

Canthigaster rostrata (Caribbean Sharpnose Puffer)

Family: Tetraodontidae (Pufferfish)

Order: Tetraodontiformes (Pufferfish, Triggerfish and Boxfish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Caribbean sharpnose puffer, *Canthigaster rostrata*.

[<http://reefguide.org/carib/pixhtml/sharpnosepuffer3.html>, downloaded 8 March 2016]

TRAITS. *Canthigaster rostrata*, commonly called the Caribbean sharpnose puffer or sharpnose pufferfish, typically grows to a maximum size of 12 cm (Fishbase, 2013). They have a pointed snout, with small dorsal fins, and the colours on the side of the fish range from pale yellow to white with bright blue spots, with a dark brown to olive coloured upper area. There is a prominent, yellow tail fin with dark borders that is used to distinguish this species from similar pufferfish (Fig. 1).

DISTRIBUTION. Widespread in the western Atlantic and can be found from South Carolina, to Bermuda and throughout the Caribbean Sea and Gulf of Mexico to Trinidad (Fig. 2). It is endemic to the Caribbean islands and native to most islands including Trinidad and Tobago. This pufferfish has a lower depth limit of 90m, however they are typically found at a depth from 1-40m (Beautiful

Oceans, 2015). It typically lives in tropical waters, and can be found in 3,040 km² of coral reef area on the US coast and 9,800 km² of coral reef area in the Caribbean (as of 2008) (IUCN, 2014).

HABITAT AND ACTIVITY. Found in a variety of marine habitats, including seagrass beds and coral reefs (IUCN, 2014). They become significantly less abundant at night (Beautiful Oceans, 2015). This species visits rubble mounds created by sand tilefish, and during observations of mangrove, seagrass and rubble mounds, this species was collected most frequently in mangrove creeks (IUCN, 2014). It is a territorial species with some female territories being included in the territory of a large male. Smaller males are typically wanderers or occupy territories outside of the female and large male. A study of *C. rostrata* in Panama showed that in a habitat of mixed coral and rubble, 1-6 female territories were found included in the territories of some large males. These females defended their territories however against other females and small males (IUCN, 2014). Large males visit the females in their territory and patrol their territories throughout the day.

FOOD AND FEEDING. Caribbean sharpnose puffers are omnivores. Their diet typically consists of small invertebrates such as polychaete worms, or shrimps. They may also eat algae, seagrass and some sponges (IUCN, 2014). *C. rostrata*, like other puffers, secrete tetrodotoxin, which is poisonous and as a result, they are typically avoided by most predators. It has been identified as prey for lionfish and *Sphyrna barracuda* (IUCN, 2014). Most of the day is spent foraging for small reef invertebrates or grazing on algae or sponges within the territory of the sharpnose puffer.

POPULATION ECOLOGY. Due to its affinity with coral reefs, *C. rostrata* is believed to be experiencing declines in population because of the destruction of coral and habitat loss in other parts of its range (Fishbase, 2013). Despite this, it is still common and abundant in parts of its range, and is one of the most abundant omnivores in the western Atlantic (IUCN, 2014). Current population trends are unknown however it is believed that currently, *C. rostrata* can live for up to 10 years and the older fish have a higher chance of survival than younger, smaller fish (Fishbase, 2013). This chance is lower for males than for females in the population because of territorial behaviour.

REPRODUCTION. *C. rostrata* reproduce sexually. The female lays eggs at the sea bed and there is no change in sex during reproductive development (IUCN, 2014). Males in the territory visit their females regularly throughout the day, and during breeding season the visits typically result in spawning at dawn, or very early in the morning (Beautiful Oceans, 2015). When ready to mate, male pufferfish enter a female's territory and spread its fins, if the female shows a mottled colour (Fig. 3) she is indicating a submissive display and is ready to mate. The female will search for a patch of algae and spend some time cleaning it while the male nudges her constantly with his snout (IUCN, 2014). Once the patch is prepared, the female lays her eggs into it and the male fertilizes them immediately. Once laid, the two sharpnose puffers resume protecting their territories and the eggs are uncared for. Caribbean Sharpnose puffers typically mate during dawn hours of the spring season however the full extent of the breeding season is unknown (IUCN, 2014).

BEHAVIOUR. When passing through a neighbouring territory, sharpnose puffers adopt a mottled colour and flatten their bellies to indicate submission (Fig. 3). If the owner of the territory spots the intruder, it becomes aggressive and shows a tilting display, tilting its body forward to present

the flank, and spread the fins while flexing the body to make it appear bigger (Beautiful Oceans, 2015). If the intruder does not leave the puffers may circle each other and try biting at each other (Beautiful Oceans, 2015). The sharpnose puffer can inflate their stomach with water when under extreme stress, or being threatened by a predator in order to become difficult to swallow (IUCN, 2014).

APPLIED ECOLOGY. *Canthigaster rostrata* is common and abundant among coral reefs, and is not currently on the IUCN endangered species list (IUCN, 2014). Because they are omnivores, this species can play an important role in some food chains. They help control the amount of algae and invertebrates around the coral, and are not typically consumed by predators because of toxins that they secrete and the defence mechanism of inflating their stomach with water in order to become hard to swallow (Fishbase, 2013).

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Fig. 2. Distribution map of sharpnose puffer.

[<http://maps.iucnredlist.org/map.html?id=193793>, downloaded 10 March 2016]



Fig. 3. Mottled coloration of sharpnose puffer.

[<http://reefguide.org/carib/pixhtml/sharpnosepuffer14.html>, downloaded 10 March 2016]

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