

Holacanthus tricolor (Rock Beauty Angelfish)

Family: Pomacanthidae (Angelfishes)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Rock beauty angelfish, *Holacanthus tricolor*.

[http://www.photography-match.com/views/images/gallery/Rock_Beauty_Angelfish_Indo_Pacific.jpg,
downloaded 18 March 2015]

TRAITS. The rock beauty is one of the angelfish species, also known as the yellow nanny. When mature has an oblong, flat, deep body that is mostly black with a bright yellow perimeter consisting of the body's front half of the as well as its caudal, pectoral and ventral fins (Fig. 1). The eyes have sapphire blue accents and the outer perimeter of the anal and dorsal fins are a darker blue (Liveaquaria, 2015). The juvenile initially has a rounder body that is mostly yellow and a large black caudal spot (Wikipedia, 2015) (Fig. 2). The average size of an adult is approximately 25cm and males are typically larger than the females in their harems.

DISTRIBUTION. This fish can be found from 3-92m deep on reefs of the western Atlantic Ocean (Georgia and Florida, USA), Bermuda and throughout the Caribbean and south to Brazil (Fig. 3). The rock beauty is a non-migratory species and is native to Trinidad and Tobago.

HABITAT AND ACTIVITY. This species is diurnal and can be found in habitats of rock jetties, coral reefs to depths of 100m and in reef rubble (Figs 4, 5). Juveniles are timid and usually found closer to the sea floor near fire coral and hidden in shells. They remain near their protective habitat in harems of 5-6 adults. Adults establish territories and patrol them; they are very territorial. Unlike other angelfish they are not participants of cleaning station activities.

FOOD AND FEEDING. The rock beauty angelfish feeds on mostly sponges. However zoantharians, algae, bryzoans, gorgonians and tunicates also make up their diet. This browsing species has a beak-like mouth, which has sharp outer teeth and spends most of its time searching for food. Larval offspring feed on plankton.

POPULATION ECOLOGY. Prior to mating harems of 1 male and 4 to 5 females can be observed. In captivity, *Holacanthus tricolor* and other individuals in the genus can survive for up to 20 years with proper care. However, the life span of these individuals in the wild have not yet been studied. These fish are widely distributed and very abundant in their habitats.

REPRODUCTION. Males usually defend a territory that contains a group (harem) of 2-4 females. These fish practice sequential hermaphroditism, meaning they are all born females and have the ability to change to a male during spawning. The largest female changes to male and when this new male dies the next largest female turns into a male and the cycle continues. The female that is spawning is sexually mature at 10cm while males of the harem are at least 20cm or larger with trailing filaments off the top of the tail, dorsal and anal fins. Spawning takes place in the evening time every 8 days to 3 weeks. The pair rises within the water column with their bellies together. Numerous eggs and sperm are released. Females are able to release 25,000 to 75,000 eggs per evening and are able to spawn consecutively for a few days. This can result in a total of up to 10 million eggs per spawning cycle. Eggs are found floating in the water column (pelagic) and are clear. In 15-20 hours eggs hatch and the angelfish in the pre-larval stage are connected to a large yolk sac. Its eyes, gut or fins are not functional. The yolk sac is absorbed in 48 hours; the fish develops into a true larva and begins to feed. Plankton is the main food source for the larval angelfish and within 3-4 weeks prior to hatching the fish will be approximately 15-20mm. At this time the angelfish settles to the ocean floor. Parents do not look after their offspring.

BEHAVIOUR. In comparison to other *Holacanthus* species the rock beauty angelfish is more timid. This fish can be easily stressed therefore in captivity it is advised to have them kept in an environment that mimics its natural environment. In captivity it has been observed that angelfish nibble and nip at other tank mates. It has been discovered that this is a response sub-adults show due to their previous diet of eating slime from eels and other fish in the wild. These fish are very territorial. In the wild pairs defend their

territory by chasing other couple or individuals. It has been observed that in aquariums they are aggressive toward their own species and should be kept separate. This fish is classified as semi-aggressive (Liveaquaria, 2013). Larger species are bold and are known for approaching divers. Juveniles are very timid and are chased out of harems by adults. For these fish most of its activity occurs during the daytime and at night-time they return to their shelters; they are diurnal. Larger fish such as barracuda and shark preys upon the rock beauty angelfish. They utilize their habitat of fire coral reef and other stinging coral as a defence mechanism. Also, their large black spot can hide or camouflage them with the coral reefs.

APPLIED ECOLOGY. Of all angelfish species the rock beauty is the most common among the tropical western Atlantic reefs. This fish is listed on the World Conservation Union (IUCN) Red List as 'Least Concern' (LC). It is neither endangered nor vulnerable. Its population is stable and the only threats against it are coastal development and extensive collection for household aquariums. The collection is limited and is not currently affecting its global population. This species mostly resides in marine areas which are already protected therefore there are no acts of conservation toward this species. This species is not a pest and is not venomous and is edible. However, there have been reports of ciguatera poisoning (food poisoning) as a result of eating marine angelfish.

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Fig. 2. Juvenile rock beauty hiding in a coral crevice.

[<https://rollingharbour.files.wordpress.com/2013/02/rock-beauty-juvenile.jpg>, downloaded 18 March 2015]

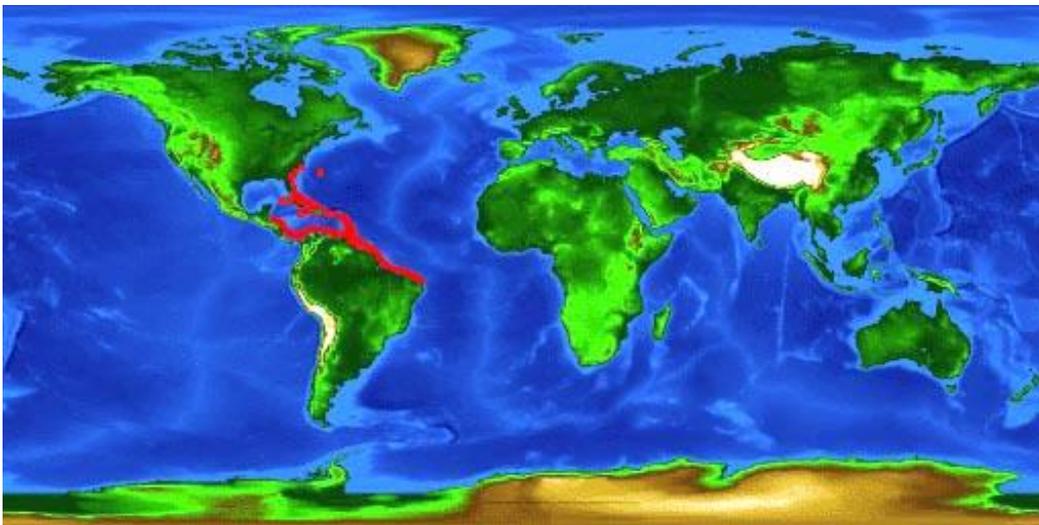


Fig. 3. Map of the distribution of the rock beauty angelfish.

[<http://www.flmnh.ufl.edu/fish/gallery/descript/rockbeauty/rockbeautyworld.JPG>, downloaded 18 March 2015]



Fig. 4. Adult rock beauty swimming around a coral reef in Bimini, Bahamas.

[<http://www.reefnews.com/reefnews/photos/bimini/rockbty1.jpg>, downloaded 18 March 2015]



Fig. 5. Two rock beauty angelfish swimming near a coral reef.

[http://reddog-diving.com/Key_Largo_Marine_Life_files/image051.jpg, downloaded 18 March 2015]