



## **3RD PRIORITY PROJECT LIST REPORT**

**PREPARED BY:**

**LOUISIANA COASTAL WETLANDS CONSERVATION AND RESTORATION  
TASK FORCE**

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Coastal Wetlands Planning, Protection and Restoration  
Act

3rd Priority Project List Report

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Coastal Wetlands Planning, Protection and Restoration Act

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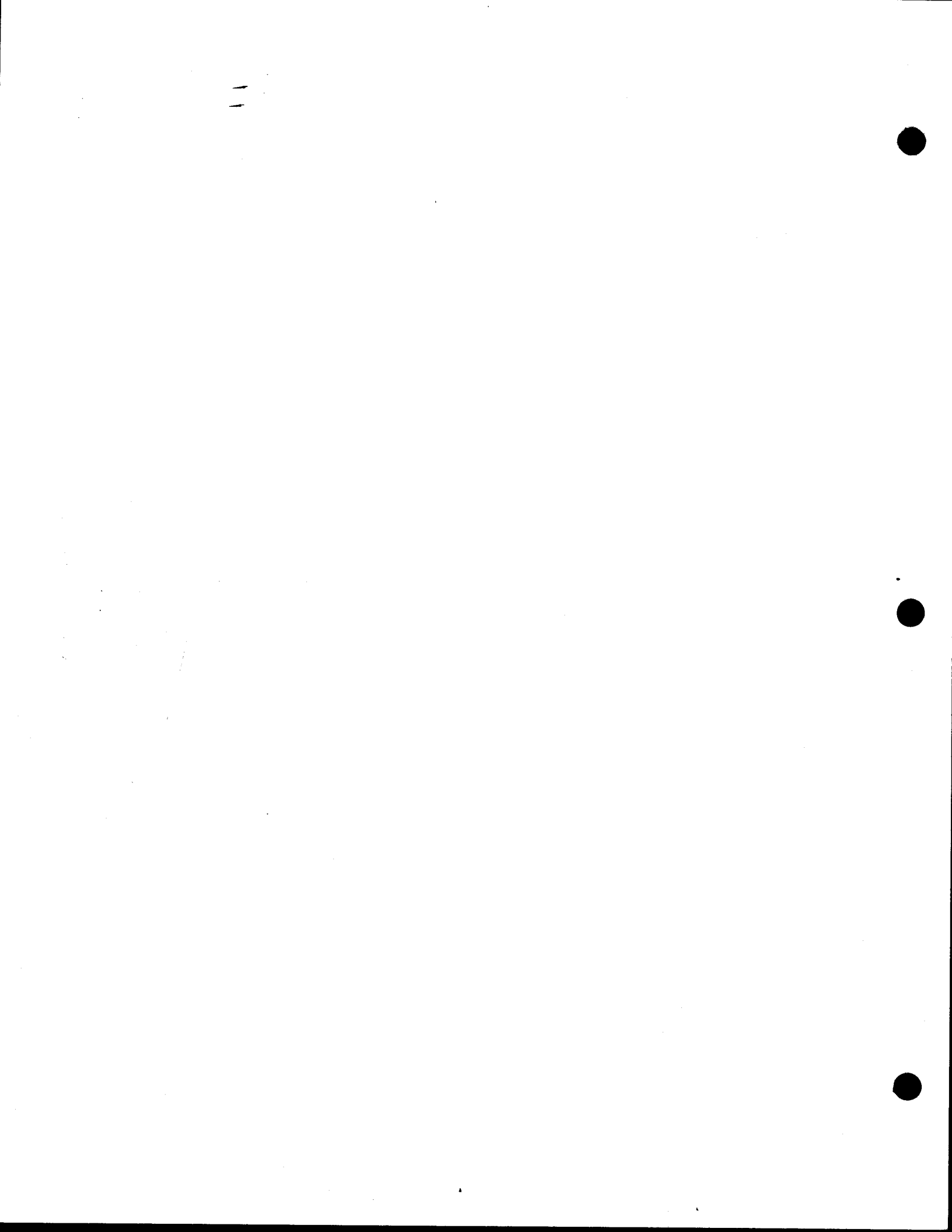
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# Coastal Wetlands Planning, Protection and Restoration Act

## 3rd 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 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, 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 3rd Priority Project List (PPL) and transmit the list to Congress by November 1993, 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

CWPPRA project area. To facilitate the study process, the coastal zone was divided into nine hydrologic basins, as shown on the map.

## STUDY PROCESS

### The Interagency Planning Groups.

Section 303(a)(1) of the CWPPRA directs the Secretary of the Army to convene the Louisiana Coastal Wetlands Conservation and Restoration Task Force, to consist of the following members:

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

The State of Louisiana is a full voting member of the Task Force except for selection of the Priority Project List [Section 303(a)(2)], as stipulated in President Bush's November 29, 1990, signing statement (Appendix A). In addition, the State of Louisiana may not serve as a "lead" Task Force member for design and construction of wetlands projects of the Priority Project List.

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

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

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

The Planning and Evaluation Subcommittee also established an interdisciplinary basin team for each of the nine hydrologic basins in the coastal area. The nucleus of each team consisted of representatives of the five federal Task Force agencies and the State; these six members made the final decisions on team recommendations. However, team meetings frequently involved additional agency representatives, scientific advisors, and local interests. The basin teams serve as the first level of screening for proposed Priority Project List projects and helped shape the comprehensive restoration plans for the basins.

The Citizen Participation Group.

The Task Force also established a Citizen Participation Group to provide general input from the diverse interests across the coastal zone: local officials, landowners, farmers, sportsmen, commercial fisherman, oil and gas developers, navigation interests, and environmental organizations. The Citizen Participation Group was formed to promote citizen participation and involvement in formulating Priority Project Lists and the restoration plan. The group meets at its own discretion, but may at times meet in conjunction with other CWPPRA elements, such as the Technical Committee. The purpose of the Citizen Participation Group is to maintain consistent public review and input into the plans and projects being considered by the Task Force and to assist and participate in the public involvement program. The membership of the Citizen Participation Group is shown in Table 1.

Table 1  
Membership of the Citizen Participation Group

Gulf Coast Conservation Association	Concerned Shrimpers of America
Coalition to Restore Coastal Louisiana	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	

Involvement of the Scientific Community.

While the agencies sitting on the Task Force possess considerable expertise regarding Louisiana's coastal wetlands problems, the Task Force recognized the need

to incorporate another invaluable resource: the state's scientific community. The Task Force therefore retained the services of a scientific advisor, who selected a team of scientists to work with the basin teams in the preparation of the Priority Project Lists. The Task Force is currently developing formal relations with both the academic scientific community and the Citizen Participation Group in accordance with the Federal Advisory Committee Act (P.L. 92-463).

Public Involvement.

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 provides an opportunity for all interested parties to express their concerns and opinions and to submit their ideas concerning the problems facing Louisiana's wetlands.

The first step in the program comprised two series of scoping meetings held by the Task Force 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 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. (Appendix E is a compendium of those proposals.) All of the ideas presented in those meetings have been evaluated during the planning process; many of them have been incorporated into the Restoration Plan. The schedule of scoping meetings is shown in Table 2 (for parish officials) and Table 3 (for the general public).

Table 2  
Parish Scoping Meetings (for Parish Officials)

Date	Location	Parishes
October 8, 1991	Crowley, La.	Calcasieu Parish Cameron Parish Iberia Parish Vermilion Parish
October 16, 1991	New Orleans, La.	Jefferson Parish Orleans Parish Plaquemines Parish St. Bernard Parish St. Charles Parish
October 16, 1991	New Orleans, La.	Livingston Parish St. James Parish St. John the Baptist Parish St. Tammany Parish Tangipahoa Parish
October 17, 1991	Thibodaux, La.	Ascension Parish Assumption Parish Lafourche Parish St. Martin Parish St. Mary Parish Terrebonne Parish

Table 3  
Public Scoping Meetings

Date	Location
October 21, 1991	Lake Charles, La.
October 22, 1991	Abbeville, La.
October 24, 1991	Houma, La.
October 28, 1991	Mandeville, La.
November 6, 1991	Belle Chasse, La.
November 7, 1991	New Orleans, La.

The October-November 1991 scoping meetings were the first stage in the process identifying coastal wetlands problems and developing basin-by-basin solutions. The process continued with a series of basin plan formulation meetings, held in February through May 1992 (Table 4). These meetings were attended by representatives of the Task Force agencies, members of the scientific community, representatives of the Citizen Participation Group, parish officials, private consultants, and members of the general public. These meetings were intense planning sessions, consisting of four three-day meetings with a two-day followup for each. Each set of meetings began with a description of the geology, hydrology, and biological resources of the basins followed by projections for the future. Finally, the coastal wetlands problems and their causes were discussed in detail, and strategies were developed for dealing with those problems on a basin-by-basin basis. These strategies were molded into conceptual plans that would serve as a guide in selecting and evaluating projects both for Priority Project Lists and for the Restoration Plan.

Table 4  
Plan Formulation Meetings

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

At a series of public meetings held in June 1992, the conceptual plans developed for the comprehensive Restoration Plan were presented to the public, along with the candidate projects for the 2nd Priority Project List. Public meetings were held as shown in Table 5.

Table 5  
Public Meetings  
(2nd Priority Project List)

Date	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

Public involvement continued with the latest set of public meetings held in July and August 1993. These meetings were held in conjunction with the state of Louisiana's Wetlands Conservation and Restoration Authority. The purpose of the meetings was to present the Draft Restoration Plan, and the candidate projects for the 3rd Priority Project List, and to accept comments and recommendations. The meeting schedules are shown in Table 6.

Table 6  
Public Meetings  
(3rd Priority Project List and Draft Restoration Plan)

Date	Location	Hydrologic Basins
July 27, 1993	Larose	Barataria
July 28, 1993	Belle Chasse	Breton Sound, Mississippi River Delta
July 29, 1993	New Orleans	Pontchartrain
August 9, 1993	Houma	Terrebonne
August 10, 1993	Morgan City	Atchafalaya and Teche/Vermilion
August 11, 1993	New Orleans	Formal Public Hearing on the Draft Restoration Plan and EIS
August 12, 1993	Cameron	Calcasieu/Sabine and Mermentau

# FORMULATION PROCESS FOR THE PRIORITY PROJECT LIST

## INTRODUCTION

The planning effort associated with the CWPPRA is proceeding simultaneously along two tracks. Section 303(b) of the act calls for the development of a comprehensive restoration plan for Louisiana's coastal wetlands. This long term plan is being developed over a three-year period, with the report to be submitted to the Congress in November 1993. Section 303(a), on the other hand, deals with projects which can be implemented within a short period of time. This section requires that any project selected for a Priority Project List be substantially complete within five years of its appearance on a list. The intent of this section is to provide a rapid response to the loss of coastal wetlands. The first Priority Project List was to be submitted within one year of enactment of the CWPPRA, with subsequent lists to be prepared annually through 1995.

The one-year time limit associated with developing a Priority Project List necessitated a deviation from the usual plan formulation process. Rather than beginning with a clean slate, it was preferable to begin with projects which were already developed to some degree--if possible, projects on which some planning had already been done. The projects on the Priority Project List submitted in November 1991 fell into this category.

Preparation of the second (submitted in November 1992) and third list, which involved somewhat more lead time than did the first list, employed a more traditional approach. This section describes the process by which the third list was developed.

## IDENTIFICATION OF PROJECTS

Projects considered for the third list were derived from several sources, the principal one being the scoping meetings held in October and November 1991. The hundreds of problems and proposals which came out of those meetings are listed in Appendix E. An identification number was assigned to each project to help keep track through the screening and evaluation process. Each project received a two-letter code to identify its basin; these codes are shown below.

PO	Pontchartrain	AT	Atchafalaya
BS	Breton Sound	TV	Teche/Vermilion
MR	Mississippi River Delta	ME	Mermentau
BA	Barataria	CS	Calcasieu/Sabine
TE	Terrebonne		

Projects which are part of the State's Coastal Wetlands Conservation and Restoration Plan use these two letters followed by a number. Projects which were derived from the scoping meetings are identified by a "P" ("public") preceding the two-letter code (e.g., PPO-52, PTV-18).

The plan formulation meetings held from February through May 1992 were an additional source of projects for consideration for the Priority Project List. Projects

which were proposed during and after these meetings are identified with an "X" (e.g., XTE-41).

## 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 3rd Priority Project List. The subcommittee then put together a list of 41 candidate projects to be evaluated for the third list. These candidates were presented in the public meetings which took place in July and August of 1993.

### 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 and a Priority Project List. 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 as outlined in the Draft Restoration Plan, 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. In addition, because of the time constraints involved with developing the Restoration Plan and the 3rd list, projects that were not in the preliminary draft of the Restoration Plan as of February 17, 1993 or was not sufficiently developed to perform a Wetland Value Assessment by July, 1993, were not considered for the 3rd list. Any project which was judged capable of meeting the timing criterion was evaluated according to whether it: possessed local support; was a critical project in the overall restoration plan; did not cost over \$10,000,000; provided a significant opportunity to preserve, improve, or build coastal wetlands; and had regional impacts or was a small demonstration project. Projects which met the criteria were elevated to the next level of screening.

The SIS was used as the next step in the screening process. Each Task Force agency made a rough estimate of the cost of the projects for which it was responsible. An estimate was also made of the acres to be created, protected, or enhanced by a project. The cost per acre was used to compare projects, serving as the main criterion each basin team used to select approximately four projects in each basin for further evaluation.

This section contains a summary of the screening process in each basin.

## Summary of the Ponchartrain Basin Team Meeting.

The Ponchartrain basin team met on April 21, 1993, to select projects to be submitted as candidates for the 3rd Priority Project List. Members of the team were: Sue Hawes (US Army Corps of Engineers, USACE), basin captain; Bill Savant (Louisiana Department of Natural Resources, LDNR); George Townsley (Soil Conservation Service, SCS); Jane Ledwin (US Fish and Wildlife Service, USFWS); Peggy Jones (National Marine Fisheries Service, NMFS); Jeanene Peckham (Environmental Protection Agency, EPA); Richard Boe (USACE); and Dr. Gary Schaffer, academic consultant. In addition, individuals representing the Louisiana Department of Wildlife and Fisheries (LDWF), St. Bernard Parish government, the New Orleans City Planning Commission, St. John the Baptist Parish government, Burk-Kleinpeter Consulting Engineers, the Lake Pontchartrain Basin Foundation, and the Coalition to Restore Coastal Louisiana were present and participated in project discussions.

Preliminary Evaluation Sheets were completed for 39 projects. Criteria from the Preliminary Evaluation Sheets used to eliminate projects from further consideration included: The project must be in the preliminary draft Restoration Plan as of February 17, 1993, or had special dispensation from the Planning and Evaluation Subcommittee; the project cost was less than \$10,000,000; sufficient information was available on the project so that a WVA could be performed by July 1993; the project provide a significant opportunity or was a demonstration project; and the project was included in the state's restoration plan or had the support of local government. Using these criteria, the basin team eliminated 25 projects from further consideration as candidates for the 3rd PPL.

Screening Information Sheets were prepared for the remaining 14 project projects. Each agency ranked the projects from most favorable to least and a weighted technique was used to choose the top four projects.

- XPO-69 Bayou Sauvage NWR, Bayou Chevee Shore Protection
- PO-9a Violet Outfall Management
- PO-15 Alligator Point Hydrologic Restoration
- XPO-71 MRGO Disposal Area Marsh Protection

NMFS proposed two additional projects, Lake Athanasio Spit Marsh Creation (XPO-83) and St. Malo Hydrologic Restoration (XPO-84); however, they were not in the preliminary draft Restoration Plan by February 17, 1993, and were not considered during the initial selection. Subsequent to the meeting NMFS, the landowner, EPA, and members of the academic community requested a reconsideration of these two projects. After receiving guidance from the Planning and Evaluation Subcommittee that allowed the team to reconsider these projects, the team determined that the Lake Athanasio Spit Marsh Creation project (XPO-83) was worthy of submission as a candidate for the 3rd PPL.

Table 7  
 Summary of Screening Information Sheets  
 Pontchartrain Basin Projects

No.	Project Name	Acres Created	Acres Protected	Increased		Total		Total Cost (\$)	Total Benefited Acres	Cost per Benefited Acre (\$/acre)
				Aquatic Veg (Acres)	Enhanced Acres	Acres Enhanced	Benefited Acres			
XPO-47	Amite River Diversion Canal Bank Modification		340	109	148	597	533,000	900		
XPO-50a	Lake Maurepas Shore Protection, Blayhut Canal	23	139	290	180	609	1,728,000	2,800		
XPO-51	Manchac WMA Hydrologic Restoration		454	198	510	1,162	1,021,000	900		
PO-13	Tangipahoa/Pontchartrain Shore Protection	41	101	464	21	586	4,850,000	8,300		
PO-14	Green Point/Goose Point	36	213	380	397	990	3,252,000	3,300		
PP-07	La Branche Shore Protection, East	17	507	236	323	1,066	1,309,000	1,200		
PO-12	La Branche Wetland Management, West		20	32	192	244	299,000	1,200		
PO-7	North Shore Wetland		22	473	718	1,213	488,000	400		
PO-15	Alligator Point Marsh Restoration		219	528	742	1,489	1,951,000	1,300		
XPO-69	B. Sauvage NWR, B. Chevee Shore Protection	23	572	448	324	1,344	1,765,000	1,300		
PO-11	Cutoff Bayou Hydrologic Restoration		103	220	180	503	722,000	1,400		
PPO-4	Eden Isles East Marsh Restoration	1,092	0	334	68	402	8,856,000	22,000		
XPO-71	MRGO Disposal Area Marsh Protection		1,500			1,500	1,746,000	1,200		
PO-9a	Violet Outfall Management		185	354	523	1,062	1,960,000	1,800		
XPO-83 *	Lake Athanasio Spit Marsh Creation *		2	16	104	122	521,000	4,300		

\* Added after initial recommendation

## Summary of the Breton Sound Basin Team Meeting.

The Breton Sound Basin Team met on April 19, 1993, to begin the initial screening of projects for the 3rd Project Priority List. Members of the team were: Donna Keller Bivona (USACE), basin captain; Carrol Clark (LDNR); George Townsley (SCS); Gerry Bodin (USFWS); Peggy Jones (NMFS); Jeanene Peckham (EPA); and Mike Saucier (USACE). In addition, John Boatman of the SCS Belle Chasse office and Allen Bolotte of the SCS New Orleans office took part in the meeting.

A brief overview of the Preliminary Evaluation Sheets (PES) 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 20 projects: six sediment or freshwater diversion projects, 11 hydrologic restoration projects, and three marsh protection or creation projects.

As a result of the preliminary evaluation of the projects (see Screening of Proposed Projects, Basin Teams) and the discussion of the team, 10 of the 20 projects were deferred from consideration as potential 3rd list candidates. These projects (PBS-1, PBS-2, PBS-4, PBS-5, PBS-7, PBS-8, PBS-9, PBS-10, PBS-14, and PBS-15) will require further analysis and may be considered on a subsequent priority list and will be included in the Restoration Plan.

Four additional projects were not considered further. Projects PBS-3 and PBS-12 targeted the same area as BS-6a/b (Pump Outfall Management North of Lake Lery), and therefore were not evaluated. Project PBS-11, Caernarvon Freshwater Diversion Operation Modification, was determined to be beyond the scope of the CWPPRA and best pursued under USACE authority. Finally, project BS-3a, Caernarvon Diversion Outfall Management South of Big Mar, was already selected by the Task Force for funding on the 2nd Project Priority List.

The Basin Team then reviewed the Screening Information Sheets for the five remaining projects (excluding PBS-13, Oyster Reef Demonstration) being considered as potential candidates for the 3rd list. Since only five projects remained after the initial review, the information provided on the Screening Information Sheets was instrumental in ranking the potential projects by the basin team members.

A vote by each member of the six agencies was taken to rank these projects. A weighted technique was used to select the top candidates. Each agency was allowed to vote for four projects, with their first choice being given four points, their second choice three points, *etc.* The order of preference by the basin team was: Grand Bay Crevasse (PBS-6); Bayou Lamoque Outfall Management (BS-5); White's Ditch Outfall Management (BS-4a); and Pump Outfall Management North of Lake Lery (BS-3b/6a). The the Oyster Reef Demonstration Project (PBS-13) was submitted as a demonstration project.

**Table 8**  
**Summary of Screening Information Sheets**  
**Breton Sound Basin Projects**

No.	Project Name	Net Acres		Net Acres Enhanced	Total Benefited Acres	Total Cost (\$)	Cost per Benefited Acre (\$/acre)
		Created	Protected				
BS-1	Bohemia Diversion Restoration and Outfall Mgmt		124	534	658	1,642,000	2,495
BS-4A/B	White's Ditch Outfall Management		378	562	940	5,639,000	5,999
BS-5	Bayou Lamoque Diversion Outfall Management		350	205	555	317,000	571
BS-6A/B	Pump Outfall Management N. of Lake Lery		169	577	746	2,241,000	3,004
PBS-6	Grand Bay Crevasse	364		437	801	1,563,000	1,951
PBS-13	Oyster Reef Demonstration		3	1	4	348,000	87,000

## Summary of the Mississippi River Delta Basin Team Meeting.

The Mississippi River Delta Basin Team met on April 21, 1993, to select the projects to be submitted as candidates for the 3rd Priority Project List. Members of the basin team in attendance were: Tim Axtman (USACE), basin captain; Jeanene Peckham (EPA); Peggy Jones (NMFS); John Radford (LDNR) and Phil Bowman (LDWFS); George Townsley and John Boatman (SCS); and Kim Mitchell and James Harris (USFWS). The following projects were brought forth for the team's consideration: (MR-2) Pass a Loutre Sediment Fencing, (FMR-4) Tiger Pass Dredged Material Disposal, (PMR-8) Pass A Loutre Sediment Mining, (XMR-9) Pass A Loutre Crevasse, and (XMR-10) Channel Armor Gap Crevasse.

Three of these projects--MR-2, FMR-4 and PMR-8--had been considered as candidates for previous Priority Project Lists. Both FMR-4 (PPL1) and PMR-8 (PPL2) had achieved deferred status on an approved priority list.

John Radford informed the other members of the team that, with the aid of oil company mitigation funds, the Louisiana Department of Wildlife and Fisheries (LDWF) had undertaken the placement of sediment fences on the Pass a Loutre Wildlife Management Area. He noted that at that time approximately 50 percent of the sediment fence structures proposed in the MR-2 project had been completed under the LDWF's effort. As a result, it was recommended that the MR-2 project be dropped from consideration under the CWPPRA. The basin team concurred with this recommendation and encouraged the possibility of locating an alternate site for future consideration.

The primary items for discussion at this meeting were the XMR-9 and XMR-10 projects. These two crevasse proposals were developed as a result of the comprehensive restoration plan. At the time of this meeting the screening information on these two projects was completed with the exception of the preliminary cost estimates. The basin team assembled a very rough cost for the XMR-9 project based on data from the Screening Information Sheet for that project and those of previously submitted projects. The purpose of this effort was to make a comparison of the cost per acre between the mining and crevasse projects in this same area. This initial estimate indicated a substantially lower cost per acre for the crevasse project. In addition it was determined that the construction of the crevasse channel would involve the excavation of approximately 50 percent of the volume of material specified in the sediment mining project. Beneficial placement of this material would provide a significant gain in wetlands which had not been claimed in the initial XMR-9 proposal.

As a result of these comparisons, the basin decided team that the concepts for both PMR-8 and XMR-9 should be combined under the title Pass a Loutre Crevasse with project number PMR-8/9a. The separate project PMR-8, Pass a Loutre Sediment Mining, would not be considered for inclusion on the 3rd PPL. A location of an alternate site would be pursued for future consideration of this project under its deferred status.

As a last item of business, the submission of FMR-4 for consideration for the 3rd list was discussed. Owing to the past performance of the project on a cost per acre basis and the fact that it had already achieved a deferred status on the 1st PPL, the basin team agreed that this project would not be re-submitted at this time.

As a result of this meeting the team's recommendations for candidates for the 3rd PPL were: (PMR-8/9) Pass A Loutre Crevasse, and (XMR-10) Channel Armor Gap Crevasse.

Table 9  
 Summary of Screening Information Sheets  
 Mississippi River Delta Basin Projects

No.	Project Name	Net Acres		Total Benefited Acres	Total Estimated Cost (\$)	Cost per Benefited Acre (\$/acre)
		Created	Protected			
PMR8/9a	Pass a Loutre Crevasse	800	500	1,750	1,450,000	860
XMR10	Channel Armor Gap Crevasse	800	300	1,188	1,200,000	1,010

## Summary of Barataria Basin Team Meeting.

The Barataria Basin Team met on April 27, 1993, to select candidate projects for the 3rd Priority Project List. Members of the team were: Sam Hold, Minerals Management Service, basin captain; Jeanene Peckham (EPA); Gerry Bodin (USFWS); Micheal Nichols (SCS); Bill Savant (LDNR); Bruce Baird (USACE); and Charles Sasser, academic advisor.

The basin team had met previously to initial screen 63 projects being considered for the 3rd list using the criteria set forth in the Preliminary Evaluation Sheets and reduced the list of projects to 25 which would be evaluated further. The distribution of projects by project type was:

Hydrologic Restoration	10
Marsh Creation	4
Freshwater Diversion	10
Sediment Diversion	5
Marsh Management	3
Outfall Management	5
Shoreline/Bank Protection	15
Barrier Island Restoration	11

To select four projects from the list of 25, each agency representative selected six preferred project and assigned one to six points to each of the selected projects. The most preferred project received six points and the least preferred one point. The four projects with the most points were submitted to the Planning and Evaluation Subcommittee as candidates for the 3rd PPL. In order of descending preference, the four projects were: West Point a la Hache Outfall Management (BA-4c), Marsh Restoration Between Bayou Perot and Bayou Rigolettes (XBA-65), Grand Pierre Island Restoration (XBA-1c), and Dupre Cut/Bayou Dupont Bank Protection (XBA-70).

Table 1c  
 Summary of Screening Information Sheets  
 Barataria Basin Projects

No.	Project Name	Project Type	Acres Created,		Net Benefited Acres	Cost Per Benefited Acre (\$)	Estimated Cost (\$)
			Restored or Protected	Benefited			
XBA-1c	Grand Pierre Island Restoration	BI	85	485	3,000	1,440,000	
XBA-1d	Cheniere Ronquille Refurbishment	BI	144	153	15,500	2,368,000	
PBA-1f	Bay Champagne - Gulf Shore Refurbishment	SP	90	90	20,000	1,798,000	
PBA-12	Shoreline Prot., Bara.Ww. Below Bayou Rigolettes	SP	138	190	9,300	1,763,000	
PBA-16	Shoreline Prot., NE Shore of the Pen	SP	62	114	20,400	2,324,000	
PBA-34	Maintain Bayou L'ours Ridge	HR	780	2,781	800	2,327,000	
XBA-55	Jetty Modifications at Empire Canal	SP	79	134	32,200	4,315,000	
XBA-56	Jetty Modifications at Belle Pass	SP	9	28	154,100	4,315,000	
PBA-58	Little Lake Canal Closures	HR	575	1,122	1,200	1,387,000	
PBA-60	Barataria Drainage Pump Outfall Management	OM	19	83	1,200	97,000	
XBA-63a	Central Basin Tidal Drage Enhancement	HR	*	29,790	300	7,731,000	
XBA-63b	Central Basin Tidal Drage En	HR	*	29,790	300	9,568,000	
XBA-65a	Restore Perot Peninsula Marsh, Spray Dredge	MC	590	780	2,500	1,912,000 ***	
XBA-65b	Restore Perot Peninsula Marsh, Berm & Dredge	MC	590	780	3,400	2,689,000 ***	
PBA-66	Use Bara. Bar Channel Dredged Mat. on W.Grand Terre	BI	*	164	18,500	3,027,000	
XBA-67a	Siphoned Sediment Enrichment of Davis Pond Diversion	SD	*	7,458		173,000 ****	
XBA-67b	Siphoned Sedi. Enrichment of Naomi Diversion (BA-3)	SD	*	1,637		173,000 ****	
XBA-67c	Siphoned Sedi. Enrich. of W. P-a-I-Hache Diver.(BA-4)	SD	*	7,753		52,000 ****	
XBA-69	Stabilize or Refurbish Grand Pierre Island	BI	*	485		**	
XBA-70	Dupre Cut & Bayou Dupont Shoreline Protection	SP	200	713	5,500	3,930,000	
BA-3c	Naomi (LaRussite) Diversion Siphon Outfall Mngt	OM	842	1,637	700	1,124,000	
BA-4c	West Point a la Hache Outfall Management	OM	*	2724	100	371,000	
BA-8	Lake Cataouatche Shoreline Protection	OM	*	69	8,300	576,000	
BA-9	Salvador WMA Gulf Canal	OM	*	70	12,100	844,000	
BA-14	Little Lake Marsh Management	MM	265	663	1,700	1,118,000	

\* Information not available at the time of the Basin Team meeting

\*\* Not evaluated because project performs the same function as XAB-1c

\*\*\* Combined into one project XBA-65

\*\*\*\* Pursued as a demonstration project

## Summary of the Terrebonne Basin Team Meeting.

The Terrebonne Basin Team met on April 7, 1993, to screen projects for the 3rd Priority Project List. Members of the team were: Norm Thomas (EPA), basin captain; Peggy Jones (NMFS); Gerry Bodin (USFWS); Britt Paul (SCS); Darryl Clark (LDNR); Glen Montz (USACE); and Dr. Don Davis, academic advisor. Numerous other representatives of the participating agencies, local government, academia, and consultants participated in the presentation and discussion of projects. However, only basin team members participated in the final selection process.

Initially, 14 projects (3 of which were subsections of one project), and 7 demonstrations were to be considered by the team. However, LDNR removed one subsection of one project (TE-7A) and two other projects (TE-8 and XTE-40) from consideration, and an additional project (XTE-67) was submitted for consideration by the Lafourche Parish Council. This left 12 projects and 7 demonstrations that were reviewed by the basin team. The sponsoring agency or other knowledgeable persons presented a summary of each project or demonstration being considered, including information on acres of benefit anticipated and estimated cost, if available. This information is presented in Table 11, Summary of Screening Information Sheets, as it was known at the time of the basin team meeting.

The basin team agreed unanimously that, although a goal of 4 projects per basin had been set for submittal as 3rd PPL candidates, the extent of problems and need for demonstration projects in the Terrebonne Basin warranted submittal of 6 candidate projects and 3 demonstrations. Based on the information available, each team member submitted a ranking of projects and demonstration projects. The consensus of this ranking led to the basin team submitting the following projects to the P&E Subcommittee as candidates to be further evaluated for possible inclusion on the 3rd PPL:

PTE-15b	Isles Dernieres Restoration
PTE-26b	Brady Canal Hydrologic Restoration
TE-10/XTE-49	Grand Bayou Freshwater Diversion/Cutoff Canal Structure
PTE-23/26a/33	Lake Chapeau/Locust Bayou Hydro Rest and Dredging
XTE-65	Spray Dredging West of Locust Bayou
XTE-67	Restoration of East Timbalier Island
Demonstration Projects	
XTE-54b	Flotant Marsh Creation and Enhancement using Fencing
XTE-66	Sediment Conveyance
XTE-43	Red Mud

Table 11  
 Summary of Screening Information Sheets  
 Terrebonne Basin Projects

No.	Project Name	Acres Created	Acres Protected	Acres Enhanced	Total Benefited Acres	Total Cost (\$)	Cost per Benefited Acre (\$/acre)
TE-7c	Bayou Grand Calliou Management		108	178	286	1,388,000	4,900
TE-7d	Lake Bourdeaux Watershed Plan		1,492	4,396	5,888	9,364,000	1,600
TE-9	Bully Camp Marsh Management		43	192	235	638,000	2,700
TE-10	Grand Bayou Diversion/Cutoff Canal		1,825	3,104	4,929	5,515,000	1,100
	/XTE-49						
PTE-10	Point au Fer Spoil Bank Restoration	6		69	75	13,000	200
PTE-15b	Isles Dernieres Restoration (Whiskey & Raccoon)	657	954	405	2,016	7,748,000	3,800
PTE-15bi	Isles Dernieres Restoration (Whiskey Island)						
PTE-15bii	Isles Dernieres Restoration (Raccoon Island)						
PTE-23	Lake Chapeau-Locust Bayou		242	1,189	1,431	1,629,000	1,100
PTE-26a	Lake Chapeau-Locust Bayou		458	1,395	1,853	1,998,000	1,100
PTE-26b	Brady Canal		575	548	1,123	2,592,000	2,300
XTE-33	Point au Fer Sediment Input	241		210	451	1,190,000	2,600
XTE-43a	Red Mud Demonstration	190			190	2,041,000	10,700
XTE-53	Point au Fer Spray Dredging	na	na	na	1,500	800,000	500
XTE-54a	Flotant Marsh Creation/Enhancement Demo	na	na	na	na	674,000	na
XTE-54b	Flotant Marsh Creation/Enhancement Demo	na	na	na	na	813,000	na
XTE-64	Avoca Island Diversion	165	248	617	1,030	922,000	900
XTE-65	Spray Dredge West of Locust Bayou	na	na	na	1,300	3,318,000	2,600
XTE-66	Sediment Distribution System Demo	20	640	340	1,300	1,228,000	900
XTE-67	East Timbalier Island Restoration	76	58		134	1,606,000	12,000

na--Information not available at the time of the basin team meeting

### Summary of the Atchafalaya Basin Team Meeting.

The Atchafalaya Basin Team met on April 1, 1993, to select the candidate projects for the 3 PPL. Member of the team in attendance were: Nancy Powell (USACE), basin captain; Gerry Bodin (USFWS); John Radford (LDNR); and Peggy Jones (NMFS). Other interested parties in attendance were: Greg Linscombe (LDWF), Rodney Adams (Louisiana Sea Grant), and Derhyl Hebert (St. Mary Parish government).

The basin team decided that because of the significant changes to the delta that will take place with the implementation of the Big Island Mining project (XAT-7) and the Atchafalaya Sediment Delivery project (PAT-2) as well as the USACE's plans to relocate the navigation channel to God's Pass, short term projects in the basin should be limited in number and scope. The team agreed to wait before recommending projects with greater scope. The team decided to pursue only two project for the 3rd list: Booster Pumps (XAT-6) and a demonstration project for the Delta Management project (XAT-12), Effective Dredged Material Disposal (XAT-12a). The demonstration project would be small cost , \$100,000 to \$200,000, and involve the use of flexible pipe, or plastic pipe, with marsh buggies to dispose material in shallow water with minimal damage to the existing delta and wetlands. The project can be added to dredging projects in the navigation channel. If successful, the techniques developed could be used throughout coastal Louisiana.

As details of the candidate projects were developed, it became apparent that the features of the demonstration project discussed could be incorporated into other projects, specifically PTE-23/26a/33. Therefore, the demonstration project was not pursued further and the team recommended only XAT-6 to the Planning and Evaluation Subcommittee as a candidate for the 3rd PPL.

### Summary of the Teche/Vermilion Basin Team Meeting.

The Teche/Vermilion Basin Team meet on April 13, 1993, to select the candidates for the 3rd PPL. Members of the team in attendance were: Dennis Demcheck (US Geologic Survey), basin captain; Ronny Paille (USFWS); Faye Talbot (SCS); Karl Vincent, John Radford, and Loland Broussard (LDNR); Bob Bosenberg (USACE); and Rick Hartman (NMFS).

Discussion centered around those projects with sufficient information on cost and benefits. A vote was taken (one vote per agency) to rank the eight projects shown in Table 12, Summary of Screening Information Sheets. Each agency assigned a value of 8 to the most favorable project through 1 for the least favorable. This resulted in the following 4 projects being recommended to the Planning and Evaluation Subcommittee as candidates for the 3rd PPL:

- TV-4 Cote Blanche Hydrologic Restoration
- PTV-19 Cote Blanche (Jaws)/Little Vermilion Bay Sediment Trapping
- XTV-25 Oaks Canal/Tigre Lagoon Shoreline Protection
- XTV-26 Two Mouth Bayou Freshwater Diversion

Table 12  
 Summary of Screening Information Sheets  
 Teche/Vermilion Basin Projects

No.	Project Name	Acres Created,		Net Benefited Acres	Estimated Cost (\$)	Cost Per Benefited Acre (\$)
		Restored, Protected				
TV-1	Shark Island Shore Protect/Hyd. Rest	457		591	7,559,000	12,790
TV-4	Cote Blanche Hyd. Restoration	2,231		4,744	4,579,000	965
TV-5/7	Marsh Island Canal Plug/Shore. Stab./Hyd. Rest	512		1,090	2,328,000	2,136
TV-8	Redfish Pt. Shoreline Protect./Hyd. Restoration	58		95	530,000	5,579
TV-10	Weeks Bay/GIWW Shoreline Prot./Hyd. Rest	406		1,422	4,993,000	3,511
PTV-19	Cote Blanche (Jaws)/Little Vermilion Bay Sed. Trap	27		505	600,000	1,188
XTV-25	Oaks Canal/Tigre Lagoon Shoreline Protection	120		125	1,069,000	8,552
XTV-26	Two Mouth Bayou Freshwater Diversion	87		162	438,000	2,704

## Summary of the Mermentau Basin Team Meeting.

The Mermentau Basin team met on April 15, 1993, for the purpose of selecting projects for the 3rd Priority Project List. Members of the team in attendance were: Joe Conti (SCS), basin captain; Darryl Clark (LDNR); Bob Bosenburg (USACE); Jeanene Peckham (EPA); Ronnie Paille (USFWS); Rick Hartman (NMFS); and Dr. Robert Chabreck, Louisiana State University, academic advisor. Others in attendance were Tina Horn and Miles Hebert, Cameron Parish Police Jury; Karl Vincent, Ralph Libersat, and Carrol Clark, LDNR; Faye Talbot, Ron Marcantel, Mike Nichols, Clay Midkiff, and Marty Floyd, SCS; and Judge Edwards, Vermilion Parish Police Jury.

Basin team members were requested to submit candidate projects to the basin captain two weeks prior to the meeting. Copies of all candidate projects were mailed to the individual team members for review prior to the selection meeting. Thirteen projects and three demonstration projects were submitted for consideration. These projects are shown in the Summary of the Screening Information Sheets, Table 13.

The Mermentau Basin team selected four restoration projects and two demonstration projects as candidates for the 3rd list as per the Planning and Evaluation Subcommittee's request. The selected projects are as follows:

CS-16	Black Bayou Water Control Structure
ME-5	White Lake Shore Protection
ME-7	Deep Lake Marsh Creation & Protection
XME-28	GIWW/Freshwater Bayou Bank Protection
Demonstration Projects	
PME-6	SW Shoreline White Lake
XME-35	Umbrella Bay Shoreline

At the May 11, 1993, Planning and Evaluation Subcommittee meeting, NMFS requested special consideration of XME-22, Pecan Island Terracing; it was subsequently included on the candidate list.

Table 13  
 Summary of Screening Information Sheets  
 Mermentau Basin Projects

Project No.	Project Name	Acres Created, or Protected, or Restored	Acres Enhanced	Total Benefited Acres	Total Cost (\$)	Cost per Benefited Acre (\$/Acre)
CS-16	Black Bayou Water Control St.	115	1,546	1,661	4,600,000	2,800
ME-5	White Lake Shoreline Prot.	39	104	143	650,000	4,500
ME-6	Big Burn Marsh Creation (Alt. 1)	24	175	199	981,000	4,900
ME-6	Big Burn Marsh Creation (Alt. 2)	24	175	199	1/	1/
ME-7	Deep Lake Marsh Creation/Prot	127	399	526	3,600,000	6,800
PME-4/7	White Lake Diversion	355	2,011	2,366	4,500,000	1,900
PME-5/6	Grand/White Lake Shoreline Prot	113	17	130	1,080,000	8,300
PME-14	Sawmill Canal	229	257	486	1,100,000	2,300
PME-17	GIWW Bank Protection	221	20	241	6,300,000	26,100
XME-19/20	Mermentau R. to North Canal	1/	1/	1/	1/	1/
XME-22	Schooner Bayou Bypass Structure	-	-	220	800,000	3,500
XME-28	Pecan Island Terracing	7	40	47	700,000	14,900
XME-40	GIWW Freshwater Bayou Bank Prot	117	650	767	2,000,000	2,600
PME-6	N. Little Pecan Marsh Rest.	39	5	44	100,000	2,300
XME-35	SW Shoreline White Lake	57	12	75	1,000,000	13,300
XME-36	Umbrella Bay Shoreline	9	2	11	200,000	18,200
XME-36	Tebo Point Shoreline	9	2	11	200,000	18,200

1/ Information not available

Summary of the Calcasieu-Sabine Basin Team Meeting.

The Calcasieu-Sabine Basin team met on April 15, 1993, to screen projects for the 3rd Priority Project List. Members of the team were: Ed Hickey (SCS), basin captain; Bob Bosenburg (USACE); Darryl Clark (LDNR); Jeanene Peckham (EPA); Rick Hartman (NMFS); and Ronny Paille (USFWS). Dr. Paul Kemp, academic advisor, was not present. Others in attendance were Ron Marcantel (SCS); Tina Horn, Faye Talbot, and Myles Hebert (Cameron Parish); and Karl Vincent and Carrol Clark (LDNR).

About four weeks prior to the team meeting, basin team members were requested to submit candidate projects for the 3rd PPL. A total of 19 projects were submitted. There were seven duplications, leaving 12 projects as shown on the Summary of Screening Information Sheets, Table 14.

The basin team had been instructed by the Planning and Evaluation Subcommittee to select four candidate projects for the 3rd PPL. The remaining 12 projects were voted on and the four projects submitted for consideration were:

- |                     |   |
|---------------------|---|
| XCS-47, 48i, j, & p | Replace Hog Island, West Cove, and Headquarters Canal<br>Water Control Structures |
| CS-4a               | Cameron-Creole Maintenance  |
| CS-11b              | Sweet Lake/Willow Lake Shoreline Protection                                       |
| CS-14               | Tripod Bayou Structure  |

Table 14  
 Summary of Screening Information Sheets  
 Calcasieu/Sabine Basin Projects

Project No.	Project Name	Acre# Created, Protected, Restored	Acres Enhanced	Total Benefited Acres	Total Cost (\$)	Cost per Benefited Acre (\$/Acre)
CS-4a	Cameron-Creole Maintenance	2,036	10,029	12,065	5,400,000	448
CS-5a/12	Sabine Freshwater Intro/GIWW	3,064	1,247	4,311	1,109,000	257
CS-6	Black Lake South Shore Prot.	2		2	27,000	13,500
CS-7	West Black Lake Levee Prot.	120	520	640	743,000	1,161
CS-8	Black Lake North Marsh Mgt.	14	284	298	994,000	3,336
CS-10	Grand Lake Ridge Restoration	672	170	842	277,000	329
CS-11b	Sweet Lake/Willow Lake Rest.	294	4,182	4,476	2,626,000	587
CS-13	Back Ridge Freshwater Introd.	2	25	27	772,000	28,603
CS-14	Tripod Bayou Structure	51	139	190	610,000	3,213
CS-15	Boudreaux/Broussard Marsh Creation/Protection	68	228	296	842,000	2,845
XCS-47, 48i,j,&p	Hog Island, W. Cove & Headquarters Canal Structures	706	6,167	6,873	4,696,000	683
XCS-54	Goose Lake Marsh Restoration	19	500	519	552,000	1,064

## Planning and Evaluation Subcommittee.

The Planning and Evaluation Subcommittee met on May 11, 1993, to hear the recommendations of the basin teams and develop the list of candidate projects for the 3rd Priority Project List. Each basin captain presented the results of his or her team's screening, recommending four projects (in most cases) for inclusion on the candidate list. The subcommittee accepted the recommendations of the basin teams with the exceptions noted in the section "Summary of Basin Team Meetings." Table 15 is the candidate list approved by the subcommittee. The subcommittee also decided to evaluate demonstration projects separately. Each agency would develop fact sheets on their proposed demonstration projects and submit them for consideration at a later date.

The Planning and Evaluation Subcommittee met again on July 13, 1993, to evaluate the proposed demonstration projects. Each agency presented its projects to the subcommittee, outlining the critical project information, including what information would be learned by performing the demonstration and the need for such a project. A total of 12 projects were presented, but because of the time constraints in evaluating projects and a previous Task Force decision to limit spending on demonstration projects to approximately \$2,000,000 per priority list, the subcommittee limited the number of projects to 5. Each agency ranked the projects, assigning a value of 5 to the most favored project and 1 to the least preferred. Table 16 shows the projects considered and the corresponding ranking as a result of the meeting.

Table 15  
Candidate Projects for  
3rd Priority Project List

Project No.	Name	Sponsor
XPO-69	Bayou Sauvage National Wildlife Refuge, Bayou Chavee Shore Protection	USFWS
PO-9a	Violet Freshwater Distribution, No Pumps	SCS
PO-15	Alligator Point Marsh Restoration	SCS
XPO-71	MRGO Disposal Area Marsh Protection and Restoration	USACE
XPO-83	Lake Athanasio Spit Marsh Creation	USACE
PBS-6	Grand Bay Crevasse	USACE
BS-5	Bayou Lamoque Outfall Management	SCS
BS-4	White's Ditch Outfall Management	SCS
BS-3b & 6	Pump Outfall North of Lake Lery	SCS
PMR-9b	Pass-A-Loutre Crevasse	USACE
XMR-10	Channel Armor Gap Crevasse	USACE
BA-4c	West Pointe A La Hache Outfall Management	SCS
XBA-65a	Restore Marsh Between Bayou Perot and Bayou Rigolets	NMFS
XBA-1c	Grand Pierre Island Restoration	NMFS
XBA-70	Dupree Cut and Bayou Dupont Shoreline Protection	SCS
PTE-15b <sup>1/</sup>	Isles Dernieres Restoration	EPA
PTE-26b	Brady Canal Hydrologic Restoration	SCS
TE-10/XTE-49	Grand Bayou Freshwater Diversion/Cutoff Canal	SCS
PTE-23/26a/33	Lake Chapeau-Locust Bayou-Point Au Fer	NMFS
XTE-65	Hydrologic Restoration West of Locust Bayou	NMFS
XTE-67	East Timbalier Island	NMFS
XAT-6	Booster Pumps	USACE
XTV-26	Two Mouth Bayou Freshwater Diversion	SCS
TV-4	Cote Blanche Wetland Management	SCS
PTV-19	Little Vermilion Bay Sediment Trapping	NMFS
XTV-25	Oaks Canal/Tigre Lagoon Shoreline Protection	SCS
CS-16	Black Bayou Water Control Structure	USACE
ME-5	White Lake Shoreline Protection	SCS
ME-7	Deep Lake Marsh Creation and Protection	SCS
XME-28	GIWW/Freshwater Bayou Bank Stabilization	USACE
XME-22	Pecan Island Terracing	NMFS
XCS-47, 48i 48j, & 48p	Replace Hog Island, West Cove, and Headquarters Water Control Structures	USFWS
CS-4a, 7	Cameron-Creole Maintenance	SCS
CS-11b	Sweet Lake/Willow Lake Shoreline Protection	SCS
CS-14	Tripod Bayou Structure	SCS

<sup>1/</sup> At the request of the EPA, project PTE-15b, Isles Dernieres Restoration, was divided into separate projects: PTE-15bi, Whiskey Island Restoration and PTE-15bii, Raccoon Island Restoration.

Table 16  
 Ranking of Potential Candidate Demonstration Projections for the  
 3rd Priority Project List  
 13 July 93

Project No.	Project	Sponsor	Total	Ranking
PBS-13	Oyster Reef Lake Jean Louis Robin	NMFS	6	
BA-15	Lake Salvador Shoreline Protection	NMFS	18	1
PBA-50	Oyster Reef Bay Rambo	NMFS	0	
XTE-39	Oyster Reef Lake Barre	NMFS	0	
TE-54a	Flotant Marsh Creation Canals	SCS	4	
TE-54b	Flotant Marsh Creation Fencing	SCS	17	3
PTE-10	Marsh Rest by Spoil Bank Mgmt	EPA	2	
XTE-66	Sediment Distribution System	EPA	12	4
XTE-43	Red Mud Coastal Restoration	EPA	18	1
PTV-19	Sediment Trapping W Cote Blanche Bay	NMFS	6	
XME-35	Umbrella Bay Shoreline Protection	SCS	1/	1/
PME-6	SW White Lake Shoreline Protection	SCS	7	5

1/ Withdrawn by SCS

Each agency ranked the demonstration projects in order of preference, 5 being the most preferred and 1 the least preferred.

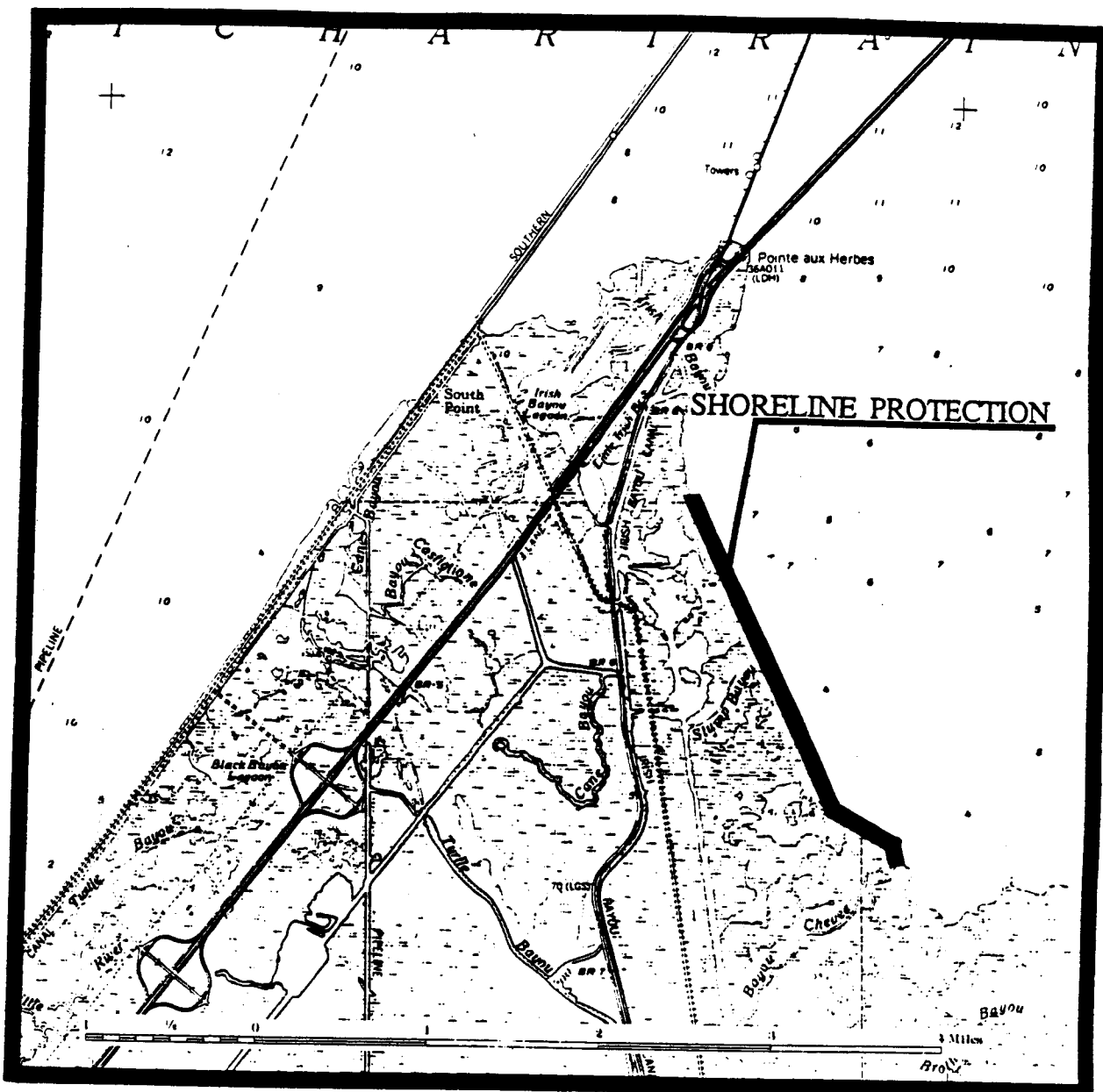
Total cost of the top 5 demonstration projects is approximately \$3,350,000.

#### Public Input.

Public meetings were held following the development of the list of candidate projects for 3rd Priority Project List consideration. The purpose of these meetings was for Task Force representatives to present the candidate projects to the public and to receive comments on the candidate projects. These meetings allowed public input into the selection process prior to detailed evaluation of the projects and final selection of the 3rd Priority Project List. Meetings were held at six locations across coastal Louisiana. Announcements were made in the local media at each location and by mass mailing, using lists established during the scoping and plan formulation phases of the process, as well as lists developed as a result of previous studies. The dates and locations of the public meetings for specific hydrologic basins were given in the Public Involvement section of this report.

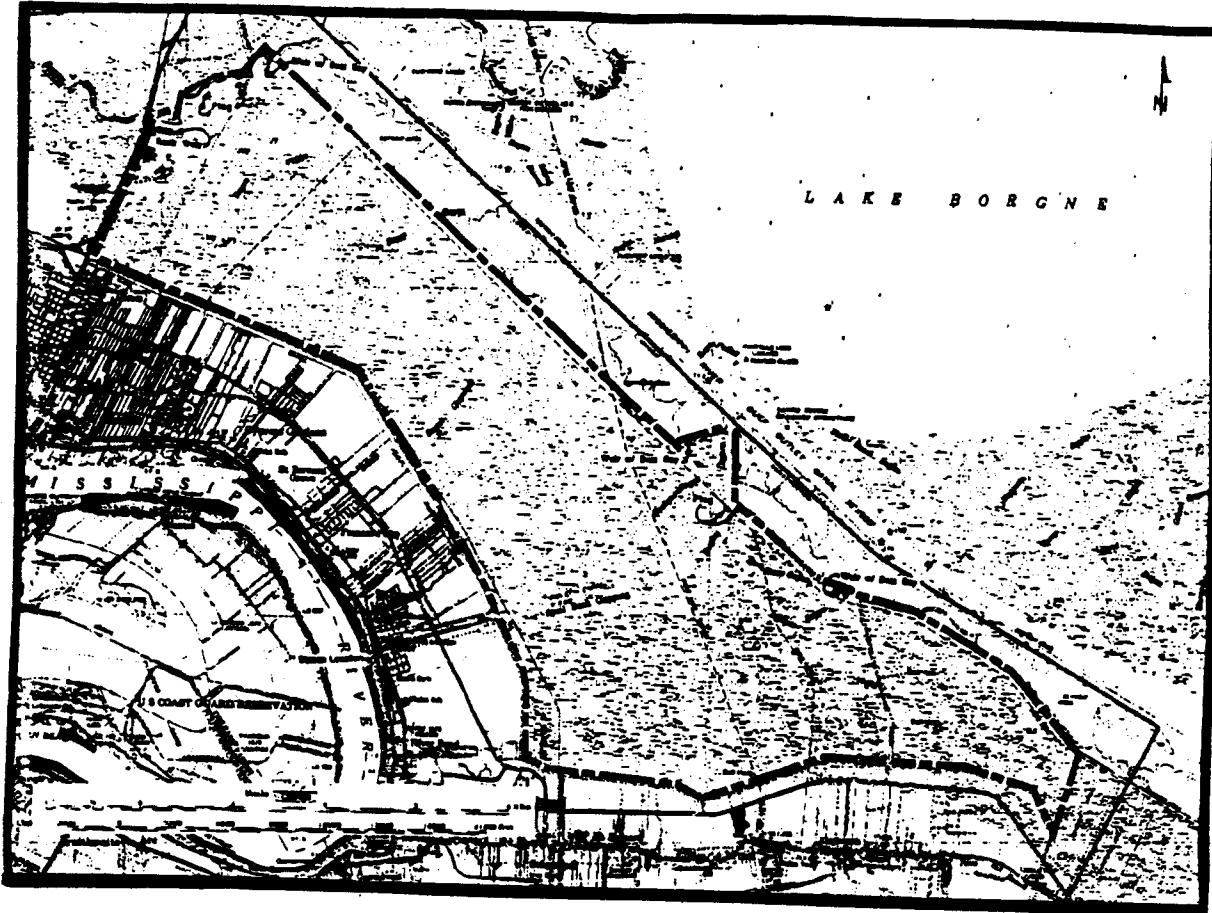
# EVALUATION OF CANDIDATE PROJECTS

## Descriptions of Candidate Projects.



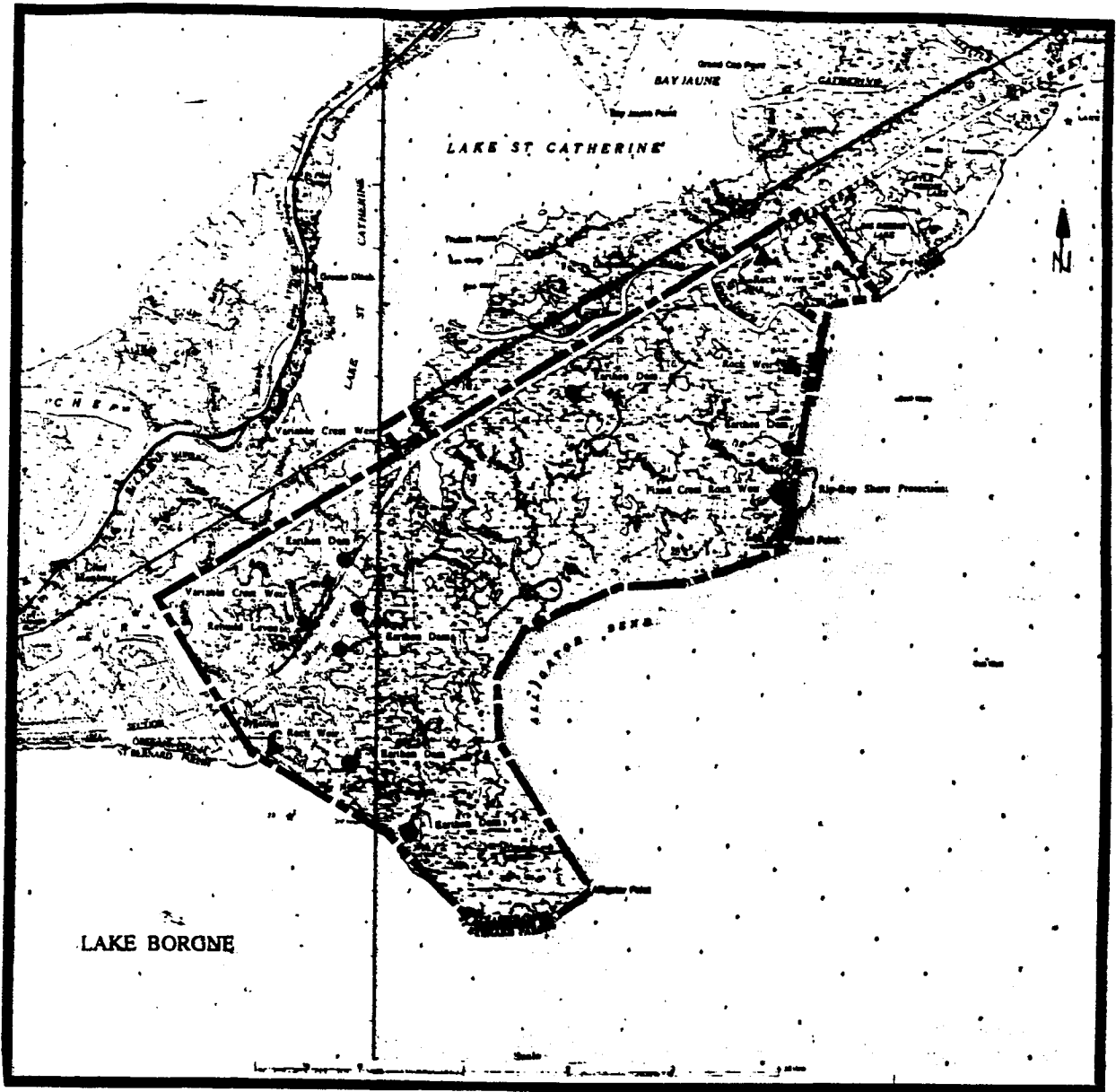
### **Bayou Sauvage National Wildlife Refuge, Bayou Chevee Shore Protection (XPO-69)**

The project area is a 5,100-acre brackish marsh located in Orleans Parish. Wave action from Lake Pontchartrain is eroding the shoreline of the refuge at a rapid rate (25 feet per year from 1990 to 1992). In addition, if the thin strip of land between the ponds and Lake Pontchartrain erodes away, erosion around a pond protected by the lake shoreline will increase substantially. A 22,000-foot segmented breakwater will be constructed along the Lake Pontchartrain shoreline. The project will provide 150 average annual habitat units (AAHU's) at a cost of \$2,989,000. The project's cost effectiveness is \$1,856/AAHU.



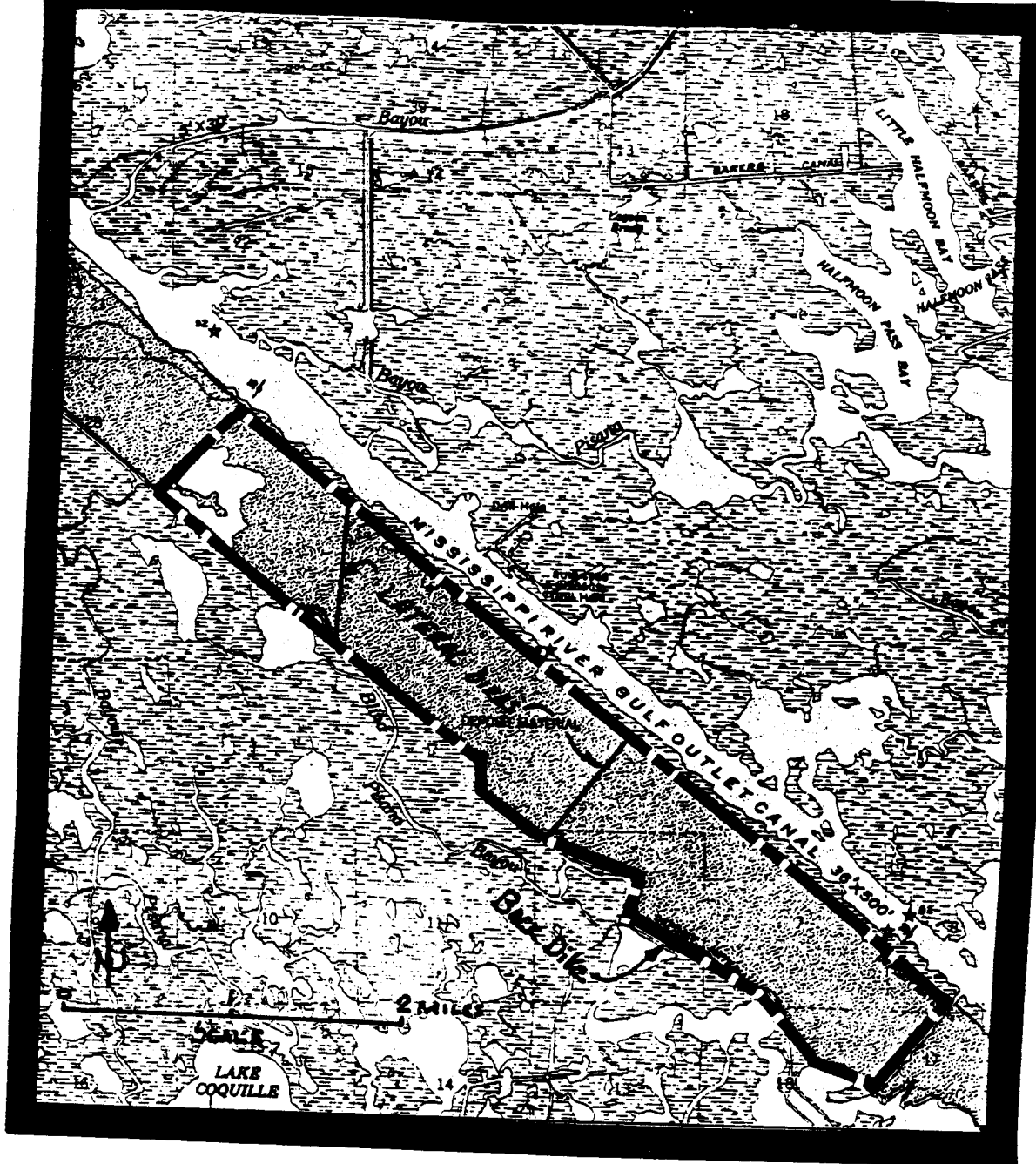
### **Violet Freshwater Distribution (PO-9a)**

This 18,000 acre brackish marsh project area is located in St. Bernard Parish between the Mississippi River Gulf Outlet (MRGO) and the back protection levee extending from Bayou Bienvenue to Bayou Verret. Currently, due to a lack of water control, the project area is subject to rapid and extreme fluctuations in salinity and water levels that result in reduced marsh productivity. The object of the project is to manage the freshwater inflow from the existing Violet Siphon and reduce saltwater intrusion from the MRGO. This will be accomplished by gapping the spoil bank along the Violet Canal and by plugging and constructing weirs in bayous and pipeline canals. The project will provide 38 average annual habitat units (AAHU's) at a cost of \$1,821,000. The project's cost effectiveness measured in average annual cost per AAHU is 3,305.



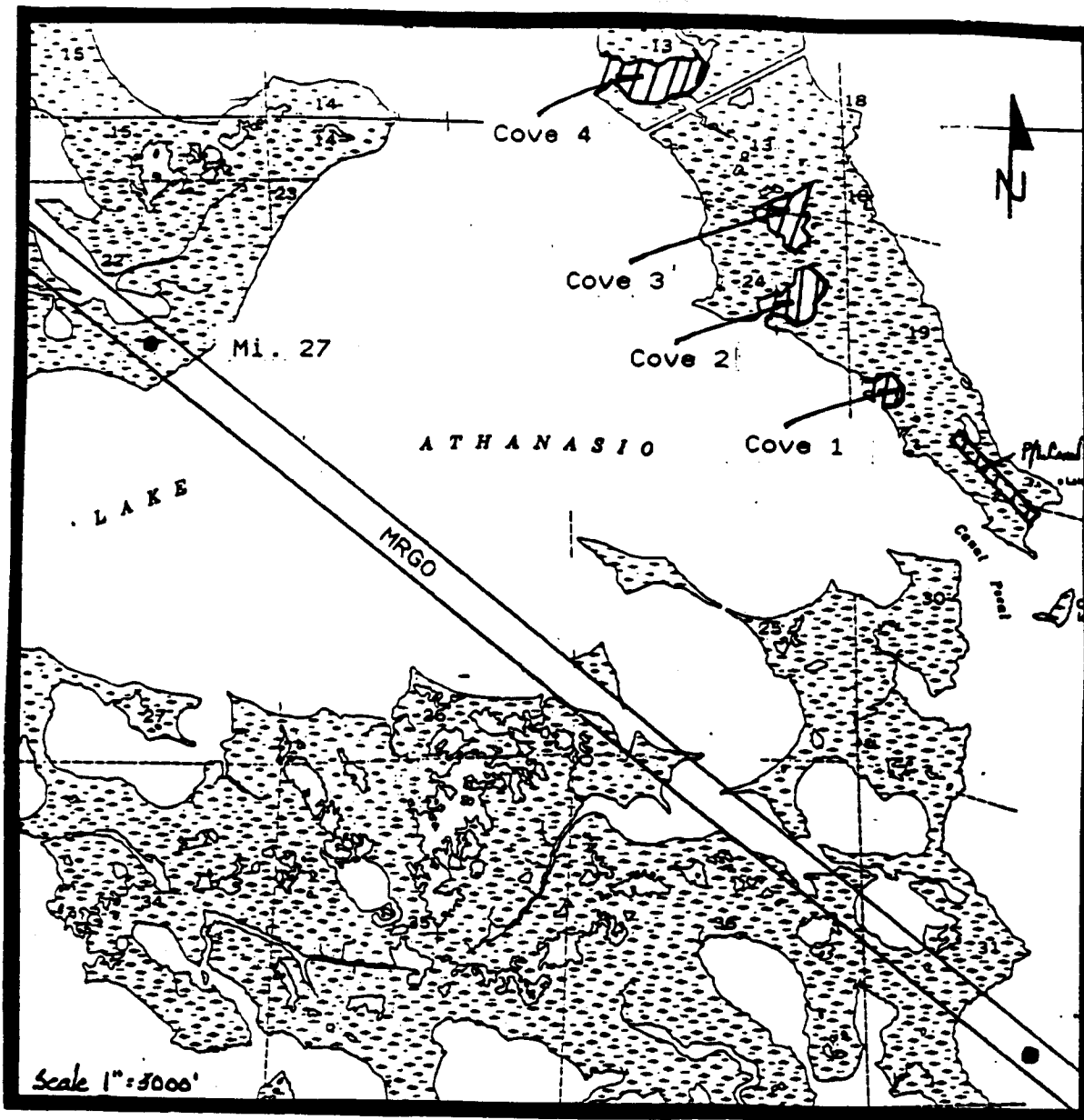
### Alligator Point Marsh Management (PO-15)

The project, located in Orleans Parish, will manage approximately 12,000 acres of brackish marsh. The principal hydrologic changes in the area involve restoring spoil banks on the alternate route of the GIWW and plugging breaches and installing weirs in channel intersecting the GIWW and the GIWW alternate route as well as other bayous. Management of the area will insure retention of the freshwater in the marshes. Shoreline stabilization along Lake Borgne will prevent breaches and blow outs of shallow ponds adjacent to the lake. The project will provide 59 average annual habitat units (AAHU's) at a cost of \$1,927,000. The project's cost effectiveness measured in average annual cost per AAHU is 2,608.



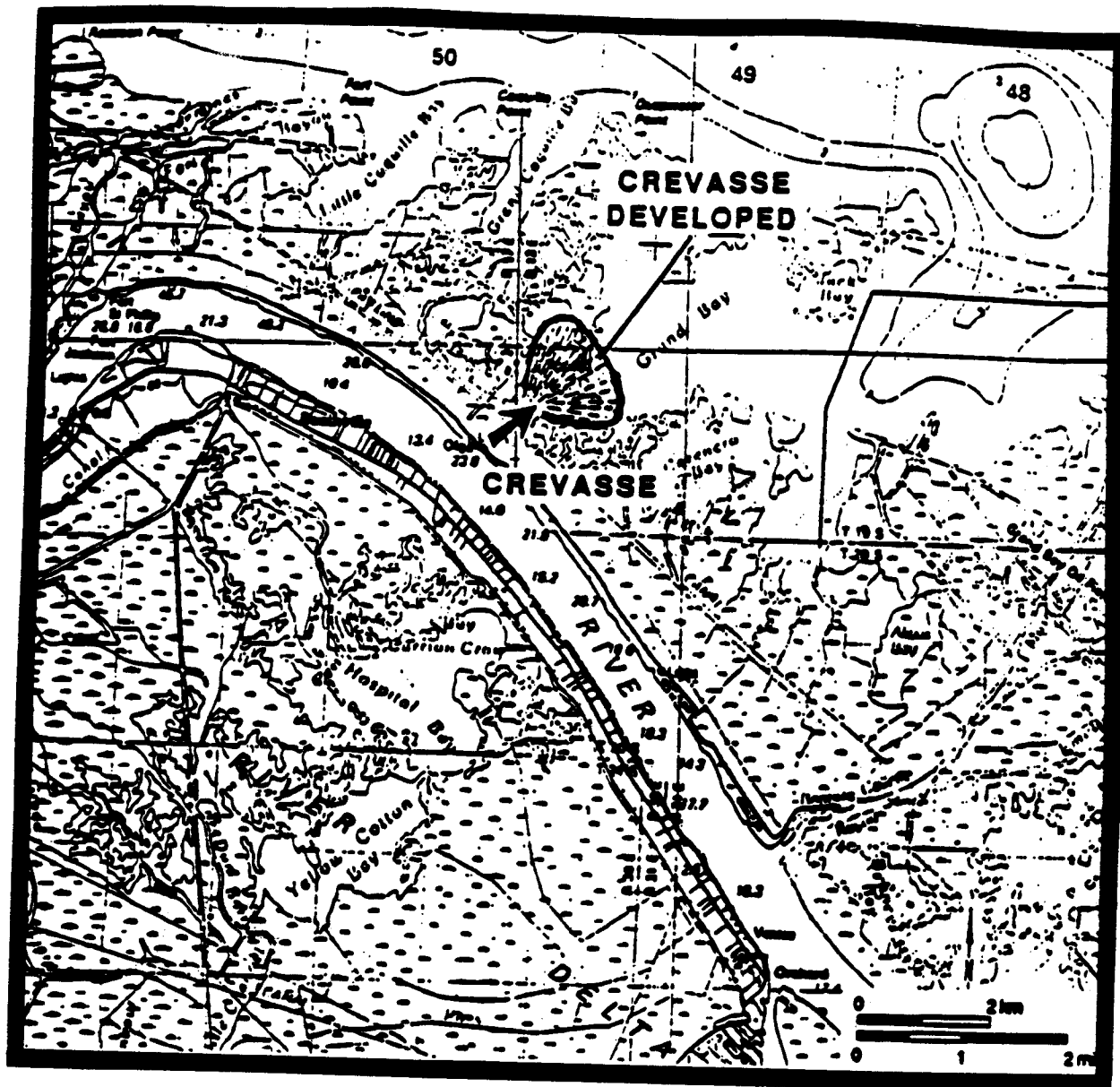
**Mississippi River Gulf Outlet (MRGO) Disposal Area Marsh Protection (XPO-71)**

The project is located in St. Bernard Parish on the existing south bank disposal area for the MRGO, south of the La Loutre Ridge, from approximate mile 36.0 to mile 30.0 along the MRGO. The project area consists of a 4,000-foot-wide diked disposal area originally utilized for placement of dredged material during construction of the MRGO in the early 1960's. During maintenance dredging operations, only the 2,000 feet nearest the waterway has been used. The rear, or back, 2,000 feet has reverted to a high fresh marsh, especially south of the La Loutre Ridge. This wetland area is extremely valuable for waterfowl. The project, repairing the original earthen dikes along the interior (lateral) and rear of the disposal areas south of the La Loutre Ridge, would prevent the perched marshes from draining, thus preserving over 885 acres of valuable wetland. The objective of the project is to protect and preserve vegetated wetlands by repairing the lateral and rear dikes of the MRGO disposal areas. The project will provide 435 average annual habitat units (AAHU's) at a cost \$512,000. The project's cost effectiveness is \$99/AAHU.



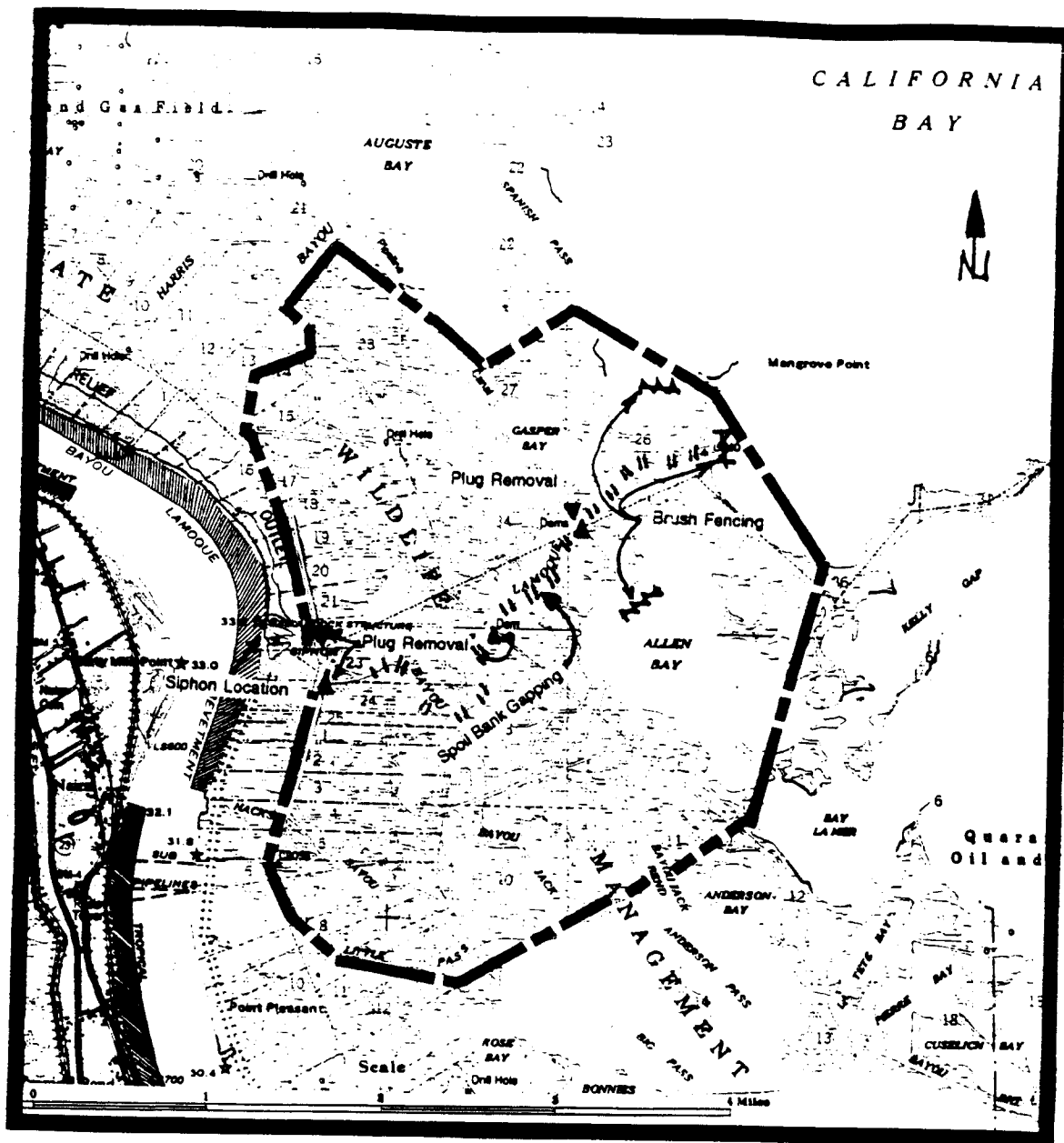
### Lake Athanasio Spit Marsh Creation (XPO-83)

The project is located on the eastern shore of Lake Athanasio in St. Bernard Parish. During the period between 1974 and 1983, land loss in the area of the spit was 50 percent per year. The object of the project is to preserve the spit by utilizing dredged material from maintenance of the Mississippi River Gulf Outlet (MRGO). Approximately 1,400,000 cubic yards of material will be dredged from the MRGO and pumped 2 miles to fill shallow ponds and a pipeline canal. The project will create over 100 acres of marsh and provide 54 average annual habitat units (AAHU's) at a cost of \$1,040,000. The project's cost effectiveness is \$1,869/AAHU.



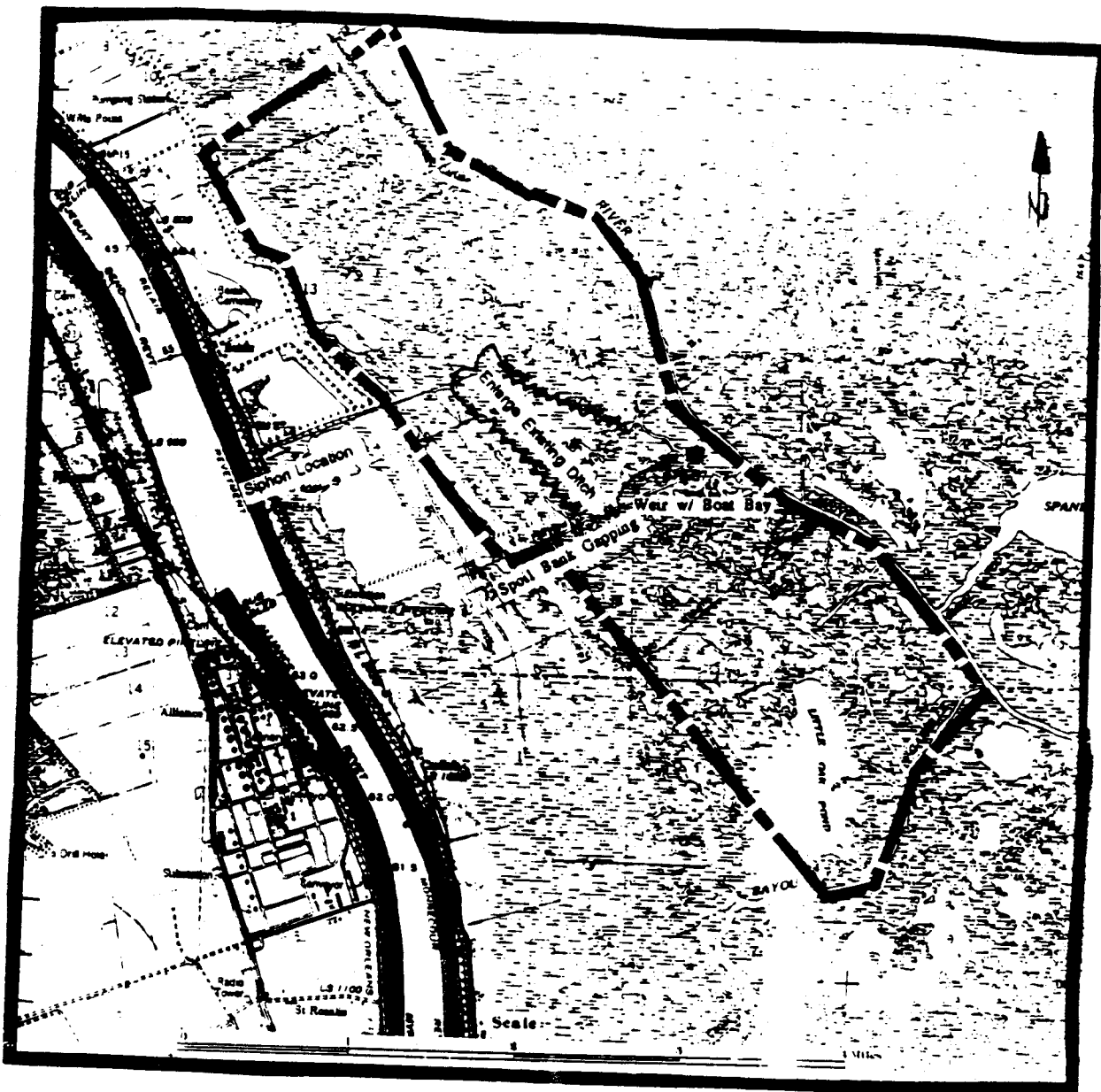
### Grand Bay Crevasse (PBS-6)

The project is located in the Jurgervich Canal near Mississippi River mile 16.3 AHP in Plaquemines Parish. The object of the project is to create, restore and protect wetlands in the Grand Bay area by removing a rock dike which isolates the Jurgervich Canal from the river and allowing sediment laden Mississippi River water to flow into the area and create a delta splay. In addition to the removal of approximately 1,500 tons of rock, three pipelines will be relocated. The project will provide 155 average annual habitat units (AAHU's) at a cost \$1,777,000. The project's cost effectiveness is \$1,133/AAHU.



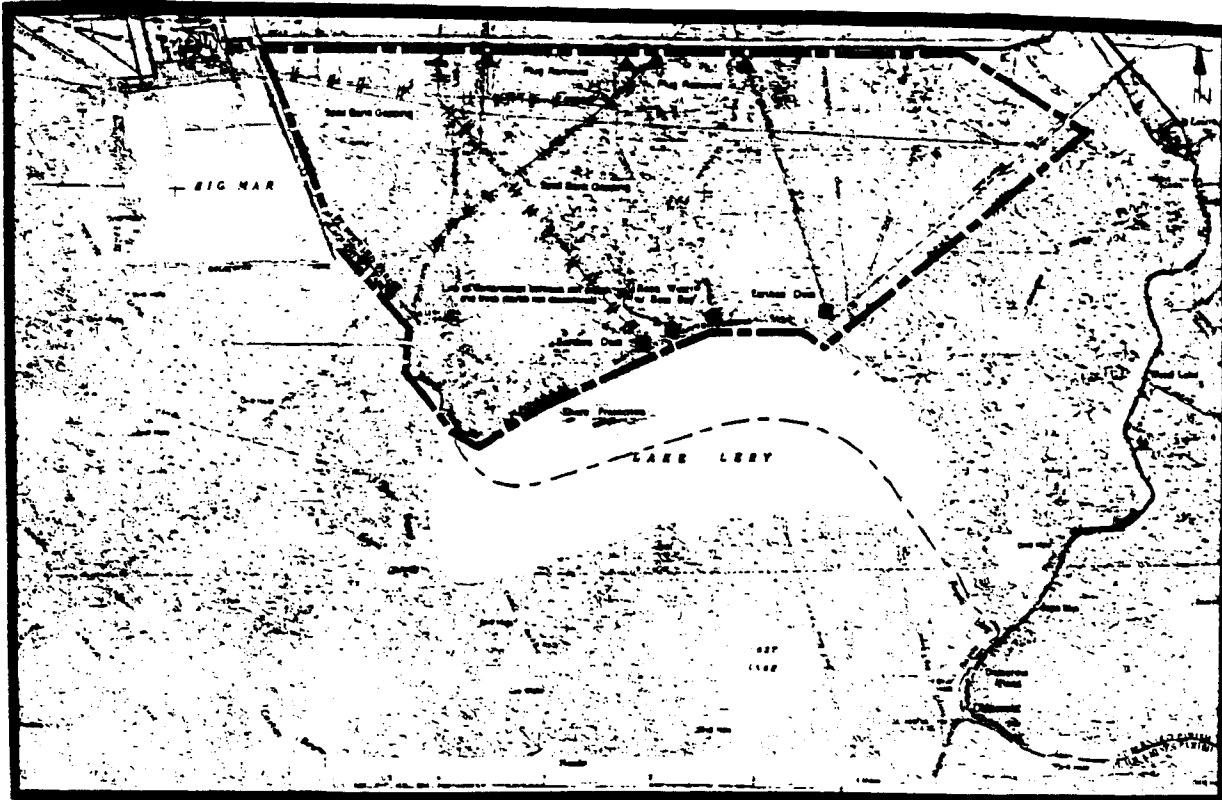
### Bayou Lamoque Outfall Management (BS-5)

Located on the east bank of the Mississippi River across from the town of Narin in Plaquemines Parish, the existing Bayou Lamoque diversion consists of four 10- by 10-foot and four 12- by 12-foot box culverts. The structures are operated by the Louisiana Department of Wildlife and Fisheries and are open between the months of January and August. This project calls for the management of an approximately 6,300-acre saline marsh outfall area. The plan will use spoil bank gapping, brush fencing, and plug removal to more effectively distribute the diverted water. The project will provide 106 average annual habitat units (AAHU's) at a cost of \$534,000. The project's cost effectiveness measured in average annual cost per AAHU is 357.



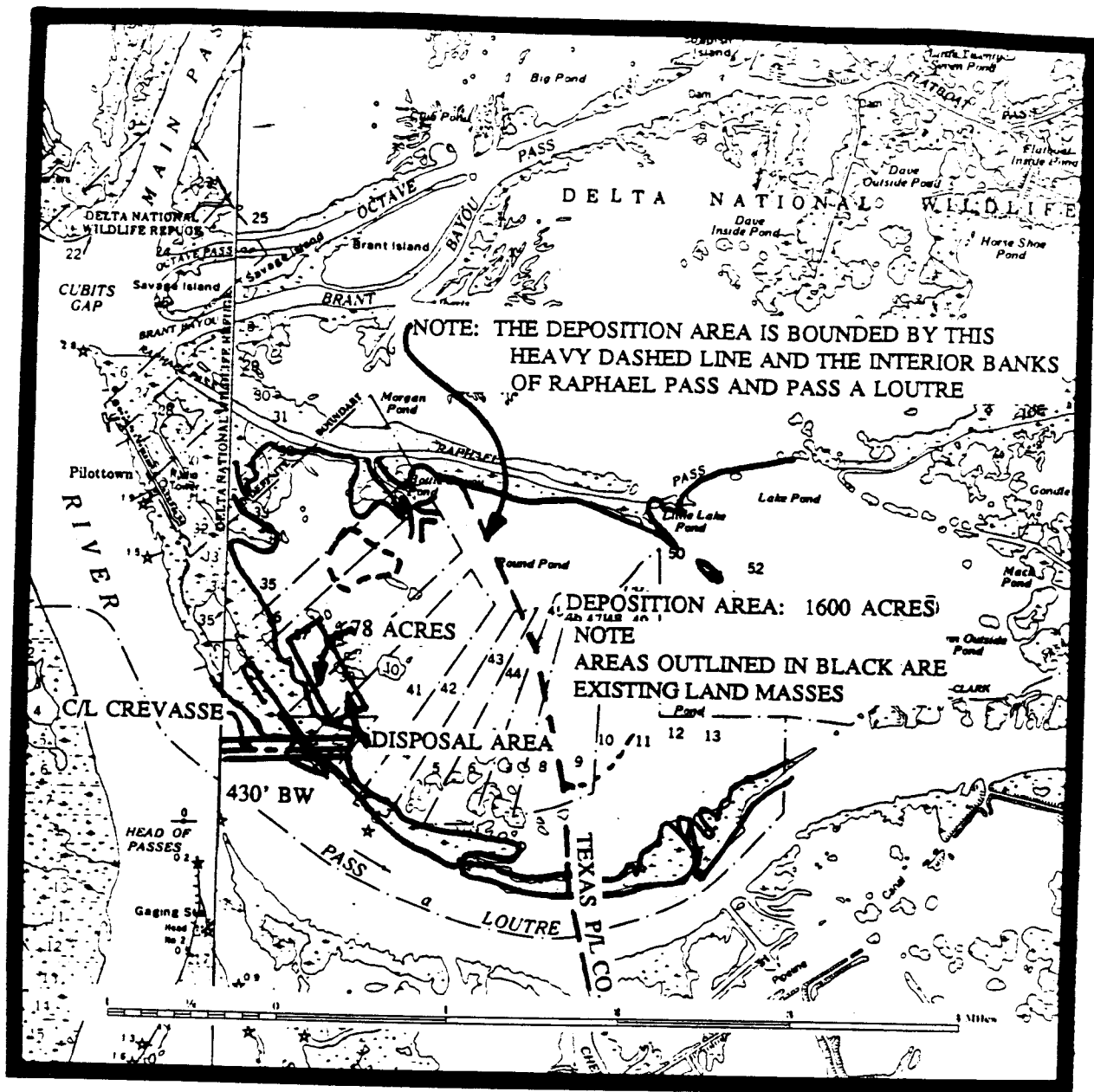
### White's Ditch Outfall Management (BS-4a)

The project is located on the east bank of the Mississippi River between the communities of Belair and Carlisle. The existing siphon (two 50-inch diameter pipes) discharges a maximum of 250 cfs during normal high river stages through the Belair Canal into River aux Chenes. The objective of this project is to manage the outfall area between the Mississippi River levee and River aux Chenes. Management of the outfall will be accomplished by widening existing ditches, spoil bank gapping, and constricting River aux Chenes with a rock weir. The project will provide 68 average annual habitat units (AAHU's) at a cost of \$756,000. The project's cost effectiveness measured in average annual cost per AAHU is 781.



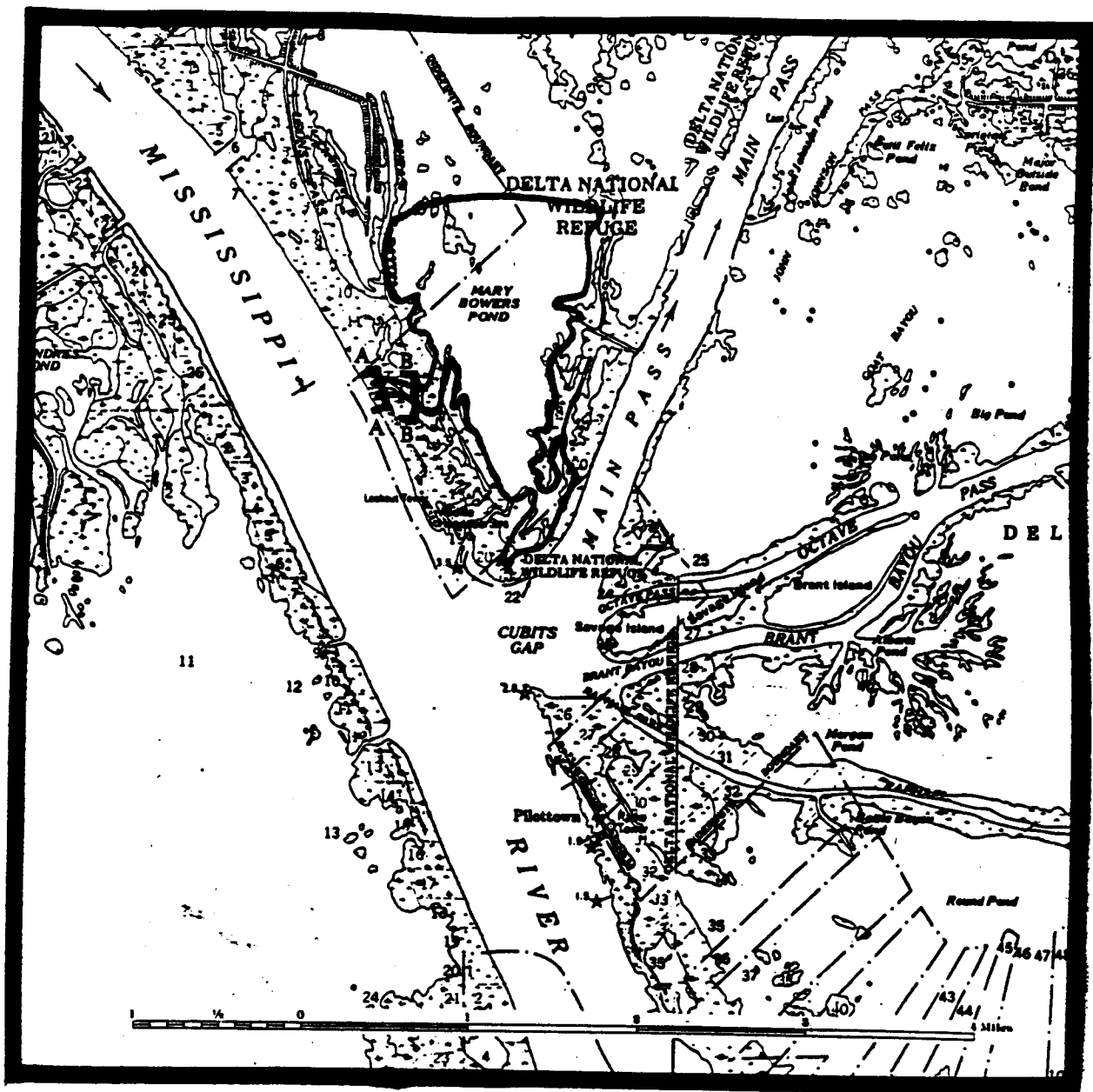
### **Pump Outfall Management North of Lake Lery (BS-6)**

This approximately 12,000-acre brackish marsh project area is located immediately east of Big Mar. The project objective is to manage the outfall of a proposed pumping station to be constructed by the Lake Borgne Levee Board. The outfall management plan will effectively distribute the freshwater by using spoil bank gapping, removing plugs in existing borrow canals, and constructing weirs, earthen dams, and rip rap protection along a critical eroding shoreline of Lake Leary. The project would contribute \$1,000,000 toward construction of the pumping station. The project will provide 50 average annual habitat units (AAHU's) at a cost of \$3,039,000. The project's cost effectiveness measured in average annual cost per AAHU is 5,070.



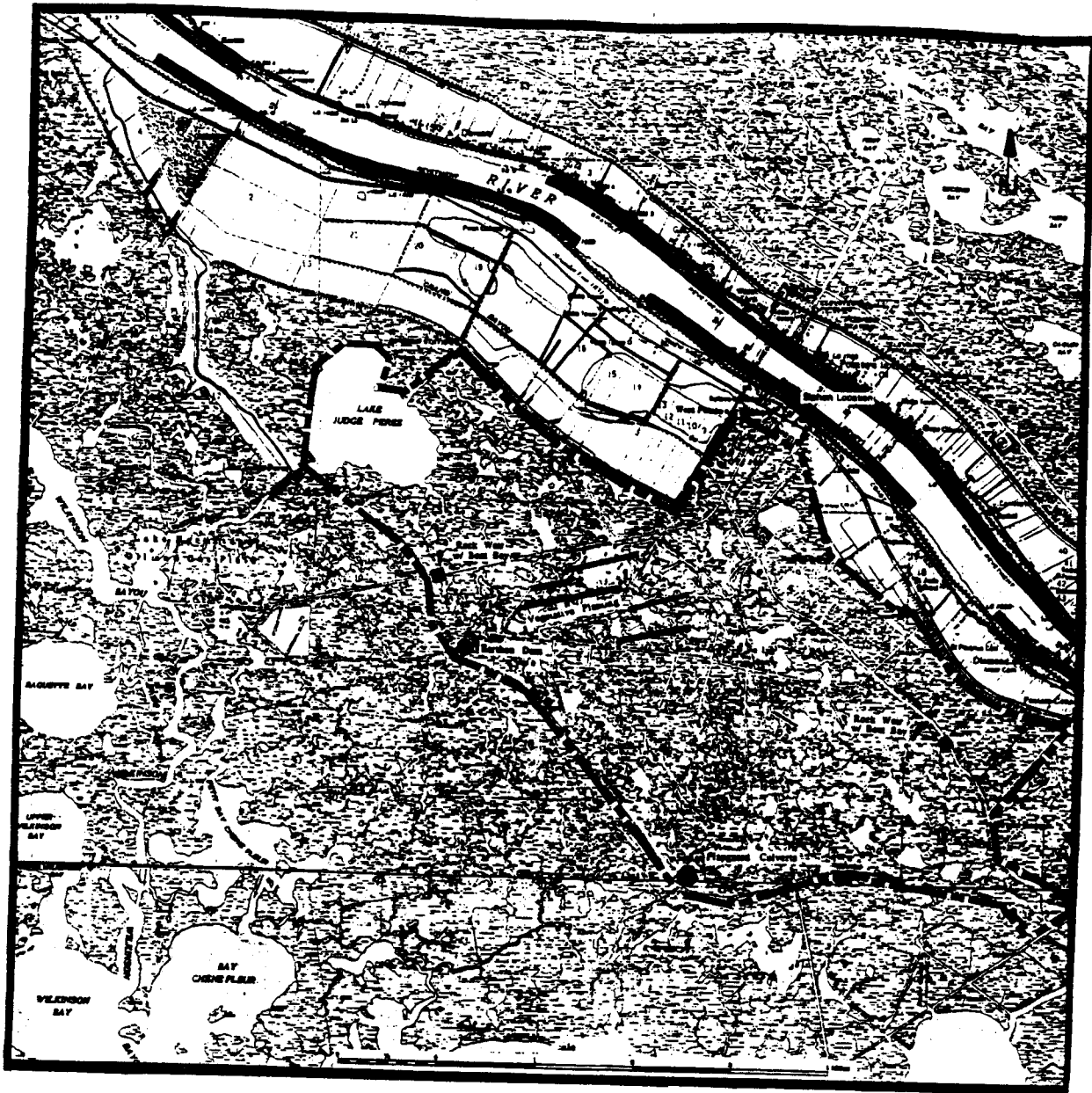
### Pass a Loutre Crevasse (PMR-8/9a)

The project is located on Pass a Loutre in the Mississippi River delta in Plaquemines Parish. The object of the project is to create wetlands by constructing a crevasse (430-foot bottom width at elevation -6 NGVD) with a design flow of 2,500 cubic feet per second. The freshwater and sediments diverted into the shallow open water of the area will create 800 acres of emergent marsh over the 20-year project life and will provide 455 average annual habitat units (AAHU's) at a cost of \$2,858,000. The project's cost effectiveness is \$439/AAHU.



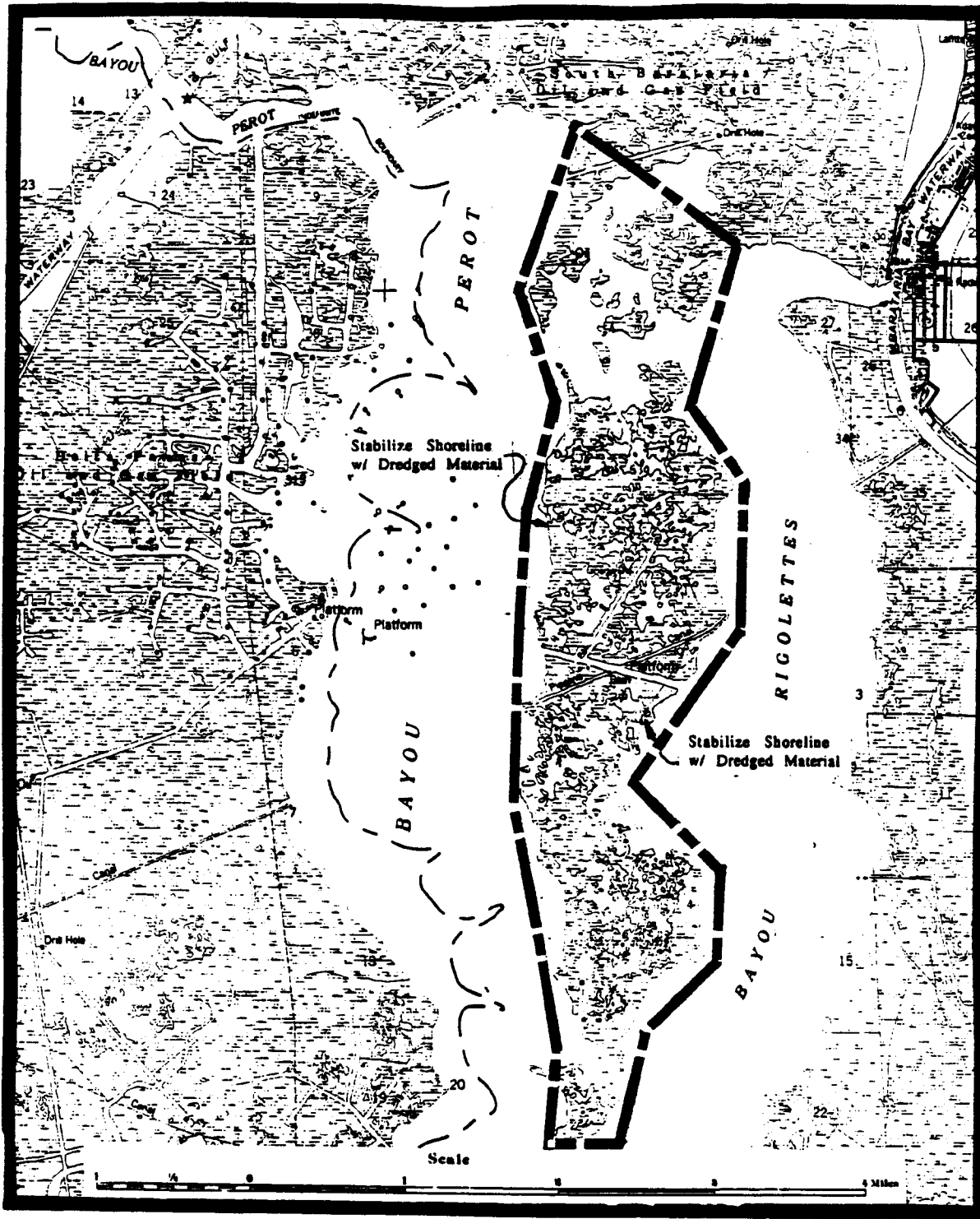
### Channel Armor Gap Crevasse (XMR-10)

The project is located in the Mississippi River delta in Plaquemines Parish on the left descending bank of the river at approximate river mile 4.7 AHP. By deepening the invert of the existing gap in the channel bank armor, freshwater and sediment will be introduced into a 1,500-acre area at a rate of 2,500 cubic feet per second. Over the 20 year project life, 800 acres of emergent marsh will be created. The project will provide 234 average annual habitat units (AAHU's) at a cost of \$808,000. The project's cost effectiveness is \$286/AAHU.



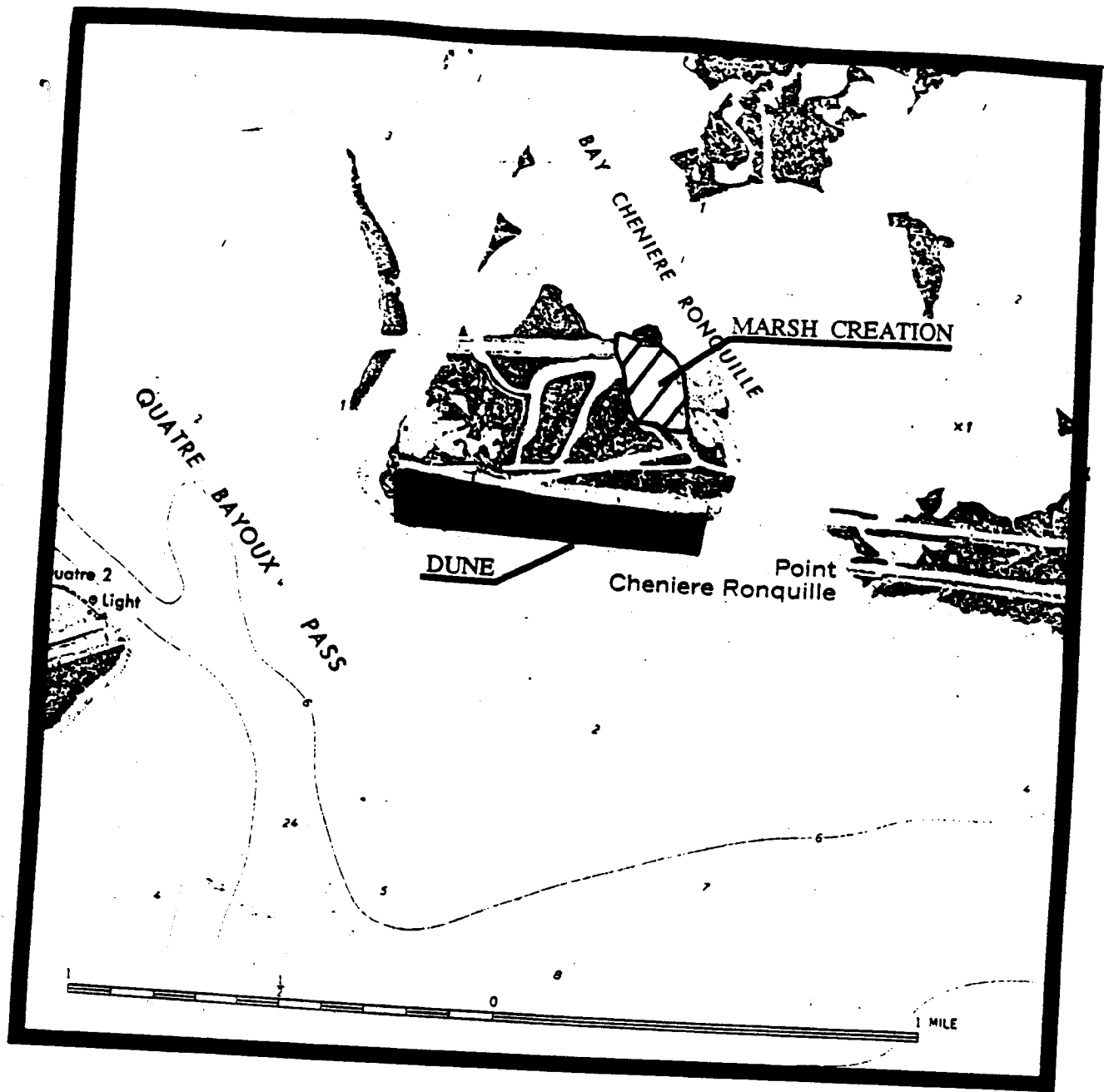
**West Pointe a la Hache Outfall Management (BA-4c)**

This project will manage the outfall of the existing eight 72-inch diameter siphons located on the west bank of the Mississippi River in Plaquemines Parish. The siphons, which became operational in April 1992, have a maximum discharge of 2,100 cfs. This project will insure that the diverted water will pass through existing marshes for maximum retention. The outfall management plan calls for constructing two rock weirs with boat bays, an earthen plug, four 48-inch flapgated culverts, and approximately 3.5 miles of vegetative plantings. The project will provide 429 average annual habitat units (AAHU's) at a cost of \$881,000. The project's cost effectiveness measured in average annual cost per AAHU is 140.



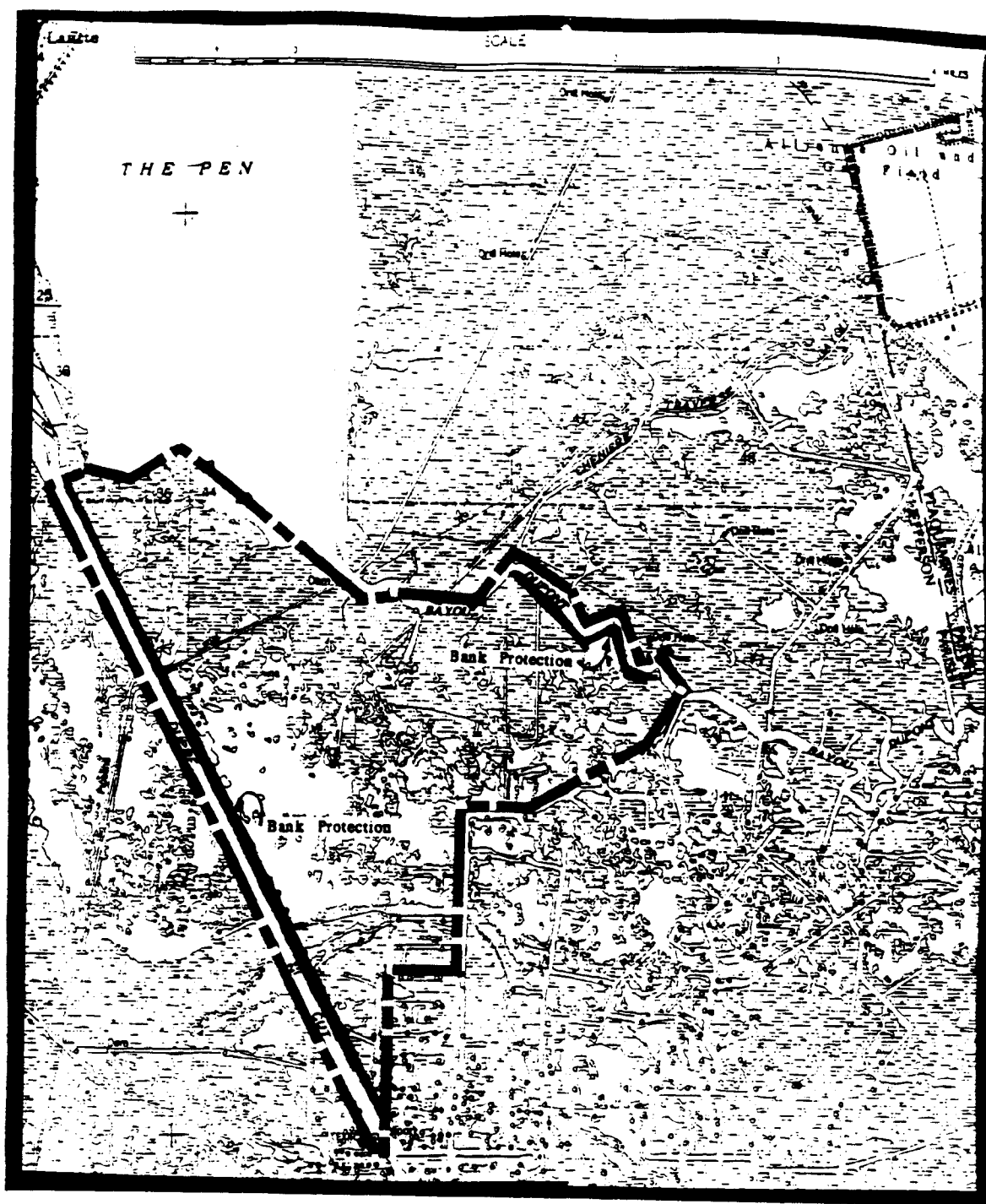
### Restoration of Bayou Perot/Rigolettes (XBA-65a)

The project area, located in Jefferson Parish, covers about 3,800 acres on a peninsula between Bayous Perot and Rigolettes, and consists of equal amounts of brackish marsh and open water. The peninsula suffers heavily from subsidence and shoreline erosion. The project involves spraying material dredged from the adjacent bayous over a 250-foot width along the shoreline. Much of this material will be moved inland as the shoreline erodes over time. The project will produce 498 average annual habitat units (AAHU's) at a cost of \$1,835,000; its effectiveness is estimated at \$380/AAHU.



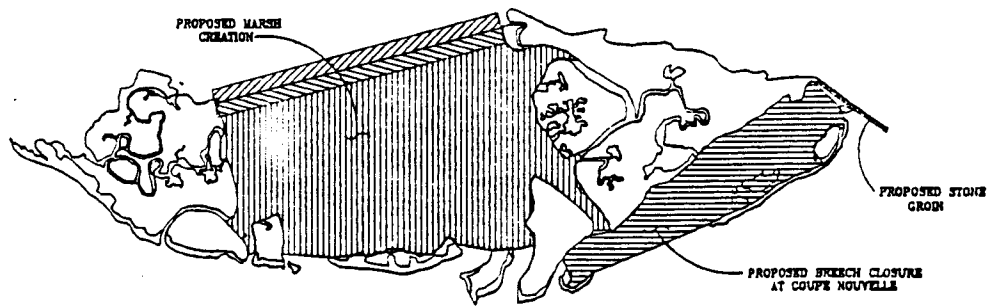
### Grand Pierre Island Restoration (XBA-1c)

Grand Pierre Island is a 140 acre barrier island located in Plaquemines Parish. The island has moved northward and eastward while accreting a spit on the northeast side since 1978. In order to increase the life of the island, dredged material will be used to increase the island's elevation to 6 feet NGVD. In addition, 80 acres of marsh will be created in the shallow bay area on the back side of the island. The project will provide 46 average annual habitat units (AAHU's) at a cost of \$3,301,000. The project's cost effectiveness is \$7,441/AAHU.



**Dupree Cut/Bayou Dupont Shoreline Protection (XBA-70)**

This 4,000 acre brackish marsh project area is located in Jefferson Parish. The project will protect the eroding banks long the Dupree Cut by constructing approximately 23,000 feet of rip-rap protection and restoring about 6,000 feet of natural overflow bank along Bayou Dupont. The Wetland Value Assessment determined that the project decreased the marsh productivity. The approximate cost of the project is \$4,255,000.

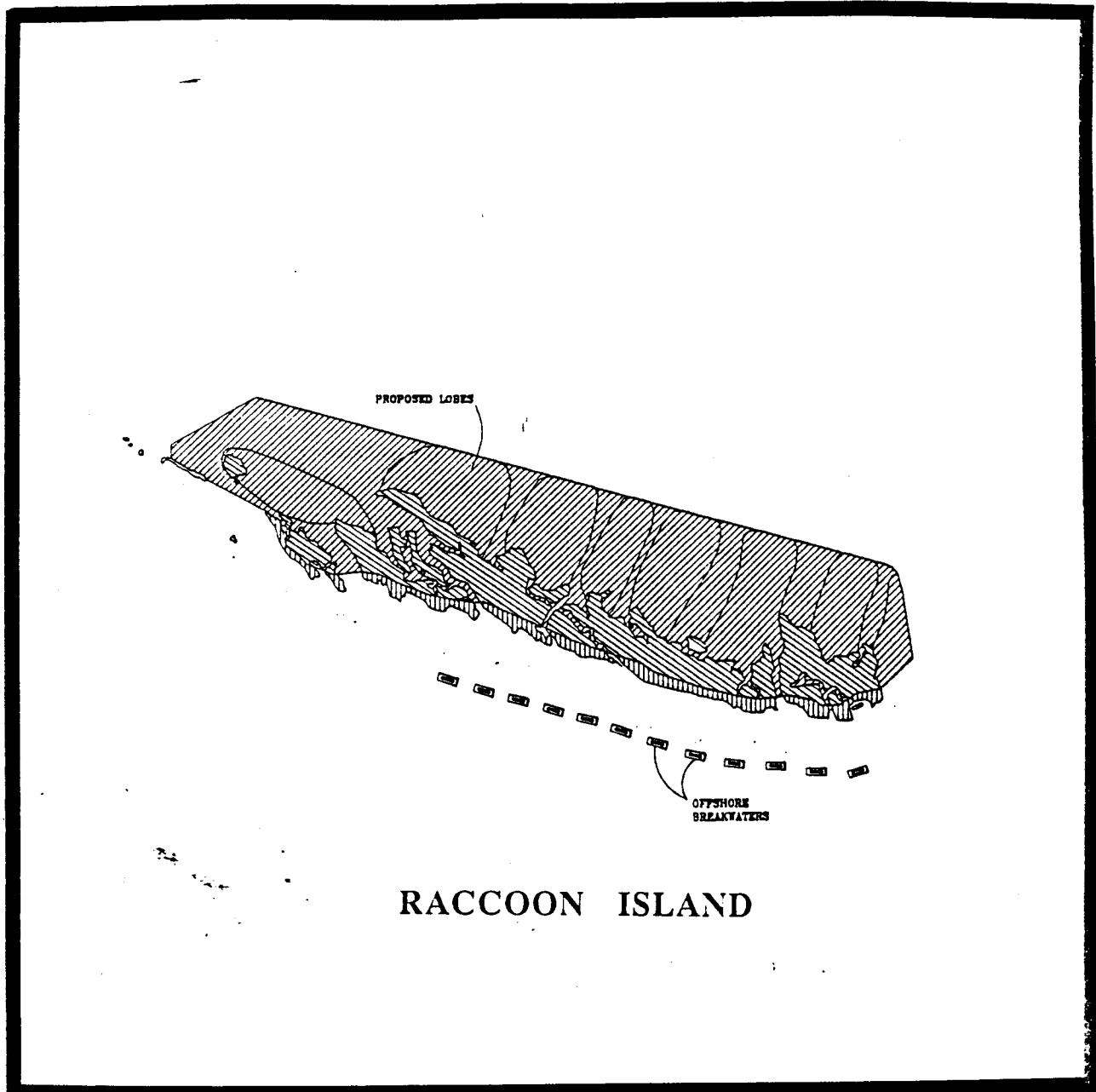


CREATE 657 ACRES OF BACK ISLAND MARSH  
AND CONSTRUCT 2,400 FEET OF STONE GROIN

## WHISKEY ISLAND

### Whiskey Island Restoration (PTE-15bi)

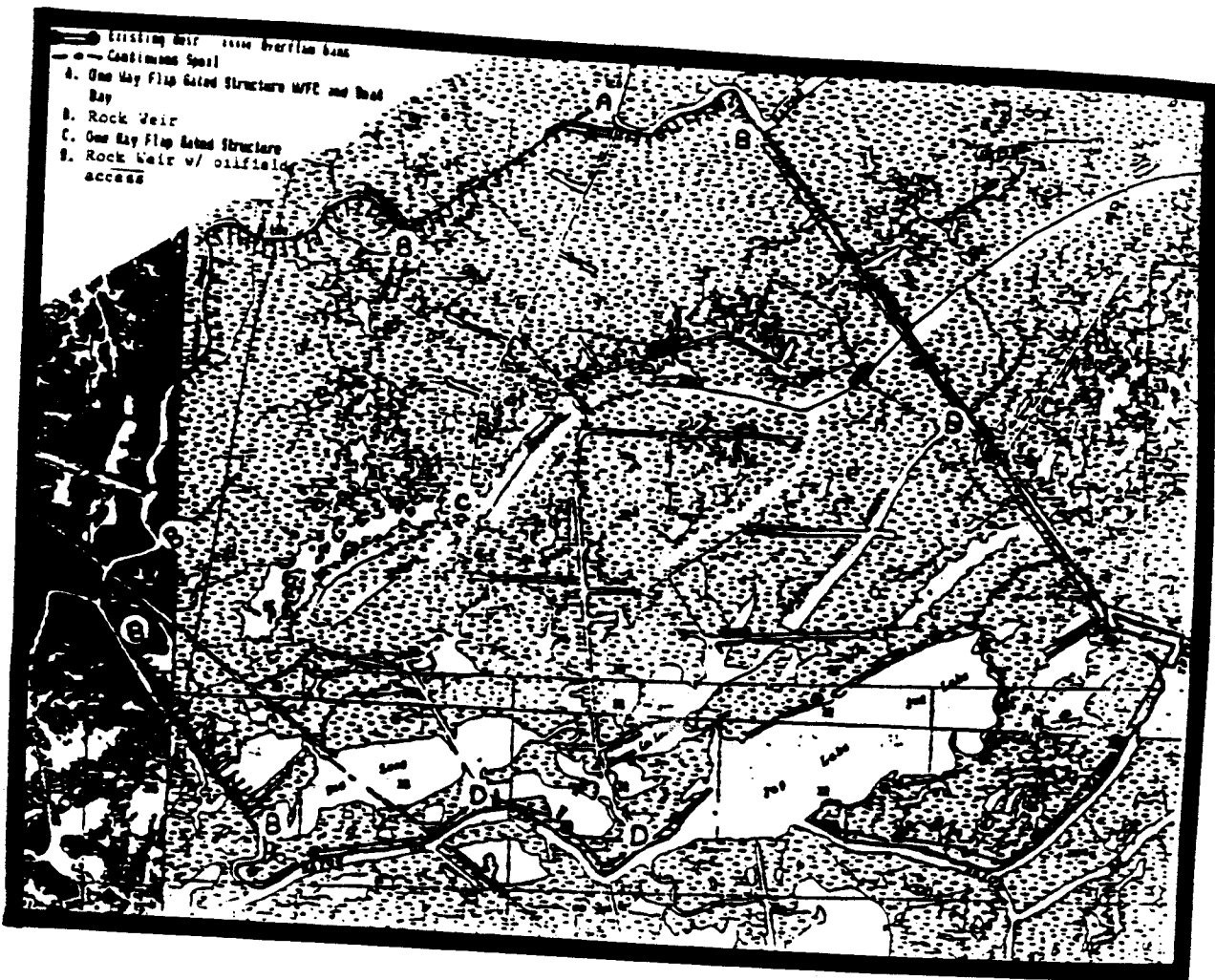
The project is located on Whiskey Island, which is part of the Isles Dernieres chain of barrier islands in Terrebonne Parish. The rapid erosion and breaching of the island reduces its effectiveness in preventing storm surges from reaching lands adjoining the estuary, opens up bay areas to direct wave attack from the Gulf of Mexico, and increases the frequency and residence time of saline water incursions and the impact of tidal cycles. The result is an accelerated conversion of estuarine areas to a less productive open gulf habitat. On Whiskey Island, 657 acres of back island marsh will be created and a 2,400-foot stone groin constructed on the east end of the island. The project will provide 549 average annual habitat units (AAHU's) at a cost of \$4,844,000. The project's cost effectiveness is \$921/AAHU.



## RACCOON ISLAND

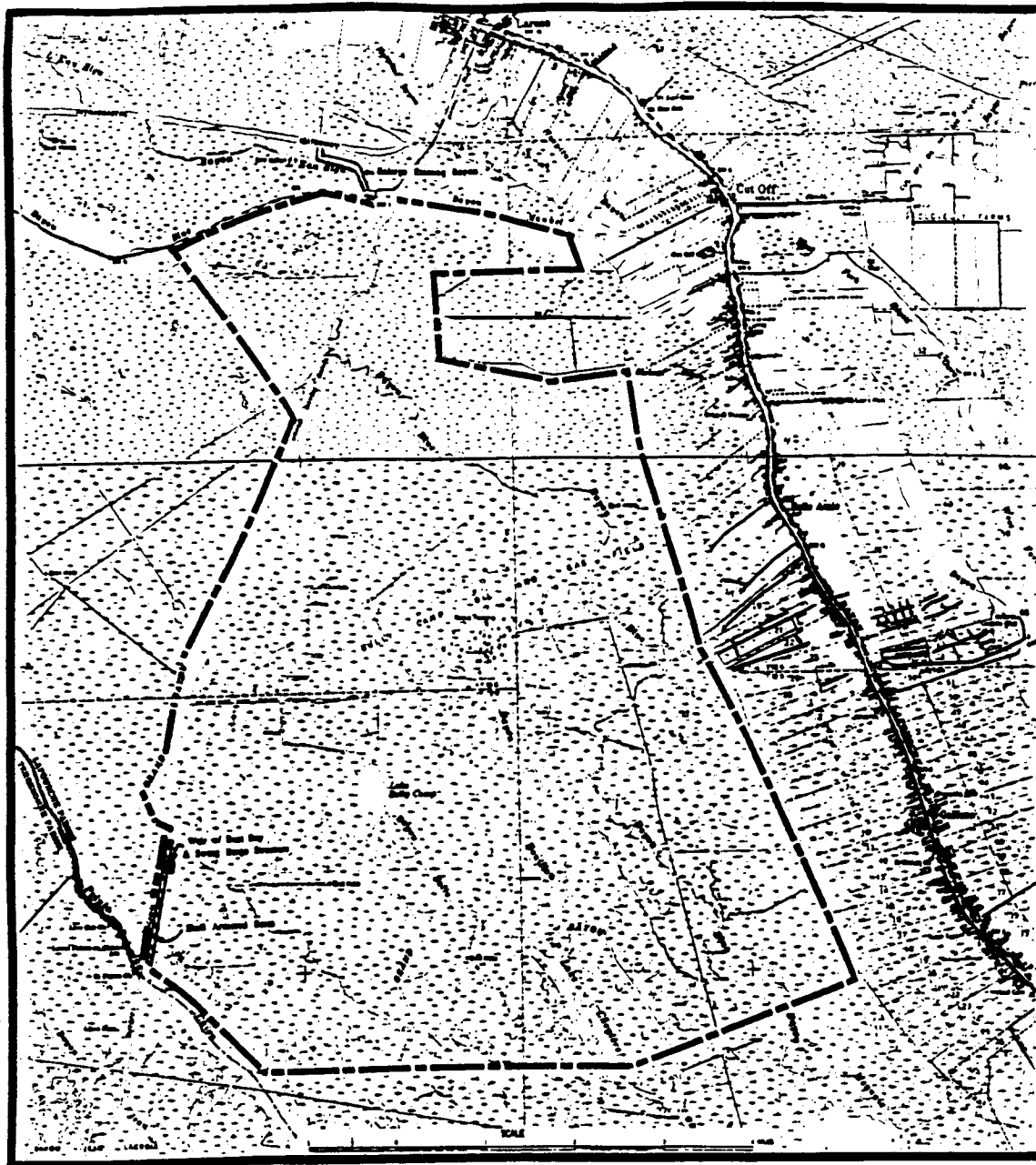
### Raccoon Island Restoration (PTE-15bii)

The project is located on Raccoon Island which is part of the Isles Dernieres chain of barrier islands in Terrebonne Parish. The rapid erosion and breaching of the island reduces its effectiveness in preventing storm surges from reaching lands adjoining the estuary, opens up bay areas to direct wave attack from the Gulf of Mexico, and increases the frequency and residence time of saline water incursions and the impact of tidal cycles. The result is an accelerated conversion of estuarine areas to a less productive open gulf habitat. The project calls for constructing one mile of segmented offshore breakwater and placing 840,000 cubic yards of dredged material on Raccoon Island. The project will provide 53 average annual habitat units (AAHU's) at a cost of \$3,325,000. The project's cost effectiveness is \$6,492/AAHU.



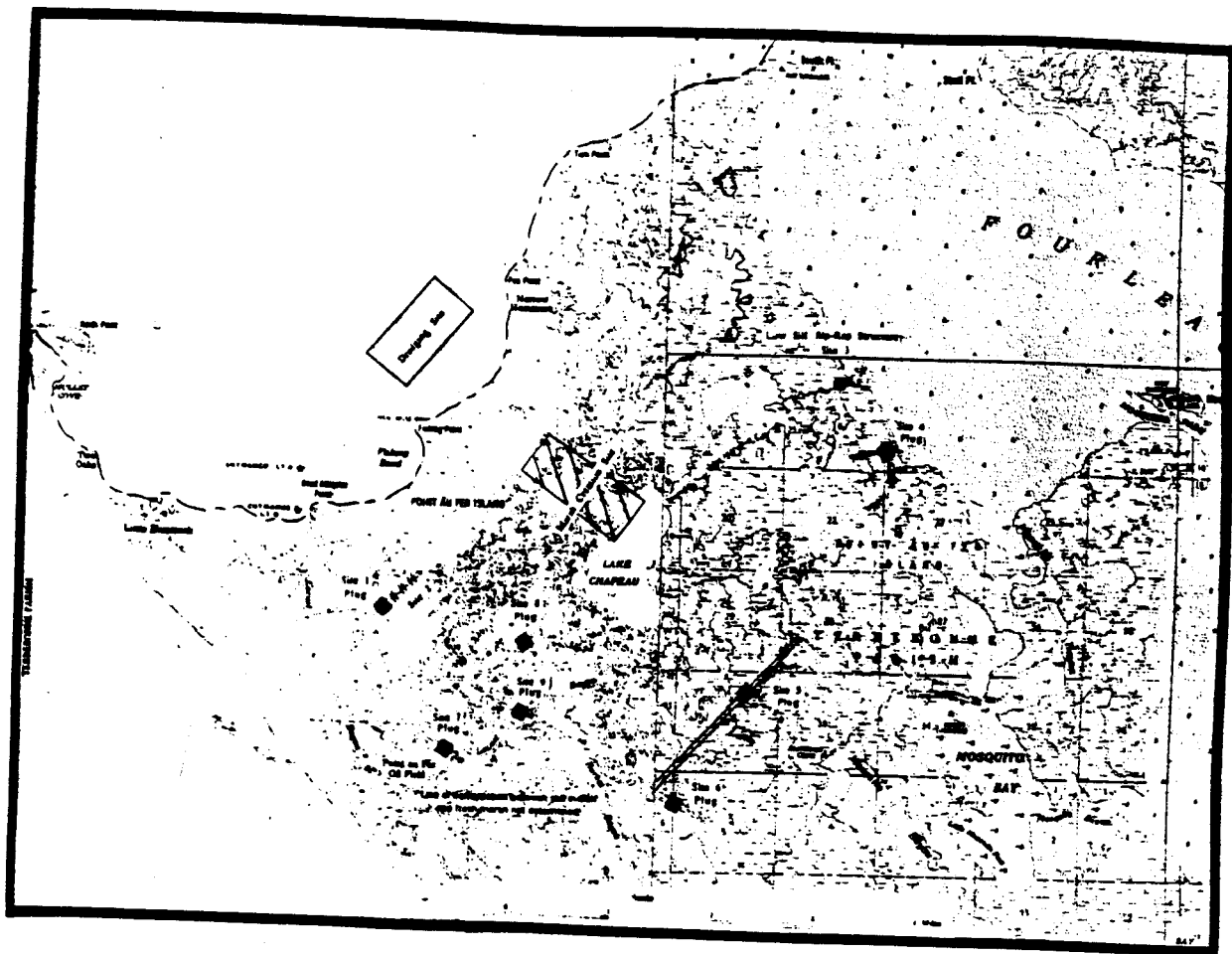
### Brady Canal Hydrologic Restoration (PTE-26b)

This 7,700-acre project area, located in Terrebonne Parish, consists of fresh, intermediate, and brackish marsh. The objective of the project is to maintain the marshes by enhancing freshwater, sediment, and nutrient delivery into the fragile, highly fragmented transitional area between the fresh and estuarine zones. Three 60-inch flapgated structures will be installed at the existing Brady Canal structure. To facilitate overbank flow, 9,600 feet of bank modification and rock weirs will be constructed. In the lower portion of the project area, 21,500 feet of bank will be maintained and three outlets will be sized and armored with rock to accommodate oil field navigation and tidal exchange. The project will provide 337 average annual habitat units (AAHU's) at a cost of \$4,718,000. The project's cost effectiveness measured in average annual cost per AAHU is 1,017.



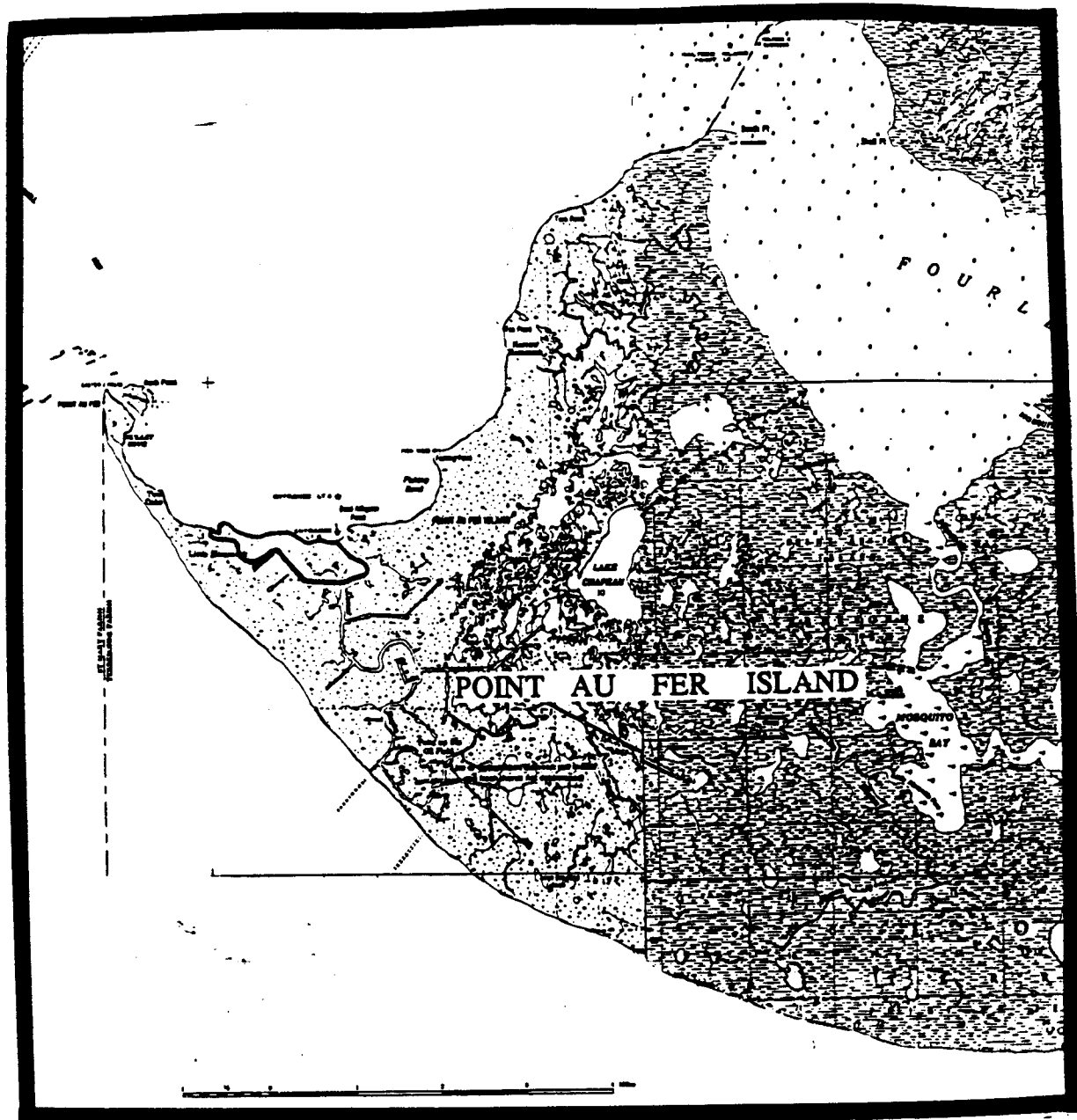
### Grand Bayou/GIWW Diversion (TE-10/XTE-49)

This intermediate and brackish wetland is located in Lafourche Parish just west of Galliano and south of Larose and includes part of the Pointe au Chien Wildlife Management Area. The objective of the project is to introduce additional freshwater into the marshes to the east of Grand Bayou Canal and Cutoff Canal by enlarging the existing channel on Bayou L'Eau Bleu. Constricting Cutoff Canal with a weir will increase the retention time of the freshwater. The project will provide 689 average annual habitat units (AAHU's) at a cost of \$3,899,000. The project's cost effectiveness measured in average annual cost per AAHU is 406.



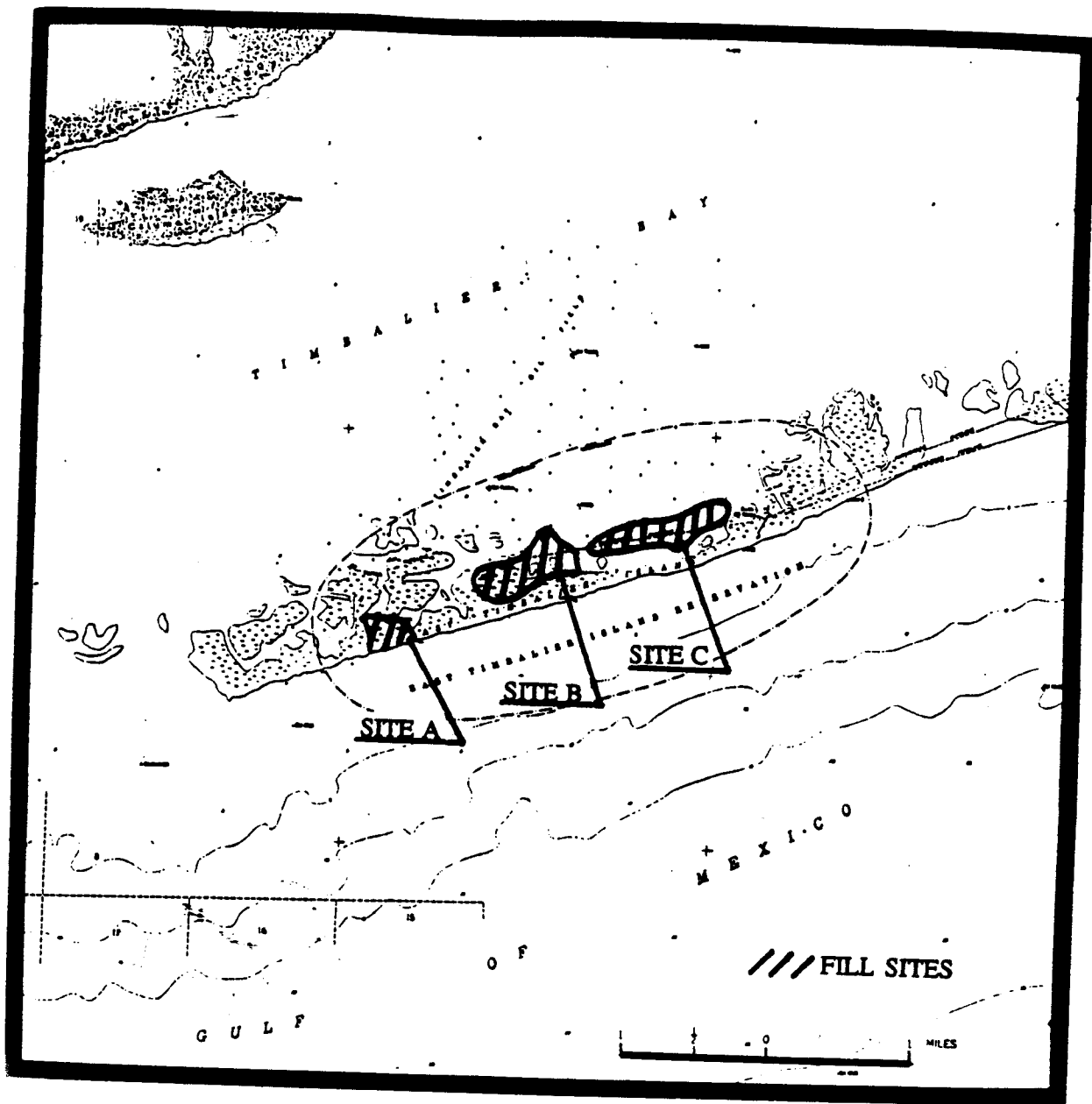
**Lake Chapeau Sediment Input and Hydrologic Restoration,  
Point au Fer Island (PTE-23/26a/33)**

The project area, located in Terrebonne Parish, incorporates portions of Point au Fer Island and Atchafalaya Bay. Point au Fer Island has lost about 30 percent of its land area since the 1930's due to subsidence, erosion, and construction of oil and gas canals. The project will restore marshes west of Lake Chapeau, reestablish the hydrologic separation of the Locust Bayou and Alligator Bayou watersheds, and reestablish natural drainage patterns within the Lake Chapeau area. Approximately 500,000 cubic yards of material will be mined from Atchafalaya Bay and jettied across an 1,800-acre area. Hydrology will be restored by plugging canals and gapping spoil banks. The project will provide 468 average annual habitat units (AAHU's) at a cost of \$4,149,000. Its cost effectiveness is estimated at \$876/AAHU.



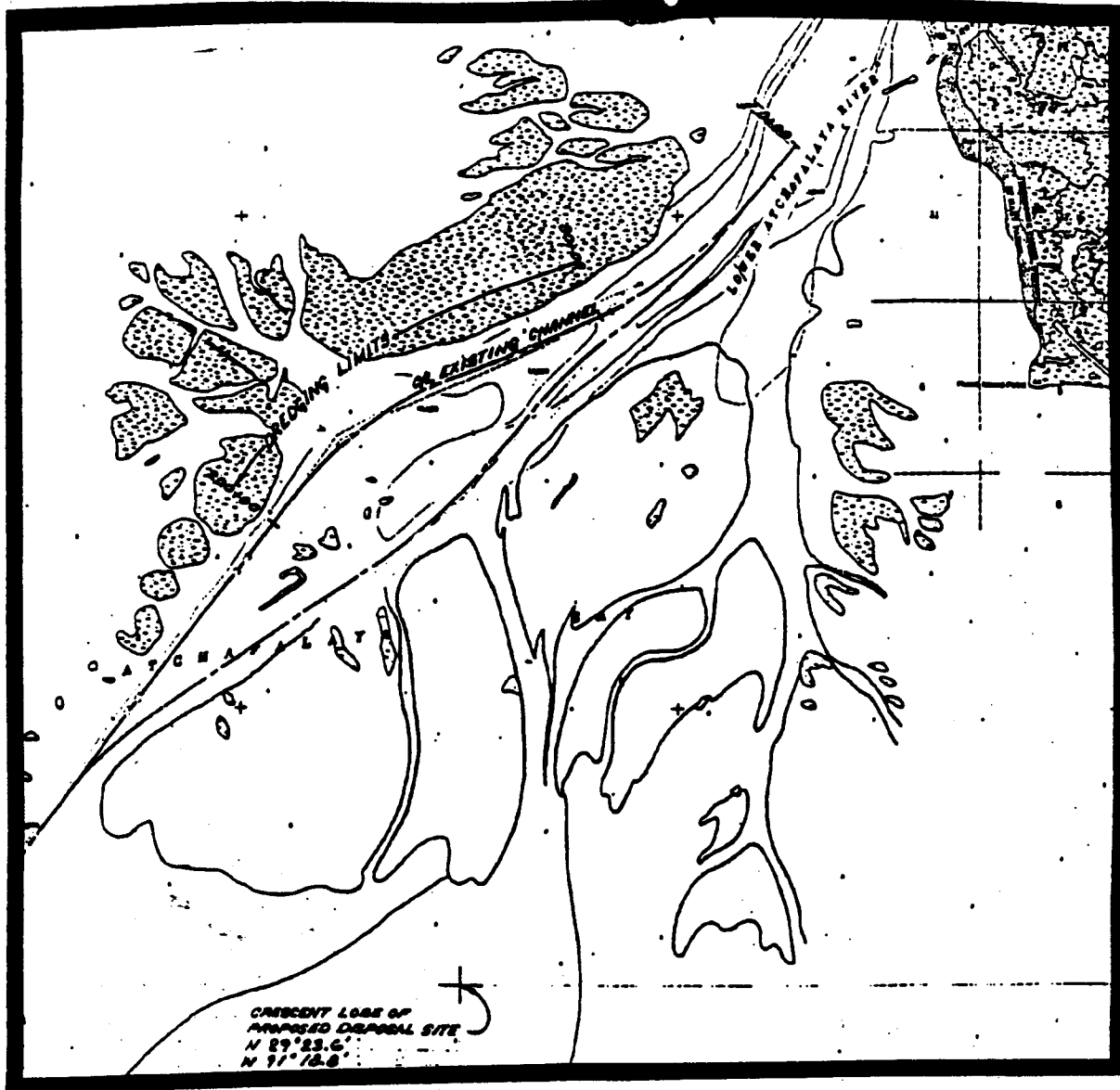
### Locust Bayou Marsh Nourishment, Point au Fer Island (XTE-65)

The project area consists of 1,300 acres of broken brackish marsh on Point au Fer Island in Terrebonne Parish. Canal spoil banks prevent sediment-rich waters from reaching the project site via Locust Bayou. In addition, the changing tidal regime in Atchafalaya Bay deprives the area of sediments from the Atchafalaya River. The project calls for mining 1,000,000 cubic yards of sediment from Atchafalaya Bay and spreading this material in the project area. The project will provide 28 average annual habitat units (AAHU's) at a cost of \$1,477,000. The project's cost effectiveness is estimated at \$5,450/AAHU.



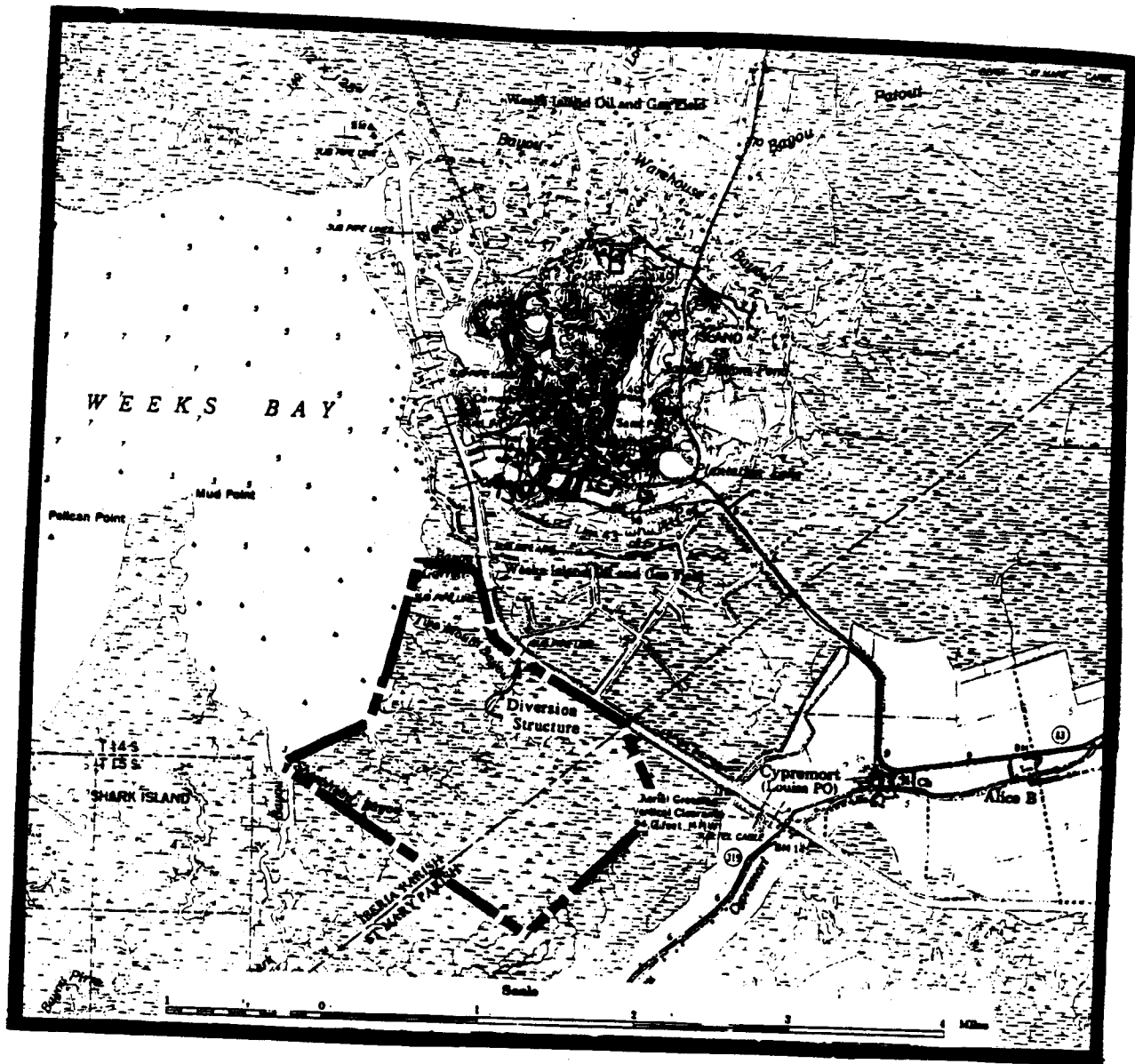
### East Timbalier Island Sediment Restoration (XTE-67)

East Timbalier Island covers 400 acres in Lafourche Parish, and is part of an island chain that fronts Terrebonne and Timbalier Bays. Louisiana's barrier islands are experiencing landward migration and land loss as a result of natural and man-induced processes. The continued loss of barrier islands will result in the collapse of the estuaries and wetlands they protect. This project will increase the life expectancy of East Timbalier Island by placing 890,000 cubic yards of dredged material in three embayments along the landward shoreline. The project will create 86 acres of vegetated wetland and enhance the island's approximately 200 acres of existing marsh, as well as prolong the island's ability to protect inland marshes. The estimated cost of the project is \$2,047,000, and its effectiveness is estimated at \$686/AAHU (average annual habitat unit).



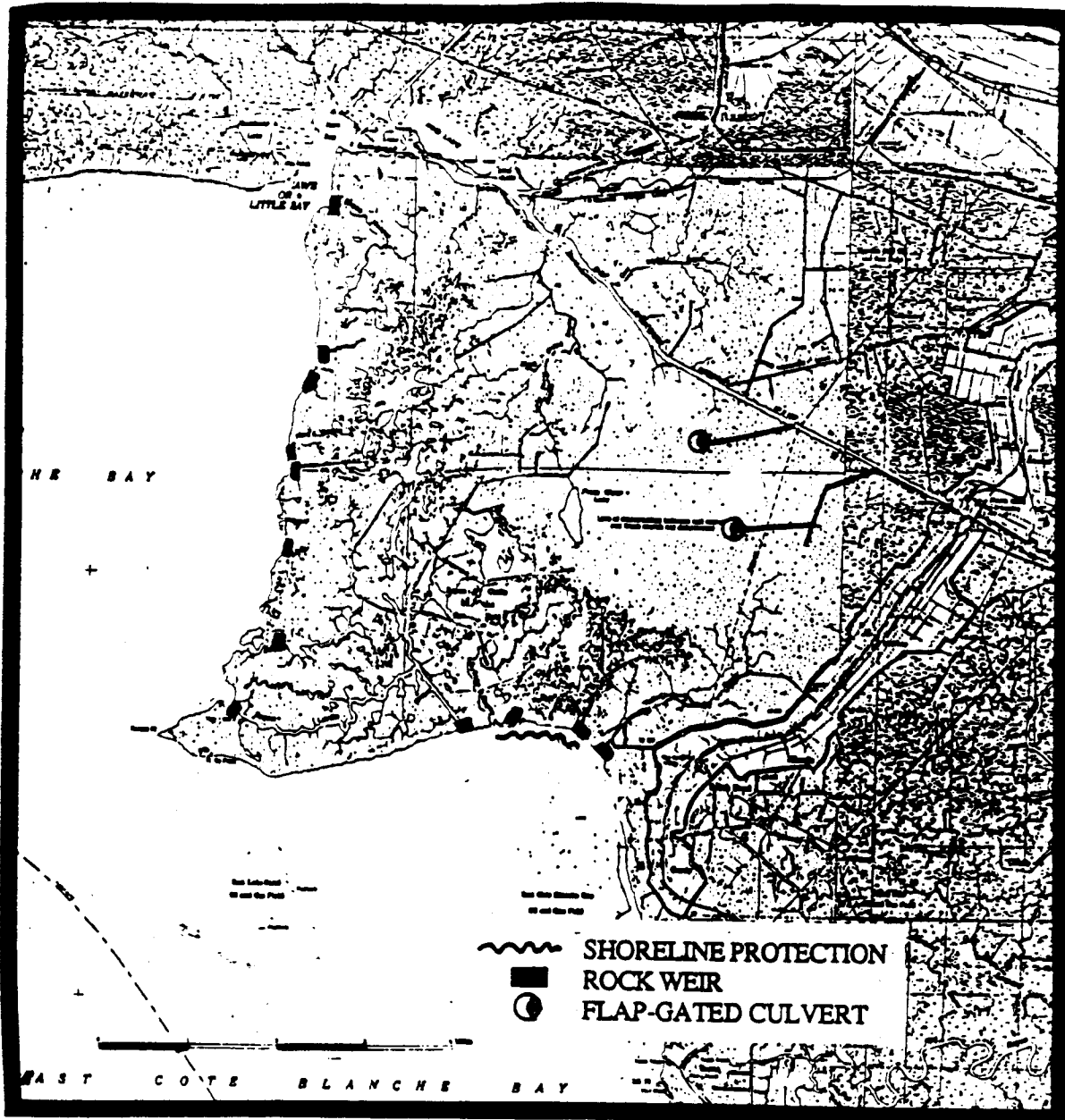
### Atchafalaya Bay Booster Pump Marsh Creation (XAT-6)

The proposed project is located in the Atchafalaya Bay in St. Mary Parish. The planned work consists of using sediments dredged for maintenance of the Atchafalaya Bay Channel between C/L Station 80+00 and C/L Station 200+00 to create new vegetated wetlands within a shallow open water disposal site. Project implementation would initially create approximately 78 acres at elevation +3.0 feet NGVD, and an additional 72 acres between +3.0 feet NGVD and -1.0 foot NGVD. The project will provide 86 average annual habitat units (AAHU's) at a cost \$1,091,000. The project's cost effectiveness is \$1,294/AAHU.



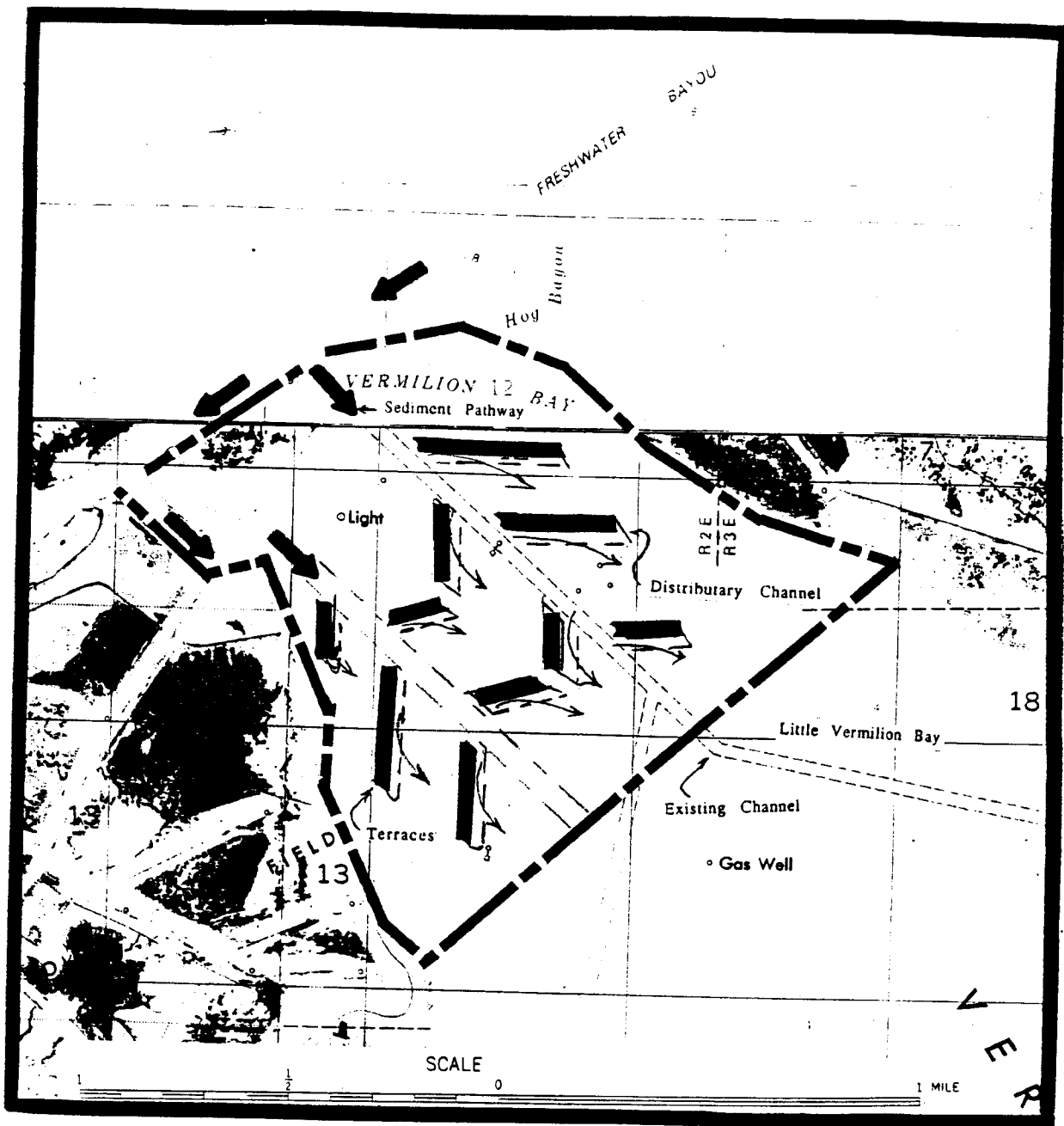
### Two Mouth Bayou Freshwater Diversion (XTV-26)

This 1,600 acre project area is an intermediate marsh located in Iberia and St. Mary Parishes. The objective of the project is to introduce freshwater and sediments into the marshes south of the GIWW and east of Weeks Bay. The GIWW provides an excellent source of freshwater during high Atchafalaya River stages. The project will include a multiple, fixed crest weir structure with flap gates to allow freshwater flow into the project area. The project will provide 16 average annual habitat units (AAHU's) at a cost of \$615,000. The project's cost effectiveness measured in average annual cost per AAHU is 2,706.



### Cote Blanche Hydrologic Restoration (TV-4)

The Cote Blanche wetland is located in St. Mary Parish and is bounded by the GIWW, Highway 317, and East and West Cote Blanche Bays. The objective of the project is to reduce shoreline erosion, reduce excessive tidal fluctuations and rapid tidal exchange to prevent the loss of interior marsh, develop a hydrologic regime conducive to sediment and nutrient deposition, and reestablish vegetation in eroded areas. These objectives will be accomplished by constructing 10,000 feet of shoreline protection, rock weirs on major openings to the bays, and flapgated structures at two major openings to the GIWW. The project will provide 1,200 average annual habitat units (AAHU's) at a cost of \$5,173,000. The project's cost effectiveness is \$371/AAHU.



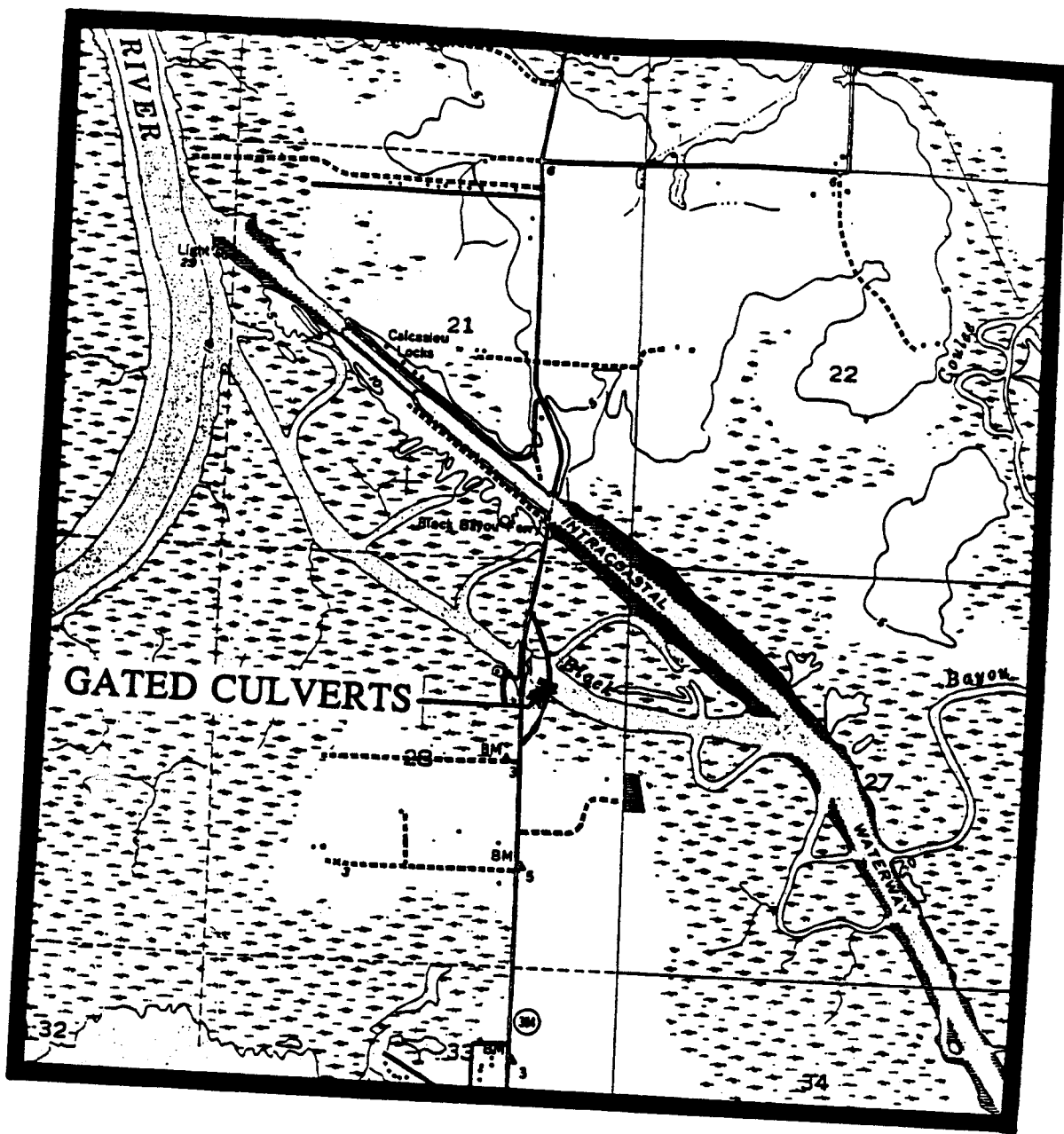
### Little Vermilion Bay Sedimentation Project (PTV-19)

The project area covers about 900 acres in Little Vermilion Bay, a shallow arm on the western end of Vermilion Bay in Vermilion Parish. There are two connections between Little Vermilion Bay and the Gulf Intracoastal Waterway, a source of sediment-laden flows from the Wax Lake Outlet. The project involves construction of a distributary channel to facilitate spreading the existing sediment load over a wide area. Dredged material will be placed as a low-elevation levee or terrace to protect the area from wind-induced wave erosion. The project benefit will consist of 182 average annual habitat units (AAHU's) at a cost of \$1,516,000. The cost effectiveness is estimated at \$780/AAHU.



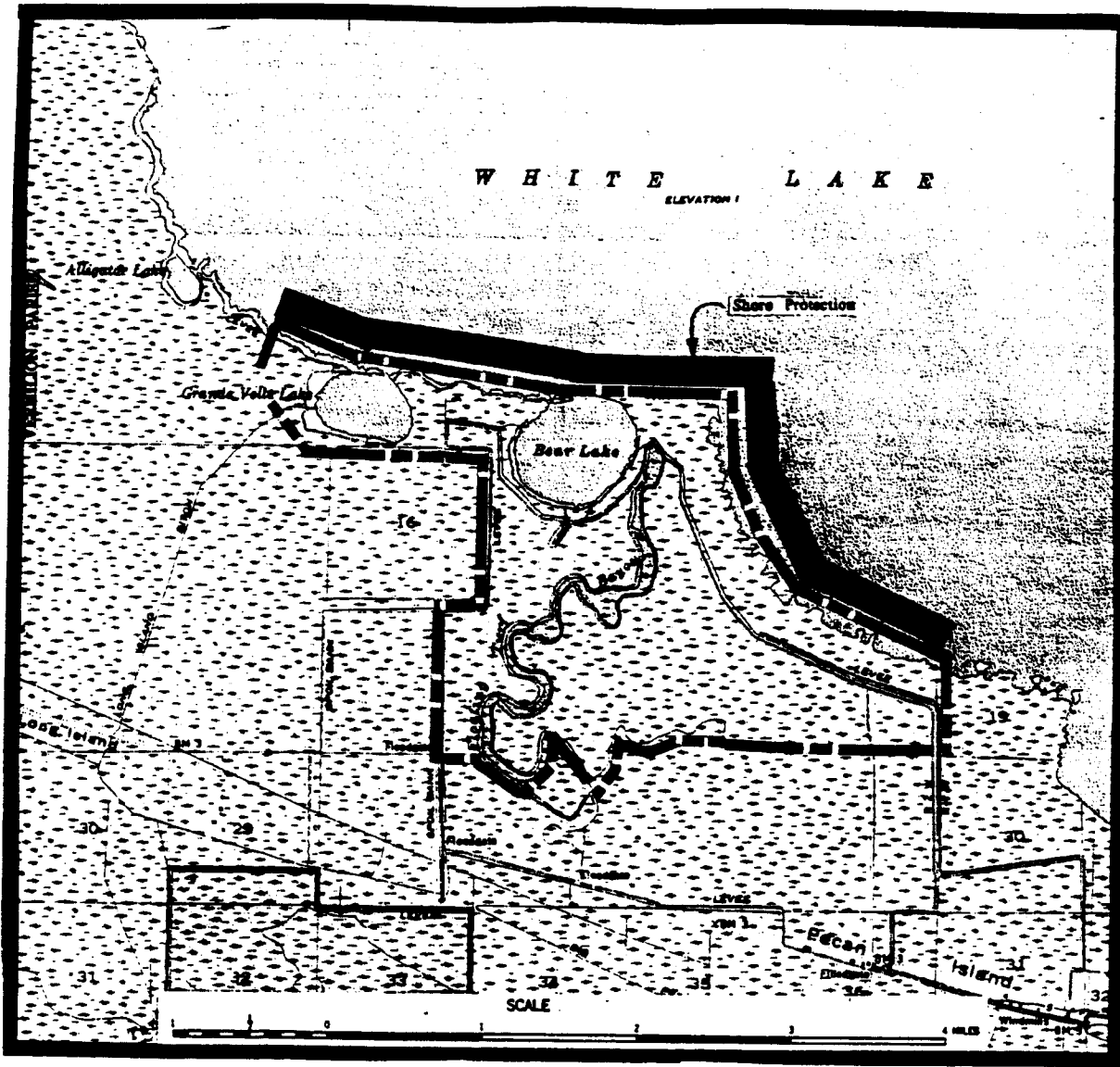
### Oaks Canal/Tigre Lagoon Shoreline Protection (XTV-25)

This 1,200 acre project area is located in Vermilion and Iberia Parishes. The object of the project is to reduce shoreline erosion along Vermilion Bay and Oaks Canal. Wave stalling along the GIWW will prevent possible breaching into Tigre Lagoon and protect interior marshes from the rapid water exchange rates of the GIWW. Rip-rap bank protection along with sediment fencing will be constructed along both banks of Oaks Canal with associated vegetative plantings. Wave stalling fencing will be placed along 4,000 feet of the GIWW to prevent breaching. Vegetative planting along 32,000 feet of shoreline in Vermilion Bay will also be included. The project will provide 53 average annual habitat units (AAHU's) at a cost \$2,710,000. The project's cost effectiveness is \$4,798/AAHU.



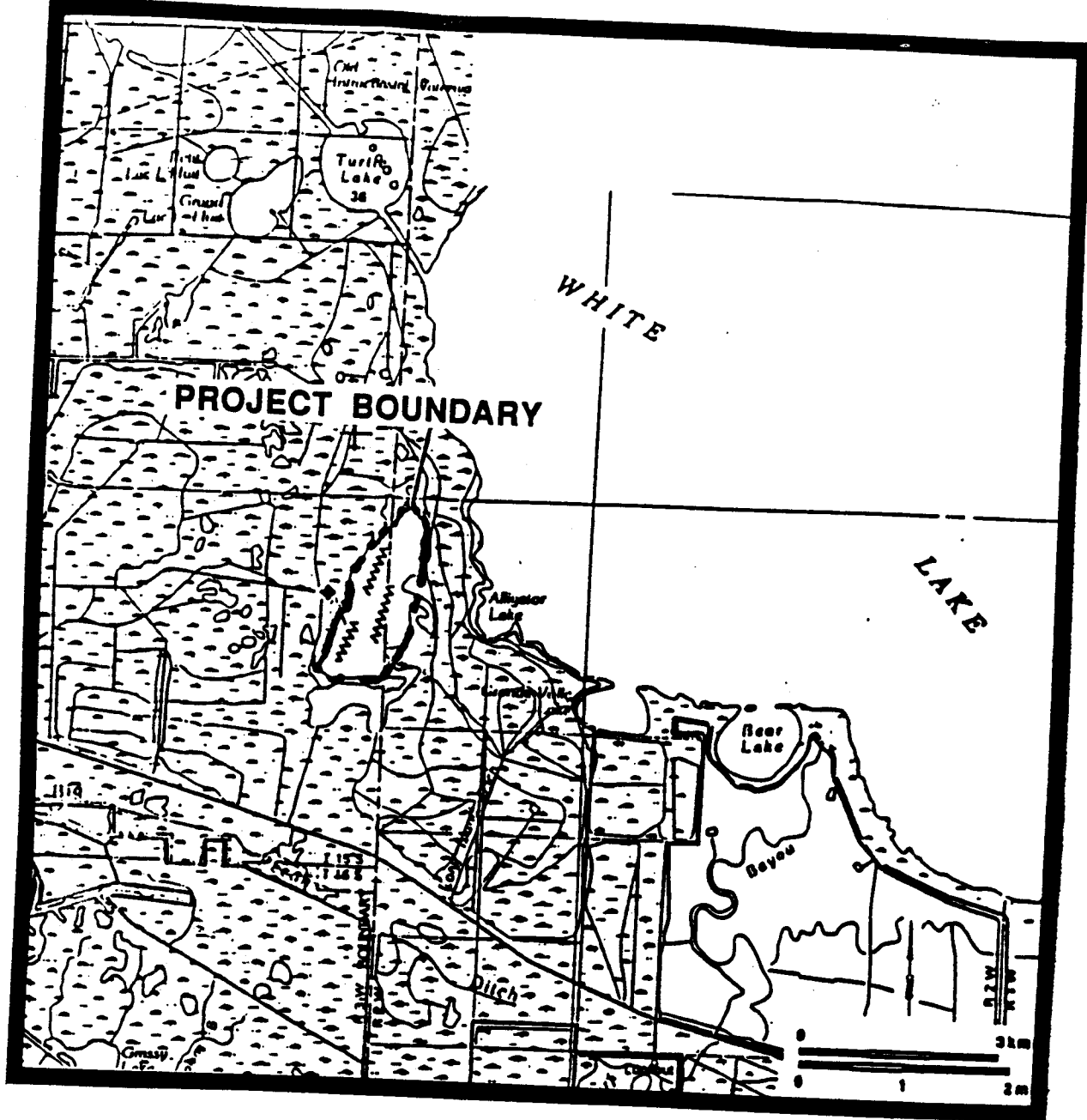
### Black Bayou Culverts Hydrologic Restoration (CS-16)

The project is located on Black Bayou in Calcasieu Parish, near the Calcasieu Lock on the Gulf Intracoastal Waterway. Black Bayou is closed by a dam where Highway 384 crosses the bayou. The project area extends east into Cameron Parish as far as Grand Lake. Prolonged high water levels in the Grand and White Lakes area exacerbate the problem of wind-induced wave erosion and cause stress to marsh grasses. The proposed project consists of five 10-foot by 10-foot gated box culverts under Hwy. 384 to facilitate drainage from the basin. The outfall from the culverts will provide fresh water, nutrients and some sediments to brackish marshes to the west. The project will provide 650 average annual habitat units (AAHU's) at a cost of \$9,639,000. The project's effectiveness is estimated at \$1,363/AAHU.



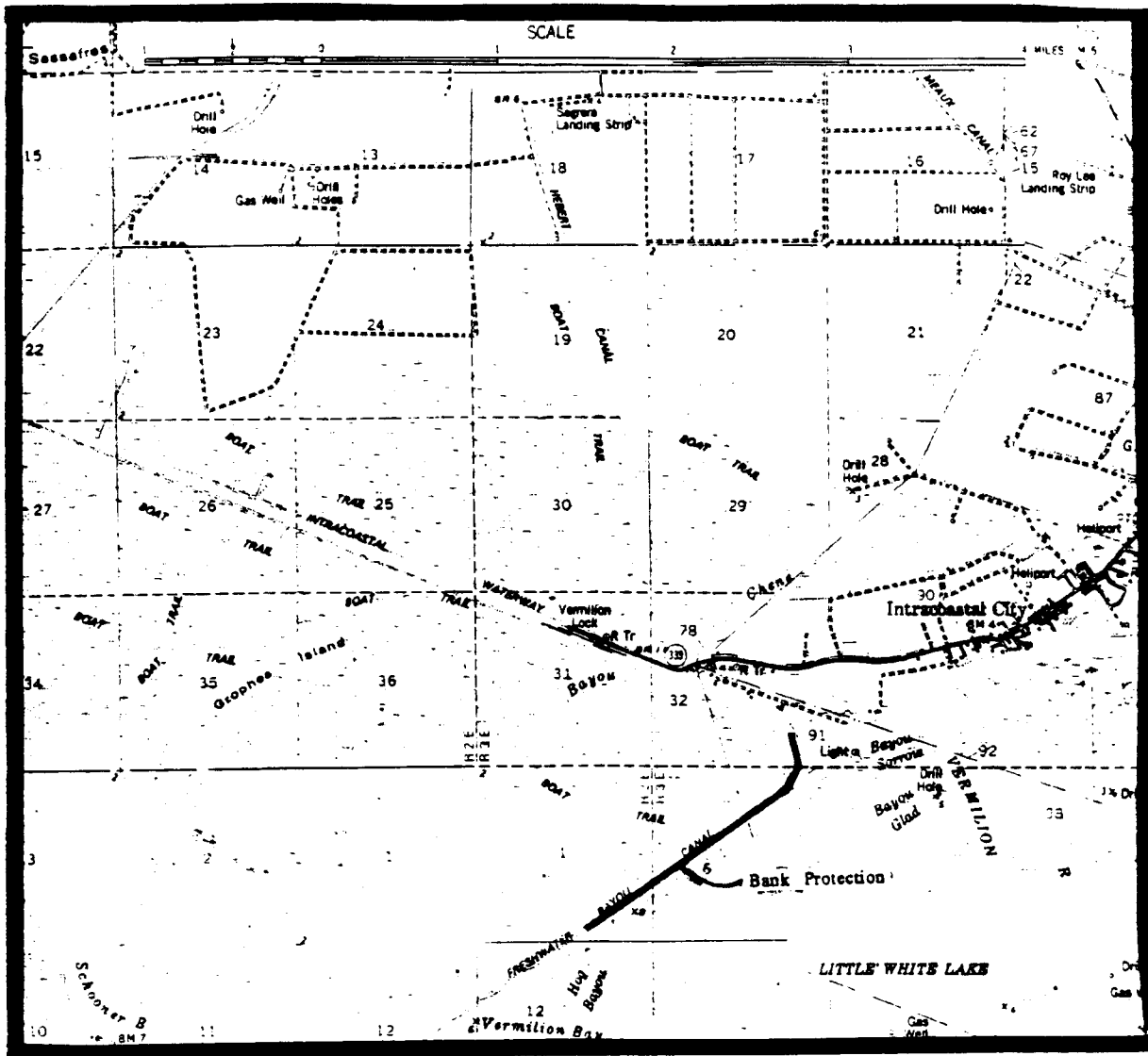
**White Lake South Shoreline Protection (ME-5)**

Located in Vermilion Parish, the project area includes a strip of approximately 1,400 acres of fresh and intermediate marsh along 5.5 miles of the southern White Lake shoreline and a 2,000 acre fresh marsh impoundment. The object of the project is to halt shoreline erosion and protect these areas. Approximately 5.5 miles of segmented rock breakwaters will be constructed along the 2 foot contour in White Lake. Suitable emergent marsh plant species will be planted along the edge of the shoreline for stabilization purposes. The project will provide 248 average annual habitat units (AAHU's) at a cost of \$3,717,000. The project's cost effectiveness measured in average annual cost per AAHU is 1,470.



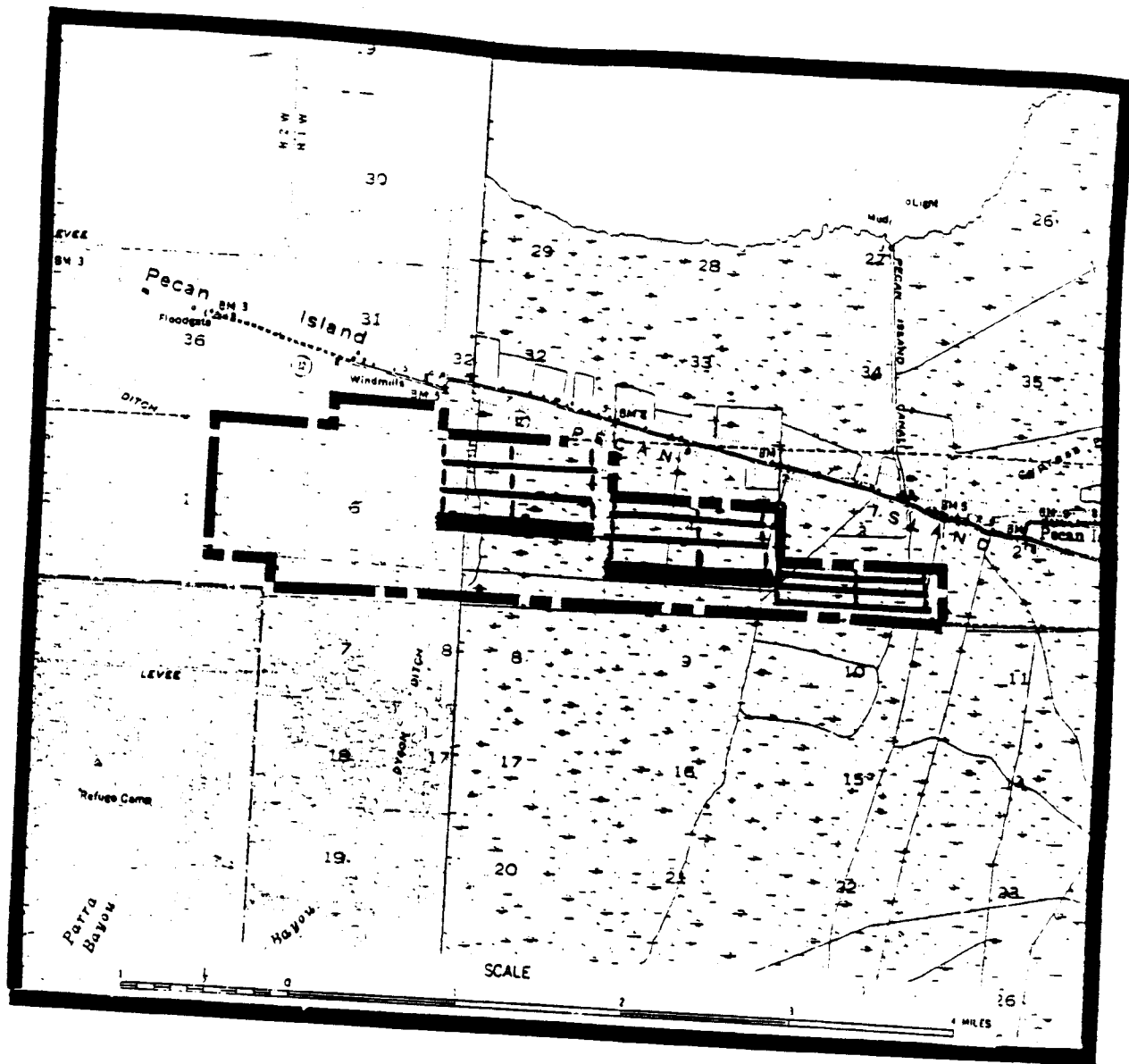
### Deep Lake Marsh Creation and Protection (ME-7)

Deep Lake is located on the Cameron/Vermillion Parish line and is just west of White Lake. The project objectives are to break up the fetch to reduce wave erosion along the shoreline of the lake by constructing earthen terraces in the lake. In addition, the project will enhance aquatic plant growth by reducing turbidity, and create and promote the development of emergent marsh on the terraces and adjacent shorelines. The project will provide 66 average annual habitat units (AAHU's) at a cost of \$1,113,000. The project's cost effectiveness is \$1,467/AAHU.



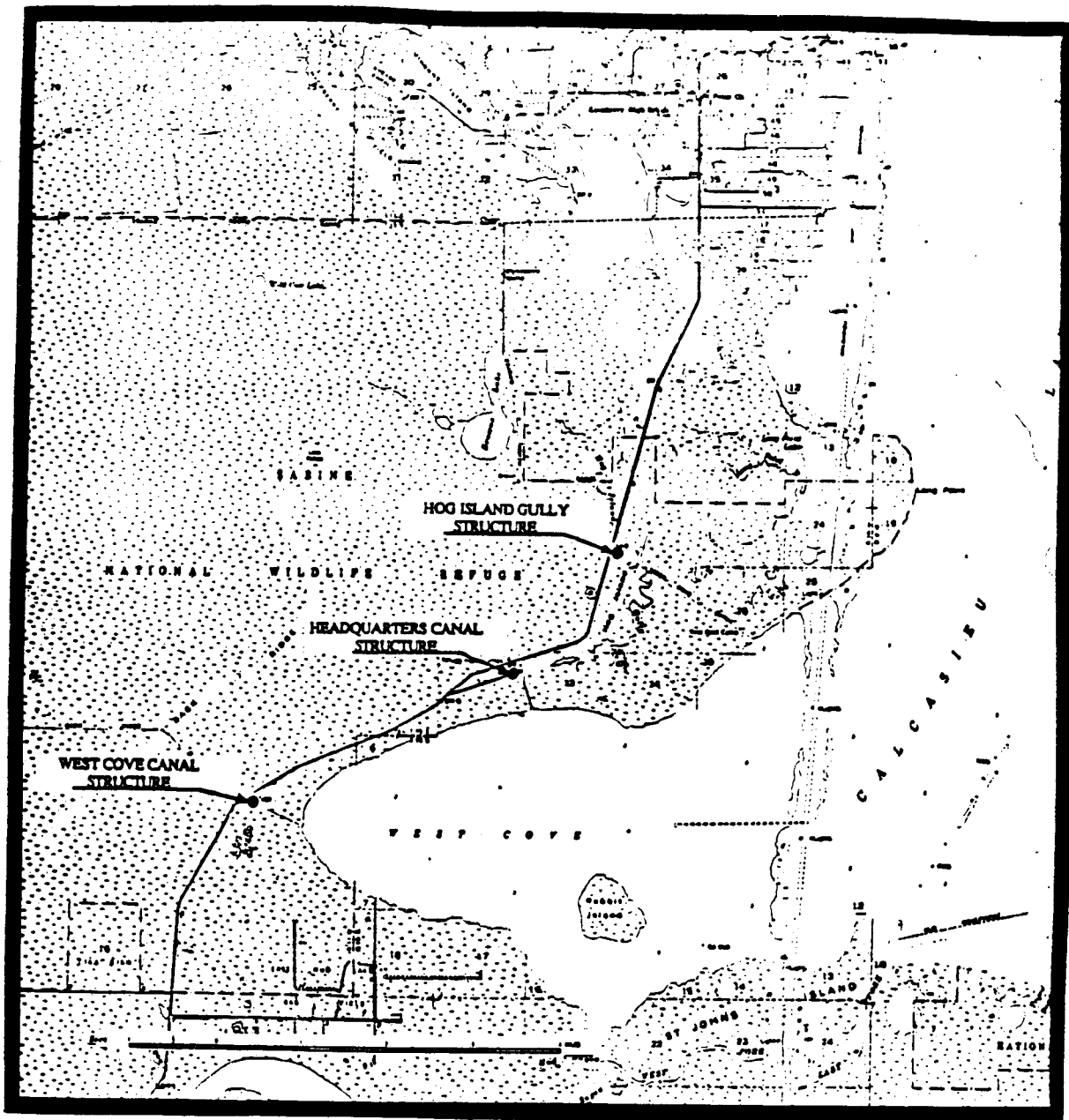
### GIWW/Freshwater Bayou Bank Stabilization (XME-28)

The project is located along the west bank of Freshwater Bayou at its intersection with the GIWW in Vermilion Parish. The project consists of 7,500 feet of rip rap bank protection to prevent erosion along Freshwater Bayou. The project will provide 13 average annual habitat units (AAHU's) at a cost of \$2,026,000. The project's cost effectiveness is \$13,292/AAHU.



**Terrace Creation, Pecan Island Impoundment (XME-22)**

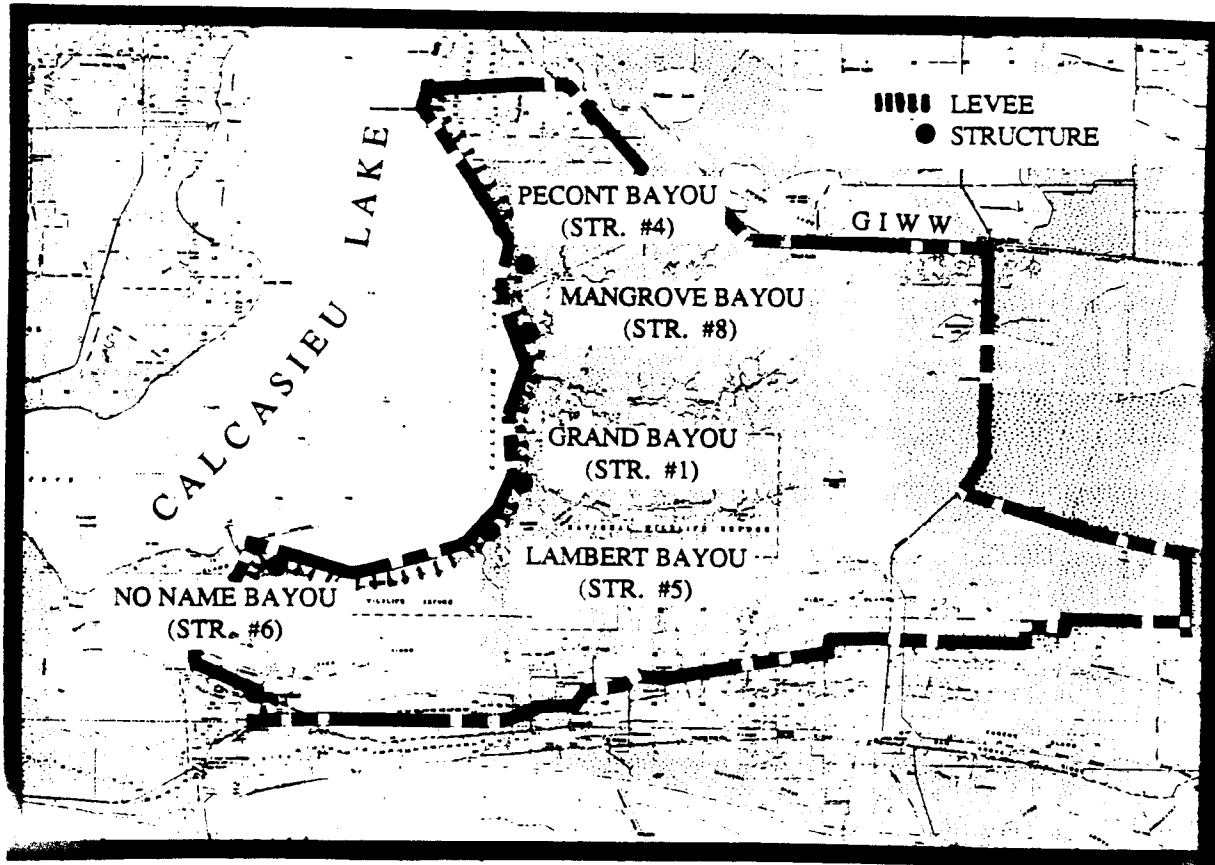
The project area, located south of Pecan Island in Vermilion Parish, is an impoundment formerly used for agriculture, but which has since converted to open water. The project will improve the fish and wildlife productivity of the area by building marsh terraces, which will provide habitat and reduce wind-induced wave erosion of shorelines. Approximately 240,000 cubic yards of material will be used to construct ridges in the impoundment. The project will produce 89 average annual habitat units (AAHU's) at a cost of \$1,231,000. The effectiveness of this project is estimated at \$1,370/AAHU.



### Replacement of Water Control Structures at Hog Island Gully, West Cove, and Headquarters Canals (XCS-47/48i/48j/48p)

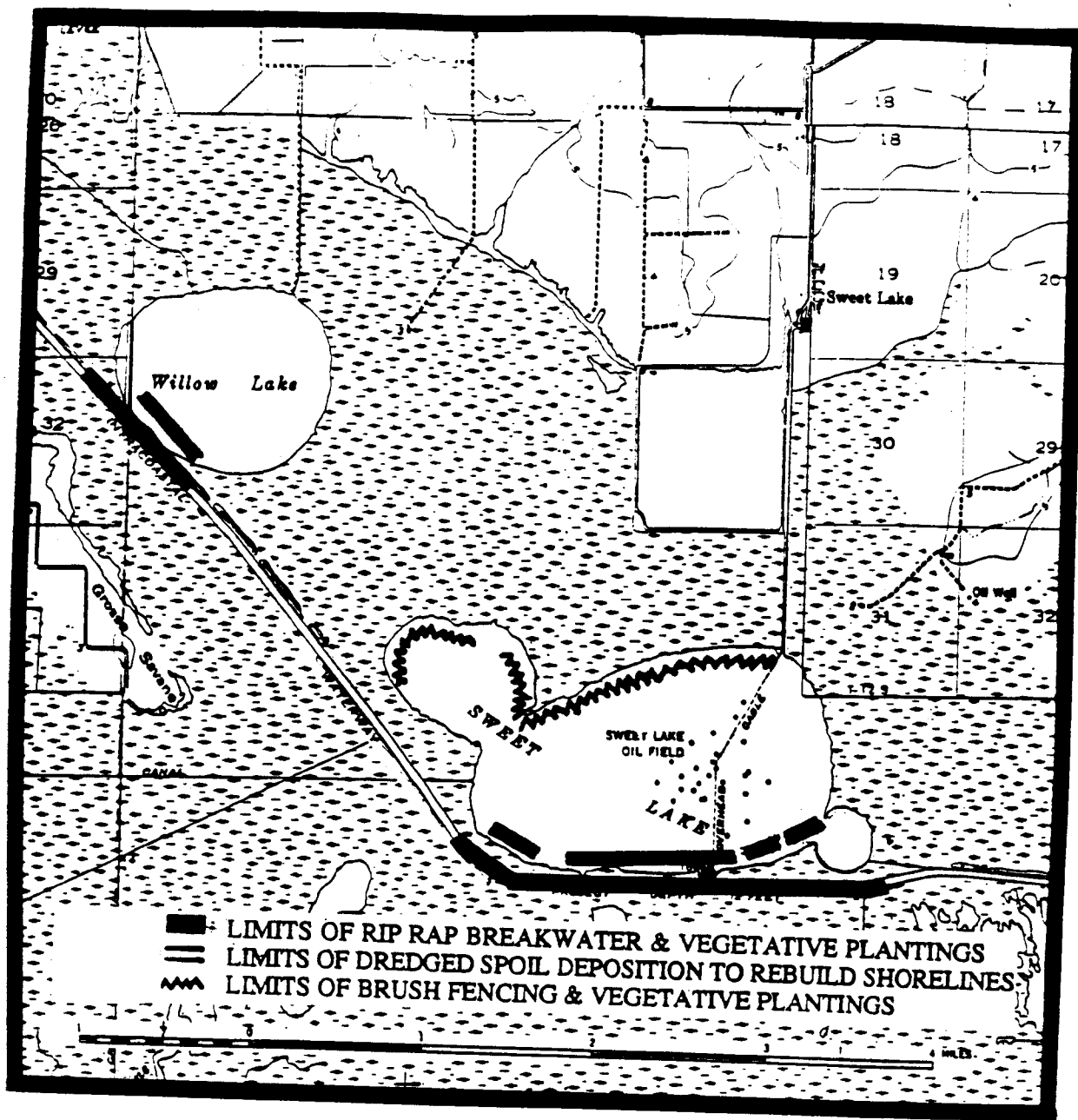
The project is located on the Sabine National Wildlife Refuge in Cameron Parish. In 1981 water control structures were installed at Hog Island Gully (fixed crest weir), West Cove (fixed crest weir), and the Headquarters Canal (flapgated culvert) to reduce saltwater intrusion caused by the Calcasieu Ship Channel. These structures are inadequate in that they do not provide enough discharge potential to discharge excess water and can not be operated to effectively preclude saltwater intrusion.

Replacement of these structures will provide greater management flexibility and greater discharge capacity. The project will provide 491 average annual habitat units (AAHU's) at a cost \$4,582,000. The project's cost effectiveness is \$753/AAHU.



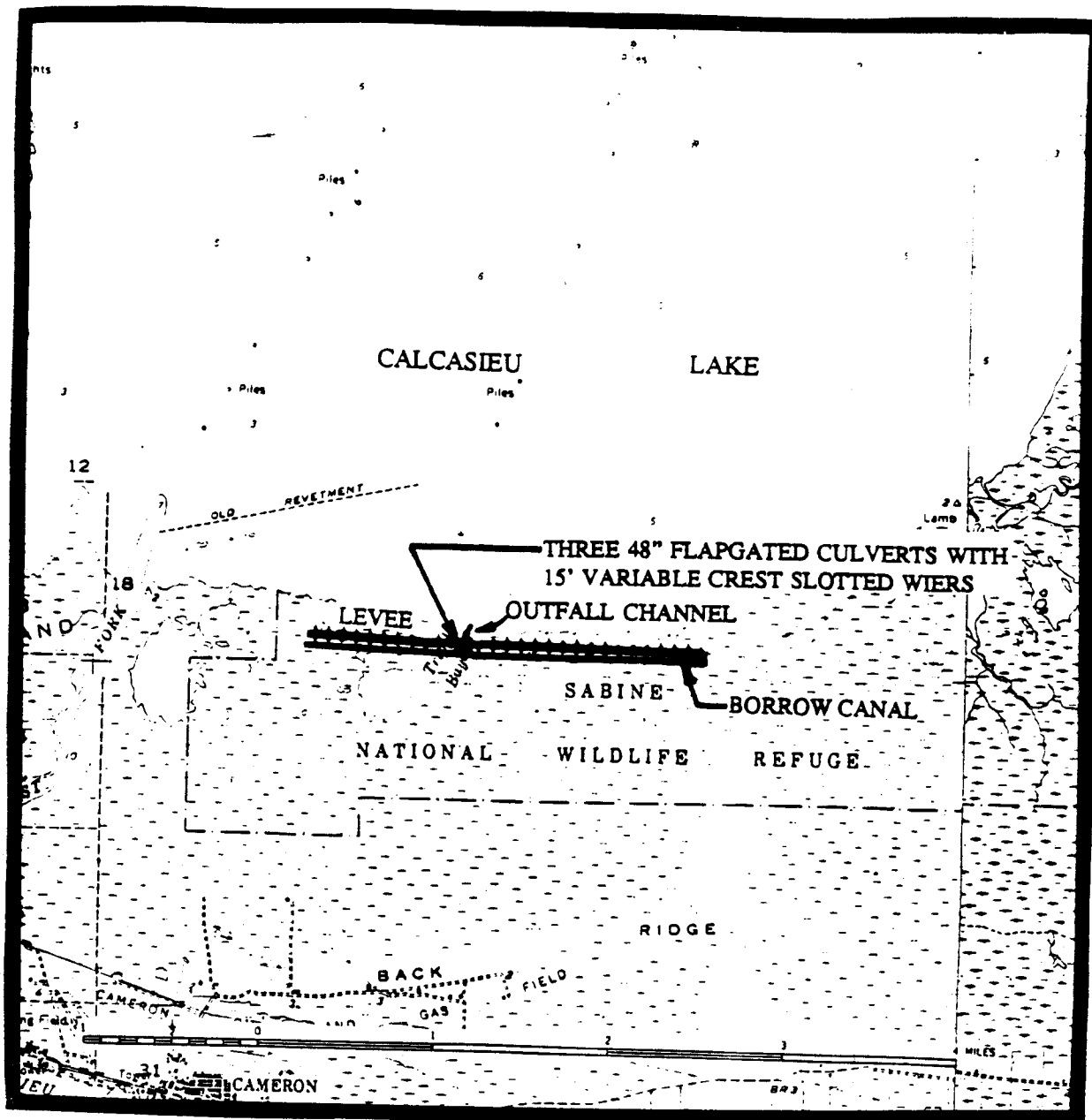
### Cameron-Creole Maintenance (CS-4a)

This project, located in Cameron Parish, was initiated in 1961 and completed in 1989 and involves water management of the Cameron-Creole Watershed. Management is achieved through 19 miles of levees and five water control structures. Currently, maintenance responsibility lies with the Cameron Parish Gravity Districts Nos. 3 and 4, which do not possess the financial ability to properly maintain the project. This project call for the funding of future maintenance of the project. The project will provide 454 average annual habitat units (AAHU's) at a cost of \$3,720,000. The project's cost effectiveness is \$378/AAHU.



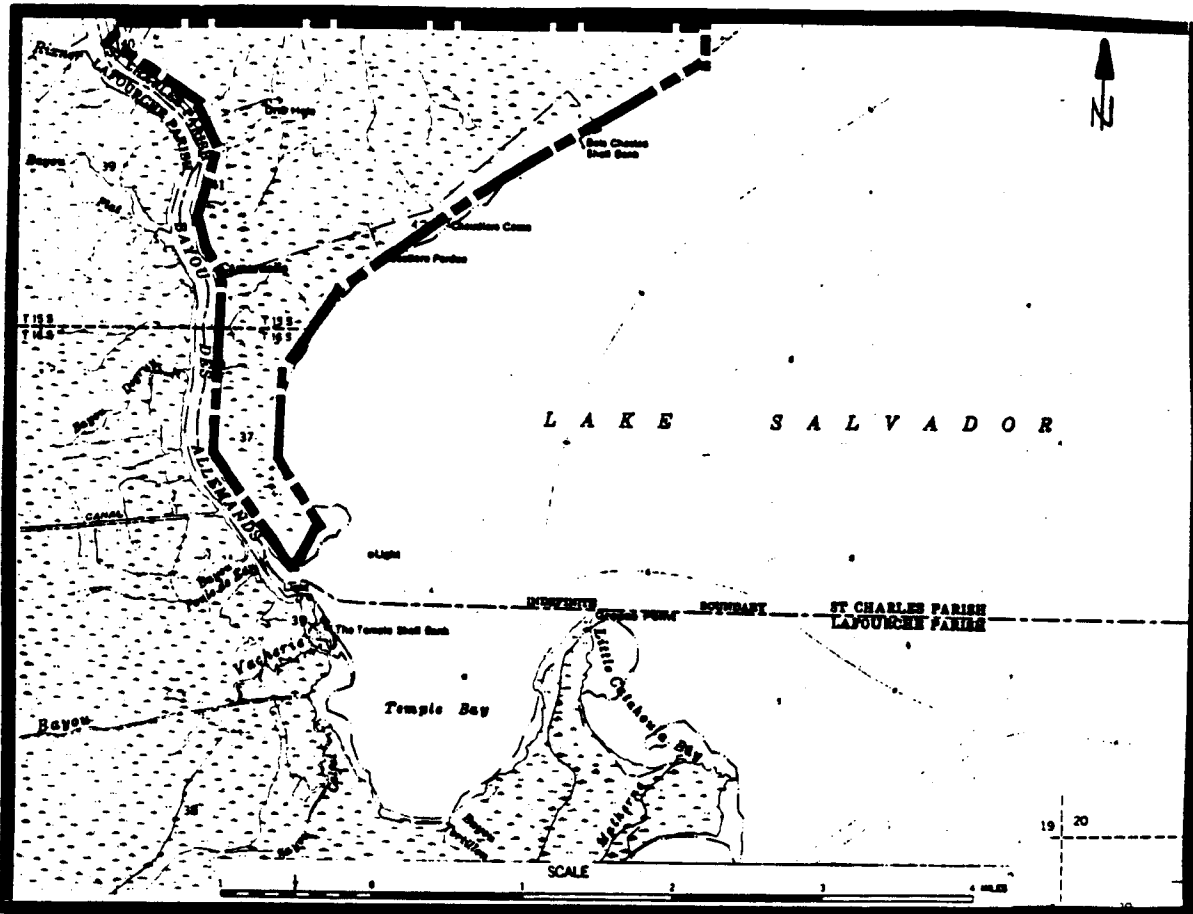
**Sweet Lake/Willow Lake Shoreline and Bank Protection (CS-11b)**

The project area is a 7,600-acre fresh marsh located in the area of Sweet and Willow Lakes adjacent to the GIWW in Cameron Parish. The northern bank of the GIWW has eroded into Sweet Lake for approximately 1.3 miles and into Willow Lake for approximately 0.5 miles, increasing turbidity in the waters of the lakes. The project is designed to reestablish the shoreline between the lakes and the GIWW to reduce turbidity and tidal exchange and to rebuild the marsh along the northern and northwest shoreline of Sweet Lake. The project will provide 365 average annual habitat units (AAHU's) at a cost of \$3,411,000. The project's cost effectiveness is \$876/AAHU.



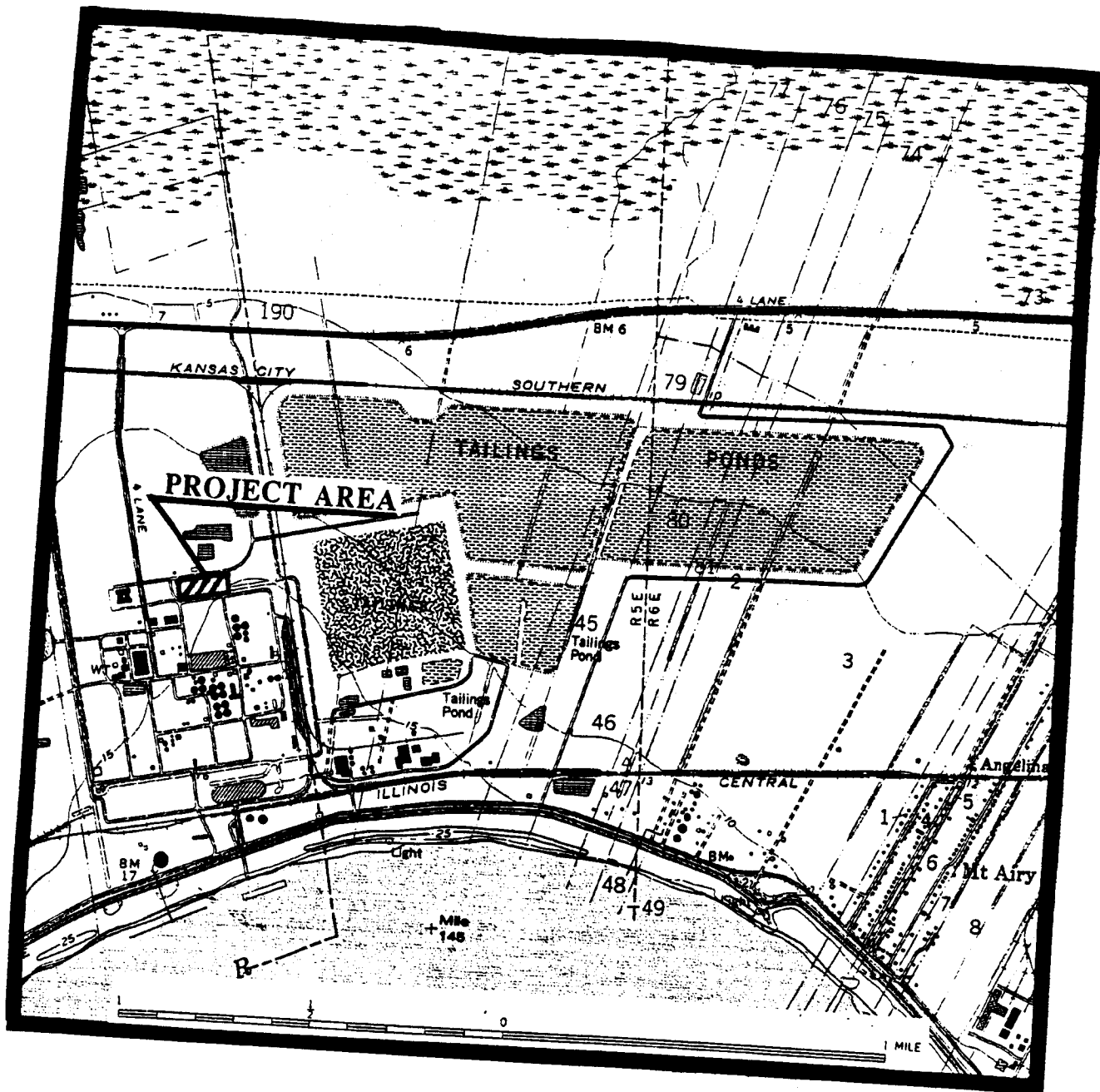
### Tripod Bayou Control Structure (C/S-14)

The project is located on the south shore of Calcasieu Lake in Cameron Parish, about 3 miles north of the town of Cameron. The project will provide for gravity drainage of excess water from the marsh south of Calcasieu Lake during periods of low tide. Three 48-inch-diameter flapgated culverts will be installed in the levee separating the lake from the marsh. A 15-foot-wide variable crest slotted weir will be installed on the marsh end of each culvert. The section of Tripod Bayou between the levee and the lake will be dredged to dimensions of 30 feet wide by 6 feet deep. The project will provide 70 average annual habitat units (AAHU's) at a cost of \$762,000. The project's effectiveness is estimated at \$614/AAHU.



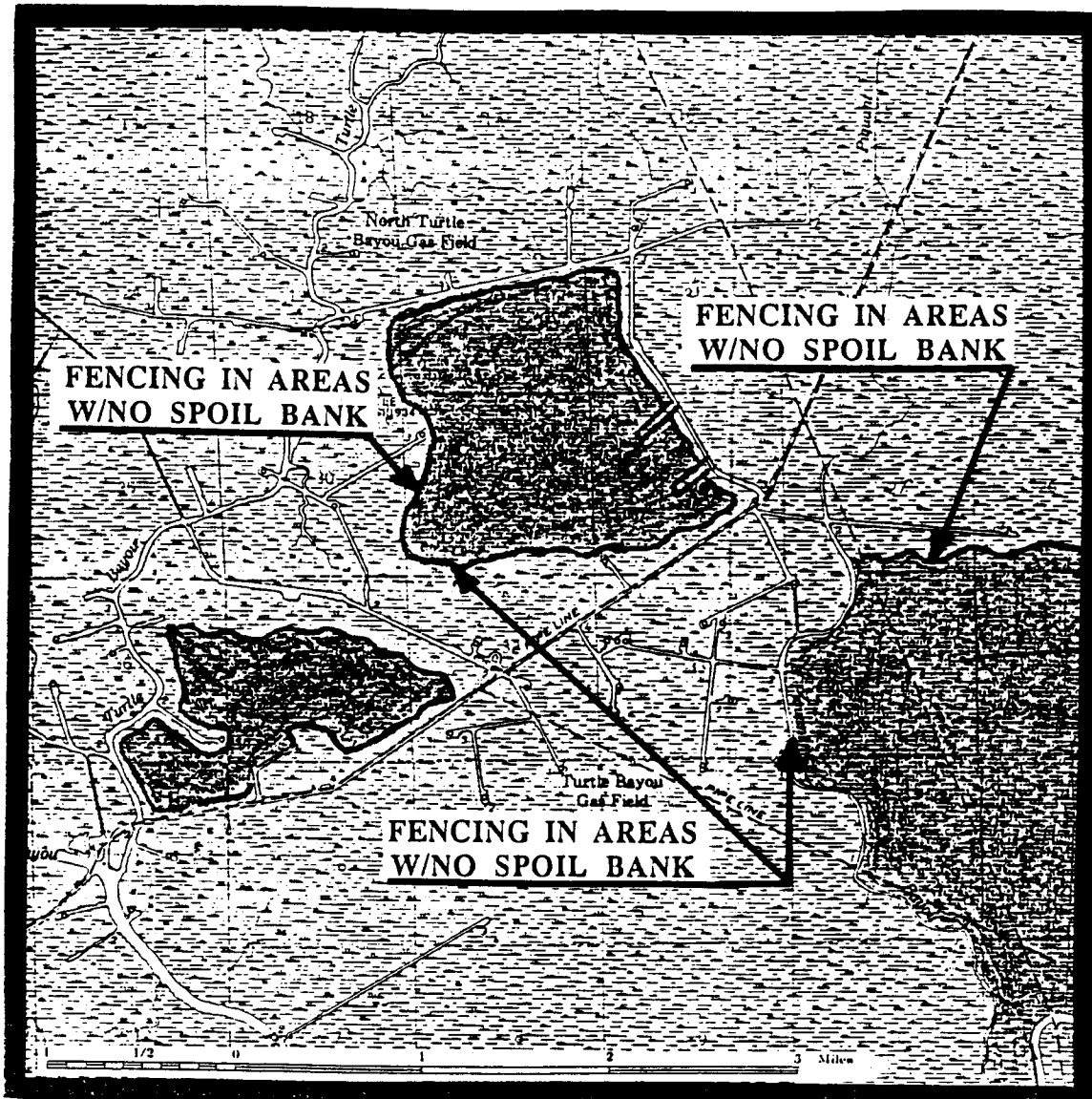
### Lake Salvador Shoreline Protection Demonstration (BA-15)

Located on the southwest end of Lake Salvador at Bayou Des Allemands in St. Charles Parish, this project is designed to test the effectiveness of two separate types of segmented timber breakwaters in highly organic, unconsolidated sediments with poor load bearing capacity. Approximately 11,100 feet of a V-shaped and 11,100 feet of a straight timber pylon segmented breakwater will be constructed and their effectiveness analyzed. In addition, one mile of shell armored berm will be placed at existing blowouts. The project will provide 219 average annual habitat units (AAHU's) at a cost of \$1,445,000. The project's cost effectiveness is \$586/AAHU.



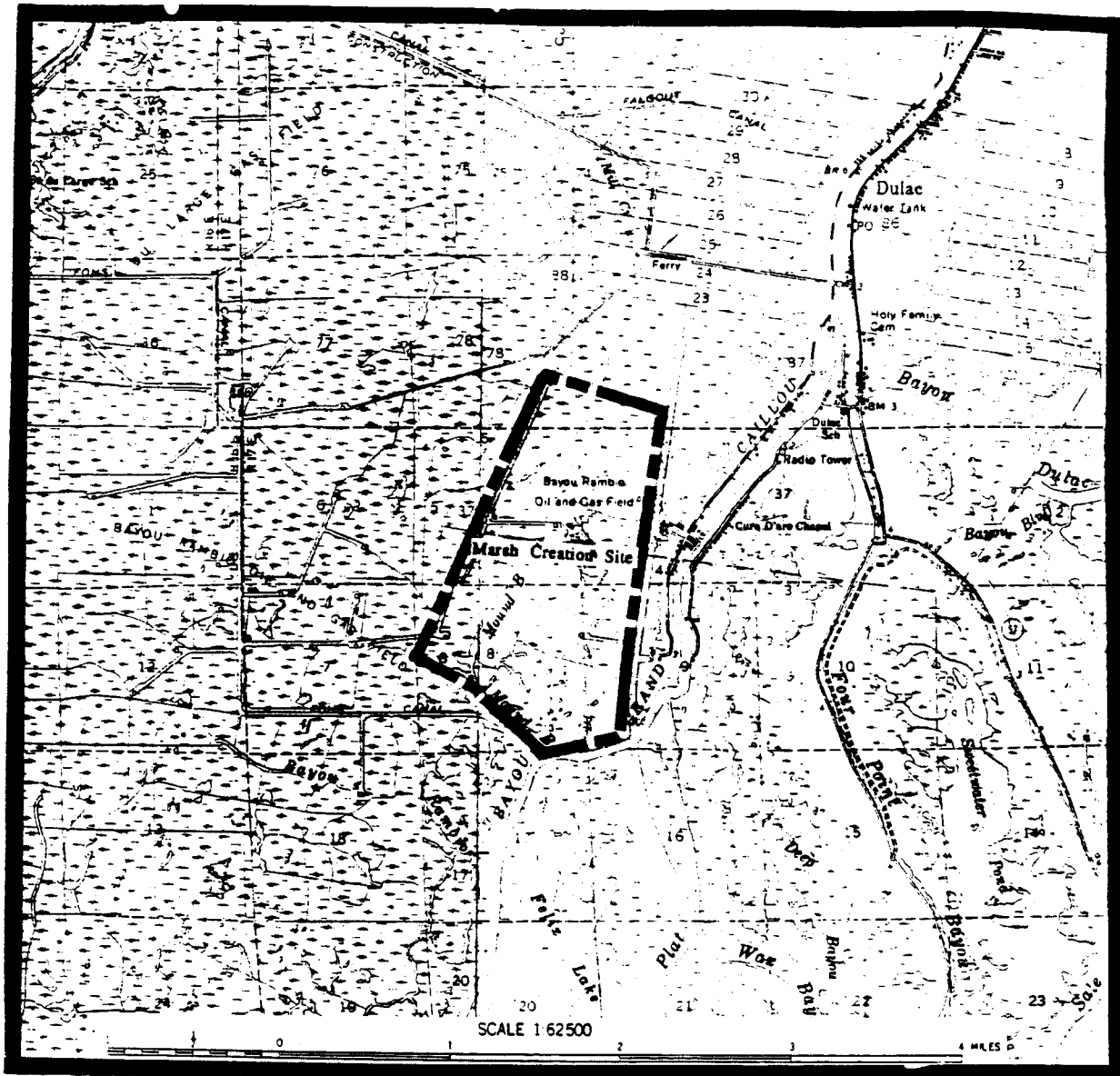
### Modified Red Mud Demonstration Project (XTE-43)

Red mud is a byproduct of the refining of bauxite into aluminum. This project will investigate the suitability of red mud as a substrate for marsh creation. A 3-acre test site consisting of four planting beds will be constructed at the Kaiser Aluminum facility at Gramercy. Two of the sites will be planted with marsh vegetation, while two will be left unplanted. One planted site and one unplanted site will be fertilized and one of each will not be fertilized. The fully funded cost of the project is \$533,000; Kaiser will contribute \$183,000 of that amount.



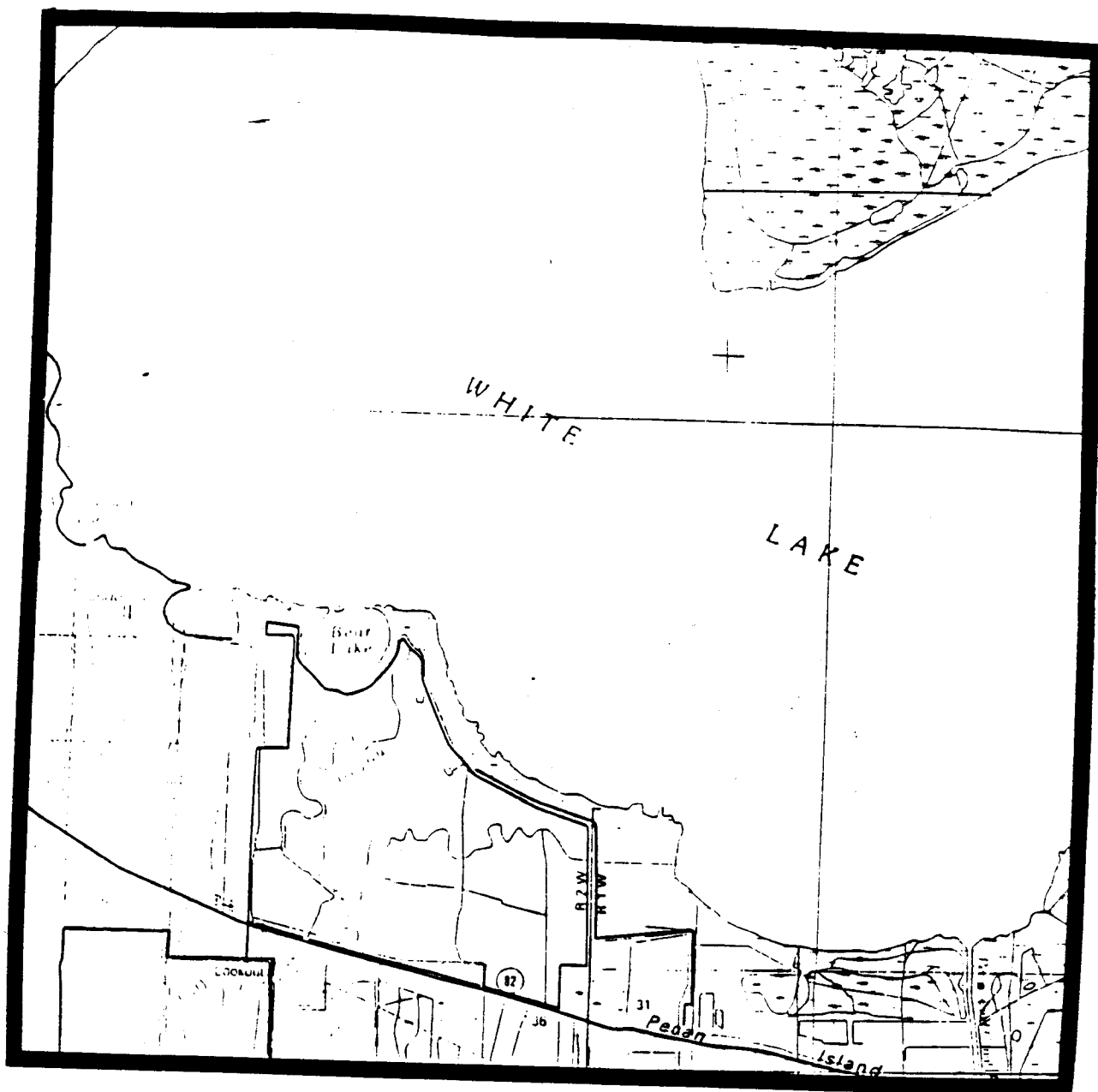
### Flotant Marsh Creation and Enhancement (XTE-54b)

The project is located 20 miles west of Houma in Terrebonne Parish. The objective of this project is to demonstrate the effectiveness of various fencing techniques in conserving floating marshes. Three sides of the project area will be enclosed by a spoil bank; the fourth side will be enclosed by different types of fencing materials and supports. The project will provide 43 average annual habitat units (AAHU's) at a cost of \$458,000. The project's cost effectiveness is estimated at \$812/AAHU.



### Sediment Distribution System Demonstration (XTE-66)

The project is located at the intersection of the Houma Navigation Canal and Bayou Grand Caillou in Terrebonne Parish. The project will test the effectiveness of a linear flow system for direct application of sediment as a wetland creation and enhancement technique and will evaluate the potential for regional and coast wide application. The project will provide 36 average annual habitat units (AAHU's) at a cost \$1,395,000. The project's cost effectiveness is \$3,881/AAHU.



### SW Shoreline White Lake Shoreline Protection Demonstration (PME-6)

The project is located two miles north of Louisiana Highway 82 at the Vermilion/Cameron Parish line. The objective is to test the effectiveness of California bulrush (*Scirpus californicus*) at dampening high energy waves. If effective, the project will prevent the White Lake shoreline from breaching into Deep Lake. The project will provide 4 average annual habitat units (AAHU's) at a cost of \$126,000. The project's cost effectiveness is \$1,850/AAHU.

# COASTAL WETLAND PLANNING, PROTECTION AND RESTORATION ACT

## Wetland Value Assessment Methodology and Community Models

### I. INTRODUCTION

The Wetland Value Assessment (WVA) methodology is a quantitative habitat-based assessment methodology developed for use in prioritizing project proposals submitted for funding under the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) of 1990. The WVA quantifies changes in fish and wildlife habitat quality and quantity that are projected to be brought about as a result of a proposed wetland enhancement project. The results of the WVA, measured in Average Annual Habitat Units (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; the Group includes members from each agency represented on the CWPPRA Task Force. The WVA was designed to be applied, to the greatest extent possible, using only existing or readily obtainable data.

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

The WVA is a modification of the Habitat Evaluation Procedures (HEP) developed by the U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service 1980). HEP is widely used by the Fish and Wildlife Service and other Federal and State agencies in evaluating the impacts of development projects on fish and wildlife resources.

A notable difference exists between the two methodologies, however, in that HEP generally uses a species-oriented approach, whereas the WVA utilizes a community approach.

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

## II. WVA CONCEPT

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

The Wetland Value Assessment models (Attachments 1-4) have been developed for determining the suitability of Louisiana coastal wetlands in providing resting, foraging, breeding, and nursery habitat to a diverse assemblage of fish and wildlife species. Models have been designed to function at a community level and therefore attempt to define an optimum combination of habitat conditions for all fish and wildlife species utilizing a given marsh type over a year or longer. Earlier attempts to capture other wetland functions and values such as storm-surge protection, flood water storage, water quality functions and nutrient import/export were abandoned due to the difficulty in defining unified model relationships and meaningful model outputs for such

a variety of wetland benefits. However, the ability of a Louisiana coastal wetland to provide those functions and values may be generally assumed to be positively correlated with fish and wildlife habitat quality as predicted through the WVA.

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

### III. COMMUNITY MODEL VARIABLE SELECTION

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

- 1) the condition described by the variable had to be important in characterizing fish and wildlife habitat quality in the wetland type under consideration;
- 2) values had to be easily estimated and predicted based on existing data (e.g., aerial photography, LANDSAT, GIS systems, water quality monitoring stations, and interviews with knowledgeable individuals); and
- 3) the variable had to be sensitive to the types of changes expected to be brought about by typical wetland projects proposed under the CWPPRA.

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

The second part of the selection procedure involved reviewing variables used in species-specific HSI models published by the U.S. Fish and Wildlife Service. Review was limited to models for those fish and wildlife species known to inhabit Louisiana coastal wetlands, and included models for 10 estuarine fish and shellfish,

4 freshwater fish, 12 birds, 3 reptiles and amphibians, and 2 mammals (Attachment 7 ). The number of models included from each species group was dictated by model availability.

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

Variables selected from the HSI models were then compared to those identified in the first part of the selection procedure to arrive at a final list of variables to describe wetland habitat quality. That list includes six variables for each of the marsh types and three for the cypress-tupelo swamp (Attachments 1-4).

#### **IV. 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 CWPRA, 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).

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.

## V. SUITABILITY INDEX GRAPH ASSUMPTIONS

Suitability Index graphs were developed according to the following assumptions:

### 1. Fresh/Intermediate Marsh Model

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

Optimum vegetation coverage in a fresh/intermediate marsh is

assumed to occur at 100 percent persistent emergent vegetation cover (SI=1.0). That assumption is dictated primarily by the constraint of not having graph relationships conflict with the CWPPRA's purpose of long term creation, restoration, protection, or enhancement of coastal vegetated wetlands. The Group had originally developed a strictly biologically-based graph defining optimum habitat conditions at marsh cover values between 60 and 80 percent, and sub-optimum habitat conditions at 100 percent cover. However, application of that graph, in combination with the time analysis used later in the evaluation process, often reduced project benefits or generated a net loss of habitat quality through time with the project. Those situations arose primarily when: existing (baseline) emergent vegetation cover exceeded the optimum (> 80 percent); the project was predicted to maintain baseline cover values; and without the project the marsh was predicted to degrade, with a concurrent decline in percent emergent vegetation cover into the optimum range (60-80 percent). The time factor aggravated the situation when the without-project degradation was not rapid enough to reduce marsh cover values significantly below the optimum range, or below the baseline SI, within the 20-year evaluation period. In those cases, the analysis would show net negative benefits for the project, and positive benefits for letting the marsh degrade rather than maintaining the existing marsh. Coupling that situation with the presumption that marsh conditions are not static, and that Louisiana will continue to lose coastal emergent marsh; and taking into account the purpose of the CWPPRA, the Group decided that, all other factors being equal, the WVA should favor projects that maximize emergent marsh creation, maintenance, and protection. Therefore, the Group agreed to deviate from a strict biologically-based habitat suitability graph for V<sub>1</sub> by setting optimum habitat conditions at 100 percent marsh cover.

**Variable V<sub>2</sub>- Percent of open water area dominated (> 50 percent canopy cover) by aquatic vegetation.** Fresh and intermediate marshes often support diverse communities of floating-leaved and submerged aquatic plants that provide important food and cover to a wide variety of fish and wildlife species. A fresh/intermediate open water area with

no aquatics is assumed to have low suitability (SI=0.1). Optimum condition (SI=1.0) is assumed to occur when 100 percent of the open water is dominated by aquatic vegetation. Habitat suitability may be assumed to decrease with aquatic plant coverage approaching 100 percent due to the potential for mats of aquatic vegetation to hinder fish and wildlife utilization; to adversely affect water quality by reducing photosynthesis by phytoplankton and other plant forms due to shading; and contribute to oxygen depletion spurred by warm-season decay of large quantities of aquatic vegetation. The 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<sub>1</sub>- Marsh edge and interspersion.** This variable takes into account the relative juxtaposition of marsh and open water for a given marsh:open water ratio, and is measured by comparing the project area to sample illustrations (Attachment 5) depicting different degrees of interspersion. Interspersion is assumed to be especially important when considering the value of an area as foraging and nursery habitat for freshwater and estuarine fish and shellfish; the marsh/open water interface represents an ecotone where prey species often concentrate, and where post-larval and juvenile organisms can find cover. Isolated marsh ponds are often more productive in terms of aquatic vegetation than are larger ponds due to decreased turbidities, and, thus, may provide more suitable waterfowl habitat. However, interspersion can be indicative of marsh degradation, a factor taken into consideration in assigning suitability indices to the various Interspersion Types.

A relatively high degree of interspersion in the form of stream courses and tidal channels (Interspersion Type 1, Attachment 5) is assumed to be optimal (SI=1.0); streams and

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

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

**Variable  $V_5$ - Mean high salinity during the growing season.** It is assumed that periods of high salinity are most detrimental in a fresh/intermediate marsh when they occur during the growing season (defined as March through November, based on dates of first and last frost contained in Soil Conservation Service soil surveys for coastal Louisiana). Mean high salinity is defined as the average of the upper 33 percent of salinity readings taken during a

specified period of record. Optimum condition in fresh marsh is assumed to occur when mean high salinity during the growing season is less than 2 parts per thousand (ppt). Optimum condition in intermediate marsh is assumed to occur when mean high salinity during the growing season is less than 4 ppt.

**Variable V<sub>6</sub>- Aquatic organism access.** Access by aquatic organisms, particularly estuarine fishes and shellfishes, is considered to be a critical component in assessing the "quality" or suitability of a given marsh system to provide habitat to those species. Additionally, a marsh with a relatively high degree of access by default also exhibits a relatively high degree of hydrologic connectivity with adjacent systems, and therefore may be considered to contribute more to nutrient exchange than would a marsh exhibiting a lesser degree of access. The Suitability Index for V<sub>6</sub> is determined by calculating an "Access Value" based on the interaction between the percentage of the project area wetlands considered accessible by estuarine organisms during normal tidal fluctuations, and the type of man-made structures (if any) across identified points of ingress/egress (bayous, canals, etc.). Standardized procedures for calculating the Access Value have been established (Attachment 6). 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.

## **2. Brackish Marsh Model**

**Variable V<sub>1</sub>- Percent of wetland covered by persistent emergent vegetation (≥ 10 percent canopy cover).** Refer to the V<sub>1</sub> discussion under the fresh/intermediate marsh model for a discussion of the importance of persistent emergent vegetation in coastal marshes. The V<sub>1</sub> Suitability Index graph in the brackish marsh model is identical to that in

the fresh/intermediate model.

**Variable V<sub>2</sub>-** 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<sub>3</sub>-** 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<sub>4</sub>-** Open water depth in relation to marsh surface. As in the fresh/intermediate model, shallow water areas in brackish marsh habitat are assumed to be important. However, brackish marsh generally exhibits deeper open water areas than fresh marsh due to tidal scouring. Therefore, the SI graph is constructed so that lower percentages of shallow water receive higher SI values relative to fresh/intermediate marsh. Optimum open water depth condition in a brackish marsh is assumed to occur when 70 to 80 percent of the open water area is less than or equal to 1.5 feet deep.

**Variable V<sub>5</sub>-** Average annual salinity. The suitability index graph is constructed to represent optimum average annual salinity condition at between 6 ppt and 10 ppt. Average annual salinities below 3 ppt are not considered on the graph because salinities below that level effectively define an intermediate marsh. Similarly, average annual salinities greater than 16 ppt are assumed to be representative of those found in a saline marsh, and thus are not considered in the brackish marsh model.