



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. The park, located just 21 miles east of Everglades National Park, was established as a national monument in 1968. In 1980 it was enlarged to 181,500 acres and designated as a national park to protect a rare combination of terrestrial and

undersea life, to preserve a scenic subtropical setting, and to 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, reefs, and the Florida Straits 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 dark and nearly lifeless, the shallow water reefs are inundated with light and burgeoning with life. Brilliantly colorful tropical

fish and other curious creatures populate the reefs. Their appearances and behavior are as exotic as their names—stoplight 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. 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.

Now we understand that the mangroves are 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; this water is stained brown by tannins from trees. Hidden 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 ma-



James A. Kern

rine 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 Ellicott recorded the bounty of life in the region. "Fish are abundant," Ellicott 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-green 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. White ibis meander across exposed mud flats, probing for small fish and crustaceans.

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 explored 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



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 these animals constructed a 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 the islands of Biscayne.

A Tropical Paradise
Gumbo limbo, Jamaican dogwood, Strangler fig, Devil's-potato, Satin-leaf, Torchwood, 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 one of these forests, called hardwood hammocks, you are likely to see other natives of the tropics. Zebra butterflies and rare Schaus swallowtails 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.

Native Americans to Millionaires
Over the years the keys attracted people willing to risk the chance of a hurricane and the certainty of pesky bugs. Native Americans were first. Tree-cutters from the Bahamas came later and felled massive mahoganies for ships. Early settlers on Elliott Key cleared forests and planted 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 United States Presidents have 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.

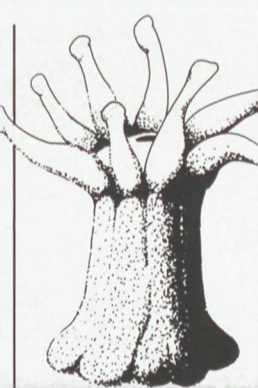
These primitive, unassuming animals are the mighty master builders of the reefs. The creation of one reef requires the



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 68°F), just the right



A living coral reef

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

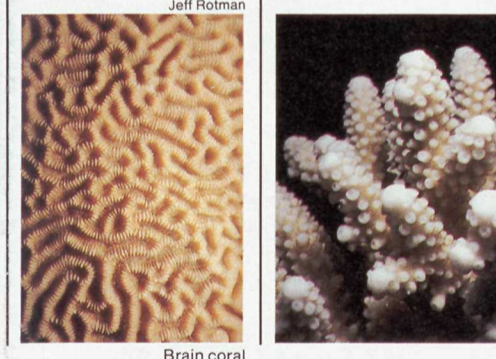
An Undersea Metropolis
The reefs are the cities of the sea. In and around them lives a huge and diverse population of fish and other marine creatures. Every hole, every crack is a home for something. Some inhabitants, like the Christmas tree

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.

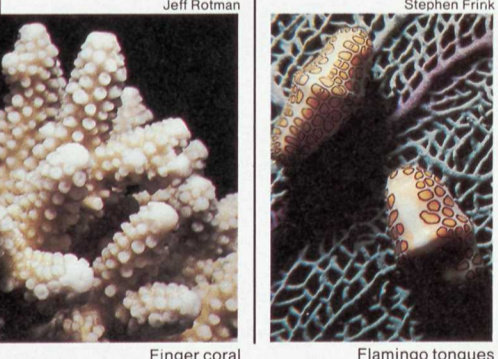
John Halas



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.



French angelfish

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



Wrasse

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 inhab-

its the reefs' underwater wilderness.

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 ex-



Green moray eel

tends from the most flamboyant—the angelfish, the wrasses, the parrotfish, the neon gobies—to ones that are quite drab and ordinary.



Queen angelfish

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



Parrotfish

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 splotches 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.



Parrotfish

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 close-knit group offers protection to its members.

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.



On the Mainland

Convoy Point Park headquarters and the park visitor center are located at Convoy Point. The visitor center, which has exhibits and schedules of park activities, is open daily. Convoy Point also has a picnic area with tables, fire grills, and restrooms and a short trail that provides views of the marine life and birds of Biscayne Bay. The Convoy Point parking area is open 8 a.m. to sunset.

Boat Tours A park concessioner offers glass-bottom boat tours of the bay and reefs, snorkeling and scuba diving trips to the reefs, and occasional island excursions for picnicking and hiking. All tours leave from Convoy Point. The concessioner has snorkeling and scuba equipment for sale or rent and canoe rentals. For information or tour reservations write: Biscayne Aqua Center, Inc., P.O. Box 1270, Homestead, FL 33090-1270; or call (305) 247-2400.

Nearby Services and Accommodations Homestead, Miami, and the Florida Keys have a wide range of hotels and motels; reservations are recommended. They also have a variety of restaurants, service stations, groceries, and other stores. Nearby public marinas provide boat launch ramps and fuel and often charter or rent sail and motor boats (see map below for locations).

Camping Campgrounds are not available on the park's mainland. (See "On the Keys" for information on boat-access-only island camping in the park.) Several nearby private mainland campgrounds and trailer parks in Homestead, Florida City, and South Miami do have campsites for trailers, mobile homes, and tents. Everglades National Park, John Pennnekamp Coral Reef State Park, and other area state parks also have campgrounds. They are open year-round.

General Information

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

The park is a wildlife and historical preserve; do not disturb or remove any natural or historical object. Loaded firearms and other weapons and explosives are prohibited. Pets must always be kept on a leash no longer than 6 feet and are restricted to certain areas of the park. Fires are allowed only in campstoves or designated grills. Be careful wading along shore; coral

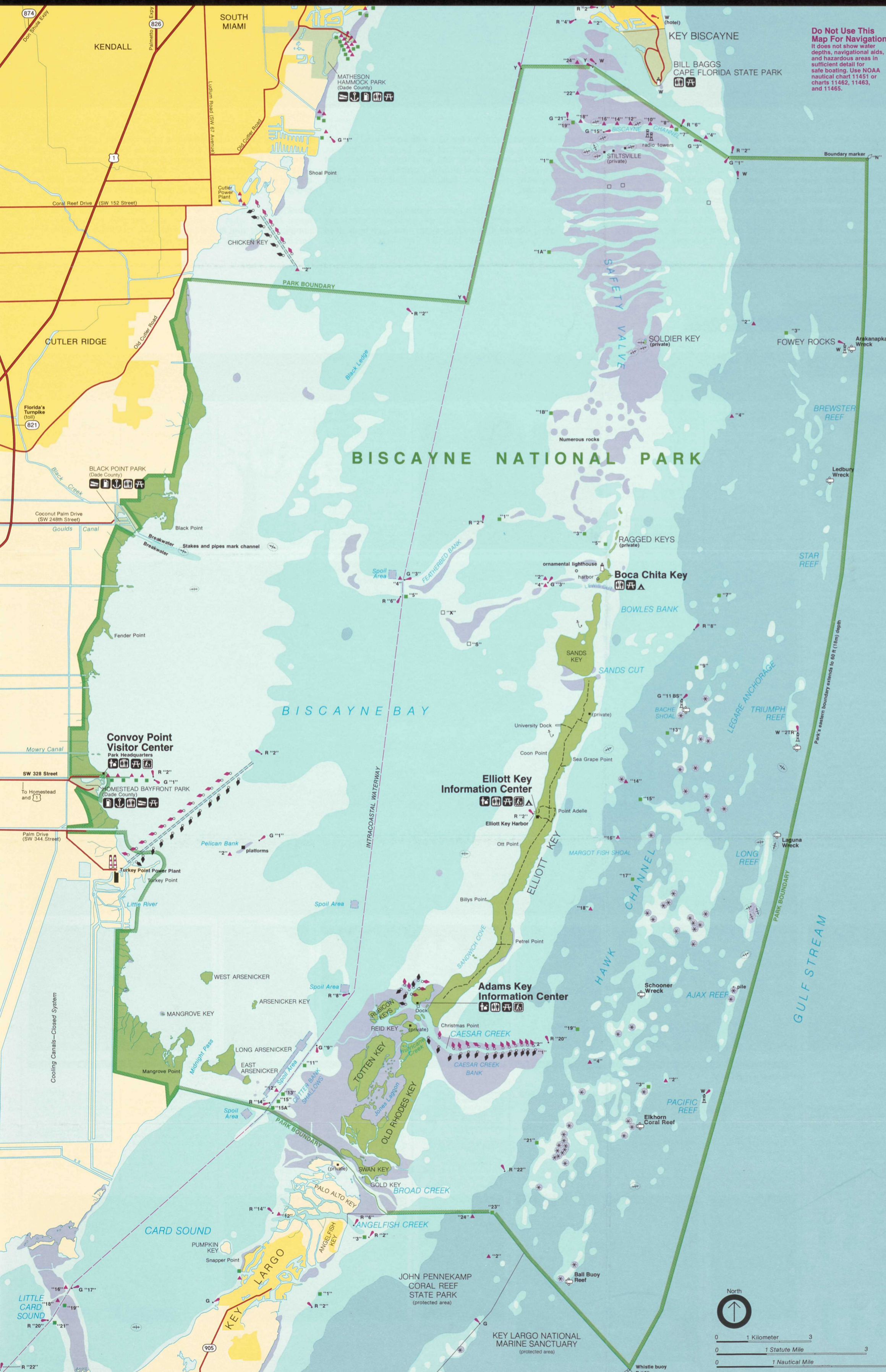
rock is sharp and animals such as spiny sea urchins live in the shallows. There are no lifeguards; if you swim, take along a friend. Mosquitoes and other biting insects are year-round residents. Their populations are lowest from January to April. Always carry insect repellent. If you are camping, be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

Information For more information, write: Biscayne National Park, P.O. Box 1369, Homestead, FL 33090-1369; or call (305) 247-PARK; (305) 247-7275.

Información en Español Para información sobre el parque en español llame al teléfono (305) 247-PARK; (305) 247-7275.

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 SW 328 Street, which intersects U.S. 1 in Homestead. Driving south on the turnpike you can reach SW 328 Street by taking Talahassee Road (Sw 137 Avenue) south. The rest of the park is accessible only by boat. See map below for boat ramp locations.



Do Not Use This Map For Navigation
It does not show water depths, navigational aids, and hazardous areas in sufficient detail for safe boating. Use NOAA nautical chart 11451 or charts 11462, 11463, and 11465.

Map Key to Facilities

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

On the Water

The offshore waters of the Florida Straits 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 and grouper are caught—Florida fishing license required; you must obey Florida 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 and tidal creeks, but they can be taken on the seaward side of the keys during the Florida lobster season. 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 boat trip.
Precalling Checklist
Among the required gear you must take along when boating are: a U.S. Coast Guard-approved personal flotation device, such as a life jacket, for each passenger; a fire extinguisher; and signaling equipment. Take enough fuel for a round trip. Let someone know where you are going and when you expect to return. Before leaving shore, check the weather forecast, sea conditions, and tides. Remember: water depths shown on nautical charts represent the average depth at low tide. Actual water levels may be lower or higher. In Biscayne Bay, low and high tides occur later than the times listed in the tide tables for Miami Harbor Entrance. In the southern part of the bay, low tide occurs as much as 3½ hours later and high tide occurs as much as 2½ hours later.
Safety Afloat
The key to safe boating is to stay alert. Watch the weather closely. Storms can move quickly, bringing rough seas and the danger of lightning. Monitor marine weather radio broadcasts. If a storm breaks suddenly, seek the nearest safe harbor. Exercise caution when boating near shallow areas or reefs. Striking the bottom with your propeller can kill fragile corals or important grassbeds and may damage your propeller or engine cooling system. Be on the lookout for manatees; propellers are a leading cause of injury and death for these rare mammals. Watch for swimmers and divers when nearing moored boats or any area where they might be expected. If a diver's flag is flown, stay 300 feet away. If you leave your boat to swim, be sure it is well anchored. Don't let currents, which are strongest on the outer reefs and in cuts between the keys, carry you or your boat away.

Map Key to Water Features and Landmarks

- Water Depths**
 - 0-5 feet (0-1.5 meters)
 - 6-12 feet (1.8-3.6 meters)
 - Over 12 feet (over 3.6 meters)
- 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)**
 - Red starboard daymarker (even numbered)
 - Green port daymarker (odd numbered)
 - Starboard buoy
 - Port buoy
 - Other buoy
 - Daymarker
- Other Aids and Landmarks**
 - Light
 - Wreck
 - Lighthouse
 - Mooring buoy
 - Tower

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) Lights flash green
 - Starboard (even-numbered) Lights flash red
 - Diver's Flag
 - Regulatory Signs**
 - Keep out
 - Danger
 - Speed Limit (No wake—5 mph)
 - Storm Warning Flags**
 - Small craft advisory (20-38 mph winds)
 - Gale (39-54 mph winds)
 - Storm or whale gale (55-73 mph winds)
 - Hurricane (74 mph winds or higher)

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. Only Elliott Key has drinking water.
Elliott Key Free boat docks are located at Elliott Key Harbor and University Dock. A campground with picnic tables and 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 use during the day.
Boca Chita Key A free boat dock, picnic area, and restrooms are available. A primitive camping area is on the island; no permit is required. An ornamental lighthouse is open intermittently.
Sands Key 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 and the islands in Sandwich Cove are closed to the public.
If you plan to camp in the backcountry, pick up a free permit at headquarters. Backcountry camping is allowed only on Elliott Key. Be sure to pack out all trash on the keys. 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. Strong currents can 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 the Convoy Point Visitor Center. Mooring buoys are available on some of the patch reefs. Check with a ranger for buoy locations and for more information.

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: a coral reef is alive. If your boat hits a reef, it will not only damage your boat but also scar the fragile reef and kill coral animals. When boating near patch reefs, watch out for the numerous coral heads very close to the surface. Anchors also can damage reefs; anchor in a nearby sandy bottom or use a mooring buoy. Standing or sitting on coral, or just grasping it, can cause injury, too. Avoid disturbing any reef inhabitant. Resist the temptation to take home a natural souvenir; it is illegal and it diminishes the reef's beauty. Historical artifacts are also protected; do not deface or remove them.

