



## **Summary**

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In Indian subcontinent, the purpose of the development of fisheries is to generate employment and fish production to fight against malnutrition. Initial work on the biology of freshwater fishes of India was carried specially on carps, murrels and catfishes. But, no considerable work has been carried on the biology of freshwater catfish *Mystus seenghala* a tasty species belongs to the genus *Mystus*. This is the good table fish. Exploitation of *Mystus seenghala* is reckless. This calls for the application of rational methods of culturing, which is inconceivable without scientific information on biology of *Mystus seenghala*.

*Mystus seenghala* apparently occurs in low land habitats at moderate elevation in all the larger river systems of Indian sub continent. Its occurrence is also extended through most parts of Asia and is found numerous in number water in freshwaters of India and Ceylon. Almost fifteen species of freshwater catfish are known to us, which have been grouped into six genera viz. *Rita*, *Aorichthys*, *Horabagrus*, *Rama*, *Botasio* and *Mystus*. There are eight species, which have been included under the genus *Mystus* occurred in river, lakes, ponds, stream and ditches and estuaries of eastern Uttar Pradesh and Bihar, like *M. vittatus*, *M. bleekeri*, *M. aor*, *M. tengara*, *M. cavasius*, *M. menoda* and *M.*

*seenghala*; and *M. rufescens* have been reported to occurred in Burma. The genera *Rita* consists of four species in the Indian area, these are *R. chrysea* is known to occur in Mahanadi river and its tributaries; *Rita kukarnee* and *R. pavementatus* in known to occur in rivers of Deccan in Karnataka, Maharashtra and Andhra Pradesh; *R. rita* occur in the most of the rivers of northern Indian.

In the present study, the regression of various body parameters such as standard length, body length, body depth, body width, body weight, head length, snout length, caudal fin length, caudal fin depth, pre-dorsal length, inter orbital width and orbit diameter on total length have been studied. A linear relationship was obtained after plotting the graph of morphometric measurement against the body length. The correlation coefficient in all morphometric parameters was highly significant in juveniles. The length-weight relationship of fish shows the remarkable difference in the growth of weight to growth of length in both male and female individual. The equation for length-weight relationship are  $w=8.305 \times 10^{-8} L^{4.6519}$  for Juveniles,  $W=2.316 \times 10^{-7} L^{4.3215}$  for males,  $w=8.561 \times 10^{-9} L^{4.0326}$  for females and  $w=5.434 \times 10^{-8} L^{4.1519}$  for combined male and females individuals. These length-weight relationships indicate the faster growth in length than the weight was found

in both male and female individuals. The value of covariance analysis between slopes of regression for both males and females are 6.13 (d.f. 1419).

The study of food and feeding habit of *M. seenghala* with their concerned organ such as short intestine, strong stomach indicate its predaceous and carnivorous nature. There is no change in its basic nature of feeding during the various stages of life. The gut content analysis of *M. seenghala* showed that the fishes and insects are the basic foods of adult individuals while young individuals consumed fishes, insects and crustaceans. The small quantity of molluscs and annelids were consumed accidentally by the fish. Gut length/body length ratio in different size of specimen varied from 1:0.74 to 1:0.87. The young individuals feed voraciously during the winter season than the summer season; adult individuals feed in small quantity during the monsoon period than the period of October to November. In adult individuals, due to the growth of gonads, maximum empty guts were occurred during the spawning period.

The population of female *M. seenghala* dominated over the males throughout the year except in the month of October and November.

The sex ratio of male and female specimen were influenced by the season and size and their ratio are from 1:0.46 to 1:1.12 with their mean value is 1:0.833. The gonads were divided into five stages such as immature

virgin, maturing virgin , recovering spent, ripening, ripe and spent stage. The value of gonadosomatic index was directly related with the development of gonads. High value of GSI showed the development of gonads that was observed in the month of June; while low value of GSI indicates the inactive stage of gonads. In *M. seenghala*, spawning was observed during the period of September that showed the ripe individuals were occurred in mid September. Spawning in *M. seenghala* occurred only once in a year. The sizes of ripe eggs varied from 1.06 to 1.65 that showed that no fractional spawning occurred in *M. seenghala*. Fecundity is directly proportional to the weight and size of the individuals i.e. increased in the size and weight results in the increase in fecundity. The individuals of body length ranged between 9-19 cm. are producing 413-1019 eggs. Fecundity 'factor' with weight body length was 51eggs/cm. and fecundity 'factor' with body weight was 42eggs/gm. The fecundity v/s body weight was lower than the fecundity v/s body length.