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Piscean diversity and fisheries in Manoharsagar reservoir Shirpur dam Maharashtra

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Abstract
The piscean diversity or fish diversity of any water body is the reflection of its physical status. The present study deals with the fish diversity of Manoharsagar Reservoir. A total of 31 species of fish belonging to 12 families and 5 orders were recorded. The present investigation has done during the period July 2016 to June 2017. The present study reveals that the reservoir enriched with good biodiversity of fish indicates healthy physical status of it. In the present paper the economic importance of the fish and fisheries is discussed. Most of the species of fishes recorded were found throughout the year.

Keywords: Manoharsagar reservoir, fish diversity, fisheries

Introduction
Gondia district is popularly known as the district of lakes and Reservoirs. In Gondia district, about 1397 water bodies are present, which occupied 16375 hectors of water spread area. The fish catching is a major source of lively hood of many fisherman and tribal in the area, about 60,000 people are directly involved in fishery activity (Paliwal *et al*., 2013) [5]. In Gondia district many of water bodies are being exploited for aquaculture through fishermen's co-operative societies supported by state fisheries department (Paliwal and Bhandarkar, 2017) [4]. The reservoirs form one of the most important sources of large number of fishes, which are economically important for nature as well as for human beings as food. The nutritive and medicinal value of fish has been known from primeval time to recent era (Pawara *et al*., 2014) [6]. Fish is a rich source of protein and occupied a vital position in the diet of people of South Asian countries. India is one of the twelve-mega diversity nations of the world, contributing 2,546 species of fishes (Kalbande *et al*., 2007) [1]. As far as fish production and natural water resources are concern, Maharashtra is an important state which has immense scope for developing fisheries. A total of 165 fish species have been recorded and confirmed by various authors in Maharashtra, belonging to 09 orders, 26 families and 82 genera (Pawara *et al*., 2014) [6]. Literature

Table 1: Piscean diversity in Manoharsagar Reservoir

S. No	Zoological Name	Common name	Status	Remarks
I	Class : Osteichthyes SubClass :Actinopterygii Order: Steoglossiformes Sub-order : Notopteridae Family : Notopteridae			
1.	*Notopterus chitala* (Hamilton)	Chital	C, PF	Commercially important food fish.
2.	Notopterus notopterus (Pallas)	Featherback	LC, FF	Food fish
II	Order : Cypriniformes Sub-order : Cyprinoidei Family : Cyprinidae			
	Sub-family : Cyprininae			
3.	Catla catla (Hamilton)	Catla	C,FF	Fast growing fish & superior food Value
4.	*Cirrhinus mrigala* (Hamilton)	Mrigal	C,FF	Excellent species for stocking the ponds
5.	*Ctenopharyngodon idella* (Valenciennes)	Grass Carp	Exo, PF	Introduced in India from Japan in 1959 (V.G. Jhingran 1983)
6.	*Cyprinus carpio* (Linnaeus)	Common Carp	Exo, PF	Introduced in India from Bangkok in 1957 (V.G.Jhingran 1983)
7.	*Hypopthalmichthys molitrix* (Valenciennes)	Silver Carp	Exo, PF	Introduced in India from Hong Kong in 1959 (V.G. Jhingran 1983)
8.	*Garra lamta* (Hamilton)	Stone Sucker	C,FF	Suctorial fish found in shallow waters surf on algae covering rocks
9.	*Labeo calbasu* (Hamilton)			
10.	*Labeo fimbriatus* (Hamilton)			
11.	*Labeo rohita* (Hamilton)	Rohu	C,FF	Excellent food fish with great economic value
12.	*Oxygaster gora* (Hamilton)	Chel-hul	C	Larvicidal
13.	*Puntius ticto* (Hamilton)	Khavli barb	C,WF	Consumed by local people

14.	*Puntius amphibious* (Valenciennes)	Banded khavali	C	Food Fish
15.	*Rasbora daniconius* (Hamilton)	Common rasbora	C	Food Fish & Larvicidal
III	Order : Siluriformes Family : Bagridae			
16	*Mystus aor* (Hamilton)	Red Cat fish	C	Used as a Food Fish by locals
17	*Mystus seenghala* (Sykes)	Shigta	C, PF	It is a predatory fish
18	*Mystus vittatus* (Bloch)	Shingur	C	Valued as food for its pleasant smoky flavor
	Family : Siluridae			
19.	*Ompok bimaculatus* (Bloch)	Butter Catfish	C, FF	It is a excellent food fish
20.	*Wallago attu* (Bloach & Schneider)	Boal	C	Food & Game Fish
	Family: Clariidae			
21	*Clarias batrachus* (Linnaeus)	Magur	LC	
	Family:Heteropneustidae			
22.	*Heteropneustes fossilis* (Bloach)	Stinging Cat Fish	C	Good nourishing & tasty fish
	Order: Atheriniformes Family: Belonidae			
23	*Xenentodon cancila* (Hamilton)	Gar fish	C	Good for eating with pot-herbs
	Order: Perciformes Family: Centropomidae			
24	*Chanda ranga* (Hamilton)	Indian Glass fish	C	Good Aquarium fish
25	*Chanda nama* (Hamilton)	Glass perch	C	Useful for malaria & guinea worm control (Talwar & Jhingran 1991) [9]
	Family: Nandidae			
26	*Nandus nandus* (Hamilton)	Mottled Nandus	C	Good food value
	Family: Chchlidae			
27	*Tilapia mossambica* (Peters)	Tillapia	Exo	Introduced in India from Bangkok in 1952 (Jhingran1983)
	Family: Anabantidae			
28	*Anabas testudineus* (Bloch)	Climbing perch	C	Hardy fish due to presence of accessory respiratory organ.
	Family: Channidae			
29	*Channa punctatus* (Bloch)	Spotted Snake head	C	Prolific breeder
30	*Channa striatus* (Bloch)	Striped Snake head	C	Carnivorous, prefers muddy waters
31	*Channa marulius* (Hamilton)	Giant Snake head	C	Sporting species & high food value.
C = Common, UNC = Uncommon, Exo = Exotic, LC = Least Concern, VL=Vulnerable, FF= Food Fish, PF= Predatory Fish, WF= Weed Fish				

assessment reveals that majority of work related to fish fauna available in lotic waters and dam (Pradhan, 2107) [7]. Many contributions about fresh water fishes in India were made by Talwar and Jhingran (1991) [9], Menon (1992) [2] and Mishra *et al*., (2003) [3]. Due to less or no information about fish and fisheries available, the present work was conducted.

Study Site

Manohar Sagar Reservoir is also popularly known as Shirpur dam or Bagh Reservoir. It is an earth fill and gravity dam situated on Bagh River in Shirpur village of Deori tahsil of Gondia district (Maharashtra). Geographically dam is situated between (21º1'53.66" N 80º27'0.48" E). It is a joint project of Maharashtra and Chhattisgarh states. Surface area of dam is 32.970 km^2 (12.730 sq mi) with total capacity of reservoir is 0.04890 cu mi. The main objective of the reservoir is to accomplish the irrigation demand; the dam currently supports a blooming fishery, which offers enormous opportunities for increasing freshwater fish production in the region.

Material and Method

With the help of local fishermen, fishes were collected during period of July 2016 to June 2017 using different types of gears. For taxonomic and morphological identification fishes were identified by using standard taxonomic keys of Qureshi and Qureshi (1983) [8], Day (1994), Talwar & Jhingran (1991) [9] and Jayaram (2010).

Results and Discussion

In the present investigation, a total 31 species of fishes from 12 families of 5 orders were recorded. The collected and identified fishes from Manoharsagar Reservoir are classified systematically (Table 1). The statistical observation of faunal composition is also done in the form of pie chart (Fig.1). It is clearly indicates that the fish belongs to family Cyprinidae from order Cypriniformes constitute major chunk (42%) of total fishes of reservoir. Indian Major Carps (IMC) *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita* and *Labeo calbasu* were found in abundant quantity. Occurrence of exotic species *Cyprinus carpio*, *Ctenopharyngodon idella Hypopthalmichthys molitrix a*nd *Tilapia mossambica* was quiet pleasant. *Notopterus notopterus* and *Clarias batrachus* species are considered as 'Least concern' (IUCN 2017) was also found in infrequent catches. Several authors showed Western Ghats of India as a rich freshwater fish fauna with a high level of endemism (Sanjay *et al*., 2012) [10]. The economics of the fisherman community situated at Shirpur is mostly based on the Manoharsagar Reservoir and some other small water bodies in the village. The fisheries cooperative society Regd. No. 264 implemented the fish culture throughout the year. The fish seeds releases in the month of July. They prefer only Indian Major Carps to culture and production as these fishes are highly demandable and valuable in local fish market. The fishes are also supplied to adjacent states therefore they are getting very good monetary benefits.

Fig 1 and 2: Indian Major Carps available for sale in nearby Market place.

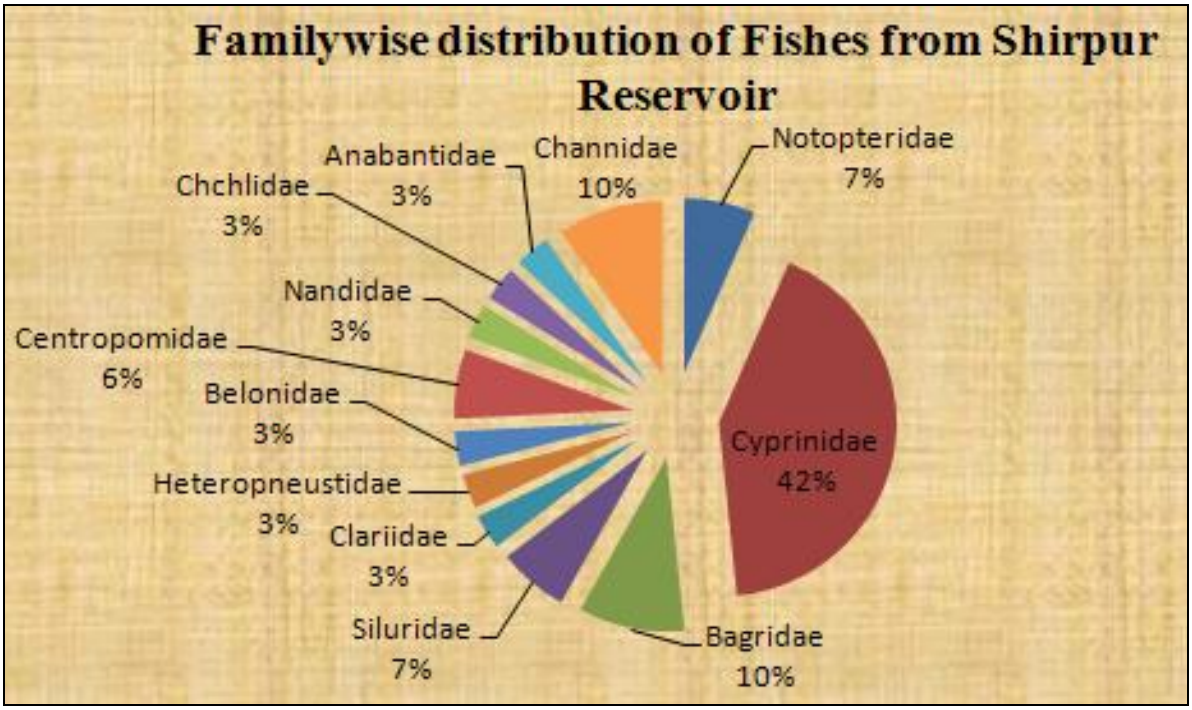

Fig 3

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