

RESEARCH PAPER

An investigation of the population status and age pyramid of *Cyprinus carpio* var. *communis* from the Yamuna river at Allahabad

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ABSTRACT

The fish sample was obtained at random during the months of March 2007 to February 2008 from the Yamuna river at Allahabad. Age composition of *Cyprinus carpio* var. *communis* varied from 0 to 12+ age groups. According to the percentage occurrence, age group 1st was dominant (24.88%), nearly one fourth of the total sample. The age groups 2+, 3+, 4+, 5+, 6+, 7+ and 8+ contributed 19.16%, 16.54%, 10.51%, 5.72%, 4.17%, 3.09%, and 2.78%, respectively. The remaining age groups (9+ to 12+) contributed below 7%. The 0 age group contributed only 7.26%. The distribution was uneven between 0 to 1+ age groups as difference was very high 17.62 %. The age pyramids was found urn shaped. The present study indicates mature population was greater than immature population.

Key words : *Cyprinus carpio*, Population status, Age pyramid

Fishes are an integral component of stream and river systems and represent a visible measure of stream/river ecosystem structure and function. Fish can also be used as indicators over a temporal ranges varying from minutes to decades and spatially from a local scale measured in meters to entire river catchments (Karr, 1991). *Cyprinus carpio* var. *communis* is commonly known as common carp. The original form of *Cyprinus carpio* var. *communis* has regular rows of scales covering the entire body. Common carp are a non-native species in India.

The wide distribution and successful introductions of common carp are largely due to their tolerance of varying environmental conditions (Forester and Lawrence, 1978). Introductions of non-indigenous fishes can reduce diversity and modify local community dynamics in freshwater systems (Minns and Cooley, 2000). The total annual world production of common carp in 2003 has been estimated to be 3239712 tonnes (FAO, 2005). Their ability to reach high biomass and their feeding behaviour has been implicated in causing major environmental degradation in many fresh water ecosystems (Barton *et al.*, 2000). It is the main capture species in the Yamuna river at Allahabad. The annual total catches of common carp (with exotic species) in the Allahabad during 2006-2007 was 25.5% (Anonymous, 2007). Common carp is widely distributed in all the rivers of central India, especially tributaries of the Yamuna river *i.e.* the Ken and Paisuni rivers (Dwivedi, 2006). In pond culture, in India, males matured at 6 months of age and females at 8 months (Parmeswaran *et al.*, 1972).

It is also well established in reservoir. The contribution of common carp to the total catch during June 2000 to May 2001 varied from 28.03% to 90.43% in Umian reservoir (Vinod *et al.*, 2003). Common carp prefers water bodies with stagnant and slowly waters with sand and/ or silt bottoms with shell incorporations (Moyle, 1984; Balon, 1995). Common carps are frequently cultured and are of grate commercial value as a food fish both over their native and introduced range (Dwivedi *et al.*, 2008). Recent studies on population status and age pyramid by Nautiyal and Negi (2004) in lesser Himalaya and Dwivedi (2006) in the Ken, Paisuni and Tons rivers (Vindhyan region). But there is no published information on *Cyprinus carpio* var. *communis* in the Yamuna river. The present study was aimed to highlight the population status and age pyramids of *Cyprinus carpio* in the Yamuna river at Allahabad. This study will help in formulating the fishery management policies of *Cyprinus carpio* var. *communis* in the Yamuna river at Allahabad.

MATERIALS AND METHODS

The fish sample of *Cyprinus carpio* was collected during months of March 2007 to February 2008 from fish landing centre of the Yamuna river at Gaughat (latitude 25° 25' 34" North and longitude 81° 50' 40" East). The Yamuna river is a right bank major tributary of the Ganga. Allahabad is the lower part of the Yamuna river. The key scales (Bagenal and Tesch, 1978) were used for determination of the age of *Cyprinus carpio* var. *communis*. Prior to age determination, it becomes essential to establish the fact that the fish scale radius