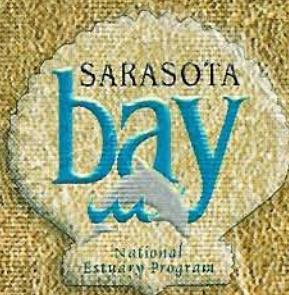


A Chronicle of Florida's Gulf Coast



The Sarasota Bay
National Estuary
Program is dedicated
to improving and



protecting the area's
greatest and most
important natural asset
— Sarasota Bay.

Native Plants

Native plants create sustainable landscapes and drastically reduce maintenance costs. As natural communities are reduced or lost due to urbanization and agriculture production (necessary consequences of increasing populations), sustaining native vegetation becomes more important.

Preserving, protecting, and restoring—where possible—, the remaining half of Florida's land area that is not currently under urban land or agricultural use requires not only government regulations but efforts by land owners as well. These precautions promote water quality and quantity, protection and preservation of native plant and wildlife communities, historical significance, and unaltered fire and water flow processes.

The lists below suggest native species, but for best results in designing natural landscapes, it is best to consult your local native plant nursery, Cooperative Extension Services, and local chapters of the Native Plant



Society. Because natural plant communities attract native wildlife, the Florida Audubon Society is another source of advice for which flora will provide critical sources of food, shelter, and nesting material.

Exceptional Florida Native Plants

Trees

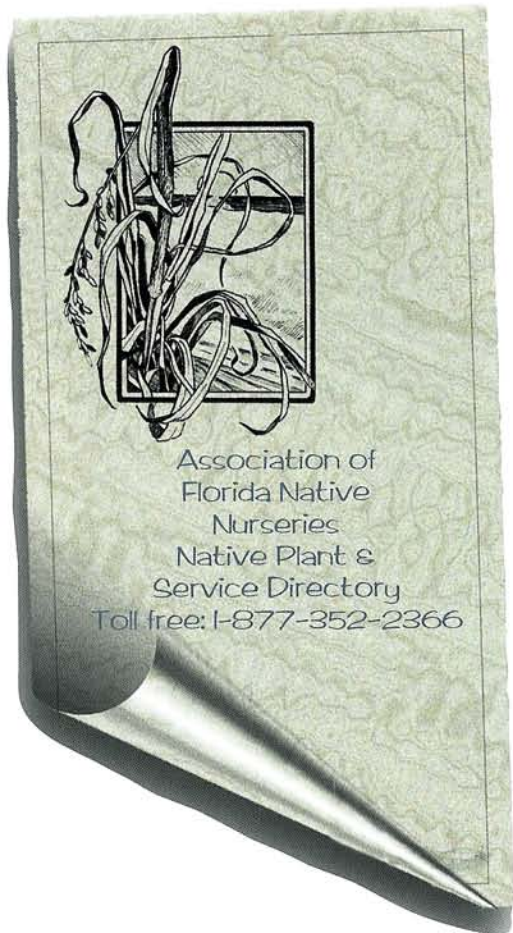
- Tough bumelia – *Siderocylon tenax*
- Summer hawthorn – *Crataegus flava*
- Crabwood – *Gymnanthes lucida*
- Black ironwood – *Krugiodendron ferreum*
- Swamp tupelo – *Nyssa sylvatica var. biflora*
- Red Bay – *Persea borbonia*
- Swampbay or Redbay – *Persea palustris*
- Flatwoods plum – *Prunus umbellata*
- Pond cypress – *Taxodium ascendens*
- Bald cypress – *Taxodium distichum*
- Winged elm – *Ulmus alata*

Shrubs

- Pipestem – *Agarista*
- Beautyberry – *Callicarpa*
- Florida privet or Wild olive – *Forestiera segregata*
- Yaupon holly – *Ilex vomitoria*
- Shiny Iyonia – *Lyonia lucida*
- Twinberry stopper and Simpson stopper – *Myrcianthes fragrans*
- Walters viburnum – *Viburnum obovatum*

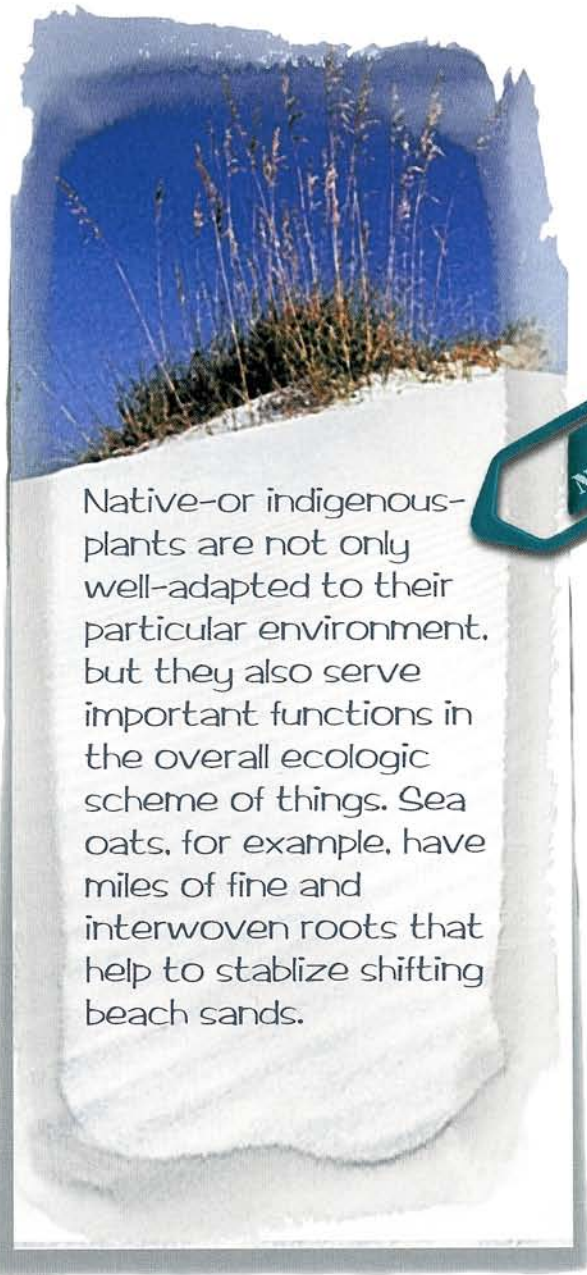
Groundcovers

- Golden creeper – *Ernodea littoralis*
- Coontie – *Zamia pumila*



Native plants include:

Beach bean
Beach verbena
Bluestems
Ferns (bracken, wood , shield)
Butterfly weed
Cordgrass
Creeper (Trumpet, Virginia)
Firebush
Florida elm
Florida paintbrush
Golden creeper
Green buttonwood
Green cocoplum
Hibiscus
(Swamp, scarlet, rose mallow)
Holly
(Dahoon, Carolina, yaupon, scrub)
Inkberry/gallberry
Jack-in-the-pulpit
Jamaica Dogwood
Leather fern
Marsh elder
Native sawgrass
Oaks
(Chapman, bluejack, turkey, laurel, sand live, dwarf)
October daisy
Palmetto
Partridge pea
Pignut hickory
Plum (Chickasaw, flatwoods)
Prickly pear cactus
Railroad vine
Red cedars
Red maple
Sage
(red/tropical, blue, lyre-leaved, wood)
Salt bush
Salt wort
Sea grape
Sea oats
Slash pine
Strangler fig
Sunflower
Swamp dogwood
Wax myrtle
White indigo berry
Wild coffee
Wild lime
Wire grass



Native-or indigenous-plants are not only well-adapted to their particular environment, but they also serve important functions in the overall ecologic scheme of things. Sea oats, for example, have miles of fine and interwoven roots that help to stabilize shifting beach sands.



Pine flatwoods are common in the eastern, inland areas.



Exotic Plants



Brazilian Pepper

Many exotics were intentionally introduced into the native ecology for their showy foliage or quick-fix growth rates.

Non-native invasive plants are weeds of natural areas. Often referred to as exotics, this foliage should be removed from landscapes and replaced with native vegetation. Invasive exotic species are opportunistic and shade out more desirable shoreline stabilizing species. They are called "invasive" because of their aggressive nature. Lacking natural controls (predators), exotics flourish and grow faster than native vegetation can sustain itself.

Nuisance species often require more than one attempt at elimination. Fresh-cut branches and trunks must often be treated by spraying with compounds designed to stop re-growth. Many nurseries and Cooperative Extension Services are equipped for suggesting control measures that have proved successful and they can offer native vegetation ideas for replacing exotics.

Twenty-nine percent (about 1,200) of the self-sustaining plant species in Florida are non-native (Atlas of Florida Flora, R.P. Wunderlin) and are very expensive to control. Some recent figures obtained from the University of Florida's Cooperative Extension Service (Circular 1204; 3/98), indicate the following:

- U.S. farmers spend \$8 billion annually to manage weeds; nevertheless, crop losses caused by weeds amount to \$10 billion annually.
- Dade County Parks and Recreation Department has spent \$2.8 million since 1993 on removal of invasive plants from 500 acres of upland natural areas.



Punk Tree
also called "cajeput" or "melaleuca"

Air Potato

Australian Pine

- Since 1986, partial control of melaleuca and Australian pine in the East Everglades has required 14,000 labor hours and \$546,000 in herbicide and helicopter costs.
- \$12 million was budgeted to control hydrilla and water hyacinth in Florida's waterways in 1995.
- Millions of dollars are spent in efforts to locate natural enemies of non-native invasive plants in their native ranges. These enemies are then released here to act as biological controls of specific non-native plants.

Five of the more common invasive exotic species in southwest Florida are:

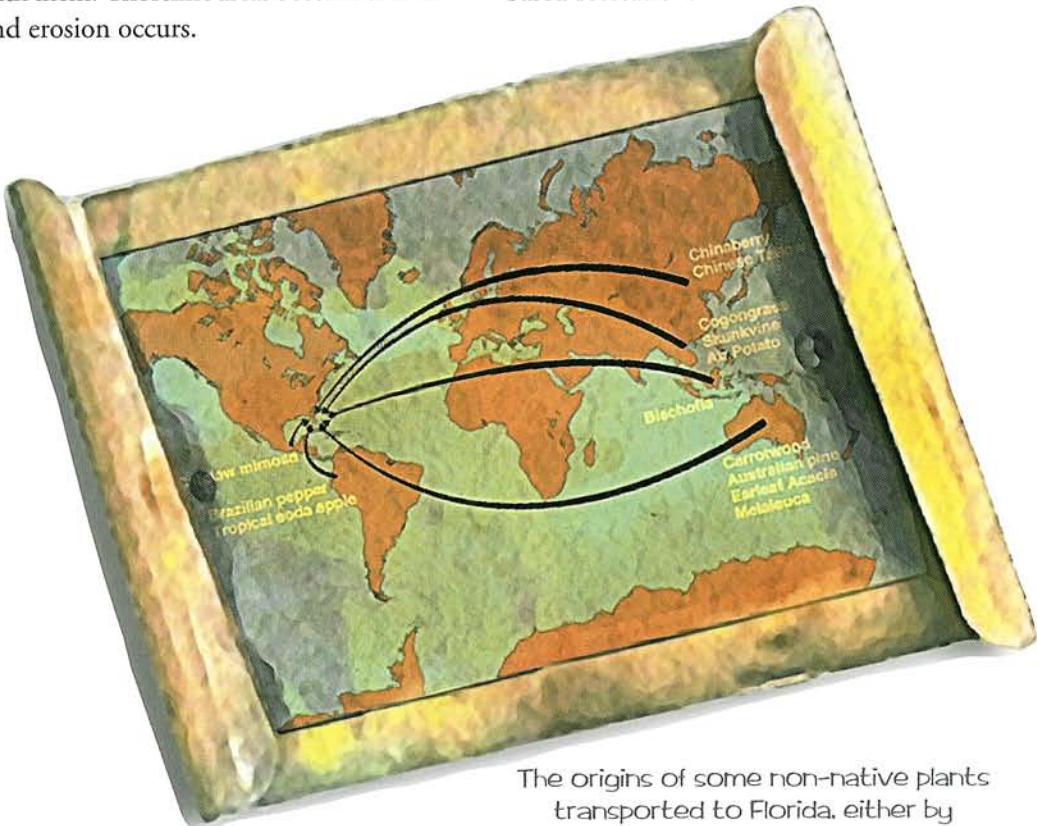
- Australian pine.
- Brazilian pepper.
- Carrotwood.
- Cattail.
- Melaleuca (sometimes called punk tree).

Not only do exotic species choke native vegetation, they cause destruction in other ways. For example, the Australian pine has a wide, shallow root system. When faced with strong winds, these trees will topple over taking large amounts of ground cover with them. Shoreline areas become unstable and erosion occurs.



Exotic, or non-native plants, are detrimental to the natural ecology in a number of ways: they often are very aggressive growers and spreaders, displacing the native plants, but with none of the native's positive traits.

Natural areas with native vegetation promote wildlife habitat, bio-diversity of plant species, control stormwater runoff and promote sediment control, not to mention public opportunities for passive nature-based recreation.



The origins of some non-native plants transported to Florida, either by accident or intentionally.

Popular Fishes

The Bay supports a delicious array of fish and crustaceans such as Red Drum, Spotted Seatrout, Snook, Flounder, Blue Crab, Pompano, Mullet, Stone Crab and Shrimp. More than 80 percent of the fish we catch for food or fun depend on estuaries for all or part of their lives.

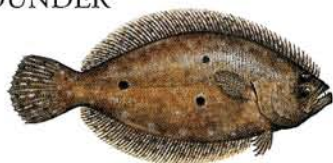
The West Coast of Florida offers some of the finest shallow-water fishing in the world. Beautiful clear flats studded with mangrove shoreline, large expanses of seagrass meadows, oyster bars, and sand bars are the homes and hangouts of some of the best gamefish Florida has to offer. Snook, Redfish, Pompano, and Trout inhabit these waters, with an occasional Tarpon in spring and summer.

Under the right conditions, they can be fished in a number of ways: cruising under the mangroves, schooled-up in a pothole or moving across a grassflat so shallow that they will “tail,” their backs breaking the surface of the water. Redfish will be feeding off the bottom of a grassflat in water so shallow that their tails can be seen above the surface as the fish hunts for small crabs and shrimp. Schools of Jack and big Snook bust on schools of baitfish. From mid May through July, Tarpon will be rolling right off our beaches. Schools of these large creatures will move within casting distance and will usually inhale bait, artificial lures or flies when presented properly. These fish may weigh 100 pounds and are not uncommon in the 150-pound range.

By boating safely and responsibly, and with enhanced awareness of the region’s natural resources, you can help protect Sarsota Bay and the sea life that depends on the estuary for its survival.

RECREATIONAL FISHING

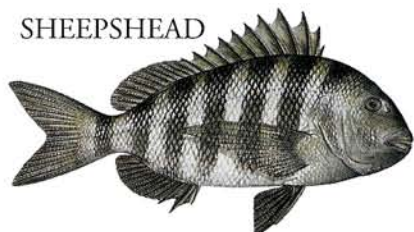
COMMON NAME FLOUNDER



RED DRUM (REDFISH)



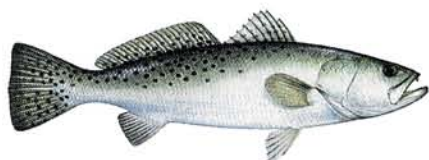
SHEEPSHEAD



SNOOK



SPOTTED SEATROUT



LEGAL SEASON

All year.

All year.

All year.

All year except:
Dec. 15-Jan. 31
& June, July, Aug.
Closed.

All year except:
Nov. & Dec.
Closed.

HABITAT

Channel edges on sandy bottoms, near tidal passes and docks.

Near docks and pilings, deeper holes and channels during warmest and coolest months, also around grassbeds and oyster bars.

Near bridges, docks, seawalls and pilings.

Canals, tidal creeks and other deep, warm waters in cool months; tidal passes and the Gulf in warmer months.

Seagrass beds when water temperatures are moderate and deeper waters adjacent to beds during warmest and coolest months.

FISHING TIPS

Use live shrimp, sand fleas, sardines, pinfish or jigs bounced along bottom as you drift. Minimum size limit: 12".

Use live shrimp fished on bottom or free-lined, or use soft-bodied jigs bounced slowly on bottom, or small gold spoons. Minimum size limit: 18" or no more than 27". Daily bag limit: one.

Use live shrimp, sand fleas, or hermit or fiddler crabs on small hook. Fish just off the bottom. On the first tug, lower the rod and then strike hard. Minimum size limit: 12".

Use live pinfish, small mullet, shrimp or sardines free-lined or fished with a bobber or use jigs and minnow-like lures. Beware of the snook's razor-sharp gills. Minimum size limit: 26" or no more than 34". Daily bag limit: 2.

Use live shrimp or pigfish (grunts) fished near bottom by free-lining or under a popping bobber, or use soft-bodied and fish-like lures. Cast with jigs or surface plugs as you drift. Minimum size limit: 15" no more than 20". Daily bag limit: 5.



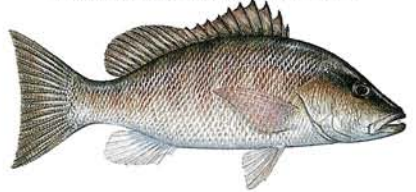


RECREATIONAL FISHING

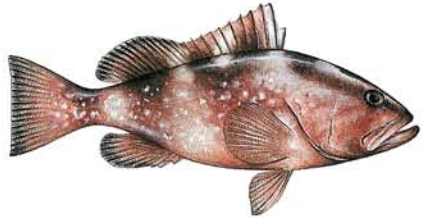
COMMON NAME
SPANISH MACKEREL



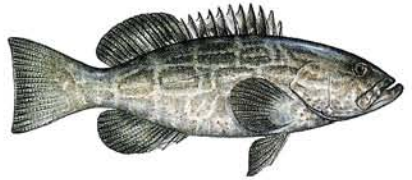
MANGROVE SNAPPER



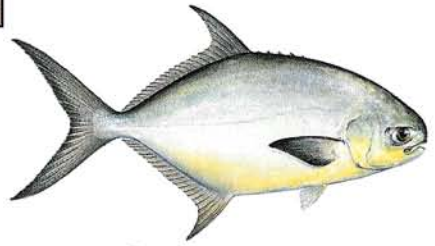
GROUPE (Red)



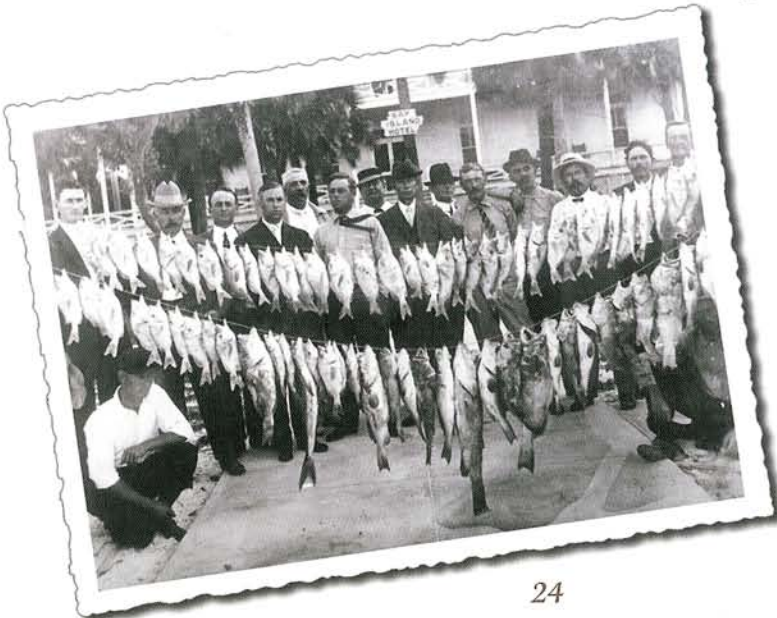
GROUPE (Black)



FLORIDA POMPANO



Many a tall tale of record catches and notorious fishing tournaments persist to this day.



The Bay Island Hotel, built in 1912 adjacent to Hansen's Bayou. The Bay Island Hotel was one of the area's finest.

LEGAL SEASON

All year.

HABITAT

Open water,
artificial reefs,
deep grass flats.

FISHING TIPS

Small jigs and spoons,
small bait fish, shrimp
Minimum size limit: 12".

All year.

Hard bottom,
rock reefs and
structure.

Shrimp and small fish.
Minimum size: 10".

Check regulations.

Rocky bottoms,
reefs, inlets.

Heavy tackle, fish bottom
with pinfish, shrimp or
sardines.
Minimum size limit: 20".

Check regulations.

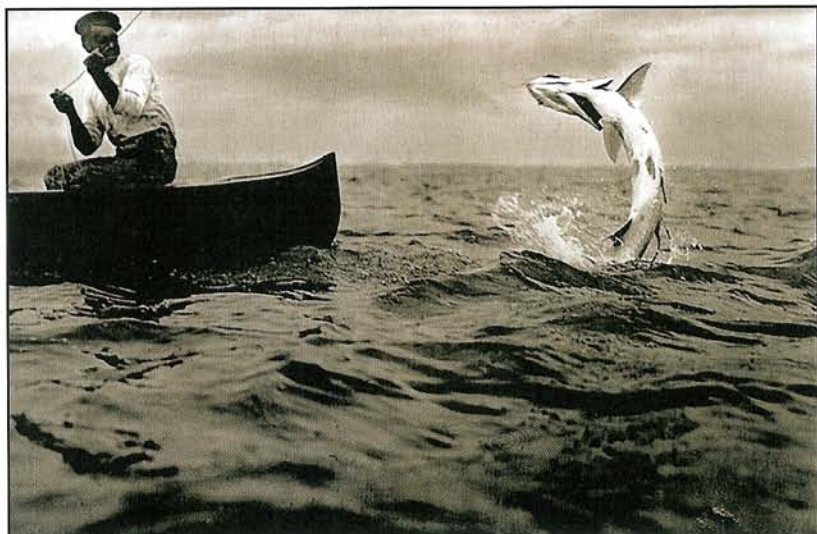
Rocky bottoms,
reefs, inlets.

Heavy tackle, fish bottom
with pinfish, shrimp or
sardines.
Minimum size limit: 20".

All year.

Sandy beaches,
oyster bars,
grass flats.

Small jigs,
tipped with shrimp.
10"-20" slot limit.

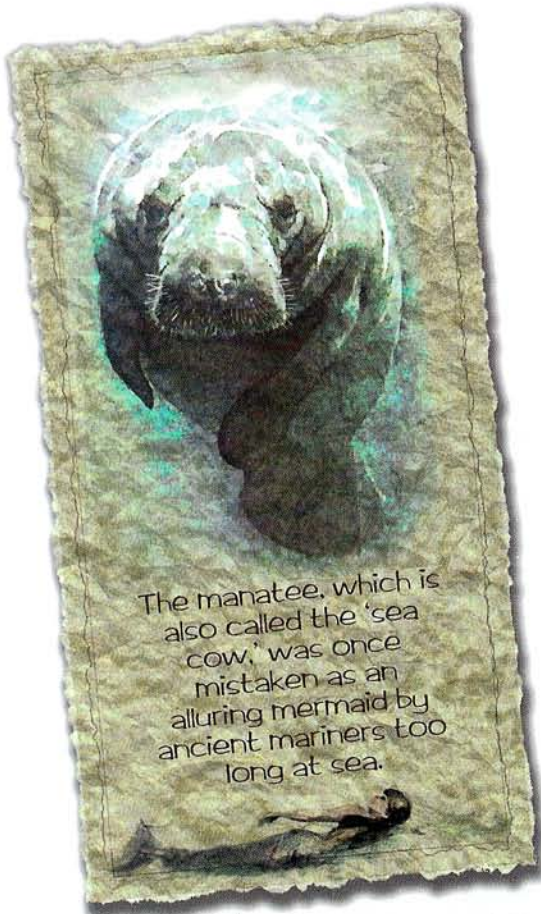


Tarpon fishing is a
sport fisherman's
delight. 'Catch &
release' is the
norm today.

Manatees, Turtles & Dolphins

Manatees

The Florida manatee, a subspecies of the West Indian manatee, is Florida's official marine mammal. Florida Department of Environmental Protection officials estimate there are about 2,400 of these gentle, harmless, fascinating mammals living in Florida. These gentle giants can grow to a length of 10 feet and can weigh up to 3,000 pounds as adults. Locally, manatees can be found around the fringes of the Bay from April to December. Their numbers are lowest during January and February, when they leave Sarasota Bay to find warm-water refuges elsewhere at power plants and springs. Their distribution in Sarasota Bay corresponds to areas of good seagrass coverage. Seagrass coverage is denoted on the reverse side of the Sarasota Bay Blueways Guide.



The manatee, which is also called the 'sea cow,' was once mistaken as an alluring mermaid by ancient mariners too long at sea.

Unfortunately, a leading cause of death among Florida manatees is human-related from collisions with boat hulls and propellers, entanglement in float and fishing lines and ingestion of foreign objects, such as garbage thrown from boats. You can be part of the solution to ensure these gentle giants make a comeback in Florida.

HELP SAVE THE MANATEE!

- Observe all manatee regulatory zones and caution areas.
- Stay in designated channels. Channel depth reduces the likelihood of killing or injuring manatees. Use idle speed whenever you are outside channels or in shallow water.
- Avoid shallow seagrass beds, where manatees forage.
- Wear polarized sunglasses to reduce the glare on the water, which will assist you in seeing manatees.
- If you fish, don't discard fishing lines, hooks or nets in the water. The refuse can harm manatees as well as other marine life.
- It is illegal to harass, hunt, capture, kill, or feed any marine mammal, including manatees. Anything that disrupts a manatee's normal behavior is a violation, punishable under federal law by up to a \$50,000 fine, one-year imprisonment or both.
- Remember, we must learn to peacefully co-exist with the wildlife that inhabits our area and state. Manatees have just as much right to enjoy the Bay and the Florida waterways as we do.
- Save the manatee...your children, and your children's children, will thank you for it!

Manatees were originally depleted through overhunting for meat, oil, and leather.

Sea Turtles

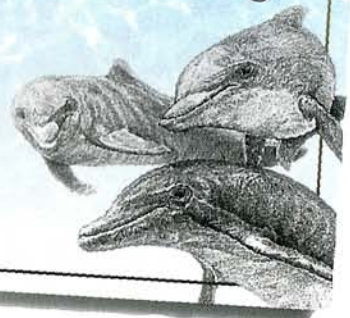
The Gulf beaches along the bay's barrier islands support loggerhead turtles and their nesting activities during May through October, the nesting season. Five species of sea turtles inhabit the Gulf Coast region: loggerhead, green, hawksbill, leatherback, and Kemp's Ridley. However, loggerhead turtles, which are classified as threatened, are the predominant species on our beaches.

YOU CAN HELP TO PROTECT SEA TURTLES!

- Never approach sea turtles coming ashore or disturb nesting sea turtles or hatchlings. Biologists estimate that only about one out of every 2,500 hatchlings survive to the age of sexual maturity.
- Beachfront property owners should turn off exterior lights in areas where nesting takes place. Bright artificial lights discourage nesting sea turtles from coming ashore and disorient hatchlings, preventing them from reaching the sea.



Approximately
100 dolphins,
including four
generations
of related
individuals, reside
year-round in
Sarasota Bay.



Dolphins

During the spring and summer, mothers and calves can be found in the shallow waters of Palma Sola Bay and Anna Maria Sound. This is where they enjoy a plentiful meal of pinfish, pigfish and striped mullet. Additionally, the newborns are safer in the shallow coastal waters away from such predators as adult Bull Sharks, which swim in the Gulf offshore in the summer. In the fall and winter, dolphins are more frequently found in the passes and along Gulf shorelines.

The dolphin population of Sarasota Bay suffers from boating collisions and disturbances and littering of marine debris such as fishing line and plastic bags. These injuries and deaths are senseless and can be prevented. Please follow safety cautions to ensure protection for our region's longterm resident dolphin community.



Birds of the Area

- Enjoy viewing bird rookeries from at least 100 yards away. These rookeries harbor nesting colonies and flocks of feeding birds. Boaters and operators of personal watercraft should slow down in order to reduce wakes in these birding areas. Bird islands and mangrove areas are being eroded by boat wakes and boating noise and high speeds are disruptive to the wildlife.
- Report injured seabirds that need assistance. Consult the Sarasota Bay Blueways Guide Resource Directory for contact information.
- Pick up marine debris if you find it and don't discard any fishing line or other trash, which can be lethal to seabirds and other marine life.
- Enjoy the beauty and rare elegance of these magnificent water birds, and remember the best opportunity for viewing is by being quiet and moving slowly.

Some common birds in this region that you might see include: Great Blue Heron, Cattle Egret, Great Egret, White Ibis, Brown Pelican, Osprey, Wood Stork, Yellow-Crowned Night Heron, Bald Eagles and the endangered Florida Scrub-Jay. Refer to page 60 for suggested bird viewing areas.

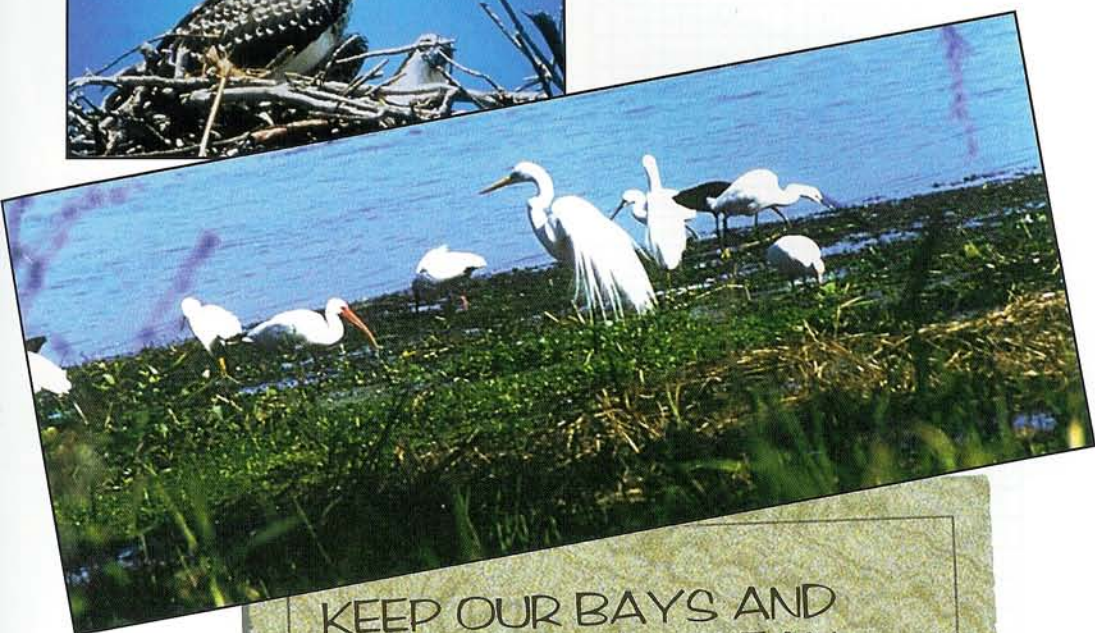
Endangered Bird Life

Most of the Florida Scrub-Jay habitat in Southwest Florida has been fragmented and replaced by development. The scrubby flatwoods habitat preferred by Florida Scrub-Jays is also favored by humans for habitation. It is typically the highest and driest land near the coast, usually consisting of scrub oak-dominated vegetation with scattered patches of bare sand and a few widely dispersed pine trees. Loss of habitat is becoming a threat to all birds and to all the species that inhabit the Gulf Coast.

Be on the lookout for the Florida Scrub-Jay at such parks as Oscar Scherer State Park, Shamrock Park, Service Club Park, Duette Park and Rye Wilderness Park.



Please do your part
to protect bird habitat!



KEEP OUR BAYS AND WATERWAYS CLEAN

- Stow it, don't throw it. Littering degrades our environment and is unsafe for marine life. Please keep trash from blowing overboard and take in what you take out.
- Be careful fueling up. Don't overfill your tank. Toxic pollutants are harmful to birds, fish, dolphins, and manatees and people.
- Don't dump, use the pump. Use marine pumpout facilities to dispose of vessel sewage. A partial listing of pumpout facilities is provided in the Sarasota Bay Blueways Guide.



Human Impacts on Bay Ecology

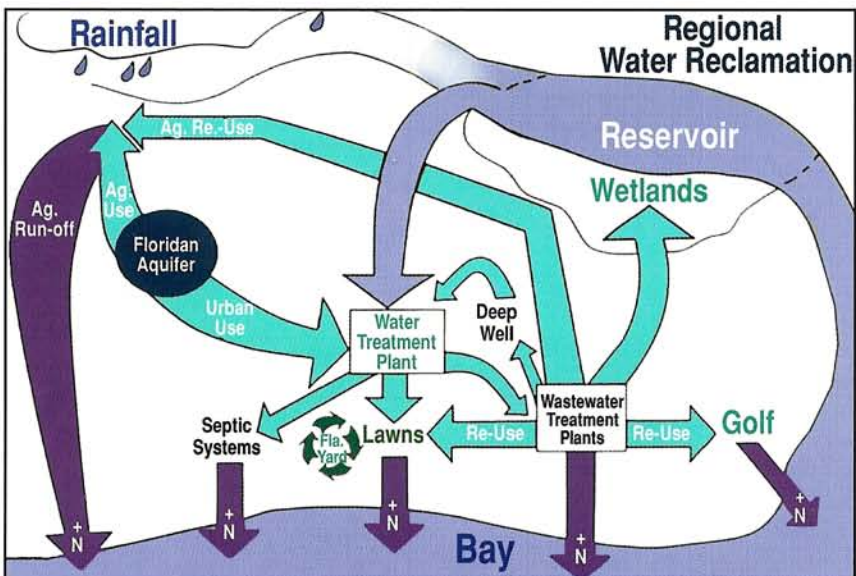
Studies have revealed that the principle pollutant of concern in Sarasota Bay is nitrogen. Too much nitrogen in Bay waters accelerate the growth of small plants called algae which are detrimental to marine life. Algae inhibits light penetration to submerged plants which is needed for their survival. Without a light source, seagrasses will die. Submerged plants may also be coated with algae, causing the same effect. At night, algae decays and this decaying process depletes oxygen in Bay water, creating low oxygen or no oxygen conditions. Since fish, like humans, need oxygen to survive, fish kills occur. Simply stated, the amount of nitrogen entering the Bay is a measure of Bay health.

Computer modeling conducted in 1992 indicated that nitrogen loading levels had increased by 480 percent since the 1800s. Human-induced sources of nitrogen are wastewater (including small and large wastewater treatment plants), groundwater (from septic systems and small treatment plants) and stormwater (including fertilizers from lawn care and agriculture). Nitrogen also gets into Sarasota Bay via rainfall.

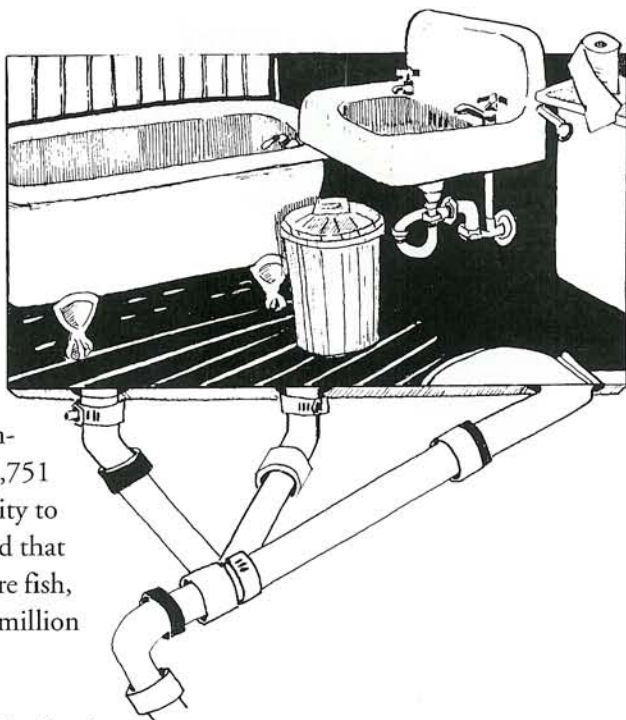
The Sarasota Bay Program has been working with the community to cost-effectively limit and control the amount of nitrogen entering the Bay and then monitoring Bay responses to selected options. Since 1990, nitrogen loading has been reduced by approximately 47 percent Baywide. This reduction in nitrogen pollution has improved water clarity baywide, approximately .4 meters or 1.5 feet to date.

The amount of seagrass and wetlands and other habitats in a marine system generally relates to overall productivity. In this light, the Sarasota Bay Program has embarked on a series of projects to enhance habitat related to seagrasses, wetlands, and artificial reefs.

Studies completed in 1993 indicated that seagrass had declined by 30 percent since 1950 in Sarasota Bay due to increases in nitrogen pollution and historic dredge and fill activities that covered and filled Bay bottom. Seagrasses are extremely important habitats as each square meter of seagrass in Sarasota Bay can support 15 fish, 10 crabs, and 46 shrimp. In comparison, barren Bay bottom provides comparatively little habitat for these species.



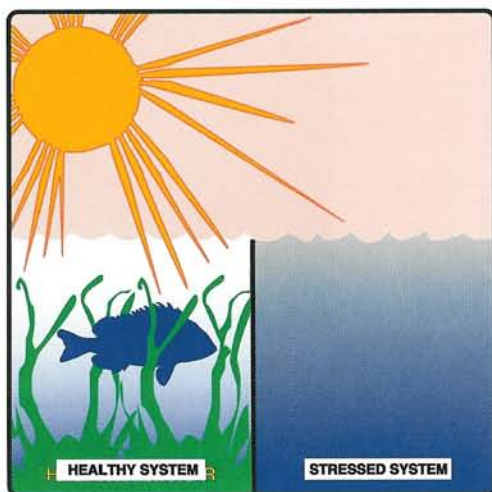
The Sarasota Bay Program established a goal to reduce nitrogen pollution to the Bay by 41 percent, thus allowing for an increase in seagrass habitat coverage. Progress is being made. Since 1988, seagrass acreage has increased by at least 18 percent, or 1,751 acres, increasing the Bay's capability to support marine life. It is estimated that the Bay supports 110 million more fish, 71 million more crabs, and 330 million more shrimp than in 1988.



Wetlands are also essential in the food web of Sarasota Bay. The amount of wetlands available for habitat also impacts the Bay's capability to support and sustain life. Studies completed in 1993 by the Sarasota Bay Program documented a 39 percent loss of saltwater wetlands in the Bay. Based on this research, the Sarasota Bay Program has helped initiate substantial wetland enhancement projects to increase fishery habitats. More than 130 acres of wetlands have been improved or restored since 1990 - an eight percent increase from wetlands lost since 1950.

Nitrogen comes from many common sources, including our own homes. From household detergents, leaking automobile fluids and yard fertilizers, it all adds up to problems for the health of the bay.

Many areas of the Bay have been dredged to create navigable waterways and new home sites. In fact, more than 50 miles of shoreline was created in the Sarasota Bay area during the 1950s and 1960s. Large areas of Bay bottom were covered and others are now too deep for seagrasses to grow.



Dredging and Waterfront Development

The Gulf Intracoastal Waterway (ICW) provides direct passage through the Sarasota Bay system, linking natural deep water sections through a series of man-made channels, canals and cuts. The ICW was originally intended to facilitate commercial shipping to and along the southwest Florida coast and to join the region with the rest of the intracoastal network that now stretches from Maine to Texas. Today, however, the vast majority of the Gulf ICW's functionality is devoted to recreational activities: power boating, sailing, fishing, water skiing, kayaking and canoeing.

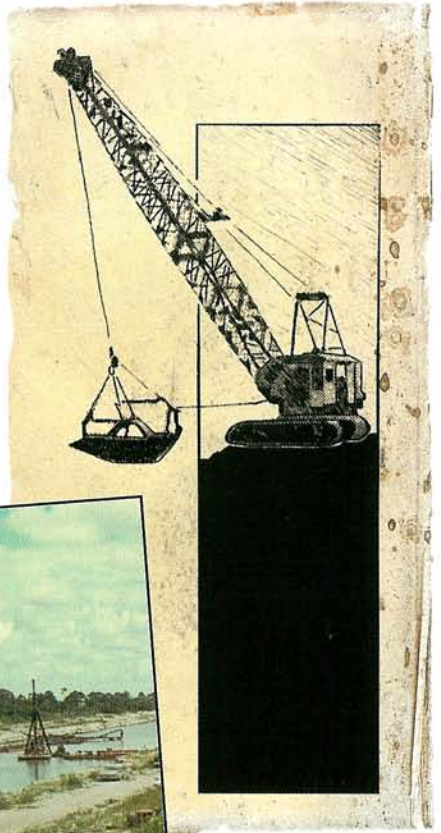
When the U.S. Army Corps of Engineers began dredging in 1890 what would eventually become the ICW, they would hardly have imagined the ultimate extent of the

task they had commenced. Alterations to the waterway continue today from Tampa Bay to Gasparilla Sound. The channel, which once hopscotched from one bay to another along sparsely populated mainland shores and virtually deserted barrier islands, punctuated by shallows, oyster bars, mangrove thickets and other barriers originally impassable, would eventually form a continuously navigable waterway for sizable vessels. Shallow parts of the estuary bottom were dredged and redeposited to enlarge existing islands or create new islets and in many cases cove ring bay habitats. This newly created shoreline ultimately became highly valued waterfront home sites for thousands of people. At the same time, it altered the environmental characteristics of the estuary.



Dredge and dike. Low, oblique aerial view north from Manasota Beach, taken circa 1964-65. Manasota Key Bridge is in the midground. This photo shows dredge (a), pipeline (b), dike or containment wall (c) and back-filled, spoil (d). This phase of dredging the Intracoastal Waterway, with the use of back-filling land along the shoreline, differed from the early dredging where spoil was side-cast in strips or islands parallel to the route taken by the dredge.

Dredge "Charleston."
 This equipment was
 used beginning in
 August 1966.



Historical Synopsis of the Gulf Intracoastal Waterway in Southwest Florida

| | |
|-------------|---|
| 1895 | First federal intracoastal navigation project in southwest Florida; Congress appropriated \$5,000 for dredging a 5-foot-deep by 100-foot-wide channel to run south from Tampa Bay to Sarasota Bay. |
| 1896 | Modification of initial Sarasota Bay project extended an improved channel 3 feet deep by 75 feet wide south to Casey's Pass. |
| 1907 | Project extended further to Venice. |
| 1917 | By this year, two-thirds of the 3,841 tons (brick, canned goods, groceries, cement, corn, feed, fertilizer, fish, flour, grain and hay, ice, lumber, refined oils, shingles and miscellaneous merchandise) transported on this waterway moved between Sarasota and Tampa. |
| 1919 | Congress provided for a relocated 7-foot-deep channel above Sarasota. |
| 1939 | Board of Engineers for Rivers and Harbors recommended an intracoastal project, 9 feet deep by 100 feet wide, reaching from the Caloosahatchee River (Ft. Myers) north to the Anclote River (Tarpon Springs). World War II delayed funding until 1945. |
| 1945 | Congress authorizes and funds a deepened and widened Gulf Intracoastal Waterway. |
| 1948 | Modifying legislation revised cost-sharing arrangements between the federal government and local interests; alternate route studied. |
| 1959 | Terms of local compliance resolved. |
| 1960 | Dredging begins on C-1 alternate route, five-mile alternate passageway inland of the city of Venice, connecting Lemon Bay with the original route north of Venice to Sarasota. |
| 1962 | Channel deepened (9 feet deep by 100 feet wide); dredge begins at "The Bulkhead" (lower Tampa Bay) and works southward, completes improvements to Venice in 1965. |
| 1964 | Channel improvement of Intracoastal Waterway begins in Gasparilla Sound; dredge completes 9-foot-deep by 100-foot-wide channel through Lemon Bay to Red Lake by 1965. |
| 1967 | Dredging is completed on the C-1 route between Red Lake and Roberts Bay. |

Dredging of Access Channels and Residential Canal Development

As the main intracoastal waterway channel was improved to connect lower Tampa Bay and Sarasota, little time was wasted before local land-development interests learned that dredging could create valuable waterfront home sites. Earliest dredge-and-fill work occurred in the pre-World War I years on the mainland in Sarasota, on Phillippi Creek, from Post Office Point to Hudson Bayou, Cedar Point, Stephens Point and on north Sarasota (Siesta) Key at Bayou Louise and Bayou Hansen.

A second phase of activity, during the land boom of the 1920s, was associated with Calvin Payne and John Ringling, who transformed the barrier islands between Big Sarasota Pass and New Pass. Payne had the channel at New Pass dredged, creating City Island in the process; the deep-water har-

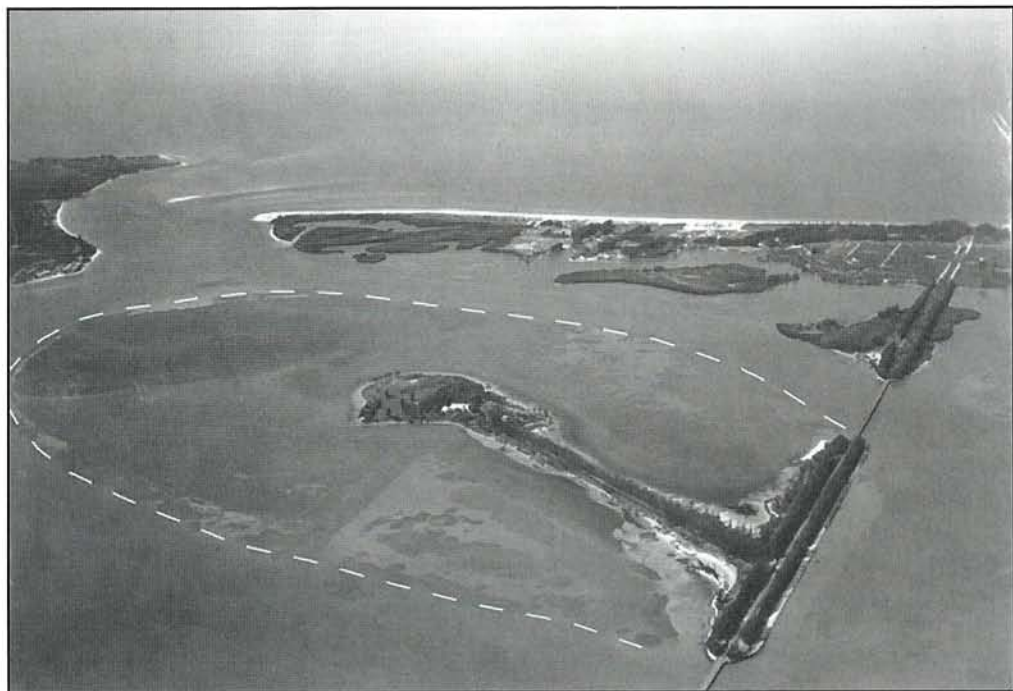
bor on the mainland (due east of the pass) was created to accommodate Sarasota's growing marine industry. Known as Payne's Terminal, this facility has housed boat construction and maintenance yards, provided fuel sales and served the boating public for decades.

Lido Key and St. Armands Key illustrate some of the most dramatic changes resulting from dredge-and-fill activities in the Sarasota area. Those keys, as such, did not exist 100 years ago; instead, a loose group of small islets called the Cerol Isles were west of the mainland. During the 1920s, Ringling converted Lido Key into a continuous island, and in 1925 he built a causeway from the mainland to serve it. A feeder causeway was extended to Bird Key, and the first ambitious island home was built there in 1914. Ringling and partner Owen Burns dredged channels and filled land as part of the proposed Ringling Isles development. For a time, they operated a dredge from Otter Key; the wrecked remains of the vessel's boilers are a popular fish haven today.

Ringling's dream failed in the real estate crash of 1929, but the boat channels adjoining the filled land on Lido, St. Armands, Otter and Coon Keys have left an indelible imprint of land and water changes. Dredged potholes and back-and-fill scars can be detected on the Sarasota Bay bottom to this day.



The regional waterways have been tremendously altered by the devices and desires of man - be it for navigation, commerce or development.

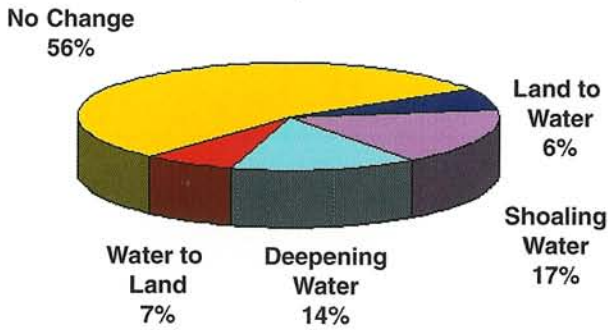


Condition of the south sector of Big Sarasota Bay – 1927.



Bird Key/ Big Pass 1990.

Study Area



This pie chart summarizes relative (percentage) depth changes from the pre-development 1890s era to the 1990s for the entire region. Big Sarasota Bay (from Cortez Bridge on the north to Siesta Key Bridge to the south) and Little Sarasota Bay (Stickney Point Bridge at the north to Blackburn Point Bridge on the south) show the least change, largely because of the large bay areas where depths have remained the same. On the other hand, the most dramatic changes in the Sarasota Bay system have occurred in the Venice area (Albee Bridge on the north to Hatchett Creek Bridge to the south). There, 81 percent of the water area has been transformed by deepening, shoaling or the creation of land by fill or natural deposition.

The other boating regions follow the same overall trend. Where changes have occurred, the predominant processes in the boating regions have been through deepening of water, found in Anna Maria Sound, Big

Sarasota Bay and Roberts Bay. Changes spurred by shoaling of water have occurred in the Roberts Bay, Little Sarasota Bay, Blackburn Bay and Lemon Bay; water-to-land transformation has taken place in the Venice area.

Another, and by far the most extensive, phase of residential canal development began in 1945 after World War II, accelerating in the 1950s and 1960s. Grand Canal, a 10-mile-long waterway system on Siesta Key, was created early in this period. Dredging on Curry Creek by the U.S. 41 bridge began in the 1940s as well. In the early and mid-1950s canal construction in the Grove City area was underway, and north Longboat Key was being dredged. Bimini Bay on north Anna Maria Island was deepened in the early 1960s, and the canal community of Key Royale transformed the former School Key. By 1969, work on the South Creek and Grand Canal (Siesta Key) systems appears to have been completed.

Mangrove and Saltwater Marsh Area Bordering the Sarasota Bay System: Pre-Development Era and 1990s

| | Pre-Development* | 1990s** | Change |
|------------|------------------|--------------|---------------------|
| Mangrove | 4.2 sq. mi. | 3.1 sq. mi. | 26-percent decrease |
| Salt marsh | 1.8 sq. mi. | 0.15 sq. mi. | 92-percent decrease |

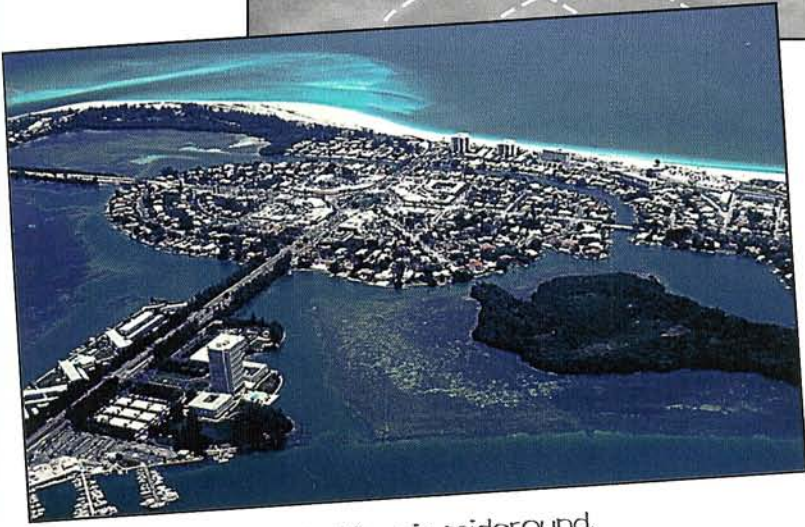
Sources:

*U.S. Coast and Geodetic Survey, T-Sheets No. 1517a, 1517b, 1518a, 1518b

**Southwest Florida Water Management District, 1994



The above photo shows Otter Key, St. Armands and Lido Key in the 1920s.



St. Armands and Lido Keys in midground. Coon Key (lower right) and Otter Key (lower left).

A major residential waterfront development of the 1960s was financed by the Arvida Corporation, which purchased the southern half of Longboat Key, most of Lido and all of Bird, Otter and Coon Keys from the Ringling estate for \$13.5 million. Bird Key was transformed into a waterfront community with five miles of interconnected canals; eight miles of residential canals and basins were dredged on south Longboat Key. In 1971, Arvida proposed an exclusive development on Otter Key (Map 5), but that effort failed and Sarasota County in 1974 purchased the land, including South Lido, and created a public park there. Otter Key has been left undisturbed.

By the early 1970s, public concern about this form of dredge-and-fill coastal development prompted legislation to control dredging and protect the environment. In 1972, Congress enacted the Clean Water Act, which effectively put a halt to dredge-and-fill activities and alteration of bay habitat. However, by that time approximately 26 percent of mangroves and 92 percent of salt marsh had been lost in the Sarasota Bay system.