

Clarias gariepinus (Burchell, 1822)



Homa Bay, Kenya. © L. Seegers.

Synonyms

Silurus gariepinus Burchell, 1822
Macropteronotus charmuth Lacepède, 1803 (ambiguous)
Clarias capensis Valenciennes, 1840
Clarias lazera Valenciennes, 1840
Clarias syriacus Valenciennes, 1840
Clarias mossambicus Peters, 1852
Clarias macracanthus Günther, 1864
Clarias orontis Günther, 1864
Clarias xenodon Günther, 1864
Clarias robecchii Vinciguerra, 1893
Clarias smithii Günther, 1896
Clarias microphthalmos Pfeffer, 1896
Clarias guentheri Pfeffer, 1896
Clarias longiceps Boulenger, 1899
Clarias moori Boulenger, 1901
Clarias tsanensis Boulenger, 1902
Clarias vinciguerrae Boulenger, 1902
Clarias malaris Nichols & Griscom, 1917
Clarias notozygurus Lönnberg & Rendahl, 1922
Clarias depressus Myers, 1925
Clarias muelleri Pietschmann, 1939

FAO names

North African catfish
Pez-gato
Poisson-chat nord-africain
Сом клариевый африканский
فَتْرَة إفريقيا الشّماليّة
尖齿胡鲶

Local names

Afrikaans: Mangwana (Namibia), Skerptand-baber (Namibia, South Africa), Skerptandbaber (South Africa)
Amharic: Ambaza (Ethiopia), Key asa (Ethiopia)

Arabic: Abu shanab (Sudan), Balbout (Chad), Garmut (Sudan), Karmut (Egypt), قَثْرَة إفريقيّا الشّماليّة (official FAO name)
Bemba: Mulonge (Zambia), Muta (Zambia)
Dinka, Northeastern (Dinka): Attek (Sudan), Cik (Sudan)
El Molo: Lokate (Kenya)
English: Common catfish (Kenya, Rwanda, Tanzania), Mudfish (Kenya, Rwanda), North African catfish (official FAO name), Sharptooth catfish (official AFS name, Kenya, Lesotho, Malawi, Namibia, Rwanda, South Africa, Zimbabwe, Tanzania, Zambia)
Fang: Andouma (Gabon)
French: Poisson-chat nord-africain (official FAO name), Silure (Gabon)
Fulfulde, Pulaar (Pulaar): Baleewu (Senegal)
Hausa: Tarwada (Nigeria)
Igbo: Arira (Nigeria)
Ijo: Imunu (Nigeria)
Kanuri: Kemudu (Nigeria)
Kele (Ya Okandja): Bokalo (Congo Dem Rp), Ikakalo (Congo Dem Rp), Ifiki (Congo Dem Rp), Ifutoli (Congo Dem Rp)
Kim: Gol (Chad), Gwol (Chad), Vere (Chad), Vering (Chad)
Konzo: Eyisombi (Uganda)
Krio: Harlei (Sierra Leone), T-nima (Sierra Leone), Thamba (Sierra Leone)
Language not specified: Ndombe-Mbundamusheke (Namibia)
Limba, west-central: Thamba (Sierra Leone)
Lombo (Olombo): Bokalo (Congo Dem Rp)
Lozi: Ndombe (Zambia)
Luo: Dera (Kenya), Ongala (Kenya)
Lwena (Luena): Mburi (Angola)
Chinese: 尖齿胡鲶 (official FAO name)
Mende: Hartei (Sierra Leone)
Meru: Macharufu (Kenya)
Language not specified: Kopito (Kenya), Male (Uganda), Mumi (Tanzania), Obito (Kenya), Singre (Kenya), Singri (Kenya), Sombi (Kenya)
Nubian: Kor (Sudan)
Nuer: Pet cick (Sudan), Pet der (Sudan)
Nupe: Ejengi (Nigeria)
Nyanja: Bombe (Malawi), Bomu (Malawi)
Nyanja (Chichewa): Mlamba (Malawi)
Oromo: Ambaazaa (Ethiopia)
Pokomo: Nisu (Kenya)
Russian: Сом клариевый африканский (official FAO name)
Kinyarwanda: Inkube (Rwanda), Ishonzi (Rwanda), Isombi (Rwanda), Kabambare (Rwanda), Kamongo (Rwanda), Umihenzi (Rwanda)
Samburu: Kopito (Kenya)
Sena: Nsomba (Mozambique)
Shilluk: Cogo (Sudan)
So (Eso): Fihi (Congo Dem Rp)
Soninké: Talage (Senegal)
Swahili: Kambale (Tanzania), Kambale Mumi (Tanzania), Kambali (Kenya, Tanzania), Mlamba (Tanzania), Mumi (Kenya)
Themne: T-nima (Sierra Leone)
Tigrigna: Betakay (Ethiopia), Betekay (Uganda)
Tonga: Bomu (Malawi), Bwituka (Malawi), Chibomu (Malawi)

Tumbuka: Bomu (Malawi), Chibomu (Malawi)
Turkana: Singre (Kenya)
Venda: Bavhuri (South Africa)
Wolof: Yess (Senegal)
Wolof (Liddi): Toucouleurs (Senegal)
Wolof (Niéghé): Bambara (Senegal)
Yao: Bombe (Malawi)
Yoruba : Aro (Nigeria)
Zande: Tukpe (Sudan)

Geographical distribution

Africa: almost Pan-African (Snoeks et al 2012), absent from the Maghreb, the Upper and Lower Guinea Ichthyological Provinces except for the Chiloango (Skelton & Teugels 1992) and Upper Sanaga (Teugels et al 2007), and the southern part of the Cape province (Skelton & Teugels 1992; Skelton 2001). Asia: Jordan, Israel, Lebanon, Syria and southern Turkey (Skelton & Teugels 1992). Widely introduced to other parts of Africa, Europe and Asia. Several countries report adverse ecological impact after introduction.

Note: In view of its distribution in Africa, the official English FAO name, North African catfish, is not really appropriate, since the species is not even present in the northernmost parts of Africa and has an almost pan-African distribution. In addition, the type locality of this species is located in the Cape province (South Africa). The commonly used names sharptooth catfish and common catfish seem to be better alternatives.

Habitat and Biology

Adults occur mainly in quiet waters, lakes and pools and prefer rather shallow and swampy areas with a soft muddy substrate and calmer water, but they may also occur in fast flowing rivers and in rapids (Teugels 1986; Seegers 2008). The two known colour types (marbled and uniform) appear to correlate with water turbidity and substrate type (Teugels et al 2007). The species is widely tolerant of extreme environmental conditions (de Moor & Bruton 1988). Water parameters appear to play only a very minor role (Seegers 2008). The presence of an accessory breathing organ in the gill cavity enables this species to breath air when very active or under dry conditions, when it remains in the muddy substrates of ponds (de Moor & Bruton 1988). It can move over land using its strong pectoral fins and spines. Omnivorous bottom feeder, which occasionally feeds at the surface (Teugels 1986). Feeds at night on a wide variety of prey such as insects, plankton, invertebrates and fish but also takes young birds, rotting flesh and plants (de Moor & Bruton 1988). Migrates to rivers and temporary streams to spawn (Witte & de Winter 1995). Known as sharptooth catfish in aquaculture, a highly recommended food fish in Africa (Okeyo 2003). Recorded as having been or being farmed in rice fields (Halwart & Gupta 2004). IUCN red list status least concern (Konings et al 2019).

Key features

Body depth 6-8 times in SL, head 3-3,5 times (van Oijen 1995). Head somewhat between rectangular and pointed in dorsal outline; snout broadly rounded; eyes supero-lateral and relatively small (Teugels 1986). Teeth on premaxilla and lower jaw small, fine and arranged in several rows; nasal barbels 1/5-1/2 times as long as head in fishes longer than 12 cm, and 1/2-4/5 of head length in smaller individuals; maxillary barbels rarely shorter than head, usually somewhat longer and reaching to midway between dorsal fin origin and pelvic fin insertion; outer mandibular barbel longer than inner (van Oijen 1995). Postorbital bones in contact; lower part of head with 2 black, lateral bands (Teugels et al 2007). Contrary to other *Clarias* species, *C. gariepinus* has a high number of gill rakers varying from 24-110 (Teugels 1986; van Oijen 1995; Teugels et al 2007; Hanssens 2009), increasing with the size of the fish; gill rakers long, slender and closely set (Teugels 1986; van Oijen 1995). Distance between occipital process and dorsal fin base short; dorsal fin almost reaches caudal

fin; anal fin origin closer to caudal fin base than to snout, nearly reaching caudal fin; pelvic fin closer to snout than to caudal fin base; pectoral fin extends from operculum to below first dorsal fin rays (Teugels 1986). Pectoral spine robust, serrated only on its outer face, the number of serrations increasing with age (Teugels 1986; Teugels et al 2007). Lateral line appears as a small, white line from posterior end of head to middle of caudal fin base; openings to secondary sensory canals clearly marked (Teugels 1986).

Interest to fisheries

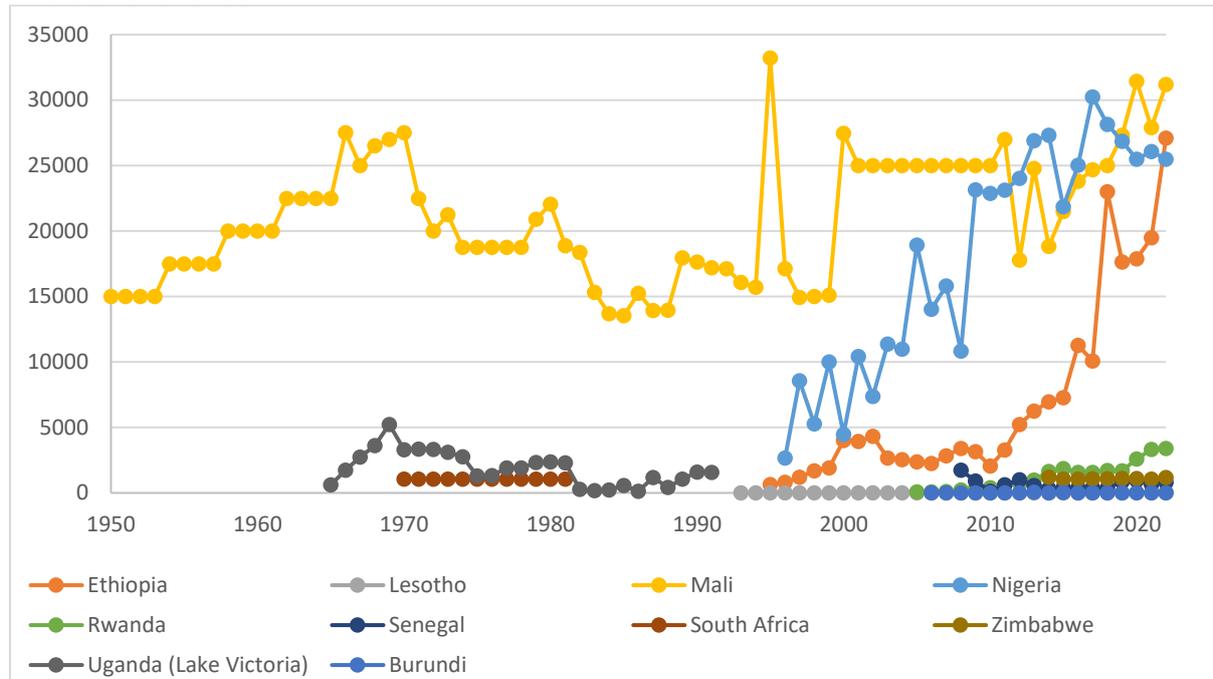


Figure 1: Catches (in tonnes) of *Clarias gariepinus* as available from FAO (April 2024). Data for Uganda (Lake Victoria) from Orach-Meza (1992).

Clarias gariepinus is an important target species of the fisheries in its distribution area and often contributes importantly to the catches. It is utilized by subsistence fisheries and an important angling and commercial food species (Harding & Koekemoer 2011).

Dialla et al (2016) reported that *C. gariepinus* contributes about 9% to the fisheries in the Sourou (Burkina Faso). However, 52.2% of these were below size at first maturity (although sample size was small), and over 50% of the fishing gear used illegal mesh sizes, potentially affecting the sustainability of the fishery.

Although only found in fishermen catches at one of four studied site on the Rosetta Branch of the Lower Nile, where catches were dominated by tilapia, *C. gariepinus* made up 5% in number but 30% in weight of the catch (El-Bokhty et al 2014).

Clarias gariepinus is one of the most important species in commercial catches in Ethiopia (Tesfaye & Wolff 2014). It is of great economic importance to the Lake Chamo fishery (Lake Fisheries Development Project 1997), where much of the catch is contributed by Nile tilapia (*Oreochromis niloticus*), followed by Nile perch (*Lates niloticus*), *Clarias gariepinus* and *Bagrus docmak* (Tesfaye et al 2021). In Lake Tana, *C. gariepinus* is one of the three main species groups targeted by the commercial gillnet fishery, where it is caught in the littoral, flooded areas and river mouths. The species made up a more or less stable 20% of the catches over the period 2003-2009, with a mean catch (by weight) of 75.3 ton per year (Tewabe 2013). De Graaf et al (2006) however reported a significantly lower Catch Per Unit Effort (CPUE) in both the commercial gill net fishery and

experimental bottom trawls between 1991 and 2001. In addition, experimental bottom trawls also showed a significant shift in size, with large specimens (over 50 cm TL) being less abundant and most of the catch (70%) consisting of medium sized (30-50 cm TL) specimens. The reasons for the steep increase in production of *C. gariepinus* in Ethiopia are unclear. The five fold increase in catches from 2010 to 2022 is in contrast to the decrease in CPUE in for example Ethiopia's largest lake Tana (De Graaf et al 2006; Dejen et al 2017).

During the 1970s the fishery catch of Lake Wamala (Uganda) was dominated by *O. niloticus* (67%) followed by *C. gariepinus* (17%), and marbled lungfish *Protopterus aethiopicus* (15.1%). While the proportion of *O. niloticus* had decreased to 45.1% and that of *P. aethiopicus* had increased to 37.6% by the 1990s, a change likely caused by increased fishing effort and overfishing, that of *Clarias* didn't change much (Okaronon 1995).

In Lake Baringo (Kenya), it is one of the four main commercial species in the artisanal fishery (Nyakeya et al 2020; Walumona et al 2022). Following the collapse of the Nile tilapia, the fishery has seen a shift in exploitation since the 1990s to *C. gariepinus* and *P. aethiopicus*, with the latter becoming the main fisheries species. By 2004, the catch contribution of *C. gariepinus* increased to 33% (Britton et al 2008; Nyakeya et al 2020).

Nakiyende et al (2020) (Figure 2) observed sharply increasing catches between 2017 and 2019 in lakes Edward and George. Musinguzi et al (2020) reported that *C. gariepinus* comprises 13% of the catch in Lake Edward, 17.3% in Lake George and 11.4% in the Kazinga Channel. However, all stocks were assessed as collapsed or, in the case of Lake George, recruitment impaired.

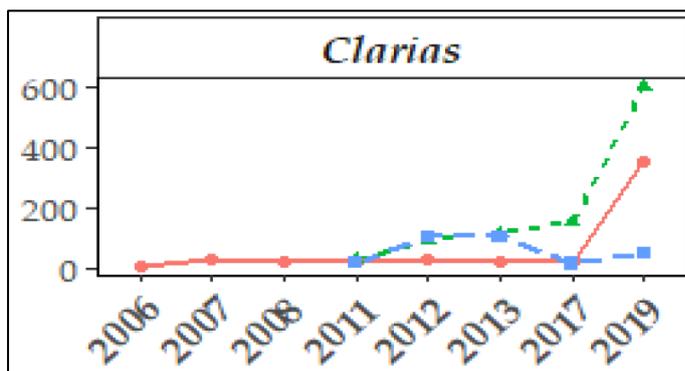


Figure 2: Catches of *Clarias gariepinus* in Lake Edward (red), Lake George (green) and the Kazinga Channel (blue). Image from Nakiyende et al (2020).

The original fishery (i.e., before the 1960s) in Lake Victoria was dominated by demersal and benthopelagic species, notably haplochromines, catfishes (i.e., *C. gariepinus*, *B. docmak*, *Schilbe intermedius* and *Synodontis* spp.) and marbled lungfish (*P. aethiopicus*) (Ogutuhwayo 1990; Natugonza et al 2020). *Clarias gariepinus* was the second most important catfish species, preceded by *B. docmak* (Goudswaard & Witte 1997). Muller & Benda (1981) already reported a 4.8 times density decline in the inner Kavirondo Gulf of Lake Victoria (Kenya) from 1969/70 to 1977 (3.318 kg/ha to 0.694 kg/ha). Catch contributions from the Kenyan waters of Lake Victoria dropped from a peak of 17% in 1972 to 0.6% in 1985, with catch rates sharply dropping from 23.23 kg per hour in 1969 to 2.5 in 1979 and down to 0.14 in 1986 (Fisheries Department Kenya 1988). Stock densities from trawl surveys indicated a decline from 3.3 kg/ha in 1969-1970 to 0.8 in 1990-1991 (Ogari & Asila 1990). A comparison of trawl surveys in 1969/70 and 1984/85 in the Tanzanian part of Lake Victoria (Goudswaard 1987) confirmed a strong decrease in catch rates (66 to 95%) in all areas. Subsequent data (Goudswaard & Witte 1997) (Figure 3, Figure 4) further confirmed the dramatic decline of stocks of indigenous catfish species since the beginning of the 1980s, coinciding with the Nile perch boom, although catches of *C. gariepinus* were initially stable or even increased in Tanzanian waters (Bwathondi 1988, 1990; Goudswaard & Witte 1997). The decline proceeded faster

in deep water, where catfishes eventually vanished. Of the two largest and most important species, *C. gariepinus* and *B. docmak*, juveniles disappeared faster than adults (Goudswaard & Witte 1997).

Figure 3: Mean catch rate of *Clarias gariepinus* in bottom trawl catches of M.V. Kiboko made at different depths in the Mwanza area from October 1984 to July 1990. Image from Goudswaard & Witte (1997).

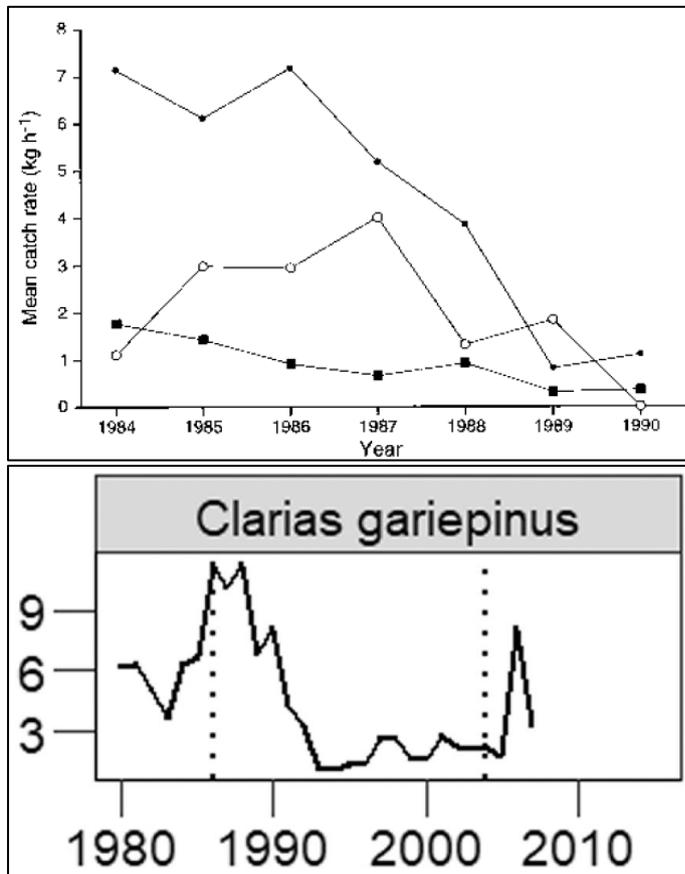


Figure 4: Total annual catches (thousand tonnes) of *Clarias gariepinus* in Lake Victoria over time. Image from Natugonza et al 2022.

In Uganda, the mean weight of specimens decreased by 20% in trawl catches, and by 50% in artisanal catches landed at Masese, in the period 1981-1985. In the same time period, trawl catch rates dropped from 14.4 kg per hour to 0.1 and catch contribution from 3.2% to 0.0, while artisanal catches initially increased from 17.8 tons in 1979 to 38.3 in 1983, but subsequently collapsed to 5.8 tons in 1985 (Acere 1988). The percentage weight distribution initially increased from 2.6 to 23.8 from 1965 to 1980, but then quickly dropped to 2.0% in 1982 and further down to 1.2% in 1991 (Orach-Meza 1992).

The present-day commercial fishery in Lake Victoria is dominated by the introduced Nile perch and Nile tilapia and the native silver cyprinid (*Rastrineobola argentea*) (Lake Victoria Fisheries Organisation 2016). Although some haplochromines have been slowly recovering following their drastic decline in the mid-1980s (Witte et al 2007), the rest of the native species never have, and their commercial importance for the fisheries in the lake is considered negligible (Goudswaard & Witte 1997). FAO (2024) does not hold data for this species from any of the riparian countries of Lake Victoria, although it is present in rivers and lakes throughout these countries.

In Lake Tanganyika, the Fisheries Department of Tanzania (2021) reported a total catch from selected sites of 859 tons in 2020.

In southern Africa, Bills (2001) reported *C. gariepinus* to be an important commercial species in subsistence fisheries in the Maputo Special Reserve (Mozambique), where it is a dominant species in lakes and rivers. It made up 8.5% of the catch on the Zimbabwean side of Lake Kariba (Songore et al 1999) and was the most important species in Lake Chivero (Zimbabwe) from 1956-1968, but decreased in importance as the catch of cichlids increased (Marshall 1978, 2011). The potential yield of catfish from Lake Chivero was estimated to be about 40 tons per annum (Clay 1984). In the Lower Shire floodplain, *C. gariepinus* and *Oreochromis mossambicus* are the major components of the fishery, of which respectively 1927 and 1543 tons were caught in the 1999/2000 fishing season. However, compared to data from Willoughby & Tweddle (1978), a reduction in length-at-first-maturity was observed which might have been caused by the increase in fishing pressure (Chimatiro 2004). In the lower Phongolo it is the third most important food fish (Coetzee et al 2015), and an important species in studied dams in South Africa, contributing by weight 24-73% to the 2007-2009 survey catches (Harding & Koekemoer 2011). In a study of the lower Orange, Naesje et al (2007) reported a relative importance of *C. gariepinus* of 7% (considering number, biomass and frequency of the species), and a 19% contribution in weight to the catches.

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