

Florida's fantastic reefs

Florida is the only state in the continental United States to have extensive shallow coral reef formations near its coasts. Approximately 6,000 reefs are found from Stuart, on the Atlantic coast, southwestward to the Dry Tortugas, west of Key West, in the Gulf of Mexico.

Most reef growth occurs south and east of the Florida Keys. An irresistible magnet for divers, the reefs here are spectacular and rival those of many Caribbean areas.

How corals build reefs

Florida's coral reefs came into existence 5,000 to 7,000 years ago when sea levels rose after the Ice Age. Reef growth is slow—from one to 16 feet every 1,000 years. All coral reefs are in a constant state of flux, expanding with new polyps on the outer surface while being ground into sand by storms and animals. During long periods of favorable conditions, the reefs may reach awe-inspiring heights.

Stony corals are the major reef architects. Polyps, the living portion of the coral, begin as free-swimming larvae that later settle into a sedentary lifestyle on the sea floor. They unite into colonies, extract calcium from seawater, and combine it with carbon dioxide to build the elaborate limestone skeletons that form the reef. An individual colony grows one-half to seven inches a year, depending on the species.

Although reef corals are actually animals, microscopic plants called zooxanthellae live within the coral polyps. This symbiotic relationship is referred to as mutualism. The coral polyps benefit from the sugars and oxygen that the plants provide through photosynthesis. The plants are protected within the coral tissues and get nutrients from the coral's wastes. These tiny plants give the coral much of its color.

Coral reefs develop only in areas with specific environmental characteristics: a solid structure for the base; clear, transparent water that is low in phosphate and nitrogen nutrients; warm and stable temperature; oceanic salinity; and moderate wave action to disperse wastes and bring oxygen and plankton to the reef.

Types of reefs and corals

Florida has three types of coral reefs: patch reefs, which grow close to shore in shallow water, and fringing and barrier reefs, which grow farther offshore in deeper waters and rise steeply from the ocean floor.

Numerous species of coral are found in Florida reefs. Each kind lives in a separate colony that is shaped differently from the others. The colonies take on the various hues of the algae that live within them—usually red, green, and brown. Corals can generally be divided into two main categories: stony corals and octocorals.

The most spectacular reef-building corals in Florida are brain, star, elkhorn, and staghorn. Brain coral is dome-shaped and has waves, folds, and ridges that resemble those of a human brain. It may be as small as a golf ball or as large as a boulder. Star coral is also dome-shaped, but it has a distinctive star pattern on its surface that is caused by the accordion-like folds within its polyp cups. Elkhorn and staghorn corals are so named because their branchlike projections resemble the antlers of those animals.

Octocorals, some of which are also called gorgonians, look like strange trees and shrubs, although they too are composed of living polyps. The name “gorgonian” aptly refers to the mythical Gorgons, sinister women with writhing snakes for hair. Unlike stony corals, octocorals are unable to build thick limestone skeletons. Instead, many octocorals are supported by an internal structure composed of a horn-like substance called gorgonin. Octocorals frequently grow on or near the reef like a fantastical, though carelessly sown, garden.

The most common octocorals in Florida are sea fans and sea whips. Sea fans are pale lavender or green fan-shaped corals. Their fans flutter in the ocean currents like lace curtains. Sea whips have long, feathery branches that spread in all directions. They can be orange, lilac, purple, yellow, brown, or buff.

What corals do for us

Coral reefs provide the adjacent coast with natural storm protection by reducing wave energy from the ocean breakwater. They help to form the sandy beaches and tranquil lagoons that Florida's residents and tourists alike find so inviting.

As home to many of the state's most important fisheries resources such as spiny lobsters and groupers, reef communities form specialized habitats that provide shelter, food, and breeding sites for many plants and animals. In this way, they contribute greatly to the total value of Florida's fisheries. Recreational and commercial fishing along the reefs, combined with tourism, bring over one billion dollars annually to the state.

Seven ways that you can help to keep our reefs healthy

The tropical setting of Florida's reefs attracts millions of visitors annually. In order to minimize human damage to the corals, everyone's help is needed.

- **Use navigational charts to locate coral reefs.**
Most reefs are well marked on navigation charts; if you are not familiar with the area, refer to the charts. Every year, careless boaters run aground, destroying coral colonies that are hundreds of years old. Remember the jingle, “Brown, brown, run aground; blue, blue, sail on through.” From the water's surface, reefs appear golden-brown. If you see brown, you may be about to hit a reef.
- **Anchor to mooring buoys or anchor in sand.**
Be cautious when anchoring your boat. Do not deploy the anchor directly on coral. Usually there are sandy areas close by; anchor in the sand. Many popular reefs in the Florida Keys National Marine Sanctuary have special anchor buoys for mooring. In these areas, tie up to the buoys rather than anchoring.
- **Stash your trash.**
Do not dispose of trash, bilge washings, or other debris on or near the reefs!
- **Don't touch coral. You will crush the fragile coral polyps.**
When diving or snorkeling, look, but do not touch! Do not grasp, stand, or sit on living coral. You may damage the coral and hurt yourself in the process.
- **Avoid trolling for fish above a reef.**
Anglers should avoid shallow coral reefs when trolling. Hooks can scar and injure the coral, leaving it vulnerable to infection by microscopic organisms that can kill the coral.
- **Do not place lobster or crab traps on corals.**
When fishing for lobster, avoid placing traps on reefs. Heavy traps break corals and damage the bottom when the traps are pulled.
- **All coral is protected by law. You may NOT collect, harvest, or sell coral that comes from state or federal waters.**

Florida coral reefs are significant, unique natural resources. Be a responsible visitor—help ensure the continued vitality of Florida's coral reefs.



A patchwork of deep-reef corals in Sherwood Forest on the Tortugas Banks, Florida. Parts of this reef are over 7,000 years old.

Walt Jaap

ON THE COVER

Vivid green plumes of Pseudopterogorgia reach toward a sea fan, Gorgonia ventalina, waving gently at upper right.

Inset—*Deep-water sea fan, Iciligorgia schrammi, a gorgonian.*

OVERLEAF

(from top)

Elkhorn coral, Acropora palmata, at Looe Key, Florida.

Boulder star coral, Montastraea annularis, at Dry Tortugas,

Florida. This coral and elkhorn are found in shallow water.

Great star coral, Montastraea cavernosa, inhabits deep water.

Example of shallow-water, hardbottom habitat with octocorals, Biscayne National Park, Florida.

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Florida's CORAL REEFS

