

## Preliminary Analysis of Diversity status With Reference to Pisces from major wetlands of Ajara tahsil of Kolhapur district, Maharashtra, India

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### ABSTRACT

The present study emphasized on the preliminary assessment of diversity with reference to Pisces from major wetlands of Ajara tahsil, Kolhapur district, Maharashtra, India. During study, total 19 species of fish were recorded. Among these, 17 species belonging to 12 genera, 4 families, 3 orders from Gavase wetland. Total 14 species were recorded from Dhangarmola wetland, which are belonging to 11 genera, 3 families and 2 orders. Yarandol wetland exhibited 12 species of fishes belonging to 10 genera, 5 families and 3 orders. Khanapur and Ningudage wetland exhibited 6 species of fishes each belonging to 5 genera at Khanapur and 6 genera at Ningudage wetland, 2 families each and 2 orders each, both being poor in diversity status among all five wetlands. During investigation, it was also revealed that cypriniformes was dominant at all wetlands.

Keywords: Ajara tahsil, Wetlands, Preliminary study, Pisces, Diversity.

### INTRODUCTION

Fish is the most important by-product of fresh, marine and brackish water ecosystems contributing as an essential and beneficial food source for humankind since ancient times. India's total potential for fish culture is about 3.6 million hectares (Shrivastava, 1999). Fishes exhibit enormous diversity in their morphology, in the habitats they occupy and in their biology. Unlike the other commonly recognized vertebrates, fishes are a heterogeneous assemblage (Forese and Pauly, 1998). Fishes constitute half of the total number of vertebrates in the world with over 22,000 species. Of these, about 58 % are marine, 41% are freshwater species and 1 % move back and forth between salt and freshwater. Marine fishes are the most diverse because salt water covers 70 % of the

earth. Biodiversity is essential for stabilization of ecosystems, protection of overall environmental quality for understanding intrinsic worth of all species on the earth (Ehrlich and Wilson, 1991). India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega biodiversity (Mittermeier *et al.*, 1997). In India, there are 2,500 species of fishes, of which 930 live in freshwater (Jayaram 1999) and 1,570 are marine water fishes (Kar *et al.*, 2003). Freshwater fishery is one of the emerging fields in the economic development of humankind. To develop freshwater fishery, potential scientific and strategic management of freshwater ponds, water bodies, tanks etc. are of prime importance through which sustainable development is achieved.

## MATERIALS AND METHODS

### Study Area:

Ajara is one of the important tahsil of Kolhapur district, located at southern region with N 16° 12' and E 74° 2'. Total population of the tahsil is about 1,21,430 residing in 74 villages. The total area of the tahsil is about 54,853 ha. The climate is moderate subtropical with an average annual rainfall of 2000 mm. The people residing here depend on two important rivers for their domestic, agricultural and drinking water needs, viz. Hiranyakeshi River and Chitri River. On the other hand, villages away from these rivers depend on bore-wells, dug-wells, small and large freshwater water bodies for their daily use. The present study deals with major wetlands from this tahsil. Gavase freshwater water body is situated south-west to the Ajara city at N 16° 05' 761" and E 74° 07' 596". The submergence area of this reservoir is 37.04 ha during monsoon season and 3.79 ha during summer season (Patil *et al.* 2014). Dhangarmola freshwater water body is situated at south-west to the Ajara city with longitude and latitude of 16° 03' 687" and 74° 05' 647". The actual submergence area is 55.17 ha. The submergence area during summer season is 7.32 ha (Patil *et al.* 2014). The location of Yarandol freshwater body is N 16° 03' 629" and

E 74° 10' 539", situated to the south of Ajara city.

The submergence area of this water body at present is 71.48 ha during monsoon season (Patil *et al.* 2014). According to Patil *et al.* (2014), Khanapur freshwater water body is situated at south-west of Ajara city with the location of N 16° 05' 352" and E 74° 18' 132". The actual submergence area is 20.71 ha. Ningudage freshwater body is situated at north-east of the Ajara city with the location of N 16° 09' 325" and E 74° 18' 132" with submergence area of 4.28 ha (Patil *et al.* 2014).

### Fish study:

The study was carried out during July 2011 to June 2013 by frequent visit to study sites especially during fish harvesting period and fish were brought to laboratory and identified by referring standard literature (Day, 1958; Jhingram, 1992 and Jayram, 2010).

## RESULT AND DISCUSSION

The results of the present study for fish diversity is given in Table 1. Total 17 ichthyo-species belonging to 12 genera, 4 family and 3 orders

S. No.	Name of Species	Gavase	Dhangarmola	Yarandol	Khanapur	Ningudage
01	<i>Catla catla</i> (Ham-Buch)	+	+	+	+	+
02	<i>Carassius arutus</i>	+	+	-	-	-
03	<i>Cyprinus carpio</i> (Linnaeus)	+	+	+	+	+
04	<i>Cirrhinus mrigala</i>	+	+	+	+	+
05	<i>Garrya mullya</i> (Sykes)	+	+	+	+	+
06	<i>Labeo rohita</i> (Ham)	+	+	+	+	+
07	<i>Hypophthalmichthys molitrix</i>	+	+	-	-	-
08	<i>Labeo porcellus</i> (Heckel)	+	+	+	-	-
09	<i>Puntius arulius</i>	+	+	-	-	-
10	<i>Puntius dorsalis</i>	+	+	+	-	-
11	<i>Puntius Kolus</i>	+	+	-	-	-
12	<i>Chana gachua</i> (Bloch&Schneider)	+	-	+	-	-
13	<i>Chana morulius</i>	+	-	-	-	-
14	<i>Glossogobius guiris</i> (Ham Buch)	-	-	+	-	-
15	<i>Oreochromis mosambicus</i> (Peters)	-	-	-	+	-
16	<i>Mystus seengtee</i> (Sykes)	+	+	+	-	-
17	<i>Ompok Pabda</i>	+	+	-	-	-
18	<i>Ompok bimaculatus</i> (Bloch)	+	-	-	-	-
19	<i>Wallago attu</i> (Bloch & Schneider)	+	+	+	-	+

**Table 1. Table 1: Distribution of fishes at all study sites. +: Present, -: Absent**

have been noted from Gavase freshwater water body. Order Cypriniformes comprises only one family, viz. Cyprinidae which was found to be the dominant family with 11 species of fishes while two other orders like Perciformes which comprises family chaniidae with 2 species and Suliriformes which comprises two families namely, Bagridae with 1 species and Siluridae with 3 species.

Dhangarmola freshwater body exhibited 14 species of fishes, which belong to 11 genera, 3 families and 2 orders. Cyprinidae family was dominant with 11 species, which belong to order Cypriniformes followed by family Siluridae with three species and Bagridae with one species, which belong to order Siluriformes.

The diversity study for fishes at Yarandol freshwater water body showed 12 species of fishes belonging to 10 genera, 5 families and 3 orders. Order Cypriniformes was dominant over all other with 7 species belonging to only one family Cyprinidae. The species belonging to Persiformes were also recorded from this water body which is distributed in two families' viz. Chaniidae and Gobiidae with one species each. A single species of Siluridae was noted belonging to Siluriformes.

The status of ichthyofauna at Khanapur freshwater water body is quite low than that of other study sites as the ecological conditions are not favorable for the growth of fishes. 6 species of fishes were recorded from this water body belonging to 5 genera, two families and two orders. Order Cypriniformes was dominant and comprised single family Cyprinidae with five species while family Cichidae was also observed from this water body, which belongs to Persiformes, comprising single species.

Ningudage freshwater body exhibited six species of Pisces belonging to six genus, two family and two orders. Family Cyprinidae was dominant with five species, which belongs to order Cypriniformes. One species of Siluridae was also recorded from this water body.

The study revealed that the fishery activity is carried at water bodies, since; Yarandol freshwater body is more potential while Khanapur water body is comparatively less potential. This might be due to ecological conditions. However, Yarandol water body is having more submergence area; this might be another reason which yields more. According to Patil *et al.* (2014) (B), on the basis of net profit, Ningudage and Yarandol water bodies show similarity as expenditure is observed minimum at Ningudage and net profit got increased even though the yield is less than that of Gavase and Dhangarmola freshwater water bodies.

## CONCLUSION

Based on the study, it can be concluded that Gavase wetland has rich in fish diversity while Khanapur and Ningudage wetlands have poor in diversity.

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