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Some aspects of the biology of the snakehead fishes Channa striatus (Bloch,1797) and Channa punctatus (Bloch,1793) under wild and culture conditions in Sri Lanka

BY

SIRIMEVAN BANDARA WEERASEKARA

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5 S U M M A R Y

The biology of Channa striatus and Channa punctatus under wild and experimental conditions has been studied.

Morphometric and meristic data were obtained for adult and juveniles of both species. Finray and scale counts observed for C. striatus and C. punctatus appear to be similar to the data given by Day (1875-1878) for C. striatus and C. punctatus in India and by Deraniyagala (1952) for the two species in Sri Lanka.

The total length weight relationship in the adult fish was found to be non-linear and significantly different from the cubic equation for both species, while total length weight relationship of juveniles was observed to be non-linear and not significantly different from the cubic equation for both species. However, the relationship between total length and other body measurements such as head length, body depth etc were found to be linear for both species.

C. striatus and C. punctatus appeared to be carnivorous, feeding mainly on fry and fingerlings of tilapia (Oreochromis mossambicus) gobies (Glossogobius giuris), but also on other Cichlid and Cyprinid fish.

C. striatus breeds during the periods April to June and October to February, while the breeding season of C. punctatus extends from March to May and October to December. This conclusion is further supported by monthly variation of G.S.I, seasonal changes of development of gonads and spawning habits of both fish. Spawning of both species appears to be influenced by rainfall and flooding of reservoir littoral.

They appear to breed during the bi-annual monsoon seasons.

Seasonal variation of gonadosomatic index, spawning cycle, condition factor (K), of C. striatus and C. punctatus was found to be influenced by internal factors such as maturation of gonads and external factors such as rainfall and availability of food in reservoirs.

Fecundity of C. striatus (total length range 343-530 mm) ranged from 1,418-15,605 respectively. Relationship between total length (L) and fecundity (F) could be expressed as $F = 9.11 \times 10^{-9} L^{4.57}$ and $F = 1.52 \times 10^{-10} L^{5.85}$ for C. striatus and C. punctatus respectively. Relationship between body weight (W) and Fecundity (F) was found to be linear for both fish ie. $F = 19.15 W - 3295$ and $F = 104.5 W - 6187$ for C. striatus and C. punctatus respectively.

Frequency distribution of diameter of mature ova has indicated that diameter of mature ova of C. striatus and C. punctatus ranged from 0.68 - 1.53 mm and 0.34 - 1.15 mm respectively. The presence of a population of mature ova with a single mode at 1.17 mm in C. striatus and 0.85 mm in C. punctatus suggests that both fish are total spawners.

Sex ratio of C. striatus was found to be 0.85 (departure from 1:1 ratio was not significant at 5% level) and sex ratio of C. punctatus was 1:4 (departure from 1:1 ratio was significant at 5% level) respectively.

Growth rates of fingerlings of snakeheads on different feeds were studied under experimental conditions in fiberglass tanks. Growth rates of C. striatus fingerlings appeared to be similar on trash fish and chicken offal. Growth rate of C. punctatus fingerlings were found to be satisfactory on all tested diets namely chicken offal, trash fish and earthworms.

Growth rates of C. striatus juveniles in cement tanks, fed on flesh of the land snail Achatina fulica was found to be low compared with growth rates of fish fed on trash fish. The growth rates of C. striatus fed on fry and fingerlings of tilapia were significantly higher than that of the fish fed on trash fish.

However, growth rates of C. striatus and C.punctatus fingerlings and C. striatus juveniles under experimental conditions appear to be low, compared with the growth of snakeheads in the wild.