Tilapia

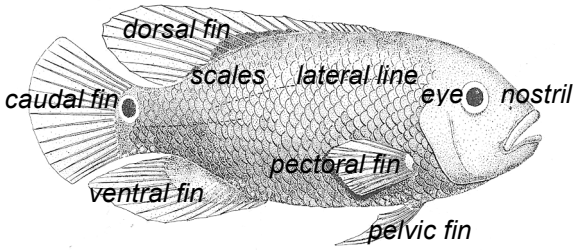
Tilapia (Taxonomic family: Cichlidae) are native to Africa but have been widely introduced to warm waters in many countries. Their natural habitat is lakes but they are now extensively bred and reared in fish farms.

Both males and females can be found in the same water body.

Fecundity

Females lay eggs. The colour of ripe and fertilised eggs: pale yellow/orange, ovoid in shape; size 1.0-2.0mm ×1.5-3.0mm in diameter and 2.3 -2.8mm in length. A few hundred to a several thousand eggs are laid depending on size of female.

Typical illustration of Tilapia



- The Nile Tilapia is a maternal mouth brooder.
- The female carries the eggs in her mouth for incubation.
- Hatching of eggs takes place 70-90 hours in the mouth at 27-29°C and the female holds the hatched larvae and gives parental care until the swim-up stage which might need up to 6-10 days.

Stages of Embryonic Development

1. Morula stage: 6-8 hrs after fertilisation
2. Pigmentation stage: 45-50 hrs following fertilisation
3. Hatching stage: 70-90 hrs after fertilisation
4. Yolk sac absorption stage: 6-10 days after fertilisation
5. First feeding stage: 12-14 days after fertilisation

The period after yolk sac absorption is most critical and the type of feed fed to the fry is very important.

Reproductive Strategies of Tilapia Species

Reproductive behaviour of cichlids may be divided into two groups. These are the **SUBSTRATE SPAWNERS** and the **MOUTH BROODERS**. Substrate spawners lay eggs in a pit dug in the bottom of the lake or pond. The eggs are aerated and guarded by the parents.

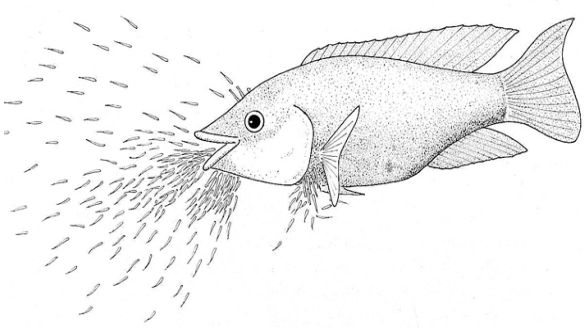
Mouth brooders may lay their eggs in pits, then take them into the mouth and keep them there till the young hatch.

Courtesy: Steve Amisah

Tilapia incubating eggs in mouth

The eggs hatch into large numbers of fry, but many may also die for various reasons or are eaten by other fishes.

When there is danger (predator) the young fish swim back into the mouth and through the operculum to hide



Courtesy: D.G. Mackean

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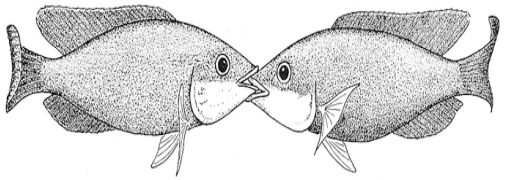
The male guards the territory round the pit, driving off intruders by nipping or pushing them especially mature males of his own species



Courtesy: D.G. Mackean

- If a female enters the territory, the male adopts a slow, swimming movement, with body tilted downwards, leading her towards the pit.
- The fish swims in a circular fashion in the nest-pit. The result is copulation and such elaborate behaviour ensures sperms (milt) are shed at the moment that eggs are laid, thus increasing the chances of fertilization. Elaborate Courtship behaviour ensures breeding success.
- In the mouth brooders, the courtship pattern is followed by spawning in which the female lays hundreds of eggs in the nest and these are immediately taken up into the mouth.
- For about 10-12 days the female carries a mouthful of eggs or young fish. Breathing movements are restricted and the fish does not feed during this period.
- If the fry swim out of the mouth, they are snapped up again but after about ten days the mother ejects them in swarms. These swarms form a school and follow the mother. In some species the youngsters will return to the mouth if danger threatens and the mother attracts them by swimming slowly backwards.

Tilapias are prolific breeders and their adaptation and resilience to various environments have ensured their success as good candidates for aquaculture.

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