

Balistes vetula (Queen Triggerfish)

Family: Balistidae (Triggerfish)

Order: Tetraodontiformes (Pufferfish, Triggerfish and Boxfish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Queen triggerfish, *Balistes vetsula*.

[<http://www.ryanphotographic.com/balistidae.htm>, downloaded 28 February 2016]

TRAITS. The queen triggerfish is the largest of the triggerfish species, with a size range of 20-40cm, and reported to weigh approximately 5kg (Charpin, 2015). It has an oval-shaped body, moderately broad and laterally flattened; the snout is triangularly-shaped with two brightly coloured stripes that extend towards the lower front of the pectoral fin (Bester, 2016). The anterior dorsal fin comprises two spines allowing the triggerfish to lock itself into crevices at night as a defence mechanism. Special membranes that bring about a throbbing signal sound recognized by other fishes are located near the posterior pectoral fins (Bester, 2016). Peculiar line patterns surround the eyes, which are located at the extreme top of the fish's head (Fig. 1); the eyes can rotate independently of each other (IUCN, 2015). The posterior dorsal fin is triangularly-shaped and large; caudal (tail) fin is crescent-shaped. Coloration: greenish-greyish along dorsal side, yellow to green on snout and abdomen (Bester, 2016). The lips are encircled by bright blue rings, and all fins are bordered with bright blue colour (Fig. 1). The small mouth

contains narrow-edged teeth used on tough-shelled prey items. Juveniles are paler in colour and their fins are shorter than adults. Morphology of male and females differ insignificantly (Bester, 2016).

DISTRIBUTION. This species is widespread in the western and eastern Atlantic Ocean (Fig. 2). They reside in waters extending from Canada and Massachusetts, the Gulf of Mexico, to southern Brazil, including the whole of the Caribbean (Bester, 2016).

HABITAT AND ACTIVITY. The queen triggerfish resides in habitats ranging from shallow waters to 275m, and is most prevalent at depths of 3-30m (Bester, 2016). It inhabits coral reefs associated with rubble regions (IUCN, 2015), and may be located in somewhat disturbed areas such as the Bahamas where they are susceptible to spear fishing. Can be kept in aquariums but requires a large expanse of space to swim; 500 gallon and more will be suitable. Activity and predation is diurnal, hunting hard-shelled species such as crabs and shrimps (Petco Wellness, 2016), whereas at night they hide inside crevices for protection (Bester, 2016).

FOOD AND FEEDING. Queen triggerfish are secondary consumers (Yahoo Answers, 2011) of the coral reef ecosystem. They feed primarily on a wide range of primary consumers; benthic invertebrates including a large quantity of gastropods, echinoderms (Costa et al., 1987), bivalves, crabs, shrimps, star fish, sea cucumbers and polychaetes (Bester, 2016). Sea urchins are preyed on by the triggerfish using water currents that they create, which exposes the short spines of the sea urchins thus making them susceptible to predation. This fish can manoeuvre its way through rocks to catch its prey during the day. It uses its strong jaw (Costa et al., 1987) to chisel holes and crush the coarse and tough parts of the prey such as hard shells (Bester, 2016).

POPULATION ECOLOGY. Social behaviours – triggerfish sometimes form schools but can be observed singly over grassy and sandy areas (Animal World, 2015). Association with mating groups depends on the lunar (moon) cycle and tides (National Geographic, 2016). If kept in aquariums with other species smaller than itself, predation and competition occurs as triggerfish tend to be aggressive. This species is recorded to have generation length of 4-8 years, which has declined over the past years from 12-24 years (IUCN, 2015). Maximum length of adult fish is 60cm, and lifespan up to 13 years. Maturity is achieved at 22-26cm (Bester, 2016).

REPRODUCTION. Peak season is during fall and winter, annually (Bester, 2016). Very little is known regarding the courtship process of the triggerfish, however, the resulting large number of eggs are laid by the female and safeguarded in sand bowls created by the fish by rapid movement of fins or blowing of water near the sand. The male queen triggerfish then fertilizes the eggs (BioExpedition.com, 2015). The male territory is about 10m in diameter. Eggs are closely guarded by the mating pair, determined to viciously bite any intruders, intentional and non-intentional (such as divers) if they approach in close proximity to the eggs (Bester, 2016).

BEHAVIOUR. Juvenile behaviour: Little is known about the behaviour of juveniles (Fig. 3) of queen triggerfish except that they tend to hide from predators. However, as they begin to increase in size, predation lessens (Animals World, 2015). Antipredation behaviour: At night, triggerfish are least active, they utilize their dorsal fin to lock themselves into crevices thus avoid being pulled out by their predators. These fish do not seem to fight back at night, but rather enter

hiding mode. During mating peak season however, they will nip others that are in close proximity to defend their offspring (Fig. 4). Little is known about communication of queen triggerfish (I-5 Publishing, 2015).

APPLIED ECOLOGY. This queen triggerfish was listed in the 1996 IUCN Red List of Threatened Species as VU (Vulnerable), however, it is now listed as Near Threatened (NT) as it is found in protected marine areas and no-fishing zones. Threats include spear fishing and changes in the quantity of its primary food source (Wildscreen Arkive, 2016). This triggerfish is susceptible to spear fishing; it is consumed by many and their skins are used commercially as scrubs in Bermuda (Bester, 2016). The aggressive and hardy triggerfish can be kept as pets in aquariums however, it is very crucial that it is placed in a large expanse of water for free movement and has good hiding places (fishdb.com, 2009). Maintenance of this species is fairly easy compared to other marine triggerfish (Animal World, 2015).

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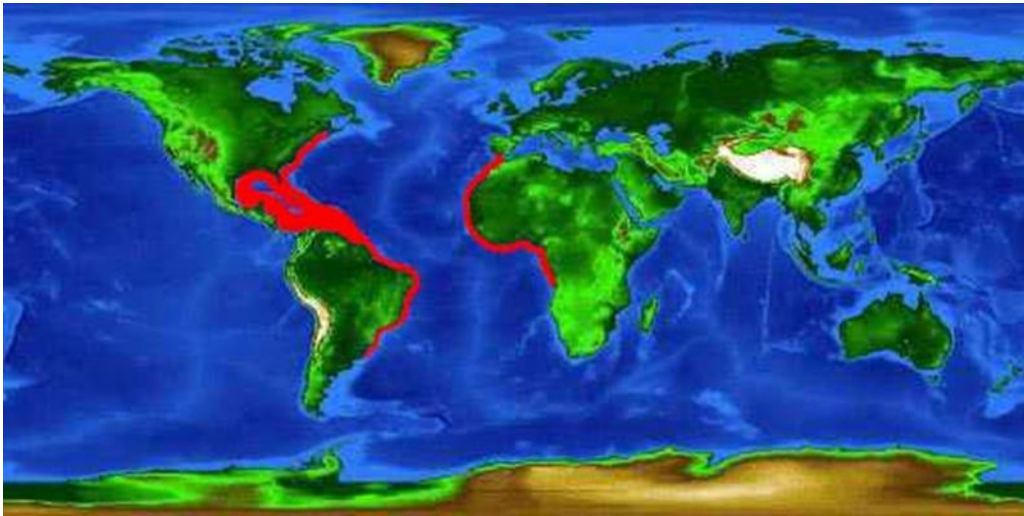


Fig. 2. Queen triggerfish geographic distribution.

[<https://www.flmnh.ufl.edu/fish/discover/species-profiles/balistes-vetula>, downloaded 28 February 2016]



Fig. 3. Juvenile queen triggerfish.

[http://www.tripadvisor.com/LocationPhotoDirectLink-g147268-d1792828-i70019097-VIP_Diving-Kralendijk_Bonaire.html, downloaded 26 February 2016]



Fig. 4. Queen triggerfish bares its teeth in defence.

[http://www.reefnews.com/reefnews/news/v07/v07n10/qt_brac.html, downloaded 28 February 2016]

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