

Anableps anableps (Four-eyed Fish)

Family: Anablepidae (Four-eyed Fish)

Order: Cyprinodontiformes (Tooth-carps)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Four-eyed fish, *Anableps anableps*.

[<http://www.ryanphotographic.com/anablepidae.htm>, downloaded 14 October 2016]

TRAITS. The body has a cylindrical, cigar shape with large strong, paddle-like pectoral fins. It has a greyish colour with an olive brown back and light cream colour on its sides and belly with pale stripes running down its sides (Brough, 2015) (Fig. 1). The unique configuration of its eyes identifies it as one of the strangest fish in the world (Grigg, 1995). The pair of large and bulbous eyes located on the top of the head are each split horizontally into two lobes by a thin layer of epithelial tissue, allowing them to function as four eyes, hence its common name (Fig. 2). This unusual morphological feature is adapted to allow the fish good vision above and below the water surface to locate food and be aware of predators on both surfaces. The average size of the fish is about 15cm but can reach up to 30cm; the females tend to be larger in size than the males (Brough, 2015).

DISTRIBUTION. Found along the coast of South and Central America and around the islands, including Trinidad and Venezuela to the Amazon delta in Brazil (SeriouslyFish, 2016) (Fig. 3).

HABITAT AND ECOLOGY. Found on coasts and in muddy freshwater lagoons and brackish waters of mangroves and rivers where tides are low, allowing the fish to move with the water (SeriouslyFish, 2016). They are primarily carnivorous and feed at the surface on small fish, insects, small crabs, and other invertebrates (Brough, 2015). The best conditions for foraging are the tide after a full moon (spring tide) during the daylight, when the tidal level is highest. During these conditions, the fish mainly feed on red microalgae which grow on exposed mangrove roots. The fish rarely forage during low tides (Brenner and Krumme, 2007).

REPRODUCTION. These fish are livebearers so they practice internal fertilization and give birth to living young that are fully developed and can fend for themselves. The male fish has a gonopodium, the sex organ which inserts sperm into the female's genital pore. These genital openings can be found on either the left or right side of an individual fish, so in order to breed the male and female must be compatible (Fig. 4). To encourage breeding, the male would repeatedly push behind the female. Development lasts around two months and about 10-15 young are produced (Brough, 2015). They become sexually mature after 8 months and can live up to 6-8 years.

BEHAVIOUR. They are peaceful but can predate on smaller fish. They usually feed on the surface as they won't readily go after food a lot below the surface. When preyed on, they have the advantage of detecting the potential predator due to its eyes above the surface and can quickly dive away from danger. They are usually found in a school of about 6 or more fish (Fig. 5). If alone, they become jittery and nervous and are most comfortable in the presence of others. When the female is pregnant there is a significant increase in her appetite and right before giving birth she can become very aggressive and hostile towards the other fish and would seek a quiet place to produce her young (Brough, 2015). After birth the fry fend for themselves without any special care and eat the same food as the parents (Greco, 2008). When there is a rising tide the young fry usually swim close to the waterline, while the adults are further back (SeriouslyFish, 2016). During low tide they can form a gathering of hundreds of fish.

APPLIED BIOLOGY. There are no records of *Anableps anableps* on the IUCN Red List of Threatened Species. They are very often caught by humans and available to be sold at a moderate price (Brough, 2015).

REFERENCES

- Brenner, M. and Krumme, U. (2007) . Tidal migration and patterns in feeding of the four-eyed fish *Anableps anableps* in a north Brazilian mangrove. *Journal of Fish Biology* Volume 70, Issue 2.
- Brough, C. (2015). The Four-Eyed Fish doesn't really have 4 eyes, but it might as well: Animal-World Pet and Animal Information.
- Greco, M. F. (2008). Believe It or Not! Four-Eyed Fish: New York Tails.
- Grigg, R. (1995). The fish with 'four eyes' (*Anableps*): Creation Ministries International.
- Seriously Fish (2016). *Anableps anableps* (LINNAEUS, 1758) Four-eyed Fish.
<http://www.seriouslyfish.com/species/anableps-anableps/>, downloaded 30 October, 2016.

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Fig. 2. Four-eyed fish at the surface of the water.

[https://www.reddit.com/r/interestingasfuck/comments/3wp9sj/anableps_also_known_as_the_four_eyed_fish/
downloaded 30 October 2016]

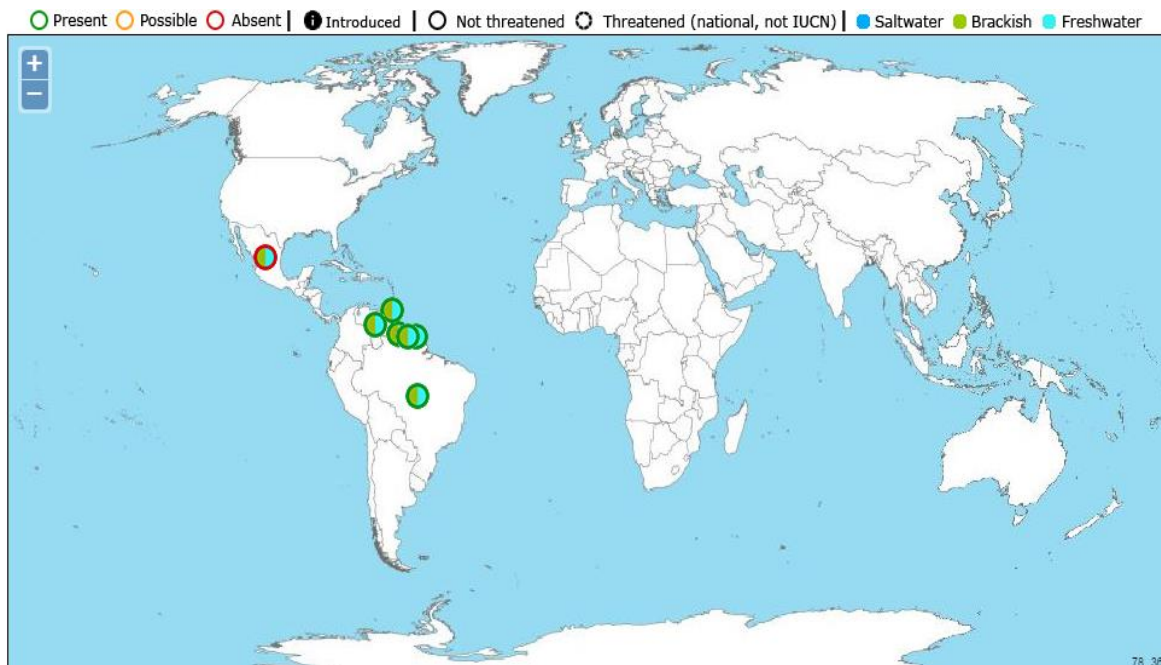


Fig. 3. Four-eyed fish geographic distribution by country.

[<http://www.fishbase.org/country/CountryList.php?ID=7379&GenusName=Anableps&SpeciesName=anableps>
downloaded 30 October 2016]

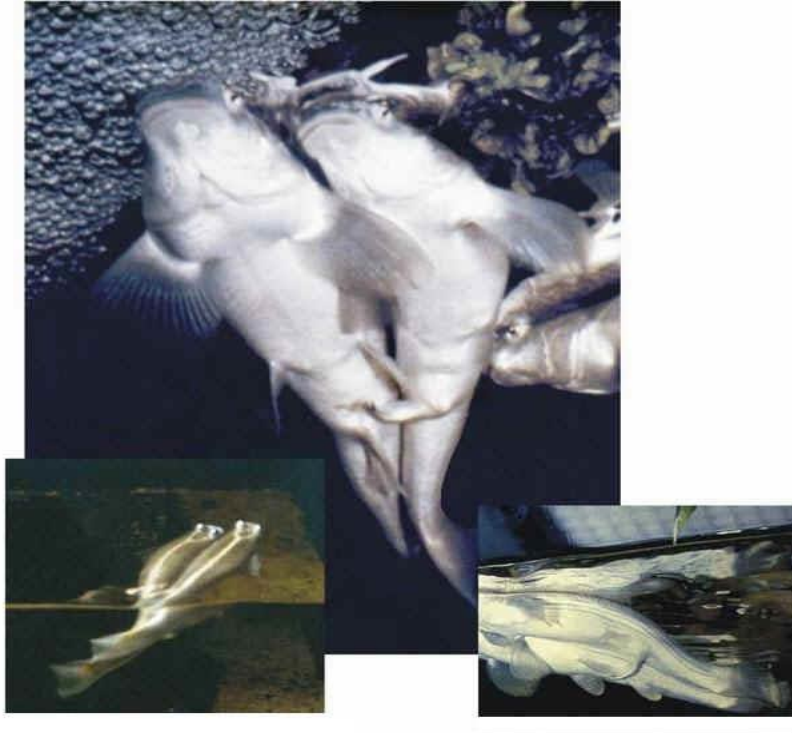


Fig. 4. Male and female four-eyed fish mating.

[<http://www.hobbykwekers.nl/en/freshwater/item/Anableps%20anableps>, downloaded 30 October 2016]



Fig. 5. School of four-eyed fishes at the surface.

[<http://www.hobbykwekers.nl/en/freshwater/item/Anableps%20anableps>, downloaded 30 October 2016]