

RESEARCH ARTICLE

Population structure of *Labeo bata* (Hamilton) from the middle stretch of the Ganga river

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ABSTRACT : The present study was undertaken with a view to estimate the male and female population in the middle stretch of the Ganga river at Allahabad. Fish sample of *Labeo bata* (Hamilton) was collected during August 2008 to July 2009 from the middle stretch of the Ganga river at Allahabad. It is largest river for India with high discharge during active monsoon but comparatively very low during winter and summer season. The population structure of *L. bata* was observed to vary from 0 to 8+ age groups. The 2+ age group population was dominant, which was contributed to be 46.19 per cent of the total population. The age groups 0, 1+, 3+, 4+, 5+, 6+, 7+ and 8+ contributed 2.24 per cent, 15.25 per cent, 26.01 per cent, 6.28 per cent, 4.48 per cent, 1.34 per cent, 0.89 per cent and 0.45 per cent, respectively. The male population was recorded more compared to female in 0, and 1+ age groups. In 7+ and 8+ age groups male was not recorded. In the stock, female population was greater than male.

Key words : Population structure, *Labeo bata*, River Ganga

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INTRODUCTION

Fish has been an important part of human food since time immemorial. Art and science of fish harvesting have been evolved by the fishermen communities and passed on from generation to generation (Tynsong and Tiwari, 2008). Fish appear to be good indicators of the status of aquatic communities and river environments (Schneiders *et al.*, 1993), and fish are often a key element in environmental planning (Schiemer, 2000). Fish stock assessment evaluates the effect of fishing on a fishery as a basis for fishery management decisions (Sissenwine *et al.*, 1979).

Labeo bata (Hamilton) is a freshwater medium sized Indian minor carp, normally attains a length of 20-25 cm in pond and 30-50 cm in large tanks, reservoirs and rivers. It forms an attractive pond fishery in west Bengal, Assam, Orissa of India and Bangladesh for high market demand (Chondar, 1999). It has herbivorous feeding habit. It is predominantly a bottom feeder (Das and Moitra, 1963). The natural distribution of *L. bata* is mainly in India, Bangladesh and Nepal (Talwar and Jhingran, 1991). It breeds during July and August (Siddiqui *et al.*, 1976). The

present study was aimed to update the information on the population structure of *L. bata* from the middle stretch of the Ganga river at Allahabad.

RESEARCH METHODS

The fish samples were collected during months of August 2008 to July 2009 from fish landing centre at Daraganj (latitude 25° 25' 13" North and longitude 81° 53' 40" East). Fishes were collected using a variety of methods including drag netting, cast netting, gill netting and hook and line. Samples of scales from 647 specimens, total length ranging between 10.1 to 76.2 cm were examined for age determination of the fishes. Total length was measured from tip of caudal fin to snout of the fish. The key scales were collected from the region just below the dorsal fin (3 to 4 rows) and above the lateral line and were thoroughly washed in tap water until all extra matter got completely removed and mounted intact in between two glass plates. The ring formation was determined according to the criterion suggested by Bagenal and Tesch (1978). Almost all the annuli, except the one, appeared as light relatively transparent bands, concentrically arranged