

TITLE :

Reproductive biology and feeding ecology
of a predatory siluroid catfish; Bagrus
docmac Forsk al (Pisces: Bagridae)
in Winam Gulf of Lake Victoria,
East Africa.

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A Master of Science Thesis

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ABSTRACT

Studies on the breeding ecology of Bagrus docmac (For~~sk~~) in the Winam Gulf of lake Victoria have revealed that a single breeding period extends from October/November to January/February. These periods are characterized by the presence of a high percentage of 'spent' fish in the gulf. Females are slightly heavier than males in size and the sex ratio is 1:1 with a slight female preponderance. Males mature at a minimum length of 16 - 20 cm while females mature between 21 and 25 cm although fifty percent of males and females are mature at 25 - 30 cm and 30 - 35cm respectively.

Fecundity varies from 25,000 - 100,000 and correlates positively with adult and ovarian sizes, but negatively with egg size (Adult wt: $r = 0.91$; Adult length, $r = 0.60$; ovary weight $r = 0.88$; Egg diameter, $r = - 0.81$).

Onset of rainfall, which effects a rise in lake water level, seems to induce spawning and there is a correlation between lake water level and adult female gonadosomatic index ($r = - 0.83$).

There was poor correlation between rising water level and K - factor of adult individuals ($r = -0.31$ for males and -0.55 for females)

Studies on feeding have revealed that adults feed mostly on fish - Haplochromis spp. and Engraulicypris argenteus, whereas juveniles show obvious preference for benthic aquatic insects such as Povilla sp, Chaoborus sp, Chironomus sp, caenid and libellulid nymphs. Bagrus docmac shows a marked crepuscular feeding tendency, a feature characteristic of most visually-dependent predators which take advantage of the twilight environment for any successful feeding mission. There is a diel vertical migration of adult Bagrus docmac, rising to mid waters at night. The feeding migrations coincide with peak feeding time as well as the vertical ascent of their prey, Engraulicypris argenteus and Haplochromis spp. The former prey species rise to the surface water in pursuit of the migrating zooplankton which form the bulk of their food.

Although Bagrus docmac is reported to have a wide bathymetric distribution, present studies implicate water temperature and water depth as additional factors affecting

Catch composition analyses have not revealed any existence of a spatial competition between Lates niloticus and B. docmac - the two potential piscivores in the gulf. The two species have different tolerance capacity for various water depth. Conductivity is considered a negligible factor in distribution.

Gill parasites (mainly Dolops ranarum) were found in 34.6% of all adult cases, while only 14.9% of the juveniles were infested by the fish lice. The incidence of infestation increased with the size of fish. ($r = 0.75$).

About 28% of adult B. docmac had mesenteric tissues infested with larval cysts of the nematode, Eustrongylides sp. Similarly, the incidence of infestation increased with age ($r = 0.82$).

The adult cestode, Polyonchobothrium sp. infested the stomach of both adult and juvenile Bagrus sp. However, the tape worm infestation rate was not significant since only 6 out of 800 stomachs examined were found to contain this parasite. Leeches infested about 5% of this catfish.