



Nassau Grouper

Epinephelus striatus

About the Species

The Nassau grouper is a reef fish. It is a member of the family Serranidae, which includes groupers valued as a major fishery resource such as the [gag grouper](#) and the [red grouper](#). These large fish are associated with hard structure such as reefs (both natural and artificial), rocks, and

ledges. They are late-maturing, long-lived, top-level predators found in southern coastal Florida, the Florida Keys, Bermuda, the Yucatan, and the Caribbean Sea.

Nassau grouper used to be one of the most common species of grouper in the United States. It was easy for commercial and recreational fisherman to catch Nassau grouper and it soon became scarce. The remaining stocks are overexploited. In some cases, Nassau grouper is commercially extinct through much of its geographical range. Currently, all harvest of Nassau grouper is prohibited in the United States. Because their range exceeds national borders, the best approach to their conservation is regional closed seasons.

Nassau grouper is listed as threatened under the [Endangered Species Act](#). NOAA Fisheries is dedicated to the conservation of Nassau grouper. Our scientists use a variety of innovative techniques to study and protect this species.

Appearance

Nassau grouper are a moderate-sized fish with large eyes and a robust body. Coloration varies, but adult fish are generally light beige, with five dark brown vertical bars, a large black saddle blotch on top of the base of the tail, and a row of black spots below and behind each eye. A dark band that forms a tuning-fork pattern on top of the head, beginning at the front of the upper jaw, extending through each eye, and then curving to meet its corresponding band in front of the dorsal fin. Juveniles exhibit a color pattern similar to adults. They can be distinguished from other groupers by the vertical bars and dark saddle coloring along the dorsal part of the area preceding the tail. Color pattern can change within minutes from almost white to bicolored to uniformly dark brown, according to the behavioral state of the fish. A distinctive bicolor pattern appears when two adults or an adult and large juvenile meet and is often seen at spawning aggregations.

Behavior and Diet

Nassau grouper are ambush predators that are not selective with their prey. They swallow prey whole using a suction created by their protruding mouth. Their mouth size determines the size of fish they eat. Adults eat only fish, while juveniles eat a variety of fish and invertebrates (e.g., shrimp and crabs).

There are limited data on when Nassau grouper forage. They take advantage of lower light levels at dawn and dusk, combined with the higher number of prey during changeover between diurnal and nocturnal fishes. That timing would mean they need to use less energy in ambushing their prey.

Where They Live

Nassau grouper are found in tropical and subtropical waters of the western North Atlantic. This includes Bermuda, Florida, Bahamas, the Yucatan Peninsula, and throughout the Caribbean to southern Brazil. There has been one verified report of Nassau grouper in the Gulf of Mexico at Flower Gardens Bank. They generally live among shallow reefs, but can be found in depths to 426 feet.

The Nassau grouper is considered a reef fish, but it transitions as it grows through a series of shifts in both habitat and diet. As larvae they are planktonic. As juveniles they are found in nearshore shallow waters in macroalgal and seagrass habitats. They shift deeper as they grow, to predominantly reef habitat (forereef and reef crest).

The main influences on where they live are not known, though water clarity, habitat, and benthos (the community of organisms in the seabed) seem to be important. Their depth range may be influenced more by the availability of suitable habitat than by food resources, since their diet is highly varied and has more to do with body size than of water depth. Nassau grouper tend to spend a lot of time in one spot, often on a high-relief coral reefs or rocks in clear water. Larger fish tend to occupy deeper reef areas with greater vertical relief. Both adults and juveniles will use either natural or artificial reefs.

Nassau grouper are mostly absent from the continental United States—except Florida, where larger juveniles and adults have been recorded. No larval Nassau grouper or juveniles smaller than 20 inches in length have been collected or observed in Florida waters. However, sampling along shoreline habitats of the Florida Keys—where smaller juveniles might be expected—has been limited to date.

Lifespan & Reproduction

Nassau grouper can live up to 29 years. Males and females typically mature when they reach about 15 to 17 inches. Most reach sexual maturity when they are around 20 inches long and about 4 to 5 years old. Nassau grouper pass through a juvenile bisexual phase, then mature directly as males or females. While adult Nassau groupers can change sex after hormone injection, natural sex-change has not been confirmed.

Nassau grouper spawn in aggregations—gatherings of hundreds, thousands, or tens of thousands. All of their known reproductive activity happens in these aggregations. They form from November through February around the full moon, when water temperatures are around 79°F. The timing and synchronization of spawning may be to accommodate widely dispersed adults, facilitate egg dispersal, or reduce predation on adults or eggs.

As spawning time approaches, adults move from the reefs where they live to specific spawning areas. Some of them travel only a few kilometers; others are known to travel up to several hundred kilometers to the aggregation site. Sites have been found near the edges of reefs, as little as 50 yards from the

shore, near drop-offs into deeper water across a wide range of depths (20 to 200 feet) and environments (including soft corals, sponges, stony coral outcrops, and sandy depressions).

Some more information on how Nassau grouper get to their spawning sites, based on limited observations:

- Fish move in groups of 25 to 500.
- They travel parallel to the coast or along the shelf edge.
- Movements are synchronous.
- They return to their home reefs after spawning.

When aggregating, Nassau grouper show three color “phases,” or patterns, along with their normal coloring. Their courtship takes place according to these phases. It ends near sunset, with a group of them swimming upward quickly; a female in the lead releases eggs, while the males behind her release sperm.

Fertilized eggs are buoyant and are less than a quarter inch wide. They hatch a day or two after being fertilized, and the pelagic larvae begin feeding on zooplankton after 2 to 4 days. After 1 to 2 months of floating with the ocean currents, the larvae settle in nearshore shallow waters in macroalgal and seagrass habitats. Little is known of their movements and distribution; they are rarely reported from offshore waters, and the link between spawning sites and settlement sites is not understood. We do know that they move into deeper and deeper water as they grow, toward offshore reefs.

Adults are relatively solitary, living in areas that (patchily) overlap other groupers’ home ranges. They favor high-relief reef structures.