Barataria-Terrebonne
NATIONAL ESTUARY PROGRAM

ABOUT THIS GUIDE

This guide is provided by the Barataria-Terrebonne National Estuary Program to make it easier for teachers and citizen interest groups to plan and execute tours into the Barataria-Terrebonne National Estuary. The 34 tours in this guide were designed for use by such groups. Each tour contains the following information which should be used to select the tour that would be right for your group and to plan ahead.

Contact - a contact person, address and/or phone number. We advise you to use this information to plan your tour in advance and avoid disappointment. Not all areas are open daily to the public and often special arrangements must be made ahead of time or the area could be closed when you arrive.

Category - often refers to one of the seven priority environmental problems in the basins, outlined on the following pages, but it can also describe the tour as guided or self-guided, indoors or outdoors, a museum, an office, etc.

Environment - a description of the physical environment of the tour, such as brackish marsh or freshwater swamp.

Group Type - a determination as to the age and size of group best suited for each tour. If you have questions regarding the group you plan to bring, or if your group does not fit the suggested type, please call or write to the contact for clarification.

Distance - information on the distance from the nearest incorporated area to the tour location is included here. Sometimes more than one reference area is used to accommodate groups coming from different directions. Directions concerning highways are also included here, however, refer to the map in each section for more detailed directions.

Time - a determination of the time it will take to complete the tour is given in this section. This does not include travel time or time for lunch, breaks, or other stops.

Cost - admission charges are mentioned here. These are subject to change. Call the contact number for the most current prices. Most of these tours, however, have no admission charge. This price does not include food or drink.

Equipment - activities included at the end of each tour sometimes involve equipment. This section includes a list of suggested equipment. On page 86 is a list of companies from which you can purchase water quality testing equipment.

Description - an overview of the tour.

Activities - a list of suggested activities, experiments and discussion.

Map - a local map providing directions to the tour area. Maps include main highways found on the Louisiana state highway map and are not to scale.

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Learn about your estuary.
Plan a trip today!

INTRODUCTION

WELCOME to the Barataria-Terrebonne Estuary System, the place we call “home". As you can see by the map on page 8, the estuary system covers a large triangular area between the Atchafalaya and Mississippi Rivers, bordered by the Gulf of Mexico at the base, and coming to a point at the Morganza Spillway, north of Baton Rouge. It includes two basins: the Barataria Basin and the Terrebonne Basin. The Barataria-Terrebonne Estuary System is a unique and fragile area, whose importance is becoming increasingly obvious. It is our hope that you will use this guide to explore this unique environment, to discover its importance as a nursery and breeding ground for much of our nation’s waterfowl and shellfish, its importance to other wildlife, and its role in the economy of Louisiana and the nation. It is also our hope that you will become more familiar with the serious challenges facing the estuary system, and that your understanding will contribute to solutions.

The Barataria-Terrebonne National Estuary Program

In 1990 the U.S. Environmental Protection Agency and the State of Louisiana came together to form a partnership called the Barataria-Terrebonne National Estuary Program. The Program's goal is to develop and implement a plan that protects the estuary from further degradation. The Barataria-Terrebonne National Estuary Program is one of 28 such programs established to protect estuaries of national significance.

Of all the places on Earth, none overflows with more life than an estuary. Defined as a coastal area where salt water from the ocean mixes with fresh waters from rivers, rainfall and upland runoff, an estuary is made up of many types of habitats. This is nowhere more true than in the Barataria and Terrebonne Basins, where one can find bottomland hardwoods, barrier islands, salt marshes, and freshwater marshes, among other habitats. With each habitat comes an assortment of wildlife and plant life that survive in a delicate, balanced environment. In some cases, animal life may move from one habitat to another during its life-cycle, while others may spend their entire life in a single habitat.

What is clear is that each habitat plays a critical role in maintaining the abundance of fish, shellfish, birds and other animals found throughout Barataria-Terrebonne and, by extension, throughout the nation. For instance, it is estimated that nearly 20% of the estuarine-dependent fisheries harvested in the United States spend part of their life cycle in the habitats of the Barataria-Terrebonne system. One of the nation’s most important fishing grounds extends through Louisiana, Texas, Mississippi and Alabama. Most species of aquatic life found in these grounds were born and raised in the Barataria-Terrebonne system. Shrimp, oysters, blue crab, and more than 60 species of fish live in the estuary. Overall, these wetlands support almost one-fifth of the

estuarine-dependent fisheries of the United States.

In addition to fisheries, the estuary is an important area for migratory waterfowl, that use the area for winter habitat. The abundance of fisheries, wildlife and waterfowl provides a way of life for many residents, who make their livelihoods by harvesting these resources.

Agriculture and industry are also important to the human inhabitants of the estuary. Over 260,000 acres of sugarcane are under cultivation, bringing in $203 million in 2003. Income from fisheries and wildlife enterprises, including commercial fishing, alligator trapping, crawfishing, fish farms, shrimping, crabbing, oystering, soft shellcrab production, and fur sales, exceeded $215 million in 2003. The oil, gas, sulphur and salt industries not only provide jobs to estuary residents, they also brought in over $379 million in royalties and taxes to the state in 1993. The Houma Navigation Canal, Barataria Bay Waterway, Mississippi River, Empire Canal, Gulf Intracoastal Waterway, and the Bayous Chene, Boeuf, and Black Project, are all integral parts of the nation's shipping system. In addition, the ports of Baton Rouge, South Louisiana, and New Orleans are among the ten highest volume ports in America. Together, they make up one of the world's largest international port systems. The Port of South Louisiana alone, which encompasses St. James, St. John, and St. Charles Parishes, led the nation in 1992 with 90 million tons of cargo.

Our estuarine wetlands are also important in storm and flood control. Studies have concluded that every mile of the estuary's vegetated wetlands can reduce up to seven inches of storm flood water by holding large amounts of water that would otherwise move inland to populated areas. In addition, wetlands act as giant filters, screening out and capturing harmful pollutants, where they are often broken down by microorganisms. It is estimated that replacing 30 million acres of wetlands with equivalent water pollution control devices would cost a minimum of $100 billion.

Finally, it is important to note the Barataria-Terrebonne swamps and marshes contain one of Louisiana's scenic streams and are among the top three areas in the United States for bird watching.

Sign of land loss: Telephone poles in open water along Hwy. 1 to Grand Isle.

CHALLENGES TO THE ESTUARY

Seven priority problems have been identified by the Barataria-Terrebonne National Estuary Program as contributing to the decline of the estuary. These include a decline in animal populations, contamination of both fish and shellfish, land loss, habitat modification, and contamination of sediment in the marshes. Each of the priority problems, in some way, impacts the next, making the resolution of each of the problems that much more pressing and complex. Complicating the problems are human population increases in the area that are placing additional demands on land and water resources, flood protection, roads, and sewage systems.

Throughout this guide, whenever possible, we have referred to these seven priority problems as categories to identify the type of issues facing a particular area. The seven priority problems are:

1) HYDROLOGIC MODIFICATION reflects changes to the natural flow of water and is perhaps the most serious threat to the estuary system. When we build levees, dredge canals, or cut through natural ridges, the natural flow of the water is changed. This can result in greater erosion and detrimental changes in salinity. In addition, levees prevent a river from naturally overflowing its banks. While this is good for flood control, it prevents the river from carrying sediments or soil particles to wetlands for their replenishment.

2) SEDIMENT REDUCTION is linked to hydrologic modification. Formerly, the Mississippi River carried sediments from eroding Northern soils all the way to Louisiana, dropping them at its mouth, building land, and forming a delta, then changing courses to build new deltas elsewhere. Most of Southern Louisiana was formed in this way. Since the Mississippi River has been leveed and "straightened," sediments are, instead, carried over the edge of the continental shelf in the Gulf of Mexico, which is much like dropping them into a bottomless pit. Subsidence, the natural process of land settling or sinking, is no longer countered by deposits of new sediments, so land is now being lost through subsidence. In addition, far less sediment is carried by the river now than in times past because many modern river control structures upstream trap sediment behind them, preventing their flow downstream. The Mississippi River today carries about 50% less sediment than it did a century ago. Subsidence and reduced sediment deposits have led to land loss in the Barataria-Terrebonne National Estuary at a rate of 18 square miles per year as land and marsh areas convert to open water. Adding to this problem is the impact of saltwater intrusion. This is primarily caused by human-made canals which allow salt water to change a fresh or brackish water environment, often killing the vegetation that anchors the soil.

3) HABITAT LOSS is one immediate result of sediment reduction. This, in turn, decreases sport and commercial fish and shellfish populations, impacts birds and mammals, and decreases South Louisiana's ability to buffer storms and filter pollutants.

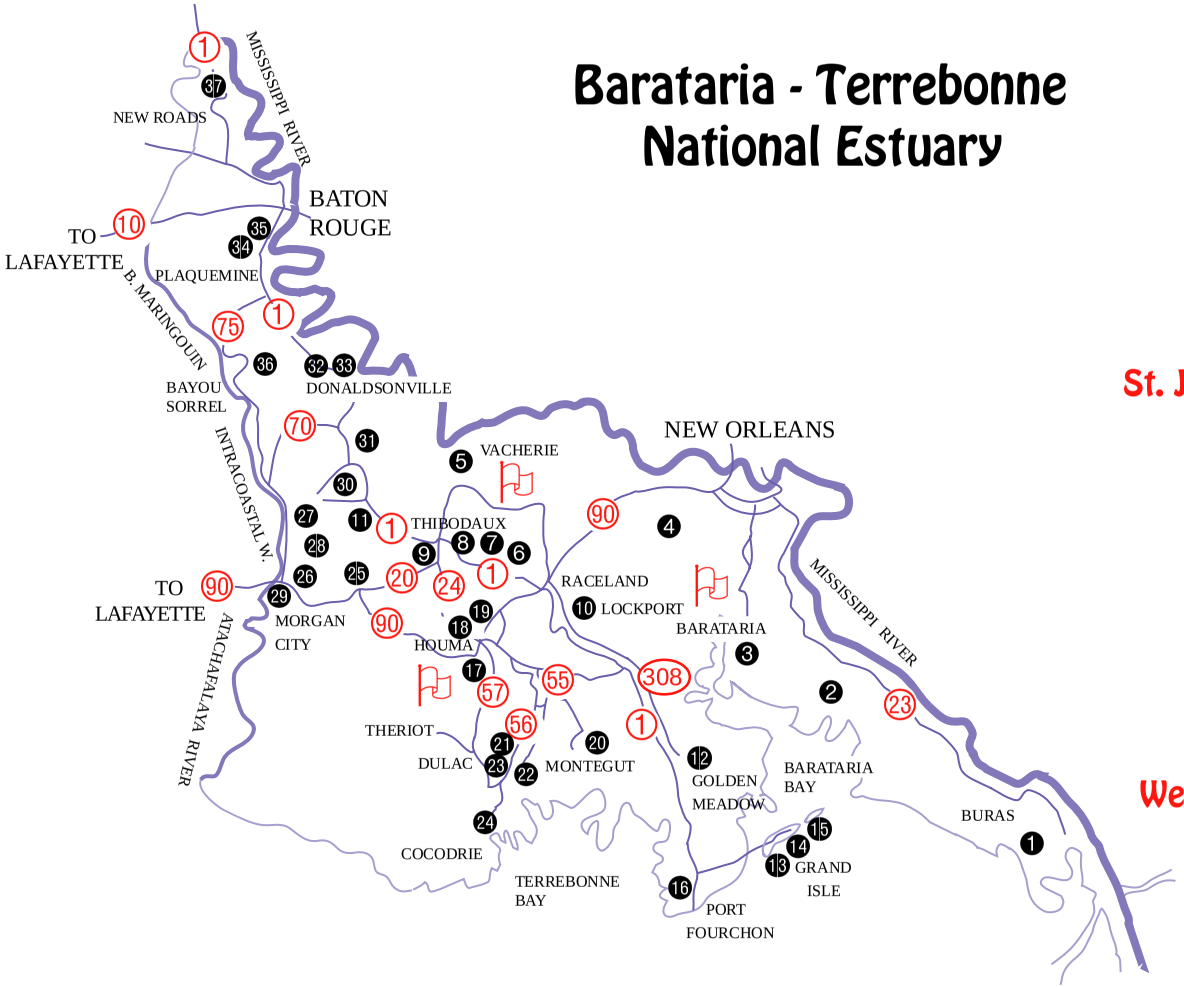
4) EUTROPHICATION is nutrient enrichment, the result of an overabundance of nutrients such as phosphorus and nitrogen, which enter the water as runoff from nonpoint sources such as fertilized lands, urban runoff, and sewage treatment systems. These nutrients cause algae to grow rapidly. When the algae begin to die, oxygen in the water is depleted as the algae decays. This low oxygen condition may kill fish and shellfish.

5) PATHOGENS from disease-producing organisms such as bacteria and viruses, enter the water from human waste, pasture runoff, and waste products of marsh animals such as nutria and birds. This contamination presents a danger of infection in persons with liver or immune deficiencies and requires state agencies to close oyster beds in infected areas.

6) TOXIC SUBSTANCES have been found in some water, animal tissue, and sediment within the estuary. Some of these substances can cause cancer and/or affect reproduction. Upon entering the food chain, some of these substances are magnified as they are passed from one feeding level to the next. Toxins come from both *point sources*, such as industry, and *non-point sources*, such as urban and agricultural runoff. Herbicides used in aquatic weed control, inputs from petrochemical and chemical industries along the Mississippi, and drilling fluids and produced waters from oil and gas production are just a few of the sources for toxic substances in the estuary. Toxins are a greater problem along the eastern boundary of the estuary because of heavy industries, large urban centers, and agricultural areas along the river corridor.

7) LIVING RESOURCES are impacted by all of the problems previously mentioned. Approximately 735 species of birds, finfish, shellfish, reptiles, amphibians, and mammals spend all or part of their life-cycle in the estuary. The brown pelican, the Louisiana State Bird, and the bald eagle, a national symbol, were both near extinction in Louisiana from reproductive failure due to pesticides in recent years. With intervention, these birds, as well as the formerly endangered American Alligator have come back.

Barataria - Terrebonne National Estuary

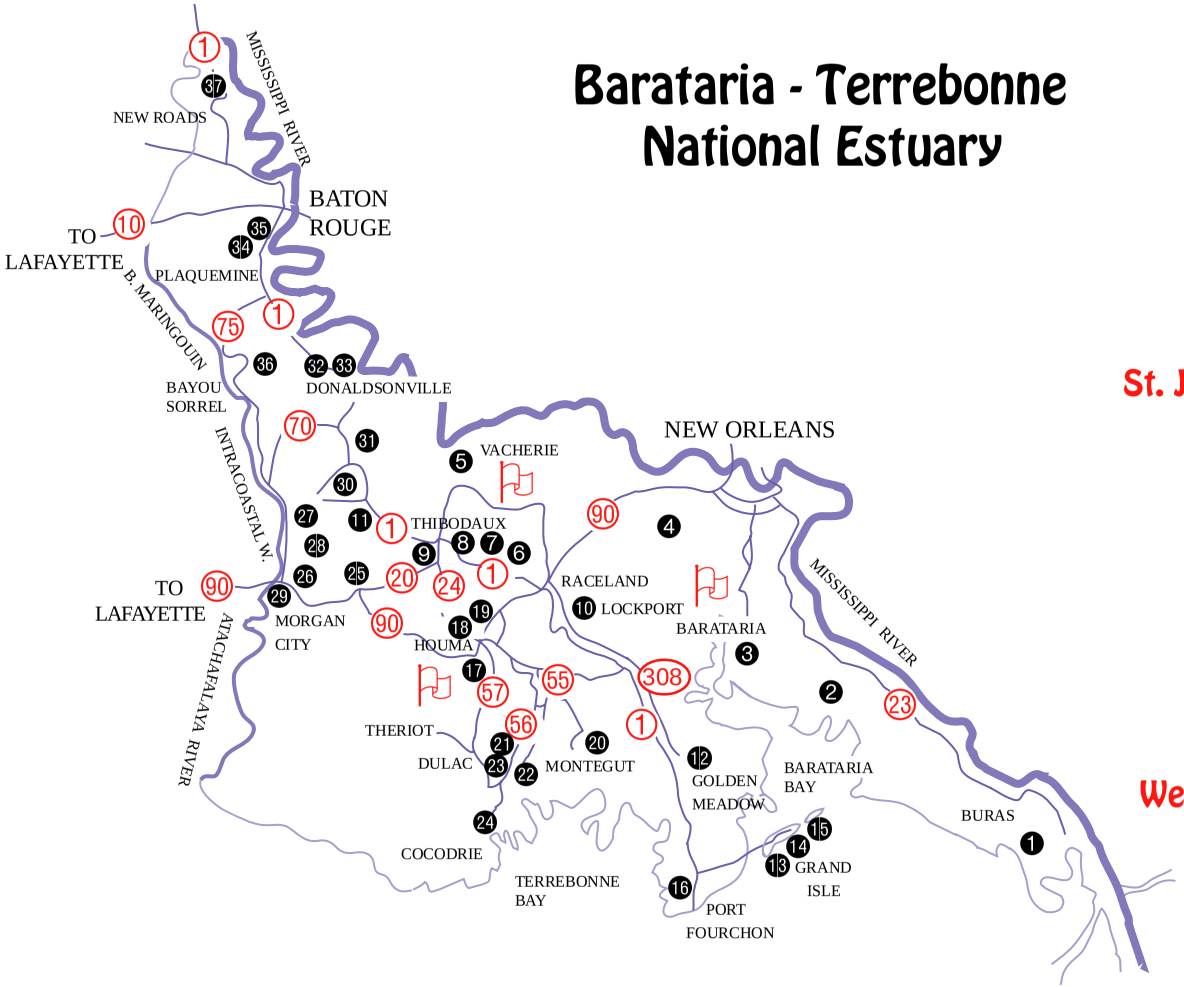


Terrebonne Parish
Lafourche Parish
St. Charles Parish
Jefferson Parish
Plaquemines Parish
St. John the Baptist Parish
St. James Parish
St. Mary Parish
St. Martin Parish
Assumption Parish
Iberville Parish
Ascension Parish
West Baton Rouge Parish
Pointe Coupee Parish

LIST OF TOURS BY LOCATION

1. Oil Recovery Ship - Buras
2. Naomi Siphon - Naomi
3. Jean Lafitte National Historical Park and Preserve - Barataria Unit
4. Bayou Segnette - Westwego
5. The Levee and the Church
6. Thibodaux area
7. Wetlands Acadian Cultural Center - Museum
8. Wetlands Acadian Cultural Center - Boat Trips
9. St. George Observatory
10. Bayou Lafourche Folklife and Heritage Museum
11. Edward Douglas White Historic Site
12. Plant Materials Center - Golden Meadow
13. Grand Isle State Park
14. Grand Isle Butterfly Conservancy
15. Grand Isle Nature Conservancy
16. Port Fourchon Beach
17. Houma - Dulac Area
18. Bayou Terrebonne Waterlife Museum
19. Terrebonne Folklife Culture Center
20. Montegut - Pointe-aux-Chenes Area
21. Terrebonne Levee District Tour
22. Kenny Hill Sculpture Environment
23. Boudreaux Canal Levee Walk
24. Cocodrie/LUMCON
25. Wildlife Gardens
26. Swamp Gardens
27. Brownell Park and Carillon Tower
28. Victor Guarisco Lake End Park
29. Mr. Charlie - The Rig Museum
30. Lake Verret Access, Napoleonville
31. Headwaters of Bayou Lafourche
32. Historic Donaldsonville Museum
33. River Road African American Museum and Gallery
34. Plaquemine Lock
35. DOW Chemical Plant
36. Bayou Sorrel - Atchafalaya Basin Access
37. False River - Morganza Spillway - Old River Control Structure

Barataria - Terrebonne National Estuary



Terrebonne Parish
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Ascension Parish
West Baton Rouge Parish
Pointe Coupee Parish

TOUR 1: Oil Response Recovery Ship Tour

The Ship at Fort Jackson

CONTACT:

Marine Spill Response Corporation
100 Herbert Harvey Lane
Buras, LA 70041
Internet: www.msrc.org
(985) 657-9135
Call two-to-three weeks in advance to book tour then call again a couple days in advance to be sure the ship is still docked. (Ship is on-call 24 hours and subject to leave port for emergencies.)

CATEGORY:

Pollution control and-marine oil spill response ship for the Gulf of Mexico

ENVIRONMENT:

Gulf of Mexico, Mississippi River at Fort Jackson

GROUP TYPE:

Grades 3-12 and adult

DISTANCE:

65 miles south of the Crescent City Connection Bridge in New Orleans. (7 miles to Hwy. 23, then south on Hwy. 23)

TIME:

This tour takes 45 minutes to 2 hours, depending on age of group and what you want to see.

COST:

Free

EQUIPMENT:

Camera, water sampling, and testing equipment for use at water's edge at the boat and/or at Fort Jackson

TOUR 1: Oil Recovery Ship, continued

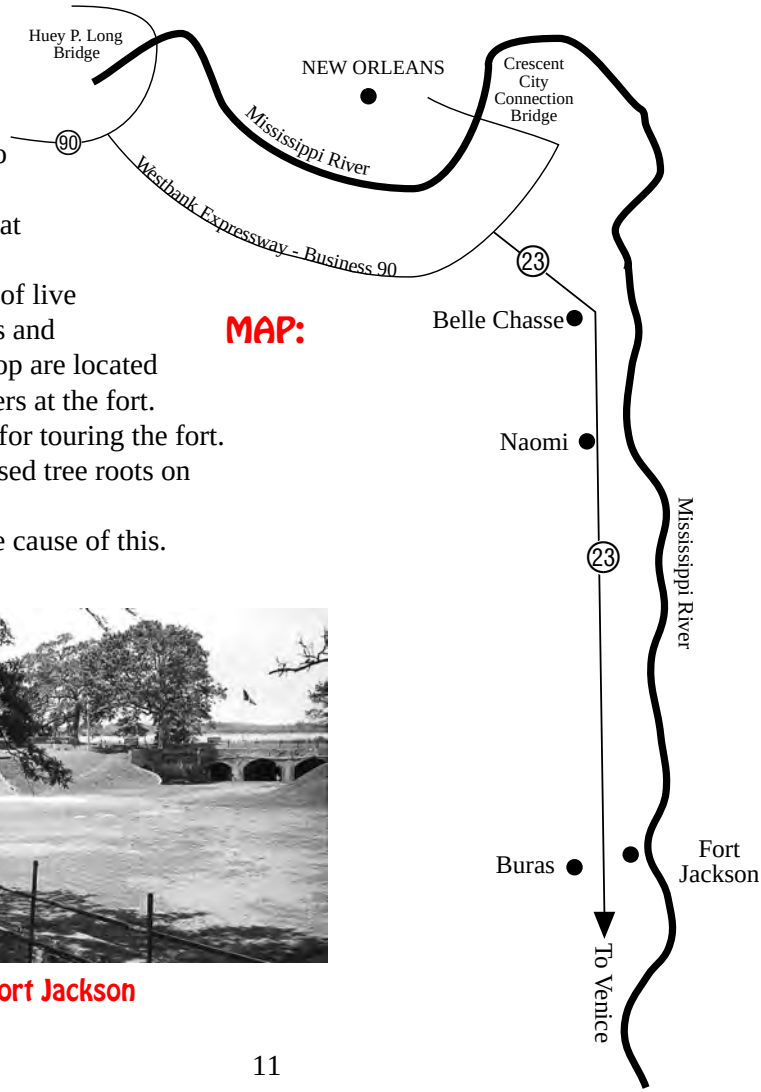
DESCRIPTION:

This tour gives your group a firsthand look at a state-of-the-art oil spill response vessel. The vessel, docked at Fort Jackson, is on-call 24 hours per day, 7 days per week to respond to oil spills in the Gulf of Mexico and tidal waters, including bays and the mouths of some rivers. It is privately owned and funded by oil company clients. On this ship you will see many different kinds of oil recovery devices, including several kinds of booms and skimmers. The hospital room, ship electronics room, and living quarters of the Response Recovery Team are included at certain times only. You may also be allowed to tour the 47,000-barrel oil storage barge which pumps recovered oil from the ship, depending on how the area is being utilized at the time. Additionally the tour could include the warehouse to view additional equipment.

ACTIVITIES:

- This vessel is anchored next to beautiful Fort Jackson. Picnic at tables under the abundant shade of live oaks. Restrooms and museum/gift shop are located inside old bunkers at the fort. Allow 1/2 hour for touring the fort. Notice the exposed tree roots on the oaks. Speculate on the cause of this.

MAP:



Picnic area at Fort Jackson

TOUR 2: Naomi Siphons

CONTACT: Hwy. 23 at Naomi, LA
Plaquemines Parish Government
(504) 297-5320

Freshwater Siphon on the Mississippi River at Naomi

CATEGORY: Hydrologic Modification
Guided tour of freshwater diversion project

ENVIRONMENT: Mississippi River
Levee trail between freshwater swamp
and canal/swamp

GROUP TYPE: Well-mannered group, grades 5-12 to adult. The trail along the levee is a wild area and exhibits scat of many animals, including alligator.

DISTANCE: 16 miles on Hwy. 23 from the
West Bank Expressway to the Naomi Siphon

TIME: 1 1/2 hours on site, including discussion time

COST: Free

EQUIPMENT: Wear enclosed shoes or boots. You will be in a wild area. Camera, binoculars, sampling and water quality testing equipment, plastic bag for scat collecting. Field guide to birds.

TOUR 2: Naomi Siphons, continued

DESCRIPTION:

This tour begins at the Naomi Siphons on the Mississippi River levee. Arrange ahead of time to meet your guide by calling the contact number. The guide is a representative of Plaquemine Parish who can give a history of land loss in the area as well as explain the two freshwater diversion projects at West Point a la Hache and Naomi. He will further explain the problems of saltwater intrusion into wetlands and land-loss from subsidence and salt-stressed plant death. He will also talk about the hope that the freshwater being siphoned into the swamp and marsh beyond will push back any salt water coming in and deposit land-replenishing sediments to combat subsidence.

The Naomi Siphons, which became operational in 1993 and are managed by the State Department of Natural Resources, pull water from the Mississippi River through large pipes which travel over the levee and under the highway and empty into a freshwater outlet on the opposite side of the highway. Note the Mississippi River barge traffic which can be seen on the river at this point. When you cross the highway, you can view the outflow of the siphons into a man-made canal. With your guide, you will walk along a levee which leads you to the wetlands which are the focus of the project. You may catch a glimpse of a raccoon, opossum or deer on the levee or at the swamp's edge, and you may hear the loud splash of an alligator as it dives for cover at your approach. Waterfowl and wading birds are common here.

ACTIVITIES:

- Conduct a scat hunt on the levee. Animal droppings abound here. Try to determine who was eating what based on what you see in the scat. A basic food web chart can be constructed later, based on your field discoveries. Look for other signs of wildlife here and record your observations for later discussion.
- Combine this tour with a morning tour to the Oil Recovery Station at Fort Jackson (see tour information, page 10). There are picnic tables and room to run in the shade at the Fort (66 miles further south on Hwy. 23).
- For Plaquemines Parish residents only: combine this tour with a 30-minute bus tour of the BP Alliance Refinery in Naomi. Call the public relations department at (985) 656-7711 for details.

MAP: See page 11.

Levee walkway across from Naomi siphons

A section of Bayou des Famille at the Barataria Preserve

TOUR 3: Barataria Area, Jean Lafitte National Historical Park and Preserve

CONTACT:

Barataria Unit
6588 La. Hwy. 45 (Barataria Blvd.)
Marrero, LA 70072
(504) 589-2330
Internet: www.nps.gov/jela
Park gates open 7-5 daily
Visitor Center open 9-5 daily
Guided tours begin at 1:30 Mon.-Sun.
(No guided tours on Sat.)

CATEGORY:

Park with exhibits, trails, structured activities
Hydrological Modification: levees and canals
Habitat Loss/Modification: subsidence
Exploration, with or without guide

ENVIRONMENT:

Mixed: natural levee hardwood forests, bottomland hardwood, bayous, swamps and marshes, including one of the world's largest floating marshes

GROUP TYPE:

All. Something for everyone!

DISTANCE:

Fifteen miles from the Crescent City Connection Bridge

TIME:

One hour to full day visit

COST:

No charge to enter the park

EQUIPMENT:

Binoculars; field guides for swamp and marsh plants, animals and tree identification; notebook and pencil

DESCRIPTION:

Containing 8,600 acres of coastal wetlands, the Barataria Preserve is part of the Jean Lafitte National Historical Park and Preserve system. Ten miles of trails, ranging from .4 miles to 3.2 miles, guide visitors through a variety of ecosystems, often following old roadbeds. Boardwalks allow visitors to observe swamps and marshes safely and conveniently.

Wildlife and native plants can be observed from all trails. The Bayou Coquille Trail passes through a variety of ecosystems as it descends from an upland natural levee hardwood forest, through a bottom land cypress-tupelo

swamp, and finally ends at an open, floating marsh of freshwater grasses, sedges, and aquatic plants. All trails show evidence of previous civilizations or human activity, such as oil and gas exploration.

Ranger-lead educational activity programs are offered for several different age groups, including K-3, 4-5, 6-8, 9-10, and 11-12. More are being developed. Programs are offered in a unique building, where one has the feeling of being outdoors. The educational building also includes a small laboratory with outlets for microscopes. Curriculum is available for pre-visit and post-visit discussion and activities.

Ranger-guided walks and canoe treks are presented year-round, including night treks during full moons. Call for information. Nine miles of swamp and marsh are accessible by three canoe launches within the park. Canoe rentals by private vendors are available adjacent to the park.

Trails may be explored easily without a guide using informational markers along the way. Trail markers give information regarding human activity, including the digging of canals and ditches, and damage to trees from the release of drilling fluids.

A 25-minute film, "Jambalaya: A Delta Almanac," as well as photographic displays of native plants and animals can be viewed in the visitor center. ("Wings over Wetlands" and "Swamp Critters" may also be viewed upon request.) Field guides and other natural history books and postcards may be purchased.

Picnic areas and restrooms available.

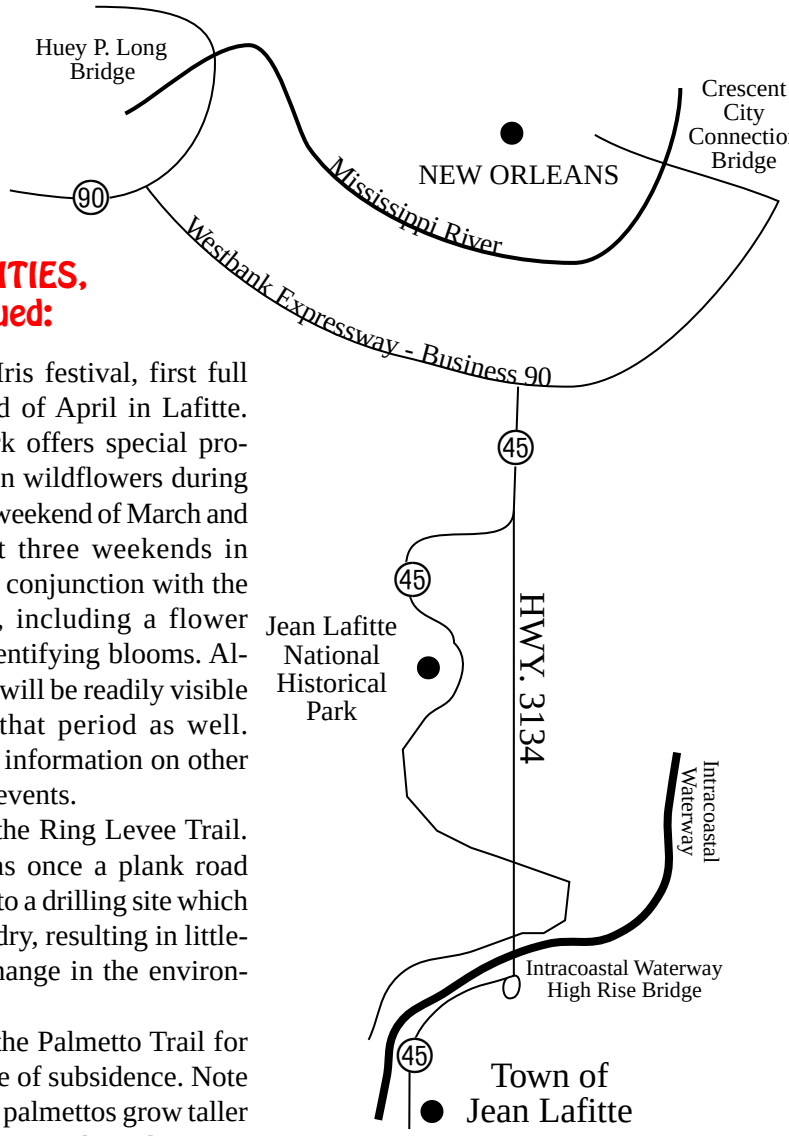
ACTIVITIES:

• Call ahead and discuss a plan of activities with a ranger. A number of age-appropriate activities are available at the park, including talks on wildlife and plants with hands-on, cross-curriculum activities. Microscopes are available for water sample viewing.

• Walk the Wood Duck Trail, which was a plank road that led to an active natural gas well.

Meeting room at Jean Lafitte Park. NPS Photo.

MAP:



ACTIVITIES, continued:

• Wild Iris festival, first full weekend of April in Lafitte. The park offers special programs on wildflowers during the last weekend of March and the first three weekends in April in conjunction with the festival, including a flower walk identifying blooms. Alligators will be readily visible during that period as well. Call for information on other special events.

• Walk the Ring Levee Trail. This was once a plank road leading to a drilling site which proved dry, resulting in little-to-no change in the environment.

• Walk the Palmetto Trail for evidence of subsidence. Note how the palmettos grow taller in low areas, where the water table is higher, than on the ridges.

• Rose Thorne Park. Located three miles south of the preserve, this park on Bayou Barataria (part of the Intracoastal Waterway) has playground equipment, restrooms, and picnic tables. Barge traffic is frequent on the water way.

• Swamp tours are available in the area. Call the Jean Lafitte Tourist Commission for more information. (504) 689-4754 or (800) 689-3525.

TOUR 4: Bayou Segnette State Park

CONTACT:

7777 West Bank Expressway
Westwego, Louisiana 70094
Hours: 7 a.m.-9 p.m. Sun.-Thurs.
7 a.m.-10 p.m. Fri.-Sat. (Day Use Area closes at dark)
Park Manager
(504) 736-7140
www.lastateparks.com
(click on "parks" in left column)

CATEGORY:

Hydrologic Modification: levees, canals
Habitat Loss/Modification: subsidence from groundwater drainage
Pathogen Contamination: pollution from storm sewer drainage, urban runoff
Eutrophication: nutrient enrichment from under treated sewage and agricultural runoff

ENVIRONMENT:

Mixed: bottom land hardwood colonization of drained swamp area, freshwater cypress-tupelo swamp, freshwater marsh (accessible by boat)

GROUP TYPE:

All

DISTANCE:

15 minutes from downtown New Orleans via Hwy. 90
45 minutes from Thibodaux via Hwy. 90
60 minutes from Houma via Hwy. 90

TIME:

One hour, depending on activity
Cabins and camping (primitive and recreational vehicles) for overnight trips

COST:

Free for school bus loads during school hours. After school and on weekends, $60.00 per bus load.
Car fee: $2.00 for four people, plus $.50 for each additional person. Camping fee: $12.00 per night for up to six people in three tents. Golden Age pass: $6 per night.
Call ahead for reservations: (877) 226-7652

EQUIPMENT:

Binoculars, dissolved oxygen meter, other water quality testing instruments, canoe, swimsuits, notebook and pencil.

DESCRIPTION:

Bayou Segnette State Park is a natural area in an urban surrounding. This 676-acre state park encloses a large bald cypress swamp, which is home to an abundance of wildlife. The western end of the park is primarily freshwater marsh. The marsh contributes organic carbon and nitrogen, supports many estuarine organisms, serves as a nursery for some species, and is a prime wildlife and fishery habitat. Biological diversity in the park is equivalent to the adjacent Barataria Preserve, where 340 species of native vascular plants and 375 species of vertebrates have been recorded. (See page 122-124 for a list of plants and animals.)

The park includes the meeting point of several drainage canals which were built to expedite the drainage of wetlands for urban expansion. As a result of this drainage, bottom land hardwoods invaded the swamp sites, and trees and shrubs have emerged in some of the former swamplands. This condition, along with the existing swamp and marsh, offer the observant visitor many types of vegetation and habitat.

Adjacent to the park is an area with a history of former usage, including an oil field, the abandoned Westwego Airport, adjacent abandoned trailer park, and a trash dump. This area has been reclaimed by filling over what was previously occupied.

ACTIVITIES:

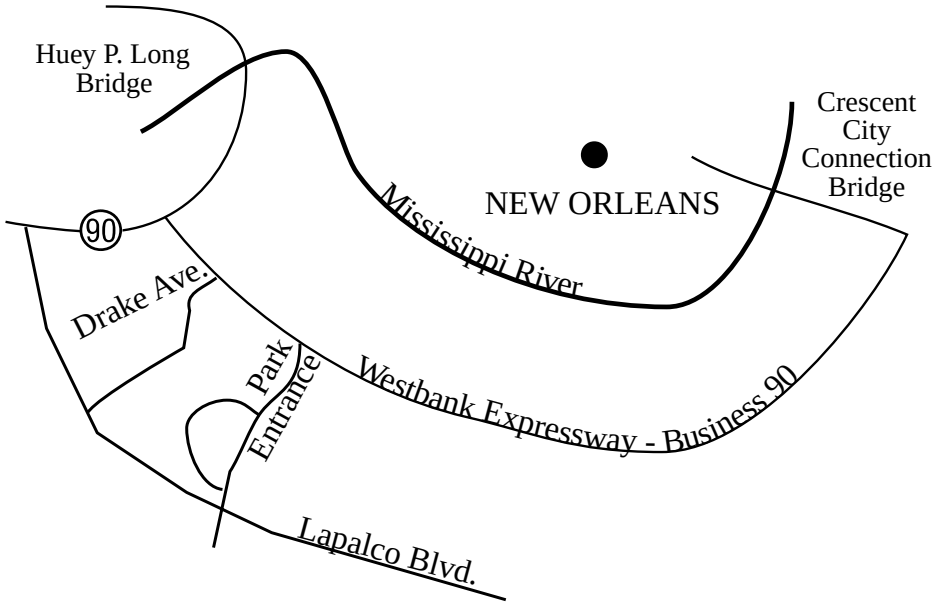
- Compare the ecology resulting from three different drainage systems. Note exposed roots on trees in day use area, which clearly demonstrate the effect of subsidence from groundwater pumping by Jefferson Parish. The campground area is within the Bayou Segnette Park drainage system. A moderate amount of pumping in this area results in a less dramatic display of the affects of subsidence. Compare these two displays with natural drainage outside the levee, in which few tree roots are exposed.
- Take dissolved oxygen readings from low-oxygen canals and from the freshwater marsh. Compare the two. If you cannot take an oxygen meter with you on the tour, take jars with tight-fitting lids and conduct the test as soon as you return to school.
- If present, take note of floating pollutants such as bottles, paper, and disposable diapers on the bayou in the picnic area. Discuss the origin of these pollutants and how such pollutants go into storm sewers and end up in our waterways.
- Canoe on the open water surrounding the marsh for a closer look at marsh vegetation. (Bring your own canoe). Compare the vegetation found here with that found in the swamp and in the areas which are converting from swamp to upland vegetation.

Cabins at Bayou Segnette

ACTIVITIES, continued:

• Ask to see the reclaimed area of the park and discuss the changes in usage of the land from swamp to oil field, airport, etc., and now to a state park.
• Reward your hard work with a swim in the wave pool (open Memorial Day through Labor Day).

MAP:



TOUR 5: The Levee and the Church

CONTACT: Pamela Folse, author of *A Sweet Surprise* and *Bonfires on the Levee*. Local storyteller and Director of Religious Education at St. James Catholic Church.
6613 Highway 18 (River Road), St. James, LA 70086
C/O Pam Folse
(225) 715-0556
E-mail: pamfolse@eatel.net (preferred)

CATEGORY: Guided Tour

ENVIRONMENT: Mississippi River Levee

GROUP TYPE: Grades 4 – 12 and adults, 30 maximum

DISTANCE: 25 miles north of Thibodaux
45 miles east of Baton Rouge
55 miles west of New Orleans

TIME: 60 minutes

COST: Suggested donation: $1 per student, $2 per adult

EQUIPMENT: Cameras, sketchbooks, binoculars, walking shoes

DESCRIPTION:

This tour provides interesting information about the way the Mississippi River and the levee system affected the church, the cemetery, and the community in St. James. In 1770, a small wooden chapel, St. Jacques de Cabahanoce Church, opened its doors to Catholic settlers along the Mississippi River near present-day Vacherie. The importance of the river to the community has always been paramount. Many arrived at their New World home via the river, some traveling downriver from Arkansas and as far north as Canada, and others, primarily from France, Spain, and Canada, traveling upriver entering at the mouth of the Mississippi River via the Gulf of Mexico. The little church was renamed St. James Catholic Church in 1804. Soon after, as sugarcane plantations began to spread in the area and the population increased rapidly, the small church was replaced by an elaborate, three-steepled, cypress-and-brick Romanesque structure that stood high above the Mississippi River. There were no continuous levees along the river at the time. As homes were built, crops planted, and plantations opened, each property owner would build and maintain his own levee. These levees were maybe six feet high and not very strong. The church, therefore, was built directly on the banks of the River and was subject to seasonal

TOUR 5: The Levee and the Church, continued.

flooding. In the late 1800s, state and national interests resulted in the first organized building of levees along the river. Erosion of this levee resulted in repositioning the levee in 1919. This levee passed so close to St. James Church that parishioners could step from the front door onto River Road which lay at the foot of the levee. By 1929, further erosion so undermined the church structure that it was condemned. The new levee, still standing, passes squarely through what was the center aisle of the church. A new church, the present-day building, was built in 1930 using wood from the previous church. The relocation of the levee and the River Road has resulted in the loss of the old cemetery through erosion into the Mississippi River and the location of a front gate at what was the back of the old cemetery. The tour includes information on the history of the church and cemetery, the building of the levees, the seasonal changes of the river, and the early African American history. Also included is a walk on the church grounds and the cemetery with its interesting above-ground tombs.

ACTIVITIES:

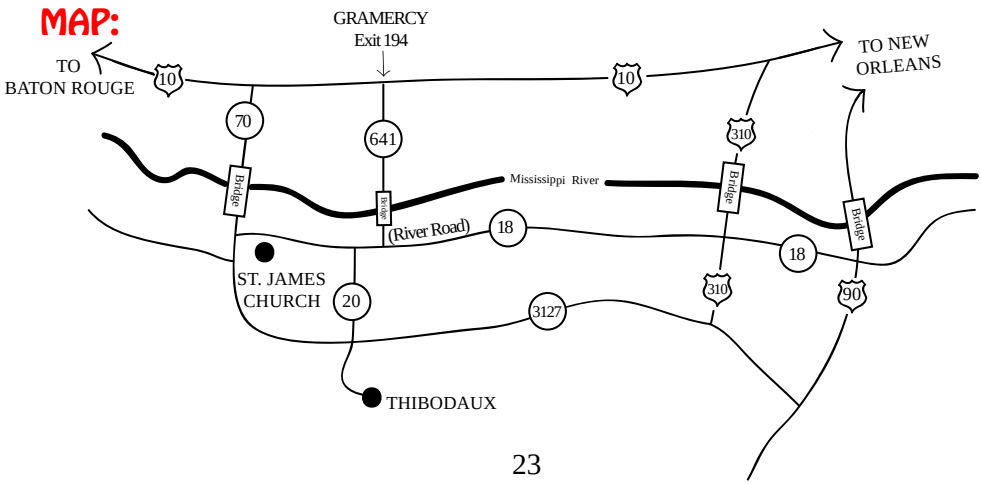
• Groups are welcomed to picnic on the church grounds under live oak trees. Some picnic tables are available.

• A walk on the levee allows for viewing of the Mississippi River and observation of ship traffic. Older students will enjoy viewing the river through binoculars and sketching boats or views of the river. Discussion of the river and the levee system can be enhanced by reviewing *St. James Catholic Church, Remembering Our Story*.

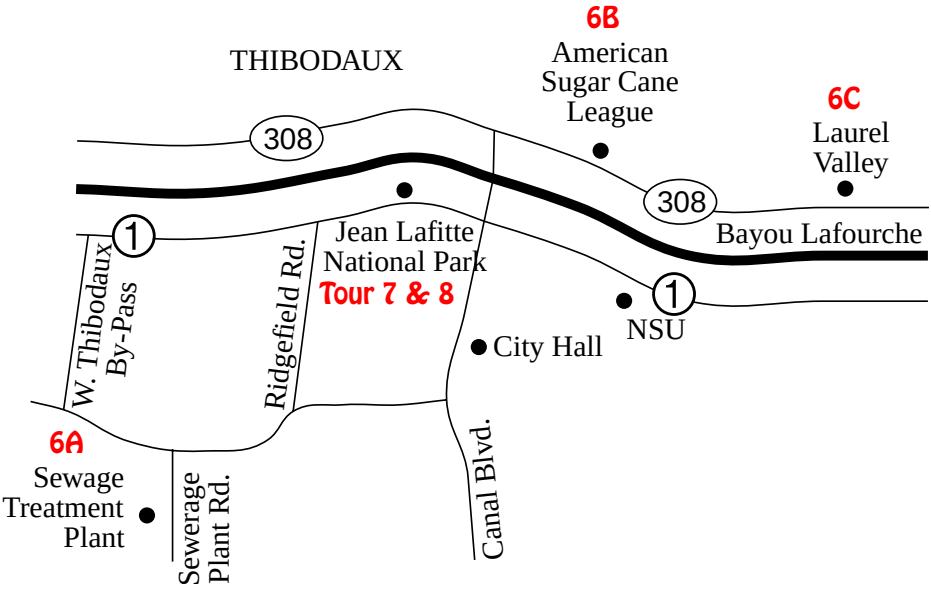
• Neighboring plantations, Oak Alley and Laura, offer home and ground tours that include information on family history, sugar cane farming, local plants, Mississippi River traffic, and the building of the levees, among other topics.

• The St. James Sugar Cooperative is nearby on Highway 18. Tours are not available during peak grinding times, but it is still worth the trip to drive by the facility and look at it from the outside. Young students would enjoy reading Pam Folse's book, *A Sweet Surprise*, to gain a general understanding of the sugar-making process before making this tour.

MAP:

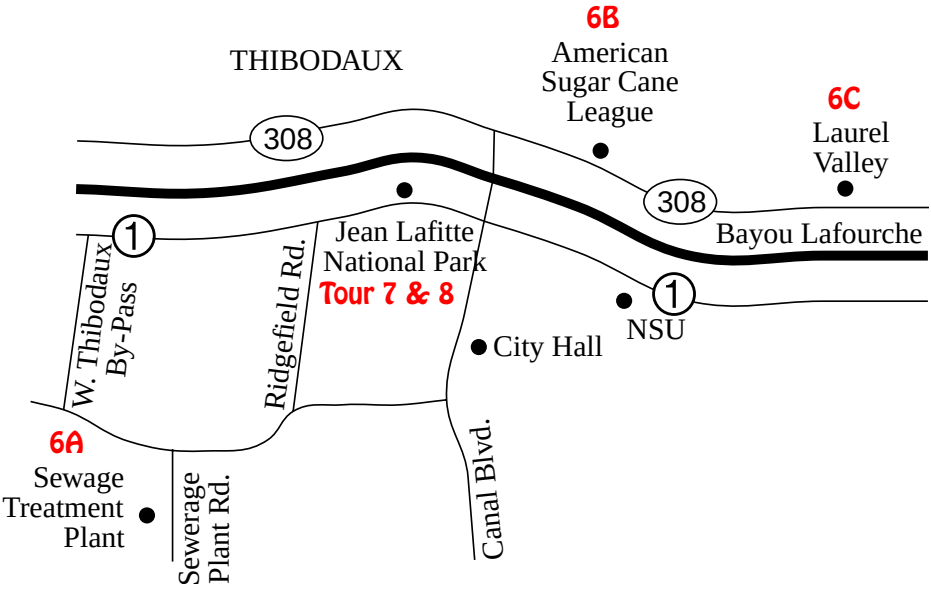


THIBODAUX AREA MAP



View of Bayou Lafourche from picnic area pier. Picnic area located across from Nicholls State University on Hwy. 1.

THIBODAUX AREA MAP



View of Bayou Lafourche from picnic area pier. Picnic area located across from Nicholls State University on Hwy. 1.

TOUR 6: Thibodaux Area

Three stops are included in this tour of the Thibodaux area. Arrange to visit as many as your schedule permits. A shady picnic site is located on Bayou Lafourche across from Nicholls State University on Hwy. 1. Here you will find tables, grills, a dock over the bayou, and resident ducks, always looking for a handout. There is also a pier behind the Wetlands Acadian Cultural Center that extends into Bayou Lafourche and has benches to rest on and even more ducks to feed. Finally, adjacent to the Thibodaux Civic Center, off Hwy. 20, is a small picnic area with a boardwalk and walking trail around a pond. Alternatively, fast food is available along Hwy. 1 and Hwy. 20. The map on page 24 identifies the locations of all three tours and for tours 7 and 8.

TOUR 6A : Thibodaux Sewage Treatment Plant

CONTACT:

City of Thibodaux Sewage Treatment Plant
198 J. David Bergeron Road
Thibodaux, LA 70301
(985) 446-7234
Open 7 a.m.-4 p.m. Monday-Friday
(Allow 2-3 weeks advance booking.)

CATEGORY:

Guided. Experimental sewage treatment plant, uses in-innovative synthetic plastic filter, outdoor oxidation ponds, UV light disinfection, composting of sewage sludge, and discharge of final effluent into a formerly dying wetland area.

ENVIRONMENT:

Open pasture and levee along a freshwater swamp
Outfall area also included in tour, weather permitting

GROUP TYPE:

Grades 6-12 and adult. Limit your group to 30 to be able to hear the speaker in the outdoor setting. Good supervision needed due to open lagoon and swamp.

DISTANCE:

The city of Thibodaux is:
17 miles northwest of Houma
via Hwy. 24 to Hwy. 20 to Hwy. 3185.
60 miles southwest of New Orleans
via Hwy. 90 to Hwy. 1 to Hwy. 20 to Hwy. 3185.
68 miles southeast of Baton Rouge
via Hwy. 1 to Hwy. 3185.
30 miles east of Morgan City
via Hwy. 90 to Hwy. 20 to Hwy. 3185.

TOUR 6: Thibodaux Area, continued

TIME: One hour for tour

COST: Free

EQUIPMENT: Notebook and pencil

DESCRIPTION:

The City of Thibodaux's Sewage Treatment Plant is an innovative experimental plant using natural processes to treat sewage. In 1992, the plant was adapted so that adjacent wetlands could be used for tertiary treatment. The plant guide will lead you past a series of outdoor open treatment tanks, including the aerated lagoon, the primary clarifier, the innovative synthetic plastic filter, and the final clarifier. From here you will see the ultraviolet light treatment chamber and the control room. You will also see the sludge drying beds containing sewage sludge in various stages of composting. Next, you will drive to the levee separating swamp from pastureland. Here you will see a spillway, where every 50 feet, effluent (liquid discharge) is released into a beautiful, cypress-tupelo swamp for tertiary treatment. This swamp had formerly been cut off from its supply of fresh water and was in danger of dying. Now it is receiving fresh water from the sewage treatment plant and is thriving. Wetlands areas such as this act as biological filters for pollutants, including nitrogen wastes from sewage pollutants and nutrients which are trapped in the soils where they are taken up by plant roots.

There are several features which make this plant unique. One is the recharging of freshwater swamp with effluent. This plant also uses ultraviolet light as a disinfectant, rather than chlorine. Chlorine forms toxic compounds, and, therefore, in traditional plants which use chlorine as a disinfectant, both a chlorination and a dechlorination process must take place.

(See the *Louisiana Environmentalist* magazine online at www.leeric.lsu.edu/le/ and click on cover stories. The July/August 1993 article on "Innovative Wastewater Treatment" in Crowley, Louisiana, offers information on a process very similar to that used in Thibodaux.)

ACTIVITIES:

• Discuss the route of sewage from neighborhoods to the lagoon. Include the importance of keeping toxic materials (used motor oil, etc.) from entering this system.

• Record the types of trees you see in the swamp. Look for evidence of animals along the levee (bones, tracks, scat).

• Conduct a storm drain marking project to educate others about pollution from stormwater. Contact the Barataria-Terrebonne National Estuary Program at (800) 259-0869 for more information and decals.

TOUR 6B : Sugarcane Farming Overview

CONTACT: American Sugar Cane League
206 E. Bayou Rd.
Thibodaux, LA 70301
(985) 448-3707
Internet: www.amscl.org
Allow 1-2 weeks advance notice.

CATEGORY: Agriculture: Sugar cane industry in South Louisiana

ENVIRONMENT: Office

GROUP TYPE: Limit to around 25 people grades 1-12 and adult

TIME: Indoor 15-minute video presentation.

COST: Free

EQUIPMENT: None

DESCRIPTION:

Go to the American Sugar Cane League office to view a 15-minute film, "200 Years of Raisin' Cane," on the sugar cane industry. A media pack is also available from Louisiana State University or on the website www.amscl.org. Call the American Sugar Cane League for more information.

American Sugar Cane League office on Hwy. 308, Thibodaux

ACTIVITIES:

• Following the video, discuss important facts about the Louisiana sugarcane industry.
• Discuss the history of sugarcane farming and the impact of soil erosion, saltwater intrusion, and coastal land loss on the industry.
• Discuss integrated pest management and pesticide safety for a clean environment.
• Discuss various farming practices that have changef over the years and the reasons for the changes.

TOUR 6C : Laurel Valley Village

CONTACT:

Laurel Valley Village/Plantation Museum
and Country Store
595 Hwy. 308
Thibodaux, LA 70301
(985) 448-4885 or (985) 447-5216 to arrange tour
(985) 446-7456 Country Store

Store Hours: Wednesday-Friday, 10:00 a.m.-3:00 p.m.
Closed Mondays & Tuesdays
Saturday and Sunday, 11:00 a.m.-3:00 p.m.

CATEGORY:

Guided or self-guided
Cultural/historical and agricultural

ENVIRONMENT:

Historic village and plantation within a modern sugar cane farm

GROUP TYPE:

K-12 and adult

TIME:

Guided tour of the village lasts 45 minutes for older students, less time for younger. Allow an additional 1/2 hour or more for museum/country store and grounds. Only ten students are allowed in the store at a time.

COST: The self-guided tour is free. A tour with a Nicholls State University History Professor is $3.00 per person. Minimum of 10 persons for a guided tour.

DISTANCE: Six miles southeast of Thibodaux on Hwy. 308.

DESCRIPTION:

Located in the center of Laurel Valley Plantation on Bayou Lafourche, it is the site of the largest, most intact, turn-of-the-century sugar plantation complex in the southern United States. In the village, the visitor will drive past rows of century-old faded cypress tenant houses, the remains of a giant sugar mill, a two-story boarding house for migrant workers, a one-room schoolhouse, and more. Because the village buildings have not yet been restored, visitors may view them from the outside only.

The museum/country store area offers local crafts and a museum of farm implements and other relics. Outside, visitors may view an array of antique tractors and also several train engines. A recent addition to Laurel Valley is the boat builder's shop, where visitors can watch craftsmen work on the construction of a cypress boat depending on the time of year. Call for information.

ACTIVITIES:

• Go to the American Sugar Cane League office on Hwy. 308 for the video presentation before you visit Laurel Valley. Advance notice is required. Please limit 25-30 people because of seating availability.

Remains of sugar mill at Laurel Valley

ACTIVITIES, continued:

• Take the guided or self-guided tour of the village. Notice the sugar cane fields on either side of the road. Determine the stage of planting or growth of the cane in the fields.
• Purchase corn at the country store and feed the farm animals.
• Cross Bayou Lafourche at the first bridge off Hwy. 308 towards Thibodaux. Travel 1-2 miles north on Hwy. 1 to Nicholls State University. Park on the road shoulder across from Nicholls (by the fountain) and picnic under the shady trees along the bayou. A few picnic tables are available. Bring extra bread to feed the ducks.
• Walk to the back of campus to Ellender Library, a large three story building behind the student union. In the lobby of the library is a permanent exhibit of wooden boats collected from the area with detailed information on each boat, including its age, how it was made, and how it was used. Tools and boat plans are also on display as well as a photo display showing the variety of boats used in the area over time. Allow 20 minutes to visit this exhibit, which is large enough to accomodate 30 students. Call the university before visiting or go to www.nicholls.edu/library/hours.htm to get library hours. This exhibit is accessible whenever the library is open and is operated by the Center for Traditional Louisiana Boat Building.

MAP: See page 24.

Old workers' quarters at Laurel Valley

TOUR 7: Museum Tour
Wetlands Acadian Cultural Center

CONTACT: Jean Lafitte National Historical Park & Preserve
314 St. Mary St. (Hwy. 1)
Thibodaux, LA 70301
(985) 448-1375
www.nps.gov/jela

CATEGORY: Park with inside exhibits and structured activities

ENVIRONMENT: Museum on bayouside

GROUP TYPE: Pre-K through adult

TIME: 1 1/2-2 hours or more, depending on age of students and scope of activities

COST: Free

DISTANCE: Located in downtown Thibodaux on Hwy. 1

DESCRIPTION:

The site focuses on the Acadian people and other diverse cultural groups that have settled in Louisiana. Programs on these and other topics, such as transportation route evolution and how the South Louisiana natural environment molded the culture of its inhabitants may be requested.

ACTIVITIES:

The center has a "Gumbo Room" where children can participate in various arts and craft activities. There are also interactive exhibits in this room on the parts of a boat, Native American Indian culture, and sugar cane farming.

Annually, special events, such as Native American Day, gallery exhibitions and workshops are offered.

Music jam sessions are held most Monday evenings from 5:30-7:00 p.m and are free. See Tour 8 for boat trips on Bayou Lafourche offered by the Wetlands Acadian Cultural Center.

ACTIVITIES, continued:

The Main Branch of the Lafourche Parish Library, located upstairs above the museum, offers special reading programs, activities, and worksheets for children. There is a great view of Bayou Lafourche from the adult reading area, and there is a genealogy room offering an extensive collection of research material and workshops. Call for more information: (985) 447-4119 or visit their web site at www.lafourche.org.

MAP: See page 24.

Boat tour on Bayou Lafourche. See next page.

TOUR 8: Boat Tours
Wetlands Acadian Culture Center

CONTACT:

Jean Lafitte National Historical Park & Preserve
Wetlands Acadian Cultural Center
314 St. Mary St.
Thibodaux, LA 70301
(985) 448-1375
www.nps.gov/jela
Reservations required, so call in advance.

CATEGORY:

Guided boat tour offering cultural and environmental information.

ENVIRONMENT:

Freshwater bayou

GROUP TYPE:

Adults and children (5 years old and older)
Limited to 18 people per tour
Tour is directed more towards 6th graders and older. Children must be accompanied by adults and must wear life jackets while on boat

TIME:

E. D. White tour: 10 a.m. to 12 p.m.
Madewood tour: 10 a.m. to 2:30 p.m.
Tours are not scheduled every day.

COST:

E.D. White tour is $10 per person, plus tax.
Madewood tour is $26 per person, plus tax.
Lunch is provided on the Madewood tour only.
No group discounts, but special arrangements can be made for groups. Call ahead for more information.

DISTANCE:

Located in downtown Thibodaux on Hwy. 1.
Boat trips begin and end at the museum dock.

DESCRIPTION: The trip to the historic E. D. White home, located north of Thibodaux on La. Hwy. 1 (see Tour 10, page 37), includes an informative boat trip on Bayou Lafourche and a tour of the home. Louisiana politics as well as environmental issues, including sugarcane farming, the construction and purpose of levees, will be discussed by a Park Ranger during the boat trip. The tour of the E. D. White home will provide an overview of the mid-size sugarcane plantation. This trip is better suited for children, K - 4th grade. Participants can bring a lunch and picnic under the oak trees on the

DESCRIPTION:

grounds of the home. The trip to Madewood Plantation involves discussion with a Park Ranger during the bayou trip on the cultural uses of land, sugarcane farming, plantation history, levee building and use, oil and gas production, flood control, Civil War stories, local economy, and the impact of tourism. A tour of the plantation follows, inc luding lunch at the restaurant.

ACTIVITIES:

• Plan to arrive early at the Wetlands Acadian Cultural Center to allow 30 -60 minutes for a tour of the display area and to view art or photographs in the special display area. Younger children enjoy up to 30 minutes in the Gumbo Room where they can participate in various arts and craft activities. There are also interactive exhibits in this room on the parts of a boat, Native American Indian culture, and sugar cane farming.

• When you call to make reservations, ask about any special event planned for the museum with which you could coordinate your plans, such as Native American Day or Louisiana anthropology week. Also, pre-trip educational worksheets may be available depending on the age of the group.

• Finally, ask about special videos on Cajun culture and history, such as one on hand fishing, that are available for viewing in a comfortable theater setting.

MAP: See page 24.

TOUR 10: Bayou Lafourche Folklife and Heritage Museum

CONTACT:
Folklife and Heritage Museum
(985) 532-3447

Open 10 a.m. - 4 p.m. Tuesdays and Thursdays.
Other times can be arranged for groups by appointment only

CATEGORY:
Walk-through museum, outside tour, structured, interactive tours for children, and video on erosion

ENVIRONMENT:
Outdoor walking tour; Indoor museum

GROUP TYPE:
K-Adult
A maximum or 20-25 people/students per tour

TIME:
Walk-through museum and video: 30-45 minutes
Outside tour: 30 minutes

COST:
$2.00 per adult
$1.00 per child

DISTANCE:
30 minutes from Thibodaux
25 minutes from Houma
45 minutes from New Orleans

DESCRIPTION:

The Bayou Lafourche Folklife and Heritage Museum offers guided programs designed for older and younger students alike. A field trip can include the museum only, the museum and the outside tour, or only the outside tour. The children's tour is interactive: the children can hold artifacts, turn a ship's wheel, and blow a ship's horn. The museum has many changing exhibits as well as a permanent exhibit on boat-building and another that presents a replica of a floating store. A video shown as part of the museum tour presents Louisianan coastal erosion as a national problem.

The outside tour takes place at the intersection of the Company Canal and Bayou Lafourche, where an old lock is still visible. At the lock, a guide explains how Bayou Lafourche is part of the Mississippi River. The guide

DESCRIPTION, continued:

informs the students about the diminishing coastline to the south of Lockport and what is being done to prevent further coastal erosion. Students can walk along the Canal, once used for commerce from Houma to Lockport to New Orleans. Sugar cane, other types of freight, and vegetables grown along the Bayou were some of the other products shipped on the canal to the New Orleans market.

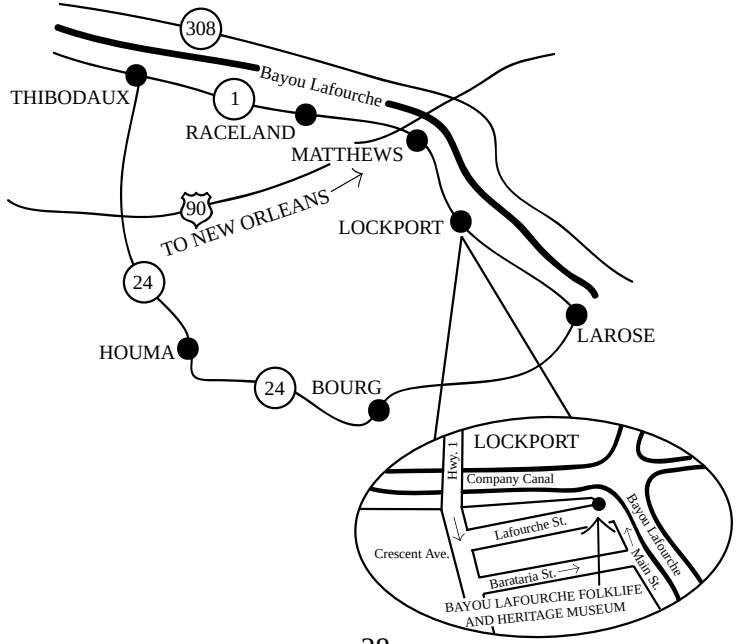
ACTIVITIES:

• Before visiting the museum, study a map of Louisiana and locate the Company Canal, Bayou Lafourche, and the Intracoastal Canal. Discuss the role of these waterways in the past and currently in Louisiana's economy. Bayou Lafourche, in the past, was called the "Longest Street in the World." Discuss why it would have been referred to as a "street."

• Notice how all three waterways lead to the Gulf of Mexico and can allow salt water to move into fresh water areas. Discuss the impact of salt water intrusion on plants, animals, and the supply of drinking water. (There is a water treatment facility located on the bayou at Valentine that can be toured. Phone (985) 532-6924 for information.)

• Discuss the types of boats used on these waterways, both commercial and recreational. A good class project would be to collect photos of the various boats used in the area and create a scrapbook identifying these boats and their purposes.

MAP:



TOUR 11: Edward Douglas White Historic Site

CONTACT:
Maintenance and Security Staff
2295 LA Hwy. 1
Thibodaux, LA 70301
(985) 447-0915

CATEGORY:
Historic site and 1820's home/museum
Guided tour (Call ahead to schedule tour.)

ENVIRONMENT:
Mid-size sugarcane plantation
with vegetation dating back to the 1600s
Indoor museum
Bayou Lafourche

GROUP TYPE:
K-Adult

TIME:
1-2 hours
Allow 1 hr. for the home/ museum tour and
additional time to explore the grounds or picnic

COST:
Free to tour the grounds
Minimal fee to tour the home
Boat tours to the E.D. White home from the
Wetlands Acadian Cultural Center in Thibodaux are
$10.00 per person
See Tour 8, page 33, for more information.

EQUIPMENT:
Camera, sketch pad, guides to Louisiana trees and
birds, picnic lunch

DESCRIPTION:
Named for Louisiana Congressman and Governor Edward Douglas White (1795-1847), the E.D. White Home has undergone a series of renovations from the original building structure, which was built in 1824 or earlier. The home is a raised Acadian cottage, the most common style of home in South Louisiana throughout the 1800s and early 1900s. White purchased the land initially to grow sugarcane. The tour of the home provides details of the White family, local history, area architecture, the role of the cottage on the farm as well as an explanation of the sugarcane industry and its importance.

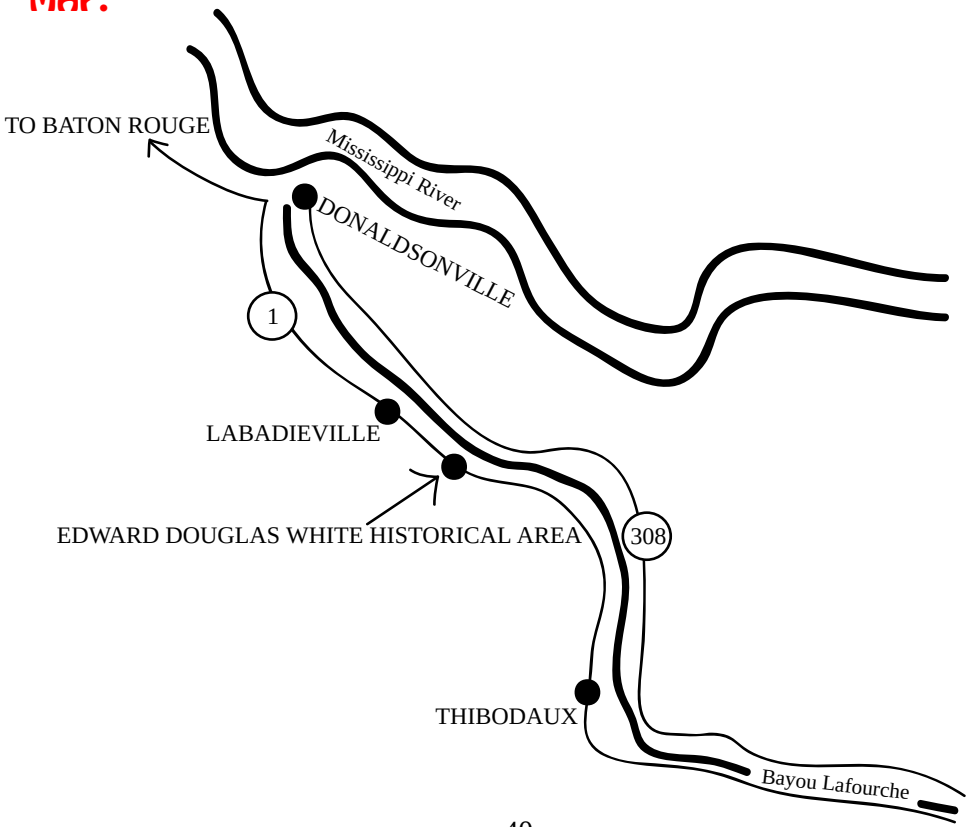
DESCRIPTION, continued:

Because the land was bought with the purpose of growing sugarcane, a nearby waterway was essential to transport the sugar products to the port of New Orleans. This area on Bayou Lafourche was selected because it's location placed it 6 miles from Thibodaux and only 30 miles from the Mississippi River at Donaldsonville.

ACTIVITIES:

- Sketch trees on the grounds, some of which are over 400 years old.
- Discuss the role and importance of sugarcane to South Louisiana.
- Discuss the wood and natural materials used in the home's construction and renovations.
- Ask the tour guides questions about native vegetation and birds found within the grounds.
- Enjoy a picnic lunch in the shade of ancient oaks.
- Visit the home during the Celebration Under the Oaks, held annually. Call for information.

MAP:



TOUR 12: Golden Meadow Plant Materials Center

The Conference Center

CONTACT:

Manager
United States Department of Agriculture (USDA)
National Resources Conservation Service (NRCS)
Golden Meadow Plant Materials Center
438 Airport Road
Galliano, LA 70354
(985) 475-5280

CATEGORY:

Plant nursery and conference center
U.S. Department of Agriculture center for the study of plant solutions to address coastal erosion.

ENVIRONMENT:

Office/conference/ laboratory complex with greenhouses. There are also 60 acres with 26 ponds used to study and evaluate plant materials for use in combatting coastal erosion.

GROUP TYPE:

Grades 5-12 through adult

DISTANCE:

2 miles east of Galliano in Lafourche Parish off of Hwy. 308
40 miles south of New Orleans
130 miles southeast of Baton Rouge

TIME:

Presentation and field trip lasts 1 1/2 -2 hours, depending on the slide/video presentation and talk requested.

TOUR 12: Plant Materials Center, continued

COST: Free

EQUIPMENT: Notebook, pencil, camera

DESCRIPTION:

The Golden Meadow Plant Materials Center is located on 90 acres of coastal wetlands and is dedicated to combatting coastal erosion through vegetative planting. It has been determined that establishing plants on critically eroding areas of Louisiana's coast is a promising way to help reduce the loss of coastal wetlands. Plants reduce or eliminate erosion, build soils, create wildlife habitats, provide nursery areas for fisheries, and serve as the base of the food chain for marine life. The mission of the center is to evaluate, select, and release coastal wetland plants needed for the conservation, protection, restoration, and enhancement of coastal wetlands.

The tour begins in the conference center complex, where the center manager will present a program explaining the purpose and activities of the center. A 15-minute video, the condensed version of "Haunted Waters, Fragile Lands," produced by the Barataria-Terrebonne National Estuary Program, is available to explain to students the reasons for coastal land loss. A slide presentation will be given, showing experimental sites where plants from the center are being used to combat erosion. A tour of the greenhouses where wetland plants are grown follows the indoor presentation. After the greenhouse tour, a wagon will transport the group to the pond and field plots where students will see many acres of nursery stock and experimental planting. Along the way, they will pass by an alligator farm where the alligators can be observed from a distance.

Picnic tables and restrooms are available.

ACTIVITIES:

• Take the guided tour of the center and field plots.

• Have students sketch some of the plants they see. Discuss adaptations that wetland plants have made, such as breathing holes along their stems to be able to live with their "feet" wet, and adaptations saltwater plants have made, such as succulence (plants having watery tissue), and the ability to excrete salt, to be able to thrive in a saltwater environment.

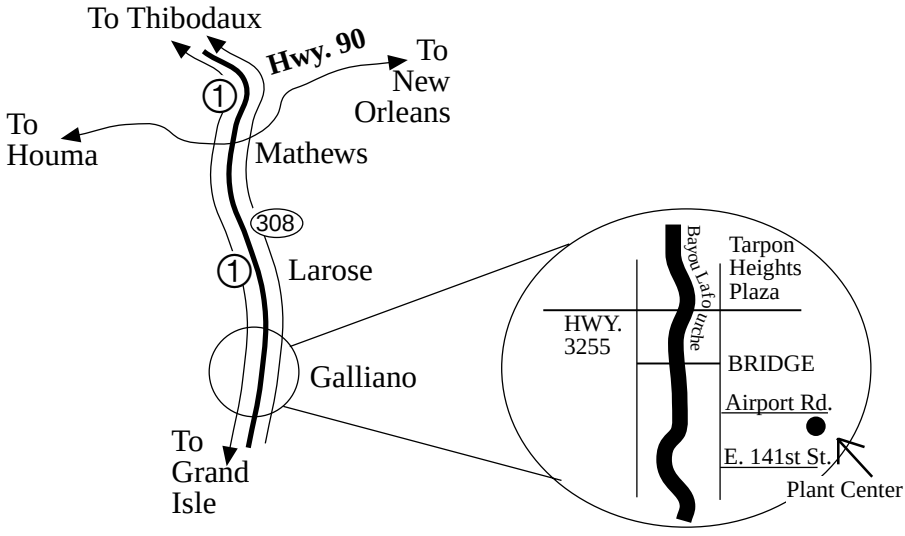
ADDITIONAL INFORMATION:

Be sure to notice the fishing boats in Bayou Lafourche as you go farther south along the bayou.

Contact the Lafourche Parish Water District #1 for a tour of the facility to see how water taken from Bayou Lafourche becomes suitable for drinking purposes. To schedule a guided tour of the facility, located on Hwy. 308 in Valentine near Lockport, call (985) 532-6924.

Greenhouse and field plots

MAP:



Observation Tower and wharf at Grand Isle State Park

Private camp on the beach at Grand Isle.

TOUR 13: Grand Isle State Park

CONTACT:

Grand Isle State Park
Admiral Craig Drive (Off of Hwy. 1)
Grand Isle, LA 70358
(985) 787-2559
Operating hours-
Sunday-Thursday 7:00 a.m.-9:00 p.m.
Friday-Saturday 7:00 a.m.-10:00 p.m.
Internet: www.lastateparks.com/
and www.grand-isle.com

Notify the park headquarters in writing at least two weeks in advance: Asst. Secretary, Office of State Parks, P.O. Box 44426, Baton Rouge LA 70804. For overnight busloads, notify in writing at the above address, then call above number for rate.

CATEGORY:

Marine life in differing environments- ocean, lagoon, and marsh.

ENVIRONMENT:

Barrier island, Gulf of Mexico

GROUP TYPE:

All

DISTANCE:

110 miles south of New Orleans
via Hwy. 90 to Hwy. 1
149 miles southeast of Baton Rouge
85 miles southeast of Thibodaux
74 miles southeast of Houma

TIME:

Plan to spend several hours.
Groups coming long distances are advised to plan an overnight stay at Grand Isle. There are many motels available. Contact the Tourist Commission,(985) 787-2997, for a list. Educational groups can book a night at the Louisiana Universities Marine Consortium (LUMCON) laboratory bunkhouse at Port Fourchon for a fee. Contact LUMCOM at (985) 851-2800. Advanced scheduling is required.

COST:

Entrance fee for park day access is $2.00 per vehicle, plus $.50 for each additional person over four people.

Camping costs are as follows:
$10.00 per night (tent camping)/ per vehicle, and
$12.00 per night/ per vehicle for sites with electricity hookups.

Free admission to school groups in school busses on school days.

EQUIPMENT:

Notebook, binoculars, bucket, dip net, water quality testing equipment, gloves, field guide for birds and other field guides, especially ***The Beachcomber's Guide to Gulf Coast Marine Life***, see page 120.

DESCRIPTION:

Grand Isle is the only barrier island in the estuary system and in Louisiana that is inhabited and is accessible by car. The shape of the island is continually changing, as sands are shifted by wave and wind action. Historical photographs at the visitor center offer pictorial evidence of the shifting island shape. A wooden observation tower enables the observer to view the entire island, as well as nearby Grand Terre Island, offshore structures, and other points of interest. A boardwalk guides the visitor from the observation tower through the dunes, to the beach.

A park pier enables access to a large, sheltered lagoon for water sampling and wildlife observation. A covered pavilion provides shelter for picnicing. Public showers and bathrooms are available.

ACTIVITIES:

• Walk the beach and collect seashells and the remains of other beached sea organisms. Look for dolphins frolicking in the surf. Bring your treasures back to the pavilions, or classroom, and identify them with your field guide. Repeat this activity along the lagoon and compare the life you find at the water's edge between these two environments.

•Discuss barrier islands, the role they play in protecting the estuary, and the problems facing Louisiana's barrier islands.

CAUTION: Dangerous currents are sometimes present near jetties. Close supervision in the water is strongly advised. Lifeguards are not available.

ACTIVITIES, continued:

• Climb the observation tower and point out or observe Barataria Bay, Grand Terre Island, Fort Livingston, erosion by the Fort, a restoration project in process near the Fort, and the open waters of the Gulf of Mexico. Discuss dune structure and patterns, the pass between Grand Isle and Grand Terre and its purpose, the variety of vessels using the pass, the types of businesses represented by these vessels, the presence and purposes of offshore structures, and the role of jetties.

• Conduct a beach sweep, picking up trash and recording the types and amounts of material you collect. The Louisiana Department of Environmental Quality, Litter Reduction Section, can provide collection data sheets.
Call (225) 219-3266/or 3265.

• Identify shore birds with field guides; keep a journal of observations.

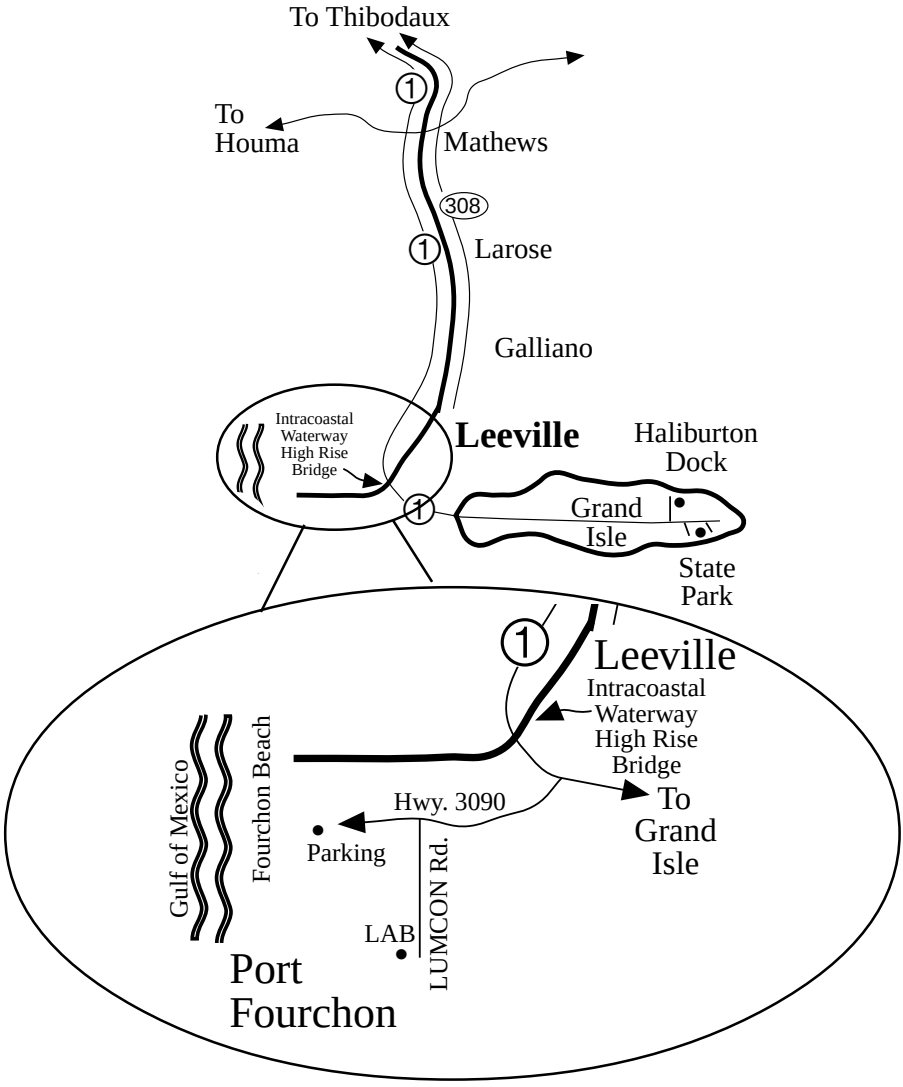
• Take water samples and conduct water quality tests. Compare the water quality between samples of Gulf water with water from the lagoon. Compare plant and animal life between these two environments. Be sure to record your observations in a notebook.

• Camp in the campground on the island (bathhouses available).

• Grades 7-12 can arrange, one month in advance, a tour of the high-volume skimmer, oil recovery vessel at the Haliburton Dock on Walnut Lane on Grand Isle (outside the Park). The classroom-type educational program includes oil spill response experiments and a tour of the ship. Allow 2-3 hours, depending on what kind of program you want.

• Stop and visit the USDA Plant Materials Center in Galliano on the first day of a two day trip (see Tour 11).

• Arrange a visit to the Louisiana Wildlife and Fisheries laboratory on Grand Terre by calling (985) 787-2163. College level groups only



Beach Stabilization at Fourchon Beach, see TOUR 15

TOUR 14: The Grand Isle Butterfly Conservancy

CONTACT:

Wayne Keller, curator of the butterfly dome
Grand Isle Port Commission
Economic Development and Tourist Information Center
2757 LA Hwy. 1
Grand Isle, LA 70358
(985) 787-2229

Tourist Commissioner
(985) 787-2997

Monday-Sunday
8:00 a.m.-5:00 p.m.

CATEGORY:

Dome with native butterflies and plants
Guided or self-guided tour; call ahead to schedule a guided tour.

ENVIRONMENT:

Simple butterfly dome with several different species of butterflies and the environments and plants needed to sustain them. There are 139 native butterfly species in Louisiana.

GROUP TYPE:

All

DISTANCE:

110 miles south of New Orleans
via Hwy. 90 to Hwy. 1
149 miles southeast of Baton Rouge
85 miles southeast of Thibodaux
74 miles southeast of Houma

TIME:

Half hour to one hour depending on the number of species of butterflies present in the dome at the time of the tour.

COST:

Donations only

EQUIPMENT:

Sketch pad, camera, butterfly species guide

DESCRIPTION:

Team City Grand Isle, a civic organization whose goal is to better the area for tourists and residents alike, together with Wayne Keller, curator and butterfly enthusiast, created the butterfly dome. They envisioned it as an attraction for tourists as well as a tool for educating visitors and residents alike about native butterflies and plants.

There have been up to 12 species of native Louisiana butterflies inside the dome, including Giant Swallowtails, Black Swallowtails, Monarchs, Cloudless Sulfurs, Buckeyes, and Gulf Fritillaries. Also inside the dome are nectar-producing plants that sustain the butterflies, including milkweed, salvia, parsley, thyme, hot pink penta, and feathery ageratum. One of the goals of the Grand Isle Butterfly Conservatory is to help promote the creation of butterfly-friendly environments in home gardens.

Flowers, other plants, and volunteers are greatly needed to keep the project going. Lists of specific plants and flowers that are needed can be picked up from the Grand Isle Port Commission or the Tourist Center. See contact information.

ACTIVITIES:

• At the kiosk next to the dome, pick up a checklist of the 139 species of butterflies in Louisiana and use it to identify the species found in the dome at the time of your tour.
• Read the handout provided on the nectar flowers and host plants found in the dome and try to identify them.
• Read and discuss the handout on the life cycle of the butterfly.
• See pictures of the stages of development on the handout and try to find butterflies inside the dome in these different stages.

MAP: See p. 46

Inside the butterfly dome.

TOUR 15: Grand Isle Nature Conservancy

CONTACT:

Grand Isle Port Commission
Economic Development and Tourist
Information Center
2757 LA Hwy. 1
Grand Isle, LA 70358
(985) 787-2229

The Nature Conservancy
Jean Landry
4090 LA Hwy. 1 (beach side)
(985) 787-2514
www.nature.org/wherewework/northamerica/states/louisiana
(The Nature Conservancy Lousiana Section)

Grand Isle Migratory Bird Celebration
www.birdlouisiana.com

CATEGORY:

Bird trails, self-guided tour, guided migratory birding trail tour for students
Call at least one week in advance to schedule a guided tour.

ENVIRONMENT:

60 acres of conservancy land on a barrier island
Birds, animals, and beautiful, old trees
Closes at dusk

GROUP TYPE:

4th - 12th grades and adults

DISTANCE:

Approximately 112 miles south of New Orleans via Hwy. 90 to Hwy. 1 (South)
150 miles southeast of Baton Rouge
87 miles southeast of Thibodaux
75 miles southeast of Houma

TIME:

Two-hour guided birding trail tour for students
Two-hour self-guided touring during daylight hours

COST:

Free

TOUR 15: The Grand Isle Nature Conservancy, continued

EQUIPMENT: Binoculars, sketch pad, camera, guide to Louisiana butterflies, trees, animals, and birds. Bring mosquito repellant and wear long sleeves and pants.

DESCRIPTION:

To tour the Grand Isle Nature Conservancy first stop by the tourist commission office on Hwy. 1 for maps to board walks and birding trails. There is also an informational kiosk on Hwy. 1 between Ludwig Lane and the Sureway Supermarket. Down Ludwig Lane, location of the Grand Isle schools, is a boardwalk through a salt marsh in the Lafitte Woods Preserve, which is near to the LSU Cemetery Woods. Both areas are always open to the public and have parking areas near information kiosks.

In addition to the beaches, Grand Isle offers live oak and hackberry forests that attract more than 300 bird species to the island each year (one-half of all species found in the entire United States). Through The Nature Conservancy's restoration process, several unique tracts of land are being returned to their original form.

Enjoy the birding trails and boardwalks, but please respect the rights of the adjacent landowners and do not stay on the property after dusk.

ACTIVITIES:

- Sketch the flowers, animals, and trees found along the trails.
- Stop by the Grand Isle Port Commission Tourist Center and pick up information, birding guides, and maps of the areas.
- Use the birding guide to identify birds spotted along the trails and create a birding list.
- Study scat in the area to determine animal type and diet.
- Use butterfly checklist (also found at the Tourist Center) to record species found along the trails within The Nature Conservancy land.

MAP: See p. 46

Information Kiosk at one of the nature conservancy land trails.

Grand Isle Conservancy Land nature trail through the woods.

Footpath and trees on another Conservancy Land nature trail.

TOUR 16: Port Fourchon Beach

CONTACT:
Fourchon Beach
Located off Hwy. 1 on Hwy. 3090 in
Lafourche Parish

CATEGORY:
Unguided
Unstaffed laboratory/bunkhouse on waterfront

ENVIRONMENT:
Gulf of Mexico, saltwater marsh
Erosion control fence in sand dunes on beach, shore protection barriers, marine laboratory, and oyster grounds

GROUP TYPE:
Grades 9 and up

DISTANCE:
75 miles southeast of Thibodaux
via Hwy. 1 (South) to Hwy. 3090
70 miles southeast of Houma
via Hwy. 90 to Hwy. 1 (South) to Hwy. 3090

TIME:
One or two hours for beach walk
Full day with picnic lunch and visit to Grand Isle
See Tours 12-14

COST:
Free

EQUIPMENT:
Water sampling and testing equipment, field guides. If arrangements have been made to stay overnight at the lab, bring bed linens. The lab has a fully-equipped kitchen, so you could bring food for cooking. See Tour 12 for information on using the lab and bunkhouse.

DESCRIPTION & ACTIVITIES:
Fourchon Beach on the Gulf of Mexico offers a marine environment with adjacent salt marsh. The beach sand road can be treacherous so park at the end of the shell road where it meets the beach.

CAUTION: Dangerous currents are present near jetties. Close supervision in the water is strongly advised. Lifeguards are not available.

TOUR 16: Port Fourchon Beach, continued

• Once on the beach, you will see just offshore barges that have been placed to buffer the effect of wave action on the beach.
• A one-mile walk to your left will bring you to a Beach Stabilization Project - a fence in the dunes for the prevention of dune erosion. Observe vegetation planted by volunteers behind the fences on the beach. (There should be a sign to indicate the plantings and the dune project.) Marshhay (*Spartina patens*) and Atlantic panicgrass (*Panicum armarum*) were planted here as part of a Barataria-Terrebonne National Estuary Program erosion prevention project.
• Continue your walk and collect beached sea creatures to bring back to the classroom or laboratory for identification.
• Take a water sample for water quality analysis.
• Make a list of plants and live animals you see.
• Look for dolphins!

Swimming at Fourchon Beach is at your own risk with no life guard on duty. There are dangerous currents around rock jetties and barges so avoid swimming in these areas. Strict supervision at all times is advised.

In the immediate area, right before walking to the beach, is the LUMCON laboratory. Notice the mangroves behind the marina as you approach the laboratory area. Near the dock and surrounding area is spartina grass, but please ***stay off*** the dock. A long-term research project measuring the affects of sewage injection into the marsh is being conducted here so ***please touch nothing.***
• Take a water sample here and compare the water quality with that at the beach.
• Make a list of plants and animals you find here and compare this list with your beach list.

Limited overnight visits and guided tours are offered at the LUMCON laboratory, but advanced planning and reservations are required. These tours are primarily designed for college students and adult groups. For more information contact Lumcon at the address, phone number, or e-mail above.

For guided tours offered by LUMCON see page 77 or visit their web site: education@lumcon.edu

The bunkhouse and field lab at Port Fourchon is for educational use only.

MAP: See page 46.

TOUR 18 : Bayou Terrebonne Waterlife Museum

CONTACT:

Bayou Terrebonne Waterlife Museum
7910 West Park Ave.
Houma, LA 70364
Phone: (985) 580-7200
www.houmaterrebonne.org

The Museum is open Monday- Friday from 10:00 a.m. –5:00 p.m., and Saturdays from noon through 4:00 p.m.

CATEGORY: Self-guided museum.

ENVIRONMENT: Indoor museum with bayouside access

GROUP TYPE: K- Adult

DISTANCE: About twenty minutes from Thibodaux in historic downtown Houma

TIME: 1-2 hours depending on age group

COST:

Adults (12 or older): $3.00
Senior Citizens: $2.50
Children: $2.00
Group rates: $1.00 per child
(15 or more and one teacher. Additional chaperones are $2.50 each.)
$2.00 per adult
(15 or more adults)

DESCRIPTION:

The Waterlife Museum is dedicated to preserving and promoting the area's long, colorful, and historically important connection with the seafood and water transportation industries as well as other wetlands and water-based hunting, gathering, and mining occupations.

The permanent exhibit highlights the economic, social and natural history of Terrebonne Parish and southeast Louisiana. Eye-catching displays and interactive panels introduce visitors to industries, traditions and personal stories from the area. Mini-exhibits are devoted both to commercial and recreational fishing as well as the oyster, shrimp, and trapping industries. Children can practice oyster-tonging technique and hear interesting stories through an interactive module of a shrimp boat.

TOUR 18: Waterlife Museum, continued

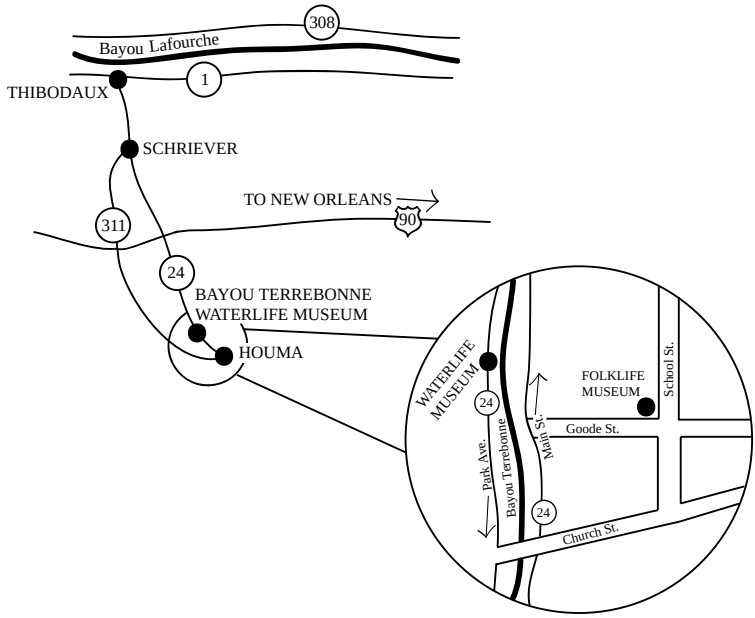
Another section of the exhibit houses information about hurricanes and their impact upon the region. Visitors can view video clippings from several of the major hurricanes that have left their mark on the parish as well as a simulated weather forecast detailing a category five hurricane as it heads directly for Houma.

The permanent exhibit ends with a look at the collection and distribution of oil and gas and a huge interactive board with images of an oil rig and the array of equipment necessary to keep it functioning.

ACTIVITIES:

- Trace the eco-line along a 46-foot curving mural.
- Study and sketch life-size renderings of plants that typically inhabit the area.
- Find and discuss bird and animal life from each eco-zone: frontland, backland, swamp, freshwater, brackish, marshland, flotant, estuaries, and barrier islands.
- Use interactive modules to drive a shrimp boat into the Gulf of Mexico.
- View an exhibit with explanations of water-based industries in the area, mostly oil and gas production.
- Explore an interactive board featuring a scale model of an oil rig and an array of equipment used on oil rigs.
- Study the formation of hurricanes in class before the tour, then view a simulated category 5 hurricane.
- Discuss the impact of hurricanes on people and the environment.

MAP:



Houma Waterlife Museum.

Fountain across Bayou Terrebonne
from the museum.

TOUR 19: Terrebonne Folklife Culture Center

CONTACT:
Terrebonne Folk Life Culture Center
(985) 873-6545
317 Goode Street
Houma, LA 70361
www.houmaterrebonne.org

CATEGORY:
Self-guided museum in urban setting

GROUP TYPE:
K-Adult

DISTANCE:
About 20 minute drive from Thibodaux in historic downtown Houma

TIME:
Allow 45 minutes to tour exhibits
Allow more time for additional activities

COST:
$2.00/person for admission
Fee of $5.00 may be charged for certain activities
Call ahead for information
Additional donations for large groups are greatly appreciated

DESCRIPTION:

Inside look into local culture and heritage. Classes are offered in duck carving, quilting, French, and Cajun dance. Permanent exhibits are on Native American life, antique tools, and handcarved duck decoys.

The "Cajun Tool Shed" exhibit showcases woodworking tools that were in general use during the late 1800s and early 1900s. Many of the tools are named after the particular trade that used it, for example the Carriage Maker's Spokeshave, Coffin Maker's Plane, Ship Builders's Lipped Adze, Cooper's Adze, and Cooper's Chamfering Knife. These and others are displayed in the exhibit.

The museum also includes a 100 year old dugout pirogue, boat building tools, boring and measuring tools, wood joints and patterns, planes and drawing knives, specialty tools, a carpenter tool chest (circa 1945), and ice handling tools.

The Decoy Carving Exhibit displays typical tools of the Cajun decoy carver as well as handcarved duck decoys.

The Native American Indian Exhibit consists of very old Indian artifacts and maps of Southeastern Indian land in the original Louisiana Territory.

TOUR 19: Folk Life Center, continued

ACTIVITIES:

- Native American crafts, 9 a.m. - 12 p.m. / 1st and 3rd Wednesday of each month;
- Soap carving (children), 6 p.m. - 7 p.m. / Tuesdays;
- Duck carving (adults), 7 p.m. - 9 p.m. / Tuesdays;
- Conversational French, 5:30 p.m. - 6:30 p.m. / Thursdays;
- Spanish, 7 p.m. - 8 p.m. / Thursdays;
- Cajun dance lessons, 5:30 p.m. - 7 p.m. / Fridays;
- Quilting, 10 a.m. - 12 p.m. / Thursdays; and
- Smocking, 9:30 a.m. - 1:30 a.m. / Tuesdays.

(Class sizes are limited. Please call for more information on scheduling and fees.)

MAP: See page 59.

Decoy carving exhibit in main exhibit area of the Houma Folklife Museum.

Exhibit of local handmade decoys.

TOUR 20: Montegut - Pointe-aux-Chenes Area

CONTACT:

Pointe-au-Chien* Wildlife Management Area
6.5 miles from Hwy. 55 on Hwy. 665
Pointe-aux-Chenes*, LA
(985) 594-5494

Region 9 Wildlife Division, Education Section
Louisiana Wildlife and Fisheries
P.O. Box 189
Bourg, LA 70343
(985) 594-5343 primary contact (educator)
(985) 594-7142 secondary contact (hunter education)
Internet: www.wlf.state.la.us
(click on "fur and refuge" division)

CATEGORY: Habitat Loss/Modification

ENVIRONMENT: Brackish Marsh

GROUP TYPE: All

DISTANCE:

15 miles southwest of Houma
38 miles southwest of Thibodaux

TIME:

Presentation at Pointe-au-Chien office will be about 30 minutes. Drive time will vary in the Pointe-aux-Chenes area. Allow a minimum of one hour. Call ahead for availability.

The walk on Pointe Farm road can vary from one hour to three hours, depending on the activities planned and how far you want to walk. The walk to view the pumping station along the levee, for example, will take one hour allowing time for discussion.

COST:

No fees. Pack a lunch or stop at local hamburger / fast food restaurants in Pointe-aux-Chenes or Montegut.

*There is a historical debate regarding the spelling of this name. The town name is spelled "Pointe-aux-Chenes" meaning "Point of the Oaks" on Louisiana state highway maps. The Wildlife Management Area name is spelled "Pointe-au-Chien" meaning "Point of the Dog," a name given by Native Americans from the area and one that is probably more accurate because the point of land for which it is named points toward Dog Lake.

EQUIPMENT: Binoculars, notebook, sketch pad, containers for water samples, field guides for birds and pond life, water testing equipment, plaster casting supplies for pumping station tour

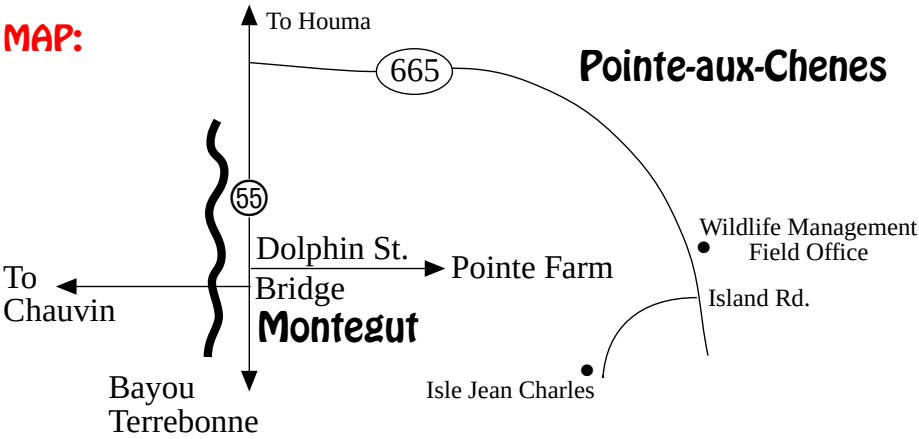
DESCRIPTION:

The Pointe-au-Chien Wildlife Management Area consists of 35,000 acres of wetlands on the border of Lafourche and Terrebonne parishes. The area contains a wide variety of plant and animal life and examples of slightly brackish marshes being impacted by saltwater intrusion. Because the area straddles both sides of Hwy. 665, it is accessible by roadway. It is a very popular area for boaters and sportsmen. A bus tour into the area would include a stop at the field office, located 6.5 miles from Hwy. 55 on Hwy. 665. The office is located on the left and is a two-story white building surrounded by a large, open lawn. By calling in advance, a Louisiana Wildlife and Fisheries Information and Education officer can meet the group at the office and will present an overview of the Pointe-au-Chien Wildlife Management Area. Two boat launches and a parking area are located just past the office area. From this site, groups can observe a variety of birds, including ducks, spoonbills, skimmers, pelicans, herons, and ibis. Primitive camping is allowed in this area.

The area was purchased by the state in 1968. The marshes were created thousands of years ago as the result of the deposition of silt from Bayou Pointe-aux-Chenes, Bayou Terrebonne and Bayou Lafourche. Trees were once abundant here. Today, cypress, red maple, willow and wax myrtle are found primarily along the old natural bayous and oil company canals. The area was heavily logged for cypress and many cypress stands visible today are dying from exposure to saltwater.

The breakup of freshwater marshes is very evident along Island Road, which leads to the Houma Indian community on Isle de Jean Charles. Island Road is located off Hwy. 665, approximately 2.5 miles from the Pointe-au-

MAP:



Chien Wildlife Management Area office, Saltwater intrusion into these marshes has destroyed much of the native grasses that held the marsh together. Efforts are being made to build an intensive water management system by constructing numerous low level weirs and earthen plugs on canals. There are 10 gates in operation in the Pointe-aux-Chenes area and another 30 gates toward Montegut. At this point, notice the dead oak trees on the far cheniere, victims of saltwater intrusion and subsidence. Land loss along Island Road is very dramatic, with water now encroaching and often covering the road. A bus can drive the four-mile stretch of Island Road to the far side at Isle de Jean Charles where there is a turnaround, but it is a good idea to call the Wildlife Management Area office at (985) 594-5343 for a advisory report on road conditions before traveling to the area. As you approach Isle de Jean Charles, notice the dead oak trees on the far cheniere, victims of saltwater instusion and subsidence.

This area abounds with wildlife, including deer, rabbit, squirrels, alligators, rails, waterfowl and fur-bearing animals, such as mink, nutria, muskrat, raccoon, and otter. Marsh plants most common here are maiden cane, cattail, bull tongue, widgeon grass, southern najas, coco and three-cornered grass. An extensive trapping program is in effect to control the nutria population which over eats the grasses that hold the marsh together, thus furthering land loss.

There is a boat launch at the end of Hwy. 665 with a small store offering snacks.

ACTIVITIES:

- Identify dead or dying cypress trees off Hwy. 665 past the Wildlife and Fisheries Office. Using a map of Louisiana, discuss the direction of saltwater intrusion into this area.
- Along Island Road, identify landmarks that indicate how much land has been lost to erosion and subsidence. For example, telephone poles in the water, oil company pumping stations surrounded by water, etc.
- Locate vegetation planted along northern edge of Island Road as part of a Barataria-Terrebonne National Estuary Program volunteer project. Identify smooth cord grass (Spartina alternaflora) planted to reduce erosion.
- Take water samples to determine the amount of salt in the water.
- Later, conduct an in-classroom experiment showing the impact saltwater has on plant growth by watering one baby cypress tree with freshwater and another with a salt water mixture having the same salt content as that found in your water sample. Keep a journal and compare the results at varying time intervals.
- In the classroom, compare current maps of the area to maps from the 1950s and earlier. Discuss land loss in terms of past losses and predicted future losses. Contact the Barataria-Terrebonne National Estuary Program at 1-800-259-0869 for copies of maps showing historic, current, and future land loss trends.

Volunteers participating in planting project along Island Road leading to Isle de Jean Charles

Breakup of what was freshwater marsh visible from Island Road leading to Isle de Jean Charles

DESTINATION:

Pointe Farm Ridge
Dolphin St. off Hwy. 55
across from the Bayou Terrebonne Bridge
at Montegut, LA
(see Pointe-au-chien Wildlife Management Area contact for information.)

DESCRIPTION:

The Pointe Farm Ridge is part of the Pointe-au-Chien Wildlife Management Area but is accessible only from Montegut. The road to the ridge is next to Montegut Middle School, located opposite the Bayou Terrebonne Bridge on Hwy. 55 in Montegut. Bird-watchers should enjoy the 7-mile hike through what was the St. Jean Charles Ridge before it was planted with sugarcane and renamed Pointe Farm. Birds in the area include bald eagles and osprey. The ridge is a natural cheniere, offering protection for freshwater marshes from saltwater intrusion via Little Lake and Wonder Lake, and from storm surges during hurricanes. The Montegut Marsh Management System is included in the area south of the Pointe Farm Ridge and is part of a marsh management system that extends into Pointe-aux-Chenes and the Isle de Jean Charles areas. The Pointe Farm land was purchased by the Louisiana Department of Wildlife and Fisheries and added to the Pointe-au-Chien Wildlife Management Area. It has been replanted with 300,000 oak trees.

ACTIVITIES:

• Call ahead to get the gate unlocked so that vehicles can enter the area. Drive to the end of the road and note the change in environment, from high ridge to wetlands.
• Identify and record birds in the area using a field guide, binoculars, and notebook and pencil.
• Notice the freshwater bayou along the left side of the ridge and the levee and marsh area along the right (or southerly) side.
• Notice the ridges remaining from when the area was planted in cane. Discuss how the original trees were cut to prepare the area for sugarcane farming and the impact this had on the natural function of the ridge and the habitat it provided. Include in this discussion the impact of wind and water on the area once the trees were down.
• Identify the new trees planted. Discuss the role these trees will play in maintaining the natural ridge, returning it to its natural state, and thus protecting both the marsh beyond the ridge and the habitat areas within the marsh system. Use a local map of the area to determine proximity to open water.

DESTINATION:

Montegut Marsh Management
Pumping Station/ Siphon
Freshwater diversion siphon
2.5 miles south of Montegut
Pump House Road off Hwy. 55

CONTACT:

Terrebonne Parish Government
(985) 873-6717 and ask for the
Force & Drainage Superintendent or assistant to the superintendent.

DESCRIPTION:

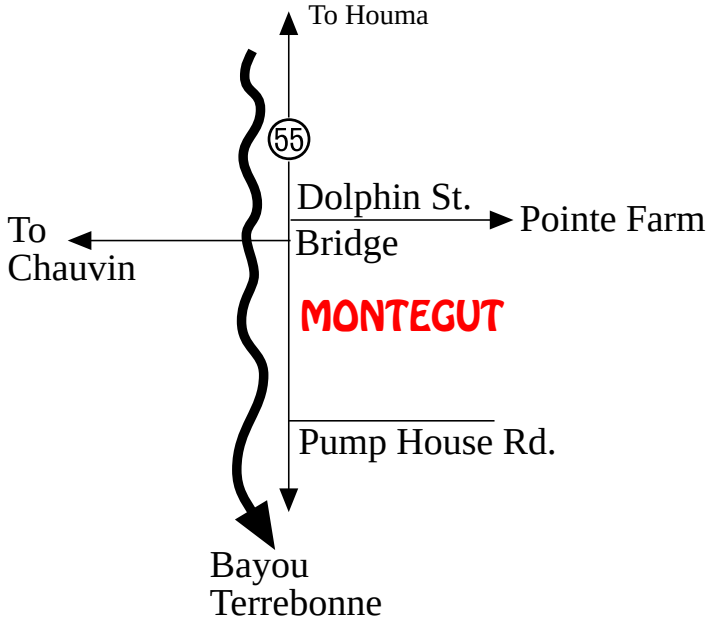
This stop provides an excellent opportunity to bring a group onto a levee separating brackish water from freshwater. (No cars are allowed on the levee.) A dramatic contrast can be seen between the dense hardwood trees on the freshwater side and the dying stand of cypress and hardwoods on the brackish side. At the beginning of the walk is the pumping station that has been adjusted to serve as a siphon, diverting freshwater into the brackish water area. Notice the holding pond and new plant growth along the edges. This is one of two such pumping stations/siphons in the Montegut Marsh Management System. Along the levee walk, the prints of several animals can be seen in the mud. The freshwater area supports alligators, opossums and raccoons. The brackish water is a favorite fishing area. This levee offers excellent viewing of birds and waterfowl.

View of levee, dead cypress and healthy hardwoods at Pumping Station south of Montegut

ACTIVITIES:

• Point out the freshwater drainage canal on one side of the levee and the brackish marsh area on the other side. Take water samples and compare salt levels and microorganisms.
• Conduct water quality tests on both sides of the levee and compare the results.
• Discuss the role levees play in the estuary and why they are needed.
• Walk to the area where you can see the dead cypress stand on one side and the hardwoods on the other. Compare the two stands of trees, including in your comparison the water, the birds, the animals, and the fish. Discuss what would happen to the hardwoods if the levee were not present and what would happen to the property between the levee and Bayou Terrebonne.

MAP:



TOUR 21: Terrebonne Levee District Tour

CONTACT:

Executive Director
Terrebonne Levee and Conservation District
5500 Hwy. 56
Chauvin, LA 70344
(985) 594-4104
www.tldc.org
(Please call ahead to schedule a tour.)

CATEGORY:

Field office presentation and guided tour of flood protection and freshwater diversion projects. This tour provides visible evidence of saltwater intrusion and subsidence, and experimental efforts to counter these forces upon the estuary.

ENVIRONMENT:

Bayou LaCache- levee protecting wetlands
Lower Lake Boudreaux basin-deteriorating former freshwater marsh
Falgout Canal-deteriorating cypress swamp
Bayou Terrebonne

GROUP TYPE:

This tour is adaptable for grades 5 through adult. Under 30 students preferred, but a group of 60 can be split for two presentation sessions.

DISTANCE:

Terrebonne Levee & Conservation District Office - 17 miles south of Houma, on Hwy. 56, .25 miles below Danny's Fried Chicken on Lapeyrouse Lane.

TIME:

Allow 25 minutes for the presentation and two or more hours for the tour, depending on the size of your group and the destination(s) selected.

COST:

Free

EQUIPMENT:

Wear sturdy shoes, your feet may get wet. Any of the following equipment would be suitable: camera, binoculars, dip net, bucket, water quality testing equipment, notebook and pencil.

TOUR 21: Terrebonne Levee District Tour

DESCRIPTION:

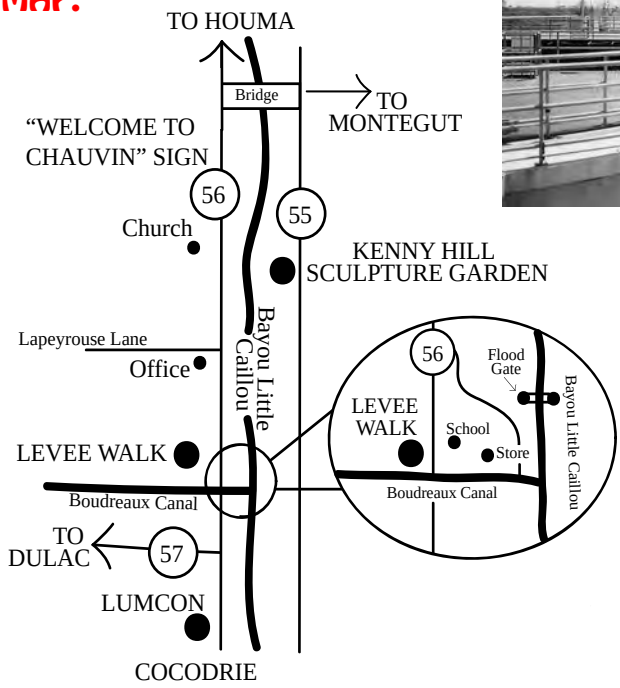
This tour begins at the Field Office for the South Terrebonne Levee and Conservation District. Here the district director will give a presentation on subsidence, saltwater intrusion, and other problems facing the district. After the presentation, your guide will lead you on a tour of the area, with stops at Lake Boudreaux, Bayou LaCache, the Bush Canal levee, Grand Caillou, and the Falgout Canal. You will observe areas which have undergone subsidence and saltwater intrusion, with dying trees as evidence. You will learn about the Lake Boudreaux and LaCache Marsh Management Programs and get an understanding of the purpose of the levee system and other flood control structures, and visit a pumping station.

ACTIVITIES:

• Take water samples and conduct water quality tests at your field stops. You will find salinity differences between sites, evidence of saltwater intrusion and learn about the effectiveness of measures to keep out the intrusion.

• Two-day option: arrange to stay overnight at the LUMCON facility in Cocodrie (see Tour 24, p. 77 for information on reservations), tour the facility, take Tour 16, p. 54 if you have the time.

MAP:



Chauvin Seawall and Floodgate located on Bayou Little Caillou at Boudreaux Canal

TOUR 22: Kenny Hill Sculpture Environment

CONTACT:

The Kenny Hill Sculpture Environment
5337 Bayouside Drive
Chauvin, LA
(985) 594-2546
http://www.kohlerfoundation.org/chauvin.html

Nicholls State Art Department
(985) 448-4597

The sculpture garden is free and open to the public. The Folk Art area is open Monday, Wednesday, Friday, and Saturday, 12 p.m. - 3 p.m. (excluding holidays).

CATEGORY: Sculpture garden and folk art area with changing art exhibits

ENVIRONMENT: Bayouside area

GROUP TYPE: 6th grade-adults

TIME: Folk art area: 30 minutes
Sculpture garden: 30 minutes

COST: Free

DISTANCE: About 1 hour south of Thibodaux

DESCRIPTION:

Kenny Hill, a reclusive bricklayer from Patterson, Louisiana, created a sculpture garden on bayouside property in Chauvin from 1988 to 2000, when he left the area. The sculptures can be viewed up close and include depictions of angels, jazz musicians, animals, the artist himself, Indians, children, cowboys, and God. There is also an impressive brick lighthouse that reaches 45 feet into the air. The garden is stunning; it has been described as "beautiful," "magical," "mysterious," and "painful," but it is not a suitable tour for younger children, because some of the statues are violent and shocking. Teenaged students and older, however, will enjoy the work of this amazing Louisiana artist. A path

through the sculpture garden allows students to walk through it and examine the sculptures. A folk art gallery across the street from the sculpture garden contains other examples of Hill's works as well as those of other artists. The works shown in this exhibit area change periodically.

ACTIVITIES:

• Before the tour, study folk art in America and look at the art of other folk artists.
• Discuss the themes of the sculptures and the issues Kenny Hill seems to be addressing with his work.
• Discuss the processes taken to form the concrete sculptures.
• Sketch the statues in the garden and the environment that surrounds it.
• Discuss the folk art on display in the folk art building.

MAP: See p. 71

Self portrait in sculpture by Kenny Hill

Portion of the sculpture garden environment.

TOUR 23: Boudreaux Canal Levee Walk

CONTACT:
Executive Director
Terrebonne Levee and Conservation District
5500 Hwy. 56
Chauvin, LA 70344
(985) 594-4104
www.tldc.org
(Please call ahead to schedule a guided tour.)

CATEGORY:
Hydrologic Modification, Habitat Loss,
Hurricane Protection Levee system

ENVIRONMENT:
Lake Boudreaux Canal levee trail along
former freshwater marsh and canal/swamp.

GROUP TYPE:
Grades 4 - 12 and Adult

DISTANCE:
Approximately 27 miles south of Houma
on Hwy. 56,

TIME:
30 minutes to one hour

COST:
Free

EQUIPMENT:
Wear enclosed shoes or boots.
You will be in a wild area.
Camera, binoculars, sampling and
water quality testing equipment, plastic bag for
scat collecting. Field guide to birds.

DESCRIPTION:

This tour begins at the Boudreaux Canal bridge. Groups can only be dropped off here; there is no roadside parking. School buses and cars can park in the streets off the Boudreaux Canal Elementary School, along Bayou Little Caillou near the Chauvin seawall, or near the Boudreaux Canal Store, where refreshments are available. These locations are just to the left of the Boudreaux Canal bridge before crossing the bridge.

Arrange ahead of time to meet your guide by calling the contact number. The guide will be a representative of the Terrebonne Levee and Conservation District who can give a history of land loss in the area as well as explain the purpose of the Chauvin seawall and floodgate on Bayou Little Caillou (see On

Tour 20 on page 70) as well as the floodgate that can be seen on Boudreaux Canal when taking this tour. The problems of saltwater intrusion into wetlands and land-loss resulting from plant death caused by saltwater will be discussed as well as the impact of habitat loss on area fisheries.

With your guide, you will walk along a levee which follows the canal and then veers away from it to follow the outside, marshy perimeter of Lake Boudreaux, on the left, and a canal/swamp area, on the right. This tour will take you to the outside edge of a partial hurricane protection levee system in southern Terrebonne Parish. Beyond this point, land and property are not protected by the levee system which is designed to hold back the surge of water that often precedes the onset of a hurricane. The levee system is needed, in part, to provide the type of protection once provided to this area by the barrier islands and acres of wetlands. With the loss of this protective buffer through subsidence and erosion, interior marshes are increasingly vulnerable to saltwater intrusion and communities nearby become subject to flooding from hurricane surges. Across the canal (to the left as you walk on this tour), in fact, is an open saltwater/brackish marsh area where there once was solid land used to pasture cattle.

A comprehensive hurricane protection system would be needed to adequately protect the area from hurricane surge and tidal flooding as well as saltwater intrusion. A consortium of federal, state, and local resource agencies are involved in such a project call the Morganza-to-the-Gulf Hurricane Protection Project, under the direction of the U. S. Army Corps of Engineers. For more information on this project visit the web site: www.mvn.usace.army.mil.

Boudreaux Canal with floodgate and levee path.

the walk along the levee, you may catch a glimpse of a raccoon, opossum or deer. You may hear the loud splash of an alligator as it dives for cover at your approach, depending on when you take the tour. Waterfowl and wading birds are common here, including gadwall- and roseate spoonbills, as well as snakes and nutria. This is a popular fishing and crabbing location, so you might also encounter fishermen along the edge of the canal. In the spring and early summer, you will find blackberries here, as well as poison ivy and mosquitoes.

Visitor views the dense, overgrown area off the levee.

ACTIVITIES:

• Before visiting the site, visit the Army Corps of Engineers web site (www.mvn.usace.army.mil) to learn about the hurricane protection levee system being planned and to view images in the "Image Gallery" of the area, including an aerial view showing the extent of land loss in the area.

• Visit the floodgate on Bayou Little Caillou, just off the intersection of that bayou with Boudreaux Canal. Discuss how these gates work to control saltwater intrusion, protect property from hurricane surges, and allow the ebb and flow of tides needed to maintain wetland hydrology.

• Ask fishermen along Boudreaux Canal what they are catching and how good the fishing is. Discuss the amazing variety of seafood available in the area and the incubating role of the estuary in fish, shrimp, crab, and oyster production.

• During shrimping season, visit shrimp processing plants nearby and along Bayou Little Caillou (Hwy 56) to view how shrimp is unloaded from trawlers, cleaned, and packed both fresh or boiled.

• Conduct a scat hunt on the levee. Animal droppings abound here. Try to determine who was eating what based on what you see in the scat. A basic food web chart can be constructed later, based on your field discoveries. Look for other signs of wildlife here and record your observations for later discussion.

MAP: See p. 71

TOUR 24: DeFelice Marine Research and Education Center Louisiana Universities Marine Consortium (LUMCON)

CONTACT:

LUMCON
8124 Hwy. 56
Chauvin, LA 70344
(985) 851-2800
www.lumcon.edu
Monday - Friday 8 a.m. - 4:30 p.m.

No advance notice is needed for small groups (up to 10) wanting a self-guided day tour of the facility. Larger groups (more than 10) are encouraged to schedule a tour by contacting LUMCON at (985) 851-2800 extension 0 to make reservations or contact education@lumcon.edu for more information. Allow 6-12 months advance notice to book a research vessel field trip, guided activity at the lab, and/or overnight accommodations. See Cost for fee information.

CATEGORY:

Marine Research Station featuring research station self-guided tour; guided tour of station and grounds; guided marine and salt marsh field trips; laboratory use and workshops; extended overnight stay. Check the website for special workshops scheduled seasonally.

ENVIRONMENT:

Brackish marsh

GROUP TYPE:

K-12 and adult

DISTANCE:

85 miles southwest of New Orleans via Hwy. 90 West to exit Hwy. 182 towards Houma. Before reaching Houma, exit left onto Hwy. 3087. Cross high bridge over Intracoastal Waterway and continue through traffic lights and intersection to cross bridge over Bayou Terrebonne. Turn left on Hwy. 24 which becomes Hwy. 57 and then Hwy. 56 to Cocodrie.

30 miles south of Houma via Hwy. 24 to Hwy. 57 which becomes Hwy. 56 to Cocodrie.

115 miles southeast of Baton Rouge via I-10 to Exit 182. Take Spur 70 to Hwy. 1 South. Follow Hwy. 1 to Thibodaux. At Canal Blvd (Hwy. 24), turn right. Follow Hwy. 24 through Houma and continue to Hwy. 57 which becomes Hwy. 56. See map.

Overview of the LUMCON facility showing the observation tower and the two research vessels available for scheduled tours
Photo courtesy of LUMCON

TOUR 24: LUMCON, continued

TIME: Forty-five minutes for a small group, self-guided or guided tour of the facility. Fifty participants, maximum, for guided tours. Times and fees vary according to the tour selected.

COST: The self-guided day tour is free. Other tours involve fees: $75 for groups with less than 25 people, after 9/1/2005; $3 per person for groups with more than 25 people. Canoes are available for rental. Information on meals and dormitory fees can be obtained when calling for reservations. Research vessel tours (see below) cost $180 for a 4-hour cruise and $360 for an 8-hour cruise. Fees are subject to change. Please call for more information.

EQUIPMENT: If you are taking the self-guided tour, bring your camera and binoculars, and bird and beachcomber's field guides (see page 117). If you are taking a guided activity tour (see below), bring camera, binoculars and wear old shoes or bring wading boots.

DESCRIPTION: The Marine Research and Education Center is located in the small coastal fishing community of Cocodrie. It is a modern, 75,000 sq. ft. complex with two research wings containing office space, “dry” labs and “wet” laboratories, featuring salt water piped in to support aquaria filled with marine organisms. Other parts of the complex hold classrooms, housing facilities, an auditorium, and a cafeteria. Because of the danger of hurricane flooding and the poor soil conditions of the delta, the two buildings on site rest on over 800 pilings, each 120 feet long. The main building looks out over a harbor where the center’s research vessels, including the 115-foot research vessel *Pelican* and the 58-foot research vessel *Acadiana*, are docked. Research at the facility includes studies of low-dissolved oxygen in the Gulf of Mexico resulting from nutrient pollution in the Mississippi River, food chain dynamics, environmental effects of energy and chemical industries, interactions of the Mississippi River with the Gulf of Mexico, and support for commercial and recreational fisheries.

A self-guided tour of the facility includes walks along two boardwalks over brackish water where you can observe marine life and catch a glimpse of resi-

dent or migratory waterfowl. Informational displays on animals, marine life, and artifacts are available at the main level of the facility, where you can also view a wall of aquaria housing live fishes from coastal waters and interact with a touch screen kiosk on non-point source pollution. The observation tower, 65 feet from ground level, provides a panoramic and instructional view of the surrounding distributaries, ridges, marshes, bayous, and bays.

ACTIVITIES:

Guided activity tour can include, but are not limited to, the following areas:

1) Guided tour of facility and grounds.
2) Research cruise into Terrebonne Bay aboard the research vessel *Acadiana*.
3) Salt marsh canoeing.
4) Bayouside classroom water sampling.
5) Wetland education through maps and aerial photographs.
6) A variety of laboratory and field activities are available to immerse participants in learning about the estuary and its inhabitants.
7) Tour of the laboratory at Port Fourchon (see Tour 15 page 52 for information on this area. To stay overnight at the laboratory requires advance registration with LUMCON, involves fees, and is limited to adults.)

All activities can be combined to create field trips lasting from half a day to several days and designed to meet a variety of educational needs. Contact education@lumcon.edu or call to develop an itinerary to fit your needs. Examples of five possible tours with 25 participants follows.

1) Marsh Ecology: A walking and wading tour to the salt marshes that surround the Marine Center. Explanation of the estuarine environment and wetland ecology. Time: 1 1/2 - 3 hours. Maximum number of participants, 25. Fee: $75.00, after 9/1/2005. Extra fees apply if group exceeds 25.

2) Plankton: An introduction to plankton and its role in the marine food web. Local collecting and laboratory observation. Time: 1 - 2 hours. Maximum number of participants, 25. Fee: $75.00 after 9/1/2005.

3) LUMCON Bayouside Classroom, no fee: There are three different tours available through this program. Visit the LUMCOM web site at www.lumcon.edu/BayousideClassroom. Students take guided, on-site tours that include the tower, collections room, library, aquariums, and certain labs. Information on LUMCOM faculty and research is also covered. The group is then

divided into smaller groups that travel with a LUMCON instructor to two or three points in the area to collect water samples. These samples may be analyzed at the collection point or at the marine lab. Some collecting locations include: the Intracoastal Waterway at Dularge or Houma, the Sarah Bridge on Bayou Little Caillou, and at LUMCON in Cocodrie. In general, waters have high salinity and, therefore, are more basic (high pH) in the immediate area up to seven miles north of LUMCON. Further north salinity is lower and waters become more neutral or acidic (lower pH).

Research Vessel Cruise tours include the following:
1) Terrebonne Bay - Identify the low salinity portion of the Terrebonne Bay ecosystem. Associated fauna are explored by examining trawl samples, plankton samples, benthic grabs, and hydrographic samples. Time: 4 hours. Maximum number of participants, 25. Fee: $180.00.

2) Terrebonne Bay and Gulf Barrier Island - The Terrebonne Bay ecosystem from the upper bay (low salinity) to the Gulf of Mexico (high salinity) is explored using the sampling approaches described in the above tour. Time: 8 hours. Maximum number of participants, 25. Fee: $360.00.

Weekend workshops are also available seasonally. Please call or visit the web site for updated information. The fall workshop usually focuses on habitat modification and land loss. The spring workshop focuses on water quality and the Bayouside Classroom program.

* Overnight camping is available at a private campground on Robinson Canal. In the fall and spring, when the shrimp are running, students 16 years and older who possess a valid LA fishing license may go shrimping here. Those under 16 years of age must be accompanied by an adult with a fishing license. Contact the Terrebonne Parish Tourist Commission for more information on campgrounds in lower Terrebonne Parish. (985) 868-2732.

MAP: See Page 71 .

TOUR 25: Wildlife Gardens

CONTACT:

Betty Provost
5306 North Bayou Black Dr.
Gibson, LA 70356
(985) 575-3676
www.wildlifegardens.com

CATEGORY:

Guided walking tour
Native plants and animals

ENVIRONMENT:

Wildlife gardens and natural cypress swamp with alligator farm, original trapper's cabin/museum, animals, and nature trail for bird watching
Boat swamp tours are available as well as bed and breakfast cabins for overnight stays.

GROUP TYPE:

Pre K- Adult
Tours can be custom planned for different age groups upon request.

DISTANCE:

From New Orleans: 1 1/2 hours west on US 90
Take Gibson Exit, turn left onto Hwy. 20 then left onto Hwy. 182. Cross Greenwood Bridge, on left, and turn left onto North Bayou Black Drive. Go two miles.
From Houma: US 182, 14 miles to Gibson, Left on Greenwood Bridge go 2 miles on North Bayou Black Drive.

TIME:

1 1/2 hour walking tour.

COST:

Walking tour:
Adults: $8.00
Children: $3.00
School groups: $3.00/child
(teachers and chaperones are free)
Call or visit the website for current boat tour and cabin rental rates.

DESCRIPTION:

The Wildlife Gardens in Gibson covers 30 acres of cypress swamp and offers a walking tour on 5-6 acres of land. Major features of the gardens include an alligator farm and an authentic trapper's cabin. During the months of March-May, adult-sized alligators are fed by tour guides during the tour.

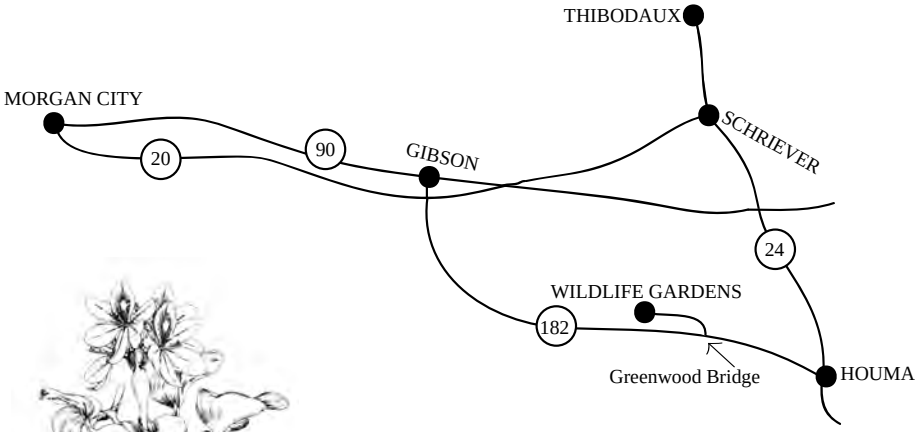
The gardens also offer bed and breakfast cabins for overnight stay at an additional charge. Nature trails throughout the entire 30 acres are accessible from the cabins, which are located in the swamp. The trails are great for bird watching and exploring. Swamp tours by boat are also available for an additional charge.

ACTIVITIES:

• Picnic in a cypress swamp. Visitors bring their own food.
(Soft ice cream is available for $.50 per serving.)
• Smaller children can view and touch animals on the property, such as box turtles, baby alligators, goat, and deer. Tour guides introduce children to these animals. Geese and pigs are also available for children to feed with assistance from the guide.
• Story-time is held at the trapper's cabin/museum. Older students receive information on the history of trapping and an overview of the job of the trapper.
• An aquarium inside the cabin is home to baby alligators that students can view up close.
For older groups:
• Discuss the ecology of the area.
• Identify plants, trees, and birds on the property.
• Listen to various talks about the marsh and why it is eroding.
• Discuss the different types of fishing and hunting practiced in Louisiana.
• Discuss the history of the Acadians and their culture.
• Find out who the Acadians were and why and how they traveled to Louisiana.

View of cypress swamp in the gardens

MAP:



Water Hyacinth

Lizard's Tail

Louisiana Iris

Cattail

TOUR 26: Swamp Gardens

CONTACT:

Swamp Gardens
725 Myrtle St.
Morgan City, LA 70380

Manager (985) 384-3343
Open daily. Call two days in advance for spring bookings.

CATEGORY:

Small outdoor swamp museum with wildlife observation and lifelike figures demonstrating historical uses of the swamp.

ENVIRONMENT:

Freshwater swamp

GROUP TYPE:

K-12 and Adult

DISTANCE:

31 miles west of Thibodaux
95 miles Southwest of New Orleans
60 miles south of Baton Rouge

TIME:

Forty-five minute tours are available daily at 10:00 a.m., 11:00 a.m., 1:00 p.m., 2:00 p.m., 3:00 p.m., and 4:00 p.m. Open Monday-Sunday.

COST:

$4.00 adults, $2.00 children
Half-price for all groups of 15 or more.

EQUIPMENT:

Camera, sketch pad, Louisiana plant and animal guide

DESCRIPTION:

The Swamp Gardens is a living museum set in a 3.5- acre swamp. Ducks, turtles, squirrels, and deer have the run of the park, while alligators, otters, bears, owls, nutrias, beaver, and alligator snapping turtles may be observed within cages. There is also a petting zoo with goats, sheep, cows, horses, and chickens. Cabins and lifelike figures throughout the park provide a historical view of the lives of former inhabitants, including Indians, fishermen, oilmen,

TOUR 26: Swamp Gardens, continued

ACTIVITIES:

trappers, and moss pickers.

• Take the guided 45-minute tour. The guide will explain the lives of both animal and human inhabitants of the swamp.

• Purchase food in the gift shop to feed the animals.

• Picnic area, gift shop with swamp treasures under $5.00, and small restroom available.

• Combine this tour with a recreational tour to Lake End Park Campground and Marina. See following page for details.

• Visit the petting zoo, home to goats, sheep, cow, horses and chickens.

Map: See p. 88

Swamp Garden alligators, above, and class on tour, below.

TOUR 27: Brownell Park and Carillon Tower

CONTACT:

Brownell Memorial Park and Carillon Tower
Hwy. 70 between Russo's and Doiron's boat ramps.
(985) 384-2283

CATEGORY:

Native plant observation

ENVIRONMENT:

Freshwater swamp on Lake Palourde, bottom land hardwoods, many swamp and upland wildflowers.

Statue commemorating naturalist Dr. Charles Brownell at Memorial Park.

GROUP TYPE:

K-Adult

DISTANCE:

1.5 miles from Lake End Park
35 miles west of Thibodaux
95 miles Southwest of New Orleans
85 miles south of Baton Rouge

TIME:

Forty minutes. No restrooms or picnic tables.

COST:

Free

EQUIPMENT:

Camera; field guides for wildflowers, trees, and water birds; notebook or sketch pad and pencil.

DESCRIPTION:

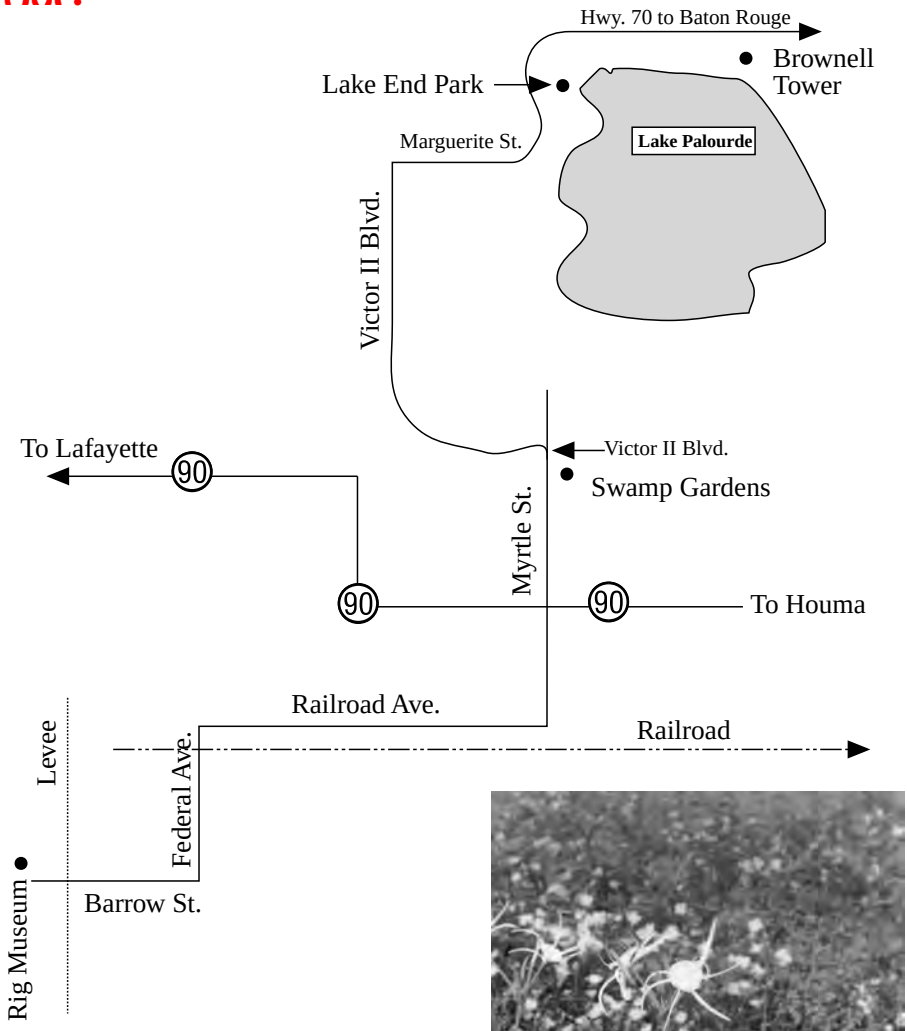
Brownell Memorial Park is 9.5 acres of quiet, natural land along the shores of Lake Palourde. It features a short, self-guided trail through a bottomland hardwood forest and freshwater swamp. Late March-early April visitors will be treated to many Louisiana Iris in full bloom. Late May reveals the bloom of the swamp plant "lizard's tail." These and other seasonal wildflowers are in abundance throughout the park. Stately bald cypress draped with Spanish moss grace the shores of the lake, complete with an abundance of cypress "knees." Towering above the park is a 106-foot carillon tower, that peals out the quarter hour and plays a prolonged concert on the hour.

ACTIVITIES:

• Observe the bald cypress by the lake. Discuss the unique properties of the bald cypress, including its ability to resist decay after it reaches 200 years of age, the fact that it is the only deciduous gymnosperm in the region, and the mysterious production of "knees" for which no one knows the purpose.*
• Discuss the presence of Spanish moss, a native of Louisiana that is of the pineapple family. Though it may block sunshine from its host tree, Spanish moss is not a parasite. Spanish moss has had many historical uses, such as stuffing for seats in Model T cars, mattress stuffing, and the main ingredient in fever-reducing teas. Currently, the absence of Spanish moss in its normal environment is an indicator of environmental ill health. Since Spanish moss takes its nourishment from the air, changes in growth rates reflects the presence of air pollution.
• Discuss the "buttress" shape of the base of swamp trees, including the bald cypress. This broad base gives additional support to trees with shallow roots anchored in saturated soil.
• Using a Louisiana State Map, discuss the location of Lake Palourde as a transitional area between the estuary and the inland waters of Grassy Lake and Lake Verret.
• Take water samples and perform water chemistry tests such as temperature, pH, salinity, turbidity, and dissolved oxygen.
• Use Lake End Park, also on Lake Palourde, for picnic and restrooms. While there, take water samples and perform water quality tests. Compare results with those taken from Brownell Memorial Park.
• Compare small aquatic organisms, visible by eye, to those found in the heavily vegetated waters of Lake Palourde at Brownell Park. Compare vegetation and visible wildlife between Brownell and Lake End parks and discuss the differences.
• Tent and trailer camping is available at Lake End Park. Showers, restrooms, playground equipment, covered and uncovered picnic areas, and concessions are available for day or overnight use.

**** For more information on bald cypress and Spanish moss, call the Barataria Preserve at (985) 589-3882. They will mail you a fact sheet.***
*** www.nps.gov/jela**

MAP:



Spider Lilies
at Brownell Memorial Park

TOUR 28: Victor Guarisco Lake End Park

CONTACT:

Victor Guarisco Lake End Park
Manager
2300 LA Hwy. 70
Morgan City, LA 70381
(985) 380-4623
www.mcrd.org (Morgan City Recreation Department website: Click on Lake End Park)

CATEGORY:

Swamp wildlife and vegetation on drained, dry ground

ENVIRONMENT:

Lake, campground; and park with picnic areas

GROUP TYPE:

K-Adult

DISTANCE:

From New Orleans:
Take Hwy. 90 west
Exit Brasher Ave. in Morgan City
Take a right onto Brasher Ave. and continue to Hwy.70, take a right onto Hwy. 70 to Lake End Park

From Lafayette:
Take Hwy. 90 east
Exit Morgan City
Take a left onto 8th St. and continue to Hwy. 70
Take a right onto Hwy. 70 to Lake End Park
(There are signs leading to the park from both directions.)

TIME:

One hour for walking tour
All day to overnight at park

COST:

$3.00 per car to enter
$20.00 a night per RV (Some discounts may be available. Call for more information.)
$13.00 a night per tent

TOUR 28: Lake End Park, continued

EQUIPMENT: Notebook, binoculars, fishing equipment, field guides for identifying birds and vegetation

DESCRIPTION:

Lake End Park is located on the banks of Lake Palourde and offers all day visits and overnight camping. Native animals and vegetation can be seen along the walking trail, including Spanish moss, cypress trees, ducks, frogs, palmettos, live oak trees, and bald eagles. The park also has picnic pavilions along with camping areas for either RV or tents. In addition to walking the one-mile trail, water-based activities such as swimming, boating, and fishing are available. There is a man-made sand beach. Ons section of the park wasconsturcted from dredge material from the Atchafalaya River and is an example of the restoration technique called "pipeline slurry."

ACTIVITIES:

- Walk the one-mile trail and use a guide to identify plants and animals along the way.
- Swim, boat, and fish on Lake Palourde.
- Play volleyball.
- Build sand castles.
- Camp in the Lake End Park Campground.

MAP: See p. 89

Lake End Park beach view

One of the picnic areas in the park

TOUR 29: "Mr. Charlie," The Rig Museum Morgan City

CONTACT:

"Mr. Charlie," The Rig Museum
111 First Street
Morgan City, LA

International Petroleum Museum and Exposition
(985) 384-3744, Virgil Allen. Allow at least one week's notice for groups of 15 or more.
www.rigmuseum.com
e-mail: rigmuseum@petronet.net

CATEGORY:

Submersible petroleum drilling rig on land outside the Morgan City levee.
Guided tours only

ENVIRONMENT:

Atchafalaya River bank in industrial/residential area

GROUP TYPE:

K-12 and adult

DISTANCE:

31 miles southwest of Thibodaux
90 miles southwest of New Orleans
80 miles south of Baton Rouge

TIME:

Tours are given at 10 a.m. and 2 p.m. Mon.-Sat., or by appointment, and last 1 to 1 1/2 hours.

COST:

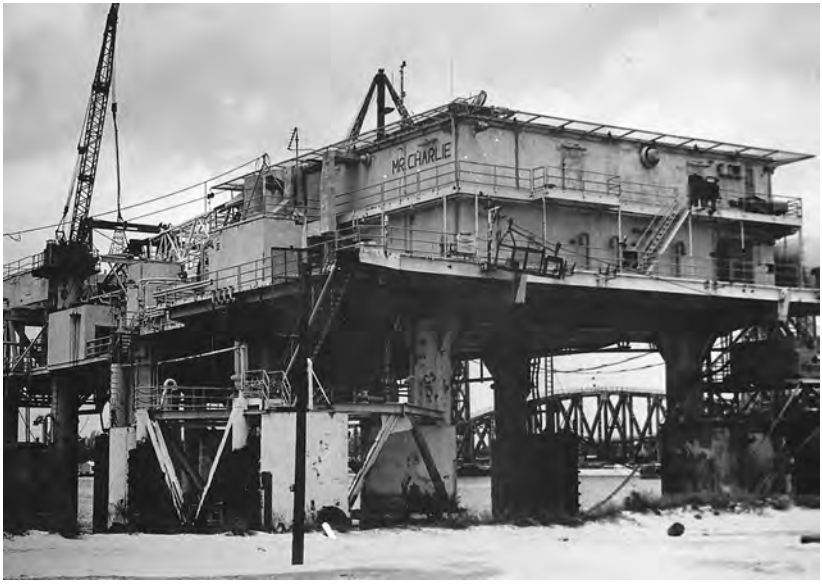
Group rate: $3.00 per person

EQUIPMENT:

Camera. Wear enclosed shoes (no high heels or sandals). Be prepared to climb 60 metal mesh stairs.

DESCRIPTION:

"Mr. Charlie" is the first submersible drilling rig used in offshore production. At over 220 feet long, this vessel is a self-contained, transportable, industrial island with living accommodations for up to 58 workers. When in use, the rig would be floated to a drilling location where tanks in the barge were then flooded, causing the rig to sit on the floor of the Gulf of Mexico. After drilling was completed, water was pumped out of the tanks allowing "Mr. Charlie" to be floated to its next drilling location.



"Mr. Charlie," The Rig Museum in Morgan City

DESCRIPTION, con.:

Since this rig is limited to drilling in depths of up to 40 feet of water, it has now been "retired" for use as both a museum and a training center for oilfield workers. Students will get a firsthand look at offshore drilling operations. Additional indoor and outdoor exhibits are planned. Restrooms are available.

ACTIVITIES:

• Before taking this tour, review the history of oil production in the estuary. Review basic drilling approaches and geological information about oil deposits.

• Combine this tour with a picnic at Lake End Park on Hwy. 70 (see Tour 27) at lovely Lake Palourde where you will find playground equipment, restrooms, and covered and uncovered picnic tables.

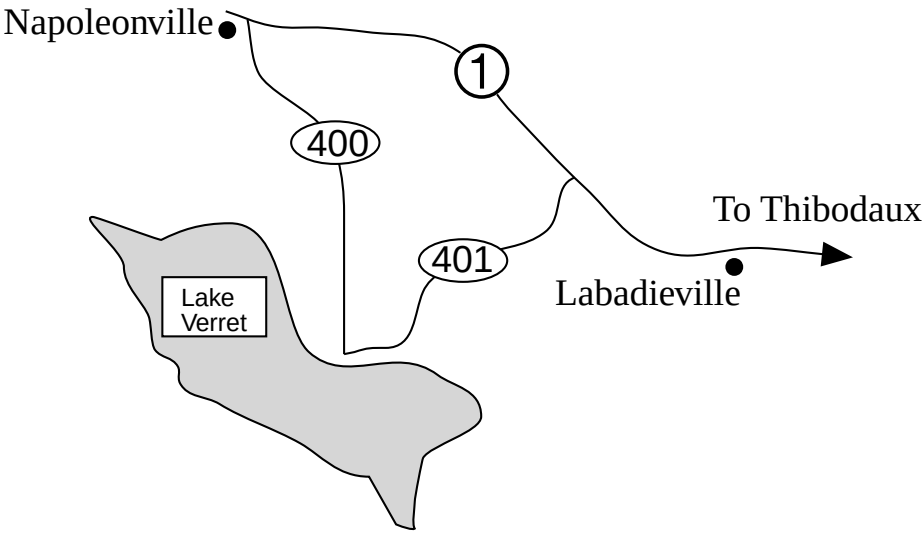
• While at Lake End Park, take water quality measurements, such as temperature, pH, turbidity, and dissolved oxygen. (See page 121 for testing information and sources).

• Visit Brownell Memorial Bell Tower Park on Hwy. 70 (see Tour 26 for information and related activities).

MAP: See page 89.

A drive along highway 400 or 401 to Lake Verret offers observation of a wide variety of plant and animal life in a freshwater swamp environment.

MAP:



TOUR 30: Lake Verret Access, Napoleonville

CONTACT: Attakapas Landing Boat Launch

CATEGORY: Self-guided tour of swamp and lake

ENVIRONMENT: Freshwater swamp and lake

GROUP TYPE: 7-12 and Adult

DISTANCE: From La. Hwy. 1, Take Hwy. 400 at Labadieville or Hwy. 401 at Napoleonville.
Drive approximately 10 miles to the lake. The Napoleonville turnoff is 13 miles northwest of Thibodaux.

TIME: One hour, depending on activities

COST: Free

EQUIPMENT: Water sampling and testing equipment, dip net and bucket for pond organisms, bucket for plant samples, notebook, and pencil

DESCRIPTION:

Lake Verret is a large freshwater lake which drains an extensive area of freshwater swamps. It is one of the most productive lakes in Louisiana. Aquatic organisms are abundant here and support recreational and commercial fisheries for large mouth bass and channel catfish. The access point is a boat landing with no swimming.

Renovations are underway, sponsored by the state Department of Natural Resources Atchafalaya Basin Program, Assumption Parish, and the U.S. Army Corps of Engineers. The Corps will conduct an ecosystem restoration study to improve water quality in Lake Verret. Additional improvements will include a new launch area, extended bulkhead, expanded and paved parking area, a covered pavilion with restrooms, walkways, and external lighting. These renovations should be completed by 2005. The launch is open.

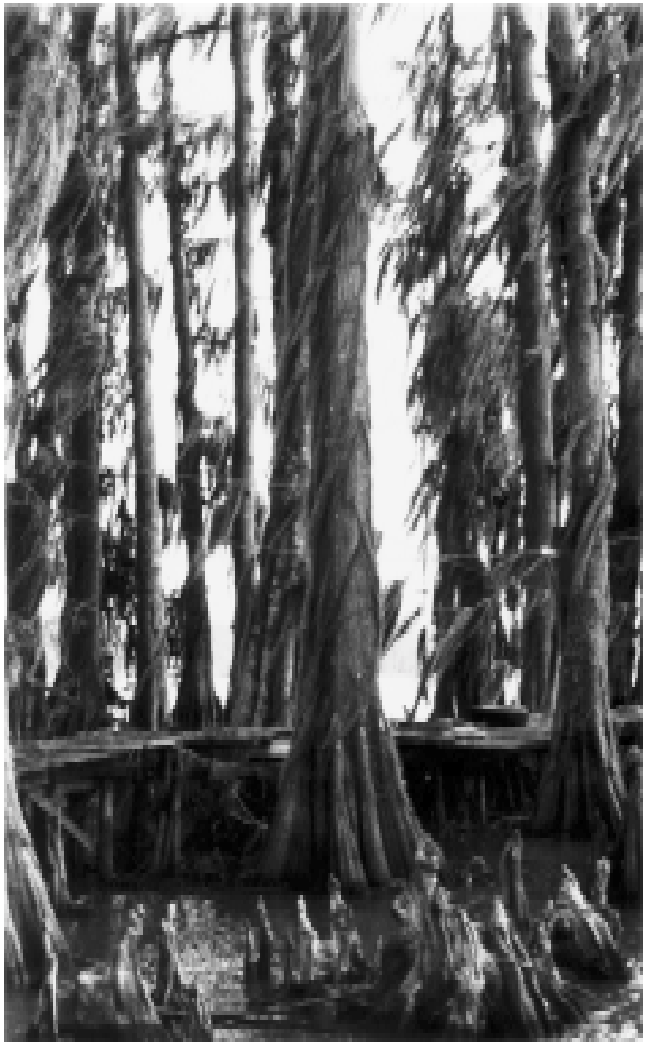
The attakapas Landing Boat Launch is the only public launch on the lake.

TOUR 30: Lake Verret Access, continued

ACTIVITIES:

• Take water samples at the lake and conduct water chemistry tests.
• Stop along the road near the lake and take water samples from the freshwater swamp. Compare these to those taken from the lake for water quality and microorganisms.
• Listen to swamp sounds and try to identify what you hear.
• Take plant samples and identify them using a guide book.
• For older groups, canoe along the shore of the lake observing plant types and wildlife. Bring notebook and pencil for sketching and notes. Bring camera for nature photography.

MAP: See page 94.



Old pier hidden in the cypress trees near the Attakapas Boat Launch on Lake Verret.

TOUR 31: Headwaters of Bayou Lafourche

CONTACT:

Director of the Bayou Lafourche
Freshwater District
1018 St. Mary Highway
Thibodaux, LA 70301 (985) 447-7155
www.blfwd.org

Call one month in advance to schedule a tour of the pumping station at Donaldsonville. This tour will be guided by the Director who will give an informative talk on topics concerning Bayou Lafourche, including:

- The history of Bayou Lafourche as a navigation channel, commerce corridor, and former distributary of the Mississippi River.
- The Bayou Lafourche Freshwater District - source of drinking water for 8% of Louisiana's population.
- Bayou Lafourche and coastal restoration efforts.

CATEGORY:

Hydrologic modification
Reduced sediment flows

ENVIRONMENT:

Mississippi River and freshwater bayous

GROUP TYPE:

K-Adult

DISTANCE:

To Donaldsonville pumping station:
35 miles from Thibodaux
32 miles from Baton Rouge
59 miles from Houma
95 miles from New Orleans via Thibodaux

DESCRIPTION:

Bayou Lafourche, which runs between the Barataria and Terrebonne basins, travels 110 miles from the Mississippi River at Donaldsonville to the Gulf of Mexico at Port Fourchon. This tour focuses on the pumping station at the headwaters of the bayou at Donaldsonville. It provides an overview of the role Bayou Lafourche plays in providing drinking water for 8% of Louisiana's population, serving as a corridor for commerce, and providing sediment and fresh water to one of the fastest eroding areas of the estuary.

Lafourche is French for "the fork," reflecting the fact that Bayou Lafourche was once a main fork of the Mississippi River. In fact, about 2000 years ago, it was the main course of the Mississippi River. By 1903, Bayou Lafourche had

The Bayou Lafourche Pumping Station
on the Mississippi River at Donaldsonville

greatly decreased in flow and was cut off from the Mississippi River by the damming of Bayou Lafourche from the Mississippi River in 1904 at Donaldsonville. This was done as part of a large-scale flood control project along the Mississippi River. Without the rush of freshwater from the Mississippi River, however, Bayou Lafourche quickly became very shallow, narrow and slow-moving. The flow of delta-building sediment from the Mississippi River waters down Bayou Lafourche and to the coastal area of Lafourche Parish was also greatly decreased. In 1955, in response to public pressure, a pumping station was built at the site of the headwaters of Bayou Lafourche in Donaldsonville. The introduction of river water into the old bayou bed brought new life to Bayou Lafourche. Today, this pumping station pumps 40 billion gallons of fresh water into Bayou Lafourche annually. About 20 billion gallons are used for drinking water, agricultural irrigation, and industrial operations.

Bayou Lafourche does carry fine sediment from the Mississippi River to coastal areas, however, much of the heavier sediment drops out within miles of the pumping station. Furthermore, land is now being lost through subsidence and erosion at such a fast rate that the fine sediments currently deposited by Bayou Lafourche are not enough to reverse this trend. Studies are being conducted to determine whether the introduction of more water with sediment into the bayou
is feasible and will make a greater impact on reducing land loss in the estuary.

For more information on these studies visit these internet sites:

- www.epa.gov/earth1r6
- www.bayoulafourche.org
- www.blfwd.org

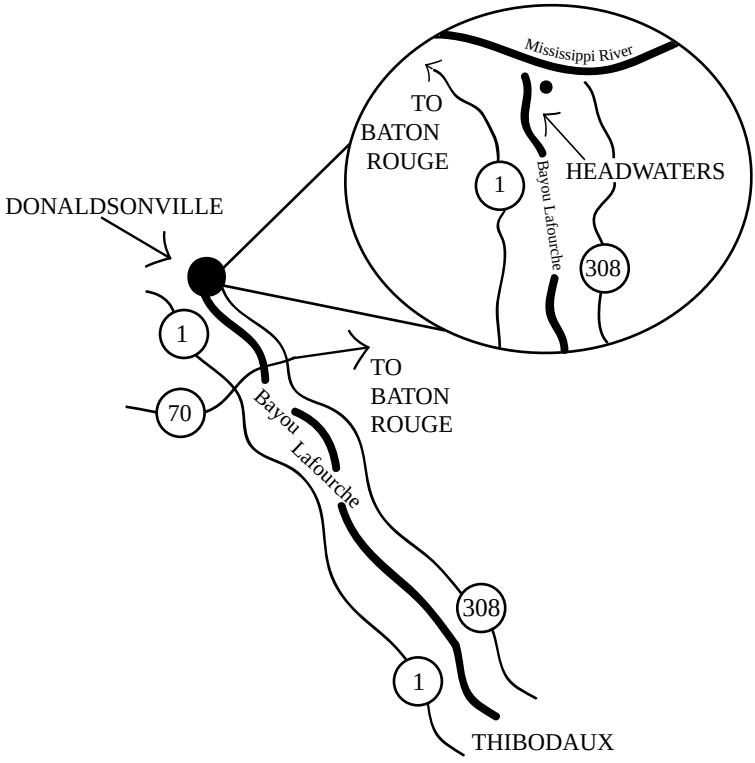
ACTIVITIES:

• Tour the pumping station and then walk across Hwy. 18 to the outflow area, now the actual headwaters of Bayou Lafourche.

• Conduct a turbidity test (see page 120) to determine the amount of sediment entering Bayou Lafourche at the outflow area. Conduct a second turbidity test along the banks of the Mississippi River near the pumping station. Compare the two and discuss the sediment flow in the Mississippi River compared to that in Bayou Lafourche. (These turbidity tests may be hard to accomplish depending on the river level at the time of the visit.)

• Visit the internet sites for information on current studies regarding the introduction of more freshwater and sediment into the estuary via Bayou Lafourche.

MAP:



TOUR 32: Historic Donaldsonville Museum

CONTACT:

Director
Historic Donaldsonville Museum
P.O. Box 1085
Donaldsonville, LA 70346
(225) 746-0004
(225) 746-0006 fax
www.hdm1806.org

Hours:
Wednesday, Friday and Saturday, 10 a.m. - 4 p.m.

CATEGORY:

Guided or self-guided tours
Museum

ENVIRONMENT:

Mississippi River levee area in historic downtown area

GROUP TYPE:

K-Adult

DISTANCE:

From Baton Rouge:
Exit 182 to LA 22
Cross the Sunshine Bridge and go 7 miles into Donaldsonville (Mississippi St.)
Take a right onto Railroad Ave.
The museum is on the left on the corner of Railroad Ave. and Mississippi St.

From Thibodaux:
Take LA 1 to Donaldsonville
When LA 1 veers left, go straight onto LA 18, which leads into Mississippi St.
Turn right onto Railroad Ave.

TIME:

Allow at least 1 hr. 30 min. for museum tour and levee walk

COST:

Free

DESCRIPTION:

Donaldsonville is the third oldest incorporated city in Louisiana. The museum has many different permanent exhibits that reflect the role the city has played in Louisiana history, including a "State Capital Gallery" that houses pictures and artifacts of the area when Donaldsonville was the capital of Louisiana (1830-1831). There are also the "Grand Theater Gallery," where an informational video is shown, and the "Gallery of the 1900s," where a collection of memories of Historic Donaldsonville are displayed.

The museum offers an impressive collection of Civil War and various other artifacts as well as a replica of Fort Butler. The remains of this Civil War era fort are now buried under the levee across from the museum grounds.

The tour also includes merchandise from Lemann's Department Store in 1877. The museum now occupies the Lemann's building. This exhibit includes original pictures, office furniture, hardware, tools, farm equipment, and clothing sold by the Lemann's Department Store.

There is an area dedicated to the history and printing press of the local newspaper, *The Chief*. Visitors can also examine an authentic 1926 Model-T automobile and a 1927 America-La France fire truck.

Tours are offered in five different languages: Spanish, French, English, German, and Italian. This museum also serves as a Tourist Information Center, providing travel information in these languages.

Historic Donaldsonville Museum

ACTIVITIES:

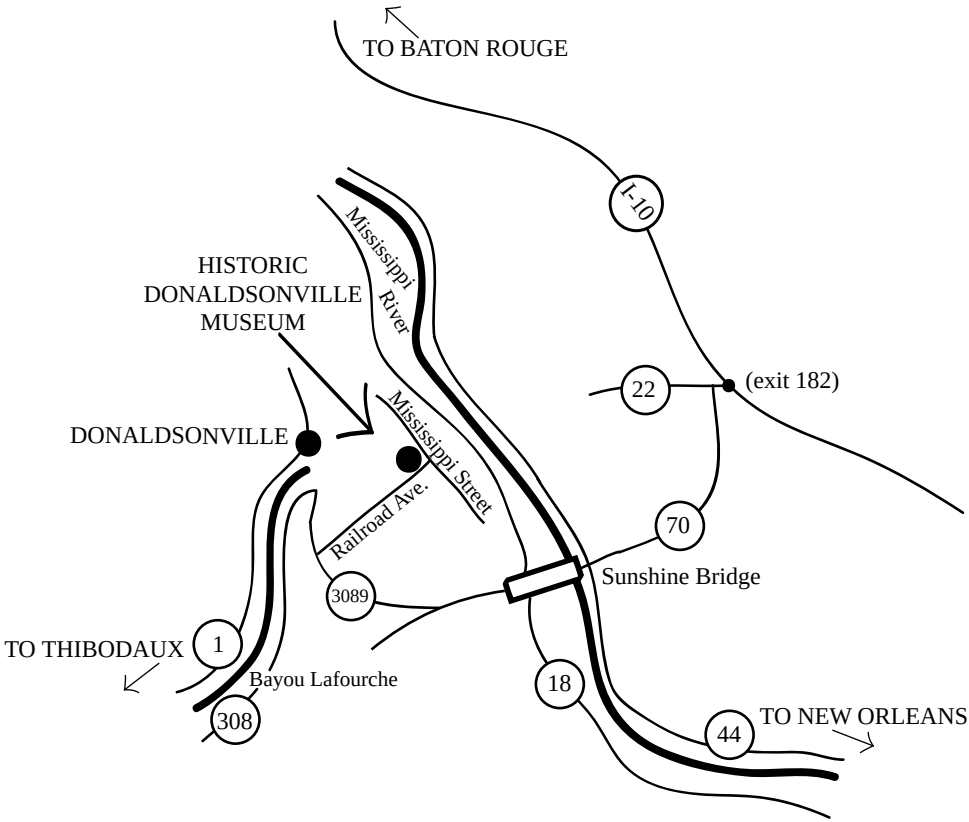
• After touring the museum, cross the street and explore the levee where Fort Butler once stood.

• Notice the location of boats along the Mississippi River levee and discuss what products are being shipped on the river. Compare these to what would have been shipped along the river in the 1800s.

• Discuss how this area was a major area of trade during the 1800s for Donaldsonville and surrounding towns and communities "down the bayou."

• Consider the role played by Lemann's Department Store. Visit the farm store across from the museum, which is still owned by the Lemann family.

MAP:



TOUR 33: River Road African American Museum and Gallery

CONTACT:

Museum Director
406 Charles St.
Donaldsonville, LA 70344
(225) 47405553
www.africanamericanmuseum.org

CATEGORY:

Cultural history museum and art gallery.

ENVIRONMENT:

Historic building in the town of Donaldsonville. Formerly located at Tezcuco Plantation, which burned in 2002.

GROUP TYPE:

K - 12

DISTANCE:

From Baton Rouge:
Exit 182 to LA 22
Cross the Sunshine Bridge and go 7 miles on Hwy. 70, which turns into Marchand Drive. Turn right at Hwy. 22 and left on Charles St.

From Thibodaux:
Take LA 1 to Donaldsonville
Take the bridge that crosses Bayou Lafourche at Marchand Drive. Turn left onto Hwy. 22 and left on Charles St.

TIME:

Allow at least one hour to tour the museum, gallery, and grounds.

COST:

Group rate is $4 per person. A storyteller can accompany the group for $50. Advan ced booking for all groups is required and can be done via the web site,www.africanamericanmuseum.org

EQUIPMENT:

Camera, notebook for notes and sketching.

DESCRIPTION:

The River Road African American Museum, located in the historic district of Donaldsonville focuses on the history and heritage of African Americans along

the Mississippi River. Exhibits include information on free people of color; African-American influences on cuisine; rural roots of jazz; River Road African-American doctors, inventors, and folk artists; the Louisiana Underground Railroad; Reconstruction; plantation education; and slave inventories.

ACTIVITIES:

Special school and church tour programs are available that draw upon the universal appeal of music, art and history to promote an appreciation for diversity and encourage creative expression for children visiting the museum and area plantations along the Mississipi River. Some hands-on activities, including a scavenger hunt. Call the musuem for information on special events.

Visit other museums and places of interest in the Donaldsonville area, see Tour 31.

Other groups can book the Heritage Tour which includes a museum tour, "Blues Lunch," and a neighborhood walking tour. Advanced booking is required. Charge is $25 per person.

MAP:

See page 102 for general directions to Donaldsonville,
then follow directions on page 103.

Front view of the museum.

TOUR 34: Historic Plaquemine Lock

CONTACT:

Plaquemine Lock State Historic Site
57730 Main Street
Plaquemine, LA 70764
Mon.-Sun. 9:00 a.m.-5:00 p.m.
www.crt.state.la.us/crt/parks
(click on Office of Tourism and search for "Plaquemine Lock")
Group tours are requested to call two weeks ahead.

Manager: (225) 687-7158
toll free: 1-877-987-7158

CATEGORY: Museum featuring Hydrologic Modifications

ENVIRONMENT: Mississippi River and freshwater bayous

GROUP TYPE: K-Adult

DISTANCE:

Located on Main Street in the city of Plaquemine
13 miles south of Baton Rouge
19 miles north of Donaldsonville
55 miles north of Thibodaux
90 miles northwest of New Orleans

TIME: Plan a one-to-two hour visit

COST: $2 for ages 13 - 61; all others free

EQUIPMENT: Binoculars, camera, lunch

DESCRIPTION:

The Plaquemine Lock once offered commercial boats a shortcut from the Mississippi River to the estuary basin area. It connected the Mississippi River to the Intracoastal Canal system (in 1925) on the Atchafalaya River via the naturally-occurring Bayou Plaquemine. The original lock was built in 1909 by the U.S. Army Corps of Engineers under the direction of the Col. George W. Goethals, who later designed and constructed the Panama Canal. Sometimes called the “Dutch Castle on the Hill,” it was made of white glazed ceramic brick that would reflect light, serving as a guide to river traffic at a time when

The "Dutch Castle on the Hill," built with white glazed ceramic tile that reflects light and once served as a traffic guide and landmark for river traffic

there were no lighthouses along the Mississippi River. With the construction of a larger lock at Port Allen in 1961, the Plaquemine Lock was closed. A section of levee was built in 1974 to completely seal off Bayou Plaquemine from the Mississippi River. This was done for flood control protection.

The Plaquemine Lock State Historic Site offers a scale model of the lock, showing exactly how boats once passed through it going to or from the Mississippi River. At the time of its completion, the lock offered the highest freshwater lift of any lock in the world - 51 feet - functioning on a unique engineering plan utilizing gravity-flow to fill and empty the lock chambers. This is explained through the scale model and a video presentation.

Adjacent to the lock is an open-air pavilion displaying water craft of the area.

ACTIVITIES:

• View the scale model for an understanding of how a lock works.
• Discuss the use of hydrologic modifications like levees and locks for flood control while continuing to allow commercial interests to prosper.
• Discuss how, before the erection of the Mississippi River levee, water from the Mississippi River once entered into Bayou Plaquemine, bringing freshwater and river silt into the estuary area.

TOUR 34: Historic Plaquemine Lock. continued

• Discuss how, before the erection of the Mississippi River levee, flooding of the City of Plaquemine and surrounding areas was a seasonal occurrence. Further discuss how destructive this was for the city and property owners but how beneficial it was to agricultural fields in the area. Conclude with an overview of how hydrologic modifications like levees and locks are constructed by man to control nature and develop areas that would otherwise be uninhabitable.

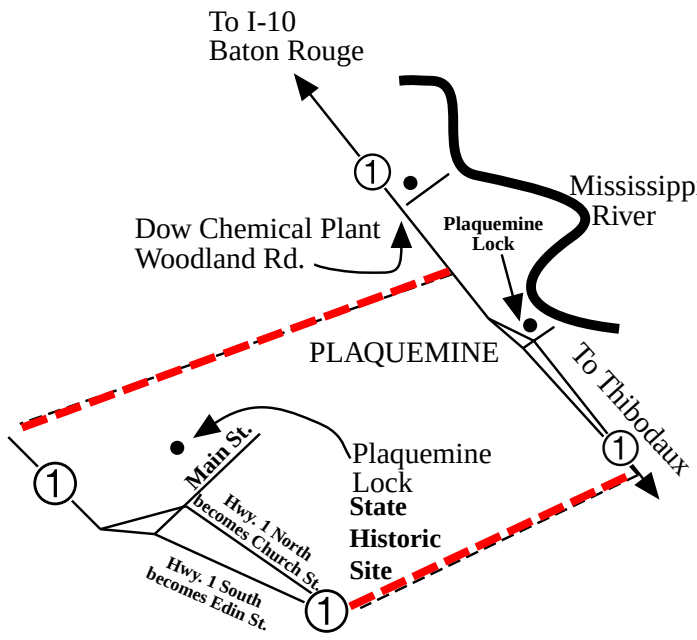
• Research Colonel George W. Goethals and compare the design of the Plaquemine lock to the Panama Canal.

• For Kindergarten age children: Discuss the historic boats that are docked year-round in the bayou. Learn the contours of the river by tracing it with crayons on a map. Teach the children how to tie different kinds of boat knots.

ADDITIONAL SUGGESTIONS:

Depending on the age of the group, this tour could be combined with a tour of the DOW Chemical Plant, see next page, or a historical/cultural tour of nearby Nottoway Plantation (225) 353-6623. Other attractions in the area include the Iberville Museum, St. John the Evangelist Catholic Church, and Historic Downtown Plaquemine Walking Tour (a printed guide available at the Lock).

MAP:



TOUR 35: Dow Chemical Plant

CONTACT:

Dow Chemical Plant
21255 Hwy. 1 South
Plaquemine, LA 70764

Tour Coordinator
(225) 353-6623
www.dowlouisiana.com
School groups should call two weeks in advance to schedule a tour.

CATEGORY: Industrial Site divers Mississippi River water for industrial use.

ENVIRONMENT: Mississippi River

GROUP TYPE: 6-12 to Adult
No more than 25 students per group

DISTANCE:

1.6 miles north of Plaquemine
11.4 miles south of Baton Rouge
20.6 miles north of Donaldsonville
56 miles north of Thibodaux
92 miles northwest of New Orleans

TIME: Two Hours

COST: Free

EQUIPMENT: No outside equipment allowed.

DESCRIPTION:

The Dow Chemical Company's Plaquemine Plant is one of few plants that allow a close-up look at the inside of a large petrochemical plant, one of several located along the Baton Rouge - New Orleans Mississippi River corridor. It is the largest petrochemical plant in Louisiana, with 23 separate production units on 1500 acres of former sugarcane field. The plant produces 50 different products. These include chlorine, vinyl chloride, chlorinated polyethylene and methocel - a wood pulp product used to thicken milk shakes.

TOUR 35: Dow Chemical Plant, continued

The conference center features displays explaining the production of these chemicals and how they are used.

All tours offer a video orientation of the facility. Tours include a bus tour through the plant and a walking tour through one of a variety of designated areas, including the Polyethylene Plant, Environmental Services, Research Lab, and Plantation House.

ACTIVITIES:

- Discuss with the Dow tour guide the reasons for locating petrochemical and other industrial plants like this one on the Mississippi River and the amount of freshwater the Dow plant pulls from the river each day for its operations.
- Discuss with the Dow tour guide the problems associated with the safe disposal of toxic waste, by-products of the production of useful petrochemical materials.
- Discuss how Dow is treating the toxic waste and how it is now disposing of this treated toxic waste, as opposed to pumping it into underground storage tanks.
- Observe the difference in the land now that it has been developed from a sugarcane field to an industrial site. Discuss what the land would have looked like in its natural state, before it was developed for sugarcane farming.
- Discuss the implications of various land uses, including industrial and agricultural.

MAP: See page 105.

A view of a petrochemical plant.

A working lock. Open gates at the Bayou Sorrel Lock. See next page.

TOUR 36: Bayou Sorrel Lock

CONTACT: Manager: (225) 659-7773
The lockmaster or his assistant will provide a 30-minute talk on the workings of the lock. Call at least one week in advance.

CATEGORY: Hydrologic Modification

ENVIRONMENT: Mississippi River and freshwater bayous

GROUP TYPE: Grades 3-12 and Adult

DISTANCE:

From Hwy. 1:
Take Hwy. 75 off Hwy. 1 at Plaquemine.
Go 13 miles to the Bayou Sorrel Bridge then
1.5 miles to the Lock.
Cross the bridge and turn left. The paved road becomes a gravel road that leads to the lock area. Good roads.

From Morgan City:
Take Hwy. 70 north, just past Belle River and turn onto Hwy. 997 to Bayou Sorrel Bridge.
Go 1.5 miles from the Bayou Sorrel Bridge to the Lock. Cross the bridge and turn left. The paved road becomes a gravel road that leads to the Lock area. Good roads.

TIME: Allow one hour for talk on how the lock words, question and answer session, and walk around the area.

COST: Free

EQUIPMENT: Binoculars, camera, Louisiana state map, and field guide to birds

DESCRIPTION:

Part of the Gulf Intracoastal Waterway, this lock connects the Mississippi River, via Bayou Sorrel, to the Atchafalaya River which then travels south to the Gulf of Mexico. Built in 1948, primarily as a flood control structure, the lock is now a very important link between the river and the gulf for commercial boat traffic. Operated by the U. S. Army Corps of Engineers, the Bayou Sorrel

TOUR 36: Bayou Sorrel Lock. continued

Lock averages 700 boats per month through its single lock structure. The lock works in conjunction with the Port Allen Lock located on the Mississippi River at Port Allen. Adjacent to the lock is a levee, beyond which is the Atchafalaya Basin. The location of the lock at this point is important in that it serves to protect inland freshwater areas from storm surges originating in the Gulf of Mexico. It also is used to allow flood waters from the Mississippi River into the Atchafalaya River during rare periods of exceptionally high river water. The area is filled with a variety of birds, including Bald Eagles which periodically fly over from their nesting grounds in the Atchafalaya Basin and other nearby areas. It is adjacent to one of the few places in the state occupied by the threatened Louisiana Black Bear.

ACTIVITIES:

• Use binoculars to observe and identify birds found in freshwater bayou areas, including the Great Blue Heron, Bald Eagle, egrets, Wood Ducks, warblers, and owls.

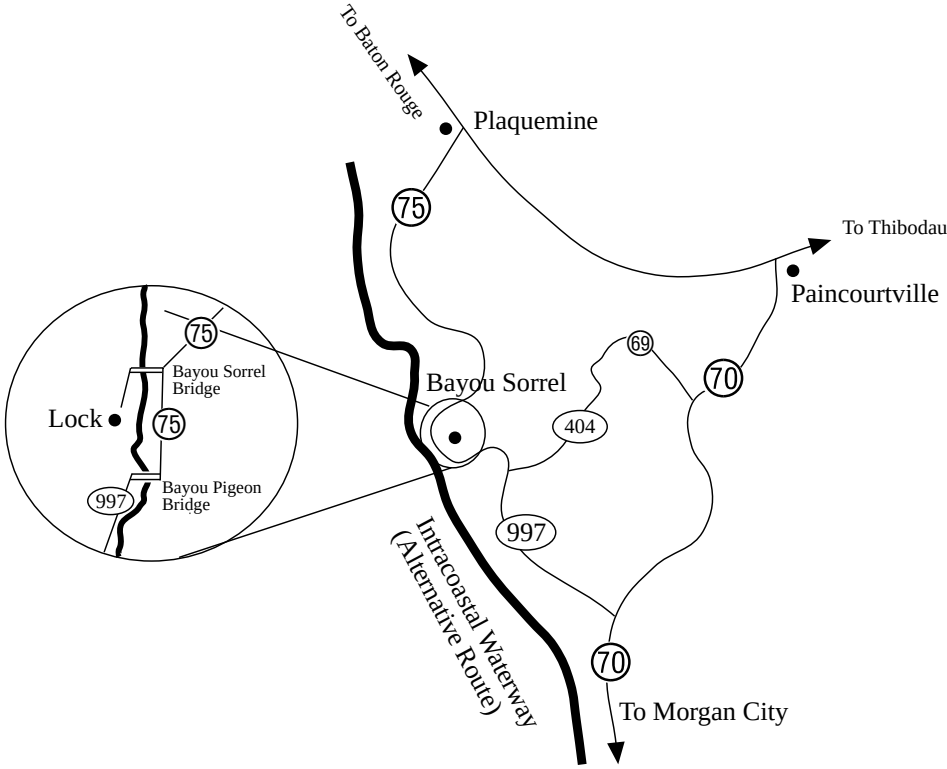
• Discuss natural river channel switchings and new delta development.

• Discuss the importance of preventing the Mississippi River from abandoning its existing channel and switching to the Atchafalaya River as its new course.

• Looking at a Louisiana state map, identify the Atchafalaya Basin and its proximity to the Mississippi River. Find the Old River Control Structure north of Morganza and Port Allen across the river from Baton Rouge. Discuss the need for the Bayou Sorrel Lock as a short cut for commercial traffic to and from the river. Before the creation of the lock, boats had to travel to the Old River Lock to enter the river or the Atchafalaya Basin en route to the Gulf of Mexico. Now they can use the Bayou Sorrel - Port Allen route. Compare the two routes.

• Combine this with Tour 32, The Historic Plaquemine Lock. Compare the two locks according to design and function.

MAP: See page 111.



Bayou Sorrel Lock

Aerial View of Morganza Spillway
Photo: U.S. Army Corps of Engineers

TOUR 37: False River • Morganza Spillway • Old River Control Structure

CONTACT:

False River Area:
The Pointe Coupee Parish
Office of Tourism
P.O. Box 733
New Roads, LA 70760
1-800-259-2468
www.pctourism.org

Morganza Spillway &
Old River Control Structure:
The U. S. Army Corps of Engineers
(225) 492-2169
www.mvn.usace.army.mil

CATEGORY:

Hydrologic Modification
Reduced Sediment Flow

ENVIRONMENT:

Mississippi River, Freshwater

GROUP TYPE:

Grades 4-12 and Adult

DISTANCE:

• False River is approximately 30 miles northwest of Baton Rouge via Hwy. 190 to Hwy. 1.
• Morganza Spillway is 10 miles north of False River on Hwy. 3131
• Old River Control Structure is 70 miles from Baton Rouge; 30 miles from False River, via Hwy. 1 to Hwy. 15; and 40 miles south of Vadalia on Hwy. 15.

TIME:

False River Area - minimum 30 minute stop
Morganza Spillway - minimum 30 minute stop
Old River Control Structure - One hour or more to tour the facility and view one of three videos:

- ***The 1973 Flood***
- ***Goodbye Louisiana - NOVA Special***
- ***The Mississippi River On Course***

COST:

No fees are charged at any of these locations.

EQUIPMENT:

Binoculars, camera, and Louisiana State Map

DESCRIPTION:

At the northernmost tip of the Barataria-Terrebonne National Estuary is the Morganza Spillway and, just to the north of the spillway, is the Old River Control Complex, built between 1957 and 1986. These two Mississippi River control structures impact the estuary by controlling the inflow of freshwater from the Mississippi River. The structures prevent the Mississippi River from changing course and flowing through the Atchafalaya River. Special technical presentations can be arranged upon request.

The Old River Control Complex

A tour of the Old River Control Complex includes a complete overview of the building of the structure, the history of Old River, the historical flooding of the Mississippi River, and recent attempts by the river to change direction and follow the course of the Atchafalaya River into the Gulf of Mexico.

The river has often changed course over time and a change to follow the Atchafalaya River channel would be a natural development if it were allowed to happen. The Old River Control Complex, however, is in place to keep this change from happening. If the Mississippi were allowed to change course, it would turn the present river channel into a saltwater estuary and the effects on the economy and fabric of life in southern Louisiana would be catastrophic. Corporations have constructed billions of dollars worth of petrochemical plants, refineries, grain elevators, and fossil fuel and nuclear electrical generating plants, most of which depend upon fresh water for their manufacturing process, along both banks of the Mississippi River. Also, cities below Baton Rouge, including New Orleans, would be hard-pressed to find drinking water. Furthermore, the Atchafalaya Basin could not accept the Mississippi flow without massive flooding, extensive relocations of communities, businesses and industries, and the upheaval of the social and economic patterns of that area. All port activities along the Mississippi River as we know them today would be disrupted and probably closed.

All of this information and more is included in a very informative free booklet available from the Army Corps of Engineers (see page 113 for contact). In addition to the Old River Control Complex, the nearby Sidney A. Murray Jr. Hydroelectric Station, Louisiana's first hydroelectric plant, is also open to tour. Call (225) 492-2153. This tour consists of a brief explanation of the station and a tour of the visitor center. (Advanced study, technical, or fairly small groups may be allowed to tour the inside of the Hydroelectric Station upon request.)

Old River Control Structure
Photo: U.S. Army Corps of Engineers

The Morganza Spillway

Just south of the Old River Control Complex is the Morganza Spillway. Groups traveling to the Old River Control Complex via Hwy. 1 will cross over the Morganza Spillway. The spillway was constructed in 1954. Its purpose is to control flooding on the Mississippi River by diverting water into the Morganza Floodway and the Atchafalaya Basin. The Spillway has only been opened once, in 1973, and this was not due to flooding but to alleviate water pressure at the Old River Control Complex. Most activity regarding both flood control and diversion of river water into the Basin and estuary areas takes place at the Old River Control Complex and not through the spillway. There are no guides at the Morganza Spillway; however, it is interesting to see the structure up close. Also, as you approach the spillway from False River, crawfish ponds are visible in the floodway area, an example of how closely economic development is tied to hydrological modification, like the spillway. The dead trees, visible on the right of Hwy. 1 as you head north, are the result of trapped floodwaters that remained caught within two levee systems. The hardwood trees, not able to live in standing water, died due to lack of oxygen. This is an example of how difficult it is to maintain a balance in an area altered by dams and levees.

False River - New Roads

False River is really not a river at all, it is a 22-mile long, 3,300-acre oxbow lake located 25 miles northwest of Baton Rouge in Pointe Coupee Parish. An oxbow lake is formed when a river changes course, leaving a wide loop of channel cut off from the main flow. This is what happened between 1713 and 1722, when the Mississippi River changed its course. Located 30 miles from Baton Rouge on Hwy. 190 and Hwy. 1, False River provides an interest-

ing stop enroute to Morganza Spillway and The Old River Control Structure.

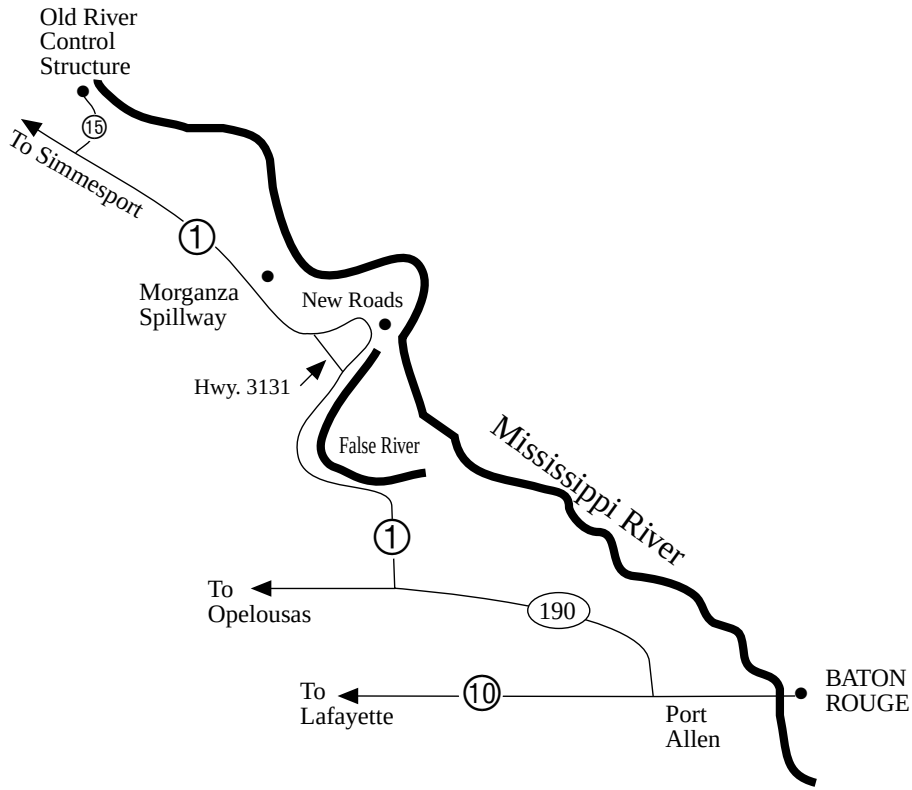
False River has recently suffered from poor water quality and noticeable siltation, according to information from the U.S. Army Corps of Engineers. An aquatic ecosystem restoration project is proposed to restore the health of False River. Of specific concern is the adverse impoct upon the fish population due to loss of habitat. Key problems include siltation, increased nutrient loading with pesticides and pollutants, and a marked decline in fish species richness and diversity. For more information, visit the U.S. Army Corps of Engineers web site at <www.mvn.usace.army.mil/prj/cap/falseriver/index.asp>.

Additionally,there are public boat launches, picnic tables and barbecue grills, a gazebo and a fishing pier located on False River near City Hall in New Roads (take Morrison Parkway). Also in the area are Alma Plantation Sugar Mill, which produces raw sugar and black strap molasses and has a country store, and Bergeron Brothers Pecan Shelling Plant, which offers tours between October and March.

ACTIVITIES:

• Order the booklet describing the Old River Control Structure and use it in class to discuss the area before taking the tour. The booklet can be ordered by contacting the Army Corps of Engineers at (225) 492-2169.
• Visit the U.S. Army Corps of Engineers web site at <www.mvn.usace.army.mil/prj/cap/falseriver/index.asp> for information on the aquatic ecosystem restoration project before planning a visit.
• Using a Louisiana state map, identify the location of the control structure and discuss the importance of its proximity to the Atchafalaya Basin and the Barataria-Terrebonne Estuary. Give concrete examples of how vital freshwater is to the basin and the estuary. Consider its importance to crawfishing in the basin, for example, and the role it plays in depositing sediment into the estuary.
• Discuss the problem of saltwater advancing into the basin and the estuary and the role freshwater releases from the Mississippi River play in countering the advance of saltwater into these areas.
• Discuss what happens when saltwater enters a freshwater area.
• Use a Louisiana map to look at the relationship of False River to the Mississippi River. Discuss why a river naturally changes course and try to determine why the Mississippi River changed at False River.
• Contact the Barataria-Terrebonne National Estuary Program (BTNEP) for a chart showing the different courses followed by the Mississippi River over time.

MAP:



Aerial view of False River, an oxbow lake that was once a curve in the Mississippi River.

Image by the U.S. Army Corps of Engineers.

REFERENCE MATERIAL

Louisiana Iris growing at Brownell Memorial Park near Morgan City

PUBLICATIONS AND ASSISTANCE

The Estuary Compact - An overview of the promise by many individuals, organizations, government entities and interest groups to work together to halt land loss, reduce pollution and create economic opportunities in the estuary. Contains 51 action plans.

Saving Our Good Earth: A Call to Action - This publication contains an overview of four status and trends reports and addresses other environmental problems in the estuary.

Citizens Action Handbook - A home guide to the estuary which lists various ways individuals can reduce water pollution. Poster format.

Priority Problems Poster Series - Seven posters, each depicting one of the priority problems within the estuary (see pages 6 and 7 for overview).

Haunted Waters, Fragile Lands: Oh, What Tales to Tell! - A documentary video discussing the history, ecology and culture of the estuary.

Rescuing the Treasure - The sequel to *Haunted Waters*, this video discusses the seven priority problems within the estuary (see pages 6 and 7 for overview) and suggests possible solutions.

To order these free publications and videos contact:

The Barataria-Terrebonne National Estuary Program
Nicholls State University Campus
P. O. Box 2663 Thibodaux, LA 70310
(985) 447-0868 or 1-800-259-0869
This program has volunteer speakers who can present on a variety of topics. In addition, they can assist your group with storm drain stencilling projects and other field activities. Call for more information.

Wetlands Functions & Values in Louisiana - FREE
LSU Agricultural Center Cooperative Extension Service
218 Knapp Hall Baton Rouge, LA 70803-1900
TEL (225) 578-2266 FAX (225) 578-2478

Wading into Wetlands - 1996 National Wildlife Week Educator's Kit
FREE
Louisiana Wildlife Federation
P.O. Box 65239 Baton Rouge, LA 70896-5239
TEL/FAX (225) 344-6707

Louisiana Environmentalist (Back issues only.)
LA Environmentalists
Circulation Dept.
P.O. Box 82231
Baton Rouge, LA, 70884-2231

Water Marks
Coastal Planning, Protection and Restoration Act
U.S. Dept. of the Army New Orleans District
Corps of Engineers -FREE
P.O. Box 60267, New Orleans, LA, 70160-0267

Project CEED
Call or write for information on an excellent,
reasonably priced wetlands
activity and curriculum package for educators.
Office of Environmental Policy,
The Audubon Institute, P.O. Box 4327, New Orleans, LA, 70178

Environmental Quality in the Gulf of Mexico, A Citizen's Guide
Center for Marine Conservation
1725 DeSales St., NW
Washington, DC, 20036

EPA Guide to Environmental Issues
U.S. Environmental Protection Agency
Public Information Center (3404)
401 M St. SW
Washington, DC 20460

Reversing the Tide
Louisiana Dept. of Natural Resources
Coastal Management Division
P.O. Box 44487, Baton Rouge, LA 70804-4487
Video on coastal erosion.

Gulf of Mexico Program
Public Information Office
Bldg. 1100, Room 232
Stennis Space Center, MS 39529
(228) 688-372

A variety of free fact sheets and publications on issues effecting the Gulf and its watershed.

PUBLICATIONS AND ASSISTANCE

The United States Department of Agriculture
Natural Resources Conservation Service (NRCS) FREE SERVICE

This agency has representatives who are available to speak at your school or meeting, on a variety of topics, including but not limited to: natural resources, coastal erosion, barrier islands, flooding, and forestry. In addition, they will assist your group with tree planting, assessment of wildlife values, erosion control, etc. They also provide technical and biological assistance, and information and education to landowners for conservation of natural resources.

Contact:
West Baton Rouge Parish- (985) 748-9034
Assumption Parish- (985) 473-7638
Terrebonne and Lafourche Parishes- (985) 447-3871
St. James, St. Charles, St. John, Jefferson,
and Plaquemines Parishes (985) 758-2162
Point Coupee Parish (225) 683-7746

AVAILABLE FOR SALE AT BOOKSTORES

The Beachcomber's Guide to Gulf Coast Marine Life
By Susan Rothschild (ISBN 1589790618)
available at:
Green Apple Books
506 Clement St.
San Francisco, CA, 94118
(415) 387-2272
www.greenapplebooks.com
OR
www.amazon.com

Field Guides, such as Peterson's or Audubon guides to Birds,
Trees, Wildflowers, Seashells, are available at most bookstores or through internet booksellers.

TIPS FOR A SUCCESSFUL FIELD TRIP

Plan ahead! Make arrangements well in advance. Bring raincoats and sturdy shoes for all outdoor tours. Have group members bring a journal and pencil for recording observations on outdoor tours. List predominant plants and animals encountered, as well as weather conditions, time, place and event. This practice is especially valuable in comparing the plants and animals from different habitats, and the information can be brought back to the classroom for review and discussion. Journals are also essential for recording water quality analysis data. Ziplock plastic bags or buckets with lids can transport water and samples to the classroom. Use a microscope to see plankton, algae, etc.

SUGGESTED TESTS AND ACTIVITIES

Water Quality Analysis

Water sampling equipment: clean bucket with lid or ziplock bags

Test:	**Equipment:**
temperature	thermometer
pH	pH meter
Dissolved Oxygen (DO)	DO meter (Kit is $50.*)
salinity	hydrometer (Electrical conductance meter is $45 or make your own soda straw hydrometer.*)

Temperature:

Compare the temperatures of two different water bodies.

pH:

Measure acidic or basic water properties.
Aquatic organisms have different ranges of pH tolerance.
Some ranges are broad, some narrow. Sea water tends to be basic.
In the presence of an algal bloom, fresh water will be very basic (high pH).

Salinity:

Test for saltwater intrusion, especially when dead oak trees are present.
Compare salinity of one body of water with another.
Compare salinity levels at different points in one water body (i.e. upstream vs. downstream).

Dissolved Oxygen:

Some aquatic organisms have a narrow range of tolerance, while others have a broad range of tolerance for oxygen deprivation. Water with high levels of nutrients from fertilizer runoff or organic waste often goes through a cycle of very high dissolved oxygen (caused by algal bloom), followed by low oxygen (from decaying algae), which can result in death to aquatic organisms such as fish. Remember when testing that fertilizer runoff can increase after heavy rain.

Turbidity:

Use a Secchi disk which you can purchase or make.* Turbidity is a measure of how clear or cloudy water is. When soil erodes and is washed into water, particularly after heavy rainfall, the water becomes more turbid and can kill aquatic plants by preventing sunlight from reaching them. Particulate matter in the water also gives bacteria a place to breed, therefore, turbidity is a primary test used in determining drinking water quality.

*See testing equipment source list for make-your-own items, hydrometer, and secchi disk page 124-125.

OTHER ACTIVITIES

VIEW AQUATIC ORGANISMS

(Grades 4-12)
Equipment: long-handled fine-mesh dip net, available through supply catalogs and at bait stores,
bucket,
hand-lens or magnifying glass,
field guide or handout on pond organisms
Some aquatic organisms, such as stoneflies, crawfish, beetle larvae, and leeches are pollution indicators; their absence may indicate pollution, while their presence indicates clean water.
(See ***LA Environmentalist*** July/Aug, 1993.)

FOOD CHAIN

Talk about the food chain or food web.
Discuss biodiversity.
Try to determine a food chain relationship among the insects and animals you encounter.

ANIMAL TRACKS

Make plaster casts of animal tracks.
Consult a field guide to animal tracks to determine what animals were in the area you visited.

ANIMAL SCAT HUNT

Look for the droppings of animals.
Try to determine what animals have been eating what animals.

SURVEY OF PLANTS AND ANIMALS

(Grades 1-12)
Record or draw the plants you see. Note which plants are dominant.
Also record: soil organisms; insects and other invertebrates in water; and vertebrates (mammals, birds, reptiles, amphibians, fishes).

ALGAE VIEWING

(Grades 3-12)
Equipment: hand lens or magnifying glass, notebook, and pencil.
Collect samples in jugs for magnified viewing in class or lab.
Draw specimens.

HABITAT EXPLORATION

(Grades 9 -12)
Equipment: small flags or stakes, journal, and pencil.
Break into small groups and have each group explore a small area.
Identify organisms; place a stake next to each.
Share findings among groups.
Discuss the habitat, including the physical and biological characteristics of each.
Compare the amount of biodiversity between habitats.

COMPARISON OF STOMATA OF AQUATIC PLANT TYPES

(Grades 9-12)
Equipment: net, bucket, clear fingernail polish, tweezers or forceps, microscope or hand lens. Collect *emergent*, *floating* and *submergent* plants in a bucket. Bring back to classroom or lab. Blot dry, and paint a section of leaf (top and bottom) of each plant type with clear fingernail polish. When dry, peel off nail polish with tweezers (you may have to dampen leaf), and mount onto a slide with a cover slip. Examine each under microscope for presence or absence and location of stomata (gas exchange holes). Discuss why stomata are located predominantly under the leaves on emergent plants (to prevent water loss), on top of the leaves on floating plants, and are absent on submergent plants.

TESTING EQUIPMENT

This list features some, but by no means all, companies supplying testing equipment.

Science Kit & Boreal Laboratories
777 East Park Dr.
Tonawanda, NY 14151
Orders: 1-800-828-7777
www.sciencekit.com

Ward's Natural Science
P.O. Box 92912
Rochester, NY 14692
TEL 1-800-962-2660
www.wardsci.com

Forestry Suppliers, Inc.
P.O. Box 8397
Jackson, MS 39201
TEL 1-800-647-5368
www.forestry-suppliers.com

AREA
P.O. Box 901303
Homestead, FL 33090-1303
TEL 1-305-248-4205
www.areainc.com

LaMotte Chemical Products Co.
802 Washington Ave.
Chestertown, MD 21620
TEL (410) 778-3100
www.lamotte.com

Carolina Biological Supply
2700 York Rd.
Burlington, NC 27215
TEL 1-800-334-5551
toll free fax 1-800-222-7112
www.carolina.com

Aquatic Eco-Systems, Inc.
1767 Benbow Court
Apopka, FL 32703
TEL 1-800-422-3939
www.aquaticeco.com

Aquacenter, Inc.
1667 Oaks Rd.
Leland, MS 38756
TEL 1-800-748-8921
www.aquacenterinc.com

Hach Company
P.O. Box 389
Loveland, CO 80539
TEL (515) 232-2533
www.hach.com

TESTING EQUIPMENT

MAKE YOUR OWN :

*Soda straw hydrometer: From *Project For Sea*, available through the National Diffusion Network (NDN).

Information on both the soda straw hydrometer and the secchi disk are also available from: Dr. John Trowbridge, Dept. of Teacher Education,
Southeastern Louisiana University,
SLU 10749,
Hammond, LA 70402
Phone: (985) 549-5242
E-mail: jtrowbridge@selu.edu

Louisiana Bayou Scene.

ADDITIONAL RESOURCES

Swamp tours: Educational swamp tours are offered in several parishes. These tours allow students to board a tour boat and get into swamps, and bayous. Many tours cross canals, including the Intracoastal Canal, and pass through a variety of environments. On some tours, evidence of saltwater intrusion and subsidence may be seen, and some offer a viewing of alligator feeding. One trip from Lafitte in Jefferson Parish takes small groups on a four hour excursion which includes a tour of the Pelican Rookery on Queen Bess Island. Queen Bess Island, which is accessible only by boat, is also the site of a barrier island restoration project.

For more information on swamp tours, contact the tourist commission for the respective parish.

- Jefferson Parish: (337) 821-5521 or 1-800-264-5521
- Lafourche Parish: (985) 537-5800 or 1-877-537-5800
- Terrebonne Parish: (985) 868-2732 or 1-800-688-2732

LOUISIANA WETLAND PLANT AND ANIMAL LIST

FRESHWATER MARSH

(salinity less than 0.5 ppt.)

Plants:

cattail
smartweed
pickerel weed
bull tongue
royal fern
spike-rush

Animals:

egrets
herons
ibis
geese
blue-winged teal
cottonmouth
alligator
mud turtle
red eared turtle
snapping turtle
snapping turtle
mink
otter
muskrat
nutria
deer
shrimp
crawfish

CYPRESS-TUPELO SWAMPS

Plants:

bald cypress
water tupelo
swamp black-gum
swamp red maple
green ash
pumpkin ash
virginia willow
button bush
lizard's tail
palmetto
spider lily
Louisiana iris
day flower
mosquito fern
coontail
water hyacinth
duckweed
water lettuce
water milfoil
widgeon grass

Animals:

alligator
nutria
otter
mink
swamp rabbit
heron
egret
osprey

CYPRESS-TUPELO SWAMPS, continued

Animals:

bald eagle
owl
mud snake
alligator snapper turtle
ibis
snowy egret
perch
largemouth bass

BOTTOMLAND HARDWOODS

Plants:

box elder
hickory
hackberry
hawthorn
holly/yaupon
sweet gum
wax myrtle
water oak
live oak
poison ivy
sweet briar
american elm
red mulberry
black willow
elderberry
blackberry

Animals:

raccoon
opossum
squirrel
swamp rabbit
nine-banded armadillo
crow
red-winged blackbird
warblers
orioles
brown thrasher
barred owl

SALTWATER and BRACKISH MARSHES

(salinity 10-20+ ppt.)

Plants:

black mangrove
sea ox-eye
salt grass
black rush
roseau-cane
three-cornered grass
glass wort
oyster grass
big cord grass
wire grass
salt grass
saltmarsh mallow

Animals:

egret
heron
black neck slit
clapper rail
ibis
gull
pelican
nutria
muskrat
fiddler crab
blue crab
periwinkle
ribbed mussel
oyster
polychaete worm
redfish
croaker
goby

OCEAN/DUNES

Plants:
Wire Grass
Glasswort
Seepweed
Sea ox-eye
Seaside Goldenrod
Rose-Gentian
Marsh Purslane
Seaside Heliotrope

Animals:
see salt water marshes

CREDITS

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