

Pomacanthus arcuatus (Grey Angelfish)

Family: Pomacanthidae (Angelfishes)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Grey angelfish, *Pomacanthus arcuatus*.

[<http://galleryhip.com/grey-angelfish.html>, downloaded 28 March 2015]

TRAITS. The grey angelfish *Pomacanthus arcuatus*, or pot cover as it is commonly called, has a thin circular body (Fig. 1). Its features are very distinct depending on its age. At the early stages of its life it is black in colour with five yellow stripes throughout its body even around its mouth (Fig. 2) which differentiates it from the French angelfish (*Pomacanthus paru*). When it matures the yellow stripes disappear and the grey colour is seen throughout its body. The caudal (tail) fin also changes shape; at a young age the fin is round but as maturity approaches the fin becomes straighter. Its mouth is very small and the lower jaw is longer than the upper and its teeth are ctenoid (comb-like) (McGinley, 2011). *P. arcuatus* are usually observed as a pair (Fig. 3). Sexual dimorphism occurs in *P. arcuatus* as the males are larger than the females. An adult can reach a length of 60cm and weight of 2kg.

DISTRIBUTION. *P. arcuatus* is found in the western Atlantic from New England, USA to the environs of Rio de Janeiro, Brazil, the Gulf of Mexico, and the Caribbean Sea (Fig. 4). It is native to Trinidad and Tobago; more are found in Tobago especially close to the Buccoo Reef.

HABITAT AND ACTIVITY. They are known as being the toughest of the angelfish species because they can be found in the cold waters of New England and the warm waters of the tropics. *P. arcuatus* are diurnal, they are found individually, in pairs or even in groups swimming more in the warm water of the ocean and/or close to the coral reefs in depths that range between 2-30m. They usually keep close to the reef in order to obtain food easily. With the help of their narrow bodies they venture into tiny spaces or cracks located within the coral reefs which is difficult for other fishes to retrieve. To avoid predators they intermingle with the reefs and camouflage themselves. Juveniles live in shallow grassy areas and tend to clean other species by removing parasites, however while doing so they can sometimes encounter an adult *P. arcuatus* who will attack them for being on their territory as a means of defending their mates against other males (Allen, 1985).

FOOD AND FEEDING. Due to *P. arcuatus*' flat and circular shape it causes them to swim slowly thus, consuming their food at the same rate. Their diet consists of sponges, algae, sea grasses, gorgonian polyps and other invertebrates and they also share similar prey and predators with three other fish species (Gustavson et al., 2002). The majority of their diet is composed of sponges and the smaller portion is composed of algae. Another positive to their body is that they are able to get away from predators such as octopuses and large groupers since they are seen as difficult to consume by other fishes because of their wide shape. They eat mostly sponges however most of their time is spent scraping off algae from rocks (Craig et al., 2010; McGinley, 2011).

POPULATION ECOLOGY. *P. arcuatus* is usually solitary and anti-social but can be found in pairs or even groups and occasionally found interacting with divers. This species is considered a stable population. They can also be territorial especially when it comes to protecting the females. They often have monogamous relationships and it has been recorded up to 20 fishes being seen together. In these groups there are approximately one male to four females. These fishes live up to 5-12 years.

REPRODUCTION. Mating takes place between the months of April and September. Pairs of these fishes swim and chase each other over the reef in the morning hours. As the pair rises they move closer together and discharge egg and sperm in the water. This is done frequently with each meeting releasing 25,000 to 75,000 eggs. The size of the egg is roughly 0.9mm, sphere-shaped and clear and the eggs are termed pelagic (found in the open sea). The grey angelfish emerges after 15-20 hours as a larva and lives on floating plankton until about 15mm in size then inhabits the coral reef (McGinley, 2011).

BEHAVIOUR. Juveniles are known as cleaners and they would show this behaviour towards all fish who wants to be cleaned and they do this by flashing their colourful body alerting the other fishes of their intentions. While cleaning, their ventral fin always touches the other fish's body to establish a mutual agreement that the cleaning process is still in motion. Some sea anemones, giant groupers, octopuses and other large fishes may prey on the *P. arcuatus* but other marine species may think that they are a difficult meal due to their wide shape. It is also easy for them to escape danger by easily fitting in narrow spaces within the corals. The larvae and young fishes

are seen as easier prey thus the reason for creating so many off springs as a means of ensuring the species survival (McGinley, 2011). Communication among *P. arcuatus* occurs where the male is protecting his females by charging or chasing the enemy away, younger fishes pass their ventral fin against the client to let him know he is still cleaning. In addition *P. arcuatus* makes a grunting sound to communicate with others.

APPLIED ECOLOGY. *P. arcuatus* is one of the most popular fish in aquarium trade. Many of these fishes are exported to various parts of the world for example from Florida to Brazil and then bred in captivity. Other major threats include over fishing, disease and parasitism, demolition of natural habitat and decline of other organisms within the ecosystem. *P. arcuatus* is mostly used for its ornamental value in aquariums and due to this it is deemed as a local threat for the species; on the upside when compared to the global scale no threat is detected (Craig et al., 2010)

REFERENCES

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Author: Celine Lalsingh

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Fig. 2. Juvenile grey angelfish, *Pomacanthus arcuatus*.

[<http://imgarcade.com/1/gray-angelfish-juvenile/>, downloaded 28 March 2015]



Fig. 3. Pair of grey angelfish, *Pomacanthus arcuatus*.

[<http://matthewmeierphoto.photoshelter.com/image/I0000atRrpuNChaA>, downloaded 28 March 2015]

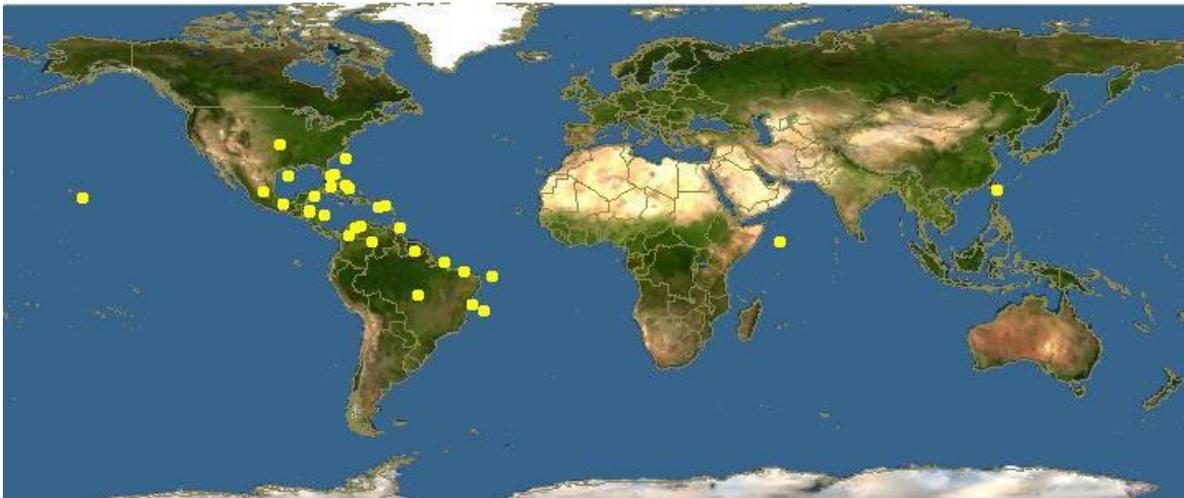


Fig. 4. Distribution of the grey angelfish, *Pomacanthus arcuatus*

[<http://www.discoverlife.org/20/q?search=Pomacanthus+arcuatus&b=FB1117>, downloaded 30 March 2015]