PLACID PIPELINE COMPANY, LLC
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PORT ALLEN, LA 70767

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ENVIRONMENTAL COMPLIANCE PROCEDURES MANUAL

ADMINISTRATIVE PROCEDURE

OIL POLLUTION ACT OF 1990
PRODUCTS PIPELINE
FACILITY RESPONSE PLAN

Prepared: Environmental Science Services, Inc.

Reviewed: Barry Joffrion,
President *(typed name and signed initials)*

Approved: Barry Joffrion
President *(typed name and signed initials)*

This procedure is valid **ONLY** if E-I-901 Section 6.11 NOTE is included below:

NOTE
(Reference E-I-901, Sections 6.10 and 6.11)

This copy is a (solidly blacken only one):

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Text pages: 1 – 99
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REGULATORY CROSS-REFERENCE LIST

Regulatory Code that is being implemented by Procedure ---------- Code Citation	Procedure paragraph number that implements code
33USC 1321(j), Section 311(j)	*
49 CFR Part 194	*

NOTE

If an entire part or subpart of a code is covered as a whole by the Procedure, cite code in left column and indicate in right column by an asterisk (*).

If the Procedure does not implement a regulatory code or any part of a regulatory code, indicate by stating "NONE" in the left column.

Current Revision Statement (reason for revision):

E-I-502, Revision 06 was prepared to update QI and Contact Information.

E-I-502, Revision 05 was prepared to update QI and Contact information.

E-I-502, Revision 04 was prepared to remove all references to the Searcy-Boyce pipeline system (Former Response Zone 1) and create a single consolidated core plan and zone appendix for the single response zone consisting of the Products Pipeline System. In addition, geographic area information provided in the 2000 revision of the USCG MSO New Orleans/MSD Baton Rouge Area Contingency Plan has been added to the plan.

REGULATORY CROSS REFERENCE LIST

Regulatory Code that is being implemented by Procedure ---------- Code Citation	Procedure paragraph number that implements code

DOT CROSS REFERENCE

DOT PHMSA 49 CFR 194 Section	PRC FRP Section
194.1	*
194.3	*
194.5	5.0
194.7	1.0
194.101	1.0
194.103	1.0
194.105	Attachment VI
194.107(a)	6.0, Attachment III
194.107(b)	6.0, Attachments VI, VII
194.107(c)(1)(i)	6.1
194.107(c)(1)(ii)	6.2
194.107(c)(1)(iii)	6.3
194.107(c)(1)(iv)	Attachment III
194.107(c)(1)(v)	6.4, Attachment II
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194.107(c)(1)(vii)	6.6
194.107(c)(1)(viii)	6.7
194.107(c)(1)(ix)	6.7
194.107(c)(1)(x)	6.8
194.109	Not Applicable
194.111	6.0
194.113	6.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 7.0 Attachments II, III
194.115	Attachment III
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194.119	*
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1.0 BACKGROUND, PURPOSE, SCOPE AND OBJECTIVE

1.1 Background

In response to oil spill disasters, Congress passed the Oil Pollution Act of 1990 (OPA 90) (Pub.L.101-380). Section 4202(a) of OPA 90 amended section 311(j) of the Federal Water Pollution Control Act (FWPCA) (33 U.S.C. 1321(j)). The FWPCA set out the requirements for facility response plans and periodic inspections of discharge-removal equipment in sections 311(j)(5) and (j)(6), respectively. Section 4202(b)(4) of OPA 90 established an implementation schedule for these provisions. Facilities were required to submit response plans by February 18, 1993, or cease the handling, storage, and transportation of oil. By August 18, 1993, a facility was required to be operating in accordance with its submitted facility response plan.

As amended, section 311(j)(5) of the FWPCA requires owners or operators of certain facilities to prepare and submit response plans to the President. This requirement applies to onshore facilities, including piping and any structures used for the transfer of oil that could reasonably be expected to cause substantial harm or significant and substantial harm to the environment by discharging oil or a hazardous substance into or on the navigable waters of the United States, adjoining shorelines, or the exclusive economic zone. Under Executive Order 12777, the President delegated the authority to regulate oil storage and transportation facilities under OPA 90 and the FWPCA.

The EPA was given authority to regulate non-transportation onshore oil facilities. The Secretary of the Department of Transportation has been delegated the authority to review and approve response plans for "transportation related" facilities that could reasonably be expected to cause significant and substantial harm to the environment. The authority of the Secretary of the Department of Transportation (DOT) includes implementing regulations which carry out the requirements of OPA pertaining to non-marine transportation related (MTR) facilities and pipelines.

Subsequently three governing agencies have potential jurisdiction over on-shore facilities. EPA has jurisdiction over non-transportation related facilities, the Coast Guard has jurisdiction over MTR facilities, and the DOT Research and Special Programs Administration has jurisdiction for non-marine transportation related facilities.

Regulations governing response plan requirements were not final at the time of initial FRP submittal (February 18, 1993), however, applicable facilities were required to meet the congressionally mandated OPA 90 deadline despite the lack of final regulation from the agencies with authority. The agencies with regulatory authority have since published final OPA 90 regulations: the EPA in 40 CFR 112 (last revised September 26, 1999); and PHMSA in 49 CFR 194. These FRP content requirements are listed in the cross reference list that precedes this section.

Placid Pipeline Company (PPC) has determined that potential oil releases from its facility could cause significant and substantial harm to the environment according to 49 CFR 194.103(c)(5) of the DOT. Therefore, this document was prepared to address FRP requirements.

1.2 Purpose

This plan establishes PPC's standard requirements for preparing for and responding to a release of oil from the Products Pipeline system. In particular, the purpose of this document is to provide the following information:

- General Information Regarding the Facility
- Emergency Notification Procedures
- Spill Mitigation Procedures
- Emergency Response Activities
- Identification of Sensitive Areas
- Response Personnel Training
- Response Personnel Drills
- Communications Plan
- Response Plan Updating Procedures

1.3 Scope

The scope of this facility response plan (FRP) includes:

1.3.1 Response requirements for spills which may occur to land and water along PPC's 8.6-mile product(s) pipeline system that runs from PRC's Port Allen, LA refinery to Kinder Morgan's pump station in north Baton Rouge, LA

1.3.2 This FRP is designed to provide guidance for oil spills which occur on land, in open drainage conveyance, and for spills which occur and affect the navigable waters of the U.S.

1.3.3 Because this plan only applies to a single zone, the core plan and zone plan have been combined into a single document. There is no separate response zone appendix.

1.4 Objectives

This plan is written to meet the following objectives:

1.4.1 Comply with OPA90 requirements

1.4.2 Comply with DOT, PHMSA rules

1.4.3 Provide a FRP for PPC which can be enacted in the event of an oil spill

2.0 RESPONSIBILITIES SUMMARY

2.1 PPC's Environmental Manager

2.1.1 Ensure distribution and review of FRP upon revision. Incorporate appropriate review comments

2.1.2 Maintain a hard copy and electronic copy of PPC's FRP

2.1.3 Maintain an electronic copy of outdated FRPs (revised) for 5 years

2.1.4 Maintain records of FRP implementation, enactment, and ensure that the FRP is periodically updated to minimize risk or errors in plan implementation

2.1.5 Submit FRP for regulatory agency approval

2.1.6 Ensure that necessary training is conducted in accordance with Section 6.5.1 of this FRP

2.1.7 Ensure that necessary drills are conducted in accordance with Section 6.5.2 of this FRP

2.1.8 Ensure that all training and drills for contract personnel are conducted in accordance with Section 6.5 of this FRP

2.1.9 Maintain all training and drill records in accordance with Section 6.6 of this FRP for PRC and contract personnel

2.1.10 Update training and drills requirements of this plan as required by applicable regulations

2.2 PPC Facility Response Plan Reviewers

2.2.1 Review and forward FRP to next reviewer within 7 days of receipt of procedure

2.2.2 Indicate date of receipt and date signed on Review Page of each Environmental Compliance Procedure

2.2.3 Reviewers listed on Cover Page must sign Cover Page concurrent with signing of Review Page

2.2.4 Ensure that editorial requirements are met when revising or adding information to the FRP

2.3 PPC Safety/Security/Training Manager

2.3.1 In charge of site security at a spill

2.3.2 In charge of site safety at a spill

2.4 PPC Oil Spill Management and Emergency Response Team

2.4.1 Review PPC's FRP to become familiar with response activities and individual requirements in the event of an oil spill

2.4.2 Participate in all required training and drills as part of FRP regulatory requirements

2.4.3 Provide guidance and suggestions for FRP improvement to PPC's environmental manager.

3.0 REFERENCES

- Public Law 101-380, as enacted in 33USC 1321(j), Section 311(j).
- 33 CFR 154 - Coast Guard regulations for Facilities Transferring Oil or Hazardous Materials in Bulk.
- 40 CFR 112 - Oil Pollution Prevention: Non-Transportation Related Onshore Facilities.
- 49 CFR 194 - Response Plans for Onshore Oil Pipelines.
- Louisiana Administrative Code, (LAC) Title 33, Part I, Subpart II. Notification Regulations.
- LAC, Title 33, Part III - Air Regulations
- LAC, Title 33, Part V - Hazardous Waste and Hazardous Materials.
- LAC, Title 43, Part XXIX, Natural Resources, Oil Spill Prevention and Response.
- La. Revised Statue 30:2451, Oil Spill Prevention and Response Act.
- National Preparedness for Response Exercise Program (PREP) Guidelines; Department of Transportation, Environmental Protection Agency, Department of the Interior, August 1994.
- Training Reference for Oil Spill Response; Department of Transportation, Environmental Protection Agency, Department of the Interior, August 1994.
- Coast Guard - Oil Spill Removal Organization (OSRO) Classification Guidelines dated June 2008 (draft).

4.0 ATTACHMENTS

4.1 Attachment I: Facility-Specific Information

4.2 Attachment II: List of Contacts

4.3 Attachment III: OSRO Response Resource and Classification Information

4.4 Attachment IV: Communication Plan

4.5 Attachment V: Health and Safety Plan

4.6 Attachment VI: Worst Case Discharge Information and Calculations

4.7 Attachment VII: Environmental Sensitivity Index Maps and Navigation Maps

5.0 DEFINITIONS AND ACRONYMS

5.1 ***Adverse weather*** means the weather conditions considered by the operator in identifying the response systems and equipment to be deployed in accordance with a response plan. Factors to consider include ice conditions, temperature ranges, weather-related visibility, significant wave height as specified in 33 CFR Part 154, Appendix C, Table 1, and currents within the areas in which those systems or equipment are intended to function.

5.2 ***Barrel*** (bbl) means 42 United States gallons(159 liters) at 60 degrees Fahrenheit (15.6° celsius).

5.3 ***Breakout tank*** means a tank used to: (1) relieve surges in an oil pipeline system or (2) receive and store oil transported by a pipeline for reinjection and continued transportation by pipeline.

5.4 ***Coastal Zone*** means all United States waters subject to the tide, United States waters of the Great Lakes and Lake Champlain, specified ports and harbors on inland rivers, waters of the contiguous zone, other waters of the high seas subject to the National Contingency Plan, and the land surface or land substrate, ground waters, and ambient air proximal to those waters. (The term "coastal zone" delineates an area of federal responsibility for response action. Precise boundaries are determined by agreements between the Environmental Protection Agency (EPA) and the U.S. Coast Guard (USCG), and are identified in Federal Regional Contingency Plans and Area Contingency Plans.)

5.5 ***Complex*** means a facility possessing a combination of transportation-related and non-transportation-related components that is subject to the jurisdiction of more than one Federal agency under section 311(j) of the Clean Water Act.

5.6 ***Contract or other approved means*** is: (1) A written contract or other legally binding agreement between the operator and a response contractor or other spill response organization identifying and ensuring the availability of the specified personnel and equipment within stipulated response times for a specified geographic area; (2) Certification that specified equipment is owned or operated by the pipeline operator, and operator personnel and equipment are available within stipulated response times for a specified geographic area; or (3) Active membership in a local or regional oil spill removal organization that has identified specified personnel and equipment to be available within stipulated response times for a specified geographic area.

5.7 ***Environmentally sensitive area*** means an area of environmental importance which is in or adjacent to navigable waters.

5.8 ***Fish and wildlife and sensitive environments*** means areas that may be identified by either their legal designation or by evaluations of Area Committees (for planning) or members of the Federal On-Scene Coordinator's spill response structure (during responses). These areas may include wetlands, National and State parks, critical habitats for endangered/threatened species, wilderness and natural resource areas, marine sanctuaries and estuarine reserves, conservation areas, preserves, wildlife areas, wildlife refuges, wild and scenic rivers, recreational areas, national forests, Federal and State lands that are research national areas, heritage program areas, land trust areas, and historical and archeological sites and parks. These areas may also include unique habitats such as: aquaculture sites and agricultural surface water intakes, bird nesting areas, critical biological resource areas, designated migratory routes, and designated seasonal habitats.

5.9 ***High volume area*** means an area which an oil pipeline having a nominal outside diameter of 20 inches (508 millimeters) or more crosses a major river or other navigable waters, which, because of the velocity of the river flow and vessel traffic on the river, would require a more rapid response in case of a worst case discharge or substantial threat of such a discharge. 49 CFR 194, Appendix B contains a list of the High Volume Areas.

5.10 ***Injury*** means a measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge of oil, or exposure to a product of reactions resulting from a discharge of oil.

5.11 ***Inland area*** means the area shoreward of the boundary lines defined in 46 CFR Part 7, except that in the Gulf of Mexico, it means the area shoreward of the lines of demarcation (COLREG lines) defined in 33 CFR 80.740-80.850. The inland area does not include the Great Lakes.

5.12 ***Inland zone*** means the environment inland of the coastal zone excluding the Great Lakes, Lake Champlain, and specified ports and harbors on inland rivers. (The term inland zone delineates an area of federal responsibilities for response actions. Precise boundaries are determined by agreements between the EPA and the USCG and are identified in Federal Regional Contingency Plans.)

5.13 ***Line section*** means a continuous run of pipe that is contained between adjacent pressure pump stations, between a pressure pump station and a terminal or breakout tank, between a pressure pump station and a block valve, or between adjacent block valves.

5.14 ***Major river*** means a river that, because of its velocity and vessel traffic, would require a more rapid response in case of a worst case discharge.

5.15 ***Maximum extent practicable*** means the limits of available technology and the practical and technical limits on a pipeline operator in planning the response resources required to provide the on-water recovery capability and the shoreline protection and cleanup capability to conduct response activities for a worst case discharge from a pipeline in adverse weather.

5.16 ***Must*** means a PPC administrative requirement.

5.17 ***Navigable waters*** means the waters of the United States, including the territorial sea and such waters as lakes, rivers, streams; waters which are used for recreation; and waters from which fish or shellfish are taken and sold in interstate or foreign commerce.

5.18 ***Oil*** means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, vegetable oil, animal oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

5.19 ***Oil Spill Removal Organization (OSRO)*** means an entity that provides response resources.

5.20 ***On-Scene Coordinator (OSC)*** means the federal official designated by the Administrator of the EPA or by the Commandant of the USCG to coordinate and direct federal response under Subpart D of the National Contingency Plan (40 CFR Part 300).

5.21 ***Onshore oil pipeline facilities*** means new and existing pipe, rights-of-way and any equipment, facility or building used in the transportation of oil located in, on, or under, any land within the United States other than submerged land.

5.22 ***Operator*** means a person who owns or operates onshore oil pipeline facilities.

5.23 ***Pipeline and Hazardous Materials Safety Administration (PHMSA)*** means the division of the DOT responsible for regulations for pipeline operations in accordance with OPA 90.

5.24 ***Pipeline*** means all parts of an onshore pipeline facility through which oil moves including, but not limited to, line pipe, valves, and other appurtenances connected to line pipe, pumping units, fabricated assemblies associated with pumping units, metering and delivery stations and fabricated assemblies therein, and breakout tanks.

5.25 ***Qualified Individual (QI)*** means an English-speaking representative of an operator, located in the United States, available on a 24-hour basis, with full authority to: activate and contract with required oil spill removal organization(s); activate personnel and equipment maintained by the operator; act as liaison with the OSC; and obligate any funds required to carry out all required or directed oil response activities.

5.26 ***Response activities*** means the containment and removal of oil from the water and shorelines, the temporary storage and disposal of recovered oil, or the taking of other actions as necessary to minimize or mitigate damage to the environment.

5.27 ***Response area*** means the inland zone or coastal zone, as defined in the National Contingency Plan (40 CFR Part 300), in which the response activity is occurring.

5.28 ***Response plan*** means the operator's core plan and the response zone appendices for responding, to the maximum extent practicable, to a worse case discharge of oil, or the substantial threat of such a discharge.

5.29 ***Response resources*** means the personnel, equipment, supplies, and other resources necessary to conduct response activities.

5.30 ***Response zone*** means a geographic area either along a length of pipeline or including multiple pipelines, containing one or more adjacent line sections, for which the operator must plan for the deployment of, and provide, spill response capabilities. The size of the zone is determined by the operator after considering available capability, resources, and geographic characteristics.

5.31 ***Specified minimum yield strength*** means the minimum yield strength, expressed in pounds per square inch, prescribed by the specification under which the material is purchased from the manufacturer.

5.32 ***Stress level*** means the level of tangential or hoop stress, usually expressed as a percentage of specified minimum yield strength.

5.33 ***Will*** means a PPC administrative requirement.

5.34 ***Worst case discharge (WCD)*** means the largest foreseeable discharge of oil, including a discharge from fire or explosion, in adverse weather conditions. This volume will be determined for each response zone and calculated in accordance with regulations issued by the USCG, DOT, and EPA.

6.0 RESPONSE PLAN DETAILS

This FRP was prepared to be consistent with information in the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300). Through the mandate of the National Contingency Plan (NCP), the United States Environmental Protection Agency (USEPA) Region 6 Response and Prevention Branch has developed a regional plan, which integrates the Regional Contingency Plan (RCP), and the Inland Area Contingency Plan (ACP). This Region 6 Regional Integrated Contingency Plan (RICP) is part of the National Response System (NRS) and encompasses the Standard Federal Region 6 states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. It is applicable to response operations taken by all federal agencies within Region 6, pursuant to the authorities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and Section 311 of the Clean Water Act (CWA), as amended. Placid certifies that it has reviewed the NCP and the RICP available for review at the time of preparation of this FRP and that this FRP is consistent with all plans available for review.

This FRP will be maintained at the following locations:

- PPC Headquarters Office
- PRC Refinery Environmental Management Office
- PRC Refinery Pipeline Pump Station Office

In addition, each QI and each member assigned to the Spill management Team (SMT) will maintain a personal copy of FRP.

PPC owns and/or operates the Products Pipeline, which is located in East and West Baton Rouge Parishes in south central Louisiana. PPC has designated a single response zone for oil spill planning purposes.

The single response zone comprises the product transfer pipeline used to transport refined product (JP-5, Petroleum, Gasoline and Diesel fuels, etc.) from PRC's West Baton Rouge Parish refinery to Kinder Morgan Facilities located north of Baton Rouge (see Figure 1 in Attachment I for location). The pipeline between PRC and Kinder Morgan Facilities is approximately 45,584 feet in length. A plan of the pipeline is shown on Figure 2 in Attachment I. A schematic of the pipeline is shown on Figure 3 in Attachment I.

PPC does not own or operate breakout storage tanks in the Products Pipeline system and has not experienced a release from the Products Pipeline.

6.1 Information Summary

This Core Response Plan consists of the following information:

6.1.1.1 Name and Address of Operator:

Placid Pipeline Company, LLC (PPC)
1940 Highway 1 North
Port Allen, Louisiana 70767

6.1.1.2 Description of Response Zone

This plan covers a single response zone, the Products Pipeline. The response zone is described in Section 6.1.3.

6.1.2 Information required for the response zone is as follows:

6.1.2.1 Qualified Individuals

The name and telephone number of the qualified individual (QI) and alternates available on a 24-hour basis are:

Title	Name & Position	(b) (6) [redacted]	Office Phone No.	Cell Phone No.
QI	Barry Joffrion President		225-377-2578	225-931-0661
1st Alternate	Fred Baron Environmental Manager		225-346-7492	225-205-0688
2nd Alternate	Kenny Carr Safety & Security Manager		225-346-7414	225-413-3614

6.1.3 Description of Products Pipeline Response Zone

The response zone for the Products Pipeline encompasses the entire 8.6-mile length of the pipeline from the PRC Port Allen, Louisiana Refinery to the Kinder Morgan Pumping Station in north Baton Rouge, Louisiana. Parishes included in the response zone include West Baton Rouge and East Baton Rouge.

PPC owns and operates an 8-inch and 10-inch diameter transfer pipeline, which transports refined products (JP-5, gasoline and diesel, etc.) from the Port Allen refinery to the Kinder Morgan Pumping Station. The general pipeline route is presented on Figure 2 in Attachment I. The pipeline crosses the Mississippi River at approximately mile 234 AHP, and therefore it is assumed that releases from the pipeline have the potential to cause significant and substantial harm to economically and environmentally sensitive areas.

For the purposes of calculating the worst case discharge (WCD) the entire length of the pipeline is considered even though the pipeline contains line and block valves as shown on the pipeline schematic (see Figure 3 in Attachment I)

6.1.4 Line Sections Contained in response Zone

The response zone consists of a single line section, comprising the entire Products Pipeline.

Pipeline details are provided in Section 6.1.3. A pipeline system plan is provided on Figure 2 in Attachment I to illustrate direction of flow from a potential pipeline release. Figure 3 in Attachment I shows a schematic of the pipeline.

Releases on the west bank of the Mississippi River would flow into unnamed drainage canals or roadside ditches, and subsequently be carried into the Intracoastal Waterway. Releases on the east bank of the Mississippi River would flow into Baton Rouge Bayou, and subsequently be carried into the Mississippi River.

6.1.5 Basis for Determination of Significant and Substantial Harm

PPC has determined areas to which significant and substantial harm may be caused within the response zone based on the applicable regulations.

The Products Pipeline system is regulated by 49 CFR 154 (DOT).

6.1.6 Worst Case Discharge

For planning purposes, worst case discharges under adverse conditions from the Products Pipeline is assumed to enter the navigable waters of Mississippi River system directly or through tributaries. PPC facilities are located within the Mississippi River drainage system.

Based on USACE flood stage river current information for the Mississippi River, PPC has determined that oil discharges under extremely adverse conditions could potentially affect the entire Mississippi River system from the points of potential discharge (tributary and pipeline crossing) to the Gulf of Mexico. Specifically, creeks, streams, and navigable waters and associated shorelines (Bayou Baton Rouge and Mississippi River), national and state wildlife refuges and management areas have been considered as areas where significant and substantial harm may be caused by oil discharges. In addition, navigable waters and shorelines associated with the Mississippi River and the sensitive environments shown in Attachment VII could be areas of potential substantial harm.

Attachment II to this FRP includes a list of drinking and cooling water intakes and contacts for the Mississippi River from Baton Rouge to the Gulf of Mexico. PPC estimates that approximately 1,000,000 people derive their drinking water supply from the Mississippi River downstream of PPC's facility. These intakes are shown along with other economically important points (fleeting areas, crossings, etc.) on the USACE Navigation Charts included in Attachment VII to this FRP.

PPC's spill response strategy is to contain the released oil as close to the release as is practicable so as to minimize the potential consequences of a spill. Potential spill consequences include impacts to economically and environmentally sensitive areas. Economically sensitive areas include impacting water intakes or developed, recreation or marina/fleeting areas

(See Attachment VII for locations). Environmentally sensitive areas include areas used for wildlife breeding or nesting (See Attachment VII for locations).Refined oil products (API Groups I – IV) is the type of oil transported in the PPC Products Pipeline. Th (b) (7)(F) [redacted] (see Attachment VI for calculations).

6.1.7 Placid Pipeline Company certifies that it has the necessary private personnel (including contractors) and equipment to respond, to the maximum extent practicably to a worst case discharge, or substantial threat of such a discharge. Oil Spill Response Organizations (OSRO) available to respond to spills to water and land are provided in Section 4 of Attachment II, the OSRO agreement and equipment list is provided as Attachment III.

6.2 Notification Procedures

In the event of spill detection, notification of appropriate PPC and/or PRC personnel, and Federal, State, and local agencies are required. Notification procedures are described below. A list of contacts is provided in Attachment II to this FRP.

6.2.1 Notification Requirements

The following sections describe the notification requirements for the Products Pipeline. These sections serve as guides for contacting appropriate personnel. Emergency situations may arise which would require additional notification or notification in a different order. Each emergency situation will be evaluated and the appropriate notification sequence enacted.

PRC operations personnel, as part of normal operating procedures, can detect spills by visual detection, and electronic alarms. In the event of an oil spill, the person who observed the spill must call the PRC refinery shift supervisor. The **refinery shift supervisor** must notify the PRC security guard and emergency response team leader. The **emergency response team leader** will notify other response team members to initiate mitigation procedures. Emergency response team leaders for PRC are shown in Table 6.1.

Initial response requirements include response resources, oil mitigation efforts, and an incident command system. Figure 6.1 presents the notification procedures used by Placid for an oil spill response. The refinery shift supervisor is responsible for evaluating the size, and type of spill. The refinery shift supervisor will call the QI to report the incident and engage response resources. If necessary, the QI will contract and obligate funds necessary to initiate spill clean-up activities from Oil Spill Response Organizations (OSROs). OSROs used are presented in Subsection 4.1 of Attachment II.

For larger spills, the incident command system requires notification of the PRC Incident Command Team by the PRC **Security Guard**. The PRC Security Guard maintains a current list of personnel which are involved with the Incident Command Team. The Incident Command Team structure is presented as Figure 6.2. Upon

notification of an emergency event, the Incident Command responds with the required level of effort to manage the emergency event, contracted personnel, PRC response personnel, finances, and internal and external communications. As required, PPC will activate the full Incident Command Team of Placid Refining Company, LLC for additional support.

The **refinery shift supervisor** shall contact the National Response Center (NRC) and the Louisiana Department of Public Safety Office of State Police immediately after discovering an event. The NRC contact form is presented in Table 6.2. Subsequent follow-up notifications to the NRC will also utilize the information presented in Table 6.2, and will be provided to the appropriate agencies as necessary. It is not necessary to have all of the information listed in Table 6.2 before calling NRC.

TABLE 6.1
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	Last	Home	Cell	Prov	Text
		A SHIFT NORTH			
Jeffrey	Stein	(b) (6) [redacted]	938-6544	ATT	Y
James	Davis		---	---	---
Peter	Klein		572-0678	NET 10	**N**
James	Phelps		324-2970	ATT	Y
Chance	Webre		324-0383	ATT	Y
Earl	Willis		413-1783	ATT	Y
Eric	Flatau		754-2911	ATT	Y
Kisha	Heil		278-6405	ATT	Y
Brent	Tassin		337-9434	VRZN	Y
		A SHIFT SOUTH			
Lyle	Jarreau	(b) (6) [redacted]	614-5353	ATT	Y
Kyle	Batts		445-4433	ATT	Y
Larry	Bell		362-4257	ATT	Y
Chris	Childress		229-5624	ATT	Y
Paul	Clouatre		202-9018	ATT	Y
David	Herring		---	---	---
Craig	Jackson		205-0167	ATT	Y
Karey	LaBauve		773-8215	ATT	Y
Kirk	Mancuso		505-3812	ATT	Y
Mickey	Seymour		936-6202	ATT	Y
		A SHIFT TERMINAL			
Kenneth	Caston	(b) (6) [redacted]	953-2481	ATT	Y
Robbie	D'Amico		572-7593	ATT	Y
Jeremy	Mouch		413-5009	ATT	Y
Harold	Payne		572-2276	ATT	**N**

TABLE 6.1 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	Last	Home	Cell	Prov	Text
B SHIFT NORTH					
Carey	Denstel	(b) (6) [redacted]	505-3071	ATT	Y
John	Bass		270-3104	ATT	**N**
Craig	Bourgeois		328-7979	ATT	Y
Jeffrey	Brown		278-7368	ATT	Y
Louis	Mouch		939-2223	ATT	Y
Patricia	Newsom		933-2442	ATT	Y
Steven	Perry		936-2276	ATT	Y
Emile	Provost		937-4158	ATT	Y
Sam	Snyder		(337) 351-2744	ATT	Y
Steve	Tassin		610-4955	ATT	**N**
B SHIFT SOUTH					
BJ	Crockett	(b) (6) [redacted]	931-2469	ATT	Y
Troy	Blair		571-7053	ATT	Y
Robert	Delaune		921-6437	ATT	Y
Joseph	Gilbert		603-1113	ATT	Y
Jason	Gunter		939-7727	ATT	Y
Robert	Joseph		938-6212	ATT	Y
Lennox	Khan		337-9564	VRZN	Y
Charles	Perrault		718-0936	ATT	Y
James	Safford		955-0461	VRZN	Y
Michael	Vaccaro		---	---	**N**
B SHIFT TERMINAL					
Stephen	Baxter	(b) (6) [redacted]	(616) 745-4958	VRZN	Y
Shane	LeDoux		936-8846	ATT	Y
Donald	Morales		776-7183	ATT	Y
Blake	Porter		333-1401	ATT	Y
Edward	Williams		931-8351	ATT	**N**

TABLE 6.1 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	Last	Home	Cell	Prov	Text
C SHIFT NORTH					
Elton	Jones	(b) (6) [redacted]	936-3957	ATT	Y
Mickey	Delapasse		329-3939	ATT	Y
William	King		324-7177	ATT	Y
Charles	Lefebvre		933-8866	ATT	Y
Corey	Louis		317-2585	VRZN	Y
Kurt	Matherne		571-1904	ATT	Y
Kevin	Mhire		241-7023	ATT	Y
Kenneth	Millender		773-3227	VRZN	Y
Monisha	Morgan		975-6282	VRZN	Y
Billy	Pruett		938-7450	ATT	Y
C SHIFT NORTH					
Jim	Gehling	(b) (6) [redacted]	938-6436	ATT	Y
Frank	Corbin		---	---	**N**
Jason	Fox		229-0694	ATT	Y
Matthew	Guthrie		270-7350	ATT	Y
Shane	Haydel		776-1111	ATT	Y
Michael	Mahoney		842-4828	VRZN	Y
Marc	Miano		270-0908	ATT	Y
Michael	Perkins		315-0286	VRZN	Y
Robbie	Rogillio		485-3356	ATT	Y
Tad	Shows		252-9699	ATT	Y
C SHIFT TERMINAL					
Kurt	Comeaux	(b) (5) [redacted]	328-7460	ATT	**N**
Steve	Garcia				
Joshua	Johnson		776-6072	ATT	Y
Carrol	Marks		235-0737	ATT	Y
James	Wells		625-6008	ATT	**N**

TABLE 6.1 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	Last	Home	Cell	Prov	Text
D SHIFT NORTH					
Ronnie	Newchurch	(b) (6) [redacted]	938-9503	ATT	Y
Peter	Billeaudeau		287-8986	ATT	Y
Jessie	Ellis		200-4702	ATT	Y
Joseph	Hedrick		933-7841	ATT	Y
Vince	McMahan		229-9870	ATT	Y
Larry	Osborne		274-5587	ATT	Y
Nicholas	Patin		393-1755	ATT	Y
Virgil	Pratt		---	---	**N**
Cliffton	Woods		324-6433	ATT	Y
D SHIFT SOUTH					
Todd	Gauthe'	(b) (6) [redacted]	939-6048	VRZN	Y
Ronald	Bonton		225-963-0779	VRZN	Y
Lucas	Braud		776-6691	ATT	Y
Cory	Coye		229-1354	ATT	Y
Douglas	Hurst		413-5414	ATT	Y
Rusty	Lambert		202-6775	ATT	Y
Jody	Larson		776-2180	ATT	**N**
Aaron	Lemoine		276-4975	ATT	Y
Bryant	Morrow		892-7661	ATT	Y
Daniel	Pennington		328-2213	ATT	Y
ERMINAL					
Bentley	Bourgeois	(b) (6) [redacted]	235-9373	ATT	Y
Jeremy	Carr		(337) 592-3717	ATT	Y
Ronnie	Fairchild		931-0010	ATT	Y
Brent	Guillory		(337) 692-7410	ATT	Y
Kevin	Lovett		252-6721	ATT	Y

TABLE 6.1 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	**Last**	**Home**	**Cell**	**Prov**	**Text**
LAB - A & D SHIFT					
Jonathan	Devall	(b) (6) [redacted]	572-3007	ATT	Y
James	Collier		933-8359	ATT	Y
Angela	Harmon		938-1013	ATT	Y
Bobby	Struppeck		301-5177	ATT	Y
LAB - B & C SHIFT					
John	Ashford	(b) (6) [redacted]	270-0643	ATT	Y
Gordon	Boudreaux		939-5688	ATT	Y
Carol	Simon		---		**N**
Jeff	Krumhold		454-8504	ATT	**N**
Robert	McDaniel		978-5125	ATT	Y
MAINTENANCE					
Glenn	Burns	(b) (6) [redacted]	718-1095	ATT	Y
Bharat	Moonkissoon		(985) 856-7483	ATT	Y
Dale	Stephens		247-6468	ATT	Y
Scott	Miller		247-7420	ATT	Y
J.	Hall		287-9973	ppd	**N**
Bobbie	Leger		603-8241	ATT	**N**
Brian	Schweinfus		281-5183	ATT	Y

TABLE 6.1 (cont.) EMERGENCY RESPONSE TEAM MEMBERS					
NAME		Contact Information			
First	Last	Home	Cell	Prov	Text
EOC					
Eddie	Acosta	(b) (6) [redacted]	505-3501	ATT	
Ralph	Albarado	[redacted]	939-6013	ATT	
Fred	Barron	[redacted]	205-0688	ATT	
Rob	Beadle	[redacted]	938-3103	ATT	
Stacey	Beassie	[redacted]	324-4557	ATT	
Chuck	Blanchard	[redacted]	235-8006	ATT	
Freddie	Blanchard	[redacted]	772-5898	VRZN	
Kristen	Budden	[redacted]	614-1517	ATT	
Kenny	Carr	[redacted]	413-3614	ATT	
Paul	Cormier	[redacted]	235-4907	ATT	
Brett	Cowart	[redacted]	235-6247	ATT	
David	Grant	[redacted]	721-2112	ATT	
Joey	Hagmann	[redacted]	931-2924	ATT	
Doug	Hutchinson	[redacted]	405-4764	ATT	
Anthony	James	[redacted]	921-9979	ATT	
Barry	Joffrion	[redacted]	931-0661	ATT	
Billy	Judge	[redacted]	892-7283	VRZN	
Glen	Lemoine	[redacted]	936-9267	ATT	
Ron	McQuiston	[redacted]	931-1449	ATT	
Sonny	Ockman	[redacted]	614-6070	ATT	
Brenda	Robillard	[redacted]	572-2059	ATT	
Robert	Rogillio	[redacted]	603-3743	ATT	
Mike	Sims	[redacted]	620-8004	ATT	
Steve	Sinanan	[redacted]	892-4932	ATT	
David	Territo	[redacted]	571-8812	ATT	
Jeff	Alleman	[redacted]	938-5141	ATT	
Brian	Bergeron	[redacted]	439-6511	ATT	
Stanley	Shearman	[redacted]	892-4934	ATT	
Errol	Mungal	[redacted]	235-1857	ATT	

6.2.2 Notification Checklist

Table 6.2 satisfies the primary notification checklist requirement that PPC's operator or QI will follow in the event of a discharge from the Products Pipeline. In addition to the primary notification procedures, secondary notification procedures shall be conducted in accordance with Table 6.3

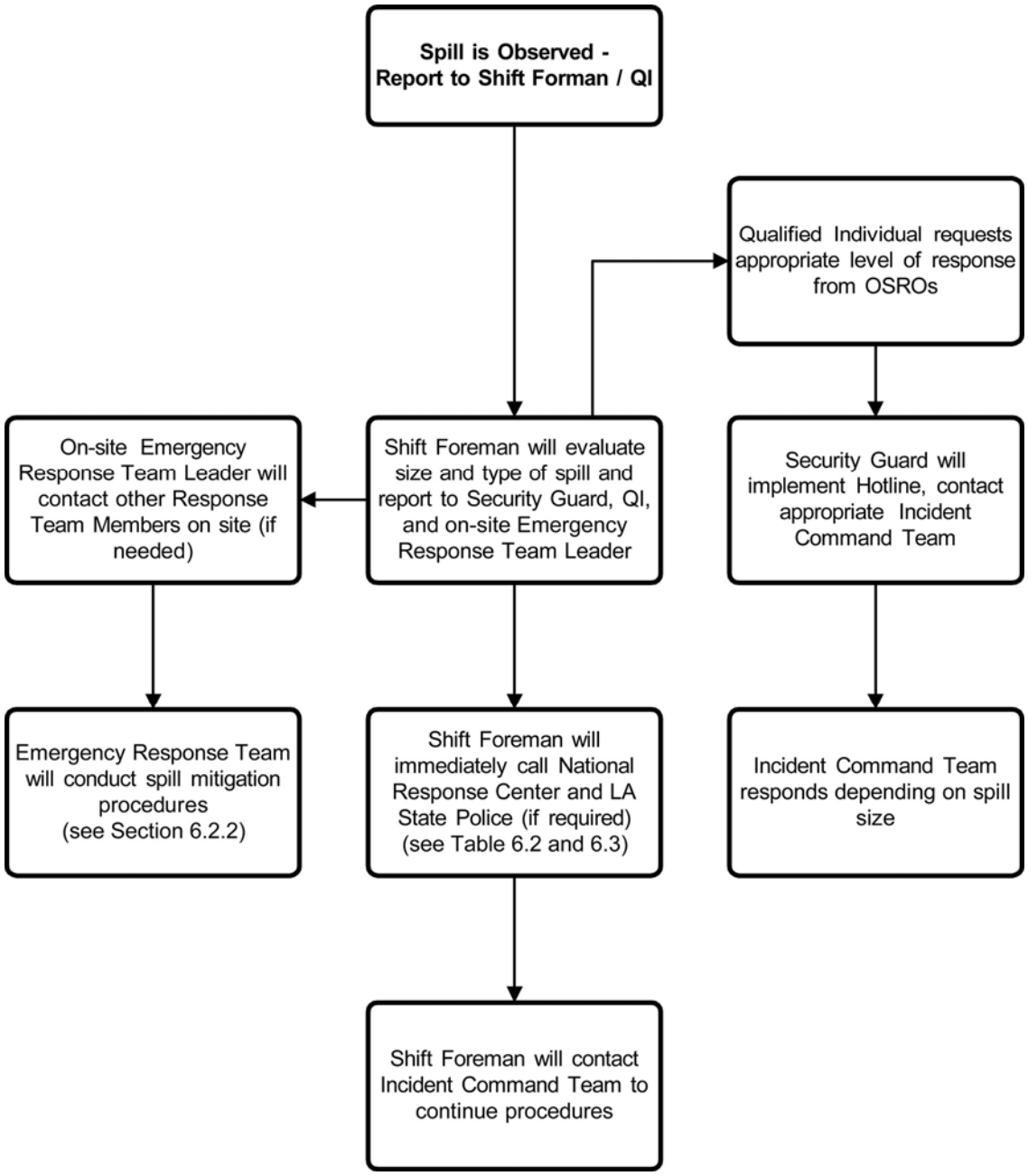


FIGURE 6.1
PRIMARY NOTIFICATION PROCEDURES

NOTE: PLACID REFINING COMPANY CONTACT LIST PHONE NUMBERS ARE PRESENTED AS ATTACHMENT II.

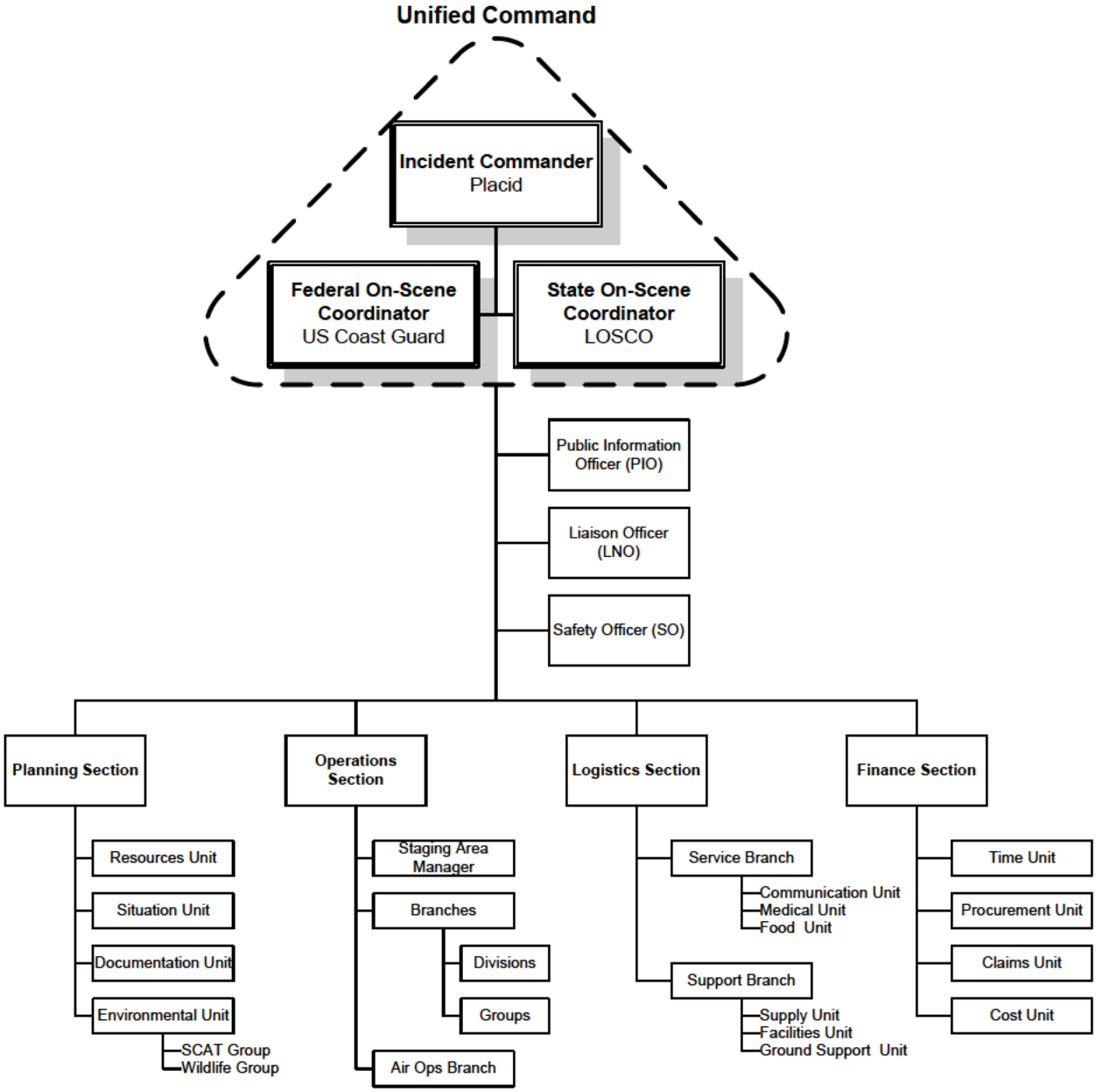


FIGURE 6.2
INCIDENT COMMAND TEAM STRUCTURE

TABLE 6.2 - NRC NOTIFICATION FORM (Initial and Follow-up)
IT IS NOT NECESSARY TO WAIT FOR ALL INFORMATION BEFORE CALLING NRC
Type of Notification (Check One): ____Initial ____Follow-up

(A) Reporting Party	**(B) Suspected Responsible Party**
Name: Position: Placid Pipeline Company, LLC 1940 LA Highway 1 North Port Allen, Louisiana 70767 (225)387-0278	Name: Phones: ( ) Company: Organization Types: Private citizen Private enterprise Public utility Local government State government Federal government City State Zip

Were materials released (Y / N)?
Calling For Responsible Party (Y / N)?

Incident Description

Source and/or Cause of Incident:

Date: - - Time: Weather Conditions:
Cause:

Incident Address/Location:
Distance from City:
Storage Tank Container Type Above ground (Y / N) Below ground (Y / N) Unknown
Tank Capacity Facility Capacity
Mile Post or River Mile:

Materials

Released Quantity	Unit of Measure	Released Material	Quantity in Water

Remedial Action

Actions Taken or Planned to Correct or Mitigate Incident:

Impact

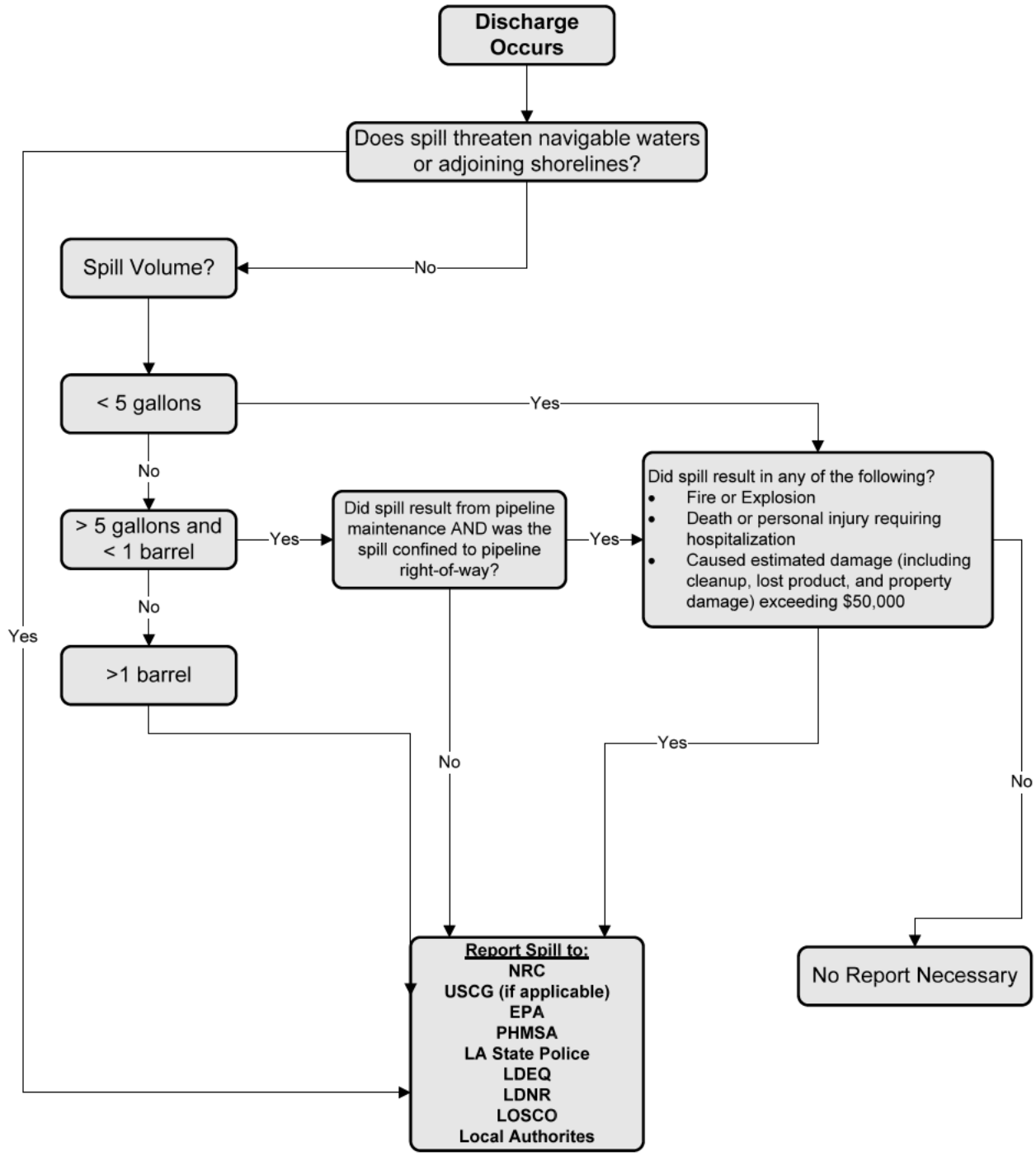
Number of Injuries: Number of Fatalities:
Were there Evacuations (Y / N / U)? Number Evacuated:
Was there any Damage (Y / N / U)? Damage in Dollars:

Additional Information

Any information about the Incident not recorded elsewhere in the report

Caller Notifications (Note date and time notified)

NRC	EPA Region 6	LDEQ	USCG MSU BR	LA State Police
800-424-8802	800-887-6063	888-763-5424	225-298-5400	877-925-6595



PPC Spill Reporting Decision Guide

TABLE 6.3 – ADDITIONAL NOTIFICATION PROCEDURES
Incident Command Team Member Notification Responsibilities
Reportable Quantity: On Land: ≥ 1 bbl [1] On Navigable Waters: Any quantity that causes a sheen
National Response Center – **Immediately** 800-424-8802 (24-hour)
Louisiana Department of Public Safety – **Immediately** Office of State Police 225-925-6595 (24-hour, HazMat Hotline)
Louisiana Department of Natural Resources (earliest practicable moment following discovery of release) Office of Conservation 225-342-5540
EPA Region 6 (courtesy – should be contacted by NRC) Response and Prevention Branch 866-372-7745 (24-hour)
US Department of Transportation (contact made through NRC) Office of Pipeline Safety
Louisiana Department of Environmental Quality (courtesy – should be contacted by LA State Police) 225-342-1234 (DEQ 24-hour Hotline) 225-219-3640 (DEQ Single Point of Contact, M-F 0800-1630)
Louisiana Oil Spill Coordinator's Office (courtesy – should be contacted by NRC) 225-219-5800 (M-F 0800-1700)
United States Coast Guard (If threat, or potential threat, to navigable waters exists) (courtesy – should be contacted by NRC) 504-589-6261 (Marine Safety Office-New Orleans 24-hour) 225-298-5400(Marine Safety Detachment-Baton Rouge; M-F 0730-1600)
Local Emergency Planning Commissions: (courtesy – should be contacted by LA State Police) East Baton Rouge Parish – 225-389-4617 West Baton Rouge Parish – 225-343-6691
Local Police: (courtesy – should be contacted by LA State Police) East Baton Rouge Parish Sheriff – 225-389-5000 Baton Rouge Police – 225-389-3800 West Baton Rouge Parish Sheriff – 225-343-9234 Port Allen Police – 225-343-5525
The Qualified individual assumes responsibility for contacting all above agencies in the event that other personnel do not respond. Once the Incident Command Team is notified, the QI responsibilities are met and the QI position is inactive. The Incident Command Team assumes all responsibilities and duties of the QI.
[1] Notify the above agencies, regardless of the volume, if the condition could reasonability be expected to endanger the health and safety of the public, cause significant adverse impact to the land, water, or air environment, or cause severe damage to property.

6.3 Spill Detection and On-scene Spill Mitigation Procedures

6.3.1 Methods of Initial Discharge Detection:

PRC's operations are continuously manned by operations personnel. In addition, security guards are on duty on a 24-hour basis. Operations and security personnel inspect the facility on a regular basis and with the objective of spill detection. PRC is completely enclosed by security fencing. Malicious tampering and resulting spills are prevented by PRC's security fence and continuously manned gates. PRC operations personnel as part of normal operating procedures can detect spills by visual detection, and electronic alarms from LeakNet leak detection system.

6.3.2 Spill Mitigation Procedures for Emergencies Affecting the Pipelines:

PPC's spill response objectives are to:

- Ensure safety of public and personnel
- Reduce the magnitude of the spill
- Prevent spills from entering navigable waterway s (if possible)
- Minimize damage to the environment
- Prevent untrained personnel from contact with hazards associated with oil spills
- Lessen the severity of spills by immediate response actions

Should an emergency condition exist, PPC or PRC personnel will first act to control the source of the release. The pipeline system will be shut down immediately. Additionally, pipeline isolation valves will be closed to isolate line sections by PPC or PRC personnel. Pipeline operators will then investigate the potential location of the release by visual observation. Should a release be confirmed, the operator will assess the release for notification and mitigation requirements.

Mitigation of an oil spill includes responding to an oil spill emergency in a logical order to prevent further damage. Sub-section 6.3.2.2 presents guidelines for mitigation during an oil spill response, along with mitigation methods which may be useful for PPC personnel for oil spill response.

PPC responsibilities during initial mitigation/response actions will be directed by the QI or the QI's designee. Initial response operations will be directed in accordance with incident command system structure shown in Figure 6.3 until the QI arrives.

The refinery shift supervisor will direct the emergency response team personnel and coordinate the acquisition and utilization of equipment, instruments, tools and material required in order to properly respond to a particular emergency condition.

Initial mitigation and response activities will be provided by PRC personnel. Should additional resources be necessary to contain and clean-up the releases, the QI, or designee, will notify one of the OSRO contractors listed in Sub-section 4.1 of Attachment II.

6.3.2.1 Oil Spill Planning Volumes

Based on the calculations provided in Attachment VI to this FRP, Table 6.4 presents the volumes of persistent and non-persistent oils that may potentially be discharged from the PPC facilities:

TABLE 6.4 OIL SPILL PLANNING VOLUMES

Discharge Magnitude	Discharge (bbl) to:			
	Land[1]		Water[2]	
	Persistent[4]	Non-Persistent[4]	Persistent[4]	Non-Persistent[4]

(b) (7)(F) [redacted]

1 Based on DOT regulations at 49 CFR 194.
2 WCD assumed during rainfall for land discharge and at flood stage (40') for Mississippi River for water discharge.
3 See Attachment VI for Worst Case Discharge calculations.
4 All products transported through the PPC pipelines are non-persistent, refined products.

6.3.2.2 Mitigation Guidelines

PPC will not deploy employees on the navigable waters of the Mississippi in the event of an oil spill. PPC has contracted with fully trained outside personnel for actions to be taken on the river. Therefore, spill mitigation procedures are limited to land based actions. These actions are discussed in the following sections.

Mitigation procedures presented herein represent guidelines for mitigation. Each oil spill response will consider specific factors during the event to determine the actual sequence of response activities. Also, some of the mitigating impacts listed in the following sections may be conducted by on-site personnel. However, the guidelines presented suggest a logical sequence to mitigation of oil spills. Notification procedures are found in Section 6.2 and are not present in the following sequences.

Specific spill mitigation procedures are prioritized below for anticipated spill scenarios.

Piping Rupture

Piping ruptures could occur in a variety of situations at PPC facilities. Piping ruptures can be classified into two major groups; rupture inside containment areas and ruptures outside of containment areas. The primary mitigation procedure in both instances is to contain the spill as effectively as possible. For ruptures which occur inside diked areas, spills would be similar to those presented earlier for tank overfill as would the procedures for mitigating a spill. For spills outside of containment areas the following sequence of mitigation actions must be taken.

1. Manually shut off piping block valves adjacent to the rupture, in both directions.

2. Radio or telephone operations to turn pump off and discontinue operations.

3. Oil spilled may be travelling simultaneously in different directions. The mitigation activities will prioritize actions to protect the following objects (in order of precedence): Waterways, wetlands or marshes, drainage canals, ditches, drains, sewage systems, pipe and cable conduits, and neighboring soils.

4. Additionally, the response personnel must take precautions to confine oil spills to PPC properties, if possible. The oil spill mitigation activities include construction of earthen dams, material dams, sorbent use, or diversion construction.

5. Contract personnel will construct additional engineered dikes, if necessary. Contract personnel duties will include sorbent use and recovery, spill containment, spill recovery, and media cleanup.

6. Response personnel will coordinate with contract personnel about cleanup and disposal of wastes generated.

Piping Leak

Piping leaks may be identified at valves, fittings, and connections. The severity of a leak may not initially indicate that large quantities of oil will escape, however, operation shutdown is necessary to prevent an increase in leakage which could pose a significant threat of an oil spill. Mitigation and notification procedures must be followed to reduce the significant threat of discharge. (See Piping Rupture procedures previously presented).

If a piping leakage occurs, it is likely that maintenance personnel can correct the problem in a timely manner to minimize the amount of leakage. The location of the leak will be observed after resuming the transfer operation.

Fires and Explosions

PPC's operators are trained on proper shutdown procedures to prevent fires and explosions. Should fires and/or explosions occur, PPC personnel and PRC personnel are trained for those specific events. In the event of fires and explosions oil spill mitigation becomes the response team's secondary goal. The primary goal is to reduce the imminent threat to the health and safety of the public and employees.

PPC maintains an emergency procedures manual which will be followed in the event of a fire and/or explosion. Once the threat of fire and explosion is reduced, oil spill mitigation can be conducted using appropriate methods described previously in this subsection.

Equipment Failure

In the event that equipment associated with transfer operations fails, transfer operations will cease until necessary repairs are made. Equipment failure can include inoperable valves, electrical controls, and pumps. PPC has redundant equipment and controls which can be used for mitigating oil spills due to equipment failure. The following paragraphs discuss the additional equipment.

Aside from valves associated with pump operations, block valves are located in piping adjacent to connections to the tank. These valves can also be used to eliminate the source of an oil spill or release.

(b) (7)(F) [redacted]

Other Abnormal Situations

The pipeline is designed to alarm so that systems can be shutdown or pumping stopped should different abnormal flows of pressure conditions exist. Operations and Maintenance personnel are to immediately respond to alarms or investigate any suspected abnormal conditions. Appropriate actions to ensure safe operation of the system must immediately take place. Should abnormal conditions exist on a section of pipeline, it can be isolated through theuse of appropriate valves.

(b) (7)(F) [redacted]

(b) (7)(F) [redacted]

2. Unintended Shutdown

An unintended shutdown will be logged on t he computer monitoring system with appropriate alarm annotation. Terminal and pipeline operations personnel are to respond to the alarm in an appropriate manner in accordance with operating procedures and instructions from the Terminal Superintendent.

(b) (7)(F) [redacted]

4. Flowrate Outside Normal Operating Limits

A change in flowrate causing an increase or decrease in pressure outside monitored limits will cause the system to alarm and operations personnel to respond.

5. Loss of Communications

This condition will be indicated by computer failure or power outage, but will not automatically shut down the system. In this situatin operation personnel will respond as indicated in operating procedures and directed by the Terminal Superintendent.

(b) (7)(F) [redacted]

7. Any other malfunction of a component, deviation from normal operation, or personnel error, which could cause a hazard to persons or property.
Malfunction of equipment and components that are a part of the system are to be investigated by maintenance and

operations personnel and corrective action taken. Should there be any reason to suspect that any safety devices are not set or functioning properly, shipments are not to be made until the operation can be made and controlled in a safe manner. Suspected personnel errors will be investigated by Terminal Supervisors, and take to correct any conditions, which might adversely affect the pipeline system. Remedial training for personnel making errors is to be arranged following consultation by the Terminal Supervisor with the Refinery Safety/Training Manager.

8. Procedures for checking variations from normal operation after abnormal operations have ended.

   Following the occurrence of an abnormal operating condition, the Terminal Superintendent and operations personnel are to conduct a visual inspection of the parts of the pipeline system affected by the abnormal condition. Normal operations are not to be resumed until the Terminal Superintendent is confident that system integrity and safe operation can be maintained.

9. Procedures for correcting variations from normal operation Of pressure and flow equipment and controls.

   Following the occurance of abnormal operating condition, operations personnel shall inspect and test affected equipment in accordance with the procedures outlined in this section prior to resuming normal operations. Inspections shall be documented and placed on record.

10. Operations personnel response and notification procedures

    Should an abnormal operation condition exist, the terminal supervisory personnel and the Safety Manager are to be notified and appropriate action taken (PRC Office telephone (225) 387-0278)

    Terminal Superintendent-Anthony James
    (b) (6) [redacted]

    PPC President – Barry Joffrion
    Cell Phone – (225) 931-0661

    Refinery shift supervisor – (225) 387-0278
    Ext. 441

    Safety & Security Manager – Kenny Carr
    Cell Phone – (225) 413-3614

11. Operations Personnel Procedures Review and Evaluation

Periodically, the Terminal Superintendent is to conduct drills to evaluate operations personnel response performance. Remedial training is to be scheduled as necessary. Annual training reviews conducted by the Refinery Safety and Training Manager will also be used to evaluate personnel response performance and knowledge of procedures. Remedial training will be scheduled as necessary. Procedures will be evaluated on a continuing basis and revisions made as required. Changed in procedures are to be included in writing as revisions to the pipeline manual.

6.3.2.3 Mitigation Methods

Figures 6.3 through 6.10 illustrate mitigation methods that may be useful during an oil-spill response. Response personnel will select the appropriate method to effectively mitigate an oil spill.

Information used to evaluate the correct mitigation method includes the following:

- Spill pathway
- Size of spill
- Rate of movement of spill
- Type of spill
- Available resources
- Available personnel
- Environmental damage potential
- Health and Safety practices
- Other prudent information

Additional Mitigation Methods

Mitigation of oil spills is not limited to methods presented in this FRP. Additional mitigation methods can be utilized provided sound judgement is used in conjunction with local, State, and Federal Laws.

One additional method commonly used during oil spill events is combustion of oil and oil residues. The LAC, Title 33, Part 9 (Louisiana Regulations for the Control of Oil and Hazardous Substances Spills) Chapter 17 allows for the gathering and destruction by burning to eliminate pollution hazards. In particular, this method is used when oil spills threaten streams and water courses where they may cause additional environmental damage.

If mitigation by burning technique is used to prevent further environmental damage approval should be obtained from the LADEQ Air Quality Department, the State On-Scene Coordinator (OSC), the Fire Department, the Federal OSC, and any other regulatory agency involved in the emergency incident.

The burning technique shall not be used to burn wastes contaminated with PCB's, halogenated solvents, or "listed" hazardous wastes.

Special consideration should be given to the following topics when considering burning as a possible mitigation technique:

- Temporary degradation in local air quality.
- Organisms in vicinity of burn pile may suffer adverse thermal effects.
- Carcinogenic compounds and heavy metals in fallout could enter both the aquatic and terrestrial food webs.
- Fallout can contaminate freshwater lakes and streams which provide drinking water.
- Fallout can coat plants and block sunlight needed for photosynthesis.
- Causes heavy air pollution; adds heat to substrate, can cause erosion if root systems are damaged. Kills surface organisms caught in burn area. Residual matter may be somewhat toxic (heavy metals).

Burning of oil and oily wastes can cause a reduction in local air quality. Louisiana Air Quality Regulations prohibit air pollution which causes undesirable levels of air emissions {LAC 33:II.901}. However, variances from air quality standards can be obtained during exceptional circumstances {LAC 33:III.917}.

Regulations on the control of air pollution from outdoor burning are found at LAC 33:III.1109(D)8 and are as follows:

"Outdoor burning of waste hydrocarbon products (from petroleum exploration, development or production operations, natural gas processing, such as, but not limited to, basic sediments, oil produced in testing an oil well, and paraffin) may be conducted at the site of origin when it is not practicable to transport the waste products for sale or reclamation, or to dispose of them lawfully in some other manner. In addition hydrocarbons spilled or lost from pipeline breaks or other transport failure which cannot practicably be recovered or be disposed of lawfully in some other manner may be outdoor burned at the site where the spill occurred or at another appropriate place due to safety considerations. Except when the immediate or continuous burning of hydrocarbon spills is reasonably necessary to abate or eliminate an existing or imminent threat of injury to human life or significant damage to property, the outdoor burning shall be conducted under the following conditions:

(a) The location of the burning must not be within or adjacent to a city or town or in such proximity thereto that the ambient air of the city or town may be affected by smoke from the burning.

(b) The burning is conducted only between the hours of 8 a.m. and 5 p.m.

(c) The burning is controlled so that a traffic hazard as prohibited by LAC 33:III.1109.E is not created."

Section 300.115 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) states that the Regional Response Team (RRT) is responsible for regional planning and coordinating preparedness and response actions. The NCP further states, "...The RRT provides appropriate regional mechanism for development and coordination of preparedness activities before a response action is taken and for coordination...and advice to the OSC...during such response actions ....".

Section 4201 of the Oil Pollution Act (OPA; P.L. 101-380) amended the Clean Water Act, which gives the general removal authority to "...ensure effective and immediate removal of a discharge, and mitigation ...of oil...". This same section requires the contents of the National Contingency Plan (NCP) to contain "... procedures and techniques to be employed in identifying, containing, dispersing, and removing oil...".

Section 7001 of OPA supports the concept of developing innovative technologies that are effective "...in preventing or mitigating oil discharges and which protect the environment...".

In-situ burning falls under this concept and will require RRT approval.

In summary combustion as a mitigation technique is allowable, provided necessary approval has been given and regulations are met, however, it will only be considered as a final method for oil spill mitigation. The potential benefit must outweigh the potential harm caused from burning.

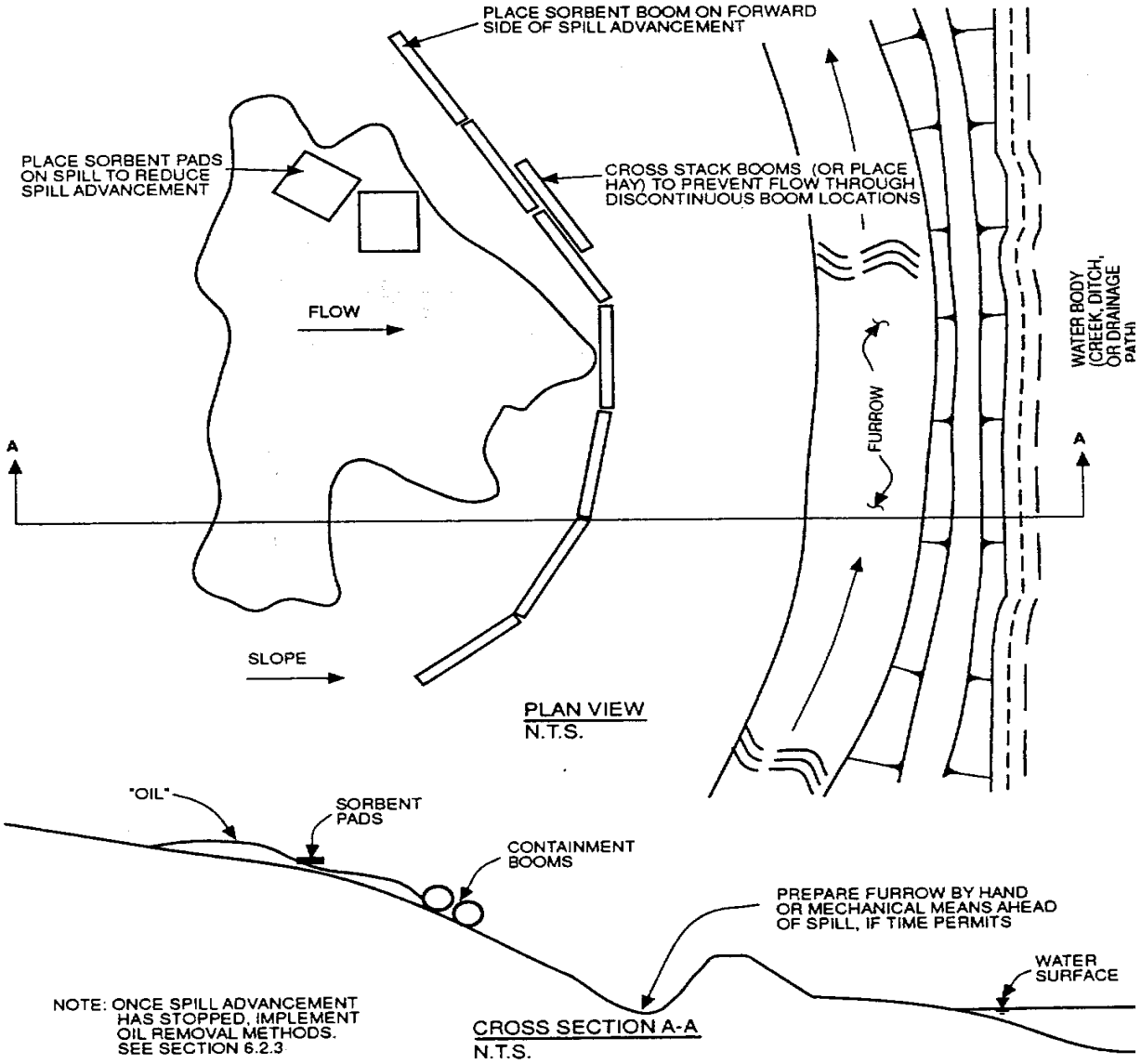


FIGURE 6.3
MITIGATION OF OIL SPILL ON LAND

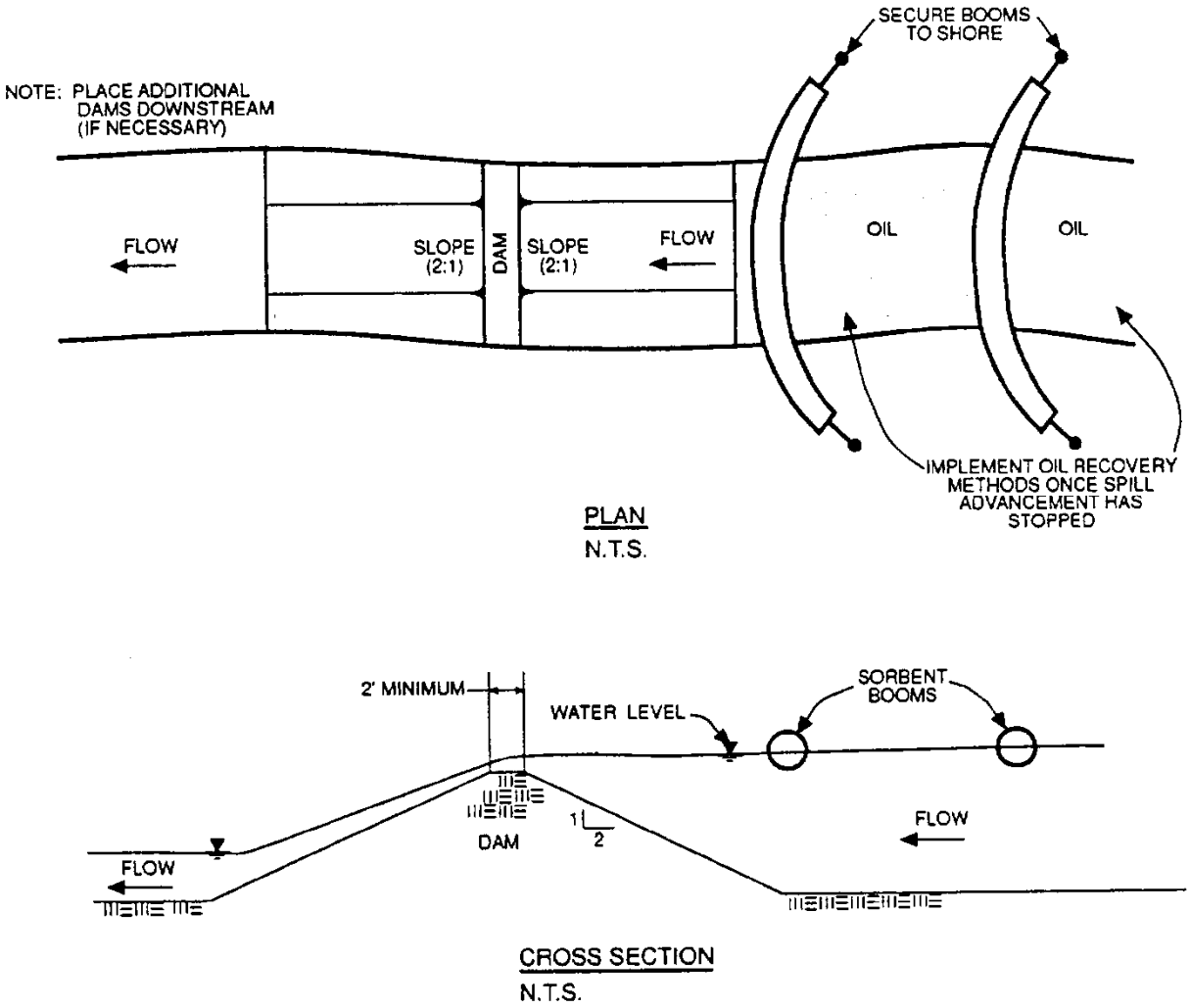
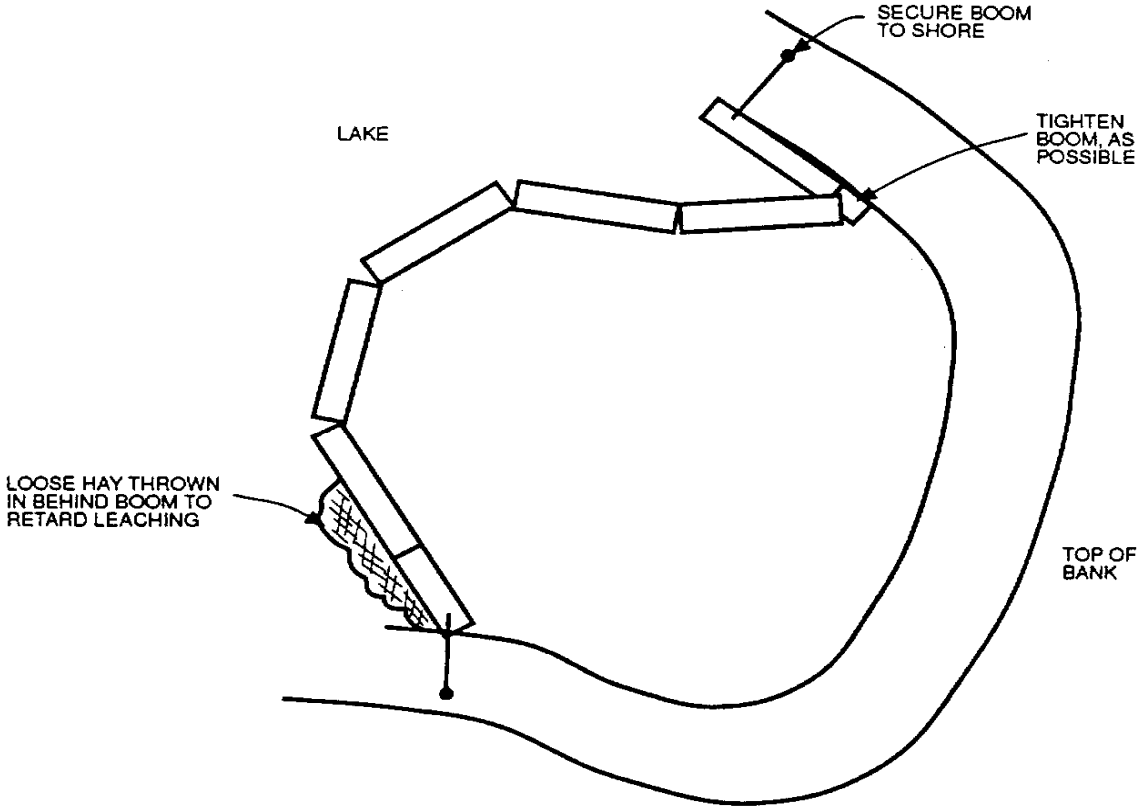
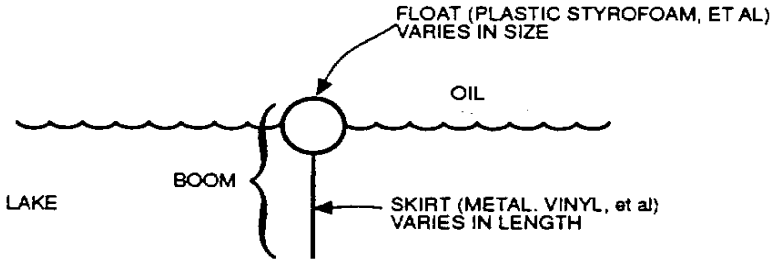


FIGURE 6.4
MITIGATION BY OVERFLOW DAM

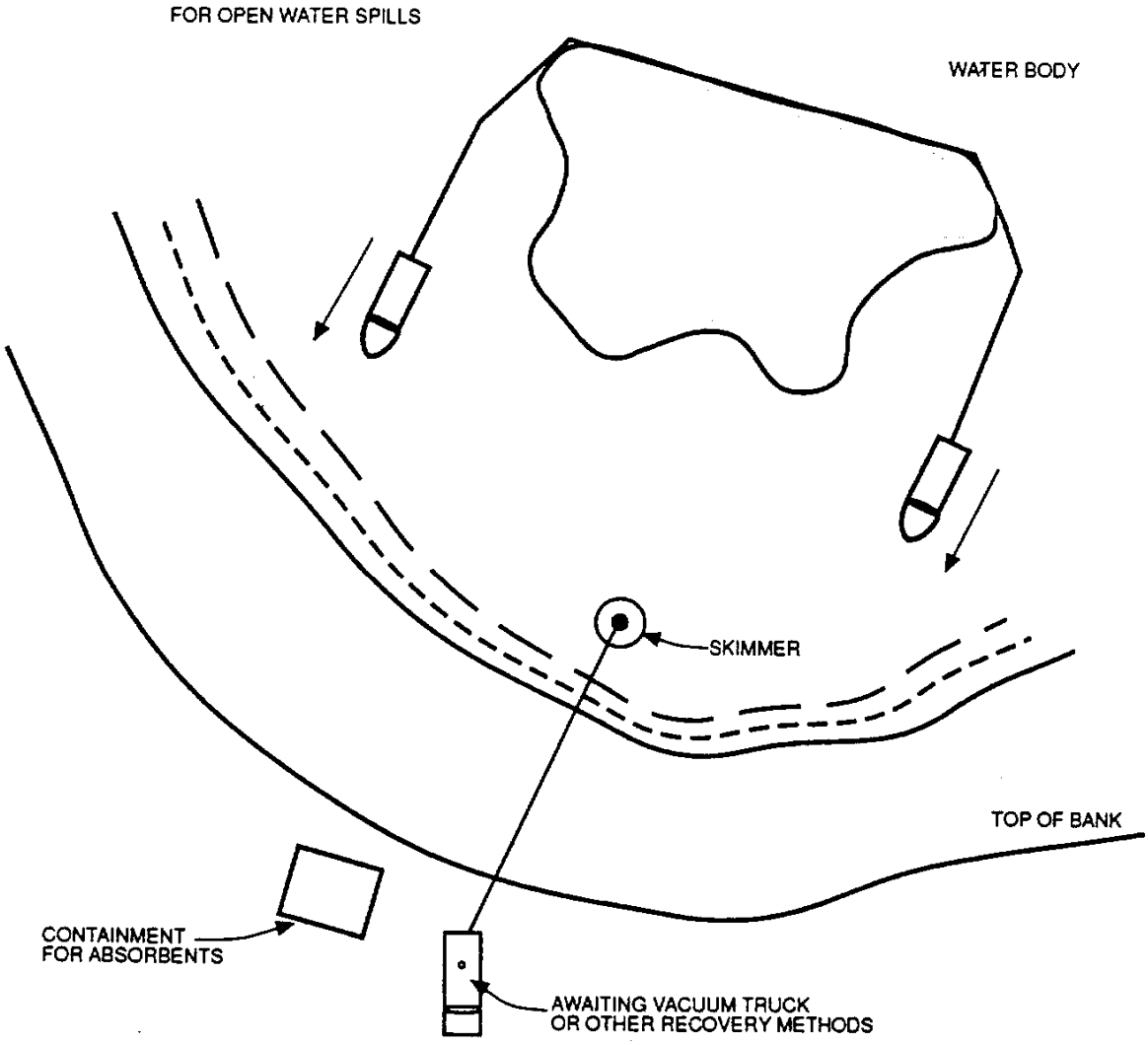


PLAN VIEW
N.T.S.



SECTION VIEW
N.T.S.

FIGURE 6.5
MITIGATION BY CONTAINMENT



PLAN VIEW
N.T.S.

FIGURE 6.6
MITIGATION BY CONTAINMENT AND RECOVERY DAM

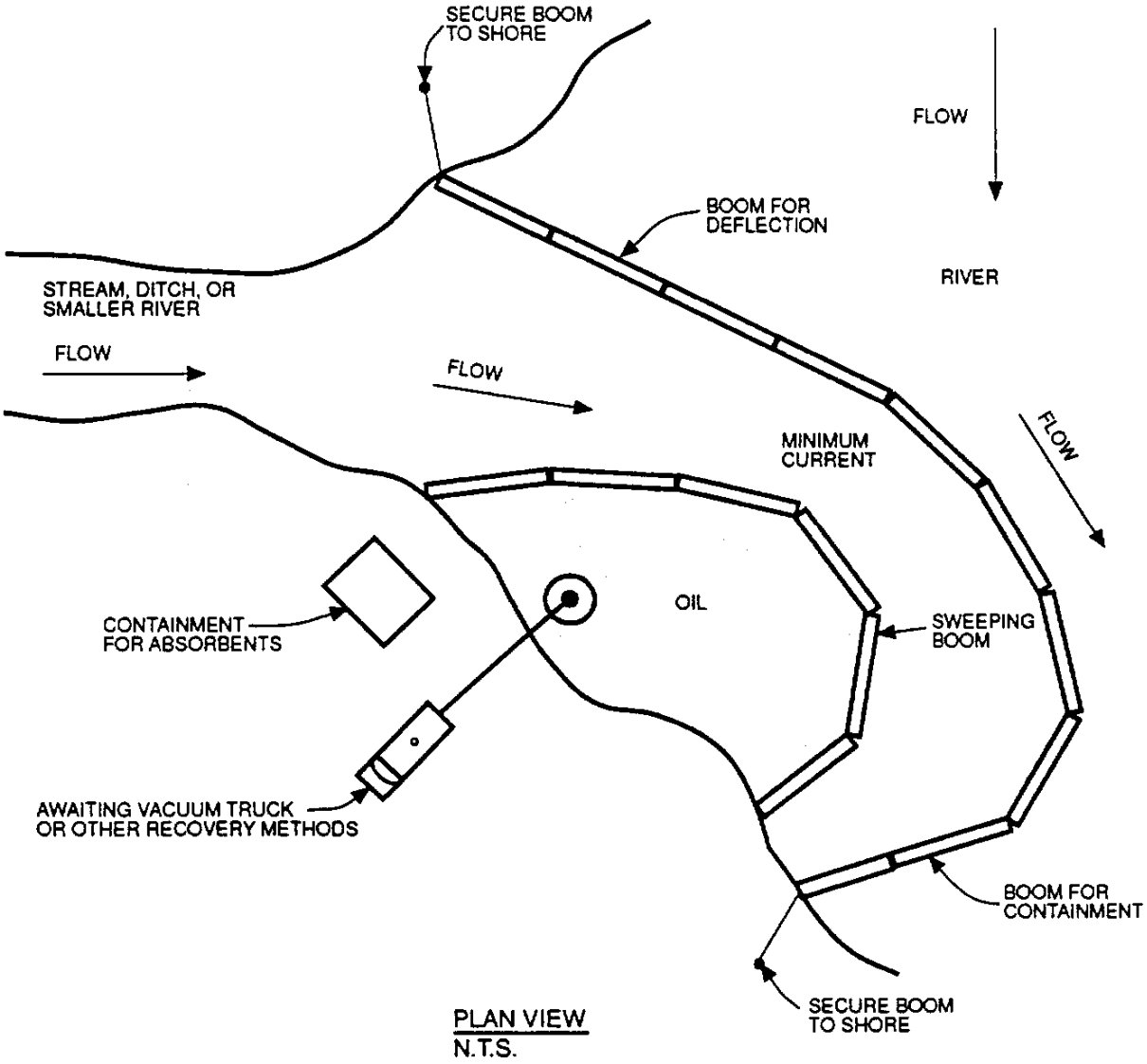
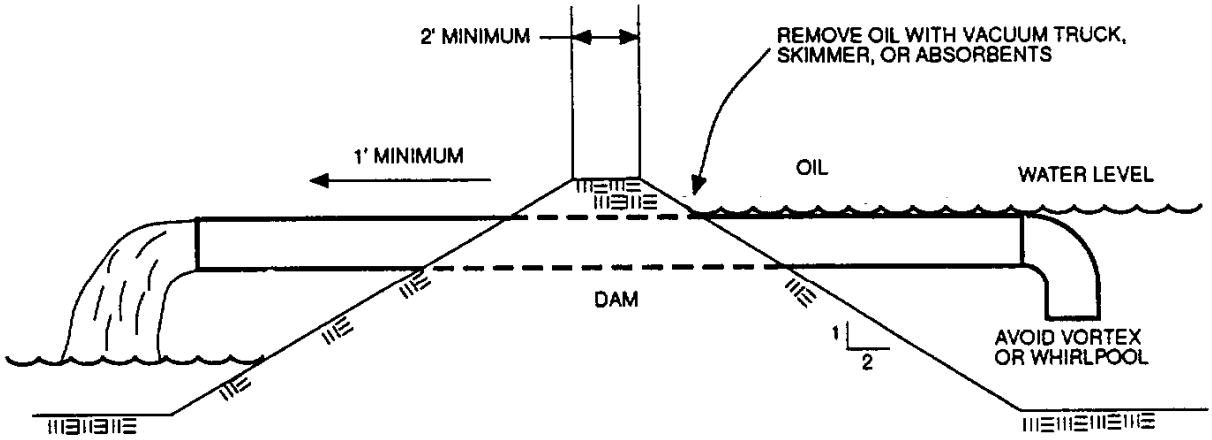


FIGURE 6.7
MITIGATION FOR STREAM/RIVER CONFLUENCE

NOTE: USE ONE OR MORE PIPES (SIZE AS REQUIRED)
USE 10' LONG SECTIONS (AT MINIMUM)



CROSS SECTION
N.T.S.

FIGURE 6.8
MITIGATION DAM FOR DITCHES AND STREAMS

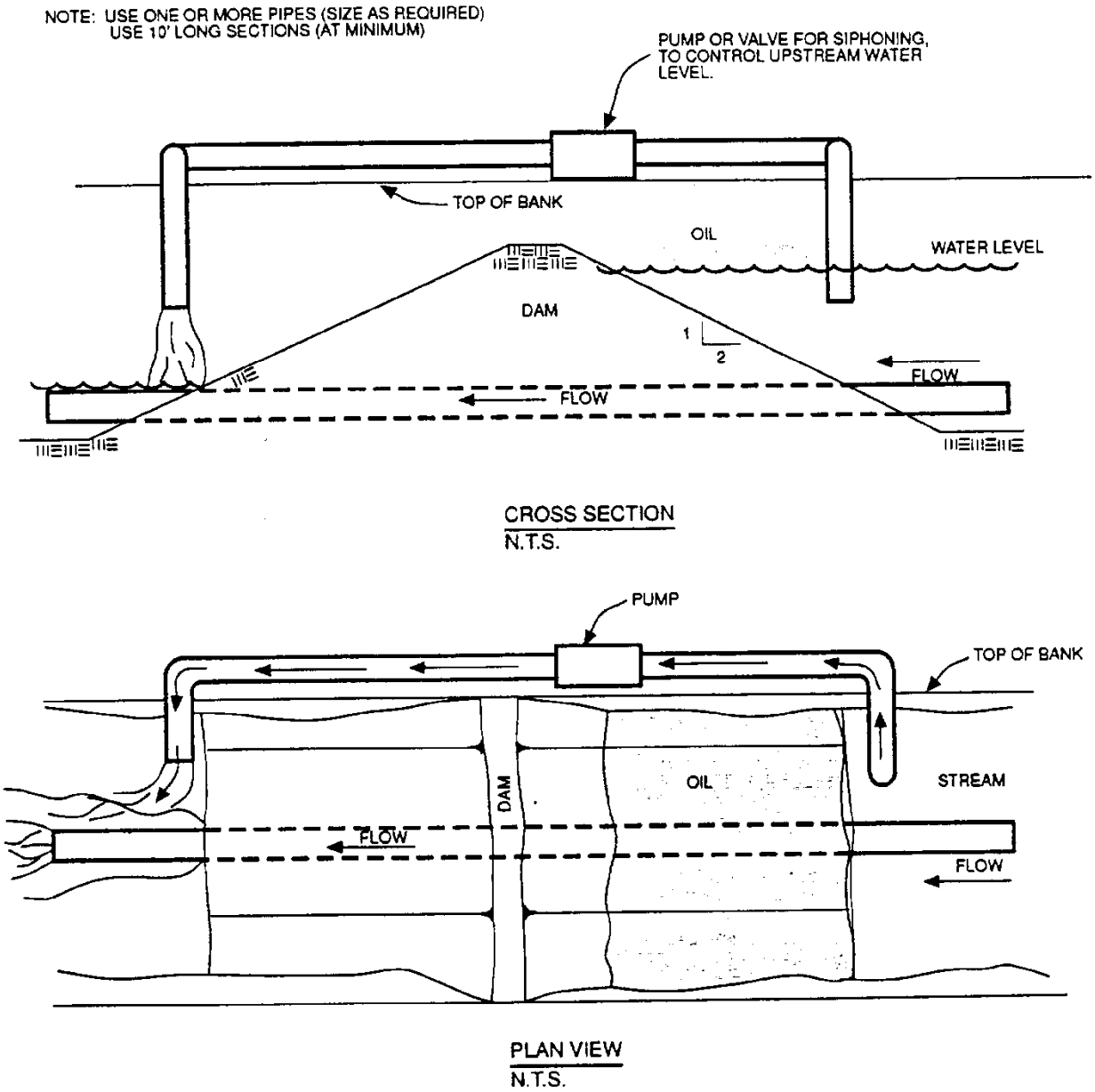
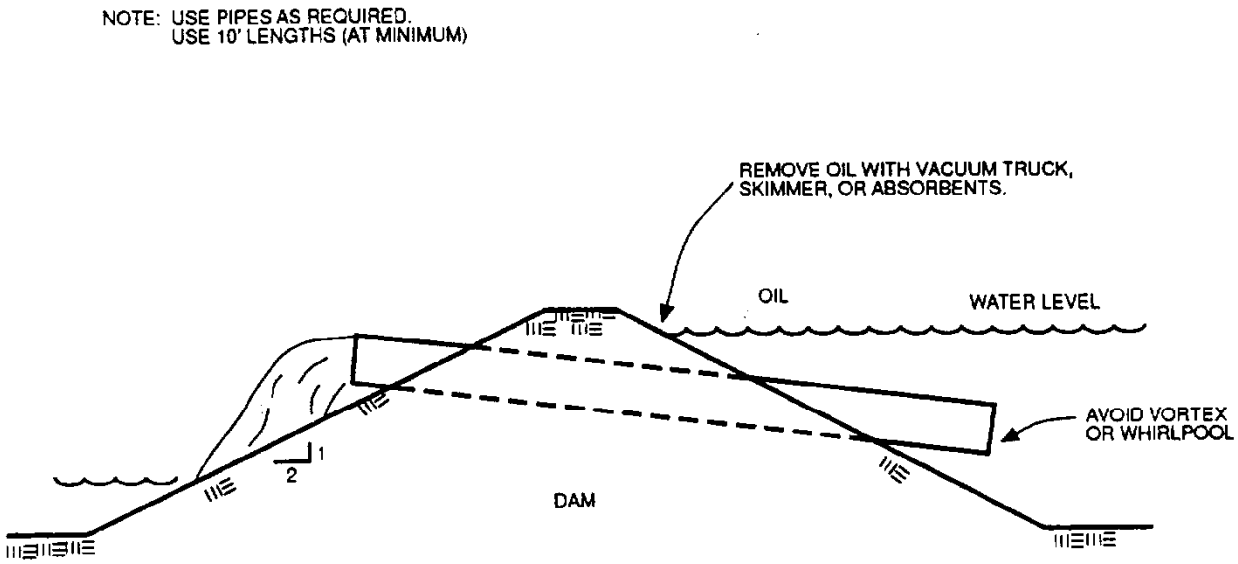


FIGURE 6.9
MITIGATION DAM FOR DITCHES AND STREAMS



CROSS SECTION
N.T.S.

FIGURE 6.10
MITIGATION DAM FOR DITCHES

6.3.3 Equipment for Response Activities

PRC will call outside contractors for services needed to respond to spills on the river and land. However, PRC does maintain a stock of sorbent materials plus equipment which can be used for mitigation purposes.

The PRC Emergency Response Team is prepared to respond to oil spills incurred by PPC's Products Pipeline. Approximately 6 to 8 Response Team Members are continuously working at the facility. These on-site members can respond initially, and, if additional personnel are needed, other members of the response team will be contacted and respond.

The materials listed below are kept on hand at the PRC materials warehouse or storage area at the North Yard.

TABLE 6.5 PRC OIL SPILL MITIGATION EQUIPMENT

Item Description	Quantity
Oil Dri Sorbent Pads 3/8 x 17 x 19	45 Bales (100 pads per bale)
Oil Sorbent Boom	600 Feet (5-inch Diameter)
Absorbent Pulp	50 (20 lbs each)
Absorbent Sock 2 3/4-inch Diameter	Varies
Misc. Soil Moving Equipment (Backhoe, Bulldozer, Etc.)	Varies
Misc. Lifting Equipment (Cranes, Forklift Lifts, Etc.)	Varies

6.3.4 Response Equipment Contacts

Attachment II lists PPC, PRC, local, state and Federal contacts and telephone numbers. Attachment II also lists OSRO's telephone numbers and waste disposal contacts and telephone numbers. All of these companies serve as sources of equipment for response activities on a 24-hour basis.

6.3.5 Response Personnel

Table 1 and 2 in Attachment II lists PPC, PRC, and other miscellaneous response personnel, their location and telephone numbers. These personnel are available for use of response equipment on a 24-hour basis. These resources are considered capable of staffing a continued response operation (one in excess of seven days).

6.4 Response Activities

6.4.1 Initial Spill Response (Prior to QI or OSRO Arrival)

Once an oil spill is observed, notification procedures (Sub-section 6.2) are conducted. Part of this procedure includes notification of the QI who will in turn notify the PPC Oil Spill Management Team, as appropriate to the situation. Prior to arrival of the QI or other outside response resources, response personnel will conduct initial spill response activities. These activities vary depending on the response zone and are described below:

Part of the procedures also includes notification of the emergency response team. The emergency response team begins mitigation procedures (Section 6.3.2.3) prior to QI involvement. Additionally, the refinery shift supervisor oversees the primary notification process to enact the incident command system and the QI. The refinery shift supervisor is also responsible for deploying one OSRO for immediate response requirements. These requirements include one-hour time limit for boom deployment, and a two-hour time limit for deploying oil recovery devices and storage tanks. See Attachment III for additional resource information.

The PRC Emergency Response Team (Table 6.1) is prepared to respond to oil spills incurred by PPC. Approximately 6 to 8 Response Team Members are continuously working at the facility. These on-site members will respond initially, and, if additional personnel are needed, other members of the response team will be contacted and respond. PPC may call outside contractors for services needed to respond to spills on the river and land.

6.4.2 QI Responsibilities and Authority

PPC's QI has the responsibility and authority to implement this plan and notify the necessary agencies and response resources as appropriate. Each QI and QI Alternate has the following authorities and responsibilities in the event of an oil spill response scenario:

(A) Activate and contract with necessary oil spill removal organizations;

(B) Act as liaison with the predesignated Federal On-Scene Coordinator (either in person or via telecommunications); and

(C) Obligate, either directly or through prearranged contracts, any funds required to carry out all necessary or directed oil response activities.

Additionally, the QI has responsibility to perform or delegate the performance of the following EPA required (40 CFR 112.20(h)(3)(ix)(A-J)) duties:

(1) Activate internal alarms and hazard communication systems to notify all facility personnel

(2) Notify all response personnel, as needed

(3) Identify the character, exact source, amount, and extent of the release, as well as the other items needed for notification.

(4) Notify and provide necessary information to the appropriate Federal, State, and local authorities with designated response roles, including the National Response Center, State Emergency Response Commission, and Local Emergency Planning Committee.

(5) Assess the interaction of the spilled substance with water and/or other substances stored at the facility and notify response personnel at the scene of that assessment.

(6) Assess the possible hazards to human health and the environment due to the release.

(7) Assess and implement prompt removal actions to contain and remove the substance released.

(8) Coordinate rescue and response actions as previously arranged with all response personnel.

(9) Use authority to immediately access company funding to initiate cleanup activities.

(10) Direct cleanup activities until properly relieved of this responsibility.

6.4.3 Procedures and Responsibilities for Coordination of Response Efforts

Procedures for coordinating the actions of PPC with the Federal OSC responsibilities are in part dependent upon the response time to the scene by the OSC. PPC and/or PRC personnel will direct and supervise the response actions as described in this plan until the Placid QI arrives on the scene. Placid's QI will monitor and direct the response activities until the OSC arrives on the scene. Placid's QI has in the past, and will continue to work closely with the OSC during a response action.

6.4.3.1 Procedures for Response Efforts

PPC will commit the oil spill resources necessary to contain, recover, and cleanup oil related discharges for the period of time necessary to complete response operations. PPC's oil spill response strategy is to contain and recover released oil as near to the facility as possible. PPC's upriver response strategy focuses on the protection of drinking and cooling water intakes, and fleeting areas.

PPC's OSRO will vary according to the magnitude of oil spilled and the specific weather and river conditions at the time of the spill. To the extent possible, PPC will initially respond to all spills by the deployment of the equipment listed in section 6.3.3. PPC's OSRO procedures for response actions for larger spills of oils are listed below by spill magnitude.

- Small Discharge (up to 50 bbl) – OSRO will deploy booms within one hour of the discharge. PPC or the OSROs listed in Attachment III will provide oil recovery equipment and oil storage volume within two hours.

- Medium Discharge (up to 857 bbl) - PPC and the OSROs listed in Attachment III will provide oil recovery devices capable of recovering in one day one-half the planning volumes presented in Attachment VI within 12 hours of spill detection. The OSROs will also provide (within 12 hours) booming and temporary storage volume sufficient for the planning volumes.
- (b) (7)(F) [redacted]) - the OSROs listed in Attachment III will supply sufficient response resources to respond to the maximum extent practicable. Oil spill recovery equipment will be deployed so that it arrives within the response tier requirements for inland areas. Recovered oil will be stored in available pipeline tanks, temporary tanks, or excess PRC refinery storage capacity. Storage capacity at PRC's Port Allen refinery is always in excess of 20,000 bbls due to the refinery's charge rate of 50,000 bbl/day. Additional capacity can be added by recovering oils from the top of these tanks (by skimming) or by processing the water volume through the wastewater treatment plant at the refinery. Additional capacity of the wastewater treatment plant of 350 gpm can be accommodated under normal conditions for additional storage capacity. Attachment III to this FRP lists PPC's OSRO equipment and capabilities. These OSROs have committed to respond to all spills to the maximum extent practicable and to provide trained personnel to continue response activities for the time required for response.

The following sub-section presents PPC's general procedures that are planned to be implemented in response to an oil release in order to protect sensitive areas and to clean the areas that are impacted. No two spills are the same and the OSRO must be allowed the flexibility to respond to the specific spill conditions (i.e. - material discharged, river currents, temperature, weather, wind speed and direction, tides, and shoreline type). Although the response strategy will vary based on specific conditions encountered, the goals of all responses will be to prevent further contamination and restore contaminated areas to their former state. General prevention and cleanup methods are discussed below.

6.4.3.1.1 General Response Actions

PPC's oil spill response begins with notification as discussed in sub-section 6.4.1. The refinery shift supervisor will engage the on-site emergency response team to conduct mitigation of the incident. The QI will assess the response needs and deploy on-site or on-water OSROs as required. PPC's prevention actions,

either through PPC mitigation or contracting, will consist of the following:

- Eliminate or reduce the source of the spill to the maximum extent possible
- Within one hour deploy a minimum of 1000 feet of booming to contain the spill
- Within two hours, provide oil recovery equipment and storage capacity of recovered oil

PPC's on-water containment and recovery techniques may include:

- Containment booming (source encirclement, "U", "J", teardrop)
- Passive collection (sorbent booms)
- Stationary skimming
- Dynamic skimming
- Manual removal

Economically and environmentally sensitive areas may be protected by:

- Exclusion booming
- Diversion booming
- Use of vessel hulls as barriers

Additional response actions specific to the types of shorelines that may be affected are discussed later in this sub-section.

Specific response actions for discharge of group V oils (sinkers) are not included in this FRP since these materials are not transported by PPC's pipeline operations.

6.4.3.1.2 Classification of Sensitive Environments

This subsection of the plan is provided to identify areas of economic importance and environmental sensitivity to help OSROs locate and prioritize areas for spill protection. The maps contained in Attachment VII are to be used to obtain information to assist in identification of sensitive areas and in identifying locations of facilities, which may be affected by a spill covered under this plan. These maps include:

Sensitivity of Coastal Environments and Wildlife to Spilled Oil – Louisiana, prepared by NOAA, descriptive information and maps along Mississippi River from Baton Rouge to the Gulf of Mexico, December 2003.

U.S. Army Corps of Engineers Mississippi River maps 114-153 with descriptive information

Series of maps illustrating Staging Areas identified in the USCG Sector New Orleans 2006 Geographic Response plan as well as water intakes identified by the Lower Mississippi River Waterworks Warning Network Plan. Maps created by Environmental Science Services, Inc.

Areas of Economic Importance and Environmental Sensitivity

Attachment VII to this FRP presents maps showing economically important points (fleeting areas, crossings, etc.) on the USACE Navigation Charts. Attachment VII also presents NOAA maps of environmentally sensitive areas for the coastal zone, and maps showing staging areas and collection / booming sites listed in the Sector New Orleans Geographic Response Plan.

Economically Sensitive Areas to Monitor or Protect

These areas are those, which if impacted by spilled oil, may result in threats to public safety or health. These include commercial water intakes, highly developed or populated public areas, or marinas/fleeting areas.

Developed - These areas are defined as areas with a concentrated presence of man-made structures. The impacts are in terms of public safety, visibility, aesthetics, and public relations as well as oiling of piers and potential property damage/loss of use claims. High costs for cleanup may be incurred in these areas.

Water Intakes - Intakes for commercial, industrial and municipal water usage are subject to impacts due to safety hazards, loss of use and damage claims. Information regarding location of the intake is presented on the maps in Attachment VII.

Recreation Area - Publicly accessible recreation areas generally have good water/shoreline access for logistical purposes. More importantly these areas should be monitored for potential public safety/health threats.

Marina/Fleeting Areas - Marinas have a great potential for public exposure to hazards and damage claims and should be boomed to exclude oil. Information regarding location of marinas is presented in Attachment VII.

Environmentally Sensitive Areas to Monitor and Protect

INTRODUCTION TO LOUISIANA ESI MAPPING

Environmental Sensitivity Index (ESI) maps have been developed for marine and coastal areas of Louisiana. The maps extend inland to Interstate 10. ESI maps are a compilation of information for three main categories: shoreline habitats, sensitive biological resources, and human-use resources. The maps are plotted at two scales. The outer

coast maps (map numbers 1-73) are divided according to the 1:24,000 U.S. Geological Survey (USGS) topographic quadrangle index and plotted at a size of 11 x 17 inches and a scale of 1:50,000. Grey-scale Digital Orthophoto Quarter Quadrangles (DOQQ) are used as backdrops for the outer coast maps. Maps for the interior area (map numbers 74-144) are divided according to a group of 1:24,000 USGS topographic quadrangles that are plotted at a size of 11x17 inches and a scale of 1:100,000. The Landsat thematic mapper satellite imagery was used as a backdrop for these inland maps. These maps and associated data tables can be found in Attachment VII.

SHORELINE HABITAT MAPPING

The shoreline was primarily digitized from the 1998 DOQQs and represents the high-tide line as visible in the photography. In the case of wetlands, this line was digitized as the seaward extent of vegetation. Areas digitized included the shoreline of all barrier islands from the Chandeleur Islands west, as well as the outer coast of the Mississippi River Delta, the Wax Lake and Main Atchafalaya River Deltas, a portion of the coast of Vermilion Bay, and the Chenier Plain coast from Marsh Island west to Sabine Pass. This shoreline was initially classified by a geomorphologist (Dr. Miles O. Hayes) performing on-screen photointerpretation of the DOQQs using the standard ESI classification scheme. The coastal geomorphological classification data of Ramsey and Penland (1999), interpreted from geo-referenced oblique aerial videography flown in 1999, were used during this process to help differentiate among shoreline types that were visually similar and difficult to photointerpret. Hardcopy maps of this attributed shoreline were plotted at 1:24,000 scale for field verification of the ESI attributes. The shoreline ESI classifications were field checked during helicopter overflights conducted in May 2001. The surveys were conducted at elevations of 100-500 feet and slow air speed. All shoreline attributed by photointerpretation was surveyed. A coastal geologist edited the ESI classifications on 1:24,000 scale maps during the overflights. Where appropriate, multiple habitats were assigned for each shoreline segment. In some areas, drastic change in shoreline position occurred between the dates of the 1998 DOQQs and the 2001 field surveys due to erosion or active delta building. These areas included, but were not limited to: 1) The Chandaleur Islands; 2) Several marsh restoration sites in the Isles Derniers and Timbalier Islands; and 3) both the Wax Lake and Main Atchafalaya Deltas. In areas of major shoreline change, the new shoreline position was sketched in and assigned a shoreline type(s) based on field sketches and oblique aerial photography acquired during the field surveys. The field maps were then scanned and registered and edits

were made using on-screen digitizing. The variety of wetland plant communities in coastal Louisiana made it difficult to classify marsh shorelines by ESI marsh type during the field surveys. As such, the 1997 Louisiana Department of Wildlife and Fisheries Marsh Type data were used to update all shoreline segments with the appropriate ESI code, via a GIS overlay operation. To determine the sensitivity of a particular intertidal shoreline habitat, the following factors are integrated: 1) Shoreline type (substrate, grain size, tidal elevation, origin) 2) Exposure to wave and tidal energy 3) Biological productivity and sensitivity 4) Ease of cleanup Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury and ease of cleanup of spilled oil are also important factors in the ESI ranking. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking. The list below includes the shoreline habitats delineated for Louisiana ordered by increasing sensitivity to spilled oil.

1B) Exposed, Solid Man-made Structures
2A) Exposed Wave-cut Platforms in Clay
2B) Exposed Scarps and Steep Slopes in Clay
3A) Fine- to Medium-grained Sand Beaches
3B) Scarps and Steep Slopes in Sand
4) Coarse-grained Sand Beaches
5) Mixed Sand and Gravel Beaches
6A) Gravel Beaches
6B) Riprap
7) Exposed Tidal Flats
8A) Sheltered Rocky Shores and Sheltered Scarps in Mud or Clay
8B) Sheltered, Man-made Structures
8C) Sheltered Riprap
9A) Sheltered Tidal Flats
9B) Sheltered, Vegetated Low Banks
10A) Salt- and Brackish-water Marshes
10B) Freshwater Marshes
10C) Freshwater Swamps
10D) Scrub-Shrub Wetlands, including Black Mangroves

Each of the shoreline habitats is described in Attachment VII, in terms of their physical description, predicted oil behavior, and response considerations.

SENSITIVE BIOLOGICAL RESOURCES

Biological information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource managers from the U.S. Fish and Wildlife Service (USFWS), Louisiana Department of Wildlife and Fisheries (LDWF), U.S. Geological Survey (USGS), National Marine Fisheries Service (NMFS), National Park Service (NPS), and the Louisiana Natural Heritage Program (LNHP). Information collected and depicted on the maps denotes the key biological resources that are most likely at risk in the event of an oil spill. Six major categories of biological resources are included in this atlas: terrestrial mammals, reptiles, birds, fish, invertebrates, and benthic and wetland habitats. Certain portions of the Louisiana Natural Heritage Program Element Occurrence Record (EOR) database were included as part of the biological resources mapped. The data were processed to filter records of concern. In general, records were preserved for species with a Global or State Conservation Status Rank of 1-3 or that are federally threatened or endangered species. Historical records and records for extirpated species and occurrences were removed from the database. Records describing the location of animal specimens or marine mammal strandings were also removed from the database. Rather than use actual common and scientific species names, species for all records, except ecological communities, were converted to generic sub-element descriptor (e.g., Rare wading bird). The prefix "Rare" was attached to all generic sub-element descriptors, except federally threatened or endangered species. For these species, the prefix "Threatened" or "Endangered" was used. The LNHP EOR database contained point locations collected over time from a variety of sources with varying degrees of spatial precision, ranging from seconds to "general". Point locations that were obviously incorrect (e.g., located far offshore or far outside the boundary of the state) were removed from the data. The remaining point locations were buffered by 800 meters (m) to create circular polygons. Overlapping polygons were dissolved such that the resulting polygons contain information describing all species found in the original overlapping polygons. The LNHP EOR database contains information describing the spatial precision of each record, but this information was not included in the attribute data associated with this layer. Also, note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this dataset, please contact the Louisiana Natural Heritage Program at 225/765-2823. Polygons, points,

and arcs represent the spatial distribution of biological resources on the maps. Associated with each of these representations is an icon depicting the types of species that are present. Species have been divided into groups and subgroups, based on their behavior, morphology, taxonomic classification, and spill vulnerability and sensitivity. The icons below reflect this grouping scheme. Please note that benthic marine habitats are displayed on the maps using “simplified-wetland” patterns rather than the hatched patterns used for the other species groups, and no icons are used (see legend in Attachment VII). For all other species, the groups are color coded, and different icons represent the subgroups.

The polygon color and pattern are generally the same for all species in each major group (e.g., birds are green), and match the icon colors. Also associated with each biological polygon or point feature on the map is a Resources at Risk identification number (RAR#), located under each icon or group of icons. The RAR# references a table on the reverse side of the map with a complete list of species associated with the polygon, point, or line feature, and the state and federal protected status as threatened, endangered (T&E), or species of special concern (C), concentration, seasonality, and lifehistory information for each species. There are some species that are found throughout specific geographical areas or habitat types on certain maps. Displaying the polygons for these species would cover large areas or would obscure the shoreline, ESI classification, or other biological features, making the maps very difficult to read. Thus, species that occur over the majority of certain geographic areas or habitats are often identified in a small box on the maps which states that they are “Present in ...” (e.g., “Present in Terrebonne Bay” or “Present in Salt Marsh”). The use of this strategy is implemented on a map per map basis, depending on the location, size, and number of polygons present on each map.

TERRESTRIAL MAMMALS

Louisiana black bear concentration areas are depicted in the Louisiana atlas. LDWF wildlife biologists provided the names of the 1:24,000 USGS topographic maps representing the distribution of Louisiana black bear in the state. Based upon these data, expert habitat information from LDWF biologists, and additional habitat and distribution information from the 1995 USFWS Louisiana Black Bear Recovery Plan, polygons representing occupied habitat for the Louisiana black bear were developed. The primary sources used to create polygons depicting Louisiana black bear habitat areas were: 1) the 1988 USGS Coastal Louisiana Habitat data; and 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type data. The 1988 USGS Coastal Habitat data represent the actual habitat

polygons used to create bear polygons. Habitats used in the development of this layer included forested wetlands, agricultural fields (mainly sugarcane), and certain marsh types adjacent to forested wetlands. Integration of the 1988 USGS and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF marsh type data. Small semi-aquatic, fur-bearing mammal areas with harvest density values by habitat zone are also shown on the maps. These species include nutria, muskrat, raccoon, mink, and river otter. The primary sources used to create polygons depicting small semiaquatic, fur-bearing mammal areas were: 1) the 1988 USGS Coastal Louisiana Habitat data; 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type data; and 3) the 2000 LOSCO Louisiana Parish Boundaries data. Polygons representing semi-aquatic fur-bearing mammal distributions and densities are based on habitat type "zones" comprised of land and adjacent water. Major habitat zones include fresh marsh, intermediate marsh, brackish marsh, salt marsh, and forested wetlands. The 1988 USGS Coastal Habitat data represent the actual wetland polygons used for this atlas. Integration of the 1988 USGS and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF marsh type data. Wetland polygons adjacent to water features were buffered to create polygons that included small waterbodies and extended out into coastal lakes and bays by either 100 or 500 m depending on the location and the complexity of the shoreline. In addition, larger coastal lakes were either included or excluded from the semi-aquatic fur-bearing mammal polygons based on the expert opinion of LDWF wildlife biologists. Small (area <3 km2) polygons of a particular marsh or other habitat type that were isolated in an upland area were excluded from the coverage. Similarly, small "inclusion" polygons of one wetland type occurring within another wetland type were dissolved into the surrounding "matrix" habitat type. Finally, physiographic province boundaries were used to further divide semi-aquatic fur-bearing mammal habitat polygons. LDWF fur harvest distribution data for coastal Louisiana from 1972-1985 were used to develop density values for semi-aquatic fur-bearing mammals in each combination of habitat zone (four marsh types, forested wetland areas) and physiographic province. Mean densities were recorded and were rounded to the nearest whole acre per individual. In addition to quantitative density, a categorical description of population status has been assigned to these species. This categorical description (HIGH/MED/LOW) was developed by LDWF biologists and indicates the relative population status by region and habitat of each species described. The LDWF survey effort did not

include salt marsh. However, because semi-aquatic fur-bearing mammal are present in salt marsh, concentrations are listed as either 'TRANSIENT' or 'RESIDENT' for polygons representing this habitat type, depending on the behavior of each particular species. Additional terrestrial mammal species (including rare bats) are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823. Terrestrial mammal areas are shown on the maps as polygons with a brown-hatched pattern. A brown icon with a bear silhouette is used to indicate the presence of black bears and is associated with all polygons containing this species. A brown icon with a small mammal silhouette is used to indicate the presence of furbearing mammal species and is associated with all polygons containing these species. The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column gives the species name. The next column provides an estimate of the concentration of the species at the site. The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an “X” is placed in the month column. Expert contacts are: Gary Lester (LNHP), 225/765-2823, and Greg Linscombe (LDWF), 337/373-0032, and Noel Kinler (LDWF), 337/373-0032.

MARINE MAMMALS

No marine mammals are included in this atlas. Note that West Indian manatees may be found infrequently throughout the coastal waters of Louisiana.

REPTILES

Reptiles depicted in this atlas primarily include the American alligator. Polygons represent American alligator habitats with nest density values by habitat zone and management unit. The primary sources used to create polygons depicting alligator habitat areas were: 1) the 1988 USGS Coastal Louisiana Habitat data; 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type data; and 3) the 2000 USGS stewardship areas. Polygons representing alligator distributions and densities are based on a combination of habitat type "zones," comprised of land and adjacent water, and management unit boundaries. Major habitat zones include fresh marsh, intermediate marsh, brackish marsh, salt marsh, and forested wetlands. The 1988 USGS Coastal Habitat data represent the

actual wetland polygons used for this atlas. Integration of the 1988 USGS and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF marsh type data. Wetland polygons adjacent to water features were buffered to create polygons that included small waterbodies and extended out into coastal lakes and bays by either 100 or 500 m depending on the location and the complexity of the shoreline. In addition, larger coastal lakes were either included or excluded from the alligator polygons based on the expert opinion of LDWF wildlife biologists. Small (area <3 km2) polygons of a particular marsh or other habitat type that were isolated in an upland area were excluded from the coverage. Similarly, small "inclusion" polygons of one wetland type occurring within another wetland type were dissolved into the surrounding "matrix" habitat type. Management unit boundaries were used to further divide alligator habitat polygons. In addition, marsh impoundment areas inside some management units were digitized, creating an additional habitat type. LDWF Alligator Nest Survey data from 1996-2000 were used to develop density values for alligators in each combination of habitat zone (four marsh types, forested wetland areas) and management unit. Nest density values for management units were given higher priority because sampling effort is greater in these areas and/or because theses areas are managed for wildlife, typically resulting in different nest densities than marsh areas in the surrounding parishes. Maximum mean nest densities were recorded as concentrations and rounded to the nearest whole acre per nest. In addition to quantitative density, a categorical description of population status has been assigned to these species. This categorical description was developed by LDWF biologists as follows: HIGH - less than 125 acres per nest; MEDIUM - between 125 and 250 acres per nest; and LOW - greater that 250 acres per nest. American alligators do not typically nest in salt marsh, and the LDWF survey effort did not include this habitat. However, because alligators are sometimes present in salt marsh, concentrations are listed as either 'TRANSIENT' or 'RESIDENT' for polygons representing this habitat type. Additional reptile species (including sea turtles, aquatic turtles, and terrestrial turtles) are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. Although sea turtle nesting is a rare event in Louisiana, multiple species of sea turtles may be present in nearshore and onshore waters. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823. Reptile areas are displayed on the maps as polygons with a redhatched pattern.

A red icon with an alligator silhouette is used to indicate the presence of alligators. This icon is associated with all polygons containing this species. The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column gives the species name. The next column provides an estimate of the concentration of the species at the site. The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an “X” is placed in the month column. Expert contact for alligators is: Noel Kinler (LDWF), 337/373-0032

BIRDS

Birds included in this atlas are divided into subgroups based on taxonomy, morphology, behavior, and oil spill vulnerability and sensitivity. The species table lists all birds included on the maps, sorted by subgroup. These species are included either because of their likelihood of direct or indirect impact by an oil spill or similar incident, their general rarity or imperilment, or their special protection status as threatened or endangered. The atlas includes colonial waterbird nesting colonies, waterfowl concentration areas, and shorebird critical habitat. Nesting sites are of particular concern due to high concentrations of birds in adjacent waters, contamination of eggs and young by oiled adults and prey, and the potential for disturbance from response activities. Colonial waterbird nesting sites – Three sources of data were used to depict waterbird nesting colonies for this atlas: 1) the 1990-1999 LDWF Colonial Waterbird data set; 2) the 1997 LSU CCEER Seabird Colonies data set; and 3) selected waterbird colony records from the 2001 LNHP Element Occurrence Record (EOR) Database. The 1990- 1999 LDWF data set was used as the primary source. These data included records for active seabird and wading bird nesting colonies for the eastern two-thirds (approximate) of coastal Louisiana. The western portion of the study area not covered by this source corresponded approximately to the following four USGS 1:100,000 topographic maps: Crowley, LA; Lake Charles, LA; Port Arthur, LA; and White Lake, LA. Records in the LDWF data set included the mean number of individuals for each species recorded at each colony during LDWF surveys between 1990 and 1999. These mean abundance values are included in this atlas. The 1997 LSU seabird colony data set covered the entire study area and was used to obtain seabird colony information for the western portion of the coastal zone that was not included in the LDWF data set (note that the LSU data covered seabirds only, not wading bird colonies). All seabird colonies from the LSU data set that were active for at least one year during 1990-1997 were included for the western portion of

the study area. In addition, all colonies documented during LSU's 1997 field surveys that were not also recorded in the LDWF data set (colonies not identified or tracked by LDWF) were retained for the entire study area. All records from the LSU data set corresponding to colonies that were present in the LDWF data set were omitted from the layer described here. Records from the LSU data set included 1997 counts of individuals for each species occurring at each colony. These values were retained for the attribute tables associated with the layer described here. For the LSU data set, colonies active during 1990 or later that had no nests recorded during the 1997 field surveys were entered as "0" counts. Since colonies may be active in some years but not others, this does not imply that a colony site is no longer active or no longer present, or that the colony is small or unimportant. Finally, the 2001 LNHP data set was used to obtain wading bird colony locations for the western portion of the study area not covered by the LDWF data set. Only colonies that were active during or since 1990 were considered. For the LNHP data, counts of individuals or nests from the latest survey period were included. Migratory waterfowl concentration areas – Polygons in this atlas represent waterfowl habitats with density values by marsh habitat zone and watershed, or by nearshore survey zone. Waterfowl in these data include several species of ducks and American coot. Geese were not part of the survey data available when this atlas was created, although migratory geese occur in the study area. Waterfowl represented in this dataset fall into two major groups: 1) marsh waterfowl distributions and peak monthly densities for multiple species (including lesser scaup); and 2) separate lesser scaup distributions and peak densities in nearshore Gulf of Mexico waters and coastal lakes and bays. The geographic area, habitat type, species, type of survey, and volume of survey data (number surveys, months surveyed, and years surveyed) differ substantially between these two groups. The primary sources used to create polygons depicting marsh waterfowl habitat areas were: 1) the USGS 1988 Coastal Louisiana Habitat data; and 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type Map data. For the marsh waterfowl polygons, LDWF Marsh Waterfowl Transect Survey data from 1988-1998 were used to develop density values for each species in each combination of habitat zone (four marsh types, selected agriculture areas), for each surveyed month. For all species, density values were rounded to the nearest whole individual per square mile. Mean monthly densities less than 0.5 were rounded to zero. For areas where the peak mean monthly density for a species was not sampled, concentrations were listed as 'PRESENT'. In cases where the peak mean monthly density was zero, concentrations were listed as 'PRESENT'. Because waterfowl are present in coastal Louisiana outside the months when surveys were conducted, seasonalities

reflect when migratory concentrations (for most species) and major resident populations (mottled duck) are present in the study area. Lesser scaup distributions and densities in nearshore Gulf of Mexico waters and coastal lakes and bays were developed from hardcopy maps depicting lesser scaup survey zones and transect lines which were distinct and separate from the more extensive marsh waterfowl transect surveys. Lesser scaup is the major diving duck species using nearshore Gulf waters and coastal lakes and bays, hence the separate survey effort and polygons depicting this species, in addition to the marsh waterfowl areas. Shorebird concentration areas – Polygons in this atlas represent concentration areas and "hotspots" for migratory shorebird species. Nesting locations for certain resident species are also depicted. LDWF wildlife biologists identified areas considered important for migratory shorebirds based upon expert knowledge. The primary sources used to create polygons depicting migratory shorebird habitat areas were: 1) the USGS 1988 Coastal Louisiana Habitat data; 2) the 2001 Outer Coast Environmental Sensitivity Index (ESI) data; 3) the 2000 USGS managed lands boundaries; and 4) the 2001 minirefuge boundaries. Both the 1988 USGS Coastal Habitat data and the 2001 ESI shoreline classification were used to delineate shorebird concentration areas. In some cases, polygons represent a 100 m buffer of the shoreline. Some coastal management areas were identified as concentration areas for migratory shorebirds. Minirefuge boundaries, describing boundaries of private properties managed for shorebirds and waterfowl, were also used to delineate shorebird concentration areas. In addition, digitized marsh impoundment areas inside some management units were used to delineate shorebird concentration areas. Additional bird species, including raptor-nesting sites, are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Because historical and inactive waterbird colony locations can become active, all records describing waterbird colonies were retained, regardless of the age of the record. The waterbird colony records from the LNHP EOR database and mapped as buffer polygons that were duplicated in the LDWF Colonial waterbird nesting colonies were deleted. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765- 2823. Expert contacts are: Gary Lester (LNHP), 225/765-2823, Robert Helm (LDWF), and William Vermillion (LDWF). Birds are shown on the maps as polygons with a green-hatched pattern. Waterbird nesting colonies are shown as green points. Users should be aware that waterfowl may be feeding and rafting in nearshore and offshore areas in the vicinity and up to several kilometers (km) away from their

nests. The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. See the descriptions of the species groups mapped and the sources of data used (above) for information on how numeric concentration values and descriptive terms were generated. In some cases, concentration values have not been used if the information was not available. Note that concentration should not be interpreted as the “level of concern” or “importance” associated with a certain site or particular resource. The seasonality for each species or resource is shown in the next twelve columns, corresponding to months of the year. If a species or resource is present at a location in a particular month, an “X” is placed in the month column. The last three columns denote the migratory, nesting, and molting time-periods for each species. FISH Finfish depicted in this atlas include selected marine, estuarine, and freshwater species. Species of commercial, subsistence, recreational, ecological, and/or conservation interest are emphasized. Freshwater fish – Polygons in this atlas represent waterbodies and other fish habitats with similar species composition and relative abundance summarized from groups of sampling stations and grouped by waterbody. LDWF fisheries biologists delineated representative waterbodies for each major group of sampling stations. In some cases, such as the Atchafalaya and Pearl River Basins, polygons represent both waterbodies and areas of regularly flooded wetlands. When these areas are flooded, fish species identified as present in waterbodies may be present in adjacent flooded habitats. The Mississippi and Atchafalaya Rivers were delineated as the boundary of the river itself as well as any connecting waterbody that fell within a 1 km buffer of the approximate centerline of the river. The primary source of data used to map inland fisheries for this atlas was the 1965-1997 LDWF inland fisheries sampling data set. In many locations, only electro-fishing was used to sample largemouth bass, a species of significant recreational importance. In some larger waterbodies, other gear, such as gillnets and rotenone sampling, was used, resulting in data for a larger variety of fish species. Gillnetting typically targets catfish, carp, drum, crappie, buffalo, gar, and bowfin. Rotenone typically results in data for the largest variety of species, including many smaller forage species. Data for each major waterbody were applied to the waterbody polygon delineated by LDWF fisheries biologists. A categorical description of the abundance values calculated by LDWF fisheries biologists was recorded as concentration. For largemouth bass, data from 1987 to 1997

were combined to derive average catch rates. For species sampled with rotenone or other gear, all data from 1965 to 1997 were combined to derive average catch rates. Categorical descriptors of relative abundance values for each species are based on percentile breaks in catch rates for that species, across waterbodies sampled in Louisiana, including waterbodies outside this atlas. In some cases, species were identified as present in certain waterbodies without a relative concentration. These species were assigned a concentration of 'PRESENT'. Note that all species identified as present in the Mississippi and Atchafalaya Rivers were not sampled and are based on expert knowledge. These species were assigned a concentration of 'PRESENT'. Many inland freshwater areas in coastal Louisiana are not sampled by the LDWF. Though not documented in this atlas, species such as catfish, carp, minnow and silverside are typically present in these areas. Marine/estuarine fish – Polygons for marine/estuarine fish were obtained from NOAA Estuarine Living Marine Resources (ELMR) fish data. The ELMR data contained polygons of identified groups of fish based on the seasonality and salinity regime. The ELMR data were generalized to combine all regions that had the same species composition, regardless of lifestage and concentration, into one region. The variability was usually +/- 2 months on the seasonality information. The maximum relative abundance and sum of the seasonal range were used in creating the generalized distributions. Relative abundances are listed by month in the BREED data table. For each month where an ELMR species is present, a number code indicates the species abundance (1 = no information, 2 = rare, 3 = common, 4 = abundant, 5 = highly abundant). The maximum abundance during the year is shown. The ELMR abundance codes usually refer to juvenile life stages, even though other life stages may be present. If juveniles are not present, the abundances refer to adults, or to larvae if adults and juveniles are not present. Various life-history stages or activities associated with the ELMR fish data include: spawning (parturition for sharks); eggs; larvae; juveniles; and adults. To prevent conflict with the LDWF Inland fisheries data, duplicate species in the ELMR dataset were removed. Additional freshwater and marine/estuarine fish species are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823. The resource experts listed below should be contacted for additional information on any of these or other finfish species that may occur in the area. Expert contacts are: Inland Fisheries Department (LDWF), 225/765-2330 and for ELMR Mark Monaco (NOAA), 301/713-3000.

Fish are shown on the maps as polygons with a blue-hatched pattern. In cases where multiple resource types occupy the same polygon (such as fish and invertebrates), a black-hatched, multigroup pattern is used rather than a blue-hatched polygon. A blue icon with a fish silhouette is used to indicate the presence of fish. This icon is associated with all polygons containing fish. The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration values were not used for fish because concentration is often quite variable from year to year or not well known. Seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an “X” is placed in the month column. If the species is from ELMR data then a value of 1-5 is placed in the month column to indicate relative abundance. The last columns denote different life-history timeperiods for fish including spawning, eggs, larvae, juveniles, and adults.

INVERTEBRATES

Invertebrates depicted in this atlas include crawfish and freshwater shrimp, which are species of commercial interest. Distribution and density information were derived from the 1965-1997 LDWF inland fisheries sampling data set used to map freshwater fish. Polygons for marine/estuarine invertebrates were obtained from NOAA ELMR invertebrate data. The ELMR data contained polygons of identified groups of invertebrates based on the seasonality and salinity regime. The ELMR data were generalized to combine all regions that had the same species composition, regardless of lifehistory stage and concentration, into one region. The variability was usually +/- 2 months on the seasonality information. The maximum relative abundance and sum of the seasonal range were used in creating the generalized distributions. Relative abundances are listed by month in the BREED data table. For each month where an ELMR species is present, a number code indicates the species abundance (1 = no information, 2 = rare, 3 = common, 4 = abundant, 5 = highly abundant). The maximum abundance during the year is shown. The ELMR abundance codes usually refer to juvenile life stages, even though other life stages may be present. If juveniles are not present, the abundances refer to adults, or to larvae if adults and juveniles are not present. Various life-history stages or activities associated with the ELMR invertebrate data include: spawning; eggs; larvae; juveniles; and adults. Expert contacts

are: Inland Fisheries Department (LDWF), 225/765-2330 and for ELMR Mark Monaco (NOAA), 301/713-3000. Additional invertebrate species may be included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823. Invertebrates are shown on the maps as polygons with an orange-hatched pattern. An orange icon with a crab or bivalve silhouette is used to indicate the presence of these species. This icon is associated with all polygons or point features containing invertebrates. The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration values were not used for invertebrates because concentration is often quite variable from year to year or not well known. The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an “X” is placed in the month column. If the species is from ELMR data then a value of 1-5 is placed in the month column to indicate relative abundance. The last columns denote different life-history timeperiods for invertebrates including spawning, eggs, larvae, juveniles, and adults.

BENTHIC AND WETLAND MARINE HABITATS

Three primary sources of data were used to map benthic and wetland habitats for this atlas: 1) 1988 USGS Coastal Louisiana Habitat data; 2) 1997 LDWF Louisiana Coastal Marsh Vegetative Type data; and 3) 1992 USGS Submerged Aquatic Vegetation data. Data for habitat types, particularly marsh types (saline, brackish, intermediate, and fresh), are critical to the entire Louisiana ESI atlas, in that most of the other biological data sets are based fully or in part on wetland habitats. The 1988 USGS Coastal Habitat data represent the actual wetland polygons used for this atlas. Integration of the 1988 USGS Coastal Habitat and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF Marsh Type data. In addition to the four marsh types, other habitats from the USGS data used in this atlas include forested wetlands, scrub-shrub wetlands, mangroves, and seagrasses. The 1992 USGS

Submerged Aquatic Vegetation data were used to delineate seagrass beds in the Chandeleur Islands. Polygons representing seagrass beds from both the 1992 USGS data set and the 1988 USGS data set were merged to develop polygons representing seagrass in this data layer. In summary, the wetland habitats added to the maps from the integration of USGS and LDWF data are listed below with their corresponding ESI shoreline code. (Also see legend for patterns shown on the maps). 10A) Salt Marsh 10B) Freshwater Marsh 10A) Brackish Marsh 10C) Forested Wetland 10A) Intermediate Marsh 10D) Scrub-Shrub Wetland (including black mangroves) Seagrass (no ESI code) Additional habitats and community occurrences may be included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that all occurrences of seagrass and mangrove habitat occurrences were removed from the EOR database. The EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823. Rare plants are shown on the maps as polygons with a purplehatched pattern. A purple icon with a plant silhouette is used to indicate the presence of these species. This icon is associated with all polygons or point features containing rare plants. The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration values were not used for plants because concentration is not available.

HUMAN-USE RESOURCES

Most human-use resources in this atlas are mapped as point features, indicated by a black and white icon (see legend). Management areas such as wildlife refuges, national parks, and scenic rivers, are mapped as polygons, with the boundaries indicated as a black dot-dash line with the corresponding icon placed near the center of the polygon. Where the feature is a known point location (e.g., airport), the exact location is shown as a small black dot and a leader line is drawn from it to the icon. The types of human-use features included in the atlas are described below: Airports/Heliport: Locations of airports, airfields, landing strips, helipads etc., whether they are manned or unmanned, are shown as point features. Boat Ramps: Locations of boat ramps, improved and unimproved, are shown as point features. Indian Reservations:

Tribal lands are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map. Marinas: Locations of marinas are shown as point features. National Parks: Areas managed by the National Park Service are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map. Nature Conservancy Preserves: Areas managed by the Nature Conservancy are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map. Scenic Rivers: National Wild and Scenic Rivers are depicted using dashed lines to indicate designation boundaries. State Parks: Areas managed by state and local authorities are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map. Wildlife Refuges: Areas managed by the USFWS as National Wildlife Refuges and Wilderness Areas are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map.

SHORELINE CLASSIFICATIONS

The ESI shoreline habitat classification is stored as lines and polygons with associated attributes. In many cases, a shoreline may have two or three different classifications. These multiple classifications are represented on the maps by double and triple line patterns and in the database by ESI#1/ESI#2, where ESI#1 is the landward-most classification and ESI#2 is the seaward-most classification. In addition to the line features, exposed wave-cut platforms (ESI = 2A) and tidal flats (ESI = 7, ESI = 9A) are also stored as polygons.

SENSITIVE BIOLOGICAL RESOURCES

Biological resources are stored as polygons, points, or arcs. Associated with each feature is a unique identification number that is linked to a series of data tables that further identify the resources. The main biological resource table consists of a list of species identification numbers for each site, the concentration of each species at each site, and identification codes for seasonality and source information. This data table is linked to other tables that describe the seasonality and life-history time-periods for each species (at month resolution) for the specified map feature. Other data tables linked to the first table include: the species identification table, that includes common and scientific names; the species status table, that gives information for state and/or federal threatened or endangered listings; and the source database, that provides source metadata at the feature-species level (specific sources are listed for each species occurring at each mapped feature in the biology coverages).

HUMAN-USE FEATURES

Human-use features are represented as lines, points, or polygons. The resource name, the owner/manager, a contact person, and phone number are included in the database for management areas when available. All metadata sources are documented at the feature level.

6.4.3.2 Responsibilities for Coordination of Response Efforts

The following sub-sections define the responsibilities of major response personnel. Duties or responsibilities may be delegated to identified personnel during a response activity. Additional response team personnel and staff will be attained if the incident responsibilities and level of effort required warrant.

Incident Commander (IC)

1. Ensure welfare and safety of incident personnel.
2. Supervise Command and General Staff.
3. Obtain initial briefing from current Incident Commander and agency administrator.
4. Assess incident situation:
    a. Review the current situation status and initial incident objectives. Ensure that all local, State and Federal agencies impacted by the incident have been notified.
5. Determine need for, establish, and participate in Unified Command.
6. Authorize protective action statements, as necessary.
7. Activate appropriate Command and General Staff positions. Safety Officer must be appointed on hazardous materials incidents:
    a. Confirm dispatch and arrival times of activated resources.
    b. Confirm work assignments.
8. Brief staff:
    a. Identify incident objectives and any policy directives for the management of the incident.
    b. Provide a summary of current organization.
    c. Provide a review of current incident activities.
    d. Determine the time and location of first Planning Meeting.
9. Determine information needs and inform staff of requirements.
10. Determine status of disaster declaration and delegation of authority.
11. Establish parameters for resource requests and releases:
    a. Review requests for critical resources.
    b. Confirm who has ordering authority within the organization.
    c. Confirm those orders that require Command authorization.

12. Authorize release of information to the media:
    a. If operating within a Unified Command, ensure all Incident Commanders approve release.
13. Establish level of planning to be accomplished:
    a. Written Incident Action Plan (IAP).
    b. Contingency planning.
    c. Formal Planning Meeting.
14. Ensure Planning Meetings are conducted as required
15. Approve and authorize implementation of the IAP:
    a. Review IAP for completeness and accuracy.
    b. Verify that objectives are incorporated and prioritized.
    c. Sign ICS Form 202.
16. Ensure Command and General Staff coordination:
    a. Periodically check progress on assigned tasks of Command and General Staff personnel.
    b. Approve necessary changes to strategic goals and IAP.
    c. Ensure that Liaison Officer is making periodic contact with participating agencies.
17. Work with agency staff to declare state of emergency according to agency protocol.
18. Keep agency administrator informed on incident-related problems and progress.

Public Information Officer (PIO)

1. Obtain briefing from Incident Commander:
    a. Determine current status of Incident (ICS Form 209 or equivalent).
    b. Identify current organization (ICS Forms 201 and 203, resource lists, etc.).
    c. Determine point of contact for media (scene or Command Post).
    d. Determine current media presence.
2. Participate in Administrative Officer's briefing:
    a. Determine constraints on information process.
    b. Determine pre-existing agreements for information centers, Joint Information Centers (JICs), etc.
3. Assess need for special alert and warning efforts, including the hearing impaired, non-English speaking populations, and industries especially at risk for a specific hazard, or which may need advance notice in order to shut down processes.
4. Coordinate the development of door-to-door protective action statements with Operations.
5. Prepare initial information summary as soon as possible after activation. If no other information is available, consider the use of the following general statement:
    a. Sample Initial Information Summary:
    We are aware that an [accident/incident] involving [type of incident] occurred at approximately [time], in the vicinity of [general location]. [Agency personnel] are responding, and we will have additional information

available as we are able to confirm it. We will hold a briefing at [location], and will notify the press at least ½ hour prior to the briefing. At this time, this briefing is the only place where officials authorized to speak about the incident and confirmed information will be available. Thank you for your assistance.

6. Arrange for necessary work space, materials, telephones, and staff. Consider assigning Assistant Public Information Officers to:
    a. Joint Information Center (JIC).
    b. Field (scene) Information.
    c. Internal Information.
7. Establish contact with local and national media representatives, as appropriate.
8. Establish location of Information Center for media and public away from Command Post.
9. Establish schedule for news briefings.
10. Coordinate, with Logistics, the activation and staffing of message center "rumor control" lines to receive requests and answer questions from the public. Provide statement to operators.
11. Obtain current incident status reports from Planning Section; coordinate a schedule for updates.
12. Observe constraints on the release of information imposed by the Incident Commander and according to agency guidance.
13. Obtain approval for information release from Incident Commander:
    a. Confirm details to ensure no conflicting information is released.
    b. Identify site and time for press briefings, and confirm participation by other Incident Management Team (IMT) members.
14. Release news to media, and post information in Command Post and other appropriate locations.
15. Record all interviews and copy all news releases:
    a. Contact media to correct erroneous or misleading information being provided to the public via the media.
16. Update off-incident agency personnel on a regular basis:
    a. Utilize electronic mail for agency updates.
    b. Establish phone line in the Command Post dedicated to internal communications to update agency personnel.
    c. Provide standard statement which can be given to general requests for information.
17. Coordinate information releases with information staff from other impacted agencies and jurisdictions:
    a. Ensure that information provided to the public is consistent across jurisdictional boundaries, when appropriate.
18. Attend Planning Meetings
19. Respond to special requests for information.
20. Provide all news releases, bulletins, and summaries to Documentation Unit to be included in the final incident package.

21. Confirm the process for the release of information concerning incident-related injuries or deaths.
22. Document all activity on Unit Log (ICS Form 214).

Liaison Officer (LNO)

1. Obtain briefing from Incident Commander:
    a. Obtain summary of incident organization (ICS Forms 201 and 203).
    b. Determine companies/agencies/non-governmental organizations already involved in the incident, and whether they are assisting (have tactical equipment and/or personnel assigned to the organization), or cooperating (operating in a support mode "outside" the organization).
2. Obtain cooperating and assisting agency information, including:
    a. Contact person(s).
    b. Radio frequencies.
    c. Phone numbers.
    d. Cooperative agreements.
    e. Resource type.
    f. Number of personnel.
    g. Condition of personnel and equipment.
    h. Agency constraints/limitations.
3. Establish workspace for Liaison function and notify agency representatives of location.
4. Contact and brief assisting/cooperating agency representatives and mutual aid cooperators.
5. Interview agency representatives concerning resources and capabilities, and restrictions on use-provide this information at planning meetings.
6. Work with Public Information Officer and Incident Commander to coordinate media releases associated with inter-governmental cooperation issues.
7. Monitor incident operations to identify potential inter-organizational problems. Keep Command apprised of such issues:
    a. Bring complaints pertaining to logistical problems, inadequate communications, and strategic and tactical direction to the attention of Incident Management Team (IMT).
8. Participate in Planning Meetings.
9. Document all activity on Unit Log (ICS Form 214).

Safety Officer (SO)

1. Obtain briefing from Incident Commander and/or from initial on-scene Safety Officer.
2. Identify hazardous situations associated with the incident. Ensure adequate levels of protective equipment are available, and being used.

3. Staff and organize function, as appropriate:
    a. In multi-discipline incidents, consider the use of an Assistant Safety Officer from each discipline.
    b. Multiple high-risk operations may require an Assistant Safety Officer at each site.
    c. Request additional staff through incident chain of command.
4. Identify potentially unsafe acts.
5. Identify corrective actions and ensure implementation. Coordinate corrective action with Command and Operations.
6. Ensure adequate sanitation and safety in food preparation.
7. Debrief Assistant Safety Officers prior to Planning Meetings.
8. Prepare Incident Action Plan Safety and Risk Analysis (ICS Form 215A).
9. Participate in Planning and Tactics Meetings:
    a. Listen to tactical options being considered. If potentially unsafe, assist in identifying options, protective actions, or alternate tactics.
    b. Discuss accidents/injuries to date. Make recommendations on preventative or corrective actions.
10. Attend Planning meetings.
11. Participate in the development of Incident Action Plan (IAP):
    a. Review and approve Medical Plan (ICS Form 206).
    b. Provide Safety Message (ICS Form 202) and/or approved document.
    c. Assist in the development of the “Special Instructions” block of ICS Form 204, as requested by the Planning Section.
12. Investigate accidents that have occurred within incident areas:
    a. Ensure accident scene is preserved for investigation.
    b. Ensure accident is properly documented.
    c. Coordinate with incident Compensation and Claims Unit Leader, agency Risk Manager, and Occupational Safety and Health Administration (OSHA).
    d. Prepare accident report as per agency policy, procedures, and direction.
    e. Recommend corrective actions to Incident Commander and agency.
13. Coordinate critical incident stress, hazardous materials, and other debriefings, as necessary.
14. Document all activity on Unit Log (ICS Form 214).

Planning Section Chief (PSC)

a. Obtain briefing from Incident Commander:
    i. Determine current resource status (ICS Form 201).
    ii. Determine current situation status/intelligence (ICS Form 201).
    iii. Determine current incident objectives and strategy.
    iv. Determine whether Incident Commander requires a written Incident Action Plan (IAP).

v. Determine time and location of first Planning Meeting.
vi. Determine desired contingency plans.

b. Activate Planning Section positions, as necessary, and notify Resources Unit of positions activated.
c. Establish and maintain resource tracking system.
d. Complete ICS Form 201, if not previously completed, and provide copies to Command, Command Staff, and General Staff.
e. Advise Incident Command Post (ICP) staff of any significant changes in incident status.
f. Compile and display incident status summary information. Document on ICS Form 209, Incident Status Summary (or other approved agency forms):
    i. Forward incident status summaries to Agency Administrator and/or other designated staff once per operational period, or as required.
    ii. Provide copy to Public Information Officer.
g. Obtain/develop incident maps.
h. Establish information requirements and reporting schedules for ICP and field staff.
i. Prepare contingency plans:
    i. Review current and projected incident and resource status.
    ii. Develop alternative strategies.
    iii. Identify resources required to implement contingency plan.
    iv. Document alternatives for presentation to Incident Commander and Operations, and for inclusion in the written IAP.
j. Meet with Operations Section Chief and/or Command, prior to Planning Meetings, to discuss proposed strategy and tactics and diagram incident organization and resource location.
k. Conduct Planning Meetings according to following agenda:
    i. Briefing on situation/resource status. [Planning/Operations Section Chiefs]
    ii. Discuss safety issues. [Safety Officer]
    iii. Set/confirm incident objectives. [Incident Commander]
    iv. Plot control lines & Division boundaries. [Operations Section Chief]
    v. Specify tactics for each Division/Group. [Operations Section Chief]
    vi. Specify resources needed for each Division/Group. [Operations/Planning Section Chiefs]
    vii. Specify facilities and reporting locations. [Operations/Planning/Logistics Section Chiefs]
    viii. Develop resource order. [Logistics Section Chief]
    ix. Consider communications/medical/ transportation plans. [Logistics/Planning Section Chiefs]
    x. Provide financial update. [Finance/Administration Section Chief]
    xi. Discuss interagency liaison issues. [Liaison Officer]
    xii. Discuss information issues. [Public Information Officer]

xiii. Finalize/approve/implement plan. [Incident Commander/All]

l. Supervise preparation and distribution of the written IAP, if indicated. Minimum distribution is to all Command, Command Staff, General Staff, and Operations personnel to the Division/Group Supervisor level:
   i. Establish information requirements and reporting schedules for use in preparing the IAP.
   ii. Ensure that detailed contingency plan information is available for consideration by Operations and Command.
   iii. Verify that all support and resource needs are coordinated with Logistics Section prior to release of the IAP.
   iv. Include fiscal documentation forms in written IAP as requested by the Finance/Administration Section.
   v. Coordinate IAP changes with General Staff personnel and distribute written changes, as appropriate.

m. Coordinate development of Incident Traffic Plan with Operations and the Ground Support Unit Leader.
n. Coordinate preparation of the Safety Message with Safety Officer.
o. Coordinate preparation of the Incident Communications Plan and Medical Plan with Logistics.
p. Instruct Planning Section Units in distribution of incident information.
q. Provide periodic predictions on incident potential.
r. Establish a weather data collection system, when necessary.
s. Identify need for specialized resources (SCAT, wildlife, etc.); discuss need with Operations and Command; facilitate resource requests with Logistics.
t. Ensure Section has adequate coverage and relief.
u. Hold Section meetings as necessary to ensure communication and coordination among Planning Section Units.
v. Ensure preparation of demobilization plan, if appropriate.
w. Ensure preparation of final incident package and route to Agency Administrator for archiving or follow-up after Incident Management Team (IMT) demobilization.
x. Provide briefing to relief on current and unusual situations.
y. Ensure that all staff observe established level of operational security.
z. Ensure all Planning functions are documenting actions on Unit Log (ICS Form 214).
aa. Submit all Section documentation to Documentation Unit.

Operations Section Chief (OSC)

1. Obtain briefing from Incident Commander:
   a. Determine incident objectives and recommended strategies.
   b. Determine status of current tactical assignments.

   c. Identify current organization, location of resources, and assignments.
   d. Confirm resource ordering process.
   e. Determine location of current Staging Areas and resources assigned there.
2. Organize Operations Section to ensure operational efficiency, personnel safety and adequate span of control.
3. Establish operational period.
4. Establish and demobilize Staging Areas.
5. Attend Operations Briefing and assign Operations personnel in accordance with Incident Action Plan (IAP):
   a. Brief Staging Area Manager on types and numbers of resources to be maintained in Staging.
   b. Brief tactical elements (Branches, Divisions/Groups, Task Force/Strike-Team Leaders) on assignments, ordering process, protective equipment, and tactical assignments.
6. Develop and manage tactical operations to meet incident objectives.
7. Assess life safety:
   a. Adjust perimeters, as necessary, to ensure scene security.
   b. Evaluate and enforce use of appropriate protective clothing and equipment.
   c. Implement and enforce appropriate safety precautions.
8. Evaluate situation and provide update to Planning Section:
   a. Location, status, and assignment of resources.
   b. Effectiveness of tactics.
   c. Desired contingency plans.
9. Determine need and request additional resources.
10. Notify Resources Unit of Section Branches, Divisions/Groups, Strike Teams/Task Forces, and single resources which are staffed, including location of resources and names of leaders.
11. Keep Resources Unit up to date on changes in resource status.
12. Write formal Operations portion of IAP with the Planning Section Chief, if so directed by the Incident Commander:
    a. Identify assignments by Division or Group.
    b. Identify specific tactical assignments.
    c. Identify resources needed to accomplish assignments.
13. Ensure coordination of the Operations Section with other Command and General Staff:
    a. Ensure Operations Section time-keeping, activity logs, and equipment use documents are maintained and passed to Planning, Logistics, and Finance/Administration Sections, as appropriate.
    b. Ensure resource ordering and logistical support needs are passed to Logistics in a timely fashion-enforce ordering process.
    c. Notify Logistics of communications problems.
    d. Keep Planning up-to-date on resource and situation status.

   e. Notify Liaison Officer of issues concerning cooperating and assisting agency resources.
   f. Keep Safety Officer involved in tactical decision-making.
   g. Keep Incident Commander apprised of status of operational efforts.
   h. Coordinate media field visits with the Public Information Officer.
14. Attend the Tactics Meeting with Planning Section Chief, Safety Officer, and Incident Commander prior to the Planning Meeting to review strategy, discuss tactics, and outline organization assignments.
15. Attend Planning Meetings.
16. Hold Section meetings, as necessary, to ensure communication and coordination among Operations Branches, Divisions, and Groups.

Logistics Section Chief (LSC)

1. Obtain briefing from Incident Commander:
   a. Review situation and resource status for number of personnel assigned to incident.
   b. Review current organization.
   c. Determine which incident facilities have been/should be activated.
2. Ensure Incident Command Post and other incident facilities are physically activated, as appropriate.
3. Confirm resource ordering process.
4. Assess adequacy of current Incident Communications Plan (ICS Form 205).
5. Organize and staff Logistics Section, as appropriate, and consider the need for facility security, and Communication and Supply Units.
6. Assemble, brief, and assign work locations and preliminary work tasks to Section personnel:
   a. Provide summary of emergency situation.
   b. Provide summary of the kind and extent of Logistics support the Section may be asked to provide.
7. Notify Resources Unit of other Units activated, including names and location of assigned personnel.
8. Attend Planning Meetings.
9. Participate in preparation of Incident Action Plan (IAP):
   a. Provide input on resource availability, support needs, identified shortages, and response time-lines for key resources.
   b. Identify future operational needs (both current and contingency), in order to anticipate logistical requirements.
   c. Ensure Incident Communications Plan (ICS Form 205) is prepared.
   d. Ensure Medical Plan (ICS Form 206) is prepared.
   e. Assist in the preparation of Transportation Plan.

10. Review IAP and estimate section needs for next operational period; order relief personnel if necessary.
11. Research availability of additional resources.
12. Hold Section meetings, as necessary, to ensure communication and coordination among Logistics Branches and Units.
13. Ensure coordination between Logistics and other Command and General Staff.
14. Ensure general welfare and safety of Section personnel.
15. Provide briefing to relief on current activities and unusual situations.
16. Ensure that all personnel observe established level of operational security.
17. Ensure all Logistics functions are documenting actions on Unit Log (ICS Form 214).
18. Submit all Section documentation to Documentation Unit.

Finance / Administration Section Chief (FASC)

a. Obtain briefing from Incident Commander:
    i. Incident objectives.
    ii. Participating/coordinating agencies.
    iii. Anticipated duration/complexity of incident.
    iv. Determine any political considerations.
    v. Obtain the names of any agency contacts the Incident Commander knows about.
    vi. Possibility of cost sharing.
    vii. Work with Incident Commander and Operations Section Chief to ensure work/rest guidelines are being met, as applicable.
b. Obtain briefing from agency administrator:
    i. Determine level of fiscal process required.
    ii. Delegation of authority to Incident Commander, as well as for financial processes, particularly procurement.
    iii. Assess potential for legal claims arising out of incident activities.
    iv. Identify applicable financial guidelines and policies, constraints and limitations.
c. Obtain briefing from agency Finance/Administration representative:
    i. Identify financial requirements for planned and expected operations.
    ii. Determine agreements are in place for land use, facilities, equipment, and utilities.
    iii. Confirm/establish procurement guidelines.
    iv. Determine procedure for establishing charge codes.
    v. Important local contacts.
    vi. Agency/local guidelines, processes.
    vii. Copies of all incident-related agreements, activated or not.
    viii. Determine potential for rental or contract services.

ix. Is an Incident Business Advisor (IBA) available, or the contact information for an agency Financial/Administration representative?
x. Coordinate with Command and General Staff and agency Human Resources staff to determine the need for temporary employees.
xi. Ensure that proper tax documentation is completed.
xii. Determine whether hosting agency will maintain time records, or whether the incident will document all time for the incident, and what forms will be used.

d. Ensure all Sections and the Supply Unit are aware of charge code.
e. Attend Planning Meeting:
   i. Provide financial and cost-analysis input.
   ii. Provide financial summary on labor, materials, and services.
   iii. Prepare forecasts on costs to complete operations.
   iv. Provide cost benefit analysis, as requested.
   v. Obtain information on status of incident; planned operations; changes in objectives, use of personnel, equipment, aircraft; and local agency/political concerns.
f. Gather continuing information:
   i. Equipment time – Ground Support Unit Leader and Operations Section.
   ii. Personnel time – Crew Leaders, Unit Leaders, and individual personnel.
   iii. Accident reports – Safety Officer, Ground Support Unit Leader, and Operations Section.
   iv. Potential and existing claims – Operations Section, Safety Officer, equipment contractors, agency representative, and Compensation/Claims Unit Leader.
   v. Arrival and demobilization of personnel and equipment – Planning Section.
   vi. Daily incident status – Planning Section.
   vii. Injury reports – Safety Officer, Medical Unit Leader, and Compensation/Claims Unit Leader.
   viii. Status of supplies – Supply Unit Leader and Procurement Unit Leader.
   ix. Guidelines of responsible agency – Incident Business Advisor, local administrative personnel.
   x. Use agreements – Procurement Unit Leader and local administrative personnel.
   xi. What has been ordered? – Supply Unit Leader.
   xii. Unassigned resources – Resource Unit Leader and Cost Unit Leader.
g. Meet with assisting and cooperating agencies, as required, to determine any cost-share agreements or financial obligation.
h. Coordinate with all cooperating agencies and specifically administrative personnel in hosting agency.
i. Initiate, maintain, and ensure completeness of documentation needed to support claims for emergency funds, including

auditing and documenting labor, equipment, materials, and services:

i. Labor - with breakdown of work locations, hours and rates for response personnel, contract personnel, volunteers, and consultants.
ii. Equipment - with breakdown of work locations, hours and rates for owned and rented aircraft, heavy equipment, fleet vehicles, and other equipment.
iii. Materials and supplies purchased and/or rented, including equipment, communications, office and warehouse space, and expendable supplies.

j. Initiate, maintain, and ensure completeness of documentation needed to support claims for injury and property damage. (Injury information should be kept on contracted personnel formally assigned to the incident, as well as paid employees and mutual aid personnel).
k. Ensure that all personnel time records reflect incident activity and that records for non-agency personnel are transmitted to home agency or department according to policy:
    i. Notify incident management personnel when emergency timekeeping process is in effect and where timekeeping is taking place.
    ii. Distribute time-keeping forms to all Sections-ensure forms are being completed correctly.
l. Ensure that all obligation documents initiated by the incident are properly prepared and completed.
m. Assist Logistics in resource procurement:
    i. Identify vendors for which open purchase orders or contracts must be established.
    ii. Negotiate ad hoc contracts.
n. Ensure coordination between Finance/Administration and other Command and General Staff.
o. Coordinate Finance/Administration demobilization.
p. Provide briefing to relief on current activities and unusual events.
q. Ensure all Logistics Units are documenting actions on Unit Log (ICS Form 214).
r. Submit all Section documentation to Documentation Unit.

6.4.3.3 Waste Disposal and Waste Management Plan

This plan covers waste management activities that PPC plans to engage in response to oil spill incidents. These activities must be viewed within the context of overall response efforts. Waste management and disposal responsibilities are requirements of the Placid Environmental Manager. All waste management and disposal activities will be coordinated with the FOSC. Potential waste management and disposal contractors are listed in Attachment II.

The Waste Disposal Guidelines provide focus on the planning of waste management activities. Details on the specific methods that will be used in the field to collect, transport, store, and dispose of oily and non-oily liquid and solid, and hazardous wastes will be developed during oil spill response field activities. The tactics selected will be consistent with the guidelines presented in this plan.

6.4.3.3.1 Objectives

The main objectives of disposal and waste management are to:

- Dispose of waste generated during an oil spill event
- Comply with applicable laws, rules and regulations
- Handle all wastes in a safe and environmentally sound manner
- Maximize personnel safety and health
- Minimize the volume of wastes generated during an oil spill response
- Maximize reuse and recycling of wastes
- Minimize delays in response operations attributable to the availability of waste storage and disposal facilities
- Maximize the use of existing waste management facilities without overtaxing or threatening the operational integrity of the systems
- Manage wastes so that segregation of wastes occur and that wastes are routed to appropriate storage and disposal facilities
- Minimize primary and secondary environmental, social, and economic impacts associated with the collection, transport, storage, and disposal of wastes
- Establish a positive working relationship with government agencies involved or interested in waste management operations

6.4.3.3.2 Waste Disposal Guidelines

Waste management operations will be, to the extent practicable, conducted on the PPC facility. These operations are described below.

(b) (7)(F)

[redacted]

(b) (7)(F) [redacted]

(b) Decontamination

The **Environmental Manager** will ensure that properly equipped personnel and equipment decontamination stations are set up at select staging areas. At a minimum, decontamination stations will include the following:

1. "Clean" and "dirty" areas.
2. Hand and equipment washing facilities.
3. An adequate supply of potable water.
4. Facilities for storage of soiled clothing and equipment.
5. Adequate supply of clean protective clothing.
6. Equipment to collect and store oil contaminated solids and water.
7. Provisions to clean or properly dispose of contaminated clothing, towels, and other solid oily and non-oily wastes.

(c) Staging Areas

The **Operations Section Chief** will be responsible for identifying operational staging areas. Staging areas will be used primarily to store waste management equipment, and temporary waste storage facilities.

Staging areas also may be used:

- For marshalling areas for response personnel.
- As central distribution points for field supplies.
- As temporary storage sites for liquid and solid oily and non-oily wastes
- As storage areas for spare parts
- As equipment maintenance and repair areas
- As field command posts

The location of staging areas will be selected during the onset of oil spill response activities as necessary.

(d) Waste Stream Characterization

The **Operations Section Chief**, in consultation with PPC's **Environmental Manager**, will be responsible for the characterization of wastes that will be generated during the conduct of response operations. When necessary, wastes will be tested and/or sampled to ensure proper characterization.

Once an oil spill occurs, products, debris, and fluids recovered are considered a solid waste by definition (LAC 33:V. Chapter 1). These solid wastes may also be considered hazardous wastes if they exhibit a hazardous waste characteristic, or if they are a 'listed waste'. Figure 6.12 presents a flow diagram to be used for waste characterization. Table 6.8 presents the hazardous waste characteristics and appropriate analytical methods for determination of these characteristics. The hazardous characteristics are further described in LAC 33:V. Chapter 49.

PPC's **Environmental Manager**, will be responsible for ensuring that analytical testing is conducted and that laboratory test results (i.e., laboratory results, chain of custody documentation, sampling location map, sampling methodology summary) are submitted to PPC in addition to maintaining them in the PRC Environmental Department.

The **Operations Section Chief** will be responsible for establishing a system for the segregation of wastes generated during the conduct of response operations, and also will be responsible for implementing the system in the field. Segregation techniques will be employed to ensure that:

- Personnel can readily identify waste materials that are present in their work areas.
- Personnel can readily identify waste materials that they are handling.
- Appropriate wastes are transported in proper transportation device.
- Appropriate wastes are shipped to proper temporary storage areas.
- Appropriate wastes are shipped to proper disposal facilities.

Waste segregation methods that will be employed include: designating specific containers to handle specific wastes;

labeling containers; using color-coded poly bags; and/or designating specific areas for the temporary placement of specific wastes. Table 6.9 provides information on the waste segregation methods that may be employed for each waste stream.

(e) Temporary Storage Techniques/Sites

Staging areas will be used for temporary waste storage sites that will be used to store oily and non-oily liquid and solid wastes until a final management method is selected. The methods and sites will be designed to use the best achievable technology to protect the environment from secondary contamination, and to protect human health. Temporary storage methods are presented in Table 6.10.

(f) Waste Minimization Methods

Throughout response operations, it will be the objective of PPC to minimize, to the extent technically and economically feasible, the generation of wastes. Oil and liquid wastes recovered from the spill will be recycled to the Port Allen refinery production system through storage Tanks Nos. 17 and 941.

These tanks typically are kept full, therefore, storage volume available for recovery of fluids is approximately (b) (7)(F) [redacted] Additional capacity can be added by recovering oils from the top of these tanks (by skimming) or by processing the water volume in Tank 941. The water in Tank 941 can be processed through the wastewater treatment plant at Placid. Additional capacity at the wastewater plant of 350 gpm can be accommodated under normal conditions for additional storage capacity.

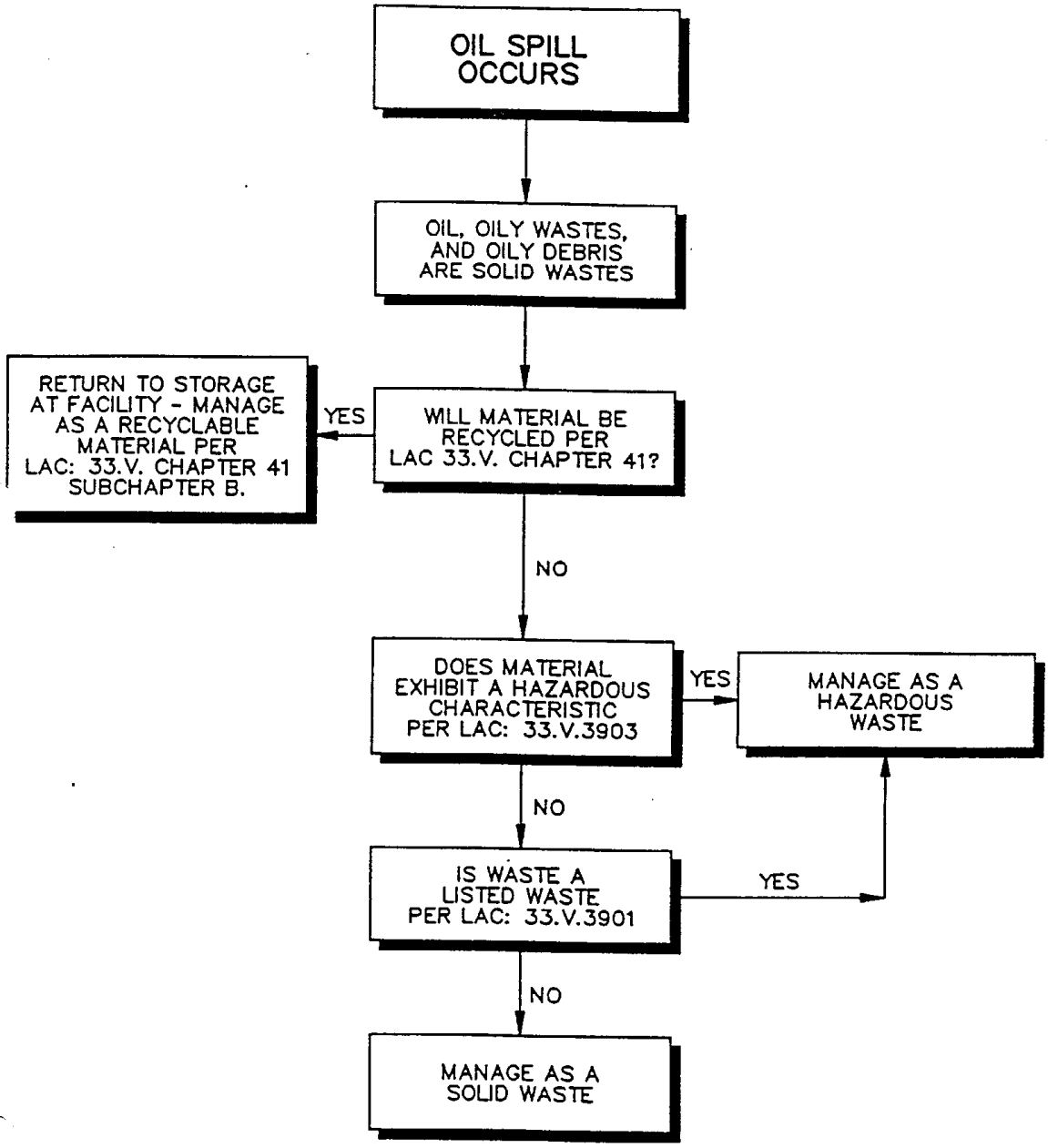


FIGURE 6.11
WASTE CHARACTERIZATION DECISION TREE

TABLE 6.8 WASTE STREAM CHARACTERIZATION

HW Constituent	Analytical Methods[1]
Reactivity	By Knowledge
Corrosivity	SW846 Method 5.2
Ignitability	ASTM D-93-79 ASTM D-12-93-80
Toxicity	40 CFR 268 Appendix 1[2]
Listed Wasted	NA[3]

[1]In lieu of analytical methods, hazardous waste characteristics can be judged "by knowledge" provided sufficient information about the waste is available.
[2]Extraction procedures noted. Additional analytical requirements are needed for specific compounds, see Table 5 LAC 33:V. Chapter 49.
[3]Oils at the PPC facility will not become listed wastes solely as a result of a spill.

TABLE 6.9 WASTE SEGREGATION METHODS

WASTE CATEGORY	WASTE STREAM	SEGREGATION METHOD				
		NA	1	2	3	4
Oily Liquids	Recovered Oil		X			
	Ballast		X			
	Used Motor Oil		X			
	Oil/dispersant Mixture		X			
	Contaminated Runoff Water		X			
	Decontamination Washwater		X			
	Wildlife Washwater		X			
Non-Oily Liquids	Sewage		X			
	Grey Water		X			
	Laundry Water		X			
	Non-contaminated Runoff Water	X				
	By-product of Oil/Water			X		
Oily Solids	Debris				X	
	Soils			X		
	Vegetation		X			
	Sorbents		X			
	Damaged Booms		X			
	Damaged Equipment					X
	Clothes				X	
	Towels				X	
	Paper				X	
	Animal Carcasses			X		
	Residue From In Situ			X		

1. Designated containers or transport vehicle.
2. Drums and labeling.
3. Color-coded poly bags.
4. Place in designated temporary storage sites.

TABLE 6.9 WASTE SEGREGATION METHODS (CONTINUED)

WASTE CATEGORY	WASTE STREAM	SEGREGATION METHOD				
		NA	1	2	3	4
Non-Oily Solids	Garbage		X			
	Trash		X			
	Debris		X			
	Soils					X
	Vegetation		X			
	Damaged Booms					X
	Damaged Equipment					X
	Clothes				X	
	Towels				X	
	Protective Equipment				X	
	Animal Carcasses				X	
Hazardous (Known)	Batteries			X		
	Solvents			X		
	Dispersant			X		
	Biological			X		

1. Designated containers or transport vehicle.
2. Drums and labeling.
3. Color-coded poly bags.
4. Place in designated temporary storage sites.

TABLE 6.10 TEMPORARY STORAGE METHOD

WASTE CATEGORY	WASTE STREAM	METHODS
Oily Liquids	Recovered Oil	1,6
	Ballast	1,6
	Used Motor Oil	1,6
	Used Lubricants	1,6
	Oil/Dispersant Mixture	1,6
	Contaminated Stormwater	1,6,
	Decontamination Washwater	1,6
	Wildlife Washwater	1,6
	Sewage	1,6
	Grey Water	1,6
	Laundry Water	1,6
	Non-contaminated Stormwater	1,6
	Debris	3
	Soils	10
	Vegetation	3
	Sorbents	11
	Damaged Booms	2
	Damaged Equipment	3,10
	Clothes	5
	Towels	3
	Paper	3
	Animal Carcasses	9,11
	Residue From *In Situ*	10

1. Tank
2. Open Top Drum
3. Trash Bin (lined)
4. Roll Off Container
5. Dumpster
6. Vacuum Truck
7. Dump Truck
8. Bed Truck
9. Poly Bag
10. Lined Storage Site
11. Hazardous Materials Storage Area

TABLE 6.10 TEMPORARY STORAGE METHOD (CONTINUED)

WASTE CATEGORY	WASTE STREAM	METHODS
Non-Oily Solids	Garbage	2,4,5
	Trash	2,4,5
	Debris	2,4,5
	Soils	7
	Vegetation	4
	Damaged Booms	3
	Damaged Equipment	8
	Clothes	2,4,5
	Towels	2,4,5
	Construction Material	8
	Protective Equipment	2,4,5
	Animal Carcasses	9,10
	Batteries	11
	Solvents	11
	Dispersant	11
	Biological	11

1. Tank
2. Open Top Drum
3. Trash Bin (lined)
4. Roll Off Container
5. Dumpster
6. Vacuum Truck
7. Dump Truck
8. Bed Truck
9. Poly Bag
10. Lined Storage Site
11. Hazardous Materials Storage Area

6.4.4 Available OSROs

PPC will utilize PRC equipment and refinery personnel for initial response to spills from the Products Pipeline System. PRC also maintains equipment for initial response purposes listed in sub-section 6.3.3. Additional contract response resources are provided in Attachment II.

Should a release occur, PRC personnel would respond to the spill scene and begin initial abatement efforts. Based on information gathered during the initial response action, the QI will be informed as to the adequacy of the response action and determine if additional resources are necessary. If additional resources are required, the QI will contact available resources listed in Attachment II.

6.5 List Of Contacts

Attachment II provides a listing of contacts for:

- Local authorities
- State agencies
- Federal agencies
- Emergency planning commissions
- Response contractors
- Waste disposal firms

6.6 Training

PPC maintains a training program which includes health and safety practices for employees. The training program utilized by PPC is based on the USCGs Training Elements for Oil Spill Response document, as well as any applicable OSHA standard. The objective of the training program is to communicate the hazards associated with the work environment and the protective measures to be taken by workers. This training enables employees to perform work in a safe healthy manner while protecting themselves and fellow workers from work hazards. Training is provided in other languages, if necessary.

The following sections describe guidance for training of personnel at PPC.

6.6.1. Scheduled Training (Non-Emergency Situations)

- General FRP training is conducted so that all personnel know:
  - their responsibilities under the FRP
  - primary and secondary notification procedures
  - the content of the information summary of the FRP
- Response personnel training is conducted so that they know:
  - The characteristics and hazards of the oil discharge
  - The conditions that are likely to worsen emergencies, including the consequences of facility malfunctions or failures, and the appropriate corrective actions
  - The steps necessary to control any accidental discharge of oil and to minimize the potential for fire, explosion, toxicity, or environmental damage
- All Health and Safety training meets Federal OSHA Regulations - 29 CFR 1910.120. This includes 40 hr. HAZWOPER plus HAZCOM training.
- Training includes all information found in the PPC Health and Safety Plan.
- Trainers of the subject matter are qualified to instruct the program, plus add additional emphasis on oil spill response.
- All trainees receive a Certificate of Satisfactory Completion of the training course.
- Annual 8 hour refresher courses are given to all trained personnel.

- Additional training, such as fires and explosions, are given to PPC personnel. This training provides additional support to emergency personnel in the event of emergencies (i.e. fire and oil spill), including proper firefighting procedures and use of equipment, fire suits and breathing apparatus.
- Other additional training requirements for emergency response personnel includes, First Aid and CPR training. This training is provided by the American Red Cross or other approved training method. Documentation of the training is kept by the Safety Officer.
- Contract personnel used during emergency response activities must be equally trained (at minimum) as PPC personnel and provide written documentation prior to work.

6.6.2 Non-Scheduled Training (Emergency Situations)

In the event of a long-term (> 2 weeks) emergency cleanup operation, PPC will conduct weekly review sessions for PPC personnel to emphasize the importance of the Health and Safety Program. These weekly training review sessions will be conducted by the Health and Safety Officer at PPC and will cover the following topics.

- Safety and health risk analysis of each site, task and operation.
- Key personnel responsible for safety and health at the site.
- Answer questions from PRC personnel.
- Personal Protective Equipment (PPE) required for each task, site or operation.
- Personnel and area monitoring.
- Site control measures.
- Standard operating procedures for the site.
- Emergency contingency planning.

6.6.3 Training Records

In accordance with 49 CFR 194.117(b), PPC will maintain training records for each individual that has been trained as long as the individual is assigned duties under the FRP. Training records for response personnel will be provided by the OSROs prior to use of that individual in a response capacity.

6.7 Drills and Equipment Testing

PPC also conducts drills on a regular schedule in accordance with PREP guidance to provide a basis for learning, prior to emergency situations. The following sub-sections discuss in detail the training and drill programs for oil spill response that PPC implements.

The type and frequency of drills and equipment testing to be conducted by PPC will be as follows (one drill per year must be unannounced):

- Qualified individual notification drills will be conducted quarterly.
- Spill management team tabletop drills will be conducted annually.
- OSRO owned response resources identified in the plan will be deployed annually and during this drill will be tested for proper operation.
- Drills may exercise either components of or the entire response plan. PPC will conduct a drill that exercises the entire plan at least once every 3 years.
- PPC will also participate in EPA and RSPA initiated drills in accordance with PREP guidance.
- Records sufficient to document drills for facility personnel and the spill management team are maintained for 5 years following completion of drills.
- Records sufficient to document the drills of the oil spill response organization and response resources identified in the response plan are maintained for 5 years following the completion of drills.

PPC has no response equipment other than that listed in Section 6.3.3. PPC's primary OSRO is a USCG classified OSRO, and maintains and tests their equipment in accordance with PREP guidelines for that classification (See Attachment III for certification letter).

6.8 Response Plan Review and Update Procedures

PPC's Environmental Manager is responsible for plan review and update. The FRP will be reviewed by appropriate personnel upon submission and subsequent revisions.

The Environmental Manager will consider incorporating comments from responsible parties included in the plan, incorporate comments as a result of training or drills, and incorporate comments resulting from plan implementation.

The purpose of including comments is to refine the plan so that it may be effectively implemented in the event of an oil spill emergency. All revisions will be recorded, so that a document history is available. Table 6.11 is provided to maintain records of the revisions to this FRP. In accordance with Section 2.1.3 of this FRP, PPC's Environmental Manager will also maintain electronic copies of outdated FRPs for 5 years.

Regulatory updates to the plan are also required by applicable regulations. DOT in 49 CFR 194.121(a) requires the operator to review the FRP every 5 years from the date of plan approval and modify the plan to address new or different operating conditions or information that would significantly affect FRP implementation. If a new or different operating condition or information would substantially affect the implementation of a response plan, the operator must immediately modify its response plan to address such a change and, within 30 days of making such a change, submit the change to PHMSA. Examples of changes in operating conditions that would cause a significant change to an operator's response plan are:

1. An extension of the existing pipeline or construction of a new pipeline in a response zone not covered by the previously approved plan;
2. Relocation or replacement of the pipeline in a way that substantially affects the information included in the response plan, such as a change to the worst case discharge volume;
3. The type of oil transported, if the type affects the required response resources, such as a change from crude oil to gasoline;
4. The name of the oil spill removal organization;
5. Emergency response procedures;
6. The qualified individual;
7. A change in the NCP or an ACP that has significant impact on the equipment appropriate for response activities; and
8. Any other information relating to circumstances that may affect full implementation of the plan.

If PHMSA determines that a change to a response plan does not meet the requirements of this part, PHMSA will notify the operator of any alleged deficiencies, and provide the operator an opportunity to respond, including an opportunity for an informal conference, to any proposed plan revisions and an opportunity to correct any deficiencies.

An operator who disagrees with a determination that proposed revisions to a plan are deficient may petition PHMSA for reconsideration, within 30 days from the date of receipt of PHMSA's notice. After considering all relevant material presented in writing or at the conference, PHMSA will notify the operator of its final decision. The operator must comply with the final decision within 30 days of issuance unless PHMSA allows additional time.

Table 6.11 PPC FRP Revision Record
(PPC Administrative Environmental Procedure E-I-502)

Date	Revision Description	Affected Sections
July 1997	Revision 02 - Consolidates previous page by page responses to regulatory agencies. Updates OSRO classifications and list of contacts. Updates ERT phone list. Updates QI phone list	All text sections.
January 2000	Revision 03 – Formation of Placid Pipeline Company, LLC. Incorporated Plantation Pipeline with Searcy-Boyce Pipeline facilities into one FRP. Updates OSRO classifications and list of contacts. Updates ERT phone list. Updates QI phone list	All text sections.
April 2001	Revision 04 – Removal of all information applicable only to Zone 1, Searcy-Boyce crude oil pipeline and elimination to references to Zone 2, reflecting that plan now covers a single response zone, the Products Pipeline System; update maps	All text sections; maps in Attachment VII
December 2006	Revision 05-Updates: ERT phone list, QI phone list, Water Works Information, OSRO list, Change Overpressure Alarm Trip, Worst Case Discharge due to pipeline repairs, chg. All Plantation Pipeline info. To Kinder Morgan	All sections
December 2011	Revision 06 – Updates: ERT phone list, QI phone list, OSRO list. Change references from RSPA to PHMSA. Revise ICS Org Chart and ICS Roles and Responsibilities.	All sections

6.9 Hazard Evaluation

The potential discharges from PPC could affect both economically and environmentally sensitive areas. Subsection 6.3.2.2 of the FRP presents general response actions to protect these areas and subsection 6.4.3.1.2 presents a discussion of the sensitive areas that could be substantially harmed.

7.0 SPILL HISTORY INFORMATION

During the last two previous years, the Products Pipeline System has recorded no reportable spill releases.

8.0 EFFECTIVE DATE

According to OPA 90, the following compliance dates and requirements must be adhered to:

DATE	REQUIREMENTS
February 18, 1993	Submit FRP to appropriate regulatory agencies (33 USC 1321 (j), Section 311 (j); 49 CFR 194.7(a)).
July 18, 1993	Submit certification, signed by the QI, or an appropriate corporate officer, that PCC "has obtained, by contract or other approved means, the necessary private personnel and equipment to respond to the maximum extent practicable to a worst case discharge or a substantial threat of such a discharge". (49 CFR 194.119(e))
August 18, 1993	Operate facility in accordance with the FRP (33 USC 1321 (j), Section 311 (j); 49 CFR 194.7(b))

Contained in this attachment are:

Products Pipeline System

- Figure 1 – Products Pipeline Location Map
- Figure 2 – Products Pipeline System Plan
- Figure 3 – Products Pipeline Schematic

SEE MAP ON FOLLOWING PAGE

Figure 1 – Products Pipeline Location Plan

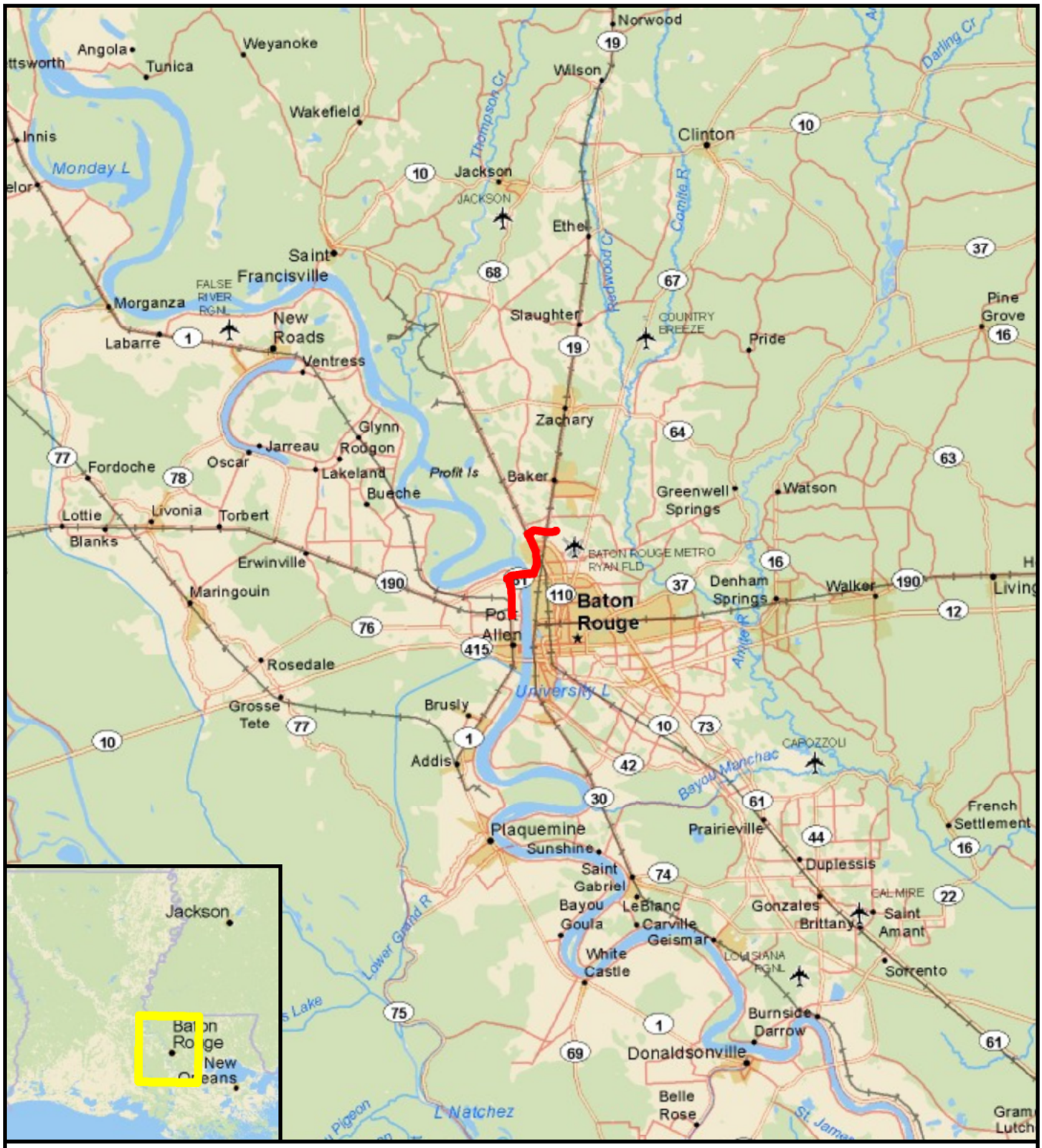


Figure 1 - Products Pipeline Location Plan

PLACID

Legend

Products Pipeline

Environmental Science Services, Inc.
P.O. Box 1289
Denham Springs, Louisiana 70727-1289
(225) 927-7171

7 0 7 Miles

Date: 11/15/2011 10:55:56 AM

J:\projects\Placid\Pipeline FRP\maps\Fig 1 Placid Pipeline Products Pipeline Location Plan.mxd

SEE MAP ON FOLLOWING PAGE

Figure 2 – Products Pipeline System Plan

Figure 2 - Products Pipeline System Plan

PLACID

Legend

Products Pipeline

0.6 0 0.6 Miles

Environmental Science Services, Inc.
P.O. Box 1289
Denham Springs, Louisiana 70727-1289
(225) 927-7171

Date: 11/15/2011 11:07:15 AM

J:\projects\Placid\Pipeline FRP\maps\Fig 2 Placid Pipeline Products Pipeline System Plan mxd

SEE MAP ON FOLLOWING PAGE

Figure 3 – Products Pipeline Schematic

(b) (7)(F)

This attachment contains the list of contacts to potentially notify in the event of discovery of an oil spill. Notification procedures will be performed by QI as described in Section 6.0 of this FRP.

II. 1 Government Agencies

II. 2 Placid Pipeline and Refining Personnel

II. 3 Medical Facilities

II. 4 Response Organizations and Equipment Rental Companies

II. 5 Local and State Media

II. 6 Vessels

II. 7 Insurance Representatives and Surveyors

II. 8 Lower Mississippi River Waterworks Warning Network Plan

II. 1 GOVERNMENT AGENCIES

II. 1.1 Federal Agencies

National Response Center (24 Hrs.)	800-424-8802
U.S. Coast Guard	
Sector New Orleans (24 Hrs.)	504-365-2200
Marine Safety Unit, Baton Rouge	
(Day Work Hrs. M-F)	225-298-5400
U.S.E.P.A. Region VI (24 hour Spill Hotline)	866-372-7745

II. 1.2 State Agencies

Department of Public Safety	
Hazardous Materials Hotline (24 Hrs.)	225-925-6595
Department of Natural Resources	
Office of Conservation	
Emergency (24 hrs)	225-342-5505
Department of Environmental Quality	
Hot Line (24 Hours)	225-342-1234
Office of Governor	
Oil Spill Coordinator's Office	225-925-6606
Homeland Security and Emergency Preparedness	225-925-7500

II. 1.3 Local Agencies

East Baton Rouge Sheriff	225-389-5000
Baton Rouge Police	225-389-3800
Baton Rouge Fire Department	225-354-1400 or 911
West Baton Rouge Sheriff	225-343-9234
Port Allen City Police Department	225-343-5525
Port Allen City Fire Department	225-346-5676 or 911

II. 1.4 Local Emergency Preparedness and Homeland Security Offices

East Baton Rouge Parish	225-389-2100
West Baton Rouge Parish	225-346-1577

II. 2 PLACID PIPELINE AND REFINING - PERSONNEL

II. 2.1 Placid Pipeline Personnel

TABLE 2.1

Placid Pipeline Company Personnel

Name	Office #	(b) (6) [redacted]	Cell #
Qualified Individual: Barry Joffrion	225-377-2578		225-931-0661
1st Alternate: Fred Baron	225-346-7492		225-205-0688
2nd Alternate: Kenny Carr	225-346-7414		225-413-3614
Placid Refining Company (Port Allen, LA)	225-387-0278		---

II. 2.2 Placid Refining Personnel

TABLE 2.2 EMERGENCY RESPONSE TEAM MEMBERS					
NAME		Contact Information			
First	Last	Home	Cell	Prov	Text
		A SHIFT NORTH			
Jeffrey	Stein	(b) (6) [redacted]	938-6544	ATT	Y
James	Davis	[redacted]	---	---	---
Peter	Klein	[redacted]	572-0678	NET 10	**N**
James	Phelps	[redacted]	324-2970	ATT	Y
Chance	Webre	[redacted]	324-0383	ATT	Y
Earl	Willis	[redacted]	413-1783	ATT	Y
Eric	Flatau	[redacted]	754-2911	ATT	Y
Kisha	Heil	[redacted]	278-6405	ATT	Y
Brent	Tassin	[redacted]	337-9434	VRZN	Y
		A SHIFT SOUTH			
Lyle	Jarreau	(b) (6) [redacted]	614-5353	ATT	Y
Kyle	Batts	[redacted]	445-4433	ATT	Y
Larry	Bell	[redacted]	362-4257	ATT	Y
Chris	Childress	[redacted]	229-5624	ATT	Y
Paul	Clouatre	[redacted]	202-9018	ATT	Y
David	Herring	[redacted]	---	---	---
Craig	Jackson	[redacted]	205-0167	ATT	Y
Karey	LaBauve	[redacted]	773-8215	ATT	Y
Kirk	Mancuso	[redacted]	505-3812	ATT	Y
Mickey	Seymour	[redacted]	936-6202	ATT	Y
		A SHIFT TERMINAL			
Kenneth	Caston	(b) (6) [redacted]	953-2481	ATT	Y
Robbie	D'Amico	[redacted]	572-7593	ATT	Y
Jeremy	Mouch	[redacted]	413-5009	ATT	Y
Harold	Payne	[redacted]	572-2276	ATT	**N**

TABLE 2.2 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	**Last**	**Home**	**Cell**	**Prov**	**Text**
B SHIFT NORTH					
Carey	Denstel	(b) (6) [redacted]	505-3071	ATT	Y
John	Bass		270-3104	ATT	**N**
Craig	Bourgeois		328-7979	ATT	Y
Jeffrey	Brown		278-7368	ATT	Y
Louis	Mouch		939-2223	ATT	Y
Patricia	Newsom		933-2442	ATT	Y
Steven	Perry		936-2276	ATT	Y
Emile	Provost		937-4158	ATT	Y
Sam	Snyder		(337) 351-2744	ATT	Y
Steve	Tassin		610-4955	ATT	**N**
B SHIFT SOUTH					
BJ	Crockett	(b) (6) [redacted]	931-2469	ATT	Y
Troy	Blair		571-7053	ATT	Y
Robert	Delaune		921-6437	ATT	Y
Joseph	Gilbert		603-1113	ATT	Y
Jason	Gunter		939-7727	ATT	Y
Robert	Joseph		938-6212	ATT	Y
Lennox	Khan		337-9564	VRZN	Y
Charles	Perrault		718-0936	ATT	Y
James	Safford		955-0461	VRZN	Y
Michael	Vaccaro		---	---	**N**
B SHIFT TERMINAL					
Stephen	Baxter	(b) (6) [redacted]	(616) 745-4958	VRZN	Y
Shane	LeDoux		936-8846	ATT	Y
Donald	Morales		776-7183	ATT	Y
Blake	Porter		333-1401	ATT	Y
Edward	Williams		931-8351	ATT	**N**

TABLE 2.2 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	**Last**	**Home**	**Cell**	**Prov**	**Text**
C SHIFT NORTH					
Elton	Jones	(b) (6) [redacted]	936-3957	ATT	Y
Mickey	Delapasse		329-3939	ATT	Y
William	King		324-7177	ATT	Y
Charles	Lefebvre		933-8866	ATT	Y
Corey	Louis		317-2585	VRZN	Y
Kurt	Matherne		571-1904	ATT	Y
Kevin	Mhire		241-7023	ATT	Y
Kenneth	Millender		773-3227	VRZN	Y
Monisha	Morgan		975-6282	VRZN	Y
Billy	Pruett		938-7450	ATT	Y
C SHIFT NORTH					
Jim	Gehling	(b) (6) [redacted]	938-6436	ATT	Y
Frank	Corbin		---	---	**N**
Jason	Fox		229-0694	ATT	Y
Matthew	Guthrie		270-7350	ATT	Y
Shane	Haydel		776-1111	ATT	Y
Michael	Mahoney		842-4828	VRZN	Y
Marc	Miano		270-0908	ATT	Y
Michael	Perkins		315-0286	VRZN	Y
Robbie	Rogillio		485-3356	ATT	Y
Tad	Shows		252-9699	ATT	Y
C SHIFT TERMINAL					
Kurt	Comeaux	(b) (6) [redacted]	328-7460	ATT	**N**
Steve	Garcia				
Joshua	Johnson		776-6072	ATT	Y
Carrol	Marks		235-0737	ATT	Y
James	Wells		625-6008	ATT	**N**

TABLE 2.2 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	**Last**	**Home**	**Cell**	**Prov**	**Text**
D SHIFT NORTH					
Ronnie	Newchurch	(b) (6) [redacted]	938-9503	ATT	Y
Peter	Billeaudeau	[redacted]	287-8986	ATT	Y
Jessie	Ellis	[redacted]	200-4702	ATT	Y
Joseph	Hedrick	[redacted]	933-7841	ATT	Y
Vince	McMahan	[redacted]	229-9870	ATT	Y
Larry	Osborne	[redacted]	274-5587	ATT	Y
Nicholas	Patin	[redacted]	393-1755	ATT	Y
Virgil	Pratt	[redacted]	---	---	**N**
Cliffton	Woods	[redacted]	324-6433	ATT	Y
D SHIFT SOUTH					
Todd	Gauthe'	(b) (6) [redacted]	939-6048	VRZN	Y
Ronald	Bonton	[redacted]	225-963-0779	VRZN	Y
Lucas	Braud	[redacted]	776-6691	ATT	Y
Cory	Coye	[redacted]	229-1354	ATT	Y
Douglas	Hurst	[redacted]	413-5414	ATT	Y
Rusty	Lambert	[redacted]	202-6775	ATT	Y
Jody	Larson	[redacted]	776-2180	ATT	**N**
Aaron	Lemoine	[redacted]	276-4975	ATT	Y
Bryant	Morrow	[redacted]	892-7661	ATT	Y
Daniel	Pennington	[redacted]	328-2213	ATT	Y
D SHIFT TERMINAL					
Bentley	Bourgeois	(b) (6) [redacted]	235-9373	ATT	Y
Jeremy	Carr	[redacted]	(337) 592-3717	ATT	Y
Ronnie	Fairchild	[redacted]	931-0010	ATT	Y
Brent	Guillory	[redacted]	(337) 692-7410	ATT	Y
Kevin	Lovett	[redacted]	252-6721	ATT	Y

TABLE 2.2 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	**Last**	**Home**	**Cell**	**Prov**	**Text**
LAB - A & D SHIFT					
Jonathan	Devall	(b) (6) [redacted]	572-3007	ATT	Y
James	Collier		933-8359	ATT	Y
Angela	Harmon		938-1013	ATT	Y
Bobby	Struppeck		301-5177	ATT	Y
LAB - B & C SHIFT					
John	Ashford	(b) (6) [redacted]	270-0643	ATT	Y
Gordon	Boudreaux		939-5688	ATT	Y
Carol	Simon		---		**N**
Jeff	Krumhold		454-8504	ATT	**N**
Robert	McDaniel		978-5125	ATT	Y
MAINTENANCE					
Glenn	Burns	(b) (6) [redacted]	718-1095	ATT	Y
Bharat	Moonkissoon		(985) 856-7483	ATT	Y
Dale	Stephens		247-6468	ATT	Y
Scott	Miller		247-7420	ATT	Y
J.	Hall		287-9973	ppd	**N**
Bobbie	Leger		603-8241	ATT	**N**
Brian	Schweinfus		281-5183	ATT	Y

TABLE 2.2 (cont.)
EMERGENCY RESPONSE TEAM MEMBERS

NAME		Contact Information			
First	**Last**	**Home**	**Cell**	**Prov**	**Text**
EOC					
Eddie	Acosta	(b) (6) [redacted]	505-3501	ATT	
Ralph	Albarado		939-6013	ATT	
Fred	Barron		205-0688	ATT	
Rob	Beadle		938-3103	ATT	
Stacey	Beassie		324-4557	ATT	
Chuck	Blanchard		235-8006	ATT	
Freddie	Blanchard		772-5898	VRZN	
Kristen	Budden		614-1517	ATT	
Kenny	Carr		413-3614	ATT	
Paul	Cormier		235-4907	ATT	
Brett	Cowart		235-6247	ATT	
David	Grant		721-2112	ATT	
Joey	Hagmann		931-2924	ATT	
Doug	Hutchinson		405-4764	ATT	
Anthony	James		921-9979	ATT	
Barry	Joffrion		931-0661	ATT	
Billy	Judge		892-7283	VRZN	
Glen	Lemoine		936-9267	ATT	
Ron	McQuiston		931-1449	ATT	
Sonny	Ockman		614-6070	ATT	
Brenda	Robillard		572-2059	ATT	
Robert	Rogillio		603-3743	ATT	
Mike	Sims		620-8004	ATT	
Steve	Sinanan		892-4932	ATT	
David	Territo		571-8812	ATT	
Jeff	Alleman		938-5141	ATT	
Brian	Bergeron		439-6511	ATT	
Stanley	Shearman		892-4934	ATT	
Errol	Mungal		235-1857	ATT	

II. 3 MEDICAL FACILITIES

Hospital	**Phone No.**
Baton Rouge General Mid City Bluebonnet	 387-7000 763-4000
Our Lady of the Lake Regional Medical Center	765-6565
Ochsner Medical Center	236-5440
EMS Services	
Acadian Ambulance	800-259-3333
Baton Rouge EMS	389-5155

II. 4 RESPONSE ORGANIZATIONS AND EQUIPMENT RENTAL COMPANIES

II. 4.1 <u>Response Organization</u>

1. ES&H Environmental Services
   888-422-3622

2. OMI Environmental Solutions
   1132 Highway 190
   Port Allen, Louisiana 70767
   388-9992
   800-645-6671

3. Clean Harbors Environmental Services
   1205 Tool Drive
   New Iberia, La. 70562
   800-645-8265

II. 4.2 <u>Equipment Rentals and Emergency Assistance</u>

Tug & Barge	**Phone**
Weber Marine	888-282-3547

Additional Portable Fire Fighting Pumps & Foam

	Phone
Southland Fire & Safety	225-387-1036
Williams Fire and Hazard Control	409-727-2347
	281-999-0276

Vacuum Trucks	**Phone**
LO-VAC	225-637-3634
Steve Kent Trucking	877-330-2304
Mastervac	225-677-5446
Proserve	225-667-8887
Baton Rouge Area Mutual Aid	389-2055
Mutual Aid Radio Call Number	KBL 401

II. 4.3 <u>Disposal Services</u>

<u>Non-Hazardous Waste Disposal</u>

Colonial Landfill Republic Services 5328 Hwy. 70 Post Office Box 605 Sorrento, LA 70778	225-675-8021
North Baton Rouge Landfill Republic Services 16001 Samuels Road Zachary, LA 70791	225-654-0302
Clean Harbors Environmental Serv. 1205 Tool Drive New Iberia, La. 70562	800-645-8265
Waste Management of Baton Rouge 15505 Industry Way Walker, LA 70785	800-284-2451

US Filter (for liquid waste) 225-334-0137
1122 Hwy. 190 W
Port Allen, LA 70767

Hazardous Waste Disposal

Clean Harbors Environmental Serv. 800-645-8265
1205 Tool Drive
New Iberia, La. 70562

Waste Management of Baton Rouge 800-284-2451
15505 Industry Way
Walker, LA 70785

II. 5 LOCAL AND STATE MEDIA

	Phone
1. Louisiana Public Broadcasting	767-5660
2. WAFB - TV 9	383-9999
3. WBRZ - TV 2	387-2222
4. WGMB - TV 44	766-3233
5. WVLA - TV 33	766-3233
6. WJBO - Radio 1150 AM	499-9526
7. WWL – Radio 870 AM New Orleans	866-889-0870

II. 6 VESSELS

Vessels	Phone	Product
A. Barge & Ship	Barge Dock - Ext 424	Crude & Finished Products
	Ship Dock - Ext 442 (Channel 1 Or III)	Crude & Finished Products
B. Permian	South Truck Rack	Crude Condensate

II.7 INSURANCE REPRESENTATIVES AND SURVEYORS

Ron Hurst 214-880-8474

II.8 LOWER MISSISSIPPI RIVER WATERWORKS WARNING NETWORK PLAN

(See attached plan from Louisiana Department of Health and Hospitals, Office of Public Health, Center for Environmental Health Services)

LOWER MISSISSIPPI RIVER WATERWORKS WARNING NETWORK PLAN

By

Louisiana Department of Health and Hospitals
Office of Public Health
Center for Environmental Health Services

In cooperation with

Waterworks Operators and Officials
United States Coast Guard
Law Enforcement and First Responders
Louisiana Department of Environmental Quality
Emergency Management Officials
Industries of Louisiana

Revised October, 2011

LOWER MISSISSIPPI RIVER
WATERWORKS WARNING NETWORK PLAN

DEPARTMENT OF HEALTH AND HOSPITALS
OFFICE OF PUBLIC HEALTH
CENTER FOR ENVIRONMENTAL HEALTH SERVICES

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Revised October, 2011

CHANGES IN THIS REVISION

1. Updates to LDHH contacts.

INTRODUCTION

Past experiences of almost complete deterioration of Mississippi River water quality from the health, safety, taste and odor standpoint due to accidental discharges by industry or shipping vessels, indicated a need for the development of a warning system so that all water treatment plants using Mississippi river water could take any necessary precautions to assure the production of the best quality water possible in the event of such accidental discharge. A warning system involving the participation of the waterworks facilities, the State Department of Health and Hospitals (DHH), the State Department of Environmental Quality (DEQ), and industry was therefore developed to provide a reasonable safeguard to maintain the quality of the drinking water going to consumers.

The original Waterworks Warning Network Plan and Directory was published by the Department of Health and Human Resources on June 8, 1960. The purpose of this latest revision of the plan is primarily to update directory listings and provide detailed location maps. Because the original plan has operated satisfactorily to date, no fundamental changes are considered at this time.

The US Environmental Protection Agency (EPA) developed rules and regulations pertaining to the reporting and clean-up of oil as authorized by the Water Pollution Control Act amendments of 1972, Public Law 92-500, §311.

The Louisiana Stream Control Commission had, under their rule-making authority, promulgated rules requiring the reporting of pollutant spills into the river. Since that time, however, all jurisdictional responsibilities of the Stream Control Commission have been transferred to DEQ under the aegis of the Louisiana Environmental Control Commission (ECC) which is empowered to sustain all applicable rules and regulations of the former Commission. The section that follows is a reprint of the RULE (pertinent to this plan) which was originally published in 1977.

RULE

DEPARTMENT OF WILDLIFE AND FISHERIES

STREAM CONTROL COMMISSION

Rule Relative to Dischargers, Stationary or Mobile Sources, to the Mississippi River Downstream of the Old River Control Structure and Users of Bayou Lafourche.

1. Any owner or person in responsible charge of a vessel, wharf, or an offshore facility shall, as soon as he has knowledge of any discharges from the vessel or facility of any sufficient quantity which could interfere with downstream potable and/or industrial water usage, immediately execute by telephone, radio telecommunication, or other similar means of rapid communication, the alert procedures of the latest edition of the Waterworks Warning Network Plan, Lower Mississippi River, by the Environmental Health Services Division, Office of Public Health.

2. A significant abnormality detected through self-monitoring of a permitted discharge shall cause the immediate notification to the Louisiana Stream Control Commission. The reporter may then be directed to initiate the warning system on a precautionary basis because there is reason to suspect that sufficient quantities of substance(s) of a known or unknown but possibly noxious nature may have been released which could interfere with downstream potable and/or industrial water usage. The cause of the abnormality shall be determined by the operator as expeditiously as possible and the determination duly communicated to those previously notified.

This rule shall be effective December 1, 1977.

J. Burton Angelle, Chairman
Stream Control Commission

(From the Louisiana Register Volume 3, Number 10- October 20, 1977)

PROCEDURES

The purpose of the Warning Network Plan is to set up the specific procedures to be followed and to provide a listing of the responsible persons to be contacted in the event of a reported discharge. These procedures are as follows:

1. If a water plant operator becomes aware of a deterioration in the quality of his raw water, either by his personal observation or by reports from consumers using the finished water, or learns of discharges which may affect his supply or others, he will immediately notify the nearest downstream plant with a water intake (see APPENDIX B-1), as well as one of the DHH officials listed in Appendix A-1, of this plan. It will be necessary to contact only one of the Division personnel listed, but they should be called in the order indicated.

2. The DHH official, upon receiving the report, will proceed to advise all those downstream plants with a water intake which might conceivably be affected by the discharge, in a descending order from the point of discharge. The names and telephone numbers of the responsible waterworks personnel to be notified are listed by facility according to their location on the river, beginning with Iberville Waterworks District #3 in Plaquemine, Louisiana, and proceeding downstream, in APPENDIX B-1, B-2, and B-3. Maps showing the locations of these water intakes along both the Mississippi River and Bayou Lafourche, are included as APPENDIX C.

3. As a practical matter, the US Coast Guard is the first to be notified of the majority of spills or other incidents affecting river water quality, and therefore routinely notify DHH personnel of such incidents. For this reason, a water plant operator, upon becoming aware of a spill, should also immediately notify the Coast Guard of such (see Appendix A-3).

4. Sheriff's offices in the "River Parishes" may be of great assistance in notifications of waterworks personnel. Telephone numbers for various Sheriff's offices, as well as State Police offices are listed in Appendix A-3.

5. Additionally, it should be noted that reporting of certain abnormalities detected in permitted discharges is also required by DEQ regulations. In those instances where such reportable permit violations occur, the permittee should, in addition to the standard notifications to be made in accordance with this plan, notify directly one of the DEQ officials listed in Appendix A-2. As above, it is necessary to contact one of the DEQ personnel listed, but they should be called in the order indicated.

6. In emergency situations, the Bayou Lafourche Fresh Water District will, upon notification of a spill, in turn notify those plants with intakes in Bayou Lafourche.

APPENDIX A-1

DHH / OPH
Center for Environmental Health Services
P.O. Box 4489, Baton Rouge, LA. 70821–4489

Spills **ABOVE** the Donaldsonville Sunshine Bridge (above river mile 167.4):
DHH–OPH Region 2 office phone numbers: (225) 925–7230, –7228, –7224, –7221.

Steven Davis District 2 Engineer	(b) (6) [redacted]
	Cell/Pager: (225) 329–5237
Amanda Laughlin Region 2 Engineer	(b) (6) [redacted]
	Cell: (337) 781–9484
Shelly Hebert Water Program Manager	(b) (6) [redacted]
	Cell/Pager: (985) 414–1270
John Ramer Water Program Coordinator	(b) (6) [redacted]
	Cell/Pager: (25) 278–2048
Karin Santangelo Water Program Coordinator	(b) (6) [redacted]
	Cell/Pager: (225) 405–5751

Spills **BELOW** the Donaldsonville Sunshine Bridge (below river mile 167.4):
DHH–OPH Region 1 office phone numbers: (504) 599–0100 Extension 5.
DHH–OPH Region 3 office phone numbers: (985) 449–5007 Extension 345 or 337.

John Williams Region 1 Engineer	(b) (6) [redacted]
	Cell: (504) 427–6329
Clyde Carlson District 1 Engineer	(b) (6) [redacted]
	Cell: (504) 220–8695
Gerald Lane Water Program Coordinator	(b) (6) [redacted]
	Cell/Pager: (504) 259–5067
Yoland Brumfield Water Program Manager	(b) (6) [redacted]
	Cell/Pager: (504) 487–8907
David Boggs Region 3 Engineer	(b) (6) [redacted]
	Cell/Pager:
Frank Naquin Water Program Coordinator	(b) (6) [redacted]
	Cell/Pager: (985) 438–0383

APPENDIX A-2

Louisiana Department of Environmental Quality
Surveillance Division
P.O. Box 4312
Baton Rouge, LA 70821-4312

Weekdays (8:00AM - 4:30PM) - (225) 219-3700 (press 7 to report a spill)
After Hours, Weekends, Holidays - (225) 342-1234
EWOCDS

Patrick Augustine	Regina Taylor
Office: (225) 219-3019 Cell: (225) 938-8973 (b) (6) [redacted] E–mail: Patrick.Augustine@la.gov	Office: (225) 219-3021 (b) (6) [redacted] Pager: (225) 237-3705 E–mail: Regina.Taylor@la.gov

APPENDIX A-3 ADDITIONAL PHONE LISTINGS

U.S. COAST GUARD Sector New Orleans Command Center, New Orleans, LA 70114		
Pollution Control Desk:	(504) 365-2533, -2209, -2542	Fax (504) 365-2510
U.S. COAST GUARD Marine Safety Unit – Baton Rouge - (225) 281-4785		
National Response Center 1-800-424-8802		

Louisiana State Police:	Troop A (Baton Rouge)	(225) 754-8500
	Troop B (Kenner)	(504) 471-2788
	Troop C (Gray/Raceland)	(985) 857-3680

State Police Hotline: 1-877-925-6595 (to report spills, not for general information or updates)
St. Charles Parish Sheriff's Office: (985) 783-6807
St. John the Baptist Parish Sheriff's Office: (985) 652-6338 and (985) 652-6339
St. James Parish Sheriff's Office: (225) 562-2200

Parish homeland security and emergency preparedness contact numbers:

PARISH	DIRECTOR	VOICE	FAX
Ascension	Rick Webre	(225) 621-8360 Email: rwebre@apgov.us	(225) 621-8362
Assumption	John Boudreaux	(985) 369-7386 Email: johnboudreaux@assumptionoep.com	(985) 369-7341
East Baton Rouge	JoAnne Moreau	(225) 389-2100 Email: jmoreau@brgov.com	(225) 389-2114
Iberville	Laurie Doiron	(225) 687-5140 Email: ldoiron@ibervilleparish.com	(225) 687-5146
Jefferson	Deano Bonano	(504) 736-6435 Email: dbonano@jeffparish.net	(504) 736-6638
	Kenneth Padgett	(504) 349-5360 Email: kpadgett@jeffparish.net	(504) 349-5366
Lafourche	Chris Boudreaux	(985) 537-7603 Email: chrisb@lafourchegov.org	(985) 532-8292
Orleans	Jerry Sneed	(504) 658-8700 (504) 658-8725 - 24 Hour # Email: NOOEP@cityofno.com	(504) 658-8701
Plaquemines	Michelle Tassin	(504) 274-2476 Email: michelle_tassin@plaqueminesparish.com	(504) 297-5635
St. Bernard	David Dysart	(504) 278-4267 Email: ddysart@sbpg.net	(504) 278-4493
St. Charles	Scott Whelchel	(985) 783-5050 Email: swhelchel@scpeoc.org	(985) 783-6375
St. James	Eric Deroche	(225) 562-2346 Email: eric.deroche@stjamesla.com	(225) 562-2269
St. John the Baptist	Paul Oncale	(985) 652-2222 Email: p.oncale@sjbparish.com	(985) 652-2183
West Baton Rouge	Deano Moran	(225) 346-1577 Email: deano.moran@wbrcouncil.org	(225) 346-0284

Maps and figures have been redacted in accordance with the FOIA Exemption 7(F).

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Response resources include equipment and personnel from different sources including PPC, PRC, and other approved OSROs (e.g., Clean Harbors Environmental Services, ES&H Environmental Services and OMI Environmental Solutions). The OSRO classification letters for contracted responders are presented at the end of this Attachment. The following paragraphs describe the resources available which can be used for oil spill response. PPC reserves the right to use alternate and/or other qualified OSROs as necessary.

III.1 PRC Resources

PPC maintains equipment for oil spill response in the refinery warehouse. This equipment will be used to respond to oil spills that occur from Products Pipeline. Personnel resources include the oil spill management team, the qualified individual, and the emergency response team. The oil spill management structure and the qualified individual are identified in Figure 6.2 and 6.3, respectively. The emergency response personnel are identified in Table 6.1.

III.2 Primary OSRO Services

PPC intends to use one of the OSROs (see attachment II.4), located in Port Allen, Louisiana to meet the initial response requirements for AMPD spills contained in the USCG regulations (33 CFR 154.1045 (c)). These initial response requirements are as follows:

- "Containment boom of 1,000 feet (or twice the length of the largest vessel which regularly transfers oil at the facility) and the means of deploying and anchoring the boom available at the facility within one hour of the detection of a spill; and

- Oil recovery devices and recovered oil storage capacity capable of being at the facility within 2 hours of the detection of a spill during transfer operations."

These OSROs continuously maintain more than 1000 feet (in excess of USCG regulatory requirements) of 18" containment boom (12" draft, 6" freeboard) at Port Allen which could be deployed in an oil spill event. They also employ people trained according to 29 CFR 1910.120 which are used during an oil spill event. Additionally, each also maintains oil skimming devices for oil recovery. As part of their contract with PPC, Clean Harbors, ES&H, and OMI provides documentation of equipment testing and maintenance which is conducted in accordance with PREP guidance.

III.3 Alternate OSROs

PPC will utilize alternate approved OSROs for spills as needed. Local OSROs can also provide the necessary resources within the time requirements specified in the USCG regulations (33 CFR 154.1045 (f)) for higher volume port areas, and the response time requirements of EPA (40 CFR 112) for higher volume port areas.

1.800. OIL.TANK (1.800.645.8265) – 24-HR NATIONWIDE EMERGENCY RESPONSE #

BATON ROUGE, LA SERVICE CENTER	**30.57 N 91.21 W**	**24-Hr. #**	**225.778.3612**
13351 Scenic Highway		**24-Hr. #**	**800.645.8265**
Baton Rouge, LA 70807		**Fax #**	**225.778.3510**

Don Caldera, General Manager

EPA / Federal ID #: LAD 010 395 127

Personnel Authorized to release equipment / materials / manpower, etc:

Don Caldera

40-Hour OSHA Trained Personnel:

Supervisor	2	Mechanic	1
Foreman	1		
Equipment Operator	2		
Field Technician	6		
Site Safety Officer	0		

Equipment List **Item Description / Manufacturer**	**Location**	**Capacity / Size / Key Features**	**# of Units**	**A**	**T**	**P**	**D**
(1) Vessels & Marine Support Equipment							
Power Workboat, Hanko	Baton Rouge	26', 2x115 HP, LA 7757 FE, HK043591H001, V232	1	Y	Y	N	N
Power Workboat, Alweld	Baton Rouge	16', 25 HP, AWLC0653J304, V276	1	Y	Y	N	N
Power Workboat, Alweld	Baton Rouge	16', 25 HP, LA 7696, AWLC0854C494, V278	1	Y	Y	N	N
Workboat, Alweld	Baton Rouge	16', 25HP, LA 7656, AWLC0162L900, V279	1	Y	Y	N	N
Workboat, Alweld	Baton Rouge	16', No Motor, LA 9693, AWLC0226E696, V280	1	Y	Y	N	N
Workboat, Alweld	Baton Rouge	16', Jon Boat, AWLC0225E696	1	Y	Y	N	N
Workboat	Baton Rouge	16', Jon Boat, FMC58174M82D	1	Y	Y	N	N
(2) Motor Vehicles & Vacuum Equipment							
Vacuum Trailer	Baton Rouge	130 bbl	1	Y	Y	N	N
High Powered Vacuum Truck, Liquid Ring	Baton Rouge	70 bbl	1	Y	Y	N	N
High Powered Vacuum Truck/Cusco	Baton Rouge	70 bbl	1	Y	Y	N	N
Straight Vacuum Truck	Baton Rouge	70 bbl	1	Y	Y	N	N
Crew Cab/Pickup	Baton Rouge	F350/Equivalent	6	Y	Y	N	N
Gooseneck Trailer	Baton Rouge	30 Flat Bed	2	Y	Y	N	N
Spill Trailer	Baton Rouge	34' Oil Spill Response Trailer	1	Y	Y	N	N
Spill Trailer	Baton Rouge	34' Haz Mat Response Trailer	2	Y	Y	N	N
Utility Trailer	Baton Rouge	16' Utility Trailer	2	Y	Y	N	N
(3) Pumps and Pressure Equipment							
Pressure Washer	Baton Rouge	5000 psi Mounted on roll around cart	1	Y	Y	N	N
Hydro Blaster	Baton Rouge	10,000 psi Mounted	1	Y	Y	N	N
Double Diaphragm Pump	Baton Rouge	3" Steel	2	Y	Y	N	N
Double Diaphragm Pump	Baton Rouge	2" Steel	1	Y	Y	N	N
Hale/Trash Pump	Baton Rouge		6	Y	Y	N	N
Hale/Trash Pump	Baton Rouge	2" gas power	2	Y	Y	N	N
Pressure Washer	Baton Rouge	3000 psi	1	Y	Y	N	N
Hoses	Baton Rouge	3", Tank Truck	300'	Y	Y	N	N
Hoses	Baton Rouge	2", Tank Truck	100'	Y	Y	N	N

Equipment List Cont. Item Description / Manufacturer	Location	Capacity / Size / Key Features	# of Units	A	T	P	D
(4) Oil Spill Containment Booms							
Oil Containment Boom	Baton Rouge	18"/10", Mix, On Trailer	400	Y	Y	N	Y
Oil Containment Boom	Baton Rouge	18", New Acme Boom on trailer	2500	Y	Y	N	Y
Oil Containment Boom	Baton Rouge	18", New Acme Boom on trailer	2400	Y	Y	N	Y
Oil Containment Boom	Baton Rouge	18", New Acme Boom on trailer Enclosed	2800	Y	Y	N	Y
Oil Containment Boom	Baton Rouge	18", NewAcme Boom, On Trailer CH2358	2300	Y	Y	N	Y
Oil Containment Boom	Baton Rouge	18", Mix, On Trailer CH352, Enclosed	600	Y	Y	N	Y
Oil Containment Boom	Baton Rouge	44" Used on Trailer	3000	Y	Y	N	Y
(5) Environmental Monitoring Equipment							
5-Gas Meter	Baton Rouge		2	Y	Y	N	N
(6) Recovery Equipment							
Drum Skimmer, Crucial	Baton Rouge	Air, 1D18P48, 2", 50 GPM	1	Y	Y	N	Y
Drum Skimmer, Crucial	Baton Rouge	Air, 1D18P48, 2", 50 GPM	1	Y	Y	N	Y
Slurp Skimmer	Baton Rouge	Static, 2"	1	Y	Y	N	Y
Disk Skimmer	Baton Rouge	with power pack	1	Y	Y	N	N
(7) Beach or Earth Cleaning and Excavating Equipment							
(8) Generators / Compressors / Light Towers							
Generator	Baton Rouge	5000 Watt	1	Y	Y	N	N
Compressor	Baton Rouge		2	Y	Y	N	N
Air Hose	Baton Rouge	3/4" by 50' Air Hose	750'	Y	Y	N	N
(9) Health and Safety Equipment							
Confined Space Entry Gear	Baton Rouge	Complete Set	2	Y	Y	N	N
(10) Communications							
2-Way Radio/Nextel	Baton Rouge		7	Y	Y	N	N
(11) Miscellaneous							

1.800. OIL.TANK (1.800.645.8265) – 24-HR NATIONWIDE EMERGENCY RESPONSE #

SULPHUR, LA/LAKE CHARLES SERVICE CENTER		**24-Hr. #**	**337.882.1025**
3201 Petro Drive	**30.21 N 93.33 W**	**24-Hr. #**	**800.645.8265**
Sulphur, LA 70663		**Fax #**	**337.882.1029**

Peri Bryan, General Manager EPA / Federal ID #: N/A

Personnel Authorized to release equipment / materials / manpower, etc:

Peri Bryan
Brad Dickes
Marty Bienvenu
Brady Cormier

40-Hour OSHA Trained Personnel:

Supervisor	3
Foreman	1
Field Technician	5
Class B Driver	1
Class A Driver	2

Equipment List **Item Description / Manufacturer**	**Location**	**Capacity / Size / Key Features**	**# of Units**	**A**	**T**	**P**	**D**
(1) Vessels & Marine Support Equipment							
Power Workboat, Custom Flat	Sulphur	22', 115 HP, LA 1369 FB, CUS05243L999, V283, CH364	1	Y	Y	N	N
Power Workboat, Alweld	Sulphur	18', 25 HP, LA 1660 EM, AWLC0428D494, V291	1	Y	Y	N	N
(2) Motor Vehicles & Vacuum Equipment							
Pickup	Sulphur	F150, F250	4	Y	Y	N	N
ER/Spill Trailer	Sulphur	34' HAZMAT Response Trailer	1	Y	Y	N	N
Vacuum Truck	Sulphur	70 bbl, 791064	1	Y	Y	N	N
Bobtail Rolloff Truck	Sulphur	Tri-axle straight frame rolloff, #4272	1	Y	Y	N	N
Bobtail Rolloff Truck	Sulphur	Straight frame rolloff truck, #55016	1	Y	Y	N	N
Rolloff Trailer	Sulphur	Single box Benley Trailer, #7313	1	Y	Y	N	N
(3) Pumps and Pressure Equipment							
Double Diaphragm Pump	Sulphur	2"	2	Y	Y	N	N
Trash Pump	Sulphur	2"	3	Y	Y	N	N
Pressure Washer	Sulphur	5k self contained on trailer CH331	1	Y	Y	N	N
Pressure Washer	Sulphur	5k self contained on trailer CH335	1	Y	Y	N	N
(4) Oil Spill Containment Booms							
Oil Containment Boom	Sulphur	18", Mix, On Trailer CH345	700	Y	Y	N	Y
Oil Containment Boom	Sulphur	18", Mix, Storage	2300	Y	Y	N	Y

1.800. OIL.TANK (1.800.645.8265) – 24-HR NATIONWIDE EMERGENCY RESPONSE #

Equipment List Cont. **Item Description / Manufacturer**	**Location**	**Capacity / Size / Key Features**	**# of Units**	**A**	**T**	**P**	**D**
(5) Environmental Monitoring Equipment							
(6) Recovery Equipment							
Disc Skimmer, Crucial	Sulphur	Hydraulic, ORD, 3", 50 GPM No powerpack	1	Y	Y	N	Y
(7) Beach or Earth Cleaning and Excavating Equipment							
(8) Generators / Compressors / Light Towers							
Power Generator	Sulphur	<10KW	2	Y	Y	N	N
10 CFM Compressor	Sulphur		2	Y	Y	N	N
(9) Health and Safety Equipment							
(10) Communications							
(11) Miscellaneous							
Roll-Off Container	Sulphur	25-Yard	2	Y	Y	N	N

Emergency Response Subcontractors

Hine Environmental **Contact:** **Todd Hine/Owner** **Services Provided:**

4309 Highway 27 South
Sulpur, LA 70665
Office-337-558-5635 Cell-337-263-5800

Vacuum & Rolloff Trucking

Waste Water Specialties **Contact:** **Brett Feldese/Owner** **Services Provided:**

2205 Industrial Dr.

Sulphur, LA 70665
Office-337-882-8044 Cell-337-540-5960

Labor, Rolloff trucks, and vacuum trucks

Miller Environmental **Contact:** **Matt Dartez/General Manager** **Services Provided:**

2208 Industrial Dr.

Sulphur, LA 70665
Office-337-882-9800 Cell-337-302-9012

Labor, Rolloff, and vacuum services

NATIONAL RESPONSE CENTER INVENTORY	**24-Hr. #**	**781.792.5000**
Mailing Address: 101 Philip Drive	**24-Hr. #**	**800.645.8265**
Norwell, MA 02061	**Fax #**	**781.878.8090**

Response centers hold dedicated response equipment to support the regional service centers in the event of a large spill, as well as specialty equipment to support a non-standard response. All equipment is readily available to be shipped to anywhere in the region.

Scott Metzger, VP Emergency Services
Virgil Blanchard, CHES Incident Commander
Stephen Sheppard, Finance Section Chief
Steven Downs, EOC Mgmt. Section Chief
Lee Barfield, National Emergency Response Manager
John Rodier, OPA 90 Preparedness Coordinator
Rickie Garrit, Event Supervisor/Admin
James Godfrey, VP Emergency Response Services
Billy Baker, Logistics Section Chief
Michael Murphy, Event Supervisor/Admin
Andrew Christoper, Project Support Team
Alex Olson, Project Support Team
Michael Brajer, Project Support Team
Brian Smusz, Project Support Team
Stephen Kastensmidt, VP Project Services Sales

Personnel Authorized to release equipment / materials / manpower, etc:

Scott Metzger
Virgil Blanchard
Billy Baker
Stephen Sheppard

40-Hour OSHA Trained Personnel:

Supervisor 5

Equipment List **Item Description / Manufacturer**	**Location**	**Capacity / Size / Key Features**	**# of Units**	**A**	**T**	**P**	**D**
(1) Vessels & Marine Support Equipment							
NAIAD	Providence, RI	19' 150hp Aluminum/Rib V310	1	Y	Y	N	Y
ROV	Weymouth, MA	NA PVC/Aluminum V318	1	Y	Y	N	Y
Stanley/LCM (Resolute)	Providence, RI	26' 2x115 Aluminum V320	1	Y	Y	Y	Y
JBF DIP420	Providence, RI	27' 2x115 Aluminum V334	1	Y	Y	N	Y
JBF DIP420	Houston, TX	27' 2x115 Aluminum V335	1	Y	Y	N	Y
Stanley	Bangor, ME	23' 175S Aluminum V350	1	Y	Y	N	Y
Stanley/LCM	Bridgeport, NJ	26' 2x130 Aluminum V351	1	Y	Y	N	Y
Stanley/LCM	Baton Rouge, LA	26' 250hp Aluminum V352	1	Y	Y	N	Y
Stanley/LCM	New Iberia, LA	28' 2x200 Aluminum V353	1	Y	Y	N	Y
Stanley/LCM	Lake Charles, LA	26' 225hp Aluminum V354	1	Y	Y	N	Y
Svendsen/LCM	Bridgeport, NJ	27' 2x150 Aluminum V355	1	Y	Y	N	Y
ATEC/LCM	New Iberia, LA	32' 2x150 Aluminum V356	1	Y	Y	N	Y
ATEC/LCM	Cincinnati, OH	28' 2x90 Aluminum V357	1	Y	Y	N	Y
Reynolds/LCM	New Iberia, LA	30' 2x225 Aluminum V358	1	Y	Y	N	Y
ATEC/LCM (Rebecca Anne)	New Iberia, LA	41' 2x275 Aluminum V359	1	Y	Y	N	Y
LCM8 (Olivia D)	New Iberia, LA	70' 2x471 Steel V360	1	Y	Y	N	Y
B.Bros/LCM	Puerto Rico	30' 2x200 Aluminum V361	1	Y	Y	N	Y
B.Bros/LCM	Memphis,TN	30' 2x200 Aluminum V362	1	Y	Y	N	Y
B.Bros/LCM	New Iberia, LA	30' 2x200 Aluminum V363	1	Y	Y	N	Y
B.Bros/LCM	Memphis,TN	30' 2x200 Aluminum V364	1	Y	Y	N	Y
B.Bros/LCM	New Iberia, LA	30' 2x200 Aluminum V365	1	Y	Y	N	Y
B.Bros/LCM	New Iberia, LA	30' 2x200 Aluminum V366	1	Y	Y	N	Y
B.Bros/LCM	Puerto Rico	30' 2x200 Aluminum V367	1	Y	Y	N	Y
B.Bros/LCM	Compton, CA	30' 2x200 Aluminum V368 2335720 ME	1	Y	Y	N	Y
B.Bros/LCM	New Iberia, LA	30' 2x200 Aluminum V369 2335721 ME	1	Y	Y	N	Y
B.Bros/LCM	Compton, CA	30' 2x200 Aluminum V370 2335722 ME	1	Y	Y	N	Y
LCM6 (Chief)	New Iberia, LA	56' 2x471 Steel V371	1	Y	Y	N	Y

Equipment List Cont. **Item Description / Manufacturer**	**Location**	**Capacity / Size / Key Features**	**# of Units**	**A**	**T**	**P**	**D**
(2) Motor Vehicles & Vacuum Equipment							
UTV	Chicago, IL	Polaris Ranger 400cc (Camo)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger 400cc (Red)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger 400cc (Red)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger XP 800cc (Camo)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger XP 800cc (Gray)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger XP 800cc (Red)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger XP 800cc (Camo)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger XP 800cc (Green)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger XP 800cc (Red)	1	Y	Y	N	Y
UTV	New Iberia,LA	Polaris Ranger 500cc (Green)	1	Y	Y	N	Y
UTV	New Iberia,LA	Honda Big Red 4x4 (Green)	1	Y	Y	N	Y
UTV	New Iberia,LA	Honda Big Red 4x4 (Green)	1	Y	Y	N	Y
UTV	New Iberia,LA	Honda Big Red 4x4 (Green)	1	Y	Y	N	Y
(3) Pumps and Pressure Equipment							
Honda Trash Pump	Weymouth, MA	2", Cap 250, Weight 110	6	Y	Y	N	Y
Single Diaphragm Mudhen Pump	New Iberia, LA	3", Cap 88, Weight 186	2	Y	Y	N	Y
Hot Pressure Washer	New Iberia, LA	2500 psi	3	Y	Y	N	Y
Hotsy and Trash Pumps	New Iberia, LA	on box van trailer 6158		Y	Y	N	y
Compressors and 2" Pumps (w/hoses)	Memphis, TN	on horse trailer CH727	3	Y	Y	N	Y
(4) Oil Spill Containment Booms							
Hard Boom	New Iberia, LA	Box van trailer	7500	Y	Y	N	Y
Hard Boom	New Iberia, LA	40ft flat bed	6800	Y	Y	N	Y
Hard Boom	New Iberia, LA	48ft flat bed trl	5000	Y	Y	N	Y
Hard Boom	New Iberia, LA	53ft box van	10000	Y	Y	N	Y
Hard Boom	New Iberia, LA	16ft util trl	1000	Y	Y	N	Y
Hard Boom	Houston, TX	Box van trailer	7200	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 1 284323	12000	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 2 535012	12100	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 3 533689	11500	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 4 535035	11200	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 5 535029	12000	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 6 539266	11900	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 7 535015	11700	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 8 539310	11500	Y	Y	N	Y
Containment Boom	Carson, CA	Penske 9 539269	5800	Y	Y	N	Y
Containment Boom	Carson, CA	On Trailer	21,500	Y	Y	N	Y
(5) Environmental Monitoring Equipment							

(6) Recovery Equipment							
Boom Ringer	New Iberia, LA	Crucial 210240	1	Y	Y	N	Y
VOSS	Lake Charles, LA	JBF portable	1	Y	Y	N	Y
VOSS	New Iberia, LA	JBF portable	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2465	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2463	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2466	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2481	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2467	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2468	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2478	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2473	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2471	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2406	1	Y	Y	N	Y
Skim-Pak 4300	New Iberia, LA	Douglas Weir 2479	1	Y	Y	N	Y
Brush Skimmer	New Iberia, LA	Hydraulic Lamor 5160	1	Y	Y	N	Y
Brush Skimmer	New Iberia, LA	Hydraulic Lamor 5157	1	Y	Y	N	Y

Brush Skimmer	New Iberia, LA	Hydraulic Lamor 5161	1	Y	Y	N	Y
Brush Skimmer	New Iberia, LA	Hydraulic Lamor 5159	1	Y	Y	N	Y
Hydraulic Power pack	New Iberia, LA	Hydraulic Lamor 5305	1	Y	Y	N	Y
Hydraulic Power pack	New Iberia, LA	Hydraulic Lamor LPP6HA-2977-08	1	Y	Y	N	Y
Hydraulic Power pack	New Iberia, LA	Hydraulic Lamor LPP6HA-2896-08	1	Y	Y	N	Y
Hydraulic Power pack	New Iberia, LA	Hydraulic Lamor LPP6HA-2976-08	1	Y	Y	N	Y
Hose for Lamor Power Pack	New Iberia, LA	Hydraulic Lamor 2 41EV Box Crates	1	Y	Y	N	Y
Equipment List Cont.							
Drum Skimmer	Weymouth, MA	Crucial, 2", CAP 25	1	Y	Y	N	Y
Drum Skimmers	Memphis, TN	on horse trailer CH727	3	Y	Y	N	Y
Item Description / Manufacturer	**Location**	**Capacity / Size / Key Features**	**# of Units**	**A**	**T**	**P**	**D**
(7) Beach or Earth Cleaning and Excavating Equipment							
(8) Generators / Compressors / Light Towers							
Rigid Compressor for Skimmers	Weymouth, MA	10 CFM, Wheelbarrow	2	Y	Y	N	Y
Wacker Light Tower	Norwell, MA/Weymouth, MA	LT4C, Diesel, 12.2 HP	2	Y	Y	N	Y
(9) Health and Safety Equipment							
Portable Washroom Stations	Baton Rouge, LA	portable bathroom/shower	6	Y	Y	N	Y
Portable Washroom Stations	New Iberia, LA	portable bathroom/shower	6	Y	Y	N	Y
(10) Communications							
Satellite Phone	Norwell, MA	Iridium 9505A	4	Y	Y	Y	Y
Satellite Phone	Sparks, NV	Iridium 9505A	2	N	Y	N	Y
Satellite System	Norwell, MA	Internet, Phone Capable	1	Y	Y	Y	Y
(11) Miscellaneous							
Flat Bed	New Iberia, LA	40 ft 1990	1	Y	Y	N	Y
Red enclosed trailer	New Iberia, LA	CH666 pace 30 ft	1	Y	Y	N	Y
Red enclosed trailer	New Iberia, LA	CH672 pace 30 ft	1	Y	Y	N	Y
Utility trailer	New Iberia, LA	CH718 pamu	1	Y	Y	N	Y
Pace Command Trailer	Houston, TX	CH737 RED 24'	1	Y	Y	N	Y
Pace Command Trailer	New Iberia, LA	CH736 24'	1	Y	Y	N	Y
Pace Command Trailer	Chicago, IL	CH735 24'	1	Y	Y	N	Y
Pace Command Trailer	New Iberia, LA	CH734 24'	1	Y	Y	N	Y
Mobile Incident Command Unit	New Iberia, LA	40', Wired for Internet, Phone, UHF/VHF	1	Y	Y	N	Y
Mobile Incident Command Unit	New Iberia, LA	40', Wired for Internet, Phone, UHF/VHF	1	Y	Y	N	Y
Mobil Incident Command Unit	Houston, TX	40', Wired for Internet, Phone, UHF/VHF	1	Y	Y	N	Y

Attachments / Appendix C

OIL MOP,LLC RESOURCE AVAILABILITY

Response Units	Belle Chasse	Port Allen	New Iberia	Morgan City	Port Arthur	Larose	Houston	TOTAL
Boat 14'			4					4
Boat 18'	6	3	2		4	2	2	19
Boat 20'				1	2		2	5
Boat 24'		1						1
Boat 26'	3	1	1		1	1	1	8
Boat 28'	2							2
Boat JBF 20'		1	1		1			3
Alsafe (Rib) Boat 20'							1	1
Cabin Boat 24'	1						1	2
Cabin Boat-Radar							1	1
Jon Boat 14'	1							1
Jon Boat 16'	8						6	
Marco Boat 28'	1							1
Barge Boat 30'	1							1
Yellow Barge Boat 28'	1							1
Pro Drive Boat	4							4
Work Boat 26'	1							1
Baot Trailer 16'								
Baot Trailer 20' (Rib boat)							1	1
Outboard Motors	5	6	5	2	3	2	3	26
Boom 10" (feet)	500	500	500	500		500		2500
Boom 18"	20,000	2,500	3,500	1,000	4,000	2,500	4,000	37500
Boom 24"	1000							1000
Boom 36"	1,000							1000
Boom 48"								0
Disk Skimmer	1		1		1			3
Vac Unit Skimmer	1							
Drum 24"	2	1		1		1	1	6
Drum 36"		1	1		3			5
Drum 96"		1	3		1			5
Drum Skimmer	3							3
Dual Drum Skimmer	1							1
HAZ-Vac								0
Marco Skimmer	1				1			2
Pelican	2		1					3
Rope Mop 1-4	2							2
Rope Mop 2-4	6	1						7
Rope Mop 2-6	2							2
Rope Mop 2-9	4							4
Response Units	Belle Chasse	Port Allen	New Iberia	Morgan City	Port Arthur	Larose	Houston	TOTAL

Roll-off Box		20			5		5	30
Storage Barge		1	1					2
Storage Bladders	3							3
Storage Tanks		2						2
Crane Truck 25T	1							1
Decon Unit	1							1
Guzzler								0
IRE	2	2	1	1	2	1	3	12
Mobile Command	1							1
Skid Vac Unit	3							3
Truck Vac Unit		2			2			4
Van Trailers	2	3						5
Chem. Transf. Pump		1						1
Transfer Pump		2	1		2			5
Wash Pumps	25	4	2	4	6	4	6	51
Pressure Washer	1							
Pressure Washe 3500 PSI							1	1
Hot Water Washer	1							1
Poly Air Diaphragm Pump 2"	1							1
Stainless Air Diaphragm Pump 2"	1							1
Stainless Wash Pump 2"	1							1
Wash Pump 3"	4							4
Chemical Diaphragm Pump 2"	1							1
Diaphragm Pump 2"	2							2
Diaphragm Pump 3"	5							5
Fire Pump 4"	1							1
Hydraulic Power Pack Pump	2							2
Hydraulic Pump	1							1
Trash Pump 3"	1							1
Wacker Pump 2"	8						4	12
Wacker Pump 3"	11						6	17
LEL/O2 Meter	1	1	1	1	1	1	1	7
Drager unit	1	1	1	1	1	1	1	7
Fiberglass Extension Ladder 24'							1	
Hazmat Kit							1	1
Interface Probe							1	1
Norm Meter	1		1		1	1		4
Radiation Meter							1	1
Radiation Meter Probe							2	2
Multi Rae Plus 5 Gas Meter							1	1
Ultra Rae Meter							1	1
4 Gas Meter							1	1
Jerome Mercury Vapor Analyzer							1	1
Scare Guns	20							20
SCBA		5						5
HDR Bobcat	1							1
4X4 atv	6							6
Mule ATV							1	1

Truck 4x4	4							4
Truck Crew Cab 4x4							1	1
Crane Truck 25T	1							1
Crew Cab Truck	1							1
Dually Truck	3							3
Flatbed Truck 1 ton							1	3
Flatbed Truck 2 ton							1	3
Mechanic Truck	1							3
Pickup Truck 1 ton crew cab							4	4
Response Truck 2.5 ton							1	1
Vac Truck							1	1
Tractor 45 hp							1	1
Truck Tractor	4							4
Boom Trailer 20'							1	1
Box Van Trailer 40'	1							1
Box Van Trailer 42'	1							1
Box Van Trailer 45'	1							1
Cargo Trailer 10'	1							1
Cargo Trailer 14'							1	1
Cargo Trailer 25'	1							1
Cargo Trailer 28'	1							1
Drop Deck Trailer 44'	1							1
Emergency Response Trailer							2	2
Gooseneck Cargo Trailer 32'	5							5
Gooseneck Cargo Trailer 42'	1							1
Gooseneck Trailer 27'	1							1
Gooseneck Trailer 30'	1							1
Rolloff Box Trailer	2							2
Utility Trailer ATV 4'X6'							1	1
Utility Trailer 8'	1							1
Utility Trailer 10'	2							2
Utility Trailer 15'							1	1
Utility Trailer 16'	3							3
Utility Trailer 20'	1							1
Vac Trailer	1							1

RESPONSE RESOURCE SHEET

24-HOUR EMERGENCY HOTLINE 1-877-4ESANDH

July 2009

HOUMA*FOURCHON*MORGAN CITY
BELLE CHASSE*LA PLACE*NEW IBERIA*MOBILE
NORCO*LAKE CHARLES*GEISMAR*GOLDEN MEADOW*HOUSTON

Response Equipment by Location

H – HOUMA F – FOURCHON MC – MORGAN CITY
BC – BELLE CHASSE L – LAPLACE NI – NEW IBERA
N – NORCO LC – LAKE CHARLES G – GEISMAR
GM – GOLDEN MEADOW TX – HOUSTON M - MOBILE

ITEM	RESPONSE EQUIPMENT	H	F	MC	BC	L	NI	N	LC	G	GM	TX	M
1	OIL SPILL UNIT	3	1	1	1	1	1		1		1	1	1
2	HAZ-MAT UNIT	1							1				
3	ASBESTOS TRAILER					1							
4	AIR MONITORING UNITS	14	1	2	4		4		2		1	2	1
5	NORM SURVEY METER SETS	3		1	1		1		1			1	
6	16 FT, 10" BOOM TRAILER	2		1	1		1			1			1
7	16 FT, 18" BOOM TRAILER	2	1		2		1	1	2		1	1	1
8	48 FT, 18" BOOM TRAILER	8	1		2		2		2		2	2	1
9	16 FT, 24" BOOM TRAILER												
10	16 FT, EQUIPMENT TRAILER	3			1	1	1		1		1	1	
11	ADDITIONAL 6" BOOM	5,000 FT	200 FT	300 FT	200 FT		200 FT		200 FT			200 FT	200 FT
12	ADDITIONAL 10" BOOM	10,000 FT		1,500 FT	1000 FT		500 FT		1000 FT	500 FT		500 FT	500 FT
13	ADDITIONAL 18" BOOM	25,000 FT	1,000 FT		2,000 FT		2,000 FT	1,000 FT	2,000 FT	500 FT	1,000 FT	7,500FT	2,000 FT
14	ADDITIONAL 24" BOOM	2,000FT											
15	ADDITIONAL 36" BOOM	500 FT											
16	MARCO SKIMMER	1										1	
17	LARGE DRUM SKIMMER	8	1		1		1		1			2	1
18	MEDIUM DRUM SKIMMER	5		2	1		2		1		1	5	1
19	SMALL DRUM SKIMMER	2		1									
20	ROPE MOP SKIMMER	3											
21	MANTA RAY SKIMMER	4			1								

ITEM	RESPONSE EQUIPMENT	H	F	MC	BC	L	NI	N	LC	G	GM	TX	M
22	SLURP SKIMMER	2											
23	SKIM PAK SKIMMER	1	1	1					1				
24	38' - 42' BARGE BOAT	2			2		2		2			1	1
25	32' - 36' BARGE BOAT	1			1		2		1			1	
26	26' – 30' BARGE BOAT	2							2				1
27	28' RESPONSE BOAT	1											
28	25' RESPONSE BOAT	1		1	1						1		
29	20' RESPONSE BOAT	1	1	1	1		1		1				
30	26' RESPONSE BOAT	5			2		1				1	3	1
31	16' JOHN BOAT	12	2	2	3		3		4	1		3	2
32	14' JOHN BOAT	25			1		1						
33	14' PIROGUE	10		1	1						1		
34	35 BBL OIL STORAGE BARGE	2											
35	20 BBL OIL STORAGE BARGE	1											
36	DECON POOL (10 X 10)	4											
37	DECON POOL (25 X 50)	6											
38	DECON POOL (50 X 100)	6											
39	PRESSURE WASHER	10		1	2		3				1		
40	STEAM CLEANER	5							1				
41	3" DIESEL DIAPHRAGM PUMP	5				13							
42	2" GAS DIAPHRAGM PUMP	25	3		6	1	4		2		2	3	1
43	2" WASH PUMP UNIT	50	3	3	12		11		8		5	2	2
44	3" AIR DIAPHRAGM	15		2	2				1				
45	1" AIR DIAPHRAGM	12			1		1						
46	SORBENT PADS	2500	50	50	100		50		50	10	100	30	30
47	5" SORBENT BOOM	2000	50	25	100		50		100	10	50	30	30
48	8" SORBENT BOOM	600	25	10	10		50				15		
49	SORBENT ROLL	500	6	10	25		20		8		8	5	
50	SORBENT SWEEP	100		4	20		10		8				
51	POM-POM SNARE ON ROPE	800	10	5	75				8				
52	INDUSTRIAL RUG	200	6	6	20		10		8		10	5	5

ITEM	RESPONSE EQUIPMENT	H	F	MC	BC	L	NI	N	LC	G	GM	TX	M
53	PITCHFORK	50	6	9	20		12		1		10	5	8
54	POLLUTION NETS	50	6	10	20		12		12		8	15	8
55	POLLUTION CANS	30	6	5	20		15		12		5	3	5
56	POLLTION BAGS (ROLL)	2000	40	20	50	50	30		50		20	15	20
57	VISQUEEN (ROLL)	500	10	10	20	50	10		20		10	15	10
58	55 GALLON STEEL DRUM	100	5	10			4						
59	55 GALLON PLASTIC DRUM	300	40	20	50		50		30		20	20	15
60	85 GALLON OVERPACK	20	3										
61	95 GALLON OVERPACK	75		4	12		6		10		6	10	6
62	FULL-FACE RESPIRATOR	100	3	3	8		8		6		3	6	4
63	SCBA	8							4				
64	PVC GLOVES (DOZEN)	600	12	25	21	12	12		10	1	10	10	10
65	NITRILE GLOVES (BOX)	1000	12	12	36	120	2		10		15	12	10
66	TYVEK SUITS (CASE)	1000	10	10	20	32	12		10	6	20	15	12
67	SARANEX SUITS (CASE)	40											
68	LEVEL "B" SUITS (EACH)	100					6						
69	LEVEL "A" SUITS (EACH)								4				
70	10 cfm AIR COMPRESSOR	15	1	2	3	2	3		3		1	2	2
71	SCARE CANNONS	200			6								
72	DRUM TRUCK	1										1	
73	VACUUM BOXES	2											
74	VACUUM TRUCKS	17			2				1		2		
75	BOBTAIL	5			1								
76	DOUBLE RAIL	3											
77	ROLL-OFF CONTAINERS	70			4						2		
78	40 YD ROLL-OFF T.C.	1											
79	TRITON 2000 AIR MOVER					1							
80	225 BBL BARGE SET	1										1	
81	48’ EQUIPMENT TRAILER	2			1								
82	48’ ABSORBENT TRAILER	5							2				

EQUIPMENT DESCRIPTIONS

ITEM 1 – OIL SPILL UNIT, 300FT OF CONTAINMENT BOOM (ANCHORS, ROPE, BOUYS, AND LIGHTS), SKIMMER (INCLUDING STORAGE OF 300 GALLONS OF PRODUCT), WASH PUMPS (SUCTION HOSE, DISCHARGE HOSE, NOZZLE AND FUEL), SORBENTS (PADS, BOOM, ROLLS), PPE (SUPPORT FOR 6 RESPONDERS FOR 3 DAYS), 3 PICKUP TRUCKS, 6 PERSONNEL, 2 RESPONSE BOATS

ITEM 2 – HAZMAT UNIT, SCBA'S, PPE (LEVEL "A", LEVEL "B", LEVEL "C" DRESS, GLOVES, BOOTIES), SORBENTS (UNIVERSAL PADS, BOOM AND FLOOR DRY), NEUTRALIZERS (SODIUM BICARBONATE, SODA ASH, LIME), 2" DOUBLE DIAPHRAGM CHEMICAL TRANSFER PUMP (SUCTION & DISCHARGE HOSES), STORAGE CONTAINERS (SALVAGE DRUMS, OVERPACK DRUMS), ATMOSPHERIC TESTING EQUIPMENT (LEL, O2, H2S, CO, CHEMICAL SPECIFIC CMS), CASCADE SYSTEM (5 BOTTLE RACK & COMPRESSOR), VARIOUS HAND TOOLS. THIS UNIT SUPPORTS A 4 MAN ENTRY TEAM.

ITEM 3 – ASBESTOS UNIT, 6 HALF-FACE RESPIRATORS, 2 LADDERS, 3 HEPAVACS, 2 CASES OF TYVEK SUITS, 20 BOXES OF NITRILE GLOVES, 12 DOZEN PVC GLOVES, 1 CASE OF BOOT COVERS, VALVES AND TOOLS

ITEM 4 - AIR MONITORING UNITS INCLUDE B&W 4 GAS INSTRUMENTS AND DRAGER CMS INSTRUMENTS

ITEM 5 – NORM SURVEYING INSTRUMENT SETS INCLUDE LUDLUM MODEL 3 WITH 44-2 PROBE AND LUDLUM MODEL 2 WITH 44-9 PROBE

ITEM 6 - 16 FT, 10" BOOM TRAILER, 1000FT OF 10" CONTAINMENT BOOM (ANCHORS, ROPE, BOUYS, AND LIGHTS)

ITEM 7– 16 FT, 18" BOOM TRAILER, 1000FT OF 18" CONTAINMENT BOOM (ANCHORS, ROPE, BOUYS, AND LIGHTS)

ITEM 8– 48 FT, 18" BOOM TRAILER, 4000FT TO 6000FT OF18" CONTAINMENT BOOM (ANCHORS, ROPE, BOUYS, AND LIGHTS)

ITEM 9– 16 FT, 24" BOOM TRAILER, 500FT OF 24" CONTAINMENT BOOM (ANCHORS, ROPE, BOUYS, AND LIGHTS)

ITEM 10– 16 FT TRAILER FOR TRANSPORTATION OF EQUIPMENT & MATERIALS

ITEMS 11 – 15 - ADDITIONAL CONTAINMENT BOOM, STORED IN A WHAREHOUSE AT EACH LOCATION THAT IS READY FOR LOAD OUT

ITEM 16 – MARCO SKIMMER-SELF CONTAINED SHALLOW WATER SKIMMER POWERED BY TWIN OUTBOARD MOTORS WITH 25 BBLS STORAGE CAPACITY. CAPABLE OF SPEEDS UP TO 25 KNOTS. RECOVERY RATE OF 350 GALLONS PER MINUTE

ITEM 17 – LARGE DRUM SKIMMER, TDS 136; RECOVERY RATE 70 GPM

ITEM 18 – MEDIUM DRUM SKIMMER, TDS 118; RECOVERY RATE 35 GPM

ITEM 19 – SMALL DRUM SKIMMER, MAXIUM 15; RECOVERY RATE 20 GPM

ITEM 20 – ROPE MOP SKIMMER, MODEL II-A; RECOVERY RATE 10 TO 30 BBL/HOUR

ITEM 21 – MANTA RAY SKIMMER, MADE BY SLICKBAR; RECOVERY RATE 5 TO 95 GPM

ITEM 22 – SLURP SKIMMER, MADE BY SLICKBAR; RECOVERY RATE 2 TO 40 GPM

ITEM 23 – SKIM PAK SKIMMER; RECOVERY RATE 35 GPM

ITEM 24 – 38' – 42' BARGE BOAT - LARGE OPEN DECK FOR EQUIPMENT TRANSPORT OR WORK PLATFORM. POWERED BY TWIN OUTBOARD MOTORS

ITEM 25 – 32**'** – 36' BARGE BOAT - LARGE OPEN DECK FOR EQUIPMENT TRANSPORT OR WORK PLATFORM. POWERED BY TWIN OUTBOARD MOTORS

ITEM 26 – 26' – 30' BARGE BOAT – LARGE OPEN DECK FOR EQUIPMENT TRANSPORT OR WORK PLATFORM. POWERED BY TWIN OUTBOARD MOTORS

ITEM 27 – 28' RESPONSE BOAT, ALUMINUM FLAT BOAT WITH TWIN OUTBOARD MOTORS

ITEM 28 - 25' RESPONSE BOAT, ALUMINUM FLAT BOAT WITH TWIN OUTBOARD MOTORS

ITEM 29 – 20'RESPONSE BOAT, ALUMINUM FLAT BOAT WITH SINGLE OUTBOARD MOTOR

ITEM 30 – 26'RESPONSE BOAT, SEMI - V BOTTOM, TWIN 150HP MOTORS, GPS, VHF RADIO

ITEM 31 – 16' JOHN BOAT, ALUMINUM FLAT BOAT WITH 25 HP MOTOR

ITEM 32 – 14' JOHN BOAT, ALUMINUM FLAT BOAT WITH 15 HP MOTOR

ITEM 33 – SELF EXPLANATORY

ITEM 34 – 35 BBL OIL STORAGE BARGE, 16 FT ALUMINUM, PORTABLE

ITEM 35 – 20 BBL OIL STORAGE BARGE, 16 FT ALUMINUM, PORTABLE

ITEMS 36 – 38 – HEAVY DUTY RUBBERIZED PLASTIC POOLS USED FOR DECONTAMINATION OF RESPONSE EQUIPMENT

ITEM 39 – PRESSURE WASHER, COLD WATER 1,500 TO 3,000 PSI

ITEM 40 – STEAM CLEANER, HOT WATER MACHINE 3,000 TO 4,000 PSI

ITEMS 41 – 42 – SINGLE DIAPHRAGM PUMP POWERED BY GAS OR DIESEL ENGINE

ITEM 43 – WASH PUMP UNIT, 2" PUMP, SUCTION HOSE, DISCHARGE HOSE, STRAINER, NOZZLE

ITEMS 44 – 69 – SELF EXPLANATORY

ITEM 70 – 10 CFM AIR COMPRESSOR USED TO OPERATE DRUM SKIMMERS

ITEM 71 – WILDLIFE HAZING CANNON POWERED BY 20LB PROPANE BOTTLE

ITEM 72 – 2007 KW DRUM TRUCK WITH 40 DRUM CAPACITY

ITEM 73 – 2002 DRAGON VACUUM BOXES WITH 6" VALVES

ITEM 74 – VACUUM TRUCKS – INCLUDE 70 BBL AND 130 BBL (DOT 407/412 SPECS)

ITEM 75 – 2005 INTERNATIONAL 9700, CARRIES ONE ROLL-OFF CONTAINER

ITEM 76 – 2002 INTERNATIONAL 9400, CARRIES TWO ROLL-OFF CONTAINERS

ITEM 77 – 2007 DRAGON ROLL TOP, 72 CUBIC YARD CONTAINER,

ITEM 78 – 2002 DRAGON ROLL TOP, 40 YD ROLL-0FF CONTAINER

ITEM 79– CAPABLE OF MOVING FLAMMABLE AND NON-FLAMMABLE LIQUIDS, SLUDGES, AND SOLIDS, AND WITH THE ADDITION OF VARIOUS ATTACHMENTS, CAN ENHANCE THE REMOVAL OF TANK BOTTOMS

ITEM 80 - 225BBL CAPACITY OIL BARGE SET, 26FT ALUMINUM, PORTABLE (CRANE REQUIRED FOR DEPLOYMENT)

ITEM 81 – 48' EQUIPMENT TRAILER – CONTAINS VARIETY OF SPILL RESPONSE EQUIPMENT, INCLUDING PUMPS, SKIMMERS, PPE, DECONTAMINATION EQUIPMENT AND SUPPLIES, ETC.

ITEM 82 – 48' ABSORBENT TRAILER – CONTAINS ABSORBENT PRODUCTS SUCH AS 5" BOOM, 8" BOOM AND PADS. EACH TRAILER MAY CONTAIN DIFFERENT INVENTORY AT ANY GIVEN TIME DUE TO USE OF MATERIALS ON RESPONSE INCIDENTS.

*****NOTE – ES&H cannot guarantee to have any specific item listed above at any one of our response locations at any given time. Due to ongoing projects, response equipment may be moved from one location to another to accommodate specific needs. This document indicates the standard inventory amounts designated for each response location. As the demand for a particular item increases at a response location, inventory amounts will be increased to meet the demand.**

This Communications Plan identifies the major forms of communications, used during an oil spill response. The intent is to provide guidance for implementing communications during oil spill response activities. Phone numbers are presented in the list of contacts, Attachment II. Notification procedures during an oil spill response are presented in Section 6.

IV.1 Communications Methods

PPC maintains a telephone communications system, owned and operated by Bell South, which is used for both internal and external communications. Telephones are provided throughout the facility for rapid communication. In particular, phones are located in all offices, and Control Rooms. Therefore, phones are the primary form of communication.

The Control Room for pipeline and marine transfer operations maintains a marine band radio which is in contact with vessels docked at the transfer facilities, and other marine band resources.

Remote access to PPC and PRC personnel is provided by "beeper" phone capabilities for primary personnel. PPC and PRC have additional communications abilities through the use of a facsimile located in the administration building.

The primary communications methods, which will be used during oil spill response operations include telephone, VHF radios, and the marine band radio system. The OSRO will provide additional communications packages to coordinate work efforts between PPC, PRC, and OSRO.

This plan will be kept in the facility response plan (FRP) and will be reviewed and updated as necessary. This plan was prepared to meet the OSHA requirements in 29 CFR 1910.120 as they relate to oil spill response activities at the Placid Pipeline Company (PCC) Products Pipeline facility. The Site Safety Coordinator (SSC) must be familiar with this plan.

PPC owns and operates the Products Pipeline system, which is located in south central Louisiana. PPC has designated a single response zone for oil spill planning purposes. This response zone comprises the product transfer pipeline for Products Pipeline. This response zone includes one Mississippi River crossing at approximate river mile 234 above head of passes. Significant and substantial harm to the environment could occur from a release from PPC's pipeline to the Mississippi River. In no event will PRC employees respond to spills on the Mississippi River. Off-site response capabilities will be called for Mississippi River response.

V.1.0 FACILITY RESPONSE PLAN (FRP) INFORMATION AND DESCRIPTION OWNER: PLACID PIPELINE COMPANY

V.1.1 Qualified Individual (QI):

Barry Joffrion Office (225) 377-2578 (b) (6) [redacted]
Cell (225) 931-0661

V.1.2 Facility

Products Pipeline System

V.1.3 Facility Address

The Products pipeline is located in south central Louisiana beginning at the Placid Refinery in Port Allen, and terminating at the Products Pipeline's East Baton Rouge Parish pump station in north Baton Rouge.

V.1.4 Date Health and Safety Plan Prepared

February 18, 1993, Revised April 16, 2001

(b) (7)(F) [redacted]

V.1.6 Facility Size

The Products Pipeline is 8” in diameter from PRC’s Port Allen Refinery to Bel-Aire, and 10” in diameter from Bel-Aire to the Products Pipeline Pump Station. The total length of the pipeline is approximately 45,584 feet.

V.1.7 Facility Topography

The Pipeline begins on the West Bank of the Mississippi River and crosses beneath the river at mile 234 AHP. The pipeline is located on relatively flat terrain.

V.1.8 Facility Description and History

The pipeline between PRC and Plantation Pipeline Facilities is an 8" and 10" steel pipeline which is approximately 45,300 ft. in length. It can transport approximately 1700 bbl/hr of Group I-IV oils based on current pumping capabilities. The (b) (7)(F) [redacted] .

V.1.9 Response Area Maps

Site Map(s) will be prepared for specific response activities. The map vicinity will vary according to the spill location. All maps will show locations of support, decontamination, exclusion zones, communication, first aid and evacuation routes. An additional map will be prepared to show the route from the response area to the nearest hospital.

V.2.0 FRP ORGANIZATION AND TASKS TO BE PERFORMED UNDER THIS PLAN

V.2.1 FRP organization

Qualified Individual: PPC – Barry Joffrion (225) 377-2578
Safety Person: PRC – Kenny Carr (225) 387-0278

V.2.2 General Description of Oil Spill Response Tasks

In accordance with the National Contingency Plan (NCP) and EPA's Regional Contingency Plan (RCP), oil spill response is comprised of four activities:

1) Discovery and Notification
2) Preliminary Assessment and Initiation of Action
3) Containment, Countermeasures, Clean-up and Disposal
4) Documentation

Since activities 1,2, and 3 could result in worker exposure to hazardous materials, this HSP has been prepared to meet regulatory requirements for worker training.

A general description of each oil spill response activity with the potential for worker exposure to hazardous material is provided below.

V.2.2.1 Phase 1 – Discovery and Notification

A discharge of oil may be discovered by facility inspections, instrument readings or offsite notification. In any event, a physical inspection will most probably result, with the potential for worker exposure to discharged oil. Notification of appropriate PPC and government officials would follow.

V.2.2.2 Phase 2 – Preliminary Assessment and Initiation of Action

The pipeline operators would initially respond to the discharge of oil from the pipeline facilities. These operators would assess the extent and nature of the discharge and take action to prevent further discharge and release form the PPC facilities or pipeline. Initial actions could include valve closures and pump shutdowns. These actions could result in worker exposure to spilled oil.

Phase 3 resources would then be deployed in adequate quantity to respond to the individual spill volume.l

V.2.2.3 Phase 3 - Containment, Countermeasures, Cleanup and Disposal

On- and off-site resources would be deployed in response to the type and quantity of oil spilled. Spills would be contained to the extent possible within existing PPC containment dikes and ditches at the pump station facilities and within natural drainage channels for remote pipeline areas. This containment may require the construction of small dams or booming across ditches. Following containment, collection of recovered oils would begin. Contaminated soils and debris will be cleaned to the extent practicable or disposed of accordingly to applicable regulations. Recovered oil will be, to the extent possible, recovered for transportation and refining at PRC's Port Allen refinery, re-refined. Worker exposure could occur during these activities.

V.2.2.4 Phase 4 - Documentation

No worker exposure is anticipated during spill response documentation activities since these activities will occur after completion of spill response.

V.2.3 Description of Subcontractors

Oil Spill Response Organization (OSRO) contractors may be used for Phase 2 and 3 activities. All contractors used for oil spill response will be contractually required to meet the same OSHA training standards as presented in this health and safety plan prepared for PPC personnel.

V.3.0 HAZARD EVALUATION AND CONTROL

V.3.1 Heat and Cold Stress

V.3.1.1 Guidelines For Working In Temperature Extremes While Wearing Impermeable Protective Clothing (Tyvek and Saronex)

Temperature	Work Cycle	Rest Cycle	Control Measures
<32° F or <55°F & raining	2 hrs	15 min	Review cold stress in safety meeting. Rest in a warm area. Drink at least 8 ounces of warm non-caffeinated, non-alcoholic beverage at each rest break. Schedule a mid-day lunch break of at least 30 minutes in a warm area to begin not later than 5 hours after startup.
72° to 77° F	2 hrs	5 min	Review heat stress in safety meeting. Take resting pulse rate before beginning work. Drink 8 ounces of cool water before beginning work, and 4 ounces at rest break. Have ice available.
77° to 82° F	2 hrs	5 min	As above, but seated rest break. Monitor pulse rate. (See below.)
82° to 87° F	60 min	15 min	As above, but rest area to be shaded.

87° to 90° F	30 min	15 min	As above. Try to provide a shaded work area.
>90° F	15 min	15 min	As above. Provide a shaded area with seats in the work area for team members to use as needed. Try to reschedule work to avoid mid-day heat.

PULSE CRITERIA. Take resting radial (wrist) pulse at start of work day; record it. Measure radial pulse for 30 seconds as rest period begins. Pulse not to exceed 110 beats per minute (bpm), or 20 bpm above resting pulse. If pulse exceeds this criteria, reduce work load and/or shorten the work cycle by one third, and observe for signs of heat stress. No team member is to return to work until his/her pulse has returned to <110 bpm, or resting pulse +20 bpm.

DEEP CORE BODY TEMPERATURE. No one is to continue working with a deep core body temperature greater than 38°C or 100.4°F (37°C or 98.7°F is normal body temperature).

V.3.1.2 Symptoms and Treatment of Heat and Cold Stress

Heat Stroke	**Heat Exhaustion**	**Frostbite**	**Hypothermia**
Red, hot, dry skin; dizziness; confusion; rapid breathing and pulse; high body temperature.	Pale, clammy, moist skin; profuse sweating weakness; normal temperature; headache; dizzy; vomiting, slow respiration.	Blanched, white, waxy skin, but tissue resilient; cold drop in body temperature; glassy stare, slow pulse.	Shivering, apathy, sleepiness.
Cool victim rapidly by soaking in cool (not cold) water. Get medical attention immediately!	Remove victim to a cool, air conditioned place. Loosen clothing, place head in low position. Have victim drink cool (not cold) water.	Remove victim to a warm place. Rewarm area quickly in warm (not hot) water. Have victim drink warm fluids, not coffee or alcohol. Do not break any blisters. Elevate the injured area and get medical attention.	Remove victim to a warm place. Have victim drink warm fluids - not coffee or alcohol. Get medical attention.

V.3.2 Physical (Safety) Hazards and Controls

Hazard	Engineering or Administrative Controls
Flying debris/objects	Provide shielding and PPE.
Noise > 85 dBA	Noise protection and monitoring required.
Steep terrain/unstable surface	Brace and shore equipment.
Build-up of explosive gases	Provide 20 lb ABC fire extinguisher and ventilation.

Build-up of static electricity	No spark sources are allowed on the refinery property. Ground as appropriate.
Gas cylinders	Make certain gas cylinders are properly anchored and chained. Keep cylinders away from ignition sources. A Hot Work Permit issued by PRC is required before any torches or open flames are used on-site.
High pressure hose rupture	Check to see that fitting and pressurized lines are in good repair before using.
Electrical shock	Make certain third wire is properly grounded. Do not tamper with electrical wiring unless qualified to do so.
Suspended loads	Work not permitted under suspended loads. The operation of any "lifts" at the refinery can only be done by authorized, trained personnel.
Moving vehicles	Back-up alarm required for heavy equipment. Observer remains in contact with operator and signals safe back-up. Personnel to remain outside of turning radius. Vehicular traffic must obey the traffic rules at the refinery. No vehicles with catalytic converters are allowed in battery limits of any process unit or within leveed areas of tanks. All vehicles are to be parked in designated parking areas overnight.
Overhead electrical wires	Heavy equipment to remain at least 15 feet from overhead powerlines of 50 kV or less. For each Kv >50 increase distance 1/2 foot.
Buried utilities, drums, tanks, and so forth.	Locate buried utilities, drums, tanks, etc. prior to digging and mark locations.
Slip, trip, fall hazards due to muddy work areas.	Use wood pallets or similar devices in muddy work work areas.
Back injury	Use proper lifting techniques, or provide mechanical lifting aids.
Confined space entry	Permit and safety plan required by PRC.
Trenches/excavations	Entering of all trenches is considered confined space entry at the refinery, see confined space entry requirements listed above. Make certain trench meets OSHA standard before entering. All excavations >5 feet deep must be sloped or shored. Excavations >4 feet deep must have a ladder every 25 feet. If not entering trench, remain 2 feet from edge of trench at all times.
Protruding objects	Flag visible objects.

Barricades	Barricades are not to be crossed unless authorized by PRC to do so. Barricades can only be established by a PRC supervisor or designated representative.
Work on waterways	Oil spill response personnel must wear buoyancy vests and comply with U.S. Coast Guard boating safety guidelines.

V.3.3 Procedures to Locate Buried Utilities

Prior to doing any excavation work, contact PRC's Inspection Department at (225) 387-0278 to obtain record maps of buried sewers and pipelines. All utilities must be field located by hand digging prior to doing any excavation.

V.3.4 Biological Hazards and Controls

V.3.4.1 Snake bite-Be alert to the presence of snakes in wet, brushy, or wooded areas. Avoid snakes. Keep victim calm. Seek immediate medical attention. Try to identify the species of snake. Become familiar with types of snakes in the area.

V.3.4.2 Tick bites, Lyme disease, and Rocky Mountain Spotted Fever (RMSF) - Check often for tick bites. If bitten, carefully remove tick with tweezers, making certain to remove pincers, being careful not to crush the tick. After removing the tick, wash your hands. Disinfect area, and dress. If the tick resists or cannot be completely removed, seek medical attention.

Look for symptoms of lyme disease or RMSF. Lyme: rash that looks like a "bulls-eye", with small welt in center, several days to weeks after tick bite. RMSF: Rash comprising red spots under skin, 3 to 10 days after tick bite. For both, chills, fever, headache, fatigue, stiff neck, bone pain. If symptoms appear, seek medical attention.

V.3.5 Radiological Hazards and Controls

Hazards	Controls
PRC uses radiation sources for testing instrumentation activities should not interfere with the use of these instruments.	No controls are necessary since oil spill response at at the refinery.

V.3.6 Hazards Posed By Chemicals Onsite

Material Safety Data Sheets (MSDSs) for low sulfur diesel fuel no.1, off-road diesel, unleaded gasoline, and jet fuel-jet A, which PRC employees and contractors are potentially exposed to during a spill response are appendices to this HSP. Chemicals brought onsite by OSRO Contractors should be addressed in each OSRO's HSP. These materials may be transported in the Products Pipeline.

Refer to Attachment 2 to this HSP for applicable MSDSs. PRC's Safety Office contains an additional set of MSDSs in their Hazard Communication Binders. Current MSDSs are located at the Health and Safety office. MSDSs are also located in the pipeline control room.

Barricades	Barricades are not to be crossed unless authorized by PRC to do so. Barricades can only be established by a PRC supervisor or designated representative.
Work on waterways	Oil spill response personnel must wear buoyancy vests and comply with U.S. Coast Guard boating safety guidelines.

V.3.3 Procedures to Locate Buried Utilities

Prior to doing any excavation work, contact Al Jarreau of PRC's Engineering Group at 504-346-7463 to obtain record maps of buried sewers and pipelines. All utilities must be field located by hand digging prior to doing any excavation.

V.3.4 Biological Hazards and Controls

V.3.4.1 Snake bite-Be alert to the presence of snakes in wet, brushy, or wooded areas. Avoid snakes. Keep victim calm. Seek immediate medical attention. Try to identify the species of snake. Become familiar with types of snakes in the area.

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Look for symptoms of lyme disease or RMSF. Lyme: rash that looks like a "bulls-eye", with small welt in center, several days to weeks after tick bite. RMSF: Rash comprising red spots under skin, 3 to 10 days after tick bite. For both, chills, fever, headache, fatigue, stiff neck, bone pain. If symptoms appear, seek medical attention.

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3.7 KNOWN CONTAMINANTS OF CONCERN

Contaminant	Location[4] and Highest Concentration (solid media: mg/kg or liquid media: g/l)	PEL, REL, or TLV (ppm)[1]	IDLH (ppm)	Symptoms and Effects of Exposure	PIP[3] (ev)
Crude oil*	Storage tanks 100%	100	NL[2]	Dermatitis; low toxicity	NL[2]
Asphalt resins, Gas oil*	Fuel oil No. 6 fraction	5	NL	Dermatitis, skin, eye, throat	NL
Aromatic Hydrocarbons mixture*	Gasoline fraction	300	NL	Skin, eye, throat irritant. Nausea	NL
N. Hexane*	Gasoline fraction	50	NL	Skin, eye, throat irritant. Nausea	10.18
Petroleum Naphtha*	Heavy Naphtha fraction	300	NL	Skin, eye, throat irritant. Nausea	NL

Note 1: Lower value of PEL, REL, or TLV listed.
Note 2: NL = no limit found in reference materials.
Note 3: PIP = photoionization potential

Note 4: Location refers to physical location. Abbreviations specify media:
A (AIR) D (DRUMS) F (FLYASH) GW (GROUNDWATER) L (LAGOON) TK (TANK)
S (SOIL) SL (SLUDGE) SW (SURFACE WATER)
*Flammability hazards

3.8 POTENTIAL ROUTES OF EXPOSURES

DERMAL: Organic compounds adsorbed to soil present dermal hazards if soil comes in contact with skin.

INHALATION: Volatilized organic compounds and organic compounds absorbed to soil pose inhalation hazards. Metal dusts present in soil also present inhalation hazards.

OTHER: Inadvertent ingestion of contaminants is possible by hand to mouth contact if hands are not washed, or gloves have not been removed.

V.4.0 PERSONNEL

V.4.1 PRC Employees

Employees listed below are enrolled in the PRC chemical protection program (CPP) and meet the medical surveillance, 40-hour initial training, 3-day on-the-job experience, and 8-hour annual refresher training requirements of OSHA 29CFR1910.120. Employees designated "SSC" have received 8 hours of supervisor and 8 hours of instrument training and can serve as site safety coordinator (SSC) for the level of protection indicated. There must be one SSC present during any task performed in exclusion or decontamination zones with the potential for exposure to safety and health hazards. Employees designated "FA-CPR" are currently certified by the American Red Cross, or equivalent, in first aid and CPR. There must be one FA-CPR designated employee present during any task performed in exclusion or decontamination zones with the potential for exposure to safety and health hazards. The "buddy system" requirements of OSHA 29CFR1910.120 are to be met at all times.

Employee Name	Responsibility Site Safety Coordinator/Field Operations Task Manager	SSC/FA-CPR Lead Level (C) SSC; FA-CPR

V.4.2 Health and Safety and FRP Chain of Command and Procedures

V.4.2.1 Qualified Individual

Prime Contact: Barry Joffrion (225-377-2578)

V.4.2.2 Safety Personnel

Prime Contact: Kenny Carr (225- 346-7414)
Secondary Contact: Brett Cowart (225- 377-2509)

V.4.2.3 Contractors

Shaw Construction
OMI Environmental Solutions
Clean Harbors
ES&H Environmental
U. S. Environmental Services

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) SPECIFICATION

Task	Level	Body	Foot	Head[1]	Eye	Hand	Respirator
All activities below instrument action levels. Initial monitoring activities in perimeter areas not adjacent to refinery process units.	D[2]	Cotton long sleeve shirts and full length trousers.	Sturdy leather shoes with heels and oil resistant soles	Hardhat ANSI Std. Z89.1-1969 and Z89.2-1971, stamped	Safety glasses with side shields	Leather work gloves unless handling liquids, then vinyl gloves or gloves adequate for particular job	None required
All activities above instrument action levels. Initial monitoring activities except those referenced above	C[2]	As above. Tyvek or Saranax coveralls as required by the SSC.	As above	As above	N/A	As above	APR, full face, MSA Ultratwin or equivalent, Cartridges: GMC, GMC-H or equivalent
Any activity where the air monitoring action levels are exceeded or when required by PRC	B[2]	Tyvek or Saranax coveralls.	As above	As above	N/A	As above	Positive pressure demand SCBA: MSA Ultralite or equivalent

Note 1: The SSC shall specify hardhat areas.
Note 2: SSC shall specify protective clothing required.

5.1 REASONS TO UPGRADE OR DOWNGRADE LEVEL OF PROTECTION

Upgrade

X Request of individual performing task.

X Change in work task that will increase contact or potential contact with hazardous materials.

X Occurrence or likely occurrence of gas or vapor emission.

X Known or suspected presence of dermal hazards.

X Instrument action levels (Section 6.0) exceeded.

Downgrade

X New information indicating that situation is less hazardous than originally thought.

X Change in site conditions that decreases the hazard.

X Change in work task that will reduce contact with hazardous materials.

6.0 MONITORING AND INSTRUMENT CALIBRATION

6.1 AIR MONITORING EQUIPMENT SPECIFICATION

Instrument	Tasks	Action Levels		Frequency	Calibration
Explosimeter!MSA 260, 261, 360 or 361 or equivalent	Response activities	0-10% LEL 10-25% LEL >25% LEL	No expl.[1] hazard Pot.[2] expl. hazard Expl. hazard; evacuate or vent	Initial entry and sub-sequent monitoring as required	Daily
0_2 meter:	Response activities	> 25.0% O_2 20.9% O_2 < 19.5% O_2	Expl. hazard; evacuate or vent Normal O_2 O_2 def.[3]; vent or use SCBA	Initial entry and sub-sequent monitoring as required	Daily
Photoionization OVM or Photovac Detector (PID): with a 10.8 eV bu b	Response activities	0-1 ppm[ab4] 1-5 ppm[ab] Level C > 5 ppm[ab] Level B, or reevaluate	Level D	Initial entry and sub-sequent monitoring as required	Daily
Colorimetric Tube: Benzene	Response activities	0-0.5 ppm[ab] 0.5-1 ppm[ab] > 1 ppm[ab] Level B	Level D Level C	If positive detection on PID for VOCs, then test with a benzene tube. If still positive, notify PRC.	N/A[5]

Note 1: expl = explosion Note 2: pot = potential Note 3: def = deficient Note 4: ab = above background in breathing zone
Note 5: N/A = not applicable

V.6.1 Calibration Specification

Instrument	Gas	Span	Reading	Method
PID: photovac microtip or OVM; 10.2 ev probe	100 ppm isobutylene	9.8 □ 2.0	55 ppm	1.5 l/m reg T-tubing 0.25 l/m reg direct tubing
FID: OVA-128 H_2S meter	H_2S gas	N/A	Audible alarm sounds at 10 ppm	N/A
CGI: MSA 260, 261, 360, or 361	0.75% pentane	N/A	50% LEL □ 5 % LEL	1.5 l/m reg direct tubing

V.6.2 Air Sampling No personal air sampling requirements have been identified.

V.7.0 DECONTAMINATION

V.7.1 Decontamination Methods

Personnel	Sample Equipment	Heavy Equipment
Boot wash/rinse	Wash/rinse equipment	Power wash
Glove wash/rinse	Water disposal method: Dispose as directed by PRC	Steam clean Water disposal method:
Outer glove removal		Dispose as directed by PRC
Body suit removal		
Inner glove removal		
Respirator removal		
Hand wash/rinse		
Face wash/rinse		
Shower ASAP		

Personnel	**Sample Equipment**	**Heavy Equipment**
PPE disposal method: Dispose as directed by PRC		
Water disposal method: Dispose as directed by PRC		

V.7.2 Diagram of Personnel Decontamination Line
Will be established as appropriate for each work location.

V.8.0 SPILL CONTAINMENT PROCEDURES
Refer to PPC or PRC procedures.

V.9.0 CONFINED SPACE ENTRY
Confined space entry requires an additional health and safety plan and a permit. Consult PPC safety personnel for guidance.

V.10.0 WORK PROCEDURES
PPC employees will successfully complete the pipeline safety programs required by PPC prior to performing any work on the pipeline premises.

V.10.1 Work Practices
Obtain a Work Permit from PPC prior to performing any activities at the pipeline.

No spark sources within response zone.

No vehicles with catalytic converters allowed in leveed areas of tanks.

Vehicles left on-site overnight must be parked in designated parking lots or in areas authorized by PPC.

Leave keys in the ignition of vehicle when working on oil response activities.

Do not leave vehicle engines running when not in the vehicle.

Avoid visibly contaminated areas.

No eating, drinking, or smoking except in designated areas.

SSC to establish areas for eating, drinking, smoking.

No contact lenses are allowed when performing field work activities.
No facial hair that would interfere with respirator fit.

Any work conducted during hours of darkness will require enough illumination intensity "to read a newspaper without difficulty." Illumination equipment and its use must conform to PPC's requirements.

V.10.2 Site Control Measures

Site safety coordinator (SSC) to conduct site safety briefing (see below) before starting field activities, or as tasks and site conditions change.

SSC records safety briefing attendance in logbook, and documents topics discussed.

SSC will conduct weekly toolbox safety meetings and monthly team safety meetings during field activities.

SSC will perform job site safety inspections weekly during field activities.

SSC will participate in safety conference(s) following field work activities as requested by QI.

Post OSHA job site poster in a central and conspicuous location at the site offices.

Establish work zones: support, decontamination, and exclusion zones, and delineate work zones in accordance with PRC's safety procedures.

Establish decontamination procedures, including respirator decontamination procedures, and test.

Chemicals to be stored in proper containers.

MSDSs are available for onsite chemicals employees exposed to.

Establish onsite communications. These should consist of:
- Line of sight/hand signals
- Two-way radio or cellular phone if available

Establish emergency signals. For example:
- Grasping throat with hand? EMERGENCY, HELP ME
- Grasping buddy wrist? LEAVE AREA NOW
- Thumbs up? OK, UNDERSTOOD

Establish offsite communications.

Establish "buddy" system.

Establish procedures for disposal of material generated onsite.

Initial air monitoring conducted by SSC in appropriate level of protection.

SSC to conduct periodic inspections of work practices to determine effectiveness of this plan. Deficiencies to be noted, reported to safety personnel.

Site safety briefing topics: general discussion of health and safety plan; site specific hazards; location of work zones; PPE requirements; equipment; special procedures; emergencies; and other pertinent safety information.

V.11.0 EMERGENCY RESPONSE PLAN

PPC has established emergency response procedures for the pipeline as outlined in PRC's Emergency Procedures Manual.

V.11.1 Pre-Emergency Planning

The SSC performs the applicable pre-emergency planning tasks before starting field activities and coordinates emergency response with the facility and local emergency service providers as appropriate.

Locate nearest telephone to the site and inspect onsite communications.

Locate chemical, safety, radiological, hazards.

Confirm and post emergency telephone numbers and route to hospital.

Post site map marked with location of emergency equipment and supplies.

Review emergency response plan for applicability to any changed site conditions, alterations in onsite operations, or personnel availability.

Evaluate capabilities of local response teams.

Where appropriate and acceptable to the client, inform emergency room/ambulance service and emergency response teams of anticipated types of site emergencies.

Designate one vehicle as the emergency vehicle; place hospital directions and map inside; keep keys in ignition during field activities.

Inventory and check site emergency equipment and supplies.

Review emergency procedures for personnel injury, exposures, fires, explosions, chemical and vapor releases with field personnel.

Locate onsite emergency equipment and supplies of clean water.

Verify local emergency contacts, hospital routes, evacuation routes, and assembly points.

Drive route to hospital.

Review names of onsite personnel trained in first aid and CPR.

Review notification procedures for contacting PRC's medical consultant and team member's occupational physician.

Rehearse the emergency response plan once prior to site activities.

Brief new workers on the emergency response plan.

V.11.2 Emergency Equipment and Supplies

The SSC marks the locations of emergency equipment on the site map and posts the map in the support zone.

- Facility emergency equipment:

V.11.3 Emergency Medical Treatment

- The SSC will assume charge during a medical emergency until the ambulance arrives, or the injured person is admitted to the emergency room.
- Prevent further injury.
- Initiate first aid and CPR.
- Designate someone to notify PRC's Safety, Fire, Hygiene, and Security
- Call the ambulance and hospital.
- Determine if decontamination will make injury worse. Yes seek medical treatment immediately.
- Make certain that injured person is accompanied to emergency room.
- Notify the QI of the injury.
- Notify the injured person's human resources department.
- Submit copies of incident reports to safety personnel within 48 hours.

V.11.4 Evacuation

- Evacuation routes will be designated by SSC prior to beginning of work.
- Onsite and offsite assembly points will be designated prior to beginning of work.
- Personnel will exit the exclusion zone and assemble at the onsite assembly point upon hearing the emergency signal for evacuation of the exclusion zone.
- Personnel will assemble at the offsite point upon hearing the emergency signal for a site evacuation.
- The SSC and a "buddy" will remain onsite after the site has been evacuated (if possible) to assist local responders and advise them of the nature and location of the incident.

- SSC accounts for all personnel in the onsite assembly zone.
- A person designated by the SSC (prior to work) will account for personnel at the offsite assembly area.
- The SSC is to write up the incident as soon as possible after it occurs, and submit a report to safety personnel.

V.11.5 Evacuation Routes and Assembly Points

PRC will established evacuation routes specific to each response zone, and work being performed that day. Employees are required to check with the SSC daily to confirm evacuation routes and assembly points. These evacuation routes will be discussed during site safety training.

V.11.6 Evacuation Signals

Exclusion Zone	Site
Verbal command	Emergency telephone notification system.

V.12.0 EMERGENCY RESPONSE TELEPHONE NUMBERS

V.12.1 Fire Protection and ALL Emergencies: Dial PRC Ext 512, 555 or 441

Sheriff:	East Baton Rouge Parish	**Phone:**	389-5000
	West Baton Rouge Parish	**Phone:**	343-9234
Fire:	East Baton Rouge Parish	**Phone:**	911
	West Baton Rouge Parish	**Phone:**	911
Ambulance:	Acadian Ambulance	**Phone**:	800-259-3333
	Baton Rouge EMS	**Phone:**	389-5155
Hospital:	Baton Rouge General Mid City	**Phone:**	387-7000
	Baton Rouge General Bluebonnet	**Phone:**	763-4000
	Our Lady of the Lake	**Phone:**	765-6565
	Ochsner Medical Center	**Phone:**	236-5440

Address:

Route To Hospital: A hospital route map must be prepared during the site safety meeting and displayed in a conspicuous location.

V.12.2 Government Agencies Involved
See Attachment II of this FRP.

V.13.0 EMERGENCY CONTACTS

V.13.1 PRC Medical Consultant
(after hours answering service; physician will return call within 30 minutes)

V.13.2 Occupational Physician (Regional or Local)
To be named later

V.13.3 Corporate Director Health and Safety

Name:
Phone:

V.13.4 Site Safety Coordinator (SSC) (Emergency Response Team Leader)

Name:
Phone:

V.13.5 Refinery Health and Safety Manager

Name: Kenny Carr
Phone: 225-387-0278

V.13.6 Pipeline Manager

V.13.7 Qualified Individual

Name: Barry Joffrion
Phone: 225-377-2578

V.13.8 Human Resources Department

Name: Rita Pinion
Phone: 225-346-7416

V.13.9 Corporate Human Resources Department

Name: Ron Hurst
Phone: 214-880-8474

If an injury occurs, notify the injured person's personnel office as soon as possible after obtaining medical attention for the injured. Notification **MUST** be made within 24 hours of the injury.

V.14.0 PLAN APPROVAL

This site safety plan has been written for use by PRC. PRC claims no responsibility for its use by others, unless specified and defined in project or contract documents. The plan is written for the specific site conditions, purposes, dates, and personnel specified and must be amended if these conditions change.

V.14.1 Plan Written By: _____ **Date:**

V.14.2 Plan Approved By: _____ **Date:**

V.14.3 Plan Amendments _____ **Date:**

V.14.3.1 Changes Made By:

V.14.3.2 Changes To Plan:

V.14.3.3 Approved: _____ **Date:** _____

V.14.4 Plan Amendments _____ **Date:** _____

V.14.4.1 Changes Made By: _____

V.14.4.2 Changes To Plan: _____

V.14.4.3 Approved: _____ **Date:** _____

V.15.0 APPENDICES TO PLAN

Appendix 1: Employee signoff
Appendix 2: Applicable MSDS

The employees listed below have been provided a copy of this health and safety plan, have read and understood it, and agree to abide by its provisions.

Appendix 1: Employee Signoff

EMPLOYEE NAME	EMPLOYEE SIGNATURE / DATE

Placid Refining Company
1940 Highway 1 North
Port Allen, Louisiana 70767
225-387-0278

MATERIAL SAFETY DATA SHEET

GASOLINE, UNLEADED (ALL GRADES) — P0002

24 hour Emergency Phone/MSDS Assistance — **225-387-0278**

Chemtrec — **1-800-424-9300**

SECTION 1 - IDENTITY: Gasoline, Unleaded (All Grades) MSDS #: P0002

Chemical Name: Gasoline
Product Name/Synonyms: Natural Gasoline, Motor fuel, Motor Spirits, Petrol
Chemical Formula: Complex Aromatic Hydrocarbon mixture
Chemical Family: Hydrocarbon
DOT Proper Shipping Name: Gasoline, 3, UN1203, PGII
1996 DOT North American Emergency Response Guide: #128

SECTION 2 - HAZARDOUS INGREDIENTS/SARA 313 INFORMATION

This product contains the following chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. The SARA 313 chemicals are denoted by bold letters.

SUBSTANCE DESCRIPTION

	%	CAS	OSHA PEL	ACGIH TWA
Gasoline	100	8006-61-9	2000 mg/m3	890 mg/m3
This product is known to contain the following compounds at these concentrations:				
Benzene	**<4.9**	**71432**	**1.0 ppm**	**1.0 ppm**
Benzene, Ethyl	**>1.0**	**100414**	**100 ppm**	**100 ppm**
Benzene, Dimethyl	>1.0	1330207	100 ppm	100 ppm
Cumene	**>1.0**	**92-82-8**	**50 ppm**	**50 ppm**
Toluene	**>1.0**	**108883**	**200 ppm**	**50 ppm**
N-butane	>1.0	106978	N/A	800 ppm
N-Heptane	>1.0	142825	500 ppm	400 ppm
N-Hexane	**>1.0**	**110543**	**500 ppm**	**50 ppm**
Hexane Isomers (Other than N)	>1.0	N/A	N/A	500 ppm
Pentane (All Isomers)	>1.0	N/A	1000 ppm	600 ppm
Cyclohexane	**>1.0**	**110827**	**300 ppm**	**300 ppm**
Methylcyclohexane	>1.0	108872	500 ppm	400 ppm
Trimethylbenzene	**>1.0**	**25551137**	**N/A**	**25 ppm**
2,2,4 Trimethylpentane	>1.0	540841	N/A	N/A

Could Contain

SECTION 2 - HAZARDOUS INGREDIENTS/SARA 313 INFORMATION (Con't) Gasoline Unleaded (All Grades) MSDS# P0002

Methyl Tert Butyl Ether (MTBE)		**<15**	**1634044**	**N/A**	**40 ppm**
Ethyl Tert Butyl Ether (ETBE)	<18	637923	N/A	N/A	
Tert Amyl Methyl Ether (TAME)	<17	994058	N/A	N/A	
Ethanol	<10	64175	1000 ppm	1000 ppm	

SECTION 3 - PHYSICAL DATA

Common Name: Gasoline
PH: N/A
Boiling Pt: 77ºF (25ºC)
Specific Gravity: .75
Vapor Pressure: 7.5-13.5 PSI
Vapor Density: 3-4
Solubility: Negligible in water
Percent Volatile: 99+%
Evaporation Rate: N/A
Appearance: Clear to pink in color
Odor: Hydrocarbon or sweet odor

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

NFPA Ratings: Health: 1 **Flammability:** 3 **Reactivity:** 0

Auto Ignition Temp: 833°F

Flash Point: <-30ºF

Lower Flammable Limit: 1.4% **Upper Flammable Limit:** 7.6%

OSHA/NFPA class: IA Flammable Gas

Extinguishing Agent: Dry chemical, foam, CO_2, or water spray

Emergency Actions: Keep unnecessary people away. Isolate hazard area and deny entry. Stay upwind, keep out of low areas. Self contained breathing apparatus (SCBA) and firefighters protective clothing will only provide limited protection. In case of water pollution, notify appropriate authorities.

Special Fire Instructions: Large Fires - water spray, fog, or standard foam is recommended. Cool vessels or containers that are exposed to flames. Product is highly flammable. Water may not extinguish fire unless used by experienced fire fighters trained in fighting flammable liquid fires. Applying a foam blanket is the most effective extinguishing method. Do not disturb foam blanket with water spray after application. This could cause re-ignition.

Fire & Explosion Hazards: For large spills not involving fire, use foam to disperse vapors. Cover sewers to contain product. Product and vapors in sewers creates an explosion and environmental hazard.

SECTION 5 - SPECIAL PROTECTION Gasoline Unleaded (All Grades) MSDS #: P0002

Respiratory Protection: Normally not needed in open air at ambient temperatures. However, in areas where ventilation is inadequate and measured concentrations of hazardous ingredients contained within the product (see section 2), are at or above the OSHA or ACGIH levels, respiratory protection will be needed. A NIOSH/MSHA approved organic vapor air-purifying respirator should be used if measured levels are within the manufacturers limitations for the respirator. If the levels are unknown or above the limitations of the air-purified respirators, supplied air respirators should be worn.

Ventilation: Mechanical properly grounded and explosion proof

Eye Protection: Safety glasses or chemical splash resistant goggles

Protective Gloves: Nitrile, Polyurethane, Piton, Chlorinated Polyethylene or chlorosulfonated polyethylene recommended.

Other Protective Equipment: Chemical resistant boots should be worn if working in liquid material. Wear sufficient protective outer clothing to minimize skin exposure.

Special Precautions: For use as a motor fuel only. Do not use as a cleaning solvent or for other non-motor fuel uses. Wash exposed areas with soap and water before eating, drinking, smoking, or using toilet facilities.

SECTION 6 - PHYSICAL HAZARDS

Stability: Stable

Incompatibility: Liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite.

Polymerization: Will not occur

Decomposition: Decomposition of this product will generate fumes, smoke, CO_2, and aldehydes.

Conditions to Avoid: Avoid heat, sparks, open flames and strong oxidizing agents. Prevent vapor accumulations.

Spill Precautions: Shut off ignition sources. Small spills- absorb material with sand or other noncombustible absorbent material and place in containers for later disposal. Large spills- use dikes to secure liquid, protect all sewers and run-off areas from contamination. Use foam for vapor dispersement if necessary.

Waste Disposal: Recycle as much of the recoverable product as possible. Treatment, storage, transportation and disposal must be in accordance with applicable federal, state and local regulations.

Other precautions: All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Handling or storage: Do not pressurize, cut, weld, brase, solder, drill, or grind on a vessel containing or that once contained this material unless first preparing the vessel for work to be done. Improper filling of portable gasoline containers creates danger of fire. Always use portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

SECTION 7 - HEALTH DATA — Gasoline Unleaded (All Grades) — MSDS #: P0002

Listed Carcinogen: *Yes.* Risk depends on duration and level of exposure. Gasoline has been classified as a group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). *Contains Benzene* which has been classified as a carcinogen by the National Toxicology Program (NTP) and a Group 1 carcinogen (carcinogenic to humans) by the IARC.

CHRONIC effects of exposure: See above

Signs and Symptoms: Irritation to eyes, skin, and lungs after prolonged exposure. Overexposure may cause weakness, headaches, nausea, blurred vision, drowsiness, nervous system effects.

Effects of INHALATION: May be harmful if inhaled. Breathing the vapors at concentrations above the recommended exposure standard can cause central nervous system effects. The vapor and fumes from this material may cause respiratory irritation.

Effects of INGESTION: Irritation to abdominal tissues. Low viscosity of this substance gives it the ability to directly enter the lungs if swallowed (aspiration). Once in the lungs, the substance is very difficult to remove and can cause severe injury to the lungs and death.

Effects of SKIN contact: Causes irritation. Prolonged or frequently repeated contact may cause the skin to become cracked or dry from the defatting action of the material.

Effects of EYE contact: Causes irritation.

Treatment for INHALATION: Remove to fresh air, give oxygen, and call a physician.

Treatment for INGESTION: Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. **Note to physicians:** Vomiting can cause aspiration and pneumonitis.

Treatment for SKIN contact: Flush with water while removing contaminated clothing and shoes followed by washing with soap and water.

Treatment for EYE contact: Flush with water for 15 minutes while holding eyelids open. Get medical attention.

SECTION 8 - MANUFACTURER DATA

Manufacturer:	PLACID REFINING COMPANY
Emergency Telephone:	1-225-387-0278
Address:	1940 HIGHWAY 1 NORTH
City:	PORT ALLEN
State/Zip:	LOUISIANA 70767
Plant Reference Number:	P0002
Revision date:	05/17/11

SECTION 9 - ADDITIONAL INFORMATION

The above data is based on tests and other information that Placid Refining Company believes to be reliable and is supplied for informational purposes only. Since conditions of use are outside our control, Placid Refining Company disclaims any liability for damage or injury that results from the use of the above data. Nothing contained herein shall constitute liability by Placid Refining Company with respect to the data, the material described or its use for any specific purpose, even if that purpose is known to Placid Refining Company.

Placid Refining Company LLC
1940 Highway 1 North
Port Allen, Louisiana 70767
225-387-0278

MATERIAL SAFETY DATA SHEET

LOW SULFUR DIESEL FUEL NO. 1 — P0004

24 hour Emergency Phone/MSDS Assistance — **225-387-0278**

Chemtrec — **1-800-424-9300**

SECTION 1 - IDENTITY: Low Sulfur Diesel No. 1 — MSDS #: P0004

Chemical Name: Petroleum Distillate
Product Name/Synonyms: Diesel Fuel, Fuel Oil, Gas Oil, Aviation Turbine Fuel A, Kerosene
DOT ID: UN1863
Chemical Family: Hydrocarbon
DOT Proper Shipping Name: Diesel fuel (Combustible liquid)
2000 DOT North American Emergency Response Guide: #128

SECTION 2 - HAZARDOUS INGREDIENTS

This product contains the following chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. The SARA 313 chemicals are denoted by bold letters.

SUBSTANCE DESCRIPTION	%	CAS	OSHA PEL	ACGIH TWA
Petroleum Distillate Fuel	>90	68476-34-6	400 ppm	100mg/m^3 skin
Naphthalene	**<3**	**00091-20-3**	**10 ppm**	**10 ppm**

SECTION 3 - PHYSICAL DATA

Common Name: Diesel Fuel
PH: Essentially Neutral
Boiling Pt: 320-550ºF (160-290ºC)
Specific Gravity: .82 (H_2O = 1)
Vapor Pressure: 1 mmHg @ 20ºC
Vapor Density: 4.7 (Air = 1)
Solubility: Negligible
Percent Volatile: 100%
Evaporation Rate: .02 @ 77ºF
Appearance: Clear liquid, contains red dye if used for off-road vehicles
Odor: Mild kerosene, hydrocarbon odor,

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA Low Sulfur Diesel No. 1 MSDS #: P0004

NFPA Ratings: Health: 0 **Flammability:** 1 **Reactivity:** 0

Auto Ignition Temp: 410ºF (210º)

Flash Point: 115ºF (TCC)

Lower Flammable Limit: .5% **Upper Flammable Limit:** 6.0%

OSHA/NFPA Class: Class II Combustible Liquid

Extinguishing Agent: Foam, water spray, dry chemicals, CO_2, or steam

Emergency Actions: Use foam, dry chemicals, or CO_2 to extinguish fire. Water will only be effective to cool exposed containers and structures. Water may be used by experienced fire fighters to extinguish fire.

Special Fire Instructions: Minimize breathing of gases, vapor and fumes. Use SCBA for confined spaces or as needed.

Fire & Explosion Hazards: This liquid is volatile and gives off invisible vapors. Liquid or vapor may settle in low areas and travel along surface to ignition sources where they may ignite or explode.

SECTION 5 - SPECIAL PROTECTION

Respiratory Protection: Use supplied air respiratory protection in confined or enclosed spaces, if needed. A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge can be used if airborne concentrations are expected to exceed exposure limits (See Section 2).

Ventilation: Provide adequate ventilation (normal or mechanical) to prevent exceeding of PEL or buildup of explosive concentrations of vapor in the air.

Eye Protection: Use splash goggles or face shields.

Protective Gloves: Use chemical resistant gloves to avoid prolonged contact with skin.

Other Protective Equipment: Use a chemical resistant apron or other impervious clothing to avoid void contamination of work clothes.

Special Precautions: None

SECTION 6 - PHYSICAL HAZARDS

Stability: Stable

Incompatibility: Liquid chlorine, concentrated oxygen, sodium hypochlorite, and calcium hypochlorite

Polymerization: Will not occur

Decomposition: Will produce fumes, smoke, CO_2, and aldehydes when burning

Conditions to Avoid: All possible sources of ignition

Spill Precautions: Isolate danger area and keep unauthorized personnel out. Prevent spilled material from entering storm drains or sewers. Use foam on spills to minimize vapors.

SECTION 6 - PHYSICAL HAZARDS Low Sulfur Diesel No. 1 MSDS #: P0004

Waste Disposal: Material that is discarded as a product is a RCRA "characteristic" hazardous waste due to the characteristics of ignitability. If material is spilled on soil or in water, the contaminated waste should be disposed of adhering to all applicable state, local, and federal authorities.

Other precautions: Keep containers tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition.

Handling or storage: Keep product away from ignition sources, such as heat, sparks, pilot lights, static electricity, and open flames. "Empty" containers contain residue (liquid or vapor). Do not pressurize, cut, weld or perform any hot work on vessels with residue inside.

SECTION 7 - HEALTH DATA

Listed Carcinogen: No
CHRONIC effects of exposure: May cause irritation of eyes, skin, and lungs after prolonged exposure.

Signs and Symptoms: Over exposure may cause weakness, headaches, nausea, blurred vision, drowsiness, and nervous system effects.

Effects of INHALATION: Low degree of toxicity by inhalation

Effects of INGESTION: Low degree of toxicity by ingestion. **ASPIRATION HAZARD:** This material can enter the lungs during swallowing or vomiting and cause lung inflammation and damage.

Effects of SKIN contact: Severe skin irritant. Contact may cause redness, burning, drying, and cracking of the skin, and severe skin damage. No effects from skin absorption.

Effects of EYE contact: May cause mild eye irritation including stinging, watering, and redness.

Treatment for INHALATION: Move victim to fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and begin artificial respiration. Oxygen should be administered by qualified per onnel if breathing difficulties continue.

Treatment for INGESTION: Do not induce vomiting (aspiration hazard). Material can enter lungs and cause severe lung damage.

Treatment for SKIN contact: Immediately remove contaminated clothing and flush affected area(s) with large amounts of water. Cleanse area with a mild soap and water. If irritation or redness develops seek medical attention.

Treatment for EYE contact: Flush eyes for at least 15 minutes with clean water. If symptoms persist, seek medical attention.

SECTION 8 - MANUFACTURER DATA

Manufacturer:	PLACID REFINING COMPANY LLC
Emergency Telephone:	1-225-387-0278
Address:	1940 HIGHWAY 1 NORTH
City:	PORT ALLEN
State/Zip:	LOUISIANA 70767
Plant Reference Number:	P0004
Revision date:	05/17/2004

SECTION 9 - ADDITIONAL INFORMATION Low Sulfur Diesel No. 1 MSDS #: P0004

The above data is based on tests and other information that Placid Refining Company LLC believes to be reliable and is supplied for informational purposes only. Since conditions of use are outside our control, Placid Refining Company LLC disclaims any liability for damage or injury that results from the use of the above data. Nothing contained herein shall constitute liability by Placid Refining Company LLC with respect to the data, the material described or its use for any specific purpose, even if that purpose is known to Placid Refining Company LLC.

Placid Refining Company LLC
1940 Highway 1 North
Port Allen, Louisiana 70767
225-387-0278

MATERIAL SAFETY DATA SHEET

JET FUEL- JET A — P0009

24 hour Emergency Phone/MSDS Assistance — **225-387-0278**

Chemtrec — **1-800-424-9300**

SECTION 1 - IDENTITY: Jet Fuel- Jet A — MSDS #: P0009

Chemical Name: Petroleum Distillate Fuel
Product Name/Synonyms: JP-1 Jet Fuel, Aviation Turbine Fuel Jet A
Chemical Formula: Complex C_{10}-C_{16} Hydrocarbons
DOT ID: UN1863
Chemical Family: Hydrocarbons
DOT Proper Shipping Name: Fuel, Aviation, Turbine Engine
2000 DOT North American Emergency Response Guide: #128

SECTION 2 - HAZARDOUS INGREDIENTS

SUBSTANCE DESCRIPTION

	%	CAS	OSHA PEL	ACGIH TWA
Light Distillate Petroleum	100	64742-47-8	N/A	N/A

SECTION 3 - PHYSICAL DATA

Common Name: Jet Fuel A
PH: N/A
Boiling Pt: 315-572ºF (160-300ºC)
Specific Gravity: .77-.84 (H_2O = 1)
Vapor Pressure: <2 PSIA @ 60ºF)
Vapor Density: >5 (Air = 1)
Solubility: Negligible in water
Percent Volatile: 100%
Evaporation Rate: <0.1 @ 1 atm and 25ºC (Butyl Acetate = 1)
Appearance: Clear Water-White Liquid
Odor: Faint Petroleum Hydrocarbon odor

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA

NFPA Ratings: Health: 0 **Flammability:** 2 **Reactivity:** 0

Auto Ignition Temp: 410ºF (210ºC)

Flash Point: 100ºF (TCC)

SECTION 4 - FIRE AND EXPLOSION HAZARD DATA (con't) Jet Fuel- Jet A MSDS #: P0009

Lower Flammable Limit: .7% **Upper Flammable Limit:** 5.0%

OSHA/NFPA Class: Class IA Flammable Gas

Extinguishing Agent: Foam, Water spray (fog), Dry chemical, and CO_2

Emergency Actions: Use water to keep fire exposed containers cool. Use foam, water spray, dry chemicals or CO_2 to extinguish fire.

Special Fire Instructions: If a spill has not ignited, use water spray to disperse vapors and for protection of personnel attempting to stop the leak.

Fire & Explosion Hazards: This liquid is volatile and gives off invisible vapors. Vapors will settle in low areas and travel along surfaces to an ignition source.

SECTION 5 - SPECIAL PROTECTION

Respiratory Protection: Use supplied air respiratory protection in confined or enclosed spaces, if needed.

Ventilation: Use only with ventilation sufficient to prevent buildup of vapors exceeding recommended exposure limit of explosive concentrations in air.

Eye Protection: Use splash goggles or face shields when eye contact may occur.

Protective Gloves: Use chemical resistant gloves to avoid prolonged skin contact.

Other Protective Equipment: Use chemical resistant apron or other impervious clothing to avoid contaminating regular clothing.

Special Precautions: Keep containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants.

SECTION 6 - PHYSICAL HAZARDS

Stability: Stable

Incompatibility: Strong acids, alkalis, and oxidizers such as liquid chlorine and oxygen

Polymerization: None

Decomposition: Burning will produce carbon monoxide and other harmful gases/vapors including oxides and/or other compounds of sulfur.

Spill Precautions: Evacuate all non-essential personnel. Contain spill. Remove all ignition sources and safely stop flow of spill. Prevent from entering all water bodies. Material will float on water. Absorbent material and pads can be used.

Waste Disposal: Maximize product recovery for reuse and recycling. Unused product is likely an EPA ignitable hazardous waste. Use approved treatment, transporters and disposal sites in compliance with applicable laws. Use of any hydrocarbon fuel in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and inadequate oxygen levels for breathing.

SECTION 6 - PHYSICAL HAZARDS Jet Fuel- Jet A MSDS #: P0009

Handling or storage: Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this material is loaded into tanks previously containing gasoline or other low flash point products. (See API Publication 2003) Do not use this product as a cleaning agent. Empty containers contain residue (liquid and vapors). Hazard precautions must be observed.

SECTION 7 - HEALTH DATA Jet Fuel- Jet A MSDS #: P0009

Listed Carcinogen: No

CHRONIC effects of exposure: Prolonged or repeated skin contact with this product tends to remove skin oils, possibly leading to irritation or dermatitis. Long-term tests show that similar petroleum distillates have produced skin tumors on laboratory animals. Caution is recommended for pre-existing CNS diseases. Overexposure may cause gasping, nausea, and disorientation.

Signs and Symptoms: Liquid, mist or vapor contact can irritate eyes, skin, respiratory and digestive tracts.

Effects of INHALATION: Vapors or mists from this material can irritate the nose, throat, lungs, and can cause signs and symptoms of CNS depression, depending on the concentration and duration of exposure.

Effects of INGESTION: Can irritate mouth, throat, and stomach and cause nausea, vomiting, diarrhea and restlessness. Aspiration into the lungs will cause chemical pneumonia.

Effects of SKIN contact: Moderate skin irritant. Irritation leading to dermatitis may result from prolonged or repeated exposures.

Effects of EYE contact: Mild eye irritation may result from contact with liquid, mist, and/or vapors.

Treatment for INHALATION: Immediately remove personnel to area of fresh air. For respiratory distress, give air, oxygen or administer CPR if necessary. Obtain medical attention if difficulties continue.

Treatment for INGESTION: Do not induce vomiting as aspiration into the lungs will cause chemical pneumonia. If aspiration occurs, promptly seek medical attention.

Treatment for SKIN contact: Promptly remove contaminated clothing and thoroughly clean before reuse, but discard contaminated leather goods. Thoroughly wash affected area with soap and water.

Treatment for EYE contact: Flush with clean, low-pressure water for at least 15 minutes. If irritation persists, obtain medical attention.

SECTION 8 - MANUFACTURER DATA

Manufacturer:	PLACID REFINING COMPANY LLC
Emergency Telephone:	1-225-387-0278
Address:	1940 HIGHWAY 1 NORTH
City:	PORT ALLEN
State/Zip:	LOUISIANA 70767
Plant Reference Number:	P0009
Revision date:	05/07/2010

SECTION 9 - ADDITIONAL INFORMATION

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The OPA by Amendment of Section 311 (j)(5) of the FWPCA, requires owners and operators of tank vessels and facilities to prepare and submit a plan for responding, to the maximum extent practicable, to a worst case discharge, (WCD) and substantial threat of such a discharge, of oil or a hazardous substance.

PPC owns and/or operates the Products Pipeline, which is located in central Louisiana. PPC has designated a single response zone for oil spill planning. The response zone comprises the product transfer pipeline. This response zone includes one Mississippi River crossing at approximate river mile 234 AHP. Significant and substantial harm to the environment could occur from a release from PPC's pipeline to the Mississippi River. PRC response employees will respond to spills on land from the Products Pipeline. In no event will PRC employees respond to spills on the Mississippi River. Off-site response capabilities will be called for Mississippi River response.

PPC’s operations and physical location result in two distinctly different types of worst case discharges - those to land and those to water. PPC operates pipelines and pumping stations above water and pipeline crossings below water, either of these operations could result in discharges to navigable waterways or to land. The United States Coast Guard (USCG), the Department of Transportation (DOT), and the Environmental Protection Agency (EPA) each have jurisdiction for facilities associated with the OPA requirements. The following Sections provide details regarding the above agencies authority and also provide WCD calculations according to each Agency's requirements. PPC's FRP is based on responding to the largest WCD.

VI.1 <u>Marine Transportation Related Facilities (USCG Authority)</u>

The USCG has authority to regulate marine transportation related facilities. (33 CFR 154, codified February 29, 1996). PPC does not operate or own MTR facilities. PRC owns MTR facilities and are addressed under a separate FRP.

VI.2 <u>Non-Marine Transportation Related Facilities (DOT Authority)</u>

The DOT through the Pipeline and Hazardous Materials Safety Administration (PHMSA) has jurisdiction over transportation through pipelines, and breakout storage tanks. The DOT issued a Interim Final Rule in the Federal Register on January 5, 1993. These regulations, known as "Response Plans for Onshore Oil Pipelines" are codified at 49 CFR 194. This plan was based on information provided in 49 CFR 194.

The PHMSA regulations (49 CFR 194.105) define a worst case discharge as follows:

(1) The pipeline's maximum release time in hours, plus the maximum shut-down response time in hours, (based on historic discharge data or in the absence of such historic data, the operator's best estimate), multiplied by the maximum flow rate expressed in barrels per hour (based on the maximum daily capacity of the pipeline), plus the largest line drainage volume after shutdown of the line section(s) in the response zone expressed in barrels (cubic meters); or

(2) The largest foreseeable discharge for the line section(s) within a response zone, expressed in barrels (cubic meters), based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective or preventive action taken; or

(3) If the response zone contains one or more breakout tanks, the capacity of the single largest tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system, expressed in barrels (cubic meters).

VI.3 Non-Transportation Related Facilities (EPA Authority)

The Products Pipeline System includes no non-transportation related facilities subject to EPA authority.

VI.4 WCD Calculations and Planning Volumes

PPC owns and operates an 8” and 10" transfer pipeline, which transports refined product (JP-5, Petroleum Fuels) from PRC's West Baton Rouge Parish refinery to Kinder Morgan Facilities located north of Baton Rouge in East Baton Rouge Parish. The general pipeline route is presented in Attachment I Figure 2.

The pipeline between PRC and Kinder Morgan Facilities is approximately 45,584 feet in length. It can transport approximately 1,700 bbl/hr of Group I - IV oils based on current pumping capabilities. The pipeline is equipped with block valves on either side of the Mississippi River and at various intervals between the river and the Products Pipeline System. PPC does not own or operate breakout storage tanks in the Products Pipeline System and has not experienced a release from the pipeline operations. Therefore definition (1) of 49 CFR 194.105 is used for the calculation of WCD for DOT purposes. In addition, although PHMSA regulations allow for calculation of WCD from each line segment, the entire length of the pipeline is used as a conservative basis for WCD calculations for PPC's FRP.

Based on information obtained from PPC personnel on historical pipeline shutdown times, a maximum pump shut down time of 10 minutes is estimated for responding to an oil spill caused from pipeline transport since PPC's operations are constantly manned and the pipeline is only utilized on a batch transfer basis. Using a safety factor of 2 to adjust the response time for adverse weather conditions, the total anticipated shutdown time would be 20 minutes.

VI.4.1 WCD Calculations

WCD From Tankage
PPC does not own or operate breakout storage tanks in the Products Pipeline System.

WCD From Pipeline

- Discharges to Land

  The largest potential release to land associated with the Products Pipeline would occur if the entire pipeline was considered at full capacity and ruptured. In the event of an emergency condition, the pipeline would automatically shut down, leaving the volume of oil in the pipeline as the potential release volume plus the volume of oil pumped during the shutdown time.

(b) (7)(F)

[redacted]

- Discharges to Water

  Using the same rational as for the discharge to land, but assuming the pipeline ruptures beneath the Mississippi River, the WCD in this case would be the same.

  Worst Case Discharge Summary

  After review of the preceding assumptions and calculations, the (b) (7)(F) [redacted] l (Group I – IV Oils).

  PHMSA's final rules do not define a spill of any magnitude other than a worst case discharge, but do encourage facility owners to plan for smaller spills. EPA's rule defines "small" spills that correspond to volumes less than or equal to 2,100 gallons (< 50 bbl). Spills between 2,100 and 50,400 gallons (1,200 bbl) are termed "medium" spills by EPA and are not to exceed 10% of the largest tank volume or the worst case discharge.

VI.4.2 Planning Volumes

The pipeline, which transfers product from the PRC facility to the Kinder Morgan Facility, is routed across land and crosses the Mississippi River at river mile 234 AHP. (b) (7) (F) [redacted] The magnitude of the spill would be the same in both cases. Therefore, the PHMSA discharge could be associated with land or water. PPC would implement on-water response capabilities as planned for a discharge from the PHMSA regulated portion of the pipeline (flood stage river velocity resulting in potential, although unlikely, spill dispersion to the Gulf of Mexico).

There are no EPA regulated facilities included in this FRP. Therefore for planning purposes, on-water response capabilities are based on responding to a spill to the Mississippi River from the PHMSA regulated portion of the facility.

The following table presents the two WCDs that PRC is prepared to respond to using information in this FRP.

Applicable Worst Case Discharge Used for Planning Purposes Response Zone 2		
	WCD Criteria	
(b) (7)(F) [redacted]		
[1] Volumes presented represent WCD volume. Actual recovered volumes may be less due to dissipation and adherence to soils and sediments.		

VI.5.3 Planning Volume Calculations for Water Based Discharges

PHMSA does not specify procedures for facilities to calculate planning volumes of oil to be recovered on-water and on the shoreline. Therefore, the procedures specified in EPA's regulations (40 CFR 112, Appendix E, Section 7.0) have been utilized to calculate planning volumes. Planning volumes take into account that oils spilled to navigable waters will emulsify and evaporate, with the amount of emulsification and evaporation being dependent on the oil group.

(b) (7)(F) [redacted] for all oil (Groups I-IV). The following table presents on-water and on-shore OSRO planning volumes based on the procedures of EPA based on applicable WCDs to rivers.

(b) (7)(F) [redacted] with an emulsification factor of 2) shoreline clean-up. On-water recovery resources are calculated in accordance with 40

CFR part 112, Table 4 of Appendix E, for Rivers and Canals. On-water oil recovery resource mobilization factors are 0.15, 0.25 and 0.40 for Tier 1 (6 hour response), Tier 2 (30 hour response) and Tier 3 (54 hour response), respectively. Therefore, PRC should have the capability of providing the following on-water responses within the given time periods:

Planning volumes take into account that oils spilled to navigable waters will emulsify and evaporate, with the amount of emulsification and evaporation being dependent on the oil group.

(b) (7)(F) [redacted]. The following table presents on-water and on-shore OSRO planning volumes based on the procedures of 40 CFR 112, Appendix E.

Worst Case Discharge Information and Calculations

Oil Groups	WCD (bbl)	MAXIMUM VALUE PER OIL GROUP			MAXIMUM PLANNING VOLUMES (bbl)	
		Emulsification Factor [1]	Recoverable Floating Oil (%)[2]	Oil Onshore (%)[2]	Floating	Onshore
I	(b) (7)(F) [redacted]	1.0	10	10	(b) (7)(F) [redacted]	
II		1.8	15	45		
III		2.0	15	65		
IV		1.4	20	75		

[1] Table 3, Appendix E, 40 CFR 112.
[2] Table 2, Appendix E, 40 CFR 112.

Based on the above planning volume calculations, PRC's response resource capability should be sufficient. On-water recovery resources are calculated in accordance with Table 4 of Appendix C of 33 CFR 154 for rivers and canals. On-water oil recovery resource mobilization factors are 0.30, 0.40 and 0.60 for Tier 1 (6 hour response), Tier 2 (30 hour response) and Tier 3 (54 hour response), respectively. Therefore, PRC should have the capability of providing the following on-water responses within the given time periods:

TIER	Planning Volume (bbl)[1]	Mobilization Response Factor[2]	Maximum Projected Necessary Recovery Capacity (bbl/day)[3]
Tier 1 (6 hr)	1,875	0.30	416
Tier 2 (30 hr)	3,750	0.40	555
Tier 3 (54 hr)	7,500	0.60	833

[1] Planning Volumes Obtained from Table 5 of Appendix E to 40 CFR 112
[2] Mobilization Response Factors Obtained from Table 4 of Appendix E to 40 CFR 112.
[3] Maximum Projected Necessary Recovery Capacity is based on an Oil Group 3 release.

All response resources for on-water recovery should be capable of operating in waters of 6 feet or less depth.

Attachment III shows that PRC's contracted OSRO has equipment inventories in excess of regulatory requirements of actual PHMSA and USCG on-water WCD scenarios and hypothetical EPA on-water WCD scenarios.

The attached maps are to be used to obtain information to assist in identification of sensitive areas and in identifying locations of facilities, which may be affected by a spill covered under this plan. These maps include:

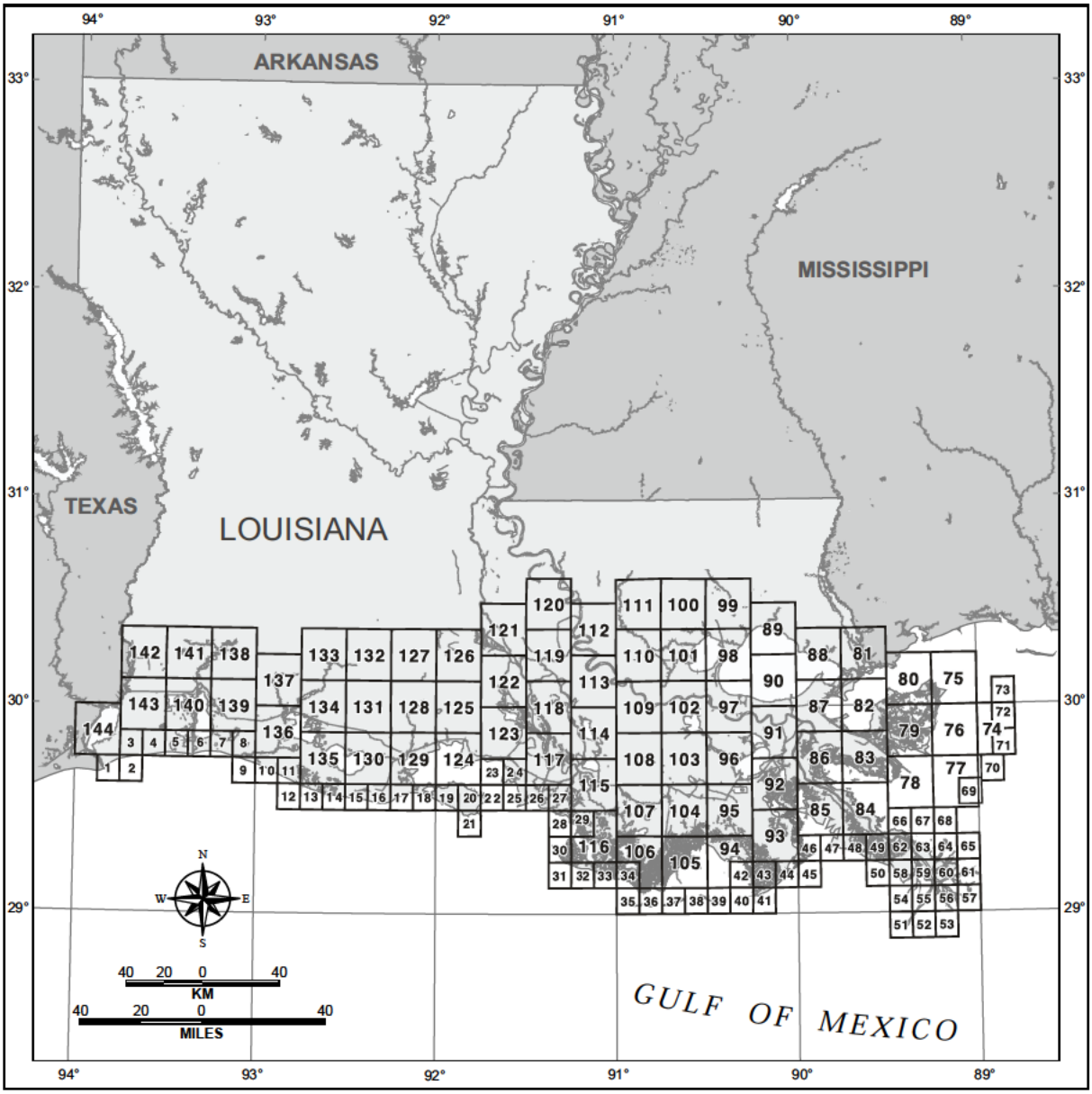
Sensitivity of Coastal Environments and Wildlife to Spilled Oil – Louisiana, prepared by NOAA, descriptive information and maps along Mississippi River from Baton Rouge to the Gulf of Mexico

U.S. Army Corps of Engineers Mississippi River maps 114-153 with descriptive information

Series of maps illustrating Staging Areas identified in the USCG Sector New Orleans 2009 Geographic Response plan as well as water intakes identified by the Lower Mississippi River Waterworks Warning Network Plan. Maps created by Environmental Science Services, Inc.

Sensitivity of Coastal Environments and Wildlife to Spilled Oil

LOUISIANA



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Baton Rouge, Louisiana

Louisiana Department of Wildlife and Fisheries (LDWF)
Baton Rouge, Louisiana

Louisiana Department of Natural Resources (LDNR)
Baton Rouge, Louisiana

DEC 2003

SENSITIVITY OF COASTAL ENVIRONMENTS AND WILDLIFE TO SPILLED OIL: LOUISIANA

INTRODUCTION

Environmental Sensitivity Index (ESI) maps have been developed for marine and coastal areas of Louisiana. The maps extend inland to Interstate 10. ESI maps are a compilation of information for three main categories: shoreline habitats, sensitive biological resources, and human-use resources.

The maps are plotted at two scales. The outer coast maps (map numbers 1-73) are divided according to the 1:24,000 U.S. Geological Survey (USGS) topographic quadrangle index and plotted at a size of 11 x 17 inches and a scale of 1:50,000. Grey-scale Digital Orthophoto Quarter Quadrangles (DOQQ) are used as backdrops for the outer coast maps. Maps for the interior area (map numbers 74-144) are divided according to a group of 1:24,000 USGS topographic quadrangles that are plotted at a size of 11x17 inches and a scale of 1:100,000. The Landsat thematic mapper satellite imagery was used as a backdrop for these inland maps.

SHORELINE HABITAT MAPPING

The shoreline was primarily digitized from the 1998 DOQQs and represents the high-tide line as visible in the photography. In the case of wetlands, this line was digitized as the seaward extent of vegetation. Areas digitized included the shoreline of all barrier islands from the Chandeleur Islands west, as well as the outer coast of the Mississippi River Delta, the Wax Lake and Main Atchafalaya River Deltas, a portion of the coast of Vermilion Bay, and the Chenier Plain coast from Marsh Island west to Sabine Pass. This shoreline was initially classified by a geomorphologist (Dr. Miles O. Hayes) performing on-screen photointerpretation of the DOQQs using the standard ESI classification scheme. The coastal geomorphological classification data of Ramsey and Penland (1999), interpreted from geo-referenced oblique aerial videography flown in 1999, were used during this process to help differentiate among shoreline types that were visually similar and difficult to photo-interpret. Hardcopy maps of this attributed shoreline were plotted at 1:24,000 scale for field verification of the ESI attributes.

The shoreline ESI classifications were field checked during helicopter overflights conducted in May 2001. The surveys were conducted at elevations of 100-500 feet and slow air speed. All shoreline attributed by photointerpretation was surveyed. A coastal geologist edited the ESI classifications on 1:24,000 scale maps during the overflights. Where appropriate, multiple habitats were assigned for each shoreline segment. In some areas, drastic change in shoreline position occurred between the dates of the 1998 DOQQs and the 2001 field surveys due to erosion or active delta building. These areas included, but were not limited to: 1) The Chandaleur Islands; 2) Several marsh restoration sites in the Isles Derniers and Timbalier Islands; and 3) both the Wax Lake and Main Atchafalaya Deltas. In areas of major shoreline change, the new shoreline position was sketched in and assigned a shoreline type(s) based on field sketches and oblique aerial photography acquired during the field surveys. The field maps were then scanned and registered and edits were made using on-screen digitizing. The variety of wetland plant communities in coastal Louisiana made it difficult to classify marsh shorelines by ESI marsh type during the field surveys. As such, the 1997 Louisiana Department of Wildlife and Fisheries Marsh Type data were used to update all shoreline segments with the appropriate ESI code, via a GIS overlay operation.

To determine the sensitivity of a particular intertidal shoreline habitat, the following factors are integrated:

1) Shoreline type (substrate, grain size, tidal elevation, origin)
2) Exposure to wave and tidal energy
3) Biological productivity and sensitivity
4) Ease of cleanup

Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury and ease of cleanup of spilled oil are also important factors in the ESI ranking. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking. The list below includes the shoreline habitats delineated for Louisiana ordered by increasing sensitivity to spilled oil.

1B) Exposed, Solid Man-made Structures
2A) Exposed Wave-cut Platforms in Clay
2B) Exposed Scarps and Steep Slopes in Clay
3A) Fine- to Medium-grained Sand Beaches
3B) Scarps and Steep Slopes in Sand
4) Coarse-grained Sand Beaches
5) Mixed Sand and Gravel Beaches
6A) Gravel Beaches
6B) Riprap
7) Exposed Tidal Flats
8A) Sheltered Rocky Shores and Sheltered Scarps in Mud or Clay
8B) Sheltered, Man-made Structures
8C) Sheltered Riprap
9A) Sheltered Tidal Flats
9B) Sheltered, Vegetated Low Banks
10A) Salt- and Brackish-water Marshes
10B) Freshwater Marshes
10C) Freshwater Swamps
10D) Scrub-Shrub Wetlands, including Black Mangroves

Each of the shoreline habitats is described on pages 9-15, in terms of their physical description, predicted oil behavior, and response considerations.

SENSITIVE BIOLOGICAL RESOURCES

Biological information presented in this atlas was collected, compiled, and reviewed with the assistance of biologists and resource managers from the U.S. Fish and Wildlife Service (USFWS), Louisiana Department of Wildlife and Fisheries (LDWF), U.S. Geological Survey (USGS), National Marine Fisheries Service (NMFS), National Park Service (NPS), and the Louisiana Natural Heritage Program (LNHP). Information collected and depicted on the maps denotes the key biological resources that are most likely at risk in the event of an oil spill. Six major categories of biological resources are included in this atlas: terrestrial mammals, reptiles, birds, fish, invertebrates, and benthic and wetland habitats.

Certain portions of the Louisiana Natural Heritage Program Element Occurrence Record (EOR) database were included as part of the biological resources mapped. The data were processed to filter records of concern. In general, records were preserved for species with a Global or State Conservation Status Rank of 1-3 or that are federally threatened or endangered species. Historical records and records for extirpated species and occurrences were removed from the database. Records describing the location of animal specimens or marine mammal strandings were also removed from the database. Rather than use actual common and scientific species names, species for all records, except ecological communities, were converted to generic sub-element descriptor (e.g., Rare wading bird). The prefix "Rare" was attached to all generic sub-element descriptors, except federally threatened or endangered species. For these species, the prefix "Threatened" or "Endangered" was used. The LNHP EOR database contained point locations collected over time from a variety of sources with varying degrees of spatial precision, ranging from seconds to "general". Point locations that were obviously incorrect (e.g., located far offshore or far outside the boundary of the state) were removed from the data. The remaining point locations were buffered by 800 meters (m) to create circular polygons. Overlapping polygons were dissolved such that the resulting polygons contain information describing all species found in the original overlapping polygons. The LNHP EOR database contains information describing the spatial precision of each record, but this information was not included in the attribute data associated with this layer. Also, note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this dataset, please contact the Louisiana Natural Heritage Program at 225/765-2823.

Polygons, points, and arcs represent the spatial distribution of biological resources on the maps. Associated with each of these representations is an icon depicting the types of species that are present. Species have been divided into groups and subgroups, based on their behavior, morphology, taxonomic classification, and spill vulnerability and sensitivity. The icons below reflect this grouping scheme. Please note that benthic marine habitats are displayed on the maps using “simplified-wetland” patterns rather than the hatched patterns used for the other species groups, and no icons are used (see legend). For all other species, the groups are color coded, and different icons represent the subgroups:

TERRESTRIAL MAMMALS
- Bats
- Bears
- Small Mammals

BIRDS
- Diving Birds
- Gulls and Terns
- Passerine Birds
- Raptors
- Shorebirds
- Wading Birds
- Waterfowl

FISH
- Fish

REPTILES
- Alligators
- Turtles
- Other Reptiles / Amphibians

INVERTEBRATES
- Bivalves
- Cephalopods
- Crabs
- Crayfish
- Insects
- Shrimp

HABITATS
- Plants
- Seagrasses

The polygon color and pattern are generally the same for all species in each major group (e.g., birds are green), and match the icon colors. Also associated with each biological polygon or point feature on the map is a Resources at Risk identification number (RAR#), located under each icon or group of icons. The RAR# references a table on the reverse side of the map with a complete list of species associated with the polygon, point, or line feature, and the state and federal protected status as threatened, endangered (T&E), or species of special concern (C), concentration, seasonality, and life-history information for each species.

There are some species that are found throughout specific geographical areas or habitat types on certain maps. Displaying the polygons for these species would cover large areas or would obscure the shoreline, ESI classification, or other biological features, making the maps very difficult to read. Thus, species that occur over the majority of certain geographic areas or habitats are often identified in a small box on the maps which states that they are "Present in ..." (e.g., "Present in Terrebonne Bay" or "Present in Salt Marsh"). The use of this strategy is implemented on a map per map basis, depending on the location, size, and number of polygons present on each map.

Terrestrial Mammals

Louisiana black bear concentration areas are depicted in the Louisiana atlas. LDWF wildlife biologists provided the names of the 1:24,000 USGS topographic maps representing the distribution of Louisiana black bear in the state. Based upon these data, expert habitat information from LDWF biologists, and additional habitat and distribution information from the 1995 USFWS Louisiana Black Bear Recovery Plan, polygons representing occupied habitat for the Louisiana black bear were developed. The primary sources used to create polygons depicting Louisiana black bear habitat areas were: 1) the 1988 USGS Coastal Louisiana Habitat data; and 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type data. The 1988 USGS Coastal Habitat data represent the actual habitat polygons used to create bear polygons. Habitats used in the development of this layer included forested wetlands, agricultural fields (mainly sugarcane), and certain marsh types adjacent to forested wetlands. Integration of the 1988 USGS and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF marsh type data.

Small semi-aquatic, fur-bearing mammal areas with harvest density values by habitat zone are also shown on the maps. These species include nutria, muskrat, raccoon, mink, and river otter. The primary sources used to create polygons depicting small semi-aquatic, fur-bearing mammal areas were: 1) the 1988 USGS Coastal Louisiana Habitat data; 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type data; and 3) the 2000 LOSCO Louisiana Parish Boundaries data. Polygons representing semi-aquatic fur-bearing mammal distributions and densities are based on habitat type "zones" comprised of land and adjacent water. Major habitat zones include fresh marsh, intermediate marsh, brackish marsh, salt marsh, and forested wetlands. The 1988 USGS Coastal Habitat data represent the actual wetland polygons used for this atlas. Integration of the 1988 USGS and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF marsh type data. Wetland polygons adjacent to water features were buffered to create polygons that included small waterbodies and extended out into coastal lakes and bays by either 100 or 500 m depending on the location and the complexity of the shoreline. In addition, larger coastal lakes were either included or excluded from the semi-aquatic fur-bearing mammal polygons based on the expert opinion of LDWF wildlife biologists. Small (area <3 km^2) polygons of a particular marsh or other habitat type that were isolated in an upland area were excluded from the coverage. Similarly, small "inclusion" polygons of one wetland type occurring within another wetland type were dissolved into the surrounding "matrix" habitat type. Finally, physiographic province boundaries were used to further divide semi-aquatic fur-bearing mammal habitat polygons. LDWF fur harvest distribution data for coastal Louisiana from 1972-1985 were used to develop density values for semi-aquatic fur-bearing mammals in each combination of habitat zone (four marsh types, forested wetland areas) and physiographic province. Mean densities were recorded and were rounded to the nearest whole acre per individual. In addition to quantitative density, a categorical description of population status has been assigned to these species. This categorical description (HIGH/MED/LOW) was developed by LDWF biologists and indicates the relative population status by region and habitat of each species described. The LDWF survey effort did not include salt marsh. However, because semi-aquatic fur-bearing mammal are present in salt marsh, concentrations are listed as either 'TRANSIENT' or 'RESIDENT' for polygons representing this habitat type, depending on the behavior of each particular species.

Additional terrestrial mammal species (including rare bats) are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823.

Terrestrial mammal areas are shown on the maps as polygons with a brown-hatched pattern. A brown icon with a bear silhouette is used to indicate the presence of black bears and is associated with all polygons containing this species. A brown icon with a small mammal silhouette is used to indicate the presence of furbearing mammal species and is associated with all polygons containing these species.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column gives the species name. The next column provides an estimate of the concentration of the species at the site. The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an "X" is placed in the month column.

Expert contacts are: Gary Lester (LNHP), 225/765-2823, and Greg Linscombe (LDWF), 337/373-0032, and Noel Kinler (LDWF), 337/373-0032.

Marine Mammals

No marine mammals are included in this atlas. Note that West Indian manatees may be found infrequently throughout the coastal waters of Louisiana.

Reptiles

Reptiles depicted in this atlas primarily include the American alligator. Polygons represent American alligator habitats with nest density values by habitat zone and management unit. The primary sources used to create polygons depicting alligator habitat areas were: 1) the 1988 USGS Coastal Louisiana Habitat data; 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type data; and 3) the 2000 USGS stewardship areas. Polygons representing alligator distributions and densities are based on a combination of habitat type "zones," comprised of land and adjacent water, and management unit boundaries. Major habitat zones include fresh marsh, intermediate marsh, brackish marsh, salt marsh, and forested wetlands. The 1988 USGS Coastal Habitat data represent the actual wetland polygons used for this atlas. Integration of the 1988 USGS and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF marsh type data. Wetland polygons adjacent to water features were buffered to create polygons that included small waterbodies and extended out into coastal lakes and bays by either 100 or 500 m depending on the location and the complexity of the shoreline. In addition, larger coastal lakes were either included or excluded from the alligator polygons based on the expert opinion of LDWF wildlife biologists. Small (area <3 km^2) polygons of a particular marsh or other habitat type that were isolated in an upland area were excluded from the coverage. Similarly, small "inclusion" polygons of one wetland type occurring within another wetland type were dissolved into the surrounding "matrix" habitat

type. Management unit boundaries were used to further divide alligator habitat polygons. In addition, marsh impoundment areas inside some management units were digitized, creating an additional habitat type.

LDWF Alligator Nest Survey data from 1996-2000 were used to develop density values for alligators in each combination of habitat zone (four marsh types, forested wetland areas) and management unit. Nest density values for management units were given higher priority because sampling effort is greater in these areas and/or because theses areas are managed for wildlife, typically resulting in different nest densities than marsh areas in the surrounding parishes. Maximum mean nest densities were recorded as concentrations and rounded to the nearest whole acre per nest. In addition to quantitative density, a categorical description of population status has been assigned to these species. This categorical description was developed by LDWF biologists as follows: HIGH - less than 125 acres per nest; MEDIUM - between 125 and 250 acres per nest; and LOW - greater that 250 acres per nest. American alligators do not typically nest in salt marsh, and the LDWF survey effort did not include this habitat. However, because alligators are sometimes present in salt marsh, concentrations are listed as either 'TRANSIENT' or 'RESIDENT' for polygons representing this habitat type.

Additional reptile species (including sea turtles, aquatic turtles, and terrestrial turtles) are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. Although sea turtle nesting is a rare event in Louisiana, multiple species of sea turtles may be present in nearshore and onshore waters. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823.

Reptile areas are displayed on the maps as polygons with a red-hatched pattern. A red icon with an alligator silhouette is used to indicate the presence of alligators. This icon is associated with all polygons containing this species.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column gives the species name. The next column provides an estimate of the concentration of the species at the site. The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species is present at a location in a particular month, an "X" is placed in the month column.

Expert contact for alligators is: Noel Kinler (LDWF), 337/373-0032.

Birds

Birds included in this atlas are divided into subgroups based on taxonomy, morphology, behavior, and oil spill vulnerability and sensitivity. The species table lists all birds included on the maps, sorted by subgroup. These species are included either because of their likelihood of direct or indirect impact by an oil spill or similar incident, their general rarity or imperilment, or their special protection status as threatened or endangered.

The atlas includes colonial waterbird nesting colonies, waterfowl concentration areas, and shorebird critical habitat. Nesting sites are of particular concern due to high concentrations of birds in adjacent waters, contamination of eggs and young by oiled adults and prey, and the potential for disturbance from response activities.

Colonial waterbird nesting sites – Three sources of data were used to depict waterbird nesting colonies for this atlas: 1) the 1990-1999 LDWF Colonial Waterbird data set; 2) the 1997 LSU CCEER Seabird Colonies data set; and 3) selected waterbird colony records from the 2001 LNHP Element Occurrence Record (EOR) Database. The 1990-1999 LDWF data set was used as the primary source. These data included records for active seabird and wading bird nesting colonies for the eastern two-thirds (approximate) of coastal Louisiana. The western portion of the study area not covered by this source corresponded approximately to the following four USGS 1:100,000 topographic maps: Crowley, LA; Lake Charles, LA; Port Arthur, LA; and White Lake, LA. Records in the LDWF data set included the mean number of individuals for each species recorded at each colony during LDWF surveys between 1990 and 1999. These mean abundance values are included in this atlas. The 1997 LSU seabird colony data set covered the entire study area and was used to obtain seabird colony information for the western portion of the coastal zone that was not included in the LDWF data set (note that the LSU data covered seabirds only, not wading bird colonies). All seabird colonies from the LSU data set that were active for at least one year during 1990-1997 were included for the western portion of the study area. In addition, all colonies documented during LSU's 1997 field surveys that were not also recorded in the LDWF data set (colonies not identified or tracked by LDWF) were retained for the entire study area. All records from the LSU data set corresponding to colonies that were present in the LDWF data set were omitted from the layer described here. Records from the LSU data set included 1997 counts of individuals for each species occurring at each colony. These values were retained for the attribute tables associated with the layer described here. For the LSU data set, colonies active during 1990 or later that had no nests recorded during the 1997 field surveys were entered as "0" counts. Since colonies may be active in some years but not others, this does not imply that a colony site is no longer active or no longer present, or that the colony is small or unimportant. Finally, the 2001 LNHP data set was used to obtain wading bird colony locations for the western portion of the study area not covered by the LDWF data set. Only colonies that were active during or since 1990 were considered. For the LNHP data, counts of individuals or nests from the latest survey period were included.

Migratory waterfowl concentration areas – Polygons in this atlas represent waterfowl habitats with density values by marsh habitat zone and watershed, or by nearshore survey zone. Waterfowl in these data include several species of ducks and American coot. Geese were not part of the survey data available when this atlas was created, although migratory geese occur in the study area. Waterfowl represented in this dataset fall into two major groups: 1) marsh waterfowl distributions and peak monthly densities for multiple species (including lesser scaup); and 2) separate lesser scaup distributions and peak densities in nearshore Gulf of Mexico waters and coastal lakes and bays. The geographic area, habitat type, species, type of survey, and volume of survey data (number surveys, months surveyed, and years surveyed) differ substantially between these two groups.

The primary sources used to create polygons depicting marsh waterfowl habitat areas were: 1) the USGS 1988 Coastal Louisiana Habitat data; and 2) the 1997 LDWF Louisiana Coastal Marsh Vegetative Type Map data. For the marsh waterfowl polygons, LDWF Marsh Waterfowl Transect Survey data from 1988-1998 were used to develop density values for each species in each combination of habitat zone (four marsh types, selected agriculture areas), for each surveyed month. For all species, density values were rounded to the nearest whole individual per square mile. Mean monthly densities less than 0.5 were rounded to zero. For areas where the peak mean monthly density for a species was not sampled, concentrations were listed as 'PRESENT'. In cases where the peak mean monthly density was zero, concentrations were listed as 'PRESENT'. Because waterfowl are present in coastal Louisiana outside the months when surveys were conducted, seasonalities reflect when migratory concentrations (for most species) and major resident populations (mottled duck) are present in the study area.

Lesser scaup distributions and densities in nearshore Gulf of Mexico waters and coastal lakes and bays were developed from hardcopy maps depicting lesser scaup survey zones and transect lines which were distinct and separate from the more extensive marsh waterfowl transect surveys. Lesser scaup is the major diving duck species using nearshore Gulf waters and coastal lakes and bays, hence the separate survey effort and polygons depicting this species, in addition to the marsh waterfowl areas.

Shorebird concentration areas – Polygons in this atlas represent concentration areas and "hotspots" for migratory shorebird species. Nesting locations for certain resident species are also depicted. LDWF wildlife biologists identified areas considered important for migratory shorebirds based upon expert knowledge. The primary sources used to create polygons depicting migratory shorebird habitat areas were: 1) the USGS 1988 Coastal Louisiana Habitat data; 2) the 2001 Outer Coast Environmental Sensitivity Index (ESI) data; 3) the 2000 USGS managed lands boundaries; and 4) the 2001 mini-refuge boundaries. Both the 1988 USGS Coastal Habitat data and the 2001 ESI shoreline classification were used to delineate shorebird concentration areas. In some cases, polygons represent a 100 m buffer of the shoreline. Some coastal management areas were identified as concentration areas for migratory shorebirds. Mini-refuge boundaries, describing boundaries of private properties managed for shorebirds and waterfowl, were also used to delineate shorebird concentration areas. In addition, digitized marsh impoundment areas inside some management units were used to delineate shorebird concentration areas.

Additional bird species, including raptor-nesting sites, are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Because historical and inactive waterbird colony locations can become active, all records describing waterbird colonies were retained, regardless of the age of the record. The waterbird colony records from the LNHP EOR database and mapped as buffer polygons that were duplicated in the LDWF Colonial waterbird nesting colonies were deleted. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set,

please contact the Louisiana Natural Heritage Program at 225/765-2823.

Expert contacts are: Gary Lester (LNHP), 225/765-2823, Robert Helm (LDWF), and William Vermillion (LDWF).

Birds are shown on the maps as polygons with a green-hatched pattern. Waterbird nesting colonies are shown as green points. Users should be aware that waterfowl may be feeding and rafting in nearshore and offshore areas in the vicinity and up to several kilometers (km) away from their nests.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. See the descriptions of the species groups mapped and the sources of data used (above) for information on how numeric concentration values and descriptive terms were generated. In some cases, concentration values have not been used if the information was not available. Note that concentration should not be interpreted as the "level of concern" or "importance" associated with a certain site or particular resource.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to months of the year. If a species or resource is present at a location in a particular month, an "X" is placed in the month column. The last three columns denote the migratory, nesting, and molting time-periods for each species.

Fish

Finfish depicted in this atlas include selected marine, estuarine, and freshwater species. Species of commercial, subsistence, recreational, ecological, and/or conservation interest are emphasized.

Freshwater fish – Polygons in this atlas represent waterbodies and other fish habitats with similar species composition and relative abundance summarized from groups of sampling stations and grouped by waterbody. LDWF fisheries biologists delineated representative waterbodies for each major group of sampling stations. In some cases, such as the Atchafalaya and Pearl River Basins, polygons represent both waterbodies and areas of regularly flooded wetlands. When these areas are flooded, fish species identified as present in waterbodies may be present in adjacent flooded habitats. The Mississippi and Atchafalaya Rivers were delineated as the boundary of the river itself as well as any connecting waterbody that fell within a 1 km buffer of the approximate centerline of the river. The primary source of data used to map inland fisheries for this atlas was the 1965-1997 LDWF inland fisheries sampling data set. In many locations, only electro-fishing was used to sample largemouth bass, a species of significant recreational importance. In some larger waterbodies, other gear, such as gillnets and rotenone sampling, was used, resulting in data for a larger variety of fish species. Gillnetting typically targets catfish, carp, drum, crappie, buffalo, gar, and bowfin. Rotenone typically results in data for the largest variety of species, including many smaller forage species. Data for each major waterbody were applied to the waterbody polygon delineated by LDWF fisheries biologists. A categorical description of the abundance values calculated by LDWF fisheries biologists was recorded as concentration. For largemouth bass, data from 1987 to 1997 were combined to derive average catch rates. For species sampled with rotenone or other gear, all data from 1965 to 1997 were combined to derive average catch rates. Categorical descriptors of relative abundance values for each species are based on percentile breaks in catch rates for that species, across waterbodies sampled in Louisiana, including waterbodies outside this atlas. In some cases, species were identified as present in certain waterbodies without a relative concentration. These species were assigned a concentration of 'PRESENT'. Note that all species identified as present in the Mississippi and Atchafalaya Rivers were not sampled and are based on expert knowledge. These species were assigned a concentration of 'PRESENT'. Many inland freshwater areas in coastal Louisiana are not sampled by the LDWF. Though not documented in this atlas, species such as catfish, carp, minnow and silverside are typically present in these areas.

Marine/estuarine fish – Polygons for marine/estuarine fish were obtained from NOAA Estuarine Living Marine Resources (ELMR) fish data. The ELMR data contained polygons of identified groups of fish based on the seasonality and salinity regime. The ELMR data were generalized to combine all regions that had the same species composition, regardless of lifestage and concentration, into one region. The variability was usually +/- 2 months on the seasonality information. The maximum relative abundance and sum of the seasonal range were used in creating the generalized distributions. Relative abundances are listed by month in the BREED data table. For each month where an ELMR species is present, a number code indicates the species abundance (1 no information, 2 rare, 3 common, 4 abundant, 5 highly abundant). The maximum abundance during the year is shown. The ELMR abundance codes usually refer to juvenile life stages, even though other life stages may be present. If juveniles are not present, the abundances refer to adults, or to larvae if adults and juveniles are not present. Various life-history stages or activities associated with the ELMR fish data include: spawning (parturition for sharks); eggs; larvae; juveniles; and adults.

To prevent conflict with the LDWF Inland fisheries data, duplicate species in the ELMR dataset were removed.

Additional freshwater and marine/estuarine fish species are included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823.

The resource experts listed below should be contacted for additional information on any of these or other finfish species that may occur in the area. Expert contacts are: Inland Fisheries Department (LDWF), 225/765-2330 and for ELMR Mark Monaco (NOAA), 301/713-3000.

Fish are shown on the maps as polygons with a blue-hatched pattern. In cases where multiple resource types occupy the same polygon (such as fish and invertebrates), a black-hatched, multi-group pattern is used rather than a blue-hatched polygon. A blue icon with a fish silhouette is used to indicate the presence of fish. This icon is associated with all polygons containing fish.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration values were not used for fish because concentration is often quite variable from year to year or not well known.

Seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an "X" is placed in the month column. If the species is from ELMR data then a value of 1-5 is placed in the month column to indicate relative abundance. The last columns denote different life-history time-periods for fish including spawning, eggs, larvae, juveniles, and adults.

Invertebrates

Invertebrates depicted in this atlas include crawfish and freshwater shrimp, which are species of commercial interest. Distribution and density information were derived from the 1965-1997 LDWF inland fisheries sampling data set used to map freshwater fish.

Polygons for marine/estuarine invertebrates were obtained from NOAA ELMR invertebrate data. The ELMR data contained polygons of identified groups of invertebrates based on the seasonality and salinity regime. The ELMR data were generalized to combine all regions that had the same species composition, regardless of life-history stage and concentration, into one region. The variability was usually +/- 2 months on the seasonality information. The maximum relative abundance and sum of the seasonal range were used in creating the generalized distributions. Relative abundances are listed by month in the BREED data table. For each month where an ELMR species is present, a number code indicates the species abundance (1 no information, 2 rare, 3 common, 4 abundant, 5 highly abundant). The maximum abundance during the year is shown. The ELMR abundance codes usually refer to juvenile life stages, even though other life stages may be present. If juveniles are not present, the abundances refer to adults, or to larvae if adults and juveniles are not present. Various life-history stages or activities associated with the ELMR invertebrate data include: spawning; eggs; larvae; juveniles; and adults. Expert contacts are: Inland Fisheries Department (LDWF), 225/765-2330 and for ELMR Mark Monaco (NOAA), 301/713-3000.

Additional invertebrate species may be included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that the EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823.

Invertebrates are shown on the maps as polygons with an orange-hatched pattern. An orange icon with a crab or bivalve silhouette is used to indicate the presence of these species. This icon

is associated with all polygons or point features containing invertebrates.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration values were not used for invertebrates because concentration is often quite variable from year to year or not well known.

The seasonality for each species or resource is shown in the next twelve columns, corresponding to the months of the year. If a species or resource is present at a location in a particular month, an "X" is placed in the month column. If the species is from ELMR data then a value of 1-5 is placed in the month column to indicate relative abundance. The last columns denote different life-history time-periods for invertebrates including spawning, eggs, larvae, juveniles, and adults.

BENTHIC AND WETLAND MARINE HABITATS

Three primary sources of data were used to map benthic and wetland habitats for this atlas: 1) 1988 USGS Coastal Louisiana Habitat data; 2) 1997 LDWF Louisiana Coastal Marsh Vegetative Type data; and 3) 1992 USGS Submerged Aquatic Vegetation data. Data for habitat types, particularly marsh types (saline, brackish, intermediate, and fresh), are critical to the entire Louisiana ESI atlas, in that most of the other biological data sets are based fully or in part on wetland habitats. The 1988 USGS Coastal Habitat data represent the actual wetland polygons used for this atlas. Integration of the 1988 USGS Coastal Habitat and 1997 LDWF Marsh Type data was performed using a GIS overlay operation to reattribute the more spatially explicit USGS marsh polygons with marsh type values from the more recent 1997 LDWF Marsh Type data.

In addition to the four marsh types, other habitats from the USGS data used in this atlas include forested wetlands, scrub-shrub wetlands, mangroves, and seagrasses. The 1992 USGS Submerged Aquatic Vegetation data were used to delineate seagrass beds in the Chandeleur Islands. Polygons representing seagrass beds from both the 1992 USGS data set and the 1988 USGS data set were merged to develop polygons representing seagrass in this data layer.

In summary, the wetland habitats added to the maps from the integration of USGS and LDWF data are listed below with their corresponding ESI shoreline code. (Also see legend for patterns shown on the maps).

10A) Salt Marsh	10B) Freshwater Marsh
10A) Brackish Marsh	10C) Forested Wetland
10A) Intermediate Marsh	10D) Scrub-Shrub Wetland (including black mangroves)
	Seagrass (no ESI code)

Additional habitats and community occurrences may be included in this atlas as part of the LNHP Element Occurrence Record (EOR) database. See the above description of these data and their preparation for details. Note that all occurrences of seagrass and mangrove habitat occurrences were removed from the EOR database. The EOR database is continually updated and maintained by the LNHP. For the most up to date, specific, and complete version of this data set, please contact the Louisiana Natural Heritage Program at 225/765-2823.

Rare plants are shown on the maps as polygons with a purple-hatched pattern. A purple icon with a plant silhouette is used to indicate the presence of these species. This icon is associated with all polygons or point features containing rare plants.

The RAR# under an icon (or icon group) on the maps references a table on the reverse side of the map. In this table, the first column contains the species common name. The second column indicates whether the species is listed as threatened (T), endangered (E), or special concern (C) on either the state (S) and/or federal (F) lists. The next column provides an estimate of the concentration of the species at the site. Concentration values were not used for plants because concentration is not available.

HUMAN-USE RESOURCES

Most human-use resources in this atlas are mapped as point features, indicated by a black and white icon (see legend). Management areas such as wildlife refuges, national parks, and scenic rivers, are mapped as polygons, with the boundaries indicated as a black dot-dash line with the corresponding icon placed near the center of the polygon. Where the feature is a known point location (e.g., airport), the exact location is shown as a small black dot and a leader line is drawn from it to the icon. The types of human-use features included in the atlas are described below:

Airports/Heliport: Locations of airports, airfields, landing strips, helipads etc., whether they are manned or unmanned, are shown as point features.

Boat Ramps: Locations of boat ramps, improved and unimproved, are shown as point features.

Indian Reservations: Tribal lands are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map.

Marinas: Locations of marinas are shown as point features.

National Parks: Areas managed by the National Park Service are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map.

Nature Conservancy Preserves: Areas managed by the Nature Conservancy are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map.

Scenic Rivers: National Wild and Scenic Rivers are depicted using dashed lines to indicate designation boundaries.

State Parks: Areas managed by state and local authorities are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map.

Wildlife Refuges: Areas managed by the USFWS as National Wildlife Refuges and Wilderness Areas are depicted using dashed lines to indicate site boundaries. Site names are provided on the data tables for each map.

GEOGRAPHIC INFORMATION SYSTEM

The entire atlas product is stored in digital form in a Geographic Information System (GIS) as spatial data layers and associated databases. Format for the data varies depending on the type of information or features for which the data are being stored.

Under separate cover is a metadata document that details the data dictionary, processing techniques, data lineage, and other descriptive information for the digital data sets and maps that were used to create this atlas. Below is a brief synopsis of the information contained in the digital version. Refer to the metadata file for a full explanation of the data and its structure.

SHORELINE CLASSIFICATIONS

The ESI shoreline habitat classification is stored as lines and polygons with associated attributes. In many cases, a shoreline may have two or three different classifications. These multiple classifications are represented on the maps by double and triple line patterns and in the database by ESI#1/ESI#2, where ESI#1 is the landward-most classification and ESI#2 is the seaward-most classification. In addition to the line features, exposed wave-cut platforms (ESI 2A) and tidal flats (ESI 7, ESI 9A) are also stored as polygons.

SENSITIVE BIOLOGICAL RESOURCES

Biological resources are stored as polygons, points, or arcs. Associated with each feature is a unique identification number that is linked to a series of data tables that further identify the resources. The main biological resource table consists of a list of species identification numbers for each site, the concentration of each species at each site, and identification codes for seasonality and source information. This data table is linked to other tables that describe the seasonality and life-history time-periods for each species (at month resolution) for the specified map feature. Other data tables linked to the first table include: the species identification table, that includes common and scientific names; the species status table, that gives information for state and/or federal threatened or endangered listings; and the source database, that provides source metadata at the feature-species level (specific sources are listed for each species occurring at each mapped feature in the biology coverages).

HUMAN-USE FEATURES

Human-use features are represented as lines, points, or polygons. The resource name, the owner/manager, a contact person, and phone number are included in the database for management areas when available. All metadata sources are documented at the feature level.

REFERENCES

The major hardcopy reference materials used in this project are listed below. In some instances, reference materials were not directly used as source materials, but were instead used or interpreted by scientists or resource managers who provided expert knowledge or personal communication for the resources depicted in the atlas.

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At Research Planning, Inc., Scott Zengel was the LA G-WIS Project Manager. Colin Plank and Miles Hayes performed the shoreline classification. William Holton was responsible for atlas production. Zach Nixon was the GIS Coordinator. Jeff Dahlin, Jon Whitlock, Chris Locke, and Jennifer Rainman performed data processing under the direction of Mark White, GIS Manager. Vermell Simon prepared the final metadata. Joe Holmes provided cartographic design, text, and graphics production.

APPROPRIATE USE OF ATLAS AND DATA

This atlas and the associated database were developed to provide summary information on sensitive natural and human-use resources for the purposes of oil and chemical spill planning and response. Although the atlas and database should be very useful for other environmental and natural resource planning purposes, it should not be used in place of data held by the USFWS, NPS, USGS, LDWF, NMFS, or other agencies. Likewise, information contained in the atlas and database cannot be used in place of consultations with natural and cultural resource agencies, or in place of field surveys. Also, this atlas should not be used for navigation.

SPECIES LIST

Common Name	* Species Name
BIRDS	
DIVING BIRDS	
Anhinga	*Anhinga anhinga*
Brown pelican	*Pelecanus occidentalis*
Neotropic cormorant	*Phalacrocorax brasilianus*
GULLS AND TERNS	
Black skimmer	*Rynchops niger*
Caspian tern	*Sterna caspia*
Colonial waterbirds	-
Endangered seabird	-
Forster's tern	*Sterna forsteri*
Gull-billed tern	*Sterna nilotica*
Laughing gull	*Larus atricilla*
Least tern	*Sterna antillarum*
Rare seabird	-
Royal tern	*Sterna maxima*
Sandwich tern	*Sterna sandvicensis*
PASSERINE BIRDS	
Endangered passerine-like bird	-
Rare passerine-like bird	-
Raptors	-
Rare raptor	-
Threatened raptor	-
SHOREBIRDS	
Piping plover	*Charadrius melodus*
Rare shorebird	-
Shorebirds	-
Snowy plover	*Charadrius alexandrinus*
Threatened shorebird	-
Wilson's plover	*Charadrius wilsonia*
WADING BIRDS	
Black-crowned night-heron	*Nycticorax nycticorax*
Cattle egret	*Bubulcus ibis*
Great blue heron	*Ardea herodias*
Great egret	*Ardea alba*
Little blue heron	*Egretta caerulea*
Rare wading bird	-
Reddish egret	*Egretta rufescens*
Roseate spoonbill	*Ajaia ajaja*
Snowy egret	*Egretta thula*
Tricolored heron	*Egretta tricolor*
White ibis	*Eudocimus albus*
White-faced or Glossy ibis	*Plegadis spp.*
Yellow-crowned night-heron	*Nyctanassa violacea*
WATERFOWL	
American coot	*Fulica americana*
American wigeon	*Anas americana*
Blue-winged teal	*Anas discors*
Canvasback	*Aythya valisineria*
Gadwall	*Anas strepera*
Green-winged teal	*Anas crecca*
Hooded merganser	*Lophodytes cucullatus*
Lesser scaup	*Aythya affinis*
Mallard	*Anas platyrhynchos*
Mottled duck	*Anas fulvigula*
Northern pintail	*Anas acuta*
Northern shoveler	*Anas clypeata*
Ring-necked duck	*Aythya collaris*
FISH	
FISH	
Endangered fish	-
Rare fish	-
Threatened fish	-
Diadromous fish	-
American eel	*Anguilla rostrata*
Gizzard shad	*Dorosoma cepedianum*
Gulf sturgeon	*Acipenser oxyrinchus desotoi*
Hybrid striped bass	*Morone sp.*
Skipjack herring	*Alosa chrysochloris*
Striped bass	*Morone saxatilis*
Estuarine nursery fish	-
Atlantic croaker	*Micropogonias undulatus*
Bay anchovy	*Anchoa mitchilli*
Black drum	*Pogonias cromis*
Gray snapper	*Lutjanus griseus*
Gulf menhaden	*Brevoortia patronus*
Hogchoker	*Trinectes maculatus*
Ladyfish	*Elops saurus*
Red drum	*Sciaenops ocellatus*
Sand seatrout	*Cynoscion arenarius*
Sheepshead	*Archosargus probatocephalus*
Southern flounder	*Paralichthys lethostigma*
Spot	*Leiostomus xanthurus*
Spotted seatrout	*Cynoscion nebulosus*
Striped mullet	*Mugil cephalus*
Tarpon	*Megalops atlanticus*

Common Name	* Species Name
FISH cont.	
Estuarine resident fish	-
Gulf pipefish	*Syngnathus scovelli*
Inland silverside	*Menidia beryllina*
Lined sole	*Achirus lineatus*
Roughtail stingray	*Dasyatis centroura*
Silver perch	*Bairdiella chrysoura*
Violet goby	*Gobioides broussoneti*
Freshwater fish	-
Alligator gar	*Lepisosteus spatula*
Bantam sunfish	*Lepomis symmetricus*
Bighead carp	*Hypopthalmichthys nobilis*
Bigmouth buffalo	*Ictiobus cyprinellus*
Black buffalo	*Ictiobus niger*
Black bullhead	*Ameiurus melas*
Black crappie	*Pomoxis nigromaculatus*
Blue catfish	*Ictalurus furcatus*
Blue sucker	*Cycleptus elongatus*
Bluegill	*Lepomis macrochirus*
Bowfin	*Amia calva*
Catfish	-
Channel catfish	*Ictalurus punctatus*
Chubsucker	*Erimyzon sp.*
Common carp	*Cyprinus carpio*
Darters	-
Flathead catfish	*Pylodictis olivaris*
Flier	*Centrarchus macropterus*
Freshwater drum	*Aplodinotus grunnieus*
Golden shiner	*Notemigonus crysoleucas*
Goldfish	*Carassius auratus*
Grass carp	*Ctenopharyngodon idella*
Green sunfish	*Lepomis cyanellus*
Hybrid sunfish	*Lepomis spp.*
Largemouth bass	*Micropterus salmoides*
Logperch	*Percina caprodes*
Longear sunfish	*Lepomis megalotis*
Longnose gar	*Lepisosteus osseus*
Madtoms	*Noturus spp.*
Minnows	-
Orangespotted sunfish	*Lepomis humilis*
Paddlefish	*Polyodon spathula*
Pirate perch	*Aphredoderus sayanus*
Quillback	*Carpiodes cyprinus*
Redear sunfish	*Lepomis microlophus*
River carpsucker	*Carpiodes carpio*
Shiners	*Notropis spp.*
Shortnose gar	*Lepisosteus platostomus*
Shovelnose sturgeon	*Scaphirhynchus platorynchus*
Silver carp	*Hypopthalmichthys molitrix*
Smallmouth buffalo	*Ictiobus bubalus*
Spotted bass	*Micropterus punctulatus*
Spotted gar	*Lepisosteus oculatus*
Spotted sucker	*Minytrema melanops*
Spotted sunfish	*Lepomis punctatus*
Threadfin shad	*Dorosoma petenense*
Warmouth	*Lepomis gulosus*
White bass	*Morone chrysops*
White crappie	*Pomoxis annularis*
Yellow bass	*Morone mississippiensis*
Yellow bullhead	*Ameiurus natalis*
Marine Benthic	-
Bay whiff	*Citharichthys spilopterus*
Florida pompano	*Trachinotus carolinus*
Fringed flounder	*Etropus crossotus*
Gobies	-
Speckled worm eel	*Myrophis punctatus*
Marine pelagic fish	-
Atlantic needlefish	*Strongylura marina*
Crevalle jack	*Caranx hippos*
Spanish mackerel	*Scomberomorus maculatus*
HABITAT	
PLANTS	
Endangered plant	-
Rare plant	-
Seagrass	-
Submersed aquatic vegetation	-
Upland	-
Coastal dune grassland	-
Coastal dune scrub thicket	-
Coastal live oak-hackberry forest	-
Coastal prairie	-
Hardwood slope forest	-
Live oak forest	-
Longleaf pine savannah	-
Pine flatwoods	-
Pine savannah	-

*** Threatened and endangered species are designated by underlining.**

Common Name	* Species Name

HABITAT cont.

PLANTS cont.	
Prairie terrace loess forest	-
Salt dome	-
Slash pine/post oak forest	-
Spruce pine-hardwood mesic flatwood	-
Wetland	-
Brackish marsh	-
Forested wetland	-
Freshwater marsh	-
Intermediate marsh	-
Salt marsh	-
Scrub-shrub wetland, including black mangroves	-
Slash pine-cypress/hardwood forest	-

INVERTEBRATES

BIVALVES	
Rare freshwater mussel	-
Threatened freshwater mussel	-
CEPHALOPOD	
Bay squid	*Lolliguncula brevis*
CRABS	
Blue crab	*Callinectes sapidus*
Gulf stone crab	*Menippe adina*
CRAYFISH	
Rare crayfish	-
Red swamp crawfish	*Procambarus clarkii*
White river crawfish	*Procambarus acutus*
INSECTS	
Rare insect	-
SHRIMP	
Brown shrimp	*Penaeus aztecus*
Florida stone crab	*Menippe mercenaria*
Pink shrimp	*Penaeus duorarum*
River shrimp	*Macrobrachium sp.*
White shrimp	*Penaeus setiferus*

REPTILES

ALLIGATORS	
American alligator	*Alligator mississippiensis*
OTHER REPTILES/AMPHIBIANS	
Rare amphibian	-
Rare lizard	-
Rare snake	-
TURTLES	
Rare terrestrial/aquatic turtle	-
Threatened aquatic turtle	-
Threatened sea turtle	-

TERRESTRIAL MAMMALS

BATS	
Rare bat	-
BEARS	
Louisiana black bear	*Ursus americanus luteolus*
Threatened bear	-
SMALL MAMMALS	
Common raccoon	*Procyon lotor*
Mink	*Mustela vison*
Muskrat	*Ondatra zibethicus*
Northern river otter	*Lutra canadensis*
Nutria	*Myocastor coypus*
Rare small mammal	-

*** Threatened and endangered species are designated by underlining.**

SHORELINE DESCRIPTIONS

EXPOSED, SOLID MAN-MADE STRUCTURES **ESI = 1B**

DESCRIPTION

- Typically composed of concrete or metal bulkheads
- Organisms, such as barnacles and algae, may be common on the lower levels, whereas biota along the upper intertidal zone are sparse
- Attached organisms are hardy and accustomed to strong hydraulic impacts and pressures
- Found only in small areas usually on the barrier islands to provide protection to residential and industrial developments where these structures are threatened by beach erosion

PREDICTED OIL BEHAVIOR

- Much of the oil will be held offshore by wave reflection
- Oil could percolate between the joints of the structures
- Under heavy accumulations, oil may coat the intertidal area and biota present would be impacted

RESPONSE CONSIDERATIONS

- High-pressure spraying may be required in order to:
  - remove oil
  - prepare substrate for re-colonization of epifaunal communities
  - minimize aesthetic damage
  - prevent the chronic leaching of oil from the structure

EXPOSED WAVE-CUT PLATFORMS IN CLAY **ESI = 2A**
EXPOSED SCARPS AND STEEP SLOPES IN CLAY **ESI = 2B**

DESCRIPTION

- Regular exposure to high wave energy, with strong wave reflection patterns
- Intertidal zone is a flat muddy bench of variable width
- The mud may incorporate a high percentage of organic material and root masses from older salt marsh vegetation
- May be backed by a shell berm (considered a gravel beach)
- Substrate is relatively impermeable though potential for deep subsurface penetration exists where burrowed by organisms or where root cavities are exposed
- Surface is irregular and tidal pools may be present
- Small accumulations of gravel or shells can be found in the tidal pools and crevices in the platform
- May support large populations of encrusting animals and plants, with rich tidal pool communities
- Common throughout the more exposed shorelines of the delta

PREDICTED OIL BEHAVIOR

- Oil will not adhere to the muddy substrate, but rather be transported across the platform and accumulate along the high-tide line, where it can penetrate in beach sediments, if present. Oil may also adhere to any relict plant material (root masses, etc.)
- Persistence of oiled sediments is usually short-term, except in burrows or larger sediment accumulations at the landward edge of the platform, where oil can persist for up to several weeks to months
- Biological impacts can be immediate and severe, particularly if fresh oil slicks cover tidal pool communities or penetrate burrows
- Where oil penetrates burrows it can be expected to persist in relatively unweathered condition for long periods of time

RESPONSE CONSIDERATIONS

- Cleanup is usually not required, because oil is quickly removed by wave action
- Access may be difficult and dangerous; minimize trampling to avoid increased penetration
- Where the high-tide area is accessible, it may be feasible to remove heavy oil accumulations and oiled debris in areas of high recreational use or in order to protect a nearshore marine resource, such as marine birds

FINE- TO MEDIUM-GRAINED SAND BEACHES **ESI = 3A**
SCARPS AND STEEP SLOPES IN SAND **ESI = 3B**

DESCRIPTION

- Generally flat, wide, and hard-packed
- Rate of sediment mobility is relatively low, thus rapid, dramatic changes in the beach profile are not common
- Surface sediments subject to regular reworking by waves
- Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical
- Shorebird nests, eggs, and hatchlings can be expected on nearly all outer coast sand beaches
- Extensive fine- to medium-grained sand beaches are found on the barrier islands of the outer coast

PREDICTED OIL BEHAVIOR

- Light oil accumulations are deposited as oily swashes or bands along the upper intertidal zone
- Heavy oil accumulations, can cover entire beach surface; the oil will be lifted off the lower beach with the rising tide

- Maximum penetration of oil is about 10 cm into fine-grained sand and 15 cm into medium-grained sand
- Burial of oiled layers by clean sand can occur within hours on these microtidal beaches, but the maximum burial will typically occur along the upper beach face to depths less than 30 cm
- Organisms living in the beach may be killed by smothering or lethal oil concentrations in interstitial water
- There can be direct and indirect impacts to bird nests, eggs, and hatchlings

RESPONSE CONSIDERATIONS

- The easiest beach type to clean, because hard substrate can support vehicular and foot traffic and depths of oil burial and penetration are minimal
- After all oil has come ashore, cleanup activities should concentrate on the removal of oil from the upper swash zone
- Vehicular traffic and walking through oiled areas and dunes should be limited to prevent contamination of clean areas and disturbance of dune vegetation
- Vehicular and foot traffic, and mechanical or manual beach cleanup, should be carefully planned and monitored in shorebird nesting areas to avoid disturbance and destruction of nests, eggs, and young
- Manual cleanup, rather than road graders and front-end loaders, is advised where feasible to minimize the volume of sand removed from the shore
- Prevent the mixture of oil deeper into the sediments by vehicular and foot traffic

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COARSE-GRAINED SAND BEACHES **ESI = 4**

DESCRIPTION

- Moderate to steep beachface slopes. Sediments are soft and permeable with low trafficability
- The rate of sediment mobility is relatively high, with the vertical accumulation of up to 20 cm of sediments possible within a single tidal cycle
- Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical
- Not quite as common as fine-to-medium grained sand beaches, they are found on transgressive portions of the barrier islands, usually grading into mixed sand and gravel beaches
- In places, they occur at the upper intertidal zone on wave-cut platforms

PREDICTED OIL BEHAVIOR

- During small spills, oil may be deposited primarily as a band along the high-tide line
- Under very heavy accumulations, oil may spread across the entire intertidal zone, though it will be lifted off the lower part of the beach during the rising tide
- Penetration up to 25 cm possible
- Burial of oiled layers by clean sand can be rapid, to depths of 1 m or more if the oil comes ashore at the start of a depositional period
- Organisms living in the beach may be killed by smothering or lethal oil concentrations in interstitial water
- There can be direct and indirect impacts to bird nests, eggs, and hatchlings

RESPONSE CONSIDERATIONS

- Cleanup is more difficult than for finer-grained beaches because equipment tends to grind oil into the substrate due to the loosely packed and permeable nature of these coarser-grained sediments; therefore, special care must be exercised at all times while using heavy equipment in order to prevent mixing oil deeper into the beach sediment

- Use of heavy equipment for oil/sand removal may also result in the removal of excessive amounts of sand; therefore, where feasible and for smaller amounts of oil, manual cleanup may be desirable
- Vehicular traffic and walking through oiled areas and dunes should be limited, to prevent contamination of clean areas and disturbance of dune vegetation
- Vehicular and foot traffic, and mechanical or manual beach cleanup, should be carefully planned and monitored in shorebird nesting areas to avoid disturbance and destruction of nests, eggs, and young
- Removal of sediment should be limited as much as possible to avoid erosion problems on the beach in the future; however, the common occurrence of multiple buried oil layers in these types of beaches increases the amount of sediment to be handled and disposed of
- Mechanical reworking of the sand into the surf zone (surf washing) may be used under optimal conditions as a polishing step for lightly oiled sediments without sediment removal

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MIXED SAND AND GRAVEL BEACHES **ESI = 5**

DESCRIPTION

- Moderately sloping beach composed of a mixture of sand and at least 20 percent gravel
- Soft sediments with low trafficability
- Sediment mobility is very high during storms, but considerably less than sand beaches during normal conditions
- Spatial variations in the distribution of grain sizes may be significant, with separate zones of pure sand, pebbles, or cobbles, in addition to the mixed zones
- Gravel can be composed of a variety of materials, including shells and other calcium carbonate materials
- Substrate has medium-to-high permeability
- Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical
- Though relatively uncommon they are found where the barrier islands are undergoing long-term erosion and as berms perched at the landward edge of mud platforms

PREDICTED OIL BEHAVIOR

- During small spills, oil may be deposited along the high-tide swash line
- During large spills, oil may be spread across the entire intertidal area
- Oil penetration into the beach sediments may be up to 50 cm; however, the sand fraction can be quite mobile, and if the sand fraction exceeds about 40 percent, oil behavior is similar to that described for sand beaches
- Significant amounts of oil can be eroded away during storms
- Burial of oil may be deep (up to 1 m) if oil comes ashore while the beach is recovering from storm conditions
- Organisms living in the beach may be killed by smothering or lethal oil concentrations in interstitial water

RESPONSE CONSIDERATIONS

- Remove heavy accumulations of pooled oil as quickly as possible
- All oiled debris should be removed
- Vehicular traffic and walking through oiled areas should be limited, to prevent contamination of clean areas
- Vehicular and foot traffic, and mechanical or manual beach cleanup, should be carefully planned and monitored in shorebird nesting areas to avoid disturbance and destruction of nests, eggs, and young
- Mechanical reworking of oiled sediments from the high-tide zone to the upper intertidal zone for wave reworking (berm relocation) can be effective in areas subject to significant wave action
- In-place tilling may be used to expose deeply buried oil layers to wave reworking in areas subject to significant wave action
- In-place Mechanical reworking of the sediments into the surf zone (surf washing) may be used under optimal conditions as a polishing step for lightly oiled sediments without sediment removal

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GRAVEL BEACHES **ESI = 6A**

DESCRIPTION

- Composed of sediments larger than 2 mm (granules, pebbles, cobbles and boulders) made up of shell fragments
- Most permeable of all beach sediments
- Lowest trafficability of all beach types
- Slope is intermediate to steep with multiple, wave-built berms and washovers usually forming the upper beach (see arrow)
- Sediment replenishment rates are lowest of all beach types
- Attached animals and plants are usually restricted to lowest parts of the beach, where the sediments are less mobile
- Common throughout the delta as perched berms and washovers atop wave-cut mud scarps

PREDICTED OIL BEHAVIOR

- Deep penetration and rapid burial of stranded oil is likely; penetration of tens of cm (over 1 m possible) can extend oil to depths below where it cannot be reworked by any natural process except extreme storms
- Therefore, long-term persistence will be controlled by the depth of penetration versus the depth of routine reworking by storm waves
- Oil may be carried over the normal high-tide line and storm berms during high-water events, where it can pool and persist above the normal zone of wave wash
- In more sheltered areas, formation of asphalt pavements is likely if oil accumulations are heavy

RESPONSE CONSIDERATIONS

- Because of the low trafficability, the rapid rates of burial, and deep penetration of the oil, this is the most difficult of all the beach types to clean
- Sediment removal should be limited as much as possible, because of potential beach erosion problems in the future
- Low-pressure flushing can be used to remove heavy oil where collection of the flushed oil is feasible, but high-pressure flushing should be avoided since the shell fragments are likely to be blown away by the water pressure

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RIPRAP **ESI = 6B**

DESCRIPTION

- Composed of cobble- to boulder-sized rock fragments
- Used for shoreline protection and inlet stabilization
- Attached low-intertidal zone biota may be plentiful and varied
- Relatively common in all the developed areas of the barrier islands and in small amounts associated with industrial sites

PREDICTED OIL BEHAVIOR

- Oil can penetrate deeply into the highly permeable riprap
- Oil adheres readily to the rough rock surfaces
- If left uncleaned, oil may cause chronic leaching (weeks to months) until it hardens
- Resident fauna and flora may be killed by the oil

RESPONSE CONSIDERATIONS

- Flushing can be effective for removing mobile oil, but large amounts of residue can remain after flushing, particularly for heavy oil

EXPOSED TIDAL FLATS **ESI = 7**

DESCRIPTION

- Flat intertidal areas, composed primarily of sand and mud, that vary in width from a few to hundreds of meters
- The presence of sand indicates that tidal or wind-driven currents and waves are strong enough to mobilize the sediments
- Usually associated with another shoreline type on the landward side of the flat
- Sediments usually remain water-saturated, with only the topographically higher ridges drying out during low tide
- Sediments are generally too soft for vehicular traffic
- Biological utilization can be very high, with large numbers of infauna and heavy use by birds for roosting and foraging
- Common in the study area, associated with inlets and washovers of barrier islands and the chenier west of the deltas

PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of exposed tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil does not typically penetrate these water-saturated sediments, except on the top of sand bars and into animal burrows if they dry out at low tide; thus, oil penetration is limited to a maximum of a few cm
- Because of the high biological use, impacts can be significant to benthic invertebrates that are smothered or exposed to the water-accommodated fraction of the oil

RESPONSE CONSIDERATIONS

- In most cases, the best response is to let the oil, which is primarily on the surface of the flat, be removed naturally
- Natural removal tends to happen rather quickly in this habitat, because of its exposure to waves and tidal currents
- Cleanup is very difficult, because of the potential for mixing the oil deeper into the sediments
- If cleanup is attempted, the use of heavy machinery should be restricted in order to prevent contamination of the subsurface sediments, with manual removal being preferred; however, heavy foot traffic can also result in mixing the oil deeper

SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY **ESI = 8A**

DESCRIPTION

- Mud and clay shores of variable slope (from vertical cliffs to wide, rocky ledges) that are sheltered from exposure to most wave and tidal energy
- Attached biota may be plentiful and varied, especially in lower and mid-intertidal zones
- Sheltered muddy scarps are relatively rare on the outer coast and are usually associated with man-made cuts through salt marsh, occurring naturally in only a few bays and coves

PREDICTED OIL BEHAVIOR

- Oil will be found along the high-tide line, forming a distinct oil band
- Oil can persist because of the low energy setting
- Where burrowing is present, oil can penetrate deeply, causing long-term contamination of the subsurface
- Impacts to attached organisms can be severe

RESPONSE CONSIDERATIONS

- Cleanup is often required because natural removal rates are slow
- Water flushing at ambient water temperatures is most effective when the oil is fresh

- All pooled oil and oiled debris should be removed as soon as possible
- Pockets of liquid oil can be removed manually or with sorbents

SHELTERED, MAN-MADE STRUCTURES **ESI = 8B**

DESCRIPTION

- Include revetments, seawalls, piers, and docks typically constructed of impermeable materials such as concrete and wood
- Commonly found inside harbors and bays in highly developed areas sheltered from direct exposure to waves
- Attached biota may be plentiful and varied, especially in lower tidal zones

PREDICTED OIL BEHAVIOR

- On impermeable surfaces, the oil will form a band at the high-tide line
- If the oil is not removed, it may cause chronic leaching until the oil hardens
- Impacts to attached organisms can be severe

RESPONSE CONSIDERATIONS

- Cleanup is frequently required, because natural removal rates are slow and these features are located in populated areas
- High-pressure spraying may be required to remove oil for aesthetic reasons and to prevent oil leaching from the structure
- Cleanup crews should make sure to recover all released oil
- All pooled oil and oiled debris should be removed as soon as possible

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SHELTERED RIPRAP **ESI = 8C**

DESCRIPTION

- Composed of cobble- to boulder-sized rock fragments, similar to exposed riprap but sheltered from wave energy
- Commonly found inside harbors and bays in highly developed areas sheltered from direct exposure to waves
- Attached biota may be plentiful and varied, especially in lower tidal zones

PREDICTED OIL BEHAVIOR

- On impermeable surfaces, the oil will form a band at the high-tide line; oil will adhere readily to the rough rock surfaces
- Deep penetration of oil possible because of the high permeability of the riprap
- If the oil is not removed, it may cause chronic leaching (weeks to months) until the oil hardens
- Impacts to attached organisms can be severe

RESPONSE CONSIDERATIONS

- Cleanup is frequently required, because natural removal rates are slow and these features are located in populated areas
- Flushing can be effective for removing mobile oil, but large amounts of residue can remain after flushing, particularly for heavy oil. Clean up is often difficult and intrusive

- High-pressure spraying and/or scraping may be required to remove oil for aesthetic reasons and to prevent leaching of oil from the structure
- Cleanup crews should make sure to recover all released oil
- All pooled oil and oiled debris should be removed quickly

SHELTERED TIDAL FLATS **ESI = 9A**

DESCRIPTION

- Sheltered tidal flats are composed primarily of mud with minor amounts of sand and shell
- They are present in calm-water habitats, sheltered from major wave activity, frequently in unvegetated areas within back-barrier portions of the islands and inner regions of the delta
- The sediments are very soft and cannot support even light foot traffic in many areas
- They can have heavy wrack deposits along the upper fringe
- There can be large concentrations of invertebrates on and in the sediments

PREDICTED OIL BEHAVIOR

- Oil does not usually adhere to the surface of sheltered tidal flats, but rather moves across the flat and accumulates at the high-tide line
- Deposition of oil on the flat may occur on a falling tide if concentrations are heavy
- Oil will not penetrate the water-saturated sediments, but could penetrate burrows and desiccation cracks or other crevices in muddy sediments

RESPONSE CONSIDERATIONS

- These are high-priority areas necessitating the use of spill protection devices to limit oil-spill impact; deflection or

sorbent booms and open water skimmers should be used

- Cleanup of the flat surface is very difficult because of the soft substrate; many methods may be restricted
- Care should be taken to limit foot traffic during any cleanup operations, to avoid mixing oil into the sediments
- Low-pressure flushing and deployment of sorbents from shallow-draft boats may be helpful
- Oiled wrack should be removed without sediment disturbance

SHELTERED, VEGETATED LOW BANKS **ESI = 9B**

DESCRIPTION

- Sheltered banks of stream channels, canals, and other waterways
- Calm-water habitats that are typically muddy, soft, and highly vegetated
- Wave energy is very low, although there may be some tidal and/or riverine currents along the banks
- Present but not abundant throughout the delta, usually along man-made cuts or areas flooded during surveys

PREDICTED OIL BEHAVIOR

- Oil adheres readily to vegetation
- Natural removal rates very slow because of low energy and dense vegetation

- The band of oil coating on the vegetation will vary widely, depending upon the tidal stage at the time of oiling; there may be multiple bands
- If the vegetation is thick, heavy oil coating will be restricted to the outer fringe, with penetration and lighter oiling to the limit of tidal influence
- In areas of high suspended sediments, sorption of oil can result in deposition of contaminated sediments on the channel banks and bottoms

RESPONSE CONSIDERATIONS

- These are high-priority areas necessitating the use of spill protection devices to limit oil-spill impact; most are along channels that have a opening to the open ocean close by; therefore, deflection booming should be used to prevent the oil from entering the channel mouth
- Cleanup of the banks is very difficult because of the soft substrate
- Manual operations and deployment of sorbents from shallow-draft boats may be helpful
- Under light oiling, the best practice is to let the area recover naturally
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing
- Any cleanup activity must not mix the oil deeper into the sediments; trampling of the plant roots must be minimized
- Cutting of oiled vegetation should only be considered when other resources present (such as birds) are at great risk from leaving the oiled vegetation in place

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SALT- AND BRACKISH-WATER MARSHES **ESI = 10A**

DESCRIPTION

- Intertidal wetlands consisting of emergent, herbaceous vegetation
- Marshes vary in extent from extensive areas to narrow fringes
- Sediments in the substrate range from fine sands to silts and organically rich muds

PREDICTED OIL BEHAVIOR

- Oil adheres readily to intertidal vegetation
- Oil coating typically takes the form of a band of varying width; multiple bands are possible
- Large slicks will persist through multiple tidal cycles and coat vegetation from high tide line to the base of the stem
- If the vegetation is thick, the heaviest oil coating will be restricted to the outer fringe of the marsh. However, the lighter the oil, the further into the marsh it may penetrate
- Heavy and weathered oils do not readily adhere to or penetrate the fine sediments, but can pool in surface depressions or collect in burrows
- Light oils can penetrate the top few centimeters of sediment and deeply into burrows and cracks (up to one meter)

RESPONSE CONSIDERATIONS

- Extent of oiling and natural removal processes and rates should be evaluated prior to conducting cleanup
- Under light oiling, allow the area time to recover naturally

- Sorbents should be deployed to contain oil as it is naturally removed
- Cleanup crews and activities must be carefully monitored to avoid unnecessary vegetation damage
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Cutting of oiled vegetation should only be considered when other resources present (such as birds) are at great risk from leaving the oiled vegetation in place
- In-situ burning may be considered for removal of free oil pooled in the marsh

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FRESHWATER MARSHES **ESI = 10B**

DESCRIPTION

- Consist of emergent, herbaceous freshwater vegetation
- Marshes vary in extent from extensive areas to narrow fringes
- Sediments are composed of fine sand, silt, organic-rich mud, and potentially thick accumulations of peat

PREDICTED OIL BEHAVIOR

- Oil adheres readily to vegetation
- Oil coating typically takes the form of a band of varying width; multiple bands are possible
- If the vegetation is thick, the heaviest oil coating will be restricted to the outer fringe of the marsh. However, the lighter the oil, the further into the marsh it may penetrate
- Medium to heavy oils do not readily adhere to or penetrate the fine sediments, but can pool in surface depressions or collect in burrows
- Light oils can penetrate the top few centimeters of sediment and deeply into burrows and cracks (up to one meter)

RESPONSE CONSIDERATIONS

- Extent of oiling and natural removal processes and rates should be evaluated prior to conducting cleanup
- Under light oiling, allow the area time to recover naturally
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing taking care to prevent oiling of sensitive areas down slope or along shore
- Sorbents should be deployed to contain oil as it is naturally removed

- Cleanup crews and activities must be carefully monitored to avoid unnecessary vegetation damage
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Cutting of oiled vegetation should only be considered when other resources present (such as birds) are at great risk from leaving the oiled vegetation in place
- In-situ burning may be considered for removal of free oil pooled in the marsh

FRESHWATER SWAMPS **ESI = 10C**

DESCRIPTION

- Freshwater swamps consist of shrubs and forested wetlands
- The sediment tends to be silty clay with large amounts of organic debris
- They may be seasonally flooded, though there are many low, permanently flooded areas
- Resident flora and fauna are abundant with numerous species
- They occur along freshwater drainages, often adjacent to freshwater marshes

PREDICTED OIL BEHAVIOR

- Oiled woody vegetation is less sensitive than marshes to oil coating
- Some oil can be trapped and pooled on the swamp flood plain as water levels drop
- Penetration into the floodplain soils is usually limited because of high water levels, muddy composition, surface organic debris, and vegetation cover
- Large amounts of oily debris can be sources of chronic sheening
- During dry periods, terrestrial spills flow downhill and accumulate in depressions or reach waterbodies

RESPONSE CONSIDERATIONS

- Under light oiling, the best practice is to let the area recover naturally
- Heavy accumulations of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing. During flushing, care must be taken to prevent transporting oil to sensitive areas down slope or along shore

- Cleanup crews and activities must be carefully monitored to avoid unnecessary vegetation damage
- Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized
- Cutting of oiled herbaceous vegetation should only be considered when other resources present (such as birds) are at great risk from leaving the oiled vegetation in place; trees should not be cut
- Under stagnant water conditions, herding of oil with water spray may be needed to push oil to collection areas
- Oily debris can be removed where there is access

SCRUB-SHRUB WETLANDS, INCLUDING BLACK MANGROVES **ESI = 10D**

DESCRIPTION

- Roots and trunks are submerged in water, with only the lowest leaves inundated at high water levels
- Includes black mangroves along the outer coast, which increase in occurrence during years of mild winters; black mangroves tend to occur along the outer fringe of salt marshes
- Relatively sheltered from waves and strong tidal currents
- The width of the forest can range from one tree to a many kilometers
- The substrate generally consists of muds and/or hydric soils
- Important feeding and nesting areas for wildlife (such as birds)
- Occur along sheltered shorelines and estuarine areas throughout the delta

PREDICTED OIL BEHAVIOR

- Oil can wash through vegetation if it comes ashore at high tide
- Heavy and emulsified oil can be trapped in and adhere to thickets of roots or pneumatophores
- Re-oiling from resuspended or released oil residues may cause additional injury over time
- Oiled trees may start to show evidence of effects (leaf yellowing) days to weeks after oiling; tree mortality may take months, especially for heavy oils
- Oil that penetrates the substrate or gets mixed into the sediments can cause long-term contamination of sediments and severe plant injury and mortality

RESPONSE CONSIDERATIONS

- Wrack may protect the trees from oiling, so wait until the threat of oiling has passed before removing it

- Sorbent boom can be placed in front of oiled forests to recover oil released naturally
- In most cases, no other cleanup activities are recommended
- Where thick oil accumulations are not being naturally removed, low-pressure flushing or vacuum may be attempted at the outer fringe
- It is extremely important to prevent disturbance of soft substrates by foot traffic, which can mix oil into the sediments

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LOUISIANA

SHORELINE HABITATS (ESI)
2001 ESI Shoreline Classification

- 1B) EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A) EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B) EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A) FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B) SCARPS AND STEEP SLOPES IN SAND
- 4) COARSE-GRAINED SAND BEACHES
- 5) MIXED SAND AND GRAVEL BEACHES
- 6A) GRAVEL BEACHES
- 6B) RIPRAP
- 7) EXPOSED TIDAL FLATS
- 8A) SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B) SHELTERED MAN-MADE STRUCTURES
- 8C) SHELTERED RIPRAP
- 9A) SHELTERED TIDAL FLATS
- 9B) SHELTERED, VEGETATED LOW BANKS
- 10A) SALT- AND BRACKISH-WATER MARSHES
- 10B) FRESHWATER MARSHES
- 10C) FRESHWATER SWAMPS
- 10D) SCRUB-SHRUB WETLANDS

COASTAL HABITATS
From 1988 Digital Shoreline

- 10A) SALT MARSH
- 10A) BRACKISH MARSH
- 10A) INTERMEDIATE MARSH
- 10B) FRESHWATER MARSH
- 10C) FORESTED WETLAND
- 10D) SCRUB-SHRUB WETLAND
- SEAGRASS

SENSITIVE BIOLOGICAL RESOURCES

BIRD
- DIVING BIRD
- GULL / TERN
- PASSERINE
- RAPTOR
- SHOREBIRD
- WADING BIRD
- WATERFOWL
- NESTING SITE

FISH
- FISH

TERRESTRIAL MAMMAL
- BAT
- BEAR
- SMALL MAMMAL

INVERTEBRATE
- BIVALVE
- CEPHALOPOD
- CRAB
- CRAYFISH
- INSECT
- SHRIMP

REPTILE / AMPHIBIAN
- ALLIGATOR
- TURTLE
- OTHER REPTILE / AMPHIBIAN

HABITAT
- PLANT
- SEAGRASS

MUTIPLE ELEMENTS
- THREATENED / ENDANGERED
- 123 RAR NUMBER

HUMAN-USE FEATURES

- AIRPORT / HELIPORT
- BOAT RAMP
- INDIAN RESERVATION
- MARINA
- NATIONAL PARK / NATURE CONSERVANCY
- SENIC RIVER
- STATE PARK
- WILDLIFE REFUGE
- 123 HUMAN-USE NUMBER
- PARISH BOUNDARY
- MANAGEMENT BOUNDARY
- MAJOR ROAD
- MINOR ROAD
- SHORELINE FROM 2001 PHOTO INTERPRETATION
- SHORELINE FROM 1988 DIGITAL DATA

Guidelines for Interpreting ESI Maps

To help users interpret the ESI maps and tabular data, we offer the following guidelines for use in addition to the map legend:

• Shoreline Habitats. The "shoreline," representing the boundary between land and water, is color-coded with the ESI classification. Most shoreline habitats are shown as a line, with no areal dimension. Where there is more than one shoreline type (e.g., a beach in front of a seawall), the colors for each habitat are shown, with the color for the landward habitat on the land side of the shoreline and the color for the seaward habitat on the water side. In areas where the intertidal zone is wide (e.g., wide tidal flats, wave-cut rocky platforms), the habitat from high to low water is filled with the ESI classification color. When data are available, the entire extent of wetlands are filled with colored patterns. The seaward edge of the wetland is color-coded with the ESI classification; the landward extent of the wetland is indicated by a dashed, colored line.

• Biological Resources. The distribution of biological resources is shown using many different conventions. The major convention is an icon associated with a point, line, or polygon that shows the species' areal distribution. The icon's reference number corresponds to a data table with details on species and life history. Biological resource data are organized into six major groups, each with a reference color: birds (green), mammals (brown), fish (blue), shellfish (orange), reptiles (red), and rare/endangered plants and special habitats (purple). These colors are used to fill hatched polygons and the icons. Each major group has subgroups with unique icons to visually indicate the type of organism or feature present. The icon or group of icons is usually located inside the polygon it represents; however, sometimes a line is connected between the icon and the polygon or point to make it easier to relate the two. Note that icons are used to indicate the types of resources present, but the actual data are the points and polygons. A red box around an icon indicates the presence of a species on the state or Federal list of threatened or endangered species.

The number listed below each icon refers to the first column of a data table for each map. The data tables, organized by group (birds, fish, etc.), include the following information: species name, status as threatened or endangered on state and Federal lists, concentration (specifically for each point or polygon), presence by month, and special life-history time periods. When a polygon contains multiple groups, the one number under the group of icons is listed under each group heading in the data tables. Where possible, the same number is used on multiple maps. For example, all bald eagle nests with the same seasonality could have the same number throughout the atlas, or the same assemblage of fish would have the same number wherever it occurred.

A data table has a separate listing for every unique combination of species, concentration, seasonality, life-history stage, and source. By looking at the monthly seasonality data in the table for each map, the species present at the time of concern can be easily identified. An 'X' or number is placed under each month in which any life stage of the species is present in the area represented by the point or polygon. Numbers are used typically for fish and shellfish where data on relative abundance are available. The final columns in the data tables include the months when reproductive activities occur or early life stages are present. Users should pay close attention to the data tables because they contain much of the information needed to identify the most sensitive resources at different times of the year.

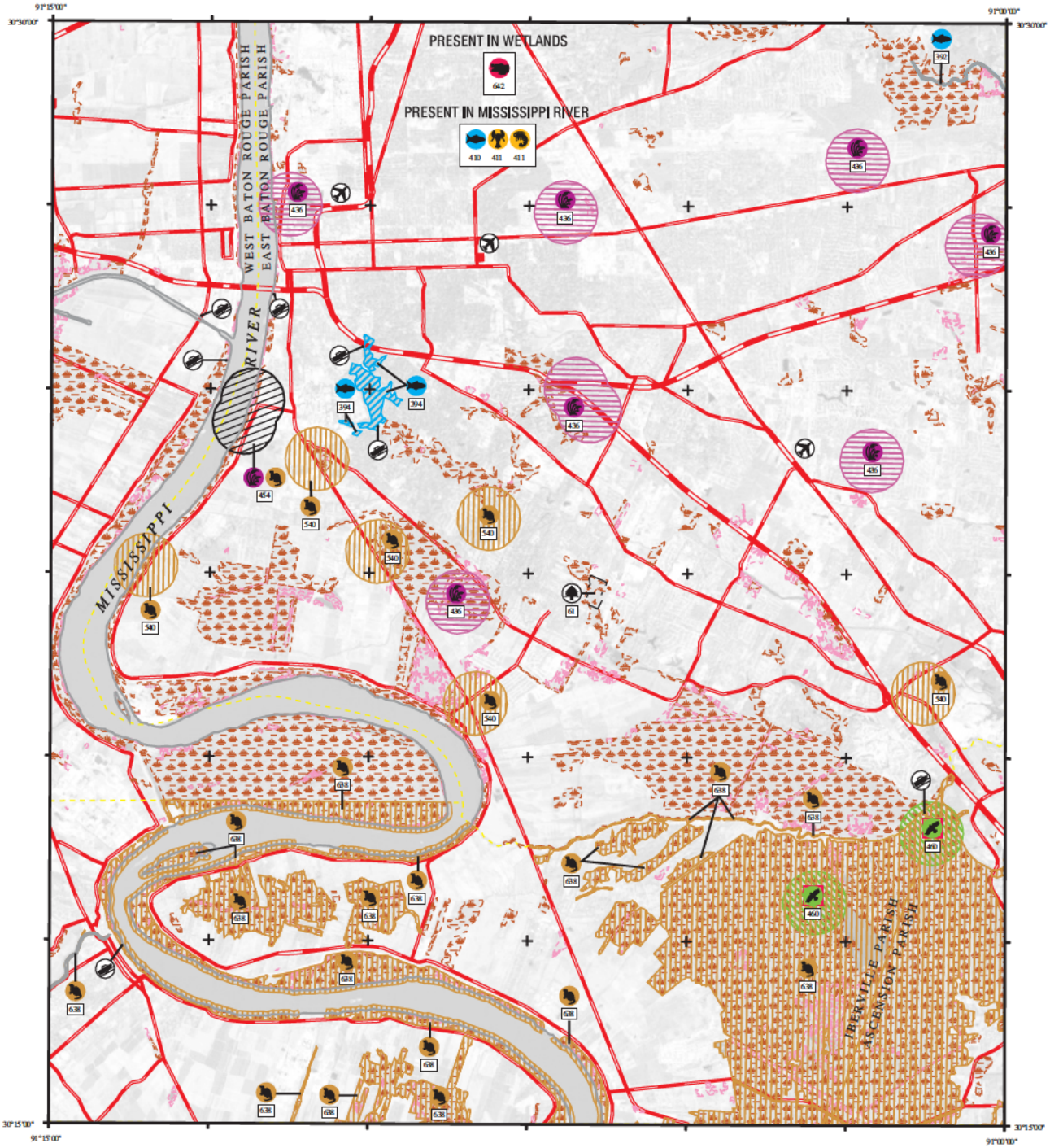
Points, lines, and polygons on a map represent the distribution of the resources. Green points show bird nesting sites, including bald eagle nests and dense colonial nesters (e.g., heron rookeries and seabird nesting colonies). Animals and habitats are also represented as: 1) hatched polygons in the color for the animal group (e.g., green for birds); 2) black hatched polygons which contain multiple groups of resources (birds and fish in the same tidal channels); 3) solid lines (usually used for fish in small streams); or 4) in "common in ..." boxes. When showing the biological resource polygons would make the maps too difficult to read (usually when multiple polygons cover a large area), the polygons are not plotted and the presence of the resource is indicated by placing the icon in a box labeled "common in ..." The box contains an appropriate geographic reference. Different boxes can be used on the same map when, for example: "common in Winyah Bay" or "common in tidal creeks." The data for these resources are still fully present in the database but are not shown to make the maps more readable.

- Human-use Resources. Most of the human-use resources are point features indicated by a black-and-white icon. Managed lands, such as refuges and sanctuaries, have their boundaries shown as a dot-dash line with an icon and name placed inside. Where the feature is a known point location (e.g., a drinking water intake, boat ramp, marina), the exact location is shown as a small black dot and a line is drawn from it to the icon. Activities such as commercial and recreational fishing and areas such as recreational beaches are also indicated by an icon placed in the general area without any lines to points or polygons since the boundaries are not readily defined.

Some features, like historic and archaeological sites, are location-sensitive: the agency managing the resource believes the exact location should not be shown in order to protect the site. In these cases, the icon is placed in the general area of the resource, but the exact location is not shown.

000045865

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
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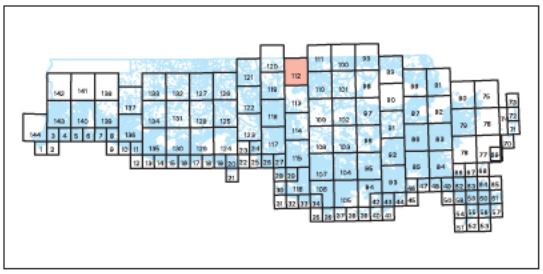
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

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National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

BATON ROUGE LA-112

Louisiana ESI: ESIMAP 112

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
460	Threatened raptor			T	X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
394	Largemouth bass			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

HABITAT:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
436	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X
454	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
454	Rare small mammal				X	X	X	X	X	X	X	X	X	X	X	X
540	Rare small mammal				X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

NATURE CONSERVANCY:

HUN#	Name	Owner	Contact	Phone
61	BLUEBONNET SWAMP PRESERVE		THE NATURE CONSERVANCY	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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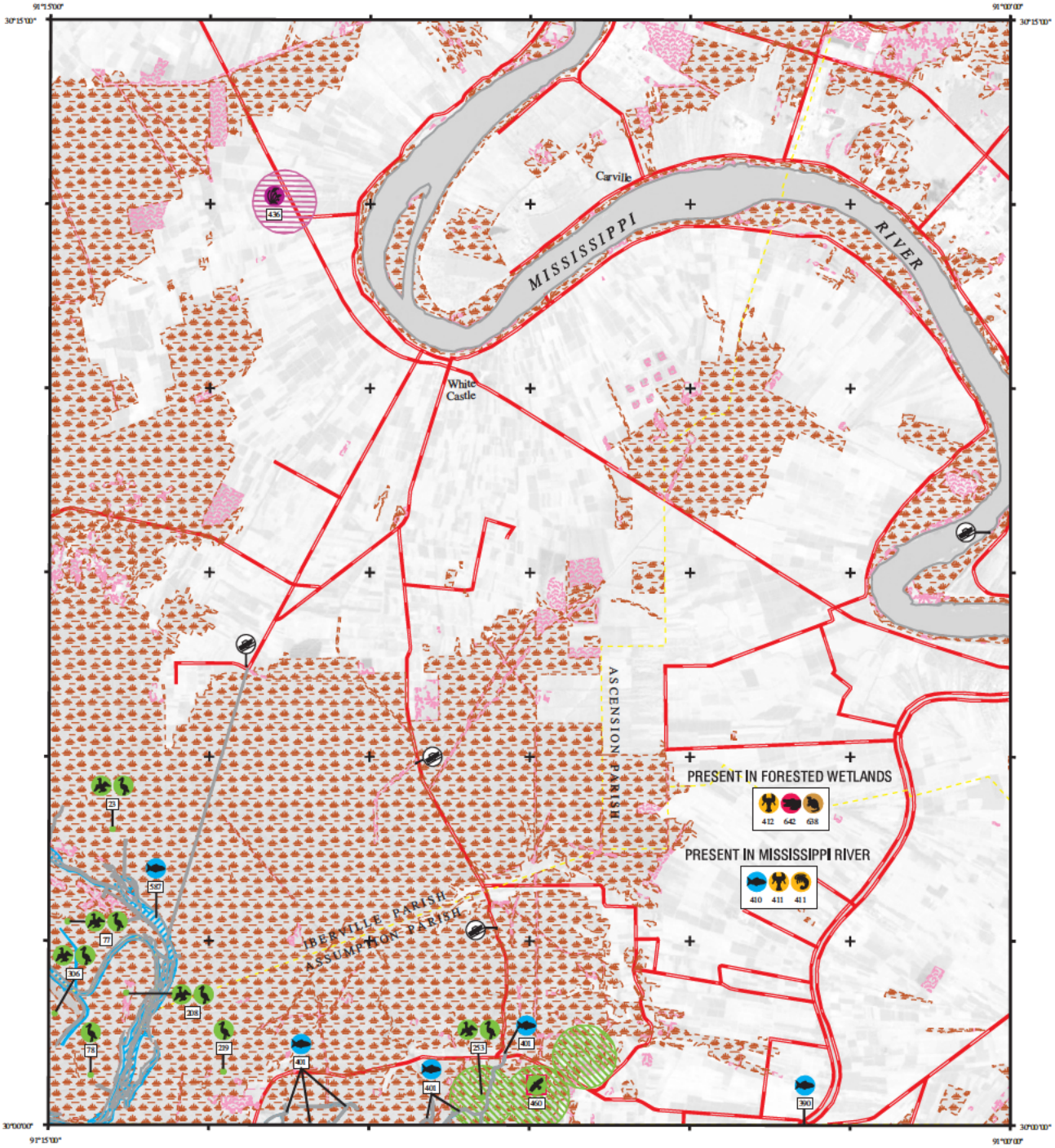
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

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2001 SHORELINE

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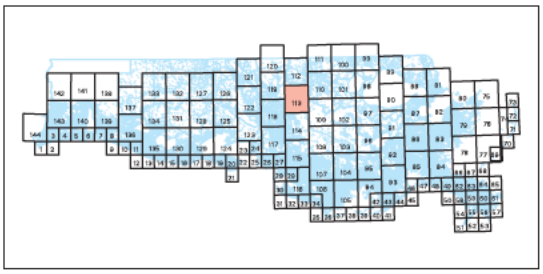

SCALE 1:100000

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BATON ROUGE LA-113

Louisiana ESI: ESIMAP 113

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
23	Anhinga			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Great blue heron			11 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			108 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			16 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
77	Anhinga			2 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Great blue heron			83 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			250 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
78	Cattle egret			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Little blue heron			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			25 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
208	Anhinga			14 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Black-crowned night-heron			20 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Cattle egret			92 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great egret			42 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			114 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Roseate spoonbill			7 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Snowy egret			49 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			12 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Yellow-crowned night-heron			34 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
219	Great egret			60 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
253	Anhinga			12 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Great egret			48 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
306	Anhinga			133 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Great blue heron			83 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			210 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			100 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
460	Threatened raptor		T		X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
390	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
401	American eel			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Atlantic needlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black bullhead			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Channel catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Flathead catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gobies			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Golden shiner			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Goldfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Green sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf pipefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hogchoker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid striped bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Madtoms			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Pirate perch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Skipjack herring			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Warmouth			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bullhead			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 113 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
587	Bay anchovy			2				2	2	2	2	2	2	2			-	APR-OCT	APR-OCT	-	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Southern flounder			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-

HABITAT:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
436	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
412	Red swamp crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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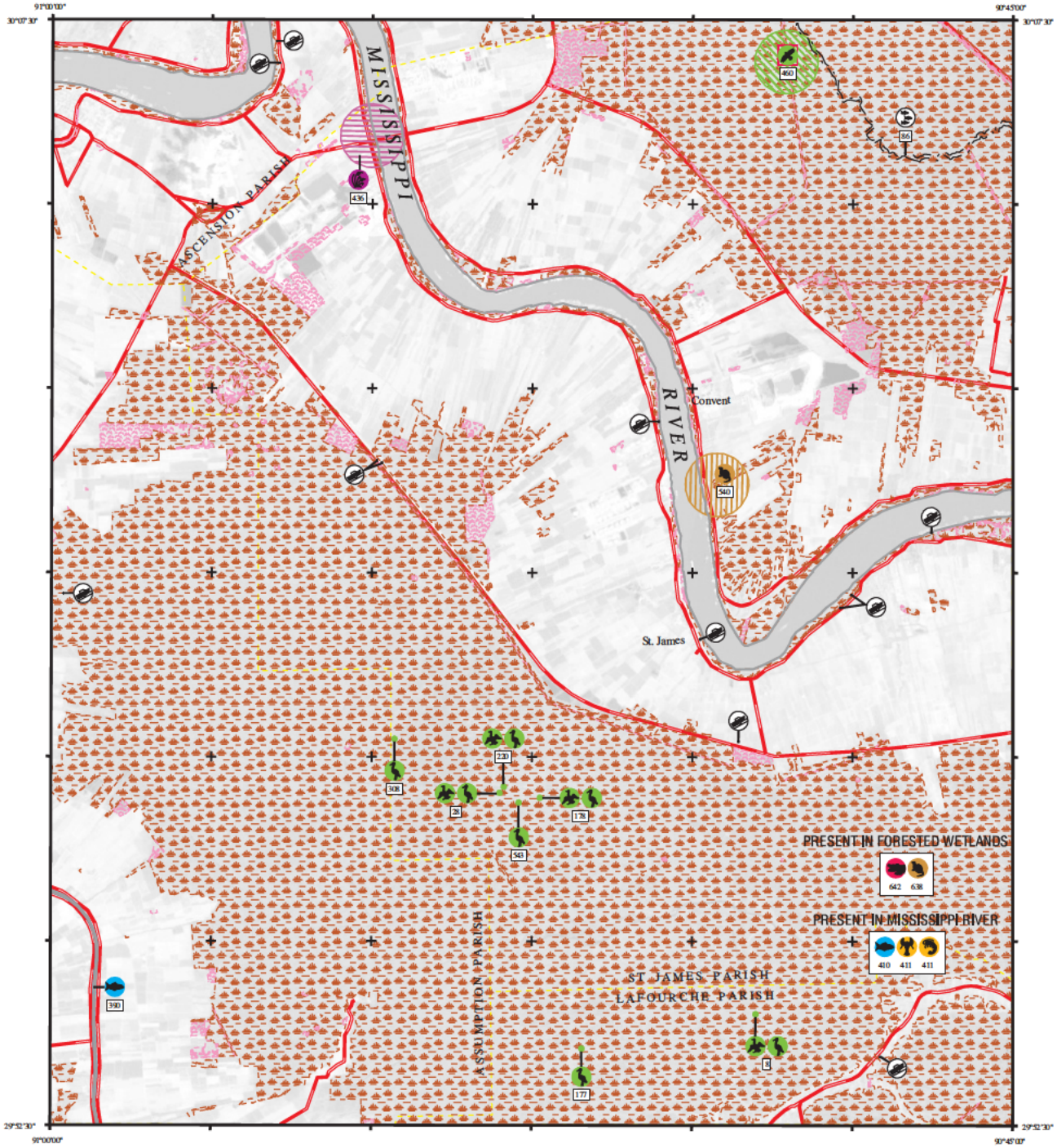
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

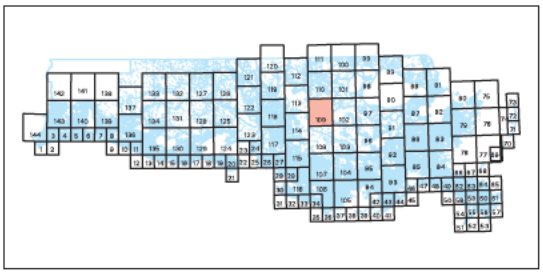
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

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Hazardous Materials Response Division

PONCHATOULA LA-109

Louisiana ESI: ESIMAP 109

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
8	Anhinga			7 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Cattle egret			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great blue heron			32 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			290 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			15 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			5 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			14 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
28	Anhinga			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Cattle egret			68 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great blue heron			60 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			355 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			95 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			84 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			23 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			40 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Yellow-crowned night-heron			9 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
177	Cattle egret			28 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Little blue heron			54 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			36 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Yellow-crowned night-heron			2 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
178	Anhinga			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Cattle egret			9 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Little blue heron			168 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			27 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Yellow-crowned night-heron			2 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
220	Anhinga			20 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Cattle egret			60 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great blue heron			45 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			159 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
308	Cattle egret			40 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Little blue heron			105 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			85 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Yellow-crowned night-heron			25 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
460	Threatened raptor		T		X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-
543	Great blue heron			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			133 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
390	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

HABITAT:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
436	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
540	Rare small mammal				X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 109 (cont.)

BIOLOGICAL RESOURCES: (cont.)

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
638	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

SCENIC RIVER:

HUN#	Name	Owner	Contact	Phone
86	BLIND SCENIC RIVER		PRIVATE	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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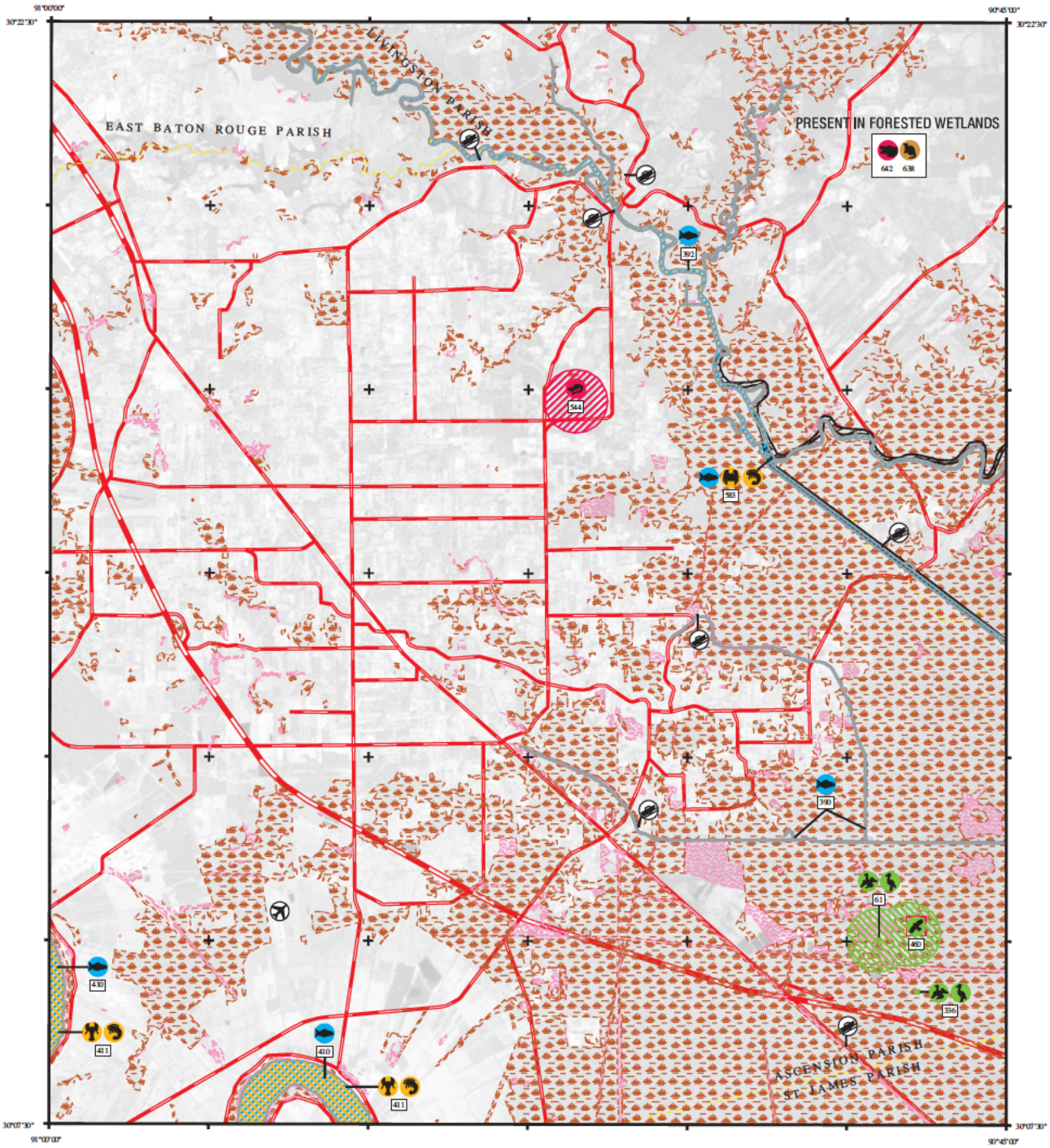
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

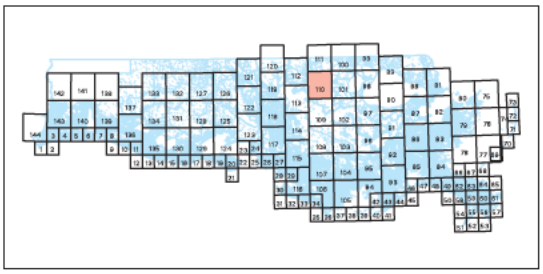
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

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PONCHATOULA LA-110

Louisiana ESI: ESIMAP 110

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
61	Anhinga			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Cattle egret			188 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great blue heron			235 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			213 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			224 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			101 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			33 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
336	Anhinga			30 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Great egret			120 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
460	Threatened raptor		T		X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
390	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
583	Atlantic croaker			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	4	4	4	4	5	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
583	Blue crab			4	4	4	3	3	3	3	3	3	3	3	3	4	-	-	-	JAN-DEC	-
	Brown shrimp			5	3	3	4	5	5	4	4	4	4	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
544	Rare amphibian				X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	-	-
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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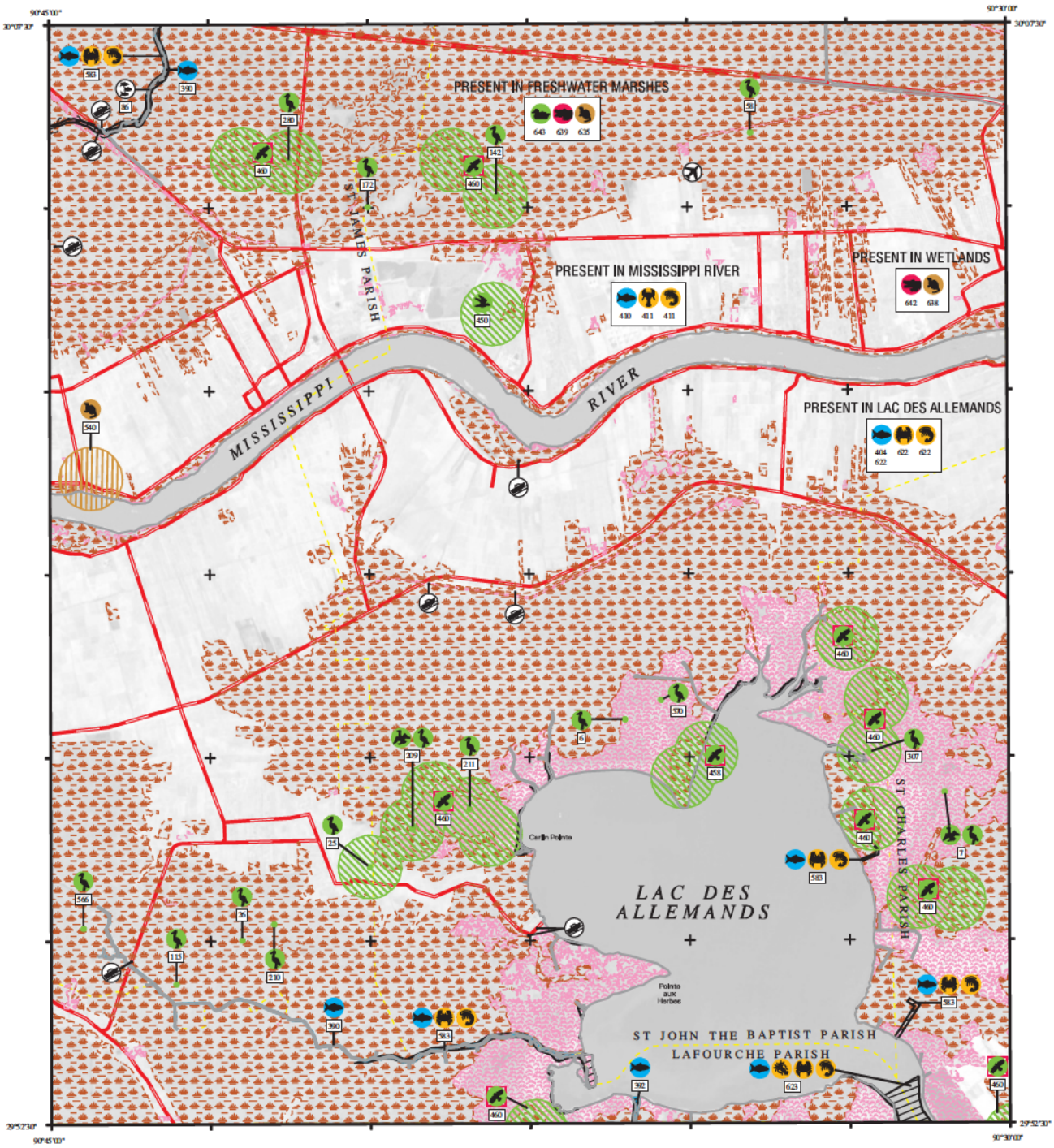
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
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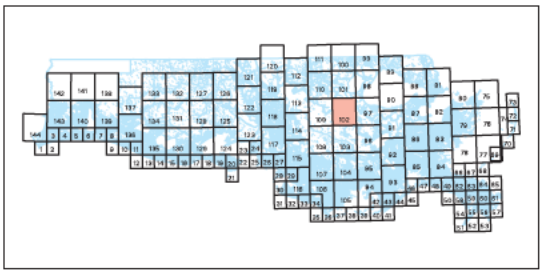
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



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National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

PONCHATOULA LA-102

Louisiana ESI: ESIMAP 102 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
404	Striped mullet			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Warmouth			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bullhead			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
583	Atlantic croaker			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	4	4	4	4	5	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
622	Atlantic croaker			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
623	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	MAR-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	3	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
583	Blue crab			4	4	4	3	3	3	3	3	3	3	3	3	4	-	-	-	JAN-DEC	-
	Brown shrimp			5	3	3	4	5	5	4	4	4	4	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
622	Blue crab			4	4	4	3	3	3	3	3	3	3	3	3	4	-	-	-	JAN-DEC	-
	Brown shrimp			5	3	3	4	5	5	4	4	4	4	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
623	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 102 (cont.)

BIOLOGICAL RESOURCES: (cont.)

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
540	Rare small mammal				X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

SCENIC RIVER:

HUN#	Name	Owner	Contact	Phone
86	BLIND SCENIC RIVER		PRIVATE	

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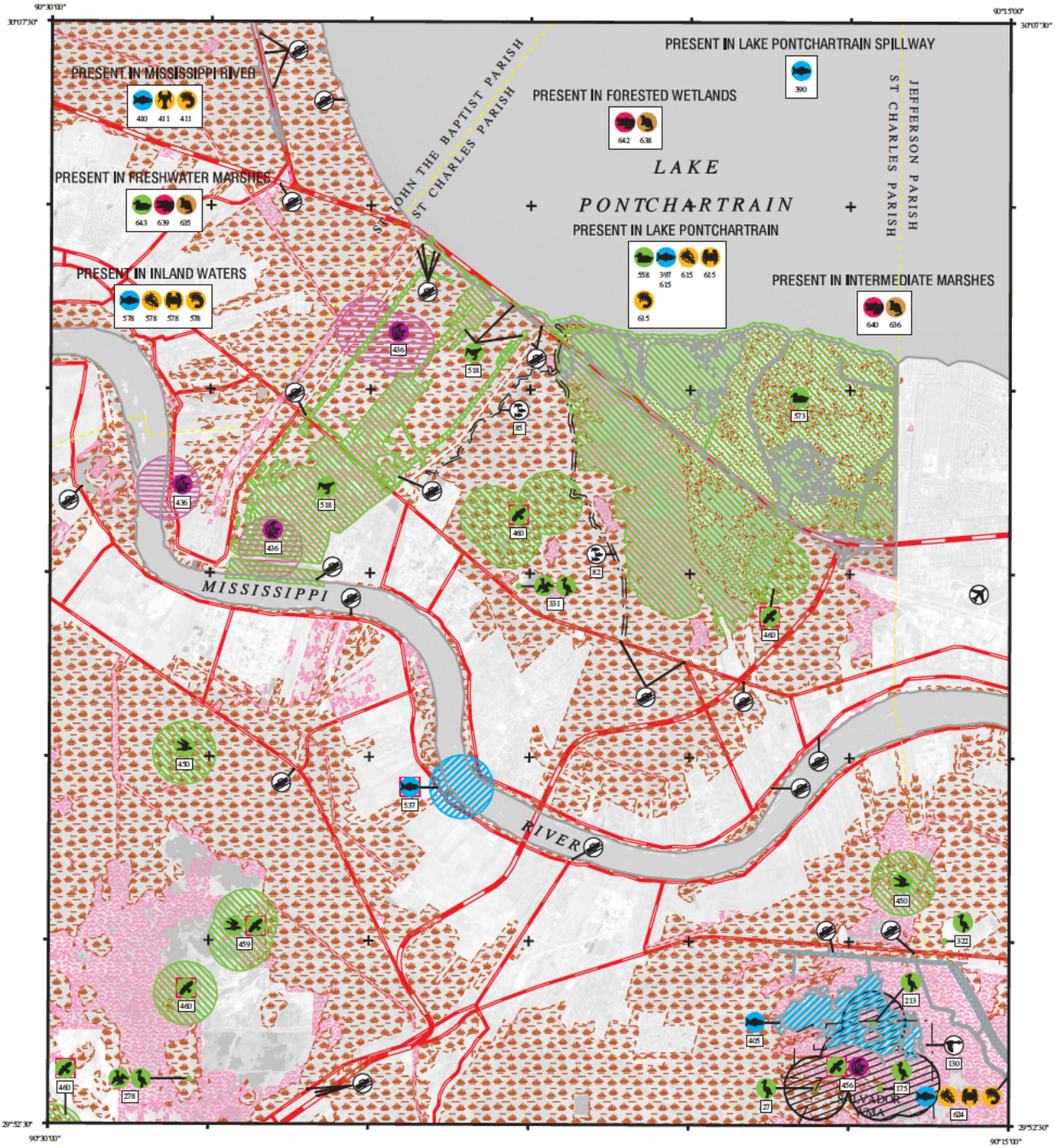
000045878

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

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- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
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- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
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- 9B SHELTERED, VEGETATED LOW BANKS
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- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
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Based on 1988 Digital Shoreline

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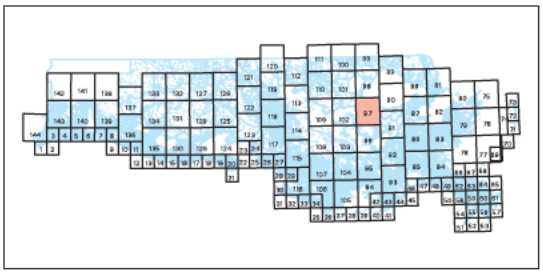
- SEAGRASS



N W E S

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Office of Response and Restoration
Hazardous Materials Response Division

PONCHATOULA LA-97

Louisiana ESI: ESIMAP 97 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
537	Endangered fish		E		X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
578	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	DEC-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	3	3	3	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	3	3	3	4	5	3	3	3	4	4	4	3	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	MAY-OCT	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2			2	2	2	2	2	2	2	2	2		-	-	-	MAR-NOV	-
	Spot			5	4	4	4	5	5	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
615	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	DEC-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	3	3	3	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	3	3	3	4	5	3	3	3	4	4	4	3	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	MAY-OCT	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2			2	2	2	2	2	2	2	2	2		-	-	-	MAR-NOV	-
	Spot			5	4	4	4	5	5	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
624	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			4	3	3	3	4	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

HABITAT:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
436	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X
456	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
578	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAY-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	3	3	3	4	4	5	5	5	5	4	3	3	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	3	4	5	5	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	3	3	3	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
615	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAY-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	3	3	3	4	4	5	5	5	5	4	3	3	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	3	4	5	5	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	3	3	3	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
624	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 97 (cont.)

BIOLOGICAL RESOURCES: (cont.)

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

SCENIC RIVER:

HUN#	Name	Owner	Contact	Phone
82	BAYOU LA BRANCH SCENIC RIVER		PRIVATE	
85	BAYOU TREPAGNIER SCENIC RIVER		PRIVATE	

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
130	SALVADOR WMA		LDWF	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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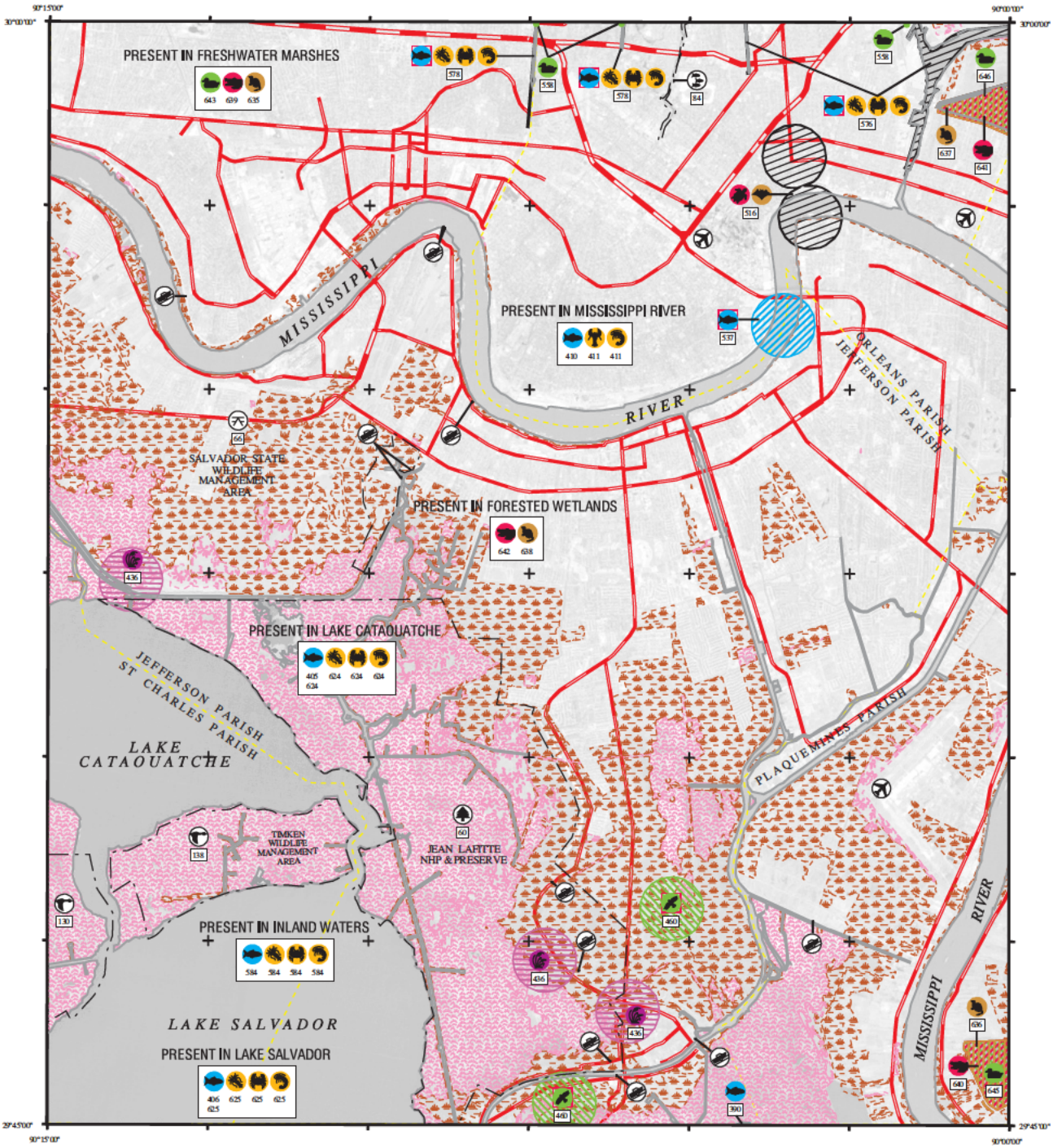
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

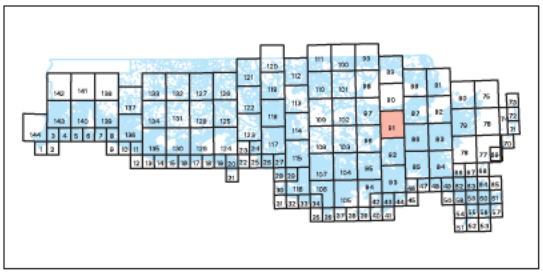
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

Not For Navigation

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National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

NEW ORLEANS LA-91

Louisiana ESI: ESIMAP 91

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
460	Threatened raptor		T		X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-
558	Lesser scaup			PRESENT	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
390	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
405	Alligator gar			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Atlantic croaker			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Channel catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Flathead catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Ladyfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Roughtail stingray			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spot			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
406	Atlantic croaker			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Flathead catfish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Fringed flounder			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Sheepshead			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Speckled worm eel			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 91 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
537	Endangered fish	E			X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
576	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	DEC-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	3	3	3	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-AUG	MAR-AUG	MAR-SEP	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	4	4	5	5	5	5	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Gulf sturgeon	T		2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			5	3	3	3	4	4	5	5	5	5	4	4	3	FEB-OCT	-	FEB-OCT	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	SEP-JAN	SEP-APR	JAN-DEC	-
	Spanish mackerel			2			2	2	2	2	2	2	2	2	2		-	-	-	MAR-NOV	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			5	5	5	4	4	5	5	5	5	5	4	4	5	-	-	DEC-MAR	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	JAN-DEC	-
578	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	DEC-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	3	3	3	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	3	3	3	4	5	3	3	3	4	4	4	3	-	-	-	JAN-DEC	-
	Gulf sturgeon	T		2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	MAY-OCT	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	MAR-NOV	-
	Spanish mackerel			2			2	2	2	2	2	2	2	2	2		-	-	-	MAR-NOV	-
	Spot			5	4	4	4	5	5	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
584	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	MAR-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			4	3	3	3	4	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
624	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			4	3	3	3	4	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
625	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

HABITAT:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
436	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
576	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	3	4	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	5	5	5	5	5	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	APR-DEC	JAN-DEC	-
578	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAY-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	3	3	3	4	4	5	5	5	5	4	3	3	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	3	4	5	5	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 91 (cont.)

BIOLOGICAL RESOURCES: (cont.)

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
578	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	3	3	3	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
584	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-
624	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-
625	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
516	Rare terrestrial/aquatic				X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	-	-
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
516	Rare bat				X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

NATIONAL PARK:

HUN#	Name	Owner	Contact	Phone
60	JEAN LAFITTE NAT. HISTORICAL PARK		NATIONAL PARK SERVICE	

PARK:

HUN#	Name	Owner	Contact	Phone
66	BAYOU SEGNETTE STATE PARK		LA STATE LANDS	

SCENIC RIVER:

HUN#	Name	Owner	Contact	Phone
84	BAYOU ST. JOHN SCENIC RIVER		PRIVATE	

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
130	SALVADOR WMA		LDWF	
138	TIMKEN WMA		LDWF	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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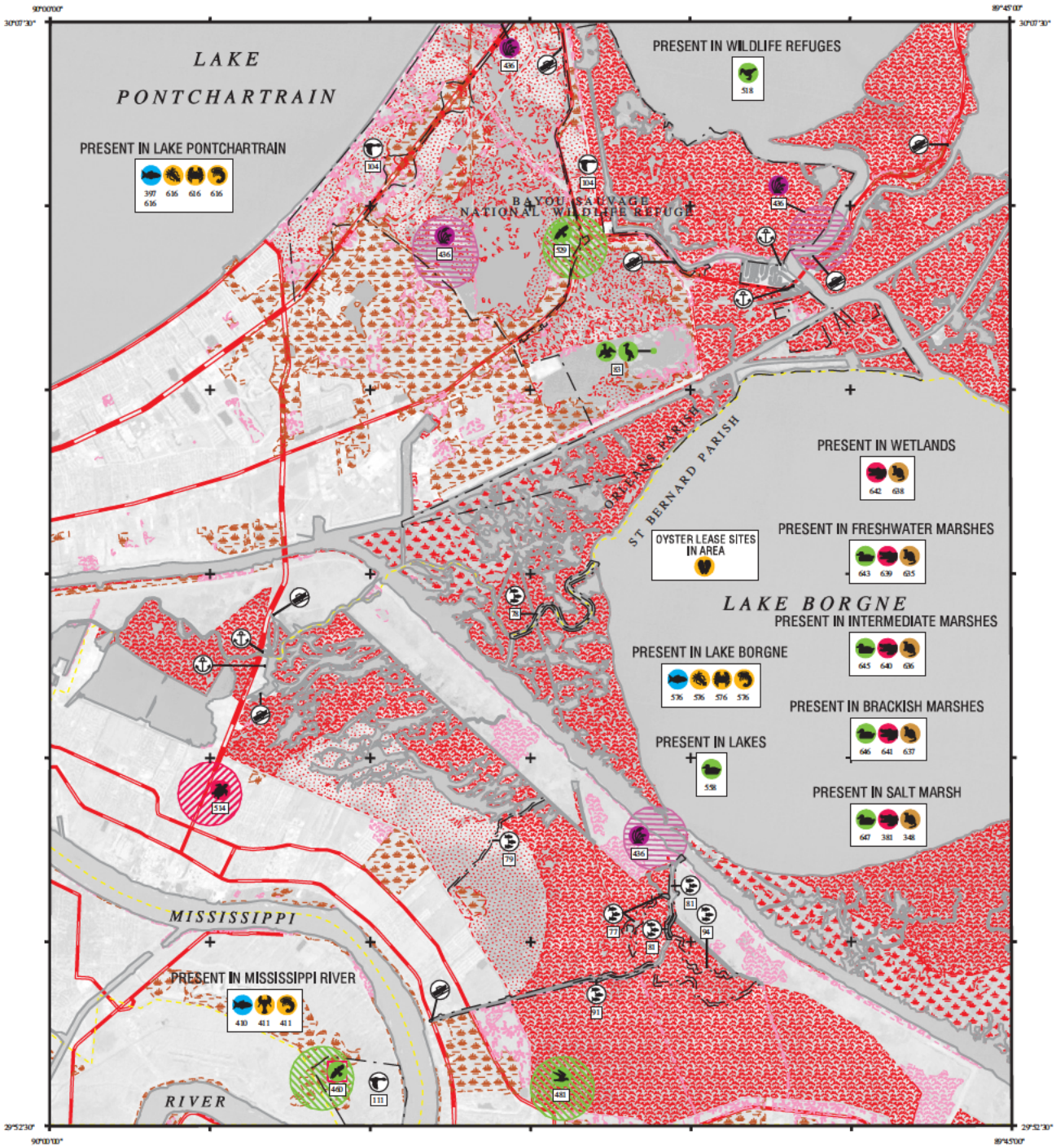
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

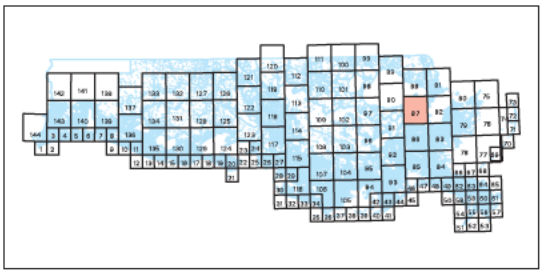
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

Not For Navigation

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Office of Response and Restoration
Hazardous Materials Response Division

GULFPORT LA-87

Louisiana ESI: ESIMAP 87

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
83	Anhinga			26 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Black-crowned night-heron			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Cattle egret			99 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great blue heron			37 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Great egret			241 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			116 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			291 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			172 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			255 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			61 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Yellow-crowned night-heron			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
460	Threatened raptor		T		X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-
481	Rare seabird				X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
529	Rare raptor				X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
558	Lesser scaup			PRESENT	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
397	Alligator gar			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Channel catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 87 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
576	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	DEC-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	3	3	3	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-AUG	MAR-AUG	MAR-SEP	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	4	4	5	5	5	5	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			5	3	3	3	4	4	5	5	5	5	4	4	3	FEB-OCT	-	FEB-OCT	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	SEP-JAN	SEP-APR	JAN-DEC	-
	Spanish mackerel			2			2	2	2	2	2	2	2	2	2		-	-	-	MAR-NOV	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			5	5	4	4	5	5	5	5	5	4	4	4	5	-	-	DEC-MAR	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	JAN-DEC	-
616	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	DEC-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	3	3	3	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-AUG	MAR-AUG	MAR-SEP	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	4	4	5	5	5	5	5	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			5	3	3	3	4	4	5	5	5	5	4	4	3	FEB-OCT	-	FEB-OCT	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	SEP-JAN	SEP-APR	JAN-DEC	-
	Spanish mackerel			2			2	2	2	2	2	2	2	2	2		-	-	-	MAR-NOV	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			5	5	4	4	5	5	5	5	5	4	4	4	5	-	-	DEC-MAR	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	JAN-DEC	-

HABITAT:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
436	Rare plant				X	X	X	X	X	X	X	X	X	X	X	X

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
576	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	3	4	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	5	5	5	5	5	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	APR-DEC	JAN-DEC	-
616	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	3	4	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	5	5	5	5	5	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	APR-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
514	Rare terrestrial/aquatic				X	X	X	X	X	X	X	X	X	X	X	X	-	-	JAN-DEC	-	-
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 87 (cont.)

BIOLOGICAL RESOURCES: (cont.)

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

SCENIC RIVER:

HUN#	Name	Owner	Contact	Phone
77	BASHMAN BAYOU SCENIC RIVER		PRIVATE	
78	BAYOU BIENVENUE SCENIC RIVER		PRIVATE	
79	BAYOU CHAPERON SCENIC RIVER		PRIVATE	
81	BAYOU DUPRE SCENIC RIVER		PRIVATE	
91	PIROGUE BAYOU SCENIC RIVER		PRIVATE	
94	TERRE BEAU BAYOU SCENIC RIVER		PRIVATE	

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
104	BAYOU SAUVAGE URBAN NWR		USFWS	
111	ENGLISH TURN WILDERNESS PARK		ENGLISH TURN CLUB	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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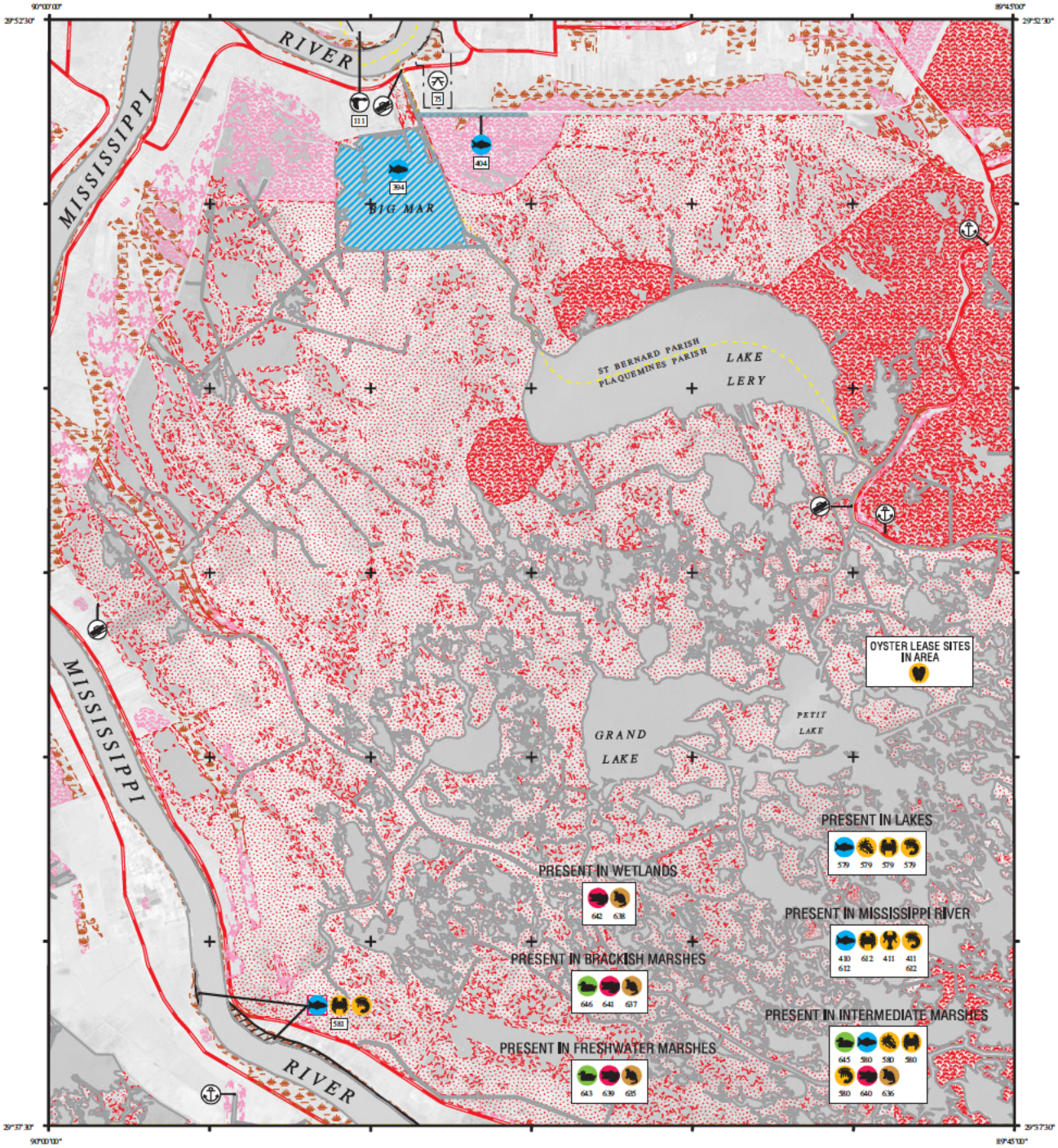
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

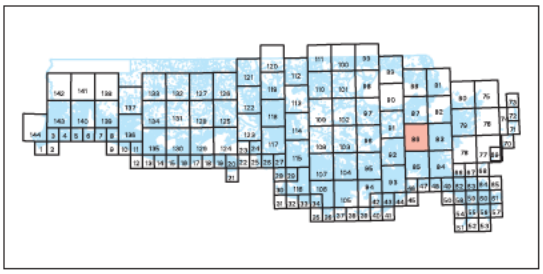
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

Not For Navigation

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Office of Response and Restoration
Hazardous Materials Response Division

BLACK BAY LA-86

Louisiana ESI: ESIMAP 86

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
394	Largemouth bass			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
404	American eel			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay whiff			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Channel catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Flathead catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Flier			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Golden shiner			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Goldfish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hogchoker			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Ladyfish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Madtoms			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Sheepshead			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Warmouth			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bullhead			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 86 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	3	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	3	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	4	4	4	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
581	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Gulf sturgeon	T		2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	3	3	4	4	4	3	3	3	4		-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf sturgeon	T		2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
581	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 86 (cont.)

BIOLOGICAL RESOURCES: (cont.)

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

PARK:

HUN#	Name	Owner	Contact	Phone
75	ST. BERNARD STATE PARK		LA STATE LANDS	

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
111	ENGLISH TURN WILDERNESS PARK		ENGLISH TURN CLUB	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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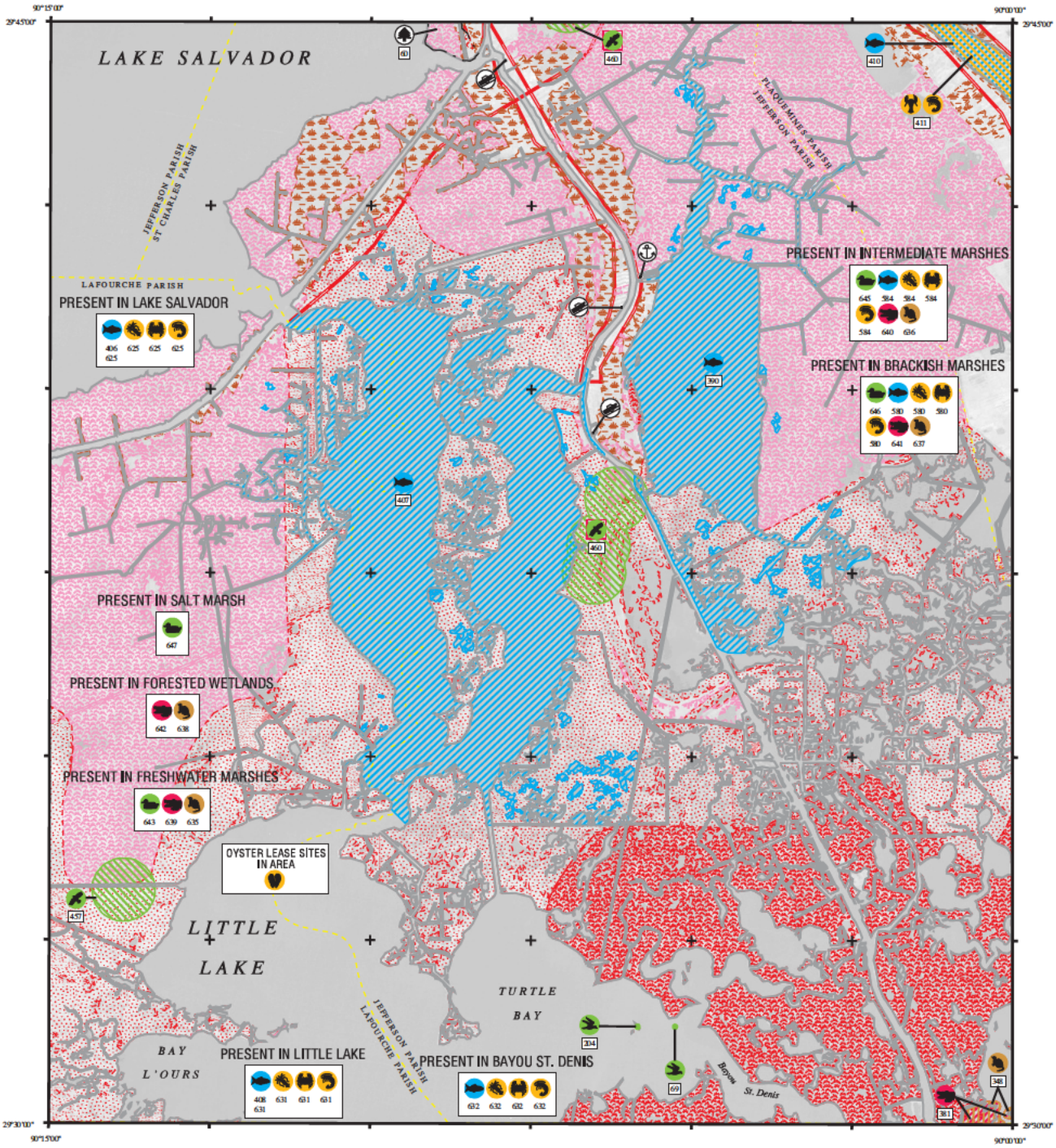
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

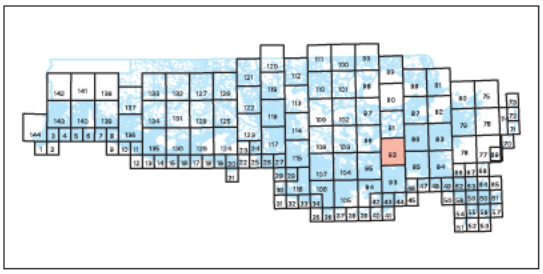
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

Not For Navigation

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Office of Response and Restoration
Hazardous Materials Response Division

NEW ORLEANS LA-92

Louisiana ESI: ESIMAP 92

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
69	Forster's tern			200 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
204	Forster's tern			142 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
457	Rare raptor				X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
460	Threatened raptor		T		X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
390	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
406	Atlantic croaker			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue catfish			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Flathead catfish			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Fringed flounder			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Sheepshead			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Speckled worm eel			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
407	Alligator gar			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
408	Alligator gar			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			MED	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 92 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
584	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	MAR-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			4	3	3	3	4	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
625	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
631	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	MAR-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	FEB-APR	-	FEB-APR	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gray snapper			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	AUG-DEC	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			4	3	3	3	4	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-SEP	MAY-SEP	MAY-SEP	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	-	JAN-DEC	-
	Spanish mackerel			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
632	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 92 (cont.)

BIOLOGICAL RESOURCES: (cont.)

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
580	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
584	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-
625	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-
631	Bay squid			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-DEC	MAR-DEC	MAR-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	5	5	5	5	5	5	5	4	4	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-SEP	JAN-DEC	-
	White shrimp			5	3	3	4	5	5	5	5	5	5	5	5	4	-	-	APR-DEC	JAN-DEC	-
632	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

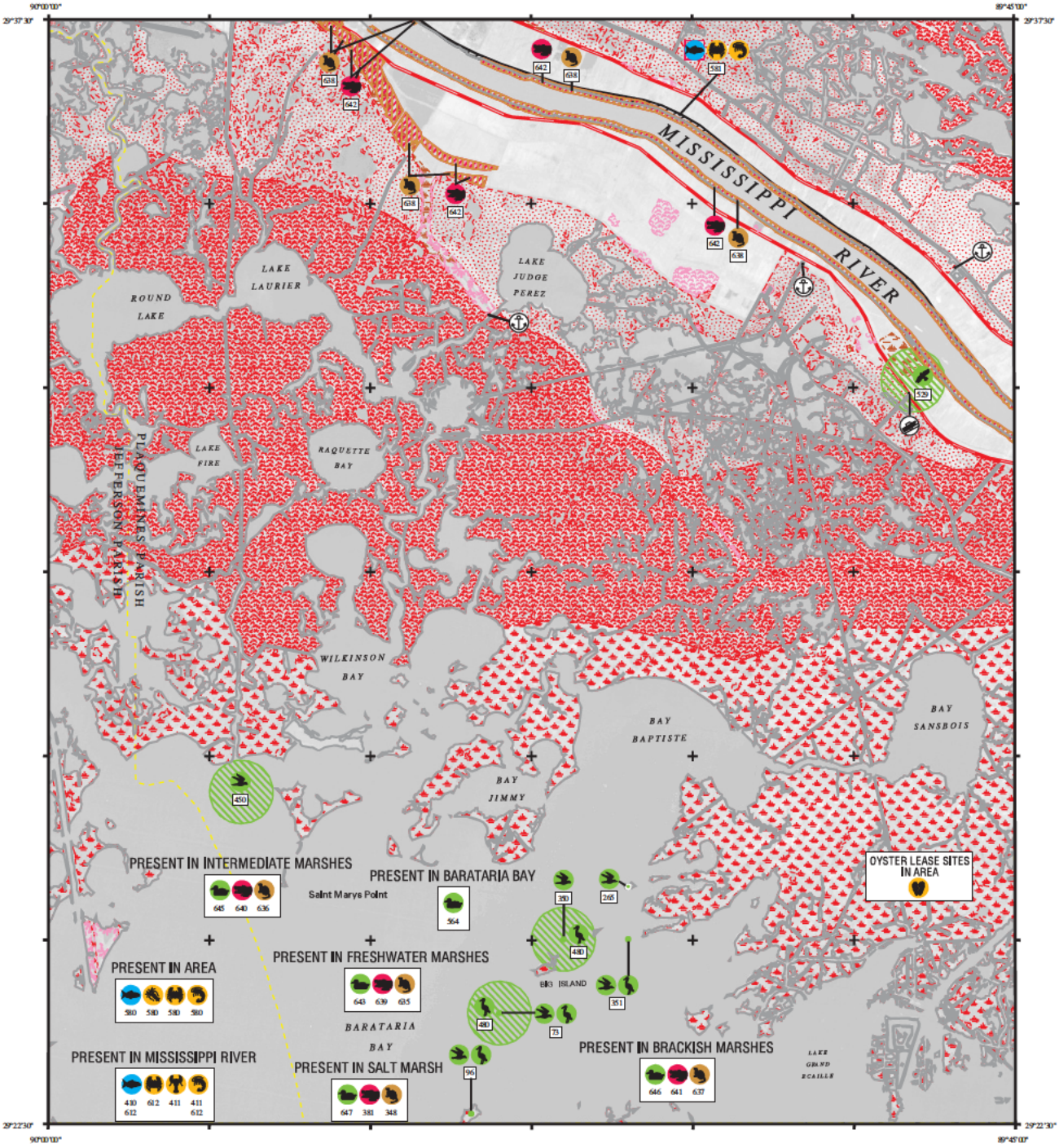
NATIONAL PARK:

HUN#	Name	Owner	Contact	Phone
60	JEAN LAFITTE NAT. HISTORICAL PARK		NATIONAL PARK SERVICE	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

000045897

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

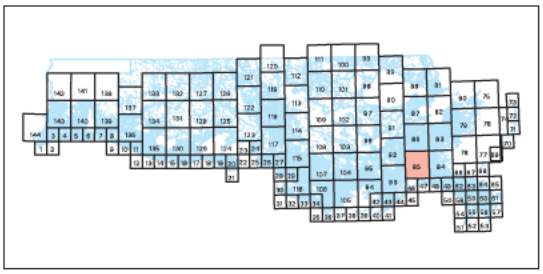
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

Not For Navigation

December 2003

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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

BLACK BAY LA-85

Louisiana ESI: ESIMAP 85

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
73	Black-crowned night-heron			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Forster's tern			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Great egret			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			38 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
96	Black-crowned night-heron			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Forster's tern			92 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Great egret			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Reddish egret			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			17 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			33 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
265	Forster's tern			53 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
350	Forster's tern			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
351	Forster's tern			23 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Great egret			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
450	Colonial waterbirds				X	X	X	X	X	X	X	X	X	X	X	X	NOV-SEP	-	-
480	Rare wading bird				X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
529	Rare raptor				X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
564	Lesser scaup			35 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 85 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
581	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	3	3	3	4	4	4	3	3	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
581	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 85 (cont.)

BIOLOGICAL RESOURCES: (cont.)

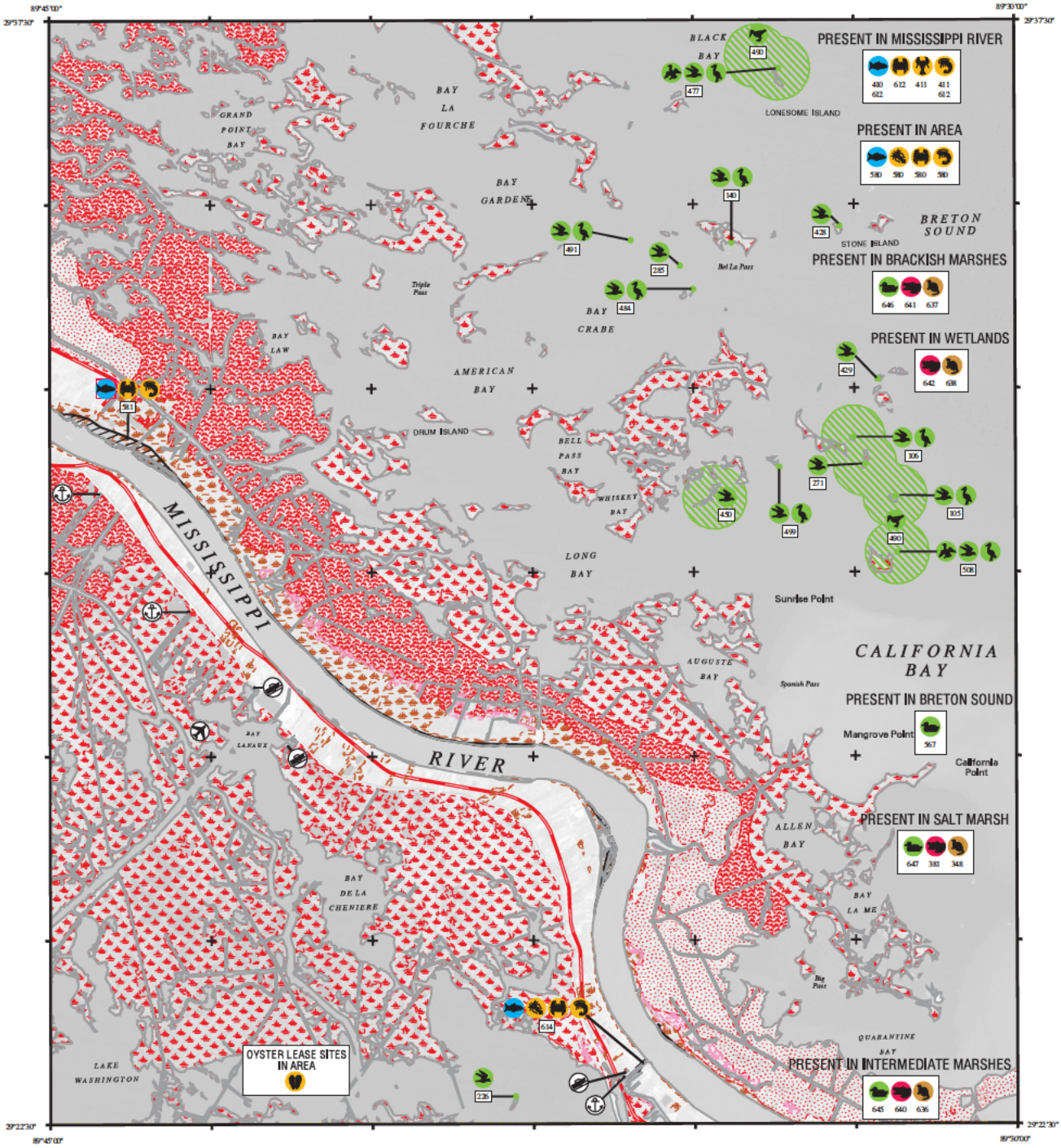
TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
636	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

000045901

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

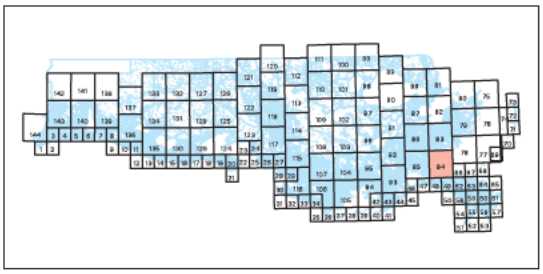
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:100000

Not For Navigation

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Hazardous Materials Response Division

BLACK BAY LA-84

Louisiana ESI: ESIMAP 84

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
105	Caspian tern			18 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Forster's tern			53 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Laughing gull			229 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Little blue heron			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			48 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			60 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			48 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
106	Black skimmer			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Black-crowned night-heron			31 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Forster's tern			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Great egret			132 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Laughing gull			1095 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Roseate spoonbill			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Snowy egret			197 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			168 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			182 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			169 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
140	Black-crowned night-heron			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Forster's tern			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Great egret			128 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Reddish egret			0 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			47 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			19 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
226	Least tern			5 IND (90-99AV)			X	X	X	X	X	X	X	X			APR-SEP	-	-
271	Black skimmer			23 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Forster's tern			7 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Laughing gull			57 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
285	Forster's tern			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Laughing gull			63 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
428	Black skimmer			6 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Forster's tern			50 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
429	Black skimmer			30 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Forster's tern			160 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
450	Colonial waterbirds				X	X	X	X	X	X	X	X	X	X	X	X	NOV-SEP	-	-
477	Black skimmer			5 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Black-crowned night-heron			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Caspian tern			14 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Forster's tern			9 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Great egret			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Laughing gull			264 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Little blue heron			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Neotropic cormorant			0 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Royal tern			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Snowy egret			25 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			38 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White-faced or Glossy ibis			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
484	Black skimmer			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Black-crowned night-heron			5 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Forster's tern			48 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Laughing gull			54 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Tricolored heron			20 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White-faced or Glossy ibis			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
490	Rare shorebird				X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
491	Black skimmer			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Forster's tern			86 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Laughing gull			72 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Tricolored heron			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
499	Forster's tern			51 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Laughing gull			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Snowy egret			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
508	Black skimmer			29 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Black-crowned night-heron			33 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Forster's tern			97 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Great egret			44 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Laughing gull			134 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Little blue heron			9 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Neotropic cormorant			0 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Snowy egret			103 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			166 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			218 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			145 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Yellow-crowned night-heron			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
567	Lesser scaup			32 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 84 (cont.)

BIOLOGICAL RESOURCES: (cont.)

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
647	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
581	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	3	3	3	4	4	4	3	3	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
614	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 84 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
614	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
581	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
614	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

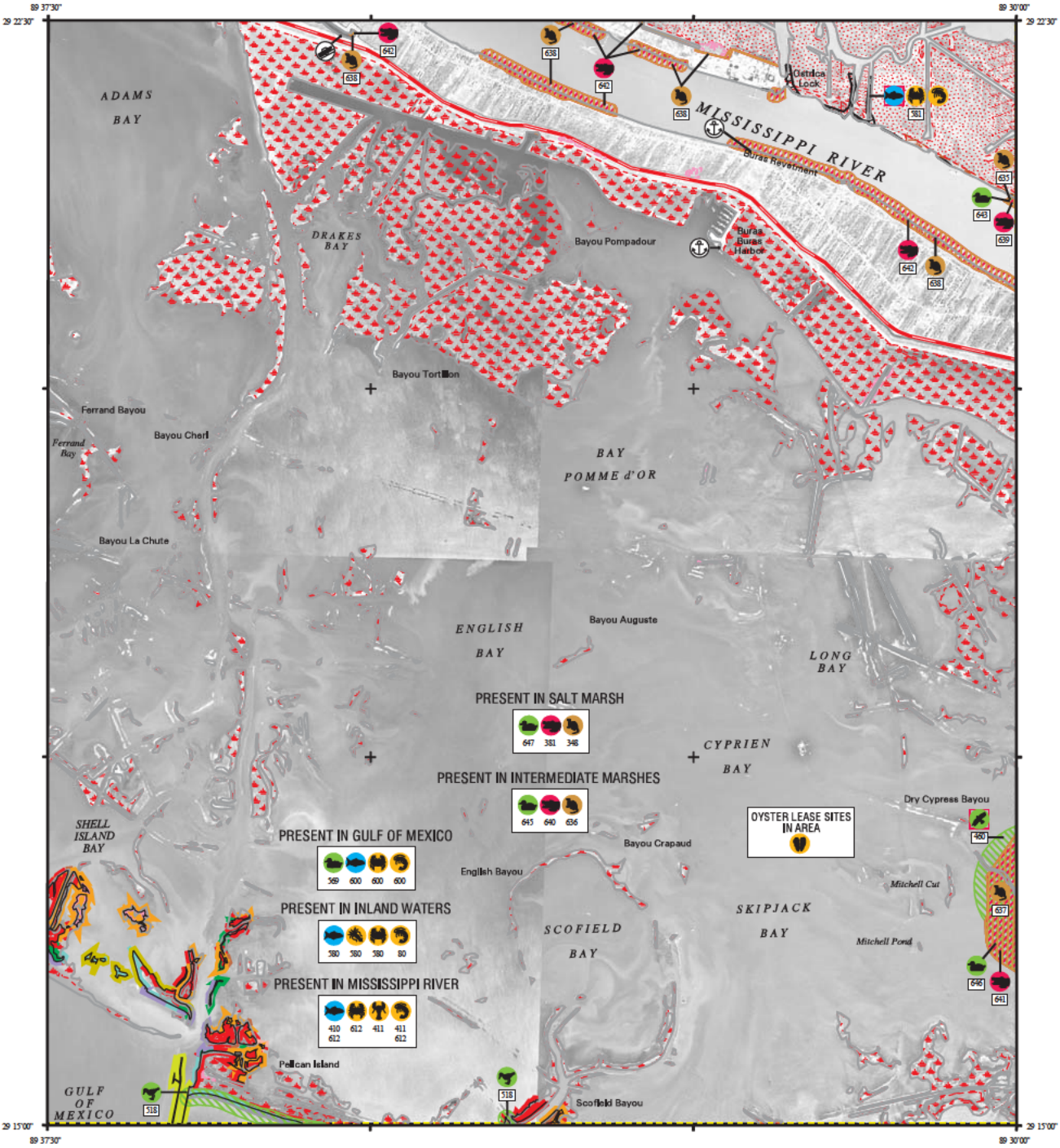
TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

000045905

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

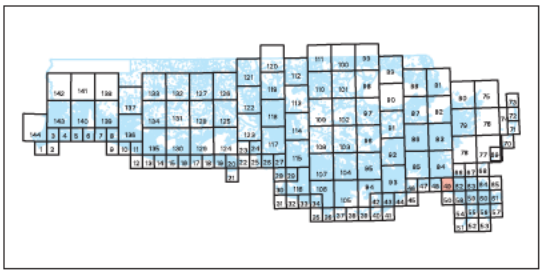
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1 50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

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Hazardous Materials Response Division

BURAS LA-49

Louisiana ESI: ESIMAP 49

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
460	Threatened raptor		T		X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
569	Lesser scaup			49 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 49 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
580	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
581	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	3	3	4	4	4	3	3	3	4	-	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	5	4	4	4	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
612	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
581	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
612	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 49 (cont.)

BIOLOGICAL RESOURCES: (cont.)

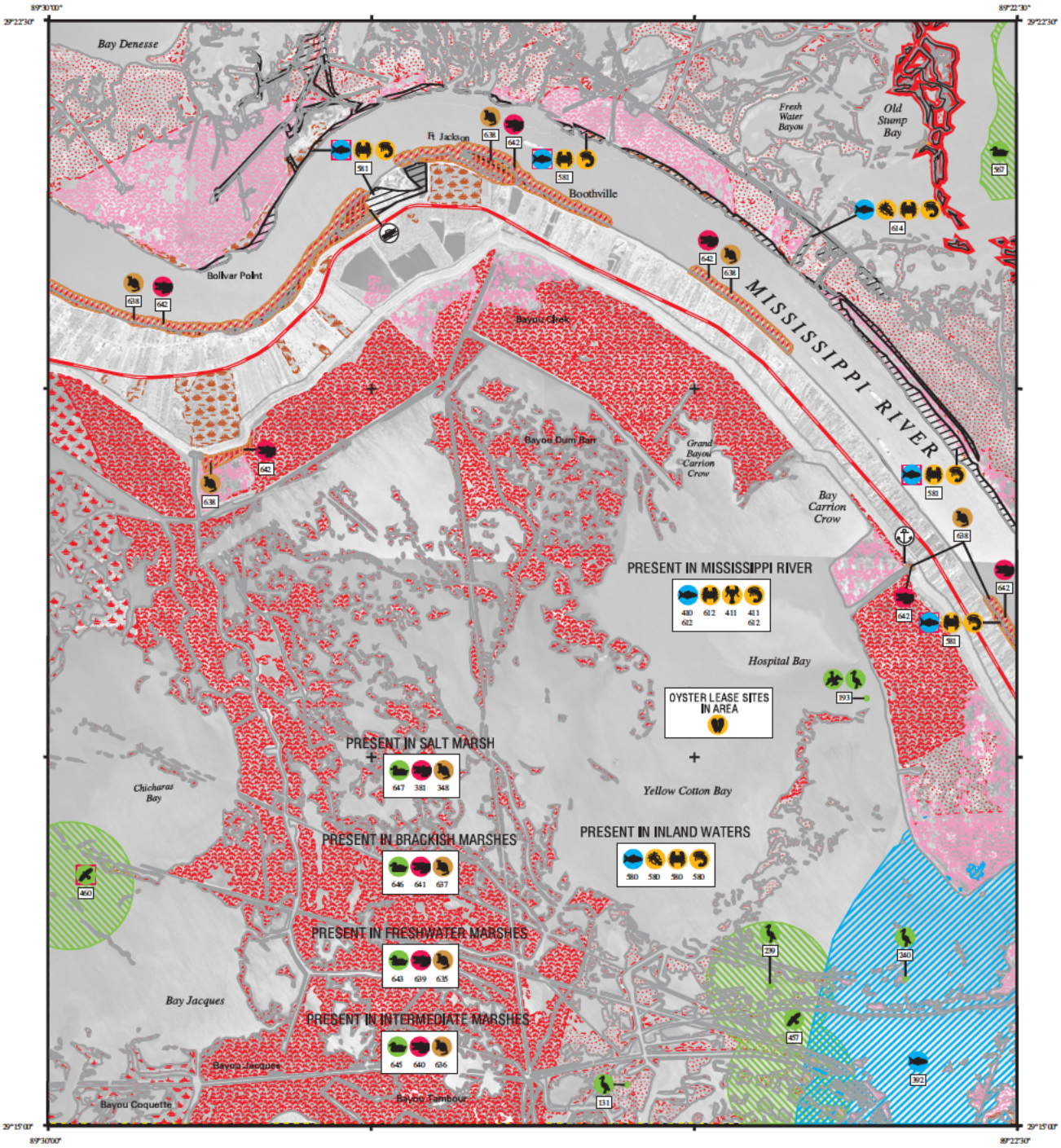
TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
636	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

000045909

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

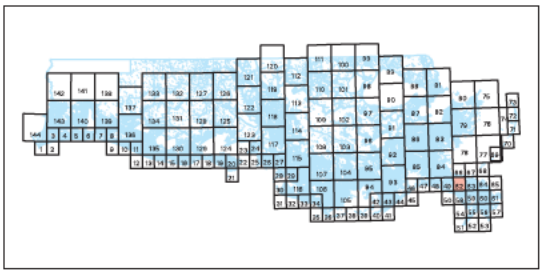
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

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TRIUMPH LA-62

Louisiana ESI: ESIMAP 62

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
131	Snowy egret			34 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
193	Great egret			200 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Neotropic cormorant			25 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
	Snowy egret			100 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
239	Black-crowned night-heron			17 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Great egret			54 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			12 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			116 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			39 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			28 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
240	Snowy egret			15 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White-faced or Glossy ibis			7 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
457	Rare raptor				X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
460	Threatened raptor	T			X	X	X	X	X	X	X	X	X	X	X	X	OCT-MAY	-	-
567	Lesser scaup			32 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 62 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
410	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
581	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	3	3	4	4	4	4	3	3	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
614	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
581	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
612	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
614	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 62 (cont.)

BIOLOGICAL RESOURCES: (cont.)

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

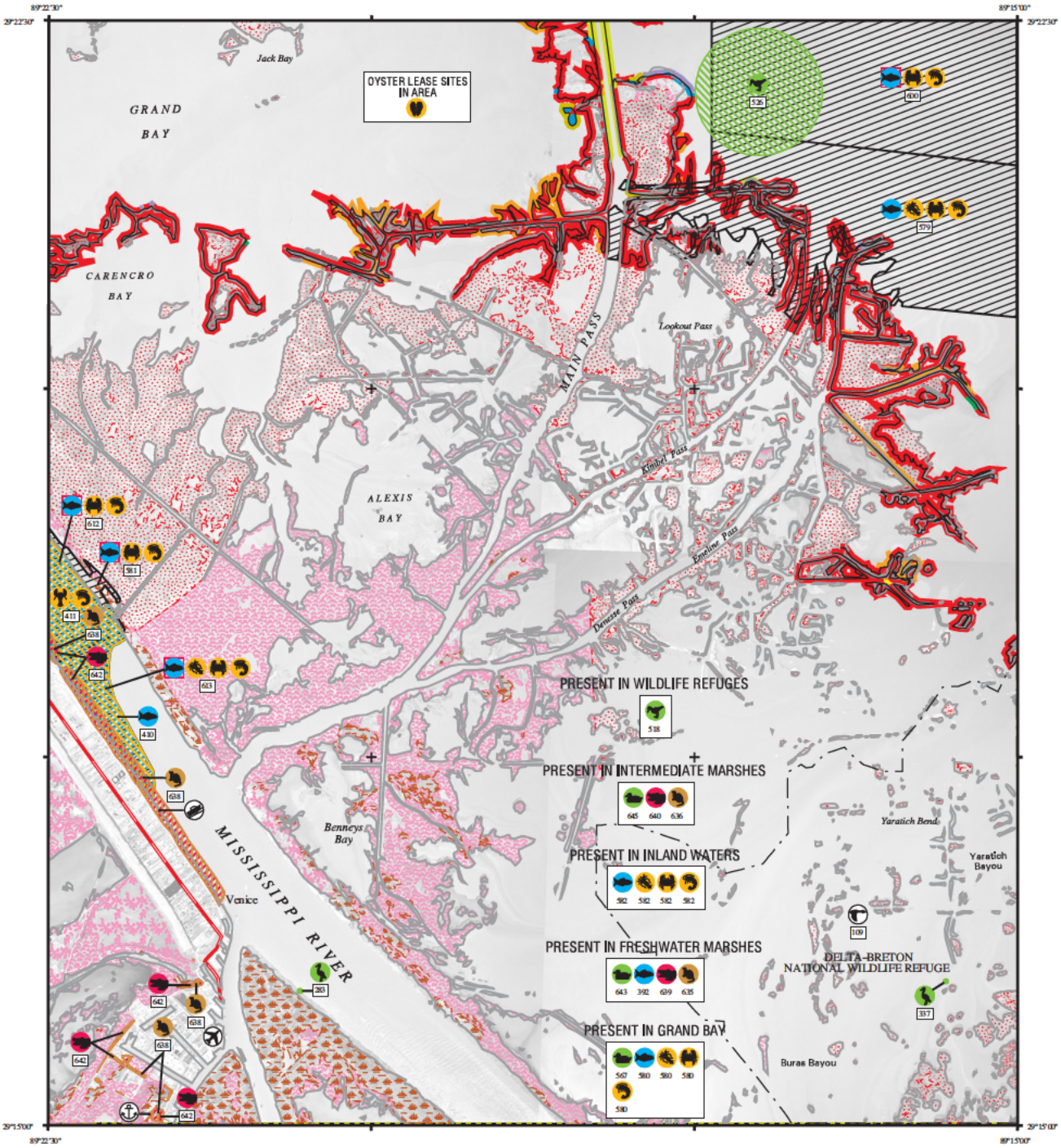
TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

000045913

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

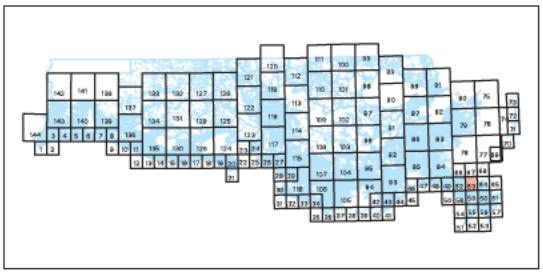
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

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Hazardous Materials Response Division

VENICE LA-63

Louisiana ESI: ESIMAP 63

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
283	Great egret			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
337	Black-crowned night-heron			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Great egret			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
526	Rare shorebird				X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
567	Lesser scaup			32 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
410	Alligator gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bantam sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bighead carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bigmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bluegill			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bowfin			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Catfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Chubsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Common carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Freshwater drum			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gizzard shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Grass carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Hybrid sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Largemouth bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Logperch			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Longear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Minnows			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Orangespotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Paddlefish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Redear sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	River carpsucker			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shiners			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shortnose gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Shovelnose sturgeon			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Silver carp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Smallmouth buffalo			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted gar			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Spotted sunfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Threadfin shad			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White crappie			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Yellow bass			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 63 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
580	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
581	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	3	3	3	4	4	4	3	3	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2			2		-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
612	Atlantic croaker			4	3	3	4	4	4	4	4	3	3	3	3	3	-	-	-	JAN-DEC	-
	Bay anchovy			4	4	4	4	4	4	4	4	4	4	4	4	4	-	APR-OCT	APR-OCT	JAN-DEC	-
	Black drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Crevalle jack			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Red drum			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	3	4	4	4	3	3	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	2	2	3	3	3	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Silver perch			3	2	2	2	3	3	2	2	2	3	3	3	2	-	-	-	JAN-DEC	-
	Southern flounder			3	2	2	2	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spotted seatrout			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
613	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2			2		-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
411	River shrimp			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White river crawfish			PRESENT	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
581	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Bay squid			2	2				2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 63 (cont.)

BIOLOGICAL RESOURCES: (cont.)

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
582	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
612	Blue crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Brown shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	White shrimp			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
613	Bay squid			2				2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
109	DELTA NWR		USFWS	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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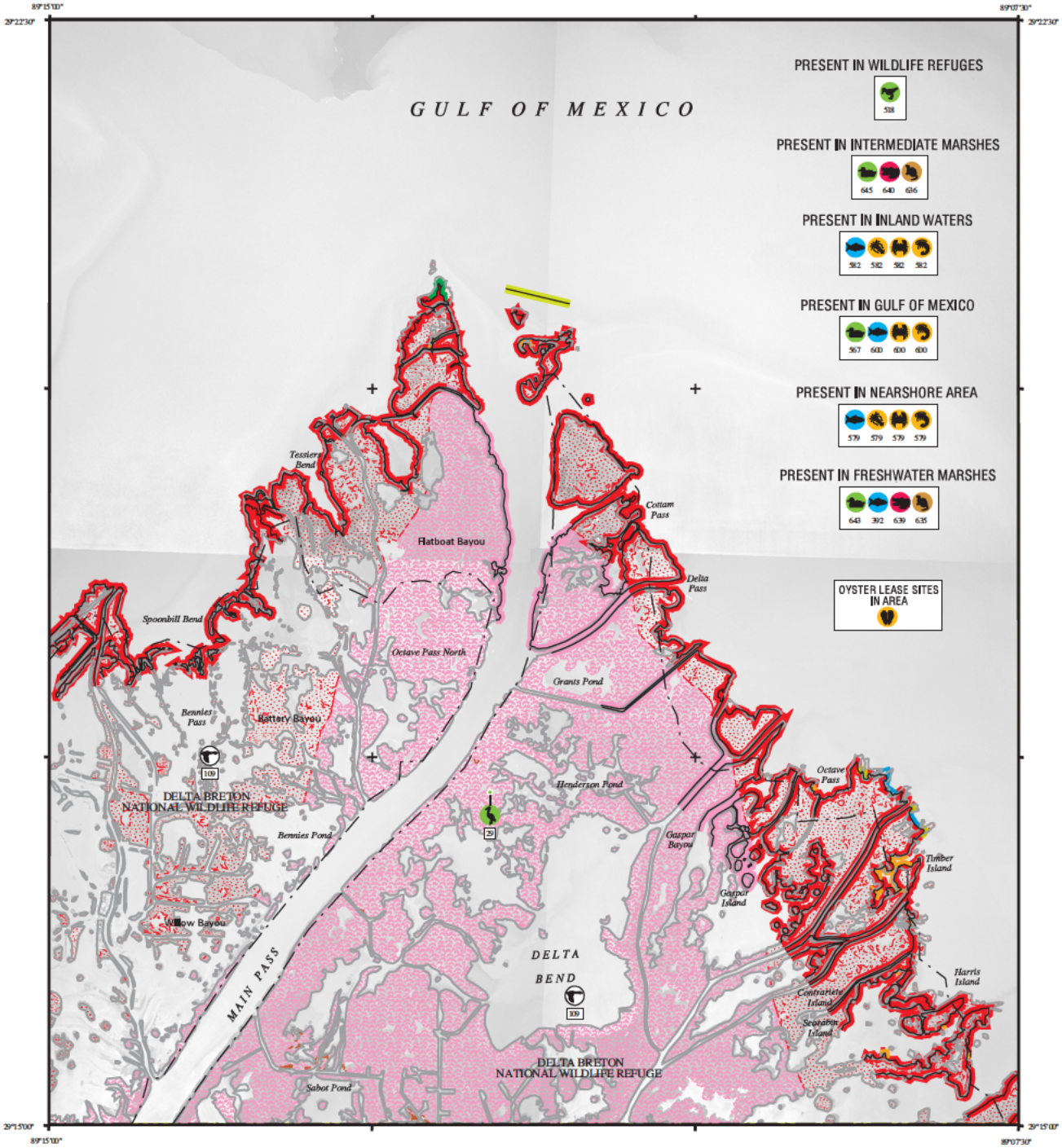
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

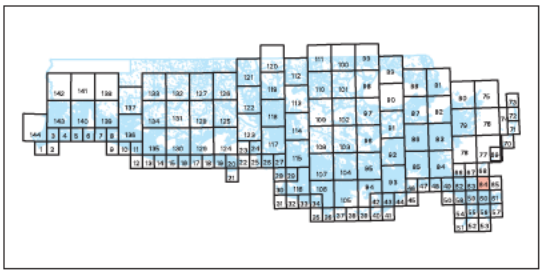
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

MAIN PASS LA-64

Louisiana ESI: ESIMAP 64

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
29	Black-crowned night-heron			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-AUG	-	-
	Cattle egret			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great egret			110 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			2 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			33 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			15 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
567	Lesser scaup			32 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	2	3	3	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2				2	-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
582	Bay squid			2	2				2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 64 (cont.)

BIOLOGICAL RESOURCES: (cont.)

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
600	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
109	DELTA NWR		USFWS	

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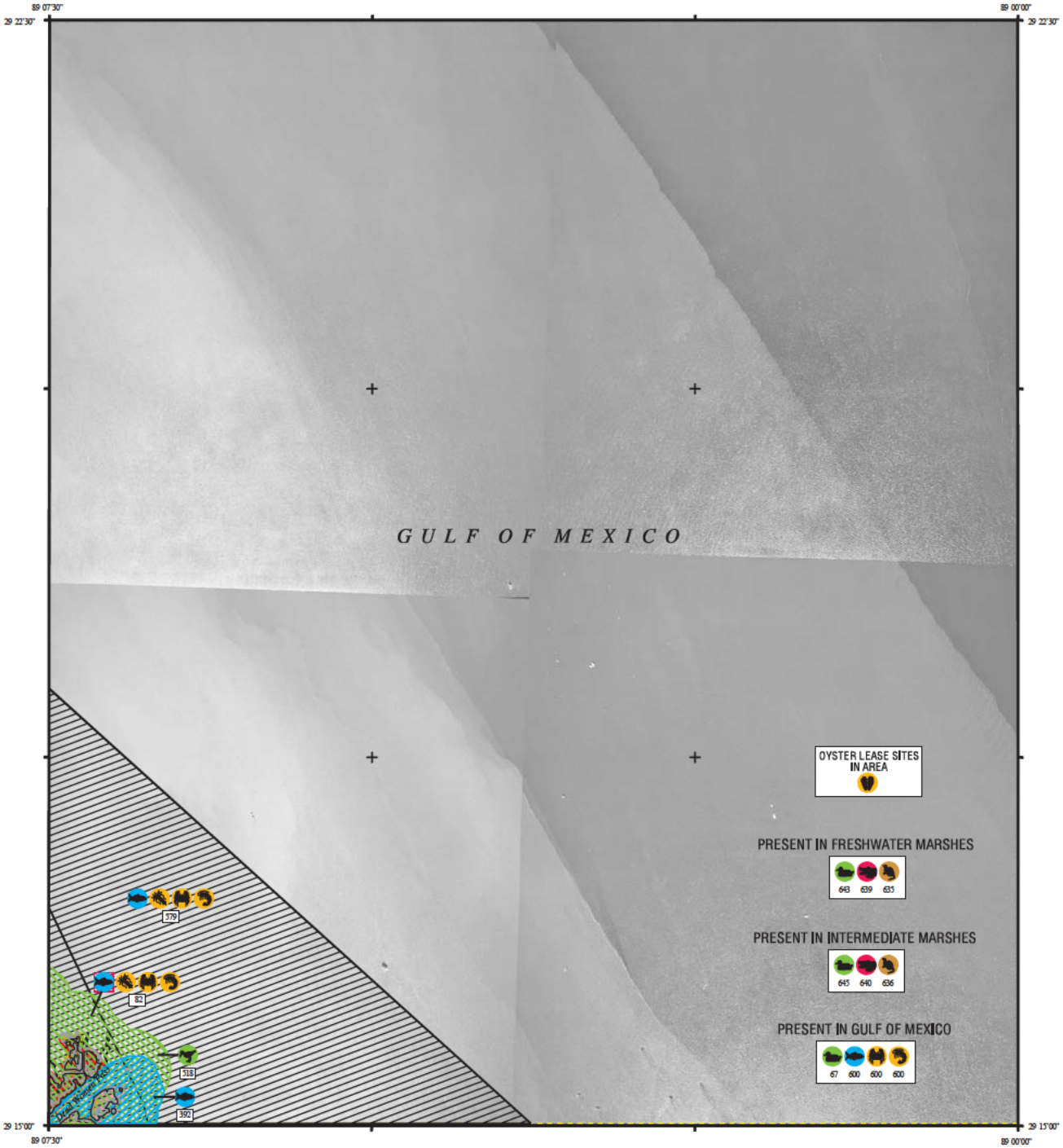
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

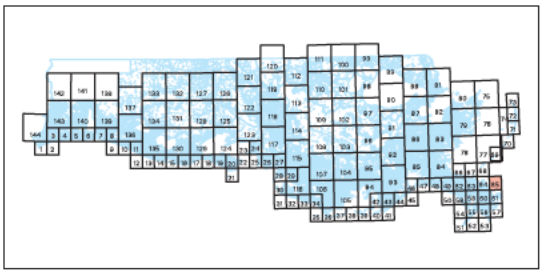
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1 50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

BRETON ISLANDS SE LA-65

Louisiana ESI: ESIMAP 65

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
567	Lesser scaup			32 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2			2		-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	4	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	4	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
582	Bay squid			2	2				2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

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Louisiana ESI: ESIMAP 65 (cont.)

BIOLOGICAL RESOURCES: (cont.)

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

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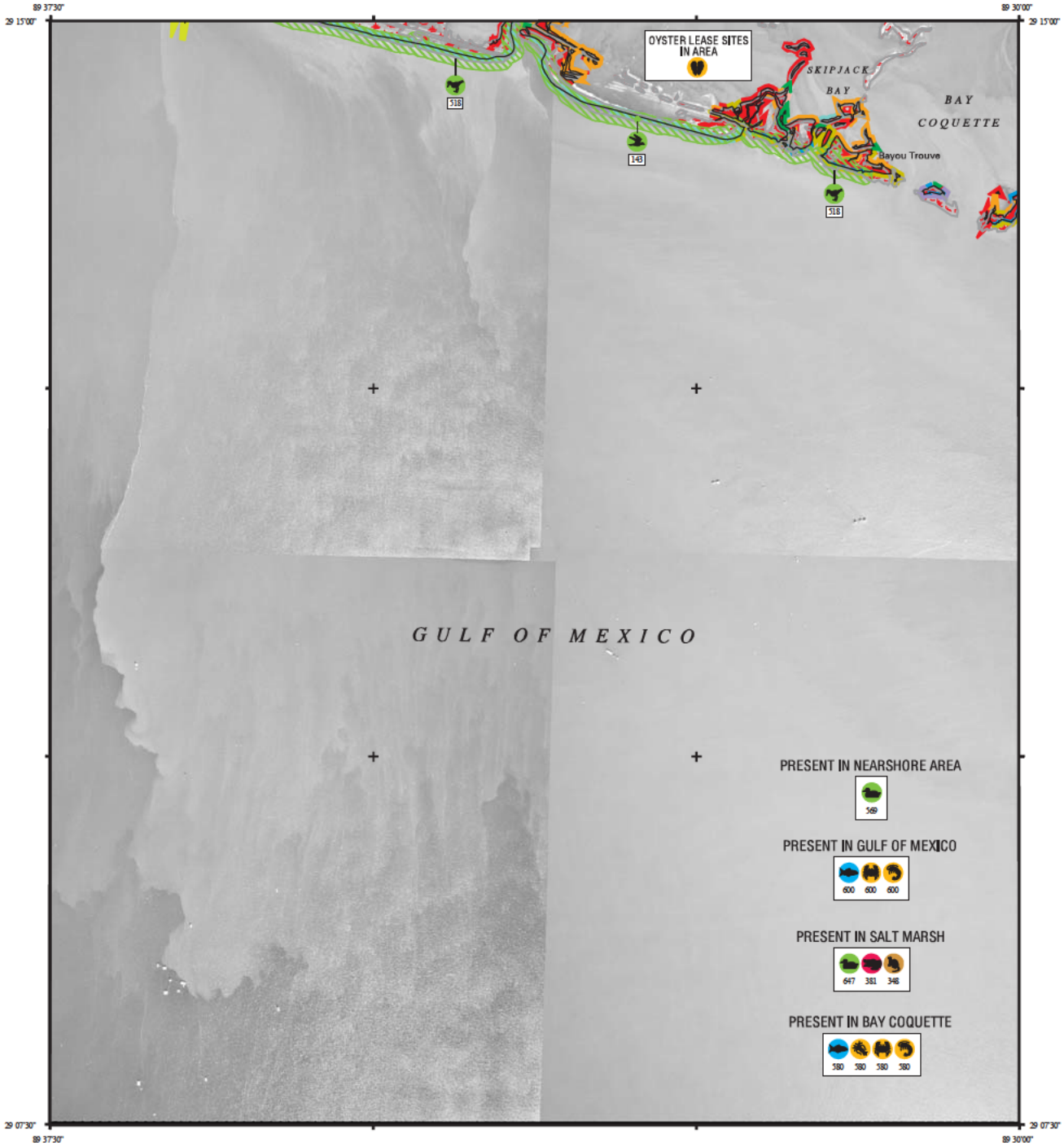
ENVIRONMENTAL SENSITIVITY INDEX MAP



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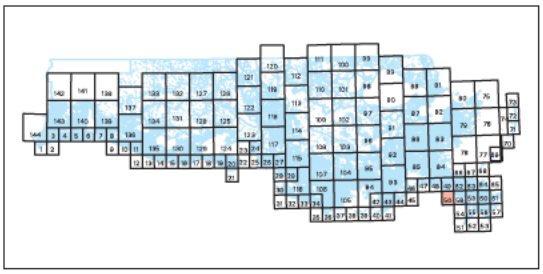
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1 50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

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National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

BAY COQUETTE LA-50

Louisiana ESI: ESIMAP 50

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
143	Black skimmer			19 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
569	Lesser scaup			49 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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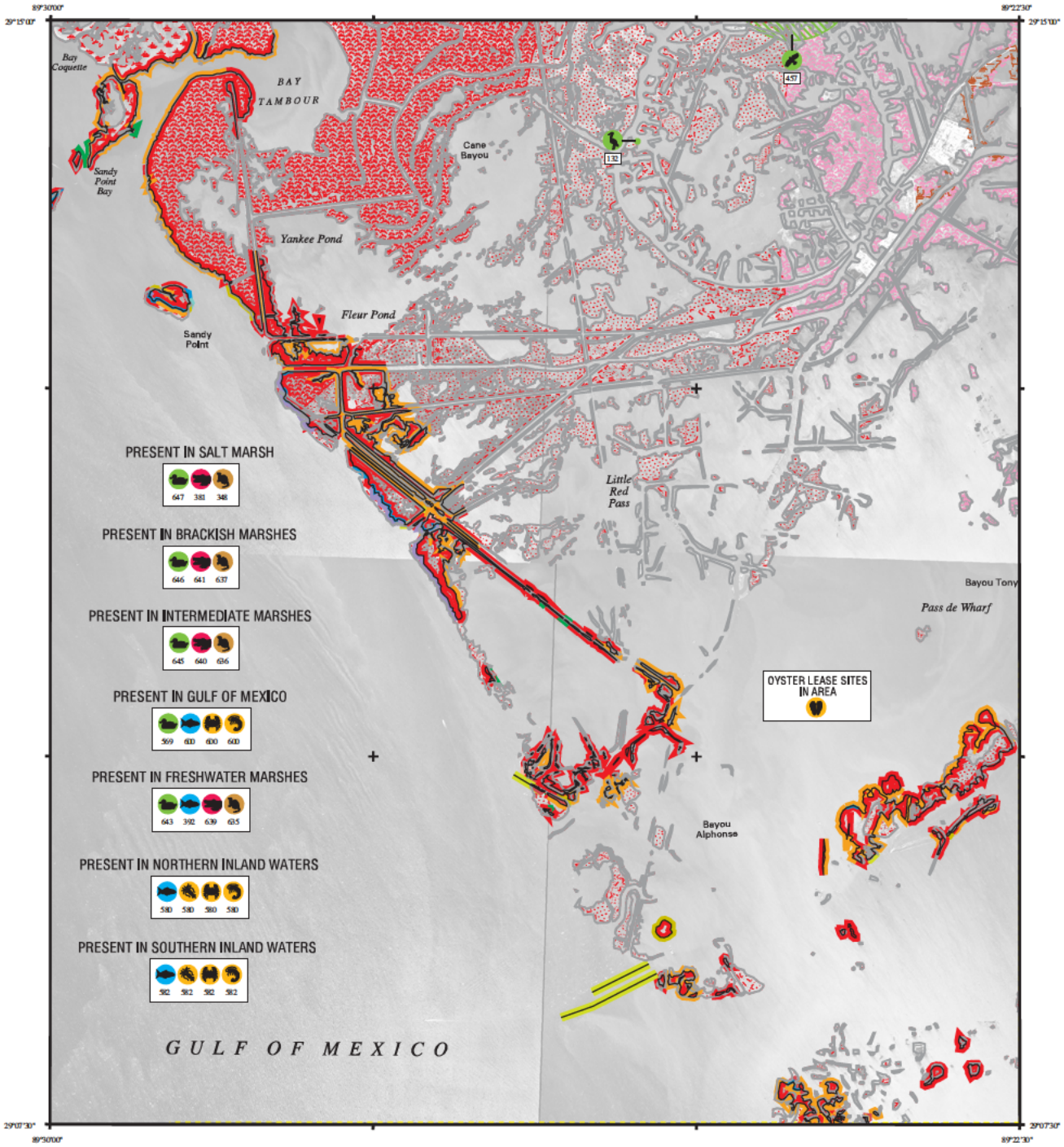
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
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COASTAL HABITATS

Based on 1988 Digital Shoreline

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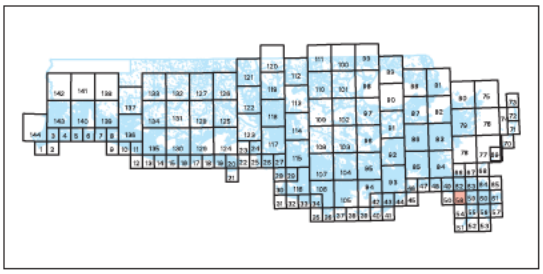
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

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PASS TANTE PHINE LA-58

Louisiana ESI: ESIMAP 58

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
132	Great egret			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			60 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			30 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
457	Rare raptor				X	X	X	X	X	X	X	X	X	X	X	X	JAN-AUG	-	-
569	Lesser scaup			49 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-
646	American coot			4 TO 42 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			5 TO 39 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 21 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 8 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			46 TO 167 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			23 TO 70 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 1 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 10 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			3 TO 19 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			7 TO 17 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			1 TO 56 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			6 TO 31 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 14 IND/SQ MI	X	X	X							X	X	X	-	-	-
647	American coot			UP TO 20 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			UP TO 57 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			UP TO 10 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			PRESENT	X	X	X								X	X	-	-	-
	Gadwall			1 TO 132 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			UP TO 246 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			UP TO 2 IND/SQ MI	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 76 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			UP TO 22 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 16 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 198 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			1 TO 152 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 24 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	4	4	4	5	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2				2	-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 58 (cont.)

BIOLOGICAL RESOURCES: (cont.)

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
600	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
582	Bay squid			2	2				2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	5	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
381	American alligator			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	JAN-DEC	JAN-DEC
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
641	American alligator			2257 TO 68 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
348	Common raccoon			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			RESIDENT	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			TRANSIENT	X	X	X	X	X	X	X	X	X	X	X	X
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
637	Common raccoon			68 TO 43 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			466 TO 215 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			9 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			752 TO 373 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			7 TO 5 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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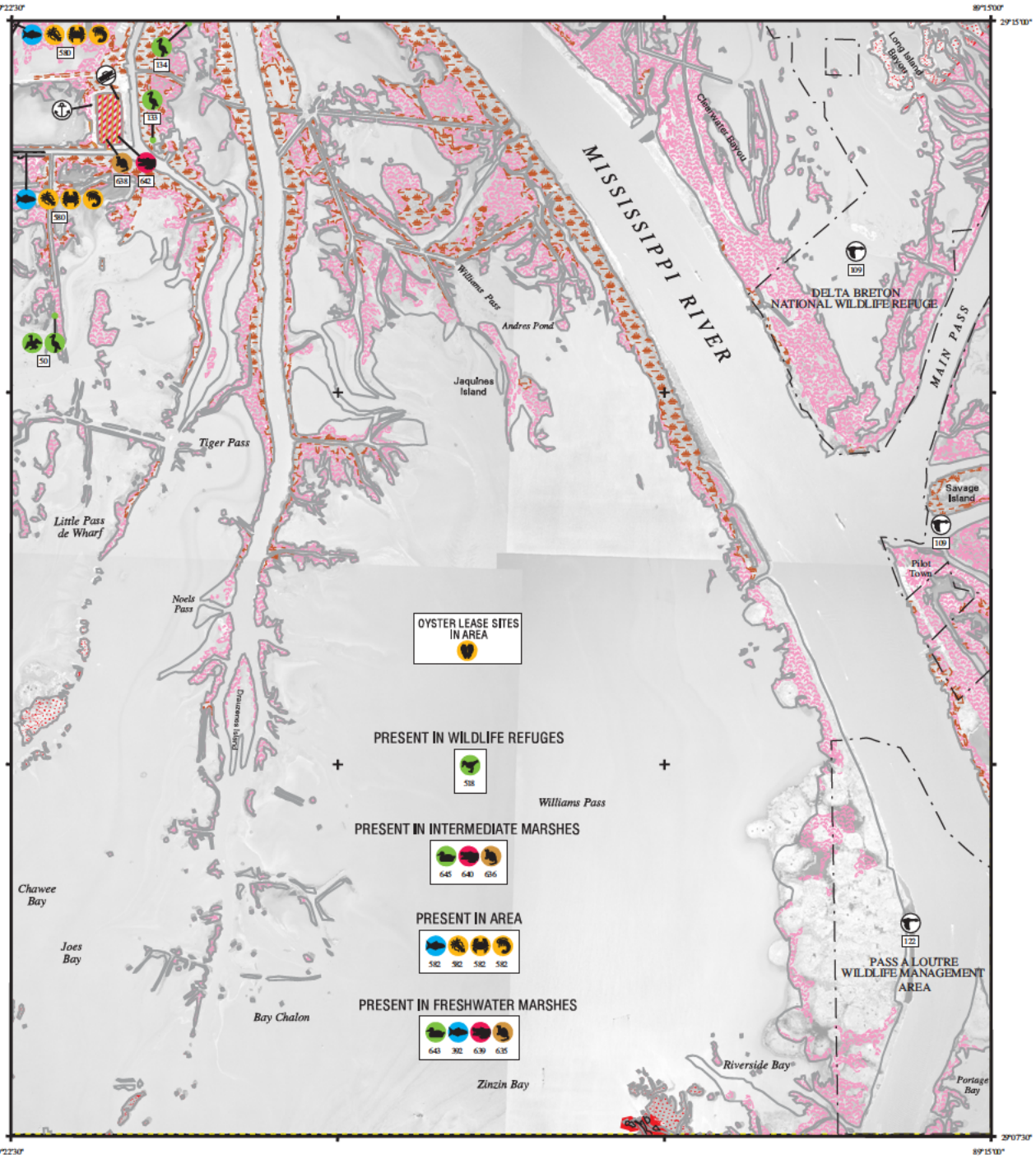
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

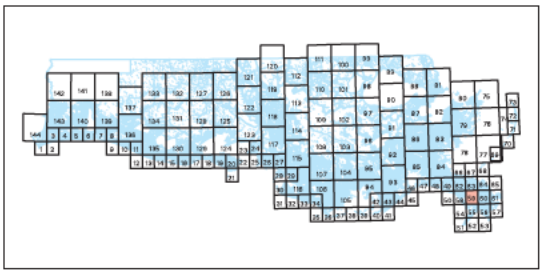
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

PILOTTOWN LA-59

Louisiana ESI: ESIMAP 59

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
50	Great egret			59 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Neotropic cormorant			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUN	-	-
133	Great egret			30 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			7 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
134	Little blue heron			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			30 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
580	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	5	5	MAR-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-MAY	JAN-MAY	JAN-MAY	JAN-DEC	-
	Crevalle jack			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Florida pompano			3	3	3	3	3	3	3	3	3	3	3	3	3	MAY-AUG	MAY-AUG	MAY-AUG	JAN-DEC	-
	Gizzard shad			4	3	3	3	4	4	4	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gray snapper			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	AUG-APR	AUG-APR	JAN-DEC	-
	Red drum			4	3	3	3	3	3	4	4	4	3	3	3	3	AUG-MAR	AUG-MAR	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	FEB-OCT	FEB-OCT	FEB-OCT	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	-	-	JAN-JUL	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Southern flounder			4	3	3	3	3	4	4	4	4	4	4	4	3	-	-	SEP-APR	JAN-DEC	-
	Spanish mackerel			3	2	2	3	3	3	3	3	3	3	3	3	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	OCT-APR	OCT-APR	OCT-APR	JAN-DEC	-
	Spotted seatrout			4	3	3	3	3	4	4	4	4	3	4	3	3	MAR-OCT	MAR-OCT	MAR-OCT	JAN-DEC	-
	Striped mullet			4	4	4	4	4	4	4	4	4	4	4	4	4	-	NOV-FEB	OCT-MAY	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	-	-	MAY-NOV	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2			2		-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
580	Bay squid			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Blue crab			5	4	4	5	5	5	5	5	5	5	5	5	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	4	5	5	5	5	5	5	5	5	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	MAR-NOV	MAR-DEC	JAN-DEC	-
	Pink shrimp			5	3	3	5	5	5	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			5	3	3	5	5	5	5	5	5	5	5	5	4	APR-NOV	APR-NOV	MAR-DEC	JAN-DEC	-
582	Bay squid			2	2			2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3			3	3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
642	American alligator			1000 TO 250 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 59 (cont.)

BIOLOGICAL RESOURCES: (cont.)

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
638	Common raccoon			25 TO 23 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			96 TO 56 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			196 TO 53 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			877 TO 728 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			15 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
109	DELTA NWR		USFWS	
122	PASS A LOUTRE WMA		LDWF	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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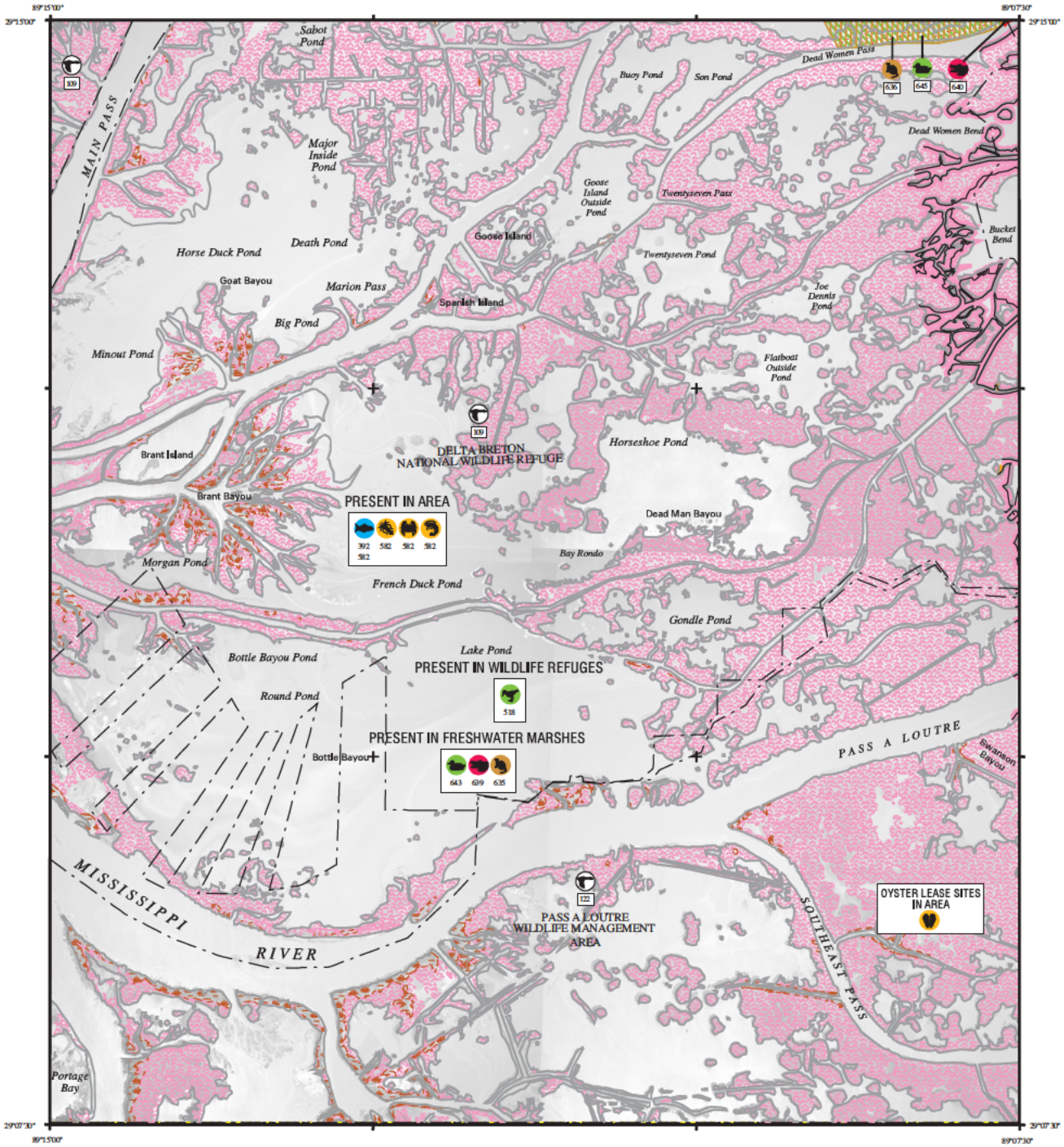
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

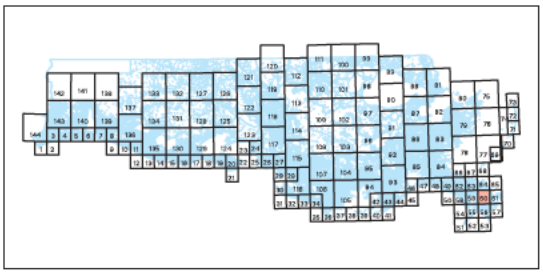
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

PASS A LOUTRE WEST LA-60

Louisiana ESI: ESIMAP 60

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2				2	-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
582	Bay squid			2	2				2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
109	DELTA NWR		USFWS	
122	PASS A LOUTRE WMA		LDWF	

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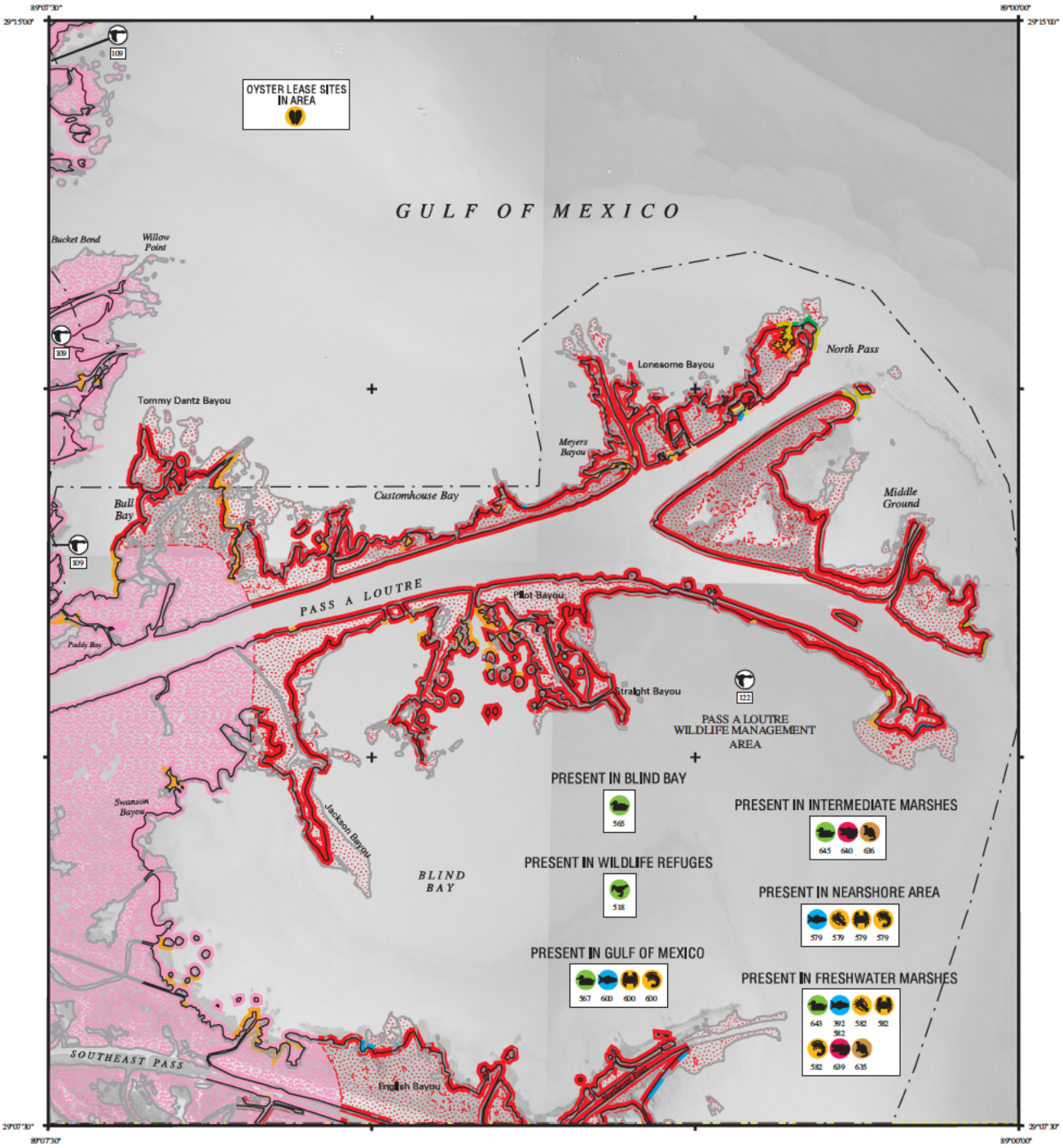
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

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SHORELINE HABITATS (ESI)

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- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
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- 10C FRESHWATER SWAMPS
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COASTAL HABITATS

Based on 1988 Digital Shoreline

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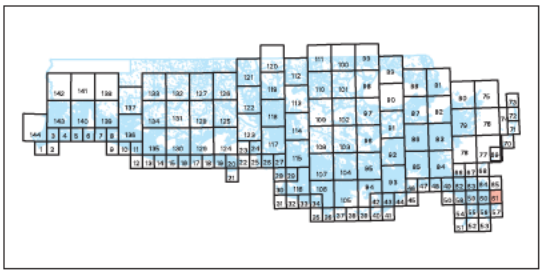
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

PASS A LOUTRE EAST LA-61

Louisiana ESI: ESIMAP 61

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
565	Lesser scaup			40 IND/SQ MI	X	X	X							X	X	X	-	-	-
567	Lesser scaup			32 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2				2	-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
582	Bay squid			2	2				2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 61 (cont.)

BIOLOGICAL RESOURCES: (cont.)

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
109	DELTA NWR		USFWS	
122	PASS A LOUTRE WMA		LDWF	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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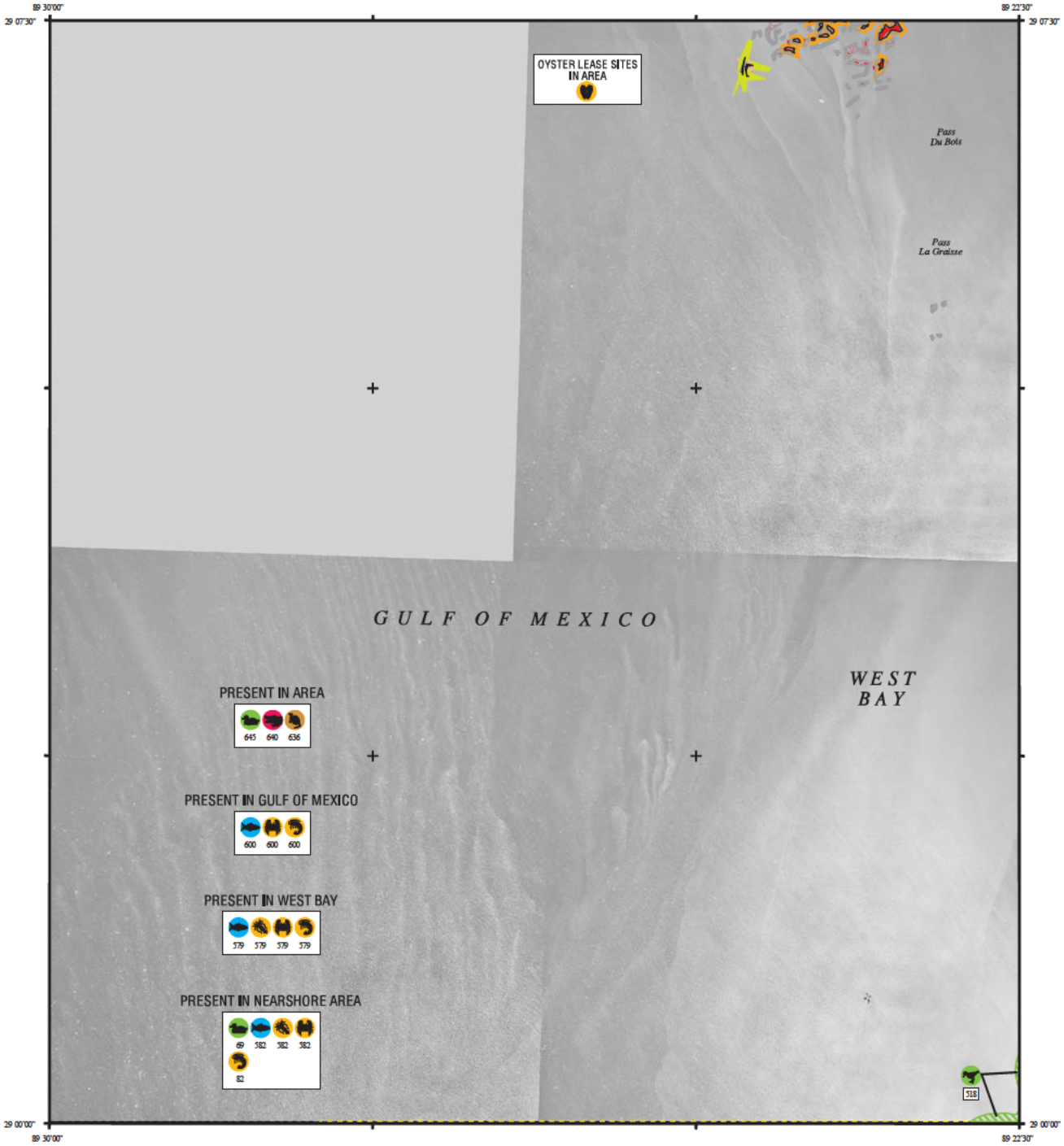
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

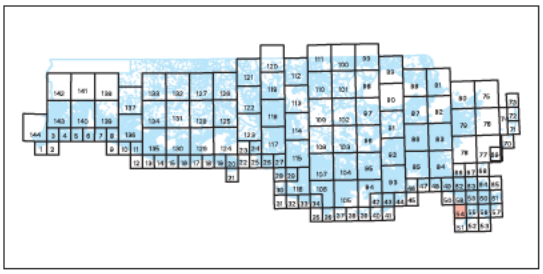
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1 50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

PASS DU BOIS LA-54

Louisiana ESI: ESIMAP 54

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
518	Shorebirds					X	X	X		X	X	X	X				-	-	-
569	Lesser scaup			49 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2			2		-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
582	Bay squid			2	2			2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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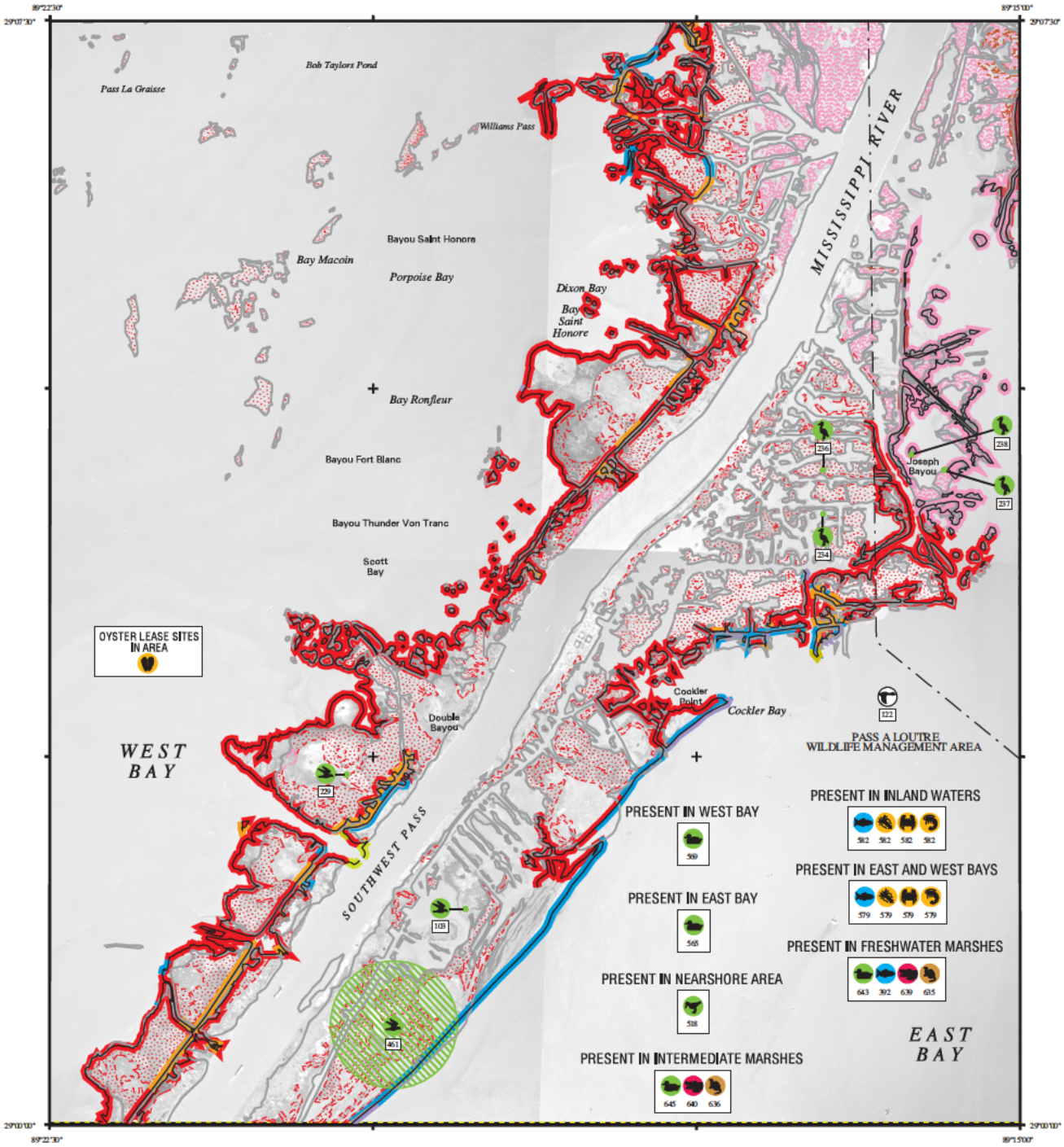
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
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- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

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- 10A INTERMEDIATE MARSH
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- 10C FORESTED WETLAND
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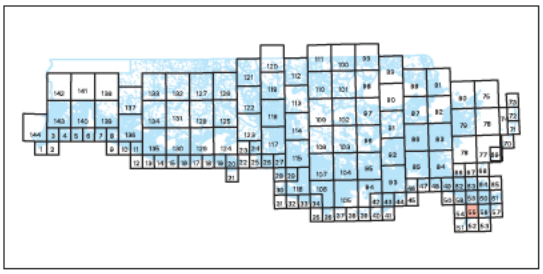
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

DIXON BAY LA-55

Louisiana ESI: ESIMAP 55

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
103	Black skimmer			70 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
229	Black skimmer			150 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Gull-billed tern			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
234	Great egret			5 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			5 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
236	Great egret			5 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
237	Cattle egret			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	Great egret			14 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			2 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			20 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
238	Great egret			25 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			31 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			2 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			12 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
461	Colonial waterbirds				X	X	X	X	X	X	X	X	X	X	X	X	NOV-SEP	-	-
	Rare seabird				X	X	X	X	X	X	X	X	X	X	X	X	JUN-SEP	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
565	Lesser scaup			40 IND/SQ MI	X	X	X							X	X	X	-	-	-
569	Lesser scaup			49 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2			2		-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
582	Bay squid			2	2			2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3			3	3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 55 (cont.)

BIOLOGICAL RESOURCES: (cont.)

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
122	PASS A LOUTRE WMA		LDWF	

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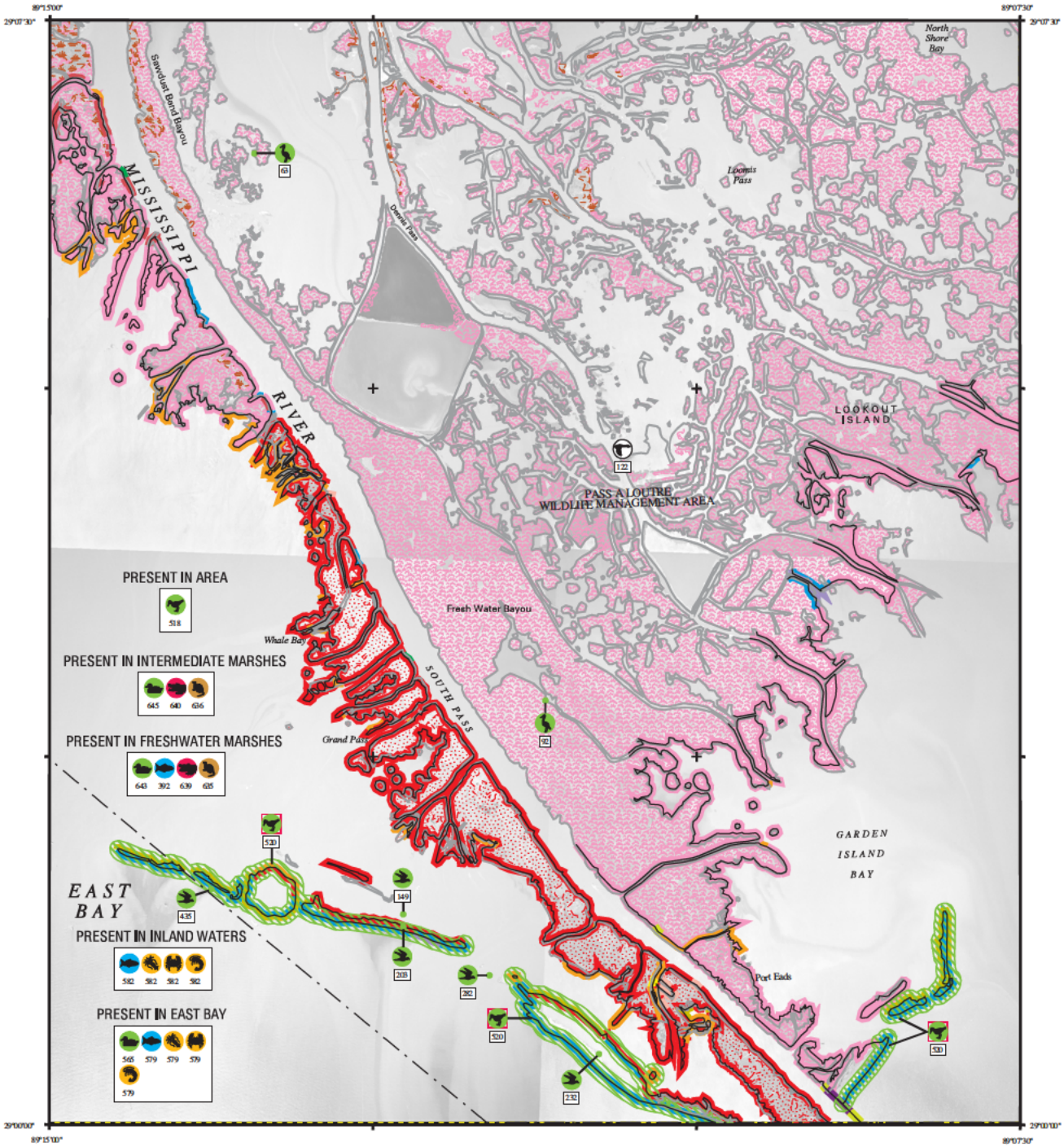
000045941

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

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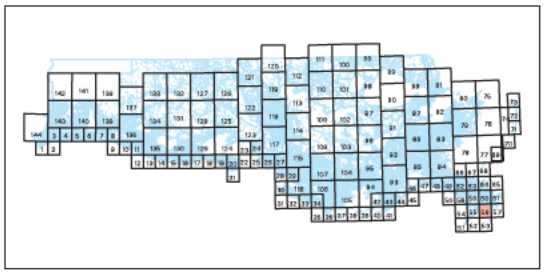

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- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
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COASTAL HABITATS

Based on 1988 Digital Shoreline

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- SEAGRASS

N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

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SOUTH PASS LA-56

Louisiana ESI: ESIMAP 56

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
63	Great egret			26 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Little blue heron			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Reddish egret			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Snowy egret			55 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			4 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White ibis			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
	White-faced or Glossy ibis			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
92	Great egret			11 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Tricolored heron			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White-faced or Glossy ibis			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
149	Black skimmer			23 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Laughing gull			11 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Least tern			4 IND (90-99AV)			X	X	X	X	X	X	X	X			APR-SEP	-	-
	Royal tern			14 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
203	Black skimmer			44 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Forster's tern			16 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Gull-billed tern			8 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Royal tern			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
232	Black skimmer			236 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Caspian tern			20 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Forster's tern			6 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Gull-billed tern			44 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Laughing gull			40 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
282	Caspian tern			17 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Forster's tern			17 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Gull-billed tern			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Laughing gull			27 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
435	Black skimmer			1200 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Caspian tern			420 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Gull-billed tern			200 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Laughing gull			50 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Royal tern			100 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Sandwich tern			100 IND (97COUNT)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
520	Piping plover		T		X	X	X	X	X			X	X	X	X	X	-	-	-
	Shorebirds						X	X	X		X	X	X	X			-	-	-
565	Lesser scaup			40 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2			2		-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 56 (cont.)

BIOLOGICAL RESOURCES: (cont.)

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
582	Bay squid			2	2				2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3				3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

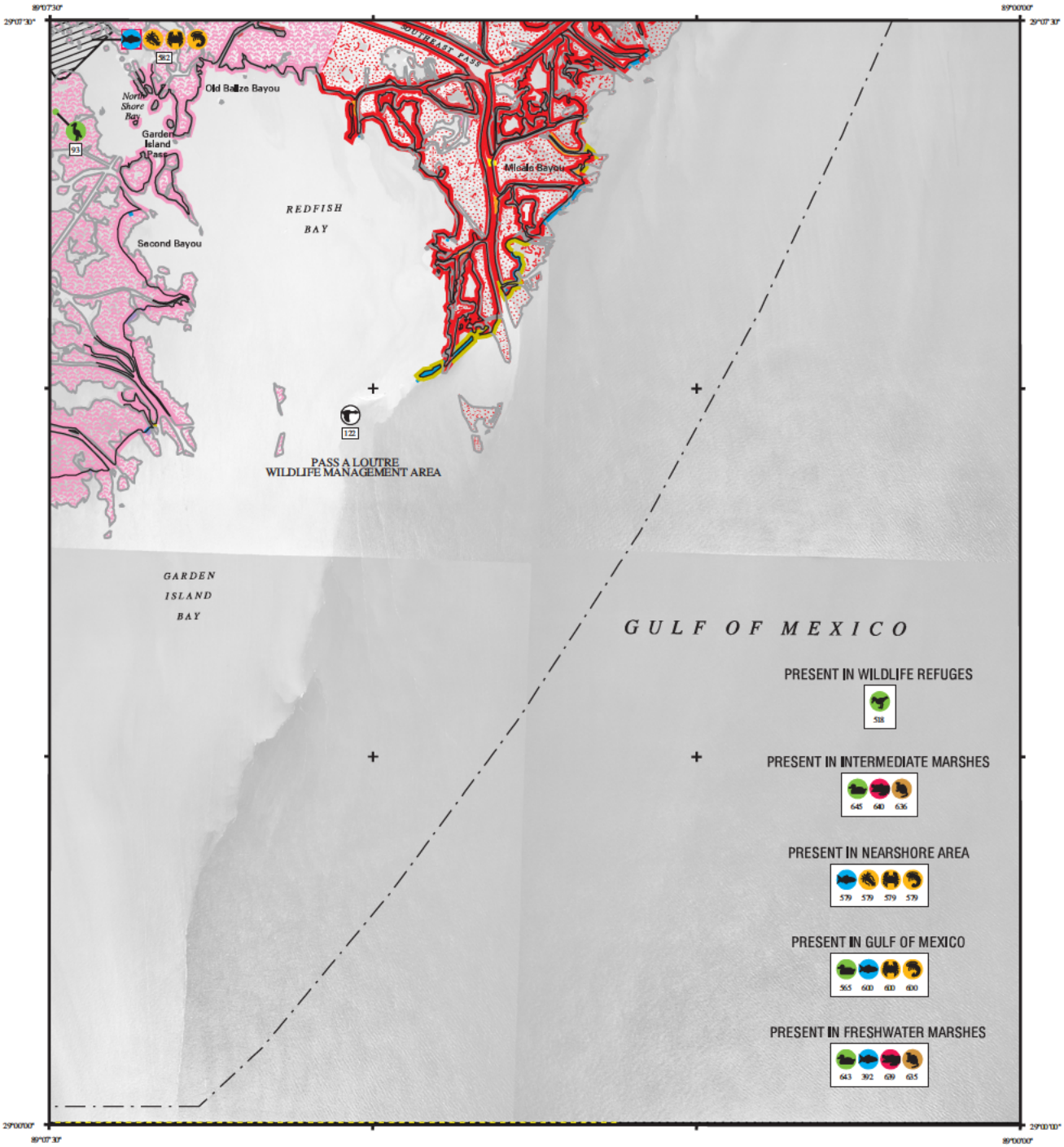
WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
122	PASS A LOUTRE WMA		LDWF	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

000045944

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

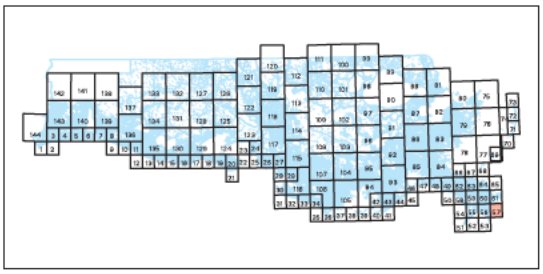
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1:50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

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Hazardous Materials Response Division

GARDEN ISLAND PASS LA-57

Louisiana ESI: ESIMAP 57

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
93	Great egret			13 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	FEB-JUL	-	-
	Snowy egret			3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	White-faced or Glossy ibis			2 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-AUG	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
565	Lesser scaup			40 IND/SQ MI	X	X	X							X	X	X	-	-	-
643	American coot			2 TO 215 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			1 TO 116 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			2 TO 30 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 21 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			10 TO 243 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			6 TO 86 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			UP TO 41 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			20 TO 99 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			3 TO 18 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			2 TO 70 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			UP TO 24 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			UP TO 56 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
392	Largemouth bass			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
582	Atlantic croaker			5	5	3	4	4	5	5	5	4	4	4	4	5	-	-	AUG-JAN	JAN-DEC	-
	Bay anchovy			5	5	4	4	4	5	5	5	5	5	5	5	5	MAY-JAN	APR-JAN	APR-JAN	JAN-DEC	-
	Black drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	JAN-JAN	JAN-DEC	-
	Crevalle jack			3	2	2	2	2	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	4	5	-	-	-	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	2	2	2				2	-	-	-	DEC-AUG	-
	Red drum			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	2	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	2	2	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2					2	2	2	2	2	2	2		-	-	-	MAY-NOV	-
	Spot			5	5	2	2	2	5	5	5	5	4	4	3	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	4	3	3	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	5	4	4	4	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
582	Bay squid			2	2			2	2	2	2	2	2	2	2	2	-	-	MAY-NOV	MAY-JAN	-
	Blue crab			5	3	3	3	3	4	5	5	5	5	4	3	3	-	MAY-JAN	MAY-JAN	JAN-DEC	-
	Brown shrimp			5	3	3	3	3	5	4	4	4	4	3	3	3	-	-	MAY-JAN	JAN-DEC	-
	Gulf stone crab			3	3			3	3	3	3	3	3	3	3	3	-	-	-	MAY-JAN	-
	Pink shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-SEP	JAN-DEC	-
	White shrimp			3	3	2	2	2	3	3	3	3	3	3	3	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

Louisiana ESI: ESIMAP 57 (cont.)

BIOLOGICAL RESOURCES: (cont.)

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
639	American alligator			661 TO 9 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
635	Common raccoon			86 TO 42 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			223 TO 179 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			36 TO 17 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			2036 TO 828 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			3 TO 2 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

HUMAN USE RESOURCES:

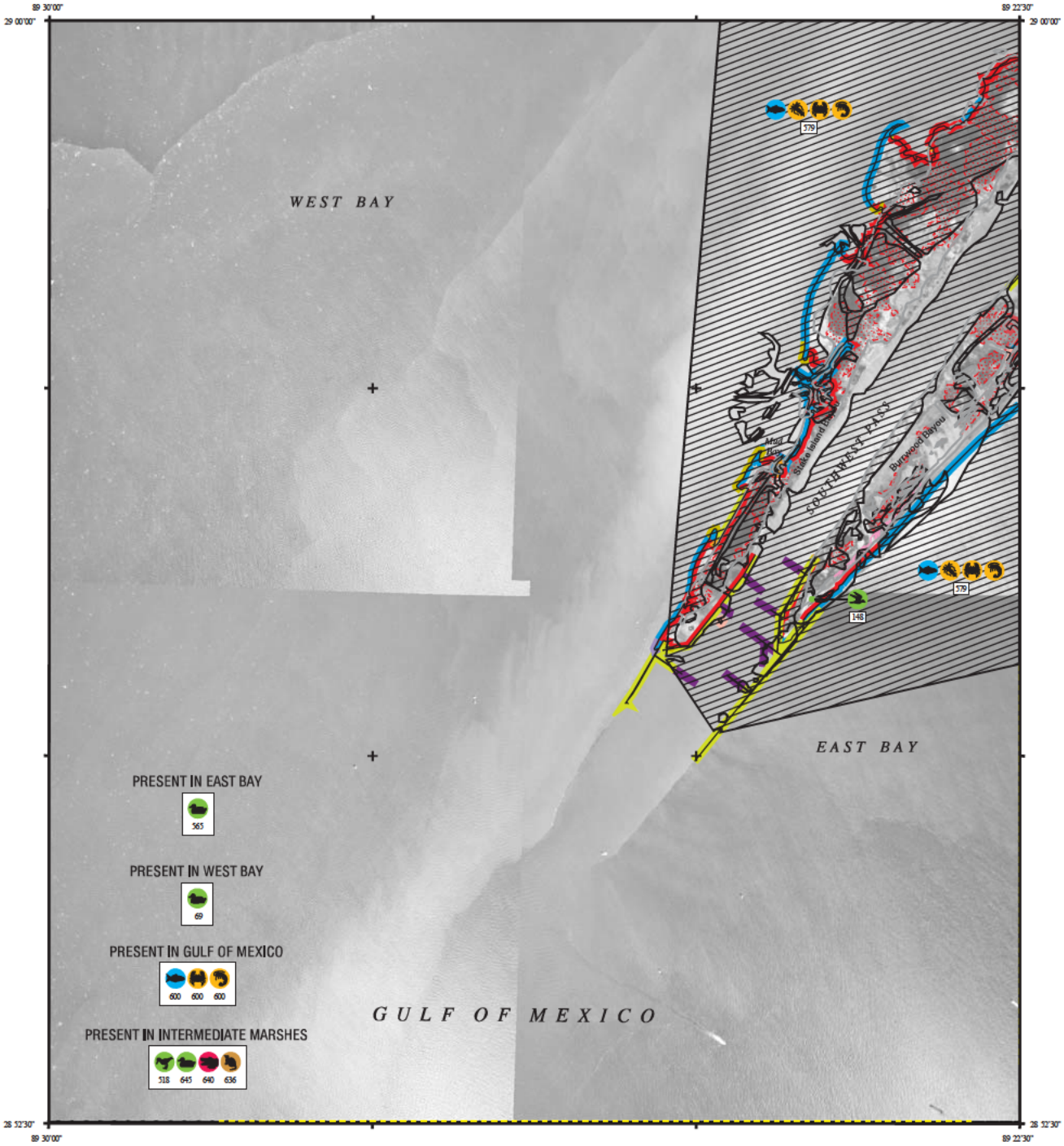
WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
122	PASS A LOUTRE WMA		LDWF	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

000045947

ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

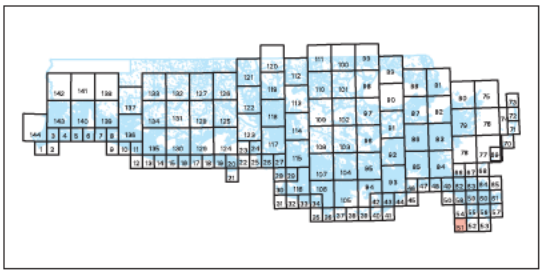
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1 50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

Published at Seattle, Washington
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

BURRWOOD BAYOU WEST LA-51

Louisiana ESI: ESIMAP 51

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
148	Black skimmer			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
565	Lesser scaup			40 IND/SQ MI	X	X	X							X	X	X	-	-	-
569	Lesser scaup			49 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	3	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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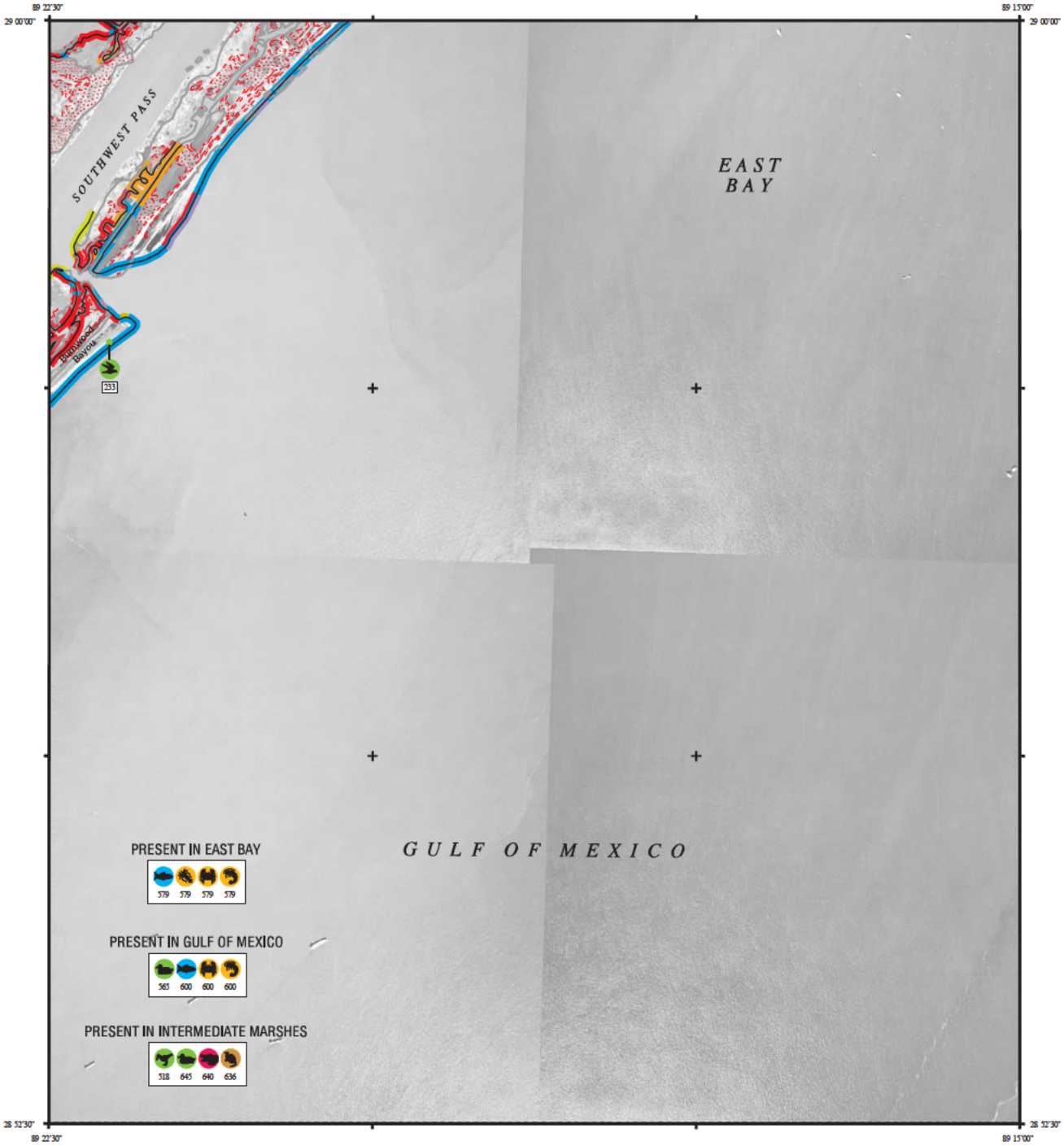
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

1988 SHORELINE

2001 SHORELINE

NOTE FOR COASTAL MAPS:

Due to the dynamic nature of the Louisiana coastline, biological resources may represent historical locations that do not correspond with the depicted shoreline.

SHORELINE HABITATS (ESI)

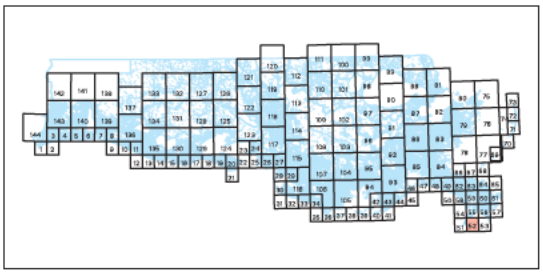
2001 ESI Shoreline Classification

- 1B EXPOSED, SOLID MAN-MADE STRUCTURES
- 2A EXPOSED WAVE-CUT PLATFORMS IN CLAY
- 2B EXPOSED SCARPS AND STEEP SLOPES IN CLAY
- 3A FINE- TO MEDIUM-GRAINED SAND BEACHES
- 3B SCARPS AND STEEP SLOPES IN SAND
- 4 COARSE-GRAINED SAND BEACHES
- 5 MIXED SAND AND GRAVEL BEACHES
- 6A GRAVEL BEACHES
- 6B RIPRAP
- 7 EXPOSED TIDAL FLATS
- 8A SHELTERED ROCKY SHORES AND SHELTERED SCARPS IN MUD OR CLAY
- 8B SHELTERED, MAN-MADE STRUCTURES
- 8C SHELTERED RIPRAP
- 9A SHELTERED TIDAL FLATS
- 9B SHELTERED, VEGETATED LOW BANKS
- 10A SALT- AND BRACKISH-WATER MARSHES
- 10B FRESHWATER MARSHES
- 10C FRESHWATER SWAMPS
- 10D SCRUB-SHRUB WETLANDS

COASTAL HABITATS

Based on 1988 Digital Shoreline

- 10A SALT MARSH
- 10A BRACKISH MARSH
- 10A INTERMEDIATE MARSH
- 10B FRESHWATER MARSH
- 10C FORESTED WETLAND
- 10D SCRUB- SHRUB WETLAND
- SEAGRASS



N W E S

SCALE 1 50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

Not For Navigation

December 2003

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National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Hazardous Materials Response Division

BURRWOOD BAYOU EAST LA-52

Louisiana ESI: ESIMAP 52

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
233	Black skimmer			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Forster's tern			1 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
565	Lesser scaup			40 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Atlantic croaker			5	5	5	5	5	5	5	5	4	4	4	4	5	-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5	5	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

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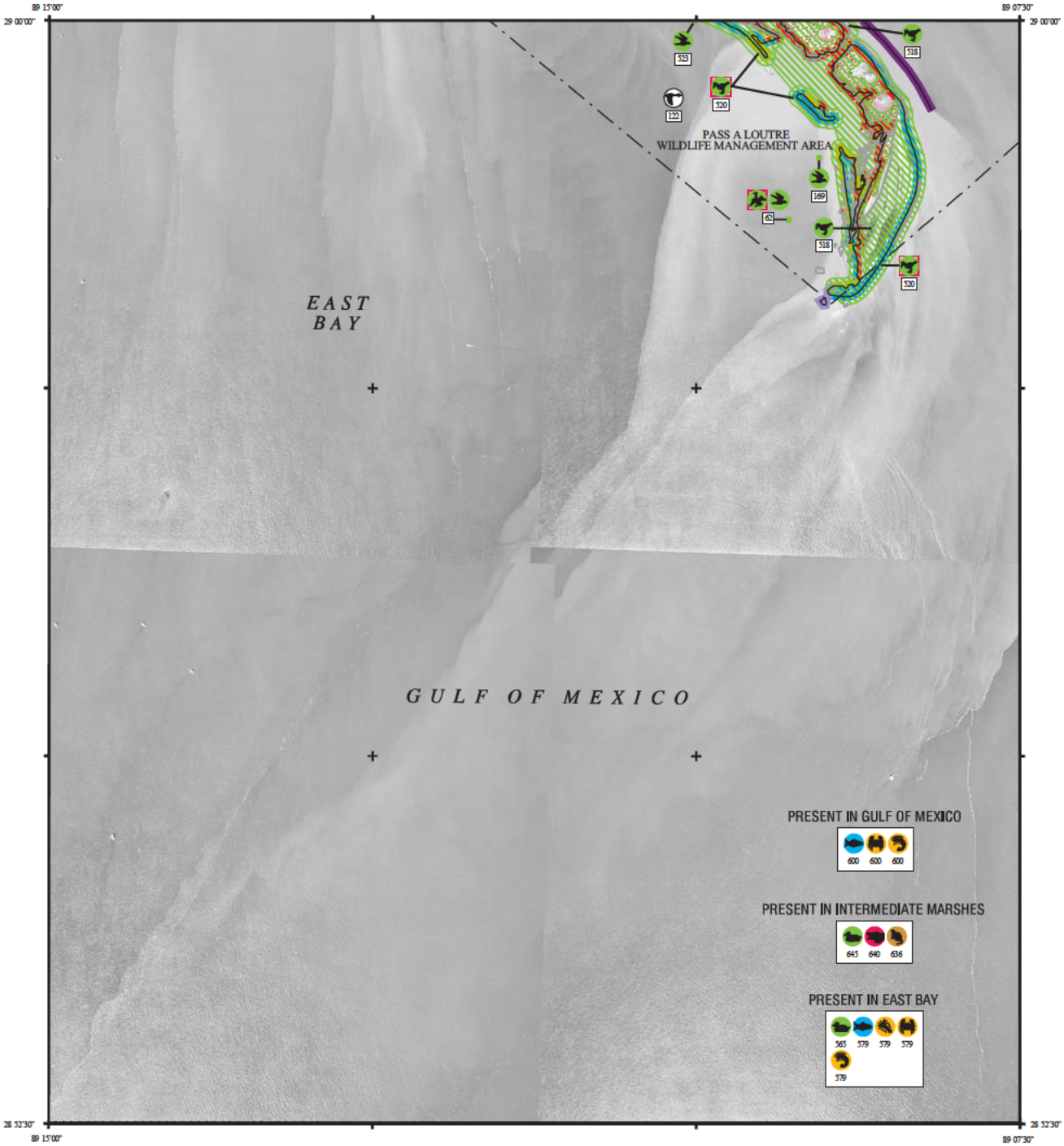
ENVIRONMENTAL SENSITIVITY INDEX MAP



SHORELINE

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2001 SHORELINE

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SHORELINE HABITATS (ESI)

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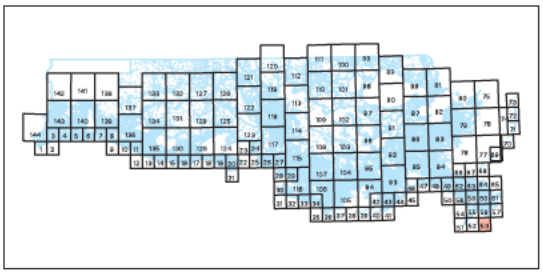

N W E S

SCALE 1 50000

1 .5 0 1 KILOMETER

1 .5 0 1 MILE

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SOUTH OF SOUTH PASS LA-53

Louisiana ESI: ESIMAP 53

BIOLOGICAL RESOURCES:

BIRD:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Migrating	Molting
62	Brown pelican		E	3 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	NOV-JUL	-	-
	Forster's tern			45 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAR-JUL	-	-
	Laughing gull			171 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-JUL	-	-
	Royal tern			48 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
	Sandwich tern			44 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
169	Black skimmer			50 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
	Least tern			4 IND (90-99AV)			X	X	X	X	X	X	X	X			APR-SEP	-	-
	Royal tern			10 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	APR-SEP	-	-
518	Shorebirds						X	X	X		X	X	X	X			-	-	-
520	Piping plover		T		X	X	X	X	X			X	X	X	X	X	-	-	-
	Shorebirds						X	X	X		X	X	X	X			-	-	-
523	Black skimmer			63 IND (90-99AV)	X	X	X	X	X	X	X	X	X	X	X	X	MAY-SEP	-	-
565	Lesser scaup			40 IND/SQ MI	X	X	X							X	X	X	-	-	-
645	American coot			33 TO 165 IND/SQ MI	X	X	X							X	X	X	-	-	-
	American wigeon			3 TO 73 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Blue-winged teal			9 TO 34 IND/SQ MI	X	X	X	X	X				X	X	X	X	-	-	-
	Canvasback			UP TO 6 IND/SQ MI	X	X	X								X	X	-	-	-
	Gadwall			36 TO 240 IND/SQ MI	X	X	X	X						X	X	X	-	-	-
	Green-winged teal			9 TO 144 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Hooded merganser			PRESENT	X	X	X								X	X	-	-	-
	Lesser scaup			2 TO 35 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mallard			4 TO 66 IND/SQ MI	X	X	X							X	X	X	-	-	-
	Mottled duck			8 TO 15 IND/SQ MI	X	X	X	X	X	X	X	X	X	X	X	X	MAR-SEP	-	-
	Northern pintail			UP TO 39 IND/SQ MI	X	X	X						X	X	X	X	-	-	-
	Northern shoveler			4 TO 34 IND/SQ MI	X	X	X	X					X	X	X	X	-	-	-
	Ring-necked duck			2 TO 36 IND/SQ MI	X	X	X							X	X	X	-	-	-

FISH:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Atlantic croaker			5	5	5	5	5	5	5	4	4	4	4	5		-	-	AUG-APR	JAN-DEC	-
	Bay anchovy			5	5	5	5	5	5	5	5	5	5	5	5		JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Black drum			3	3	3	3	3	3	3	3	3	3	3	3		-	-	JAN-APR	JAN-DEC	-
	Crevalle jack			3	2	2	2	3	3	2	2	2	3	3	2	2	-	-	-	JAN-DEC	-
	Gizzard shad			3	3	3	3	3	3	3	3	3	3	3	3	3	MAR-SEP	MAR-SEP	MAR-SEP	JAN-DEC	-
	Gulf menhaden			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Red drum			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	AUG-MAR	JAN-DEC	-
	Sand seatrout			4	3	3	3	3	4	4	4	4	4	4	3	3	-	-	-	JAN-DEC	-
	Sheepshead			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Silver perch			4	3	3	3	3	4	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Southern flounder			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Spanish mackerel			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
	Spot			5	5	5	5	5	5	5	5	5	5	5	5	5	-	-	-	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Striped mullet			4	4	3	4	4	4	4	4	4	4	4	3	4	-	-	-	JAN-DEC	-
	Tarpon			2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	-	JAN-DEC	-
600	Black drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Florida pompano			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Gulf menhaden			5	5	4	4	4	5	5	5	5	5	5	5	5	JAN-DEC	SEP-MAY	JAN-DEC	JAN-DEC	-
	Gulf sturgeon		T	2	2	2	2	2	2	0	0	0	0	0	0	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Red drum			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Sheepshead			4	4	4	4	4	4	4	4	4	4	4	4	4	JAN-DEC	DEC-MAY	JAN-DEC	JAN-DEC	-
	Southern flounder			4	3	3	4	4	4	4	4	4	4	4	4	3	JAN-DEC	SEP-FEB	JAN-DEC	JAN-DEC	-
	Spanish mackerel			4	2	2	3	3	3	4	4	4	4	4	4	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Spotted seatrout			3	3	3	3	3	3	3	3	3	3	3	3	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Striped mullet			4	3	3	4	4	4	4	4	4	3	3	3	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Tarpon			3	2	2	2	2	2	3	3	3	3	3	3	2	JAN-DEC	-	JAN-DEC	JAN-DEC	-

INVERTEBRATE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Eggs	Larvae	Juveniles	Adults
579	Bay squid			2	2	2	2	2	2	2	2	2	2	2	2	2	MAR-NOV	MAR-NOV	MAR-NOV	JAN-DEC	-
	Blue crab			5	4	4	4	4	4	5	5	5	5	4	4	4	-	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	4	4	5	5	4	4	4	4	3	3	3	-	-	JAN-DEC	JAN-DEC	-
	Gulf stone crab			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	JAN-DEC	-
	Pink shrimp			3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	APR-OCT	JAN-DEC	-
	White shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	-	-	MAY-DEC	JAN-DEC	-
600	Blue crab			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	Brown shrimp			5	3	3	4	4	4	5	5	5	4	4	4	3	JAN-DEC	-	JAN-DEC	JAN-DEC	-
	Florida stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Gulf stone crab			2	2	2	2	2	2	2	2	2	2	2	2	2	JAN-DEC	MAR-NOV	JAN-DEC	JAN-DEC	-
	Pink shrimp			4	3	3	3	3	3	4	4	4	4	4	4	3	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-
	White shrimp			5	4	4	4	4	4	5	5	5	5	5	5	4	JAN-DEC	JAN-DEC	JAN-DEC	JAN-DEC	-

REPTILE:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Internesting	Juveniles	Adults
640	American alligator			593 TO 38 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X	JUN-AUG	AUG-SEP	-	JAN-DEC	JAN-DEC

TERRESTRIAL MAMMAL:

RAR#	Species	S	F	Conc.	J	F	M	A	M	J	J	A	S	O	N	D
636	Common raccoon			77 TO 73 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Mink			329 TO 220 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Muskrat			99 TO 6 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Northern river otter			1258 TO 423 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X
	Nutria			6 TO 3 AC/NEST	X	X	X	X	X	X	X	X	X	X	X	X

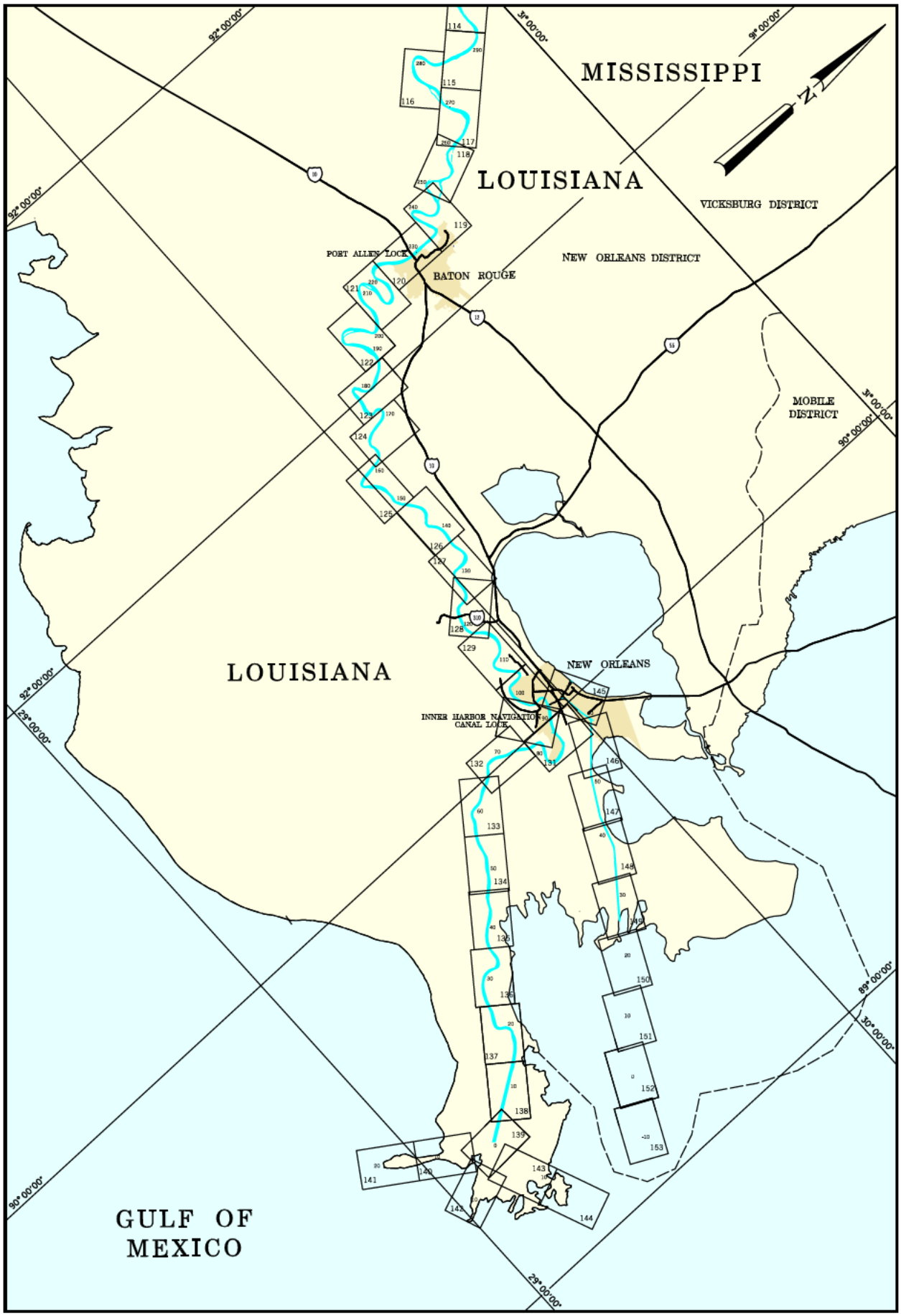
HUMAN USE RESOURCES:

WILDLIFE REFUGE:

HUN#	Name	Owner	Contact	Phone
122	PASS A LOUTRE WMA		LDWF	

Biological information shown on the maps represents known concentration areas or occurrences, but does not necessarily represent the full distribution or range of each species. This is particularly important to recognize when considering potential impacts to protected species.

U.S. ARMY CORPS OF ENGINEERS | MISSISSIPPI RIVER | MISSISSIPPI VALLEY DIVISION



1998

APPROXIMATE SCALE 1:65500
1 INCH = 10 MILES
20 15 10 5 0 10 20 MILES
20 15 10 5 0 10 20 KILOMETERS

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HANNIBAL, MISSOURI TO GULF OF MEXICO
GAGE INFORMATION

GAGE	RIVER MILES	GAGE ZERO	GAGE READING - FT.			
		FT. NGVD	HIGHEST	LOWEST	BANKFULL	*LWRP
ABOVE OHIO RIVER						
LOCK & DAM NO. 22	301.10	446.10	29.46	-2.90	12	449.10
MUNDY'S LANDING, MO	293.00	441.85	28.90	-2.40	14	448.90
LOUISIANA, MO	282.90	437.33	28.28	-3.20	15	448.80
LOCK & DAM NO. 24 (UPPER)	273.50	421.81	460.02	433.10	449	445.50
LOCK & DAM NO. 24 (LOWER)	273.20	421.81	459.50	431.80	447	434.10
RIP RAP LANDING, IL	265.00	426.03	28.90	3.00	17	434.00
LOCK & DAM NO. 25 (UPPER)	241.50	407.00	447.44	420.11	434	429.70
LOCK & DAM NO. 25 (LOWER)	241.20	407.00	446.57	416.10	433	418.50
DIXON LANDING, IL	228.30	410.62	33.30	-2.40	16	418.10
GRAFTON, IL	218.00	403.79	38.01	-1.20	18	418.00
ALTON, IL	203.00	400.00	439.55	410.79		414.00
MEL PRICE LOCK & DAM (UPPER)	201.00	395.48	438.50	411.67	419	412.50
MEL PRICE LOCK & DAM (LOWER)	201.00	395.48	437.78	397.47		396.30
HARTFORD, IL	196.80	350.00	436.90	390.70	417	396.20
LOCK & DAM NO. 27 (UPPER)	190.40	350.00	437.25	388.95		396.00
LOCK & DAM NO. 27 (LOWER)	185.10	350.00	432.80	375.65		380.50
ST. LOUIS, MO	179.60	379.94	49.58	-6.20	30	376.40
ENGINEERS DEPOT, MO	176.80	379.58	47.20	-6.50	29	375.70
JEFFERSON BARRACKS, MO	168.70	377.69	44.10	-8.60	26	372.80
WATERS POINT, MO	158.50	370.39	46.10	-7.60	27	370.39
SELMA, MO	145.80	0	409.50	356.10	390	361.00
BRICKEYS, MO	136.00	357.78	47.00	-6.40	26	356.20
LITTLE ROCK LANDING, MO	125.50	213.79	185.00	132.30	163	349.20
CHESTER, IL	109.90	341.05	49.53	-4.30	27	340.40
BISHOP LANDING, MO	100.80	334.11	51.30	-1.70	29	335.40
RED ROCK LANDING, MO	94.10	328.92	54.20	-0.50	31	330.70
GRAND TOWER, IL	81.90	321.93	52.30	-0.20	28	325.30
MOCCASIN SPRINGS, MO	66.30	313.89	49.10	0.60	28	317.80
CAPE GIRARDEAU, MO	52.10	304.65	48.00	0.60	32	309.90
GRAYS POINT, MO	46.30	301.18	46.40	0.20	25	306.30
THEBES, IL	43.70	300.00	45.55	0.88	33	304.80
COMMERCE, MO	39.50	301.83	41.60	-3.10	24	302.10
PRICE LANDING, MO	28.20	299.75	36.30	-7.20	24	294.00
THOMPSON LANDING, MO	20.20	280.00	331.95	285.78	319	289.00
BIRDS POINT, MO	2.00	274.53	52.40	-2.10	38	277.90
CAIRO, IL, MO	2.00	270.47	59.51	-1.00	44	277.90
ABOVE HEAD OF PASSES						
CAIRO, IL (OHIO RIVER)	953.80	270.47	59.51	-1.0	44	9.9
WICKLIFFE, KY (A)	951.50	269.12	58.18	4.95	42	9.6
COLUMBUS, KY	937.20	266.38	54.54	0.05	43	9.2
HICKMAN, KY (B)	922.00	264.73	51.5	-0.4	37	3.4
NEW MADRID, MO	889.00	255.48	47.97	-0.60	40	2.5
CARUTHERSVILLE, MO	846.40	235.49	46.0	-0.72	35	3.9
COTTONWOOD POINT, MO	832.70	230.18	44.4	-3.9	36	-3.1
FULTON, TN	778.20	208.61	47.25	-7.7	34	-8.1
MEMPHIS, TN	734.70	183.91	48.7	-5.35	34	-7.2
MHOON LANDING, MS	687.50	161.22	53.2	-8.85	35	-9.2
HELENA, AR	663.00	141.70	60.21	-3.0	41	-2.2
FAIR LANDING, AR (C)	632.50	132.20	55.6	-4.2	40	-5.6
ROSEDALE, MS	592.20	108.73	50.4	-2.05	44	3.0
ARKANSAS CITY, AR	554.10	96.66	59.2	-5.3	44	0.2
GREENVILLE (BRIDGE), MS (D)	531.50	74.92	58.2	6.7	48	11.3
LAKE PROVIDENCE, LA	487.20	69.71	50.7	-8.0	37	-
VICKSBURG (CANAL), MS	437.60	46.25	58.4	-6.8	42	-
VICKSBURG, MS	435.70	46.23	53.24	-7.0	43	0.1
ST. JOSEPH, LA	396.40	33.12	55.3	-10.7	40	0.0
NATCHEZ, MS	363.30	17.28	58.04	-2.7	48	6.1
RED RIVER LANDING, LA	302.40	0.00	60.94	2.89	46	10.6
BAYOU SARA, LA	265.40	0.00	55.46	0.96	36	5.25
BATON ROUGE, LA	228.40	0.00	47.28	-0.07	29	2.57
PLAQUEMINE, LA	208.80	0.00	43.04	-0.9	25	1.7
DONALDSONVILLE, LA	175.40	0.00	36.01	-0.39	23	1.33
COLLEGE POINT, LA	157.40	0.00	32.32	-0.6	17	1.06
RESERVE, LA	138.70	0.00	26.0	-0.1	15	0.70
BONNET CARRE, LA (C)	128.00	0.00	23.79	-0.62	14	0.68
NEW ORLEANS, LA	102.80	0.00	21.27	-1.6	11	0.48
CHALMETTE, LA	91.00	0.00	17.58	-0.52	8	0.08
WEST POINTE A LA HACHE, LA	48.70	0.00	15.25	-1.06	3	0.06
EMPIRE, LA (G)	29.50	0.00	10.92	-0.74	1	-0.21
FORT JACKSON, LA	18.60	0.00	14.3	-2.67	2	-0.40
VENICE, LA (F)	10.70	0.00	9.11	-0.73	1	-0.36
HEAD OF PASSES, LA (E)	-0.60	0.00	12.03	-0.85	1	-0.36

NOTE: RIVER MILES REFER TO LATEST POSITION
* LOW WATER REFERENCE PLANE
(A) GAGE ESTABLISHED IN 1932
(B) GAGE ESTABLISHED IN 1929
(C) GAGE ESTABLISHED IN 1930
(D) GAGE ESTABLISHED IN 1940
(E) FOR PERIOD 1 JULY 1930 TO DATE
(F) FOR PERIOD FEBRUARY 1944 TO DATE
(G) FOR PERIOD JANUARY 1960 TO DATE
** EXCEEDED BY HURRICANE BETSY (1965) RECORD NOT AVAILABLE

MILEAGE BETWEEN POINTS ALONG THE MISSISSIPPI RIVER

CAIRO, IL TO THE GULF OF MEXICO

IN RIVER MILES

EXAMPLE: CAIRO, IL TO NATCHEZ, MS 593 MILES

	ARKANSAS CITY, AR	ARKANSAS RIVER (MOUTH)	AVONDALE, LA	BATON ROUGE, LA	BAYOU SARA, LA	BURAS, LA	CAIRO, IL (GAGE)	CARUTHERSVILLE, MO	COLLEGE POINT, LA	COLUMBUS, KY	COTTONWOOD POINT, MO	CUBITS GAP, LA	DONALDSONVILLE, LA	EMPIRE, LA	FAIR LANDING, AR	FORT JACKSON, LA	FRIARS POINT, MS	FULTON, TN	GREENVILLE BRIDGE	GREENVILLE HARBOR	LAKE FERGUSON, MS	HEAD OF PASSES	HELENA, AR	HICKMAN, KY	KENNER, LA	LAKE PROVIDENCE HARBOR	LAKE PROVIDENCE, LA	MEMPHIS, TN	MEMPHIS HARBOR PROJECT	MCKELLAR LAKE, TN (ENTRANCE)	MEMPHIS OFFICE (CORPS OF ENGINEERS)	NATCHEZ, MS	NEW MADRID, MO	NEW ORLEANS, LA (CANAL STREET)	OHIO RIVER (MOUTH)	OLD RIVER (LOCK)	OSCEOLA, AR	PLAQUEMINE, LA	POINTE A LA HACHE, LA	PORT SULPHUR, LA	RED RIVER LANDING, LA	RESERVE, LA	ROSEDALE, MS (TERRENE LDG)	SOUTH PASS (MOUTH)	SOUTHWEST PASS (MOUTH)	ST. FRANCIS (MOUTH)	ST. JOSEPH, LA	TIPTONVILLE, TN	VENICE, LA (THE JUMP)	VICKSBURG, MS (YAZOO CANAL)	VICKSBURG BRIDGE	WHITE RIVER (MOUTH)	WICKLIFFE, KY
ARKANSAS CITY, AR	28																																																								
ARKANSAS RIVER (MOUTH)	446	474																																																							
AVONDALE, LA	324	352	122																																																						
BATON ROUGE, LA	288	316	158	36																																																					
BAYOU SARA, LA	529	557	83	205	241																																																				
BURAS, LA	402	374	848	726	690	931																																																			
CAIRO, IL (GAGE)	292	264	738	616	580	821	110																																																	
CARUTHERSVILLE, MO	397	425	49	73	109	132	801	689																																																
COLLEGE POINT, LA	383	355	829	707	671	912	19	91	780																																															
COLUMBUS, KY	279	251	725	603	567	808	123	13	676	104																																														
COTTONWOOD POINT, MO	551	579	105	227	263	22	953	843	154	934	830																																													
CUBITS GAP, LA	379	407	67	55	91	150	781	671	18	762	658	172																																												
DONALDSONVILLE, LA	524	552	78	200	236	5	926	816	127	907	803	27	145																																											
EMPIRE, LA	79	51	525	403	367	608	323	213	476	304	200	630	458	603																																										
FAIR LANDING, AR	534	562	88	210	246	5	936	826	137	917	813	17	155	10	613																																									
FORT JACKSON, LA	98	70	544	422	386	627	304	194	495	285	181	649	477	622	19	632																																									
FRIARS POINT, MS	224	196	670	548	512	753	178	68	621	159	55	126	603	748	145	758	126																																								
FULTON, TN	23	51	423	301	265	506	425	315	374	406	302	528	356	501	102	511	121	247																																							
GREENVILLE BRIDGE	17	45	429	307	271	512	419	309	380	400	296	534	362	507	96	517	115	241	6																																						
GREENVILLE HARBOR	554	582	108	230	266	25	956	846	157	937	833	3	175	30	633	20	652	778	531	537																																					
LAKE FERGUSON, MS	109	81	555	433	397	638	293	183	506	274	170	660	488	633	30	643	11	115	132	126	663																																				
HEAD OF PASSES	368	340	814	692	656	897	34	76	765	15	89	919	747	992	289	902	270	144	391	385	922	259																																			
HELENA, AR	441	469	5	117	153	88	843	733	44	824	720	110	62	83	520	93	539	665	418	424	113	550	809																																		
HICKMAN, KY	71	99	375	253	217	458	473	363	326	454	350	480	308	453	150	463	169	295	48	54	483	180	439	370																																	
KENNER, LA	181	153	627	505	469	710		111	578	202	98	732	560	705	102	715	83	43	204	198	735	72	187	622	252																																	
LAKE PROVIDENCE HARBOR	171	143	617	495	459	700	231	121	568	212	108	722	550	695	92	705	73	53	194	188	725	62	197	612	242	10																															
LAKE PROVIDENCE, LA	182	154	628	506	470	711	220	110	579	201	97	733	561	706	103	716	84	42	205	199	736	73	186	623	253	1	11																														
MEMPHIS, TN	191	219	255	133	97	338	593	483	206	574	470	360	188	333	290	343	289	415	168	174	363	300	559	250	120	372	362	373																														
MEMPHIS HARBOR PROJECT	335	307	781	659	623	864	67	44	732	48	56	886	714	859	256	869	237	111	358	352	889	226	33	776	406	154	164	153	526																													
MCKELLAR LAKE, TN (ENTRANCE)	459	487	13	135	171	70	861	750	62	842	738	92	80	65	538	75	557	683	436	442	95	568	827	18	388	640	630	641	268	794																													
MEMPHIS OFFICE (CORPS OF ENGINEERS)	400	372	846	724	688	929	2	108	797	17	121	951	779	924	321	934	302	176	423	417	954	291	32	841	471	219	229	218	591	65	859																											
NATCHEZ, MS	250	278	196	74	38	279	652	542	147	633	529	301	129	274	329	284	348	474	227	233	304	359	618	191	179	431	421	432	59	585	209	650																											
NEW MADRID, MO	232	204	678	556	520	761	170	60	629	151	47	783	611	756	153	766	134	89	255	249	786	123	136	673	303	51	61	50	423	163	691	168	482																										
NEW ORLEANS, LA (CANAL STREET)	345	373	101	21	59	184	747	637	52	728	624	206	34	179	424	189	443	569	322	328	209	454	713	96	274	526	516	527	154	680	114	745	95	577																								
OHIO RIVER (MOUTH)	505	533	59	181	217	24	907	792	108	888	784	46	126	19	584	29	503	729	482	488	49	614	873	64	434	686	676	687	314	840	46	905	255	737	160																								
OLD RIVER (LOCK)	515	543	69	191	227	14	917	807	118	898	794	36	136	9	574	19	613	739	492	498	39	624	883	74	444	696	686	697	324	850	56	915	265	747	170	10																							
OSCEOLA, AR	253	281	193	71	35	276	655	545	144	636	532	298	126	271	332	281	351	477	230	236	301	362	621	188	182	434	424	435	62	588	206	653	3	485	92	252	262																						
PLAQUEMINE, LA	416	444	30	92	128	113	818	708	19	799	695	135	37	108	495	118	514	640	393	349	138	525	784	25	345	597	587	598	225	751	43	816	166	648	71	89	99	163																					
POINTE A LA HACHE, LA	38	10	484	362	326	567	364	253	435	345	241	589	417	562	41	572	60	186	61	55	592	71	330	479	109	143	133	144	229	297	497	362	288	194	383	543	553	291	454																			
PORT SULPHUR, LA	567	595	121	243	279	38	969	859	170	950	846	16	188	43	646	33	665	791	544	550	13	676	935	126	496	748	738	749	376	902	108	967	317	799	222	62	52	314	151	605																	
RED RIVER LANDING, LA	574	602	128	250	286	45	976	866	177	957	853	23	195	50	653	40	672	798	551	557	20	683	942	133	503	755	745	756	383	909	115	914	324	806	229	69	59	321	158	612	*33																
RESERVE, LA	118	90	564	442	406	647	284	174	515	265	161	669	497	642	39	652	20	106	141	135	672	9	250	559	189	63	53	64	309	217	577	282	368	114	463	623	633	371	534	80	685	692															
ROSEDALE, MS (TERRENE LDG)	159	187	287	165	129	370	561	451	238	542	438	392	220	365	238	375	257	383	136	142	395	268	527	282	88	340	330	341	32	494	300	559	91	391	186	346	356	94	257	197	408	415	277													
SOUTH PASS (MOUTH)	319	391	765	643	607	848	83	27	716	64	40	870	698	878	240	853	221	95	342	336	873	210	49	760	390	138	148	137	517	16	778	81	569	87	664	824	834	572	735	281	886	853	201	478											
SOUTHWEST PASS (MOUTH)	543	571	97	219	255	14	945	835	146	926	822	8	164	19	622	9	641	767	520	526	11	652	911	102	472	724	714	725	352	878	84	943	293	775	198	38	28	290	129	581	24	31	661	384	862									
ST. FRANCIS (MOUTH)	117	145	229	207	171	412	519	409	280	500	396	434	280	407	196	417	215	341	94	100	437	226	485	324	46	298	288	299	74	452	342	517	133	349	228	388	398	136	299	155	450	457	235	42	436	426								
ST. JOSEPH, LA	118	146	328	206	170	411	520	410	279	501	397	433	261	406	197	416	216	342	93	101	436	227	486	350	47	299	289	300	73	453	341	518	132	350	227	387	397	135	294	156	449	456	236	41	437	425	1							
TIPTONVILLE, TN	45	17	491	369	333	574	357	247	442	338	234	596	424	569	34	579	53	179	68	62	599	64	323	486	116	136	126	137	236	290	504	355	295	187	390	550	560	298	461	7	612	619	73	204	274	588	162	163						
VENICE, LA (THE JUMP)	398	370	844	722	686	927	4	106	795	15	119	919	777	922	319	932	301	174	421	415	952	289	30	839	469	217	227	216	589	63	857	2	648	166	743	903	913	651	814	360	965	972	240	557	79	941	515	516	353					

* Via Southwest Pass

Mileage above and below Head of Passes is based on surveys of 1962.

SHEET 4

1998

000045956

NAVIGABLE WATERWAYS
MISSISSIPPI VALLEY DIVISION

Waterway	Miles of Project Channel	Project Dimensions	Head of Navigation	Remarks
Mississippi River IL, MO	0 - 195.0	Cairo to St. Louis (Mi. 191), 9 ft. deep; 300 ft. wide; St. Louis to Mouth Missouri River (Mi. 195), 9 ft. deep, 200 ft. wide.		Cairo to Mouth of Missouri River: Project depth and width maintained by dredging as necessary during low water. Increased depths available during higher river stages. Navigation channel marked by buoys, shore lights and day marks.
Chain of Rocks Canal, Lock & Dam	184.0 - 194.0	Main lock 110 ft. x 1200 ft. Auxiliary lock 110 ft. x 600 ft. Canal controlling depth over 9 ft.		Bypasses Chain of Rocks reach of Mississippi River.
Mississippi River IL, MO	195.0 - 301.0	Mouth Missouri River - Lock and Dam No. 22; 9 ft. deep; adequate width.		Navigation channel marked by buoys, shore lights and day marks.
Illinois Waterway IL	0 - 80.15	Mouth Illinois River - Mi. 80.15, 9 ft. deep; 300 ft. wide (9-ft. depth maintained).		Illinois River - Mi. 80.1, 9-ft. minimum depth maintained; 300 ft. minimum width maintained. Navigation channel marked by buoys, shore lights and day marks.
Kaskaskia River IL	0 - 36.2	Mouth to Fayetteville, IL (Mi 36.2) Lock 84 ft. x 600 ft. 9 ft. deep; 225 ft. wide.	Grade Control Structure 36.0 miles above mouth.	Navigation pool maintained at elevation 368.0 ft. N.G.V.D. Navigation channel marked by day marks.
*Missouri River KS, MO, IO, NE	0 - 762.5	Mouth - Sioux City, 9 ft. deep; 300 ft. wide.		Mouth to Kansas city - A channel 6 1/2 to 7 ft. deep and 200 ft. wide is available throughout the navigation season, 15 March to 30 November. A 6-foot channel available between Kansas City and Omaha, Nebraska.
**Ohio River KY, IL, IN, OH, PA	0 - 974.0	Mouth - Pittsburgh 9 ft. deep.		Mouth Ohio River - Pittsburgh, 9-ft. minimum depth maintained; controlling depth on miter sill Lock & Dam No. 13, McMechen, WV, 9.5ft. Navigation channel marked by buoys, shore lights and day marks.
Mississippi River MO, IL, KY, TN, AR, MS, LA	955.8 - 233.4	Cairo - Baton Rouge; 12 ft. deep, 300 ft. wide.		Cairo to Baton Rouge, 9-ft. depth maintained by dredging during low water, increased depths available during higher river stages. Navigation channel marked by buoys, lights and day marks.
	233.4 - 104.0	Baton Rouge to New Orleans; 45 ft. deep, 500 ft wide.		
	104.0 - 86.7	Port Limits of New Orleans; 45 ft. deep by 750 ft. wide channel within limits of the 35 ft. deep by 1500 ft. wide channel.		
	86.7 - 0	New Orleans to Head of Passes; 45 ft. deep by 750 ft. wide.		
	0 - 14.2 B.H.P.	Head of Passes to Mouth of South Pass, 30 ft. deep by 450 ft. wide, with 30 ft. deep by 600 ft. wide over bar.		Maintained to 17 feet.
	0 - 21.2 B.H.P.	Head of Passes - Mouth of Southwest Pass, 45 ft. deep by 750 ft. wide, with 45 ft. deep by 600 ft. wide over bar.		
Wolf River (Memphis Harbor) TN	0 - 3.0	Project (based on modification of previous project as provided in 1958 Flood Control Act) provides for a channel 9 ft. deep at low water from mouth to Mi. 3 with bottom widths of 250 ft. from Keel Ave. (Mi. 1.75) and 200 ft. from Kell Ave. to Mi. 3.		9 feet at low water maintained from harbor mouth to Mi. 3 near North Second Street (closure dam).
°St. Francis River AR	0 - 45.0	None	Mouth of Round Pond Cut-off, 45 miles above mouth.	During low water period, depths do not exceed 1 to 2 feet.
White River AR	0 - 169.0	None	Branson, MO - 520 miles above mouth.	Mouth to Peach Orchard Bluff, AR, a navigable depth of more than 4.5 feet for 8 months, and less than 4.5 feet for 4 months.
Arkansas and Verdigris Rivers AR, OK	0 - 72.5 (1) 72.5 - 436.6 (2)	Channel widths are generally 300 feet on the White River and Arkansas Post Canal, 250 feet on the Arkansas River and 150 feet on the Verdigris River. The channel has a minimum depth of 9 feet throughout.	Catoosa, OK on the Verdigris River. Mouth of White to entrance to Arkansas and Vedigris Rivers, 386.3 Mi., to Catoosa, OK, 436.6 Mi.	Navigation channel marked by buoys, shore lights and day marks. There are 17 locks, 12 in Arkansas and 5 in Oklahoma. All lock chambers are 110 feet wide by 600 feet long.
Yazoo River	0 - 188.1	A 9 ft. depth is presently available about 5 months, with controlling depths of 3 to 4 feet over the bars during low water periods.	Confluence Yalobusha and Tallahatchie Rivers, Mi. 188.1.	A 9-foot minimum depth by 150-foot minimum width channel is authorized from the mouth to Greenwood, MS. Construction of the authorized project has not been initiated.
Big Black River MS	0 - 71.9	None	Illinois Central RR Bridge, Mi 71.9.	Between January and June the depth will exceed 4 ft., remainder of year controlling depth is 1 to 2 ft.
Red River Waterway LA, TX, AR, OK	MS River to Shreveport, LA Reach 0 - 236.0	9' x 200' channel from the Mississippi River to Shreveport, LA and then to Daingerfield, TX via Twelvemile and Big Cypress Bayous.	Shreveport, LA, Post Project Mile 236.0.	Lower 31 Miles of the Overton - Red River Waterway incorporated into this project.
	Shreveport, LA to Daingerfield, TX Reach 236.0 - 294.0		Upper end of Lake O' The Pines near Daingerfield, TX Mile 294.0.	Shreveport to Daingerfield Reach currently in inactive status.
Ouachita and Black Rivers LA, AR	0 - 337.0	9 ft. deep by 100 ft. wide, channel from the Mouth of the Black River (Mile 0) to Camden, AR (Mile 337.0) (1972 Mileage).	Camden, AR, Mi. 337.0.	Lock dimensions - 84 feet wide x 600 feet long.

* Missouri River Division
** Ohio River Division
° Mileage and navigation has changed on the St. Francis River due to numerous cut-offs. Different versions as to mileage, etc. are in existence.
(1) Mileage in MVD.
(2) Mileage in SWD.

NAVIGABLE WATERWAYS
MISSISSIPPI VALLEY DIVISION

Waterway	Miles of Project Channel	Project Dimensions	Head of Navigation	Remarks
Atchafalaya River LA (MS River to Morgan City)	123.0	12 ft. deep and 125 ft. wide from Mississippi River, Mi. 304 AHP to Morgan City, LA	Connects with Mississippi River, via Old River Lock Opposite Angola, LA, (Mi. 304 AHP).	Project completed February 1956. 12.0 ft. depth maintained.
(Morgan City to Gulf of Mexico)	33.5	20 ft. deep and 200 ft. wide, from -20 ft. contour in Atchafalaya Bay to -20 ft. contour in Gulf of Mexico.		The 20 ft. contour in Gulf of Mexico is located 25 miles from mouth of river.
Intracoastal Waterway Gulf Section	302.4 (via Harvey Lock) 303.5 (via Algiers Lock) 64.1 (to Port Allen Lock) 9.0 (to Plaquemine Lock)	Lake Borgne Lt. No. 29 to New Orleans, LA, 12 ft. deep x 150 ft. wide; Harvey Canal, 12 ft. deep x 125 ft. wide; Mississippi River via Algiers Lock (New Orleans, LA), via Houma By-Pass to Lower Atchafalaya River (Morgan City, LA) 16 ft. x 150 ft. wide; Morgan City, LA to Sabine River, 16 ft. x 200 ft. wide.		Plaquemine Lock was permanently closed to navigation on 29 September 1961. Operation of the highway and railroad bridges immediately downstream from the lock was discontinued as of the same date. A channel of interim section (8ft. by 50 ft.) connects with Franklin, LA (5.8 miles). Work has not been initiated on enlarging the existing 12' x 125' channel to 16' x 150' and 16' x 200' between Mississippi River via Algiers Lock (New Orleans, LA) to Sabine River.
Baton Rouge Harbor (Devil's Swamp)	5.0	12 ft. deep and 300 ft. wide.	2.5 Miles above mouth at Mississippi River.	The harbor is completed to Mi 2.5 and maintained to a depth of -12.0 M.L.W. and 150 ft. interim width. The harbor is to be extended to Mi. 5.0 when and as needed.
Waterway from Intracoastal Waterway to Bayou Dulac (Bayous Grand Caillou and Le Carpe) LA	16.3	Bayou Grand Caillou, 5 ft. deep and 40 ft. wide; * Bayou Le Cape, 10 ft. deep and 45 ft. wide.	Confluence of Bayou Le Carpe at Gulf Intracoastal Waterway (1.5 miles south-east of Houma, LA).	
Houma Navigation Canal, LA	40.5 with 14.5 miles in Terrebonne Bay	15 ft. deep and 150 ft. wide; Cat Island Pass 18 ft. deep and 300 ft. wide.	Confluence of Houma Navigation Canal and Gulf Intracoastal Waterway (Approx. Mile 59.6, west of Harvey Lock).	
The Inland Waterway (From Franklin to the Mermentau River, LA)	90.0	Depth 5 ft., width 40 ft.		Hanson Canal and Lock, between Bayou Teche and G.I.W.W., donated in fee to St. Mary Parish Police Jury. Other portions of project replaced by G.I.W.W. and Mermentau River, LA Project.
The Inland Waterway (From Vermilion Bay, LA to Mermentau River, LA)	47.6	Depth 5ft., widtth 40 ft.		
Bayous Petit Anse Tigre and Carlin LA	16.1	Bayou Petit Anse, 9 ft. deep by 80 ft. wide; McIlhenny Canal (Avery Canal), 7 ft. deep by 60 ft. wide; Bayou Carlin, 9 ft. deep by 80 ft. wide. Mooring area 9 ft. deep by 1300 ft. long, width varying from 125 ft. to 200 ft. along right bank of Bayou Carlin below the south edge of Delcombre, LA.	(See remarks)	Bayou Petit Anse at Highway bridge north of Avery Island, LA, 9.1 miles to Vermilion Bay. Mi. 0 is at Intercoastal Waterway; Bayou Carlin at Lake Peigneur 1.5 miles north of Delcambre, LA, 7.6 miles to mouth of Bayou Petit Anse. McIlhenny Canal (AveryCanal) at Intracoastal Waterway (Mi. 0) to Vermilion Bay(Mi. 2).
Bayou Teche and Vermililon River LA	51.0	Bayou Teche; Mi. 0 to 54.5, Mouth to New Iberia 8 ft. deep, 80 ft. wide; Mi. 54.5 to 72.5, New Iberia to Keystone Lock, 6 ft. deep, 60 ft. wide; Mi. 72.5 to 106.5, Keystone Lock to Arnaudville, 6 ft. deep, 50 ft. wide. Vermilion River: 8 ft. deep and 80 ft. wide from Vermilion Bay to the Intracoastal Waterway; 9 ft. deep and 100 ft. wide from Intracoastal Waterway to Mi. 52 at Lafayette, LA.	Mi. 52.0, Lafayette, LA.	
Mermentau River LA (Above G.I.W.W.)	34.0	9-ft. by 100-ft. channel, junction of Bayous Des Cannes and Nezpique to the Intracoastal Waterway, Gulf Section.	Junction of Bayou Des Cannes and Nezpique, 2.25 miles above Mermentau, LA.	12' x 125' & 200' authorized.
Freshwater Bayou LA	19.85 3.22 Mi. Bar Channel	Channel 12 ft. deep and 125 ft. wide from the Gulf Intracoastal Waterway at mile 161.2 west of Harvey Lock to the 12 foot depth contour in the Gulf of Mexico with increased width to 250 feet in the Gulf approach as may be found advisable; jetties from the shoreline to the 6 foot depth contour in the Gulf of Mexico; and a lock 84 ft. wide and 600 ft. long near the Gulf of Mexico.	Junction with Gulf Intracoastal Waterway (Mi. 161.2 west of Harvey Lock).	Freshwater Bayou Lock opened to navigation 27 July 1968.
Calcasieu River and Pass LA	122.5	Channel 35 ft. deep by 250 ft. wide from vicinity of U. S. Highway 90 to the wharves at Port of Lake Charles. Channel 40 ft. deep by 400 ft. wide from the wharves at Lake Charles to the jettied channel at Gulf of Mexico, including Clooney Island Loop, 40 ft. x 400 ft., and Coon Island Ship Channel 40 ft. x 200 ft. Channel 42 ft. deep by 800 ft. wide from the jettied channel to the 42 ft. depth contour in the Gulf of Mexico.	Phillips Bluff, LA, 85.9 miles to mouth in the Gulf of Mexico.	

NAVIGABLE WATERWAYS
MISSISSIPPI VALLEY DIVISION

Waterway	Miles of Project Channel	Project Dimensions	Head of Navigation	Remarks
Lake Charles Deep Water Channel,LA	24.9	30 ft. deep and 125 ft. wide	Navigable throughout; Mi. 266.0 (G.I.W.W. mileage) at Sabine River south of Orange, TX.	
Waterway from Empire, LA to the Gulf of Mexico	10.0	9 ft. deep and 80 ft. wide	Mi. 29.5 A.H.P. (Mississippi River mileage) 10 miles above Gulf of Mexico shore line.	
Grand Bayou Pass, LA	--	6 ft. deep and 60 ft. wide entrance bar Gulf of Mexico.		
Barataria Bay Waterway, LA	43.6	Project authorized by River and Harbor Act July 1958. Provides for a 125 ft. by 12 ft. channel from G.I.W. to Grand Isle, and thru Barataria Pass with extension for 4.3 mi., 12 ft x 250 ft. bar entrance channel from Barataria Pass along N. side of Grand Isle thru B. Rigaud.	Junction of Bayou Villars and Bayou Barataria with the Gulf Intracoastal Waterway (Vic. Mile 115.0)	
Mississippi River Gulf Outlet, LA		36 ft. deep and 500 ft. wide to Chandeleur Islands, thence increasing to 38 ft. deep and 600 ft. to the 38 ft. contour in the Gulf of Mexico.		Modification of the Mississippi River - Baton Rouge to the Gulf of Mexico project provides for a tidewater channel from the Inner Harbor Navigation Canal at New Orleans extending southeast as a land and water cut to and through Chandeleur Sound and Islands to the 38 ft. contour in the Gulf of Mexico.
Mississippi River Outlets, Venice, LA (Tiger Pass)		14-ft. deep 150-ft wide to the jettied channel at the Gulf of Mexico (approximately mile 12.5), thence increasing to 16-ft. deep and 250-ft. wide to the 16-ft. contour in the Gulf of Mexico.	Head at Mississippi River, Mile 10.0 A.H.P. (Mississippi River Mileage).	
Mississippi River Outlets, Venice, LA (Baptiste Collette)		14-ft. deep and 150-ft. wide to the jettied channel at Gulf of Mexico (approximately mile 6.0), thence increasing to 16-ft. deep and 250-ft. wide to the 16-foot contour in the Gulf of Mexico.	Head at Mississippi River Mile 11.5 A.H.P. (Mississippi River Mileage).	

MISSISSIPPI RIVER
INDEX TO LOCALITIES BY MAPS AND MILES ABOVE HEAD OF PASSES
Miles below Head of Passes marked with an asterisk*

	Map	Mile
A		
Aben, LA	123	173.0
Addie, MS	86	--
Ajax Bar, MS	88 & 89	481.0
Albemarle Bend (Willow Cut-Off)	91	--
Albemarle Lake (Willow Cut-Off)	91	--
Albemarle Ldg, MS (Willow Cut-Off)	91	--
Alford, LA	118	249.5
Algiers, LA (Verret St.)	130	94.0
Algiers Lock and Canal (Intracoastal Waterway), LA	130B & 131	88.0
Algiers Lock Gage, LA	130B & 131	88.0
Alhambra, LA	122	192.3
Allendale Ldg, LA	119	239.1
Alliance, LA	133	63.0
Alloway Ldg, MS	111	334.2
Alsatia, LA	90	467.0
Alsatia - Salem Bend, MS	90	468.0
Alto or Hermitage Ldg, LA	118	256.9
Alvin Callender Airport	132	74.5
Ama, LA	128 & 129	116.8
American Cut-Off	81	526.0
Anchor Ldg, LA	117 & 118	260.1
Anchorage Ldg, LA	120	232.3
Anderson Ldg, MS (Sunflower Cut-Off)	72	--
Andrews Ldg, AR	53	756.6
Angelina Ldg, LA	126	144.4
Angola, LA (State Penal Farm)	113 & 114	302.8
Angola Ldg, LA	114	300.4
Arbroth Ldg, LA	118	252.1
Arcadia Ldg, LA	124	166.2
Arcadia Ldg, MS	90	469.8
Arcadia Point, MS	90	472.0
Archer Island, AR (Leland Cut-Off)	80	--
Arkansas City, AR	78	554.0
Arkansas City Gage, AR	79	554.3
Arkansas River (mouth)	76	584.0
Armant Ldg, LA	125	150.2
Armstrong Bar, TN	60	718.0
Arrow Bend	116	272.1
Artonish, MS	112	323.0
Artonish Ldg, MS	112	323.0
Ashbrook Cut-Off (upper end)	79	549.4
Ashbrook Neck, MS	79	549.0
Ashbrook Point Ldg, MS (Ashbrook Cut-Off)	79 & 80A	--
Ashland, LA	111	332.9
Ashland, MS	103	381.0
Ashland Ldg, MS	103	381.0
Ashland Towhead, MO	43	829.5
Ashley Point Ldg, AR	63	688.8
Ashley Ldg, LA (Glasscock Cut-Off)	108	--
Ashley Ldg, LA	92	451.8
Ashport, TN	47	496.8
Ashport Bar, AR	47	796.0
Ashport Ldg, TN	47	796.4
Atherton, LA	88	470.0
Atherton Towhead, LA	88 & 90	470.6
Augusta, LA	132	71.4
Australia Ldg, MS	73	615.0
Australia Point (Manchac Point), LA	121	215.5
Avenue Ldg, AR (Jackson Cut-Off)	70	--
Avondale, LA	129	108.3
Avondale Bend, LA	129	108.6
B		
Babbin Ldg, LA	123	182.5
Bachelor Bend (Leland Cut-Off)	80	--
Baleshed Ldg, MS	87	491.4
Baleshed Towhead, MS	87	491.0
Baptiste Collette Bayou, LA	138	11.4
Barfield, AR	45	810.5
Barfield Bend	45	813.0
Barfield Ldg, AR	45	808.0
Barnay Chute, TN (Old River) (upper end)	54	759.2
Barroza Ldg, LA	119	240.0
Basket Bar, AR	62	697.0
Baton Rouge, LA Gage (U.S. Engr.)	120	228.4
Baton Rouge, LA Gage (U.S.G.S. on bridge)	119	233.9
Batree, LA	125	153.8
Bayou Baton Rouge, LA	119	235.8
Bayou Bruin, LA	102	396.0
Bayou Dan Ldg, LA	115	285.5
Bayou Goula Ldg, LA	122	195.6
Bayou Lamoque, LA	136	33.2
Bayou Manchac, LA	121	214.9
Bayou Pierre, MS (mouth)	101 & 102	394.5
Bayou Sara, LA (mouth)	117	266.0
Bayou Sara Bend	117	265.6
Bayou Sara Gage, LA	117	266.2
Bayou Vidal, LA (Diamond Cut-Off)	95	--
Beale St. Gage, TN	57	736.0
Beard Ldg, AR	60	715.3
Beaulieu, LA	120	227.9
Beckwith Bend	33	925.0
Bedford, LA	96	429.0
Beef Islands No. 40 and 41, TN	55 & 56	746.0
Beith Ldg, AR	72 & 73	617.8
Belair, LA	132 & 133	65.2
Belle Chasse, LA	131	75.9
Belle Grove Ldg, LA	122	191.9
Belle Helene Ldg, LA	123	182.9
Belleview Ldg, MS (Willow Cut-Off)	91	--
Bellevue, LA	134	55.3
Bells Point, MO	42	843.9
Bells Point Ldg, MO	42	843.5
Belmont, LA	125	152.8
Belmont Ldg, LA	119	237.4
Bend of Island No. 8	34	915.5
Bend of Island No. 25	45	803.6
Bend of Island No. 63, MS	68 & 69	638.5
Ben Lomond Ldg, MS	87 & 88	487.7
Benoit, MS	78A	--
Bessie Ldg, TN	36	897.7
Bertrands Ldg, LA	117	262.3
Bertrandville, LA	132	69.9
Beulah Crevasse (vicinity Lake Beulah)	76 & 76A	--
Bieller Ldg, MS	103	387.3
Big Black or Togo Island, LA	99	414.2
Big Black River (mouth)	99 & 100	408.6
Big Island, AR	75	590.5
Biggs Ldg, AR	60	724.0
Bird Ldg, AR (Caulk Cut-Off)	76	--
Birds Point, MO	30	953.0
Bixby Towhead, TN	38	874.0
Black Bayou Drainage Ditch, MS	79	--
Black Hawk Ldg, LA	112	320.1
Blaker Towhead, TN	40	844.5
Blind Bay	144	--
Blue Grass Towhead, TN	44	821.0
Blue Point, AR	62	695.8
Blue Point Ldg, AR	64	674.5
Bohemia, LA	135	45.4
Boies Point, LA	116	274.1
Bolivar Bend (Caulk Cut-Off)	78A	--
Bolivar Ldg, MS (Caulk Cut-Off)	78A	--
Bolivar Point, LA	137	21.5
Bondurant Chute, MS	102	394.5
Bondurant Ldg, LA	101 & 102	399.0
Bondurant Towhead, LA	102	395.6
Boney Ldg, LA	93	446.0
Bonnet Carre Crevasse, LA	127	133.0
Bonnet Carre Gage, LA	127 & 128	128.0
Bonnet Carre Spillway, LA	127 & 128	128.0
Booths Point, TN	42	839.1
Booths Point Ldg, TN	42	839.0
Boothville, LA	137	17.0
Bordeaux Island, AR	63	682.0
Bowden, LA	123	182.0
Boyd Ldg, LA (Glasscock Cut-Off)	108	--
Braithwaite, LA	131	79.8
Braithwaite Gage, LA	131	76.6
Brakel, LA	114	293.2
Brandon, LA	115	291.8
Brandywine Chute, TN-AR (upper end)	53 & 55	754.0
Brandywine Island, TN-AR	53 & 55	752.0
Brandywine Ldg, AR (Brandywine Ch.)	53	--
Brant Bayou, LA	139	3.0
Briar Ldg, MS (Glasscock Cut-Off)	109	--
Briars Chute (Glasscock Cut-Off)	108	--
Bridge City, LA	129	107.0
Brilliant Point, LA	124 &125	162.0
Brooks, LA	116	272.0
Brooks Ldg, MS	99 & 100	409.7
Broussard Ldg, LA	121	211.7
Browns Ldg, MS (vicinity Opossum Chute)	86	--
Browns Point, MS	93	444.0
Brown Point Ldg, MS	93	447.0
Bruinswick Ldg, MS (Willow Cut-Off)	91	--
Brunette Point, LA	116	282.8
Brusly, LA	120	224.9
Brusly Ldg, LA	120	224.7
Buckhorn or Omega Ldg, LA	92	457.2
Buck Island Bar, MS	62	699.2
Buck Island No. 53, MS	61	702.0
Buena Vista, LA	103	384.0
Buffalo River, MS	113	312.9
Bullerton Towhead, AR	50	784.5
Bullitt Bayou Ldg, LA	105	--
Bull Pen Ldg, TN	55	747.5
Bunches Cut-Off, MS (Sarah Cut-Off)	85	--
Buras, LA	136 & 137	25.0
Burbridge, LA	133	61.5
Burke Ldg, MS	70	636.0
Burn Ldg, LA (Palmyra Lake)	99	--
Burnside Ldg, TN	124	170.3

MISSISSIPPI RIVER
INDEX TO LOCALITIES BY MAPS AND MILES ABOVE HEAD OF PASSES
(continued)

	Map	Mile
Burrus Ldg, TN	38	872.3
Burrwood, LA (Southwest Pass)	141	* 15.0
Burtville, LA	121	215.6
Butler, AR	50	776.5
C		
Cabin Teele Crevasse, LA	92	452.7
Cabin Teele Ldg, LA	92 & 93	451.0
Caernarvon Canal, LA	131	81.6
Caernarvon Crevasse, LA	131	81.3
Caernarvon, LA	131	81.7
Cairo, IL and Gage (Ohio River)	30	955.8
Cairo Point, IL	30	954.5
Campbells Ldg, KY	31	943.5
Cane Island, KY	31	948.7
Cannon Point Ldg, MS	98	419.8
Caribo Ldg, LA	125	158.0
Carolina Ldg, MS	85	507.6
Carr Ldg, AR	45	806.5
Carr Point, LA	113 & 113A	303.5
Carriola Ldg, LA (Worthington Cut-Off)	84	--
Carrollton Bend	130	104.0
Carter Point Ldg, MS (Tarpley Cut-Off)	80	--
Carthage Ldg, MS	106	360.5
Carthage Point, MS	107	359.0
Caruthersville, MO	40 & 42	846.0
Caruthersville Gage, MO	40	846.4
Carville, LA	122	189.3
CASTING FIELDS:		
Delta Point, LA	94	438.2
Greenville, MS	80	539.4
Helena, AR	66 & 67	661.0
Richardson, TN	51	768.8
St. Francisville, LA	117	265.5
Cates Ldg, TN	35	900.2
Catfish Ldg, LA	116	281.2
Catfish Point Ldg, MS (Caulk Cut-Off)	77	574.0
Catherine Ldg, LA	122	194.1
Catherine Ldg, LA	119	238.7
Cat Island, AR	76	580.7
Cat Island, AR	61	710.0
Cat Island (No. 50), AR	61	709.5
Caulk Cut-Off (upper end)	77	576.1
Cayuga Ldg, MS (Yucatan Cut-Off)	100	--
Cedar Grove, LA	132	70.9
Cedar Grove Ldg, LA	122	193.9
Centennial Cut-Off	94	437.5
Centennial Island, TN (lower island)	54	--
Central, LA	124	164.8
Cerro Gordo Ldg, MS	110	336.3
Cessions Towhead, AR	72 & 73	615.0
Chalk Bluff, KY	32	934.0
Chalmette, LA	131	89.3
Chalmette Slip, LA	131	90.5
Chamblee, LA	103	384.4
Chatham Ldg, LA	122	186.8
Chatham Town, LA	125	160.3
Checks Ldg, AR (Sunflower Cut-Off)	71	--
Chicken Island, AR	57	740.0
Chicot Ldg, AR	78	565.0
Choctaw Bayou, LA	103	--
Choctaw Bar	78 & 79	561.0
Choctaw Bend	78 & 79	559.0
Choctaw Island No. 78, AR	78	562.0
Chotard Ldg, MS (Willow Cut-Off)	91	--
Chute of Island Nos. 2, 3, & 4	31	941.5
Chute of Island No. 8 (upper end)	34	916.0
Chute of Island No. 14	39	358.8
Chute of Island No. 63	70	636.0
Chute of Island No. 68	72	621.5
Chute of Island No. 69	73	613.0
Chute of Island No. 82 (Tarpley Cut-Off)	80A	--
Cigarette Ldg, TN	55	747.5
Cinclare Ldg, LA	120	225.4
City Price, LA	135	44.5
Claiborne Ldg, LA	122	188.3
Clara Belle Ldg, LA	121	212.7
Clark Towhead, MS	63	689.0
Coffee Point, LA	100	406.8
Coles Creek, MS (mouth)	104	376.1
Coles Island No. 113, MS	103	380.0
College Point Gage, LA	125	157.4
College Point Ldg, LA	125	157.5
Columbus, KY and Gage	32	937.2
Comeaux Ldg, LA	121	219.4
Como Ldg, LA	115	291.8
Commerce Cut-Off, MS	62	695.0
Commerce Ldg, MS	62	698.0
Concession, LA	132	74.0
Concordia Island, MS	74	--
Connelly Ldg, KY	35	907.5
Conrad Point (or Duncan Point), LA	121	222.5
Convent Ldg, LA	125	158.7
Coochie, LA	112	316.2
Cooks Ldg, LA	117 & 118	259.7
Cooper Ldg, KY	35	906.1
Cooper Shop Ldg, LA	126	140.0
Cora, LA	122	192.6
Corena Ldg, MS	110	341.7
Corona Bar, TN	53 & 55	754.0
Corps of Engineers Office, Memphis, TN	57	736.7
Corps of Engineers Office, New Orleans, LA	130	102.8
Corps of Engineers Office, Vicksburg, MS	94	437.3
Cottage Bend (Rodney Cut-Off)	102	389.0
Cottage Farm, LA	123	184.2
Cottonwood Bar, LA	90	469.5
Cottonwood Ldg, LA	86 & 87	494.6
Cottonwood Ldg, MS	90	471.0
Cottonwood Point, MO	43	832.7
Cottonwood Point Gage, MO	43	833.0
Council Lake	62	--
Cow Island Bend	60	715.5
Cow Island No. 47 & 48, MS-TN	60	715.0
Cowpen Point, MS	105 & 106	366.8
Cracraft Chute	84	511.5
Cracraft Ldg, AR	84	511.2
Cracraft Towhead, AR	84	510.0
Craighead Point, AR	50	779.0
Crescent Ldg, LA	126	147.9
Cubits Gap, LA	139	3.0
Cypress Bend	77	570.0
D		
Daisy Ldg, AR	60	715.0
Dalcour, LA	132	72.2
Daniels Point, AR	47	796.2
Daniels Point Ldg, AR	47	796.3
Darnell Point, TN	37 & 38	879.0
Darnell Towhead, TN	37 & 38	876.0
Darrow, LA	123	175.4
Davant, LA	134	53.0
Davis Cut-Off	99	418.0
Davis Island, MS	95, 97 & 99	415.5
Davis, LA	128	118.8
Dawson Ldg, AR (Jackson Cut-Off)	70	--
Dead Mans Bend	110	337.6
Dean Island, AR	53	757.0
Dean Island Ldg, AR	53	756.9
Deer Park Bend (Glasscock Cut-Off)	108	--
Deer Range, LA	134	55.3
Delta, LA	94	438.5
Delta, MS	67	655.5
Delta Ldg, LA	94	438.7
Delta Ldg, MS	67	654.6
Delta Point, LA	94	436.7
Dennis Ldg, MS	73	610.2
Densford Bar, TN	53	755.5
DeSoto Island	94	437.3
DeSoto Ldg, AR	77	570.7
DeSoto Ldg, MS (Sunflower Cut-Off)	71	--
Destrehan, LA	128	121.1
Devalls (or Grossman) Ldg, LA	119	240.8
Devils Swamp-Barge Canal	119	235.4
Diamond Cut-Off (upper end)	98	425.5
Diamond, LA	134 & 135	46.1
Diamond Island Towhead, MS	95	--
Diamond Point, MS	95	--
District Lines (See Engineer District Lines)		
Dixon Bay	140	--
DIKES:		
Above Lee Towhead, TN	39	859.5
Above Loosahatchie, TN	55 & 57	742.3
Above Ozark, AR-MS	76	580.0
Ajax Bar, MS	88	482.6
Anconia Chute, AR	81 & 83	526.5
Arcadia Point, MS	90	469.9
Armstrong, TN-AR	60	718.5
Ashbrook Cut-Off, MS	79	549.0
Ashbrook - Miller Bend, AR-MS	79 & 80	547.0
Ashbrook - Golddust, TN-AR	47 & 48	794.6
Baleshed Landing, MS	86 & 87	493.0
Basket Bar, AR	62	695.8
Beckwith Bend, KY	33	925.5
Bells Point, MO (remnants)	42	843.0
Below Cherokee, TN	39	865.8
Below Grand Gulf, MS	101	399.4
Below Island No. 9, TN	35	900.7
Below Knowlton, AR	72 & 73	615.9
Below Ludlow, AR	72	623.2
Below Luxora, AR	48	787.8
Below Prentiss, MS	76	578.9
Below Racetrack, MS	94 & 96	430.2
Below Richardson Landing, TN	51	766.9
Below Tamm Bend, TN	44 & 45	812.8
Below Walnut Bend, AR	64	676.3
Ben Lomond, MS	87 & 88	486.9

MISSISSIPPI RIVER
INDEX TO LOCALITIES BY MAPS AND MILES ABOVE HEAD OF PASSES
(continued)

	Map	Mile
Bondurant Towhead, LA	102	394.7
Bordeaux Point, MS	63 & 64	681.4
Browns Field, MS	102	388.2
Buck Island, MS	61 & 62	699.8
Buck Island, MS	110	339.0
Campbell, KY	31	941.6
Carolina, AR	84	509.2
Carthage Point, MS	107	358.3
Caruthersville-Linwood Bend, MO	40 & 42	842.6
Cat Island, AR	60 & 61	710.5
Catfish Point, AR	77	570.5
Cedar Point, TN	51 & 53	759.5
Chicot Landing, AR	78	564.2
Coahoma, TN	60	717.7
Coffee Point, LA	100 & 101	403.4
Commerce, MS	62	693.8
Corona Bar, TN-AR	53 & 55	753.8
Corregidor, MS	85	505.3
Cottage Bend, LA-MS	102	388.8
Cottonwood Bar, LA	90	471.2
Cracraft, AR	84	512.8
Cracraft Lower, AR	84	509.6
Densford, MS	53	756.9
Diamond Point Cut-Off, MS	98	423.2
Dismal Point, AR	58 & 60	724.0
Donaldson Point, MO	35	905.5
Engineers Bar, AR	57 & 58	733.6
Esperance Point, LA	109	347.2
False Point, LA	93 & 94	440.4
Flower Lake, MS	66	667.9
Forest Home Towhead, LA	92 & 93	450.0
Forked Deer, TN	45 & 47	798.6
Friars Point, MS	67	651.5
Fritz Island, LA	110	337.4
Hathaway, TN	40	854.0
Head of Island No. 13, TN	39	867.2
Head of Island No. 21, TN	43 & 44	829.1
Head of Passes - Headland, LA	139	000.0
Henrico, AR	74	603.0
Hog Point, LA	114	298.9
Hopefield Point, AR	57	736.1
Hotchkiss Bend, MO	35	894.9
Island No. 1, KY	30 & 31	946.5
Island No. 7 & Island No. 8, KY	34	915.7
Island No. 11, MO	37	881.0
Island No. 15, TN	40	852.0
Island No. 18 Towhead, TN	42 & 43	836.7
Island No. 20, MO-TN	43	830.8
Island No. 21 Chute, TN	43 & 44	824.5
Island No. 25, AR	45	804.0
Island No. 30, TN	48	787.4
Island No. 62, AR	68 & 70	639.1
Island No. 63, MS	68	640.0
Island No. 63 Bar, MS	68	639.2
Island No. 64, AR	70	630.0
Island No. 67, MS	72	621.0
Island No. 70, MS	73	607.5
Island No. 82 - Miller Bend, AR-MS	79A & 80	544.7
Island No. 84, AR	81	532.5
Island No. 86, AR	83 & 84	520.2
Jackson Point, MS	111	330.8
Kangaroo Point, AR	68	648.5
Kate Aubrey, TN-AR	48	791.1
Kentucky Point, KY	36 & 37	890.2
Keyes Point, AR	48	790.5
Leland Bar, AR	80 & 81	536.5
Leland Neck, MS	80	540.8
Leota, MS	83 & 84	514.0
Lookout, TN-AR	51	771.0
Loosahatchie Bar, TN	57	739.1
Malone Field, AR	76	585.0
Marshall Cut-Off, LA	93	447.6
Memphis Front, TN	57	735.5
Montezuma Bar, AR	67	656.9
Montezuma Towhead, AR	67	655.9
Montgomery Towhead, MS	75	592.2
Moore Island, MO	32	928.5
Morrison Towhead, MO	36	890.2
Natchez Island, MS	107	358.4
Nebraska Point, TN	45	807.8
New Madrid Bend, MO	36	886.9
Newtown Bend, LA	98	420.3
Opposite Caruthersville, TN	40	847.0
Opposite Warnicott Ldg, MS	109	351.0
Ozark Island, AR	76	581.0
Peters, AR	62	693.2
Pickett, MS	61	704.1
Pilottown, LA	139	2.0
Plum Point, TN	48	784.5
Point Lookout, LA	89	477.9
Poker Point, AR	55	748.7
Porter Lake, AR	61	701.3
Prairie Point, AR	66	668.2
Presidents Island, TN (Retards)	58	732.8
Pritchard, MO	31	944.0
Racetrack Towhead, MS (car body)	94 & 96	431.0
Randolph Point, TN	55	747.4
Red Eye, LA	120 & 121	223.7
Redman Point, AR	57	743.0
Refuge, MS	81	527.5
Robinson Bayou, MO	40	852.7
Robinson Crusoe, AR	57	738.7
Ruddles Point, MO	38	874.2
Sandy Hook, TN	40	850.0
Seven Oaks, AR	83	523.5
Seyppel, AR	61	705.8
Shelby Forest, TN	53 & 55	750.4
Slough Landing, KY	35	895.1
Smith Point, MS	74	600.0
Southwest Pass, LA	141	*16.0
Spithead Towhead, MS	103	385.4
St. Francis, MS	66	670.6
Stewart Towhead, MO	38 & 39	870.0
Sunflower, AR	70	626.5
Sycamore Chute, TN	57	741.0
Tarpley Cut-Off, MS	80	540.3
Tennemo, TN	42	841.7
Tennessee Bar, MS	90	466.1
Terrene, MS	75	589.5
Togo Island, LA	99	415.1
Toneys Towhead, KY	37	883.5
Victoria Bend, AR	74 & 75	595.7
Victoria Bend-Bendway Weirs, MS	74 & 75	595.3
Walnut Bend, AR	63 & 64	681.4
Walnut Point, MS	83	524.6
Warfield Point, MS	81	535.5
Waterproof, LA	103 & 104	379.0
White River Landing, AR	75	590.9
Willow Cut-Off, LA	90 & 92	461.3
Wilson Point, LA	86	499.4
Wolf Island, KY	32	935.0
Wrights Point, AR	44	820.4
Wyanoke, AR (remnants)	58	727.0
Yucatan, LA	99 & 100	410.1
DISCHARGE RANGES:		
Arkansas City	77	566.0
Belle Chase	131	76.0
Carrollton	129	106.2
Coochie	112	316.1
Helena	66	662.8
Hickman	34	918.4
Memphis	57	735.2
Natchez	106	362.4
Profit Point Chute	119	248.0
South Pass	139	*3.8
Southwest Pass	139	*3.2
Smithland Landing	114	298.4
Tarbert	113	306.5
Tiptonville	38	875.5
Vicksburg	94	435.3
Dogtail Ldg, LA	90	466.0
Donaldson Point, MO	35	904.5
Donaldsonville Gage, LA	123	175.4
Donaldsonville Ldg, LA	123	175.3
Dooleys Island, TN-MS	59	--
Dorcyville, LA	122	193.9
Dorena Ldg, MO	33	921.2
Dorena Towhead, MO	34	918.0
Dreyfus, LA	122	187.6
Dreyfus Ldg, LA	122	188.1
Driver Bar, TN	50	780.0
Driver Cut-Off	50	780.5
Dry Bayou Ldg, MO	34	915.6
Duckport Ldg, LA	93	445.7
Dunboine Ldg, LA	122	197.4
Duncan Point (or Conrad Point), LA	121	222.5
Duncan Ldg, LA	117	261.9
Duncansby Ldg, MS (vicinity Opossum Chute)	86	--
Duncansby Towhead, LA	86	501.0
Duprac Ldg, LA	125	149.7
Duvic, LA	137	14.1
E		
Eagle Lake, MS-LA	91 & 92	460.4
Eagle Lake Pass, MS	92	458.5
Eagle Ldg, MS	66	665.3
Easy Bay	140, 141 & 142	--
Easton Ldg, MS	78	561.5
Edgard Ldg, LA	126	138.0
Eighty-One Mile Point, LA	123	178.3
Elenora Ldg, LA	122	196.5
Eliza, LA	121	221.2
Elmot Bar, AR	48	788.0
Elsie Ldg, LA	123	183.9
Empire to Gulf Waterway	136	29.5

MISSISSIPPI RIVER
INDEX TO LOCALITIES BY MAPS AND MILES ABOVE HEAD OF PASSES
(continued)

	Map	Mile
Empire Gage, LA	136	29.5
ENGINEER DISTRICT BOUNDARIES:		
Memphis - Vicksburg (left bank)	72 & 73	620.0
Memphis - Vicksburg (right bank)	74	599.0
New Orleans - Vicksburg (left bank)	112	320.5
New Orleans - Vicksburg (right bank)	113A	312.3
ENGINEERS: (See Corps of Engineers)		
Enclade, LA	135	42.5
English Turn Bend	131	78.0
Ensley Bar, AR	60	722.0
Esperance Ldg, LA	109	348.8
Esperance Point, LA	109	346.3
Eunice Ldg, AR	79	553.5
Eureka Ldg, MS	110	335.1
Evan Hall Ldg, LA	123	178.6
Evergreen Ldg, LA	121	206.5
F		
Fairchilds Bend	104	373.5
Fairchilds Island No. 114, MS	104	373.5
Fairchilds Island Towhead, MS	104	375.0
Fair Ldg, AR	70	633.0
Fair Ldg Gage, AR	70	632.5
Fairview Ldg, LA	110	341.5
Falls Ldg, AR	50	778.0
False River Cut-Off	118	258.0
Fancy Point Chute and Towhead (center)	118	257.4
Fancy Point Ldg, LA	117 & 118	259.9
Fanny, LA	132	67.5
Fanny Bullit Towhead	83 & 84	516.5
Fausse (or False) River Cut-Off, LA	118	258.5
Feitel, LA	125	152.9
Ferguson Ldg, AR	72	620.6
Ferriday, LA (opp. Marengo Bend)	105	–
FERRIES:		
Algiers, LA	130	94.8
Angola, LA	114	300.4
Ashport Ferry, AR-TN	47	796.3
Baton Rouge Ferry, LA	120	230.0
Belle Chasse Ferry, LA	132	75.7
Canal Street Ferry, New Orleans, LA	130	95.0
Caruthersville Ferry, MO-TN	40	847.3
Carville - White Castle, LA	122	191.3
Columbus - Belmont Ferry, KY-MO	32	937.0
Cottonwood Pt. Ferry, MO-TN	43	832.4
Donaldsonville Ferry, LA	123	175.2
Edgard-Reserve Ferry, LA	126	138.2
Helena Ferry, AR-MS	66	663.0
Helena Ferry, AR-MS (R.R. Transfer)	66	663.0
Hickman Ferry, KY-MO	33	922.0
Hickman Gage, KY	33	922.0
Jackson Avenue Ferry, New Orleans, LA	130	97.2
Luling - Destrehan Ferry, LA	128	120.8
Lutcher - Vachoric Ferry, LA	126	147.6
Plaquemine Ferry, LA	121	207.8
Pointe a la Hache Ferry, LA	134	48.6
St. Francisville Ferry, LA	117	266.0
Tiptonville Ferry, MO-TN	38	875.5
Fifty Mile Point, LA	126	145.0
Finley Bar., AR	61	704.9
Fish Pond Ldg, LA (Glasscock Cut-Off)	108	–
Fitler, MS	89	477.0
Fitler Bend	89	477.5
Fitzhugh Ldg, AR	67	657.7
Fitzhugh Ldg, MS	68	641.0
Flagville, LA	128	123.6
Fletcher Towhead (or Island 28), AR	48	792.5
Florence, AR	83	523.8
Flower Lake Bar (Island 60), MS	66	667.5
Foot of Island No. 40 Ldg, TN	55	744.5
Ford Ldg, MS	109	353.6
Forest Home Chute	92 & 93	–
Forest Home Towhead, MS	92 & 93	451.0
Forges Ldg, MO	35	895.0
Forked Deer Island No. 26 and 27, TN	47	798.0
Forked Deer River, TN (mouth-middle fork)	45	804.0
Fort Adams Ldg, MS	113	311.9
Fort Jackson Gage, LA	137	18.6
Fort St. Philip, LA	137	20.0
Forty-Eight Mile Point, LA	126	142.5
Foster Canal, LA	135	44.5
Four Mile Bayou (or Hennessy Bayou), MS	96	426.2
Fox Island, AR (Hardin Cut-Off)	65	–
Fox Island Bend, AR (Hardin Cut-Off)	63 & 65	–
Freeport - Sulphur Co. Ldg, LA	135	39.2
French Point, KY	34	915.3
Friars Point, MS	67	652.0
Fritz Island, LA	110	338.0
Fritz Ldg, TN	40	855.0
Fulton Gage, TN	50	778.2
G		
Gages (See Sheet 1)		
Gaines Ldg, AR	80A	–
Gardere, LA	121	217.1
Garden Island Bay	142	–
Garyville, LA	126	141.0
Gassoway Lake, LA	85	505.5
Geary, LA	123	177.9
Geismar Ldg, LA	123	194.4
Georgetown Bend	79	551.5
Germania Ldg, LA	123	184.6
Gibson Ldg, LA	104	372.6
Giles Bend	106	367.5
Giles Cut-Off (upper end)	106	367.9
Giles Ldg, MS (Giles Cut-Off)	106	366.0
Gilliam Chute, MS	103	382.1
Gilliam Ldg, MS (Rodney Cut-Off)	103	–
Gladstone Ldg, LA	102	396.1
Glasscock Cut-Off (upper end)	109 & 110	345.0
Glasscock Island & Towhead, LA-MS	108	–
Glasscock Point, MS (Glasscock Cut-Off)	109	–
Gloria, LA	132	67.0
Godchaux Refinery (Reserve, LA)	126	138.5
Gold Dust Ldg, TN	48	791.5
Golden Lake, AR	52	–
Golden Ridge Ldg, LA	121	201.7
Goldman Ldg, LA	103	382.5
Goldman Lower Ldg, LA	103	381.5
Good Hope Ldg, LA	127 & 128	125.5
Goodrich Ldg, LA	90	467.4
Goses Ldg, TN	44	816.5
Gouldsboro Bend	130	96.5
Gramercy, LA	126	146.4
Granada Ldg, LA	121	204.7
Grand Bay Ldg, LA	118	257.7
Grand Cut-Off Bayou, LA	112	323.5
Grand Gulf Island, MS	100	406.7
Grand Lake, AR (lake and town)	84	–
Grand Lake Cut-Off	84	511.0
Grand Lake Ldg, AR (Worthington Cut-Off)	84	–
Grand Pass, LA	138	10.5
Graves Bayou and Crevasse, AR (Blue Lake)	60	716.0
Gravolet Canal, LA	134	50.0
Greens Ldg, LA (Glasscock Cut-Off)	109	–
Greenville Bend	130	101.5
Greenville Bridge Gage	81	531.3
Greenville, MS (Leland Cut-Off)	80	–
Greenville Harbor, MS (entrance)	80 & 81	537.2
Greenwood, LA	132	70.4
Greenwood Ldg, LA	115	289.2
Gretna, LA (Copernicus Avenue)	130	97.2
Grossman (or Devalls Ldg), LA	119	240.7
Ground Lump Bar, AR	63 & 64	681.0
Gulftown, LA	137	22.8
Gypsy, LA	127	131.8
H		
Hahnville Ldg, LA	128	123.8
Hales Point, TN	44	819.2
Hales Point Ldg, TN	44	819.3
Halpino Lake, MS (Marshall Cut-Off)	93	–
Happy Jack, LA	135	43.2
Happy Valley Bar, TN	54	–
Harahan, LA	129	107.5
Harbert Ldg, MS (Hardin Cut-Off)	64	–
Hardin Cut-Off	64	678.0
Hardin Point, AR (Hardin Cut-Off)	65	–
Hardin Point Ldg, AR (Hardin Cut-Off)	65	–
Hardscrabble Bend	101	399.3
Hard Times Bend (Yucatan Cut-Off)	101	–
Hard Times Ldg, LA (Yucatan Cut-Off)	100	–
Hard Times Ldg, LA	122	189.4
Harlem, LA	133	56.0
Harper Ldg, LA	102	388.7
Hart Ldg, MS	102	392.4
Harvey Canal and Lock (Intracoastal Waterway), LA	130 & 130B	98.3
Harvey Lock Gages, LA	130 & 130B	98.3
Harvey, LA	130	98.0
Hatchie Island, TN	50	772.5
Hatchie Towhead, TN	50	774.0
Hatchie River, TN (mouth)	50	773.0
Hay Ldg, MS	89	474.5
Hayes Canal, LA	135	41.8
Head of Island 34 Ldg, TN	50	–
Head of Passes	139	0.0
Head of Passes Gage, LA	139	0.6
Helena, AR (city and gage)	66	663.3
Helena Island No. 60, MS	66	668.0
Helena Reach, AR	66 & 67	661.0
Helena Towhead, AR	66	664.0
Heloise, TN	43	832.3
Helvetia Ldg, LA	124	163.6
Henderson Ldg, LA (Willow Cut-Off)	91	–
Henderson Point Ldg, KY	34	917.9

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	Map	Mile
Hennessy Bayou (or Four Mile Bayou), MS (mouth)	96	426.2
Henrico, AR	73	605.0
Hermitage Ldg, LA	123	173.7
Hermitage (or Alto Ldg), LA	118	256.9
Hickman Bar, TN	55	745.0
Hickman Bend	33	921.5
Hickman, KY and Gage	33	922.0
Hickman Ldg, AR	44	823.2
Hodge Ldg, LA (Diamond Cut-Off)	95	--
Hog Point, LA	114	298.2
Hohen Solms, LA	122	185.6
Hollybrook, LA	88	483.5
Holly Ridge Ldg, MS	87	492.7
Home Ldg, MS (Caulk Cut-Off)	78	--
Homeplace, LA	135	38.2
Homochitto Cut-Off and River	112	323.6
Hope Estate Ldg, LA	120	225.5
Hopefield Chute, AR	57	736.8
Horn Lake, MS	59	--
Horseshoe Lake	68 & 69	649.0
Hotchkiss Bend	35	894.5
Hotchkiss Ldg, MO	35	896.5
Howard Island	84	515.5
Howards Ldg, TN	55	745.8
Huffman Ldg, AR	43	826.5
Huntington Point, MS	78 & 79	555.0
Hurricane Island (Diamond Cut-Off)	97	--
Hurricane Point, MS	73	609.0
Hutchins Ldg, MS	109	346.5
H. W. Gage, MS	67	652.5
H. W. Gage, AR	58	727.5
H. W. Gage 149, TN	51	769.0
H. W. Gage 152, AR	48 & 50	783.7
H. W. Gage 158, TN	44	819.1
H. W. Gage 173, TN	35	905.6
Hymel, LA	124 & 125	161.0
Hymelia Crevasse, LA	127	131.5
I		
Indian Point Ldg, MS	76	577.0
Inner Harbor Navigation Lock and Canal, Intracoastal Waterway, LA	130 & 145	92.6
Intracoastal Waterway, Alternate Route, Algiers Lock	130B & 131	88.0
Intracoastal Waterway, Port Allen Lock and Canal	120	228.3
Intracoastal Waterway, Harvey Canal and Lock	130 & 130B	98.3
Intracoastal Waterway, LA Plaquemine Lock (Closed to navigation, 29 Sep 1961)	121	208.7
Iowa Point Ldg, LA	116	282.5
Iron Banks, KY	32	938.0
Ironton, LA	133	60.0
Island 39 Ldg, AR	53	751.0
Island 40 Ldg, TN	55	746.9
Island 60 Ldg, MS	66	668.1
Island 69 Ldg, AR	73	615.5
ISLANDS:		
No. 1, KY	30	948.8
Nos. 2, 3, and 4, KY	31	940.5
No. 5 (Wolf Island), KY	32	933.0
No. 6, MO	35	921.0
No. 7, MO	34	917.0
No. 8, KY	34	914.0
No. 9, KY	35	906.5
No. 10, MO	35	901.0
No. 11, MO	37	882.0
No. 12, TN	38	874.0
No. 13, TN	39	864.0
No. 14, MO	39 & 40	858.5
No. 15, TN	40	850.0
Nos. 16 and 17, MO	42	840.5
No. 18, MO	42	834.5
No. 20, MO-TN	43	829.0
No. 21, KY	43 & 44	825.0
No. 25, AR	45	801.5
Nos. 26 and 27 (Forked Deer Island), TN	47	798.0
No. 28 (or Fetchers Towhead), AR	47	792.5
No. 30, TN	48	785.5
No. 33 (Flour Island), TN	48	--
No. 34, TN	50	774.0
No. 35, TN	51 & 52	764.5
No. 36 (Seigler Island), TN	53	757.0
No. 37, TN	54	--
No. 38, AR	61	702.2
No. 39, TN-AR	55	750.0
Nos. 40 and 41 (Beef Island), TN	55 & 56	746.0
Nos. 45 and 46, TN (Presidents and Vice Presidents Island)	58	728.0
No. 47, TN-AR (Cow Island)	60	715.0
No. 48, TN-AR (Cow Island)	60	718.5
No. 50, AR (Cat Island)	61	710.0
No. 53, AR (Buck Island)	61	702.0
No. 58, AR (Hardin Cut-Off)	64	674.0
No. 60, MS (Helena Island)	66	668.0
No. 61, AR	68	647.5
No. 62, AR	68	639.5
No. 63, MS	68 & 69	638.5
No. 64, AR	70	629.5
No. 65, AR	70	627.0
No. 66, AR (Sunflower Cut-Off)	71	--
No. 67, MS	72	621.0
No. 68, AR	72	622.0
No. 69, AR	73	613.0
No. 70, AR-MS	73	608.0
No. 71, AR	73 & 74	605.0
No. 73, AR	76	585.5
No. 74, AR	76A	584.5
No. 75, MS (Ozark Island)	76	579.0
No. 76, MS (Caulk Neck Cut-Off)	78A	--
No. 77, MS	77	573.0
No. 78, AR (Choctaw Island)	78 & 79	561.5
No. 80, AR	79	551.5
No. 81, AR (Ashbrook Cut-Off)	79 & 80A	550.0
No. 82, AR (Ashbrook Cut-Off)	80 & 80A	546.0
No. 84, MS-AR	81	533.0
No. 86, AR	83	521.0
No. 87, AR	84	518.0
No. 88, MS (Worthington Cut-Off)	84	515.0
No. 89, AR-LA	85	506.5
No. 93, MS	86	496.0
No. 97, LA	90	469.0
No. 100, LA (in Eagle Lake)	92	--
No. 102, LA	92	459.5
No. 106, MS (Palmyra Island) (Diamond Cut-Off)	95	--
No. 110, LA	99	419.0
No. 111, LA (Rodney Island)	102	388.0
No. 112, LA	103	381.0
No. 113, MS (Coles Island)	103	380.0
No. 114, MS (Fairchilds Island)	104	373.5
No. 115, MS (Natchez Island)	107	357.5
J		
Jackson Cut-Off (upper end)	70	628.0
Jackson Point, MS	111	329.3
Jackson Point Ldg, MS	111	332.8
Jamestown Ldg, LA	124	163.0
Jefferies Ldg, LA	107	356.4
Jersey Point, AR (Caulk Cut-Off)	78 & 78A	--
Jesuits Bend, LA	132	68.5
Joe Eckles Towhead, TN	39	863.5
Johnson, LA	126	142.6
Josie Harry Towhead, TN	60	721.0
Jug Harris Towhead, AR	72	622.0
Jump, The, LA	138	10.5
Junior, LA	134	54.4
Jurjevich Canal, LA	137	16.5
K		
Kangaroo Point Ldg, AR	68	650.0
Kate Aubrey Towhead, AR	48	790.0
Kellogg Ldg, LA (Daimond Cut-Off)	98	423.2
Kelly Ldg, KY	35	907.5
Kelson Ldg, LA	118	252.8
Kempe Bend	103	385.0
Kenner, LA	129	113.0
Kents Island, MS (Racetrack Towhead)	94 & 96	431.5
Kentucky Bend	83	518.0
Kentucky Bend Bar	83 & 84	518.0
Kentucky Point, KY	36	889.5
Kentucky Point Bar	37	885.0
Kentucky Point Ldg, KY	35	892.8
Keyes Point, TN	48	789.0
Keyes Point Ldg, TN	48	788.8
Kienstra Ldg, MS	112	324.5
Killona Ldg, LA	127	130.0
King, LA (Cut-Off)	95	--
Kings Point, MS	93 & 94	440.0
Klondike Ldg, AR	75	588.5
Knowlton Crevasse, AR	73	615.2
Knox Ldg, LA	113	314.2
L		
Laconia Circle, AR	73	608.0
Laconia Crevasse, AR	73	609.5
Laconia Ldg, AR	73	608.5
Lagan, LA	125	156.2
LaGrange Crevasse, MS	80	--
LaGrange Towhead, MS	80	538.5
Lake Beulah, MS-AR (vicinity mouth Arkansas River)	76A	--
Lake Bruin	101 & 102	398.0
Lake Centennial, MS-LA	94	437.7

MISSISSIPPI RIVER
INDEX TO LOCALITIES BY MAPS AND MILES ABOVE HEAD OF PASSES
(continued)

	Map	Mile
Lake Charles Ldg, MS (Sunflower Cut-Off)	72	–
Lake Chicot, AR (at Greenville Bridge)	81	–
Lake Concordia, LA (at Ferriday, LA)	105	–
Lake Ferguson, AR-MS (at Greenville Harbor)	80	–
Lake Lee, AR-MS	82	–
Lake Mary (or Old River Lake), MS	110	–
Lakeport, AR	83	526.0
Lakeport Ldg, AR	83	524.3
Lakeport Towhead, AR-MS	81 & 83	528.0
Lake Providence, LA (town and lake)	87 & 88	487.2
Lake Providence Gage, LA	88	484.5
Lake St. John Crevasse, LA	104	372.0
Lake St. John Ldg, LA	104	371.7
Lake St. Joseph, LA (west of Yucatan Cut-Off)	101	–
Lake Washington Ldg, MS	83 & 84	515.5
Lambethville, AR	54	–
La Place, LA	127	134.0
La Reussite, LA	133	64.0
L'Argent Ldg, LA	104	376.8
Last Chance Ldg, AR	48	784.8
Lauderdale, LA	124	166.6
Leatherman Point, LA	114	294.3
Ledbetter Ldg, MS	68 & 69	–
Lee Towhead, MO (Towhead of Island 14)	39	858.0
Leland Bar, AR	81	535.5
Leland Cut-Off (upper end)	80	539.9
Lemanville, LA	124	168.1
Leota Ldg, MS	84	511.5
Lester Ldg, KY	35	905.8
LEVEE DISTRICTS:		
Atchafalaya Basin Levee District		
Lower Limits, LA	123	175.5
Upper Limits, LA	114	303.5
Buras Levee District		
Lower Limits, LA	138	10.5
Upper Limits, LA	135	44.1
Fifth Louisiana Levee District		
Lower Limits, LA	114	303.5
Upper Limits, LA	85	507.0
Grand Prairie Levee District (Above Bohemia)		
Lower Limits, LA	135	44.0
Upper Limits, LA	131	81.6
Grand Prairie Levee District (Below Ostrica)		
Lower Limits, LA	139	3.6
Upper Limits, LA	137	25.3
Lafourche Basin Levee District (Above New Orleans)		
Lower Limits, LA	130	95.5
Upper Limits, LA	123	175.5
Lafourche Basin Levee District (Below New Orleans)		
Lower Limits, LA	135	44.1
Upper Limits, LA	131	81.0
Lake Borgne Levee District		
Lower Limits, LA	131	81.6
Upper Limits, LA	130	91.5
Lower St. Francis Levee District		
Lower Limits, AR	64	672.1
Upper Limits, MO	35	889.2
Lower Tensas Levee District		
Lower Limits, LA	114	302.8
Upper Limits, LA	96	430.0
Lower Yazoo Levee District		
Lower Limits, MS	94	437.8
Upper Limits, MS	72	620.0
Orleans Levee District (East)		
Lower Limits, LA	130	91.5
Upper Limits, LA	130	103.7
Orleans Levee District (West)		
Lower Limits, LA	131	81.0
Upper Limits, LA	130	95.5
Pontchartrain Levee District		
Lower Limits, LA	130	103.7
Upper Limits, LA	120	230.7
Reelfoot Levee District		
Lower Limits, TN	36	901.0
Upper Limits, KY	33	921.4
Upper St. Francis Levee District		
Lower Limits, TN	35	889.2
Upper Limits, KY	30	955.8
Upper Tensas Levee District		
Lower Limits, LA	96	430.0
MS River Limits, AR	77	571.8
Upper Yazoo Levee District		
Lower Limits, MS	72	620.0
Upper Limits, MS	60	720.5
White River Levee District		
Lower Limits, AR	73	605.0
Upper Limits, AR	67	655.3
Lily Ldg, LA	124 & 125	161.1
Linwood Bend	42	841.0
Linwood, LA	132	71.0
Linwood Ldg, AR	80A	–
Lions, LA	126	139.7
Litler Ldg, TN	45	804.5
Little Cypress Bend	39	864.8
Little Prairie Bend	40	850.0
Live Oak, LA	132	68.5
Locust Ridge, LA	103	385.0
Lone Star, LA	128	119.5
Longwood Ldg, LA	86 & 87	494.0
Longwood Ldg, LA	121	216.0
Lookout Ldg, AR	50	–
Loosahatchie River, TN (mouth)	57	740.8
Loosahatchie Bar, TN	57	738.5
Lorrett Ldg, LA	122	198.1
Louisiana Bend (Sarah Cut-Off)	85	–
Lower Forked Deer Ldg, TN	47	798.5
Lower Grand Gulf Ldg, MS	100	405.6
Lower Leland Ldg, AR	80	538.3
Lower Old River, LA	113 & 113A	304.0
Lucas Bend	31	939.0
Lucas Ldg, MO (in Lucas Bend)	31	–
Lucky Ldg, LA	121	206.5
Lucy, LA	127	135.0
Ludlow Ldg, AR	72	624.4
Lukeville, LA	120	224.3
Luling, LA	128	120.8
Luna Ldg, AR (Tarpley Cut-Off)	80A	–
Lutcher, LA	125	147.6
M		
Mable Ldg, KY	34	909.7
Mac Towhead, MS	62	695.3
Magna Vista, MS	89	473.5
Magnolia, LA	134	47.0
Magnolia Ldg, LA	125	148.7
Malone Ldg, MS (Sunflower Cut-Off)	71	–
Main Pass (Head)	139	3.0
Manchac Bend	121	214.9
Manchac Point, LA	121	215.5
Manchac Ldg, LA	121	215.0
Marchlandville, LA	123	171.4
Marengo Bend (Giles Cut-Off)	105 & 106	–
Mark, LA	121	222.3
Marr Towhead, TN	37 & 38	877.0
Marrero, LA	130	99.6
Marshall Cut-Off (upper end)	93	450.0
Martin, LA	134	47.0
Mason Ldg, MS	73	611.8
Massey Bar, AR	54	–
Matthews Bend (Worthington Cut-Off)	84	–
Mayersville, MS	86	496.5
Mayfield Creek, KY (mouth)	30	950.0
McFadden Ldg, MO	31	938.8
McKellar Lake, TN (Memphis Harbor entrance)	58	725.6
McKenzie Chute, AR	54	–
McWilliams Ldg, MS	68 & 69	639.7
Medley Bar	32	926.5
Memphis, TN	57	735.0
Memphis Gage (U.S.E.), TN	57	735.9
Memphis Harbor Project, TN	58	–
Mengel Ldg, LA	119	234.3
Meraux, LA	131	87.0
Mercer Island, MS	104	377.0
Mhoon Bend	63	686.5
Mhoon Ldg, MS	63	687.7
Mhoon Ldg Gage, MS	63	687.5
Mitchell Point, TN	43	832.3
Middle Fork - Forked Deer River, TN	45	803.8
Middle Ground, MS	105	–
Middle Ground Island, LA-MS	99 & 100	409.0
Middle Palmyra Island, MS (Diamond Cut-Off)	95 & 97	–
Midway, MO	43	829.0
Midway Ldg, TN	43 & 44	825.5
Miles, LA	125	169.0
Miller Bend	79 & 80	547.0
Millers Ldg, MS	86	498.0
Miller Ldg, MO (Lucas Bend)	31	–
Miller Point, MS	68	644.8
Milliken Bend	92	456.0
Milliken Bend Ldg, LA	92	454.9
Mississippi - Ohio Rivers (Confluence)	30	953.8
Missouri Bend	121	222.5
Modeste, LA	123	183.1
Modoc Crevasse, AR	68	642.7
Modoc Ldg, AR	68	635.3
Molasses Point Ldg, TN	54	–
Monsecour, LA	133	60.7
Monterey Bend, AR-MS	76	576.0
Monterey Ldg, AR	77	576.4
Montezuma Bar, MS	66 & 67	661.3

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(continued)

	Map	Mile
Montezuma Bend	67	657.0
Montezuma Cut-Off	67	657.0
Montezuma Towhead, AR	67	655.0
Montgomery Island	74 & 75	597.0
Montgomery Towhead, AR	74 & 75	593.5
Montz, LA	127	130.0
Moon Lake, MS	67	656.0
Moonshine, LA	125	156.0
Moore Island, MO	32	928.0
Morancy or Rose Hill Ldg, LA	92	455.5
Morgan Point Ldg, AR	51	769.0
Morgans Bend, LA	116	279.0
Morganza, LA	116	278.0
Morganza Crevasse, LA	116	276.6
Morganza Floodway, LA	116	279.0
Morganza Ldg, LA	116	278.1
Moro Ldg, LA	107	355.6
Morrison Towhead, MO	36	890.0
Morville Ldg, LA	107 & 109	353.8
Mound City Chute, AR	57	739.2
Mound Crevasse, MS	78 & 79A	560.5
Mound, LA	93	443.3
Mound Ldg, MS	78 & 79A	560.9
Mound Place Ldg, AR	64	676.2
Mount Pleasant, LA	118	254.5
Mount Pleasant Ldg, LA	118	254.7
Mouth of River Styx Ldg, AR	44	812.5
Mouth of St. Francis River, AR	64	672.2
Mouth of St. Francis River Ldg, AR	64	672.3
Mouth of White River, AR (new)	74 & 75	599.0
Mouth of White River, AR (old)	75	591.7
Mud Island, TN	57	736.2
Mulatto Bend Ldg, LA	119	236.6
Muscovalley Ldg, KY	32	932.4
Myrtle Grove, LA	133	59.2
N		
Nairn, LA	136	34.0
Naomi, LA	133	64.6
Napoleon Cut-Off	76A	584.5
Narrows (The), LA	114	297.0
Natchez Gage, MS	106	361.4
Natchez Island Chute	107	357.5
Natchez Island, MS	107	357.5
Natchez, MS	106	363.8
Naval Base (U.S.), LA	130	92.5
Nebraska Ldg, LA	93	444.0
Nebraska Ldg, TN	44	814.0
Needham Cut-Off	44	821.2
Neptune, LA	137	24.0
Nero, LA	134	54.5
Nestor Canal, LA	135	39.7
Nestor, LA	135	40.5
New Madrid, MO	36	888.8
New Madrid Bar, MO	36	887.5
New Madrid Bend	37	885.5
New Madrid Gage, MO	36	889.4
New Orleans, LA (Canal Street)	130	95.0
New Orleans (Carrollton) Gage, LA	130	102.8
New Texas Ldg, LA	116	280.6
Newman Cut-Off (Willow Cut-Off)	91	–
Newtown Bend	98	420.5
Niblett Ldg, MS (Caulk Cut-Off)	76	–
Nine Mile Point, LA	130	104.5
Nodena Bend, AR-TN	51	–
Norco, LA	127 & 128	126.0
Norfolk, MS	59	710.2
Norfolk Ldg, MO	30	949.0
Norma Ldg, LA	126	146.7
North Horn Lake, TN	59	–
North Pass	144	–
O		
Oak Alley Ldg, LA	125	153.3
Oak Bend Ldg, MS	96	426.0
Oakley, LA	121	201.1
Oakville, LA	132	70.1
Obion Creek, KY	33	922.0
Obion River, TN (mouth)	44	819.2
O'Bryan Ldg, MO (in Lucas Bend)	31	942.5
O'Bryan Towhead, MO	31	944.0
Octave Pass (Head)	139	3.0
Offutt Ldg, AR (Jackson Cut-Off)	70	–
Offutt Ldg, MS	79	550.0
Ohio - Mississippi Rivers (Confluence)	30	953.8
O. K. Bend, MS (Hardin Cut-Off)	64	–
Old Brandywine Chute	53 & 55	757.3
Old Island No. 71, AR	73	605.0
Old River Control Structure (Low Sill)	113 & 113A	314.4
Old River Control Structure (Overbank)	113 & 113A	315.2
Old River Lock, LA	113A	304.0
Old River, LA-MS (lake)	85	502.0
Old River Lake or Lake Mary, MS	110 & 112	322.8
Old River, TN-AR (Barnay Chute) (upper end)	54	–
Old Slough Ldg, TN	35	901.0
Old Town Bend	68	645.0
Old Walnut Bend	63	–
Olga, LA	137	16.5
Olga Ldg, LA	125	159.4
Ollie, LA	132	67.5
Omega or Buckhorn Ldg, LA	92	457.1
One Hundred Mile Ldg, LA	122	198.6
Oneida, LA	125	153.4
Open Lake, TN	45	801.0
Ophelia Ldg, LA	122	197.2
Opossum Chute	86	501.5
Opossum Point, LA	85 & 86	502.0
Ormond Ldg, LA	128	122.5
Osceola, AR	48	786.0
Osceola Ldg, AR	48	786.0
Ostrica Lock, LA	137	25.2
Ozark Island (No. 75) and Lake, MS	76	579.0
P		
Palmetto Point, MS	112	318.7
Palmyra Island (No. 106) and Lake, MS (Diamond Cut-Off)	95	–
Palmyra Ldg, MS (Diamond Cut-Off)	95	–
Palo Alto Ldg, LA	122	198.5
Pandella Ldg, MS	112	324.0
Panther Forest Ldg, AR (Ashbrook Cut-Off)	80A	–
Paradise Ldg, AR	53	–
Parker Ldg, LA	105	–
Parker Ldg, MO	33	924.0
Parker Ldg, MO	34	915.5
Pass a Loutre, LA	139	0.5
Paulina, LA	125	149.3
Paw Paw Bend	93	446.8
Paw Paw Ldg, MS (Marshall Cut-Off)	93	–
Peeler Ldg, MS	92	457.8
Peters Island, MS-AR	62	694.0
Peters Ldg, AR	62	693.5
Philadelphia Point Ldg, LA	123	181.9
Phillipson, LA	114	302.4
Phoenix, LA	133	58.8
Pickett Island, AR	82	527.5
Pikes Peak, LA	125	155.8
Pilot Station, LA (Southwest Pass)	141	*19.2
Pilottown, LA	139	2.0
Pinckney Ldg, AR	60 & 61	712.8
Pittman Island, MS (Sarah Cut-Off)	85	–
Plaquemine, LA	121	208.6
Plaquemine Bend	121	209.0
Plum Point, TN	48	782.0
Point Breeze, LA	113 & 113A	311.8
Point Celeste, LA	134	52.5
Point Chicot, AR	80	–
Point Clair Ldg, LA	122	193.1
Point Comfort, AR	79 & 80A	547.0
Point Comfort Ldg, AR	79	548.0
Point Houmas, LA	124	171.3
Point Lookout, LA	88 & 89	479.5
Point Lookout Ldg, LA	88 & 89	479.0
Point Menoir, LA	118	255.3
Point Michel, LA	135	44.0
Point Moore Ldg, AR	84	515.0
Point Pleasant, LA	99	414.0
Point Pleasant, LA	136	30.3
Point Pleasant, MO (town)	37	879.0
Point Scudder, AR	53 & 56	–
Pointe a la Hache, LA (town)	134	49.0
Pointe a la Hache, Relief Outlet, LA (lower end)	136	33.2
Pointe a la Hache, Relief Outlet, LA (upper end)	135	44.1
Pointe Coupee, LA (town)	117	268.7
Poker Point, AR	55	748.4
Poker Point Ldg, AR	55	750.0
Port Allen, LA	120	230.6
Port Allen Ldg, LA	120	230.9
Port Allen Lock and Canal (Intracoastal Waterway), LA	120	228.4
Port Barrow, LA	123	175.8
Port Hickey, LA	118	255.5
Port Sulphur, LA	135	39.3
Porter Lake, AR	66	670.0
Porter Lake, AR	61	702.5
Potash, LA	135	40.5
Poverty Point, LA	133	60.0
Poverty Point, MS (Sarah Cut-Off)	85	–
Prairie Point, AR	66	669.0
Prairie Point Towhead, AR	66	665.0
Prentiss Ldg, MS	76	582.8
Presidents Island No. 45, TN	58	582.8
Preston Ldg, AR	51	767.8
Prestons Ldg, LA	117	262.9
Princeton Ldg, MS	84	510.0

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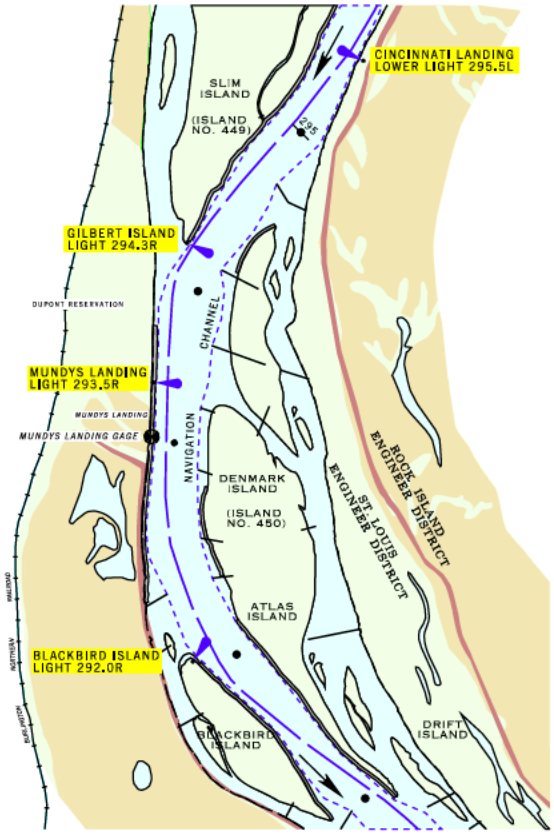
	Map	Mile
Pritchard Ldg, MO	30	948.0
Profit Island, LA	118 & 119	249.5
Profit Island Chute, LA	118 & 119	248.0
Promised Land, LA	132	71.5
Puntney Bend	31	944.6
Pushmataha Ldg, MS (Sunflower Cut-Off)	72	–
Q		
Quarantine (old), LA (U.S. Biological Survey Station)	139	4.0
Quarantine Station (U.S.), LA	130	91.5
R		
Rabbit Island, MS	62 & 63	691.0
Raccourci Cut-Off, LA	114	299.4
Raccourci Ldg, LA	116	280.7
Raccourci Old River, LA (Narrows)	114 & 115	297.0
Racetrack Towhead, MS (Kents Island)	96	481.5
Randolph Ldg, TN	50	771.0
Randolph Point, TN	53 & 55	750.0
Random Shot Ldg, AR	52	–
Raphael Pass, LA	139	3.0
Rasts Ldg, TN	53	–
Ratcliff Ldg, LA	115	290.1
Redman Point, AR	57	743.4
Redman Point Bar, AR	57	741.5
Red River (mouth)	113A & 114	304.0
Red River Ldg, LA	114	301.4
Red River Ldg Automatic Gage, LA	114	302.4
Red Store Ldg, LA	117	269.8
Reese Ldg, MS (Jackson Cut-Off)	70	627.2
Refuge, MS	81	531.0
Reid-Bedford Bend, LA-MS	96	426.0
Remy, LA	125	150.6
Rena Lara, LA-MS (vicinity Sunflower Cut-Off)	71	–
Rescue Ldg, MS	70	631.0
Reserve (Godchaux Refinery), LA	126	138.6
Reserve (Weather Bureau) Gage, LA	126	138.7
Reveille, LA	121	205.8
REVETMENTS: (See Sheet 5)		
Richardsons Ldg, TN	51	769.0
Riddles Point (or Ruddles Point), MO	38	873.0
Ridgely, TN	41	858.5
Rifle Point, LA	106	369.3
Riverton Bar, MS	76A	585.0
Riverton Ldg, MS	76A	585.0
Robinson Crusoe Island, AR	57	738.8
Robson Towhead, MS	70	631.3
Rock Point Ldg, AR	61	712.3
Rodney Cut-Off, Island and Town	102	–
Romeville, LA	124	162.3
Rosa, AR	47	793.0
Rosedale Bend, MS	76 & 76A	585.0
Rosedale Gage, MS	75	592.2
Rosedale Ldg, MS	75	588.0
Rose Hill Ldg, LA	118 & 119	249.0
Rose Hill or Morancy Ldg, LA	92	455.5
Roundaway Bayou (Diamond Cut-Off)	95	–
Rowdy Bend (Ashbrook Cut-Off)	80A	–
Ruckers Point (or Nebraska Point), TN	45	809.0
Ruddles Point(or Riddles Point), MO	38	873.0
Ryans Ldg, LA	116	280.1
S		
Salem Ldg, LA	90	464.0
Salsburg Ldg, LA	124	167.0
Salute Ldg, LA	121	202.2
Samuels Ldg, KY	32	928.4
Sandy Hook Bar, MO	40	851.0
Sans Souci Ldg, AR	50	783.7
Sarah, LA	132	69.4
Sarah Cut-Off	85	504.5
Sarah Island, MS	85	504.5
Sargent Point, LA	98	422.0
Sawmill Ldg, TN	50	773.7
Scarsdale, LA	132	75.3
Schexneyder, LA	116	270.0
Scotland Ldg, LA	107	359.5
Scotlandville, LA	119	234.4
Scott Bay	140	–
Scrubgrass Bend	74	601.0
Sebastopol Ldg, LA	116	283.7
Seigler Island No. 36, TN	53	757.0
Services Island, MS	103 & 104	387.5
Seven Oaks Ldg, AR	83	523.6
Seymourville, LA	121	207.8
Seyppel, AR	61	704.2
Shaw, LA	112	325.2
Shiloh Ldg, MS	89	472.9
Shingle Point, LA	131	78.2
Ship Island, MS (Hardin Cut-Off)	65	–
Shipland, MS	87 & 88	486.0
Shives, AR	81	530.7
Shoo Fly Bar, MS	64	677.0
Shreves Cut-Off	114	304.0
Sixty Mile Point, LA	136	33.0
Skipwith Crevasse, MS	86	499.4
Skipwith Ldg, MS	86	499.3
Slocum, LA	111	331.0
Smith Ldg, AR (Hardin Cut-Off)	64	–
Smith Point, MS	74	601.0
Smoke Bend, LA (town)	123	177.0
Socola, LA	135	45.3
Solitude Point, LA	119	244.7
Soulouque, LA	121	202.9
Southport, LA	130	104.5
Southeast Pass	143	–
South Pass, LA (mouth)	139	*13.5
Southwest Pass, LA (mouth)	139	*20.2
Southwest Pass Gage, LA	140	140
Spanish Moss Bend (Leland Cut-Off)	80A	–
Sparta Ldg, LA	93	446.5
Spithead Towhead, MS	103	385.5
Springfield Bend, LA	119	244.7
Stack Island, MS	87 & 88	488.0
Stamps Ldg, MS	112 & 113	314.8
Stanton, LA	131	86.8
Star Ldg Gage, MS	61	707.5
Star Spur, LA	132 & 133	65.3
Staring, LA	121	215.0
STATE LINES:		
Arkansas-Missouri	43	828.0
Kentucky-Tennessee	35 & 37	896.9
Louisiana-Arkansas	85	506.6
Louisiana-Mississippi	113	305.2
Mississippi-Tennessee	59 & 60	715.3
Tennessee-Kentucky	37	882.6
Tennessee-Kentucky	35	904.8
Stella, LA	132	73.5
Stella Ldg, LA	123	173.8
Stella Ldg, MS	83	519.0
Sterling Ldg, AR	64	672.3
Sterling Ldg, AR	85	507.8
Steward Island, MS	110	–
Stewart Bar, MO	39	866.2
Stewart Towhead, MO	38	871.0
St. Amelia, LA	125	158.1
St. Catherine Creek, MS (mouth)	106	361.0
St. Catherine Creek, MS (old)	109	347.3
St. Catherine Towhead, LA	109	357.0
St. Cecile Ldg, LA	124 & 125	160.8
St. Clair Ldg, LA	124	162.0
St. Delphine Ldg, LA	121	222.4
St. Elmo, LA	123	173.0
St. Francis Bend	64	672.5
St. Francis Ldg, LA	117	267.4
St. Francis River, AR (mouth)	64	672.3
St. Francis Towhead, MS	66	671.6
St. Francisville, LA	117	265.5
St. Gabriel, LA	122	200.7
St. James Ldg, LA	125	156.5
St. Johns Bayou, MO	36	889.3
St. Joseph, LA	102	394.0
St. Joseph Gage, LA	102	396.4
St. Maurice Towhead, LA	116	271.5
St. Rosalie, LA	133	60.9
St. Rose Ldg, LA	128	118.4
Stokes Ldg, MS	67	655.4
Stubbs Island, MS	64	675.0
Stumpy Point, AR	64	673.7
Sunshine Ldg, LA	121	202.6
Sunflower Cut-Off	72	625.0
Sunnyside Ldg, AR	81	532.0
Sunrise, LA	136	27.0
Sunrise Towhead, TN	50	776.0
Sunrise Towhead Chute, TN	50	775.0
Sycamore Chute Gage, TN	57	740.0
Sycamore Ldg, LA	105	–
T		
Taft, LA	128	128.3
Tallula, MS	88 & 89	479.5
Tamm Bend	44	816.5
Tamms Ldg, TN	44	816.6
Tarbert Ldg, MS	113	308.4
Tarpley Cut-Off (upper end)	80	543.0
Tarpley Neck, AR	80	543.5
Taylor Ldg, LA	96	429.4
Tennemo Ldg, TN	42	842.0
Tennessee Bar, MS	90	464.7
Tennessee Chute, TN	58	725.5
Terrapin Neck Cut-Off	92	461.0
Terrene Ldg, MS	75	592.2
The Jump	138	10.5
Thelma Ldg, AR	60	714.0
Thomasin Bayou, LA	144	–

MISSISSIPPI RIVER
INDEX TO LOCALITIES BY MAPS AND MILES ABOVE HEAD OF PASSES
(continued)

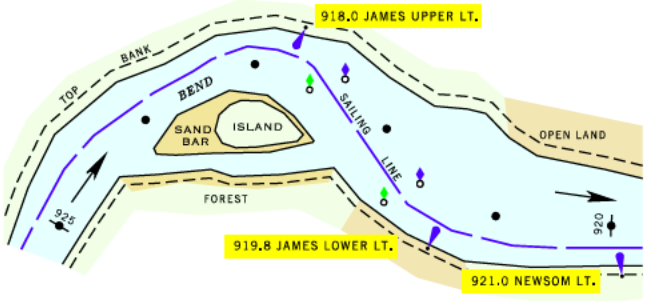
	Map	Mile
Thomas Point, LA	119	240.2
Thompson Creek, LA	118	255.7
Three States Ldg, MO	34	917.7
Three States Towhead, MO	34	916.0
Tigerville, LA	127	137.2
Tiptonville, TN	38	873.0
Tiptonville Gage, TN	38	872.4
Togo Ldg, LA	99	418.0
Togo or Big Black Island, LA	99	414.2
Tomato, AR	45	805.5
Tomato Ldg, AR	45	806.0
Toneys Towhead, MO-KY	37	882.3
Torras Ldg, LA	114	302.2
Towhead of Island No. 1, KY	31	947.6
Towhead of Island No. 18, TN	43	835.1
Towhead of Island No. 34, AR	50	774.0
Transylvania, LA	90	469.2
Transylvania Chute, LA (mouth)	88 & 90	469.5
Treasure Island, TN	58	725.5
Triumph, LA	137	21.8
Tropical Bend, LA	136	30.4
Trotter Ldg, MS	66	666.3
Tunica, LA	114	294.0
Tunica Bend	114	293.0
Turnbull, LA	113	305.3
Twelve Mile Point, LA	131	81.5
Twelve Mile Point, LA	129	109.0
Twenty-six Mile Point, LA	128	122.7
U		
Uncle Sam Ldg, LA	124 & 125	160.4
Union Ldg, LA	124	166.7
Union Ldg, LA	121	210.0
Union Ldg, LA	116	270.3
Union Point, LA	111 & 112	326.7
Union Point Ldg, LA	111 & 112	326.5
Upper Grand Gulf Ldg, MS	100	407.7
Upper Leland Ldg, AR (Leland Cut-Off)	80	–
Ursino Ldg, MS	99	416.5
V		
Vacherie, LA	125 & 126	150.0
Valewood Ldg, MS	86	–
Vaucluse Ldg and Bar, AR	81	534.0
Vencie Gage, LA	138	10.7
Vicksburg Gage, MS	94	437.0
Vicksburg, MS (Yazoo Canal)	94	437.1
Vice Presidents Island No. 46, TN	58	730.5
Victoria Bend	75	595.0
Vidal Island, LA (Opposite Ferriday, LA)	105	–
Vidalia, LA	106	363.3
W		
Waggaman, LA	129	109.0
Walker Bend	81	533.5
Wallace, LA	126	146.2
Walls, LA	118	250.4
Walnut Bend, AR	63 & 64	680.3
Walts Ldg, TN	53	755.0
Warfield Ldg, MS	80 & 81	537.7
Warnicott Ldg, LA	107 & 109	353.2
Washout Bayou, MS	110	341.2
Waterford, LA	127	129.8
Waterloo Ldg, LA	117	260.4
Waterproof, LA	103	381.0
Waterproof Bar Island, LA	103	380.0
Waterproof Cut-Off	103 & 104	376.0
Waterproof Ldg, LA	103 & 104	378.9
Waterway - Empire, LA to Gulf of Mexico	136	29.5
Watson Point, KY	37	888.0
Waverly, AR	60	720.5
Waverly Place Ldg, LA (Giles Cut-Off)	106	–
Waverly Point, LA	106	365.0
Waxhaw Ldg, MS	75	592.8
Welcome, LA	124	163.1
Welham Ldg, LA	125	153.7
West Bay	140	–
West Memphis, AR	58	729.0
Westover Ldg, AR	67	652.3
West Pointe a la Hache Gage, LA	134	48.7
Westwego, LA	130	101.7
Whiskey Chute, AR	81	533.0
Whiskey Chute, AR	63	681.1
Whiskey Island, AR	63	–
White Castle Ldg, LA	122	193.3
White Flag Ldg, LA	114	297.5
Whitehall, AR	63	680.4
Whitehall Ldg, LA	107	360.0
Whitehall Ldg, MS	101	402.5
Whitney Ldg, LA	126	145.0
White River (new mouth), AR	74 & 75	598.9
White River (old mouth), AR	75	591.7
White River Ldg, AR	75	590.6
White Rose Ldg, LA	126	140.4
Wickliffe, KY and Gage	30	951.5
Widow Graham Bend	111	328.0
Wilbert, LA	116	273.5
Wilder Flats, LA	138	8.0
Wilkinson Point	119	235.5
Williams Ldg, KY	32	929.0
Williams Point, MO	37 & 38	877.6
Willow Bend	126	142.5
Willow Cut-Off (upper end)	90	464.3
Willow Grove, LA	126	145.0
Willow Grove Ldg, LA	123	182.1
Willow Point Ldg, LA (Willow Cut-Off)	91	–
Wills Point, LA	132	67.7
Willswood, LA	129	109.7
Wilson Point, LA	86	498.0
Wilson Point Ldg, LA	86	497.9
Wilton Ldg, LA	124	162.8
Winter Quarters Crevasse, LA	101	400.0
Wolf Island, KY	32	933.3
Wolf Island Bar, KY	32	933.0
Wolf Island Bend	32	931.0
Wolf Island No. 5, KY	32	933.0
Wolf River, TN	57	738.6
Woodland, LA	134	50.7
Woodstock Ldg, LA	123	183.1
Woodstock Ldg, LA	121	215.2
Wolf River, TN (mouth)	57	735.9
Worthington Cut-Off (upper end)	84	514.5
Wrights Point, AR	44	820.0
Wrights Point Ldg, AR	44	820.6
Y		
Yazoo Cut-Off	93	442.5
Yazoo Diversion Canal (mouth)	94	437.1
Yellow Bend	79	554.2
Yucatan Cut-Off	100	407.3
Yucatan Ldg, LA	101	–
Yucatan Point, MS (Yucatan Cut-Off)	99 & 101	101
Young Point Ldg, LA	93	443.4
Z		
Ziblich, LA	136	32.2

LEGEND

TYPICAL CROSSING CHANNEL ABOVE CAIRO, ILLINOIS



TYPICAL CROSSING CHANNEL BELOW CAIRO, ILLINOIS



Crossing channels marked by buoys during low water. Consult 'LOCAL NOTICE TO MARINERS' for detailed sailing directions.

See note in 'Notes Regarding Aids To Navigation' for more information. Navigation lights identified by river mile and name.

Waters Edge equals Low Water Reference Plane +5 (five) feet above Mile 320 AHP.
Waters Edge equals Low Water Reference Plane zero below Mile 320 AHP.

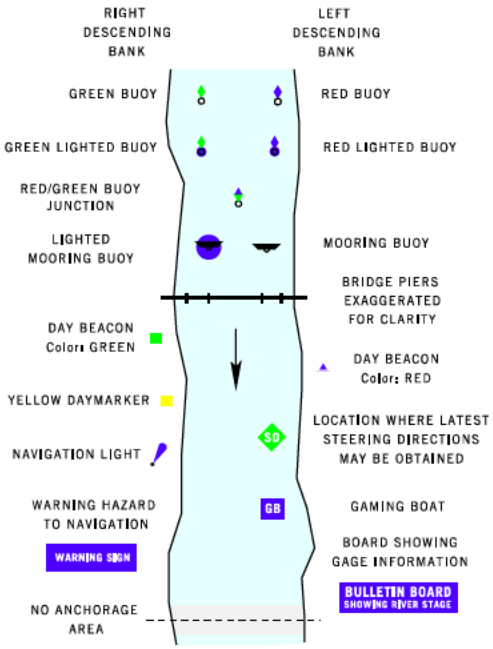
Daymarks may be identified as DBN.

The Color Magenta Is The 'Warning' Color For This Series of Maps.

SYMBOLS

INTAKE OR DISCHARGE STRUCTURE		Road Markers:	FEDERAL	61
GPS ANTENNA			STATE	19
ANTENNA			INTERSTATE	20

AIDS TO NAVIGATION



HYDROGRAPHIC

DREDGE MATERIAL	DREDGE MATERIAL
DIKES OR WEIRS	SHOO FLY DIKES
REVETMENT	SHOO FLY REVETMENT
FLEETING AREA	
MILES ABOVE HEAD OF PASSES (1962)	900
RIVER GAGE	
DIRECTION OF FLOW	

TOPOGRAPHIC

STATE	
COUNTY OR PARISH	
BRIDGE	
FERRY	
POWER LINE	
SUBMARINE (ANY)	
PRIMARY ROAD	
SECONDARY ROAD	
LIGHT DUTY	
UNIMPROVED ROAD	
RAILROAD	
ABANDONED TRACK	ABANDONED
LEVEES: MR&T Project	
Fuse Plug or Overtopping	
FORESHORE PROTECTION:	
DOCKS: Commercial, Boat Ramp	

LEGEND
(continued)

NOTES REGARDING AIDS TO NAVIGATION

The U. S. Coast Guard is responsible for placing and maintaining all aids to navigation. Buoys are set to mark project depths taking into consideration the prevailing river stage and obstruction. Buoy positions as shown on the chart are approximate.

Buoys should always be given as wide a berth in passing as possible consistent with the length and width of vessel or tow and the width of the bend or crossing.

Buoys should always be used with caution. They may be carried off position by high water, accumulation of drift, ice, or sunk by collision or other causes. When carried off position, destroyed, or removed to prevent loss, buoys are replaced at the earliest opportunity.

Lights and daymarks are also shown in approximate location.

HOW TO OBTAIN LOCAL NOTICE TO MARINERS

Notices can be obtain by accessing the United States Coast Guard Home Page:

http://www.navcen.uscg.mil/lnm/d8gm/
or Write or call the following:
Commander (OAN) Eight Coast Guard District
Hale Boggs Federal Bldg.
501 Magazine Street
New Orleans, LA 70130-3396
Phone: (504) 589-6234

HOW TO NOTIFY COAST GUARD OF ACCIDENT OR EMERGENCY SITUATION

Write or call the following:
Commander (OAN) Eight Coast Guard District
Hale Boggs Federal Bldg.
501 Magazine Street
New Orleans, LA 70130-3396
Phone: (504) 589-6225

MISSISSIPPI RIVER BENDWAY WEIR DATA AS OF APRIL 1998

Greenfield Bend	7 weirs	3.10R - 3.90R AOR
Eliza Point	8 weirs	5.70L - 6.70L AOR
Scudder's	9 weirs	16.70L - 17.30L AOR
Dogtooth Bend	13 weirs	22.45R - 24.20R AOR
Price's Landing	9 weirs	29.60R - 30.55R AOR
Cape Bend	13 weirs	48.30R - 49.50R AOR
Cape Rock	8 weirs	53.80R - 54.90R AOR
Picayune	14 weirs	55.80L - 57.80L AOR
Fountain Bluff	10 weirs	83.00L - 84.10L AOR
Red Rock	9 weirs	93.70R - 94.80R AOR
Kaskaskia Bend	11 weirs	116.00L - 117.10L AOR
Ste. Genevieve	10 weirs	119.80R - 120.80R AOR
Fort Chartres	9 weirs	129.90L - 131.00L AOR
Carl Baer	6 weirs	163.30L - 164.00L AOR
Bellerive	5 weirs	174.00R - 174.65R AOR
Mosenthein	6 weirs	193.95L - 195.00L AOR
Victoria Bend	6 weirs	594.90L - 595.60L AHP

NOTES

The data in this Navigation Book has been extracted from the Mississippi Valley Division Regional Engineering and Environmental Geographic Information System (REEGIS) Data Base.
Maps were prepared from latest surveys by Corps of Engineers offices and other Federal and State sources.
Geoodetic positions refer to North American Datum 83, with a Polyconic Projection Grid.
Political boundaries are shown according to best available information.
Locations of Navigation Lights, Channel Lines and Mississippi River Shore Lines are from latest available data, including aerial photographs.
Distances on Mississippi River above Head of Passes (Zero Mile), also South and Southwest Passes below Head of Passes (Zero Mile) are shown as negative mileages.
Mile Zero on the Upper Mississippi River starts at Cairo, Illinois at the mouth of the Ohio River.
Distances on Mississippi River-Gulf Outlet landward and seaward of Chandeleur Islands (Zero Mile) are shown as negative numbers.

LOCK AND DAM RADIO FREQUENCIES IN THE ST. LOUIS DISTRICT

	Transmit	Receive	Mode	Channel
Lock and Dam No. 27	156.600 MHz	156.600 MHz	S	12
Lock and Dam No. 26	156.700 MHz	156.700 MHz	S	14
Lock and Dam No. 25	156.600 MHz	156.600 MHz	S	12
Lock and Dam No. 24	156.700 MHz	156.700 MHz	S	14
Kaskaskia Lock and Dam	156.650 MHz	156.650 MHz	S	13
Harbors	156.800 MHz	156.800 MHz	S	16
U. S. Coast Guard	157.100 MHz	157.100 MHz	S	22A

DGPS FREQUENCY

St. Louis District	322 KHz
Memphis District	310 KHz
Vicksburg District	313 KHz
New Orleans District	293 KHz

Additional information may be obtained from the United States Coast Guard Home Page: http://www.navcen.uscg.mil

ADDITIONAL COPIES MAY BE PROCURED FROM:

U.S. Army Engineer District, St. Louis, Corps of Engineers, 1222 Spruce Street, St. Louis, MO 63103-2833.

U.S. Army Engineer District, Memphis, Corps of Engineers, B-314 Clifford Davis Federal Office Bldg., Memphis, TN 38103-1894.

U.S. Army Engineer District, Vicksburg, Corps of Engineers, 4155 Clay Street, Vicksburg, MS 39180-3435.

U.S. Army Engineer District, New Orleans, Corps of Engineers, P.O. Box 60267, New Orleans, LA 70160-0267.

Prepared under the direction of the President, Mississippi River Commission
Corps of Engineers, U. S. Army