



Jeff Heywood

Biscayne National Park has the simple beauty of a child's drawing. Clear blue water. Bright yellow sun. Big sky. Dark green woodlands. And here and there a boat, a bird. It is a subtropical place where a mainland mangrove shoreline, a warm shallow bay, many small islands, or keys, and living coral reefs intermingle. Together they comprise a vast, almost pristine wilderness and recreation area along the southeast edge of the Florida peninsula.

Biscayne is Florida's other, lesser known, national park. Established as a national monument in 1968, it is located just 34 kilometers (21 miles) east of Everglades National Park. In 1980 it was enlarged to 70,800 hectares (175,000 acres) and designated as a national park to protect a rare combination of terrestrial and

undersea life, preserve a scenic subtropical setting, and provide an outstanding spot for recreation and relaxation.

In most parks land dominates the picture. But Biscayne is not like most parks. Here water and sky overwhelm the scene in every direction, leaving the bits of low-lying land looking remote and insignificant. This is paradise for marine life, water birds, boaters, fishermen, snorkelers, and divers alike. The water is refreshingly clean, extraordinarily clear. Only the maintenance of the natural interplay between the mainland, Biscayne Bay, keys, and reefs, and the Atlantic Ocean keeps it that way.

The region's Caribbean-like climate saturates the park with year-round warmth, generous sunshine, and abundant rainfall.

Tropical life thrives. The land is filled to overflowing with an unusual collection of trees, ferns, vines, flowers, and shrubs. Forests are lush, dark, humid, ever-green. Many birds, butterflies, and other animals live in these woods.

No less odd or diverse is Biscayne's underwater world. At its center are the coral reefs. Unlike the ocean depths, which are as dark and lifeless as the innermost chambers of a cave, the shallow water reefs are inundated with light and life. Brilliantly colorful tropical fish and other curious creatures populate the reefs. Their appearances and behavior are as exotic as their names—spotlight parrotfish, finger garlic sponge, goosehead scorpionfish, princess venus, peppermint goby. A reef explorer can spend hours drifting lazily in the waters above the reefs and

watch a passing procession of some of the sea's most fascinating inhabitants.

Whether on the reefs, the keys, the bay, or the mainland you leave behind what is familiar and become acquainted with another world that is strange and wild. Biscayne is a different sort of national park. Expect the unexpected.



Mainland

In Biscayne, the mainland mangrove shoreline has been preserved almost unbroken. For many years these trees of tropical and subtropical coasts were considered almost worthless. Some were cut for timber or used to make charcoal. But as recently as the 1960s the mangrove wilderness was referred to as "a form of wasteland." Like thousands of other wetlands, it was cleared or filled to make way for harbors and expanding cities.

But in Biscayne mangroves are considered vital to the well-being of the park and surrounding areas. Without them, there would be fewer fish for fishermen and fewer birds for birders. Biscayne Bay would become murky. And areas inland would be exposed to the full violence of hurricanes.

Beyond the Darkness
It is hard to see what lives in the brackish waters of the mangrove swamps. They are stained brown by tannins from the trees. Hidden in this darkness, among the maze of roots, is a productive nursery for all sorts of commercial, sport, and reef fish. Here the young find not only shelter but also food. Fallen mangrove leaves feed bacteria and other microorganisms, and so begins a food web that supports not only the



Red mangroves

marine animals of the mangroves but also visitors like barracudas and birds that nest and roost in the treetops.

Defending the Coast
The mangrove forest appears as a nearly impenetrable fortress. Perhaps a snake or mosquito can move through easily, but little else can. It makes an effective protective buffer between the mainland and Biscayne Bay. It guards the bay from being dirtied by eroded soil and pollutants washing from the land by trapping them in its tangle of roots. The mangroves also stand as a natural line of defense against the strong wind and waves of hurricanes.

"Freaks" of Nature
Mangroves have been called freaks, and a close look reveals why. Roots of the red mangrove arch still-like out of the water or grow down into the water from overhead branches. The roots of the black mangrove look like hundreds of cigars planted in the mud; they are breathing organs necessary for survival in this waterlogged environment.

Later, travelers like land surveyor Andrew Ellcott recorded the bounty of life in the region. "Fish are abundant," Ellcott wrote in 1799. "[Sea] turtles are also to be had in plenty; those we took were of three kinds; the loggerhead, hawk-bill, and green."

Bay

"The water of Biscayne Bay is exceedingly clear. In no part can one fail to clearly distinguish objects on the bottom..." biologist Hugh Smith wrote in 1895. Today the shallow waters of this tropical lagoon are still remarkably transparent. They serve as a blue-tinted window to a world of starfish, sponges, crabs, sea urchins, fish of all sizes and kinds, and hundreds of other marine plants and animals.

The bay is a huge reservoir of natural riches.

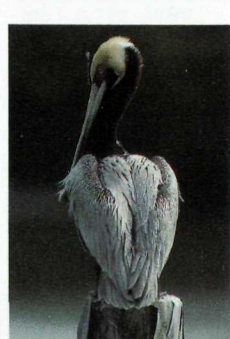


Sailing on Biscayne Bay

teeming with unusual, valuable, and rare wildlife. It is home for many, temporary refuge and feeding ground for others; birthplace and nursery for still others. It is a benign powerhouse, designed to draw energy from the sun and use it to support a complex and far-reaching web of life.

One unusual animal that depends on this web is the manatee. This gentle blubbery giant visits the bay in winter to graze peacefully on turtle and manatee grasses. It is the water's warmth and ample food supply that attracts this endangered marine mammal.

A Sanctuary for Birds
Birds are drawn to the bay year-round. Each follows its own instincts for survival. Brown pelicans



Brown pelican

patrol the surface of the bay, diving to catch their prey. Reddish egrets lurk and leap after small fish and crustaceans in the shallows.

Large colonies of little blue herons, snowy egrets, and other wading birds nest seasonally in the protected refuge of the Arsenicker Keys. The extremely shallow waters surrounding these mangrove islands in the south bay are especially well suited for foraging.

A History of Abundance
The coastal wilderness of south Florida was the first spot in North America discovered by Europeans. Spanish explorer Ponce de Leon sailed across Biscayne Bay in search of the mythical Fountain of Youth in 1513.

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Keys



The Keys

One hundred thousand years ago the Florida Keys were "under construction." The builders were billions of coral animals, each not much larger than a period on this page. Together they constructed a 240-kilometer (150-mile) long chain of underwater coral reefs. When these reefs later emerged from the sea, they became the many islands of the Florida Keys. If you look closely, you can see fossil coral rock on Biscayne's islands.

A Tropical Paradise
Gumbo limbo, Jamaican dogwood, Strangler fig, Devil's-potato, Satin-leaf, Bromeliads, Mahogany. In this country only tiny pockets in south Florida contain this mixture of tropical trees and shrubs common in the West Indies. North-flowing air and ocean currents and storms delivered the pioneer seeds and plants that eventually grew into the islands' lush, dark, jungle-like forests.

Walking along a trail through any of these forests, called hardwood hammocks, you are likely to see other natives of the tropics. Zebra butterflies and rare Schaus swallow-tails find refuge in the thick tangle of leaves, branches, and vines. Golden orb weavers betray their presence with



Devil's-potato

large yellow spider webs. Birds and a few mammals also share these isolated, mangrove-fringed keys.

Indians to Millionaires
Over the years the islands here attracted many people who were willing to risk the chance of a hurricane and the certainty of pesky bugs. Indians were the first. Tree-cutters from the Bahamas came later and felled massive mahoganies for ships. Early settlers on Elliott Key cleared forests and planted groves of key limes and pineapples. Throughout the keys subtropical forests were destroyed; Biscayne preserves some of the finest left today.

The islands abound with legends of pirates and buried treasure. Many shipwrecks, victims of high seas and the treacherous reefs, lie offshore. Fortune hunters, bootleggers, alien smugglers, artists, gamblers, millionaires, and four Presidents have all spent time on the keys of Biscayne.

Reef

Dive into the undersea realm of the coral reefs and you will discover a feast for the eyes. It is a living kaleidoscope of gaudy colors, bold patterns, intricate designs, and peculiar shapes. Alien, yet inviting, the life of the reefs excites and mystifies snorkelers and scientists alike.

The Reef Builders
Among the most puzzling creatures are the corals. Early biologists suspected they were plants. But each coral—each brain, finger, or

staghorn coral—is actually a colony of thousands of tiny, soft-bodied animals. These animals, called polyps, are relatives of the sea anemone and jellyfish. Rarely seen in the day, the polyps emerge from their hard, stony skeletons at night. It is then that they feed, catching drifting plankton in their outstretched tentacles.

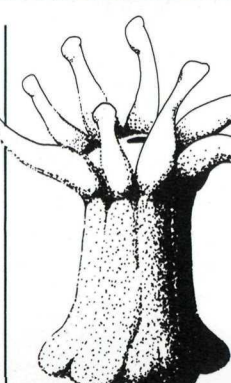
These primitive, unassuming animals are the mighty master builders of the reefs. The creation of one reef requires the



Reef diving

team effort of billions of individuals. Each extracts building material—calcium—from the sea and uses it to make itself a protective tube-shaped skeleton. Together, hundreds of these skeletons make a coral. Many corals, growing side by side and one on top of the other, form a reef.

Corals are very particular about where they build reefs. Like the offshore seas of Biscayne, the water must be just the right temperature (no lower than 20°C, or 68°F), just



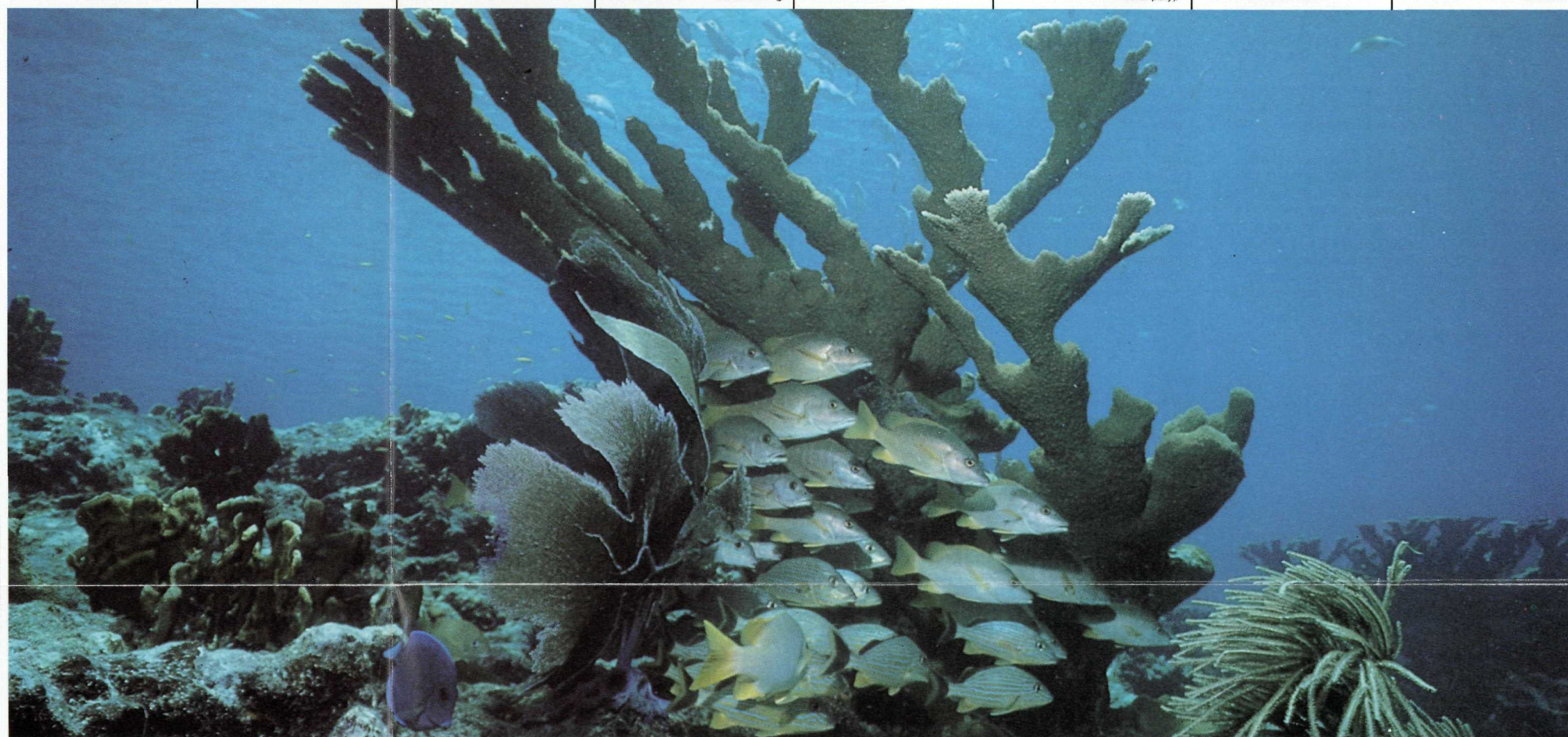
A living coral reef

the right depth (no deeper than 60 meters, or 200 feet), and be clean and well-lit. Such conditions exist all along the Florida Keys in and south of Biscayne and in the Caribbean, as well as in some other tropical oceans.

An Undersea Metropolis
The reefs are the cities of the sea. In and around them lives a huge and diverse population of fish and other marine creatures. Every hole, every crack is a home for something. Some inhabitants, like the Christmas tree

worm, even live anchored to the coral. And there is food to satisfy all tastes. Corals are eaten by flamingo tongues, which are snail-like mollusks, and fish. Fish are food for other fish, and, quite often, for seafood gourmets.

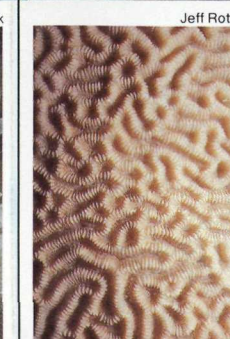
John Haas



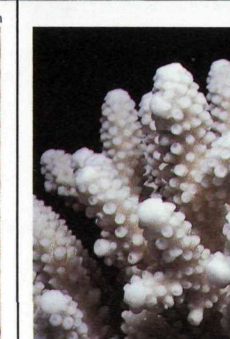
Coral polyps



Brain coral



Finger coral



Flamingo tongues

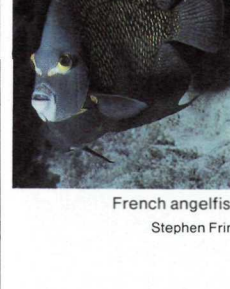


Christmas tree worms

Fishes of the Reef

"In variety, in brilliance of color, in elegance of movement, the fishes may well compare with the most beautiful assemblage of birds in tropical climates." Louis Agassiz, 19th century French naturalist, wrote after visiting the Florida reefs.

Reefs are in fact host to the ocean's most spectacular galaxies of fish.



French angelfish

Along Biscayne's reefs more than 200 types of fish can be spotted. Each holds its own fascination for us. Some are impressive in size, others in color. Some are grotesque, others dangerous... or are they? Many behave in bizarre, unexplainable ways, at least to humans. Few places on earth can match the diversity of life that inhabits the reefs' underwater wilderness.



Wrasse

A Sea of Color
Imagine the most colorful scene you have ever seen—a field of wildflowers, the glittering lights of a city at night, a desert sunset. Whatever it may be, the dazzling spectrum displayed by the reef fish will equal or surpass it. The range extends from the most flamboyant—the angelfish, the wrasses, the parrotfish, the neon gobies—to ones that are quite drab and ordinary.



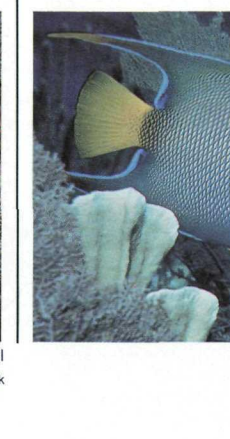
Green moray eel

There is much speculation about what role the colors play. The answer differs for each fish. An eye-grabbing wardrobe may serve as a kind of billboard, advertising a



Queen angelfish

fish's presence. Vividly colored wrasses attract other fish in this way so they can clean them of parasites and dead tissue, and, in return, get a free meal. Multicolored bars, stripes, and blotches blur the outline of other fish, making it difficult for predators to see them against the complex background of the coral reefs.



Parrotfish

Some fish are masters of disguise. Many turn different colors at night, presumably to conceal themselves from nocturnal predators. The well-camouflaged moray eel blends in neatly with the surrounding reefs. Unsuspecting fish that swim too close often get caught between the eel's powerful jaws and needle-sharp teeth.



Reef fish

A Montage of Motion
While morays are sedentary creatures, most fish swim freely about the reefs. Some, like the solitary angelfish, move with deliberate grace. Others dart about in schools of thousands of fish, moving together with the precision of choreographed dancers. Each closeknit group offers protection to its members.



Reef fish

Reef fish are noted for their eccentric behavior. One interesting inhabitant is the sharp-beaked parrotfish. It can be seen, or even heard, munching on coral. An odd meal for a fish? Not really, because along with the rock the parrotfish is devouring algae and coral polyps, too.



Reef fish

On the Mainland

Convoy Point The park's mainland center for visitor services is located at Convoy Point. Park headquarters is here, as well as an information station. The information station, which has exhibits and schedules of park activities, is open from 8 a.m. to 4:30 p.m. Convoy Point also has a picnic area with tables, fire grills, and restrooms. Guided boat trips to the keys and snorkeling tours to the reefs leave from Convoy Point. These tours are operated by the park concessioner.

Nearby Services and Accommodations Homestead, Miami, and the Florida Keys have a wide range of hotels and motels; reservations are recommended in winter and early spring. They also have a variety of restaurants, service stations, groceries, and other stores. Everglades National Park, John Pennekamp Coral Reef State Park, and other area state parks have

year-round campgrounds. Nearby public marinas provide boat ramps and fuel, and often charter or rent sail and motor boats (see map for locations).

The Greater Miami area and the Florida Keys have the highest concentration of dive shops in the United States. They rent and sell scuba diving and snorkeling equipment, repair gear, and offer snorkeling instruction. If you are getting snorkeling gear, select a face mask that covers only your eyes and nose and comes equipped with a separate breathing tube. Be sure your mask fits snugly.

Information For more information, write: Biscayne National Park, P.O. Box 1369, Homestead, FL 33090-1369; or call (305) 247-PARK.

General Information and Regulations

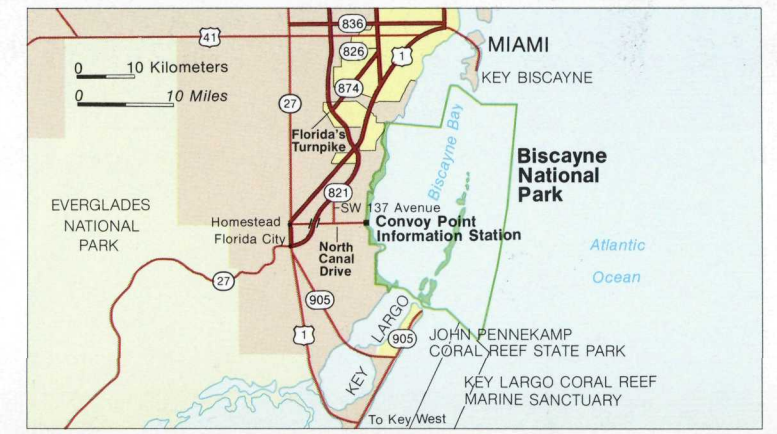
Biscayne has a subtropical climate characterized by warm, wet summers (May through October) and mild, dry winters (November through April). You can expect abundant sunshine and high humidity year-round. High temperatures average in the 30s°C (high 80s and low 90s°F) in summer and in the 20s°C (mid-70s and low 80s°F) in winter. Annual rainfall fluctuates greatly, but 165 centimeters (65 inches) or more are common. Most rain falls in summer in brief, intense afternoon thunderstorms. Summer is also the peak season for tropical storms and hurricanes.

The park is a wildlife and historical preserve; do not disturb or remove any natural or historical object. Firearms and other weapons and explosives are prohibited. Pets must be physically restrained at all times. Fires are allowed only in campstoves or designated

grills. There are no lifeguarded beaches. If you swim take along a friend. Be careful wading along the shore; coral rock is sharp and animals such as spiny sea urchins live in the shallows. Mosquitoes and other biting insects are year-round residents. Their populations are lowest from January to April. Always carry insect repellent. If you are camping, be sure your tent has bug-proof netting. Wear a waterproof sunscreen to guard against sunburn.

Getting to the Park

The main north-south highways approaching Biscayne are Florida's Turnpike and U.S. 1. The most direct route to Convoy Point is North Canal Drive (SW 328 St.). U.S. 1 intersects North Canal Drive in Homestead. Driving south on the turnpike you can reach North Canal by taking Tallahassee Road (SW 137 Ave.) south. The rest of the park is accessible only by boat. See map below for boat ramp locations.



Map Key to Facilities

- Ranger station
- Restrooms
- Picnic area
- Boat launch
- Gas dock
- Marina
- Nature trail
- Primitive campground
- Popular anchorage

On the Water

The offshore waters of the Atlantic and the more protected area of Biscayne Bay offer a year-round spot for recreation. Saltwater fishing can be enjoyed in all seasons. In the ocean, marlin and sailfish are two popular catches; in the bay, snapper, grouper, sea trout, and Spanish mackerel are caught. A fishing license is not required, but you must obey Florida's regulations on size, number, season, and method of take. You can take stone crabs in season. Blue crabs can be taken year-round. Lobsters are protected in the bay but can be taken outside. Waterskiing is allowed. Skiers should avoid mooring sites and watch for swimmers and divers.

Rules and Safety Tips Navigating the waters of Biscayne can be tricky. Be sure to take adequate precautions for your trip.

Presailing Checklist Before leaving shore check the weather forecast, sea conditions, and tides. Among the gear you should pack are: a U.S. Coast Guard-approved personal flotation device (PFD), such as a lifejacket, for each passenger; signaling equipment; and enough fuel for a round trip. Another essential is NOAA nautical chart 11451, which shows hazardous areas in detail. Do not use the map at left for navigation. Let someone know where you are going and when you expect to return.

Safety Aloft The key to safe boating in Biscayne is to stay alert. Watch the weather closely. Storms can move extremely quickly, bringing with them rough seas and the danger of lightning. Monitor marine weather radio broadcasts. If a storm breaks suddenly, seek

the nearest safe harbor. Be especially careful when boating outside marked channels. Reduce your speed over shoals, reefs, and other shallow areas. Don't let your propeller drag and scar the bay bottom.

Strong currents are common along the outer reefs and in nearby sandy bays. Be sure it is well-anchored. Don't let currents carry you away from your boat.

Watch for swimmers and divers when nearing a moored boat, or any area where they might be expected. If a diver's flag is flown, stay at least 91 meters (300 feet) away.

Each year propellers kill and wound manatees. Be on the lookout for them in the bay, channels, and canals.

Map Key to Navigational Aids

- Water Depths**
- 0-2 meters (0-6 feet)
 - 2-3.5 meters (6-12 feet)
 - Over 3.5 meters (over 12 feet)
- Shallows and Reefs**
- Shoal or spoil area
 - Coral reef near water surface
 - Coral reefs also lie deeper below water surface.
- Channel Markers (entering from seaward)**
- Starboard-hand daymarker (even numbered)
 - Starboard-hand marker
 - Starboard-hand spar
 - Port-hand daymarker (odd numbered)
 - Port-hand marker
 - Port-hand spar
- Other Aids and Landmarks**
- Flashing light
 - Fixed beacon
 - Lighthouse
 - Mooring buoy
 - Boundary marker
 - Tower
 - Whistle buoy
 - Shipwreck
 - Spherical buoy
- Boating Markers and Flags**
- Know these common buoys, signs, and flags. They are essential to safe navigation.
- Channel Markers (entering from seaward)**
- Port (odd-numbered)
 - Starboard (even-numbered)
 - Some older markers and private markers may be other shapes and colors.
- Regulatory Signs**
- Keep out
 - Danger
 - Speed Limit (No wake - 8 kph/5 mph)
- Storm Warning Flags**
- For up-to-date weather forecasts, phone (305) 661-5065 or monitor marine radio reports on VHF channels 1, 2, or 3. Channel 16 broadcasts special weather warnings.
- Small craft advisory (32-61 kph/20-38 mph winds)
 - Gale (62-87 kph/39-54 mph winds)
 - Storm or whole gale (88-117 kph/55-73 mph winds)
 - Hurricane (winds 118 kph/74 mph or more)

On the Keys

The keys can be reached only by boat. Developed recreation areas and services are limited to a few islands. Boat fuel, supplies, and food are not sold on any island but are available at mainland marinas. Drinking water is available only on Elliott Key.

Elliott Key Free boat docks are located at Elliott Key Harbor and University Dock. You must make reservations to moor overnight at University Dock; call (305) 247-PARK. Elliott Key Visitor Center is open weekends and intermittently on weekdays. Activity schedules and exhibits are displayed.

A campground with picnic tables and fire grills is open on a first-come, first-served basis. No fee is

charged. Drinking water, restrooms, and showers are nearby. Backcountry camping is allowed by permit only and popular overnight anchorage sites are located offshore. The island also has a self-guiding nature trail.

Adams Key A free boat dock, picnic area, restrooms, and nature trail are available for day use only. An information station is open intermittently.

Sands Key Backcountry camping is allowed by permit only. Popular overnight anchorage sites are located offshore.

Rules and Safety Tips The entire park is a wildlife refuge, but the Arsenicker Keys are particularly important as a bird nesting area; do not disturb these keys. West Arsenicker and Arsenicker Keys are closed to the public. If you plan to camp in the backcountry, pick up a free permit at headquarters or Elliott Key Visitor Center. Backcountry camping is allowed only on Elliott and Sands Keys. Be sure to pack out all trash on the keys. Pets must always be kept on a leash no longer than 2 meters (6 feet). Some private property still exists on the keys; please respect owners' rights. A few tropical plants can cause painful itching; do not touch plants you don't recognize as harmless.

On the Reefs

Exploring the reefs is best on calm, sunny days. Both the outer reefs, along the park's eastern boundary, and the patch reefs, closer to shore, offer opportunities for snorkeling and diving. But strong currents occur on the outer reefs. Unless you are experienced, we recommend that you stay on the calmer patch reefs.

The park sells reef guidebooks at Elliott Key Visitor Center and Convoy Point Information Station. A free "Skin Diver's Guide" to patch reefs marked by blue and white mooring buoys is also available. See map for mooring buoy locations. Ranger-guided snorkeling tours are offered.

Rules and Safety Tips Whenever you visit the reefs, exercise caution.

Protecting Yourself Snorkelers and divers must display the standard diver's flag to warn boaters of their presence. Be wary of approaching boats; propellers have injured divers. Never swim alone, and always have one person stay on board.

Generally reef animals will not harm you if you leave them alone. It is good practice not to touch anything, even if it looks harmless. Even coral can cause deep, slow-healing cuts. Few barracuda or shark attacks occur, but both fish should be considered dangerous and watched carefully. You might want to talk with a ranger

about hazards before venturing out.

Protecting the Reef Remember that the reefs are alive. Do not anchor in them; anchors damage the reefs and kill the coral animals. Anchor instead in a nearby sandy bottom. Avoid disturbing or injuring any reef inhabitant. Standing or sitting on coral, or just grasping it, can break or injure it. Resist the temptation to take home a souvenir; it is illegal and diminishes the reef's beauty for the next visitor. Historical artifacts, such as shipwreck ruins, are protected, too. Do not deface or remove them.

