



Obscure snakehead fish (*Parachanna Obscura*) (Gunther 1861)



Parachanna obscura

Introduction

The name 'snakehead fish' can anticipate feelings of snake than of a delicious fleshy fish dish common in some African countries. The Obscure Snakehead Fish, *Parachanna obscura* is a widely distributed freshwater fish endemic to Africa. It is a hardy species that can survive stressful conditions with rapid growth performance and upcoming aquaculture potential (Olaosebikan *et al.*, 1998). It is a fish highly appreciated by the people of Africa where it is found because of its high nutritional value and economic potential. Its production in wild natural continental waters cannot meet local demands because of overharvesting (Kpogue *et al.*, 2013). Poor harvesting methods using poison, fire and dynamite along with the improper netting of fish has affected the fish species and the human consumers. Proper extension services back up by research and engagement of fish breeders can enhance the farming of this fish species and provide good source of protein; therefore contributing to food and nutrition security, and improved livelihood of the growing Africa's population, and ensure conservation of Africa's aquatic biodiversity.

Description:

The Channidae are a family of freshwater fish commonly called 'snakehead fish' or 'snakehead' and are found in Africa (*Parachanna*) and Asia (*Channa*). The Genus *Parachanna* has four species including; *P. fayumensis*, *P. insignis*, *P. african* and *P. obscura* (Bonou and Teugels 1985). *Parachanna obscura* (Figure 1) has an elongated body, fusiform, sub-cylindrical, and covered with cycloid scales of medium size. The head is depressed anteriorly, relatively long and covered with cycloid scales larger than those on the body and symmetrical on the top. The relatively large and lateral eyes allow it to quickly locate prey. Two nostrils are on either side of the muzzle. The mouth is large and protractile. The lower jaw is slightly longer than the upper jaw and bears 4-6 well developed canines. Juveniles and adults of *P. obscura* are colored or blackish olive on the dorsal side and flanks. The ventral side has ochre marbling coloration. A few dark spots that tend to connect on the back are present on either side of the ridge (Kpogue *et al.*, 2013).

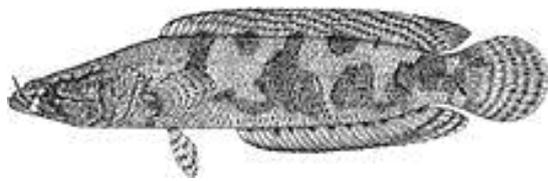


Figure 1: *Parachanna obscura* (https://en.wikipedia.org/wiki/Obscure_snakehead)

Taxonomy:

Parachanna obscura (Günther, 1861)

Kingdom	Animalia
Phylum	Chordata
Class	Actinopterygii
Order	Perciformes
Family	Channidae
Genus	Parachanna
Species	<i>Parachanna obscura</i>

Natural Habitat and geographical Distribution

Snakehead fish (*P. obscura*) is commonly found within the intertropical convergent zone where water temperatures are 26°C - 28°C. This fish lives in floodplains, swamps, rivers, lakes, ponds and streams and has accessory respiratory organs that allow it to live in hypoxic (muddy) environments (Olaosebikan et al. 1998). *P. obscura* is both a bottom dweller and a freshwater migratory species). It is the most widespread African Channidae. This species is found in Africa-Inland Waters and native in the following countries (Figure 2): Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Cote d'Ivoire, Ethiopia, Gambia, Ghana, Guinea, Guinea Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone, Sudan and Togo (Teugels, 2003).



Figure 2. Distribution de *P. obscura* (https://en.wikipedia.org/wiki/Obscure_snakehead)

Reproduction

Parachanna Obscura's reproduction happens throughout the year, especially during and right after flooding. Sexes are similar in appearance and only dissection of the gonads can tell the differences as to which is male or female. Breeding takes place naturally in large aquariums or fish ponds with dense vegetation, floating plants and sandy soil. During spawning, partners' colors change. Courtship involves a couple forming circles in an open section of water surrounded by floating plant material. The pair circle each other with increasing intensity until the male starts to swim on the back of the female and wraps around his body. At this point eggs are released and fertilized by the sperms from the male. The partners then take a short rest and the cycle begins again, repeating itself many times. The relative fecundity has been recorded as being 19.46 oocysts/g of body weight. Both parents guard the eggs, which hatch in 24 hours or so, with the fry becoming free and swimming 3 days later. The duration of egg incubation varies with temperature and luminosity; it is recorded as 24 hours in a pond and 48 hours in an aquarium. At maturity *P. Obscura* can reach total length of 50 cm (Kpogue et al., 2013).

Feeding

The African Obscure Snakehead Fish is a general carnivorous feeder a formidable predator, a typical piscivorous, an insectivore and a consumer of crustaceans (Bonou and Teugels 1985). Juveniles feed on earthworms, tadpoles, shrimps, smaller fishes and other aquatic animals. In a polyculture system, care should be taken in the selection and monitoring of other fish species to be stocked with *P. Obscura*.

Prospects for aquaculture

Parachanna obscura is being considered as a potential aquaculture species in Africa (eg: Nigeria, Cameroon etc) for its high quality of flesh and nutritional value. The high quality protein and exceptionally high fat contain make this species a good healing and recuperating agent for post-natal and post-operation patients and highly recommended for growing children (Abasi, 2012). This species has the ability to survive low

oxygen conditions (hypoxic), is hardy and tolerate poor water quality, very prolific and have a rapid growth rate (2g/Day). Because of its tasty flesh, with only few bones, *P. obscura* is favorite food fish and constitute an extremely important part of the staple food for African people (O' Bryen and Lee 2007). In addition to its nutritional value, this species has a high potential commercial and economic importance; however the wild population cannot be relied upon to achieve these potentials.

Successful farming of this species in semi-intensive and intensive systems could help not only to preserve and enhance natural stocks but also to continuously produce for direct human consumption. *P. Obscura* has also demonstrated to be quite effective in the recruitment control of tilapia (*O. niloticus*) and thus, enhanced individual growth rate of both species when in polyculture system (Bassey and Ajah, 2010).

Conservation

Since this species has a wide distribution and the ability to survive low oxygen conditions, it classified as Least Concern by IUCN. However, the methods used for its exploitation do not warrant the long term sustainability of this important fish species. Hence farming of the species is highly recommended. Presently, one of the major challenge to the domestication of this species is the absence of external sexual dimorphism. Failing to start its domestication by larvae from artificial reproduction, we can collect larvae or fry off natural water bodies and transfer them to farming controlled systems (Kpogue et al., 2013). Nevertheless, there is still need for more research to be carried out to ascertain the environmental factors determining reproductive success, growth and mortality, and the relationship between stock density and recruitment as well on feeds and seeds.

Conservation education and management techniques like closing seasons coupled with development of alternative livelihoods could appropriately enhance the conservation of this species. If appropriate action is taken for sustainable farming of *P. Obscura*, it could efficiently contribute to conserving the fish diversity of Africa while greatly enhancing food and nutrition security in the continent.

References

1. **Bassey, A.U. and Ajah, P.O. (2010).** Effect of three feeding regimes on growth, condition factor and food conversion rate of pond cultured *Parachanna obscura* (Gunther, 1861) (Channidae) in Calabar, Nigeria. *Turkish Journal of Fisheries and Aquatic Sciences* 2010 Vol. 10 No. 2 pp. 195 - 202.
2. **Bonou CA, Teugels GG (1985).** Revision systematique du genre *Parachanna* (Teugels and Daget 1984) (Pisces: channidae). *Rev Hydrobiol Tropi* 18(4):267–280
3. **Abassi D. A., and Ogar, A. (2012).** Proximate Analysis of snakehead fish, *Parachanna Obscura* (Gunther 1863) of the cross river, Nigeria. *Journal of Fisheries and Aquatic Science*. Academic Journal Inc.
4. **Kpogue, D.N.S., Mensah, G.A., Fiogbe, E.D. (2013).** A review of biology, ecology and prospect for aquaculture of *Parachanna obscura*. *Reviews in Fish Biology and Fisheries*. Vol. 23, Issue 1, pp 41 - 50.
5. **O' Bryen PJ, Lee CS (2007).** Discussion summary: socioeconomic aspects of species and systems selection for sustainable aquaculture. In: Leung P, Lee CS, O' Bryen PJ (eds) *Species and system selection for sustainable Aquaculture*. Blackwell Publishing, Oxford, pp 477 - 487
6. **Olaosebikan, B.D. and Raji, A. (1998).** *A field guide to Nigerian freshwater fishes*. FCFFT, New Bussa. Nigeria.
7. **Teugels, G.G. (2003).** Channidae. p. 443-446 In C. Lévêque, D. Paugy and G.G. Teugels (eds.) *Faune des poissons d'eaux douces et saumâtres de l'Afrique de l'Ouest, Tome 2*. Coll. Faune et Flore tropicales 40. Musée Royal de l'Afrique Centrale, Tervuren, Belgique, Museum National d'Histoire Naturelle, Paris, France and Institut de Recherche pour le Développement, Paris, France. 815 p.