



## **The Nile Tilapia**



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**T**he Nile Tilapia (*Oreochromis niloticus*) (synonym *Tilapia nilotica*) is one of the first fish species cultured globally. Illustrations from Egyptian tombs suggest that Nile Tilapia were cultured more than 3,000 years ago. The Nile Tilapia is still the most widely cultured species of tilapia in Africa. Positive characteristics of farmed fish that the Nile Tilapia has include their tolerance to poor water quality and the fact that they eat a wide range of natural food organisms. Biological constraints to the development of commercial tilapia farming are their inability to withstand sustained relatively high water temperatures and early sexual maturity that results in spawning before fish reach market size.

### **Common Name**

A commonly used name is Nile Tilapia

### **Scientific Name**

*Oreochromis niloticus* (Linnaeus, 1758)

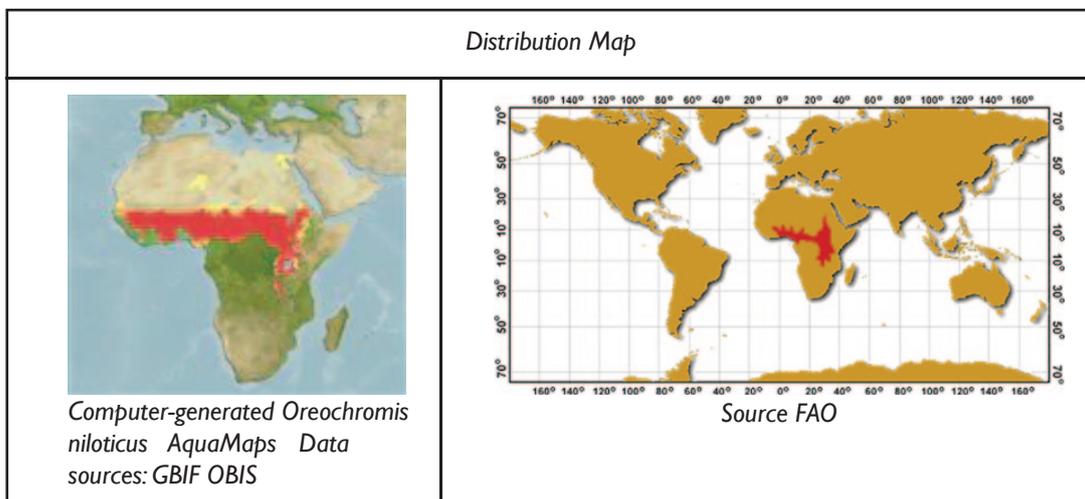
### **Local Names**

Common Name	Used in	Language
Aquatic Chicken	Global	English
Nile mouthbrooder	Global	English
St. Peter's fish	Global	English
Tilapia du Nil	Madagascar, Mauritius	French

Common Name	Used in	Language
Akpafiatsi	Ghana	Ewe
Ekouni	Gabon	Fang
Epia	Nigeria	Yoruba
Isake	Rwanda	Rwanda
Karfasa	Nigeria	Hausa
Kpakaru	Sudan	Zande
Sato	Kenya, Tanzania, Uganda	Kiswahili
Ngege	Kenya, Tanzania, Uganda	Luo
Sale	Chad	Kim
Tegr-pere	Burkina Faso	Mòoré

### Geographical Location

The native range of the Nile Tilapia is the tropical and subtropical regions of Africa and Middle East. The species is widely distributed in the Nile and Niger River basins and in lakes Tanganyika, Albert, Edward, and George, and other lakes in western and eastern Africa; as well as in much smaller drainages and also in the Middle East in Yarkon River (Trewavas, 1983).



### General Description

Tilapia are shaped much like sunfish or crappie but can be easily identified by an interrupted lateral line characteristic of the Cichlid family of fishes. They are laterally compressed and deep-bodied with long dorsal fins. The ventral portion of the dorsal fin, the pelvis and anal fins are heavily spined. There are wide vertical bars down the sides of fry, fingerlings, and sometimes adults. The main species of tilapia usually can be distinguished by unique banding and colour patterns on the body and fins. Their deep bodies have horizontal compression and spiny fins. Spines are found not only on the dorsal fins but on the pelvis and anal fins as well.

Mature male Nile Tilapia has gray or pink pigmentation in the throat region. However, coloration is often an unreliable method of distinguishing tilapia species because environment, state of sexual maturity, and food source greatly influence colour intensity. Identifying the species of an individual fish is further complicated by natural cross breeding that has occurred between species. The most diagnostic features are the regular and definitive stripes on the caudal fin, the red flush of the breeding male and the dark margin of the dorsal fin. The mouth is located at the anterior terminal.

Nile Tilapia is primarily herbivorous, with aquatic macrophytes, algae, and diatoms generally comprising over 90% of its diet and the remainder including aquatic insects and crustaceans and fish eggs (Khallaf and Alne-na-ei, 1987).

## Key Facts

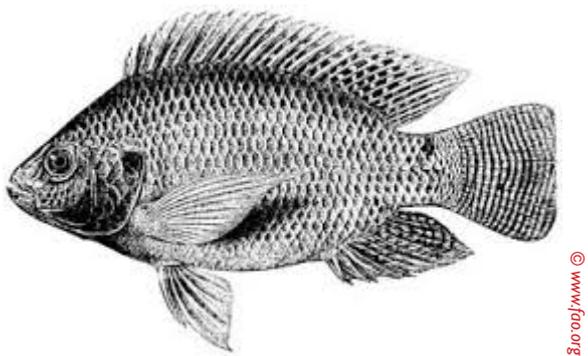
Tilapia are tropical fish endemic to freshwater in Africa, Jordan, and Israel and are being cultured in virtually all types of production systems in both fresh and saltwater in tropical, subtropical and temperate climates. Tilapia have a long history of use as a food source; ancient Egyptians used to feed tilapia that were being held in cages waiting to be taken to market, and it has been speculated that tilapia were the fish from the biblical parable of the loaves and the fishes. Since then, tilapia has been introduced world-wide and production has grown.

SOFIA, 2014 reported that a large proportion of farmed tilapia (global production about 3.95 million tonnes in 2011) is marketed in filleted form, and the fillet yield in this species is about 30–37 percent. The wide-spread success is due, in part, to their high level of adaptability and the ease of production.

Tilapia have sometimes been called “aquatic chicken” due to their rapid growth rates; high-quality flesh; tolerance to disease; adaptability to virtually all types of production systems in tropical to temperate climates; and ability to grow and reproduce in captivity. Currently, they are the second-most produced group of food fish globally (behind carps), and the growth trend is likely to continue.

Studies have revealed that tilapia can be successfully cultivated in peri-urban homestead concrete tanks. The practice can be both economically and technically viable. There is considerable potential for achieving Africa’s objectives in increasing fish protein production, especially in the urban centres by farming fish species like Nile Tilapia in family-based homestead concrete tanks.

Nile Tilapia is currently the most widely cultivated finfish species in Africa. However, a major disadvantage of tilapia is excessive reproduction where sometimes up to 23% of the harvested biomass may consist of fingerlings (Janssen and de Graaf, 1996). The juveniles compete with their parents for food. Consequently, this reduces specific growth rate and marketability of the final product. Excess tilapia fingerlings can be controlled by polyculture using a predator such as the African catfish (*Clarias gariepinus*). Other fish farming strategies that prevent overcrowding and stunting include: cage farming where eggs fall through the mesh to the bottom of the water body before the female can collect them for brooding; and culture of only males (monosex). All-male culture is desirable not only to prevent overpopulation and stunting but also because males grow about twice as fast as females. All males are also preferred because they grow faster in fish cage culture systems.



## References

1. **de Graaf, G.J. and Janssen, H., 1996**, Artificial reproduction and pond rearing of the African catfish *Clarias gariepinus* in sub-Saharan Africa, A handbook. FAO Fisheries Technical Paper. No. 362. Rome, FAO, 73 pp.
2. **Khallaf, E.A., and A.A. Alne-na-ei. 1987**. Feeding ecology of *Oreochromis niloticus* (Linnaeus) & *Tilapia zillii* (Gervais) in a Nile Canal. *Hydrobiologia* 146:57-62.
3. **The State of World Fisheries and Aquaculture**. Opportunities and Challenges. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. Rome, 2014
4. **Trewavas, E. 1983**. Tilapine fishes of the genera *Sarotherodon*, *Oreochromis* and *Danakilia*. Cornell University Press, Ithaca, NY.