

# KENYA AQUATICA

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## **EDITORIAL NOTE**

The need has been felt for a long time for a bulletin covering aquatic resources out-puts of the country quickly and comprehensively. The Board of Management of Kenya Marine and Fisheries Research Institute realised this need and directed the Institute to take immediate action for ensuring that information on aquatic resources is compiled for easy communication to the people.

The editorial group has decided to start reporting activities related to aquatic resources under the title "KENYA AQUATICA". As far as possible efforts will be made to include short scientific communications, critical reviews, seminar proceeding and other ad hoc publications. This comprehensive coverage will be possible only through cooperation of various Institutions, Departments, Societies and individuals who are concerned with aquatic resources.

**Kenya Aquatica** is a technical and extension series for rapid dissemination of information on aquatic resources and allied information from Research Officers, Fisheries Officers and any individual for transfer of Technology to the fishermen and industry and any other relevant information needed for National Development.

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M O M B A S A

## AN OVERVIEW ON RESPONSE OF RIVER FISHERIES TO FLOODING (Tana River System)

Flooding is a major phenomenon in flood plain and river fisheries, which, except for those of large rivers, depend on the migration of reproductive fishes during the floods. Streams and rivers that drain the eastern slopes of Mt. Kenya, Abardares and Nyambeni ranges join to form the Tana River which is permanent though with regime fluctuation between rainy and dry periods. During the rainy seasons, in March-May and October-November, the river swells beyond the banks causing heavy floods, especially in the lower Tana, covering the expansive flood plains. These flood plains support a seasonal fishery when numerous fish invade the plains for breeding and feeding. Being very shallow, flood plains are commonly fished by traditional gears such as baskets, spears and building of fences and mud barriers. Presently long lining and gill netting are also applied. From one year data (1981) collected from the lower Tana, four fish genera were found commonly landed viz *Tilapia*, *Clarias*, *Labeo* and *Protopterus* spp. Analysis on catch data for relative abundance indicated initial preponderance of the lungfish, *Protopterus* spp. in February, followed by *Labeos* in March - May and lastly *clarias* dominate in June - July. *Tilapia*, on the other hand remained relatively low in the 1st half of the year, but dominated in the October - November period.

Superimposed on to the rainfall averages for the basin area, this displacement in catches reveal a strong relationship with the rainfall pattern. The entire basin receives two peaks of rains February - June with a peak in April and September-December with a peak in November. That *protopterus* dominate as the rains start and their catch fall too low in April, when the water level rises and again appear plenty in August when the floods have receded and the remanant pools are drying. Biologically, *Protopterus* aestivate in the muddy plains as the dry season sets on. When next rains come, the aestivated fish reactivate. The high catches at onset of rains could be due to reactivated fish. As the rains continue, they get into the river and the general floods to grow and reproduce (spawn). When rains end, floods start receding and most of these fish are left in muddy pools from where they are easily fished, hence their dominance in about August.

*Labeos* and *Clarias* are Potamedromous. *Labeos* in particular swim upstream to turbulent waters for spawning. Gonad analysis of the specimens revealed prevalence of mature fish, atleast stage IV, in June.

Studies on the Sabaki (lower Athi) have shown that clarias move both upstream and out of the main river into the lateral flood waters during floods for spawning and feeding (whitehead 1960).

Tilapia showed improved catches in May but fall immediately giving way to the Clarias. This being the time when floods were setting in, Tilapia could not withstand the very turbid waters. It's likely they moved out into shallower, sheltered waters where fishing is minimum. Clarias can survive in poorly oxygenated muddy waters associated with the open floods.

Sexually mature Tilapias (stage IV - VI) were commonly landed in March, July and sometime between September and November (data for September and October lacking). This also associates closely with the changing water condition.

In conclusion it may be fitting at this stage of the work going on to associate the nature of the river fishery, its changing fish composition with seasonal flooding regimes of the Eastern flowing river system. More work will be needed to establish the relationship and hence throw some light on the necessary development and management strategies that can be practised.

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