: %	Actual Obligations/ Expenditures
Pass-a-Loutre Crevasse [DEAUTHORIZED]	DELTA	PLAQ	0				$2,857,790	$119,857	4.2	$119,857 $119,857

Remarks: Two pipelines and two power poles are in the area of the crevasse, increasing relocation costs by approximately $2.15 million. LA DNR asked that the Corps investigate alternative locations to avoid or minimize impacts to the pipelines, but there are no more suitable locations for the cut. The Corps has also reviewed the design to determine whether relocations cost-savings could be achieved. Reducing the bottom width of the crevasse from 430 feet as originally proposed to 200 feet reduced the relocation cost only marginally.

Status: A draft memorandum dated December 5, 1997 was sent to the CWPPRA Technical Committee Chairman requesting the Task Force to deauthorize the project. COE requested deauthorization at the January 16, 1998 Task Force meeting. Task Force formally deauthorized project July 23, 1998.

Total Priority List 3			1,691				$4,178,385	$1,365,188	32.7	$1,027,313 $1,004,089

3 Project(s)
2 Cost Sharing Agreements Executed
2 Construction Started
2 Construction Completed
1 Project(s) Deferred/Deauthorized

Priority List 4

Grand Bay Crevasse [DEAUTHORIZED]	BRET	PLAQ	0				$2,468,908	$64,442	2.6	$64,515 $64,497

Remarks: The major landowner has indicated non-support of the project and has withheld ROE because of concern about sedimentation negatively impacting oil and gas interests within the deposition area.

Status: A draft memorandum dated December 5, 1997 was sent to the CWPPRA Technical Committee Chairman requesting the Task Force to deauthorize the project. COE requested deauthorization at the January 16, 1998 Task Force meeting. Project deauthorized July 23, 1998.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Hopper Dredge (Demo) [DEAUTHORIZED]	DELTA	PLAQ	0	30-Jun-97 A			$300,000	$53,729	17.9	$53,729 $53,729

Remarks: LA DNR requested that the hoppers dump the material in crevasses, but there are concerns that the hopper dredges cannot get close enough to the crevasses to avoid dropping the material in the navigation channel. Current plan involves the pumpout of material from the hopper into a disposal area located on the left descending bank or in Southwest Pass between miles 2.95 and 3.2 BHP.

Status: Current scheme was found to be non-implementable due to inability of the hopper dredge to get close enough to the disposal area to spray over the bank of the Mississippi River.

Project deauthorized October 4, 2000.

Total Priority List 4	0	$2,768,908	$118,171	4.3	$118,244 $118,226

2 Project(s)
1 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
2 Project(s) Deferred/Deauthorized

Priority List 5

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Bayou Chevee Shoreline Protection	PONT	ORL	75	01-Feb-01 A	15-Jun-01	15-Sep-01	$2,555,029	$2,257,970	88.4	$370,519 $370,467

Remarks: Revised project consists of constructing a 2,870-foot rock dike across the mouth of the north cove and a 2,820-foot rock dike tying into and extending an existing USFWS rock dike, across the south cove. Approximately 75 acres of brackish marsh will be protected by the project.

Status: Approval of model CSA for PPL 5, 6, and 8 projects granted on November 13, 2000. Advertisement scheduled for April with award in June 2001.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	SCHEDULES: CSA	SCHEDULES: Const Start	SCHEDULES: Const End	ESTIMATES: Baseline	ESTIMATES: Current	ESTIMATES: %	Actual Obligations/ Expenditures
Total Priority List 5			75				$2,555,029	$2,257,970	88.4	$370,519 $370,467

1 Project(s)
1 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 6

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Avoca Island [DEAUTHORIZED]	TERRE	STMRY	0				$6,438,400	$66,869	1.0	$66,869 $66,869

Remarks: A draft memorandum dated December 5, 1997 was sent to the Technical Committee Chairman requesting the Task Force to deauthorize the project. COE requested deauthorization at the January 16, 1998 Task Force meeting.

Status: Project deauthorized July 23, 1998.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Dustpan/Cutterhead Dredge (Demo)	DELTA	PLAQ	0	01-Apr-31 *	01-Jun-01	31-Oct-01	$1,600,000	$1,640,000	102.5	$98,042 $98,042

Remarks: Project is an optional work item on a Southwest Pass leased cutterhead dredge contract. The contract will be awarded as needed.

Status: CSA execution expected in third quarter of FY01. Project will be an optional item in the Southwest Pass leased cutterhead contract in FY01.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Marsh Island Hydrologic Restoration	TECHE	IBERI	367	01-Feb-01 A	15-May-01	15-Oct-01	$4,094,900	$5,063,963	123.7	$571,252 $571,252

Remarks: Revised design of closures from earthen to rock because soil borings indicate highly organic material in borrow area.

Status: Approval of model CSA for PPL 5, 6 and 8 projects granted on November 13, 2000. CSA executed on February 1, 2001. Advertised as 100% small business set-aside. Award scheduled for April 2001.

Total Priority List 6	367	$12,133,300	$6,770,832	55.8	$736,163 $736,163

3 Project(s)
1 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
1 Project(s) Deferred/Deauthorized

Priority List 8

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Sabine Refuge Marsh Creation, Ph I	CALC	CAMER	993	09-Mar-01 A	05-May-01	01-Sep-01	$5.920,248	$4,211,434	71.1	$340,855 $340,855

Remarks: Total project cost estimate is $10,154,300; Priority List 8 funded $5,313,000 to complete construction of a permanent pipeline and one cycle of marsh creation. The COE will request funding for the remaining phases of the project upon completion of engineering and design, probably in January 2001.

Total project cost for dredging cycle 1 is $4,211,434. Initial project design forecasted a permanent pipeline constructed to facilitate dredging cycles 1-5. However, the permanent pipeline proved to be too expensive to construct and maintain and was dropped as a design feature. Phase I of the Calcasieu River and Pass Maintenance Dredging will place approximately 1,000,000 cubic yards of material into a confined area on the Sabine Natinal Wildlife Refuge. It will build 125 acres of marsh with meandering trennasses and enhance the creation of an approximate 50-acre fringe. Additionally, 200 acres of marsh to the west may benefit from the sediment and nutrient flow.

Status: The project was advertised for bid as a component of the Calcasieu River and Pass Maintenance Dredging contract on February 16, 2001. The bid opening is scheduled for March 20, 2001. Dates for project initiation of construction have been advanced in conjunction with an accelerated maintenance dredging schedule for the Calcasieu River. Construction could begin as early as May 2001. The COE will request funding for dredging cycle 2 which is anticipated for FY2003.

Total Priority List 8	993	$5,920,248	$4,211,434	71.1	$340,855 $340,855

1 Project(s)
1 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 9

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Freshwater Bayou Canal, Belle Isle to Lock	TECHE	VERMI	529				$1,498,967	$1,498,967	100.0	$35,476 $59,012

Remarks: Site visit held in Jan 01 with Local Sponsor and landowner.

Status: Right of entry for surveys and borings obtained March 14, 2001. Will meet with Local Sponsor after survey data processed to obtain consensus on cross-section and depth contour. Currently scheduled to ask for construction approval at Jan 02 Task Force meeting. Draft model CSA in review.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Opportunistic Use of Bonnet Carre Spillway	PONT	STCHA	177				$150,706	$150,706	100.0	$4,291 $4,291

Remarks: This project involves no physical construction.

Status: Lake Pontchartrain Basin Foundation has partnered with the LSU Coastal Ecology Institute in the development of a nutrient budget model for Lake Pontchartrain. Nutrient budget model in final review. Currently scheduled to ask for construction approval at Jul 01 Task Force meeting. Draft model CSA in review.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Periodic Intro of Sediment & Nutrients Along the Miss. River (Demo)	VARY	VARY			01-Jan-02	30-Jun-02	$109,730	$109,730	100.0	$2,458 $2,458

Remarks:

Status:

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	CSA (SCHEDULES)	Const Start (SCHEDULES)	Const End (SCHEDULES)	Baseline (ESTIMATES)	Current (ESTIMATES)	% (ESTIMATES)	Actual Obligations/ Expenditures
Weeks Bay	TECHE	IBERI	138				$1,229,337	$1,229,337	100.0	$300,150 $35,729

Remarks: Fully funded Phase I cost for this project is $1,229,337. The project area includes approximately 2,900 acres of fresh to brackish marsh habitat.

Status: The kick-off for this project is scheduled for April 3 with the COE and DNR. Surveys, soils investigations, gage data, and environmental data are presently being gathered for assessment. A hydrologic model is being developed to assist in the understanding of water movement in this part of the basin.

Total Priority List 9	844				$2,988,740	$2,988,740	100.0	$342,375 $101,489

4 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 10

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Benny's Bay Diversion	DELTA	PLAQ	5,828				$1,076,328	$1,076,328	100.0	$0 $0

Remarks:

Status:

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Delta Building Diversion at Myrtle Grove	BARA	JEFF	8,891		01-May-05	31-Jan-06	$3,002,114	$3,002,114	100.0	$0 $0
	Remarks:									
	Status:									
Delta Building Diversion North of Fort St. Philip	BRET	PLAQ	2,473				$1,155,200	$1,155,200	100.0	$0 $0
	Remarks:									
	Status:									
Total Priority List 10			17,192				$5,233,642	$5,233,642	100.0	$0 $0

3 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE ARMY (COE)

				*********** SCHEDULES ***********			******** ESTIMATES ********			Actual
PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Obligations/ Expenditures
Total DEPT. OF THE ARMY, CORPS OF ENGINEERS			33,247				$58,697,288	$62,388,122	106.3	$18,824,028 $18,379,544

24 Project(s)
12 Cost Sharing Agreements Executed
8 Construction Started
7 Construction Completed
4 Project(s) Deferred/Deauthorized

Notes:

1. Expenditures based on Corps of Engineers financial data.
2. Date codes: A = Actual date * = Behind schedule
3. Percent codes: ! = 125% of baseline estimate exceeded

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures

Lead Agency: ENVIRONMENTAL PROTECTION AGENCY, REGION 6

Priority List Conservation Plan

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
State of Louisiana Wetlands Conservation Plan	ALL	COAST	0	13-Jun-95 A	03-Jul-95 A	21-Nov-97 A	$238,871	$191,807	80.3	$143,855 $191,807

Remarks: The date the MIPR was issued to obligate the Federal funds for the development of the plan is used as the construction start date for reporting purposes.

Status: Complete.

Total Priority List Cons Plan	**0**	**$238,871**	**$191,807**	**80.3**	**$143,855** **$191,807**

1 Project(s)
1 Cost Sharing Agreements Executed
1 Construction Started
1 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 1

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Isles Dernieres (Phase 0) (East Island)	TERRE	TERRE	9	17-Apr-93 A	16-Jan-98 A	24-Oct-98 A	$6,345,468	$8,745,210	137.8 !	$6,906,884 $6,852,074

Remarks: This phase of the Isles Dernieres restoration project was combined with Isles Dernieres, Phase I (Trinity Island), a priority list 2 project. Additional funds to cover the increased construction cost on lowest bid received were approved at the January 16, 1998 Task Force meeting.

Status: Construction start was January 16, 1998. Hydraulic dredging was completed September 1998. Vegetation planting was completed May 1999.

Total Priority List 1	9	$6,345,468	$8,745,210	137.8	$6,906,884 $6,852,074

1 Project(s)
1 Cost Sharing Agreements Executed
1 Construction Started
1 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 2

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Isles Dernieres (Phase 1) (Trinity Island)	TERRE	TERRE	109	17-Apr-93 A	27-Jan-98 A	22-Oct-98 A	$6,907,897	$10,785,706	156.1 !	$9,538,078 $9,462,388

Remarks: Costs increased due to construction bids significantly greater than projected in plans and specifications. Additional funds to cover the increased project construction/dredging cost were approved at the January 16, 1998 Task Force meeting.

Status: The 30' hydraulic dredge, the Tom James, mobilized at East Island on about January 27, 1998. Dredging was completed in September 1998. Vegetation plantings was completed May 1999.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
	Total Priority List 2		109				$6,907,897	$10,785,706	156.1	$9,538,078 $9,462,388

1 Project(s)
1 Cost Sharing Agreements Executed
1 Construction Started
1 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 3

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Red Mud (Demo)	PONT	STJON	0	03-Nov-94 A	08-Jul-96 A		$350,000	$470,500	134.4 !	$368,406 $368,406

Remarks:

Status: Facility construction is essentially complete; project was put on hold pending resolution of cell contamination by saltwater before planting occurred and has subsequently been deauthorized.

Deauthorization procedures have been initiated. Escrowed funds will be returned to Kaiser Aluminum and Chemical Corp.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Whiskey Island Restoration (Phase 2)	TERRE	TERRE	1,239	06-Apr-95 A	13-Feb-98 A	25-Aug-98 A	$4,844,274	$7,721,186	159.4 !	$7,083,365 $6,938,481

Remarks: At the January 16, 1998 meeting, the Task Force approved additional funds to cover the increased construction cost on lowest bid received.

Status: Work was initiated on February 13, 1998. Dredging completed July 1998. Initial vegetation with spartina on bay shore, July 1998. Additional vegetation seeding/planting was carried out in spring 2000.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 3			1,239				$5,194,274	$8,191,686	157.7	$7,451,771 $7,306,886

2 Project(s)
2 Cost Sharing Agreements Executed
2 Construction Started
1 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 4

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Compost Demo (Demo)	CALC	CAMER	0	22-Jul-96 A			$370,594	$425,333	114.8	$342,513 $128,404

Remarks: Plans and specifications have been finalized. All permits and construction approvals have been obtained.

Status: The amount of compost vegetation needed has not yet been supplied. A smaller sized demonstration has been designed. Advertisement for construction bids has been made.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 4			0				$370,594	$425,333	114.8	$342,513 $128,404

1 Project(s)
1 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 5

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Bayou Lafourche Siphon	TERRE	ASCEN	988	19-Feb-97 A			$24,487,337	$8,391,454	34.3	$1,500,000 $1,260,859

Remarks: Priority List 5 authorized funding in the amount of $1,000,000 for the FY 96 Phase 1 of this project. Priority List 6 authorized $8,000,000 for the FY 97 Phase 2 of this project. In FY 98, Priority List 7 authorized $7,987,000, for a project estimate of $16,987,000. At the January 20, 1999 Task Force meeting for approval of Priority List 8, $7,500,000 completed funding for the project, for a total of $24,487,337. EPA motioned to allow $16,095,883 from project funds be delayed and put to immediate use on PPL 8. The public has been involved in development of the scope of the evaluation phase. EPA proposes an alternative approach for siphoning and pumping 1,000 cfs year-round (versus the 2,000 cfs siphon only at high river times). Addition of pumps increases the estimated cost. Additional engineering is projected to be completed in 2000.

Status: The Cost Sharing Agreement (CSA) was executed February 19, 1997. Preliminary draft report was distributed to Technical Committee members in October 1998. Additional hydrologic work by the U.S. Geological Survey and the COE. Additional geotechnical analysis has been conducted. Review has been conducted of technical reports and estimated costs is in progress.

Total Priority List 5	988	$24,487,337	$8,391,454	34.3	$1,500,000 $1,260,859

1 Project(s)
1 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 6

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Bayou Boeuf/Verret Basin, Incr 1 [DEAUTHORIZED]	TERRE	STMAR	0				$150,000	$3,452	2.3	$3,452 $3,452

Remarks: This was a 3-phased project. Priority List 6 authorized funding of $150,000; Priority List 7 was scheduled to fund $250,000; and Priority List 8 was scheduled to fund $100,000. Total project cost was estimated to be $500,000. By letter dated November 18, 1997, EPA notified the Technical Committee that they and LA DNR agree to deauthorize the project.

Status: Deauthorization was approved at the July 23, 1998 Task Force meeting.

	Total Priority List 6		0				$150,000	$3,452	2.3	$3,452 $3,452

1 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
1 Project(s) Deferred/Deauthorized

Priority List 9

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Marsh Creation South of Leeville	BARA	LAFOU	146	05-Oct-00 A			$1,151,484	$1,283,437	111.5	$1,216,784 $31,134

Remarks:

Status: A cooperative agreement/cost share agreement has been executed. A Request for Statements of Interest and Qualifications has been issued and numerous responses received.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
New Cut Dune/Marsh Restoration	TERRE	TERRE	102	01-Sep-00 A	01-Aug-01		$7,393,626	$9,044,982	122.3	$7,695,019 $90,447

Remarks:

Status: Project design is complete. Advertisement for bids for construction is expected early April. Phase 2 construction funding approved at the January 10, 2001 Task Force meeting.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Timbalier Island Dune/Marsh Restoration	TERRE	TERRE	273	05-Oct-00 A			$1,360,198	$1,693,939	124.5	$1,470,943 $30,007

Remarks:

Status: Project design initiation is pending. T. Baker Smith, Inc., has been selected as the firm to conduct design.

Total Priority List 9			521				$9,905,308	$12,022,358	121.4	$10,382,746 $151,587

3 Project(s)
3 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 10

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

				*********** SCHEDULES ***********			******** ESTIMATES ********			Actual
PROJECT	**BASIN**	**PARISH**	**ACRES**	**CSA**	**Const Start**	**Const End**	**Baseline**	**Current**	**%**	**Obligations/ Expenditures**
Lake Borgne at Shell Beach	PONT	STBER	229				$527,120	$527,120	100.0	$0 $0

Remarks:

Status: Phase 1 has been initiated and site visit for engineers conducted.

Small Freshwater Diversion to Northwestern Barataria Basin	BARA	STJAM	0				$1,899,834	$1,899,834	100.0	$0 $0

Remarks:

Status: Phase 1 design procedures have been initiated.

Total Priority List 10	229	$2,426,954	$2,426,954	100.0	$0 $0

2 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: ENVIRONMENTAL PROTECTION AGENCY (EPA)

	PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total	ENVIRONMENTAL PROTECTION AGENCY, REGION 6			3,095				$56,026,703	$51,183,960	91.4	$36,269,298 $25,357,458

13 Project(s)
10 Cost Sharing Agreements Executed
5 Construction Started
4 Construction Completed
1 Project(s) Deferred/Deauthorized

Notes:

1. Expenditures based on Corps of Engineers financial data.
2. Date codes: A = Actual date * = Behind schedule
3. Percent codes: ! = 125% of baseline estimate exceeded

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures

Lead Agency: DEPT. OF THE INTERIOR, FISH & WILDLIFE SERVICE

Priority List 1

Bayou Sauvage #1	PONT	ORL	1,550	17-Apr-93 A	01-Jun-95 A	30-May-96 A	$1,657,708	$1,615,390	97.4	$1,122,388 $1,102,112

Remarks: Project completed May 30, 1996. A dedication ceremony was held in mid-summer 1996.

Status: Complete.

Cameron Creole Watershed Hydrologic Restoration	CALC	CAMER	865	17-Apr-93 A	01-Oct-96 A	28-Jan-97 A	$660,460	$1,022,686	154.8 !	$613,327 $612,950

Remarks:

Status: Complete.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Cameron Prairie Refuge Shoreline Protection	MERM	CAMER	247	17-Apr-93 A	19-May-94 A	09-Aug-94 A	$1,177,668	$1,401,125	119.0	$995,349 $994,972
	Remarks:									
	Status:	Complete.								
Sabine Wildlife Refuge Erosion Protection	CALC	CAMER	5,542	17-Apr-93 A	24-Oct-94 A	01-Mar-95 A	$4,895,780	$1,597,903	32.6	$1,273,307 $1,272,930
	Remarks:									
	Status:	Complete.								
Total Priority List 1			8,204				$8,391,616	$5,637,104	67.2	$4,004,370 $3,982,963

4 Project(s)
4 Cost Sharing Agreements Executed
4 Construction Started
4 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 2

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Bayou Sauvage #2	PONT	ORL	1,280	30-Jun-94 A	15-Apr-96 A	28-May-97 A	$1,452,035	$1,634,700	112.6	$1,103,644 $1,085,180

Remarks: Construction was completed on March 18, 1997. Initial problems with the pumps were corrected, and the project was accepted at a final inspection conducted May 28, 1997.

Status: Complete.

Total Priority List 2	1,280	$1,452,035	$1,634,700	112.6	$1,103,644 $1,085,180

1 Project(s)
1 Cost Sharing Agreements Executed
1 Construction Started
1 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 3

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Sabine Refuge Structures (Hog Island)	CALC	CAMER	953	26-Oct-96 A	01-Nov-99 A	01-Jun-01	$4,581,454	$4,466,354	97.5	$3,173,779 $2,633,117

Remarks: Project construction began the week of November 1, 1999. A meeting to discuss a draft operations and maintenance plan was held on October 5, 2000, between the FWS and LADNR. A contract to install phone modems and with solar panels at three data collection platforms was issued December 7, 2000 and was completed February 15, 2001. This will enable the refuge headquarters, LADNR in Abbeville and the FWS in Lafayette to call the stations and download real-time salinity and water level data for better structure operation. A contract modification was made to rebuild public fishing piers at the Hog Island and West Cove structures that were either damaged or rendered inaccessible to the public. This should be completed by May 15, 2001.

Status: Construction began the week of November 1, 1999, and is projected to be completed by June 2001. The Headquarters Canal structure was completed the week of February 9, 2000. The Hog Island Gully replacement structure was completed and work on the final structure, West Cove, began in August 2000. The project completion date has been extended to June 1, 2001 because of the addition of the fishing piers.

Total Priority List 3	953	$4,581,454	$4,466,354	97.5	$3,173,779 $2,633,117

1 Project(s)
1 Cost Sharing Agreements Executed
1 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 5

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	SCHEDULES CSA	SCHEDULES Const Start	SCHEDULES Const End	ESTIMATES Baseline	ESTIMATES Current	ESTIMATES %	Actual Obligations/ Expenditures
Grand Bayou / GIWW Freshwater Introduction	TERRE	LAFOU	1,808	01-Apr-01	01-Jan-02	01-Sep-02	$5,135,468	$10,303,446	200.6 !	$527,501 $342,788

Remarks: The draft report from Brown, Cunningham, and Gannuch, Inc. regarding the design and affects of the proposed Cutoff Canal Structure has been received.

Status: Land rights work is progressing well. Results from BCG indicate that velocities through the structure can be safely reduced by installing four passive 70-wide channel constrictions and that this structure would reduce water exchange in the Cutoff Canal by 50 percent. The Corps of Engineers has begun evaluating affects of this structure on project-area salinities. That work should be completed in 2 months. A satisfactory outcome will allow final engineering and design work to begin

Total Priority List 5			1,808				$5,135,468	$10,303,446	200.6	$527,501 $342,788

1 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 6

Lake Boudreaux FW Introduction, Alt B	TERRE	TERRE	619	22-Oct-98 A	01-Jan-02	01-Jan-03	$9,831,306	$10,519,383	107.0	$471,729 $401,809

Remarks: On February 21, 2001, FWS personnel conducted a public meeting in Houma to address project-related water quality issues.

Status: The contracted Feasibility Study report is being finalized. Preliminary indications are that the project, as proposed, can introduce the originally projected volumes of freshwater. Construction costs have not yet been estimated. Completion of the Feasibility Study report will allow the FWS to prepare a draft EA. Once feasibility issues have been satisfactorily addressed, landrights will be the most critical issue affecting project implementation.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Nutria Harvest for Wetland Restoration (Demo)	COAST	COAST	0	27-Oct-98 A	20-Dec-98 A	30-Sep-02	$2,140,000	$2,140,000	100.0	$1,122,376 $346,605

Remarks: The LDWF 1999 and 2000 nutria coastal damage survey and report reported nutria related marsh damages in the Louisiana deltaic plain. Nutria meat is currently selling for about $1.25/lb by the Louisiana Seafood Exchange, while alligator meat is selling for $6.00/lb. Nutria meat promotions were held at 16 Winn-Dixie supermarkets in south Louisiana from November 1999 to February 2000 as part of a Winn-Dixie-WWL promotion.

The Nutria Meat Advisory Group met on February 12, 2001 to develop a Louisiana Nutria Meat Marketing Strategic Plan. That plan includes specific recommendations to establish a self-sustaining nutria meat market which will encourage increased trapping and thereby reduce the impact of nutria on coastal wetlands.

Status: Activities from July to October 2000 included: 1) sponsored the nutria category in the May 8, 2000 Baton Rouge Culinary Classic; 2) participated in the National Restaurant Association Food Expo from May 20-23, 2000; 3) Louisiana Culinary Institute promoted nutria sausage at six Winn-Dixie Food stores and at the Capital Chefs Showcase; 4) participated with the National Geographic Society in the taping of their nutria documentary that aired on CNBC on October 29, 2000; 5) developed a contract with the LSU Food Science Department for nutria meat assessment for nutria meat product development; 6) marketed nutria meat at the August 5-7, 2000 LA Restaurant Association Food Show with over 14,000 participants; 7) sponsored the nutria category in the LA Gold Culinary Classic; 8) promoted nutria sausage at the September 23, 2000, National Hunting and Fishing Day activities (3,000 people attended); and 9) purchased and shipped nutria meat sausage for promotional sales development.

In 2001, the LDWF plans to continue the Nutria Marketing Program by: 1) continuing to establish a relationship with the Sunry International Trading Co. and China National Native Produce and Animal By-Products Import and Export Corporation for the export of nutria pelts and meat; 2) working with Bellue's Fine Cajun Cuisine and the LA Seafood Exchange to continue promotional efforts; 3) working to provide nutria meat to chefs; 4) reviewing nuria meat marketing proposals; and 5) continuing to conduct promotional activities.

Total Priority List 6	619	$11,971,306	$12,659,383	105.7	$1,594,105 $748,414

2 Project(s)
2 Cost Sharing Agreements Executed
1 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Priority List 9										
Freshwater Intro. South of Hwy 82	MERM	CAMER	296	12-Sep-00 A	01-Nov-02	01-May-03	$607,138	$607,138	100.0	$21,677 $9,680

Remarks: A report that included the elevational surveys of existing water level and salinity stations and marsh elevation was completed on October 26, 2000. A study is currently being done by the LSU Coastal Studies Institute that analyzes existing salinity and water level data at sites on Rockefeller Refuge and in the White Lake area. Projected completion of the study is April 2001. After this hydrologic analysis, a decision will be made if additional data collection is necessary for a hydrologic modeling analysis of the project to estimate amounts of freshwater flow through project structures.

Status: The project was approved for Phase I engineering and design on January 11, 2000. A draft Plan of Work was prepared on February 25, 2000. A project implementation meeting was held April 13, 2000 and field trips were held on May 12, 2000 and June 13, 2000. A project surveying meeting was held on July 5, 2000. The final cost share agreement was signed by DNR on September 12, 2000. Elevational surveys were completed in October 2000.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Mandalay Bank Protection (Demo)	TERRE	TERRE		06-Dec-00 A	01-Jan-02	01-Mar-02	$298,939	$367,034	122.8	$20,639 $2,556

Remarks: Project implementation was delayed by site selection issues which have now been resolved.

Status: The project was approved for Phase I engineering and design on January 11, 2000. A draft Plan of Work was prepared on February 28, 2000. A project implementation and site visit were held on August 30, 2000. The Cost Share Agreement was executed on December 6, 2000. The EA is currently being prepared and will be completed in May 2001, after the final design is determined. Engineering and surveying contract was awarded in November 2000 and plans and specifications will be completed by May 1, 2001.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 9			296				$906,077	$974,172	107.5	$42,316 $12,236

2 Project(s)
2 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 10

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Delta Management at Fort St. Philip	BRET	PLAQ	267	01-Apr-01	01-Aug-02	31-Dec-02	$363,276	$454,094	125.0	$25,000 $0

Remarks: Several pipelines traverse the project area and will require the current terrace alignment to be modified. In addition, pipeline locations could affect the construction of some of the crevasses.

Status: A project kickoff meeting was conducted by FWS and DNR in early March. A landrights investigation is currently underway to determine exact locations of the pipelines. The project sponsors intend to seek Phase 2 construction approval in January 2002.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
East Sabine Lake Hydrologic Restoration	CA/SB	CAMER	393				$1,425,447	$1,768,154	124.0	$26,705 $0

Remarks: Phase I engineering and design and feasibility has begun with the implementation orientation interagency meeting held on February 14, 2001. The project component orientation field trip was completed on March 27, 2001 with LDNR, USFWS, NRCS and Cameron Parish in attendance. A modeling meeting has been scheduled for April 11, 2001.

Status: The draft Cost Share Agreement has been prepared and is currently under review.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Grand-White Lake Landbridge Restoration	MERM	CAMER	213				$527,841	$654,845	124.1	$25,000 $0

Remarks: Phase I engineering and design and feasibility has begun with the implementation orientation interagency meeting held on February 14, 2001. The project component orientation field trip was completed on March 22, 2001 with LDNR, USFWS, NRCS and Cameron Parish in attendance.

Status: The draft Cost Share Agreement has been prepared and is currently under review.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
North Lake Merchant Landbridge Restoration	TERRE	TERRE	604	31-May-01	30-Jul-02	31-Jan-04	$1,880,670	$1,880,670	100.0	$25,000 $0

Remarks: The Louisiana Department of Natural Resouces will contract project engineering and design work. In February 2001, the Louisiana Department of Wildlife and Fisheries established a public oyster seedground in Lake Merchant. That seedground may impact proposed project construction activities.

Status: A cost share agreement has been prepared and sent to DNR for signature. Work is underway to address oyster leases impact issues.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Terrebonne Bay Shore Protection/Oyster Reef Demo (DEMO)	ALL	STBER	0	31-May-01	30-Jul-02	31-Oct-02	$528,894	$528,894	100.0	$25,000 $0

Remarks: As recommended at the January 2001 Task Force meeting, the artificial oyster reef treatment proposed in the Lake Athanasio Artificial Oyster Reef Demonstration project has been included in the Terrebonne Bay Demonstration project.

Status: The Louisiana Department of Natural Resources has prepared a draft cost share agreement. The Service is assessing alternative project locations and experimental designs. Two bathymetry transects perpendicular to the shore have been made at each candidate site. This information and other information will soon be presented to the Engineering Work Group for their comment and recommendations regarding alternative treatment locations. Once treatment locations have been selected, then engineering and design work may begin.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF THE INTERIOR (FWS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
	Total Priority List	10	1,477				$4,726,128	$5,286,657	111.9	$126,705 $0
Total DEPT. OF THE INTERIOR, FISH & WILDLIFE SERVICE			14,637				$37,164,084	$40,961,816	110.2	$10,572,419 $8,804,699

Total Priority List 10:

5 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Total DEPT. OF THE INTERIOR, FISH & WILDLIFE SERVICE:

16 Project(s)
10 Cost Sharing Agreements Executed
7 Construction Started
5 Construction Completed
0 Project(s) Deferred/Deauthorized

Notes:

1. Expenditures based on Corps of Engineers financial data.
2. Date codes: A = Actual date * = Behind schedule
3. Percent codes: ! = 125% of baseline estimate exceeded

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	CSA (SCHEDULES)	Const Start (SCHEDULES)	Const End (SCHEDULES)	Baseline (ESTIMATES)	Current (ESTIMATES)	% (ESTIMATES)	Actual Obligations/ Expenditures

Lead Agency: DEPT. OF COMMERCE, NATIONAL MARINE FISHERIES SERVICE

Priority List 1

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Fourchon Hydrologic Restoration [DEAUTHORIZED]	TERRE	LAFOU	0				$252,036	$6,999	2.8	$6,999 $7,703

Remarks: In a meeting on October 7, 1993, Port Fourchon conveyed to NMFS personnel that any additional work in the project area could be conducted by the Port and they did not wish to see the project pursued because they question its benefits and are concerned that undesired Government / general public involvement would result after implementation.

NMFS has recommended to the Task Force that the project be deauthorized and the Task Force concurred at the July 14, 1994 meeting.

Status: Deauthorized.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Lower Bayou LaCache Hydrologic Restoration [DEAUTHORIZED]	TERRE	TERRE	0	17-Apr-93 A			$1,694,739	$99,625	5.9	$99,625 $99,625

Remarks: In a public hearing on September 22, 1993, with landowners in the project area, users strenuously objected to the proposed closure of the two east-west connections between Bayou Petit Caillou and Bayou Terrebonne.

NMFS received a letter from LA DNR, dated February 6, 1995, recommending deauthorization of the project. NMFS forwarded the letter to COE for Task Force approval.

Status: Deauthorized.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 1			0				$1,946,775	$106,625	5.5	$106,625 $107,328

2 Project(s)
1 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
2 Project(s) Deferred/Deauthorized

Priority List 2

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Atchafalaya Sediment Delivery	ATCH	STMRY	2,232	01-Aug-94 A	25-Jan-98 A	21-Mar-98 A	$907,810	$2,559,023	281.9 !	$2,438,485 $1,918,001

Remarks: Project cost increase was approved by the Task Force at the January 16, 1998 meeting.

Status: Construction project complete. First costs accounting underway.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Big Island Mining (Increment 1)	ATCH	STMRY	1,560	01-Aug-94 A	25-Jan-98 A	08-Oct-98 A	$4,136,057	$7,550,903	182.6 !	$7,304,843 $6,519,748

Remarks: Project cost increase was approved by the Task Force at the January 16, 1998 meeting.

Status: Construction project complete. First costs accounting underway.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
				*********** SCHEDULES ***********			******** ESTIMATES ********			
Point Au Fer	TERRE	TERRE	375	01-Jan-94 A	01-Oct-95 A	08-May-97 A	$1,069,589	$2,909,663	272.0 !	$2,811,996 $2,328,987

Remarks: Construction for the project will be accomplished in two phases. Phase I construction on the wooden plugs in the oil and gas canals in Area 1 was completed December 22, 1995. Phase II construction in Area 2 has been delayed until suitable materials can be found to backfill the canal fronting the Gulf of Mexico. Phase II construction completed in May 1997. Task Force approved project design change and project cost increase at December 18, 1996 meeting. Phase III was authorized and a cooperative agreement awarded on August 27, 1999. Phase III was completed in spring 2000.

Status: Closing out cooperative agreement between NOAA and LADNR.

Total Priority List 2	4,167		$6,113,456	$13,019,589	213.0	$12,555,324 $10,766,735

3 Project(s)
3 Cost Sharing Agreements Executed
3 Construction Started
3 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 3

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Bayou Perot / Bayou Rigolettes Marsh Restoration [DEAUTHORIZED]	BARA	JEFF	0	03-Mar-95 A			$1,835,047	$20,963	1.1	$20,963 $20,963

Remarks: A feasibility study conducted by LA DNR indicated that possible wetlands benefits from construction of this project are questionable. LA DNR has indicated a willingness to deauthorize the project. In April 1996, LA DNR had asked to reconsider the project with potential of combining this with two other projects in the watershed. Project deauthorized at January 16, 1998 Task Force meeting.

Status: Deauthorized.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
East Timbalier Island Sediment Restoration #1	TERRE	LAFOU	1,913	01-Feb-95 A	01-May-99 A	01-Jul-01	$2,046,971	$4,040,728	197.4 !	$3,912,661 $3,484,326

Remarks:

Status: Construction completed in December 1999. Aerial seeding of the dune platform was achieved in spring 2000, and the installation of sand fencing was completed September 30, 2000. Vegetative dune plantings are scheduled for spring 2001.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Lake Chapeau Sediment & Hydrologic Restoration	TERRE	TERRE	509	01-Mar-95 A	14-Sep-98 A	18-May-99 A	$4,149,182	$5,644,322	136.0 !	$5,369,604 $4,206,922

Remarks: Construction complete. Vegetative plantings were installed in spring 2000.

Status: Closing out cooperative agreement between NOAA and LADNR.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Lake Salvador Shore Protection (Demo)	BARA	STCHA	0	01-Mar-95 A	02-Jul-97 A	30-Jun-98 A	$1,444,628	$2,543,098	176.0 !	$2,548,978 $2,414,121

Remarks: Phase 1 was completed September 1997. Phase 2 is shoreline protection between Bayou desAllemnands and Lake Salvador. Construction began in April 1998 and completed in June 1998. Final first costs have been finalized.

Status: Closed out cooperative agreement between NOAA and LADNR. First costs accounting undersay.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
	Total Priority List 3		2,422				$9,475,828	$12,249,111	129.3	$11,852,205 $10,126,333

4 Project(s)
4 Cost Sharing Agreements Executed
3 Construction Started
2 Construction Completed
1 Project(s) Deferred/Deauthorized

Priority List 4

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
East Timbalier Island Sediment Restoration #2	TERRE	LAFOU	215	08-Jun-95 A	01-May-99 A	01-Jul-01	$5,752,404	$13,765,015	239.3 !	$12,660,901 $6,611,938

Remarks: Construction completed in January 2000. Due to changed site conditions, variable sand consistency in the borrow area, weather conditions and lack of an acceptable change order proposal from the contractor, restoration activities stopped at station +114 leaving a gap approximately 4,200 feet in the island. NMFS and LADNR are presently evaluating the feasibility of filling the remaining gap. Aerial seeding of the dune platform was achieved in spring, 2000, and the installation of sand fencing was completed by September 30, 2000.

Status: Vegetative dune plantings are scheduled for spring, 2001.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Eden Isles East Marsh Restoration [DEAUTHORIZED]	PONT	STTAM	0				$5,018,968	$38,920	0.8	$38,920 $38,920

Remarks: NMFS letter of September 8, 1997 requested the CWPPRA Task Force to move forward with deauthorization of this project. Bids were placed twice to acquire the land; both times they were rejected due to higher bids by private developers. Project deauthorized at January 16, 1998 Task Force meeting.

Status: Deauthorized.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List	4		215				$10,771,372	$13,803,935	128.2	$12,699,821 $6,650,858

2 Project(s)
1 Cost Sharing Agreements Executed
1 Construction Started
0 Construction Completed
1 Project(s) Deferred/Deauthorized

Priority List 5

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Little Vermilion Bay Sediment Trapping	TECHE	VERMI	441	22-May-97 A	10-May-99 A	20-Aug-99 A	$940,065	$1,460,196	155.3 !	$1,346,547 $546,475

Remarks: Construction completed in August 1999.

Status: Cooperative agreement being closed out. First costs accounting underway.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Myrtle Grove Siphon	BARA	PLAQ	1,119	20-Mar-97 A	01-Sep-02	30-Oct-03	$15,525,950	$15,092,773	97.2	$13,983,411 $377,444

Remarks: The 5th Priority List authorized funding in the amount of $4,500,000 for the FY 96 Phase 1 of this project. Priority List 6 authorized funding in the amount of $6,000,000 for FY 97. Priority List 8 is authorized to fund the remaining $5,000,000. Total project cost is estimated to be $15,525,950.

Status: NOAA and LADNR are closing out the cooperative agreement and returning remaining project funds to the CWPPRA program. Project will remain active as authorized.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 5			1,560				$16,466,015	$16,552,969	100.5	$15,329,958 $923,920

2 Project(s)
2 Cost Sharing Agreements Executed
1 Construction Started
1 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 6

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Black Bayou Hydrologic Restoration	CALC	CAMER	3,594	28-May-98 A	01-Jun-01	01-Jan-02	$6,316,800	$6,382,511	101.0	$5,799,072 $391,329

Remarks:

Status: Construction is scheduled for summer 2001. Vegetative plantings will be installed in April 2002.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Delta-Wide Crevasses	DELTA	PLAQ	2,386	28-May-98 A	21-Jun-99 A	31-Dec-14	$5,473,934	$4,732,653	86.5	$2,321,500 $376,822

Remarks: In FY 97, Priority List 6 authorized funding of $2,736,950 for Phase 1 of this 2-phased project. Priority List 8 is scheduled to fund $2,736,950. Total project is scheduled to cost $5,473,900.

Status: First dredging cycle of construction complete; three dredging cycles remain.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Jaws Sediment Trapping	TECHE	STMAR	1,999	28-May-98 A	01-Oct-01	01-Feb-02	$3,167,400	$3,392,135	107.1	$3,065,985 $152,500

Remarks:

Status: Engineering design and hydrologic modeling in progress.

Total Priority List 6	7,979	$14,958,134	$14,507,299	97.0	$11,186,557 $920,652

3 Project(s)
3 Cost Sharing Agreements Executed
1 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 7

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Grand Terre Vegetative Plantings	BARA	JEFF	127	23-Dec-98 A	01-May-01	30-Jun-01	$928,895	$811,065	87.3	$852,292 $75,656

Remarks:

Status: Vegetative plantings scheduled for installment in spring, 2001.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Pecan Island Terracing	MERM	VERMI	442	01-Apr-99 A	01-Nov-01	01-Mar-02	$2,185,900	$2,223,353	101.7	$1,895,165 $53,040

Remarks:

Status: Engineering design contract has been awarded. Land rights obtained.

Total Priority List 7			569				$3,114,795	$3,034,418	97.4	$2,747,456 $128,697

2 Project(s)
2 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 8

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Bayou Bienvenue Pumping Station/Terracing	PONT	STBER	442	01-Jun-00 A	01-Apr-02	01-Oct-02	$3,295,574	$3,894,916	118.2	$3,310,699 $9,288

Remarks:

Status: Cooperative Agreement awarded in June 1, 2000. Preliminary engineering underway.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Hopedale Hydrologic Restoration	PONT	STBER	134	11-Jan-00 A	01-Aug-01	30-May-02	$2,179,491	$2,423,247	111.2	$2,100,709 $31,792

Remarks:

Status: Cooperative Agreement was awarded January 11, 2000. Engineering and design in progress.

Total Priority List 8	576		$5,475,065	$6,318,163	115.4	$5,411,408 $41,080

2 Project(s)
2 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 9

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Castille Pass Sediment Delivery	ATCH	STMRY	589	29-Sep-00 A	01-May-02	01-Dec-02	$1,484,633	$1,855,792	125.0 !	$1,450,849 $681

Remarks:

Status: Cooperative Agreement was awarded September 29, 2000.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Chandeleur Island Restoration	PONT	STBER	220	10-Sep-00 A	01-May-01	01-Sep-01	$1,435,066	$1,745,306	121.6	$1,331,097 $18,761

Remarks: Pilot planting project completed in June, 2000. Final plans and specifications have been finalized. Cooperative Agreement was awarded September 10, 2000.

Status: Vegetative planting is scheduled for spring, 2001, and are phased over two years.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
East/West Grand Terre Islands Restoration	BARA	JEFF	472	21-Sep-00 A	01-May-02	01-Dec-02	$1,856,203	$2,312,023	124.6	$1,846,485 $877

Remarks:

Status: Cooperative Agreement was awarded September 21, 2000. DNR is advertising an RSIQ (Request for Statement of Interest and Qualification) for engineering assistance.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Four Mile Canal Terracing & Sediment Trapping	TECHE	VERMI	327	25-Sep-00 A	01-May-02	01-Dec-02	$459,306	$567,762	123.6	$445,965 $1,409

Remarks:

Status: Cooperative Agreement was awarded September 25, 2000. DNR is advertising an RSIQ (Request for Statement of Interest and Qualifications) for engineering assistance.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
LaBranche Wetlands Terracing/Plantings	PONT	STCHA	489	21-Sep-00 A	01-Jul-01	01-Nov-01	$9,496,951	$11,057,893	116.4	$9,019,720 $1,437

Remarks: Cooperative Agreement was awarded September 21, 2000. Engineering and design in progress.

Status: Construction is scheduled for 2001.
Task Force approved Phase 2 funding at January 10, 2001 meeting.

Total Priority List 9			2,097				$14,732,159	$17,538,776	119.1	$14,094,116 $23,166

5 Project(s)
5 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 10

Rockefeller Refuge Gulf Shoreline Stabilization	MERM	CAMER	920				$1,929,888	$2,408,478	124.8	$2,034,573 $0

Remarks:

Status: Drafting cooperative agreement between NOAA and LADNR.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF COMMERCE (NMFS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 10			920				$1,929,888	$2,408,478	124.8	$2,034,573 $0
Total DEPT. OF COMMERCE, NATIONAL MARINE FISHERIES SERVICE			**20,505**				**$84,983,487**	**$99,539,363**	**117.1**	**$88,018,043 $29,688,769**

1 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

26 Project(s)
23 Cost Sharing Agreements Executed
9 Construction Started
6 Construction Completed
4 Project(s) Deferred/Deauthorized

Notes:

1. Expenditures based on Corps of Engineers financial data.
2. Date codes: A = Actual date * = Behind schedule
3. Percent codes: ! = 125% of baseline estimate exceeded

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 1			2,052				$9,063,612	$9,304,445	102.7	$6,964,203 $6,768,008

5 Project(s)
5 Cost Sharing Agreements Executed
5 Construction Started
5 Construction Completed
1 Project(s) Deferred/Deauthorized

Priority List 2

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Brown Lake	CALC	CAMER	282	28-Mar-94 A	01-Aug-01	28-Feb-02	$3,222,800	$3,201,890	99.4	$2,233,512 $459,192

Remarks: Pipeline issues were a problem holding up construction start. All pipeline issues are resolved.

Status: Contract award has been delayed due primarily to the length of time needed to complete the permitting process, beneficial use of COE dredged material, and the relocation of a pipeline.

Currently awaiting results of DNR modeling.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures

Lead Agency: DEPT. OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE

Priority List 1

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
BA-2 GIWW to Clovelly Wetland Restoration	BARA	LAFOU	2,052	17-Apr-93 A	21-Apr-97 A	31-Oct-00 A	$8,141,512	$8,328,603	102.3	$6,148,841 $5,978,275

Remarks: The project has been divided into two contracts in order to expedite implementation. The first contract was to install most of the weir structures and is complete. The second contract was to install bank protection, one weir and one plug.

Contract 1:	Begin:	1 May 97	Complete:	30 Nov 97	$ 646,691
Contract 2:	Begin:	1 Jan 00	Complete:	31 Oct 00	$3,400,000

Status: Project construction complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Vegetative Plantings (Demo) - Dewitt-Rollover [DEAUTHORIZED]	MERM	VERMI	0	17-Apr-93 A	11-Jul-94 A	26-Aug-94 A	$191,003	$91,764	48.0	$91,764 $92,053

Remarks: Sub-project of the Vegetative Plantings project.

Status: Complete and deauthorized.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Vegetative Plantings (Demo) - Falgout Canal	TERRE	TERRE	0	17-Apr-93 A	30-Aug-96 A	30-Dec-96 A	$144,561	$204,979	141.8 !	$190,576 $183,458

Remarks: Sub-project of the Vegetative Plantings project. Wave-stilling devices are in place. Vegetative plantings are in place.

Status: Complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Vegetative Plantings (Demo) - Timbalier Island	TERRE	TERRE	0	17-Apr-93 A	15-Mar-95 A	30-Jul-96 A	$372,589	$432,858	116.2	$293,630 $275,197

Remarks: Sub-project of the Vegetative Plantings project.

The contract to install the sand fences has been completed and the vegetation was planted during the summer of 1996.

Status: Complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Vegetative Plantings (Demo) - West Hackberry	CALC	CAMER	0	17-Apr-93 A	15-Apr-93 A	30-Mar-94 A	$213,947	$246,241	115.1	$239,391 $239,024

Remarks: Sub-project of the Vegetative Plantings project.

Status: Complete.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Caernarvon Outfall Management	BRET	PLAQ	802	13-Oct-94 A	01-Jun-01	01-Apr-02	$2,522,199	$4,095,878	162.4 !	$2,386,694 $445,939

Remarks: NRCS correspondence dated September 30, 1996 requested DNR to evaluate project for possible deauthorization. DNR correspondence of December 6, 1996 concurred with NRCS to begin formal deauthorization of the project. As of July 1, 1997, LA DNR had stated that problems might be able to be resolved, and requested that NRCS not proceed with formal deauthorization at July 1997 Task Force meeting. Further discussion with primary landowner put deauthorization on hold. A meeting was scheduled for July 22, 1997 between NRCS, LA DNR and primary landowner to see if problems could be resolved.

Status: This project was proposed for deauthorization but was referred for revisions at the request of the landowners and DNR. The project has been modified. The final plan/EA has been prepared. Bids were opened 23 February 2001. The low bid exceeded the funds available. Currently seeking Task Force approval of additional funds.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Freshwater Bayou	MERM	VERMI	1,593	17-Aug-94 A	29-Aug-94 A	15-Aug-98 A	$2,770,093	$2,949,276	106.5	$1,705,055 $1,656,406

Remarks: The project has been expedited in order to allow the use of stone removed from the Wax Lake Outlet Weir at a substantial cost savings. Construction is included as an option in the Corps of Engineers contract for the Wax Lake Outlet Weir removal. Option was exercised on September 2, 1994.

The rock bank protection was Phase I of this project and was completed on January 26, 1995. Phase II will consist of installing water control structures to benefit the interior marsh area.

Status: Project complete.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Fritchie Marsh	PONT	STTAM	1,040	21-Feb-95 A	01-Nov-00 A	01-Mar-01 A	$3,048,389	$2,933,808	96.2	$2,019,021 $740,549

Remarks:

Status: Delays in project construction start occurred because a landowner had changed his position, prompting design changes, and local officials expressed concerns about drainage that required additional investigations. .

Construction completed March 2001.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Hwy 384	CALC	CAMER	150	13-Oct-94 A	01-Oct-99 A	07-Jan-00 A	$700,717	$1,068,509	152.5 !	$585,573 $504,127

Remarks: Difference of opinion between agencies concerning impacts and benefits resulted in delays, and multiple, complex land-owner title issues caused delays.

Status: Construction start slipped from November 1997 to July 1999 because of landright issues. All landright agreements signed. Construction complete January 7, 2000.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Jonathan Davis Wetland	BARA	JEFF	510	05-Jan-95 A	22-Jun-98 A	15-Aug-01	$3,398,867	$12,460,790	366.6 !	$3,197,068 $2,387,219

Remarks: The project will be constructed in two contracts. The first contract will install the majority of the structures. The second contract will install the bank protection and the remaining structures.

Status: Construction start slipped from December 1997 to June 1998 because of planning and design delays. First contract to construct weir and plugs was advertised in February 1998 and is complete. Second contract is to install part of the bank stabilization. Construction unit 2 is under construction.

Task Force granted approval to proceed with construction unit 3 in January 2001. Design is currently underway.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Mud Lake	CALC	CAMER	1,520	24-Mar-94 A	01-Oct-95 A	15-Jun-96 A	$2,903,635	$3,373,143	116.2	$2,226,721 $2,064,701

Remarks: Bid opening was August 8, 1995 and contract awarded to Crain Bros. Construction started in early October 1995. Water control structures are installed and the vegetation installed in the summer of 1996.

Status: Complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Vermilion Bay/Boston Canal	TECHE	VERMI	378	24-Mar-94 A	13-Sep-94 A	30-Nov-95 A	$1,008,634	$1,012,691	100.4	$807,982 $801,414

Remarks: The structural portion of the project - shoreline protection - is complete.

The vegetative portion of the project is complete.

Status: Complete.

Total Priority List 2	**6,275**	**$19,575,334**	**$31,095,985**	**158.9**	**$15,161,626** **$9,059,547**

8 Project(s)
8 Cost Sharing Agreements Executed
6 Construction Started
5 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 3

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Brady Canal	TERRE	TERRE	297	15-May-98 A	01-May-99 A	22-May-00 A	$4,717,928	$5,662,176	120.0	$3,389,524 $3,050,641

Remarks: Project delayed because of landowner concerns about permit conditions regarding monitoring, and objection from a pipeline company in the area. In addition, CSA revisions were needed to accommodate the landowner's interest in providing non-Federal funding.

Status: Permitting and design conditions have resulted in the CSA being modified to also include Fina Oil Co. and LL&E. Both will help cost share the project. The revised CSA is complete.

Construction project is complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Cameron Creole Maintenance	CALC	CAMER	2,602	09-Jan-97 A	30-Sep-97 A	15-Jul-98 A	$3,719,926	$3,736,718	100.5	$1,078,663 $834,650

Remarks:

Status: The first three contracts for maintenance work are complete. The project provides for maintenance on an as-needed basis.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Cote Blanche	TECHE	STMRY	2,223	01-Jul-96 A	25-Mar-98 A	15-Dec-98 A	$5,173,062	$6,029,980	116.6	$4,848,091 $4,799,787

Remarks: LA DNR's placement of the project on a September 1995 candidate deauthorization list caused delays, as did the CSA being put on hold during that time.

Status: Construction start date slipped from November 1997 to March 1998 because of concern about the source of shell to construct the project. Site inspection for bidder was held January 12, 1998. Concern for a source of shell may require budget modifications. Contract awarded February 1998; notice to proceed March 1998. Construction was completed December 1998.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
SW Shore White Lake Demo [DEAUTHORIZED]	MERM	VERMI	0	11-Jan-95 A	30-Apr-96 A	31-Jul-96 A	$126,062	$108,803	86.3	$108,561 $108,561

Remarks:

Status: Complete. Project deauthorized.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Violet Freshwater Distribution [DEAUTHORIZED]	PONT	STBER	0	13-Oct-94 A			$1,821,438	$198,597	10.9	$198,597 $128,570

Remarks: Rights-of-way to gain access to the site is a problem due to multiple landowner coordination, and additional questions have arisen about rights to operate existing siphon.

Status: Project deauthorized, October 4, 2000.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
West Pointe-a-la-Hache Outfall Management	BARA	PLAQ	1,087	05-Jan-95 A	01-Jan-02	01-Jul-02	$881,148	$4,068,045	461.7 !	$230,048 $153,055

Remarks: Initial cost estimate is too low. Additional $3.2 million requested and approved at the January 16, 1998 Task Force meeting.

Status: Oyster issues and siphon operation being reviewed by DNR. Scope of services being developed for modeling contract. Modeling underway.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
White's Ditch Outfall Management [DEAUTHORIZED]	BRET	PLAQ	0	13-Oct-94 A			$756,134	$32,862	4.3	$32,862 $32,862

Remarks: LA DNR concurred with NRCS to deauthorize the project. Project deauthorized at the January 16, 1998 Task Force meeting.

Status: Deauthorized.

Total Priority List 3	6,209	$17,195,698	$19,837,182	115.4	$9,886,347 $9,108,126

7 Project(s)
7 Cost Sharing Agreements Executed
4 Construction Started
4 Construction Completed
3 Project(s) Deferred/Deauthorized

Priority List 4

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Bayou L'Ours Ridge Hydrologic Restoration	BARA	LAFOU	737	23-Jun-97 A	01-Nov-01	30-Jun-02	$2,418,676	$2,758,567	114.1	$398,420 $101,323

Remarks: Landowners have voiced concerns of project's effects on oyster leases.

Status: Project was previously delayed to address landowner concerns. The project has been revised, and design work is proceeding.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
BBWW "Dupre Cut" - West	BARA	JEFF	232	23-Jun-97 A	01-Jun-00 A	01-Nov-00 A	$2,192,418	$3,304,787	150.7 !	$2,509,650 $2,091,511

Remarks:

Status: The project is being coordinated with the COE dredging program. Contract advertised December 1999. Construction complete. Dedication ceremony held October 20, 2000.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Flotant Marsh Fencing (Demo) [DEAUTHORIZED]	TERRE	TERRE	0	16-Jul-99 A			$367,066	$106,839	29.1	$106,839 $91,839

Remarks: Difficulty in locating an appropriate site for demonstration and difficulty in addressing engineering constraints.

Status: Project deauthorized, October 4, 2000.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Perry Ridge Bank Protection	CA/SB	CALCA	1,203	23-Jun-97 A	15-Dec-98 A	15-Feb-99 A	$2,223,518	$2,664,613	119.8	$1,760,487 $1,760,487

Remarks:

Status: Project complete.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Plowed Terraces (Demo)	CALC	CAMER	0	22-Oct-98 A	30-Apr-99 A	31-Aug-00 A	$299,690	$321,939	107.4	$351,936 $298,847

Remarks: Project was put on hold pending results of an earlier terraces demonstration project being paid for by the Gulf of Mexico program. The project is currently proceeding.

Status: Project initially put on hold pending results of an earlier terraces demonstration project being paid for by the Gulf of Mexico program. Project currently proceeding. The first attempt to plow the terraces in the summer of 1999 was not successful. A second contract was advertised in January 2000 to try again. Construction is complete.

Total Priority List 4			2,172				$7,501,368	$9,156,745	122.1	$5,127,332 $4,344,007

5 Project(s)
5 Cost Sharing Agreements Executed
3 Construction Started
3 Construction Completed
1 Project(s) Deferred/Deauthorized

Priority List 5

Freshwater Bayou Bank Stabilization	MERM	VERMI	511	01-Jul-97 A	15-Feb-98 A	15-Jun-98 A	$3,998,919	$2,543,467	63.6	$1,963,287 $1,963,287

Remarks: The local cost share is being paid by Acadian Gas Company.

Status: Contract was awarded January 14, 1998. Construction is complete.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Naomi Outfall Management	BARA	JEFF	633	12-May-99 A	01-Aug-01	31-Dec-01	$1,686,865	$2,102,650	124.6	$319,988 $246,551

Remarks: This project was combined with the BBWW "Dupre Cut" East project for planning and design; construction will be separate.

Status: The operation of the siphon is being reviewed by DNR. Hydraulic analysis is being performed.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Racoon Island Breakwaters (Demo)	TERRE	TERRE	0	03-Sep-96 A	21-Apr-97 A	31-Jul-97 A	$1,497,538	$1,788,184	119.4	$1,726,179 $1,716,129

Remarks:

Status: Complete.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Sweet Lake/Willow Lake	CALC	CAMER	247	23-Jun-97 A	01-Nov-99 A	27-Jan-00 A	$4,800,000	$5,010,762	104.4	$4,211,422 $2,426,389

Remarks: The 5th Priority List authorized funding in the amount of $2,300,000 for the FY 96 Phase 1 of this project. Priority List 6 authorized funding in the amount of $2,500,000 for the FY 97 Phase 2 of the project. Total project cost is $4,800,000.

Status: The rock bank protection feature of the project is complete.

The second contract has been awarded; terrace construction and vegetative planting will be finished by September 2001.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 5			1,391				$11,983,322	$11,445,063	95.5	$8,220,876 $6,352,356

4 Project(s)
4 Cost Sharing Agreements Executed
3 Construction Started
3 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 6

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
BBWW "Dupre Cut" - East	BARA	JEFF	217	12-May-99 A	01-Dec-00 A	31-May-01	$5,019,900	$6,979,159	139.0 !	$5,541,294 $355,977

Remarks: This project was combined with the Naomi Outfall Management project for planning and design; construction will be separate.

Status: Constructin contract awarded.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Cheniere au Tigre Sediment Trapping Device (Demo)	TECHE	VERMI	0	20-Jul-99 A	01-Jun-01	31-Aug-01	$500,000	$500,000	100.0	$364,066 $46,352

Remarks:

Status: A request for proposals was advertised in Feb 2000. No valid proposals received. Proceeding with design of a rock structure. Project advertised for bid. Bid opening scheduled for April 24, 2001.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Oaks/Avery Canals Hydrologic Restoration-Incr I (B.S. only)	TECHE	VERMI	160	22-Oct-98 A	15-Apr-99 A	30-Apr-02	$2,367,700	$2,373,597	100.2	$562,824 $418,254

Remarks: This project has a vegetative component and a structural component. NRCS will implement the vegetative component and LADNR will implement the structural component.

Status: The vegetative plantings were scheduled to be installed in summer 1999. The contractor defaulted on the vegetation contract. The vegetation contract was awarded again and completed in July 2000. Design, permits and environmental compliance being finalized.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Penchant Basin Plan w/o Shoreline Stabilization	TERRE	TERRE	1,155	30-Jun-01	01-Mar-03	30-Mar-04	$14,103,051	$14,103,051	100.0	$1,064,048 $536,909

Remarks: Priority List 6 authorized funding for $7,051,550 in FY 97; Priority List 8 is scheduled to fund $7,051,550, for a total project cost of $14,103,100.

Status: Data gathering on-going. Hydraulic model being set up.

Total Priority List 6	1,532	$21,990,651	$23,955,807	108.9	$7,532,232 $1,357,492

4 Project(s)
3 Cost Sharing Agreements Executed
2 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 7

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

				*********** SCHEDULES ***********			******** ESTIMATES ********			Actual
PROJECT	**BASIN**	**PARISH**	**ACRES**	**CSA**	**Const Start**	**Const End**	**Baseline**	**Current**	**%**	**Obligations/ Expenditures**
Barataria Basin Landbridge - Ph 1 & Ph 2	BARA	JEFF	1,304	16-Jul-99 A	01-Dec-00 A	30-Apr-01	$17,515,029	$17,515,020	100.0	$3,169,630 $393,546

Remarks: At the April 14, 1999 meeting, the Task Force approved combining the Barataria Basin Landbridge, Ph 1 (PL 7) project and the Barataria Basin Landbridge, Ph 2 (PL 8) project. The project will be recorded on Priority List 7. The project will be separated into three or four construction units.

Status: Project construction has begun.

Thin Mat Floating Marsh Enhancement (Demo)	TERRE	TERRE	0	16-Oct-98 A	15-Jun-99 A	10-May-00 A	$460,222	$542,570	117.9	$161,192 $101,042

Remarks:

Status: Construction complete. Monitoring ongoing.

	Total Priority List 7		1,304				$17,975,251	$18,057,590	100.5	$3,330,822 $494,588

2 Project(s)
2 Cost Sharing Agreements Executed
2 Construction Started
1 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 8

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Humble Canal Hydrologic Restoration	MERM	CAMER	378	21-Mar-00 A	01-Sep-01	01-Dec-01	$1,526,136	$1,526,136	100.0	$160,341 $45,514

Remarks:

Status: Preliminary design report out for review.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Lake Portage Landbridge, Ph 1	TECHE	VERMI	24	07-Apr-00 A	15-Sep-01	30-Dec-01	$1,013,820	$1,013,820	100.0	$159,300 $60,882

Remarks: Total project cost estimate is $4,559,400; Priority List 8 funded $1,000,000 for engineering and design and construction of the canal backfilling increment of the project. If monitoring indicates the need to construct the offshore breakwater increment of the project, the additional funds will be requested at that time.

This project is federally co-sponsored by EPA.

Status: Land rights issues are being addressed.

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Upper Oak River Freshwater Introduction Siphon	BRET	PLAQ	339				$2,500,239	$2,500,239	100.0	$21,719 $7,134

Remarks: Total project cost estimate is $12,994,800; Priority List 8 funded $2,500,000 for completion of engineering and design and construction of the outflow channel. Funding of the siphon will be requested when engineering and design are completed.

Status: Project feasibility being evaluated. DNR has solicited a cost estimate from one of their engineering firms to perform a feasibility study. Target dates will be established if project is deemed feasible.

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
	Total Priority List	8	741				$5,040,195	$5,040,195	100.0	$341,359 $113,530

3 Project(s)
2 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 9

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Barataria Basin Landbridge - Ph 3	BARA	JEFF	264	25-Jul-00 A	01-Dec-01	01-May-02	$1,040,595	$1,300,744	125.0 !	$730,635 $58,131

Remarks: This is the final phase of the Barataria Basin Landbridge project.

Status:

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
Black Bayou Bypass Culverts	CA/SB	CAMER	540	25-Jul-00 A			$799,823	$799,823	100.0	$458,365 $55,831

Remarks:

Status:

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

				*********** SCHEDULES ***********			******** ESTIMATES ********			Actual
PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Obligations/ Expenditures
Little Pecan Bayou Control Structure	MERM	CAMER	144	25-Jul-00 A	01-May-03	01-Oct-03	$1,245,278	$1,245,278	100.0	$738,782 $30,764

Remarks:

Status:

Perry Ridge 2	CALC	CAMER	83	25-Jul-00 A	01-Jun-01	01-Oct-01	$3,742,451	$1,612,799	43.1	$207,001 $55,282

Remarks: The Perry Ridge project approved on Priority List 4 was the first phase of this project. This is the second and final phase of the project.

Status: Task Force approved Phase 2 construction funding January 10, 2001.

South Lake DeCade/Atch Freshwater Intro	TERRE	TERRE	201	25-Jul-00 A	15-Jun-02	01-Jan-03	$396,489	$396,489	100.0	$214,590 $54,379

Remarks:

Status:

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT
Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES *********** CSA	Const Start	Const End	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
Total Priority List 9			1,232				$7,224,636	$5,355,133	74.1	$2,349,373 $254,386

5 Project(s)
5 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

Priority List 10

PROJECT	BASIN	PARISH	ACRES	CSA	Const Start	Const End	Baseline	Current	%	Actual Obligations/ Expenditures
GIWW Bank Restoration of Critical Areas in Terrebonne	TERRE	TERRE	366				$1,735,983	$1,735,983	100.0	$0 $0

Remarks:

Status:

Total Priority List 10			366				$1,735,983	$1,735,983	100.0	$0 $0

1 Project(s)
0 Cost Sharing Agreements Executed
0 Construction Started
0 Construction Completed
0 Project(s) Deferred/Deauthorized

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Lead Agency: DEPT. OF AGRICULTURE (NRCS)

	PROJECT	BASIN	PARISH	ACRES	*********** SCHEDULES ***********			******** ESTIMATES ********			Actual Obligations/
					CSA	Const Start	Const End	Baseline	Current	%	Expenditures
Total	**DEPT. OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE**			**23,274**				**$119,286,050**	**$134,984,128**	**113.2**	**$58,914,170** **$37,852,040**

44 Project(s)
41 Cost Sharing Agreements Executed
25 Construction Started
21 Construction Completed
5 Project(s) Deferred/Deauthorized

Notes:

1. Expenditures based on Corps of Engineers financial data.
2. Date codes: A = Actual date * = Behind schedule
3. Percent codes: ! = 125% of baseline estimate exceeded

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report - Total All Priority Lists

PROJECT		ACRES	******** ESTIMATES ******** Baseline	Current	%	Actual Obligations/ Expenditures
SUMMARY	Total All Projects	94,758	$356,157,612	$389,057,389	109.2	$212,597,959 $120,082,510

123 Project(s)

96 Cost Sharing Agreements Executed

54 Construction Started

43 Construction Completed

14 Project(s) Deferred/Deauthorized

Total Available Funds

Federal Funds	$368,631,582
Non/Federal Funds	$51,755,990
Total Funds	$420,387,572

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report by Basin

		No. of Projects	Acres	CSA Executed	Under Const.	Completed	Projects Deauth.	Baseline Estimate	Current Estimate	Expenditures To Date
Basin: All Basins in State										
Priority List:	Cons Plan	1	0	1	1	1	0	$238,871	$191,807	$191,807
Priority List:	10	1	0	0	0	0	0	$528,894	$528,894	$0
Basin Total		2	0	1	1	1	0	$767,765	$720,701	$191,807
Basin: Atchafalaya										
Priority List:	2	2	3,792	2	2	2	0	$5,043,867	$10,109,926	$8,437,749
Priority List:	9	1	589	1	0	0	0	$1,484,633	$1,855,792	$681
Basin Total		3	4,381	3	2	2	0	$6,528,500	$11,965,718	$8,438,430
Basin: Barataria										
Priority List:	1	3	2,497	3	3	2	0	$9,960,769	$9,568,996	$7,165,892
Priority List:	2	1	510	1	1	0	0	$3,398,867	$12,460,790	$2,387,219
Priority List:	3	3	1,087	3	1	1	1	$4,160,823	$6,632,106	$2,588,139
Priority List:	4	2	969	2	1	1	0	$4,611,094	$6,063,354	$2,192,834
Priority List:	5	2	1,752	2	0	0	0	$17,212,815	$17,195,423	$623,995
Priority List:	6	1	217	1	1	0	0	$5,019,900	$6,979,159	$355,977
Priority List:	7	2	1,431	2	1	0	0	$18,443,924	$18,326,085	$469,203
Priority List:	9	3	882	3	0	0	0	$4,048,282	$4,896,204	$90,142
Priority List:	10	2	8,891	0	0	0	0	$4,901,948	$4,901,948	$0
Basin Total		19	18,236	17	8	4	1	$71,758,422	$87,024,065	$15,873,401

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report by Basin

	No. of Projects	Acres	CSA Executed	Under Const.	Completed	Projects Deauth.	Baseline Estimate	Current Estimate	Expenditures To Date
Basin: Breton Sound									
Priority List: 2	1	802	1	0	0	0	$2,522,199	$4,095,878	$445,939
Priority List: 3	1	0	1	0	0	1	$756,134	$32,862	$32,862
Priority List: 4	1	0	0	0	0	1	$2,468,908	$64,442	$64,497
Priority List: 8	1	339	0	0	0	0	$2,500,239	$2,500,239	$7,134
Priority List: 10	2	2,740	0	0	0	0	$1,518,476	$1,609,294	$0
Basin Total	6	3,881	2	0	0	2	$9,765,956	$8,302,715	$550,432
Basin: Calcasieu/Sabine									
Priority List: 4	1	1,203	1	1	1	0	$2,223,518	$2,664,613	$1,760,487
Priority List: 9	1	540	1	0	0	0	$799,823	$799,823	$55,831
Priority List: 10	1	393	0	0	0	0	$1,425,447	$1,768,154	$0
Basin Total	3	2,136	2	1	1	0	$4,448,788	$5,232,590	$1,816,318

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report by Basin

		No. of Projects	Acres	CSA Executed	Under Const.	Completed	Projects Deauth.	Baseline Estimate	Current Estimate	Expenditures To Date
Basin: Calcasieu										
Priority List:	1	3	6,407	3	3	3	0	$5,770,187	$2,866,830	$2,124,903
Priority List:	2	4	3,019	4	3	3	0	$8,568,462	$11,360,985	$5,899,802
Priority List:	3	2	3,555	2	2	1	0	$8,301,380	$8,203,072	$3,467,767
Priority List:	4	2	0	2	1	1	0	$670,284	$747,272	$427,251
Priority List:	5	1	247	1	1	1	0	$4,800,000	$5,010,762	$2,426,389
Priority List:	6	1	3,594	1	0	0	0	$6,316,800	$6,382,511	$391,329
Priority List:	8	1	993	1	0	0	0	$5,920,248	$4,211,434	$340,855
Priority List:	9	1	83	1	0	0	0	$3,742,451	$1,612,799	$55,282
Basin Total		15	17,898	15	10	9	0	$44,089,812	$40,395,665	$15,133,578
Basin: Coastal Basins										
Priority List:	6	1	0	1	1	0	0	$2,140,000	$2,140,000	$346,605
Basin Total		1	0	1	1	0	0	$2,140,000	$2,140,000	$346,605
Basin: Miss. River Delta										
Priority List:	1	1	9,831	0	0	0	0	$8,517,066	$22,020,409	$918,944
Priority List:	3	2	936	1	1	1	1	$3,666,187	$1,022,577	$685,735
Priority List:	4	1	0	1	0	0	1	$300,000	$53,729	$53,729
Priority List:	6	2	2,386	1	1	0	0	$7,073,934	$6,372,653	$474,865
Priority List:	10	1	5,828	0	0	0	0	$1,076,328	$1,076,328	$0
Basin Total		7	18,981	3	2	1	2	$20,633,515	$30,545,696	$2,133,274

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report by Basin

		No. of Projects	Acres	CSA Executed	Under Const.	Completed	Projects Deauth.	Baseline Estimate	Current Estimate	Expenditures To Date
Basin: Mermentau										
Priority List:	1	2	247	2	2	2	1	$1,368,671	$1,492,890	$1,087,025
Priority List:	2	1	1,593	1	1	1	0	$2,770,093	$2,949,276	$1,656,406
Priority List:	3	1	0	1	1	1	1	$126,062	$108,803	$108,561
Priority List:	5	1	511	1	1	1	0	$3,998,919	$2,543,467	$1,963,287
Priority List:	7	1	442	1	0	0	0	$2,185,900	$2,223,353	$53,040
Priority List:	8	1	378	1	0	0	0	$1,526,136	$1,526,136	$45,514
Priority List:	9	2	440	2	0	0	0	$1,852,416	$1,852,416	$40,444
Priority List:	10	2	1,133	0	0	0	0	$2,457,729	$3,063,323	$0
Basin Total		11	4,744	9	5	5	2	$16,285,926	$15,759,664	$4,954,279
Basin: Pontchartrain										
Priority List:	1	2	1,753	2	2	2	0	$6,119,009	$5,280,909	$4,677,071
Priority List:	2	2	2,320	2	2	2	0	$4,500,424	$4,568,508	$1,825,729
Priority List:	3	3	755	3	2	1	1	$2,683,636	$1,011,708	$815,330
Priority List:	4	1	0	0	0	0	1	$5,018,968	$38,920	$38,920
Priority List:	5	1	75	1	0	0	0	$2,555,029	$2,257,970	$370,467
Priority List:	8	2	576	2	0	0	0	$5,475,065	$6,318,163	$41,080
Priority List:	9	3	886	2	0	0	0	$11,082,723	$12,953,905	$24,489
Priority List:	10	1	229	0	0	0	0	$527,120	$527,120	$0
Basin Total		15	6,594	12	6	5	2	$37,961,974	$32,957,203	$7,793,087

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report by Basin

	No. of Projects	Acres	CSA Executed	Under Const.	Completed	Projects Deauth.	Baseline Estimate	Current Estimate	Expenditures To Date
Basin: Teche / Vermilion									
Priority List: 1	1	65	1	1	1	0	$1,526,000	$2,046,940	$1,772,658
Priority List: 2	1	378	1	1	1	0	$1,008,634	$1,012,691	$801,414
Priority List: 3	1	2,223	1	1	1	0	$5,173,062	$6,029,980	$4,799,787
Priority List: 5	1	441	1	1	1	0	$940,065	$1,460,196	$546,475
Priority List: 6	4	2,526	4	1	0	0	$10,130,000	$11,329,695	$1,188,359
Priority List: 8	1	24	1	0	0	0	$1,013,820	$1,013,820	$60,882
Priority List: 9	3	994	1	0	0	0	$3,187,610	$3,296,066	$96,150
Basin Total	12	6,651	10	5	4	0	$22,979,191	$26,189,388	$9,265,726
Basin: Terrebonne									
Priority List: 1	5	9	4	3	3	2	$8,809,393	$9,489,672	$7,418,058
Priority List: 2	3	958	3	3	3	0	$12,831,588	$20,446,810	$17,173,668
Priority List: 3	4	3,958	4	4	3	0	$15,758,355	$23,068,412	$17,680,369
Priority List: 4	2	215	2	1	0	1	$6,119,470	$13,871,854	$6,703,777
Priority List: 5	3	2,796	2	1	1	0	$31,120,343	$20,483,084	$3,319,776
Priority List: 6	4	1,774	1	0	0	2	$30,522,757	$24,692,755	$1,009,039
Priority List: 7	1	0	1	1	1	0	$460,222	$542,570	$101,042
Priority List: 9	4	576	4	0	0	0	$9,449,252	$11,502,444	$177,388
Priority List: 10	2	970	0	0	0	0	$3,616,653	$3,616,653	$0
Basin Total	28	11,256	21	13	11	5	$118,688,033	$127,714,254	$53,583,117

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Status Summary Report by Basin

	No. of Projects	Acres	CSA Executed	Under Const.	Completed	Projects Deauth.	Baseline Estimate	Current Estimate	Expenditures To Date
Basin: Various Basins									
Priority List: 9	1		0	0	0	0	$109,730	$109,730	$2,458
Basin Total	1		0	0	0	0	$109,730	$109,730	$2,458
Total All Basins	123	94,758	96	54	43	14	$356,157,612	$389,057,389	$120,082,510

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Summary Report by Priority List

P/L	No. of Projects	Acres	CSA Executed	Under Const.	Const. Completed	Federal Const. Funds Available	Non/Fed Const. Funds Available	Baseline Estimate	Current Estimate	Obligations To Date	Expenditures To Date
1	14	20,809	13	1	12	$28,084,900	$9,264,098	$39,933,317	$52,568,256	$25,364,935	$24,965,171
2	15	13,372	15	1	12	$28,173,110	$11,552,351	$40,644,134	$67,004,864	$46,665,989	$38,627,926
3	12	12,514	12	3	8	$29,939,100	$7,708,810	$33,229,168	$45,628,438	$32,910,575	$29,767,738
4	6	2,387	6	1	3	$29,957,533	$3,566,903	$13,257,300	$23,240,254	$18,023,907	$10,992,510
5	9	5,822	8	0	4	$33,371,625	$4,895,090	$60,627,171	$48,950,902	$25,948,853	$9,250,390
6	11	10,497	9	4	0	$39,134,000	$5,789,677	$54,614,991	$57,826,452	$20,982,188	$3,695,853
7	4	1,873	4	1	1	$42,540,715	$3,163,801	$21,090,046	$21,092,008	$6,078,278	$623,284
8	6	2,310	5	0	0	$41,864,079	$2,335,469	$16,435,508	$15,569,792	$6,093,622	$495,465
9	19	4,990	15	0	0	$47,907,300	$5,831,877	$35,756,920	$38,879,179	$27,210,925	$542,865
10	12	20,184	0	0	0	$47,659,220	$2,563,757	$16,052,595	$17,091,714	$2,161,278	$0
Active Projects	108	94,758	87	11	40	$368,631,582	$56,671,833	$331,641,150	$387,851,860	$211,440,551	$118,961,202
Deauthorized Projects	14	0	8	0	2			$24,277,591	$1,013,723	$1,013,553	$929,501
Total Projects	122	94,758	95	11	42	$368,631,582	$56,671,833	$355,918,741	$388,865,582	$212,454,104	$119,890,703
Conservation Plan	1	0	1	0	1			$238,871	$191,807	$143,855	$191,807
Total Construction Program	123	94,758	96	11	43	$368,631,582	$56,671,833	$356,157,612	$389,057,389	$212,597,959	$120,082,510

$425,303,415

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Project Summary Report by Priority List

NOTES:

1. Total of 123 projects includes 108 active construction projects, 14 deauthorized projects, and the State of Louisiana's Wetlands Conservation Plan.
2. Federal funding of $47,659,220 for FY 01 has been received.
3. Total construction program funds available is $425,303,415 .
4. The current estimate for closed-out deauthorized projects is equal to expenditures to date.
5. Current Estimate for the 5th priority list includes authorized funds for FY 96, FY 97 FY 98 and FY 99 for phased projects with multi-year funding.
6. Current Estimate for the 6th priority list includes authorized funds for FY 97, FY 98 and FY 99 for phased projects with multi-year funding.
7. The Task Force approved 8 unfunded projects, totalling $77,492,000 on Priority List 7 (not included in totals).
8. Obligations include expenditures and remaining obligations to date.
9. Non-Federal Construction Funds Available are estimated using cost share percentages as authorized for before and after approval of Conservation Plan.
10. Baseline and current estimates for PPL 9 (and future project priority lists) reflect funding utilizing cash flow management principles.
11. The amount shown for the non-federal construction funds available is comprised of 5% minimum cash of current estimate, and the remainder may be WIK and/or cash. The percentage of WIK would influence the total construction funds (cash) available.