



DIVERSITY OF FISHES INHABITING THE BENDSURA RESERVOIR OF BEED, MAHARASHTRA, INDIA

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ABSTRACT

Reservoir serves as potential water body of water which also harbors coveted bio-resources that sustain animal life. Fish is a potential bioresource for nutrition and offers workplaces for people. The present investigation intended to study the fish diversity in Bendsura reservoir along with threats and their possible conservation measures. The study revealed the occurrence of 25 freshwater fish species which belong to 17 genera under 12 families and 6 orders. The present investigation showed that Bendsura reservoir possesses rich biodiversity but proper conservation measures are required to maintain its sustainability. There is a need for the conservation of fish diversity in this reservoir. The present status of Bendsura reservoir in the study area may only be improved by preparation and strict enforcement of proper wildlife legislation for aquatic biota.

Keywords: Reservoir, Ichthyofauna, Conservation measure, Fish diversity.

INTRODUCTION

India is one among the seventeen mega biodiversity nations known from the world endowed with remarkable biodiversity in its diverse ecosystems and habitats, and occupies the 9th position in terms of freshwater mega biodiversity. The freshwater ecosystems of India include all types of inland wetlands: lakes, rivers, ponds, streams, groundwater, springs, cave waters, floodplains, as well as bogs, marshes and swamps, including 26 Ramsar Sites. India with 2.4% of global landmass has 4% of the world's freshwater resources.

Among different ecosystems, freshwater ecosystems are the richest and more diverse ecosystems on earth. 6% of all species, and more than 10% of all animal species, occur in freshwater, including 25% of all vertebrates. The fishes are cold blooded vertebrates (Verma, 2017; Verma and Prakash, 2020). Among vertebrates, fishes are the fifth largest agricultural resource and are the primary source of protein to over one billion people (Ahmad *et al.*, 2019). It has been estimated that the global diversity of all fishes is 32,500 species. Considering that freshwater may constitute less than 0.3% of available global water, it is remarkable that there are

almost 15,000 freshwater fish species. In recent year international community has become sensitive in conservation of natural resources to respond new challenges and development. Govt. of India has legislated the Biodiversity Act 2002 and Biodiversity diversity rules 2004. According to IUCN re data list 16928 species are threatened in the world of which 659 fish species are observed in Indian water (Bobdey, 2013).

In India, there are about 1,570 freshwater fishes are categorized into primary, secondary and alien fishes. Primary freshwater fishes include 858 species belonging to 167 genera, 40 families and 12 orders. Further, 137 species of secondary freshwater fishes that frequently enter and thrive in freshwater rivers are also known from India. The freshwater fishes are categorized into primary, secondary and alien fishes. Primary freshwater fishes include 858 species belonging to 167 genera, 40 families and 12 orders. Further, 137 species of secondary freshwater fishes that frequently enter and thrive in freshwater rivers are also known from India (Singh and Prakash, 2022).

A number of researchers including Verma and Prakash

(2016), Verma (2016), Ashok (2017), Prakash et al. (2020), Ashok (2020), Chakraborty et al. (2021) did a lot on fish biodiversity of various fresh water bodies but as far as Bendsura Reservoir of Beed is concerned, it is little explored hence author attempted to explore it in detail.

MATERIAL AND METHODS

Bendsura reservoir (capacity 7.106 million cubic metres) is constructed on a small seasonal river, Bindusara in 1955 and it is situated near the village of Pāli, about 10 km south of district Beed of Maharashtra. At some places the river is narrow and looks like a stream. Bindusara originates in the hills of Balaghat near the village Waghira, in south of district Beed in Patoda taluqa. It is a hilly area. Various small streams contribute to the river. River Bindusara is a tributary river of Sindphana and a sub-tributary of Godavari river. Bendsura river flows from south to north and meets Sindphana river, about 10 km north of Beed town. Total length of the river is about 40 km. As an important resort for the native faunal diversity and beautiful habitat for the phytodiversity, it has

never been a subject of scientific or geological study. Therefore, the present study was undertaken to evaluate the Bendsura reservoir in terms of its ichthyofaunal diversity as well as ecological significance for the area.

Fish samples were collected in different seasons from July 2021 to June 2022 from Bendsura reservoir with the help of a local fisherman mainly during the time of fishing. The collected small-sized fishes were directly placed in a plastic jar containing 10% aqueous formaldehyde solution. But larger specimens were preserved with an incision on the belly in the plastic containers. Fresh or preserved samples were identified up to species level.

Identification of fish specimens was done with the help of its shape, colour, the pattern of scales, fins, mouth pattern and other morphological characters and after following standard taxonomic keys for fishes (Day, 1886; Datta Munshi and Srivastava, 1988; and Jayaram, 2010).

RESULT AND DISCUSSION

Table 1: Ichthyofauna of Bendsura Reservoir district Beed.

S. No.	Fish Species	Common Name/ Local Name	Availability in Reservoir	IUCN (2007) Conservation status
Order- Cypriniformes; Family- Cyprinidae (Minnows and Carps)				
1.	<i>Catla catla</i> (Hamilton)	Bhakur	Common	LC
2.	<i>Labeo rohita</i> (Hamilton)	Rohita	Common	LC
3.	<i>Labeo bata</i> (Hamilton)	Bata	Common	LC
4.	<i>Labeo dero</i> (Hamilton)	Gargi	Common	NE
5.	<i>Cirrhinus mrigala</i> (Hamilton)	Naini	Common	LC
6.	<i>Puntius sarana</i> (Hamilton)	Sarana	Moderate	VU
7.	<i>Puntius ticto</i> (Hamilton)	Two spot barb	Moderate	LC
8.	<i>Danio devario</i> (Hamilton)	Pataki	Rare	LC
9.	<i>Amblypharyngodon mola</i> (Hamilton)	Mola carplet	Rare	LC
Order- Siluriformes; Family- Bagridae				
10.	<i>Bagarius bagarius</i> (Hamilton)	Goonch	Moderate	VU
11.	<i>Mystus tengara</i> (Hamilton)	Tengara	Common	LC
12.	<i>Mystus aor</i> (Hamilton)	Tengara	Common	LC
13.	<i>Mystus cavasious</i> (Hamilton)	Tengara	Common	LC
Order- Siluriformes; Family- Siluridae				
14.	<i>Wallago attu</i> (Schneider)	Pardni	Common	NT
Order- Siluriformes; Family- Schilbeidae				
15.	<i>Pangasius pangasius</i> (Hamilton)	Pangas catfish	Rare	LC

Order- Siluriformes; Family- Clariidae				
16.	<i>Clarias batrachus</i> (Linnaeus)	Mangur	Moderate	LC
Order- Siluriformes; Family- Saccobranichidae				
17.	<i>Heteropneustes fossilis</i> (Bloch)	Singhi	Moderate	VU
Order- Ophiocephaliformes; Family- Ophiocephalidae				
18.	<i>Channa gachua</i> (Hamilton)	Saura	Rare	LC
19.	<i>Channa punctatus</i> (Bloch)	Saura	Common	NE
Order-Perciformes; Family- Gobiidae (Gobies)				
20.	<i>Badis badis</i> (Hamilton)	Blue Perch	Rare	LC
Order-Perciformes; Family- Osphronemidae (Gourami fish)				
21.	<i>Colisa fasciatus</i> (Bloch)	Rainbow gourami	Very Rare	NE
Order-Perciformes; Family- Ambassidae (Glassfishes)				
22.	<i>Chanda nama</i> (Hamilton)	Chanda	Moderate	NE
Order-Clupeiformes ; Family-Clupeidae (Herrings)				
23.	<i>Gudusia chapra</i> (Hamilton)	Suhia / Suiya	Rare	LC
Order -Synbranchiformes ; Family- Mastacembeleidae (Spiny eels)				
24.	<i>Mastacembelus armatus</i> (Lacepede)	Bam	Rare	LC
25.	<i>Mastacembelus aculeatus</i> (Bloch)	Bam	Very Rare	EN

LC= Least concern, NT= Near Threatened, NE= Not Evaluated, EN=Endangered, VU=Vulnerable.

During present exploration 25 species of fishes are reported with 6 orders and 12 families. Perusal of past literature of fish diversity in Beed district showed most of the species washed out from the Bendsura Reservoir. Three threatened species (TH) are observed in the study area are *Puntius sarana*, *Bagarius bagarius* and *Heteropneustes fossilis* moderately distribute and *Colisa fasciatus* are very rare in the fish population of the study area (Table-1). More abundance of carps and cat fishes are observed in the Bendsura Reservoir due to establishment of inland fisheries, but on the other side population of wild species went on decreasing due to deliberated negligence of communities. Since past decades, the continuous harvesting of high yield fish species from the reservoir was exercised but less attention towards the conservation of genetic resources or illiteracy of the localities about fish genetic resources was done. Endangered condition of *Bagarius bagarius* and *Colisa fasciatus* species from the study area is also may be due to its over exploitation. Repeated and unplanned fishing in the reservoir and rivers lowers the population of fishes in this reservoir (Kar Devashish *et al.*, 2006). During present condition of increased human population and unplanned fishing may be changed the fish fauna of Bendsura Reservoir. Regarding the threats, many workers reported that directly or indirectly anthropogenic activities are responsible for decreasing the diversity and density of fishes in natural water bodies

(Prakash, 2020a; Prakash and Singh, 2020; Prakash, 2021; Verma, 2021). The threats to Global freshwater biodiversity have been described under some common interacting categories such as overexploitation, water pollution, destruction or degradation of habitat and invasion by exotic fishes and anthropogenic activities (Prakash and Verma, 2022; Singh and Prakash, 2022).

CONCLUSION

Social awareness about the new conservation approaches of biodiversity and genetics resources is necessary in the study area so as to aware the localities, Proper management of surface waters by concerned rural authorities may reduce the threat of fish diversity. The present investigation showed that Bendsura reservoir possesses rich biodiversity but proper conservation measures are required to maintain its sustainability. There is a need for the conservation of fish diversity in this reservoir. The pressure is increasing day by day due to the increasing population, leading to loss of fish diversity hence, identifying the problem and making a better management plan is the way for conservation of the fish diversity of Bendsura reservoir of Beed district of Maharashtra.

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