

Original Research Article

Diversity and Conservation Status of Fishes Inhabiting Chittaura Jheel, Bahraich, U.P.

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ABSTRACT:

A study was carried out from October, 2020 to September, 2021 to investigate the diversity of fishes and the conservation status of Chittaura Jheel (Bahraich), Uttar Pradesh. During the study period, 38 fish species belonging to 28 genera, 14 families and 7 orders have been identified. The order Cypriniformes was found the dominated order with 15 species (39.47%) followed by Siluriformes 10 species (26.31%), Perciformes 4 species (10.52%), Ophiocephaliformes 4 species (10.52%), Synbranchiformes 2 species (5.26%), Osteoglossiformes 2 species (5.26%) and Clupiformes 1 species (2.63 %). The present investigation showed that the wetland, Chittaura Jheel possesses rich fish biodiversity but proper conservation measures are required to maintain sustainability and richness of the fish species diversity of that wetland of U.P. According to IUCN, 30 were enlisted as Least Concern (LC), 2 species as near endangered (NE), 3 species as near threatened (NT), 2 listed as Endangered (EN) and 1 species was listed as Vulnerable (VU). There is a need of conservation of fish diversity of this natural wetland. The pressure is increasing day by day due to 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 the Chittaura Jheel, a wetland of Bahraich district of Uttar Pradesh.

Keywords: Fish diversity, Chittaura Jheel, Conservation status.

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INTRODUCTION

Fish is one of the most important components of food for human beings, because it provides all the essential nutrients such as protein, lipids, vitamins, essential amino acids, fatty acids and minerals that are necessary for the growth, development and maintenance of human health (Prakash, 2020a). The fishes are aquatic vertebrates having streamlined body (Verma and Prakash, 2020a), used not only as

food, medicine but also as biomarkers of pollution, research models, active links between ecosystems, entertainment and to mitigate vector borne diseases (Verma, 2021).

Fisheries sector in India has third in the world in total fish production and contributes around 1.07% of the country's GDP and 5.34% of the agricultural GDP. With third position in fisheries, the country has high potentials in this sector for rural development,

nutritional security and employment generation (Prakash, 2021). Uttar Pradesh, one of the largest states in India, has vast potential of aquatic freshwater resources and offers considerable scope of culture as well as capture fisheries development. Therefore, there lies the scope for utilization of these vast resources for fishery development. In spite of vast freshwater resources, fishery has been assigned a least priority among long chain of stake holders of U.P.

Natural water has more stable conditions under which the fish evolve, hence enlisting biodiversity and its distribution over time and space becomes important. Until one knows the diversity and variations over time and space, it is difficult to plan conservation and the development projects related to water resources (Prakash, 2020b). The fish biodiversity is related with limnological condition of the water body (Verma, 2020; Verma and Prakash, 2020b). During the last few decades, the fish biodiversity of the state is declining rapidly due to anthropogenic activities such as habitat destruction, defragmentation, irrational fishing practices, introduction of exotic species environmental aberrations like reduction in water volume, increased sedimentation, water abstraction,

and water pollution (Sanjay and Prakash, 2020).

A huge number of recent studies have been made by different researchers on fish diversity of various freshwater bodies in India such as Verma *et al.* (2015), Prakash and Verma (2015), Gowda *et al.* (2015), Prakash (2016), Verma and Prakash (2016), Ashok (2017, 2019), Prakash (2020a, 2020b), Prakash and Singh (2020), Prakash and Yadav (2020), Prakash *et al.* (2020), and Prakash (2021) and abroad (Chakraborty *et al.*, 2021a, 2021b; Efe and Bemigho, 2021). However, detailed information about fish diversity of tarai region of U.P. is yet not available as such.

The presence of many lentic and lotic fresh water bodies in form of ponds, lakes, wetlands, reservoirs, streams, river etc. in the tarai region of Uttar Pradesh offer immense scope and potential for inland fishery development. Before utilizing these fresh water bodies in fish culture practices, it is of utmost importance to have the knowledge of existence of fish fauna. Therefore, the aim of the present study to deals the status of fish diversity of Chittaura Jheel, a wetland of Bahraich district of U.P.

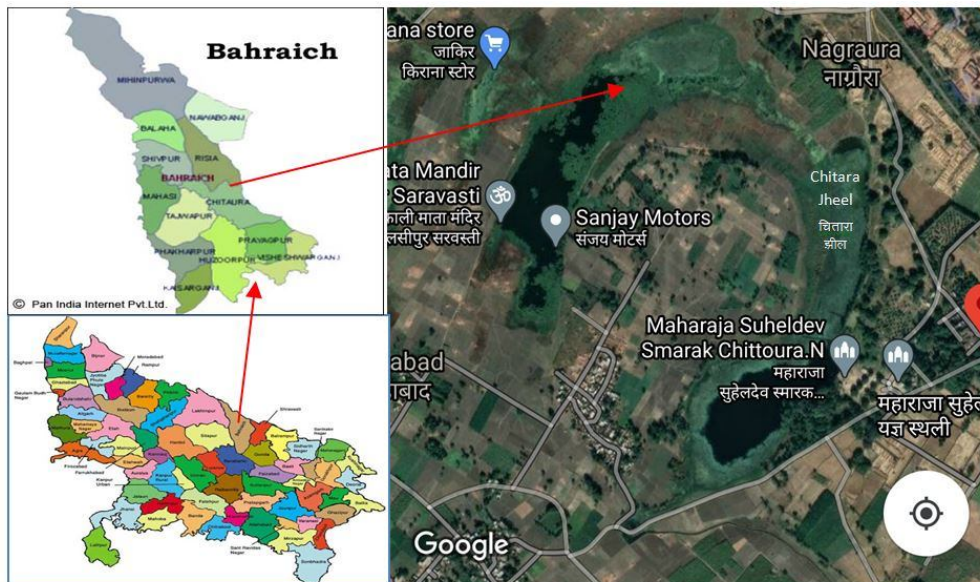


Figure 1: Location of Chittaura Jheel in Bahraich district, Uttar Pradesh and its Google map

MATERIALS AND METHODS

Fishes were collected fortnightly for the period of one year from October, 2020 to September, 2021 from Chittaura Jheel of Bahraich districts of Davipatan division of U.P. by local fisherman using hand-nets, gill nets, drag nets, scoop net including hooks and lines mainly during the time of fishing.

The collected small sized fishes were directly placed in plastic jar containing 10% formalin solution. But larger specimens were preserved with incision on 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, pattern of scales, fins, mouth pattern and other morphological characters and standard taxonomic keys for fishes (Datta Munshi and Srivastava, 1988; Day, 1989; Menon, 1992; Srivastava, 2002; and Jayaram, 2010).

RESULTS AND DISCUSSION

The ichthyofaunal diversity of collected and identified fish species from Chittaura Jheel are shown in table 1. In the present study total 38 fish species belonging to 28 genera, 14 families and 7 orders have been identified. All the fish recorded during the survey are listed below with their economic importance and IUCN conservation status in the table 1.

The Chittaura Jheel, a wetland of Bahraich district of U.P. supports diverse stock of carps, catfishes, perches, feather backs, gobies, and puffers so on. Status of fish species of the Chittaura Jheel is given in table 1. *Danio devario*, *Amblypharyngodon mola*,

Mastacembelus aculeatus and *Bagarius bagarius* are very rare. Out of the total number of 38 species recorded during the study, 19 species may be listed as potential species of ornamental value.

Fish species composition when grouped into families reveal that Cyprinidae captures the major share (39.47%) followed by family Bagridae & Channidae (10.52%), Notopteridae, Siluridae, Schileidae & Mastacembeleidae (5.26%), Clariidae, Saccobranchidae, Gobiidae, Badidae, Anabantidae & Nandiae (2.63%), Besides native fishes, exotic fish, *Cyprinus carpio* was also present in this wetland. *Catlacatla*, *Labeo rohita*, *Cyprinus carpio*, *Ompok pabda* are rare and have been recorded during rainy season. *Puntius tictio* has been recorded during spring season. According to IUCN, out of 38 species, 30 were enlisted as Least Concern (LC), 2 species as near endangered (NE), 3 species as near threatened (NT), 2 listed as Endangered (EN) and 1 species was listed as Vulnerable (VU). So far, considerable attention should be paid to conserve fish species comes under EN and NT categories.

It is suggested that the fishery authorities should investigate and practice the proper exploitation and management of this fishery resources according to ecological principles. Fishing during breeding season is serious threat and should be banned. Illegal fishing methods and fishing of small sized fishes should be monitored regularly. Thus it is duty of each one to play an important role to conserve fish diversity as this plays and handover the valuable biodiversity in the healthy condition to the future generation.

Table1: Fish diversity of Chittaura Jheel of Bahraich, Uttar Pradesh

Order	Family	Scientific name	Common Name	Economic Importance	IUCN Status
Clupeiformes	Clupeidae (Herrings)	<i>Gudusia chapra</i>	Suhia	Food	LC
Osteoglossiformes	Notopteridae (Feather back/ Knife fishes)	<i>Notopterus notopterus</i>	Patra	Food, On	LC
		<i>Notopterus chitala</i>	Chitala	Food, On	EN
Cypriniformes	Cyprinidae	<i>Labeo rohita</i>	Rohu	Food	LC
		<i>Labeo bata</i>	Bata	Food	LC
		<i>Labeo calbasu</i>	Karaunchh	Food	LC
		<i>Labeo dero</i>	Gargi	Food	LC
		<i>Catla catla</i>	Bhukur	Food	LC
		<i>Cirrhinus mrigala</i>	Naini/ Mrigal	Food	LC
		<i>Hypophthalmichthys molitrix</i>	Silver carp	Food	NT
		<i>Ctenopharyngodon idella</i>	Grass carp	Food	NE
		<i>Cyprinus carpio</i>	Common carp	Food	VU
		<i>Puntius sarana</i>	Sarana	Food, On	LC
		<i>Puntius ticto</i>	Twospot barb	Food, On	LC
		<i>Rasbora daniconius</i>	Slender rasbora	Food, On	LC
		<i>Oxygaster gora</i>	Dariaichalho	Food, On	LC
		<i>Danio devario</i>	Patukari	Food, On	LC
		Siluriformes	Bagridae	<i>Esomus danricus</i>	Dendua
<i>Mystus seenghala</i>	Tengara			Food, On	LC
<i>Mystus vittatus</i>	Tengara			Food, On	LC
<i>Mystus tengara</i>	Tengara			Food, On	LC
<i>Rita rita</i>	Rita			Food, On	LC
Siluridae	<i>Wallago attu</i>		Pardni	Food	LC
	<i>Ompak pabda</i>		Pabdah	Food, On	NT
Schilbeidae	<i>Pangasius pangasius</i>		Pangus	Food	LC
	<i>Ailia coila</i>		Gangeticailia	Food	NT
	<i>Clarias batrachus</i>		Mangur	Food	LC
Ophiocephaliformes	Saccobranchidae	<i>Heteropneustes fossilis</i>	Singhi	Food	LC
	Channidae	<i>Channa punctatus</i>	Girai	Food	NE
		<i>Channa marulius</i>	Saura	Food	LC
		<i>Channa striatus</i>	Saura	Food	LC
Perciformes	Gobiidae	<i>Channa stewartii</i>	Sauri	Food	LC
		<i>Glossogobius giuris</i>	Balia	Food, On	LC
	Badidae	<i>Badis badis</i>	Blue Perch	Food, On	LC
	Anabantidae	<i>Anabas testudineus</i>	Kawai	Food, On	LC
Synbranchiformes	Mastacembeleide (Spiny eels)	<i>Nandias nandias</i>	Dhebri	Food, On	LC
		<i>Mastacembelus armatus</i>	Bam	Food, On	LC
		<i>Mastacembelus aculeatus</i>	Bam	Food, On	EN

*LC=Least Concern, NT=Near Threatened, VU= Vulnerable, EN=Endangered, NE=Not Evaluated; On=Ornamental

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