

**PLANNING A VISIT TO THE
BARRIER ISLANDS**

By

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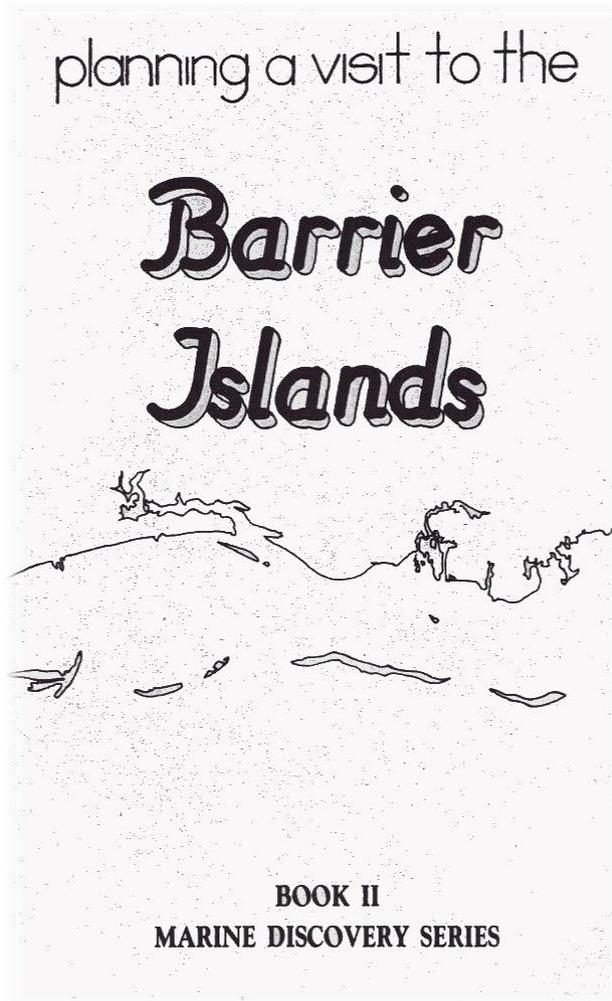
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PLANNING A VISIT TO THE BARRIER ISLANDS

In Central High School on the Mississippi Gulf Coast, each student enrolled in the marine biology course is required to participate in three field trips during the semester course. One trip involves a visit to one of Mississippi's barrier islands.

Mississippi's islands include two nearshore islands, Deer and Round, and four offshore barrier islands. The offshore islands are Cat, Ship, Horn, and Petit Bois. The offshore islands are from seven to twelve miles off the Mississippi coast, lying in a general east to west alignment.

One reason that the offshore islands are called barrier islands is that they separate the waters of the Gulf of Mexico and the Mississippi Sound. The offshore islands create a barrier between the open Gulf waters to the south and a different sea environment to the north of them known as the Mississippi Sound.

The Mississippi Sound is about eighty miles long, extending from Mobile Bay across the entire length of the Mississippi coastline to Lake Borgne in Louisiana. The barrier islands mark the southern boundary of the Sound. Great quantities of fresh water are emptied into the Sound by the Pascagoula and Alabama Rivers on the east and the Pearl River on the west. The fresh water, held in the Sound by the barrier island, helps to create an estuarine environment where the fresh water mixes with the salt water of the Gulf. Ordinarily the Sound is about half as salty as the Gulf.



The nearshore and offshore islands also provide protection for the Mississippi coast, helping to prevent erosion and flooding of the coastal mainland. In addition, they are storm buffers, helping to reduce the effects of waves that hit the Mississippi lands bordering the water. They are an invaluable part of the total environment of the Mississippi Gulf Coast.

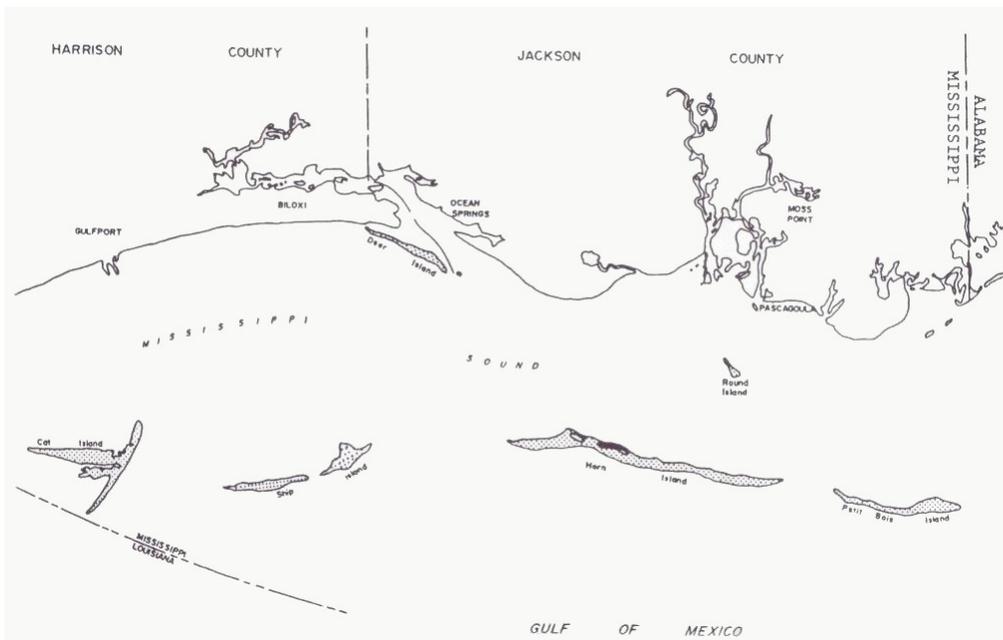
Along the offshore islands, the intertidal areas are almost entirely sand, with extensive grass beds along the Sound side. Water along these islands is usually clear. The islands provide fascinating areas for the study of marine life, since they provide habitats

for many sea animals, resident and migratory birds, and unusual vegetation in which the marine biology students are interested.

One theory says the islands were created by remarkable forces of nature that have gradually built up the islands through wind and wave action moving the sand. It is estimated that they build up slowly on the western ends--maybe two meters a year.

The offshore islands have been called by some writers "links in the chain"--but seen from above, they might more properly be labeled jewels, bound together on a shifting chain of hidden sands and polished by water and wind.

Because of their ecological value, some of the islands are protected. Petit Bois, Horn, and Ship Islands are part of the Gulf Islands National Seashore, authorized by Congress in 1971. Before that time, Horn Island was part of a wildlife refuge which had been managed by the United States Fish and Wildlife Service since 1958.



Mrs. Stevens, the marine biology teacher in Central High School, is very familiar with the barrier islands and knows that a good field trip does not merely happen. It must be thought about, planned for, and supervised

carefully. It is an extension of the classroom itself, moving with students into environments outside the walls of a building and using a different setting to help them learn. The ideal setting for a marine biology class, of course, is the sea itself--and those lands bordered by the sea.

The first field trip she plans will take her students to Horn Island, largest of Mississippi's offshore barrier islands. Horn Island offers students unique opportunities to put into practice much of what they have already learned. It is approximately ten miles south of Pascagoula, directly west of Petit Bois Island.

Mrs. Stevens plans to visit Horn Island first because she knows that a great deal of research has been conducted on the life forms there. Over 1,500 species of plants and animals on Horn Island have been categorized and analyzed by scientists. Her students

always find the island both beautiful and rewarding as they study its terrain and its plant and animal communities.

Before her students make their first field trip to Horn Island, Mrs. Stevens directs them in a series of activities that will help them benefit most from their visit. The preparation begins long before the actual excursion.

First, students learn to seine and to throw cast net and brail nets. They make beach trips to collect marine organisms, and they learn how to identify these creatures. Students also take care of the large salt water aquariums in the classroom. They collect other marine specimens from various sources; they read about the Mississippi Sound and its tidal systems, currents, size, shape, and weather; they learn safety rules; they identify shells; they compare jellyfish with ctenophores and study the anatomy and physiology of these and other organisms collected. They identify life cycles of shrimp, blue crabs, and oyster drills and learn to use the microscope effectively.

These are just some of the things the students must do--and learn--if their trip to a barrier island is to be productive and enriching.

One important part of the preparation is an attempt to help the students understand--and appreciate--the barrier islands, so Mrs. Stevens attempts to discuss the many aspects of the islands with her students. Usually there are a great many questions, and despite her careful plans, the classroom discussion extends far beyond the class period.

Many of the students are familiar with some facts about the islands; some of them have visited Ship Island on one of the excursion boats which carry visitors to and from Ship Island every day. All of them can see Deer Island as they drive down the Biloxi and Ocean Springs beaches. But their real knowledge of these offshore and nearshore islands is sketchy, at best.



The majestic osprey taking a fish to the young birds in the nest. The ospreys nest on the offshore islands.

As a preliminary to her discussion, Mrs. Stevens names the nearshore and offshore islands.

"They include, moving from east to west, Petit Bois, Horn, Round, Deer, Ship, and Cat Islands," she says, listing the names on the board. "Round and Deer are the nearshore islands."

"What are they like?" one of the students is certain to ask.

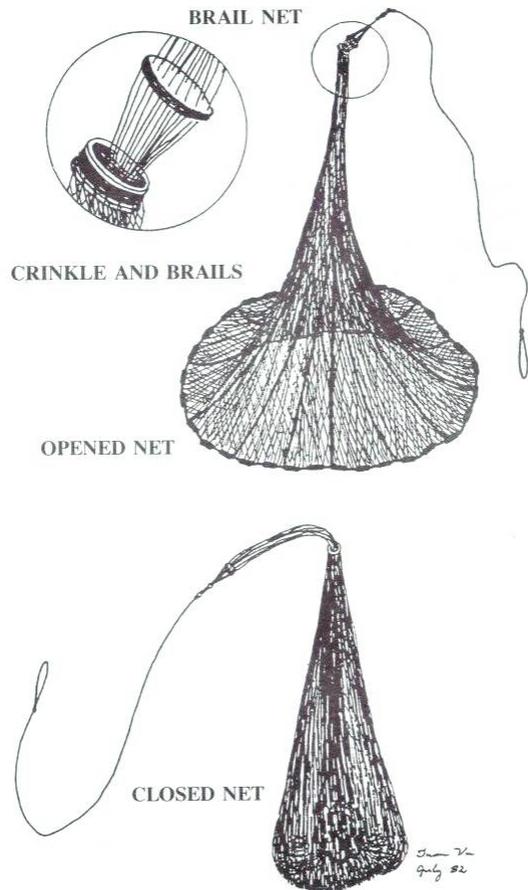
"Each of them is different; yet in many ways they are much alike. They are very beautiful and still remarkably untouched by any destructive forces other than those of nature itself."

"Are they deserted?"

"Well, if you mean are there people on them--yes and no. Ship Island, which some of you already know about, has park rangers from the National Park Service living on the island, because it is part of the Gulf Islands National Seashore and is under the control of the National Park Service. Horn and Petit Bois are also under the jurisdiction of the National Park Service. There are some park rangers on Horn Island and occasional campers on the island. Although there are no inhabitants yet, you can see a couple of the houses on Deer Island when you drive east. Scientists often visit the islands also. With the exception of general visitation by man, they're not used. There is a need for utilizing them very carefully. Their ecosystems are fragile. The best example of that is a barrier island which disappeared about forty years ago."

"Just disappeared?"

"Yes. It was called the isle of Caprice by people on the coast, although sea charts called it Dog Island, and it was located about fourteen miles offshore. It contained entertainment facilities, camping sites, and pavilions, and it was a popular resort in 1923. But the island was fragile, and as people continued to develop it, it began to erode. There are probably a great many reasons for its disappearance. Some people have said that too much of the vegetation was removed; others say that wind and tide erosion over the years caused it to disappear. It finally disappeared in 1931, leaving only an artesian well flowing above the surface of the waters covering the island."



One of the nets students use on field trips.

"You mean people can make islands go away?"

"Not often--but it has happened. And the islands are always changing--shifting--to a continuing state of erosion; hurricanes and small storms change them and man-made channels affect them."



"What's on them, then? What will we be looking for?"

"A large variety of plants, some of them unique; dune systems; tidal lagoons; and the salt marsh complex with interesting animal habitats--marine life of many kinds--"

"I know we're going to Horn Island on our first field trip, but what are the rest of the islands like?"

"Well, let me begin to the west--and I'll move east as we island-hop. The one farthest west is Cat Island--seven miles off the coast of Gulfport and Long Beach."

"Why is it called Cat Island? That's a funny name for an island, isn't it?"

"It was first named Ile Aux Chats, because of the raccoons the French found

there in 1699. They reminded the French explorers of cats."

"Is that d'Iberville you're talking about? We studied him in our Mississippi history class."

"Yes--Pierre LeMoyne, Sieur d'Iberville. His fleet anchored at Ship Island on February 10, 1699. They visited all the islands apparently and set up a fort on the coastal shore where Ocean Springs is now."

"There's a lot of history connected with the islands, then?"

"Yes, the history of the islands is colorful and interesting. Cat Island, for example, was used by a small colony of French military men in 1757. They are said to have mutinied and executed their commander. And the English tried to get the island's owner, Juan Cuevas, to lead them through the passes of the coast to New Orleans in the War of

1812. Cuevas would not help the British and gave General Andrew Jackson time to prepare for the Battle of New Orleans in 1814 and defeat the British. The British placed their civil government contingent on Cat Island prior to their capture of Ship Island as their staging ground for the assault on New Orleans. In more modern times, Cat Island has been used by the Seabees for maneuvers in World War II.

"The T-shaped island is only about six miles long from east to west. The top part of the 'T' runs generally north and south and is about three miles wide. Its shoreline is about twenty-one miles in all, with three miles of beautiful beach. Cat Island covers about 2,500 acres. At one time it produced oysters from the South Bayou, where smugglers later operated."

"Smugglers?"

"Probably all of the islands have seen some smuggling operations of one kind or another over the years. They were convenient places for smuggling liquor into the country when liquor was prohibited in the United States, for example."

"And Indians?"

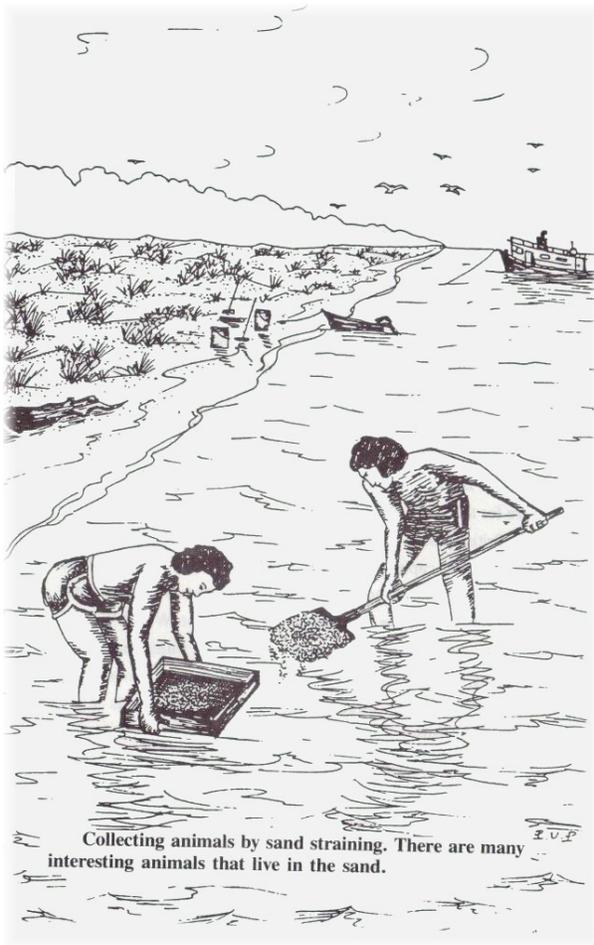
"Yes, Indians. Indian artifacts are still being found on the islands--broken pottery, arrowheads, remains of camping areas."

"What's the next island in the chain?"

"The one you probably know the most about, Ship Island. Today, it's really two islands, because in 1969 Hurricane Camille literally separated it into two parts, making a cut about 5,500 feet wide. In the early 1800s and twice before that time, the island was also divided, but grew together again through action of the winds



Sea oats on the offshore islands protect the sand dunes.



Collecting animals by sand straining. There are many interesting animals that live in the sand.

and tides. The division caused by Hurricane Camille cut a channel as much as six feet deep between the two halves of the island."

"Ship Island has a lot of history, doesn't it?"

"Yes. I told you that Ship Island is where d'Iberville first anchored in 1699, and it was named Ile de Vasseau, which translates into Ship Island. The British fleet gathered there in 1814 to attack New Orleans, with the largest sea force ever to enter American waters."

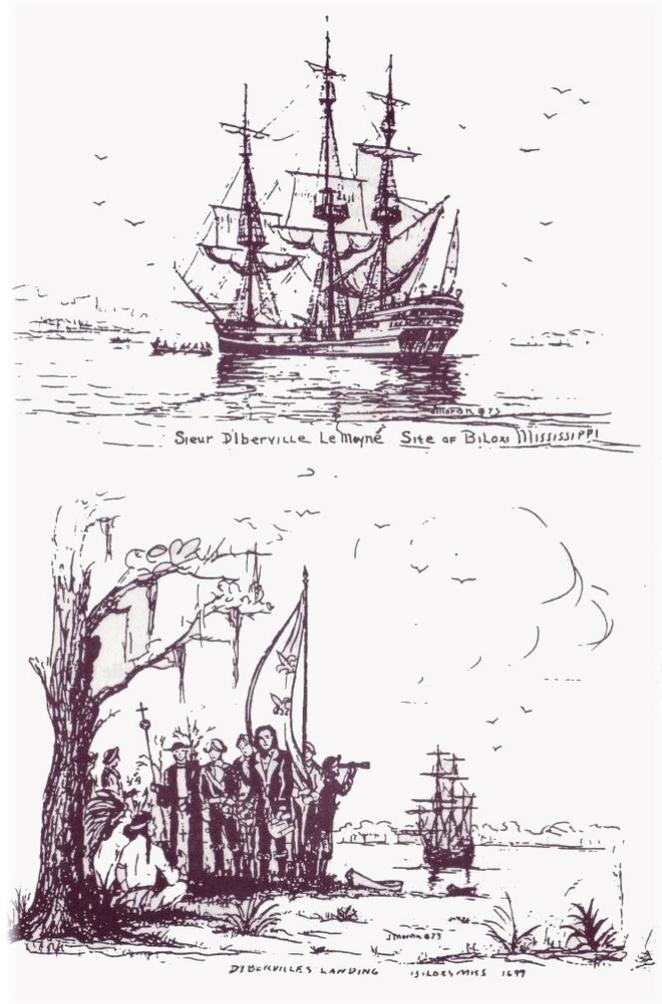
"Isn't that where the fort is?"

"Fort Massachusetts? Yes. And it is where most tourists go when they visit Mississippi's offshore islands. It has regular boat service, and you can go through the fort."

"Why is the fort there?"

"It was started in 1856 and was intended for the protection of the Gulf coast and New Orleans, but it wasn't finished until 1871. It is shaped like a horseshoe and built of brick. It is on the northwest end of Ship Island and has been threatened by erosion over the years. It is 115 feet across the flat east side, 180 feet north to south, and 105 feet wide east to west. The walls are five feet thick, narrowing to three feet and two inches at the places where guns were to be placed. Today there is one large canon on the northeast upper corner of the fort. The fort was not completed when the Civil War broke out, so it had to wait for completion until ten years later.

"During the Civil War the island was used as a federal naval base and then as a prison camp for Confederate captives. The island became a quarantine station in 1878--housing immigrants coming into the country and serving as an isolation station for yellow fever victims. For a long time it was used as a loading site for timber cut on the mainland."

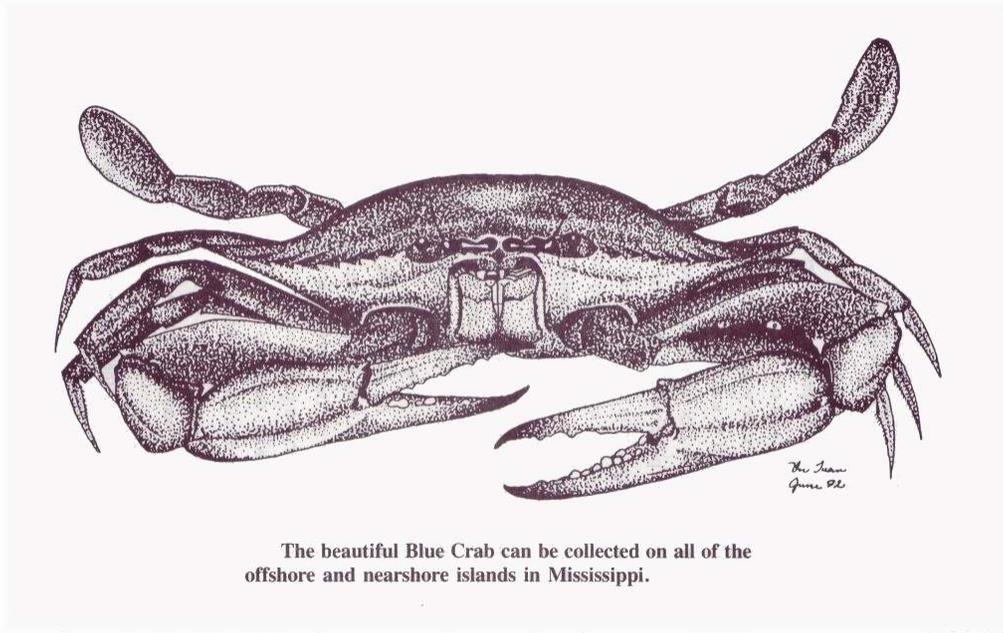


"How big is Ship Island? It seemed pretty big to me when my folks took me out there a few years ago--but I was little then and everything seemed big."

"Well, when the island was one piece, it was about seven miles long and half a mile wide at its biggest part. It lies south of Biloxi. The pass from the Gulf into the Mississippi Sound is just off its western tip, separating Ship Island from Cat Island by about six miles."

"I'd hate to be there when a hurricane struck."

"I think I wouldn't want to be on any of the islands during a hurricane, and Ship



Island has weathered many such storms. It's a matter of record that in 1721, for some reason, ships anchored at Ship Island rode out a big hurricane safely, while many ships along the coast were not so fortunate."

"Is Ship Island the biggest of these islands off the Mississippi coast?"

"No. The one we're going to visit on our trip is the largest."

"Horn Island?"

"Yes. Located south of Bellefontaine Point and Gautier, southwest of Pascagoula, it's over thirteen miles long, with a high protective dune ridge several miles long on the northern edge. There are also large dunes on the south side. One feature of the barrier islands is that the southern shores of the islands are generally firmer and more clearly defined. The northern shores have been eroded by strong currents, and are not replenished by wave building action. The northern shores are often poorly defined and made of coarser sand. Ponds, lagoons, and marshes are found on the northern side. It has a westward accretion--"

"A westward-what?"

"Accretion. An 'adding to.' The currents and drifts carry sand westward. In this way they build up the western ends of the island while at the same time eroding the eastern ends. The result is a gradual westward drift of all the offshore islands."

"You mean they move?"

"If you could see the old charts, you would be able to see that they have gradually moved westward. It's interesting that Petit Bois used to be a part of Alabama, but because of the westward shifting, is now part of Mississippi."

"Did anybody ever live on Horn Island?"

"Yes. There are records of a few families having lived on Horn, farming and raising cattle and hogs. Some colonial families probably lived there for short periods. At one time sand was hauled from Horn to New Orleans for glassworks."

"I heard somebody say that it used to be a military installation."

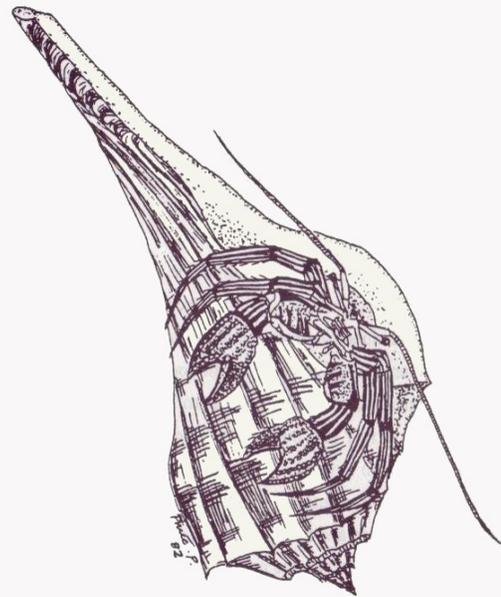
"In 1943, during World War II, it was acquired by the Biological Warfare Service."

"Like 'germ warfare', you mean?"

"Yes. The military conducted biological research there in a warfare research testing installation. They had building and a short railroad and scientists lived there. It was deactivated in 1945."

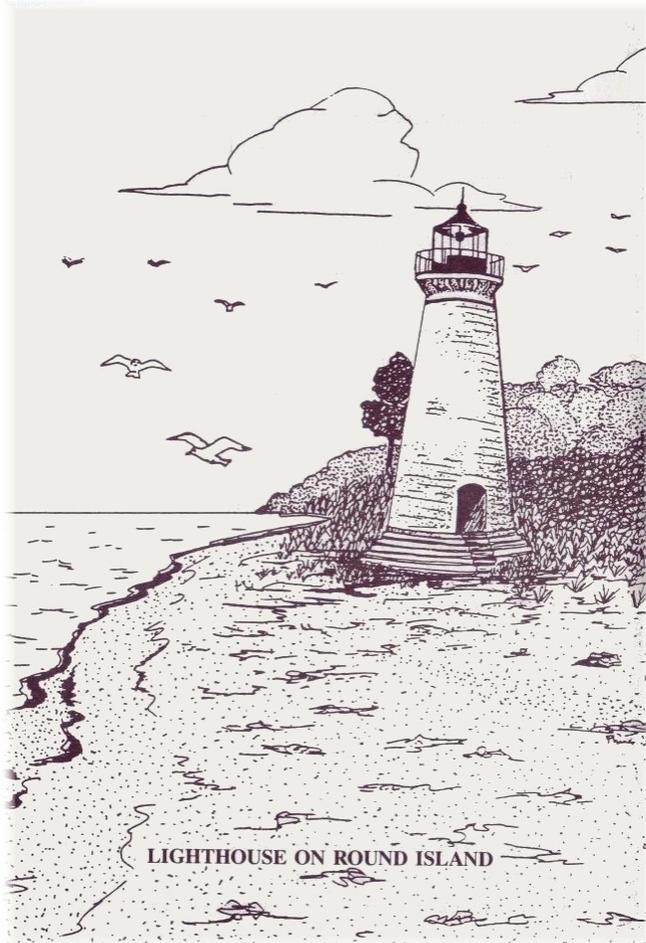
"Is it pretty barren now?"

"Not at all. About a third of it is made up of beach dunes, but there are close to five-hundred acres of woodland. On Horn you'll find marshes and meadowland. You'll see live oaks and palmettos and magnolias and pines and marsh plants--pennyworts and salt grass and bush goldenrod. I think you'll be surprised how much of the island 'lives.' There are brackish and freshwater marshes, each with interesting life forms. The marshes are from a few to several hundred feet across. There are ponds with low salinity. You'll see evidence of a wide variety of animal life. There are migratory and resident birds,



The Hermit Crab is always present around the offshore and nearshore islands.

nutria, muskrat, raccoons, hogs, rabbits, snakes. Before we make our trip, we will make a list of those things we're looking for. And I'll identify the marine specimens we find, if you can't do that yourself. You know, of course, that we have to have permission to visit Horn Island."



"Why? Who gives you permission?"

"The National Park Service office in Ocean Springs. The United States Department of Interior obtained jurisdiction over Horn Island and Petit Bois as part of the Gulf Islands National Seashore on January 8, 1971. The Park Service protects the islands. Ship Island, too, is part of the Gulf Islands National Seashore."

"Does that mean they belong to everybody now?"

"It means that they will be protected for people to enjoy these natural areas forever. The National Park Service rangers act to protect wildlife and to preserve the islands always in their natural state. We will be visitors--and we will not do anything to harm or alter the environment. We won't injure any

shrub or tree or pick the sea oats or collect any wildlife. All of that is prohibited. You can gather seashells and use driftwood for firewood, but we won't leave any trash there or do any damage. We owe that to the island and to other people--and to ourselves!"

"Are these all the Mississippi offshore islands, then?"

"No. There is also Petit Bois, just east of Horn Island, south of the Pascagoula area. This island probably separated from Dauphin Island, south of Mobile, in the mid-1700s. Petit Bois is about 6.7 miles long. The name means 'Little Woods,' and there are about fourteen acres of woodland on Petit Bois. Then north of the eastern end of Horn Island is Round Island, which is one of the nearshore islands. It is about four miles south of Pascagoula. And, of course, you know about the other nearshore island, Deer Island, just off the Biloxi shore."

"Isn't there a lot of controversy going on about Deer Island now?"

"Yes. The island is small--about five miles long and a half a mile wide--and there are efforts being made now to 'develop' it."

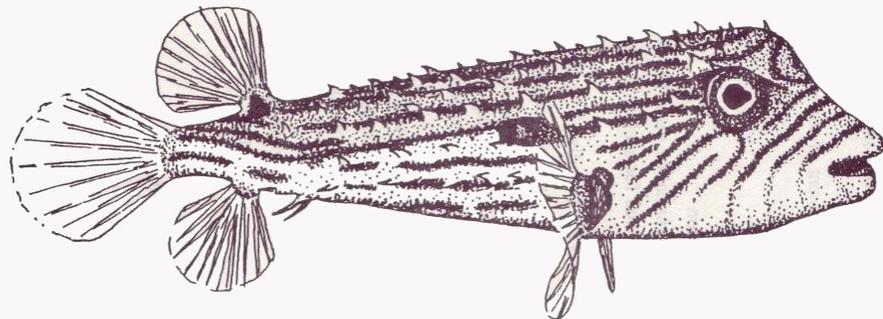
"What do you mean--'develop'?"

"To make it available for people to live there--to put up houses and build recreational areas and streets. Some people do not want it to be altered. It has both privately owned acres of uplands and several hundred acres of public wetlands. I'm sure that some of you have been out to Deer Island many times."

"When are we going on the trip, Mrs. Stevens? Will you tell us what we need to take? What do we have to do to get ready? How many people can get on the boat? Do we leave early in the morning and stay out there all day?"

"Just a minute--I'll answer all those questions. But today I just wanted to introduce the islands off the Mississippi Gulf Coast to you. If you have any questions, we'll have to get to them later. The period is almost over now. But the best answers, of course, will be found on the island itself. That's where you'll learn most."

There are a great many more things to be said about Mississippi's island, Mrs. Stevens knows. But she is right. The best possible classroom for her marine sciences class will be the field trips themselves. She will need to make many more preparations for the first trip to Horn Island, but she has made a beginning.



BURRFISH OR SPINY BOXFISH

An interesting fish which can be collected in a seine or trawl while on a field trip. It can inflate as a means of defense.

Soon the entire class will embark on a new and fascinating voyage into the life of the barrier islands. There the real learning will take place.

There, Mrs. Stevens is certain her students will begin to understand and to appreciate the natural wonders of an important feature of the marine environment off the Mississippi Gulf Coast--the nearshore islands and the offshore barrier islands.

A GLOSSARY FOR ELEMENTARY STUDENTS

access	a way or means of approaching
accretion	an increase by gradual external addition
alter	change
anatomy	structure of an animal or plant
artifacts	man-made objects
authorized	to give authority for
barren	unproductive, empty
barrier	natural obstacle, something in the way
brackish water	water in which the salinity is variable, usually lower in salinity than ocean water and ranging from approximately 0.05 to 17.00 or more parts per thousand
channel	passage
colonial	of times when America was a colony of England
complex	complicated, made up of interconnected parts
ctenophore	swimming marine life form with gelatinous body
controversy	conflict, dispute
dune	sand hill or sand ridge
environment	surroundings
erosion	wearing away
excursion	trip
extension	expansion, lengthening
habitation	site of life, place where things live below the high water mark
jellyfish	one of marine life forms with soft, gelatinous structure
lagoon	area of shallow water separated from the sea by low banks
mainland	principal land area of a state or country as opposed to island areas
maneuvers	planned movement of troops
marine	of the sea
marsh	low, wet land
meadow	grassland
mutiny	revolt or rebellion
organism	any form of animal or plant life
pavilion	open building used for shelter, concerts, entertainment, etc.
pennywort	a plant having round-ish leaves
physiology	a science dealing with living organisms or their parts
pollution	the introduction of elements, compounds, or any other matter into places where living organisms are harmed, causing slow growth, prevention or alteration of growth, or death

quarantine
refuge
resources
salinity
smuggler
specimen
tidal
unique
uplands
vegetation
wetlands

to isolate or separate, usually because of disease
shelter or protection from danger
support items, life support materials
state of saltiness
one who secretly brings in goods
part of individual typical of a group
of the tides
one of a kind
land higher than nearby land
plant life
low land, influenced by water

