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Fish diversity of Inland ecosystems of Gulbarga district, Karnataka

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Abstract

The present study deals with the fish diversity of Gulbarga district, Karnataka. The study was conducted for a period of one year was made from April 2013-March 2014. The study result of present investigation indicates that presence of 11 fish species belongs to 4 orders. The high number of fish species was recorded from order Cypriniformes, with eight species, *Salmostoma bacaila*, *Mystus seenghala*, *Puntius sarana*, *Osteobrama cotio cotio*, *Labeo fembriatus*, *Labeo rohita*, *Puntius ticto*, *Labeo boggut*, similarly the orders like Mastacembeliformes, Osteoglossiformes and each with consist of one species, *Mastacembelus armatus*, *Ompok bimaculatus*, and *Notopterus notopterus* respectively

Keywords: fish Diversity, Gulbarga district.

1. Introduction

Fishes are to be consider as sources high amount of proteins content and an important food source for human beings with supplying fat, vitamins A and D, which are important in the daily life. In addition, to this nutrient values fishes are used in several medical treatments, provide aesthetic beauty in aquariums. Due to these multiple uses of fisheries resources, fishing has become a major industry in country like India and provided livelihood for several families. These important biological resources are under threat of extinction due to habitat and environmental degradation has critically affected the fauna of fishes. Knowledge on available information and the biological characters of fish species are provide the first hand information for further conservation aspects.

However, there is a need for studies on diversity of fish fauna in different types of habitats from all the geographic areas of the country. Important work has been done on fish diversity during the last few decades (Bossuyt *et al.*, 2004 and Rajalakshmi and Sreelatha 2005, Arunachalum, 2000; Daniel, 2001; Sarkar and Benerjee, 2000; Bhat, 2002; Mishra *et al.*, 2003; Day, 1967; Jayaram, 1981; Menon, 1992; Shaji, 1995;) [4, 16, 1, 5, 17, 2, 14, 7, 11, 13, 18]. In the present investigation an attempt has been made to know the fish diversity of Gulbarga district.

Materials and Methods

Study area

Gulbarga district is located in the Northeastern part of Karnataka with Gulbarga as district headquarters. It lies between 16°-12' to 17°-46' North latitude and 76°-04' to 77° -42' longitudes. It is surrounded by Bidar district, Usmanabad of Maharashtra in the North, by Medak and Mahaboobnagar in the East, Raichur in the South and by Bijapur and Solapur of Maharashtra in the West. It includes the 10 talukas of Afzalpur, Aland, Chincholi, Chitapur, Gulbarga, Jewargi, Sedam, Shahpur, Surpur and Yadgir. The district is rich with historical monuments from the period of Satavahanas, chalukyas, Rastrkutas, Bahamanis and Nizam of Hyderabad. The total geographical area of the district is 16, 224 sq.km. It is the second largest district with 8.5% of total land area of Karnataka, with population of 25, 82,169. Krishna, Bheema, Kagina, Dori, Amarja and Mullamari form the main river systems of the district.

Sampling

Present work is an attempt to study fish fauna of waterbeds of Gulbarga district. Fishes collected from different selected localities with the help of local fisherman using variety types of nets. On field, the photography has been done before preservation, since formaldehyde decolorizes the fish color on long preservation.

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Formaldehyde solution was prepared by diluting one part of concentrated formaldehyde with nine parts of water i.e., 10 percent of formaldehyde solution. The fishes collected and fixed were labeled giving serial numbers, locality from where sample was collected, date of the specimen collection. The local name of fish used in this region was labeled in each container containing the fish specimen. All the fishes identifications was done based on keys provided for fishes of the Indian subcontinent (Day, 1958, Talwar and Jhingran 1991, Jayaram, 1999, Jayaram, 1981) [6, 19, 12, 11]. Classification was carried out according to the Day (1889), Jayaram (1961), Nelson (1976) and Jayaram (1981) [8, 10, 15, 11].

Results

The present investigation brought in the light that the occurrence of 11 fish species in various waterbeds of Gulbarga district during the April 2013-March 2014. The distribution of fish species diversity is quite dissimilar because of geographical and geological conditions.

The classification of fish diversity from Bennithora River is as given below:

Phylum	-	Chordate
Subphylum	-	Vertebrata
Class	-	Pisces
Subclass	-	Teleostomi
Order	-	Cypriniformes
Family	-	Cyprinidae

Species

1. *Osteobrama cotio cotio*
2. *Labeo rohita*
3. *Mystus seenghala*
4. *Labeo fembriatus*
5. *Labeo boggut*
6. *Puntius sarana*
7. *Puntius ticto*
8. *Salmostoma bacaila*

Order	-	Siluriformes
Family	-	Siluridae

Species

9. *Ompok bimaculatus*

Order	-	Mastacembeliformes
Family	-	Mastacembelidae

Species

10. *Mastacembellus armatus*

Order	-	Osteoglossiformes
Family	-	Notopteridae

Species

11. *Notopterus notopterus*

The result of present investigation confirmed the occurrence of 11 fish species belonging to four orders. The order cypriniformes was more dominant with 8 species *Labeo rohita*, *Osteobrama cotio cotio*, *Labeo boggut*, *Labeo fembriatus*, *Mystus seenghala*, *Puntius sarana*, *Salmostoma bacaila*, *Puntius ticto* followed by order Siluriformes, Mastacembeliformes and Osteoglossiformes each with one species, *Ompok bimaculatus*, *Mastacembelus armatus* and *Notopterus notopterus*.

Discussion

Several workers are made an attempt to study the fish diversity in various parts of the country and particularly in south India. According to the Bhat (2003) [3], southern India particularly Western Ghats, while being rich in its biodiversity particularly diversity of ichthyofauna diversity, has been investigated with

reference to distributions of fish species. The present study mainly emphasize on fish species composition and richness of Gulbarga district. During the study total about 11 fish species were collected belonging to 4 different orders. The order cypriniformes was occupied at first place by contributing 8 species *Puntius sarana*, *Labeo rohita*, *Osteobrama cotio cotio*, *Labeo boggut*, *Labeo fembriatus*, *Mystus seenghala*, *Puntius ticto* *Salmostoma bacaila*, followed by order Siluriformes consist of one species, Osteoglossiformes and Mastacembeliformes each with one species, *Ompok bimaculatus*, *Mastacembelus armatus* and *Notopterus notopterus*.

From several decades, fishing has become a major economical industry, due to several uses of fisheries resources. The environmental degradation is one of the major problem which has great impact on fish diversity. Further, there is a alarming situation to conduct the survey and diversity studies of fish fauna in all varieties of habitats. Industrialization and anthropogenic activities are also disturbing the eco-physiology of aquatic ecosystem. The work will provide basic data on fish diversity of Gulbarga district and it may be helpful for development and fish conservation.

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