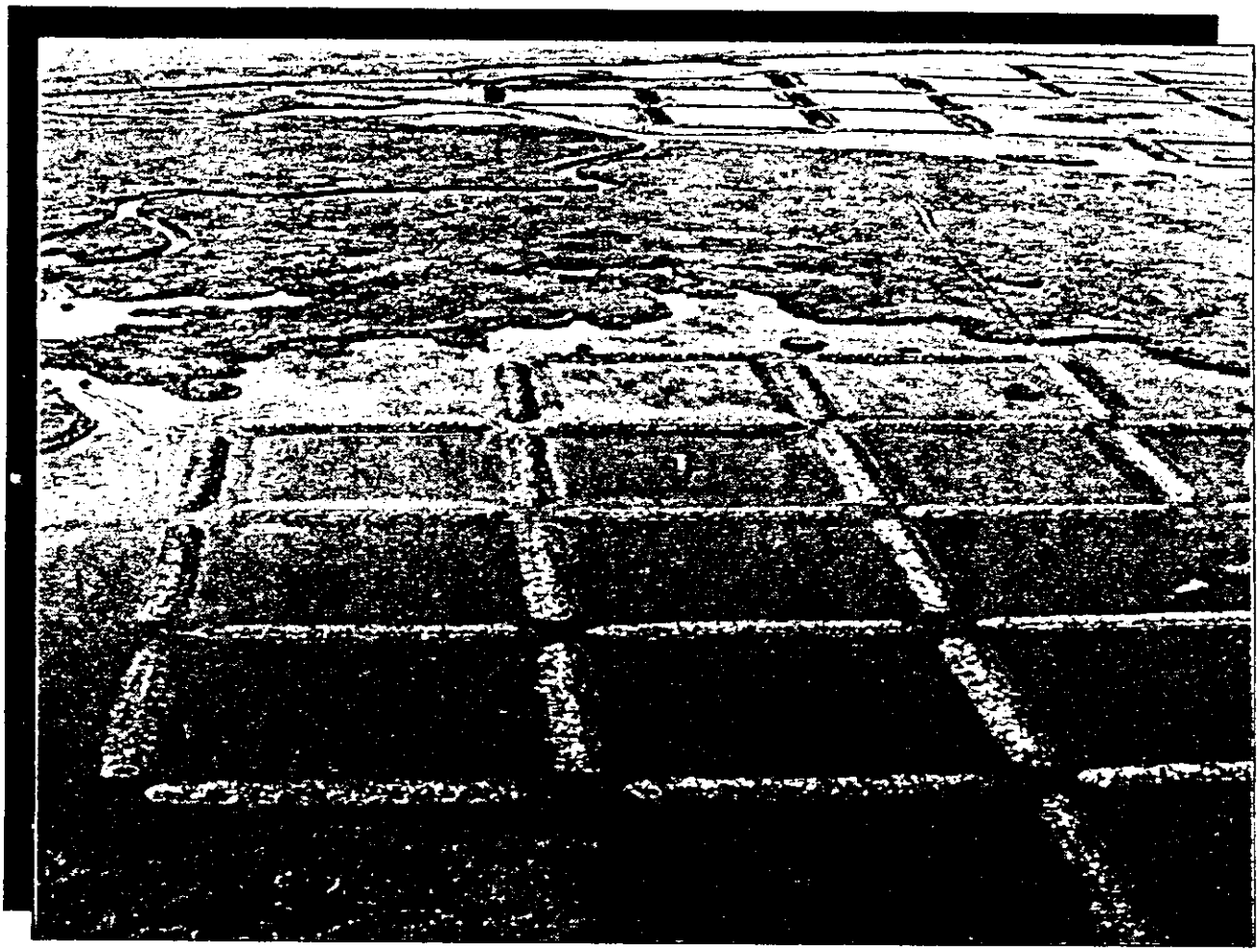
COASTAL-WETLANDS CONSERVATION AND RESTORATION PLAN

(Fiscal Year 1991-92)



Submitted to the
House and Senate Committees
on
Natural Resources

April 1991

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PREFACE

The Wetland Conservation and Restoration Task Force is pleased to submit to the House and Senate Natural Resource Committees for their approval during the 1992 session of the Louisiana Legislature the Coastal Wetlands Conservation and Restoration Plan developed pursuant to R.S. 49:213.6, as amended, for conserving and restoring the state's coastal vegetated wetlands, consistent with legislative intent and with the policy developed by the Coastal Restoration Authority.

David Chambers
Executive Assistant,
Coastal Activities

Ron Gomez
Secretary, Department of
Natural Resources

Kell McInnis
Acting Secretary, Department of
Wildlife and Fisheries

Paul H. Templet
Secretary, Department of
Environmental Quality

Neil L. Wagoner
Secretary, Department of
Transportation and
Development

Timothy W. Hardy
Executive Assistant,
Environmental Affairs

Dennis Stine
Commissioner of
Administration

Bradley E. Spicer
Director, State Soil and Water
Conservation Committee

ACKNOWLEDGEMENTS

The current plan incorporates recommendations from Federal, state, and local government; representatives of various interest groups; and other individuals knowledgeable about Louisiana's coastal wetlands. The House and Senate Natural Resources Committees approved this Plan in hearings held on May 9, 1991. The report also draws upon results of past and ongoing wetland investigations and comments by universities and consultants. Furthermore, the constructive review comments provided by state agencies, and the participation in the planning process of each coastal parish are also acknowledged.

The following persons contributed directly to this report:

Governor's Office of Coastal Activities
- David Chambers, Executive Assistant
- Gus Stacy, Special Assistant

Department of Natural Resources
- David Soileau, Assistant Secretary, OCRM
- Bill Good, Acting Administrator, CRD
- Gerry Duszinski, Assistant Administrator, CRD

Department of Environmental Quality
- Dugan Sabins

Department of Wildlife and Fisheries
- Johnnie Tarver, Administrator, HCD

Department of Transportation and Development
- Ed Preaux, Chief, WRDD

Governor's Office of Environment Affairs
- Lisa Creasman/Karen Gautreaux, Special Assistant

Coastal Environments, Inc.
- Johannes van Beek, Project Manager
- David Roberts, George Junkin

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INTRODUCTION

Act 6 of the Second Extraordinary Session of the 1989 Louisiana Legislature created the Wetlands Conservation and Restoration Authority (Authority) within the Office of the Governor, and the Office of Coastal Restoration and Management (OCRM) within the Department of Natural Resources (DNR). In addition, it created the statutorily dedicated Wetlands Conservation and Restoration Fund (Wetlands Fund).

The Authority consists of the governor's executive assistant for coastal activities and the Wetlands Conservation and Restoration Task Force (Task Force). The Task Force is composed of the following members:

(1) Executive Assistant, Coastal Activities
(2) Secretary, Department of Natural Resources (DNR)
(3) Secretary, Department of Wildlife and Fisheries (DWF)
(4) Secretary, Department of Environmental Quality (DEQ)
(5) Secretary, Department of Transportation and Development (DOTD)
(6) Executive Assistant, Environmental Affairs
(7) Commissioner of Administration
(8) Director, State Soil and Water Conservation Committee

The executive assistant serves as chairman of the Task Force and is responsible for developing procedures for its operation.

The legislature placed responsibility for the direction and development of the state's annual Coastal Wetlands Conservation and Restoration Plan (Plan) within the Office of the Governor. The Authority has the responsibility to develop a comprehensive policy (Policy) addressing the conservation and restoration of coastal wetlands resources, and to annually develop the Coastal Wetlands Conservation and Restoration Plan. The Plan and Policy will serve as the state's overall strategy for conserving, enhancing, restoring, and creating coastal wetlands. Act 6 provides for the Office of Coastal Restoration and Management in DNR to perform the functions of the state relative to conservation, development, restoration, and enhancement of the state's coastal wetlands resources, and to serve as the primary state agency for implementation of the Plan. Within the Office, the Coastal Management Division has the responsibility of implementing the coastal zone management program, and the Coastal Restoration Division performs the functions of the state relating to conservation, restoration, creation, and enhancement of coastal wetlands in Louisiana.

Act 6 requires that the Plan developed annually by the Authority address coastal wetland loss problems from both short- and long-range perspectives; incorporate structural, management, and institutional components; and include the following:

(1) A list of projects and programs required for the conservation and restoration of coastal wetlands.

(2) A schedule for the implementation of each project or program included in the Plan.

(3) The rationale for incorporation of each project or program and, in particular, a description of how each project or program advances the Plan objectives with respect to the management, conservation, or enhancement of vegetated wetland areas.

The Plan must be submitted to the House and Senate Natural Resources Committees of the Legislature before the first day of the regular legislative session of each year for their approval. If approved, the Plan is then submitted to the full legislature for approval by resolution adopted by a majority vote of the members of each house provided that such resolution is adopted on or before June 1 of each calendar year. Upon approval, the Coastal Restoration Division shall undertake project planning and programs in conformity with the order of priority contained in the Plan.

COASTAL WETLANDS CONSERVATION AND RESTORATION POLICY

The following policy statements are not rules or regulations, but rather are intended to generally guide the state's future coastal wetland conservation and restoration efforts, including structural, management, and institutional programs.

(1) Coastal vegetated wetlands--by virtue of their value as the basis for present and future fish and wildlife productivity, and related economic and recreational benefits; as natural protection for coastal towns and cities against the effects of storm damages; and for other reasons pertaining to the public health and welfare--are deemed to be uniquely important to this state and deserving of special safeguards and efforts related to their conservation, enhancement, restoration, and creation. Accordingly, it is the policy of the state to elevate coastal vegetated wetland conservation, enhancement, restoration, and creation to a level of importance equal to flood control, navigation, or other development activities so that a proper balance is achieved.

(2) It is the policy of the state to aggressively identify and implement projects and programs to offset coastal vegetated wetland losses that have resulted from past human activities and ongoing natural processes. It would be inappropriate, then, to allow future permitted developments that adversely impact coastal vegetated wetlands to go unmitigated. Accordingly, this state has enacted legislation and is developing rules (via the Administrative Procedure Act process) that define and establish procedures needed to achieve, at a minimum, compensation for coastal wetland functional values lost due to future permitted activities. Overall functional coastal wetland value losses, which result from future permitted activities, are to be offset by concurrent measures required in a permit (pursuant to R.S. 49: 213.4) to restore these values to the state. In this manner, public trust values (e.g., fish and wildlife values) lost as a result of permitted activities would be offset. Certain activities, as a result of their current exemption from the coastal use permitting process, will not be affected by these rules or legislation. These activities include: (1) agricultural, forestry, and aquacultural activities on lands consistently used in the past for such activities; (2) normal maintenance or repair of existing structures; (3) construction of a residence or camp; (4) activities that do not have a direct and significant impact on coastal waters, (5) activities occurring entirely on lands 5 ft or more above mean sea level or within fastlands, unless discharges or changes in existing water flow from such activities cause a direct and significant impact on coastal waters, and (6) activities that occur outside the state's designated coastal zone as defined in R.S. 49:213.4, unless such activities cause a direct and significant impact on coastal waters.

(3) Expenditures from the state's Wetlands Conservation and Restoration Fund shall be made in accordance with priorities established primarily on the basis of the effectiveness of each expenditure in conserving, enhancing, restoring, and creating coastal vegetated wetlands. Projects that introduce freshwater and sediments into wetlands shall have a high priority. These projects will be coordinated with DEQ and DHHR to assure that introduced water is of acceptable quality.

(4) The State of Louisiana recognizes the economic significance and importance of coastal activities such as navigation, including ports and waterways; seafood and wildlife-related industries; oil and gas exploration and production; chemical production; and agriculture, aquaculture, and silviculture. Accordingly, it is the policy of the state to consider the impacts of coastal wetland conservation and restoration programs and projects as they relate to these activities in our state's coastal area.

PLAN OBJECTIVES

(1) To plan, design, and complete in the near-term, projects and programs designed to conserve, enhance, restore, and create vegetated wetlands.

(2) To plan, evaluate, implement, or cost-share in implementation of long-range projects (with complex socioeconomic interactions) designed to provide widespread and continuing long-term benefits to vegetated wetlands (e.g., large-scale freshwater and sediment diversions).

(3) To make projects and programs within hydrologic basins mutually compatible and to make them collectively serve the coastal wetland resource base.

(4) Through appropriate rule-making processes, develop policies and procedures that would provide, at a minimum, for replacement of functional coastal wetland values lost due to future activities for which a coastal use permit is issued (see Table 7.A.1. for specific recommended measures).

(5) Take steps necessary to:

(a) improve predictability and efficiency of the Coastal Use Permitting process; and

(b) make operation and implementation of Federal water resources projects consistent with the policy of the state to elevate coastal vegetated wetland conservation, enhancement, restoration, and creation to a level of importance equal to flood control, navigation, or other development activities.

PLAN DEVELOPMENT AND CONTENTS

The current Plan was developed through a process that involved the integration of a large number of recommendations from Federal, state, and local governmental entities; representatives of various interest groups; and other individuals knowledgeable about Louisiana's coastal processes and resources. Recommendations from state agencies were obtained through Cabinet Secretaries serving on the Governor's Wetland Conservation and

Restoration Task Force. Solicitation of projects from interest groups and individual citizens were made through public announcement and mailings. Project identification was further advanced through coordination between the Governor's Office of Coastal Activities and local governments. Meetings were held with representatives of each of the coastal parishes to determine whether support existed for projects recommended by the state and to solicit input concerning possible additional projects resulting from local recommendations.

Recommendations were subsequently built upon and evaluated through coordination between the Governor's Office of Coastal Activities and a technical committee consisting of the members of the Governor's Task Force or their representatives. This resulted in two groups of recommended measures. The first consists of projects that can be implemented in a short time-frame at a comparatively moderate cost, have local support, generally do not require Federal authorization and funding, and would likely involve less than two years of planning and design. This group includes new projects as listed in Tables 1, 2, and 3, as well as those projects that were authorized under the 1990-91 Plan but still require appropriation of funds. These projects are listed in Tables 4 and 5. The status of all projects authorized under the 1990-91 Plan is presented in a document entitled "Status of the 1990-91 Coastal Wetlands Conservation and Restoration Plan" and submitted under separate cover.

The second group of recommended measures consists of programs and measures that are general in nature or require extensive public and legislative review because of their social ramifications, are dependent on Federal participation because of high cost or Federal responsibilities, or are long-range and complex in nature. They are incorporated in Tables 6 and 7, which list all such programs and measures presently being undertaken by the Office of Coastal Restoration and Management. The status is provided by the 1990/91 status report.

All of the measures described above are recommended under the Wetlands Fund. However, some of these measures may be implemented through Federal/state programs under the Coastal Wetlands Planning, Protection and Restoration Act, recently enacted by the U.S. Congress and signed by the President in November of 1990. In that case, funding would become available for measures of the next highest priority in the Plan.

Projects and Programs

Projects recommended for funding from the Wetland Funds during Fiscal Year 1991-92 are generally of four types:

- Introduction of freshwater, mineral sediments, and nutrients to conserve, enhance, restore, and create vegetated wetlands
- Management of surface water to protect vegetated wetlands from saltwater intrusion and erosion by tidal currents
- Marsh restoration, sedimentation, and low-cost shore protection to maintain and enhance physical integrity of vegetated wetlands
- Gulf shore protection along critical areas

Each individual project is identified by a letter/number combination, the letters representing the name of the hydrologic basin in which the project is located (e.g. PO-1). The numbers are unique, and those for new projects are sequential relative to numbers used for projects contained in Plan(s) of previous year(s). An illustrated description of the new

Table 1. New Projects Listed by Hydrologic Basin. 1)

Project		Rank	Parish
1. Pontchartrain Basin			
PO-15	Alligator Point Marsh Restoration	29	Orls
PO-10	Turtle Cove Shore Protection	29	StJn
PO-14	Green Pt./Goose Pt. Marsh Restoration	28	StTm
PO-9	Violet Freshwater Distrib. (Cntr. Wetl.)	28	StBd
PO-12	West LaBranche Wetland Management	27	StCs
PO-11	Cutoff Bayou Marsh Management	26	Orls
PO-13	Tangipahoa/Pontchartrain Shore Prot.	12	Tang
2. Breton Sound Basin			
BS-6	Violet Freshwater Distrib. (Lake Lery)	17	StBd
3. Mississippi River Delta			
MR-2	Pass-a-Loutre Sediment Fencing	24	Plqs
4. Barataria Basin			
BA-17	City Price Diversion	48	Plqs
BA-13	Hero Canal Diversion	46	Plqs
BA-12	Grand/Spanish Pass Diversion	43	Plqs
BA-11	Tiger/Red Pass Diversion and Outfall Mgt.	41	Plqs
BA-10	Davis Pond Diversion Outfall Mgt.	38	StCs
BA-15	Lake Salvador Shore Protection	29	StCs
BA-14	Little Lake Marsh Management	27	Jefn
BA-16	Segnette Wetland Protection	23	Jefn
BA-8	Lake Cataouatche Shore Protection	23	StCs
BA-9	Salvador WMA Gulf Canal Project	18	StCs
5. Terrebonne Basin			
TE-10	Grand Bayou/GIWW Diversion	38	Lafr
TE-9	Bully Camp Marsh Management	28	Lafr
TE-14	Pt. Farm Refuge Planting	21	Terb
TE-11	Isle Dernieres Cut Closure	21	Terb
TE-13	Trinity Bayou Pilot Project	18	Terb
TE-16	St. Louis Wetland Restoration	17	Terb
TE-15	GIWW Levee Planting	16	Terb
TE-12	Bird Island Restoration	15	Terb
6. Teche/Vermilion Basin			
T/V-4	Cote Blanche Marsh Management	29	StMy
T/V-11	Freshwater Bayou Bank Protection	29	Vrml
T/V-3	Vermilion River Cutoff	23	Vrml
T/V-7	Marsh Island Sediment Fencing	23	Ibra
T/V-8	Redfish Point Shore Protection	22	Vrml
T/V-6	Marsh Island Control Structures	21	Ibra
T/V-9	Boston Canal Bank Protection	21	Vrml

(Table 1 concluded)

6. Teche/Vermilion Basin (continued)			
T/V-10	Weeks Bay Shore Restoration	16	Ibra
T/V-5	Marsh Island Canal Backfilling	14	Ibra
7. Mermentau Basin			
ME-5	White Lake Shore Protection	29	Vrml
ME-7	Deep Lake Marsh Protection	27	Vrml
ME-6	Big Burn Marsh Management	24	Camr
8. Calcasieu/Sabine Basin			
C/S-16	Black Bayou Culverts	36	Camr
C/S-14	Tripod Bayou Control Structure	29	Camr
C/S-12	Black Bayou Marsh Management	27	Camr
C/S-15	Boudreaux/Broussard Marsh Protection	26	Camr
C/S-10	Grand Lake Ridge Marsh Management	23	Camr
C/S-11	Sweet Lake/GIWW Bank Restoration	23	Camr
C/S-13	Back Ridge Freshwater Introduction	20	Camr
C/S-9	Brown Lake Marsh Management	18	Camr
C/S-7	Black Lake West Shore Protection	18	Camr
C/S-6	Black Lake South Shore Protection	15	Camr
C/S-8	Black Lake North Marsh Management	15	Camr

1) For an explanation of project ranking see pages 22, 23, and 24.

* Federal and state cost sharing

Basins:

All	=	all basins	ME	=	Mermentau
AT	=	Atchafalaya	MR	=	Mississippi River Delta
BA	=	Barataria	PO	=	Pontchartrain
BS	=	Breton Sound	TE	=	Terrebonne
C/S	=	Calcasieu/Sabine	T/V	=	Teche/Vermilion

Parishes:

all	=	all parishes	Livn	=	Livingston	StMn	=	St. Martin
Assn	=	Assumption	Orls	=	Orleans	StMy	=	St. Mary
Calc	=	Calcasieu	Plqs	=	Plaquemines	StTm	=	St. Tammany
Camr	=	Cameron	StBd	=	St. Bernard	Tang	=	Tangipahoa
Ibra	=	Iberia	StCs	=	St. Charles	Terb	=	Terrebonne
Jefn	=	Jefferson	StJm	=	St. James	Vrml	=	Vermilion
Lafr	=	Lafourche	StJn	=	St. John the Baptist			

Table 2. New Projects Listed by Parish. [1)]

	Project		Rank
1.	**Cameron Parish**		
	C/S-16	Black Bayou Culverts	36
	C/S-14	Tripod Bayou Control Structure	29
	C/S-12	Black Bayou Marsh Management	27
	C/S-15	Boudreaux/Broussard Marsh Protection	26
	ME-6	Big Burn Marsh Management	24
	C/S-10	Grand Lake Ridge Marsh Management	23
	C/S-11	Sweet Lake/GIWW Bank Restoration	23
	C/S-13	Back Ridge Freshwater Introduction	20
	C/S-9	Brown Lake Marsh Management	18
	C/S-7	Black Lake West Shore Protection	18
	C/S-6	Black Lake South Shore Protection	15
	C/S-8	Black Lake North Marsh Management	15
2.	**Iberia Parish**		
	T/V-7	Marsh Island Sediment Fencing	23
	T/V-6	Marsh Island Control Structures	21
	T/V-10	Weeks Bay Shore Restoration	16
	T/V-5	Marsh Island Canal Backfilling	14
3.	**Jefferson Parish**		
	BA-14	Little Lake Marsh Management	27
	BA-16	Segnette Wetland Protection	23
4.	**Lafourche Parish**		
	TE-10	Grand Bayou/GIWW Diversion	38
	TE-9	Bully Camp Marsh Management	28
5.	**Orleans Parish**		
	PO-15	Alligator Point Marsh Restoration	29
	PO-11	Cutoff Bayou Marsh Management	26
6.	**Plaquemines Parish**		
	BA-17	City Price Diversion	48
	BA-13	Hero Canal Diversion	46
	BA-12	Grand/Spanish Pass Diversion	43
	BA-11	Tiger/Red Pass Diversion and Outfall Mgt.	41
	MR-2	Pass-a-Loutre Sediment Fencing	24
7.	**St. Bernard Parish**		
	PO-9	Violet Freshwater Distrib. (Cntr. Wetl.)	28
	BS-6	Violet Freshwater Distrib. (Lake Lery)	17

(Table 2 concluded)

8.	**St. Charles Parish**		
	BA-10	Davis Pond Diversion Outfall Mgt.	38
	BA-15	Lake Salvador Shore Protection	29
	PO-12	West LaBranche Wetland Management	27
	BA-8	Lake Cataouatche Shore Protection	23
	BA-9	Salvador WMA Gulf Canal Project	18
9.	**St. John the Baptist Parish**		
	PO-10	Turtle Cove Shore Protection	29
10.	**St. Mary Parish**		
	T/V-4	Cote Blanche Marsh Management	29
11.	**St. Tammany Parish**		
	PO-14	Green Pt./Goose Pt. Marsh Restoration	28
12.	**Tangipahoa Parish**		
	PO-13	*Tangipahoa/Pontchartrain Shore Prot.*	12
13.	**Terrebonne Parish**		
	TE-14	Pt. Farm Refuge Planting	21
	TE-11	Isle Dernieres Cut Closure	21
	TE-13	Trinity Bayou Pilot Project	18
	TE-16	St. Louis Wetland Restoration	17
	TE-15	*GIWW Levee Planting*	16
	TE-12	Bird Island Restoration	15
14.	**Vermilion Parish**		
	ME-5	White Lake Shore Protection	29
	T/V-11	Freshwater Bayou Bank Protection	29
	ME-7	Deep Lake Marsh Protection	27
	T/V-3	Vermilion River Cutoff	23
	T/V-8	Redfish Point Shore Protection	22
	T/V-9	Boston Canal Bank Protection	21

* Federal and state cost-sharing.

1) For an explanation of project ranking see pages 22, 23, and 24.

For abbreviations see Table 1.

Table 3. New Projects Listed in Order of Priority for Feasibility Analysis. 1)

	Project	Parish	HB	Rk	Ac	Cost	Qual	Sed	Fw
BA-17	City Price Diversion	Plqs	4	48	4	4	6	2	3
BA-13	Hero Canal Diversion	Plqs	4	46	5	3	4.7	2	3
BA-12	Grand/Spanish Pass Diversion	Plqs	4	43	4	3	4.7	2	3
BA-11	Tiger/Red Pass Diversion and Outfall Mgt.	Plqs	4	41	4	4	3.7	2	3
BA-10	Davis Pond Diversion Outfall Mgt.	StCs	4	38	4	4	4.7	1	2
TE-10	Grand Bayou/GIWW Diversion	Lafr	5	38	4	4	4.7	1	2
C/S-16	Black Bayou Culverts	Camr	9	36	6	4	4.7		
ME-5	White Lake Shore Protection	Vrml	8	29	4	4	4.3		
T/V-4	Cote Blanche Marsh Management	StMy	7	29	4	5	4		
T/V-11	Freshwater Bayou Bank Protection	Vrml	7	29	4	4	4.3		
BA-15	Lake Salvador Shore Protection	StCs	4	29	4	3	4.7		
PO-15	Alligator Point Marsh Restoration	Orls	1	29	4	3	4.7		
C/S-14	Tripod Bayou Control Structure	Camr	9	29	3	5	5		
PO-10	Turtle Cove Shore Protection	StJn	1	29	3	5	5		
PO-9	Violet Freshwater Distrib. (Cntr. Wetl.)	StBd	1	28	4	2	2.7	1	1
TE-9	Bully Camp Marsh Management	Lafr	5	28	3	5	4.7		
PO-14	Green Pt./Goose Pt. Marsh Restoration	StTm	1	28	4	2	4.5		
C/S-12	Black Bayou Marsh Management	Camr	9	27	4	4	3.7		
PO-12	West LaBranche Wetland Management	StCs	1	27	4	4	3.7		
BA-14	Little Lake Marsh Management	Jefn	4	27	4	4	3.7		
PME-7	Deep Lake Marsh Protection	Vrml	8	27	2	5	5.3		
O-11	Cutoff Bayou Marsh Management	Orls	1	26	3	5	4		
C/S-15	Boudreaux/Broussard Marsh Protection	Camr	9	26	2	5	5		
ME-6	Big Burn Marsh Management	Camr	8	24	3	5	3.3		
MR-2	Pass-a-Loutre Sediment Fencing	Plqs	3	24	2	5	3	1	
BA-16	Segnette Wetland Protection	Jefn	4	23	3	5	3		
BA-8	Lake Cataouatche Shore Protection	StCs	4	23	2	5	4		
C/S-10	Grand Lake Ridge Marsh Management	Camr	9	23	2	5	4		
T/V-3	Vermilion River Cutoff	Vrml	7	23	2	4	4.3		
C/S-11	Sweet Lake/GIWW Bank Restoration	Camr	9	23	1	5	5		
T/V-7	Marsh Island Sediment Fencing	Ibra	7	23	1	5	3.7	1	
T/V-8	Redfish Point Shore Protection	Vrml	7	22	2	5	3.7		
T/V-6	Marsh Island Control Structures	Ibra	7	21	4	5	1.3		
T/V-9	Boston Canal Bank Protection	Vrml	7	21	3	5	2.3		
TE-14	Pt. Farm Refuge Planting	Terb	5	21	2	5	3.3		
TE-11	Isle Dernieres Cut Closure	Terb	5	21	1	4	4.7		
C/S-13	Back Ridge Freshwater Introduction	Camr	9	20	2	3	3.0		1
C/S-9	Brown Lake Marsh Management	Camr	9	18	2	4	2.7		
C/S-7	Black Lake West Shore Protection	Camr	9	18	2	5	2.3		
BA-9	Salvador WMA Gulf Canal Project	StCs	4	18	2	5	2.3		
TE-13	Trinity Bayou Pilot Project	Terb	5	18	1	5	3.3		
BS-6	Violet Freshwater Distrib. (Lake Lery)	StBd	2	17	2	3	2		1
TE-16	St. Louis Wetland Restoration	Terb	5	17	2	5	2		
T/V-10	Weeks Bay Shore Restoration	Ibra	7	16	2	3	2.3		

(Table 3 concluded)

	Project	Parish	HB	Rk	Ac	Cost	Qual	Sed	Fw
TE-15	GIWW Levee Planting	Terb	5	16	1	5	2.7		
C/S-8	Black Lake North Marsh Management	Camr	9	15	2	5	1.3		
TE-12	Bird Island Restoration	Terb	5	15	2	4	1.7		
C/S-6	Black Lake South Shore Protection	Camr	9	15	1	5	2.3		
T/V-5	Marsh Island Canal Backfilling	Ibra	7	14	1	5	2		
PO-13	Tangipahoa/Pontchartrain Shore Prot.	Tang	1	12	2	1	1.5		

* Federal and state cost-sharing.

1) For an explanation of project ranking see pages 22, 23, and 24.

HB = Hydrologic Basin
Rk = composite number used for ranking each project
Ac = relative value for estimated range of acres benefitted (1 to 6)
Cost = relative value for estimated range of implementation cost (5 to 1)
Qual = relative value for estimated quality of each project, including longevity, compatibility, and apparent need (0 to 6)
Sed = absence or presence of sediment introduction (0 or 1)
Fw = absence or presence of freshwater introduction and utilization (0 or 1)

For other abbreviations see Table 1.

Table 4. Approved 90/91 Projects Requiring Appropriation for FY 91/92, Listed by Hydrologic Basin.

	Project	Parish
1. Pontchartrain Basin		
PO-1	Violet Siphon Diversion	StBd
	c) Outfall management	
PO-2	Sediment trapping/vegetation planting/shore protection	
	b) Alligator Point Wetland - protection	Orls
	c) Bayou Chevee Wetland - protection	Orls
PO-3	La Branche Wetland - protection and enhancement	StCs
	b) Stabilize critical reaches of shoreline	
PO-4	Bonnet Carré Freshwater Diversion - partial cost-sharing for portion of project to benefit wetlands	StCs
PO-5	Southeast Lake Maurepas Wetland	StJn
	a) Reduce ponding of water	
	b) Small diversion of Mississippi River water into swamps	
PO-6	Fritchie Wetland - marsh restoration	StTm
PO-7	North Shore Wetland - marsh restoration	StTm
2. Breton Sound Basin		
BS-1	Bohemia Diversion Structure	Plqs
	b) Outfall management	
BS-3	Caernarvon Diversion Outfall -	Plqs/StBd
	diversion structure	
	outfall management	
BS-4	White's Ditch Diversion Siphon	Plqs
	a) outfall management	
BS-5	Bayou LaMoque Diversion - outfall management	Plqs
3. Mississippi River Delta		
MR-1	Small Sediment Diversions	Plqs
	a) Pass A Loutre Wildlife Management Area	
	b) Delta Wildlife Refuge *	
4. Barataria Basin		
BA-1	Davis Pond Freshwater Diversion *	StCs
BA-2	GIWW to Clovelly Wetland - protection and enhancement *	Lafr
BA-3	Naomi (LaReussite) Diversion Siphon	Plqs/Jefn
	b) Enlargement of diversion capacity	
	c) Outfall management	
BA-4	West Point a la Hache Diversion Siphon	Plqs
	b) Enlargement of diversion capacity	
	c) Outfall management	

(Table 4 concluded)

4. Barataria Basin (continued)		
BA-5	Sediment trapping/vegetation planting/shoreline protection	
	c) Baie de Chactas - protection	StCs
BA-6	Highway 90 to GIWW Wetland - protection	Laf:
BA-7	Couba Island - restore canal closure	StCs
5. Terrebonne Basin		
TE-1	Montegut Wetland - protection and enhancement	
TE-5	Grand Bayou Wetland - protection	Laf:
TE-6	Pointe au Chien Wetland - protection and enhancement	Terb
TE-7	Lake Boudreaux Wetland - protection	Terb
	a) Upper Petit Caillou management area	
	b) Lower Petit Caillou management area	
	c) Bayou Grand Caillou management area	
TE-8	Bayou Pelton Wetland - protection	Terb
6. Teche/Vermilion Basin		
T/V-1	Shark Island /Weeks Bay - protection	Ibra
T/V-2	Cote Blanche Wetlands - protection	
	(a) Hammock Lake - protection/restoration	StMy
	(b)Yellow Bayou Wetland - protection	StMy
T/V-3	Vermilion River Cutoff - restoration	Vrml
7. Mermentau Basin		
ME-1	Pecan Island Freshwater Introduction	Vrml
	a) Pecan Island Structure	
	b) Outfall management	
ME-2	Hog Bayou Wetland - restoration and enhancement	Camr
ME-4	Freshwater Bayou Wetland - diminish ponding of water	Vrml
8. Calcasieu/Sabine Basin		
C/S-1	Calcasieu-Sabine Wetland - Gulf shore protection from	Camr
	b) Holly beach to Calcasieu	
	c) Constance Beach to Ocean View	
C/S-2	Rycade Canal - closure to Black Lake	Camr
C/S-5	Sabine Freshwater Introduction - freshwater diversion from the Sabine River	Camr

Federal and state cost-sharing

For abbreviations, see Table 1.

Table 5. Approved 90/91 Projects Requiring Appropriation for FY 91/92, Listed by Parish.

	Project
1. Cameron Parish	
C/S-1	Calcasieu-Sabine Wetland - Gulf shore protection from:
	b) Holly Beach to Calcasieu
	c) Constance Beach to Ocean View
C/S-2	Rycade Canal - water control to Black Lake
ME-2	Hog Bayou Wetland - restoration and enhancement
C/S-5	Sabine Freshwater Introduction - freshwater diversion from the Sabine River
2. Iberia Parish	
T/V-1	Sediment trapping/vegetation planting/shore protection
	b) Shark Island/Weeks Bay - protection
3. Jefferson Parish	
BA-3	Naomi (LaReussite) Diversion Siphon
	a) Siphon construction
	b) Enlargement of diversion capacity
	c) Outfall management
4. Lafourche Parish	
BA-2	GIWW to Clovelly Wetland - protection and enhancement *
BA-6	Highway 90 to GIWW Wetland - protection
TE-5	Grand Bayou Wetland - protection
5. Orleans Parish	
PO-2	Sediment trapping/vegetation planting/shore protection
	b) Alligator Point Wetland - protection
	c) Bayou Chevee Wetland - protection
6. Plaquemines Parish	
BS-1	Bohemia Diversion Structure
	b) Outfall management
MR-1	Small Sediment Diversions
	a) Pass A Loutre Wildlife Management Area
	b) Delta Wildlife Refuge *
BA-3	Naomi (LaReussite) Diversion Siphon
	b) Enlargement of diversion capacity
	c) Outfall management

(Table 5 continued)

6. **Plaquemines Parish (continued)**

BA-4	West Point a la Hache Diversion Siphon
	b) Enlargement of diversion capacity
	c) Outfall management
BS-3	Caernarvon Diversion Outfall
	diversion structure
	outfall management
BS-4	White's Ditch Diversion Siphon
	a) outfall management
BS-5	Bayou LaMoque Diversion - outfall management

7. **St. Bernard Parish**

PO-1	Violet Siphon Diversion
	c) Outfall management
BS-3	Caernarvon Diversion Outfall - outfall management

8. **St. Charles Parish**

PO-3	La Branche Wetland - protection and enhancement
	b) Stabilize critical reaches of shoreline
BA-1	Davis Pond Freshwater Diversion *
BA-5	Sediment trapping/vegetation planting/shore protection
	c) Baie de Chactas
PO-4	Bonnet Carré Freshwater Diversion - partial cost-sharing for portion of project to benefit wetlands
BA-7	Couba Island - protection/restoration

9. **St. John the Baptist Parish**

PO-5	Southeast Lake Maurepas Wetland
	a) Reduce ponding of water
	b) Small diversion of Mississippi River water into swamps

10. **St. Mary Parish**

T/V-2	Cote Blanche Wetlands - protection/restoration
	a) Hammock Lake - marsh restoration
	b) Yellow Bayou Wetland - protection

11. **St. Tammany Parish**

PO-6	Fritchie Wetland - marsh restoration
PO-7	North Shore Wetland - marsh restoration

12. **Terrebonne Parish**

TE-1	Montegut Wetland - protection and enhancement
TE-6	Pointe au Chien Wetland - protection and enhancement

(Table 5 concluded)

12. Terrebonne Parish (continued)

TE-7	Lake Boudreaux Wetland - protection
	a) Upper Petit Caillou management area
	b) Lower Petit Caillou management area
	c) Bayou Grand Caillou management area
TE-8	Bayou Pelton Wetland - protection

13. Vermilion Parish

ME-1	Pecan Island Freshwater Introduction
	a) Pecan Island Structure
	b) Outfall management
T/V-3	Vermilion River Cutoff - restoration
ME-4	Freshwater Bayou Wetland - diminish ponding of water

* Federal and state cost-sharing

For abbreviations, see Table 1

Table 6. Long- and Short-range Programs to be Funded.

Objective: Investigate potential measures requiring further evaluation as part of comprehensive planning efforts to maximize the use of available water and sediment resources to restore and enhance coastal vegetated wetlands. Some of these measures will be implemented through Federal/State programs under the Wetlands Planning, Protection, and Restoration Act, recently enacted by the U.S. Congress as Title III, Section 303, of S.2244, and signed by the President in November of 1990.

1. Section 303. Priority Louisiana Coastal Wetlands Restoration Projects (Federal/State)*

   303a. Priority Project List (Federal/State)*

   Objective: 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.
   Status: new.

   303b. Federal and State Project Planning and Implementation (Federal/State)*

   Objective: To develop and implement a comprehensive coastal wetlands restoration plan that addresses large-scale and long-term requirements for the conservation, restoration, and enhancement of Louisiana's coastal wetlands with Federal participation. The plan would contain projects in order of priority.
   Status: new.

   (a) Develop and implement a plan to allocate water and sediments of the Atchafalaya and Mississippi Rivers, considering the proposed measures listed below, in order to maximize maintenance, restoration, enhancement, and creation of vegetated wetlands.

   - Major diversion into Lake Verret watershed from the Atchafalaya River.
   - Diversion from the Atchafalaya River through the Avoca Island levee south of Morgan City
   - An alternate Mississippi River navigation channel
   - Major intermittent diversion near Des Allemands
   - Major intermittent diversion north of Bonnet Carré Spillway
   - Major diversion below Caernarvon
   - Major diversion below Port Sulphur
   - Major diversion into West Bay

   (b) Develop and implement a water management plan for the marshes between Calcasieu and Sabine Lakes.

(Table 6 continued)

(c) Isolate Houma Navigation Canal via construction of a floodgate in the canal and stabilize canal banks.

(d) Construct a water-control structure at Black Bayou, Cameron Parish.

(e) Rebuild and protect back-barrier marsh platform of barrier islands through dredged material placement, structural measures, or combinations as appropriate.

(1) East Timbalier to Cat Island Pass
(2) Cat Island Pass to Whiskey Pass
(3) Whiskey Pass to Raccoon Point
(4) Sandy Point to Belle Pass

(f) Develop and implement a plan for freshwater and sediment diversions into wetlands in the vicinity of the Bonnet Carré. Spillway.

(g) Increase delivery of sediment through the Atchafalaya River.

2. Section 304. Louisiana Coastal Wetlands Conservation Planning (Federal/State)*

304 a. Development of Conservation Plan (Federal/State)*

Objective: Develop a wetlands conservation plan that has a goal of achieving no net loss of wetlands in Louisiana as a result of development activities, exclusive of any wetlands gains achieved through implementation of Secs. 303a and b.
Status: new.

3. Land Loss and Marsh Creation Study (Federal/State)*

Objective: Identify, evaluate, and implement measures to create marsh using diversion of sediment from the Mississippi River and dredged material.
Status: ongoing.

4. Project Operation/Maintenance/Rehabilitation/Monitoring

Objective: To provide for (1) operation, maintenance, and monitoring, and (2) emergency repairs for projects that have been implemented under the authorized Plan.
Status: ongoing.

(Table 6 concluded)

5. National Estuary Program (EPA/State)*

   Objective: To develop and implement plans to protect the integrity of the Barataria-Terrebonne estuaries.
   Status: ongoing.

6. Vegetation, Sedimentation, and Demonstration Program (CRD-DNR)

   Objective: To plan and implement marsh restoration and conservation using vegetation planting, sediment trapping, low-cost shore protection, or approved demonstration technology.

   Status: ongoing; to be expanded to include demonstration measures.

   (a) Sediment Trapping and Outfall Management in the Mississippi River and Atchafalaya Deltas.

   (b) Sediment trapping, vegetation planting, and other low-cost protection along shorelines of coastal bays and lakes.

   (c) Approved demonstration of new wetland protection technology.

7. Basin Level Hydrologic Evaluation Program (CRD-DNR)

   Objective: To assure mutual compatibility of proposed projects with regard to hydrology of each coastal basin.
   Status: ongoing.

8. Office of Coastal Activities (Governor's Office)

   Objective: To execute powers and duties as provided by Act 6.
   Status: ongoing.

9. DNR Coastal Restoration Division / Executive Division

   Objective: To execute powers and duties as provided by Act 6.
   Status: ongoing.

10. Match Federal funding on coastal vegetated wetlands projects (Federal/State) *

    Objective: To provide for timely use of Federal funding when available.
    Status: new.

* Federal and state cost-sharing

Table 7. Measures Recommended for State and Federal Action or Funding.

A. For State Action

1. Develop rules and regulations to provide, at a minimum, for replacement of the loss of functional coastal wetland values which result from permitted activities in the coastal zone and to help ensure that Federal activities are undertaken in a manner that is consistent with the federally approved Louisiana Coastal Resources Program.
   Status: legislation enacted, rule-making in progress.

2. Develop rules for mitigation banking.
   Status: new.

3. Institute state mineral board advertisement of environmental conditions prior to mineral lease sale on state water bottoms.
   Status: ongoing.

4. Recommend that the Avoca Island Levee Extension project be deauthorized and request the Corps to continue evaluation of the Barrier Plan alternative, with modifications to protect industries and residences that desire protection from backwater flooding south of the barrier and to provide maximum benefits to the wetlands in western Terrebonne Parish and in the Verret Basin north of the barrier. The barrier plan should include provisions by the Corps for federally maintained forced drainage of the Verret Basin and for an appropriately sized freshwater and sediment diversion in the existing levee south of Morgan City. These alternatives would provide increased flood protection to the study area (Morgan City - Amelia - Verret basin), while still protecting, restoring, and enhancing wetlands.
   Status: new.

5. Recommend that measures be implemented to enhance growth of the Lower Atchafalaya River Delta within the constraints of recommended flood protection under the Barrier Plan. These measures should reduce the capture of flow (and sediment) by the navigation channel to the minimum volume required to maintain the presently-authorized channel dimensions, and also increase diversion of flow and sediment through distibutary channels so as to promote growth of the emergent delta within Atchafalaya Bay. All materials dredged for maintenance and development of the navigation channel should be used toward this end in order to be consistent with the federally approved Louisiana Coastal Resources Program and State Water Quality Certification.
   Status: new.

6. Route non-point-source discharges and, where appropriate, point-source discharges through wetlands to offset saltwater intrusion, enhance vegetation growth, and improve water quality.
   Status: ongoing.

(Table 7 continued)

B. For Federal Action

1. Increase delivery of sediment through the Atchafalaya River for marsh building in the Atchafalaya Delta, in a manner that will produce no additional flooding of Morgan City and other coastal communities.
Status: ongoing.

2. Maintain at least 30% of total Atchafalaya River flow through Wax Lake Outlet during normal flows.
Status: ongoing.

3. Implement a management plan for maximizing growth of the Atchafalaya Delta within the constraints of flood protection and navigation requirements.
Status: ongoing.

   (a) Use dredged material: (1) to expand the area of wetlands, (2) to manage flows so that flow requirements for navigation and flood control are reduced and diversion through distributary channels is increased, and (3) in a manner consistent with the Louisiana Coastal Resources Program and State Water Quality Certification.

   (b) Improve efficiency of distributary channels for marsh creation through selective dredging and enhance diversion of flow and sediments into distributaries by restricting further discharge increases of the lower navigation channel.

   (c) Enhance sedimentation through the use of sediment fencing.

4. Deauthorize the Avoca Island Levee Extension project and continue evaluation of the Barrier Plan alternative, with modifications to protect industries and residences that desire protection from backwater flooding south of the barrier and to provide maximum benefits to the wetlands in western Terrebonne Parish and in the Verret Basin north of the barrier. The Barrier Plan should include provisions by the Corps for federally maintained forced drainage of the Verret Basin and for an appropriately sized freshwater and sediment diversion in the existing levee south of Morgan City. These alternatives would provide increased flood protection to the study area (Morgan City-Amelia-Verret Basin), while still protecting, restoring, and enhancing wetlands.
Status: new.

5. Operate Bonnet Carré Floodway for freshwater diversion when feasible and needed.
Status: ongoing.

6. Operate Freshwater Bayou Structure to remove excess water from marshes in eastern Vermilion Parish.
Status: ongoing.

(Table 7 concluded)

7. Operate Algiers Lock for freshwater diversion.
Status: ongoing.

8. Operate Violet Floodgate for freshwater retention and water-level control.
Status: ongoing.

9. Reduce Mean Water Levels in the Grand-White Lakes impoundment.
Status: ongoing.

10. Assure continued operation of the Cameron Creole Watershed Project in accordance with both fisheries and wetland restoration and conservation needs.
Status: ongoing.

11. Achieve full design capacity of the Teche-Vermilion Diversion Project.
Status: ongoing.

12. Bank stabilization and dredged material use from Federally maintained navigation channels.

    (a) Stabilize and maintain banks of navigation channels in Louisiana where necessary to prevent wetlands loss.

    - Mississippi River
    - Mississippi River Gulf Outlet
    - Freshwater Bayou
    - Gulf Intracoastal Waterway
    - Barataria Waterway
    - Vermilion River Cutoff
    - Calcasieu Ship Channel
    - Mermentau Ship Channel
    - Bayou Lafourche
    - Houma Navigation Channel

    Status: ongoing.

    (b) Create marsh and nourish beaches with dredged materials from Federally maintained channels where not required for 12 a.
    Status: ongoing.

13. Oppose plans for enlargement of the Gulf Intracoastal Waterway.
Status: ongoing.

14. Route non-point-source discharges and, where appropriate, point-source discharges through wetlands to offset saltwater intrusion, enhance vegetation growth, and improve water quality.
Status: ongoing.

15. Match Federal funding on projects to create, restore, enhance, or conserve coastal vegetated wetlands.

    - Manchac Wildlife Management Area shore protection

projects is provided in the last part of this report. A map of coastal Louisiana with project locations precedes that section of the report (Figures 1 and 2). Individual project descriptions are grouped according to Table 1. In each case a basin map showing the location and general area of benefit for each project precedes the project descriptions. The description of the projects contained in Tables 4 and 5 can be found in the 1990-91 Plan document.

The new projects have been grouped in three ways to facilitate review. Table 1 presents the projects grouped by hydrologic basin (e.g. Pontchartrain Basin) from east to west. Table 2 combines the projects by parish. Table 3 combines projects statewide. In each of these tables, within each group, projects are listed in the order recommended by the Authority for undertaking feasibility analysis and preliminary planning. The basis for project ranking is explained in the following document section entitled "Priorities and Implementation."

Additionally recommended for new or continued funding from the Wetlands Fund during Fiscal Year 1991-92 are the programs and measures. The programs include both long- and short-range programs and are listed in Table 6 with a short description of their objective and status. It is furthermore recommended that a number of institutional and structural measures be advanced for state and Federal action, or efforts on them continued, for the purpose of conservation, restoration, and creation of wetlands. These are identified in Table 7 with funding requested for (1) matching federal or local monies for various dredged material disposal or other programs to create, restore, enhance, or protect vegetated coastal wetlands; (2) assisting local governments in rerouting runoff waters through wetlands; (3) cost-sharing in the restoration of back-barrier wetlands (such as Grand Terre) by the Corps of Engineers during navigation channel dredging; and (4) operation of various structures, if needed, to offset saltwater intrusion, retain freshwater, or to remove excess water from marsh areas.

Priorities and Implementation

The number of proposed projects and available funding make it necessary to establish a priority among the projects in order to guide project-related activities and expenditures. This continues to be a most difficult task because of limited time between project solicitation and submittal of the Plan to the legislative committees, and because planning and engineering information necessary for accurate estimation of project benefits and cost-effectiveness as a basis for ranking are usually not available prior to project authorization. Also to be incorporated with respect to funding are remaining projects from the 1990-91 Plan. Consideration of the above aspects has resulted in the following recommendation for ranking of project implementation.

Highest priority is placed on completion of those 1990-91 projects that have advanced beyond the feasibility and preliminary planning phase. The second priority will be to complete feasibility analysis for the remaining 1990-91 projects. All the 1990-91 projects requiring appropriation for those purposes are listed in Tables 4 and 5. Completion of project construction or implementation for these projects, as well as feasibility analysis, will be in the order established by the 1990-91 Plan. Feasibility analysis and implementation of the newly proposed 1991-92 projects will follow the above steps. For the newly proposed projects, a recommended priority has been established for undertaking project feasibility analysis only. This priority is based on general estimation of a number of project parameters. Upon completion of each project feasibility analysis, each project, including the 1990-91 projects that have not progressed beyond that stage, will be reevaluated to determine the order of project implementation on the basis of a more precise

estimation of these same parameters. Project priority for feasibility analysis was established, and priority for implementation will be established, on the basis of the following considerations:

- Area of anticipated benefit to conservation, restoration, enhancement, and creation of vegetated wetlands
- Cost
- Social, geographic, biological, and economic significance, and apparent need
- Introduction or utilization of freshwater
- Introduction of sediments

Using these four factors, each project was assigned a value. These values are presented in Table 3, as well as behind each project in Tables 1 and 2, and will determine the order in which further evaluation will be undertaken. However, because of time and resource constraints, completion of the evaluation may not be feasible for all projects during the 1991-92 plan year. It is likely that evaluation of projects with a rank of less than 20 will have to be deferred to future comprehensive planning efforts.

The criteria used in the assignment of values to each project and in determining project rank for feasibility analysis are given in Table 8. Secondary criteria could be used to further evaluate project merit in the event that funds within a given category are insufficient to implement all projects. These include:

- Local support/cost sharing
- Time required for implementation

In general, values of 1 through 6 were used as relative expressions of the area of benefit (V1), and 1 through 5 for the project cost (V2). A value of 1 was assigned for the smallest area as well as for the highest cost. Numbers from 0 through 6 were computed to indicate a value relative to social and economic aspects that may be called "project quality." The quality value (V3) for each project was arrived at by summing individual values of 0, 1, or 2 that were assigned to each of the following project aspects: (1) probability of success and longevity of the produced benefits as related to physical setting; (2) compatibility and benefits related to economic development and social values including importance to fish and wildlife, flood and erosion protection, water quality, and recreation; and (3) apparent need as related to present conditions and long-term trends. To reflect the value placed on remedial measures involving the suppletion of freshwater and sediment, those aspects were also expressed numerically. Values of 0 to 3 were assigned as a relative measure of freshwater benefits (V4), while values of 0 to 4 were used for sediment introduction (V5). In both cases, a value of 0 denotes the absence of significant benefits related to freshwater or sediment, and an increase in value reflects an increase in the volume of materials introduced.

In producing a single number for project ranking, it was believed that, initially, greater weight should be given to the area of benefit and to special aspects in order to emphasize project quality and long-term restoration and conservation of vegetated wetlands. With a value of 4, sediment introduction was weighted most. A relative weight

of 3 was given to both the area and the quality value, and a weight of 2 to freshwater benefits. Cost received a weight of 1. Addition of these values, as shown in Table 8, then produced the final ranking value and the order presented in Table 3. The estimated area of benefit was used to order projects having the same rank. Projects receiving the highest rank are those where large areas of wetland are benefitted through the introduction or greater utilization of freshwater and sediments, and that provide fish and wildlife as well as additional benefits, such as improvement of water quality, and flood and erosion protection for a long period.

Table 8. Criteria Used to Rank Projects for Feasibility Analysis.

Area of Benefit (V1)	Value	Cost (V2)	Value
1 - 50 ac	1	< $ 500,000	5
50 - 500 ac	2	$ 500,000 - 2,000,000	4
500 - 1,000 ac	3	$ 2,000,000 - 5,000,000	3
1,000 - 5,000 ac	4	$ 5,000,000 - 10,000,000	2
5,000 - 10,000 ac	5	$ > $ 10,000,000	1
> 10,000 ac	6		

Project Quality (V3) Value ranges from 0 to 6

$V3 = l + c + u$

l = longevity (0 = low, 1 = moderate, 2 = high)
c = compatibility (0 = low, 1 = moderate, 2 = high)
u = apparent need (0 = low, 1 = moderate, 2 = high)

Freshwater introduction or utilization (V4)	Value	Sediment introduction (V5)	Value
none	0	none	0
runoff	1	turbid water/sediment fencing	1
non-flowing water bodies	2	river freshwater diversion	2
rivers and streams	3	use of available dredged material	3
		river sediment diversion	4

Project rank is obtained from: $Rank = 3 \cdot V1 + V2 + 3 \cdot V3 + 2 \cdot V4 + 4 \cdot V5$.

Coordination with various entities will be a significant aspect of all phases of project development, implementation, and operation. This coordination is a requirement partly because of governmental mandates of state and Federal agencies and because a number of projects were identified for which costs are to be shared by state, local, or Federal government. Some parishes have indicated a willingness to share in the cost of design and construction of several projects. Currently, rules dealing with cost-sharing are being developed by DNR. Equally important, however, public hearings and associated comments by private citizens and elected officials have pointed out three major issues of concern in the efforts of wetland conservation and restoration. These are the rights of the landowner and the associated need for early coordination of project features; the need to assure that conservation-management programs serve both the fisheries and the wetland restoration and conservation needs; and the assurance that long-term operation and management of projects is provided for. It is the intention of the State to fully deal with these concerns during the feasibility analysis phase that is required prior to implementation

of each project. Landowners will be contacted at the earliest possible time and meetings will be scheduled with elected officials as representatives of the public interest to discuss both public and private resource uses and access that may be affected.

FUNDING

Because of uncertainties about feasibility, permitting, and other project elements, it is proposed that state funding be provided for project implementation on a priority basis rather than a project basis. Under this funding provision, project initiation will occur according to the established and legislatively approved priority. After feasibility analysis, projects will be reevaluated according to the project cost-effectiveness, that is, cost per acre of wetlands to be created, restored, or maintained throughout the project life. This reevaluation will be made after obtaining the necessary feasibility information, and will determine the implementation order of projects, unless problems arise that delay project implementation. In that case, work will begin on the project with the next highest priority.

Line-item funding is requested for the Plan components detailed in Tables 3, 4, 6, and 7 as follows:

1.	Project Implementation	$ 19,500,000
	(a) 1991-92 Projects	
	(1) Feasibility Analysis (2) Implementation	
	(b) 1990-91 Projects remaining to be funded	
2.	Long and Short-Range Programs	$ 4,500,000
3.	Measures Recommended for Action or Funding	$ 2,000,000
	Total	$ 26,000,000

Approval is also requested to transfer up to 20% of allocated funds from any one category to other categories as needed to prevent undesirable and costly delays in project planning and implementation.

APPENDIX A

PROJECT DESCRIPTIONS

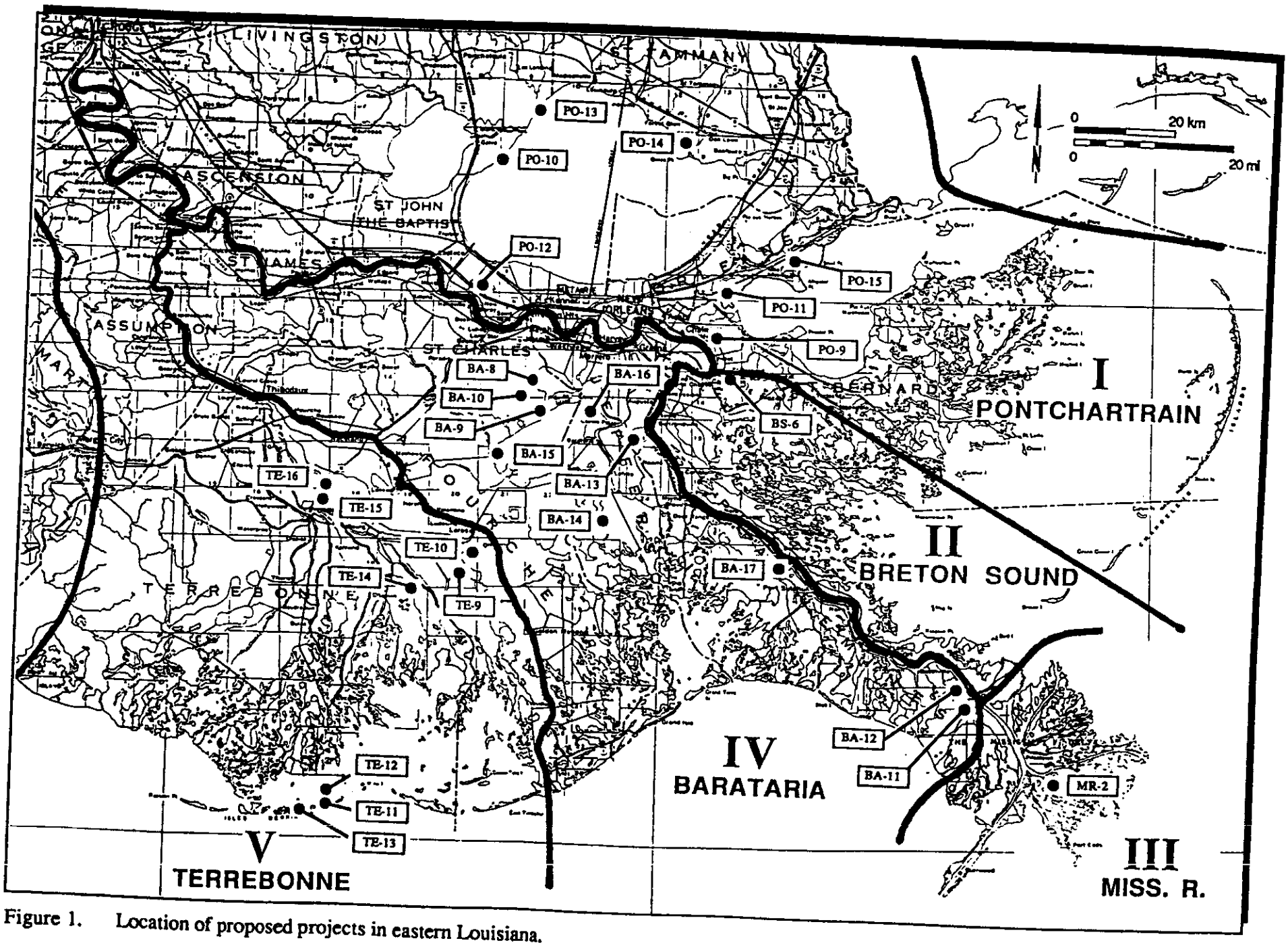


Figure 1. Location of proposed projects in eastern Louisiana.

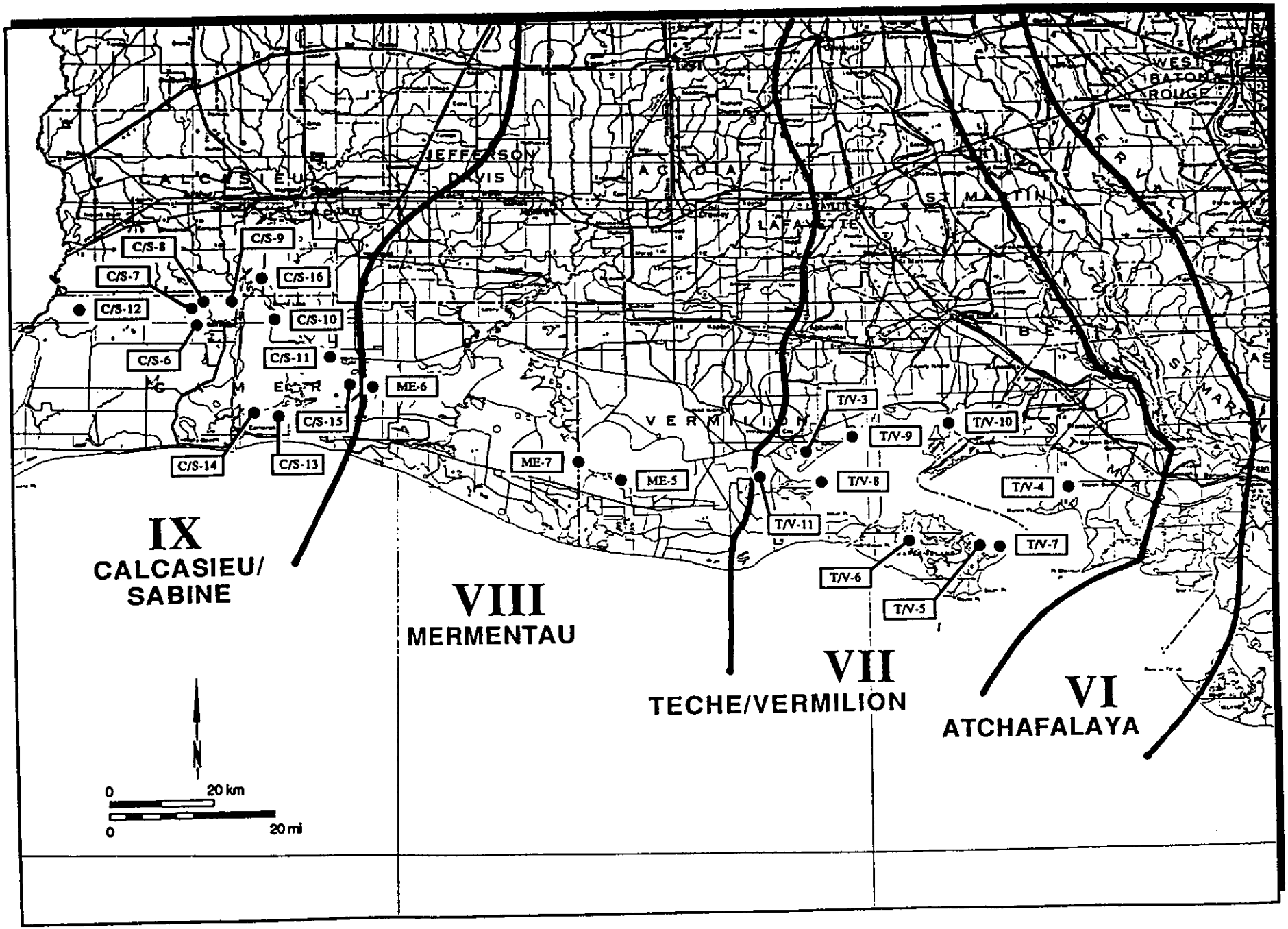


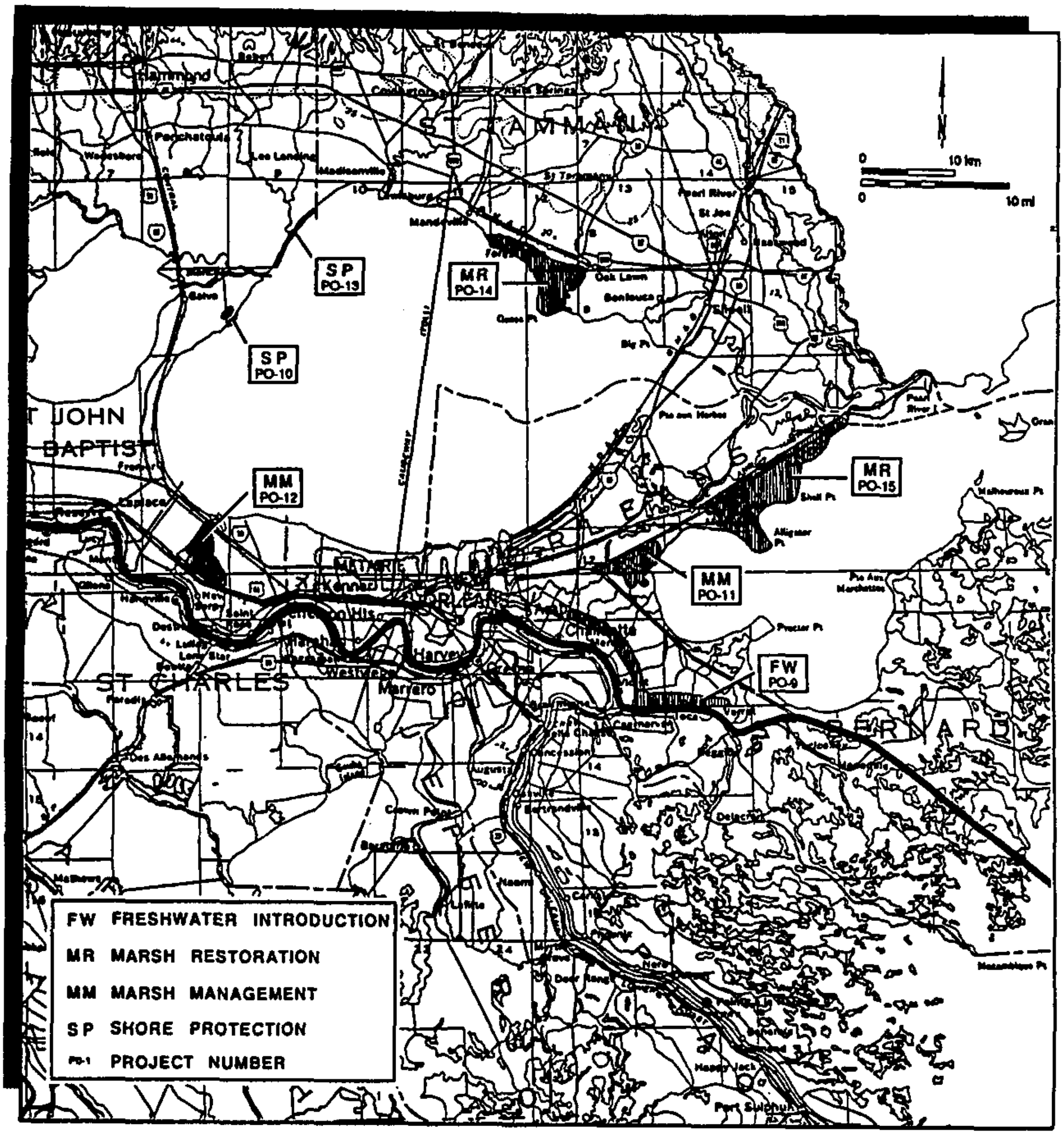
Figure 2. Location of proposed projects in western Louisiana.

PONTCHARTRAIN BASIN

PONTCHARTRAIN BASIN

PO-9	Violet Freshwater Distrib. (Cntr. Wetl.)
PO-10	Turtle Cove Shore Protection
PO-11	Cutoff Bayou Marsh Management
PO-12	West LaBranche Wetland Management
PO-13	Tangipahoa/Pontchartrain Shore Prot.
PO-14	Green Pt./Goose Pt. Marsh Restoration
PO-15	Alligator Point Marsh Restoration

Figure PO-0. Location and estimated area of benefit for projects proposed in the Pontchartrain Basin.


S P
PO-13
S P
PO-10
MR
PO-14
MR
PO-15
MM
PO-12
MM
PO-11
FW
PO-9
ST JOHN
BAPTIST
ST CHARLES
METAIRIE
Kenner
Harvey
Marrero
0 10 km
0 10 mi
FW FRESHWATER INTRODUCTION
MR MARSH RESTORATION
MM MARSH MANAGEMENT
SP SHORE PROTECTION
PO-1 PROJECT NUMBER

PO-9. Violet Freshwater Distribution (Central Wetlands)

Location and Size

The Violet Freshwater Distribution System (Central Wetlands) supplements the freshwater diversion into 18,774 ac of brackish and saline marsh in St. Bernard Parish known as the Central Wetlands Management Unit. This wetland is located between the Mississippi River Gulf Outlet (MRGO) and the back protection levee and extends from Bayou Bienvenue to Verret. The Central Wetlands portion of the distribution project is expected to benefit about 2500 ac.

Objectives

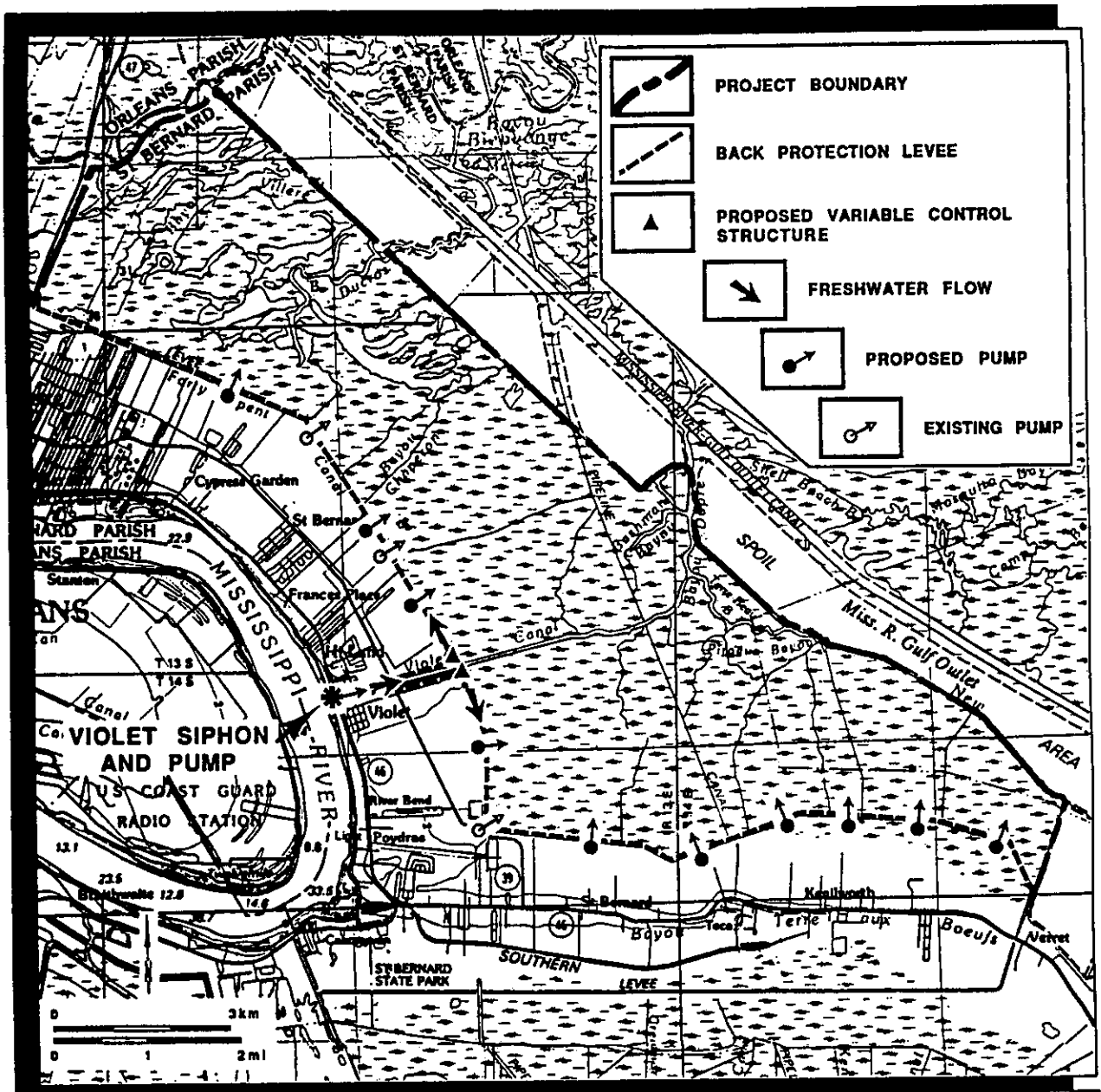
The primary objective of this project is to conserve and restore wetlands by distributing freshwater from the Mississippi River that is being diverted into the wetland by the Violet Siphon, and to supplement that flow during low river stages by use of a pump. The introduction of freshwater, nutrients, and some sediments benefits the marsh and reduces land loss. It is believed that the introduction of larger quantities of freshwater into the Central Wetlands will reverse the process of deterioration resulting from the influx of saltwater along the MRGO and through the floodgates at Bayou Dupre and Bayou Bienvenue. Saltwater intrusion has destroyed vast areas of marsh and cypress swamps in this area. Additional benefits will accrue from renovation of storm-water runoff from the surrounding fastlands.

Project Features

The project includes installation of a large pump at the location of the Violet Siphon to supplement diversion and to provide a year-round source of freshwater. Water siphoned or pumped into the Violet Canal will be diverted to the east and west into the Forty Arpent Canal by means of water control structures in the back protection levees. One such structure is present in the eastern back protection levee, but it requires renovation. The water introduced into the Forty Arpent Canal will be pumped into the Central Wetlands by means of 12 small pumps (100 cubic feet per second [cfs] each) strategically located along the back protection levee.

Status

The project is in the conceptual stage and further details are needed prior to permit application. There is a question regarding the ability to protect the area behind the back protection levee from flooding when water is diverted into the area. The capacity of the Violet Canal to carry the additional discharge needs to be evaluated, as do the constraints placed by permit conditions concerning water levels within the protection levee. Finally, the diversion discharge of this project is to be shared with the proposed project BS-6. The feasibility of managing such a complex and energy-consuming system should be carefully analyzed.



PO-9. VIOLET FRESHWATER DISTRIBUTION (CENTRAL WETLANDS)

Hydrologic Basin: Pontchartrain

Parish: St. Bernard

Acreage Benefitted: 2,500

Description: Successful implementation of this project conserves and enhances vegetated wetlands by distributing freshwater from the Mississippi River.

PO-10. Turtle Cove Shore Protection

Location and Size

The 8,300-ac Manchac Wildlife Management Area (WMA) is located in the northern portion of St. John the Baptist Parish between Lake Pontchartrain and Lake Maurepas. It has approximately 6.2 mi of shoreline on the northwest portion of Lake Pontchartrain. The project is located approximately 4.2 mi south of Pass Manchac in a shallow embayment known as Turtle Cove. It directly benefits about 800 ac of marsh.

Objectives

The project area includes a narrow strip of land between the Prairie (800 ac of floating fresh marsh) and Lake Pontchartrain that has been eroding at approximately 14 ft per year since 1970. Currently, only 200 ft of land protects the Prairie from erosive waves and tidal fluctuations of Lake Pontchartrain. Based on current erosion rates, if shoreline erosion continues unchecked, the Prairie will likely become part of the lake in approximately 15 years. However, one storm could create the breach at any time.

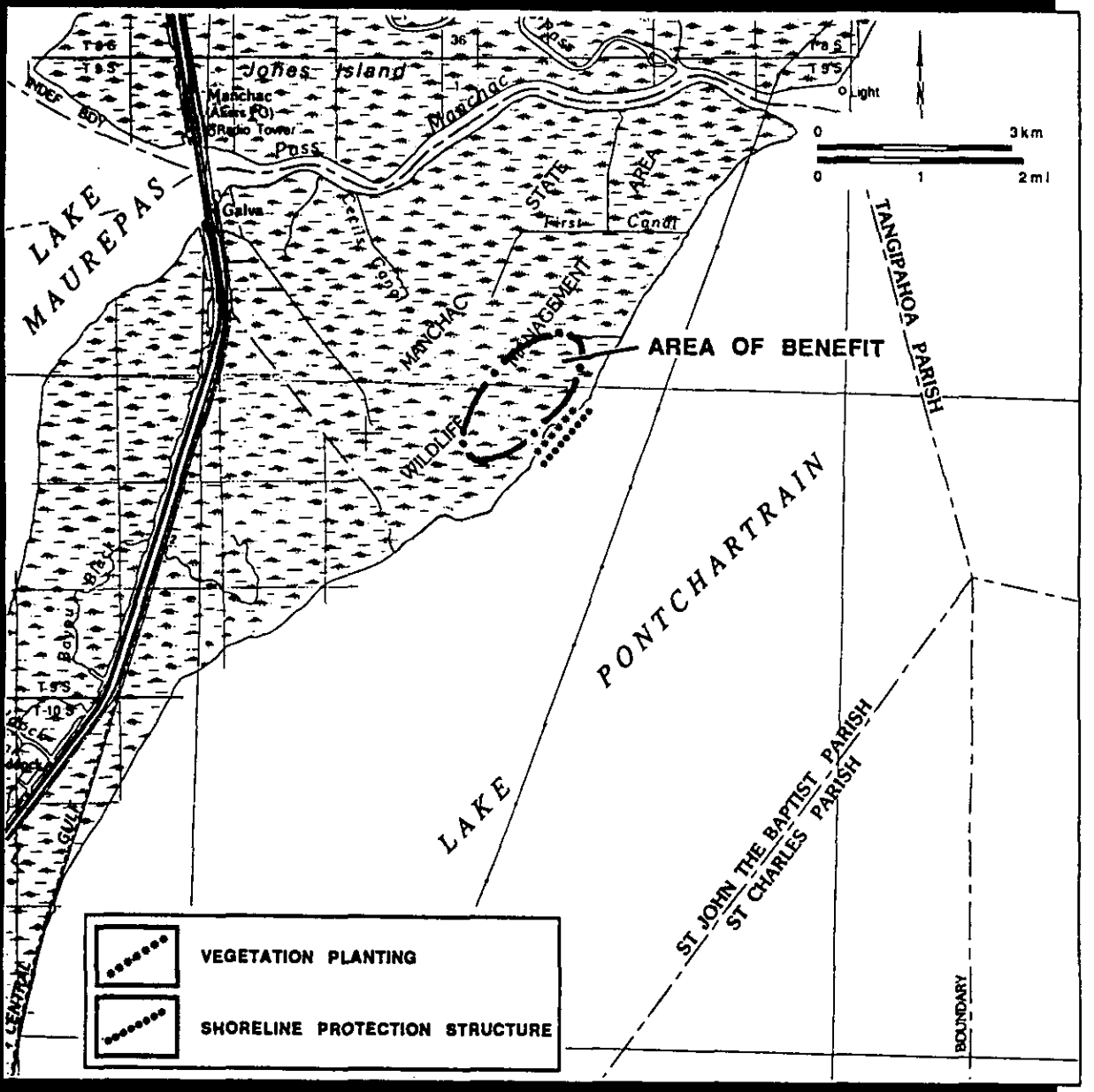
Major foreshore or shoreline protection measures are urgently needed to insure the long-term wetland character of the Manchac WMA for continued utilization by a diversity of wildlife species. Once the shoreline is breached into the soft, floating marsh, there is little to protect the stability of this entire 8,300-ac area. The area forms an important hydrologic barrier. Approximately 4.5 mi of shoreline protection has been proposed as mitigation by the Corps for the New Orleans Hurricane Protection Levee. This would be a breakwater-type protection structure. The objective of this proposed project is to protect the highest priority shoreline segment at the Prairie until the Corps can institute the mitigation program.

Project Features

The project features include a breakwater consisting of two 500-ft-long Longard Tubes filled with sand. The breakwater will be installed away from the shoreline with vegetation to be planted in the intermediate area. The breakwater will dissipate the wave energy sufficiently to allow establishment of marsh that will then act as a sediment trap to extend the shoreline through accretion.

Status

The Corps permit required for the project at the Prairie has been obtained. As soon as funding is provided, construction can begin. Once the breakwater is complete, the plantings can be implemented during the first growing season. However, the status of the Corps mitigation plan for the remainder of the program is unknown.



PO-10. TURTLE COVE SHORE PROTECTION

Hydrologic Basin: Pontchartrain
Parish: St. John the Baptist
Acreage Benefitted: 800

Description: Successful implementation of this project conserves vegetated wetlands by protecting a natural hydrological barrier from wave-induced erosion.

PO-11. Cutoff Bayou Marsh Management

Location and Size

The Cutoff Bayou proposal is a wetland enhancement project. The Cutoff Bayou Subunit is a 4,500-ac area of marsh in Orleans Parish, located in the corner between the MRGO, Gulf Intracoastal Waterway (GIWW), and Bayou Bienvenue. The northern half of the project area is part of the new Bayou Sauvage Wildlife Refuge. It is estimated that the proposed measures will benefit about 20% of the area or 900 ac.

Objectives

Tidal forces move water through the Cutoff Bayou Subunit between the GIWW and Lake Borgne at high velocities. The volume and velocity of this water movement is excessive and causes erosion of the interior marsh. The objective is to reduce the rate of water movement while maintaining the benefits of water exchange. The project marshes provide both direct and indirect hurricane protection for New Orleans.

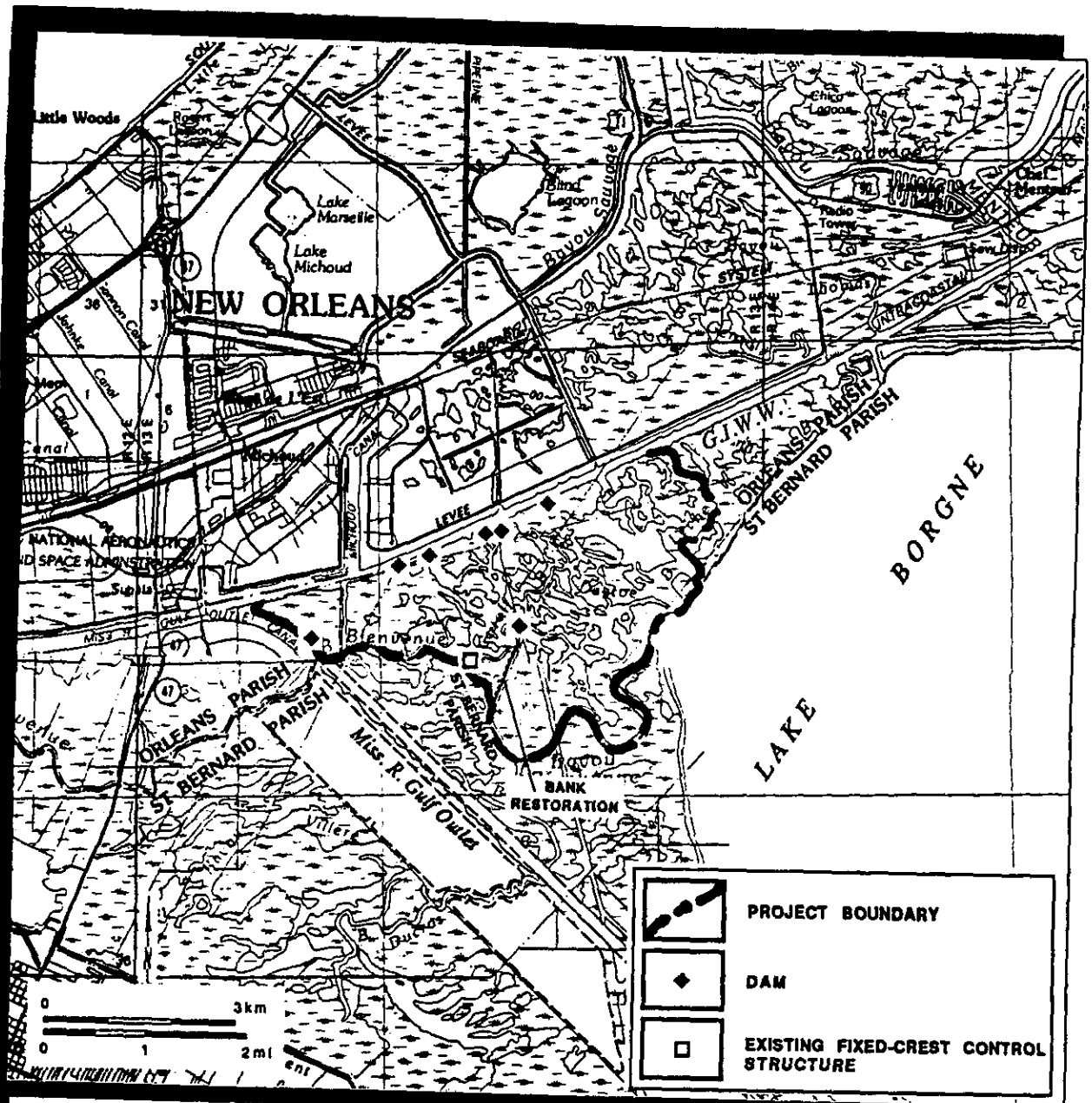
The benefits of this management program will include the reduction of marsh loss from erosion, which will prolong the life of this estuarine marsh area. While the structural measures will reduce tidally-induced erosion, they will not excessively inhibit ingress and egress of estuarine-dependent fish, nor reduce the area's importance as a recreational fishing area. Reduction of erosion will also reduce turbidity in the area, which should improve the growth of submergent grassbeds for waterfowl.

Project Features

Surface water movement will be attenuated through construction of a series of closures, mainly along the GIWW. New earthen dams are recommended across canals and gaps at five locations. Marsh vegetation should be planted on the flanks of these dams to protect them from erosion. Additional closures are recommended at the north end of a gas pipeline canal near the GIWW and across a gap on the west bank of the MRGO. One existing weir, situated in a stream that connects to Bayou Bienvenue, will be rebuilt. It is also recommended that a spoil bank be restored along a 3,200-ft segment of the pipeline canal. Present water exchange with Lake Borgne will not be changed to ensure continued sediment introduction.

Status

The Cutoff Bayou Subunit is part of a comprehensive conservation management and restoration program developed for the City of New Orleans. Joint planning with the U.S. Fish and Wildlife Service has begun. The project still requires engineering and design, and permit acquisition, as well as feasibility analysis by the state. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



PO-11. CUTOFF BAYOU MARSH MANAGEMENT

Hydrologic Basin: Pontchartrain
Parish: Orleans
Acreage Benefitted: 900

Description: Successful implementation of this project conserves and enhances vegetated wetlands by implementing passive estuarine management.

PO-12. West LaBranche Wetland Management

Location and Size

The project is bounded by Bayou LaBranche on the northeast, by the Bonnet Carré Spillway levee on the northwest, and by U.S. Hwy. 61 and developed areas on the southwest. The project is expected to help protect 3,800 ac of freshwater wetlands.

Objectives

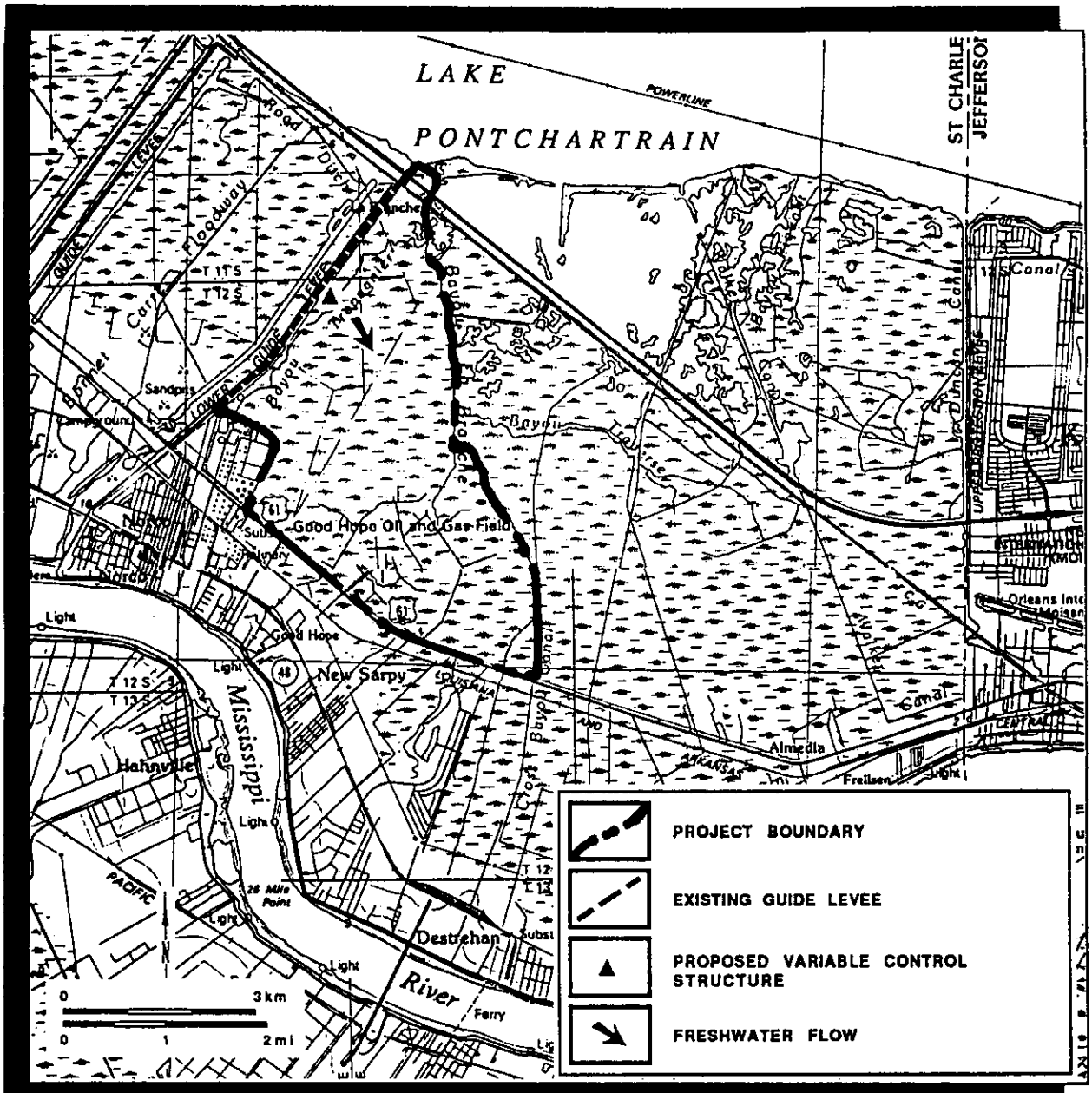
The project is an expansion of the 1990-91 project PO-3a and will address new development components in the area. These components include the construction of the Corps of Engineers hurricane protection levee just north of U.S. 61 and new drainage projects. The levee is expected to change the hydrology of the wetland area. The project area is presently fresh marsh and swamp in good condition. The objectives are to assess the current processes of freshwater introduction and retention, predict the potential effects of levee construction and drainage modification, and to protect the project area from future saltwater intrusion via Bayou La Branche by implementing necessary measures for water management.

Project Features

Three project features for addressing water management needs will be considered. One is the diversion of water from the Bonnet Carré Spillway should a major river-water diversion be implemented. The second is the full utilization of runoff from the area within the proposed flood protection system. The third is the implementation of measures along Bayou La Branche that allow some control over water exchange between the project area wetlands and the bayou.

Status

The project requires planning, feasibility analysis, and permitting. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



PO-12. WEST LABRANCHE WETLAND MANAGEMENT

Hydrologic Basin: Pontchartrain
Parish: St. Charles
Acreage Benefitted: 3,800

Description: Successful implementation of this project conserves vegetated wetlands by implementing passive estuarine management.

PO-13. Tangipahoa/Pontchartrain Shore Protection

Location and Size

The project is located along the Lake Pontchartrain shoreline on both sides of the mouth of the Tangipahoa River in Tangipahoa Parish. Approximately 75 ac of swamp will be protected by the project over the next 25 years.

Objectives

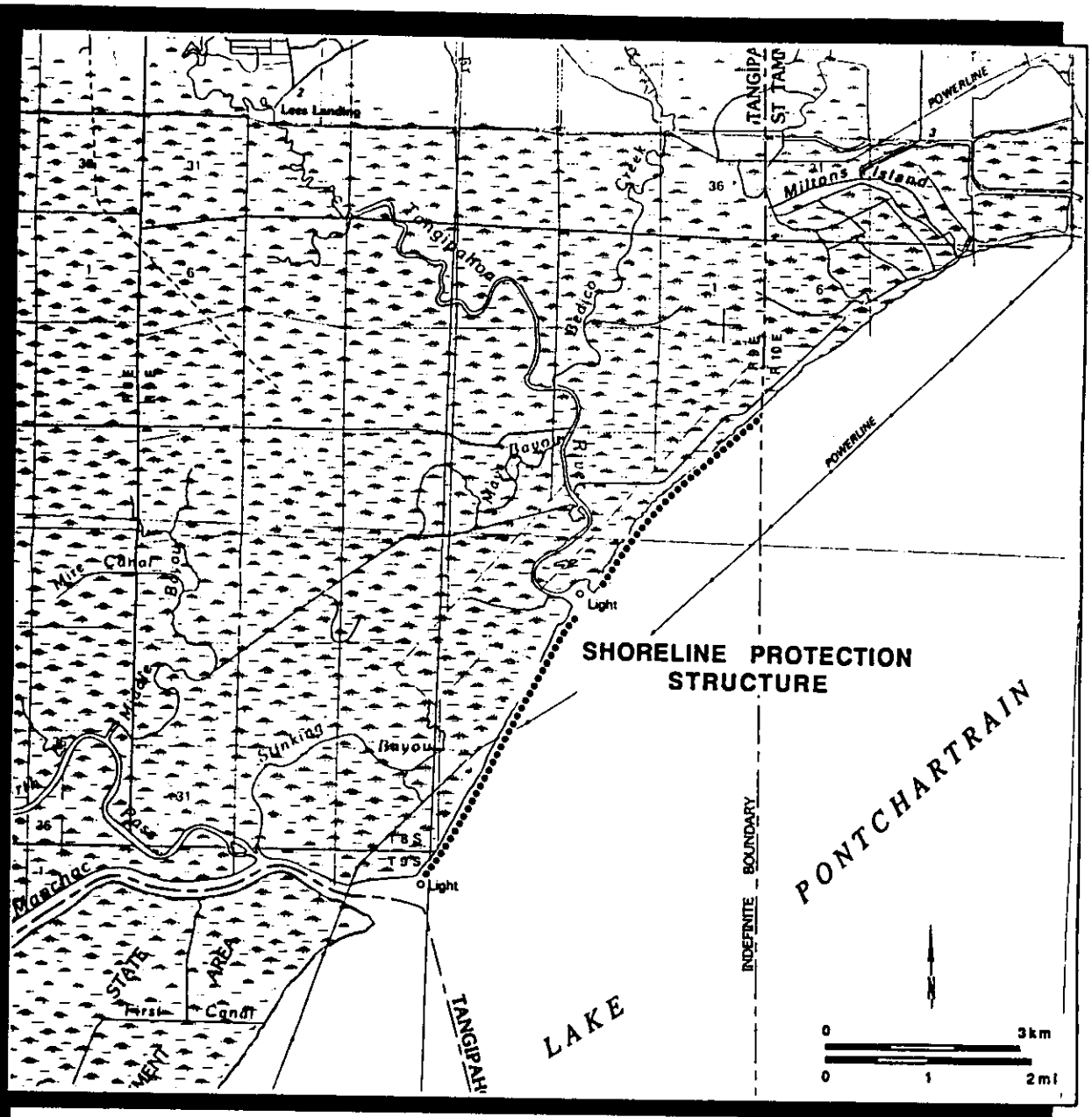
The objective of the project is to investigate causes and rates of wetland loss in this area and to reduce erosion when cost justifies this.

Project Features

Project features will include shoreline erosion-control measures to be designed in accordance with the wave climate of Lake Pontchartrain.

Status

The project requires feasibility analysis.



PO-13. TANGIPAHOA/PONTCHARTRAIN SHORE PROTECTION

Hydrologic Basin: Pontchartrain
Parish: Tangipahoa
Acreage Benefitted: 75

Description: Successful implementation of this project formulates alternatives and implements measures to conserve vegetated wetlands.

PO-14. Green Point/Goose Point Marsh Restoration

Location and Size

The project area includes the intermediate and brackish marshes between Bayou Lacombe and Bayou Castine in St. Tammany Parish. Over half of this 4800-ac marsh is experiencing rapid conversion to shallow ponds so that restoration and enhancement could result in a 3000-ac benefit.

Objectives

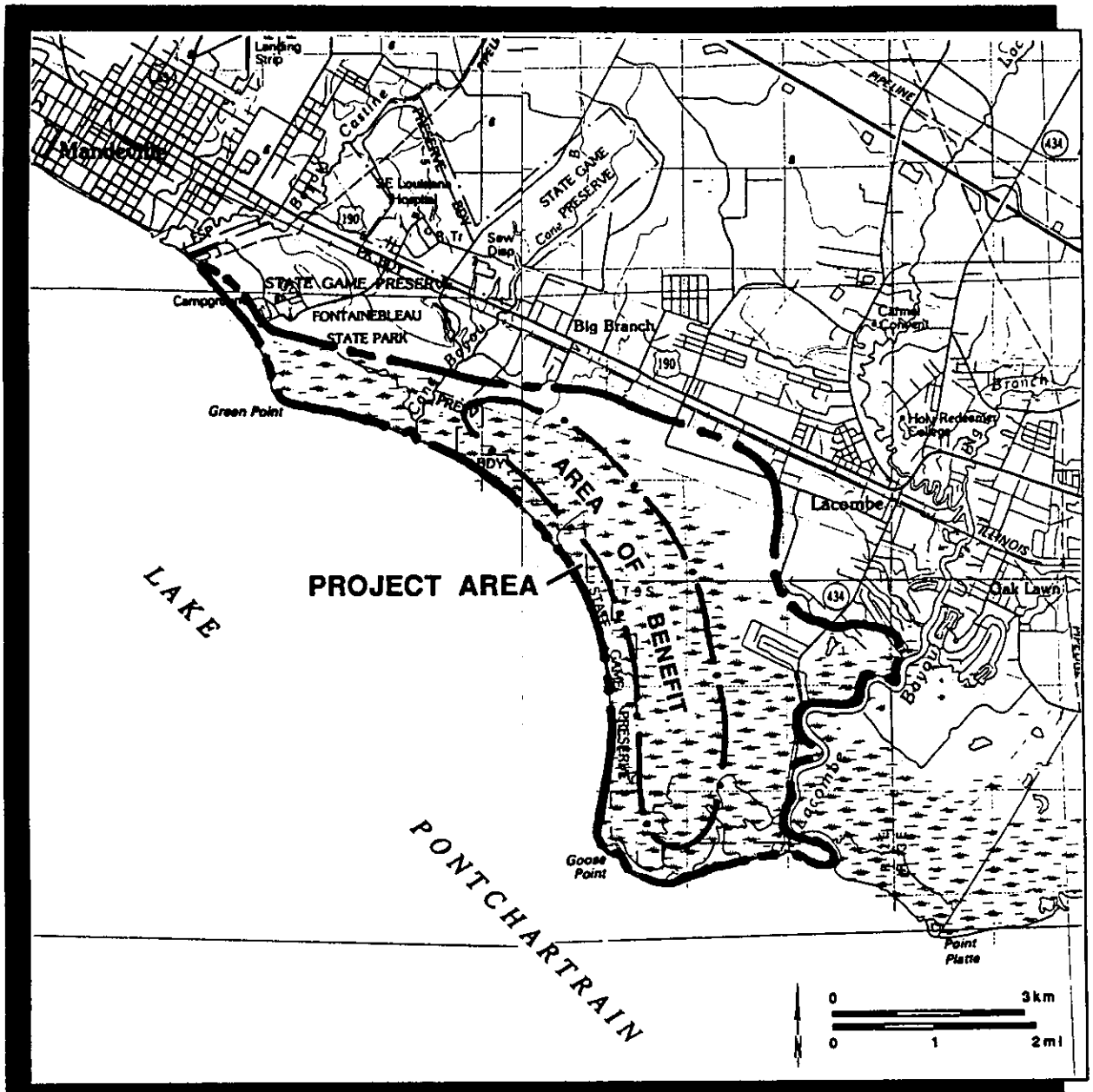
The objective is to identify the most important causative factors and develop and implement realistic measures to reverse marsh loss in this area.

Project Features

The primary factors to be analyzed will be impoundment, subsidence, and salinity increases. While dependent upon the aggregate effects of these factors, proposed measures are likely to include marsh restoration through the use of dredged material and surface-water management.

Status

The project requires feasibility analysis. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



PO-14. GREEN POINT/GOOSE POINT MARSH RESTORATION

Hydrologic Basin: Pontchartrain
Parish: St. Tammany
Acreage Benefitted: 3000

Description: Successful implementation of this project conserves and enhances vegetated wetlands by the utilization of management measures to be further defined.

PO-15. Alligator Point Marsh Restoration

Location and Size

The project site includes all of the Alligator Point Management Unit in eastern Orleans Parish. The area extends from the Rigolets to Chef Menteur Pass south of the GIWW. This area is composed of 16,200 ac of brackish marsh, laced with small ponds and tidal streams. Approximately 1200 ac of wetlands will be restored or enhanced.

Objectives

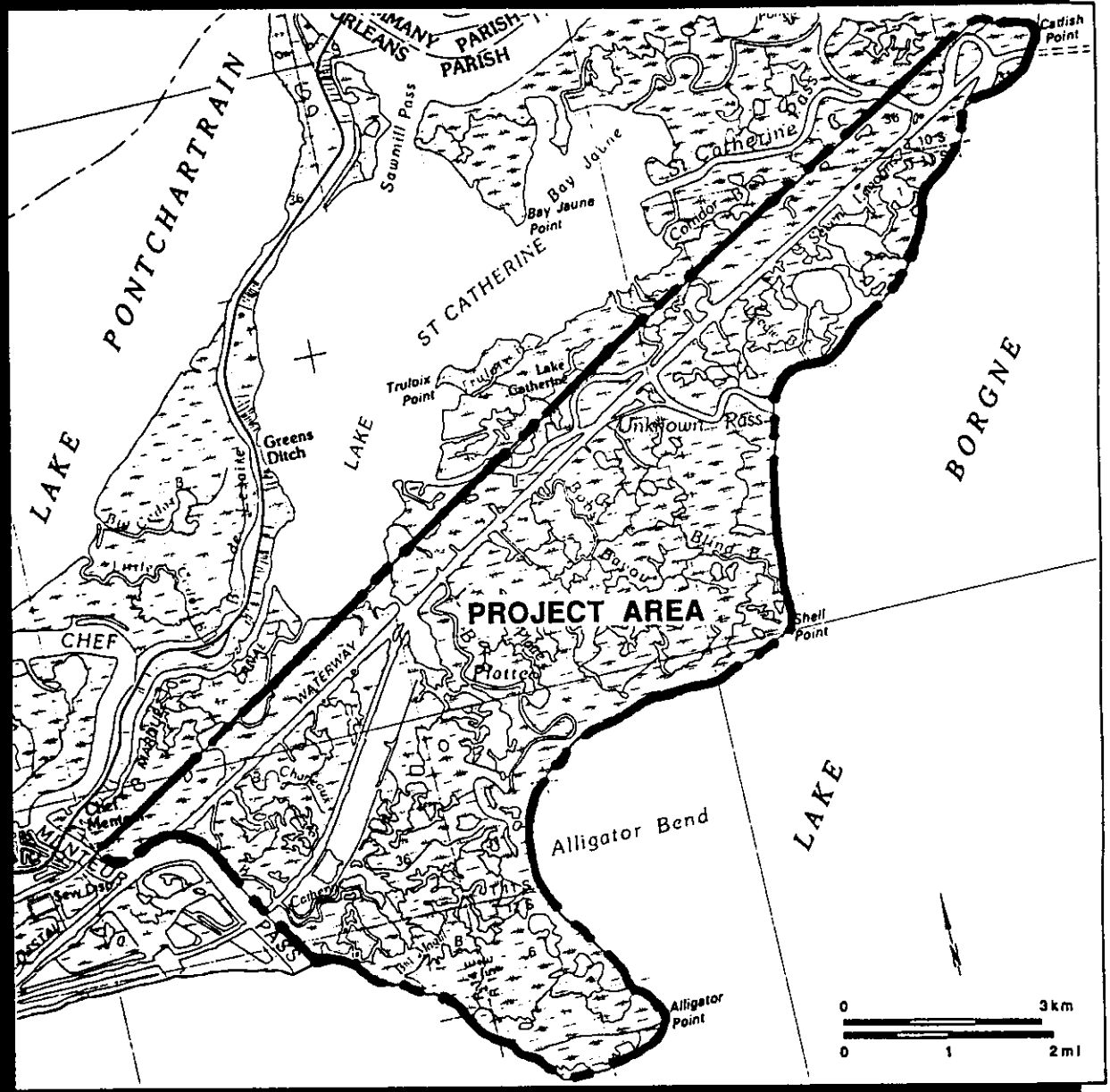
The objective of the project is to assure continuing integrity of the wetland barrier between Lake Borgne and Lake Pontchartrain. Shoreline erosion and interior marsh loss have become a serious threat in the northern part of the project area.

Project Features

The emphasis will be on wetland restoration in the northern part of the project area. Sites will be identified and appropriate measures will be proposed. These measures may include sand nourishment, sediment trapping, use of dredged material from maintenance dredging of the GIWW, or other applicable site-specific solutions. In addition, the 1990-91 project PO-2b proposed shoreline nourishment along a critical segment of the shoreline fronting Bayou Platte with the objective of preventing break-through and enlargement of the bayou into a major pass. A similar measure is proposed and will be evaluated for the connection that is currently developing between Lake Borgne and interior marshes as a result of shore erosion and a break-through into Blind Bayou.

Status

This project requires feasibility analysis. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



PO-15. ALLIGATOR POINT MARSH RESTORATION

Hydrologic Basin: Pontchartrain
Parish: Orleans
Acreage Benefitted: 1,200

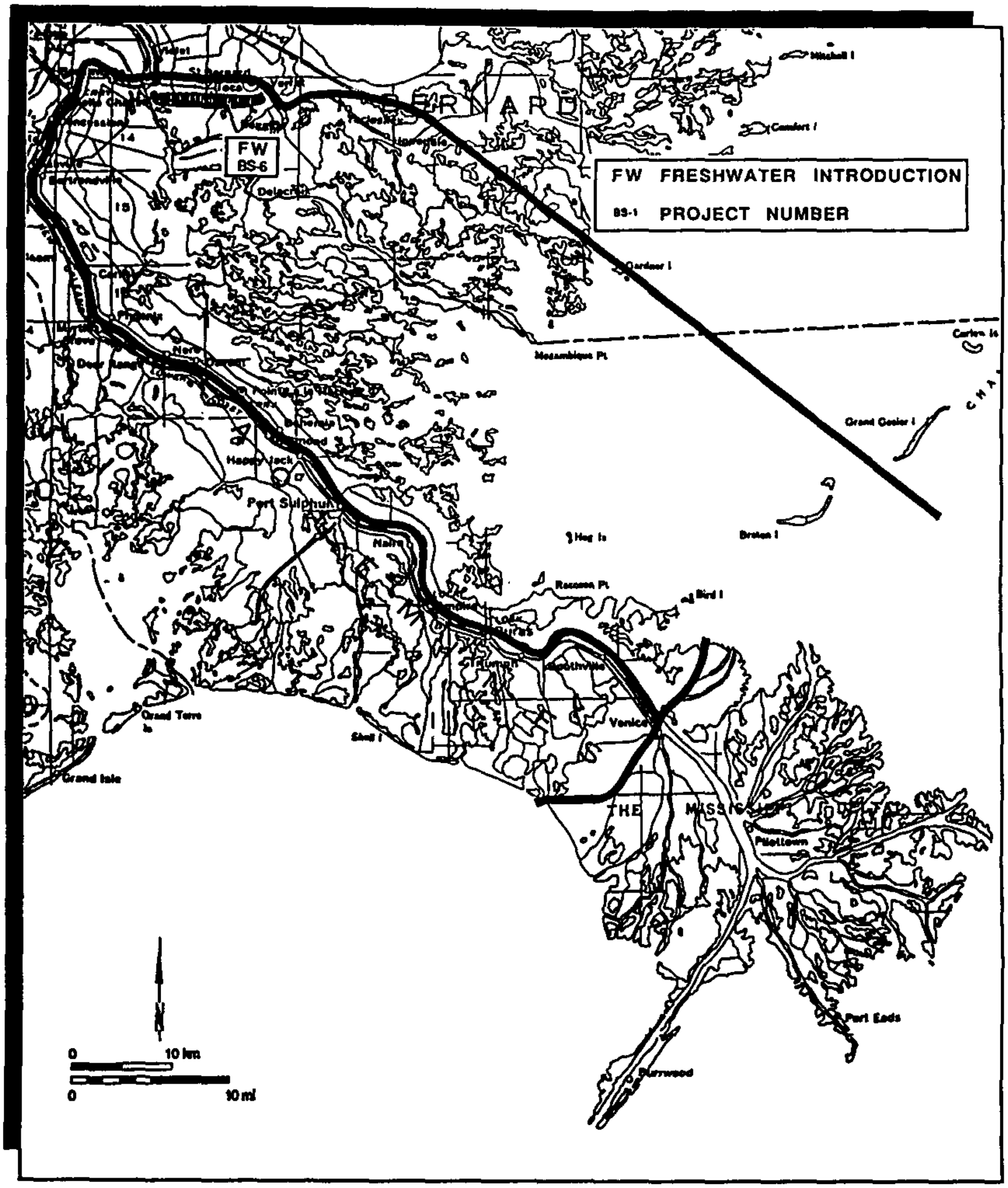
Description: Successful implementation of this project conserves and restores vegetated wetlands between Lake Borgne and Lake Pontchartrain, by utilizing dredged material, trapping sediment, and planting vegetation.

BRETON SOUND BASIN

BRETON SOUND BASIN

BS-6 Violet Freshwater Distrib. (Lake Lery)

Figure BS-0. Location and estimated area of benefit for projects proposed in the Breton Sound Basin.


FW
BS-6
FW FRESHWATER INTRODUCTION
BS-1 PROJECT NUMBER
Mozambique Pt
Grand Gosier I
Breton I
Hog Is
Raccoon Pt
Bird I
Port Sulphur
Happy Jack
Venice
Grand Terre Is
Grand Isle
Shell I
Pilottown
Port Eads
Burrwood
0
10 km
0
10 mi

BS-6. Violet Freshwater Distribution (Lake Lery)

Location and Size

The Violet Freshwater Distribution System (Lake Lery) introduces freshwater into the marsh north of Lake Lery, within the Breton Sound Basin. The general project area comprises some 15,300 ac of brackish and saline marsh in St. Bernard Parish's Lake Lery Management Unit. This wetland extends from the old Bayou Terre aux Boeuf distributary ridge to the Mississippi River natural levee. The benefitted area is expected to be 500 ac.

Objectives

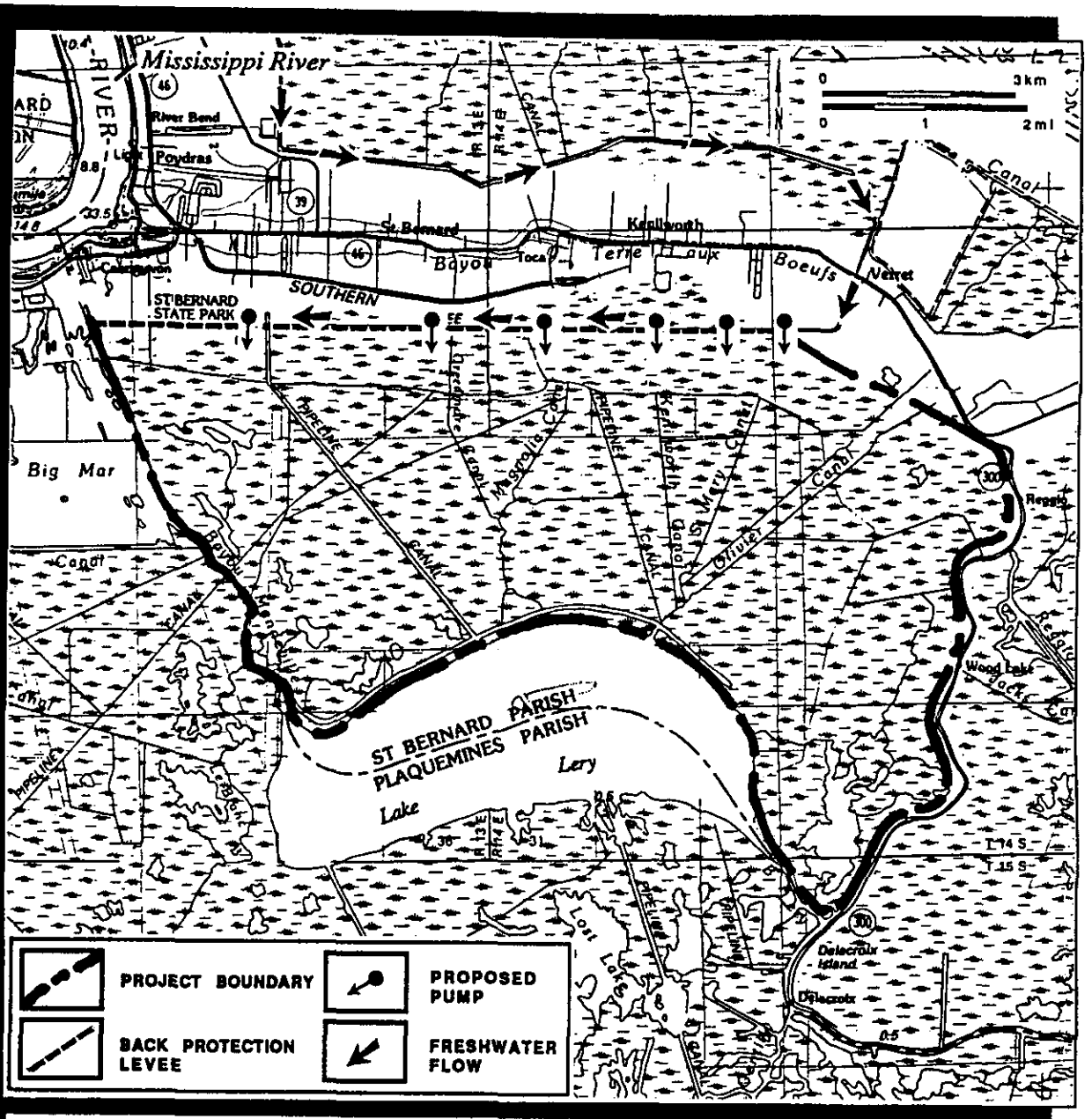
The primary objective of this project is to conserve and restore wetlands by distributing freshwater that is diverted from the Mississippi River by the Violet Siphon and into the Forty Arpent Canal under the proposed project PO-9. The introduction of freshwater into the marsh benefits both the marsh and the water quality of the surrounding area.

Project Features

The water introduced into the Forty Arpent Canal by the Violet Siphon would flow under LA 46 through an existing box culvert and be transferred into the Lake Lery Marsh by means of small pumps located along the hurricane protection levee. It is estimated that six pumps will be required at 1-mi intervals.

Status

The project requires feasibility analysis. The analysis should include consideration of the 1990-91 projects BS-3a and 3b and the anticipated effects of the Caernarvon Freshwater Diversion Project immediately to the south.



BS-6. VIOLET FRESHWATER DISTRIBUTION (LAKE LERY)

Hydrologic Basin: Breton Sound
Parish: St. Bernard
Acreage Benefitted: 500

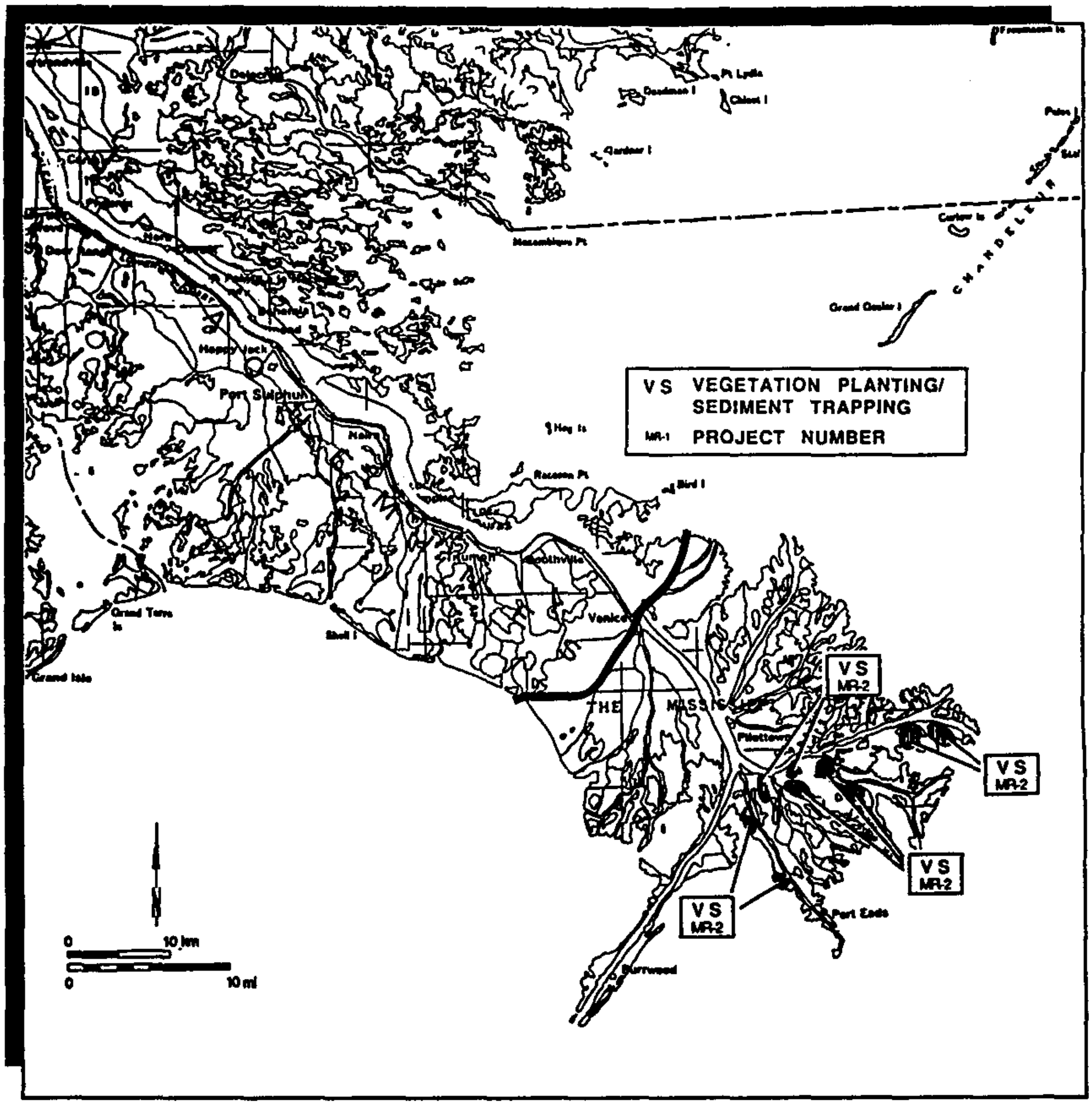
Description: Successful implementation of this project conserves vegetated wetlands by distributing available freshwater and nutrients.

MISSISSIPPI RIVER DELTA

MISSISSIPPI RIVER DELTA

MR-2 Pass-a-Loutre Sediment Fencing

Figure MR-0. Location and estimated area of benefit for projects proposed in the Mississippi River Delta.


VS VEGETATION PLANTING/
SEDIMENT TRAPPING
MR-1 PROJECT NUMBER
VS
MR-2
VS
MR-2
VS
MR-2
VS
MR-2
Venice
Port Sulphur
Grand Isle
Port Eads
Burrwood
0 10 km
0 10 mi

MR-2. Pass-a-Loutre Sediment Fencing

Location and Size

The project is located on the Pass-a-Loutre WMA, which is approximately 66,000 ac in size. Numerous open-water sites are available for the project's implementation. Approximately 60 ac of marsh are expected to be restored in shallow water bottoms.

Objectives

The objective of the project is to better utilize the suspended sediment of the Mississippi River that is discharged through natural cuts (crevasses) or cuts made for the purpose of sediment diversion in natural levee ridges of the Delta. Sediment fences are constructed to reduce water velocities in the receiving areas, forcing the suspended sediment to be deposited. Eventually, the sediment accumulations are colonized by marsh grasses that continue to trap sediments. The process continues until the cut silts in and sediment input declines. Then the process is repeated at a new cut. The project supplements project MR-1 (1990-91), which creates sediment diversions.

Project Features

The project will create vegetated wetlands in open-water systems by enhancing sedimentation processes at 20 new locations within 9 sites. At each location 200 ft of fencing will be employed resulting in creation of approximately 60 ac of marsh in total.

Status

This project is part of an ongoing program of the DWF and DNR. Work will be done under a General Permit.

MR-2. PASS-A-LOUTRE SEDIMENT FENCING

Hydrologic Basin: Mississippi River
Parish: Plaquemines
Acreage Benefitted: 60

Description: Successful implementation of this project creates vegetated wetlands by trapping suspended sediment at natural or man-made crevasses within the Mississippi River Delta.

BARATARIA BASIN

BARATARIA BASIN

BA-8	Lake Cataouatche Shore Protection
BA-9	Salvador WMA Gulf Canal Project
BA-10	Davis Pond Diversion Outfall Management
BA-11	Tiger/Red Pass Diversion and Outfall Management
BA-12	Grand/Spanish Pass Diversion
BA-13	Hero Canal Diversion
BA-14	Little Lake Marsh Management
BA-15	Lake Salvador Shore Protection
BA-16	Segnette Wetland Protection
BA-17	City Price Diversion

Figure BA-0. Location and estimated area of benefit for projects proposed in the Barataria Basin.


FD FRESHWATER DIVERSION
MM MARSH MANAGEMENT
SP SHORE PROTECTION
VS VEGETATION PLANTING/ SEDIMENT TRAPPING
BA-1 PROJECT NUMBER
FD BA-10
SP BA-6
SP BA-16
VS BA-9
SP BA-15
FD BA-13
MM BA-14
FD BA-17
FD BA-12
FD BA-11
ST CHARLES
JEFFERSON
ORLEANS
PLAQUEMINES
ST BERNARD
Metairie
Kenner
Harvey
Westwego
Marrero
Chalmette
Golden Meadow
Grand Isle
Port Sulphur
0 10 km
0 10 mi

BA-8. Lake Cataouatche Shore Protection

Location and Size

The project is located on the western shore of Lake Cataouatche at the boundary of the Salvador Wildlife Management Area. The area affected, known as "The Netherlands," encompasses approximately 1,500 ac of freshwater and marsh in St. Charles Parish. The proposed measure is expected to benefit about 350 ac by reducing erosion.

Objectives

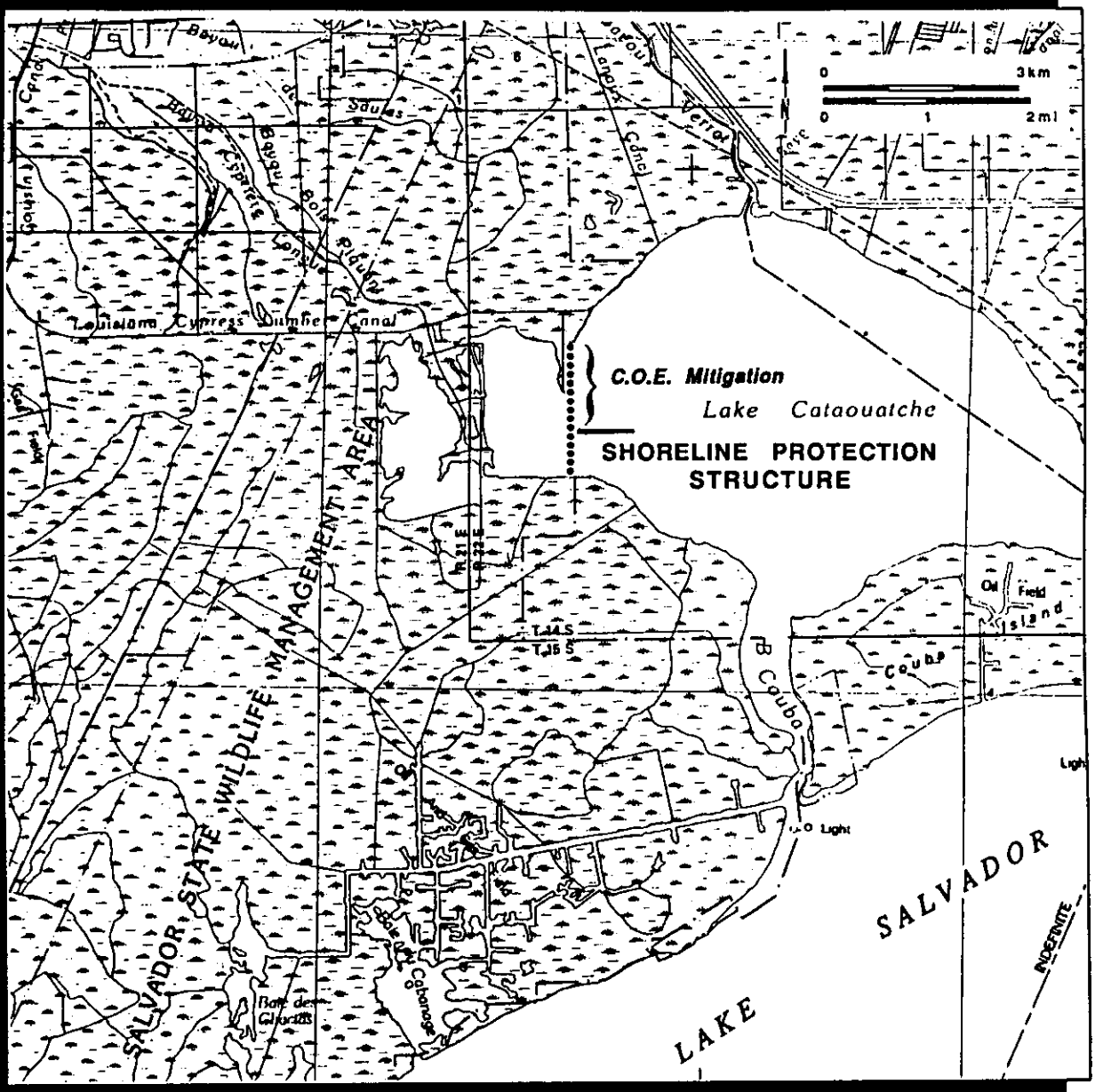
The objective of the plan is to preserve valuable emergent wetlands and submerged aquatic plants on public lands of the "Netherlands" area by prolonging existence of the marsh that separates this area from Lake Cataouatche. This will be accomplished by the use of a piling-and-tire breakwater.

Project Features

Completion of the project will directly reduce erosion of about 300 ac between Lake Cataouatche and the "Netherlands" area. The project will indirectly reduce potential long-term erosion of tens of acres along the several thousand acres of marshes adjacent to the Netherlands' main water body. An approximately 2000-ft piling-and-tire breakwater is proposed to supplement the 3500-ft piling-and-tire breakwater to be implemented by the Corps of Engineers as mitigation for the West Bank hurricane protection levee. This project would complete the structure for the "Netherlands" area.

Status

Plans and specifications have been completed by the Corps of Engineers. The DWF will utilize a General Permit for construction activities and will coordinate implementation with the Federal agency.



BA-8. LAKE CATAOUATCHE SHORE PROTECTION

Hydrologic Basin: Barataria
Parish: St. Charles
Acreage Benefitted: 350

Description: Successful implementation of this project conserves vegetated wetlands by reducing wave-induced shoreline erosion.

BA-9. Salvador WMA Gulf Canal Project

Location and Size

The project is located along Gulf Canal which runs west from Bayou Couba into the 30,000-ac Salvador Wildlife Management Area in St. Charles Parish. The canal is the major transportation artery for oil and gas activity in the wildlife management area. On the basis of general erosion rates, it is estimated that 60 ac of wetland will be preserved as a result of proposed measures

Objectives

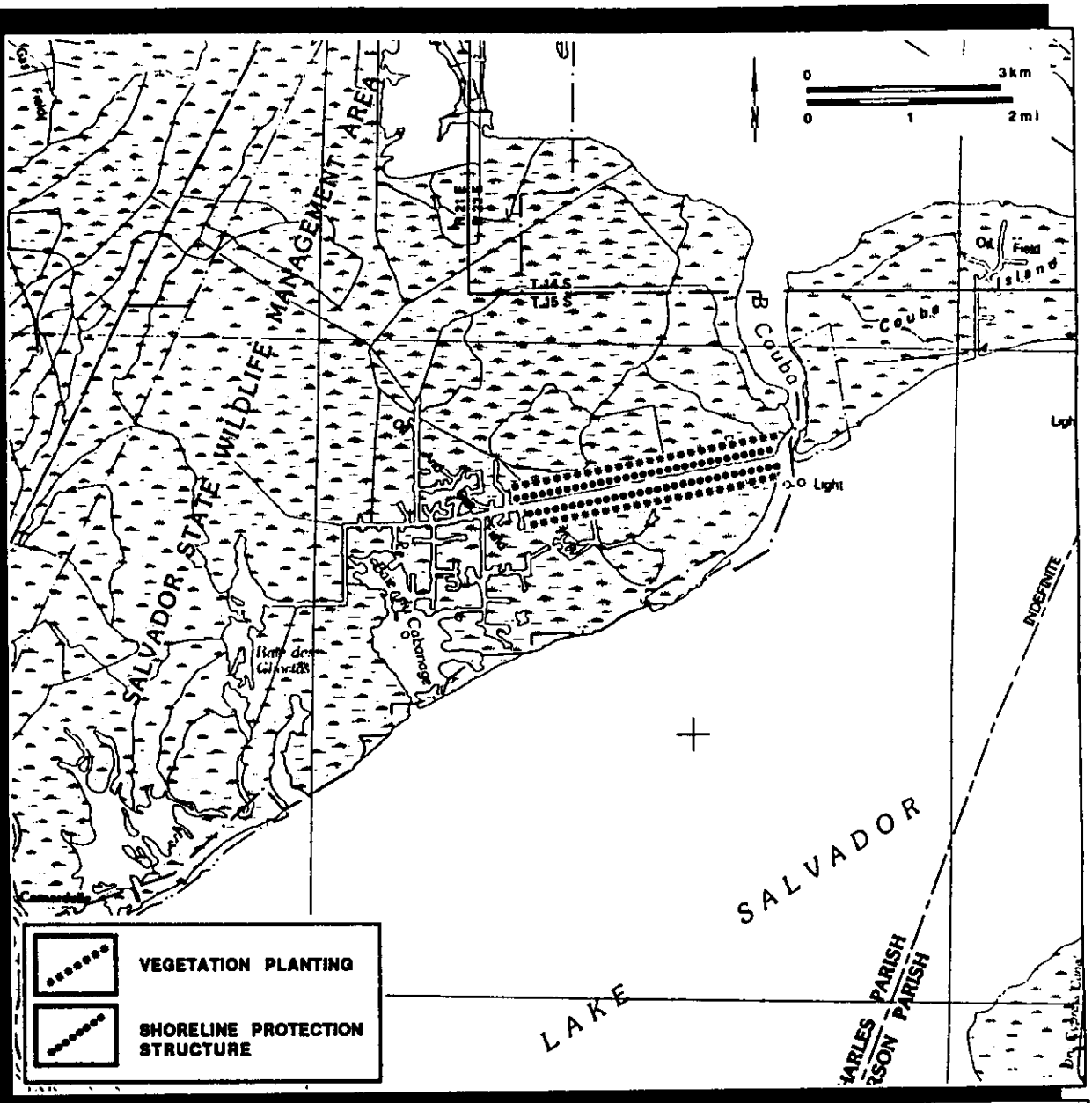
The objective of the project is to reduce marsh loss as a result of boat traffic along the Gulf Canal. Width of the Gulf Canal has increased from an orginal 70 ft to as much as 200 ft in some sections.

Project Features

Construction of approximately 5 mi of wave-dampening fences will be combined with vegetation plantings in the shallow parts of the canal along each bank.

Status

The DWF will prepare plans and specifications for the project. Construction will be done under the General Permit.



BA-9. SALVADOR WMA GULF CANAL PROJECT

Hydrologic Basin: Barataria
Parish: St. Charles
Acreage Benefitted: 60

Description: Successful implementation of this project conserves vegetated wetlands by reducing wave-induced bank erosion.

BA-10. Davis Pond Diversion Outfall Management

Location and Size

The proposed project potentially includes approximately 15,000 ac on the Salvador Wildlife Management Area flanking the northwest shore of Lake Salvador and the western shore of Lake Cataouatche in St. Charles Parish. It is estimated that as much as 4000 ac of wetland could be enhanced through better distribution of sediment-laden river water.

Objectives

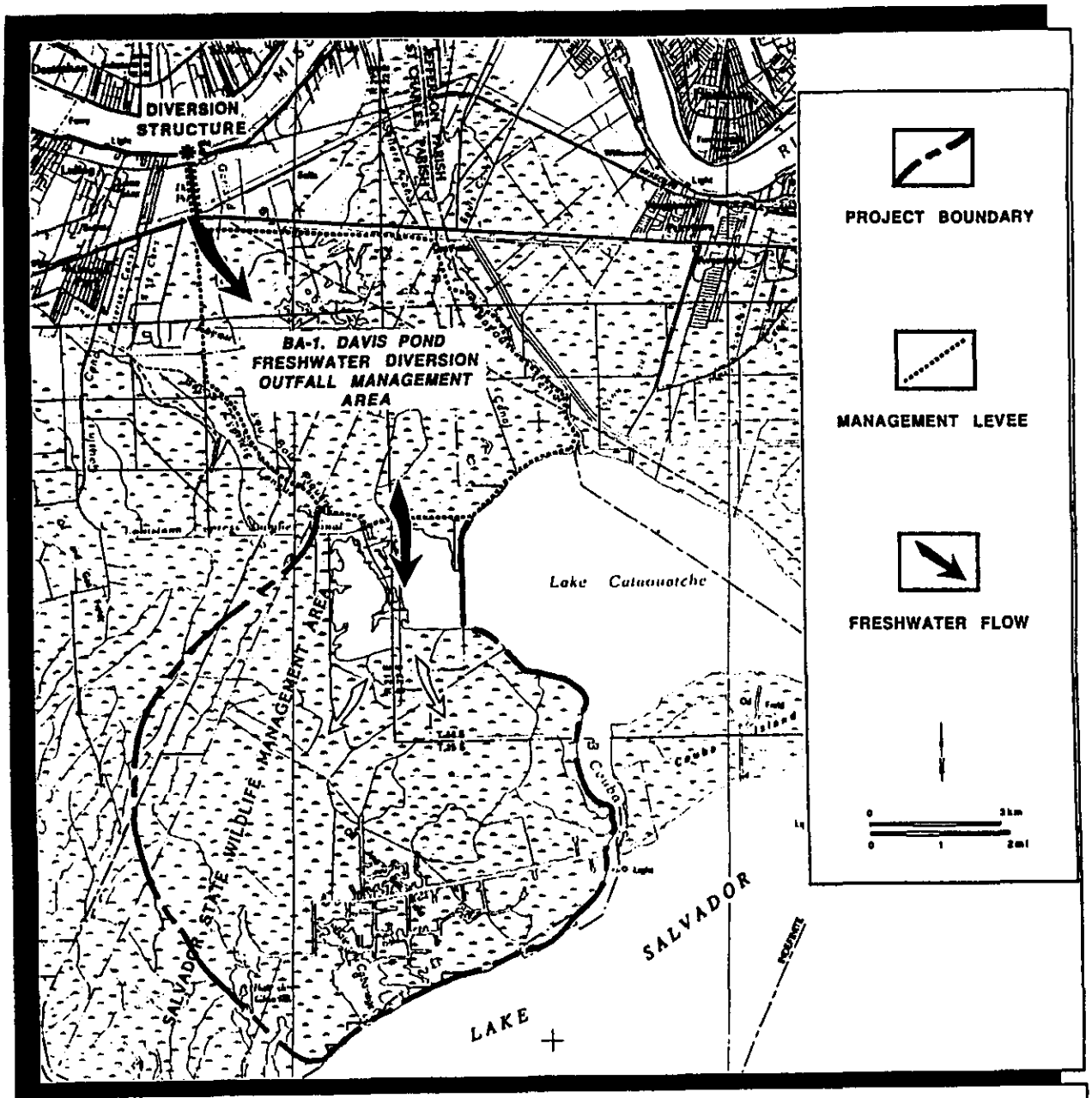
The objective of this project is to provide for introduction of Mississippi River water and sediment into the Salvador Wildlife Management Area through management of the outfall from the proposed Davis Pond Freshwater Diversion. The outfall management plan presented as BA-1 in the 1990-91 Plan will be modified to enhance flow through wetlands of the wildlife management area. Outfall management will enhance water quality and sediment uptake from the diverted water and will benefit public resources on the management area.

Project Features

Hydrological analyses will determine the feasibility of routing diverted freshwater and sediments through shallow, open-water ponds, ditches, and other drainage pathways to numerous exit points at Lake Salvador. This will provide direct benefits to the swamps and fresh marshes. The specific aspects that need to be addressed are the need for containment of flows in the general area of the "Netherlands," the availability of drainage routes in the contiguous wetlands to the south, and the extent to which distributary ridges present natural flow barriers. These aspects will determine the specific measures to be taken for enhancement of outfall distribution.

Status

The project requires feasibility analysis including the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



BA-10. DAVIS POND DIVERSION OUTFALL MANAGEMENT

Hydrologic Basin: Barataria
Parish: St. Charles
Acreage Benefitted: 4000

Description: Successful implementation of this project conserves and enhances vegetated wetlands by distributing available freshwater and sediments

BA-11. Tiger/Red Pass Diversion and Outfall Management

Location and Size

The proposed project is located near Venice in Plaquemines Parish, Louisiana, lying between Spanish Pass and the roadway adjacent to Red Pass. The outer edge of the Venice Dome oil field borders the area to the southwest enclosing an estimated 1600 ac of shallow, open water with limited emergent marsh.

Objectives

The objective of this project is to maintain and restore marsh in this area by providing supplemental freshwater, nutrients, and mineral sediment from the Mississippi River and by managing the diversion outfall. Freshwater diversion alone would be of limited value because of the absence of emergent or aquatic vegetation to trap suspended sediments and the hydrologic connection with the Venice Dome oil and gas field. It is believed that sedimentation can be enhanced through management of the outfall and of the onflow from the receiving area. The sediments would move through and be lost in the deep canals. The marsh management idea was to introduce sediment and freshwater circling back through the oil field in combination with water draw-down. These ideas are limited because of the very high subsidence rates in the area. Therefore, a combination of the two concepts is proposed.

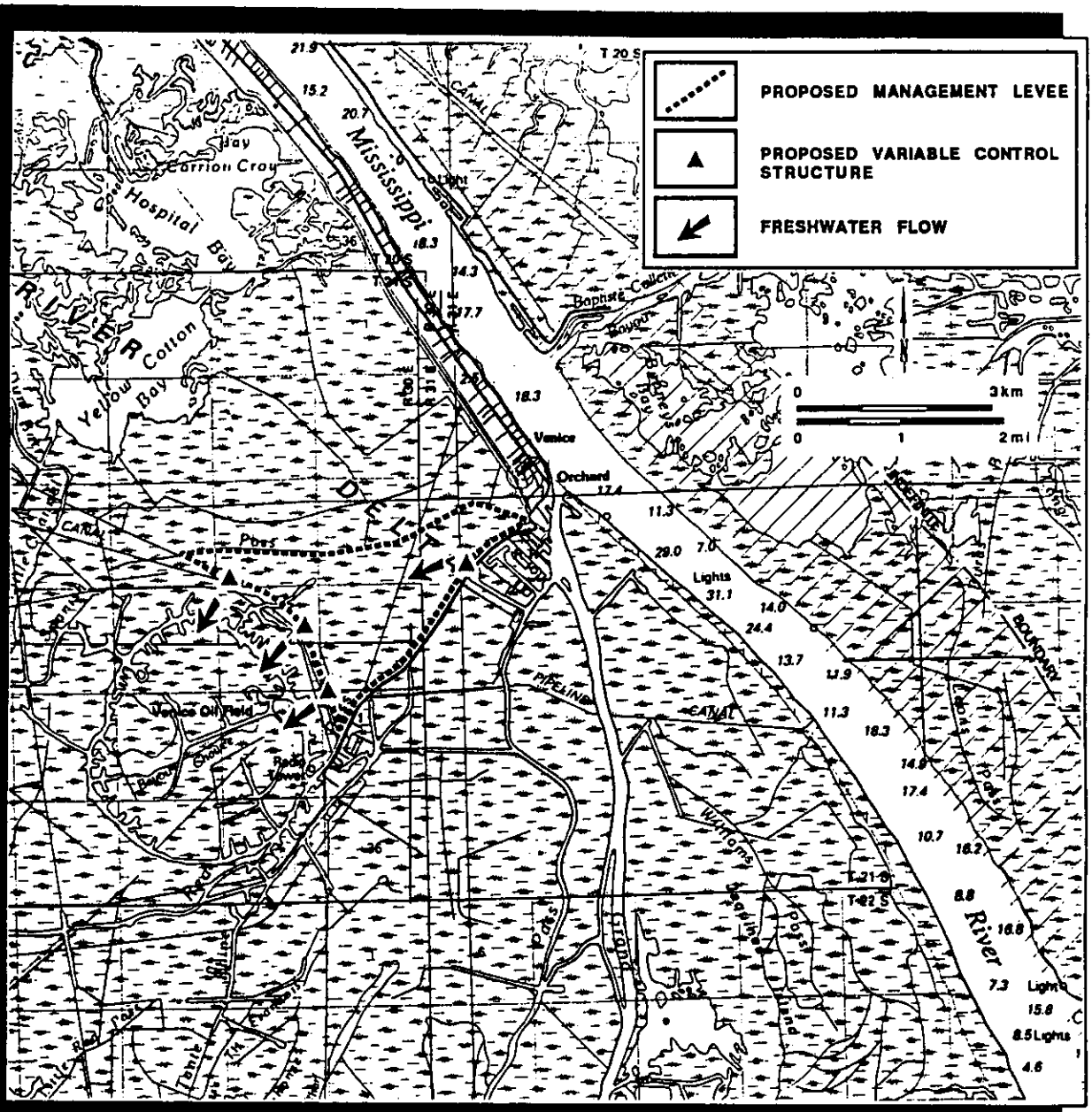
Project Features

The project will include a gated gravity-diversion structure from Tiger Pass into Red Pass. Culverts would be approximately 400 ft long beginning at McDermott's Dock in Tiger Pass, going underneath Tidewater Road, and discharging into the project area. The size and number of pipes will be based on the retention time necessary for sediment deposition, as dictated by the sizes and locations of outfall structures described below.

The existing spoil banks that surround the area will be repaired and upgraded to form management levees. Flap-gate, water-control structures will be installed at strategic locations to force the spreading of diverted water over the entire area. The structures will allow outfall of water on falling tides. On rising tides, the flap gate will close, causing diverted water to be held within the area at reduced velocities, thus allowing sediment to be deposited.

Status

The project requires feasibility analysis. Information is required on the extensiveness of needed spoil bank restoration, and the extent to which envisioned water management can be achieved under the prevailing tidal regime and river stages. Feasibility analysis will also include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project. Plaquemines Parish will share in the cost of project implementation.



BA-11. TIGER/RED PASS DIVERSION AND OUTFALL MANAGEMENT

Hydrologic Basin: Barataria
Parish: Plaquemines
Acreage Benefitted: 1,600

Description: Successful implementation of this project enhances and restores vegetated wetlands by diverting and distributing Mississippi River freshwater and associated nutrients and sediments.

BA-12. Grand/Spanish Pass Diversion

Location and Size

The proposed project is a freshwater diversion located at Venice in Plaquemines Parish, Louisiana, at the former confluence of Grand Pass and Spanish Pass. This project will enhance 4,000 ac of marsh and shallow water in the Yellow Cotton Bay area.

Objectives

The objective of this project is to maintain and restore marsh in this area by providing supplemental freshwater, nutrients, and mineral sediment from the Mississippi River. The outfall zone of the proposed diversion structure is primarily shallow, open water with clusters of small marsh islands.

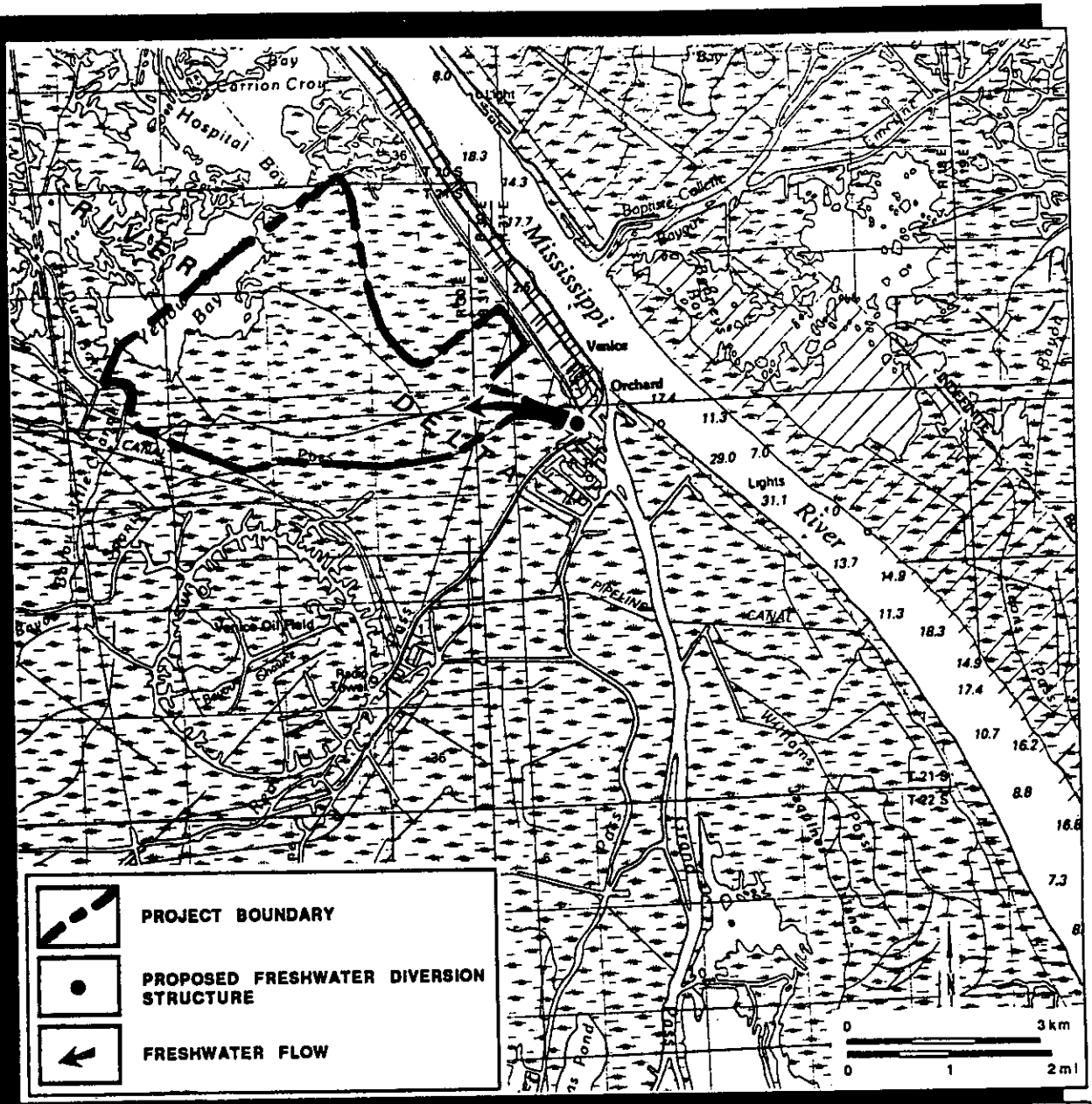
Project Features

The project would be a gated, gravity structure consisting of nine, 72-in-diameter pipes diverting approximately 1,400 cfs in length beginning at a dock area in Grand Pass. The diversion structure will go under the Tidewater Road, which serves the industrial facilities along Red Pass, and reconnect the latter with Spanish Pass.

If adequate sediment retention cannot be achieved because of open-water conditions, an outfall management plan will be developed.

Status

Plaquemines Parish is prepared to share project costs. In addition to planning and design, the project requires feasibility analysis. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



BA-12. GRAND/SPANISH PASS DIVERSION

Hydrologic Basin: Barataria
Parish: Plaquemines
Acreage Benefitted: 4,000

Description: Successful implementation of this project enhances and restores vegetated wetlands by diverting Mississippi River freshwater and associated nutrients and sediments.

BA-13. Hero Canal Diversion

Location and Size

The proposed project is a freshwater diversion siphon at Hero Canal in Belle Chasse, Louisiana just south of Alvin Calendar Naval Air Base. The project may benefit as much as 8000 ac of existing fresh marsh and swamp.

Objectives

The objective of the siphon project is to maintain emergent wetlands in this area by providing supplemental freshwater, nutrients, and mineral sediment from the Mississippi River. Other measures will insure that the diverted water passes through existing marshes for maximum sediment retention and nutrient uptake.

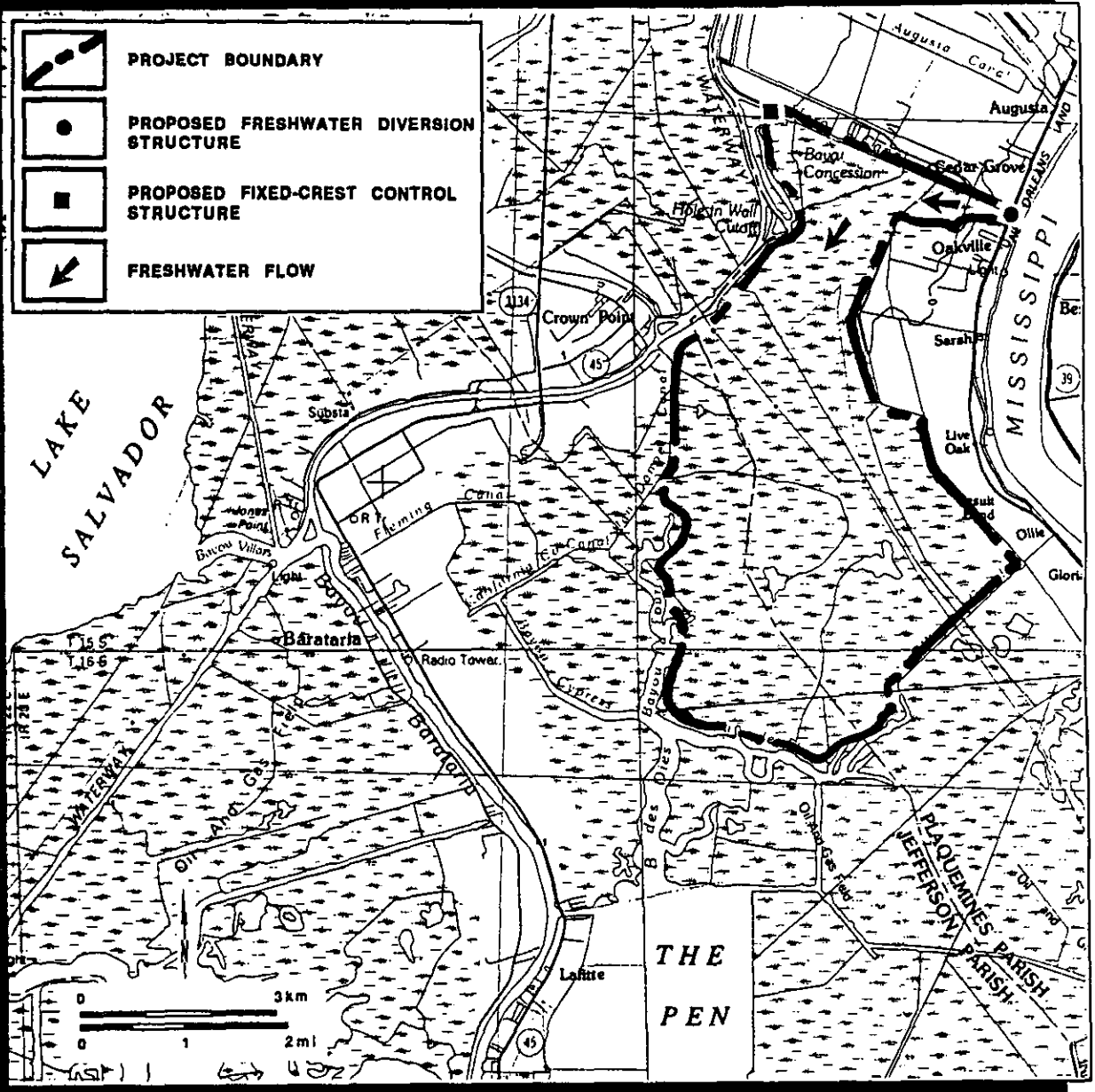
Project Features

Preliminary plans include construction of three, 72-in-diameter pipes that will siphon approximately 1,100 cfs during high stages of the Mississippi River into the marshes bounded by Hero Canal to the north, Bayou Barataria to the west, and levees to the east. The siphons would be approximately 1,500 ft long beginning in the Mississippi River crossing over the river levee, going underneath the existing railroad and La. Hwy. 23, and into the head of the Hero Canal. An outfall control structure would be placed in the canal near the intersection with the GIWW to force the diverted water through the wetland areas. After the project is operating, the water movement will be evaluated and outfall managed where necessary to produce optimum results.

The effect project implementation may have on current commercial usage of the canal banks and associated navigation requires further evaluation. Effects of greatest concern include shoaling of the canal and access constraints caused by a fixed-crest control structure. Options to be considered include scheduled maintenance dredging, removal of the control structure from the project plan, and selection of an alternate diversion site near the community of Live Oak, approximately 2 mi to the south.

Status

Funds for cost-sharing are available from Plaquemines Parish. The project requires engineering design, planning, and permitting. Additionally, the state will undertake a feasibility analysis that will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



BA-13. HERO CANAL DIVERSION

Hydrologic Basin: Barataria
Parish: Plaquemines
Acreage Benefitted: 8,000

Description: Successful implementation of this project conserves, enhances, and restores vegetated wetlands by diverting Mississippi River freshwater and associated nutrients and sediments into the wetlands.

BA-14. Little Lake Marsh Management

Location and Size

The project area is located along the east shoreline of Bayou Rigolettes, approximately 8 mi southwest of Lafitte, Louisiana, in Jefferson Parish. The project intends to reduce shoreline erosion and interior marsh breakup as a result of saltwater intrusion and excessive tidal exchange on approximately 2000 ac of brackish marsh.

Objectives

The objectives of the project are to reduce the rate of shoreline erosion, reduce the rate of tidal export of interior marsh soil, increase the capacity of the marsh to retain freshwater, revegetate deteriorated wetlands, and improve habitat for wildlife and fish. The project area forms an important component of the upper Barataria estuary, as it is part of the hydrologic barrier between Little Lake and Lake Salvador.

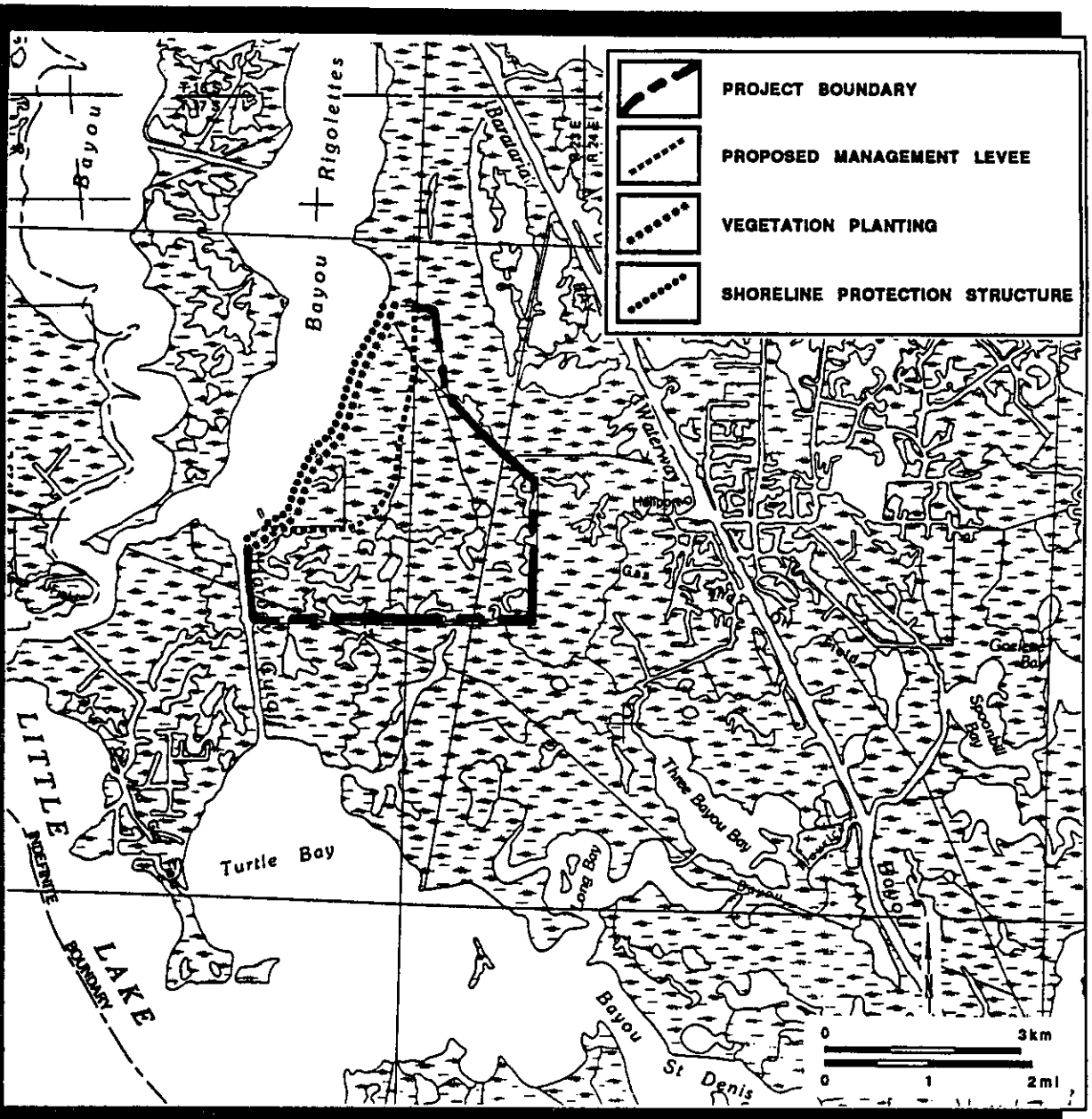
The area has been under management for several decades; however, recently, it has been experiencing high shoreline erosion rates along Bayou Rigolettes. The eastern management levee has been removed by erosion, and saltwater intrusion and subsidence continue to threaten the interior marshes.

Project Features

Several types of measures are under consideration at this time. These include erosion control and bank restoration along Bayou Rigolettes, possibly including the use of dredged material and vegetation planting, and management of water exchange using variable-control structures and restoration of management levees. Management design must consider future availability of water from the proposed Davis Pond Diversion.

Status

Permits have been received for maintenance of the management levees remaining along three sides of the area. Engineering, planning, and permitting work, as well as a feasibility analysis, still is required for much of the project. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



BA-14. LITTLE LAKE MARSH MANAGEMENT

Hydrologic Basin: Barataria
Parish: Jefferson
Acreage Benefitted: 2000

Description: Successful implementation of this project conserves vegetated wetlands by the utilization of management measures to be further defined.

BA-15. Lake Salvador Shore Protection

Location and Size

The project is located at the southwest end of Lake Salvador between Baie du Chactas and Bayou des Allemands. Protection of this stretch of shoreline will preserve approximately 3000 ac of fresh marsh.

Objectives

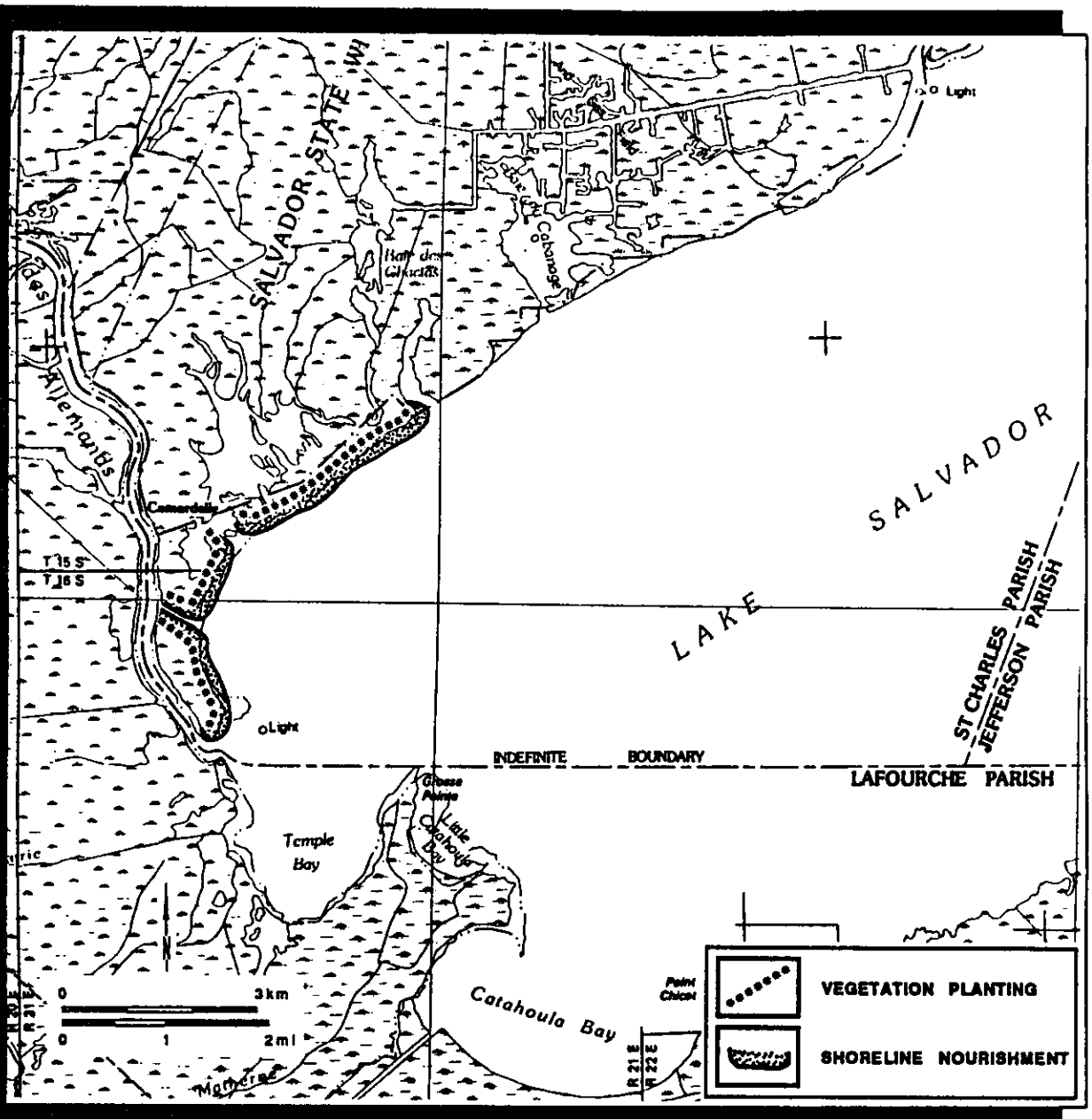
The objective of this project is to restore the physical integrity of this segment of shoreline, which is eroding as a result of water exchange between Lake Salvador and pond areas behind the shore. Stabilizing the bank will protect interior marshes from further erosion caused by waves and currents, and improve freshwater retention. The project will complement the 1990-91 project BA-5b and extend shore protection.

Project Features

Shore protection measures will include placement of coarse material deposits along the proposed site. The material will then be stabilized with vegetation plantings.

Status

The project is ready for feasibility analysis.



BA-15. LAKE SALVADOR SHORE PROTECTION

Hydrologic Basin: Barataria
Parish: St. Charles
Acreage Benefitted: 3,000

Description: Successful implementation of this project conserves vegetated wetlands by stabilizing the shoreline with coarse materials and plantings.

BA-16. Segnette Wetland Protection

Location and Size

The project lies on the eastern shoreline of Lake Salvador at its closest distance to the Bayou Segnette waterway, approximately halfway between Bayou Barbeaux and Bayou Villars in Jefferson Parish. About 60 ac of wetland separates the lake from the Bayou Segnette Waterway. The project is expected to benefit at least 600 ac of the 5400-ac Jean Lafitte National Historic Park.

Objectives

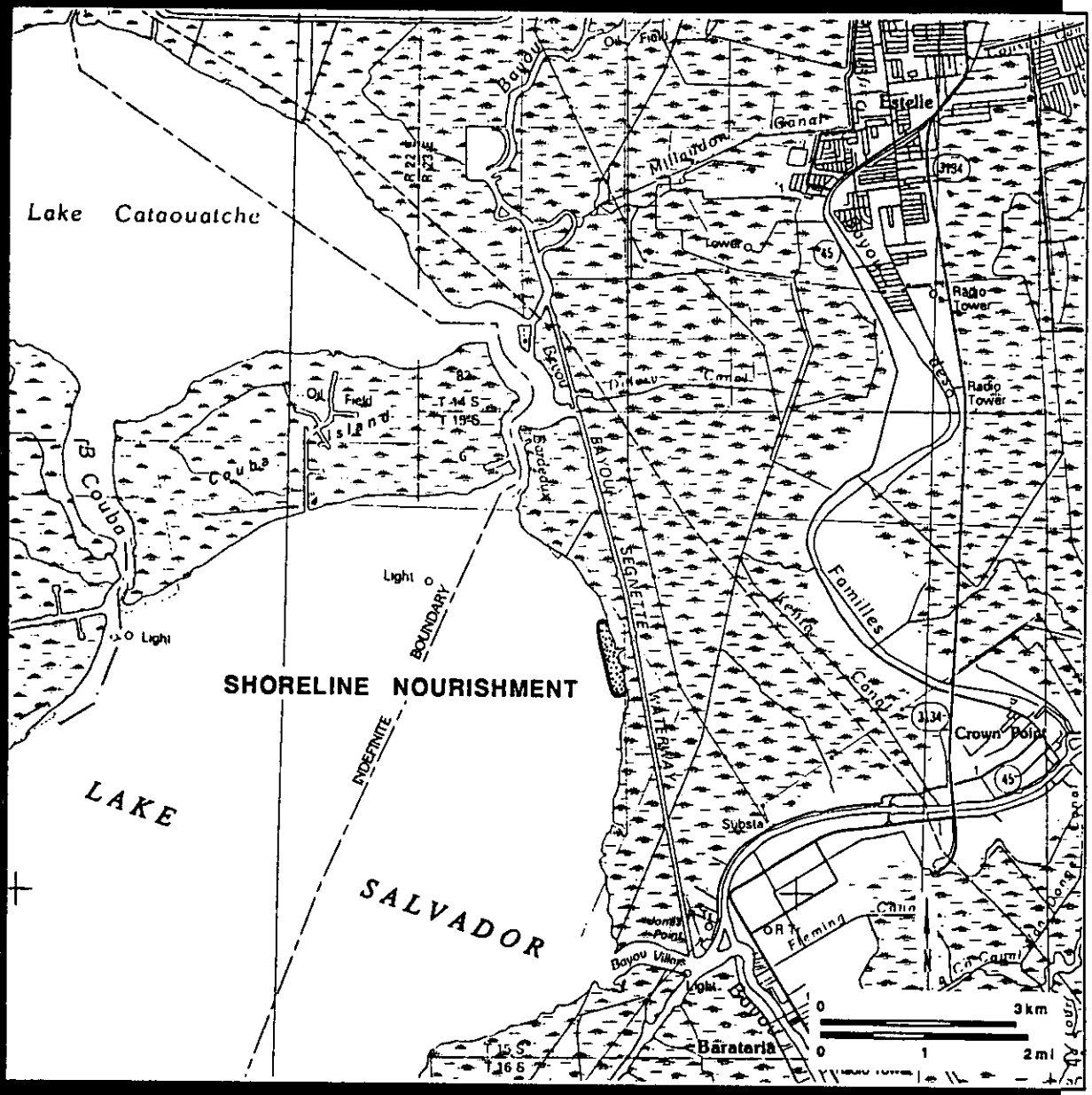
The objective of the project is to prevent breaching of the Lake Salvador shore and merging of the lake and the Bayou Segnette Waterway. Such a breach would subject wetlands of the Jean Lafitte National Historical Park along the Segnette Waterway to a high level of wave action and induce rapid erosion.

Project Features

Required protection measures will be determined on the basis of a field investigation. Preferred construction materials and design will be determined through field investigation. The length of shoreline to be protected is approximately 4,500 ft. An access canal, which connects the waterway and lake, will be closed.

Status

The project requires feasibility analysis.



BA-16. SEGNETTE WETLAND PROTECTION

Hydrologic Basin: Barataria
Parish: Jefferson
Acreage Benefitted: 600

Description: Successful implementation of this project conserves vegetated wetlands by stabilizing the boundary between Lake Salvador and the Bayou Segnette Waterway.

BA-17. City Price Diversion

Location and Size

The project is located immediately north of Port Sulphur on the west bank of the Mississippi River in Plaquemines Parish. Approximately 3200 ac of brackish to saline marsh will be benefitted by introduction of freshwater and sediments from the river.

Objectives

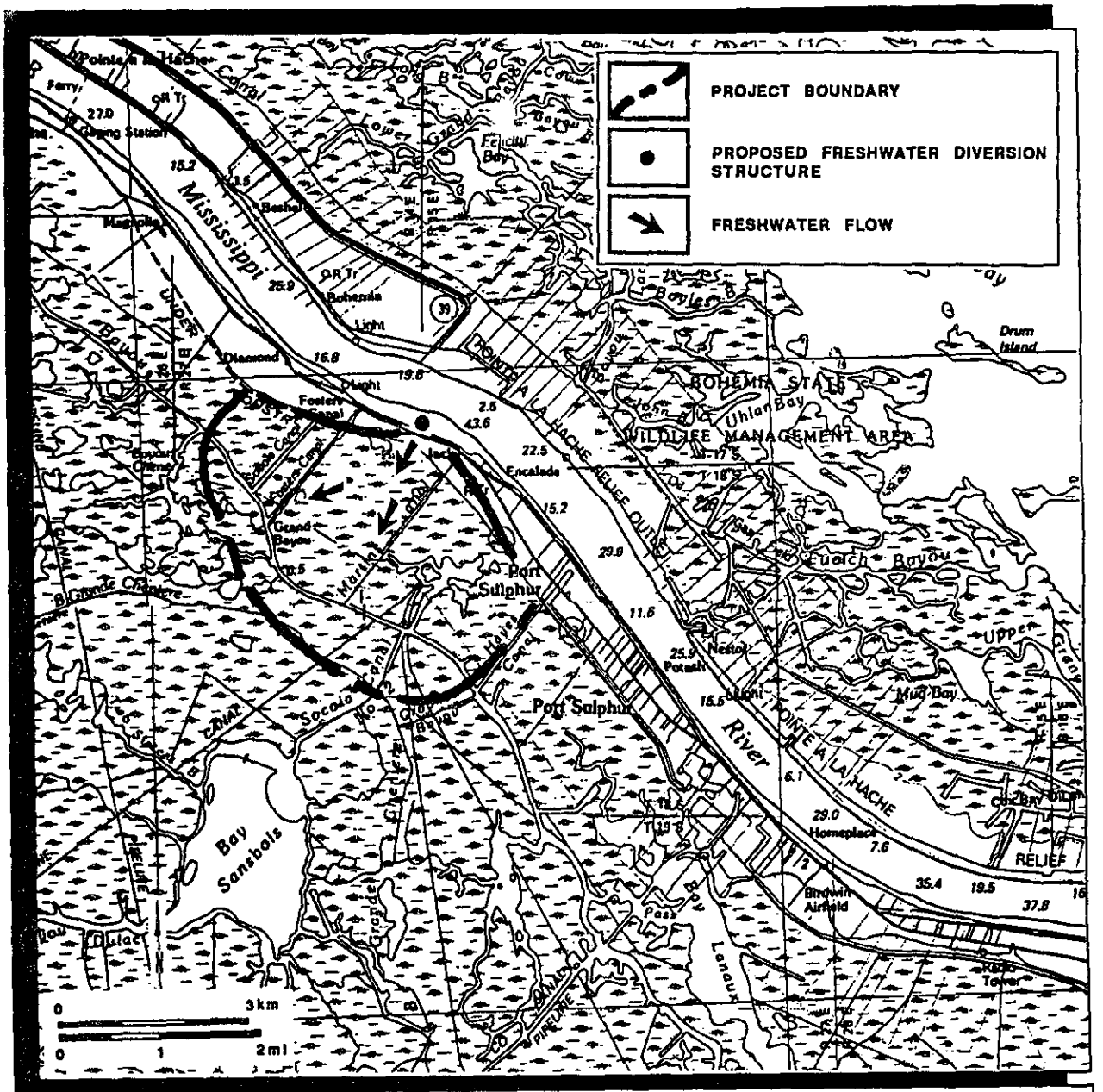
The objective of the project is to maintain and restore marsh by introduction of freshwater, nutrients, and sediments into the wetland area between the river and the Bayou Grand Cheniere ridge.

Project Features

Preliminary plans include construction of eight, 72-in-diameter pipes that will deliver approximately 2000 cfs during high river stages. The pipes will run 700 ft from the river under LA 23 and outfall into the marsh. No protection levees are located at this site, making construction costs relatively low.

Status

Funds are available from Plaquemines Parish for cost-sharing. The project requires planning, engineering, and permitting, as well as a feasibility analysis. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



BA-17. CITY PRICE DIVERSION

Hydrologic Basin: Barataria
Parish: Plaquemines
Acreage Benefitted: 3,200

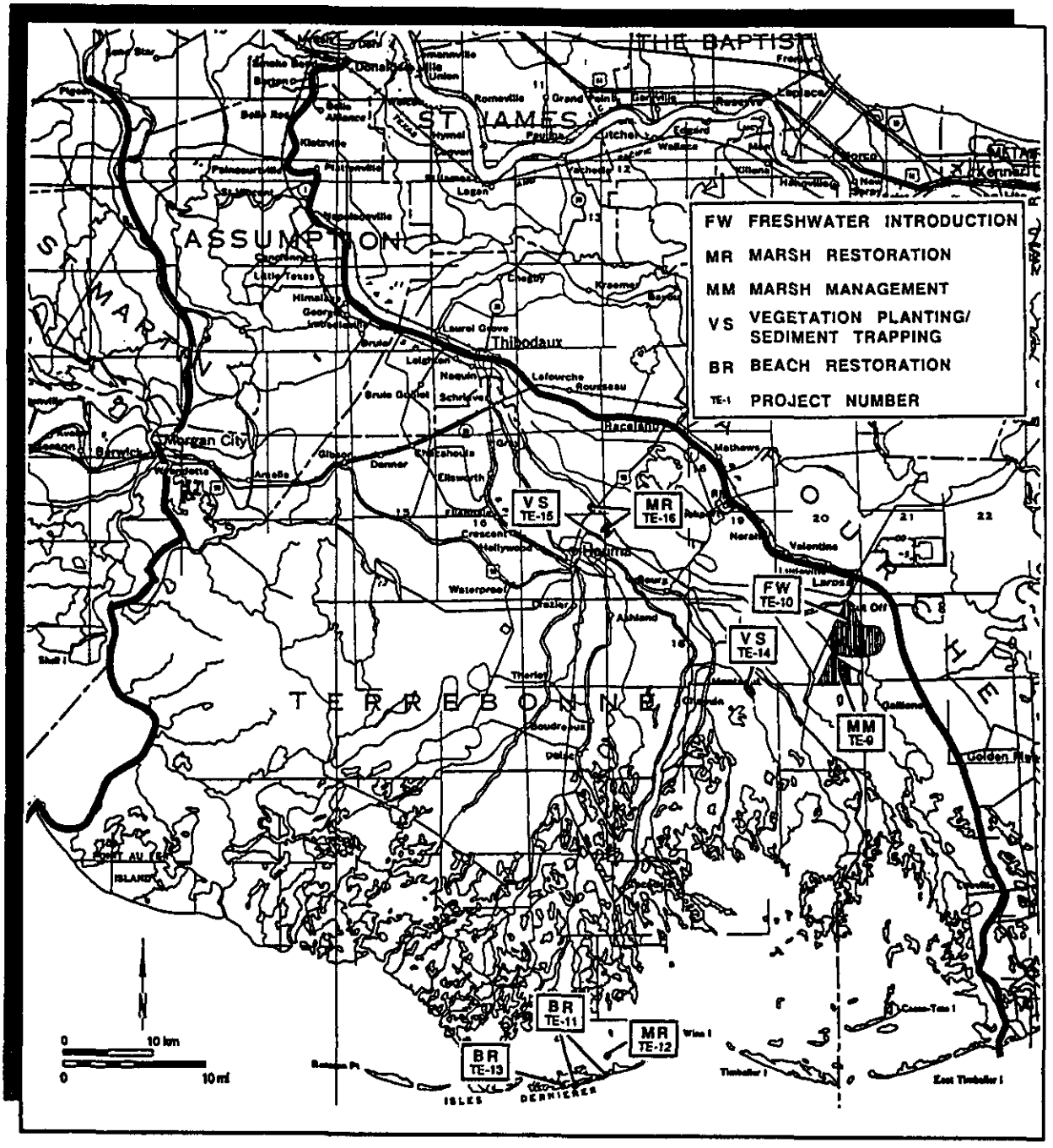
Description: Successful implementation of this project conserves, enhances, and restores vegetated wetlands by providing Mississippi River freshwater and associated nutrients and sediments.

TERREBONNE BASIN

TERREBONNE BASIN

TE-9	Bully Camp Marsh Management
TE-10	Grand Bayou/GIWW Diversion
TE-11	Isle Dernieres Cut Closure
TE-12	Bird Island Restoration
TE-13	Trinity Bayou Pilot Project
TE-14	Pt. Farm Refuge Planting
TE-15	GIWW Levee Planting
TE-16	St. Louis Wetland Restoration

Figure TE-0. Location and estimated area of benefit for projects proposed in the Terrebonne Basin.


FW FRESHWATER INTRODUCTION
MR MARSH RESTORATION
MM MARSH MANAGEMENT
VS VEGETATION PLANTING/ SEDIMENT TRAPPING
BR BEACH RESTORATION
TE-1 PROJECT NUMBER
ST JAMES
THE BAPTIST
ASSUMPTION
LAFOURCHE
TERREBONNE
Thibodaux
Morgan City
Houma
VS TE-15
MR TE-16
FW TE-10
VS TE-14
MM TE-9
BR TE-11
MR TE-12
BR TE-13
0 10 km
0 10 mi

TE-9. Bully Camp Marsh Management

Location and Size

The proposed project is located on the 30,000-ac Pointe au Chien Wildlife Management Area just west of Galliano in Lafourche Parish. The specific project is estimated to benefit a 750-ac area of deteriorated brackish marsh.

Objectives

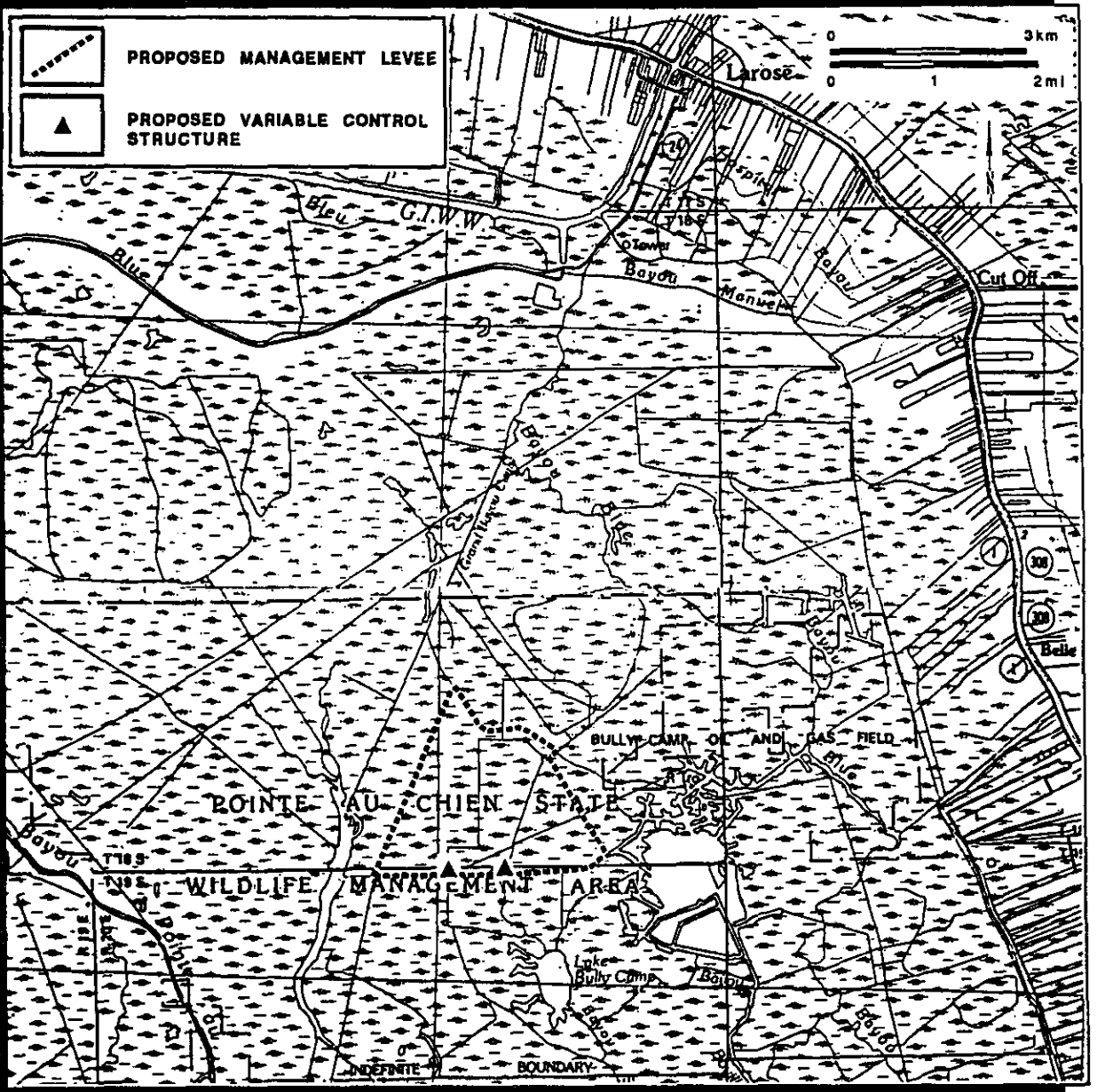
The objective of the project is to preserve and enhance emergent wetlands through marsh management, by including periodic draw-down of water levels. Exposure of marsh edges and bottoms of shallow areas to the air during the growing season will promote revegetation. It is expected that the management will maintain 750 ac of brackish marsh on public lands.

Project Features

The project encompasses construction of one water-control structure, levee work, and several drainage ditches.

Status

The DWF will provide specifications for the water-control structures. Specifications for the levees and drainage ditches remain to be developed. Work will be implemented under the General Permit.



TE-9. BULLY CAMP MARSH MANAGEMENT

Hydrologic Basin: Terrebonne
Parish: Lafourche
Acreage Benefitted: 750

Description: Successful implementation of this project conserves and enhances vegetated wetlands through marsh management.

TE-10. Grand Bayou/GIWW Diversion

Location and Size

The project is located at the intersection of La. Hwy. 24 and Grand Bayou adjacent to the GIWW in western Lafourche Parish and northeast Terrebonne Parish. There is a potential for this project to benefit 3500 ac or more in the wetlands above and within the Point au Chien WMA.

Objectives

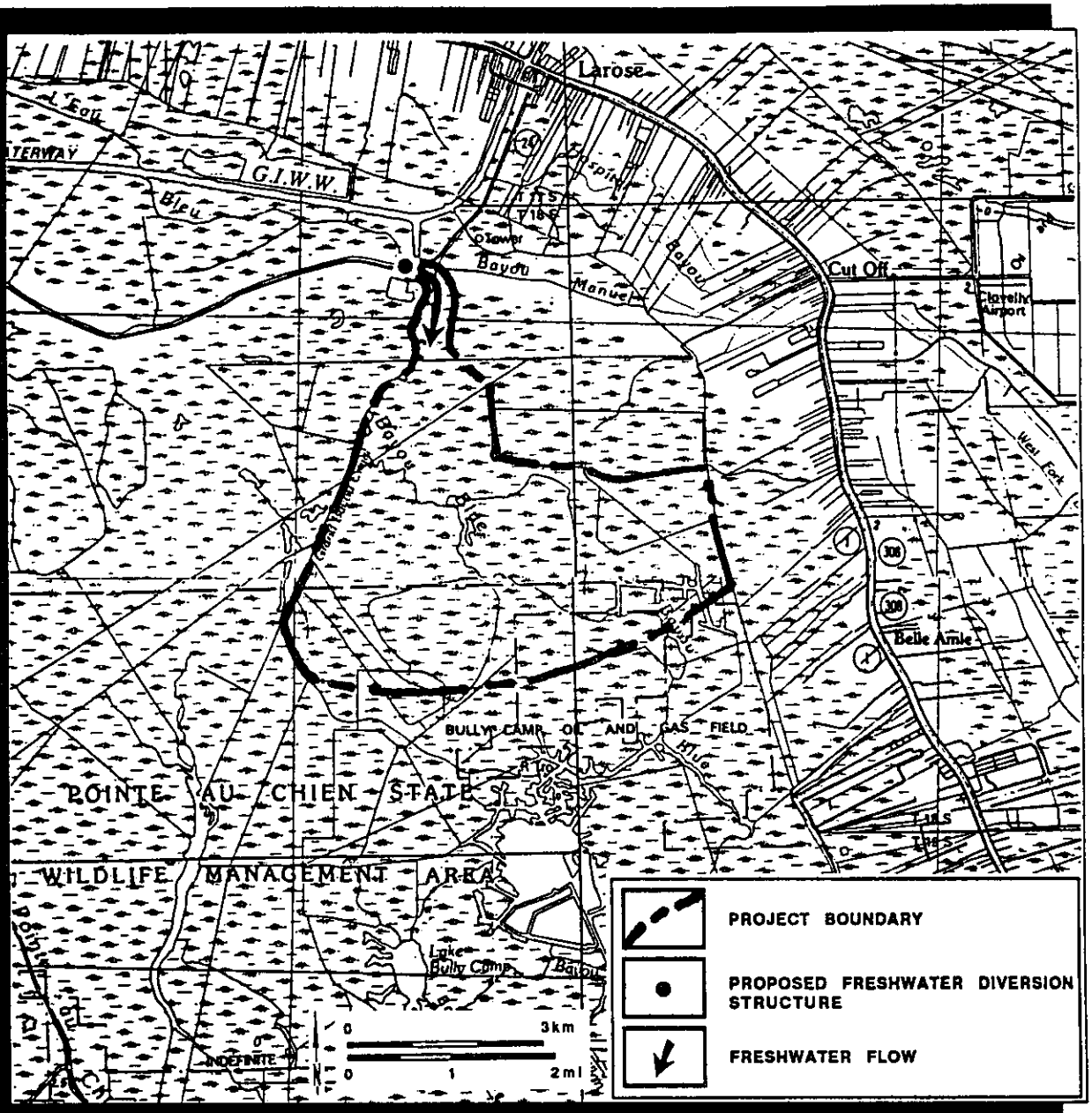
The objective of this project is to get sediment-laden freshwater from the GIWW into Grand Bayou in order to enhance the marsh and abate saltwater intrusion. This is one of the only sites where interbasin water exchange seems feasible. Further benefits from freshwater and sediments will be available with the construction of the Davis Pond project in the future.

Project Features

The project will require enlargement of the present connection between the GIWW and Grand Bayou. A small channel connection is presently provided by a drainage channel and an extension of Bayou l'Eau Bleu. Feasibility of the project and size of the required structural measures will depend to a large extent on the prevailing water-level variation in the GIWW relative to that of Grand Bayou. The use of pumps will be considered, but it is unlikely they will be cost-effective. To protect the area north of the GIWW during high salinity periods in late summer and fall, a gated structure probably will be required.

Status

The project requires feasibility analysis.



TE-10. GRAND BAYOU/GIWW DIVERSION

Hydrologic Basin: Terrebonne
Parish: Terrebonne
Acreage Benefitted: 3,500

Description: Successful implementation of this project conserves and enhances vegetated wetlands by diverting GIWW freshwater and associated nutrients and sediments.

TE-11. Isle Dernieres Cut Closure

Location and Size

The project proposes closure of two breaches on central Isle Dernieres in Terrebonne Parish. The breaches are referred to as the "new" new cut and the Trinity Bayou Cut. Closure of these cuts will rebuild 20 ac of beach and back-barrier marsh, and may indirectly benefit a larger area by retarding break-up of the island.

Objectives

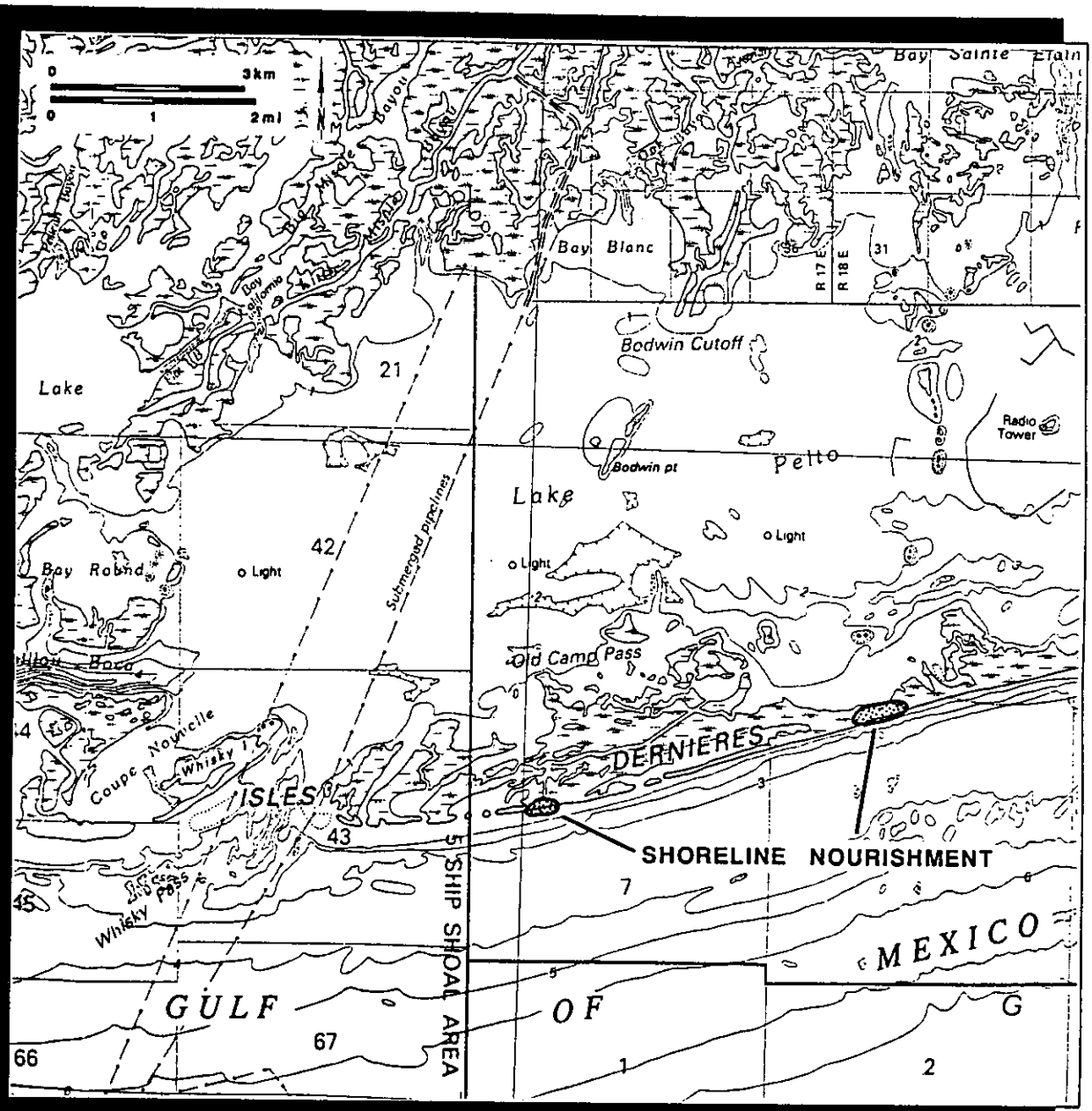
Terrebonne Parish's barrier islands suffer much of their damage during severe winter storms and hurricanes. Where back-barrier marshes are absent and the island's width is small, the island is easily breached as evidenced by the "new" new cut as well as previous cuts. While normal tides and wave action may work to close these cuts naturally, much sand is lost in the process of initial enlargement of the cut and subsequent closure. The objective of the present projects is to close two cuts that present a threat to the integrity of the remaining island, particularly the Trinity Bayou Cut.

Project Features

A bucket dredge will be used to initially seal the breaches and to construct retention dikes for dredged material. At Trinity Bayou, sand for initial closure of the cut will be taken from the bayou, which has been filled largely by sand washed over from the beach. A suction dredge will then be used to pump sandy bay-bottom material from behind Isle Dernieres into the confined areas to reinforce the initial breach closures.

Status

The project requires feasibility analysis, design, and permitting.



TE-11. ISLE DERNIERES CUT CLOSURE

Hydrologic Basin: Terrebonne
Parish: Terrebonne
Acreage Benefitted: 20

Description: Successful implementation of this project restores barrier island integrity by sealing breaches with dredged material.

TE-12. Bird Island Restoration

Location and Size

The project is located in Lake Pelto, immediately to the north of central Isle Dernieres. Bird Island has almost completely disappeared. Creation of 70 ac of wetland would be achieved by the placement of dredged material in open water.

Objectives

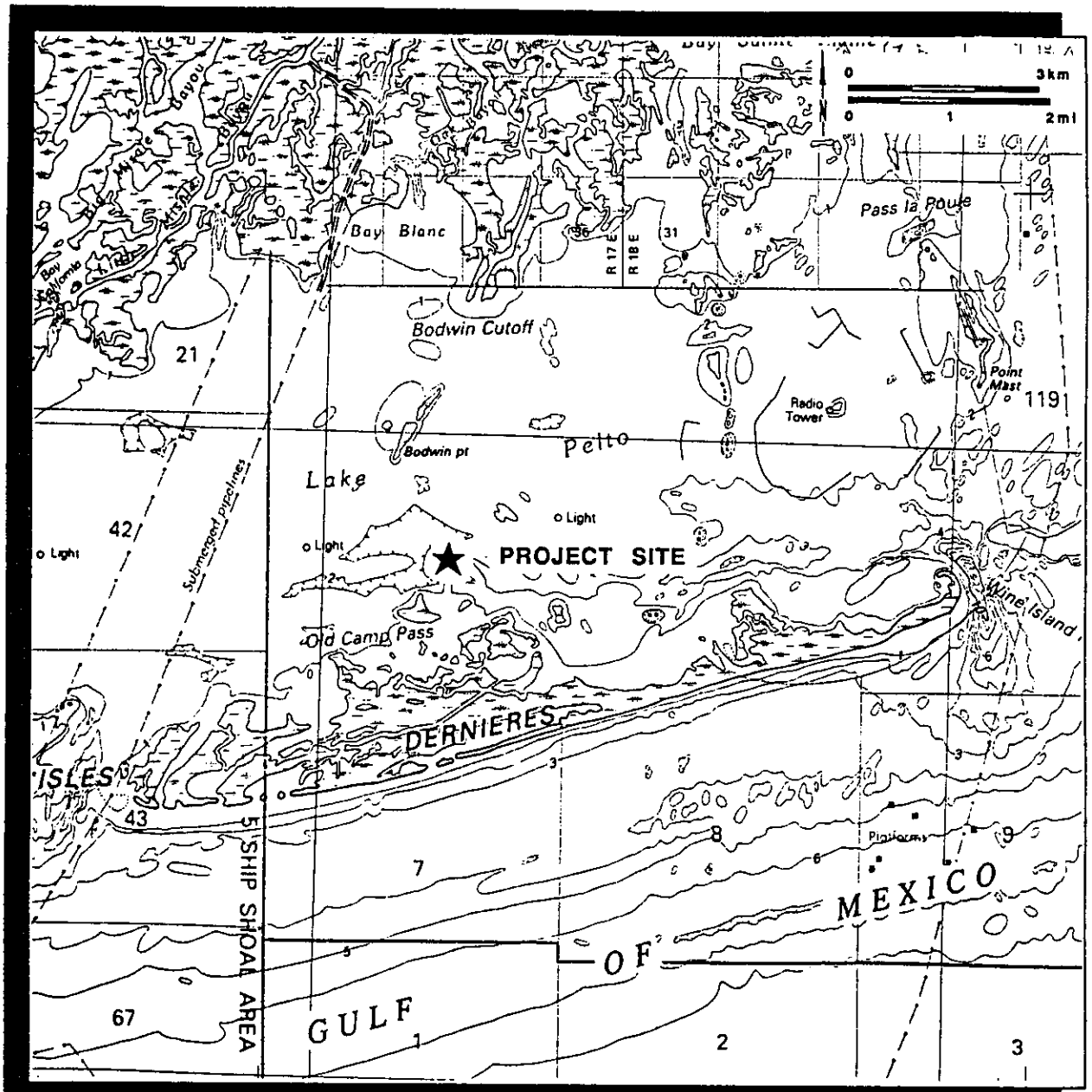
The primary objective of the project is to recreate 60 to 80 ac of shore-bird habitat in Lake Pelto.

Project Features

A low retention dike will be constructed around a 60- to 80-ac area of shallow, open water. A suction dredge will then be employed to fill the confined area of open water. Fill material will be placed to an elevation conducive to the establishment of marsh.

Status

The project requires feasibility analysis, design, and permit acquisition.



TE-12. BIRD ISLAND RESTORATION

Hydrologic Basin: Terrebonne
Parish: Terrebonne
Acreage Benefitted: 70

Description: Successful implementation of this project restores vegetative wetlands using dredged material.

TE-13. Trinity Bayou Pilot Project

Location and Size

This project is located on central Isle Dernieres, at the smallest of two breaches into Trinity Bayou. The project would restore about 1 ac of wetland with benefits to be derived primarily from continued island integrity in the general vicinity of Trinity Bayou.

Objectives

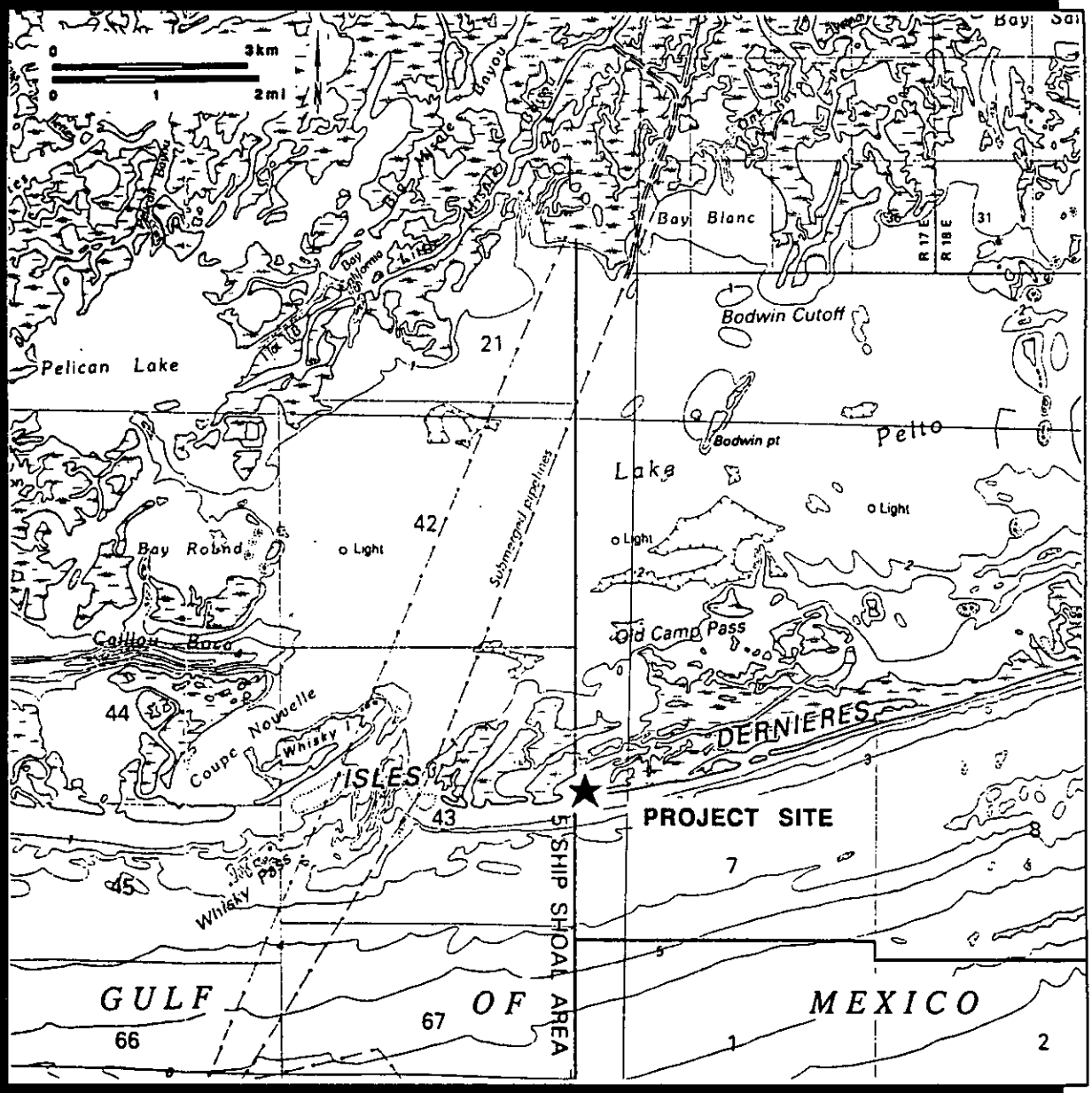
Terrebonne Parish's barrier islands suffer much of their damage during severe winter storms and hurricanes. Where back-barrier marshes are absent or water bodies are present immediately behind the beach, the island is easily breached. While normal tides and wave action may work to close these cuts naturally, much sand is lost in the process of initial enlargement of the cut and subsequent closure. The objective of the present project is twofold. One is to close cuts that present a threat to the integrity of the remaining island. The second is to evaluate enhancement of sedimentation by an experimental structural design.

Project Features

The project involves the placement of concrete cones or comparable structures in the existing breach and the evaluation of their effect on sedimentation deposition.

Status

The project requires design evaluation, planning, and permitting.



TE-13. TRINITY BAYOU PILOT PROJECT

Hydrologic Basin: Terrebonne
Parish: Terrebonne
Acreage Benefitted: 1

Description: Successful implementation of this project helps restore barrier island integrity by trapping sediment in selected island breaches.

TE-14. Point Farm Refuge Planting

Location and Size

The project is located on the Point Farm Wildlife Refuge east of Montegut in Terrebonne Parish. A minimum of 100 ac of shrub habitat will be enhanced at the southern end of the refuge.

Objectives

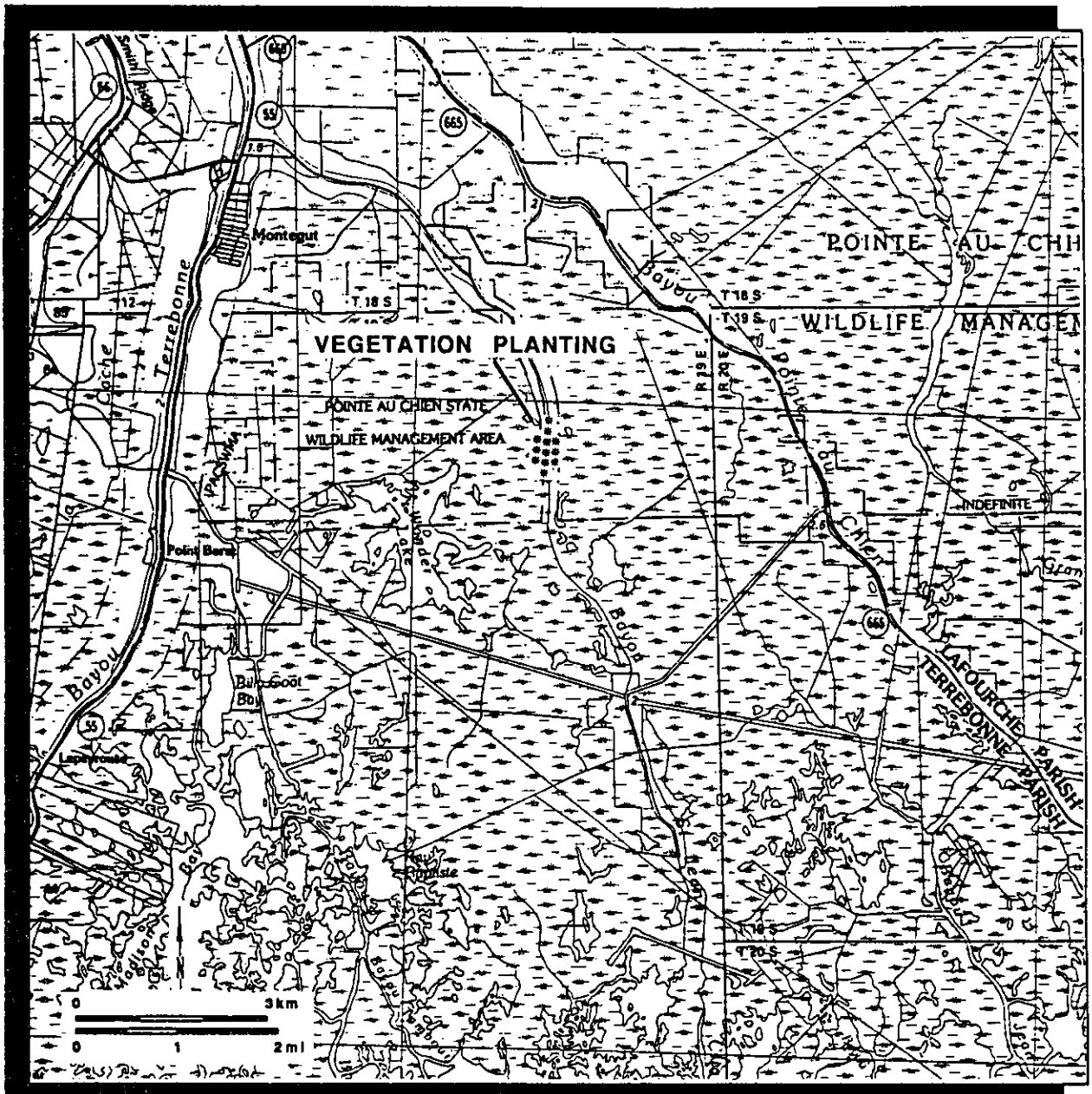
The objective of the project is to convert approximately 100 ac of shrub habitat on former farmland to a bottomland hardwood habitat by planting preferred tree seedlings.

Project Features

Approximately 12,000 seedlings of bottomland hardwood species will be planted and surrounded by predator guards. Land will be leveled and cleared by bulldozer before planting. Undesirable vegetation will be controlled for one year after planting.

Status

The project requires funding and could be completed early next year. Seedlings can only be planted in the late winter and early spring.



TE-14. POINT FARM REFUGE PLANTING

Hydrologic Basin: Terrebonne
Parish: Terrebonne
Acreage Benefitted: 100

Description: Successful implementation of this project restores bottomland hardwood habitat by planting.

TE-15. GIWW Levee Planting

Location and Size

The project includes the berms of the newly constructed 1-1B Forced Drainage Project along the GIWW from Caro Canal to Devil's Swamp in Terrebonne Parish. Approximately 15 ac of cypress swamp and 9 ac of bottomland hardwood forest will be created.

Objectives

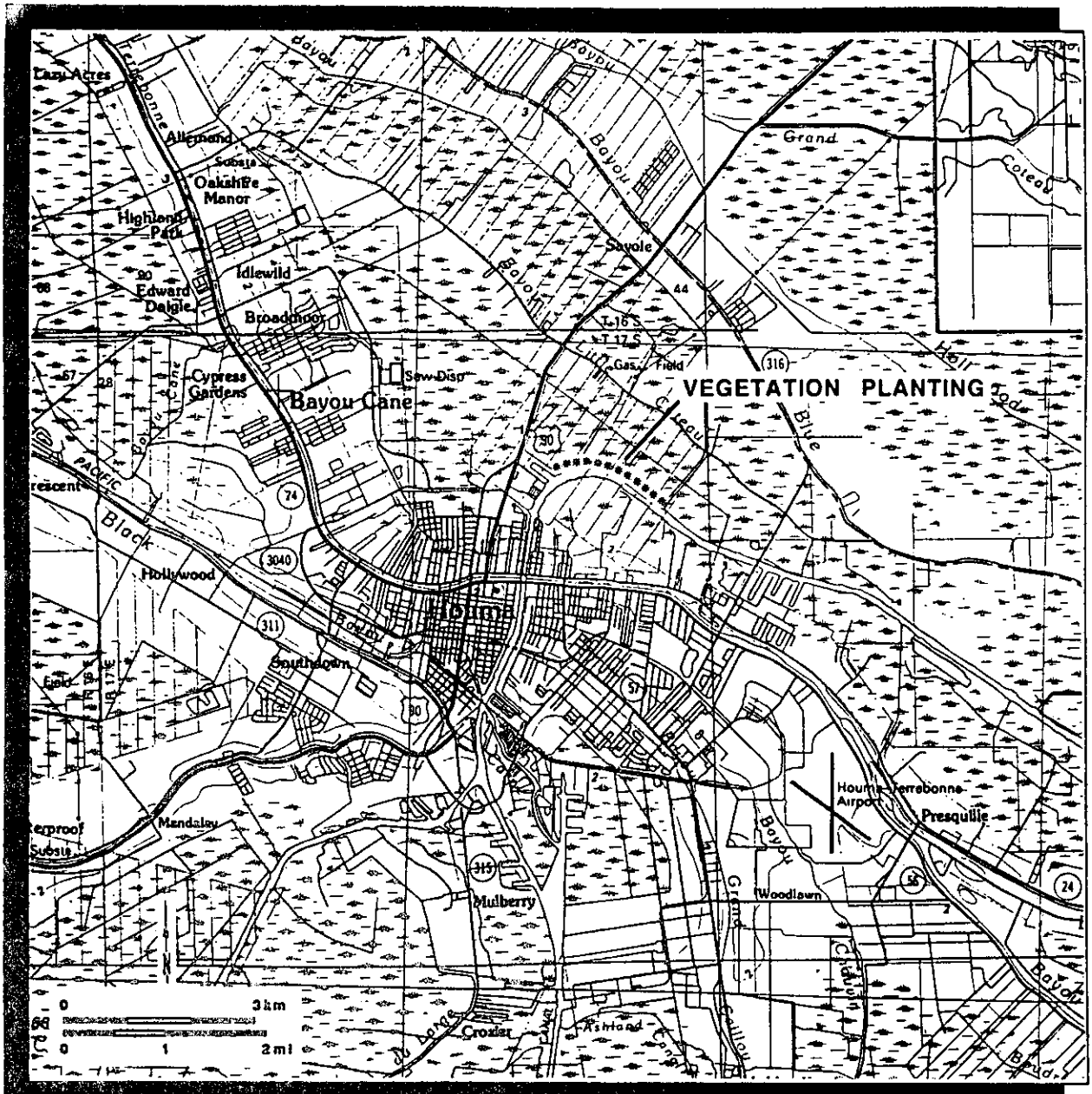
The objective of the project is to create productive habitat on newly exposed ground flanking a levee on both sides. If left unplanted, the levee berm will become vegetated with shrubs and other undesirable plants.

Project Features

Approximately 1500 seedlings of bottomland hardwood species and 6400 baldcypress seedlings will be planted at two different time periods. Seedlings will be surrounded by predator guards. Undesirable vegetation will be controlled for one year after planting to increase seedling survival rates.

Status

The project awaits funding. The planting must be accomplished in the late winter and early spring.



TE-15. GIWW LEVEE PLANTING

Hydrologic Basin: Terrebonne
Parish: Terrebonne
Acreage Benefitted: 24

Description: Successful implementation of this project restores bottomland hardwood habitat by planting.

TE-16. St. Louis Wetland Restoration

Location and Size

The project is located in two areas in Terrebonne Parish. The majority of the project is located on both sides of the St. Louis Canal between the GIWW and Bayou Blue. A smaller site is located just north of U.S. 90 at Savoie. Approximately 60 ac of fresh marsh will be created in shallow, open water.

Objectives

The objective of the project is to recreate 60 ac of fresh marsh in open-water areas that were formally marsh.

Project Features

Approximately 100,000 yd^3 of material would be placed in 160 ac of open water to provide subaerial land for colonization of marsh vegetation. Selected plant species may also be sprigged into the new spoil if necessary. Material would be dredged from the St. Louis Canal.

Status

Permits for the activity have already been acquired and the project is ready for implementation.

TE-16. ST. LOUIS WETLAND RESTORATION

Hydrologic Basin: Terrebonne
Parish: Terrebonne
Acreage Benefitted: 60

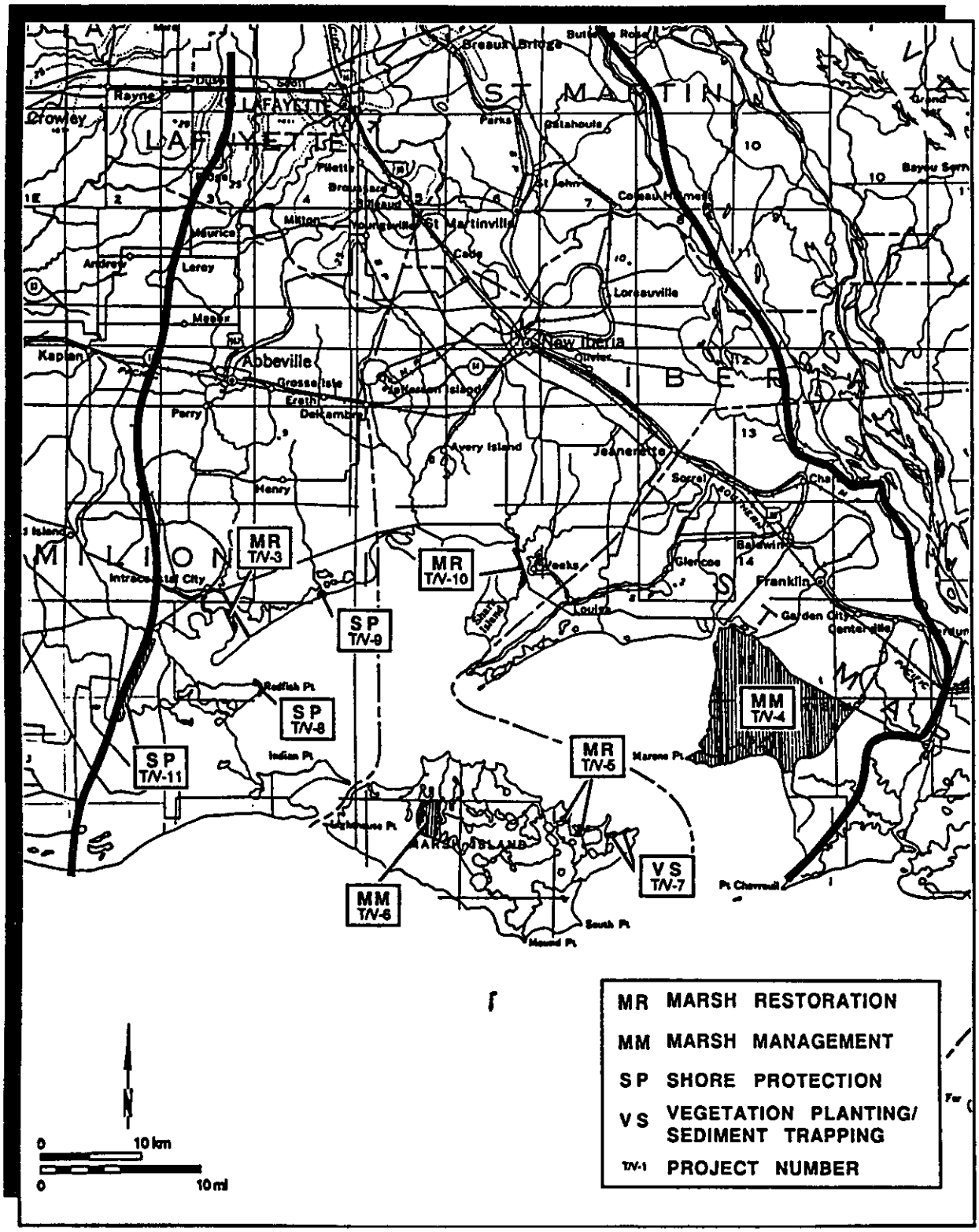
Description: Successful implementation of this project restores vegetated wetlands by utilizing dredged material.

TECHE / VERMILION BASIN

TECHE/VERMILION BASIN

T/V-3	Vermilion River Cutoff
T/V-4	Cote Blanche Marsh Management
T/V-5	Marsh Island Canal Backfilling
T/V-6	Marsh Island Control Structures
T/V-7	Marsh Island Sediment Fencing
T/V-8	Redfish Point Shore Protection
T/V-9	Boston Canal Bank Protection
T/V-10	Weeks Bay Shore Restoration
T/V-11	Freshwater Bayou Bank Protection

Figure T/V-0. Location of projects proposed in the Teche/Vermilion Basin.


LAFAYETTE
ST MARTIN
IBERIA
VERMILION
Abbeville
New Iberia
St Martinville
Franklin
MR T/V-3
MR T/V-10
SP T/V-9
SP T/V-8
SP T/V-11
MR T/V-5
MM T/V-4
MM T/V-6
VS T/V-7
MARSH ISLAND
MR MARSH RESTORATION
MM MARSH MANAGEMENT
SP SHORE PROTECTION
VS VEGETATION PLANTING/ SEDIMENT TRAPPING
T/V-1 PROJECT NUMBER
0 10 km
0 10 mi

T/V-3. Vermilion River Cutoff

Location and Size

This project is a major modification of the 1990-91 T/V-3 project. The Vermilion River Cutoff, near Intracoastal City in Vermilion Parish, connects the Vermilion River and the GIWW with Vermilion Bay for navigational purposes. Maintenance dredging appears to provide the opportunity to restore at least 57 ac of vegetated wetlands.

Objectives

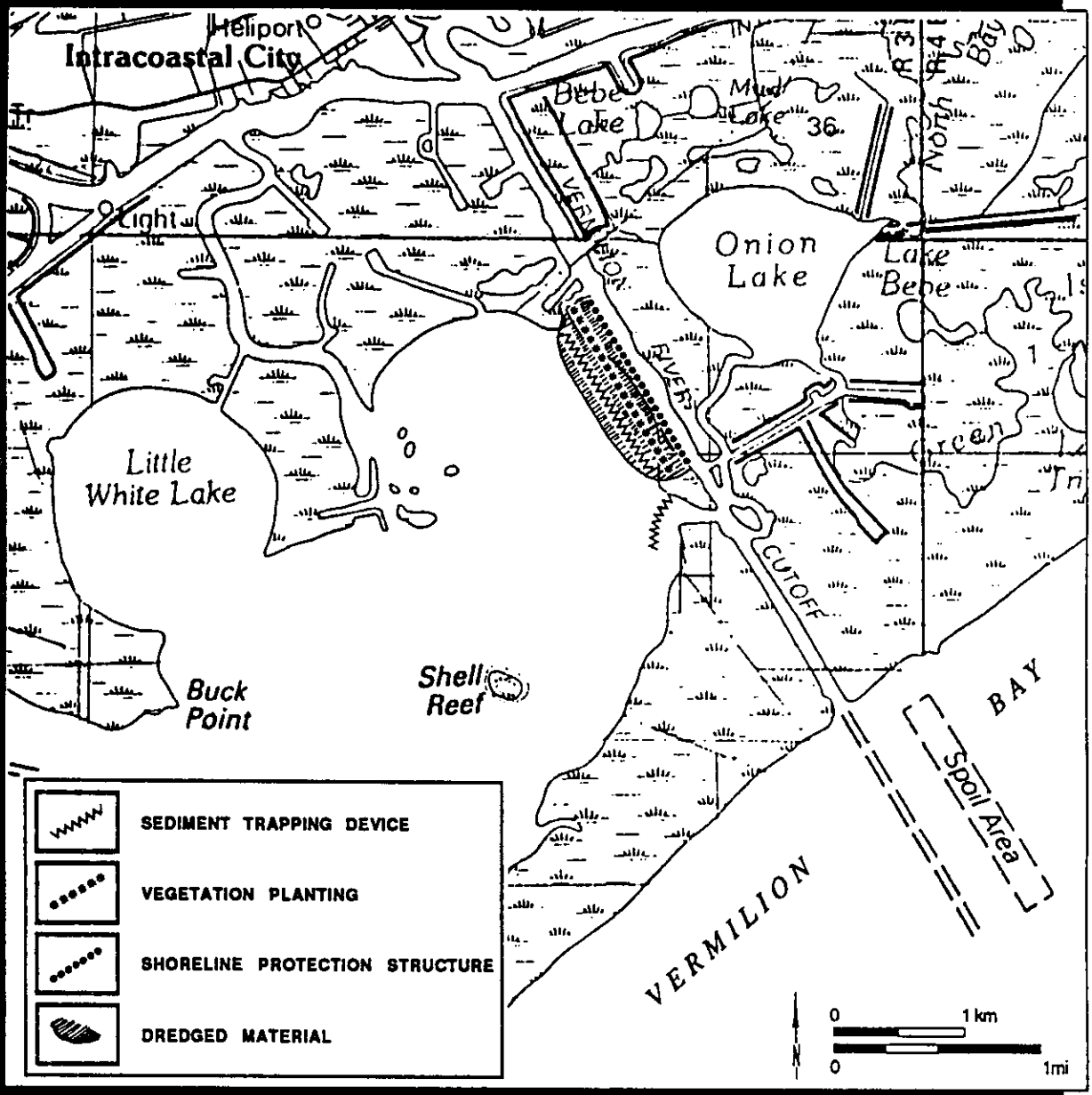
The objective of the project is to reestablish a section of marsh bank along the west side of the Vermilion River Cutoff through the efficient use of dredge material and measures that induce settling of suspended sediment derived from natural sources.

Project Features

A large section of the west bank of the Vermilion River Cutoff has eroded away as a result of boat wakes in the GIWW and wave erosion from the bay on the opposite side. A wide, shallow area through which flow is diverted from the navigation channel remains. The flow loss results in siltation of the channel and the need for limited maintenance dredging in the near future. A retaining levee will be constructed from spoil obtained from dredging the GIWW. Sediment-trapping devices and plantings will be used behind this levee in shallow areas to restore the vegetated wetlands barrier between Vermilion Bay and the GIWW.

Status

Preliminary planning has been accomplished through efforts by local interests. Additional feasibility analysis and coordination with the Corps of Engineers and local government is required.



T/V-3. VERMILION RIVER CUTOFF

Hydrologic Basin: Teche-Vermilion
Parish: Vermilion
Acreage Benefitted: 57

Description: Successful implementation of this project restores vegetated wetlands using dredged material, sediment traps, and planted vegetation.

T/V-4. Cote Blanche Marsh Management

Location and Size

The project area includes 17,000 ac of marshland in St. Mary Parish, Louisiana. The tract is bounded by the GIWW on the north, Hwy. 317 on the east, and East and West Cote Blanche Bays on the south and west, respectively. If successful, the project will benefit an estimated 4900 ac in the interior portion of the project area.

Objectives

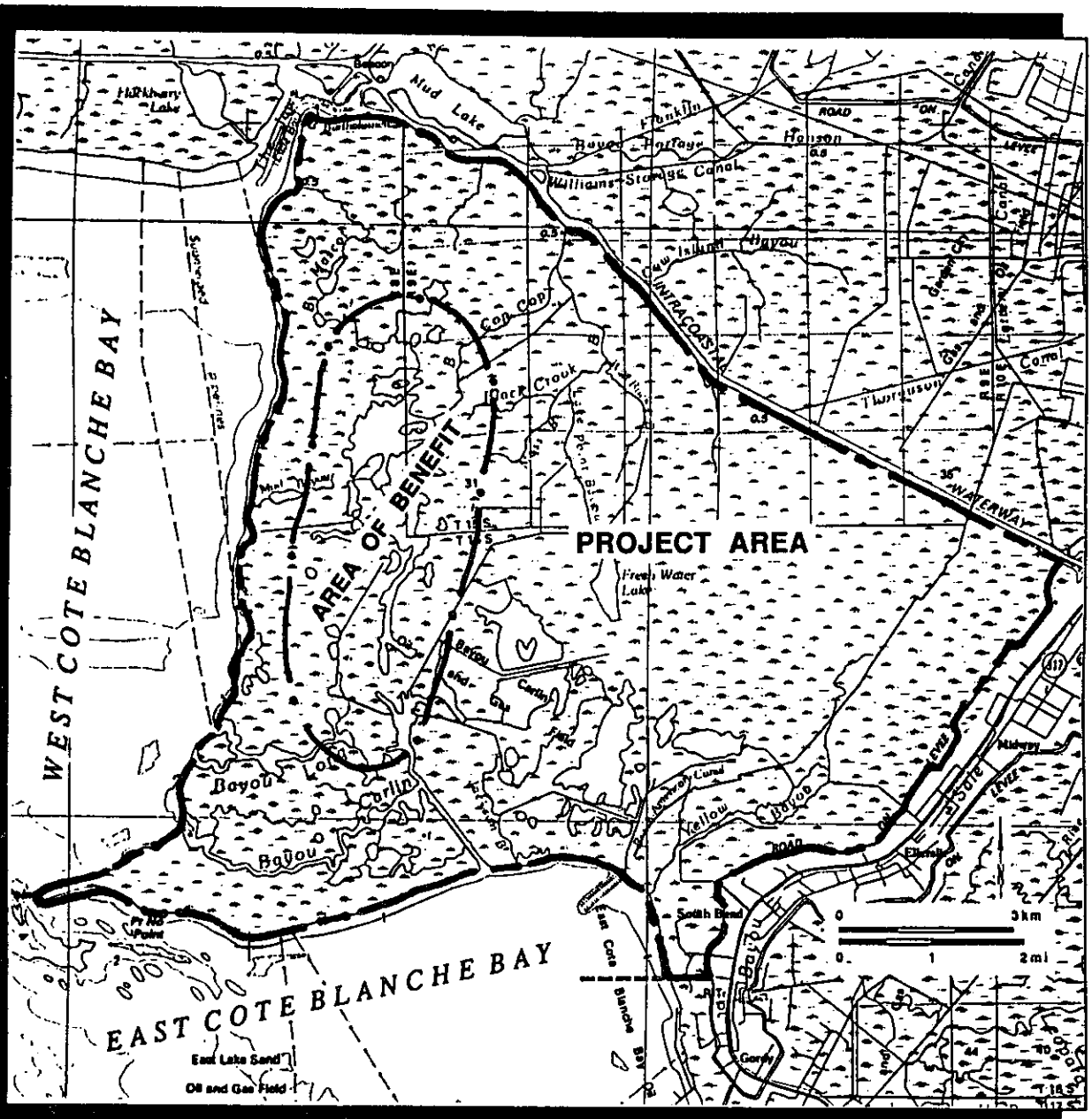
The objective is to reverse present wetland losses in the interior portion of the project area. It is not clear whether deterioration is produced by rapid water exchange between the GIWW and the Cote Blanche Bays, or is primarily the result of subsidence.

Project Features

Project features include the evaluation of current water and sediment movement and the consideration of control structures on major connections with the Gulf Intracoastal Waterway. The installation of control structures would still permit sediment introduction from the bays. Marshes on the perimeter of the site appear to be thriving; however, interior marshes are deteriorating rapidly. While formulating management approaches, care must be taken to avoid damaging the vast acreage of healthy marshes adjacent to the bays and natural drainages.

Status

The landowner is willing to share in the cost of project implementation. The project requires planning, feasibility analysis, and permitting. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



T/V-4. COTE BLANCHE MARSH MANAGEMENT

Hydrologic Basin: Teche-Vermilion
Parish: St. Mary
Acreage Benefitted: 4,900

Description: Successful implementation of this project conserves and enhances vegetated wetlands by the utilization of management measures to be further defined.

T/V-5. Marsh Island Canal Backfilling

Location and Size

The proposed project would restore approximately 10 ac of brackish marsh in abandoned oil-field canals located on the northeast end of Marsh Island. Marsh Island Wildlife Refuge is a 70,000-ac island that is bordered on the north by Vermilion Bay and East and West Cote Blanche Bays and on the south by the Gulf of Mexico.

Objectives

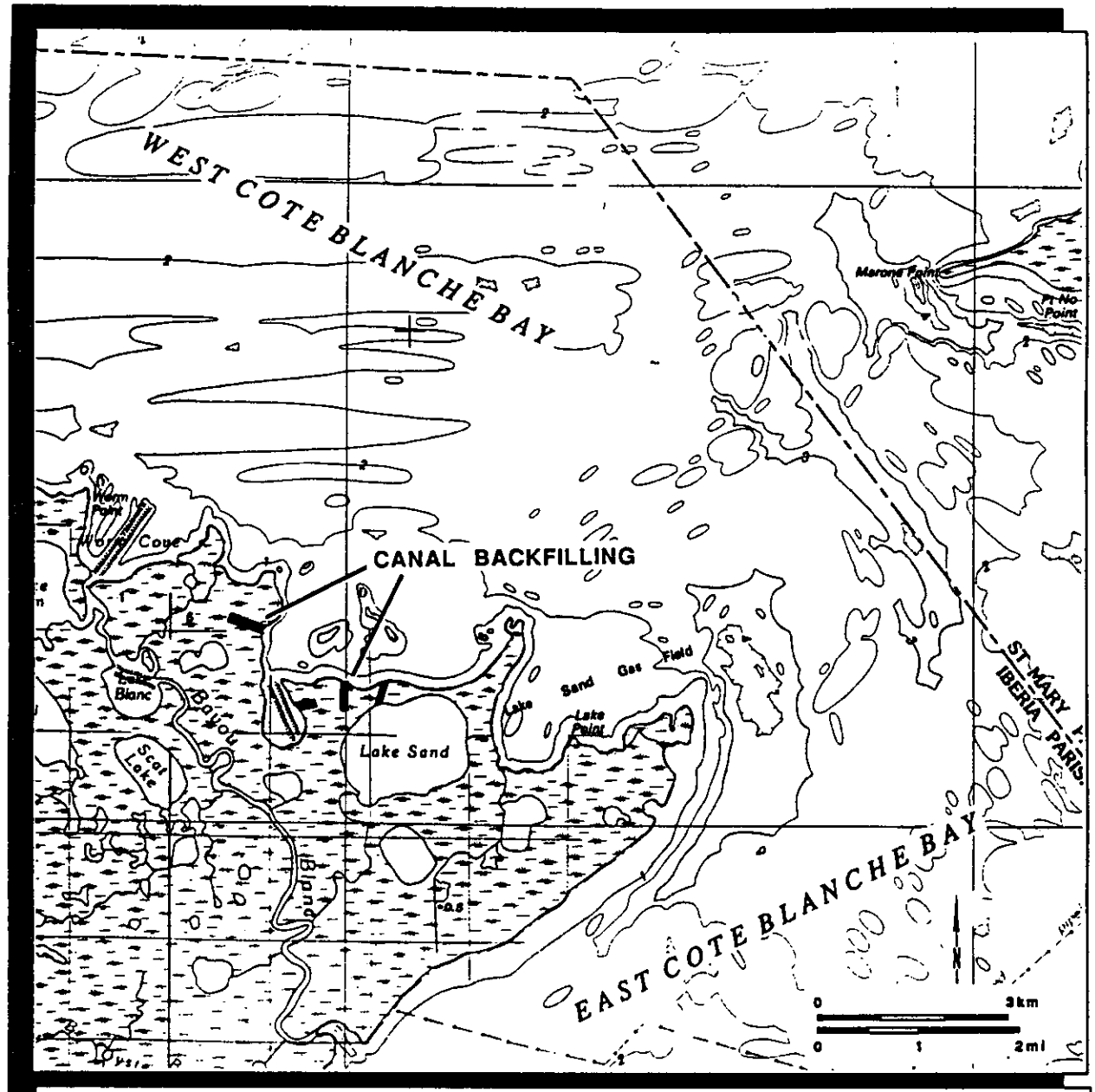
The Marsh Island canal backfilling is a marsh restoration project. This project would experimentally attempt to backfill abandoned location canals that lead from Vermilion Bay into Marsh Island. The backfilling would be conducted with a suction dredge with material being taken from adjacent water bottoms. This would result in development of emergent marsh and reduce potential erosion and saltwater intrusion into the interior of the refuge.

Project Features

There are four abandoned oil-field canals located on the northeast end of Marsh Island Wildlife Refuge. Approximately 60,000 yd^3 of material will be required. Continuous spoil banks were established when these canals were originally constructed. In recent years, these canal banks have deteriorated, allowing for development of interior marsh erosion. If backfilling these abandoned canals is successful, the use of dredge materials from nearby water bottoms could be expanded to interior marsh areas where vegetated acres of wetlands are subject to deterioration and open-water habitats are increasing as a result of subsidence.

Status

The project requires planning, feasibility analysis, and permitting.



T/V-5. MARSH ISLAND CANAL BACKFILLING

Hydrologic Basin: Teche-Vermilion
Parish: Iberia
Acreage Benefitted: 10

Description: Successful implementation of this project restores vegetated wetlands by utilizing dredged material.

T/V-6. Marsh Island Control Structures

Location and Size

Marsh Island Wildlife Refuge is a 70,000-ac island that is bordered on the north by Vermilion Bay, and East and West Cote Blanche Bays, and on the south by the Gulf of Mexico. It is comprised almost entirely of brackish marsh habitat. The proposed project could enhance up to 2000 ac in the interior of the refuge if successful.

Objectives

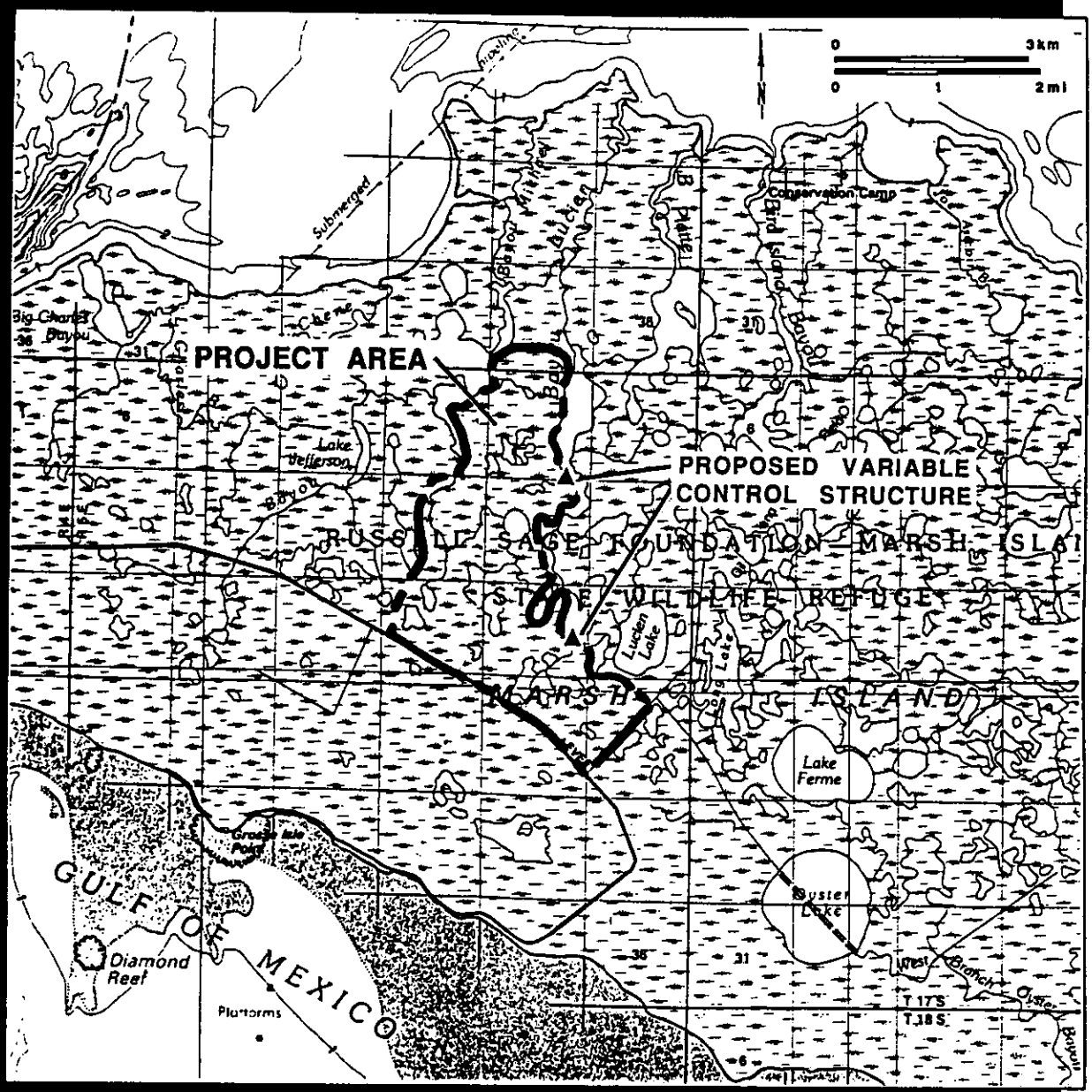
This is a marsh conservation project which will allow for installation of variable-crest water-control structures (48-in culverts with stop logs and automatic flap gates) in two selected drainage systems. One drainage system would require a one-barrel structure and the other drainage system would require a two-barrel structure. Primary management objectives would be to enhance vegetative development and reverse the trend of interior marsh loss through water-level control.

Project Features

Previous studies on Marsh Island Wildlife Refuge have determined that marsh loss on the refuge is occurring primarily in interior marsh areas where vegetated wetlands are converting to open waters. Once installation of the variable crest water control structures are complete, water levels on the impacted areas would be experimentally manipulated in attempts to enhance vegetative development. Water-level manipulations would initially include reduction of water levels in interior marsh to allow germination of emergent vegetation.

Status

The project requires planning and feasibility analysis. Work can be implemented under the DWF's General Permit.



T/V-6. MARSH ISLAND CONTROL STRUCTURES

Hydrologic Basin: Teche-Vermilion
Parish: Iberia
Acreage Benefitted: 2,000

Description: Successful implementation of this project conserves vegetated wetlands through water control.

T/V-7. Marsh Island Sediment Fencing

Location and Size

Marsh Island Wildlife Refuge is a 70,000-ac island that is bordered on the north by Vermilion Bay, and East and West Cote Blanche Bays, and on the south by the Gulf of Mexico. It is comprised almost entirely of brackish marsh habitat. Sediment fences will be constructed at selected sites on the east end of Marsh Island and are expected to restore up to 5 ac of marsh.

Objectives

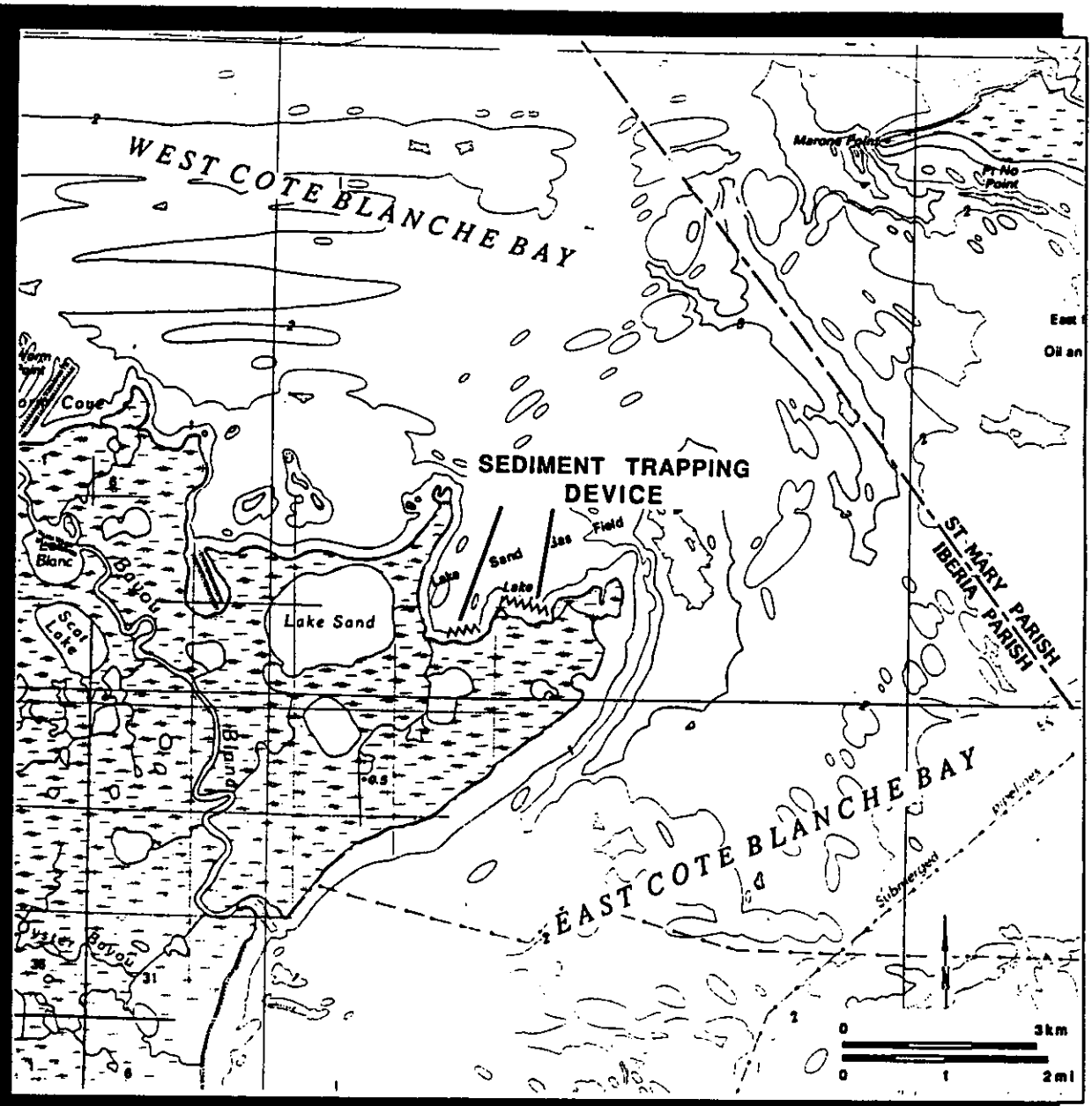
The Marsh Island sediment fencing project is a marsh restoration project. The east end of Marsh Island experiences a high rate of erosion with a corresponding loss of vegetative wetlands. Fences would be constructed in an attempt to trap suspended sediments provided particularly during periods of high Atchafalaya River discharge.

Project Features

Approximately 2000 ft of sediment fencing will be constructed at selected sites on the east end of Marsh Island. Plantings of selected plant species will be undertaken simultaneously to help stabilize trapped sediments. The project must be considered a pilot project to determine the applicability of this technique in the general area of the Vermilion and Cote Blanche Bays. It would provide for a greater utilization of sediments provided by the Atchafalaya River and the Wax Lake Outlet.

Status

The project requires planning and feasibility analysis. Measures can be implemented under the DWF's General Permit.



T/V-7. MARSH ISLAND SEDIMENT FENCING

Hydrologic Basin: Teche-Vermilion
Parish: Iberia
Acreage Benefitted: 3

Description: Successful implementation of this project conserves, restores, and creates vegetated wetlands by trapping sediment.

T/V-8. Redfish Point Shore Protection

Location and Size

State Wildlife Refuge is located on the west side of Vermilion Bay in Vermilion Parish. It is comprised of 15,000 ac of brackish marsh habitat. The project area includes a 0.5-mi stretch of shoreline at the easternmost part of Redfish Point, and is expected to conserve up to 20 ac of marsh and maintain management capability over about 400 ac.

Objectives

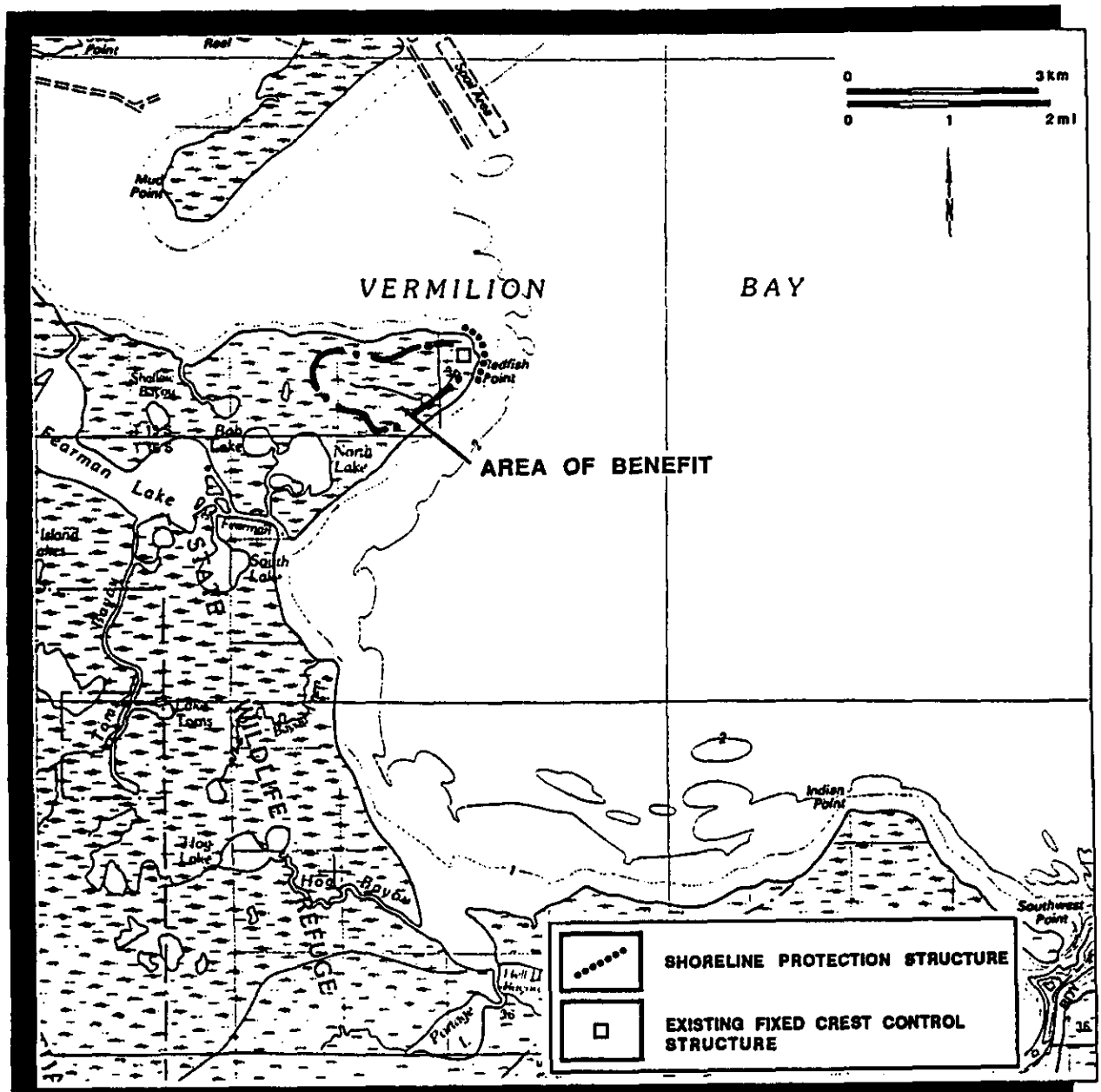
This is a marsh conservation project. The Redfish Point area of State Wildlife Refuge is suffering from rapid shoreline erosion in the vicinity of Redfish Point Bayou. This erosion is caused by a combination of wind-driven waves and tidal currents around Redfish Point. This shoreline stabilization would protect adjacent marsh areas from rapid erosion and prevent loss of a water-control structure and associated water-level management capability.

Project Features

Structural devices would be utilized to reduce wave energy, therefore reducing shoreline erosion and the subsequent loss of vegetative wetlands.

Status

The project requires planning and feasibility analysis. Work can be implemented under DWF's General Permit.



T/V-8. REDFISH POINT SHORE PROTECTION

Hydrologic Basin: Teche-Vermilion
Parish: Vermilion
Acreage Benefitted: 400

Description: Successful implementation of this project conserves vegetated wetlands by reducing erosion through the stabilization of the shoreline.

T/V-9. Boston Canal Bank Protection

Location and Size

This project will protect management capability of about 520 ac of vegetated wetlands at the mouth of the Boston Canal at Vermilion Bay in Vermilion Parish, Louisiana.

Objectives

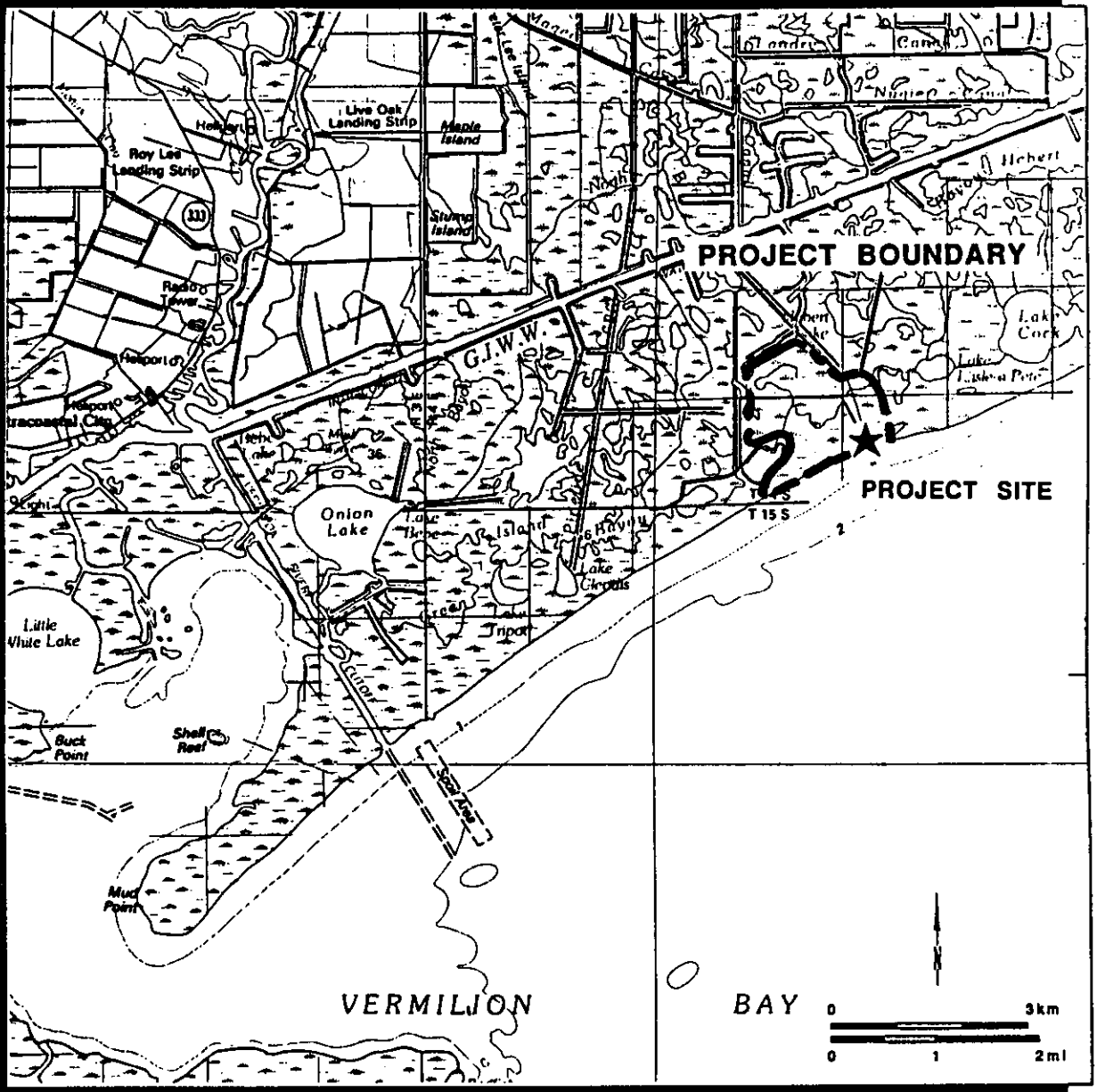
The primary objective is to maintain present management capability by preventing further regression of the Boston Canal banks caused by wind-induced wave action and wave wash from boat traffic. Continued erosion of the canal bank and the bay-shore ridge on the west side of the canal entrance would result in the loss of an existing management unit levee and water management capability.

Project Features

Bulkheads or similar wave-resistant structures are proposed parallel to the canal bank on both sides of the channel, beginning from the existing shoreline and extending some distance into the bay. Sediment fences will then be installed behind both structures to encourage sediment accretion and to provide greater protection of the shore on each side of the channel. Appropriate vegetation will be planted if needed on the built-up areas for stabilization purposes.

Status

The project requires planning, feasibility analysis, and permitting.



T/V-9. BOSTON CANAL BANK PROTECTION

Hydrologic Basin: Teche-Vermilion
Parish: Vermilion
Acreage Benefitted: 520

Description: Successful implementation of this project conserves vegetated wetlands by reducing erosion through the dissipation of wave energy.

T/V-10. Weeks Bay Shore Restoration

Location and Size

The project restores 90 ac of marshland between Weeks Bay and the Intracoastal Waterway in Iberia Parish, Louisiana. The boundaries of the project are Weeks Bayou to the north, Two Mouth Bayou to the south, the Intracoastal Waterway to the east, and Weeks Bay to the west.

Objectives

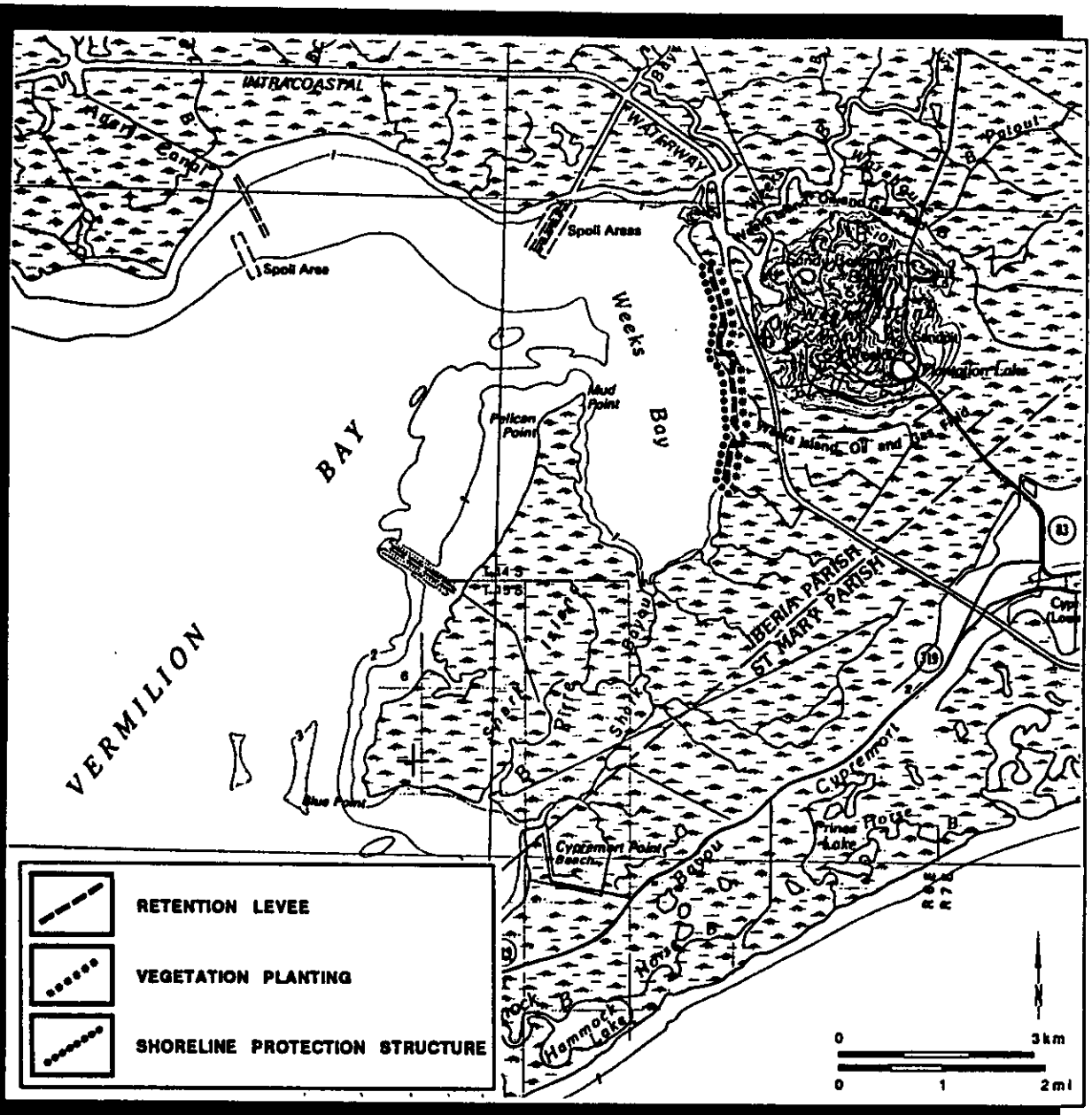
The objective is to restore marsh to the 1921 shoreline.

Project Features

The project will consist of the construction of ± 8,000 ft of retention levee in Weeks Bay at the 1921 shoreline. In addition, ±1,100 ft of levee will be constructed along the GIWW as the back levee for the project. Approximately 600,000 yd^3 of fill material will be required to fill the reclaimed area to + 6 in above mean sea level (MSL). The levee will be constructed of earthen material overlain with a synthetic liner and an erosion-resistant matting material. Planting efforts for vegetation propagation will be conducted to complement natural revegetation. If implemented, this project replaces a portion of project T/V 1, as authorized in the 1990-91 Plan.

Status

The project requires planning, feasibility analysis, and permitting.



T/V-10. WEEKS BAY SHORE RESTORATION

Hydrologic Basin: Teche-Vermilion
Parish: Iberia
Acreage Benefitted: 90

Description: Successful implementation of this project restores vegetated wetlands by utilizing dredged material and plantings.

T/V-11. Freshwater Bayou Bank Protection

Location and Size

This project conserves 3,200 ac of vegetated wetlands along the left descending bank on Freshwater Bayou in the area of channel marker #16, in Vermilion Parish, Louisiana.

Objectives

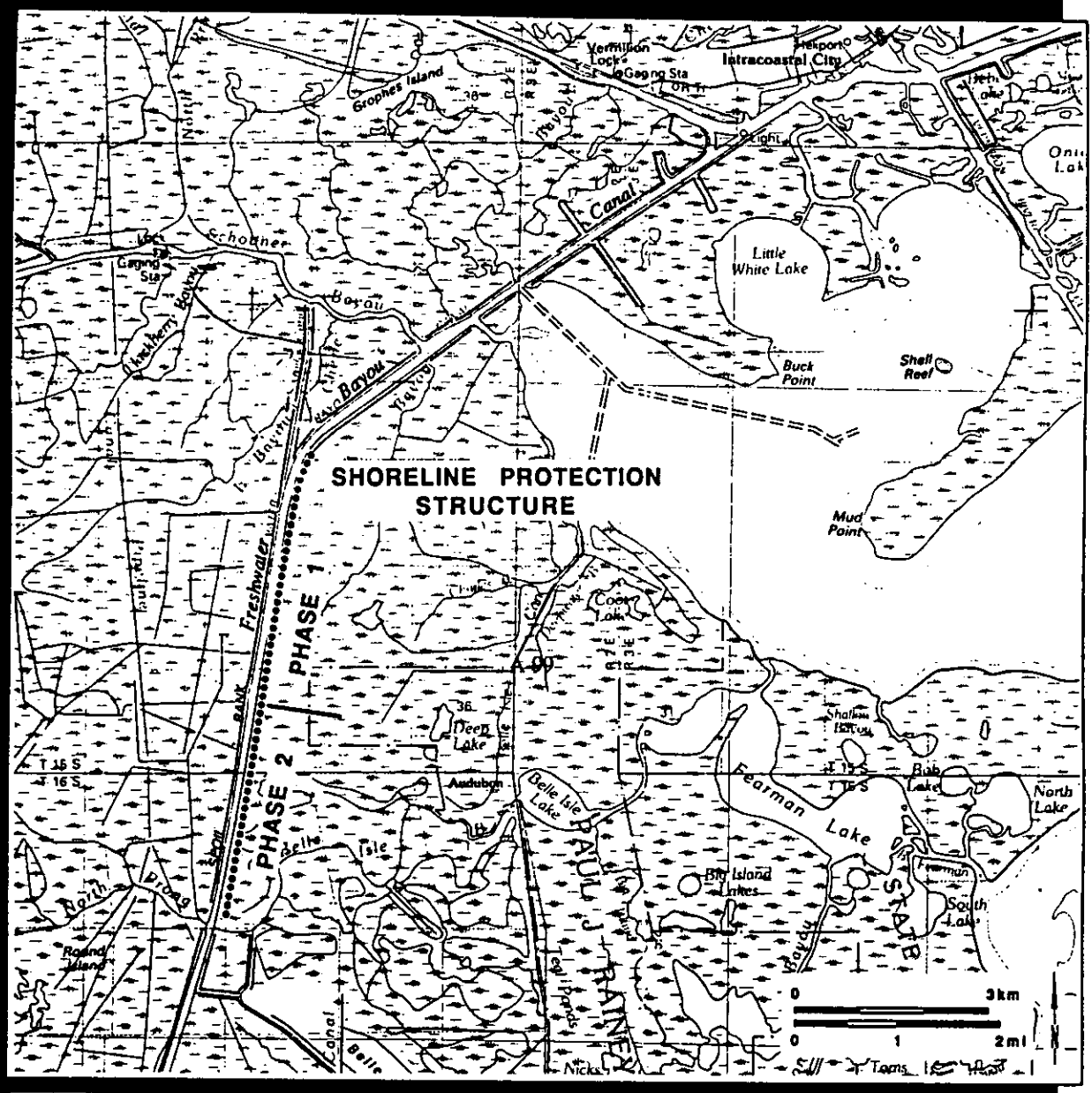
The objective is to protect the integrity of 3,200 ac of managed brackish marsh. Breaching of the Freshwater Bayou bank into open water areas of the marsh will result in a loss of present management capabilities and result in marsh deterioration. Freshwater Bayou Channel is a major navigational channel linking the Intracoastal Waterway to the Gulf of Mexico. Boat traffic contributes heavily to the accelerated erosion rates in this environment.

Project Features

This project strengthens weak sections of the existing channel shoreline with wave-dissipating devices and sediment-trapping fences. Installation of approximately 10,000 ft of geotextile mat and a riprap wave-protection barrier to be installed within 60 ft of existing shoreline.

Status

The landowner currently has a Corps of Engineers, Section 404 Permit for the project.



T/V-11. FRESHWATER BAYOU BANK PROTECTION

Hydrologic Basin: Teche-Vermilion
Parish: Vermilion
Acreage Benefitted: 3,200

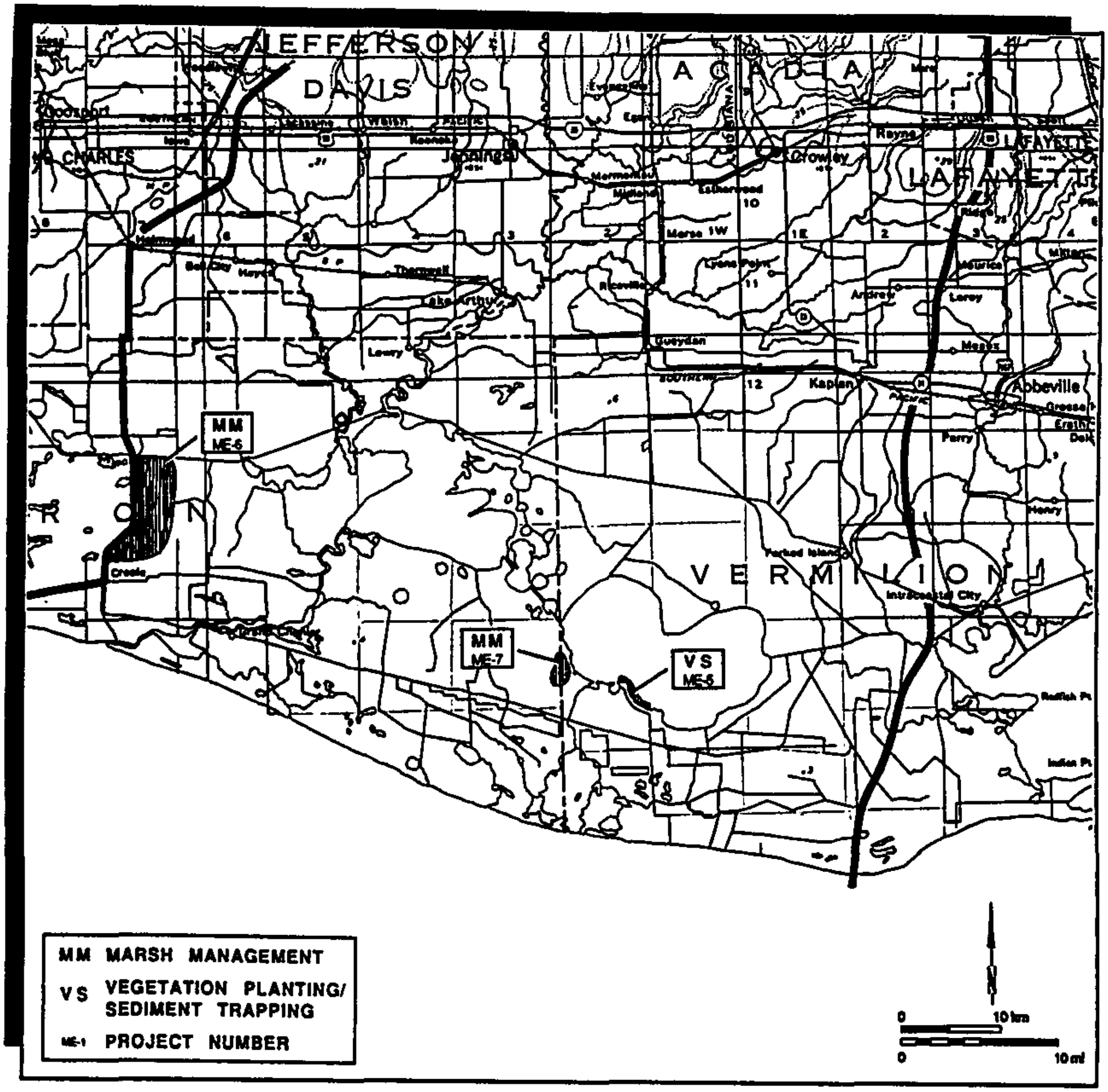
Description: Successful implementation of this project conserves vegetated wetlands by maintaining the hydrologic boundary between the marshes and the Freshwater Bayou Channel.

MERMENTAU BASIN

MERMENTAU BASIN

ME-5	White Lake Shore Protection
ME-6	Big Burn Marsh Management
ME-7	Deep Lake Marsh Protection

Figure ME-0. Location and estimated area of benefit for projects proposed in the Mermentau Basin.



JEFFERSON
DAVIS
ACADIA
LAFAYETTE
VERMILION
Jennings
Crowley
Rayne
Lafayette
Abbeville
Kaplan
Gueydan
Lake Arthur
Intracoastal City
MM
ME-6
MM
ME-7
VS
ME-5
MM MARSH MANAGEMENT
VS VEGETATION PLANTING/ SEDIMENT TRAPPING
ME-1 PROJECT NUMBER
0
10 km
0
10 mi

ME-5. White Lake Shore Protection

Location and Size

The project area is located on the south shore of White Lake in Vermilion Parish, Louisiana from Bear Lake east for approximately 3 mi. The area benefitted includes 5,000 ac of vegetated wetlands south of White Lake.

Objectives

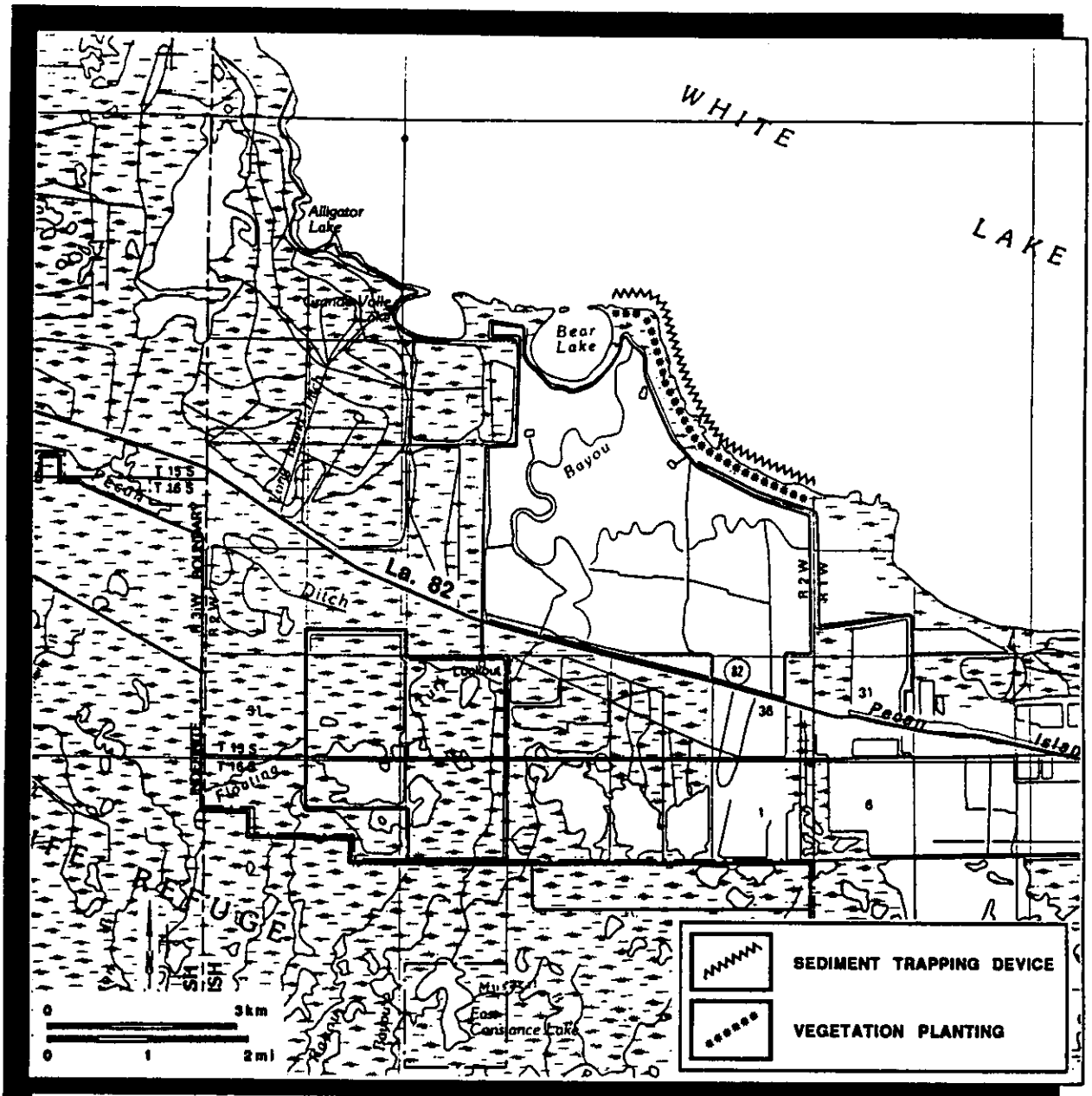
The objective is to conserve marsh by reducing shoreline erosion along White Lake. The project would protect the integrity of the management levee encircling 5,000 ac of subsided marsh. If the levee would wash out, White Lake water would flood the marsh all the way to Hwy. 82.

Project Features

Shoreline protection will be accomplished using sediment-trapping devices and vegetative plantings. The project would require construction of a sediment/wave dampening fence located in shallow water 150 ft from the existing shoreline. The fence would follow a zig-zag pattern along the shore for approximately 3.0 mi. Giant cutgrass would be planted along the shore and aquatics would be encouraged to grow between the shoreline and the fence.

Status

The project requires planning, feasibility analysis, and permitting.



ME-5. WHITE LAKE SHORE PROTECTION

Hydrologic Basin: Mermentau
Parish: Vermilion
Acreage Benefitted: 5,000

Description: Successful implementation of this project conserves vegetated wetlands and provides protection for an existing management unit.

ME-6. Big Burn Marsh Management

Location and Size

"The Big Burn" is a 60,000-ac, semi-impounded wetland south of Lake Charles, but north of Creole in Cameron Parish, Louisiana. It is bounded by GIWW on the north, Grand Lake on the east, Little Chenier Road on the south, and La. Hwy. 27 on the west. Improved water management capability could benefit a 1600-ac area of highly deteriorated marsh and open water.

Objectives

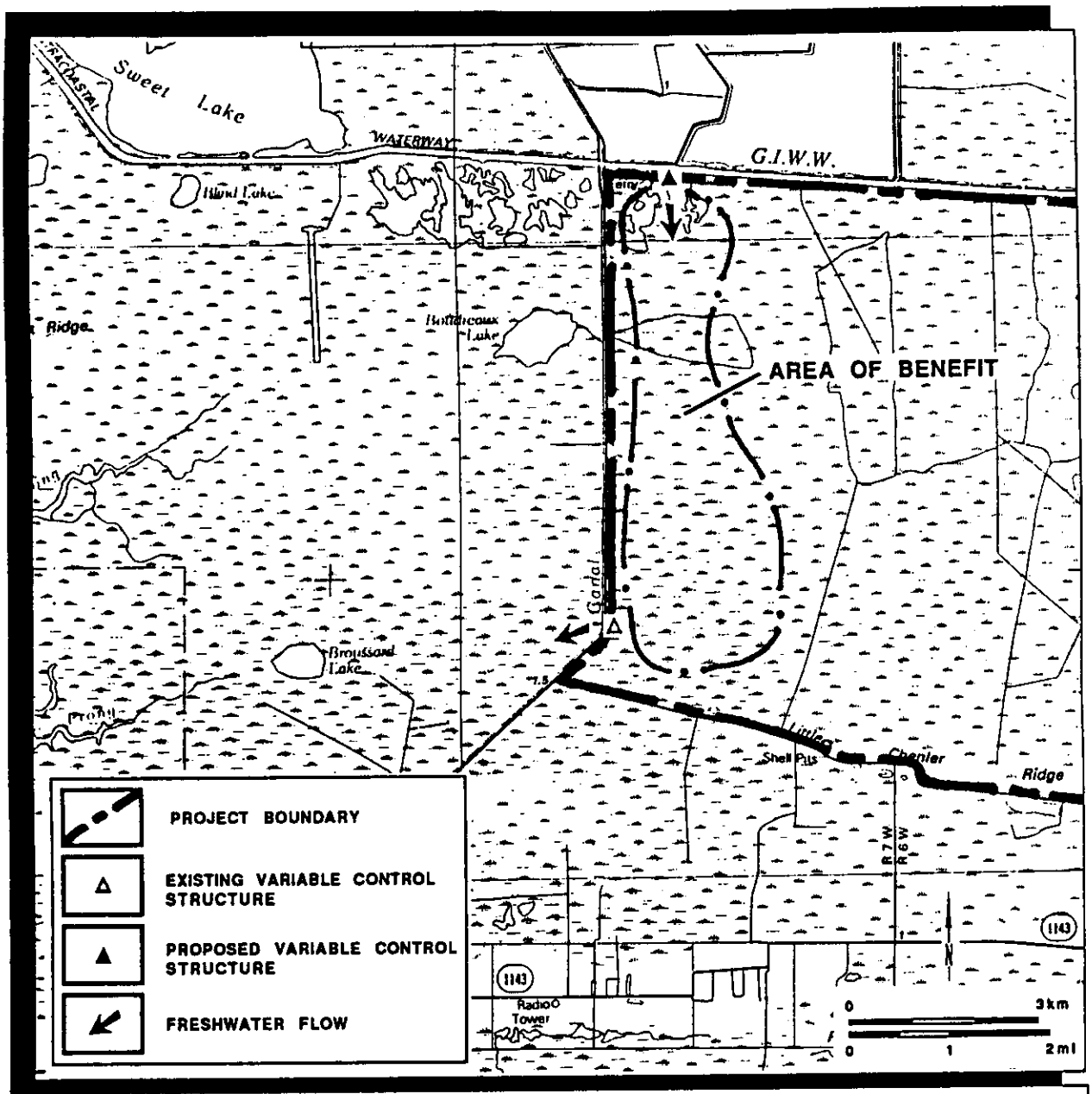
The objective is to enhance marshland by reducing excessive water ponding in the area. In light of the Cameron-Creole management plan and Joint Operating Agreement with the U.S. Fish and Wildlife Services, this project proposes that this portion of Cameron Parish's wetlands be managed in a similar manner. These marshes have deteriorated greatly in the last 25 years. Open ponds and lakes have formed and internal erosion is increasing. The loss of soils and vegetative habitat is the end result.

Project Features

Earthen plugs and large culverts will be installed. Eight 42-in structures have now been installed west of Hwy. 27; four to six more are being considered under a separate plan. To retard further wetland loss and induce revegation, this project includes managing water levels through the use of water-control structures. During Cameron-Creole drawdown, the Burn is a reservoir for freshwater introduction.

Status

A permit to manage the water passing through "Welfare Bridge" on Hwy. 27 is forthcoming. The landowner is prepared to share in the cost of the project. The project requires a feasibility analysis. The feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



ME-6. BIG BURN MARSH MANAGEMENT

Hydrologic Basin: Mermentau
Parish: Cameron
Acreage Benefitted: 1,600

Description: Successful implementation of this project conserves vegetated wetlands by reducing water levels, ponding, and wave-induced shoreline erosion.

ME-7. Deep Lake Marsh Protection

Location and Size

The project area includes 1,500 ac of shallow water bottoms north of Deep Lake in Cameron and Vermilion Parishes, Louisiana. The combined benefits from marsh restoration and reduced erosion are estimated to be 250 ac.

Objectives

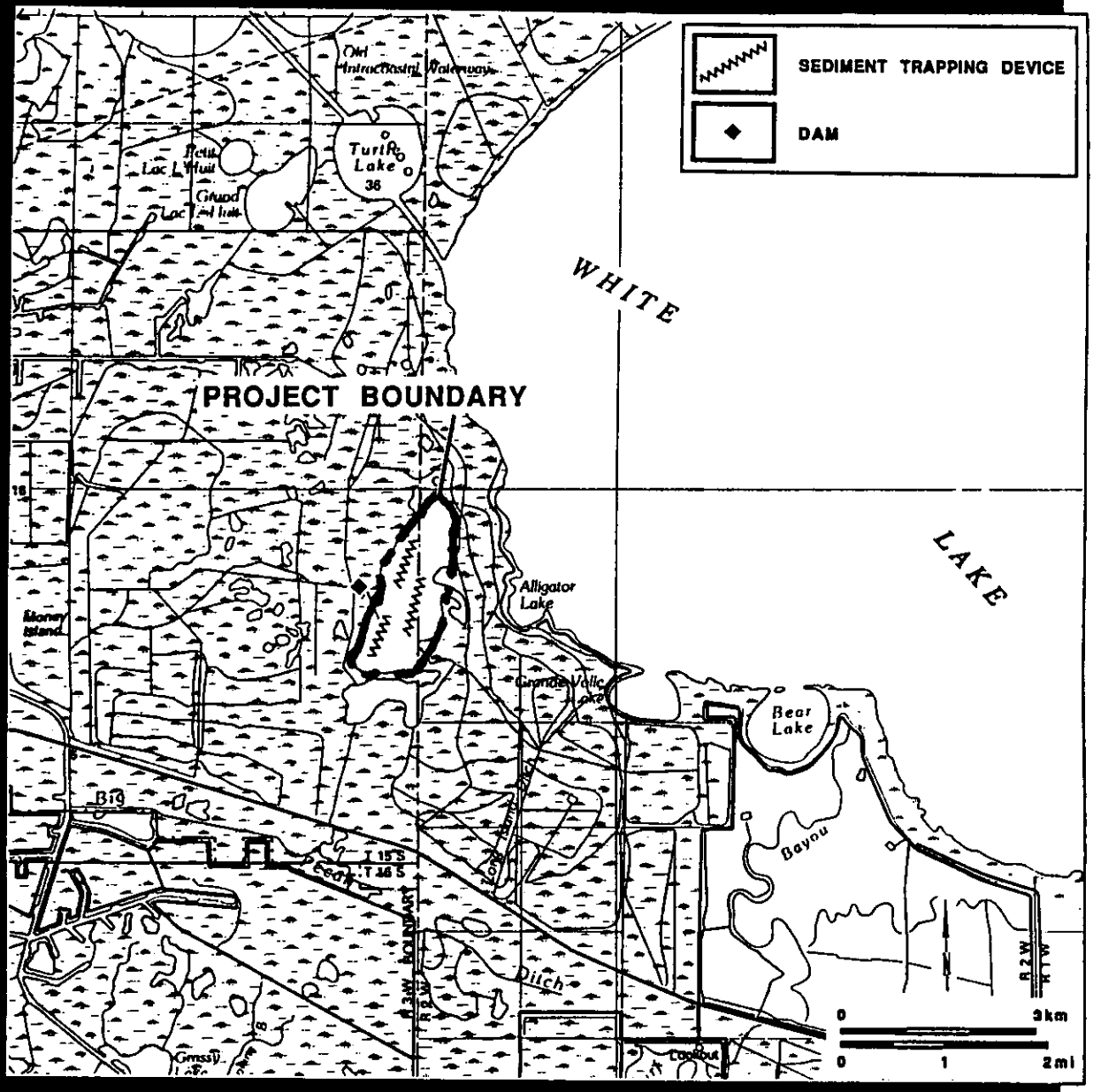
The objective is to restore wetlands and reduce erosion by waves and currents. Marshes in this area are being converted to a shallow, open water body that increases in size as a result of wave erosion, and in depth as a result of removal of materials. In light of rapid marsh deterioration, it is hoped that the use of earthen "terraces" will assist in the reduction of wave action, promote settling of suspended materials, and improve water clarity to induce growth of aquatics.

Project Features

This project recommends using dredged materials, fencing, and vegetation to reduce wave action and subsequent erosion. Low ridges will be constructed in open water areas using water bottom sediments. Fifty-foot gaps will be placed to allow proper water exchange. Vegetation will be planted on the dredged ridges to assist in stabilization and trapping of sediment. In addition, vegetative planting will complement natural revegetation. An earthen plug will be installed at the end of the lateral canal connected to the pond in order to reduce removal of materials from the pond area.

Status

The project requires planning, feasibility analysis, and permitting. The landowner will share the cost.



ME-7. DEEP LAKE MARSH PROTECTION

Hydrologic Basin: Mermentau
Parishes: Vermilion and Cameron
Acreage Benefitted: 250

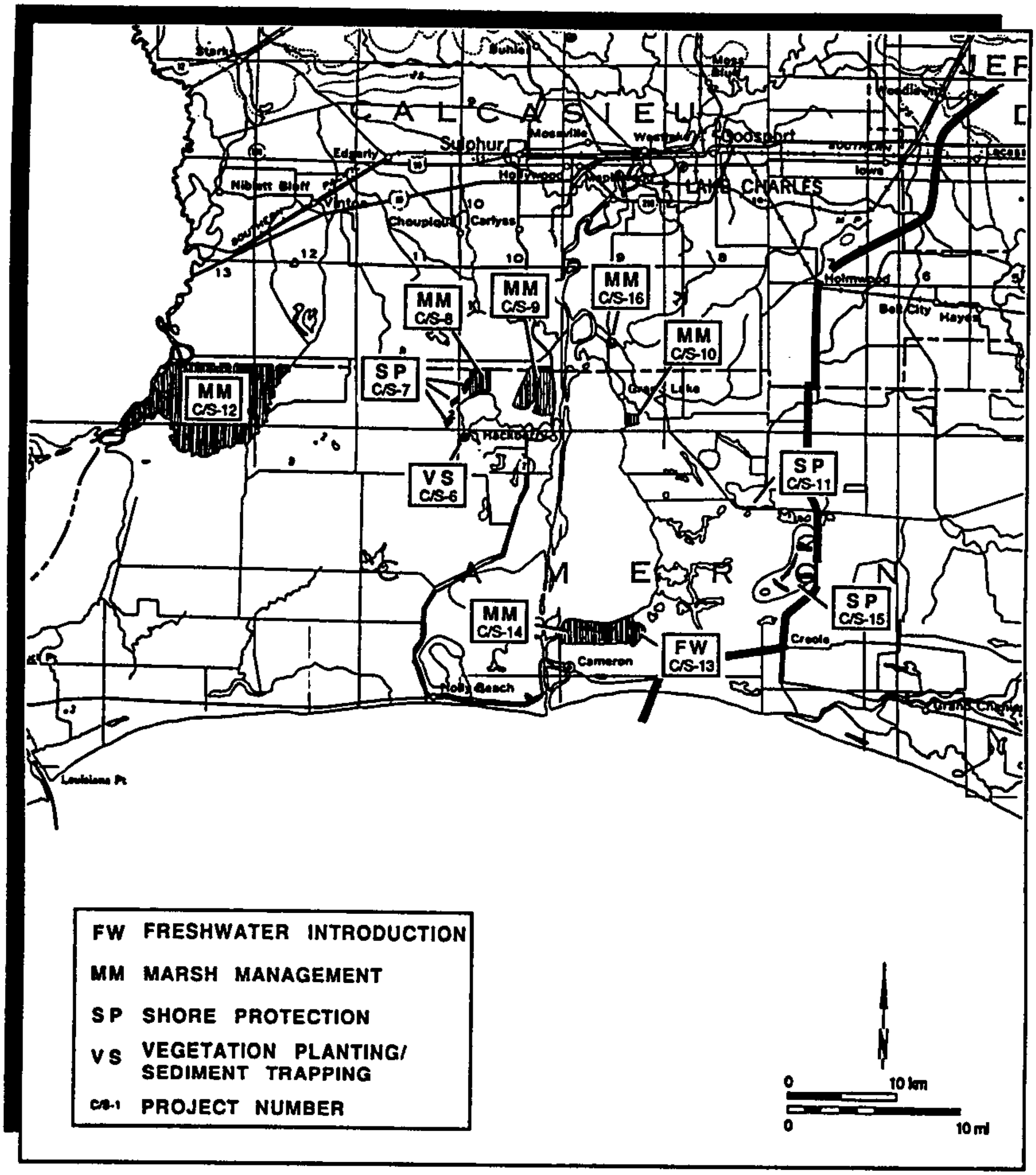
Description: Successful implementation of this project conserves, enhances, and restores vegetated wetlands by dissipating wave energy, trapping sediment, and planting vegetation.

CALCASIEU / SABINE BASIN

CALCASIEU/SABINE BASIN

C/S-6	Black Lake South Shore Protection
C/S-7	Black Lake West Shore Protection
C/S-8	Black Lake North Marsh Management
C/S-9	Brown Lake Marsh Management
C/S-10	Grand Lake Ridge Marsh Management
C/S-11	Sweet Lake/GIWW Bank Restoration
C/S-12	Black Bayou Marsh Management
C/S-13	Back Ridge Freshwater Introduction
C/S-14	Tripod Bayou Control Structure
C/S-15	Boudreaux/Broussard Marsh Protection
C/S-16	Black Bayou Culverts

Figure C/S-0. Location and estimated area of benefit for projects proposed in the Calcasieu/Sabine Basin.


C A L C A S I E U
Sulphur
LAKE CHARLES
Holmwood
Bell City
Hayes
Cameron
Creole
Holly Beach
Louisiana Pt
MM C/S-8
MM C/S-9
MM C/S-16
MM C/S-10
MM C/S-12
SP C/S-7
VS C/S-6
SP C/S-11
MM C/S-14
FW C/S-13
SP C/S-15
FW FRESHWATER INTRODUCTION
MM MARSH MANAGEMENT
SP SHORE PROTECTION
VS VEGETATION PLANTING/ SEDIMENT TRAPPING
C/S-1 PROJECT NUMBER
0 10 km
0 10 mi

C/S-6. Black Lake South Shore Protection

Location and Size

The project area is located southwest of Black Lake in Cameron Parish, Louisiana. The project itself is expected to restore up to 1 ac of marsh adjacent to an oil-field access road in Section 25 of Township 12 South, Range 11 West in Cameron Parish, Louisiana.

Objectives

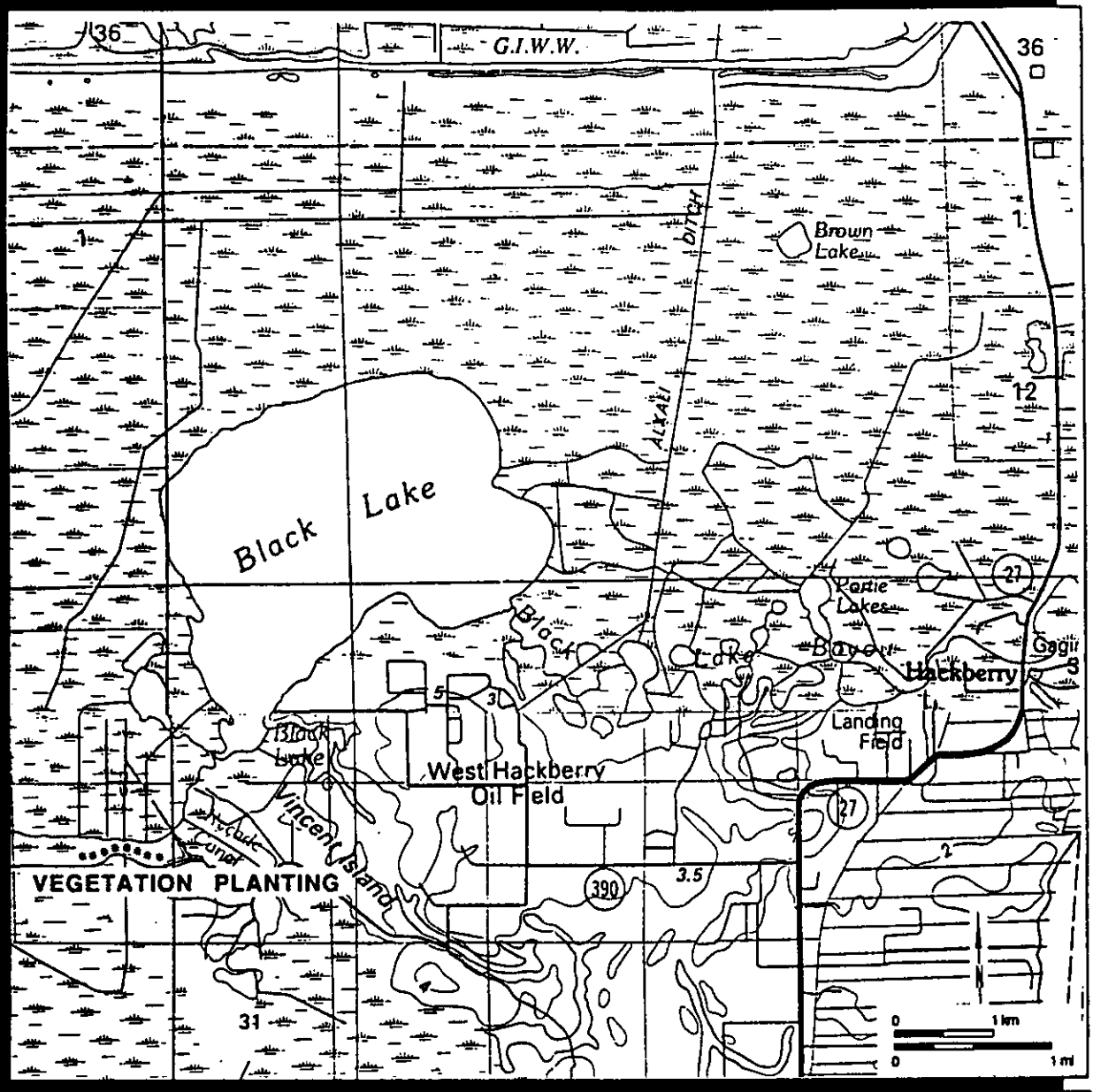
Marshland in Cameron Parish in the vicinity of Black Lake has been lost as a result of saltwater intrusion, tidal fluctuation, subsidence, and improper management procedures. Review of 1989 aerial photography reveals 95% open water in the region. Land in this region exists primarily as remnant oil-field, access-canal spoil-banks; oil-field access roads; and management levees. Vegetated wetland islands are small and widely scattered and account for approximately 1% of the project area. This project will restore up to 1 ac of vegetated marsh by planting. In addition, it is expected that this vegetation will minimally protect an oil-field access road immediately south of the planting area.

Project Features

Smooth cordgrass will be planted along 3,000 ft of an existing oil-field access road.

Status

The project requires planning and feasibility analysis. Cost-sharing or a cooperative work agreement can be obtained from the current oil-field operator.



C/S-6. BLACK LAKE SOUTH SHORE PROTECTION

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 1

Description: Successful implementation of this project restores vegetated wetlands and provides erosion protection for a hydrologic boundary.

C/S-7. Black Lake West Shore Protection

Location and Size

The project area is located directly west of Black Lake in Cameron Parish, Louisiana. The project itself is expected to protect the integrity of a management levee, thereby conserving 300 ac of vegetated marsh islands within a 6,000-ac management unit.

Objectives

Marshland loss in Cameron Parish to the south of Black Lake has been lost as a result of saltwater intrusion, tidal fluctuation, subsidence, and improper management. Review of 1989 aerial photography reveals 95% open water in the region. Vegetated wetland islands are small and widely scattered throughout the management area and account for approximately 5% of the project area.

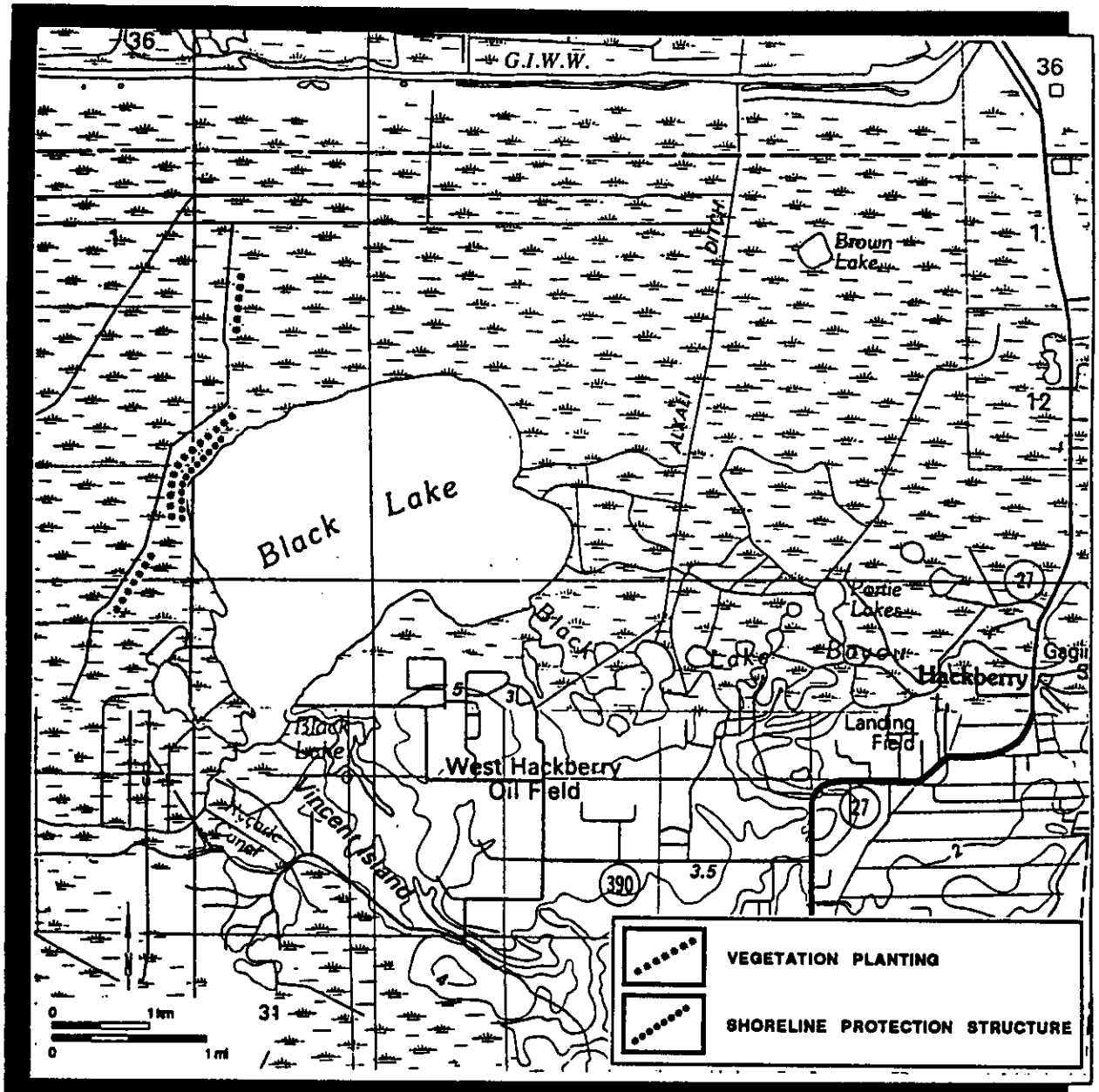
The objective of the project is to establish shoreline protection on the west bank of Black Lake to combat shoreline erosion caused by wind-generated wave action against a deteriorating marsh and levee. The existing levee is part of a permitted marsh plan for restoration of approximately 6,000 ac of marsh. This project will indirectly conserve approximately 300 ac of vegetated marsh by protecting the integrity of the eastern boundary of the management unit.

Project Features

Wave-dampening measures (i.e., riprap or other coarse materials similar to the Cameron Parish Blind Lake Project) will be taken along approximately 0.5 mi of threatened shoreline. In addition, smooth cordgrass will be planted at the base of the existing levee behind the wave dampening feature to provide restoration of deteriorated marsh between the levee and the proposed measures. Smooth cordgrass will also be planted along an additional 4,000 ft of the management levee.

Status

The project requires planning, feasibility analysis, and permitting.



C/S-7. BLACK LAKE WEST SHORE PROTECTION

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 300

Description: Successful implementation of this project conserves vegetated wetlands and provides erosion protection for an existing management unit.

C/S-8. Black Lake North Marsh Management

Location and Size

The project area is along the north shoreline of Black Lake, approximately 3 mi north of Hackberry, Louisiana in Cameron Parish. The project itself is expected to restore an artificial boundary between Black Lake and a management unit. Ninety acres of vegetated wetlands within the 900-ac management unit will be conserved by restoring the levee.

Objectives

Marshland in Cameron Parish to the north of Black Lake has been lost as a result of saltwater intrusion, tidal fluctuation, and subsidence. Review of 1989 aerial photography reveals 99% open water in the region. Vegetated wetland islands are small and widely scattered throughout the management unit and account for approximately 1% of the project area.

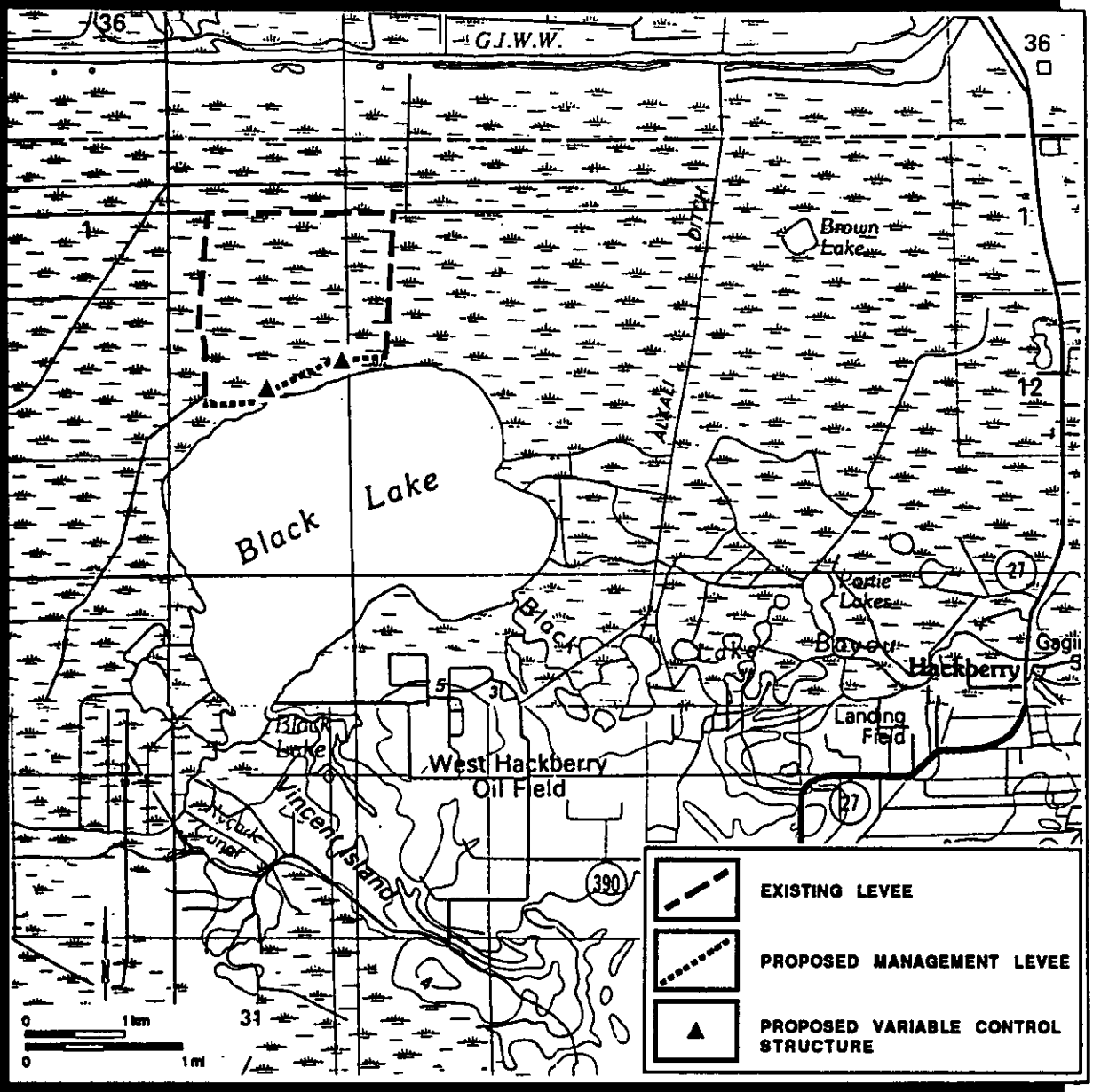
The objective of the project is to conserve marsh by restoring a management unit on the north bank of Black Lake. This project will directly conserve approximately 90 ac of vegetated marsh by restoring the integrity of the southern boundary of the management unit.

Project Features

An eroded levee on the north shoreline of Black Lake will be rebuilt, and a marsh management plan with water-control structures will be designed to allow for the ingress-egress of marine organisms. Management plans will include plantings in shallow water to assist and encourage natural revegetation. Deep-water areas will be managed for submergent vegetation.

Status

Cost-sharing of the project is available from the landowner. The project requires planning, feasibility analysis, and permitting. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



C/S-8. BLACK LAKE NORTH MARSH MANAGEMENT

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 9

Description: Successful implementation of this project conserves vegetated wetlands by restoring the integrity of a former marsh management unit.

C/S-9. Brown Lake Marsh Management

Location and Size

The project area is located east of Black Lake, west of the Calcasieu Ship Channel, and south of the Intracoastal Waterway in Cameron Parish, Louisiana. The project will conserve approximately 400 ac of vegetated wetlands.

Objectives

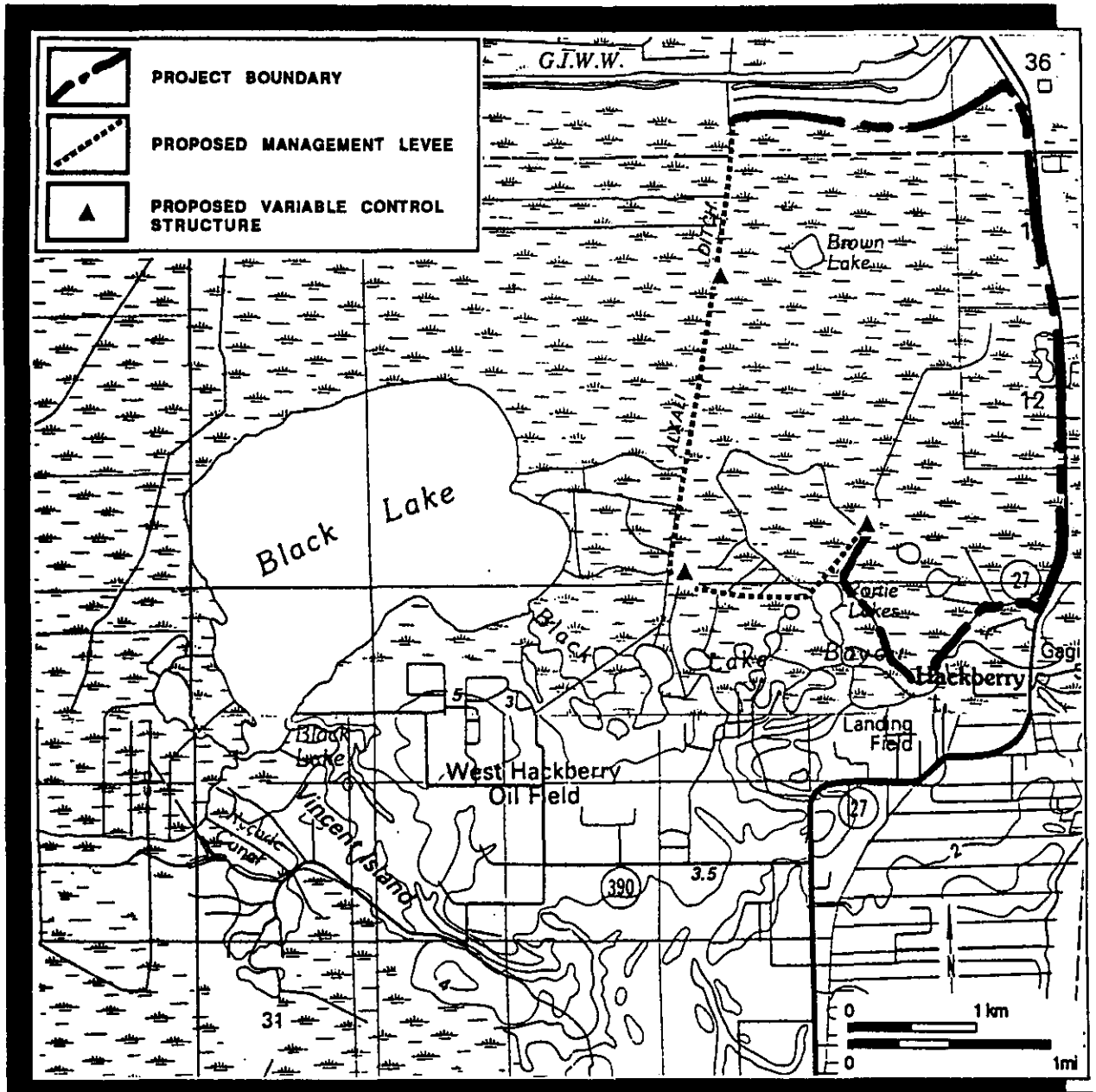
The objective of the project is to conserve rapidly deteriorating marshland by promoting a more conducive environment for both emergent and submergent vegetation. Marshland in Cameron Parish in the vicinity of Black Lake has been lost as a result of saltwater intrusion, tidal fluctuation, and subsidence. Review of 1989 aerial photography reveals 90% open water in this area. Vegetated wetlands comprise approximately 10% of the project area.

Project Features

Under this project, formulation of a management plan will be completed. Water control will be achieved by completing a hydrologic barrier utilizing existing canal spoil banks. Water-control structures are to be installed with provisions for the ingress-egress of marine organisms. The structures will be operated according to the marsh management plan. Existing marsh will be protected by stabilizing salinity and water levels. Management plans will include planting in shallow water to assist and encourage natural revegetation. Deep-water areas will be managed for submergent vegetation.

Status

Cost-sharing of the project is available from the landowner. The project requires planning, feasibility analysis, and permitting. Feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



C/S-9. BROWN LAKE MARSH MANAGEMENT

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 400

Description: Successful implementation of this project conserves vegetated wetlands by creating a management unit.

C/S-10. Grand Lake Ridge Marsh Management

Location and Size

The project area is located adjacent to the east shore of Calcasieu Lake approximately 0.5 mi north of Hebert's Landing in Cameron Parish, Louisiana. The project will enhance 100 ac and restore 200 ac of vegetated wetlands.

Objectives

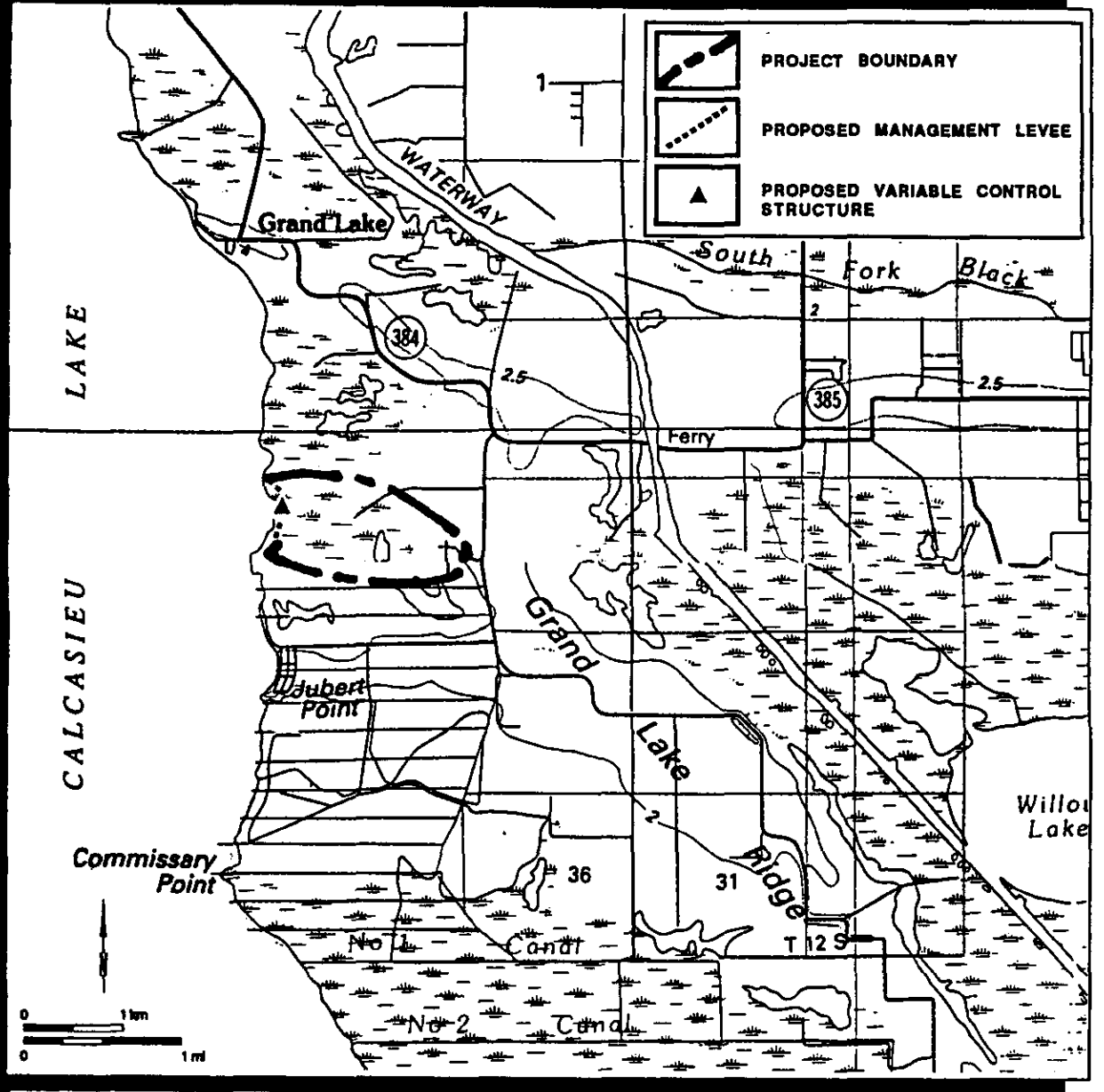
The project objective is to revegetate as much of the eroded area as feasible with emergent and submergent vegetation by managing salinity and water levels. This area was 85% emergent vegetation and 15% open water in 1940, and 20% emergent vegetation and 80% open water in 1980. The goal is to achieve a 70:30 emergent vegetation and open-water ratio. The area will be managed as a brackish marsh for waterfowl and furbearers, while providing for ingress-egress of marine organisms.

Project Features

Project features include rebuilding 1800 ft of existing levee (approximately 2321 yd^3 of fill), and installing one 18-in-diameter, double flap-gated culvert and one 48-indiameter culvert with an outside flap gate and an interior variable crest weir inlet.

Status

The structures will be operated as outlined in the conservation plan completed by the landowner with assistance from the USDA-Soil Conservation Service. The landowner has a coastal use permit and is willing to share implementation cost. The project requires a feasibility analysis. The feasibility analysis will include the coordination of project features with local government, elected officials, and landowners to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



C/S-10. GRAND LAKE RIDGE MARSH MANAGEMENT

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 300

Description: Successful implementation of this project enhances and restores vegetated wetlands by creating a management unit.

C/S-11. Sweet Lake/GIWW Bank Restoration

Location and Size

The project is located at the boundary between the Gulf Intracoastal Waterway (GIWW) and Sweet Lake in Cameron Parish, Louisiana, approximately 3.5 mi west of the Gibstown Bridge (La. Hwy. 27). The project is expected to conserve up to 50 ac of marshland along the shoreline of Sweet Lake.

Objectives

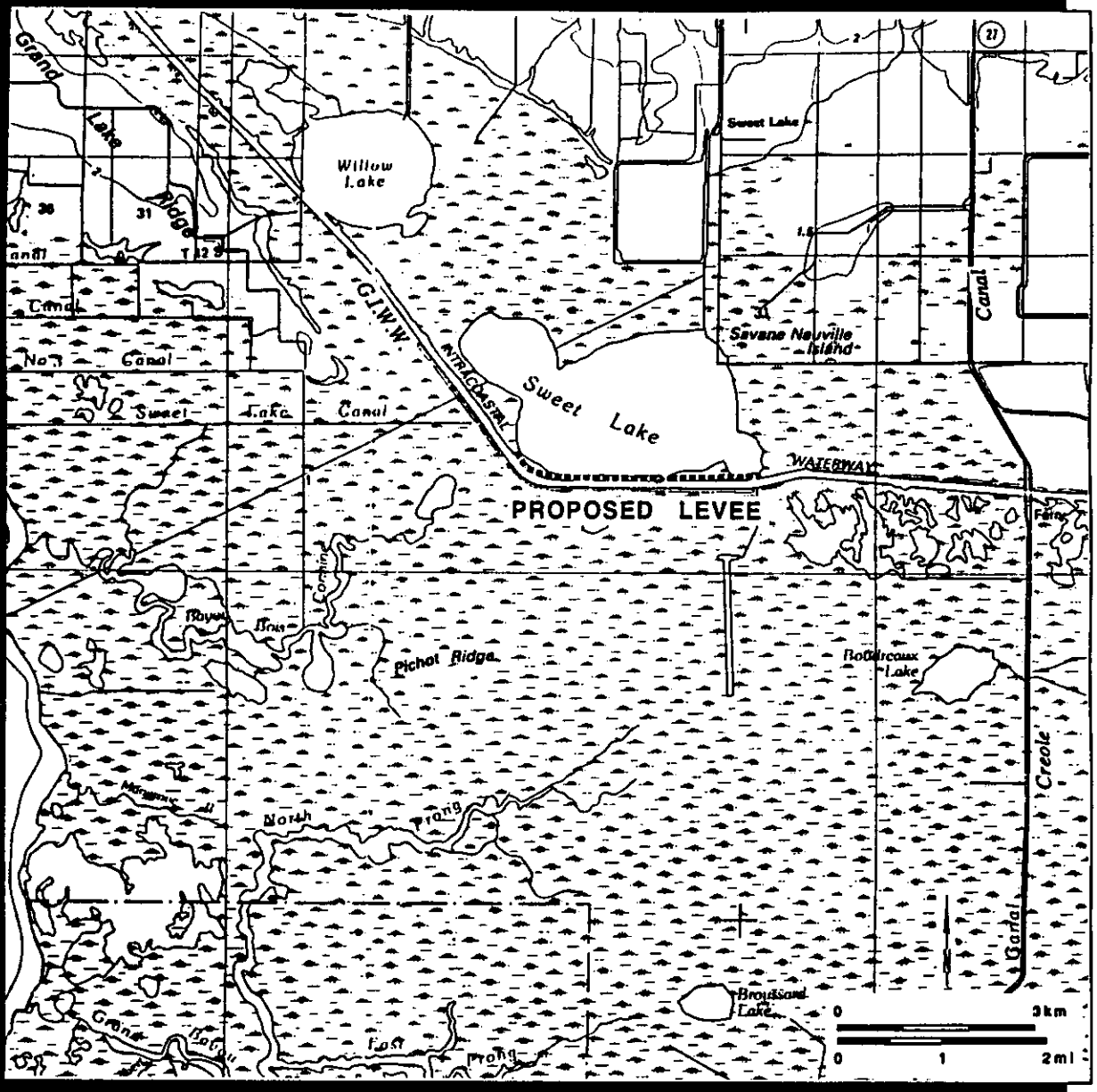
The primary objective here is to reduce shoreline erosion on the north and west shores of Sweet Lake by encouraging the growth of submergent vegetation. Restoration of the south shoreline of Sweet Lake will reduce the turbidity of the water in Sweet Lake. Approximately 1 mi of the north shoreline of the GIWW has eroded into Sweet Lake. Turbid water from the GIWW contributes to the lack of submergent vegetation. Reduction in turbidity will create conditions more favorable to aquatic plant growth. Submergent vegetation will dissipate wave energy and thus reduce wave damage along the north and west shores of Sweet Lake.

Project Features

Water exchange between the GIWW and Sweet Lake will be reduced by re-establishing the hydrologic boundary between the GIWW and Sweet Lake. Approximately 1 mi of shoreline needs enhancing. Dredge material from the maintenance of the GIWW may be utilized for this project in combination with planting of vegetation.

Status

The project requires planning, feasibility analysis, and permitting. Feasibility analysis will include the coordination of project features with local government, elected officials, and land owners, to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



C/S-11. SWEET LAKE/GIWW BANK RESTORATION

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 50

Description: Successful implementation of this project conserves and restores vegetated wetlands by reestablishing a barrier between Sweet Lake and the GIWW.

C/S-12. Black Bayou Marsh Management

Location and Size

The project area encompasses a 20,000-ac marshland in Cameron Parish, Louisiana. The area is bounded on the south side by Black Bayou and extends from Sabine Lake east to the pontoon bridge in the Black Bayou Oil Field. Benefits of this project would accrue primarily to the inner 5,000 ac of the area where wetland deterioration is most evident.

Objectives

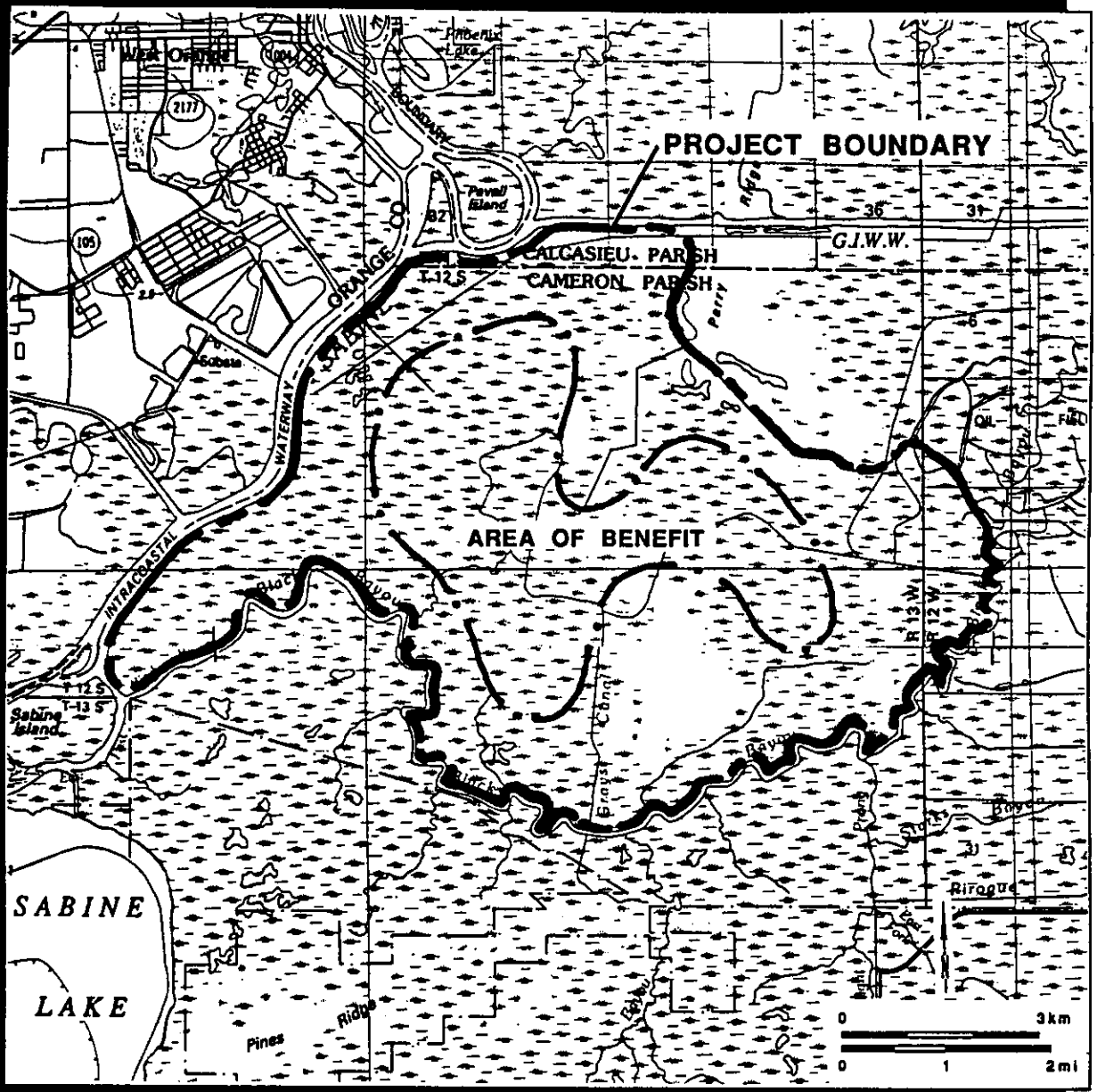
The proposed project will evaluate means of reversing wetland loss in approximately 5,000 ac of deteriorating interior marshes and suggest management approaches. After reviewing availability of sediment, nutrients, and freshwater from the Sabine River, management alternatives for the area will be selected to promote a more conducive environment for both emergent and submergent vegetation.

Project Features

Project features include review of current marsh conditions and development of restoration measures. Diversion of Sabine River flow will be considered. Marshes on the perimeter of the Black Bayou Management Area appear to be thriving; however, interior marshes are deteriorating rapidly. While formulating a marsh management plan, care must be taken to avoid damaging the vast acreage of healthy streambank marshes adjacent to Black Bayou and adjacent channels.

Status

The landowner is willing to share implementation cost. The project requires planning, feasibility analysis, and permitting. Feasibility analysis will include the coordination of project features with local government, elected officials, and land owners, to ensure full consideration of the specific needs for fisheries and wetland restoration and conservation, and of the needs relative to current use of privately held lands that may be affected by the project.



C/S-12. BLACK BAYOU MARSH MANAGEMENT

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 5,000

Description: Successful implementation of this project conserves and enhances vegetated wetlands by the implementation of management measures to be developed.

C/S-13. Back Ridge Freshwater Introduction

Location and Size

The project will enhance 350 ac of vegetated wetlands in the Cameron-Creole Watershed Area in Cameron Parish, Louisiana, in the area known as the Back Ridge, approximately 3 mi south of Lamberts Lake.

Objectives

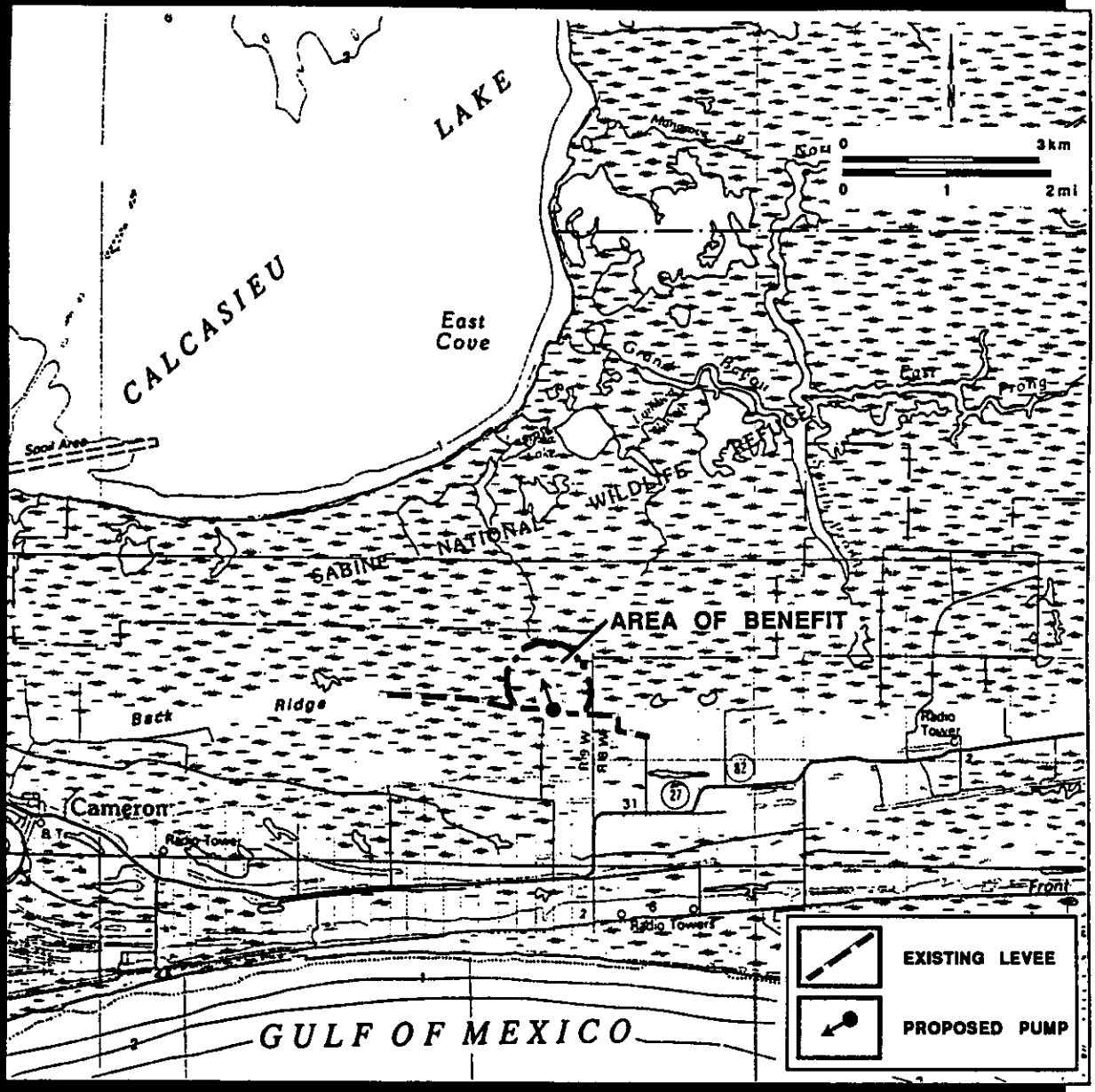
The primary objective is to restore and conserve wetlands through the use of freshwater, nutrients, and sediments provided by the outfall of a drainage-pump station. The brackish marsh in the area has been severely damaged by saltwater intrusion. The discharge of storm waters into the marsh benefits both the vegetation in the marshes and the water quality of the surrounding area.

Project Features

Outfall from the planned pumping station will be directed into the marsh, providing much needed freshwater, which will lower salinity levels and aid in building a freshwater head in the marsh to help reduce saltwater intrusion.

Status

The project requires planning, feasibility analysis, and permitting. The local drainage districts would operate and maintain the pumping station. The drainage districts would share costs in the construction of the project if funds are available.



C/S-13. BACK RIDGE FRESHWATER INTRODUCTION

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 350

Description: Successful implementation of this project conserves and restores vegetated wetlands by introducing additional freshwater and improving the water quality of runoff.

C/S-14. Tripod Bayou Control Structure

Location and Size

The project would include 960 ac of marsh on the Sabine National Wildlife Refuge in the area near Tripod Bayou adjacent to the southwest corner of Calcasieu Lake between Lambert Bayou and No Name Bayou, approximately 3 mi north of Cameron, Louisiana.

Objectives

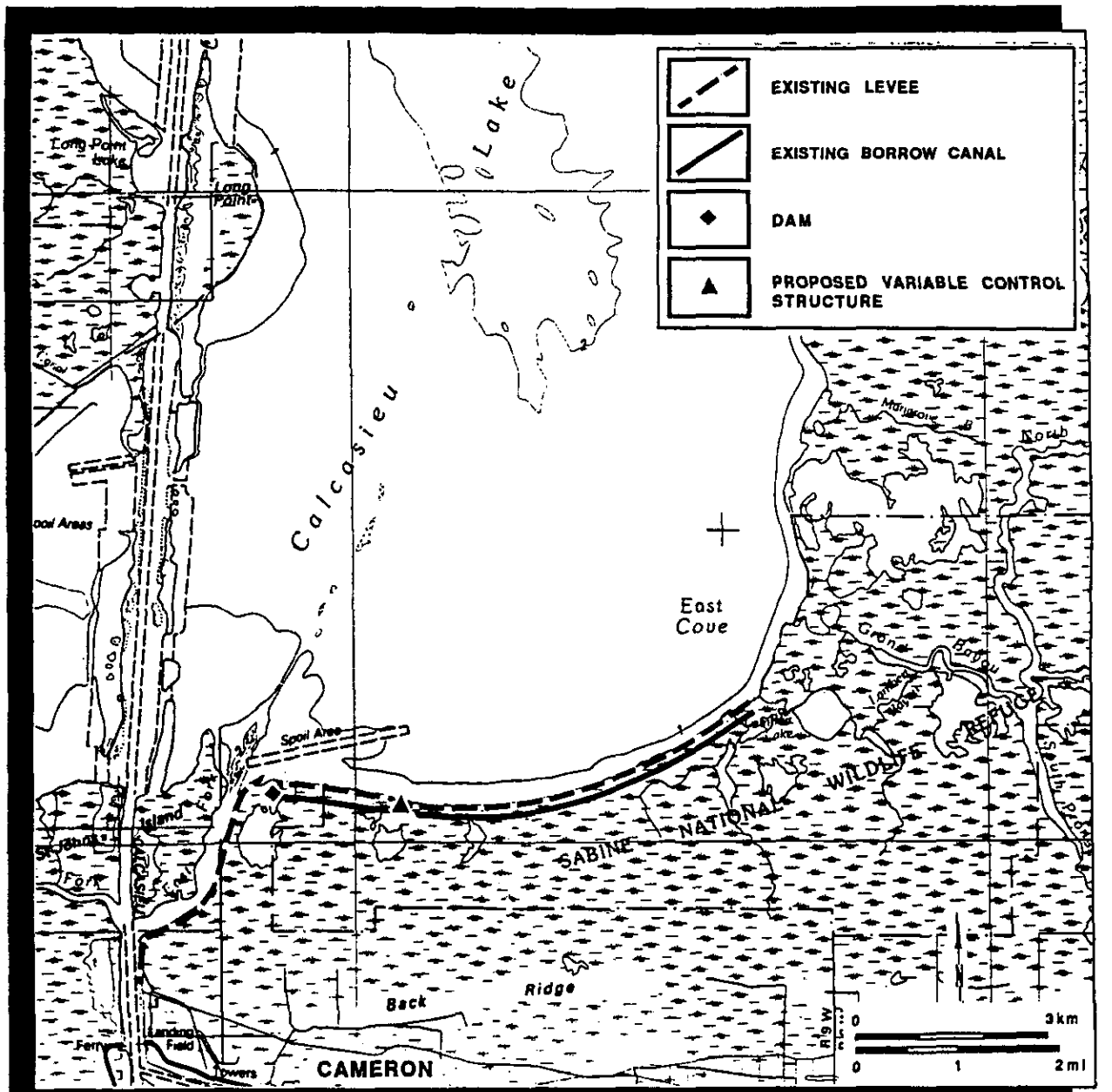
The objective is to enhance vegetated wetlands by reducing water levels in the southwest corner on the Cameron-Creole Watershed area. Vegetation in the area is deteriorating as a result of prolonged ponding above marsh level during the growing season.

Project Features

A gated structure on Tripod Bayou will be installed to allow excess water to be removed when the tides will allow gravity drainage. In addition, a plug could be installed in the borrow pit that was constructed when the protection levee was built. This structure was not installed by the Corps during construction of the Cameron-Creole Watershed project. Structures were placed on No Name Bayou and Lamberts Bayou. The Cameron-Creole Watershed Project will not be fully implemented until this structure is installed. In addition, the deteriorating marshland is located on the Sabine National Wildlife Refuge.

Status

The project requires planning, feasibility analysis, and permitting.



C/S-14. TRIPOD BAYOU CONTROL STRUCTURE

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 960

Description: Successful implementation of this project enhances vegetated wetlands by reducing ponding within the Cameron-Creole Watershed.

C/S-15. Boudreaux/Broussard Marsh Protection

Location and Size

The project area includes shallow water bottoms between Broussard and Boudreaux Lakes located in Cameron Parish, Louisiana. This 20,000-ac area is within the Cameron-Creole Management Unit. The tract is bounded by the GIWW on the north; Hwy. 27 on the east and south; and Cotton Road and Stable Marsh on the west. The project is expected to benefit at least 500 ac of marsh.

Objectives

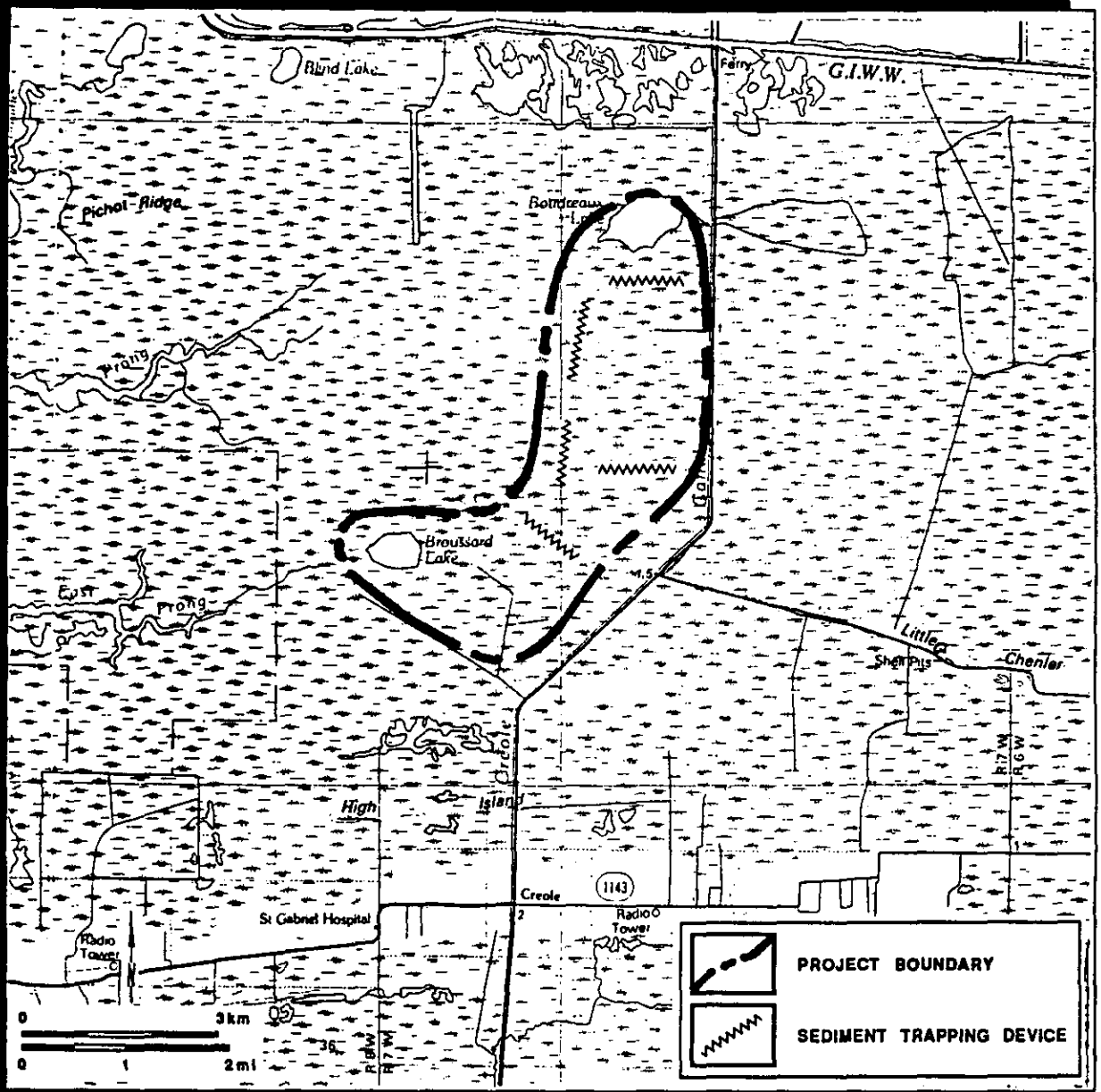
The objective is to minimize wave action and reduce erosion in the large, shallow ponds that have developed in this area. Erosion deepens the ponds as suspended materials are removed from the area when water drains from it. The ponds also are enlarged as a result of bank erosion by the waves. Furthermore, decreased wave action is expected to reduce turbidity and enhance growth of aquatic vegetation. This will add to the material budget of the area and help trap any sediment introduced from the GIWW through recently completed structures.

Project Features

Based on evaluation of current conditions, one of a number of possible methods will be selected to achieve a reduction in wave action. These methods include the installation of fences composed of slats, and the construction of discontinuous ridges using local water-bottom sediments. Vegetation will be planted on the ridges to assist in stabilization and trapping of sediment.

Status

The project requires planning, feasibility analysis, and permitting. The landowner is prepared to share in cost of the project.



C/S-15. BOUDREAUX/BROUSSARD MARSH PROTECTION

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 500

Description: Successful implementation of this project conserves, enhances, and restores vegetated wetlands by trapping sediment, planting vegetation, and dissipating wave energy.

C/S-16. Black Bayou Culverts

Location and Size

The project will enhance approximately 12,000 ac of marsh in Calcasieu and Cameron Parishes, Louisiana. Culverts will be located in the south-central part of Calcasieu Parish where the old Black Bayou channel crosses La. Hwy. 384 adjacent to the Calcasieu Locks.

Objectives

The objectives are to conserve marshland by reducing wave-induced shoreline erosion in the Grand Lake, Lake Arthur, and Lake Misere areas and to enhance opportunity for revegetation. High water-levels allow severe wave action on the south edges of these lakes and are destroying many acres of prime marshland. Reduced wave action can be accomplished by lowering the water level in the region. Reduced water levels during certain periods of the year will also provide an opportunity for reestablishing vegetation in shallow areas that have been recently converted to open water.

Project Features

The project requires the installation of a number of large culverts under La. Hwy. 384, where Black Bayou originally flowed. The culverts could have electrically operated gates and be controlled by the Lock Master at Calcasieu Lock. Culverts would be opened when permitted by tidal conditions on the outside. Implementation of this structure in combination with the Schooner Bayou and Catfish Point control structures and the Calcasieu Lock will improve much needed water-management capabilities in the region.

Status

The project requires planning, feasibility analysis, and permitting.

C/S-16. BLACK BAYOU CULVERTS

Hydrologic Basin: Calcasieu/Sabine
Parish: Cameron
Acreage Benefitted: 12,000

Description: Successful implementation of this project conserves and enhances vegetated wetlands by lowering water levels and reducing wave-induced shoreline erosion.