

Breeding pattern of *Oreochromis niloticus* (Linnaeus, 1758) (Pisces: Cichlidae) versus native congeneric species, *Oreochromis macrochir* (Boulenger, 1912) in the upper Kabompo River, northwest of Zambia

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Abstract

Investigating the determinants of reproductive biology of fishes is an essential component of biological research. Breeding pattern was investigated to determine the impact of exotic *Oreochromis niloticus* on the native congeneric *Oreochromis macrochir* in the upper Kabompo River. Gonado-somatic index and sex ratio was used to investigate the breeding pattern in both invaded (where *O. niloticus* is present) and uninvaded (where *O. niloticus* is absent) sections of the river. *Oreochromis macrochir* was the only native congeneric species found in both sections. Results showed that the overall gonado-somatic index means for both sexes of *O. macrochir* in both sections were similar. For *O. niloticus* in invaded section indicated all year reproduction though reduced spawning in cold season (May-June), but with increased spawning activity in wet season (February-March). In *O. macrochir*, males and females were found breeding in both dry and wet seasons only, as for cold season no reproduction was recorded. Sex ratio (females: males) was 1:1.3 and 1:1.7 for *O. niloticus* and *O. macrochir* respectively, and both significantly deviated from the sex ratio of 1:1 ($\chi^2=8.42$ and 9.37 ; $p<0.05$). *Oreochromis niloticus* formed the most abundant fish caught 221(63.5%) than *O. macrochir* 127(36.5%). Our study has revealed that *O. niloticus* was able to spawn in all seasons with 23% higher breeding population than *O. macrochir*, which explains the suppression in the abundance. We expect *O. niloticus* to invade further downstream of the Kabompo River due to natural dispersion.

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