Coastal Wetlands Plannning, Protection and Restoration Act

2nd Priority Project List Report

October 30, 1992

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Coastal Wetlands Planning, Protection and Restoration Act

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2nd Priority Project List Report

INTRODUCTION

The State of Louisiana contains 40 percent of the Nation's coastal wetlands, but is experiencing 80 percent of the Nation's coastal wetland loss. The widespread and complex nature of the coastal wetland loss problem, coupled with the diversity of agencies involved and numerous alternatives proposed, has led many in Federal, state, and local government, as well as the general public, to the conclusion that a comprehensive approach is needed. The Coastal Wetlands Planning, Protection and Restoration Act (PL 101-646) was signed into law by President Bush on November 29, 1990, to address the need for a comprehensive approach to this significant environmental problem.

This draft 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), displayed in Appendix A, "Summary and the Complete Text of the CWPPRA," 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 2nd Priority Project List and transmit the list to Congress by November 28, 1992, 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; that effort is currently in progress, and will be reported on in November 1993, as required by the act.

PROJECT AREA

Plate 1 is a map which delineates the Louisiana coastal zone. The entire coastal area, which comprises all or part of 20 Louisiana parishes, is considered to be the

stated 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." The group represents a broad spectrum of interests in the coastal zone, and it ensures adequate representation of these interests in the workings of the Task Force. The membership of the Citizen Participation Group is shown below.

Membership of the Citizen Participation Group

Chairman: Coalition to Restore Coastal Louisiana	Concerned Shrimpers of America
Vice Chairman: Gulf Coast Conservation Association	Gulf Intracoastal Canal Association
Lake Pontchartrain Basin Foundation	Louisiana Association of Soil and Water Conservation Districts
Louisiana Farm Bureau Federation, Inc.	Louisiana Landowners Association
Louisiana League of Women Voters	Louisiana Nature Conservancy
Louisiana Oyster Growers and Dealers Association	Louisiana Wildlife Federation, Inc.
Midcontinent Oil and Gas Association	New Orleans Steamship Association
Oil and Gas Task Force (Regional Economic Development Council)	Police Jury Association of Louisiana
Organization of Louisiana Fishermen	**Ex Officio Member:** U.S. Senator John Breaux

Even with its widespread membership, the Citizen Participation Group cannot represent all of the diverse interests affected by Louisiana's coastal wetlands. The CWPPRA public involvement program provided an opportunity for all interested parties to express their concerns and opinions and to submit their ideas concerning the problems facing Louisiana's wetlands.

To provide this opportunity, three sets of meetings were held. The first set of meetings consisted of two series of scoping meetings held in October and November 1991--one series for coastal zone parish officials and another series for the general public. The purpose of these scoping meetings was to identify both wetland loss problems throughout the coastal zone and potential solutions to those problems. Literally hundreds of ideas were submitted to the Task Force through the scoping meetings. The schedule of scoping meetings was as follows.

Dates	Location	Hydrologic Basins
February 4-6, 1992	Baton Rouge	Pontchartrain
February 12-13, 1992	New Orleans	(follow up)
March 17-19, 1992	St. Francisville	Barataria, Breton Sound, Mississippi R. Delta
March 25-26, 1992	New Orleans	(follow up)
April 7-9, 1992	Baton Rouge	Terrebonne, Atchafalaya, Teche/Vermilion
April 15-16, 1992	New Orleans	(follow up)
April 28-30, 1992	Abbeville	Mermentau, Calcasieu/Sabine
May 6-7, 1992	New Orleans	(follow up)

The final set of meetings was a series of public meetings held in June 1992. At these meetings, candidate projects for the 2nd Priority Project List were presented to the public. These meetings ensured a public review of the selection process before detailed evaluations of candidate projects were begun. Public meetings were scheduled as shown below.

Dates	Location	Hydrologic Basins
June 16, 1992	Morgan City	Atchafalaya, Teche/Vermilion
June 18, 1992	Belle Chasse	Barataria, Breton Sound, Mississippi River Delta
June 23, 1992	Houma	Terrebonne
June 25, 1992	Lake Charles	Mermentau, Calcasieu/Sabine
June 30, 1992	New Orleans	Pontchartrain

hydrology. Further background involved descriptions of vegetative types. Projections for the future of each basin were presented. Finally, the coastal wetlands problems were discussed in detail, and strategies were developed for dealing with those problems on a basin-by-basin basis. These meetings formed the basis for development of the conceptual plans which will ultimately lead to the comprehensive restoration plan required by Section 303(b) of the CWPPRA. Projects which were proposed during and after these meetings are identified with an "X" (*e.g.*, XTE-41).

Projects which had been proposed but not selected for the November 1991 Priority Project List were also considered.

SCREENING OF PROPOSED PROJECTS

The tremendous number of proposals submitted called for the development of an easily implemented screening process which would allow winnowing these hundreds of ideas down to a manageable number. These projects could then be evaluated in more detail. Basin captains, one for each of the hydrologic basins, were appointed from among the Task Force agencies to take the lead in screening projects. Each captain had a team with a representative from each agency. The basin teams were responsible for doing preliminary evaluations of all projects submitted and making a recommendation to the Planning and Evaluation Subcommittee for candidate projects to be considered for the 2nd Priority Project List. The subcommittee then put together a list of 36 candidate projects to be evaluated for the second list. These candidates were presented in the public meetings which took place in the last two weeks of June 1992. Following those meetings, the subcommittee revised the list of candidate projects to incorporate input from the public. This process is described in the next four sections. The candidate projects which emerged would be evaluated in considerable detail to determine their cost effectiveness.

Basin Teams.

To give some form to the screening process, the Planning and Evaluation Subcommittee developed two tools: a Preliminary Evaluation Sheet (PES) and a Screening Information Sheet (SIS).

The PES constituted the first level of screening, and was designed to evaluate a proposal's fitness for the CWPPRA in general and the 2nd Priority Project List in particular. If the purpose of the project was not long term protection, restoration, enhancement, or creation of coastal wetlands, or the project did not meet the objectives set for its particular basin at the plan formulation meetings, the project was dropped from consideration. The PES also screened out projects which could not be constructed within the five year time frame prescribed by the CWPPRA for priority list projects. Any project which was judged capable of meeting the timing criterion was evaluated according to whether it: possessed local support; served as a linchpin project in the overall restoration strategy for its basin; provided a significant opportunity to preserve, improve, or build coastal wetlands; and had regional impacts or was a small demonstration project. Projects which received three or more points in this system were elevated to the next level of evaluation.

Summary of Preliminary Evaluation Sheets

Pontchartrain Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
FPO56B	Seabrook Barrier (Sill)	HR	Yes	Yes	No								Yes
FPO56A	Seabrook Barrier (Lock)	HR	Yes	Yes	No								Yes
PPO62	MRGO Total Closure, Two/Three Sills	HR	Yes	Yes	No								Yes
PPO6B	MRGO Speed Limit	SP	Yes	Yes	Yes	No							Yes
XPO76	MRGO New Route in Mississippi Sound	HR	Yes	Yes	No								Yes
PPO6A	MRGO Navigable Gate	HR	Yes	Yes	No								Yes
PPO5	MRGO Sill/Facility Relocation	HR	Yes	Yes	No								Yes
XPO57	MRGO Closure,Violet Sediment Diversion, Move Facil	SD	Yes	Yes	No								Yes
PPO38	MRGO Bank Sabilization	SP	Yes	Yes	Yes	No							Yes
XPO68	MRGO-Widen/Deepen, Close Bayous, Gate	HR	Yes	Yes	No								Yes
XPO53	Bonnet Carre Operation Modification	FD	Yes	Yes	Yes	No							Yes
FPO55	Bonnet Carre Diversion 30,000 cfs	FD	Yes	Yes	No	No							Yes
XPO66	Artifical Barrier Islands West of Chandeleurs	SP	Yes	Yes	No								Yes
XPO65	Artifical Oyster Reefs	SP	Yes	Yes	Yes		Yes		Yes		3	Yes	Yes
PPO40	Bayou Bienvenue/Dupre Freshwater Introduction	FD	Yes	Yes	Yes	Yes							Yes
PPO42	Bayou Bienvenue/Dupre Saltwater Prevention	HR	Yes	Yes	Yes	No							Yes
PPO13	Bayou Chinchuba/ Lake Pontchartrain Shore Prot	SP	Yes	Yes	Yes	No							Yes
PPO28	Bayou Chinchuba Marsh Restoration	HR	Yes	Yes	Yes	No							Yes
PO8	Central Wetlands Pump Outfall	HR	Yes	Yes									Built
PPO4	Eden Isles East Marsh Protection	HR	Yes	Yes	Yes	Yes			Yes		1		Yes
PO6	Fritchie Wetland	HR	Yes	Yes	Yes	Yes	Yes		Yes		3	Yes	Yes

HR Hydrologic Restoration
MC Marsh Creation
FD Freshwater Diversion
SD Sediment Diversion
MM Marsh Management
MP Marsh Protection or Restoration
SP Shoreline Protection

Summary of Preliminary Evaluation Sheets (Con't)

Pontchartrain Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
XPO51A	Manchac WMA Hydrologic Restoration	HR	Yes	Yes	Yes	No							Yes
XPO51B	Manchac WMA Hydrologic Restoration	HR	Yes	Yes	Yes	Yes	Yes		Yes		3	Yes	Yes
XPO58	P Manchac Shore Protection	SP	Yes	Yes	Yes	Yes			Yes		1		Yes
PO5	Southeast Lake Maurepas Wetlands	HR	Yes	Yes	Yes	No							Yes
PO13	Tangi/Pontchratrain Shore Protection	SP	Yes	Yes	Yes	No							Yes
XPO49	Tangipahoa Swamp Hydologic Restoration	HR	Yes	Yes	Yes	No							Yes
XPO47	Amite Diversion CanalBank Modification	HR	Yes	Yes	Yes	Yes		Yes	Yes		3	Yes	Yes
PPO16	Amite Diversion Channel Weir Maintenance	HR	Yes	Yes									Built
XPO60	Cypress Succession Management		Yes	Yes	Yes	No							Yes
XPO48B	Hope Canal Hydrologic Restoration	HR	Yes	Yes	Yes	Yes		Yes	Yes		3	Yes	Yes
PPO17	Lower Maurepas Basin Hydrologic Restoration	HR	Yes	Yes	Yes	No							Yes
XPO44	Maurepas Basin Sediment Diversion	SD	Yes	Yes	Yes	No							Yes
XPO45	Maurepas Basin Sediment Pumping	SD	Yes	Yes	Yes	No							Yes
XPO48A	Tennessee Williams Canal Hydrologic Restoration	HR	Yes	Yes	Yes	Yes		Yes	Yes		3	Yes	Yes
XPO46	Tickfaw Freshwater Diversion	FD	Yes	Yes	Yes	No							Yes
PPO21	Stormwater Runoff Treatment /Marsh Creation		No										No
	Orleans Parish		No										No
PPO22	Stormwater Runoff Treatment /Marsh Creation		No										No
	East Jefferson		No										No
PPO35	Stormwater Runoff Treatment /Marsh Creation		No										No
	Duncan Canal		No										No
PPO34	Stormwater Runoff Treatment /Marsh Creation		No										No
	Bonnabel Canal		No										No
PPO23	Project Swallow		No										No
PPO24	Purchase Marshes Around Lake Pontchratrain		No										No
PPO25	Grass Bed Re-establishment		No										No
PPO61	River Ridge Batture Park		No										No

HR	Hydrologic Restoration
MC	Marsh Creation
FD	Freshwater Diversion
SD	Sediment Diversion
MM	Marsh Management
MP	Marsh Protection or Restoration
SP	Shoreline Prection

Summay of the Breton Sound Basin Team Meeting

The Breton Sound Basin team met on June 10, 1992, to begin the initial screening of projects for the 2nd Project Priority List. Members of the team included Mrs. Donna Keller Bivona, Corps of Engineers, Basin Captain; Mr. Carrol Clark, Louisiana Department of Natural Resources; Mr. George Townsley, Soil Conservation Service; Mr. Gerry Bodin, U.S. Fish and Wildlife Services; Mrs. Peggy Jones, National Marine Fisheries Service; Ms. Jeanene Peckham, Environmental Protection Agency; and Mr. Richard Boe, Corps of Engineers, Environmental Branch. Dr. Bruce Thompson, the basin's academic advisor, was unable to attend.

A brief overview of the PES's for the list of projects proposed in this basin was given by the basin captain. The complete list of proposed projects in this basin consisted of 21 projects distributed as shown below.

Sediment or Freshwater Diversion	6
Hydrologic Restoration	12
Marsh Protection or Restoration	3

As a result of the preliminary evaluation of the projects and the discussion of the team, 8 of the 21 projects (see Summary of Preliminary Evaluation Sheets) were deferred from consideration as potential 2nd Priority Project List candidates. These projects (PBS-2, PBS-4, PBS-7, PBS-8, PBS-9, PBS-10, BPS-14, and PBS-15) will require further analysis and may be considered on a subsequent priority list or in the Comprehensive Restoration Plan.

Projects PBS-3 and PBS-12 are duplicates of BS-3b (Caernarvon Diversion Outfall Management North of Lake Lery), and therefore were not evaluated. Project PBS-11, Caernarvon Freshwater Diversion Operation Modification, was determined to be inappropriate for the CWPPRA. In order to operate the structure for sediment introduction instead of freshwater introduction, an amendment to the existing project authorization would be required.

Projects BS-1a, BS-1b, BS-4a, BS-4b, and BS-5 are scheduled to be implemented under the State's 1992 Coastal Wetlands Conservation and Restoration Plan; therefore, they were not considered for the 2nd Priority Project List.

Project BS-3b, Caernarvon Diversion Outfall Management North of Lake Lery, was deferred pending the outcome of Project BS-3a, Caernarvon Diversion Outfall Management South of Big Mar.

Summary of Preliminary Evaluation Sheets

Breton Sound Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
BS-1A	Restoration of Bohemia Diversion	HR	Yes	Yes	Yes	Yes	Yes		Yes	No	3		Yes
BS-1B	Bohemia Diversion Outfall Management	HR	Yes	Yes	Yes	Yes	Yes		Yes	No	6		Yes
BS-3A	Caernarvon Diversion Outfall Mgmt S. of Big Mar	HR	Yes	Yes	Yes	Yes	Yes		Yes	No	6	Yes	Yes
BS-3B	Caernarvon Diversion Outfall Mgmt N. of Lake Lery	HR	Yes	Yes	Yes	Yes	Yes		Yes	No	6		Yes
BS-4A	White's Ditch Outfall Mangement	HR	Yes	Yes	Yes	Yes	Yes		Yes	No	6		Yes
BS-4B	White's Ditch Enlargement and Outfall Management	HR	Yes	Yes	Yes	Yes	Yes		Yes	No	6		Yes
BS-5	Bayou Lamoque Diversion	HR	Yes	Yes	Yes	Yes	Yes		Yes	No	4		Yes
PBS-2	Barrier Island from Pointe A La Hache to the MRGO	MP	Yes	Yes	Yes	No			Yes	No	4		Yes
PBS-3	Restoration of marshes N. of Lake Lery (see BS-3B)	HR											
PBS-4	Relocation of the Mississippi River into Breton Basin	SD	Yes	Yes	No	No			Yes	No			Yes
PBS-5	Fiddler Point Barrier Island	MP	Yes	Yes	Yes	Yes	Yes		Yes	No	3	Yes	Yes
PBS-6	Crevasse South of Bohemia	SD	Yes	Yes	Yes	Yes	Yes		Yes	No	4	Yes	Yes
PBS-7	Bohemia Sediment Diversion (large scale diversion)	SD	Yes	Yes	No	No	Yes		Yes	No	4		Yes
PBS-8	Interior Barrier Island	HR	Yes	Yes	Yes	No	Yes		Yes	No	6		Yes
PBS-9	Interior Ridge Restoration and Enhancement	HR	Yes	Yes	Yes	No	Yes		Yes	No	4		Yes
PBS-10	Caernarvon Sediment Diversion	SD	Yes	Yes	No	No	Yes		Yes	No			Yes
PBS-11	Caernarvon Diversion Operation Modification	SD		Yes			Yes			No			
PBS-12	Divert Caer. O/F into marshes N. of Lery (see BS-3B)	HR											
PBS-13	Oyster Reef Demostration	MP	Yes	Yes	Yes	Yes	Yes			Yes	3	Yes	Yes
PBS-14	Foreshore Dike Restoration at Olga	HR	Yes	Yes	Yes	No	Yes		Yes	No			Yes
PBS-15	Scarsdale Spillway	SD	Yes	Yes	No	No	Yes			No			Yes

HR Hydrologic Restoration
MC Marsh Creation
FD Freshwater Diversion
SD Sediment Diversion
MM Marsh Management
MP Marsh Protection or Restoration
SP Shoreline Protection

Summary of the Mississippi River Delta Basin Team Meeting

The Mississippi River Delta Basin team met on June 9, 1992, to perform the initial screening of projects for the 2nd Priority Project List. Members of the team included Mr. Tim Axtman, Corps of Engineers, Basin Captain; Mr. John Radford, Louisiana Department of Natural Resources; Mr. George Townsley, Soil Conservation Service; Ms. Kim Mitchell, U.S. Fish and Wildlife Service; Mr. Ric Hartman, National Marine Fisheries Service; Ms. Jeanene Peckham, Environmental Protection Agency; Mr. Richard Boe, Corps of Engineers; and Dr. Ivor Van Heerden, academic consultant.

A brief overview of the PES's for the list of projects proposed in this basin was given by the basin captain. The complete list of proposed projects in this basin consisted of nine projects distributed in the following manner.

Freshwater or Sediment Diversion	5
Sediment Retention	1
Marsh Creation Using Dredged Material	3

As a result of the of the preliminary evaluation of the projects and the discussion of the basin team, four of the nine projects were deferred from consideration for the 2nd Priority Project List. These projects will require further analysis and may be considered on a subsequent priority list or in the Comprehensive Restoration Plan.

The basin team then reviewed the SIS for each project being considered for inclusion on the 2nd Priority Project List. After discussion by the basin team, a fifth project, the Riverside Bay Wetland Creation project, was also deferred from consideration for the 2nd list. Because of questions over the durability of the design, the low estimate of unit benefit produced over the project life and the overlapping of its location with an already approved project, this project was deemed inappropriate for consideration. Upon review of the remaining projects in this basin, three of the four had available SIS's. The fourth, the Pass a Loutre Sediment Mining project, although suitable for inclusion on the upcoming project list, required some additional detailed information. Dr. Van Heerden indicated that he would be able to develop this information over a short time frame. As a result the team approved this project for consideration. In reviewing the screening information on the remaining three projects--Main Pass Marsh Creation, Pass a Loutre Sediment Fencing and Tiger Pass Dredge Material Disposal--there were minor comments raised. A relocation of the project site for the Main Pass Marsh Creation project was requested by the U.S. Fish and Wildlife Service. Because this project is located on the Delta National Wildlife Refuge and the Service was able to propose an alternate location on the refuge, this request posed no problem. There was also a question concerning the amount of acreage benefited by the Pass a Loutre Sediment Fencing project. While the estimate of acreage created was accepted, there was some question among the group as to whether the project would provide enhancement to any existing wetlands. As a result the estimate of benefited acres was adjusted.

The basin team's review and discussion of the PES's and SIS's resulted in the concensus recommendation of four projects. The recommended candidate projects for the 2nd Priority Project List from the Mississippi River Delta Basin were: Main

Summary of Preliminary Evaluation Sheets

Mississippi River Delta Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
MR2	Pass A Loutre Sediment Fencing	SD	Yes	Yes	Yes	Yes	Yes		Yes		3	Yes	Yes
FMR4	Tiger Pass Dredged Material	MC	Yes	Yes	Yes	Yes	Yes		Yes		3	Yes	Yes
PMR1	Riverside Bay Island	MC	Yes	No	Yes	Yes	Yes				2		Yes
PMR2	Main Pass Crevasses	HR	Yes	Yes	Yes	Yes			Yes		1	Yes	Yes
PMR3	Mississippi River Passes Sediment Diversion	SD	Yes	Yes	Yes	No							Yes
PMR5	Benny's Bay Sediment Diversion	SD	Yes	Yes	Yes	No							Yes
PMR6	Mississippi River Channel Relocation	HR	Yes	Yes	No	No							Yes
PMR7	Mississippi River Passes Flow Redistribution	HR	Yes	Yes	Yes	No							Yes
PMR8	Pass A Loutre Sediment Mining	MC	Yes	Yes	Yes	Yes	Yes		Yes		3	Yes	Yes

HR	Hydrologic Restoration
MC	Marsh Creation
FD	Freshwater Diversion
SD	Sediment Diversion
MM	Marsh Management
MP	Marsh Protection or Restoration
SP	Shorline Protection

Summary of the Barataria Basin Team Meeting

The Barataria Basin team met on June 9, 1992, to review the PES's and SIS's for the purpose of nominating candidate projects for the 2nd Priority Project List. Members of the team were Mr. Samuel Holder, Minerals Management Service, Basin Captain; Mr. Richard Boe, Corps of Engineers; Ms. Peggy Jones, National Marine Fisheries Service; Mr. Michael Nichols, Soil Conservation Service; Ms. Jeanene Peckham, Environmental Protection Agency; Mr. Lloyd Mitchell, U.S. Fish and Wildlife Service; and Mr. Bill Savant, Louisiana Department of Natural Resources. All members attended.

The basin captain led a discussion of views and strategies for managing the basin. The discussion focused upon the Central Marsh Protection Plan and sediment diversions as probable center pieces for management of the basin.

The PES's of the proposed 63 projects for the basin were reviewed. The PES review reduced the list down to 47 projects as possible candidates for the 2nd Priority List (see Summary of Preliminary Evaluation Sheets).

The SIS's of the reduced list of 47 projects were then reviewed and discussed. The SIS review reduced the list to eleven projects as possible Barataria Basin candidates for the 2nd List (see Summary of Screening Information Sheets). From this list, the basin team selected eight candidates and presented them to the Planning and Evaluation Subcommittee in descending order of preference. The eight projects were: Shell Island (PBA-38), Hwy 90 to GIWW (BA-6), Naomi Outfall Management (BA-3c), West Point a la Hache Management (BA-4c), Hero Canal (BA-13), Jonathan Davis Wetlands (PBA-35), Sandy Point Restoration (PBA-39), and Rambo Oyster Demonstration (PBA-50).

Summary of Preliminary Evaluation Sheets (Con't)

Barataria Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
PBA-22	Hydrologic Mmgt to Reduce Tidal Flushing	HR	Yes	Yes	Yes	No						Yes	
PBA-23	Enlarge B. Lafourche-Construct Locks-Saltwater Intru	HR	No										
PBA-24	Davis Pond Freshwater Diversion O/F Management	HR	Yes	Yes	No							Yes	
PBA-25	Lake Salvador Watershed Management Project	HR	Yes	Yes		No						Yes	
PBA-26	Lock on Barataria WW & Fl-gates on Camaniada Pass	*	Yes	No									
PBA-27	Replace Scoldfield Bayou Plug-Prevent Tidal Scour	*	Yes	No									
PBA-28	Low Levees Along Canals Between Protection Levees	HR	Yes	Yes	Yes	No						Yes	
PBA-29	Marsh Mmgt-Pen &Hero Canal to Trap Sediments	MM	Yes	Yes	Yes	No						Yes	
PBA-30	Freshwater Diversion & Mmgt Bara Ridge-Miss Riv & Hero Canal-Bayou Dupont	FD	Yes	Yes	Yes	No						Yes	
PBA-31	Shoreline Prot Bayous Oies & Dupont-Dredged Mat'l	SP	Yes	No									
PBA-32	Marsh Management Southeast of Leeville	MM	Yes	Yes	Yes	No						Yes	
PBA-33	Barrier (Ridges) Restoration Near Bayou L'ours	HR	Yes	Yes	Yes	No						Yes	
PBA-34	Maintain Bayou L'ours Ridge	HR	Yes	Yes	Yes	No						Yes	
PBA-35	Restore Johnathan Davis Wetlands	MP	Yes	Yes	Yes	Yes	Yes	Yes			5	Yes	
PBA-36	Lagen Freshwater Diversion	FD	Yes	Yes	Yes							Yes	
PBA-37	Bayou Des Allemands Freshwater Diversion	FD	Yes	Yes	No							Yes	
PBA-38	Shell Island Restoration	MP	Yes	Yes	Yes	Yes	Yes		Yes		4	Yes	
PBA-39	Sandy Point Restoration	MP	Yes	Yes	Yes	Yes	Yes		Yes		4	Yes	
PBA-40	Fort Livingston Beach Nourishment	MP	Yes	Yes	Yes	No						Yes	
PBA-41	Marsh Creation By Dredging Bayou Rigolettes	MC	Yes										
PBA-42	U.S. Highway 90 Drainage Inprovements	HR	Yes	Yes	Yes	No						Yes	
PBA-43A	Hydrologic Management of Bayou Rigolettes	HR	Yes	Yes	Yes	No						Yes	
PBA-43B	Hydrologic Management of Bayou Dupont	HR	Yes	Yes	Yes	No						Yes	
PBA-44	Sediment Diversion At Buras	SD	Yes	Yes	No	No						Yes	
PBA-45	Hydrologic Management of Grand Bayou	HR	Yes	Yes	Yes	No						Yes	
PBA-46	Interior Barrier Constriction	HR	Yes	Yes	Yes	No						Yes	
PBA-47	Dedicated Dredging to Restore Marshes	MC	Yes	Yes	No							Yes	

HR Hydrologic Restoration
MC Marsh Creation
FD Freshwater Diversion
SD Sediment Diversion
MM Marsh Management
MP Marsh Protection or Restoration
SP Shoreline Prection

Summary of Screening Information Sheets

Bartaria Basin Projects

No.	Project Name	Net Acres Created	Net Acres Protected	Net Acres Enhanced	Total Weighted Acres	Avg Annual Cost ($)	Cost Per Weighted Acre ($/acre)
PBA-2	Grand Isle / Grand Terre Barrier Island Rebuilding	NA	NA	NA	NA	NA	NA
PBA-6	Lake Salvador Shoreline Protection	NA	NA	NA	NA	NA	NA
PBA-35	Jonathan Davis Wetland	0.3	271	211	482.2	246,192	510.56
PBA-38	Shell Island Restoration	100	3,682		3,782	2,300,000	608.14
PBA-39	Sandy Point Restoration	155	2,766		2,921	1,400,000	479.29
PBA-50	Rambo Oyster Demonstration	0.1	1	1	2.1	35,222	16,772.38
BA-3c	Naomi Siphon Outfall Management		103	4,275	4,378	122,144	27.90
BA-4c	West Pt. A La Hache Siphon Outfall Management		23	2,300	2,323	194,020	83.52
BA-6	GIWW to Hwy. 90 Hydrologic Restoration		3,200	18,400	21,600	197,000	9.12
BA-13	Hero Canal Freshwater Diversion			2,800	2,800	951,000	339.64
BA-15	Lake Salvador Shore Protection	NA	NA	NA	NA	NA	NA

NA- Information not available

Summary of Preliminary Evaluation Sheets

Terrebonne Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
TE-1	Montegut Wetland	MM	Yes	Yes	Yes	No							Yes
TE-2	Falgout Canal Wetland	MM	Yes	Yes	Yes	No							Yes
TE-4B	Barrier Island Sand Retention Project	MP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7	Yes	Yes
TE-5	Grand Bayou Wetland	MM	Yes	Yes	Yes	Yes	Yes	Yes	Yes		6	Yes	Yes
TE-8	Bayou Pelton Wetland Protection												
TE-7A	Upper Petit Caillou Management Project	MM	Yes	Yes	Yes	Yes	Yes	Yes	Yes		6	Yes	Yes
TE-7B	Lower Petit Caillou Management Projedt	MM	Yes	Yes	Yes	Yes	Yes	Yes	Yes		6	Yes	Yes
TE-7C	Lake Boudreaux Wetland	MM	Yes	Yes	Yes	No							Yes
TE-7D	Lake Boudreaux Watershed Plan	HR	Yes	Yes	Yes	No							Yes
TE-9	Bully Camp Marsh	MM	Yes	Yes	Yes	No							Yes
TE-10	Grand Bayou - GIWW Diversion	FD	Yes	Yes	Yes	No							Yes
TE-11A	Isle Derniers New Cut Closure	MP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7	Yes	Yes
TE-12	Bird Island Restoration	MP	Yes	Yes	Yes	No							Yes
TE-13	Trinity Bayou Pilot Project	MP	Yes	Yes	Yes	Yes	Yes	Yes			4	Yes	Yes
TE-14	Point Farm Refuge Planting	MP	Yes	Yes	Yes	No							Yes
TE-15	GIWW Levee Planting	MP	Yes	Yes	Yes	Yes	Yes			Yes	3	Yes	Yes
TE-16	St. Louis Wetland Restoration	MP	Yes	Yes	Yes	Yes	Yes		Yes	Yes	4	Yes	Yes
PTE-1	Bayou Terrebonne Dredging	MC	Yes	Yes	Yes	No							Yes
PTE-2	Bank Stabilization Westside of Bayou La Fourche	SP	Yes	Yes	Yes	Yes	Yes				3	Yes	Yes
PTE-3	Houma Navigation Canal Bank Stabilization	SP	Yes	Yes	No								Yes
PTE-4	GIWW / Bayou La Fourche Beach Clourse	SP	Yes	Yes	Yes	Yes			Yes		1		Yes

HR	Hydrologic Restoration
MC	Marsh Creation
FD	Freshwater Diversion
SD	Sediment Diversion
MM	Marsh Management
MP	Marsh Protection or Restoration
SP	Shoreline Protection

Summary of Screening Information Sheets

Terrebonne Basin Projects

No.	Project Name	Net Acres Created	Net Acres Protected	Net Acres Enhanced	Total Weighted Acres	Avg Annual Cost ($)	Cost Per Weighted Acre ($/acre)
PTE-22/24	Point Au Fer Hydrologic Restoration			6,400	3,200	34,485	10.78
FTE-21	Falgout Canal Wetland Creation Demonstration	720			720	528,000	733.33
PTE-15	Isle Dernieres Barrier Island Restoration	NA	NA	NA	1,700	3,400,000	2,000.00
TE-8	Bayou Pelton Wetland Protection			2,492	748	87,489	116.89
TE-11	Isle Dernieres Cut Closure	16			12	228,967	19,080.60
PTE-27	West Belle Pass Headland Restoration	8	205		213	92,265	434.19
PTE-10	Point Au Fer, Terrebonne, & Barataria Restoration	10,000			10,000	320,000	3.20
TE-6	Pointe Au Chien Wetand Restoration	509	1,003	1,865	1,694	43,152	25.47
XTE-39	Oyster Reef Wave Atenuation Demonstration	NA	NA	NA	NA	NA	NA
PTE-7b	Houma Navigation Canal Gate	NA	NA	NA	900	211,000	234.34

NA- Information not available

Summary of Preliminary Evaluation Sheets

Atchafalaya Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
PAT-1	Constrict Navagation Channel	HR	Yes	Yes	Yes	No							Yes
PAT-2	Reopen Channels Eastern Delta	HR	Yes	Yes	Yes	Yes		Yes	Yes	Yes	4	Yes	Yes
XAT-3	Point Chevreuil Shore Protection	MP	Yes	Yes	Yes	Yes				Yes	1		Yes
XAT-4	Bateman Island Marsh Restoration	HR	Yes	Yes	Yes	Yes							Yes
XAT-5	Area South of Bateman Island Marsh Restoration	HR	Yes	Yes	Yes	No							Yes
XAT-6	Booster Pumps Maintenance Dredging	MC	Yes	Yes	Yes	Yes		Yes	Yes	Yes	4	Yes	Yes
XAT-7	Big Island Sediment Mining	MC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7	Yes	Yes
XAT-8	Wax Lake Outlet Major Outlet	HR	Yes	Yes	No	No							Yes
XAT-9	Nutria Demonstration Project	MP	Yes	Yes	Yes	Yes						Yes	

HR	Hydrologic Restoration
MC	Marsh Creation
FD	Freshwater Diversion
SD	Sediment Diversion
MM	Marsh Management
MP	Marsh Protection or Restoration
SP	Shoreline Protection

Summary of the Teche/Vermilion Basin Team Meeting

The Teche/Vermilion Basin team met on June 10, 1992, to perform the initial screening of projects for the 2nd Priority Project List. Members of the team included Mr. Dennis Demcheck, U.S. Geological Survey, Basin Captain; Mr. Britt Paul, Soil Conservation Service; Mr. Rick Hartman, National Marine Fisheries Service; Mr. Jim Buchtel, Louisiana Department of Natural Resources; Mr. Lloyd Mitchell, U.S. Fish and Wildlife Service; and Mr. Wes McQuiddy, Environmental Protection Agency.

The basin captain presented the results of preliminary basin team meetings (June 3-5, 1992) and gave a brief overview of the Preliminary Evaluation Sheets . There were 32 proposed projects on the initial list; this was reduced to 27, as there were projects that were essentially duplicates. After consulting with the Mermentau basin team, it was agreed that those projects concerning Freshwater Bayou Canal would be included in the Mermentau basin, although the eastern bank of the canal is the western boundary of the Teche/Vermilion Basin. This reduced the number of proposed projects to 25. As a result of the PES screening process and discussion of the basin team, 17 of the 25 projects were deferred from consideration for the 2nd Priority Project List. These projects will require further analysis and may be considered on a subsequent priority list or in the Restoration Plan.

The basin team then reviewed the SIS for each project being considered as a candidate for the 2nd Priority Project List. Of the eight remaining projects with sufficient information, one (artificial oyster reef off Chenier au Tigre) was dropped to avoid duplication of oyster reef demonstration projects in other basins.

The ended with the consensus recommendation of four projects. These four projects, which fully meet the requirements of the CWPPRA and the goals and strategies established for the Teche/Vermilion basin, were: Cote Blanche Marsh Management (TV-4), Vermilion Bay/Boston Canal Shoreline Protection (TV-9/PTV-18), Marsh Island Canal Backfilling (TV-5), and Sediment Trapping--Cote Blanche/Vermilion Bays (PTV-19).

Summary of Preliminary Evaluation Sheets (Con't)

Teche/Vermilion Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
PTV-17	Outfall Management East Cote Blanche	HR	Yes	Yes	Yes	No	Yes					Yes	Yes
PTV-18	Vermilion Bay Shoreline Planting	SP	Yes	Yes	Yes	Yes	Yes		Yes		5	Yes	Yes
PTV-19	Low Cost Sediment Trapping	MP	Yes	Yes	Yes	Yes	Yes		Yes		5		Yes
XTV-21	Forested Area East of Weeks Island Erosion Protection	MP	Yes	Yes	Yes	No	Yes		Yes				Yes
XTV-23	Eastern Marsh Island Shoreline Protection	SP	Yes	Yes	Yes	Yes	Yes						Yes

HR Hydrologic Restoration
MC Marsh Creation
FD Freshwater Diversion
SD Sediment Diversion
MM Marsh Management
MP Marsh Protection or Restoration
SP Shoreline Protection

Summary of the Mermentau Basin Team Meeting

The Mermentau Basin team met on June 8 & 9, 1992 to screen projects for the 2nd Priority Project List. Members of the team included Mr. Benny Landreneau, Soil Conservation Service, Basin Captain; Mr. Carrol Clark, Lousiana Department of Natural Resources; Mr. Joe Conti, Soil Conservation Service; Mr. Lloyd Mitchell, U.S. Fish and Wildlife Service; Mr. Ric Hartman, National Marine Fisheries Service; Mr. Wes McQuiddy, Environmental Protection Agency; Mr. Bob Bosenberg, Corps of Engineers; and Dr. Robert Chabreck, academic consultant.

Team members used the criteria on the PES's and the cost per weighted acre from the SIS's to develop a list of possible candidates for the 2nd Priority Project List. A list of six potential projects was developed from the information provided by the PES's. Following review of the SIS's, and a polling of team members, the team was able to develop a list of four projects recommended as candidates for the 2nd list. The four projects were: Humble Canal Structure (PME-15), Freshwater Bayou Bank Stabilization (ME-4 / XME-21), Sawmill Canal Structure (PME-14), and Pecan Island Pump Out Restoration (XME-22).

Summary of Preliminary Evaluation Sheets (Con't)

Mermentau Basin Projects

No.	Project Name	Proj Type	Wetland Main Objective	Supports Basin Objectives	Comp in 5 Years	WVA Data by Jun 92	Local or State Support	Linch Pin Alternative	Significant Opportunity	Demo Proj	Total Points	Priority List Candidate	Restoration Plan
PME-9A	Hydrologic Restoration Mermentau to Rockefeller	HR	Yes	Yes	Yes	No	No						Yes
XME-17	North Canal to Mermentau River GIWW Bank Stab.	SP	Yes	Yes	Yes	No	No						Yes
XME-18	Lake Rim Restoration Using Dredge Material	SP	Yes	Yes	Yes	No	No						Yes
XME-19	Increase Outflow Management Leland-Bowman Lock	FD	Yes	Yes	Yes	Yes	No						Yes
XME-20	Schooner Bayou Bypass	HR	Yes	Yes	Yes	Yes	No						Yes
XME-21	Freshwater Bayou Bank Sabilization	MP	Yes	Yes	Yes	Yes	Yes	Yes	Yes		5	Yes	Yes
XME-22	Restore Abandoned Pump-offs in Chenier	MM	Yes	Yes	Yes	No	Yes	yes	Yes		3	Yes	Yes
XME-23	Freshwater Bayou Management	HR	Yes	Yes	Yes	No	Yes					Yes	Yes
XME-24	Catfish Point Outflow	HR	Yes	Yes	Yes	No	No						Yes
XME-25	Rockefeller to Mermentau River-Gulf Breakwater	SP	Yes	Yes	Yes	No	No						Yes
XME-26	Plug Warren Canal at Schooner	HR	Yes	Yes	Yes	No	No						Yes
XME-27	Seventh Ward Canal Plug	HR	Yes	Yes	Yes	No	No						Yes
XME-28	Big Bum Wave Stilling Project	MP	Yes	Yes	Yes	No	No	Yes	Yes		3		Yes
CS-16	Black Bayou Bypass Structure	HR	Yes	Yes	Yes	No	Yes	Yes	Yes		6		Yes

HR Hydrologic Restoration
MC Marsh Creation
FD Freshwater Diversion
SD Sediment Diversion
MM Marsh Management
MP Marsh Protection or Restoration
SP Shoreline Prection

Summary of the Calcasieu/Sabine Basin Team Meeting

The Calcasieu-Sabine Basin team met on June 7-8, 1992 to screen projects for the 2nd Priority Project List. Members of the team included Mr. Ed Hickey, Soil Conservation Service, Basin Captain; Mr. Darryl Clark, Lousiana Department of Natural Resources; Mr. Lloyd Mitchell, U.S. Fish and Wildlife Service; Mr. Ric Hartman, National Marine Fisheries Service; Mr. Wes McQuiddy, Environmental Protection Agency; Mr. Bob Bosenberg, Corps of Engineers; and Dr. Paul Kemp, academic consultant.

Approximately 220 projects were identified in the Calcasieu/Sabine Basin. From these, the basin team selected 21 projects on which to complete Preliminary Evaluation Sheets. Considerations for selecting the 21 projects included:

1. Duplication (there were several duplications of projects submitted by the public, allowing combination of submitted projects).
2. Ability to complete a project within five years.
3. Proximity of projects to areas identified as being in critical need.
4. Willingness of land owners to participate in projects.
5. Public support for project.

The PES's for the 21 selected projects were compared by the basin team. Based on the information compiled on these sheets, the list of candidate projects was reduced to 11. The SIS for each project was then reviewed by the basin team. Following a review and discussion of this information the team selected four candidate projects by a polling of the membership.

The four projects selected by the Calcasieu/Sabine Basin team, as per the instructions of the Planning and Evaluation Subcommittee, for recommendation as candidates for the 2nd Priority Project List were: Highway 384 Hydrologic Restoration (PCS-25), Cameron-Creole O & M (PCS-22), Holly Beach to Peveto Gulf Shore Protection (CS-1a & b), and Clear Marais Bank Stabilization (PCS-27).

Summary of Screening Information Sheets

Calcasieu / Sabine Basin Projects

No.	Project Name	Net Acres Created	Net Acres Protected	Net Acres Enhanced	Total Weighted Acres	Avg Annual Cost ($)	Cost Per Weighted Acre ($/acre)
CS-1a	Holly Beach to Peveto Shoreline Protection		3,000		3,000	267,800	89.27
CS-4a	Cameron-Creole Structure Operation	6,900	3,416	31,000	19,616	250,000	12.74
CS-4b	Cameron-Creole Freshwater Introduction		559	6,605	2,541	100,000	39.35
CS-9	Brown Lake Marsh Management	192	435	2,949	1,512	61,662	40.78
CS-10	Grand Lake Ridge Marsh Management	105	120	50	13	6,869	549.52
CS-12	Black Bayou Marsh Management		668	12,987	4,564	898,528	196.87
CS-15	Boudreaux / Broussard Masrh Protection		52	450	277	512,640	1,850.69
PCS-25	Hwy. 384 Hydrologic Restoration	24	120	819	554	35,379	63.86
PCS-22	Cameron-Creole O & M		12,000		12,000	108,000	9.00
PCS-24	Mud Lake Hydrologic Restoration	2,250	1,520	4,284	5,912	207,462	35.09
PCS-27	Clear Marais Bank Stabalization		2,300		1,725	200,030	115.96
XCS-44	West Cove Canal Plug & Spoil Restoration		285	2,060	1,285	18,615	14.49

Table 1
Candidate Projects for 2nd Priority Project List
as of June 15, 1992 1/

No.	Project Name	Average Annual Cost ($)	Cost Effectiveness ($/acre)
PO-9	Violet Freshwater Dist	1,596,000	846
PO-6	Fritchie Marsh	256,000	691
PO11	Cutoff Bayou	51,000	574
PPO-52a	Bayou Sauvage	88,000	135
BS-3a	Caernarvon Outfall Mgmt	95,000	126
PBS-6	Bohemia Crevasse	162,000	18
PBS-5	Fiddler Point Barrier	198,000	519
PBS-13	Oyster Reef Barrier	35,000	17,000
PMR-2	Main Pass Marsh Creation	94,000	59
MR-2	Pass a Loutre Fencing	58,000	960
FMR-4	Tiger Pass Dredging	244,000	1,661
PMR-8	Sediment Mining	128,000	142
PBA-38	Shell Island	2,300,000	608
BA-6	Hwy 90 to GIWW	197,000	9
BA-13	Hero Canal	951,000	340
PBA-50	Rambo Oyster Demo	35,000	16,772
PTE-22/24	Pt Au Fer Canal Plugs	34,000	11
TE-8	Bayou Pelton Wetland Mgmt	87,000	117
PTE-7b	Houma Canal Gate	211,000	234
PTE-27	West Belle Pass Hdlnd Rstrtn	92,000	434
XAT-7	Big Island Sediment Mining	705,000	294
PAT-2	Atch Sediment Delivery	116,000	45
XAT-6	Booster Pumps	110,000	65
XAT-9	Herbivore Control	N/A	N/A
TV-4	Cote Blanche Wetland Mgmt	15,000	46
PTV-18, TV-9	Vermilion Bay/Boston Canal Shore Protection	39,000	115
TV-5	Marsh Island Canal Backfilling	16,000	120
PTV-19	Sediment Trapping	23,000	326
		32,000	244
PME-15	Humble Canal	17,000	11
ME-4, XME-21	Freshwater Bayou	234,000	38
PME-14	Sawmill Canal	35,000	116
XME-22	Pecan Island Pumpout Terracing	38,000	208
PCS-25	Hwy 384 Hydro Rstrtn	35,000	64
PCS-22	Cameron-Creole O&M	108,000	9
PCS-27	Clear Marais Bank Protection	200,000	116
CS-9	Brown Lake Restoration	62,000	41

1/ This table presents information available as of the meeting date.

In the Barataria Basin the Rambo Oyster Demonstration project (PBA-50) was deleted because of its duplication in the Breton Sound Basin (PBS-13). In its place, the Jonathan Davis Wetland project (PBA-35) was put on the list. This project conformed to the conceptual need for hydrologic restoration and stabilizing of the central marshes in this basin. The Isle Dernieres Restoration--Phase 1 (XTE-41) was added as a candidate project in the Terrebonne Basin. This project was scaled down considerably from the project which the subcommittee had rejected in its June 15 meeting. The project was viewed as part of an area requiring a great deal of development for the future, and was considered to offer potential for demonstration of new construction techniques and materials. To maintain the size of the candidate list, the Bayou Pelton Wetland Protection project (TE-8) was deferred with the consent of representatives of local government. The Houma Navigation Canal Gate (PTE-7b) had been included in the initial list of candidates; however, the public's interest in having a lock was noted by the subcommittee, and a Houma Navigation Canal (XTE-42) project was substituted on the candidate list. In the Calcasieu/Sabine Basin the sub-committee felt that both the Mud Lake project (PCS-24) and the Peveto to Holly Beach Shoreline Protection project (CS-1a) were appropriate for inclusion as 2nd list candidates. A substantial portion of the Mud Lake project development, including the securing of a Section 404(b)(1) permit, had been undertaken and completed by the land owner, so that the project could readily be developed for a Priority Project List. In the case of the Peveto to Holly Beach project, the subcommittee recognized that the project could protect against a potentially catastrophic loss of wetlands. In attempting to maintain the size of the candidate project list the subcommittee was able to establish only one project to be deleted. After some discussion, the subcommittee decided to drop the Cameron-Creole Operation and Maintenance project (PCS-22) and allow one additional project for a total of 37 candidate projects.

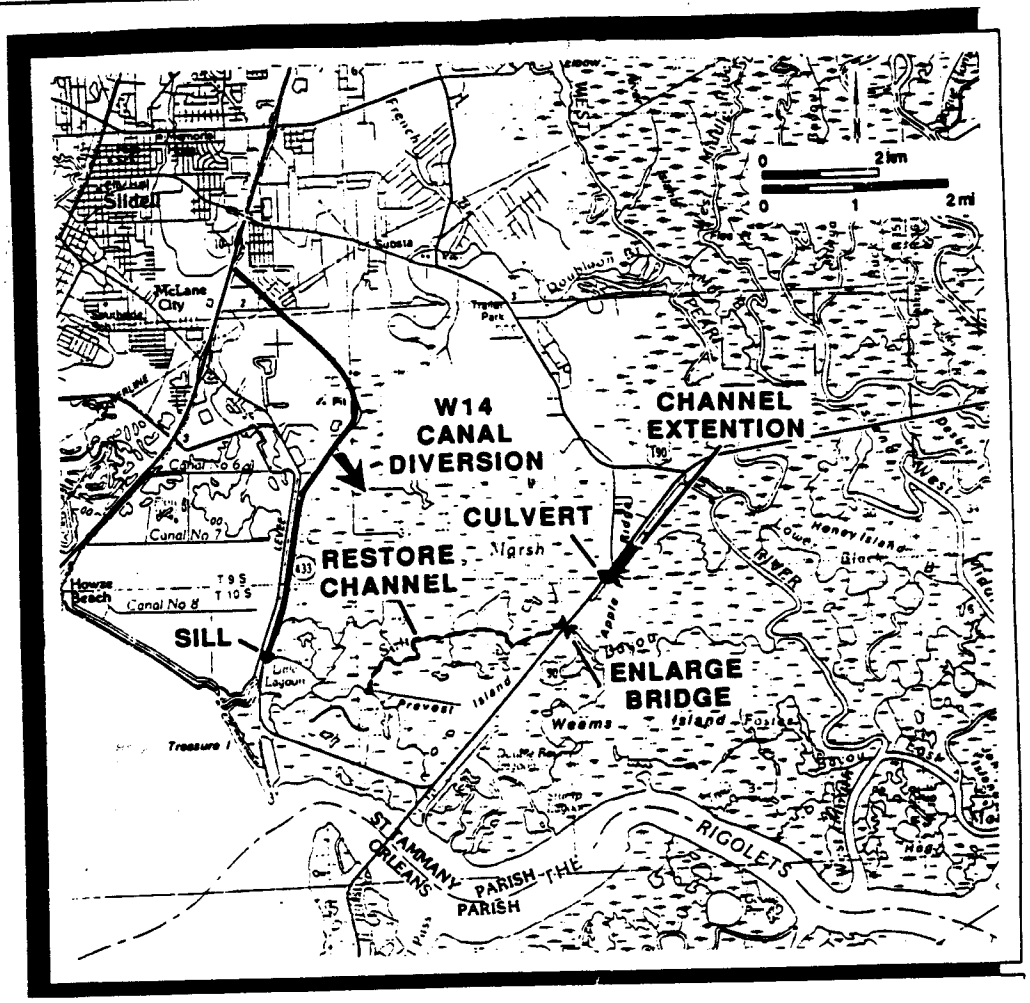
Subsequent to the revision of the candidate project list by the Planning and Evaluation Subcommittee, several other changes were made to the list. Two projects, Main Pass Marsh Creation (PMR-2) and Herbivore Control (XAT-9), were removed from the list at the request of those projects' lead agencies. After review of the project concept and location for the Main Pass Marsh Creation project, The U.S. Fish and Wildlife Service, who are the land owners for this project, determined that resources were already in place to complete the project and asked that it be withdrawn. Similarly, after initial study of the concept for Herbivore Control (XAT-9), it was determined that an adequate platform from which to administer the program was not presently available. The lead agency, (the U.S. Fish and Wildlife Service), along with the State asked that the project be deferred.

Two other projects were added to the list at the request of the Environmental Protection Agency and the State. One, the Falgout Canal Wetland Creation Demonstration project (XTE-43), had been deferred from the 1st Priority Project List. The version of the project promoted as a candidate for the 2nd list involved the development of a less expensive source of sediment. The second project, the Nairn Wetland Creation Demonstration project (XBA-50), involved a variation of a concept for using abandoned pipelines for the transport of sediment for marsh creation.

Table 2 displays the 37 projects subjected to detailed analysis as candidates for the 2nd Priority Project List. Some of these projects were not nominated until as late as August 1992.

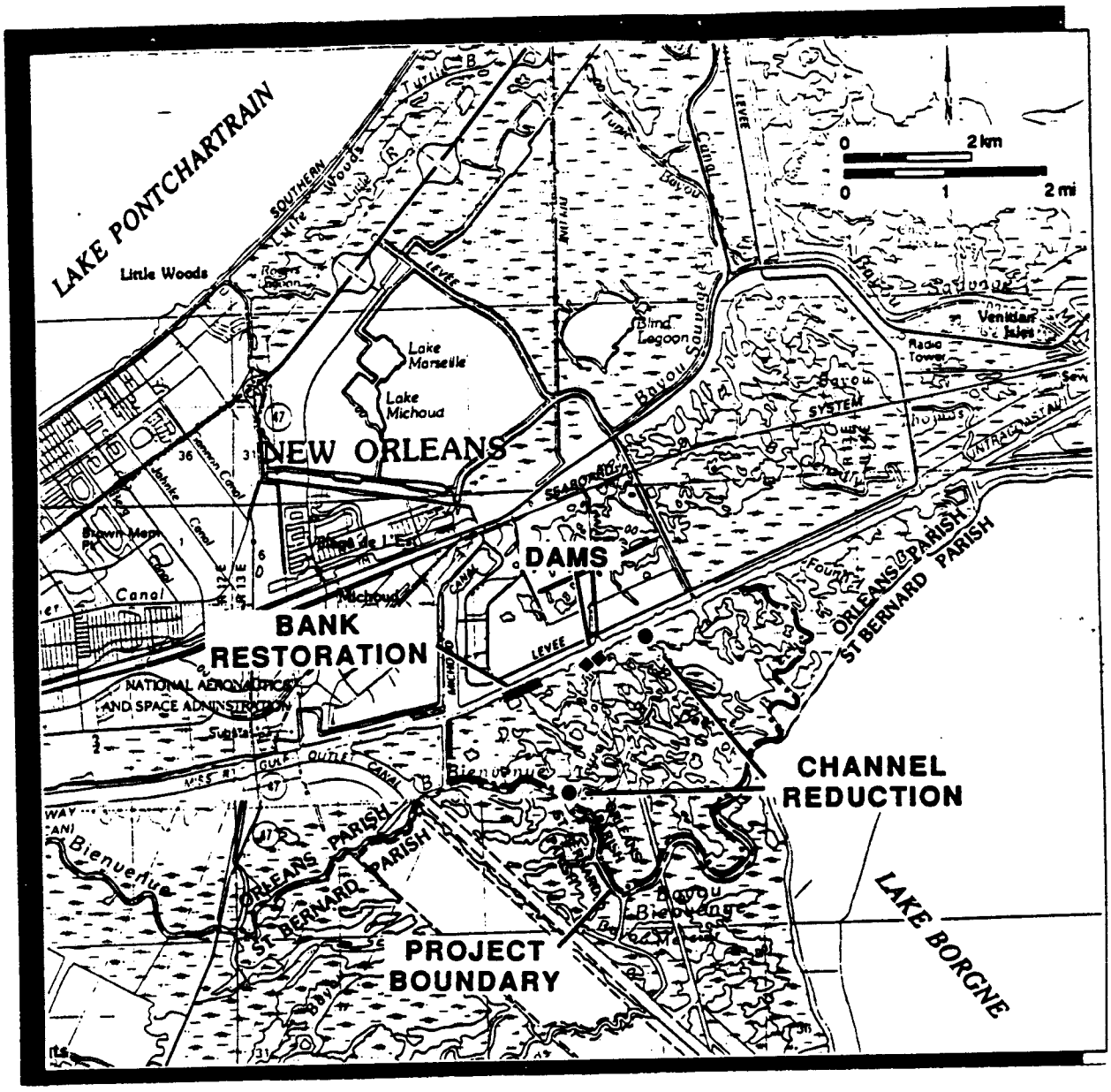
EVALUATION OF CANDIDATE PROJECTS

Descriptions of Candidate Projects.



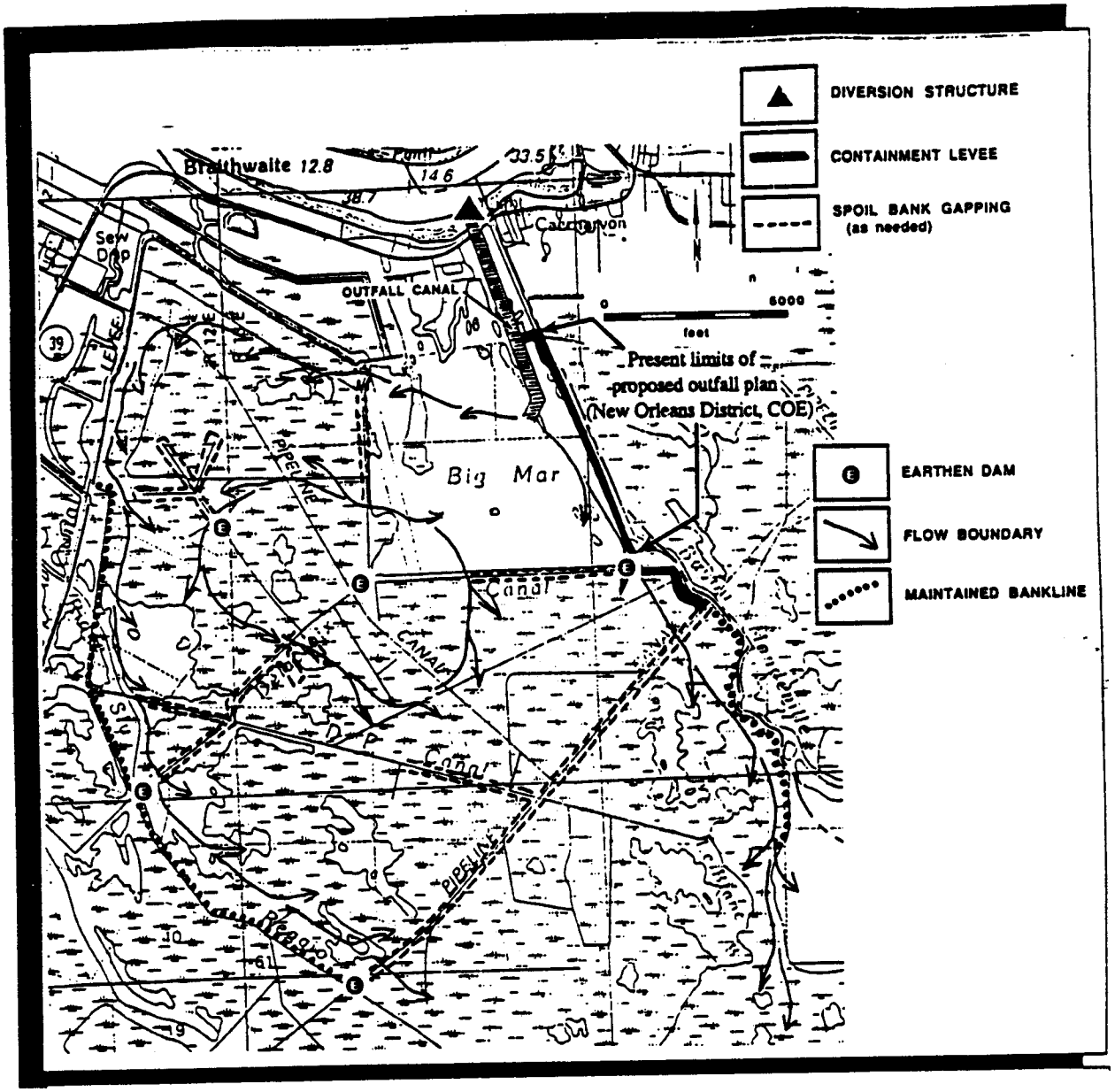
Fritchie Marsh Restoration PO-6

The Fritchie Marsh is a semi-impounded wetland between U.S. Hwy. 90 and La. Hwy. 433. The area has been removed from the active Pearl River flood plain, and inflow of fresh water and sediment of the West Pearl River is limited. The area has suffered wetland loss as a result of impoundment, reduced sedimentation, and saltwater intrusion from Lake Pontchartrain. The project would restore and enhance wetlands by increasing water exchange with the West Pearl River under U.S. Hwy. 90 between Apple Pie Ridge and Prevost Island, providing fresh water and sediment introduction as well as drainage, and utilizing fresh water and nutrients from storm runoff presently contained by the W14 Drainage Canal. Project features include two 8- by 12-foot culverts beneath Hwy. 90 and a fixed-crest weir in the W14 Drainage Canal. A diversion from the canal would be constructed upstream of the weir, and a segment of Apple Pie Ridge would be degraded.



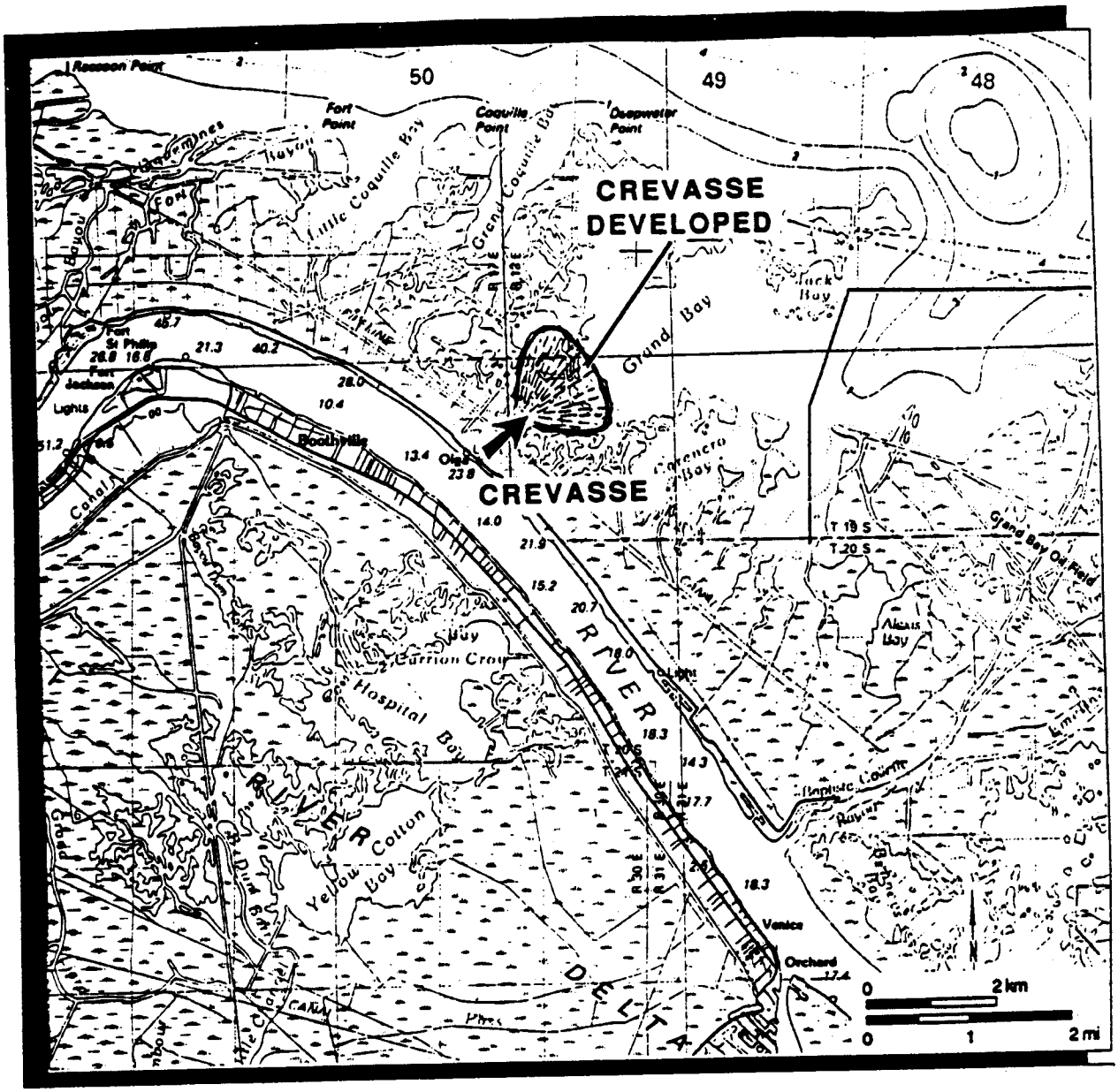
Cutoff Bayou Marsh Management PO-11

The Cutoff Bayou marsh area lies between the MRGO and the Gulf Intracoastal Waterway (GIWW) and serves as a buffer zone between developed areas of Orleans Parish and Lake Borgne. Much of the area's wetlands have been lost as a result of saltwater intrusion from the MRGO and tidal flows between the MRGO and the GIWW. The project would reduce further wetland loss and enhance wetland habitats through stabilization of channel entrances, closure of breaches, and a restoration of natural water movement to reduce water exchange with the MRGO and decrease flow velocities. The project would involve placement of five rock plugs and repair of two rock dikes and one earthen dike.



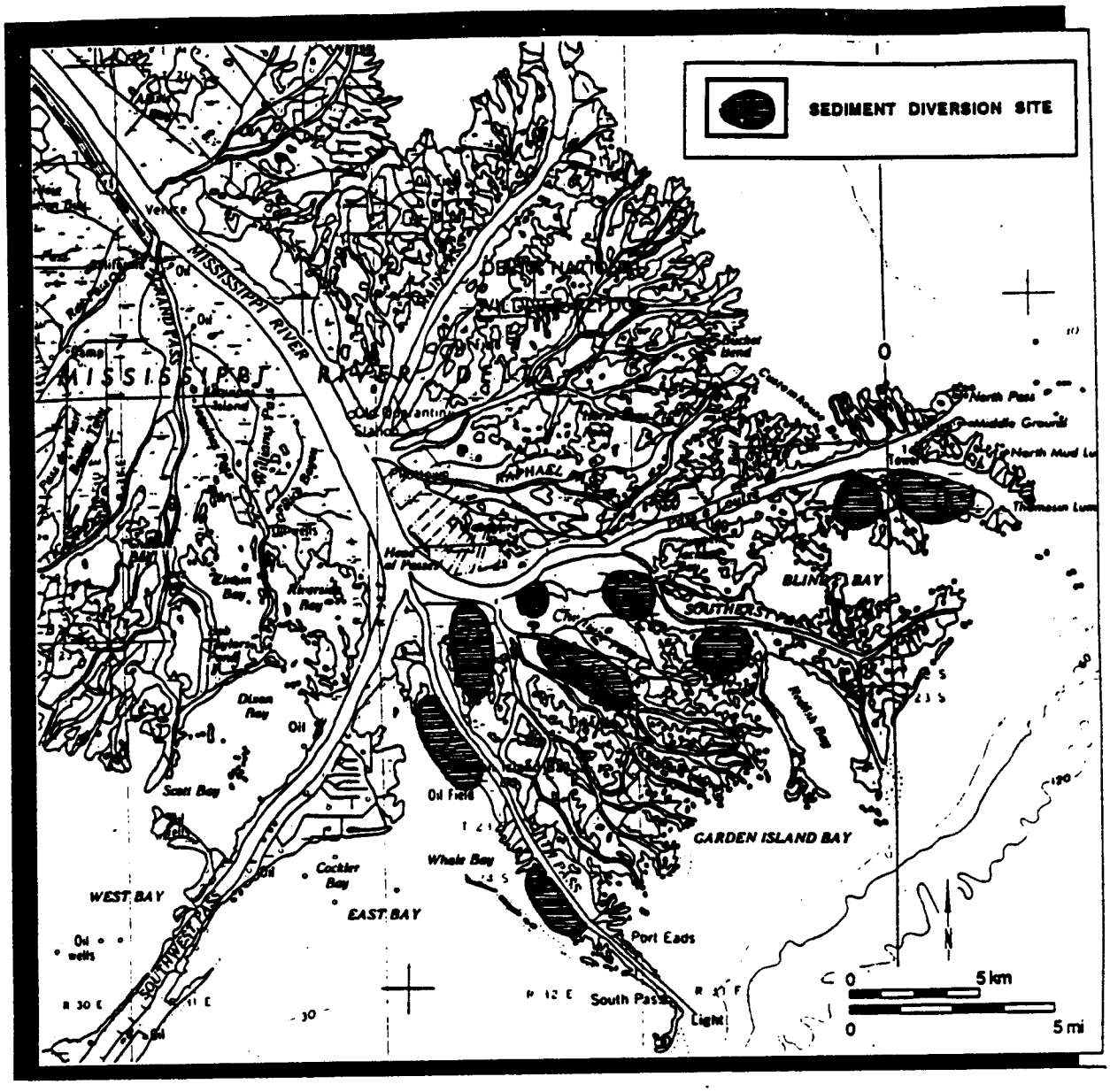
Caernarvon Outfall Management BS-3a

The Caernarvon Freshwater Diversion Structure discharges Mississippi River water, sediments, and nutrients through Big Mar into Lake Lery. Benefits from the diversion could be greatly increased by management of the outfall and introduction of river water into adjacent marshes. This project would direct diverted water and sediments into interior wetlands using existing access and pipeline canals, coupled with the removal of two plugs and 100 feet of spoil banks, the repair of 254,000 feet of spoil banks, the construction of a guide levee and 11 earthen plugs, and vegetative plantings.



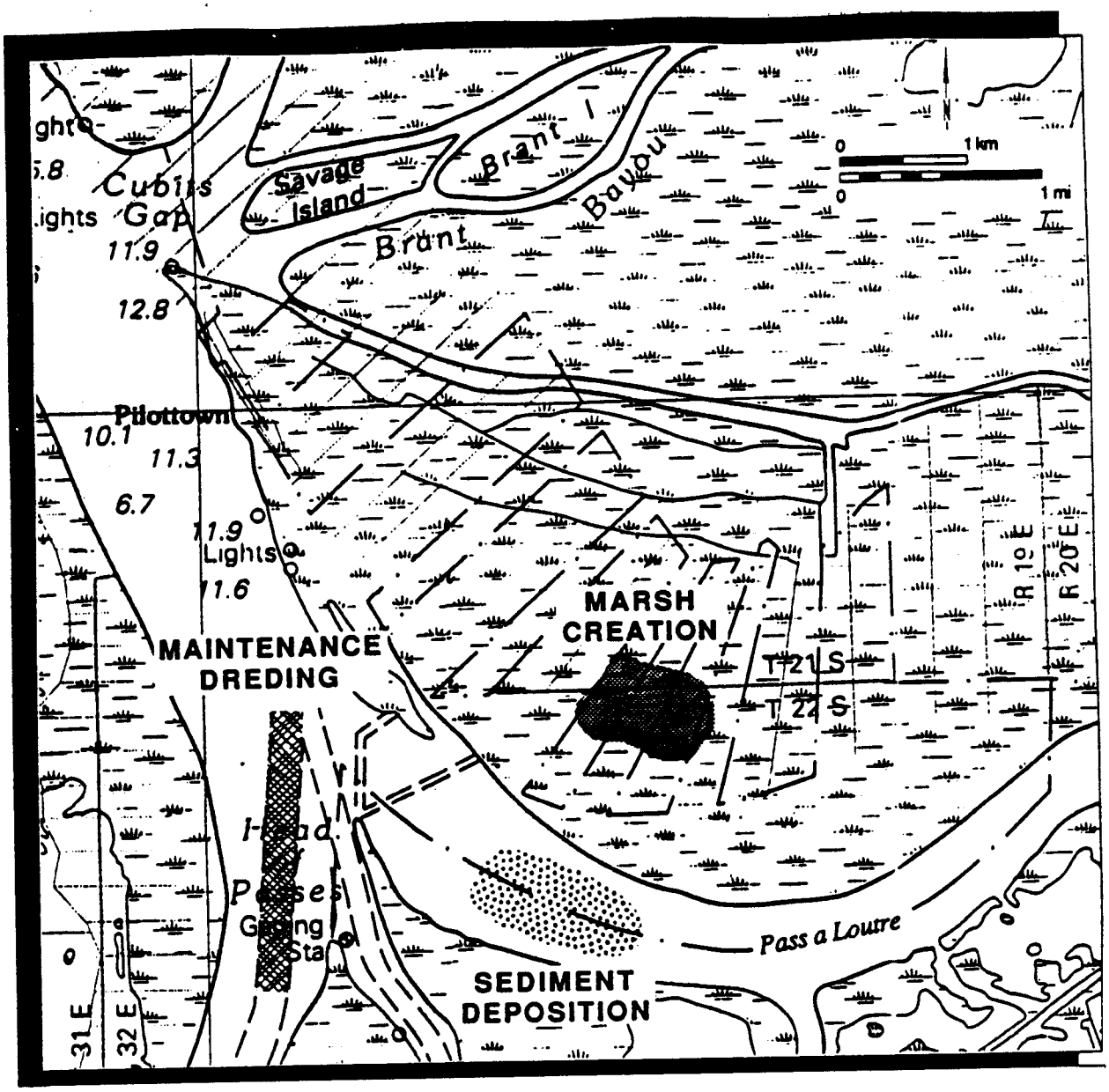
Crevasse Restoration, Bohemia PBS-6

Sediment introduction from the Mississippi River into Breton Sound through crevasses and overbank flow, even below the area of development, is greatly limited by various manmade features, including levees, spoil banks, and bank stabilization measures. This project would create a 200-foot-wide, 6-foot-deep crevasse channel from the Mississippi River into Grand Bay. The resultant seasonal diversion of fresh water and sediment could be expected to create a crevasse splay with emergent wetlands and enhance existing marsh in the outfall area.



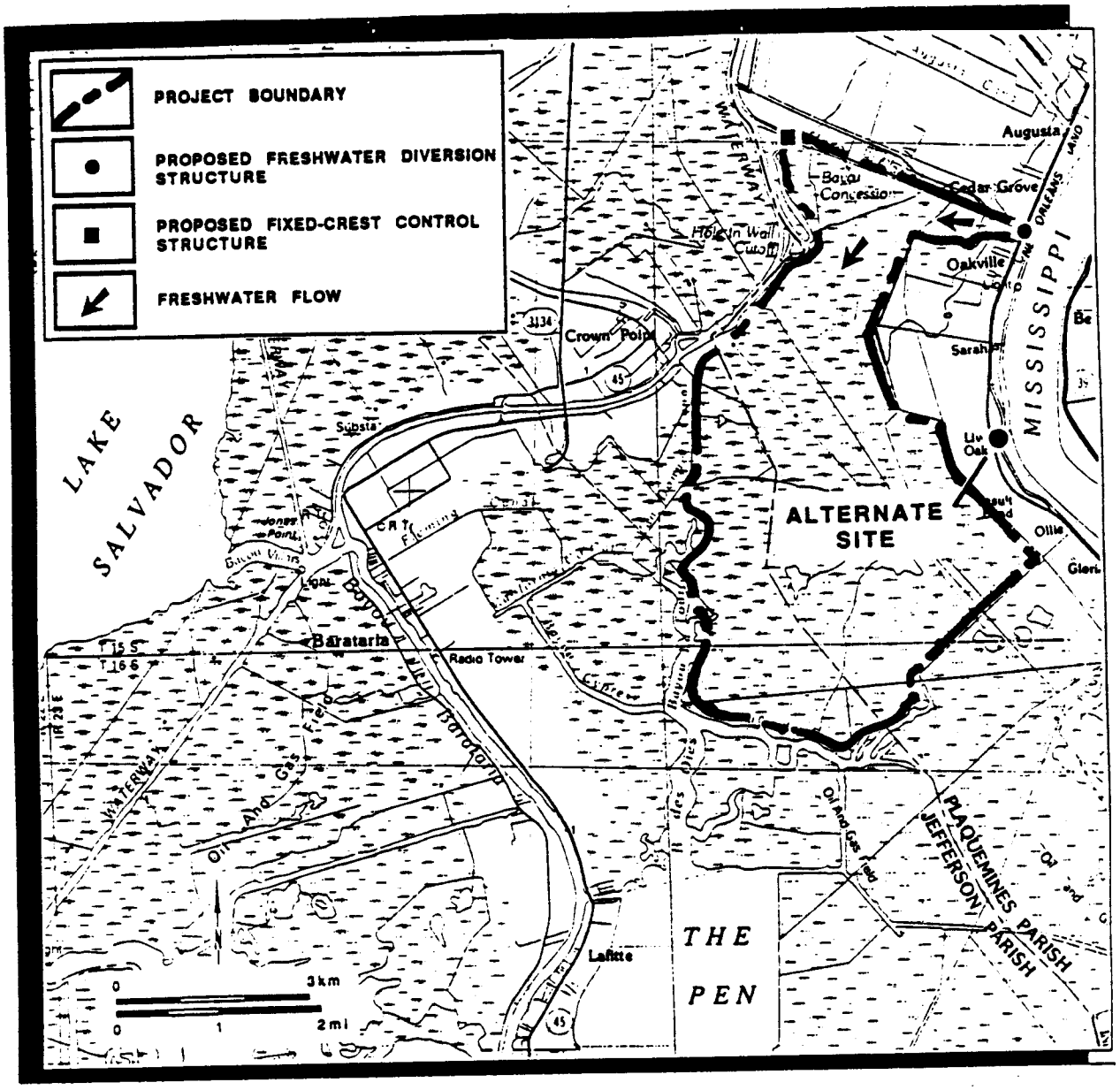
Pass a Loutre Sediment Fencing MR-2

High rates of subsidence and limited retention of fine grained sediments have resulted in high rates of wetland loss in the Mississippi River Delta. The objective of this project would be to utilize and enhance natural sedimentation processes and resultant marsh creation within the Pass a Loutre State Wildlife Management area. Crevasses and artificial cuts through the banks of distributary channels deliver fine sediment to adjacent shallow open water areas. Sediment deposition in these areas would be enhanced through the construction of 62,500 feet of sediment fences that slow water movement and provide for establishment of emergent vegetation.



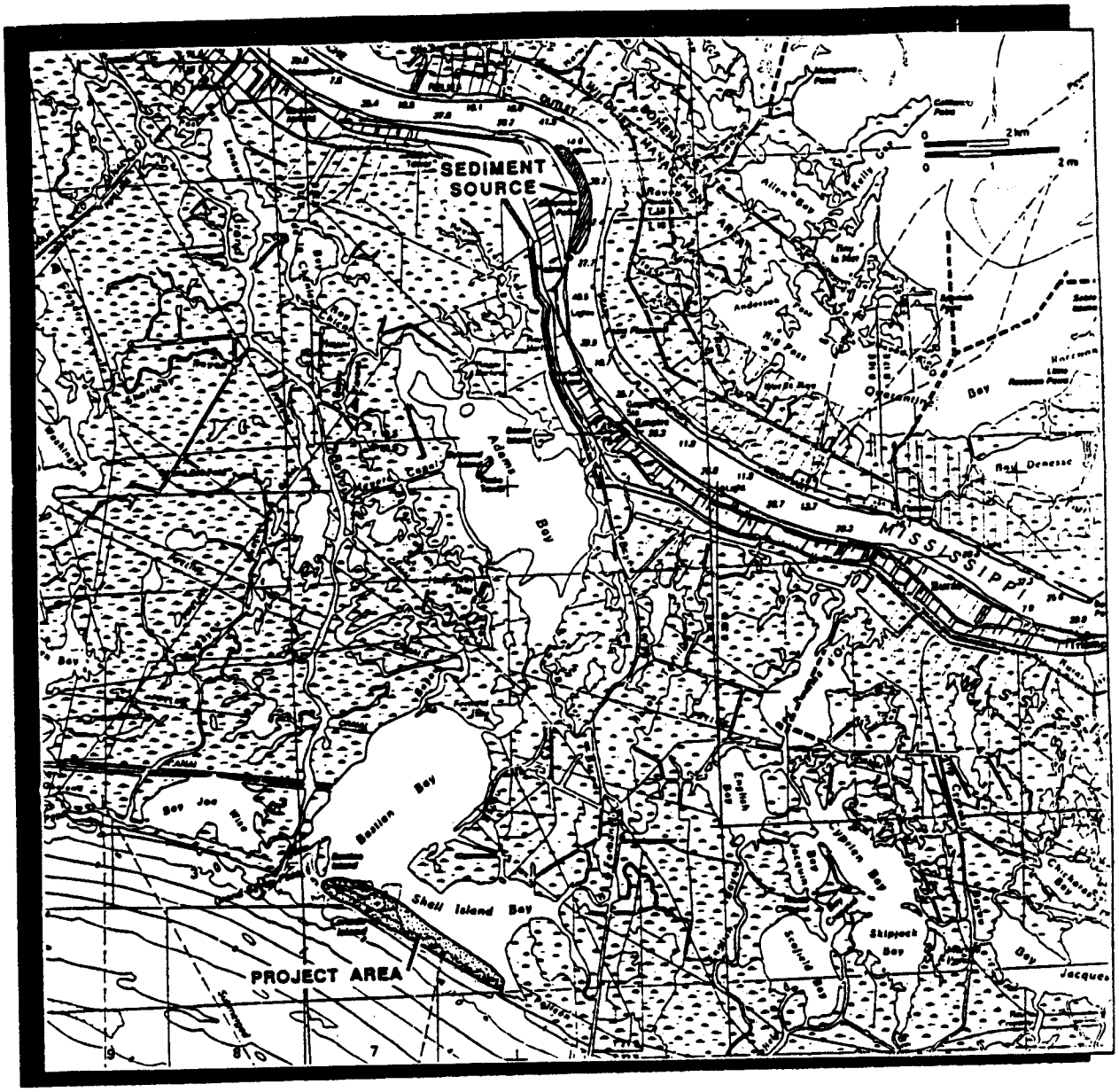
Pass a Loutre Sediment Mining PMR-8

Navigation on the Mississippi River requires annual dredging of the main channel at the Head of Passes. Dredged material excavated by hopper dredges is deposited at the entrance of Pass a Loutre, where it does not interfere with navigation. The material is subsequently transported to the Gulf of Mexico by high river flows. The proposed project would provide for beneficial use of the dredged material. Approximately 800,000 cubic yards of sediments would be re-dredged from the Pass a Loutre disposal site and hydraulically disposed of in adjacent shallow waters to restore marsh.



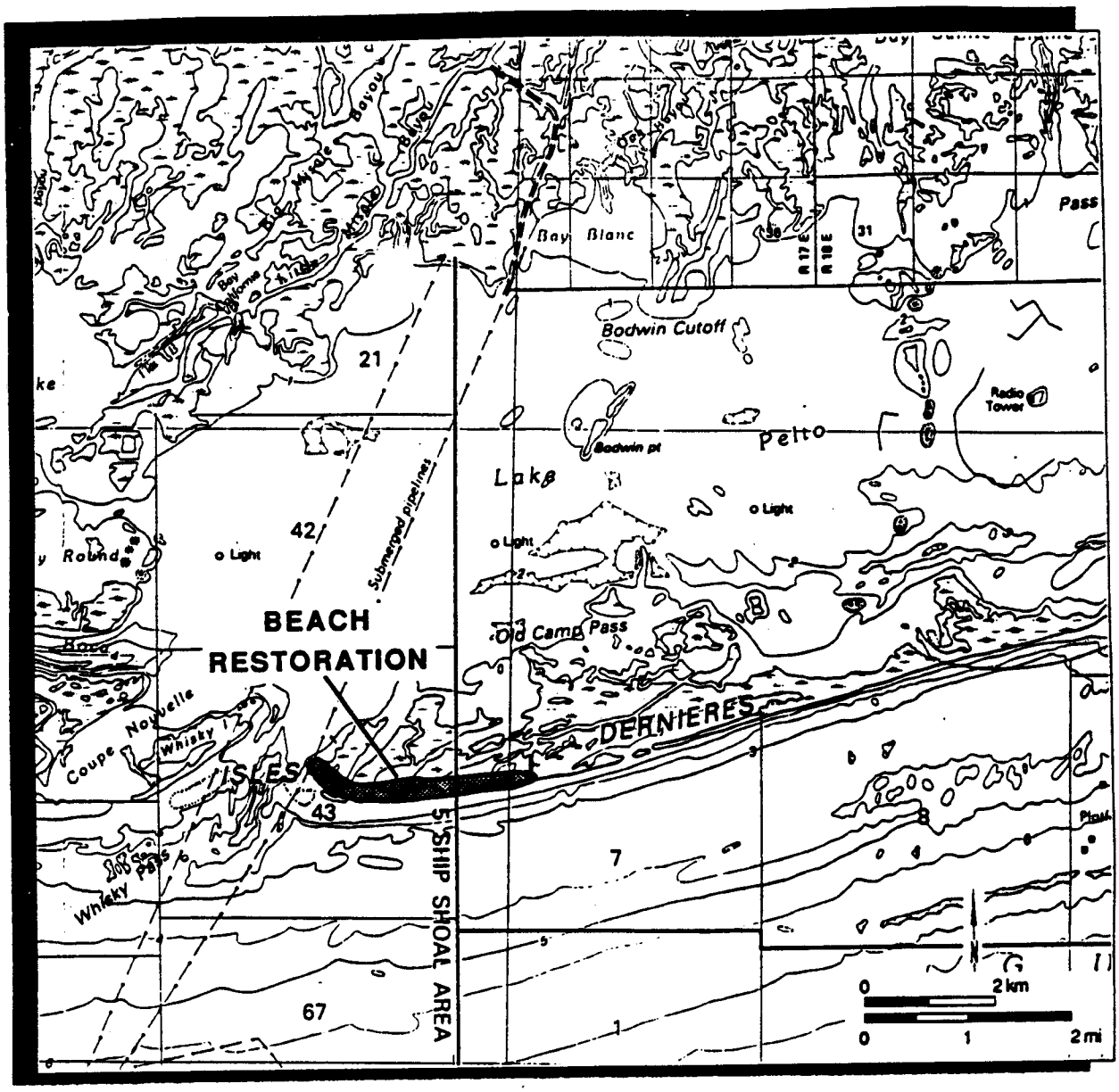
Hero Canal Diversion BA-13

Hero Canal, on the west bank of the Mississippi River in Plaquemines Parish, has been identified as a site for an additional freshwater diversion. Three 72-inch-diameter siphons would be constructed to divert up to 1,000 cfs of fresh water into a 12,000-foot discharge channel at Oakville, La., and into the wetlands to the south. Sediment and nutrients would be diverted into the wetland area to enhance marsh productivity, reduce subsidence, and combat saltwater intrusion. The diversion would supplement the 2,500 cfs La Reussite diversion a short distance to the south.



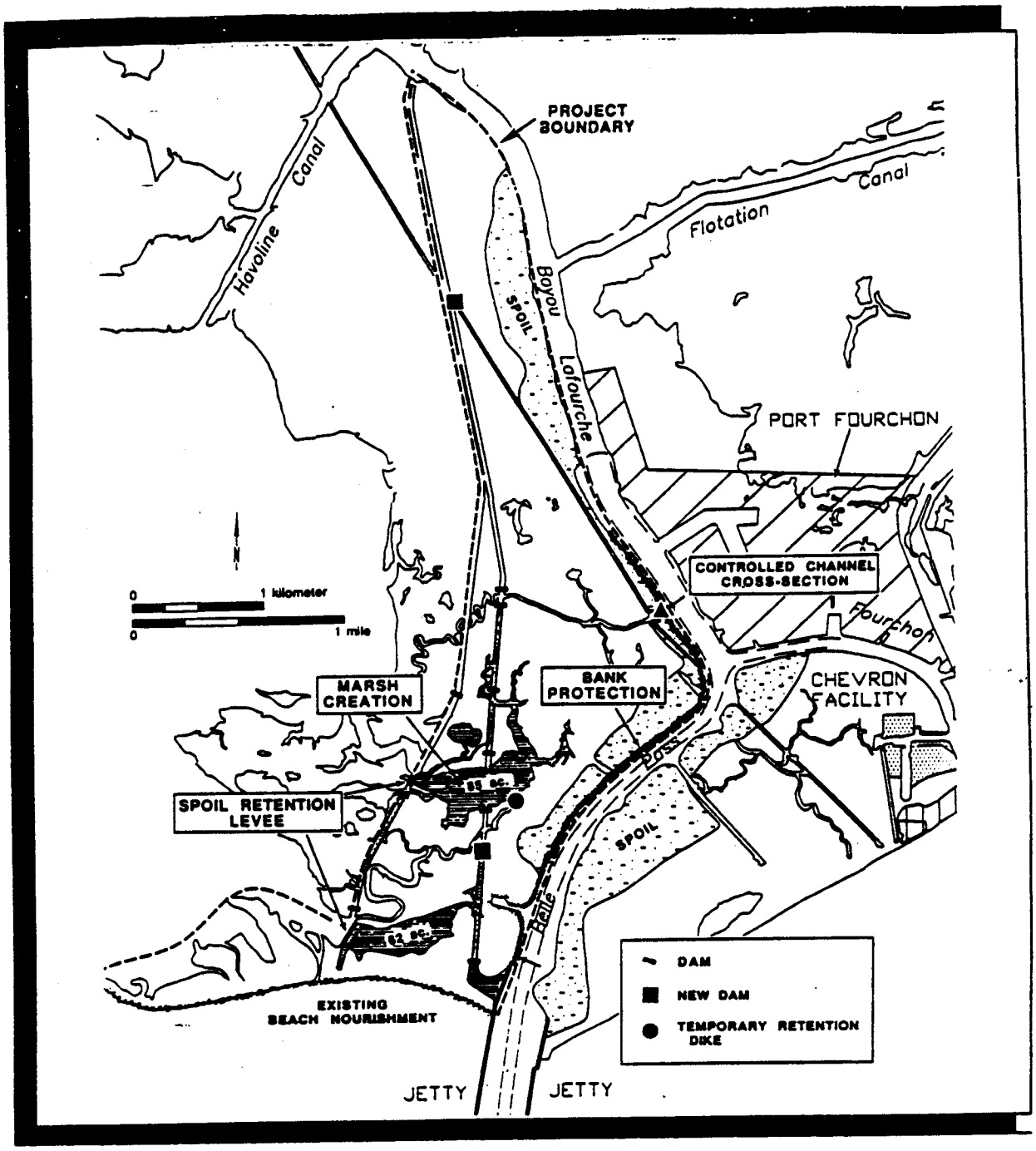
Shell Island Restoration (Phase 1) PBA-38

Erosion of barrier beaches and barrier islands along the Gulf of Mexico continues to reduce protection afforded estuarine waters and associated wetlands from marine processes. A 1979 breach of Shell Island into Bastian Bay has greatly increased in size, allowing greater tidal water movement and wave erosion in the Bastian Bay area of lower Plaquemines Parish. Phase 1 of the project would restore a 1-mile section of Shell Island using 750,000 cubic yards of sand pumped from Sixty Mile Point in the Mississippi River and provide greater protection of adjacent water bodies and remaining wetlands.



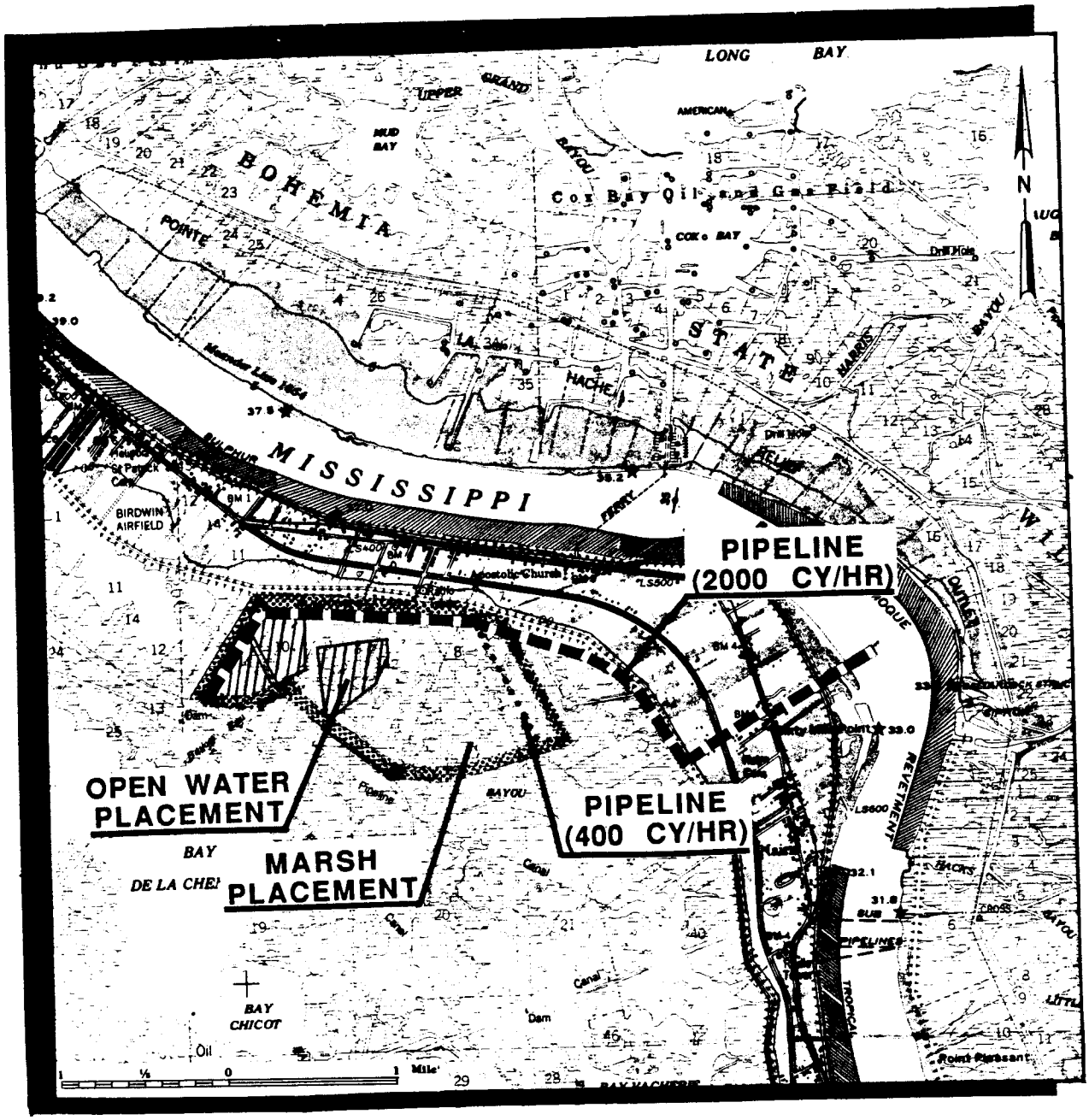
Isles Dernieres Restoration PTE-15

Barrier islands shelter landward estuaries from the marine forces of the Gulf of Mexico and reduce saltwater incursions and adverse tidal effects in the inland marshes. This project is a continuation of a demonstration project for the restoration of the easternmost island of the Isles Dernieres chain. Approximately 2.7 miles of island would be strengthened and restored by rebuilding the dune ridge on the gulf shore and by using dredged material from the bay behind the island to widen the back marsh. Approximately 2.4 million cubic yards of material would be moved in construction of the project.



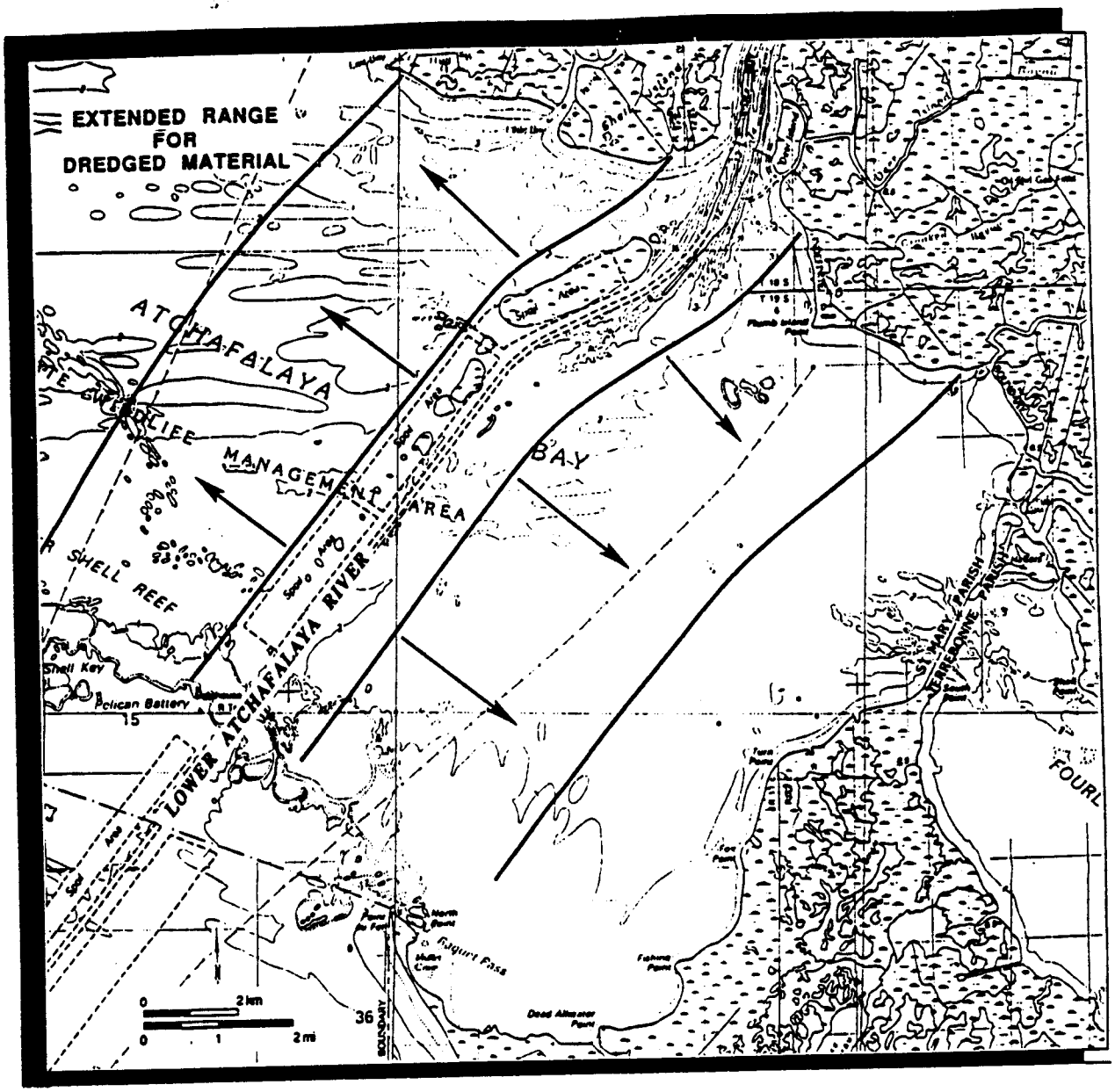
West Belle Pass Headland Restoration PTE-27

This project would address marsh loss west of Bayou Lafourche and Belle Pass, where Timbalier Bay threatens to break through into the bayou. Approximately 2.75 million cubic yards of material would be dredged from the bayou and Belle Pass and deposited in shallow open water in the deteriorating headland. The bank would be stabilized for a length of about 17,000 feet.



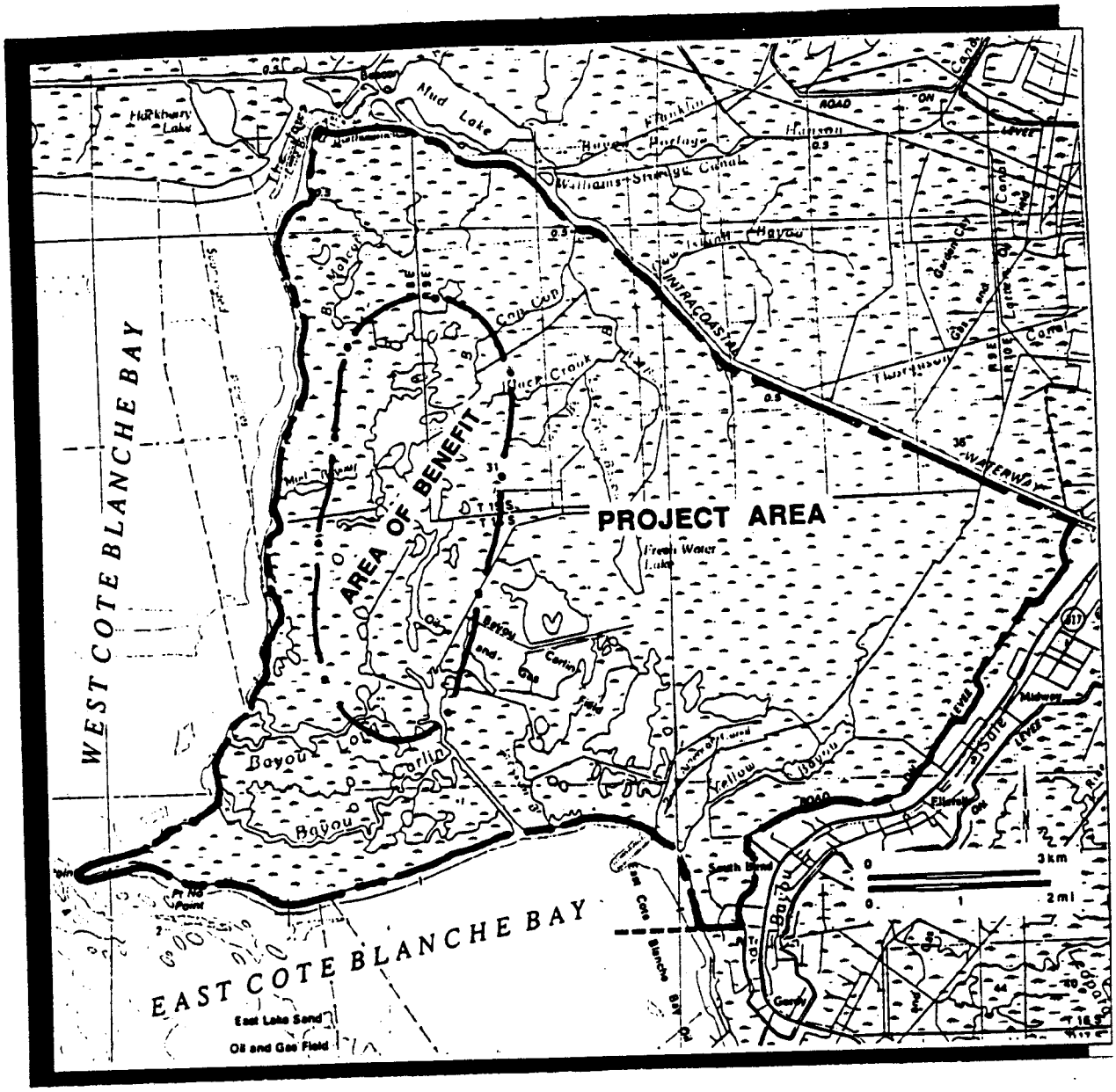
Nairn Wetland Nourishment/Creation Demonstration XBA-50

The Nairn area contains a variety of stressed wetlands which are converting to open water. The Nairn project would test and upgrade technologies for sediment mining and placement for the purpose of marsh creation and restoration. The project would use 1,233,000 cubic yards of material mined from the Mississippi River near Sixty Mile Point to created 204 acres of salt marsh and restore 459 acres of deteriorating marsh in the Nairn area.



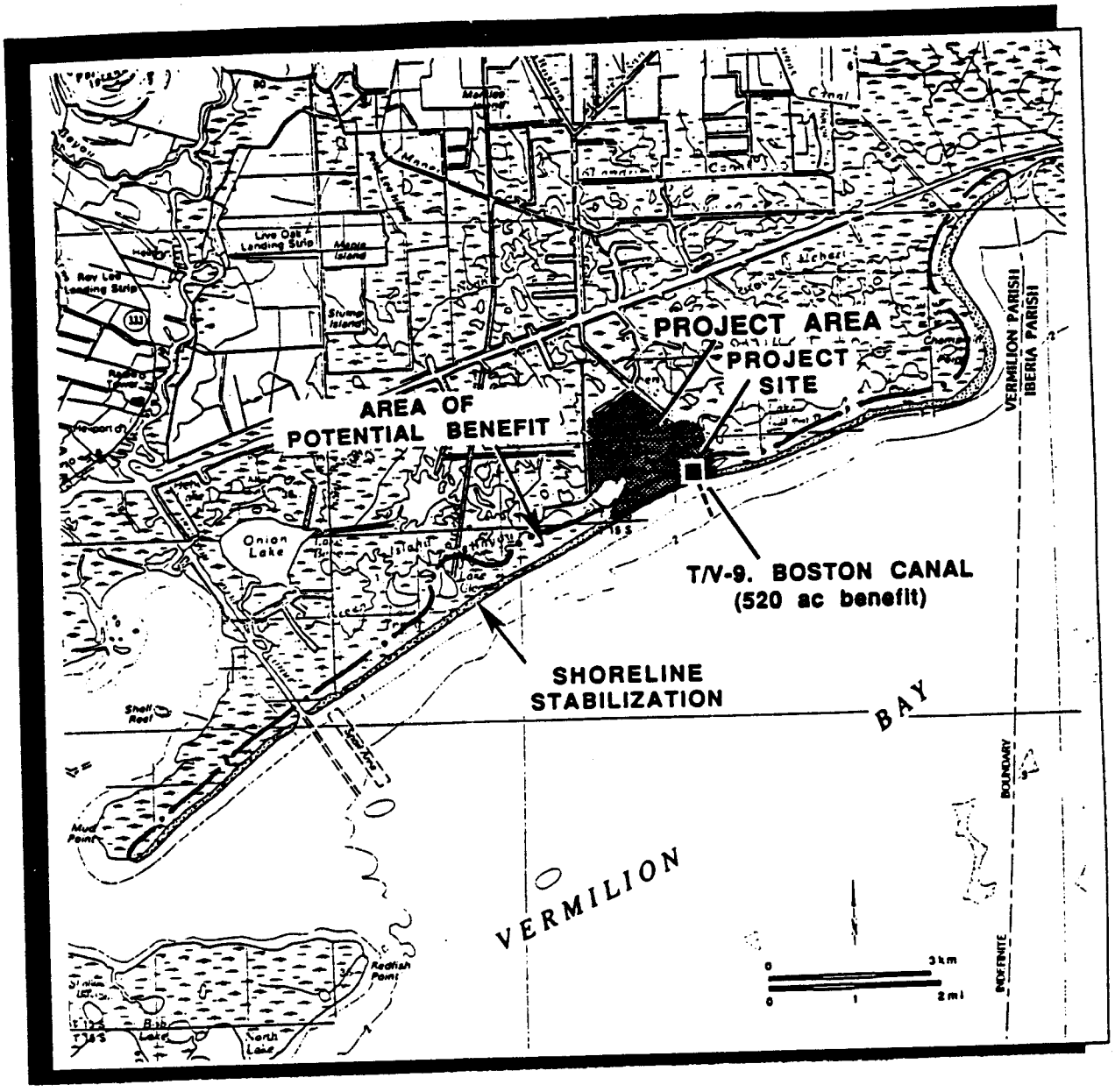
Booster Pumps XAT-6

The extent to which sediments dredged for maintenance of the navigation channel through the Lower Atchafalaya River delta can be used for marsh creation is limited by the distance over which sediment can be transported in a cost effective manner. Direct disposal by a hydraulic dredge limits distribution of sediments to the area along the channel and results in elevations at the disposal sites that are often too high for marsh creation. The proposed measure would provide for booster pumps to allow better distribution of about 2 million cubic yards of dredged material and disposal at lesser elevations so as to produce higher quality habitat.



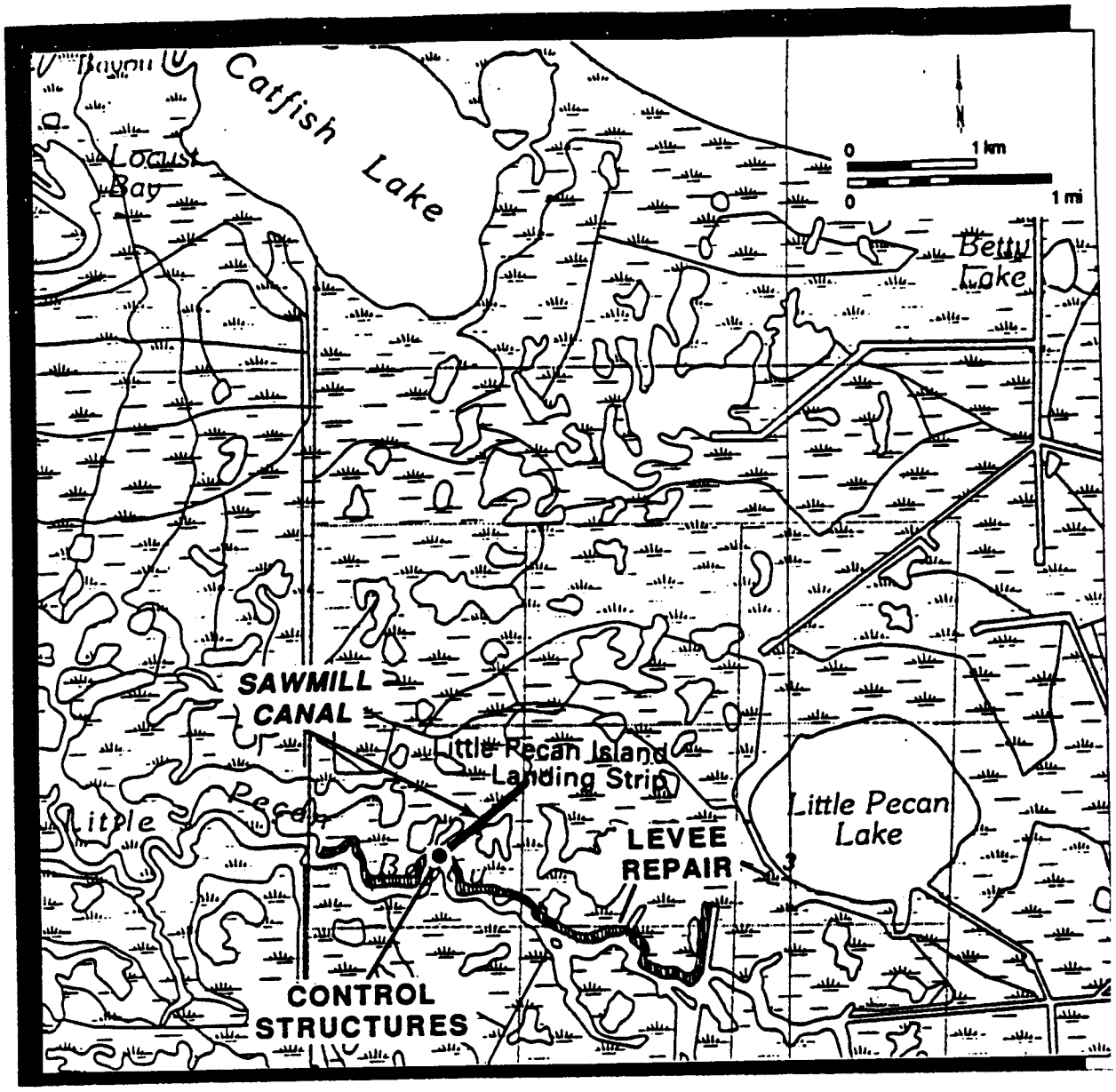
Cote Blanche Wetland Management T/V-4

Marshes along the north shore of East Cote Blanche Bay and the east shore of West Cote Blanche Bay are healthy and vigorous as a result of water and sediment introduction from the bays. However, the interior marshes are deteriorating. In addition to subsidence, tidal exchange and rapid water movement from the GIWW to the bay through canals have been indicated as major causes of the deterioration. This project would implement water management measures to address the problem. The project would consist of two rock plugs, 10 rock weirs, a rock breakwater, and two 36-inch culverts.



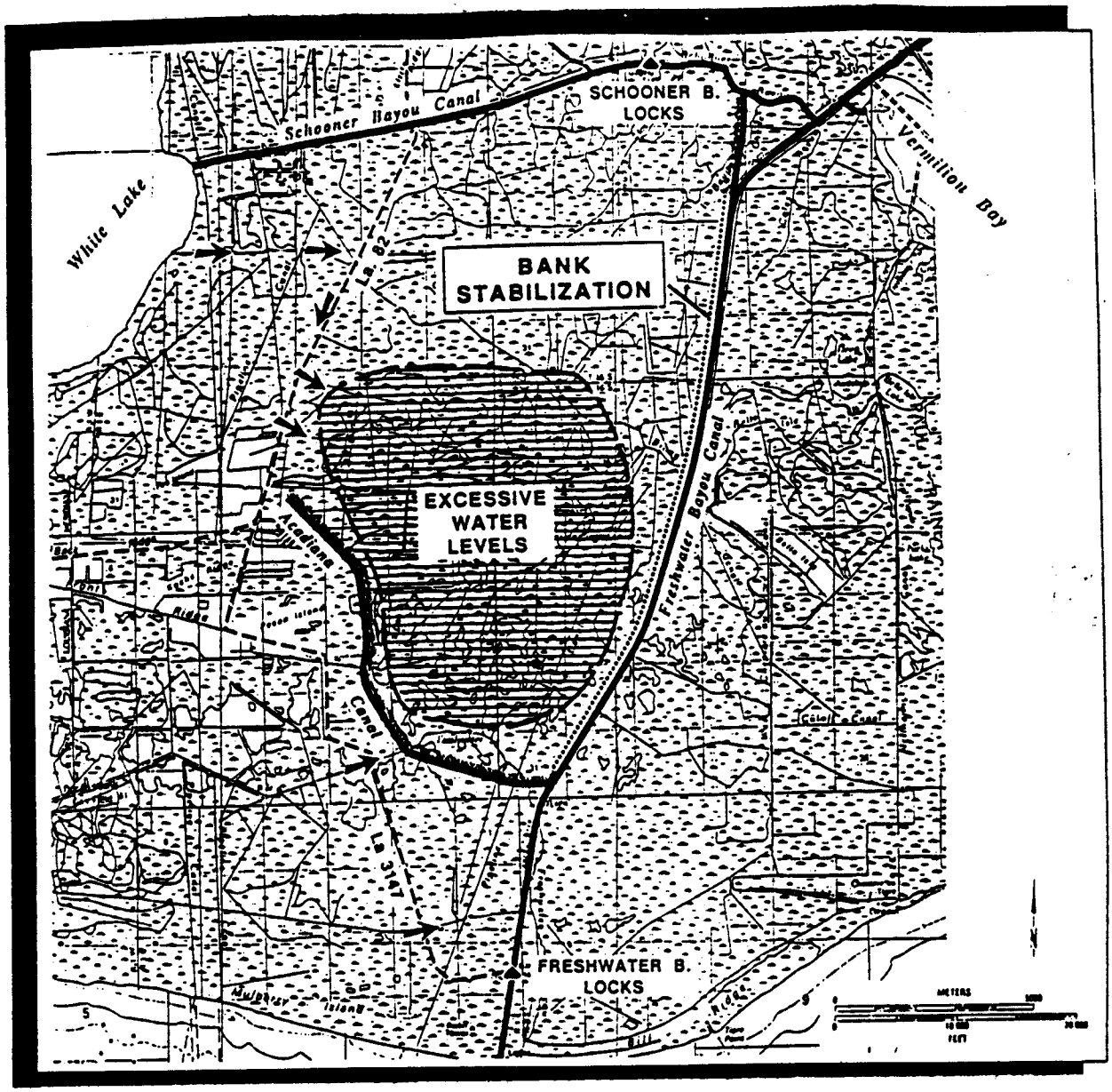
Vermilion Bay/Boston Canal Shore and Bank Protection PT/V-18, T/V-9

Wave attack causes shoreline retreat of up to 15 feet per year along Vermilion Bay. Boat wakes cause additional loss at canal entrances such as at Boston Canal, where bank erosion threatens management provisions of adjacent wetlands. This project would provide for stabilization of canal banks with about 6,000 tons of rock at the entrance to Boston Canal and for reduction of shore erosion at a number of locations along Vermilion Bay. Shoreline erosion would be addressed by installation of 1,200 feet of sediment fencing and 79,200 feet of vegetative planting to promote sediment deposition in shallow water along the shore.



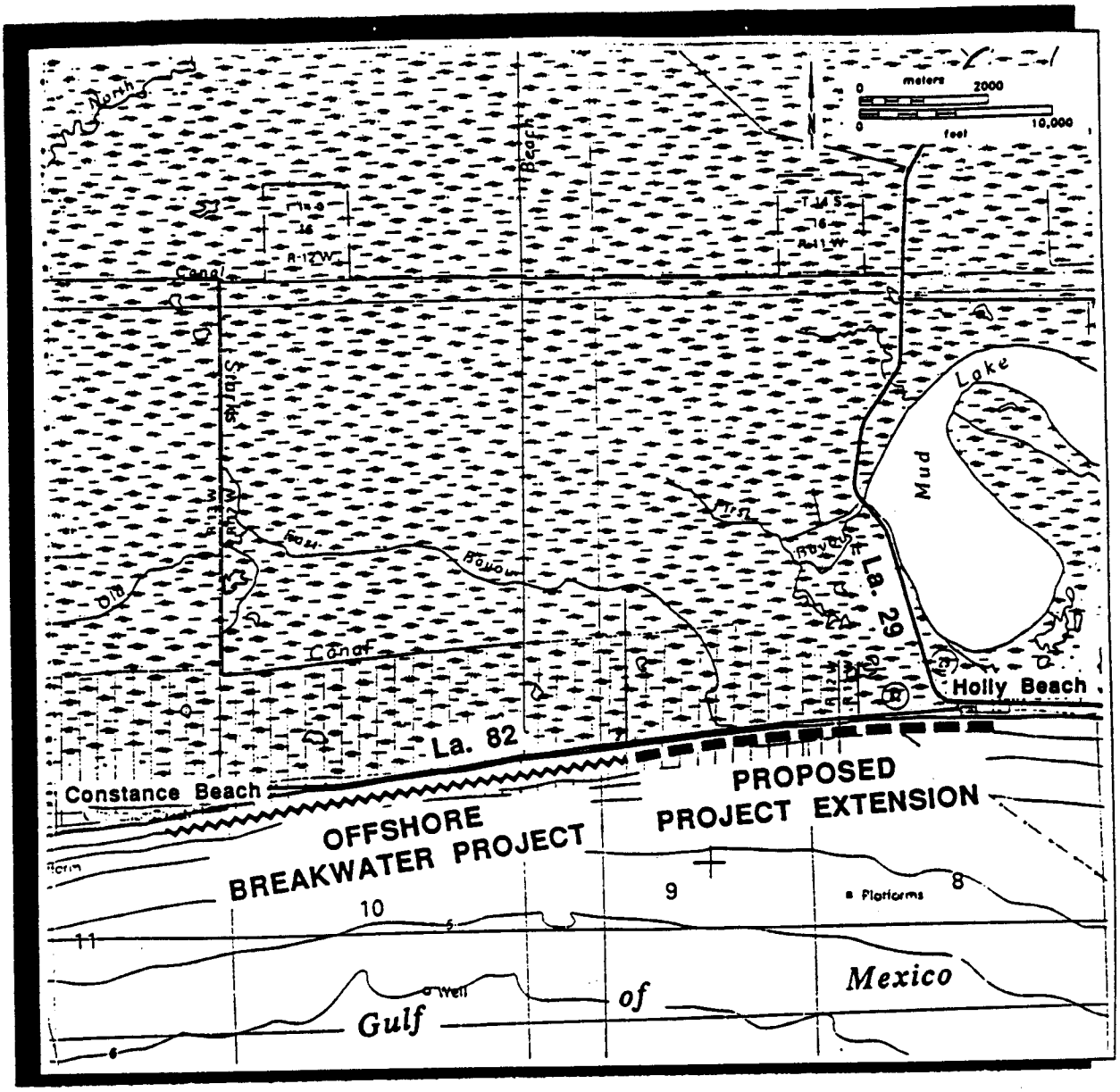
Sawmill Canal PME-14

A diverse area of freshwater wetlands, including a bald cypress stand, is maintained between Little Pecan Island and Little Pecan Bayou through water management. Management capability is provided by a small levee along Freshwater Bayou and a number of control structures along the Sawmill Canal, both of which are in need of repair. The levee and structures protect the wetlands from salt water entering the area via Little Pecan Bayou. This project would replace the failing structures with a single control structure across Sawmill Canal at Little Pecan Bayou, consisting of four 48-inch culverts with flap gates. An 8-foot variable crest weir would also be installed. Approximately 10,560 feet of levee repairs would be done along Little Pecan Bayou.



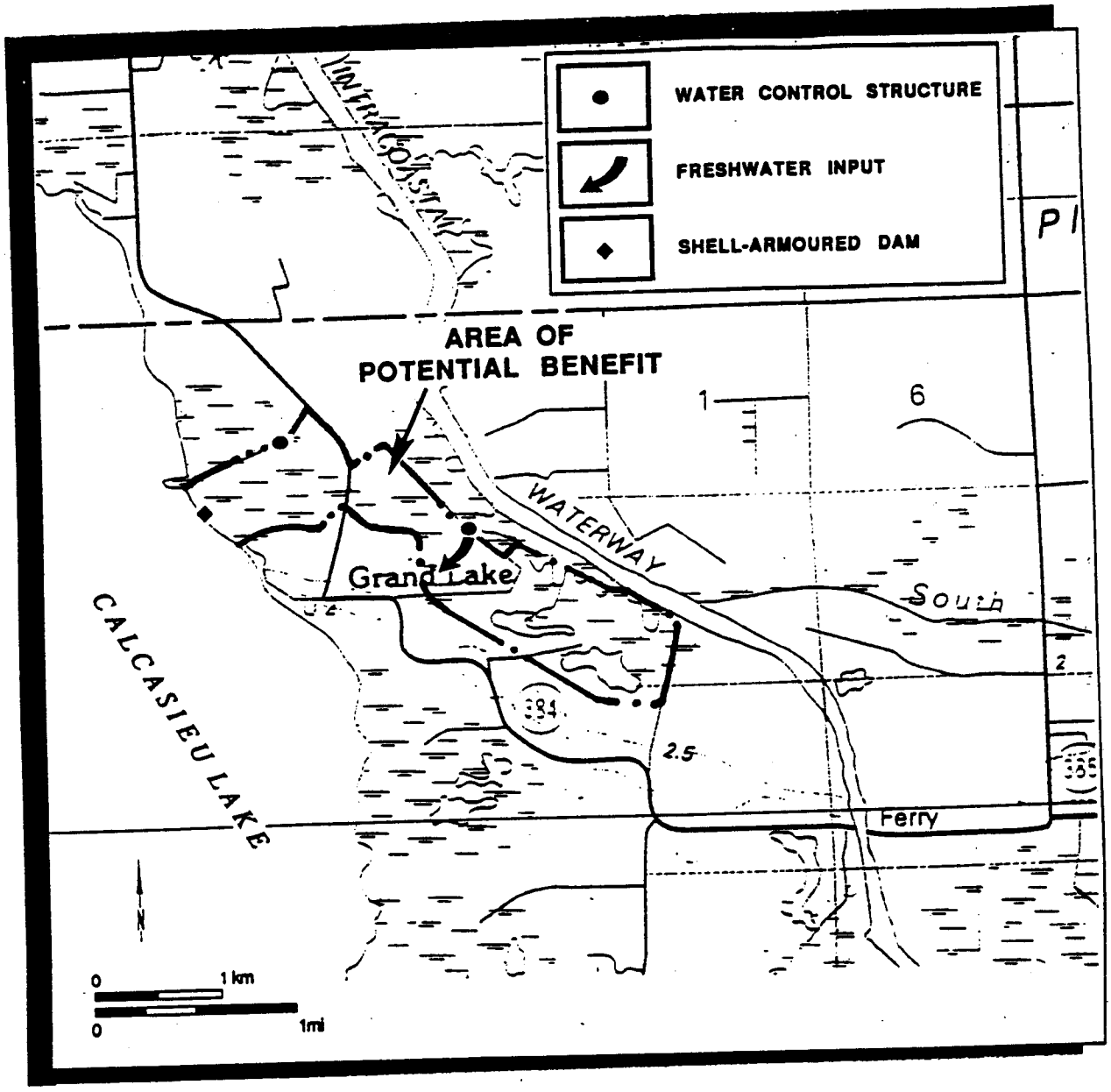
Freshwater Bayou ME-4, PME-21

Measures proposed under this project would address the excessive water levels and bank erosion that pose a threat to the marshes along and west of the Freshwater Bayou Canal. Ten thousand feet of rip-rap would be placed along the west bank of Freshwater Bayou where breaching into interior water bodies is imminent. Approximately 20 48-inch flap-gated culverts and an 8-foot variable crest weir would be placed in the north spoil bank of the Acadiana Canal to reduce ponding.



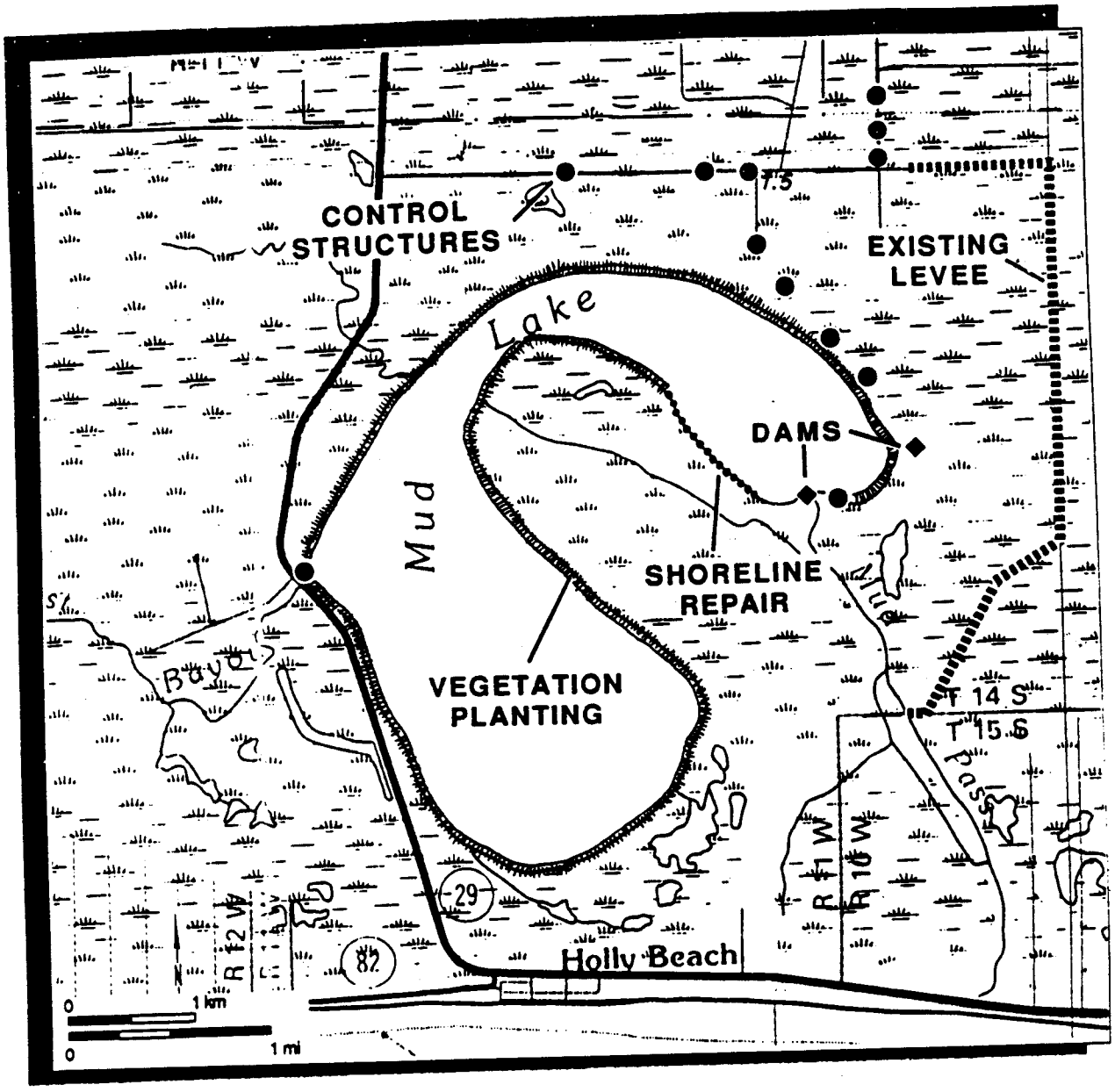
Peveto to Holly Beach C/S-1a

Shoreline erosion in the Holly Beach area continues to pose the threat of breaching the coastal barrier provided by La. Hwy. 82, thus introducing gulf waters into 50,000 acres of brackish marsh between Calcasieu and Sabine Lakes. The State has already undertaken construction of a segmented offshore breakwater from Ocean View to Holly Beach, with construction being completed from Ocean View to Peveto Beach. This project would extend the breakwater 3.3 miles east to Holly Beach. The structures would be 150 feet in length, separated by gaps of 150 feet.



Highway 384 Hydrologic Restoration PC/S-25

The Calcasieu Ship Channel has increased tidal water movement and salinity in Calcasieu Lake and adjacent wetlands. Resultant marsh loss along the northeastern shore of the lake, at Grand Lake ridge and La. Hwy. 384, threatens the integrity of the Mermentau Basin. The project would reduce further loss, enhance existing marsh, and prevent development of a connection between Calcasieu Lake and the GIWW through implementation of water control measures. Project features include installation of five 48-inch flap-gated culverts, replacement of an existing 48-inch culvert, installation of three 22-inch flap-gated culverts, and placement of a shell plug along the shoreline of Calcasieu Lake.



Mud Lake Wetland Management PC/S-24

High salinities and increased tidal water movement, in combination with subsidence, continue to cause marsh deterioration in the area around Mud Lake. Additional wetland loss results from erosion of the lake shore. While the area is partially under management, additional structures and repairs of existing levees are required to further stabilize water levels and salinities. Shoreline stabilization in critical areas would be accomplished with 150,000 feet of vegetative plantings. Other project features would include installation of 850 feet of culverts, removal of six existing culverts, placement of three earth plugs, and repair of 4,850 feet of existing levees.

been formulated to take advantage of each of these sources. Other measures such as shoreline protection, marsh creation with dredged material, and hydrologic restoration are generally counter-productive to the mission of spreading out the water and sediment over as wide an area as possible; thus, these measures are not used.

Group 3. Bayou Sauvage (PPO-52a)

The goals of this project are to increase the percent of marsh (V1), submerged aquatics (V2), and the amount of marsh/water edge (V3), and to improve the flooding regime (V4) and decrease pond depth (V5). The only management measure available in this landlocked system is to pump out the excess water.

Group 4. Clear Marais (PCS-7), Point Au Fer (PTE-22, 24) West Belle Pass (PTE-27), Peveto to Holly Beach Shoreline Protection (CS-1a), Marsh Island (TV-5), Boston Canal (PTV-18, TV-8), Freshwater Bayou (ME-4, XME-21), Oyster Reef Demonstration (PBS-13), and Cutoff Bayou (PO-11).

Formulation of these shore or bank protection projects involved several WVA parameters. The major goals are to prevent a decrease in the percent of marsh, decrease the depth of ponds, and increase the percent of aquatics and the amount of edge. Project features that prevent shoreline and bank erosion include rocks, bulkheads, and vegetative plantings. Erosion protection can often be combined with other measures such as hydrologic restoration at Freshwater Bayou or marsh creation at West Belle Pass and Marsh Island.

Group 5. Big Island Mining (XAT-7), Sediment Mining (PMR-8), West Belle Pass (PTE-27),Marsh Island (TV-5), Tiger Pass (FMR-4), Falgout Canal Wetland Demonstration (XTE-43), Atchafalaya Booster Pumps (XAT-6), and Nairn Wetland Creation (XBA-50).

Numerous WVA parameters were used to formulate these projects, all of which feature marsh creation with dredged material. The major goal of these projects is to increase the percentage of marsh and marsh/water edge and to decrease the depth of ponds.

These projects are generally feasible only near a major Corps of Engineers navigation channel, where the cost of project construction is limited to the added cost of the additional pumping requirement. Because of their distance from any such channel, Marsh Island, Falgout Canal, and Nairn all exhibit high construction costs.

Group 6. Isles Dernieres (XTE-41), Shell Island (PBA-38), and Fiddler Point (PBS-5).

These barrier island projects can only be built at the gulf/estuary interface. Because of the extensive dredging required, restoration projects that rebuild existing islands are more costly in terms of specific output than many other projects. However, no other management measures are available in these environments. The goals of these projects include an increase in the percent of marsh and a reduction in pond depth.

The nature of many of these projects is such that optimization by scaling of the project is not practicable. Projects which involve large structures for diverting fresh water and sediment are generally amenable to scaling; varying the size of the structure affects the amount of water and sediment diverted, which determines the degree of salinity reduction achieved or the rate of sediment deposition and marsh growth. However, many other projects, such as those involving marsh management, do not lend themselves to scaling. In general, the affected area is defined by existing features, either natural or man made, which form hydrologic boundaries; the project area is to a great extent predetermined. In many instances, the project features themselves are not subject to scaling, since such changes may have a significant effect on the benefits. For instance, the design of a structure for a marsh management project is more or less determined by the hydrologic characteristics of the project area. Varying the size of flap-gated culvert which permits controlled water exchange does not produce a quantifiable difference in the quality of the marsh behind it. The structure is simply designed to provide adequate exchange of water and, if appropriate, access for aquatic organisms.

The proposed Houma Navigation Canal Lock, on the other hand, would be subject to scaling, but not in terms of its wetlands output. Rather, the lock would have to be scaled to determine the appropriate size to support navigation needs on the canal. Such an exercise is not appropriate for the type of evaluation done for a Priority Project List; a much more detailed study would be required before a structure of this type could be recommended. For this reason, the project was not included in the above list.

Cost Analysis.

During the plan formulation process, each of the Task Force agencies assumed responsibility for developing 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
3. Engineering and Design
4. Supervision and Administration
5. Supervision and Inspection (Construction Contract)
6. Real Estate
7. Operation and Maintenance
8. Monitoring

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

An Engineering Work Group was established by the Planning and Evaluation 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 price for those items were reasonable. In addition, the work group reviewed the design of

also the time when first costs are considered fully amortized. Costs (and benefits) beyond 20 years are not considered.

e. The funding requirements for each project were based on the current dollar value of the construction and operating costs, except that costs paid for by sources other than the CWPPRA were not included. Whereas average annual costs assume no inflation over time, the calculation of funding requirements does include an inflation adjustment of 3.5 percent to 4.7 percent per year. Project benefits are not adjusted over time, *i.e.*, they are not considered to inflate nor are they discounted to give extra value to near-term habitat gains.

Benefit Analysis (Wetland Value Assessment Methodology and Community Models).

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 (AAHU's), 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 (Group) assembled under the Planning and Evaluation Subcommittee of the CWPPRA Technical Committee, and included members from each agency represented on the CWPPRA Task Force. The WVA was designed to be easily applied to proposed projects using only existing or readily obtainable data to the greatest extent possible.

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 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 cypress-tupelo swamp. Future reference in this document to "wetland" or "wetland type" refers to one or more of those four communities.

WVA Concept

The WVA operates under the assumption that optimal conditions for general 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 1) a list of variables that are considered important in characterizing fish and wildlife

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 seven variables for each of the marsh types and three for the cypress-tupelo swamp.

Suitability Index Graphs

Suitability Index graphs were constructed for each variable selected within a wetland type. A Suitability Index (SI) 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.

A variety of resources were utilized to construct each Suitability Index (SI) graph, including personal knowledge of Group members, the species HSI models from which the final list of variables was partially derived, consultation with other professionals and researchers outside the Group, 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 1 under each marsh model (see discussion below). Additionally, a protocol was set by the Group to define the minimum SI value of any variable as 0.1. That protocol was necessary to avoid an HSI with a value of zero that would result from the interaction between the HSI formula's multiplicative structure and a SI with a value of zero (refer to discussion of HSI Formulas below).

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

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 is assumed to occur at 100% percent open water coverage by aquatic vegetation (SI=1.0). 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 Group recognized, however, that those affects were highly dependent on the dominant aquatic plants 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 Group 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 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. A high degree of interspersion is assumed to be optimal (SI=1.0), and the lowest expression of interspersion (i.e., no emergent marsh at all within the project area) is assumed to be least desirable in terms of expressing habitat quality, and is thus assigned an SI=0.1. This variable also indirectly captures some of the high biological value of intermediate marsh coverage foregone in V_1 (see discussion above) in that optimum interspersion cannot exist at extremely high degrees of marsh cover.

Variable V_4- Water duration in relation to marsh surface.

Excessive water levels in a fresh/intermediate marsh can stress and eliminate certain types of marsh vegetation, particularly annuals and less

V_7 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 were established (see Procedure for Calculating Access Value). 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/intermediate marsh with no access is assigned an SI=0.3, reflecting the assumption that, while fresh/intermediate marshes are important to some species of estuarine 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 or suitability.

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 for the brackish marsh model is identical to that for 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 a wide variety of wildlife. However, brackish marshes generally do not support the amounts and kinds of aquatic plants that occur in fresh/intermediate marshes (although certain species, such as widgeon-grass, can occur abundantly under certain conditions). Therefore, a brackish marsh entirely lacking aquatic plants is assigned an SI=0.3. 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- Water duration in relation to marsh surface.

Three classes of water duration are used for the V_4 Suitability Index graph in the brackish marsh model. Extreme long- and long-duration flooding in a brackish marsh can stress marsh hay cordgrass (Spartina patens), eventually contributing to a reduction in dominance of that plant and an

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

Aquatic vegetation is generally not considered an important habitat component in the saline marshes of coastal Louisiana; those saline marshes are usually strongly influenced by tides, and the resulting hydraulic energy and turbidity usually limits growth of aquatic vegetation, with the possible exception of seagrass beds occupying certain locations in bays and other shallow water areas. Thus, the V_2 Suitability Index graph for the saline marsh model is relatively flat, illustrating an SI=0.6 for no aquatic vegetation and an optimum of 100 percent aquatic vegetation coverage.

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 for the fresh/intermediate and brackish marsh models.

Variable V_4- Water duration in relation to marsh surface.

Four water duration categories are described for the saline marsh model. Continuous flooding is assumed to result in anoxic soil conditions, and thereby lower primary productivity; that flooding regime is assigned an SI=).7. Such marshes are often dominated by the "short form" of smooth cordgrass. The optimum condition is assumed to be one of regular (daily) tidal exchange typical of coastal saline marshes dominated by smooth cordgrass. The remaining two water duration categories represent decreased inundation frequency, which are assumed to be less desirable and are thus assigned lower suitability indices. If the project area is totally devoid of emergent marsh, the Group assigned an SI of 0.1 to be consistent with the lowest SI protocol.

Variable V_5- 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, with the exception that the optimum condition is assumed to occur when 70 percent of the open water area is less than or equal to 1.5 feet deep; that change reflects the increased abundance of tidal channels and generally deeper water conditions prevailing in a saline marsh due to increased tidal influences.

Variable V_6- Average annual salinity.

The Suitability Index graph is constructed to represent optimum salinity conditions at between 14 ppt and 18 ppt. Average annual salinities below 9 ppt are not considered on the graph because average annual salinities below that level would essentially define a brackish marsh.

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. The formulas developed for the WVA use a geometric mean to aggregate Suitability Indices within a wetland type. A geometric mean is appropriate for use when the relationship between model variables is such that some compensations exist (i.e., a low Suitability Index for one variable will be partially compensated for by a high Suitability Index of another variable); however, optimum conditions can exist only if all Suitability Indices are equal to 1.0. A geometric mean is computed by multiplying the Suitability Indices together and raising the resulting product by the reciprocal of the sum of all Suitability Index exponents.

Any Suitability Index can be weighted by raising its exponent to the degree deemed appropriate. Weighting increases the power or "importance" of a given variable relative to the other variables in the HSI formula. A larger exponent will increase the influence of that variable's Suitability Index in determining the HSI. Because the primary focus of the CWPPRA is interpreted as being on vegetated wetlands, variables V_1 and V_2 have been weighted to the third and second power, respectively, to increase the importance of vegetation condition in determining HSI's. An exception in this regard has been made in the HSI formula for the saline marsh model, where variable V_2 is not weighted, due to the natural lack of aquatic vegetation in tidal saline marshes. Finally, variable V_7 (aquatic organism access) has been weighted to the second power in the brackish and saline marsh models, to reflect the critical role of those marsh types in providing habitat to estuarine fish and shellfish.

As with the Suitability Index graphs, the Habitat Suitability Index formulas were developed by consensus among the Group members.

Benefit Assessment

The net benefits of a proposed project are estimated by predicting habitat conditions into the future for two scenarios: with the proposed project in place 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, Habitat Suitability Indices are established for baseline (pre-project) conditions and for both future-with and future-without project conditions for selected "target years" throughout the expected life of the project. Those Habitat Suitability Indices are then multiplied by the acreage of wetland type known or expected to be present in the target years to arrive at Habitat Units (HU's).

HU's represent a numerical combination of quality (HSI) and quantity (acres) existing at any given point in time. The "benefit" of a project over future-without conditions can be quantified by comparing HU's between the two scenarios. The difference in HU's between the two conditions represents the net benefit attributable to the project in terms of habitat quantity and quality.

The HU's resulting from the future-with and future-without project conditions are annualized, averaged out over the project life, and compared to determine the net gain in average annual HU's (AAHU's) attributable to the project. Net gain in AAHU's

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

Freshwater Fish

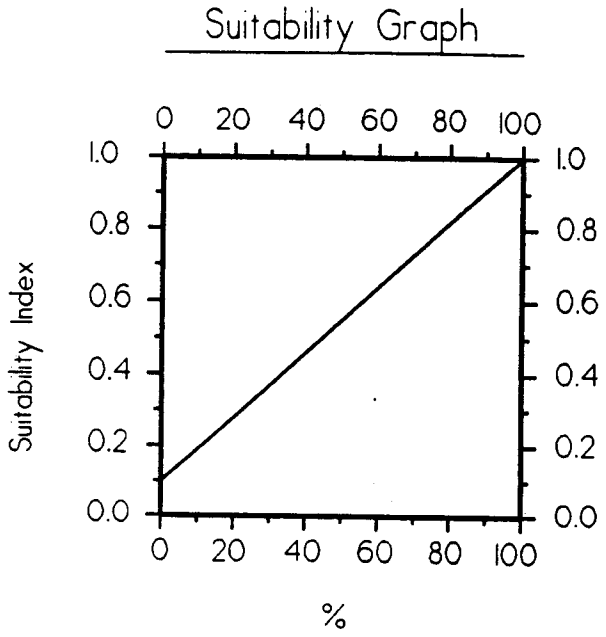
channel catfish
largemouth bass
red ear sunfish
bluegill

Birds

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

FRESH/INTERMEDIATE MARSH

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



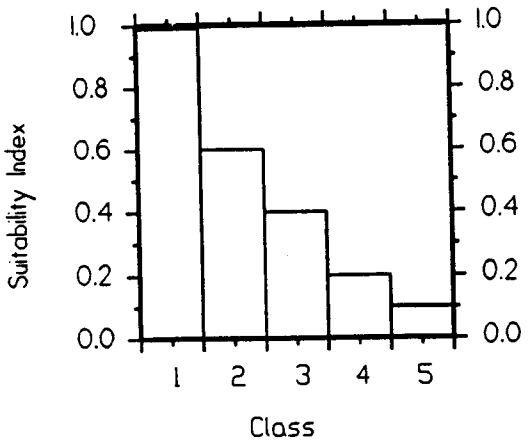
Line Formulas

SI = (0.009 * %) + 0.1

FRESH/INTERMEDIATE MARSH

Variable V_3 Marsh edge and interspersion.

Suitability Graph



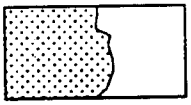
1 - 

a. b.

3 - 

a. b.

2 - 

4 -  , or solid marsh

5 - Entire project area open water

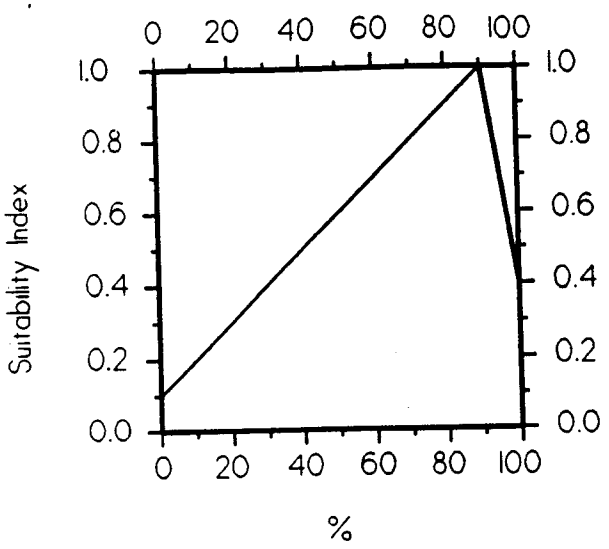
Estimate percent of project area in each class and compute a weighted average to arrive at SIV_3.

NOTE: Percent marsh is the same in each pond illustration (45%); only the relative arrangement of marsh and open water differ. Marsh/water areas in the pond illustrations can be conceptually reversed to represent 45% water.

FRESH/INTERMEDIATE MARSH

Variable V_5 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.

Suitability Graph

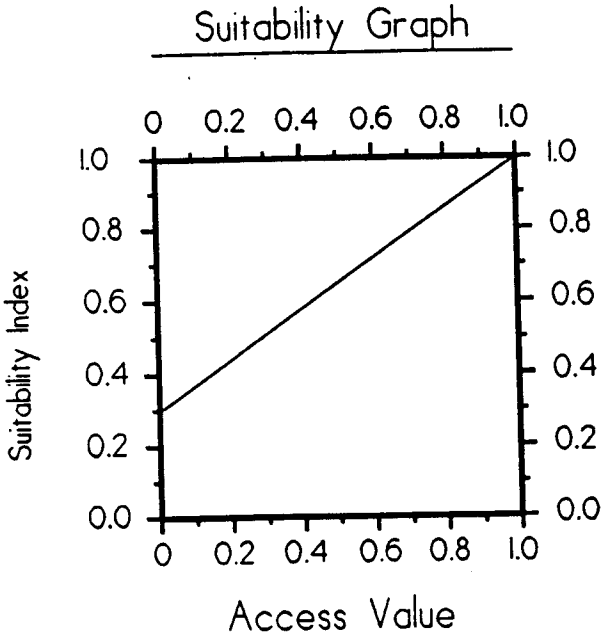


Line Formulas

If 0 ≤ % < 90 then SI = (0.01 * %) + 0.1

If % ≥ 90, then SI = (-0.06 * %) + 6.4

Variable V_7 Aquatic organism access.



Line Formula

SI = (0.7 * Access Value) + 0.3

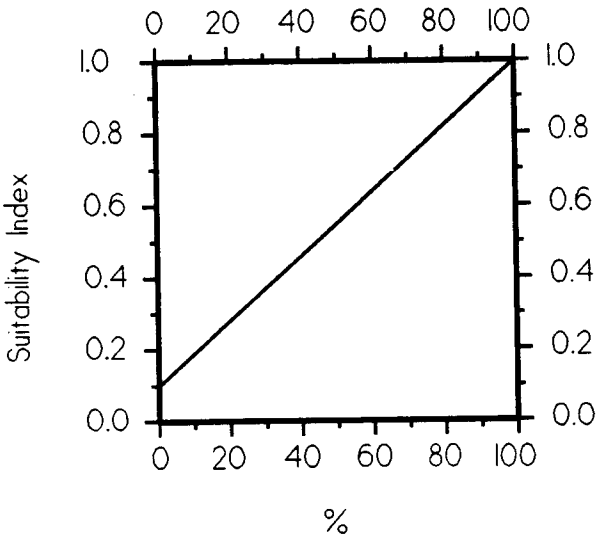
NOTE: Access Value = P * R, where P = percentage of wetland area considered accessible by estuarine organisms during normal tidal fluctuations, and R = Structure Rating.

Refer to "Procedure For Calculating Access Value" for complete information on calculation of Structure Rating.

BRACKISH MARSH

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

Suitability Graph



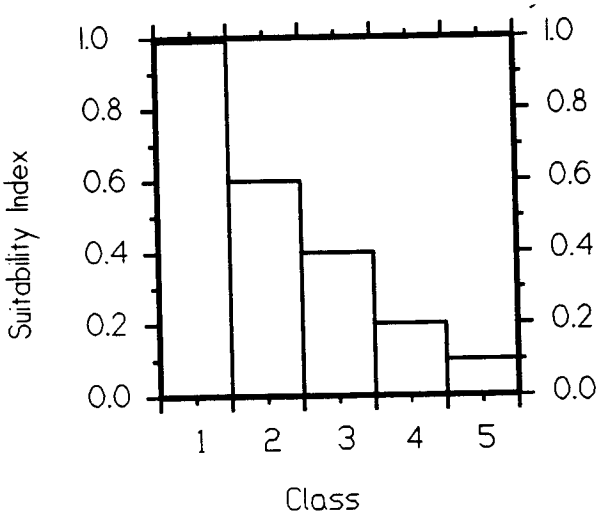
Line Formulas

SI = (0.009 * %) + 0.1

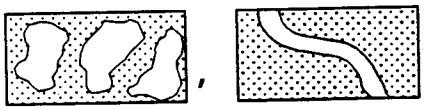
BRACKISH MARSH

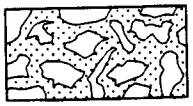
Variable V_3 Marsh edge and interspersion.

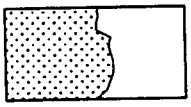
Suitability Graph



1 -  a. b.

3 -  a. b.

2 - 

4 -  , or solid marsh

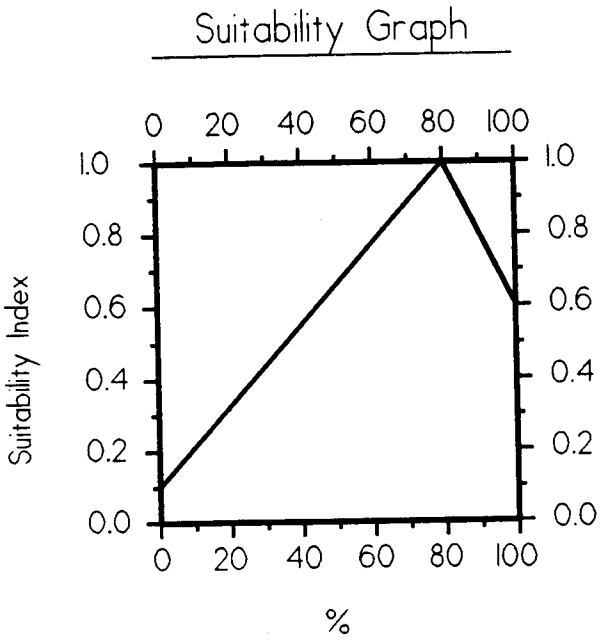
5 - Entire project area open water

Estimate percent of project area in each class and compute a weighted average to arrive at SIV_3.

NOTE: Percent marsh is the same in each pond illustration (45%); only the relative arrangement of marsh and open water differ. Marsh/water areas in the pond illustrations can be conceptually reversed to represent 45% water.

BRACKISH MARSH

Variable V_5 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.

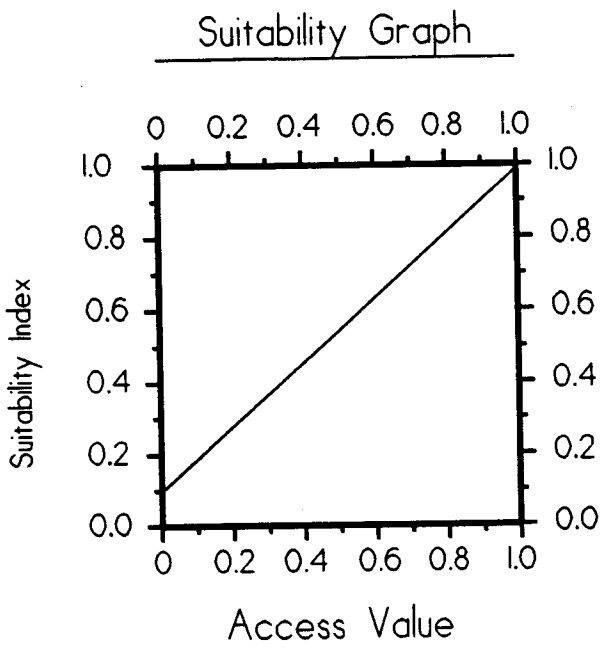


Line Formulas

If 0 ≤ % < 80 then SI = (0.01125 * %) + 0.1

If % ≥ 80, then SI = (-0.02 * %) + 2.6

Variable V_7 Aquatic organism access.



Line Formula

SI = (0.9 * Access Value) + 0.1

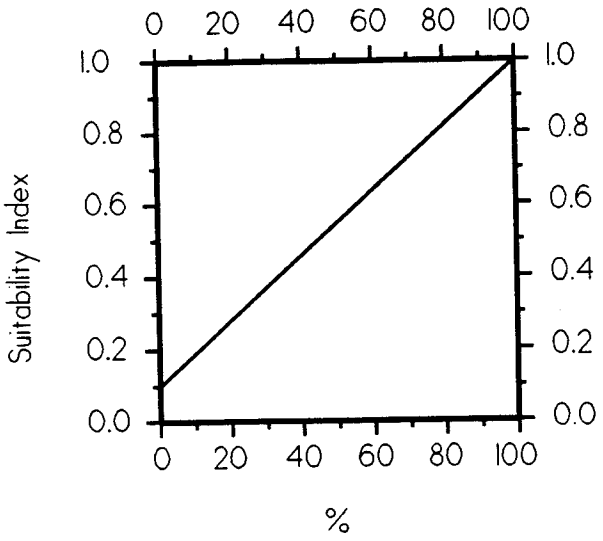
Note: Access Value = P * R, where P = percentage of wetland area considered accessible by estuarine organisms during normal tidal fluctuations, and R = Structure Rating.

Refer to "Procedure for Calculating Access Value" for complete information on calculation of Structure Rating.

SALINE MARSH

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

Suitability Graph



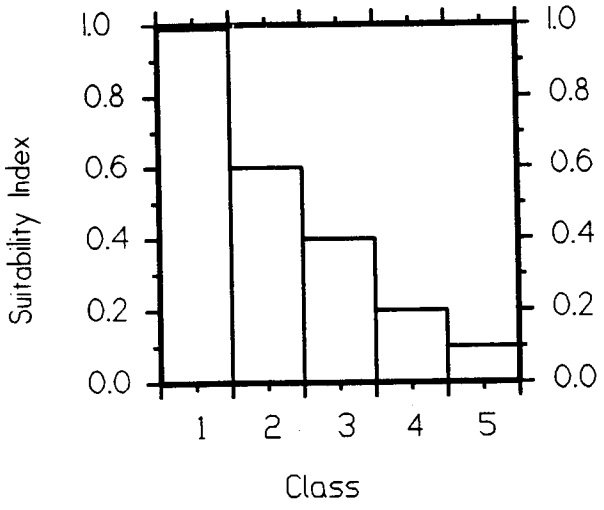
Line Formulas

SI = (0.009 * %) + 0.1

SALINE MARSH

Variable V_3 Marsh edge and interspersion.

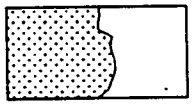
Suitability Graph



1 -  a. b.

3 -  a. b.

2 - 

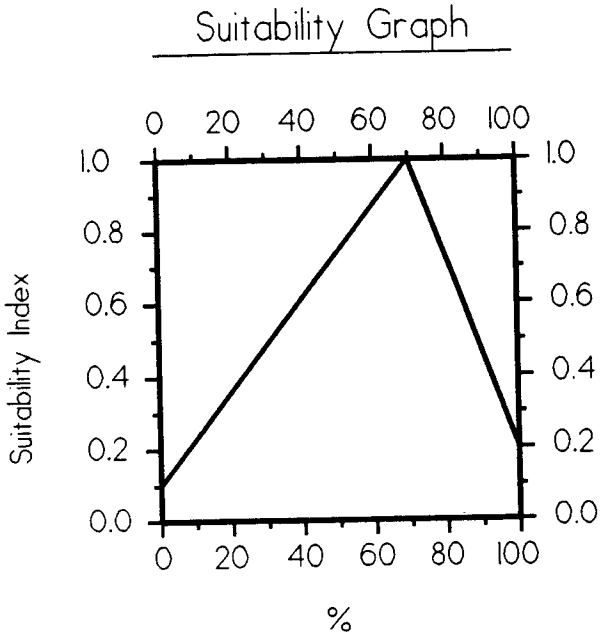
4 -  , or solid marsh

5 - Entire project area open water

Estimate percent of project area in each class and compute a weighted average to arrive at SIV_3.

NOTE: Percent marsh is the same in each pond illustration (45%); only the relative arrangement of marsh and open water differ. Marsh/water areas in the pond illustrations can be conceptually reversed to represent 45% water.

Variable V_5 Percent of open water area ≤ 1.5 feet deep, in relation to marsh surface.

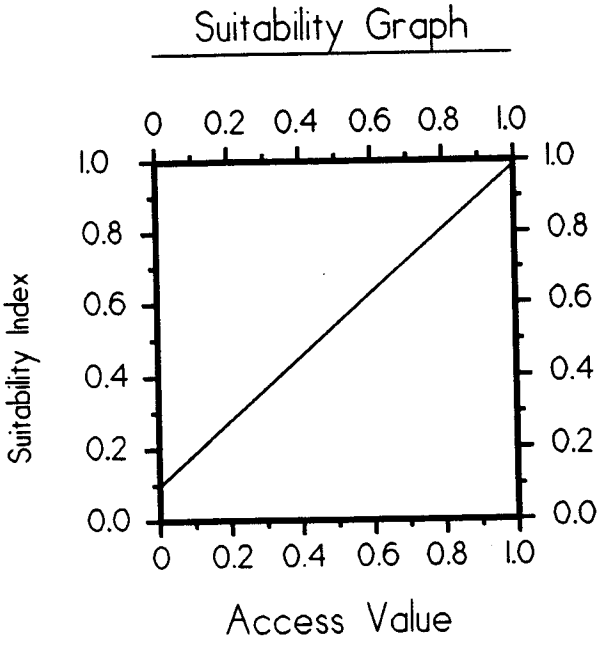


Line Formulas

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

If $x \geq 70$, then SI = (-0.027 * %) + 2.9

Variable V_7 Aquatic organism access.



Line Formula

SI = (0.9 * Access Value) + 0.1

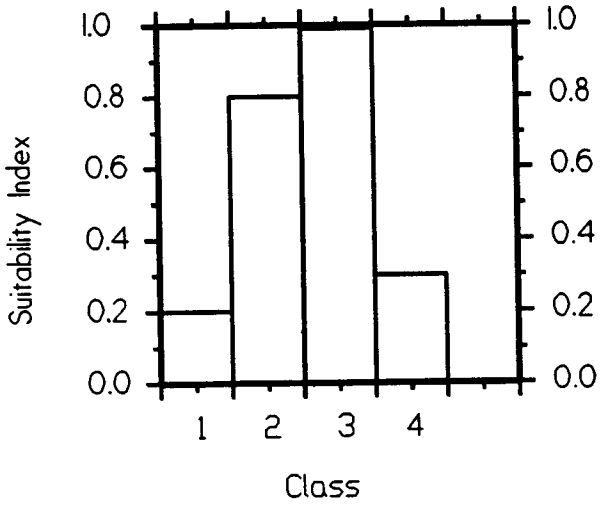
Note: Access Value = P * R, where P = percentage of wetland area considered accessible by estuarine organisms during normal tidal fluctuations, and R = Structure Rating.

Refer to "Procedure for Calculating Access Value" for complete information on calculation of Structure Rating.

CYPRESS-TUPELO SWAMP

Variable V_1 Water regime.

Suitability Graph



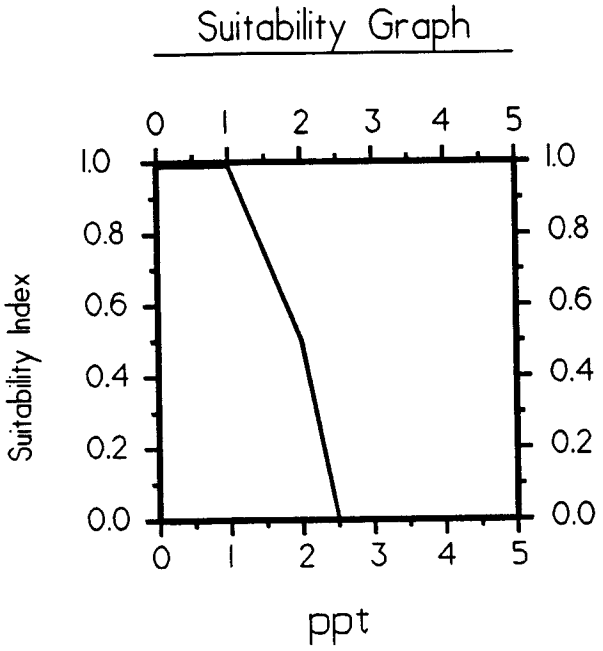
1 - Permanently Flooded: water covers the substrate throughout the year in all years.

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

3 - Seasonally Flooded: 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 - Temporarily Flooded: 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.

Variable V_3 Average high salinity.



Line Formulas

If $0 \leq ppt < 1$, then $SI = 1.0$

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

If $2 \leq ppt < 2.5$, then $SI = (-1.0 * ppt) + 2.5$

If $ppt \geq 2.5$, then $SI = 0$

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

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 * .6
= .54

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.

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*.7]+[.70*.6])/(.20+.70)
= (.14 + .42)/.90
= .56/.90
= .62

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*.7]+[.40*.6]+[.30*.1])/(.20+.40+.30)
= (.14+.24+.03)/.90
= .41/.90
= .46

Table 4

Candidate Projects Ranked by Cost Effectiveness

Number	Project	Avg Annual Cost/AAHU ($/AAHU)	Fully Funded Cost ($)	Cumulative Fully Funded Cost ($)
PME-15	Humble Canal	89	999,000	999,000
PAT-2	Atch Sediment Del.	112	894,000	1,893,000
ME-4/XME-21	Freshwater Bayou	126	2,643,000	4,536,000
PAT-2	Atch Sed (Incr 2)	128	1,045,000	
PAT-2	Atch Sed (Incr 1)	147	777,000	
PP0-52A	Bayou Sauvage	186	1,463,000	5,999,000
PCS-27	Clear Marais	193	1,733,000	7,732,000
BA-6	Hwy 90 to GIWW	211	3,819,000	11,551,000
MR-2	Sediment Fencing	332	3,078,000	14,629,000
BS-3A	Caernarvon Outfall	414	2,416,000	17,045,000
PCS-24	Mud Lake	463	2,630,000	19,675,000
TV-4	Cote Blanche	469	5,044,000	24,719,000
PME-14	Sawmill Canal	502	1,174,000	25,893,000
PTE-22/24	Point Au Fer	697	1,123,000	27,016,000
XAT-7	Big Island Mining	882	5,302,000	32,318,000
PBA-35	Jonathan Davis	886	3,399,000	35,717,000
XAT-7	Big Island (Incr 1)	935	4,161,000	
XAT-7	Big Island (Incr 2)	1,046	6,564,000	
PMR-8	Sediment Mining	1,096	1,358,000	37,075,000
PBS-6	Crevasse Bohemia	1,138	1,685,000	38,760,000
P0-6	Fritchie	1,139	2,748,000	41,508,000
XME-22	Pecan Island	1,143	1,712,000	43,220,000
CS-1A	Peveto to Holly	1,155	7,307,000	50,527,000
PCS-25	Hwy 384	1,225	1,032,000	51,559,000
PMR-8	Sed Mining (Incr 1)	1,371	972,000	
PTV-18/ TV-9	Boston Canal	1,374	1,363,000	52,922,000
PMR-8	Sed Mining (Incr 2)	1,686	2,933,000	
PTV-19	Teche Verm Sed	1,713	822,000	53,744,000
CS-9	Brown's Lake	2,150	2,949,000	56,693,000
PTE-27	W Belle Pass	2,327	4,880,000	61,573,000
PO-11	Cutoff Bayou	2,576	1,415,000	62,988,000
FMR-4	Tiger Pass	3,462	6,955,000	69,943,000
TV-5	Marsh Island	5,077	12,983,000	82,926,000
XTE-41	Dernieres (Phase 1)	6,188	6,894,000	89,820,000
XAT-6	Atch Booster Pump	6,241	3,054,000	92,874,000
XTE-41	Dernieres (all)	6,961	33,188,000	
XTE-42	Houma Canal Lock	7,366	122,545,000	215,419,000
PBA-38	Shell Island (all)	8,096	20,169,000	235,588,000
PBA-38	Shell Island (Ph I)	12,505	10,689,000	
P0-9	Violet	12,978	25,573,000	261,161,000
XTE-43	Falgout (w/ Tran)	13,070	9,564,000	270,725,000
BA-13	Hero Canal	14,813	10,004,000	280,729,000
PBS-5	Fiddler Pt. (Phase I)	20,063	17,563,000	298,292,000
PBS-5	Fiddler Pt. (all)	20,755	55,115,000	
PBS-13	Oyster Reef Demo	36,400	374,000	298,666,000
XBA-50	Nairn Wetland	66,944	9,732,000	308,398,000

Note: The cumulative cost is displayed for only the most effective increment of any project.

Table 6

Distribution of Wetland Types
for Selected Projects

Project	Percent Wetland Type			
	Fresh/ Intermediate	Brackish	Saline	Cypress Swamp
Atchafalaya Sediment Delivery	100			
Freshwater Bayou	100			
Bayou Sauvage	100			
Clear Marais	100			
Caernarvon Outfall Mgmt	21	79		
Mud Lake		100		
Point Au Fer		57	43	
Big Island Mining	100			
Jonathan Davis Wetland	100			
Fritchie Marsh		100		
Hwy 384	50	50		
Boston Canal		100		
Brown Lake		100		
West Belle Pass			100	
Isles Dernieres			100	
Humble Canal	100			
Hwy 90 to GIWW	100			
Sawmill Canal	70	27		3
Sediment Mining (Miss Delta)	100			

Rationale for the Selection of Priority List Projects.

The list of projects selected by the Task Force is not a simple compendium of the most cost effective of the candidate projects. One must keep in mind that the Wetland Value Assessment, while it is the best tool presently available for evaluating wetland projects, is not perfect; like all models, it suffers from any number of weaknesses. In addition to the errors which are unavoidably inherent in the model (since our knowledge of wetlands is less than all-encompassing), there is the problem of the quality of the data available for input. Every attempt was made to ensure that data were as accurate as possible, but the demands created by evaluating a large number of proposals in a short period of time did not permit adherence to the conventional feasibility study process. As a consequence, any number of factors other than cost effectiveness were taken into account by the Planning and Evaluation Subcommittee, the Technical Committee, the Citizen Participation Group, and the Task Force in arriving at the 2nd Priority Project List. Not all of these are rigorously quantifiable elements. Consideration was given to the overall fitness of a particular basin. For instance, if projects were selected simply on the basis of cost effectiveness, the Terrebonne Basin would have a single project--the Point Au Fer Canal Plugs project, with an estimated fully funded cost of $1,123,000. This amounts to less than three percent of the funding for this year's list. Yet the Terrebonne Basin is one where needs are very critical, and the Task Force chose to recommend three projects in that basin, including Isles Dernieres, the most

The Humble Canal project (PME-15), which ranks highest on the cost effectiveness list, involves rehabilitation of existing structures which are not expected to fail within the next five years. The project was deferred because the Planning and Evaluation Subcommittee and the Technical Committee found that more critical needs exist in other areas.

The Highway 90 to GIWW project (BA-6), while a worthwhile project, is currently at a lower funding priority than projects in areas which are experiencing greater land loss and coastal erosion, and are in need of more immediate action. Last year's Priority Project List recommended construction of the GIWW to Clovelly Hydrologic Restoration project (BA-2), which is located to the south of the BA-6 project and will provide some protection to the BA-6 area. The Davis Pond Freshwater Diversion will also freshen this area and therefore reduce the risk of saltwater intrusion in the northern portion of the Barataria Basin.

The Sediment Fencing at Pass a Loutre project (MR-2) was remanded to the Restoration Plan. The Louisiana Department of Wildlife and Fisheries is presently funding some deltaic splay and fencing projects with mitigation and State Coastal Restoration funds; thus, other opportunities exist for accomplishing this work. Because the project cost was relatively high (over $3 million) and similar work is being done under other programs, the Planning and Evaluation Subcommittee and the Technical Committee decided that this project was not appropriate for this Priority Project List.

Land loss in the Teche/Vermilion Basin is not as great as in other basins (*i. e.*, Barataria and Terrebonne); as a consequence, immediate project priorities are higher in the basins experiencing higher loss rates, and the Task Force wished to limit the number of projects recommended for this basin. The Boston Canal Project (PTV-18,TV-9) deals with shoreline erosion along the entire northwestern shoreline of Vermilion Bay, a high priority problem area identified during the public scoping process. The application of a successful project in this critical area of the basin addresses the key basin strategy and will provide useful information in expanding shoreline protection applications to other portions of the basin. For these reasons the Boston Canal project was recommended over the more effective Cote Blanche project for the 2nd Priority Project List.

The Sawmill Canal project (PME-14) involves the rehabilitation of existing structures, and both the Planning and Evaluation Subcommittee and the Technical Committee determined that more critical needs exist in other areas at this time. Thus, this project was deferred in favor of funding projects in areas with more critical needs. It remains in deferred status rather than being remanded to the Restoration Plan because it is very cost effective.

The Big Island Mining Increment No. 1 (XAT-7) project is considerably less costly than the original project, which involved a 650-foot channel through Big Island vs. the 500-foot width of Increment No. 1. Either of these would be a good project, but the Planning and Evaluation Subcommittee and the Technical Committee chose to recommend the less expensive alternative to permit funding of additional projects.

The Sediment Mining (Mississippi Delta) project (PMR-8) involves mining approximately 800,000 cubic yards of material from Pass a Loutre and placing it in a shallow open water disposal area. The project was deferred because this basin has an abundance of resources provided by the river and its sediment load, and projects to utilize these resources have been built in the past (such as delta splays), with others

technology to maximize the development of barrier islands and identify cost effective future projects. Phase 1 received very strong local support.

Detailed information on each of the projects on the 2nd Priority Project List is contained in the project fact sheets in the following section.

Re-establishment of Natural Sediment Delivery System, Atchafalaya Delta

PAT-2

Proposed by: National Marine Fisheries Service

PROJECT DESCRIPTION

Location

The proposed project area is in Atchafalaya Bay, in the lower southeast corner of St. Mary Parish. The project center is approximately at latitude 29°27'00" and longitude 91°16'30". The eastern half of the Atchafalaya Delta project area is

Fresh water marsh (some willows) - 248 acres
Open water bodies (includes distributary channels) - 4,000 ac

Subaerial expression of this portion of the Atchafalaya Delta occurred after the 1973 flood. Since then, this subdelta has grown to cover 6,800 acres of former bay bottom.

Justification

Closure of a distributary channel, known as Natal Channel, in the eastern half of the Atchafalaya Delta, principally as a consequence of man's dredging activities, has cut off sediment supply to approximately 1,000 acres of wetlands and 1,000 acres of shallow delta platform. As a result, delta progradation in this area has been dramatically reduced and wetland loss is starting to occur. Disruption of the sediment delivery network has resulted in sediment delivery during floods not being in balance with winter erosion events and subsidence. Therefore, net land (wetland) growth has become net land loss in this portion of the delta.

Natal Channel's cross-section has been monitored since early 1977. In 1983, it was 60-m wide and had a mean depth of 1.5 m (Van Heerden, 1983). In 1989 Natal Channel sealed at its upstream end due to subaqueous levee development mostly as a consequence of sediment that had migrated down East Pass from an upstream dredge dump site.

Similar closure mechanisms have reduced flow down Radcliffe Pass, south of Natal Channel. Acreage, on a par with the Natal Channel situation, has been adversely impacted around Radcliffe Pass.