

## **RE: CSIR LAUNCHES RAPID CITIZEN SCIENCE SURVEY FOR NILE TILAPIA IN SOUTH AFRICAN WATERCOURSES**

### More on Nile tilapia

*Oreochromis niloticus* (Linnaeus 1758), commonly known as the Nile tilapia (English) or Nyl kurper (Afrikaans) is an endemic African freshwater fish that is native to the Nile River basin and river systems of West Africa and the south-western Middle East. Since its initial introduction into Lake Victoria in the 1950s, the Nile tilapia is currently one of the most widely distributed invasive fish and has become established and become naturalised in many tropical and sub-tropical environments in eastern and southern Africa. Nile tilapia is known as 'aquatic chicken' due to their high growth rates, adaptability to a wide range of environmental conditions and ability to grow and reproduce in captivity and feed on low trophic levels. Owing to its hardy nature, it has been widely introduced mainly for aquaculture, but also to augment capture fisheries, and for sport fishing.

Nile tilapia is regarded as the best growing fish species by the global aquaculture community and it has been the focus of much research and development over the past two decades. Nile tilapia is produced in everything from open ponds fertilized with manure to closed recirculating aquaculture systems (RAS). Production, varying from subsistence culture to high-tech aquaponics occurs in freshwater and in brackish to ocean salinities at optimal temperatures between 26°C and 30°C. However, South Africa's Highveld climatic conditions require the use of closed-tunnel systems to provide adequate warmth for this tropical species - this is not necessary in areas occurring at 1 000 meter above sea level, which experience warmer climatic conditions.

Nile tilapia exhibits a broad invasive potential over most of southern Africa that overlaps with the natural distribution range of the indigenous species such as Mozambique tilapia (*Oreochromis mossambicus*) (Mozambique tilapia [Eng], Blou kurper [Afr]). Introduction of the invasive *O. niloticus* into South African river systems that are still free of Nile tilapia is a cause of concern for the conservation of indigenous tilapia that are at risk of local extinction through hybridization and competition with Nile tilapia. Although closed RAS are regarded as the higher yielding and economically more viable production method in South Africa and pose less environmental risk, the risk of escape from open pond culture and non-biosecured RAS into unaffected river systems remains. There are no effective means of controlling this species once introduced; therefore mitigating efforts should focus on preventing its introduction to new freshwater habitats, especially those that serve as 'sanctuaries' for the indigenous *Oreochromis* species.

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An example of invasive *Oreochromis niloticus* (Nile tilapia), which is known to have established in South African watercourses.

*Photo: Prof Ben van der Waal*



An example of indigenous *Oreochromis mossambicus* (Mozambique tilapia), which is under threat from Nile tilapia

*Photo: Prof Ben van der Waal*



An example of *Oreochromis niloticus* x *mossambicus* (Hybrid)

Photo: Prof Ben van der Waal