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FISH DIVERSITY IN SHIVAJI TANK OF BHADRAVATHI TALUK, KARNATAKA

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Abstract:-The fish diversity of the Shivaji tank in relation to physico-chemical parameters was studied from August-2008 to January-2009. This water body is situated at 13° 42' N latitude and 75° 38' E longitude located 22 Km away from Bhadravathi town of Shimoga district, Karnataka. The water of the tank is used for fishery and agriculture. Fish species were collected with the help of gillnets of standardized dimensions with several mesh sizes. 19 fish fauna identified during the study belongs to Cyprinidae 09 species, Channidae 2 species, Bagridae with 3 species and a species each of Ambassidae, Cichlidae, Heteropneustidae, Notopteridae and poeciliidae. Water quality parameters indicate that the tank is moderately oligotrophic in nature.

Keywords:Diversity , Fish fauna, Shivaji tank, Water quality.

INTRODUCTION

The Western Ghats is the richest region in India with respect to endemic freshwater fishes. Northeastern India, which has a very high diversity among freshwater fish, does not have many endemic species within India because of its jagged political boundary. There are about 450 families of freshwater fishes globally. Roughly 40 are represented in India (warm freshwater species). About 25 of these families contain commercially important species. Number of endemic species in warm water is about 544. Freshwater fishes are a poorly studied group since information regarding distribution, population dynamics and threats is incomplete, and most of the information available is from a few well-studied locations only (Zooreach organization 2010; Sabuj Kumar Chaudhuri 2010). No study has been carried out so far on the fish diversity of the tank, hence fish specimens were collected by using gill nets of various sizes with the help of local fishermen.

MATERIALS AND METHODS

Shivaji tank is located in Bhadravathi taluk, in Shimoga district of Karnataka state (13°45' N & 75° 30' E). This tank is perennial one and receives water from left bank channel of Bhadra reservoir and as well as rain water covering an area of 5-10 Acres and depth of 4-5 mts. The water is used for agriculture and fishery purposes.

The fishes were collected with the help of local fishermen during the year August 2008 to January 2009. The fishes were preserved in 10% formaldehyde solution for taxonomic analysis. Identification of fishes was carried out with the help of standard literature (Jayaram, 1999; Talwar and Jhingran, 1991). Water samples were collected between 8 Am to 10 Am and further transported to the laboratory immediately for further analysis. Water temperature was measured at the spot using mercury thermometer, pH was measured with pH meter, while other parameters were analyzed in the laboratory according to the methods suggested by Trivedy and Goel (1986) and APHA (1998).

RESULTS AND DISCUSSION

Fish species collected from Shivaji tank showed 19 species belonging to 16 genera in 8 families of 6 orders. 16 species were native. Three species such as *Ctenopharyngodon idellus* (Valenciennes), *Cyprinus carpio* (Linnaeus) and *Oreochromis mossambica* (Peters) were introduced species. Among fish families Cyprinidae consists of 09 species, Channidae 2 species, Bagridae with 3 species and a species each of Ambassidae, Cichlidae, Clariidae, Notopteridae, Gobiidae and poeciliidae. The checklist of fishes is given in Table 1 and Table 2 depicts the abundance of fishes in the present water body.

pH of the tank water was alkaline and ranged between 7.7 to 7.9. Water temperature fluctuated from 26 to 32°C respectively, Total hardness was above 40 mg/l and the tank water is included under soft category. Free Carbon dioxide was fluctuated from 8-16 mg/l. Dissolved oxygen content ranged from 5.03-6.61 mg/l. Based on water quality parameters the tank is moderately oligotrophic in nature.

The present study of fish fauna in Shivaji tank showed that most of the fish species recorded were widely distributed in the lotic habitats of Western Ghats. The fish species like *Cirrhinus*, *Salmostoma* and *Puntius* groups were dominant. Therefore, the present investigation revealed that Cyprinid fishes are found to be the more dominant group than others which is supported by Singh et al. (2006).

CONCLUSION

The present study showed the record of 19 freshwater fish species from Shivaji tank of Karnataka. This investigation indicates that this water body has low fish diversity due to human activities, surface run off and encroachment, which needs to formulate sustainable strategies to explore and save fish species of this tank as a whole.

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Table 1. Fish diversity in Shivaji tank, Karnataka

Sl. No.	Species	Population status
A.	Order : Osteoglossiformes Family : Notopteridae	
1.	<i>Notopterus notopterus</i>	Common
B.	Order : Cypriniformes Family : Cyprinidae	
2.	<i>Catla catla</i>	Common
3.	<i>Cirrhinus mrigala</i>	Fairly common
4.	<i>Cyprinus carpio</i> *	Common
5.	<i>Labeo rohita</i>	Common
6.	<i>Osteobrama cotio cunma</i>	Common

1.	<i>Puntius sophore</i>	Common
2.	<i>Salmostoma untrahi</i>	Rare
3.	<i>Cirrhinus fulungee</i>	Common
4.	<i>Ctenopharyngodon idella</i> *	Fairly common
C.	Order : Perciformes Family : Channidae	
5.	<i>Channa striatus</i>	Common
6.	<i>Channa marulius</i>	Common
D.	Order : Siluriformes Family : Bagridae	
7.	<i>Sperata seenghala</i>	Uncommon
8.	<i>Mystus cavasius</i>	Common
9.	<i>Sperata aor</i>	Common
	Family : Heteropneustidae	
10.	<i>Heteropneustes fossilis</i>	Common
E.	Order : Cyprinodontiformes Family : Poeciliidae	
11.	<i>Gambusia affinis</i>	Exotic common
F.	Order : Perciformes Family : Ambassidae	
12.	<i>Ambassis kopsii</i>	Common
	Family : Cichlidae	
13.	<i>Oreochromis mossambicus</i> *	Exotic common

* Introduced species

Table 2. Abundance of Fish fauna in Shivaji tank of Karnataka

Name of the fish	Abundance
<i>Labeo rohita</i>	+++
<i>Catla catla</i>	+++
<i>Cirrhinus mrigala</i>	+++
<i>Cirrhinus fulungee</i>	+
<i>Cyprinus carpio</i>	+++
<i>Ctenopharyngodon idella</i>	++
<i>Channa striatus</i>	+
<i>Channa marulius</i>	+

Fish Diversity In Shivaji Tank Of Bhadravathi Taluk, Karnataka

<i>Heteropneustes fossilis</i>	+
<i>Sperata aor</i>	++
<i>Sperata seenghala</i>	++
<i>Mystus cavasius</i>	+
<i>Salmostoma untrahi</i>	++
<i>Puntius sophore</i>	++
<i>Gambusia affinis</i>	+
<i>Oreochromis mossambicus</i>	++
<i>Ambassis kopsii</i>	++
<i>Osteobrama cotio</i>	++
<i>Notopterus notopterus</i>	++

+++ = Most abundant ++ = Abundant
+ = Less abundant

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