

Epinephelus striatus (Nassau Grouper)

Family: Serranidae (Groupers and Sea Basses)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Nassau grouper, *Epinephelus striatus*.

[http://www.eol.org/data_objects/31795589, downloaded 5 February 2016]

TRAITS. The Nassau grouper *Epinephelus striatus* is also known as the rockfish. Large oblong body, large eyes and coarse, spiny fins. About 11-12 dorsal spines; 16-18 dorsal and 8 anal soft rays; 3 anal spines. Juveniles have a rounded caudal fin, in adults the fin is truncated. The dorsal fin is notched among the forward spines, the third or fourth spine being the longest (Bester, 2014). Body colour changes based on their disposition and behaviour; tawny for those in shallow water, pinkish red in deeper water. There are five dark vertical bars across its body, the tail base has a large black spot, and there is a forked pattern on the forehead (Fig. 1). Nassau groupers reach an average weight of 12kg (Dineen, 2004).

DISTRIBUTION. In the coastal waters of the western Atlantic: Caribbean Islands, Yucatan Peninsula, Bahamas, Florida, Bermuda (Fig. 2). Considered migratory in the Gulf of Mexico, however, Nassau groupers are infrequent there (Bloch, 1972).

HABITAT AND ACTIVITY. *Epinephelus striatus* is very common in coral reefs and on offshore rocky bottoms at a depth range which extends to at least 90m. They have a preferred rest site near to the bottom. Closer to the shore we tend to find the juveniles in seagrass beds. Nassau groupers have the ability to tolerate a wide range of salinity, hence, we say they are euryhaline. They can be found deeper offshore (to at least 130m) during the spawning period. Diurnal and solitary, but sporadically they form schools. *Epinephelus striatus* are camouflaged to blend in with the surrounding coral and rocks (Fig. 3). They have a cleaning station where cleaner wrasses pick dead tissue and parasites from the grouper's body and gills. They frequently visit this cleaning station, where the grouper opens its mouth, attracting cleaner fishes to enter to remove the parasites (Bernard, 2015).

FOOD AND FEEDING. Being a carnivorous predator at dawn and dusk, the *Epinephelus striatus* diet consists mainly of fish, shrimps, lobsters, crabs and octopuses. Their sturdy, slender teeth act as rasps to prevent small fish from escaping. Grunts, snappers, wrasses, squirrelfish, damselfish and parrotfish are the main prey. The grouper waits hidden, disguising itself until it unexpectedly pounces on its prey (Fig. 4). *Epinephelus striatus* consume their prey whole, in one swift swallow. If offered food by divers, it repeatedly seeks more food handouts, being a friendly unsuspecting fish (Dineen, 2004).

POPULATION ECOLOGY. Generation time is an estimated 9-10 years based on the size of the fish (Bloch, 1972). Over the past 30 years there was a decline in the population. The adults tend to migrate long distances to arrive at their spawning sites, e.g. 17 km to deeper waters. Rapid growth is about 10mm per month for juveniles. When the Nassau grouper is near sexual maturity, at about 4-8 years, their growth slows down to about 2mm per month. They generally survive for 12-16 years, but the maximum age is 29 years in the wild.

REPRODUCTION. *Epinephelus striatus* tend to form large spawning aggregations at a depth of 20-40m at their specific breeding sites during December and January, at full moon. For the duration of this spawning event, the groupers have a bicoloured pattern and they swim near the bottom. The females remain in the barred colour then as the mating period approaches they become very dark. The males are bicoloured, darker with a white belly. At sunset the males swim in a circular motion near the females (Fig. 5). They spiral vertically, display short vertical runs, crowd and rapidly disperse then run horizontally near the bottom. The females then moves rapidly in a forward and upward direction. The "spawning rush" then occurs, the females release their eggs, the males release their sperm, followed by a further release of eggs by some females. Fertilization occurs in the open waters. The eggs hatch within 48 hours after fertilization, and the larval period is about 35-40 days (Bloch, 1972). Prior to becoming juveniles, for a month the pelagic larvae drift the currents. The bodies of the larvae are shaped like a kite and they have elongated second dorsal spines. Juveniles settle in vegetated areas near coral clumps when they reach 32mm. The juvenile *E. striatus* then moves to surrounding patch reefs when they are 120-150mm in length (Bloch, 1972). Nassau groupers are monandric protogynous hermaphrodites, maturing first as females, then changing sex into males after spawning as a female. Reproductive

maturity is between 4-8 years, but in less environmentally stressed areas and with more abundant food sources maturity arises much earlier (Kime, 2004).

APPLIED ECOLOGY. In the Caribbean, they are fished recreationally and commercially by using traps, hooks and lines. However, there have been reports of ciguatera poisoning from when humans consume the Nassau grouper. *E. striatus* is an endangered species on the IUCN Red List (Bloch, 1972).

REFERENCES

- Bernard, A.M. (2015). The Fin Foundation: Nassau Grouper (*Epinephelus striatus*). <http://thefoundation.org/critter-corner/nassau-grouper>, downloaded 05 February 2016.
- Bester, C. (2014). Coloration of Nassau grouper blending with physical environment. <http://www.flmnh.ufl.edu/fish/discover/species-profiles/epinephelus-striatus>, downloaded 07 February 2016.
- Bloch, E. (1972). Nassau Grouper, *Epinephelus striatus*. <http://www.scrfa.org/about-aggregations/aggregating-species/nassau-grouper.html>, downloaded 05 February 2016.
- Dineen, J. (2004). *Epinephelus striatus*. <http://www.animaldiversity.org/>, downloaded 05 February 2016.
- Kime, J. (2004). *Animal Diversity Web*. http://animaldiversity.org/accounts/Epinephelus_striatus/#07B4023B-BCED-42E6-86B4-8E072F1E115C, downloaded 05 February 2016.

Author: Syanne Douglas

Posted online: 2016

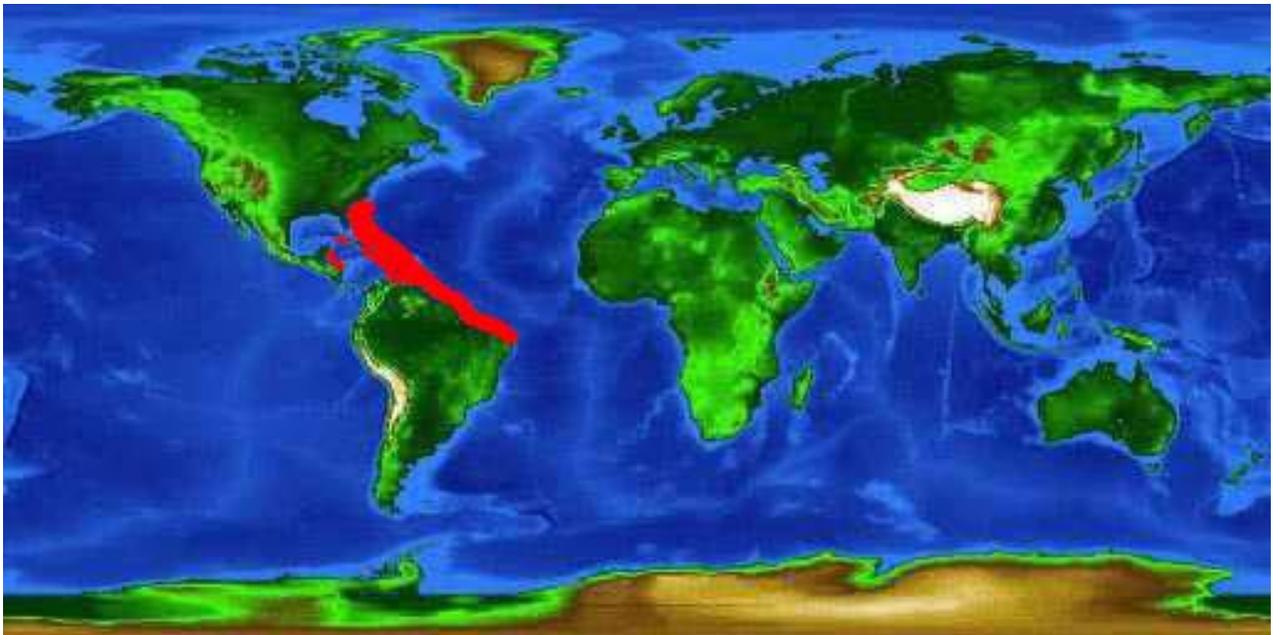


Fig. 2. Nassau grouper geographic distribution.

[<http://www.flmnh.ufl.edu/fish/discover/species-profiles/epinephelus-striatus>, downloaded 5 February 2016]



Fig. 3. Coloration of the Nassau grouper blends in with its physical environment.

[<http://www.flmnh.ufl.edu/fish/discover/species-profiles/epinepheus-striatus>, downloaded 7 February 2016]



Fig. 4. Nassau grouper preparing for dinner.

[<http://www.flmnh.ufl.edu/fish/discover/species-profiles/epinepheus-striatus>, downloaded 7 February 2016]



Fig. 5. Nassau groupers at spawning aggregation, bicoloured males surround a female.

[<http://www.arkive.org/Nassau-grouper/epinephelus-straitus/image-G113131.html>, downloaded 7 February 2016]

For educational use only - copyright of images remains with original source