

Scarus coeruleus (Blue Parrotfish)

Family: Scaridae (Parrotfish)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Blue parrotfish, *Scarus coeruleus*.

[<http://fishbase.org/photos/PicturesSummary.php?StartRow=0&ID=1153&what=species&TotRec=6>, downloaded 4 March 2016]

TRAITS. *Scarus coeruleus*, commonly known as the blue parrotfish, is uniformly blue (Fig. 1). Its teeth are fused together to give the resemblance of a parrot's peak. As the fish changes from the juvenile stage into adulthood, a distinct yellow area at the top of head fades to give the adult fish this homogenous blue colour (FishBase, 2013). This is the only form of parrotfish where the adults have this distinct blue colour. As the fish grows it attains a prominent bulging snout. At maturity these fish range from 30-75cm long, however, some fish can reach a maximum length of 120cm (MarineBio, 2013). Blue parrotfish can undergo a sex change, with some females changing into brilliantly coloured males (Nelson, 2006).

DISTRIBUTION. This species is widespread in the western Atlantic, from Maryland, USA to the Caribbean Sea and the north coast of South America (Fig. 2). These fish are predominantly tropical and are native to countries such as Bermuda, Bahamas, Trinidad and Tobago, Jamaica, Haiti and the British Virgin Islands. They are noticeably absent from the northern Gulf of Mexico (Kaufman et al., 2006).

HABITAT AND ACTIVITY. Blue parrotfish inhabit coral reefs of depths ranging from 3-25m (Kaufman et al., 2006). Blue parrotfish display diurnal activity as they are only active during the day in the marine habitat (Kaufman et al., 2006). Juveniles are usually found on *Thalassia testudium* beds (turtle grass) feeding on small benthic plants and other small organisms (FishBase, 2013).

FOOD AND FEEDING. The majority of time is devoted for food searching (up to 80% of time is taken this way). These herbivorous fish scrape algae off dead coral substrate with their jaws and fused teeth (Fig. 3). Small pieces of rock are bitten off along with algae and crushed into the sand and ground to aid with digestion (MarineBio, 2013). This feeding behaviour not only allows them to attain food but it also prevents their fused teeth from growing to an uncontrollable length (Nelson, 2006). The constant grazing on the dead rock enables the teeth to stay within an appropriate length for feeding. This mechanism for feeding makes the parrotfish an important producer of sand for the coral reef. New sand is created when the fish uses its pharyngeal teeth to grind ingested rocks into sand (FishBase, 2013). Blue parrotfish are responsible for the formation of many sandy beaches in the Caribbean.

POPULATION ECOLOGY. Generally, blue parrotfish move around in large groups containing approximately 40 fish when feeding. The school of fish is made of predominantly the same size (Kaufman et al., 2006). The group with the smallest fish has a social hierarchy whereby the group is made up of mainly females and one mature male. The male is the leader of the group and deter intruders from as far as 6m away, chasing them over a distance of up to 100m before re-joining the harem of females (FishBase, 2013). In the event the male leader dies, a female can undergo the sex change to become the new male leader of the harem. The lifespan of a blue parrotfish in the wild is up to 7 years.

REPRODUCTION. Reproduction is oviparous (females produce eggs which hatch outside the body) with distinct pairing during breeding. The fertilized eggs settle near the bottom until they are ready to be hatched, in approximately 25 hours (MarineBio, 2013). A newly hatched larva begins to feed three days later. Some blue parrotfish develop very rapidly and can reach maturity within 2-4 years. Generally, blue parrotfish spawn year round, however, during the months of summer (June, July and August) is the peak period for spawning activities (MarineBio, 2013). There is no parental care in the blue parrotfish.

BEHAVIOUR. In the night, the blue parrotfish produces a mucous envelope before resting (Fig. 4). Within 30 minutes the envelope is constructed with both ends open to allow the passage of water. The secreted mucous envelope deters night predators, especially those who rely on scent for hunting such as moray eels. The envelope is foul tasting and produces a pungent scent (FishBase, 2013). Males can intensify their coloration when defending their territory, a visual cue that serves to deter the invader (Nelson, 2006).

APPLIED ECOLOGY. The blue parrotfish has been listed under the category of Least Concern on the IUCN Red List of Threatened Species (IUCN, 2015). In the Caribbean, the blue parrotfish is the second largest species of parrotfish, used primarily for commercial purposes and targeted for fishing. There is no documented evidence indicating a decline in the global population of the

blue parrotfish, however, there has been in a decrease in population sizes in reefs which are located near to densely populated areas such as Haiti and Jamaica (IUCN, 2015). The island of Bermuda has permanently closed fishing of all parrotfish in the effort to conserve these species. The blue parrotfish is still vulnerable to habitat destruction due to coral reef bleaching or death. Blue parrotfish have been known to cause ciguatera, commonly known as fish poisoning sickness, in humans. This disease can be fatal (IUCN, 2015).

REFERENCES

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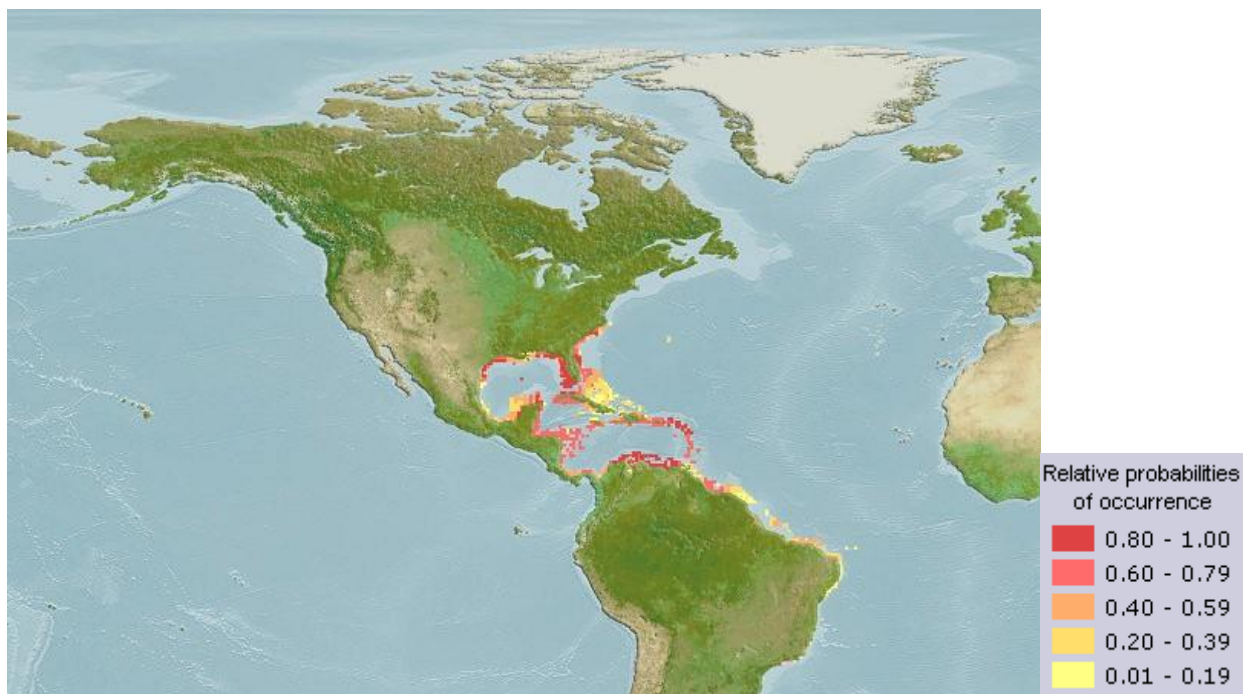


Fig. 2. Blue parrotfish potential geographic distribution.

[http://www.aquamaps.org/receive.php?type_of_map=regular#, downloaded 5 March 2016]



Fig. 3. Blue parrotfish feeding on coral.

[<https://laurenfruit.files.wordpress.com/2014/04/blue-eat.jpg>, downloaded 5 March 2016]



Fig. 4. Blue parrotfish in protective secreted mucus envelope at night.

[https://i.ytimg.com/vi/HsdwuQn_K9k/maxresdefault.jpg, downloaded 5 March 2016]

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