PREFACE
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Fish is always a natural major source of protein and nutrient for many millions of people. Properly managed fisheries, can only reach to success where catches are related to the reproduction ability of the species and the available ecosystem. To judge the ability of reproduction, it is often crucial to know the number of eggs produced annually or seasonally.

In addition to its realistic harvesting, a knowledge of fish reproduction, nature of fish in ponds, tanks or dams is important. Likewise, an understanding of breeding mechanism related to their breeding seasons is also essential and helpful to transfer fish into alternative natural habitats in unfavourable conditions.

Knowledge of the environmental conditions governing spawning in fishes is important in resource management. In Canada, United States and USSR due to increase in number of hydroelectric plants and dam construction impedes fish migration and altered totally the natural ecosystem and fish growth.

Finally, a knowledge of fish reproduction, certainly became important as the response of fish is used to evaluate the biological significance of aquatic contaminants. Reproductive phenomenon is particularly significant in physiological indication of fitness as it represent the response of individuals to environmental conditions over a considerable period of time. Yet, the variability of
physiological expression (i.e. number of viable eggs) will give a more sensitive indication of response than absolute mortality.

Earlier in 1978, Board of International Food and Agricultural Development Agency for International Development reported that although fisheries and aquaculture vary in order of preference in any region, bottom line information required is similar.

The riverine fishery resources of India comprises five major river systems viz., the Ganga, The Brahmaputra and the Indus rivers systems in the north, together with the peninsular coast and West coast river systems in the South.

For the present study, Mutha river flowing near by Pune, Maharashtra State situated between 17° 54" and 19° 21" N latitude and 73° 24" to 75° 14" E longitude has been taken as a ground for all activities of N. moreh. Mutha river is originated from crest of Sahyadries (Western Ghats) nearly at the height of 800 Km from the sea level, (Bay of Bengal) and drains in to Krishna river system which is one of the major river basins of southern India.

Origin place of Mutha river is about 60 Km towards west from Pune. The dams like Khadakwala has been constructed (16 Km upstream towards west of Pune) across the river which is main source of the drinking water to Pune city. Panshet and Varasgaon are yet another dams constructed on this river (40 Km upstream from Pune). Therefore, the flow of river is cut off and became turbulent to the succeeding river system.
The river gets flooded in monsoon, however in winter and summer the water level considerably goes down. Hence, fishing could not be established in this region inspite of having natural occurance of edible fishes in this river. Occurance of *N. moreh* is more abundant except the city stretch of river, where domestic sewage mix in. *N. moreh* is generally caught by tribal people on commercial view as it is being consumed by local poor peoples and are always favoured by all societies. *Nemacheilus* group has certain importance on its diversified habitat. Taking into consideration of its habitat, adaptation to turbulent flow, and other biotic and abiotic factors, efforts are being taken to understand and correlate its behaviour with the hill stream fishes.

Uptill now no information is available about *Nemacheilus moreh* and hence present study is aimed to understand the potentiality of the fish reproduction and to study the sustainability against pollution studies of Mutha river, near Pune.

In view of the present study, structure and function of pituitary gland has been studied more presicely in relation with GTH cells, identification of GTH cells by histochemical approach and tinctorial staining methods and its correlation with development of gonads. Gonadosomatic index, growth rate, and length and weight relationship have also been undertaken to support the findings of the present work.
Mutha river near village Warje,
Tq. Haveli, Dist Pune (M.S.).
To put this episode in easier way, present work has been divided into the following topics.

1. Introduction.

2. Material and methods.

3. Results and Discussions

4. Summary and Conclusion.

5. References.
Adult *Nemacheilus moreh*

Lateral view
NEMACHEILUS MOREH

Systematic position and external characters

Genus Nemacheilus (Van Hasselt), commonly called as 'Loach', represents 31 species distributed in freshwater streams of India, Burma and ceylon, Day (1875-78). Out of these, 23 species are found in India. The specimens are characterised by the features like elongated body with 6 or 8 barbells, no spine on head, dorsal fin short and situated opposite to ventrals.

Nemacheilus moreh is distributed in India in the region of peninsular India and Western Ghats. In Maharashtra it is reported from streams of Aurangabad, Day (1878), Mutha river near Khadakwasla, Pune, Wagh (1999).

Systematic Position

Order CYPRINIFORMES
Sub-order CYPRINOIDEI
Family HOMALOPTERIDAE
Sub-family NEMACHEILINAE
Genus NEMACHEILUS
Species MOREH.

Nemacheilus moreh is closely related to Nemacheilus botia (Ham. Buch.) of North India and Pakistan, but can be differentiated from N. botia on incomplete lateral line, Menon (1987).

D. 3/9-10 ; P. 1/11 ; V 1/7 ; A 3/5 ; C. 18.
Body is spindle shaped, its dorsal profile rises from tip of snout to the insertion of dorsal fin. Ventral profile is uniformly convex. Snout prominent and blunt anteriorly. Eyes large and situated in the middle of head. Nostrils close to each other, mostly semicircular, lips fleshy, upper lip with a few rows of papillae and lower lip interrupted in the middle. Two pairs of rostral and one pair of maxillary barbels are well developed. Scales are conspicuous, lateral line incomplete, paired and unpaired fins are present. there is no marked sexual dimorphism, however suborbital flap present in males.

Colour of the body pale olivaceous to yellowish with 12-16 black cross bands of various turns and hoists, descending below to the level of lateral line. The bands are interrupted in young and half grown specimens, broken upto patches and scattered irregularly on sides of adult. A black ocellus present at upper base of caudal fin, and posteriorly 5-7 'V' shaped bands are present. Narrow dark band from tip of snout to anterior margin of eye.

Largest two specimens encountered during this study was 70 mm in total length, while earlier records reported upto 44 mm Menon (1987). Average length group of this fish has been recorded upto 55 mm in length.