

## *Acanthostracion polygonius* (Honeycomb Cowfish)

Family: Ostraciidae (Boxfish)

Order: Tetraodontiformes (Pufferfish and Boxfish)

Class: Actinopterygii (Ray-finned Fish)



**Fig. 1.** Honeycomb cowfish, *Acanthostracion polygonius*.

[<http://www.whatsthatfish.com/fish/honeycomb-cowfish/1524#2>, downloaded 28 February 2015]

**TRAITS.** The honeycomb cowfish is also known as the trunkfish or honeycomb trunkfish. They can grow up to 50cm with average lengths from about 18-38cm. The fish has a variety of colours (blue, yellow and green) with most species being blue in colour. The honeycomb cowfish tends to have triangular body with a pattern similar to that of a honeycomb (hexagonal pattern) on its surface. The body of the fish is covered by hexagonal shapes the outline of the shape tends to be darker than the inside (Fig. 1). The younger fish of this species tend to be more brightly coloured than adults. The pectoral fin is translucent and it has rather short dorsal fins; the tail can be described as fan-like and is relatively short (Species-identification.org, 2015). Along the flanks of the fish are bony scales. These are used as a means of protection for the fish. It is easily distinguished from other similar fish by the two spines that are found above their eyes and the honeycomb pattern seen on its body. The honeycomb cowfish also has fleshy lips and a rather small mouth in comparison to other boxfish.

**DISTRIBUTION.** Widespread over western Atlantic and the Caribbean (Charpin, 2015). Within the Caribbean waters it is most predominant in Bahamas and Bermuda, however it is rarely

found in the Atlantic. They are absent from Gulf of Mexico. Distribution is shown in Fig. 2 represented by the red tracing. The honeycomb cowfish is exclusively a salt water fish.

**HABITAT AND ACTIVITY.** Usually found in and around coral reefs where the water is clean and clear (Fig. 3). It lives close to coral reefs for easy accessibility to food. It can live under the sea up to depths of 100m however tends to be found mostly around 30m. It can survive in temperatures about 22-27°C (Encyclopedia of Life, 2015). The honeycomb cowfish can be described as diurnal.

**FOOD AND FEEDING.** Feeds on shrimp, sponges, algae, tunicates and almost all small marine invertebrates most of which are sessile (attached) and thus easy to find (Fig. 4). They also feed on worms. This fish feeds predominantly during the day (Bakus, 1966).

**POPULATION ECOLOGY.** Mostly seen alone (solitary) or in small groups of threes comprising one male and two females. They are found in the warmer waters close to coral reefs which serve as protection as well as a good source of food. These fish can occupy a range of habitats from coral reefs to seagrass beds. They employ specialized ostraciform swimming because they have limited body motion due to their box-like shape. These fish live close to food sources and when they cannot find food they can be seen blowing the sand looking for food (Charpin, 2015).

**REPRODUCTION.** Very little is known about their reproduction. However it has been observed that two females and one male honeycomb cowfish tend to be spotted together. It should also be noted that honeycomb cowfish can be deemed as open water mating fish as a mature male fish and a mature female fish quickly swim to the surface of the water (Fig. 5) where they release their gametes into the water then quickly swim back down (Howe, 1994).

**BEHAVIOUR.** Juvenile behaviour: Younger honeycomb cowfish are usually more round and more brightly coloured than adults and they have bright green honeycomb patterns on their bodies. It should be noted that as these fish get older their colour fades. Young honeycomb cowfish can also change colour to protect themselves from predators. Young honeycomb cowfish are less awkward swimmers than the adult due to their more round bodies whereas older fish are more triangular and rigid which limits their body movement.

Anti-predator behaviour: Honeycomb cowfish has many ways to protect itself from predators and one way it does so is by camouflage. Honeycomb cowfish are known to have a range of colours and live in close proximity to coral reefs. Here it blends into the colourful surroundings and is hard to spot. They can also change colours to more efficiently blend into their surroundings. These fish could remain stationary for long periods of time to evade predators. Another way they avoid predation from larger fish is their bony structure and spines (Fig. 6) which serve as protective armour and makes these fish undesirable to bigger fish (Encyclopedia of Life, 2015).

**APPLIED ECOLOGY.** The IUCN has not evaluated the honeycomb cowfish.

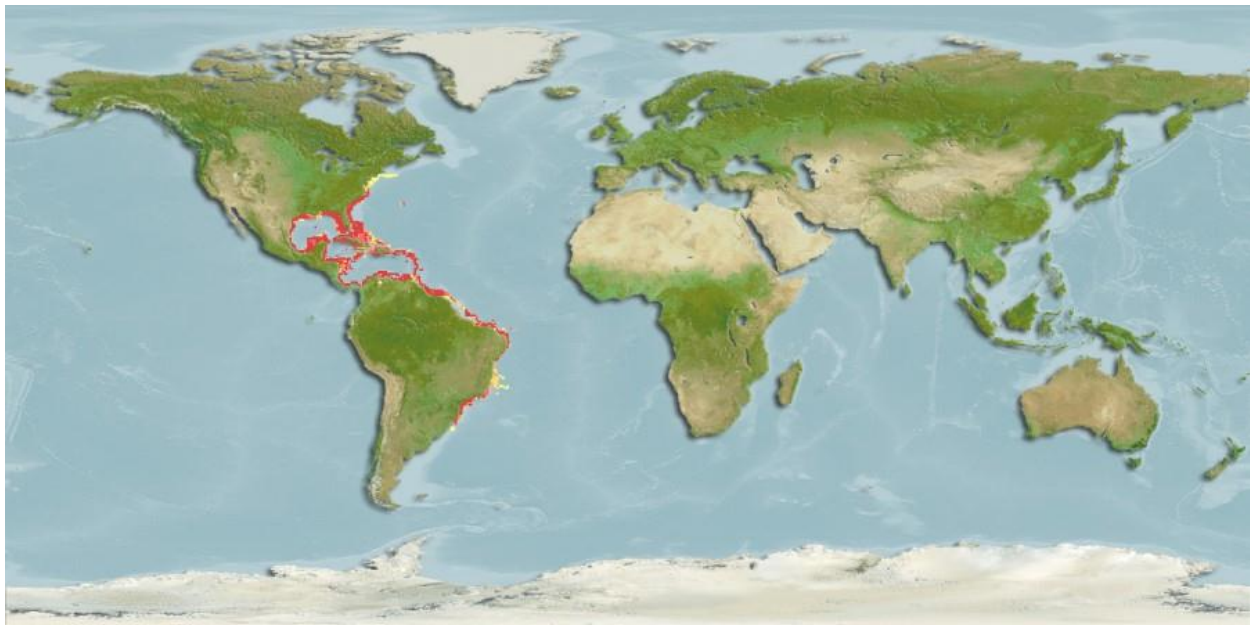
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**Fig. 2.** Geographic distribution of the honeycomb cowfish.

[<http://www.marinespecies.org/>, downloaded 23 March 2015]



**Fig. 3.** A honeycomb cowfish over a barrel sponge on a reef.

[<http://www.scubadiver.cc/forums/showthread.php?445-Cowfish>\_downloaded 15 March 2015]



**Fig. 4.** A honeycomb cowfish feeding.

[<http://www.flmnh.ufl.edu/fish/gallery/Descript/honeycombCowfish/honeycombcowfish.html>, downloaded 21 March 2015]



**Fig. 5.** Mating dance of a male and female honeycomb cowfish.

[[http://speciesidentification.org/species.php?species\\_group=caribbean\\_diving\\_guide&menueentry=soorten&id=174&tab=refs](http://speciesidentification.org/species.php?species_group=caribbean_diving_guide&menueentry=soorten&id=174&tab=refs), downloaded 21 March 2015]



**Fig. 6.** The two spines over the eyes of the honeycomb cowfish.

[<http://www.coralreefphotos.com/honeycomb-cowfish-boxfishes-odd-shaped-fish/>, downloaded 21 March 2015]

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