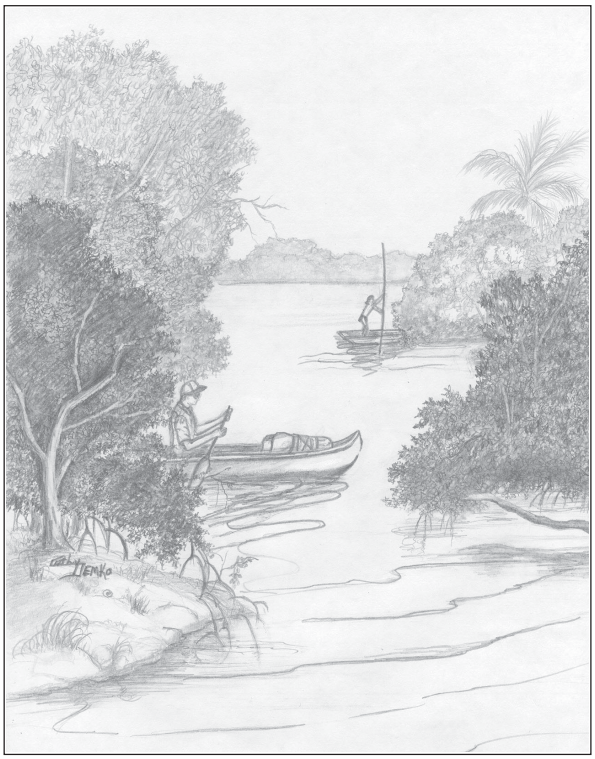
Rookery Bay
National Estuarine Research Reserve

Paddle Into the Past...

a guide to the Shell Point Canoe Trail



The Friends of Rookery Bay

FLORIDA

Naples Daily News

NOAA

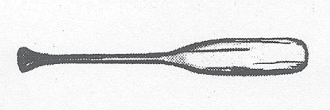
Shell Point Canoe Trail

Introduction

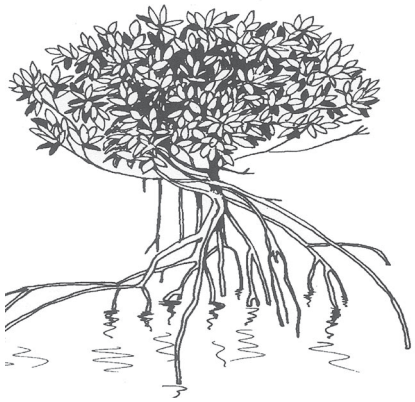
The Rookery Bay National Estuarine Research Reserve is managed by the Florida Department of Environmental Protection, in cooperation with the National Oceanic and Atmospheric Administration (NOAA). It is one of 26 reserves nationwide dedicated to research and protection of estuaries. An estuary is a coastal body of water where fresh water draining from land mixes with salt water from the sea. Estuaries are areas of high productivity, providing nurseries for many species of fish, and feeding and resting grounds for local and migratory birds.

A canoe trail was created by the Friends of Rookery Bay starting at the lagoon at the end of Shell Island Road. The road was built with materials excavated from a shell mound that was once the site of a Calusa Indian village in the lagoon. Calusa villages were built on large, flat-topped mounds of discarded shells. These mounds, or middens, are evidence that the Calusa thrived on shellfish. As a nonagricultural coastal people, the Calusa relied on the productive estuary for survival. In order to make travel in their dugout canoes easier, the Calusa dug a network of canals across the shell mounds. Perhaps these ancient inhabitants once traveled the Shell Point Canoe Trail. As you explore the trail, think of the Calusas and how they made use of the many natural resources within the estuary.

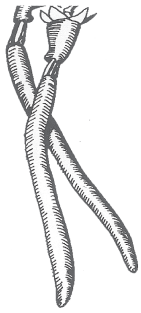
This publication has been designed to provide assistance in exploring the Shell Point Canoe Trail. The trail is two miles in length. Although this is a quiet water trail, basic canoeing skills are required, as there are some narrow areas where maneuvering canoes or kayaks can become a challenge. It is suggested that participants have 1) plenty of water, 2) sunscreen, and 3) insect repellent with them. Follow all of the signs closely, do not remove anything from the trail, do not litter, and, most importantly, have fun!



MARKERS 1 AND 2



Red Mangrove *(Rhizophora mangle)*
The red mangrove grows along the water's edge. It can be identified by its reddish tangled roots known as prop roots. These are the most common mangroves seen along the Shell Point Canoe Trail.



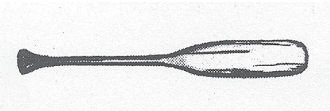
You may see what appear to be rooted sticks floating in the water near the mangroves. These are mangrove seedlings or propagules. Unlike most flowering plants, the fruit of the mangrove remains on the tree until the seed develops into a 12-inch seedling. After dropping from the parent tree, the propagule can float for up to a year until it anchors in the sediments of a shoal or island.

The Calusa used the wood of the red mangrove in the construction of the atlatl, a device used to hurl a spear with great force. The length of the atlatl varied depending on the terrain; dense vegetation required a short atlatl with a dart while an open terrain required a long atlatl with a spear.

Red mangrove prop roots provide structure and shelter habitat for juvenile fish. Because the leaves of mangrove trees are constantly being shed, they provide an important food source for aquatic consumers called detritus. Mangrove leaves and twigs that fall into the water attract algae and bacteria, also known as decomposers. These microscopic organisms break down the leaves and serve as food for small invertebrates like worms and crabs, which, in turn, are fed upon by small fish, and so on.

Animals that depend on mangroves for essential habitat at some stage in their lives include pink shrimp, blue crabs, juvenile snappers and redfish, mullet, roseate spoonbills and great white herons. The sediments of the mangrove swamp also act as a natural water filter and add stability to the shoreline, protecting the mainland from erosion and other storm impacts.

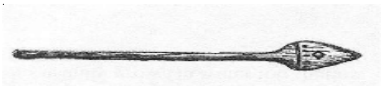
Canoe Tip: Watch out for oncoming boats! Turn your canoe to paddle diagonally across the wake.



MARKERS 3 AND 4

Black Mangrove *(Avicennia germinans)*
The black mangrove occupies slightly higher elevations than the red mangrove. The black mangrove can be identified by the leaves' silvery underside and the numerous pencil-like roots called pneumatophores that protrude from the soil beneath the tree. This species of mangrove has adapted to life in saltwater by excreting salt through the leaf surfaces. In dry weather you may be able to see salt crystals on the leaves.

White Mangrove *(Laguncularia racemosa)*
The white mangrove typically occupies the highest coastal elevations. In contrast to the red and black mangroves, it usually has no visible aerial root system. It can be identified by its elliptical light green leaves which have two glands on the leaf stem that excrete sugar.

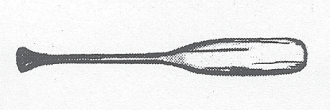


The waters surrounding mangrove trees served as a popular fishing ground for the Calusa. When they inhabited the estuary, fish were overly abundant because the mangrove ecosystem was very healthy. The mangrove system plays a vital role in fish life cycles, providing both protection and food.

Fishing is continues to be an important activity in the mangrove estuaries of Rookery Bay. Recreational fishermen angle for spotted seatrout, redfish, snook and tarpon. These waters are also important habitat for juvenile grouper, snapper and mullet. Stone crabs and blue crabs are also common here.

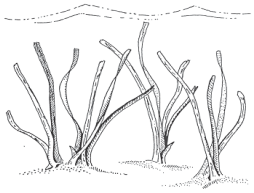
Mangroves must invest energy to deal with the daily changes in water levels and salinity. This can leave them especially vulnerable to the effects of pollution. When mangrove ecosystems are destroyed, sport and commercial fishing industries decline.

Canoe Tip: Always wear a personal flotation device (life jacket) while canoeing.

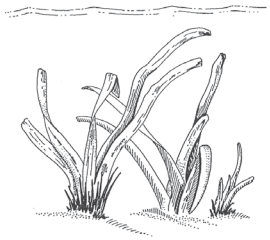


MARKERS 5, 6 AND 7

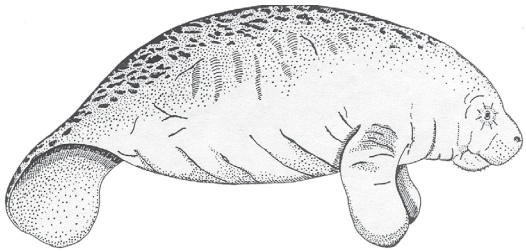
Throughout this trail watch for evidence of other wildlife and different habitats, such as oyster reefs and seagrass meadows, that are often visible under water on calm days. Seagrasses are important to the estuary. They provide habitat for young marine animals, protecting them from open-water predators. They also maintain water clarity by trapping sediment and stabilizing the bottom with their roots and rhizomes. Manatees, sea turtles and fish eat seagrass blades or the organic matter that they accumulate among their blades. Two of the most common seagrasses in Rookery Bay are shoal grass and turtle grass.



Shoal Grass *(Halodule wrightii)*



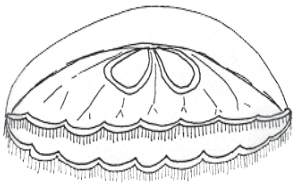
Turtle Grass *(Thalassia testudium)*



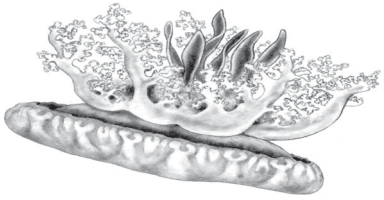
Florida Manatee *(Trichechus manatus)*

The endangered Florida manatee is a slow-moving marine mammal weighing around 1,300 pounds. Manatees can be found year-round in the waters of Rookery Bay. They typically remain submerged for 3-4 minutes grazing in shallow water on aquatic vegetation. These marine mammals are harmless, graceful swimmers that are easily harmed by motor boats.

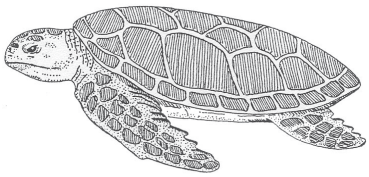
MARKERS 8 AND 9



Moon Jelly *(Aurelia aurita)*



Upside-Down Jelly
(Cassiopeia xamachana)

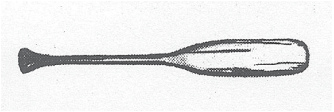


Atlantic Loggerhead *(Caretta caretta)*

Sea jellies are most commonly known for their stinging cells. Not true fish, sea jellies are planktonic, floating through the water at the whim of the tides and currents. The moon jelly is recognized by its clear to bluish flattened bell and pink four-leafed clover of gonads. It is fringed with short stinging tentacles. The moon jelly can be found seasonally along the Shell Point Canoe Trail, especially between markers 8 and 9.

Its relative, the upside-down jelly, can be found lying bell-side down in calm, shallow waters. It has a mutualistic relationship with a dinoflagellate, referred to as zooxanthellae, that reside in the jellyfish's lacy oral arms. The zooxanthellae are photosynthesizers and are exposed to the sun's rays by the jelly's upside-down position. The jelly provides protection and nutrients to the zooxanthellae and they, in return, supply oxygen and absorb waste products for the jelly.

Sea jellies are among the favorite foods of the loggerhead sea turtle, which live in the warm waters of the Gulf of Mexico and the Atlantic Ocean. Loggerheads come to shore in summer to lay eggs on area beaches.

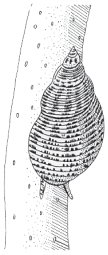


MARKERS 10 AND 11 "TIGHT SPOT"

In this area you will be very close to the mangroves, with a great opportunity to view some of the small creatures of the canopy.

The agile mangrove tree crab climbs the mangroves to feed on algae and detritus (decomposed organic materials). Its carapace (outer shell) varies from muddy brown to reddish with specks of white, blue, bright green, or yellow. The crabs claws are orange, purple, or red with tufts of stiff bristles on the outer edges.

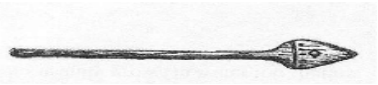
Mangrove Tree Crab *(Aratus pisonii)*



One inch in length, the mangrove or angulate periwinkle is found from the undersides of mangrove prop roots above the high tide line up to the top of the tree canopy. This snail is tan to brown with dark markings. The lining of its thin shell is pale purple.

Mangrove Periwinkle *(Littorina angulifera)*

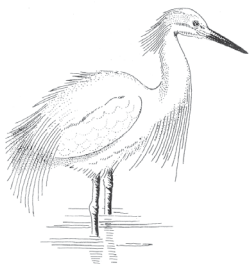
Canoe Tip: Between markers 9 and 12 the trail makes a wide curve to the right. You may not always be able to see the next marker, just keep to the right.



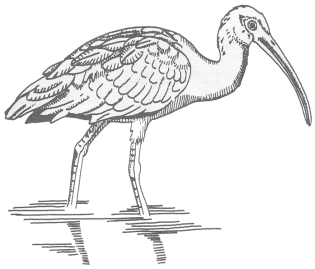
MARKERS 13 AND 14

The mangrove fringe provides feeding grounds for many wading birds.

The snowy egret is a coastal water bird commonly seen perched among mangrove roots with its bill pointed toward the water. Approximately 26" tall, the snowy egret is white with a black bill, black legs, and bright yellow feet that resemble golden slippers. In spring, lace-like *aigrettes* (fancy feathers) grow in on its head and along its back for elaborate displays of courtship.

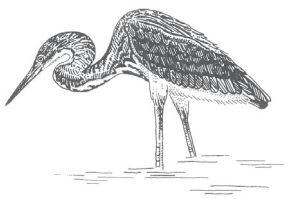


Snowy Egret *(Egretta thula)*

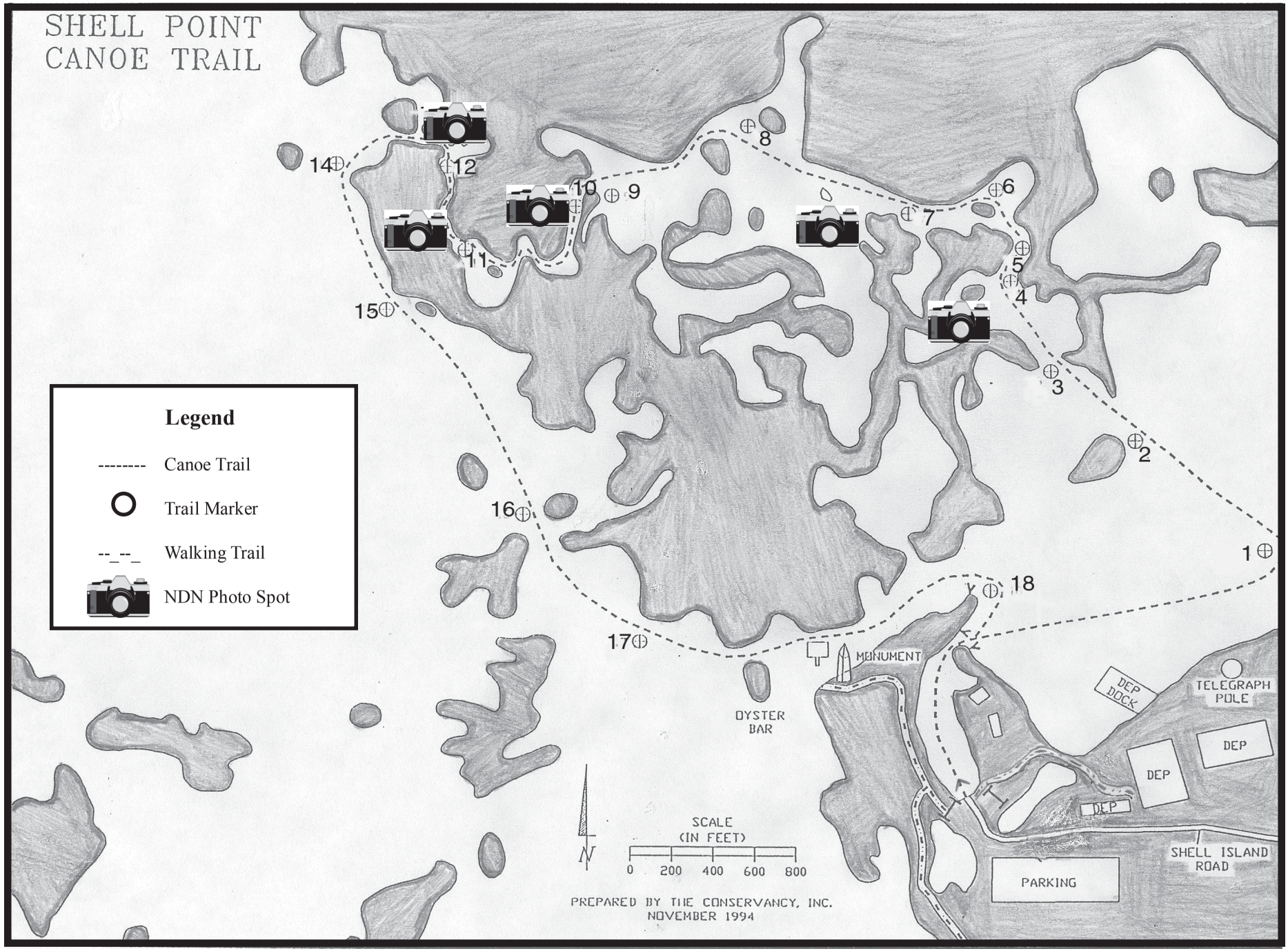


White Ibis *(Eudocimus albus)*
The white ibis is the most commonly seen bird in the Reserve, and often the most numerous at mangrove rookeries. Ibis are solid white, with black wing tips that can be seen when in flight. Ibis have long pink or orange legs, a bald face, and a long, downward-curved bill that is well suited for probing in the mud for small crustaceans or worms.

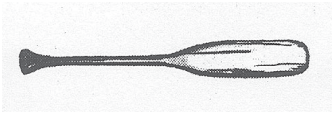
Commonly seen fishing along brackish coastal waters, the tricolored heron can be found up the Atlantic coast to Massachusetts. It is a medium-sized bird with a dark blue or purple upper body, a chestnut-colored chest, and white markings on its neck and back. It has a yellow or white crest when breeding. It typically hunts along mangroves and oyster bars, using its long, slender bill to pluck small fish from the water

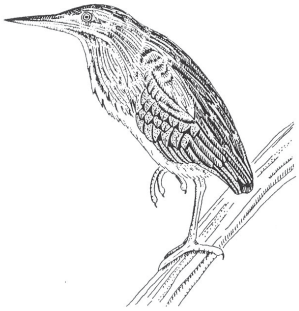


Tricolored Heron *(Egretta tricolor)*



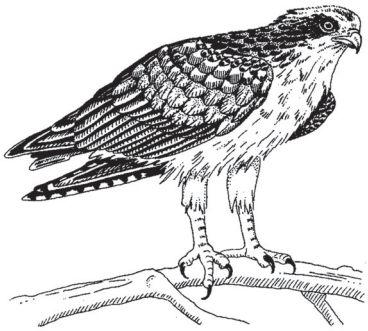
For photography enthusiasts: There are sure to be many photo opportunities along this trail, however, several "Photo Spots" have been designated and were sponsored by the Scripps Howard Foundation and the Naples Daily News. Watch the markers for the Photo Spot logo, then point and shoot!





The green heron is usually secretive. It is small (18" long) and stocky, and has relatively short legs. The adult is green mixed with blue-gray, with chestnut on its neck and a white throat. The top of its head is greenish-black and its legs are yellow. During breeding season, the male has orange legs. The green heron is usually solitary and may be seen perched on mangrove prop roots or hiding under a dock.

Green Heron *(Butorides virescens)*

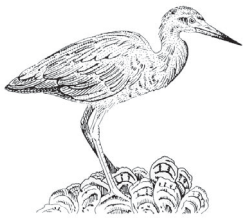


Osprey (*Pandion haliaetus)*

The osprey is large with long, narrow wings that are bent at the elbow. It is brown above and white below. Its head is mostly white with a prominent dark stripe though the eye. The soles of its feet have rough pads that allow the bird to grip slippery fish, which it often carries in its talons as it flies to its perch or nest. A common sight locally, it frequently uses utility poles or channel markers as platforms for its large nest.

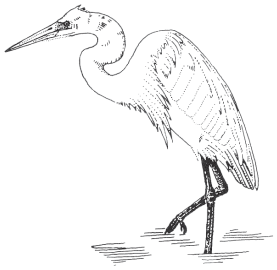
The great blue heron is the tallest of the wading birds. It can be seen standing motionless in shallow water, watching for fish, which make up the majority of its diet. It is slate-blue in color with a white head, black stripe above the eye, and yellow bill. Often solitary, it can sometimes be found with large flocks of other waders at fish concentrations.

Great Blue Heron *(Ardea herodias)*



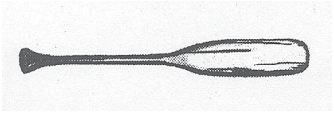
Starting out life as a white bird with a two-toned bill and pale legs, the little blue heron is sometimes confused with the snowy egret. The adult is slate blue, and its blue bill has a black tip. Its legs and feet are a dull greenish color. In the Reserve, it is most commonly seen wading along oyster bars and shallows. It nests on the rookery islands.

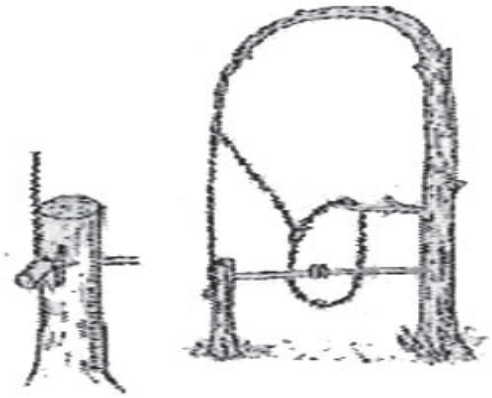
Little Blue Heron *(Egretta caerulea)*



A white bird with long, yellow bill and black legs, the great egret was once almost extirpated from North America by plume hunters. It feeds alone on fish, frogs, and snakes in shallow water. It can often be found standing on mangrove prop roots in Rookery Bay. The great egret nests in colonies with other species of herons on the rookery island.

Great Egret (*Ardea alba)*





Baited Snare Trap

Along with many other animals, birds come into the estuary to raise their young. This process made estuaries a productive place where the Calusa could survive. Birds were an important food source. Rookeries were raided for eggs and young, and adult birds were caught with nets and baited throat gorges. In the late 1800's, fashion dictated the use of feathers and whole birds to decorate women's hats, and many rookeries were killed off by hunters. Now these species are protected from hunting, but are struggling to survive the impact of changes in water flow and reduced habitat.

Canoe Tip: Please keep your distance and don't touch the wildlife! Damage may be done if you get too close!

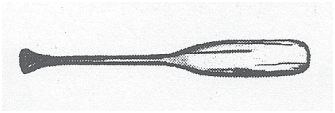
MARKERS 15 AND 16

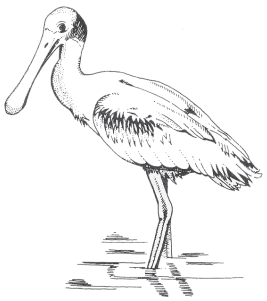
Rookeries

On this part of the trail there are two nesting and roosting areas in full view. Locations that are traditionally used for nesting and raising young are called rookeries, which is how Rookery Bay got its name. At Rookery Bay Reserve, most water birds roost nightly in gregarious, multi-species groups on small mangrove islands. The leafy canopy of mangrove trees provides important habitat for a variety of bird life. The birds that use these mangrove rookeries include several species of herons, egrets, ibis, frigatebirds, cormorants, and pelicans.

The rookery islands are good examples of why estuaries are so important; only a highly productive area can supply large numbers of nesting birds with enough food to raise their young. These traditional sites offer birds relative protection from predators such as raccoons and feral cats. Although this area gives you a good look at many of the birds that nest in Rookery Bay, do not get close enough to cause the birds to flush (rise off their roosts). This expends valuable energy and can endanger chicks.

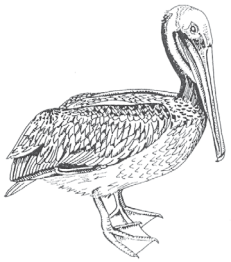
Canoe Tip: Look for marker 17 on the second point of the island on your left.





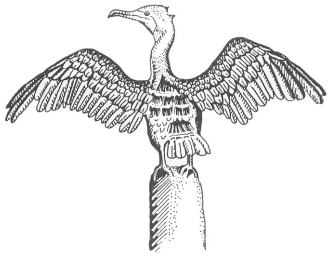
Named for its wide, spoon-shaped bill, the roseate spoonbill feeds by sweeping its head through the water in a side-to-side motion, straining small fish, crustaceans and insects. is pink with red eyes. Spoonbills are typically crepuscular (dawn and dusk) feeders. Historically common throughout Florida, the spoonbill population was decimated in the early 1900's by plume hunters.

Roseate Spoonbill *(Ajaia ajaja)*



The brown pelican has a large, stock, brown body and massive bill and throat pouch. The nonbreeding adult has a yellowish-white head and neck. The back of the neck of breeding adults is chestnut brown. Young birds are mostly brown. The brown pelican is listed as endangered in many states, and is threatened in Florida. Pelicans can commonly be seen gliding across the water, diving for a meal, or soaring high over Rookery Bay.

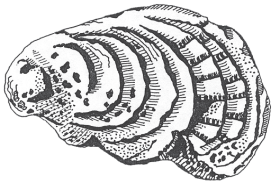
Brown Pelican (*Pelecanus occidentalis)*



The double-crested cormorant is a large black bird with a hooked bill adapted for catching fish. It has an orange throat patch during breeding. An expert swimmer and diver, it spends most of its time in the water pursuing fish with agility. The double-crested cormorant is common year-round in Rookery Bay, and roosting in large numbers at the rookery islands and frequently seen perched with wings spread outward.

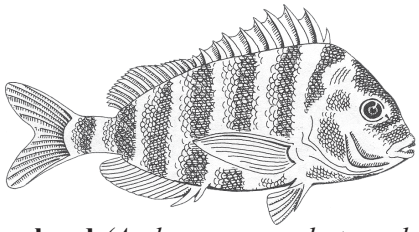
Double-Crested Cormorant *(Phalacrocorax auritus)*

MARKER 17



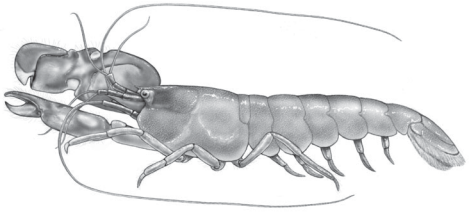
Oysters are found in estuaries where the salinity level varies. An oyster reef is formed when oysters attach to each other. As the bottom oysters die, larvae attach themselves to these shells, increasing the size of the reef. Oysters filter algae and organic particles from the water.

Oyster *(Crassostrea virginica)*



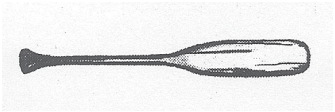
Sheepshead *(Archosargus probatocephalus)*

The Sheepshead is also known as the convict fish because of the diagonal black bands across its silvery yellow sides. Weighing up to 20 pounds, it is a very popular game and food fish in Florida. It is most common around pilings in bays and around red mangrove prop roots. The sheepshead eats mollusks and barnacles, chewing them off with its powerful incisors.

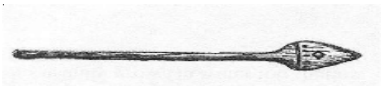


The oversized chela (claw) characteristic of this species creates the snapping sound for which this shrimp is named. The sound is loud enough to be heard above water by humans sitting quietly in a canoe or boat. This shrimp feeds on small fish and invertebrates that it stuns with vibrations caused by the loud snapping. It prefers to live in quiet, shallow water under rubble found in and around oyster beds.

Snapping Shrimp *(Alpheus heterochaelis)*

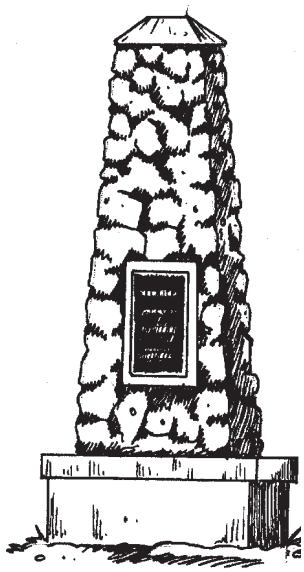


Shellfish were an important food source for the Calusa. Oysters, in particular, were very important and could be easily gathered and placed in baskets. The oysters were served raw, boiled, or roasted. They were also preserved for long-term storage by smoking and drying. The discarded shells were a main component of Calusa shell mounds. The oyster reef itself aided the Calusa in gathering food. During low tide much of an oyster reef is exposed. The Calusa would pull their canoes onto the exposed reef. Then, while gathering oysters, the Calusa could also fish. At low tide, oyster reefs may be visible near marker 1 and between markers 17 and 18.



MARKER 18

The Monument



In 1964, a road through Rookery Bay connecting Naples with Marco Island was proposed. With intentions to open the area for rapid development, the plans met with local opposition. More than $600,000 was raised by local citizens, the Conservancy of Southwest Florida, the National Audubon Society, and the Nature Conservancy, to purchase the land that would be destroyed by road construction and development.

School-aged children also participated in this effort. They ran a penny drive to support the community effort to purchase the land. The monument on your right was erected to recognize these students. The plaque reads:

The Children's Column

Commemorating the efforts of four thousand Greater Naples School Children who, in 1971, contributed funds to help complete and preserve Rookery Bay Sanctuary.

In this column is a capsule to be opened in 2000 AD containing their names.

You, too, can become part of conservation efforts. You can show your support by simply following all fishing regulations and Reserve policies. Do not litter or take anything from the Reserve, and be careful not to disturb wildlife. You can also become a Rookery Bay volunteer or join the Friends of Rookery Bay.

For more information, call (239) 417-6310.

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