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Study of Fish biodiversity of Murrum Silli Reservoir, Dhamtari District, India

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Abstract

A study was conducted to observe fish diversity in **Murrum Silli Reservoir,** District-Dhamtari, Chhattisgarh, India during the month of September 2022 to May 2023. In the context of massive loss of biodiversity, conservation of freshwater fauna has received increasing attention in recent times. Hence, assessment of the Fish biodiversity and potential for the exploitation of natural resource of Chhattisgarh was attempted. In this study a total of 57 species under 36 genera and 19 families were reported from Madam Silli Reservoir. The important fish species belonging to different families found in the reservoir were - 27Sp of Cyprinidae, Bagridae-5Sp., Channidae- 4Sp., Notopteriedae, Balintidae, Siluridae, Ambassidae,and Mastacembelidae belonging 2Sp respectively, Clupedae, Cobitidae, Schilbeidae, Beiondae, Nandidae, Mugilidae, Gobiidae, Claridae, Saccobranchidae, Anabantidae and Cichlidae belonging 1 sp. respectively. In order to conserve these valuable resources, a holistic approach, integrating the concept of sustainable development and conservation measures should be adopted. Present study provides a comprehensive data on biodiversity, conservation status of fish fauna of this region.

Keyword: *Murrum Silli, Reservoir, Biodiversity, Fish, Dhamtari District*

Introduction

The term biodiversity includes the entire living organism. Fish diversity is branch of aquatic diversity. fish constitutes half of the total number of vertibrates in the world. in Indian region alone of 2500 species 930 are fresh water and 1570are marine. Biodiversity is the term used to summarize many fact about the diversity of life.

The Murrum Silli Resevoir also know as Babu Chhotelal Shrivastav Reservior and Mordem Silli. Is an earth-fill embankment dam on the Sillari River. Sillari River is a tributary of the Mahanadi in central eastern India. It was built under the supervision of British Raj governor Madam Silli for whom it was originally named. It is located in Dhamtari District of Chhattisgarh. Built between 1914 and 1923, it is the first dam in Asia to have siphon spillways. Madamsilli is about 95 km from Raipur. It is one of the most prominent architectural marvels in Chhattisgarh. Its primary purpose is irrigation. The coordinate lies between 20º32'17'N and 81º39'42"E.

Murrum Silli Reservoir an Embankment, earth-fill, on Silliari River, height of Reservoir is 34.15m. length 2591m. Total capacity of Reservoir has 216,256,555 cu yd or 165,340,000 m^3 Active capacity 211,774,209 cu yd or 161,913,000 m^3 and the surface is 25 Km^2.

Dhamtari is in the fertile plains of Chhattisgarh. The district's total area is 4,084 square kilometres (1,577 sq mi), and it is about 317 meters (1,040 feet) above sea level. It is bordered by the Raipur and Durg districts to the north, the Gariaband district to the east, the Kondagaon district and the State of Orissa to the south and the Balod and Kanker districts to the west. The fertility of the land in the Dhamtari District is due to the Mahanadi River and its tributaries (Sendur, Pairy, Sondur, Joan, Kharun, and Shivnath). Dhamtari is situated 65 km from capital Raipur.Chhattisgarh one of the thirty five constituents of the country, occupies 135194 square km which is 4.14% of the geographical area of India. It is located in the centre of 17.43' to 24.5 degree North latitude and 80.15 to 84.20 degree East longitude. Uttar Pradesh in North, Jharkhand in North-East, Orissa in East, Andhra Pradesh in South, Maharashtra in South-West and M.P. & Maharashtra in West form its borders. 43% Land is covered by Forests.Type of Land : Soil, as stated above, has water retention capacity in the range of light to medium 55%-65%.The Soil represents low water retention capacity.

Material and Method

Study area

The Murrum Silli Reservoir also known as Babu Chhotelal Shrivastav Reservoir and Mordem Silli Reservoir. Is an earth-fill embankment dam on the Sillari River Murrum Silli Reservoir situated in Dhamtari district. This Reservoir was constructed (1914-1923) on Sillari River. Height of Reservoir is 34.15m. Length 2591m. Total capacity of Reservoir has 216,256,555 cu yd or 165,340,000 m^3 Active capacity 211,774,209 cu yd or 161,913,000 m^3 and the surface area is 25 Km^2. The coordinate

lies between 20º32’17’N and 81º39’42”E.

Methodology

Fish samples were collected during six month Sep.2022 to May2023. The fish was collected from Murrum Silli Reservoir with the help of local fisherman by use of gill net, cost net, scoop net. The collected specimen was preserved in 10% formaldehyde solution and photograph taken before the preservation.

Identification of fishes

Samples were identified with the help of book and key given by (Day 1986, Datta Munshi and Shrivastava, 1988) Jhingran(1991) Jayaram(1994) Menon(1999) Mondal(2014). Fish species identification based on diagnostic characters like size, colour, shape and fins position meristic characters like number of rays in a fins number of scales specific series presence of barbels, lateral line etc. fish base website was also referred. (www.fishbase.org)

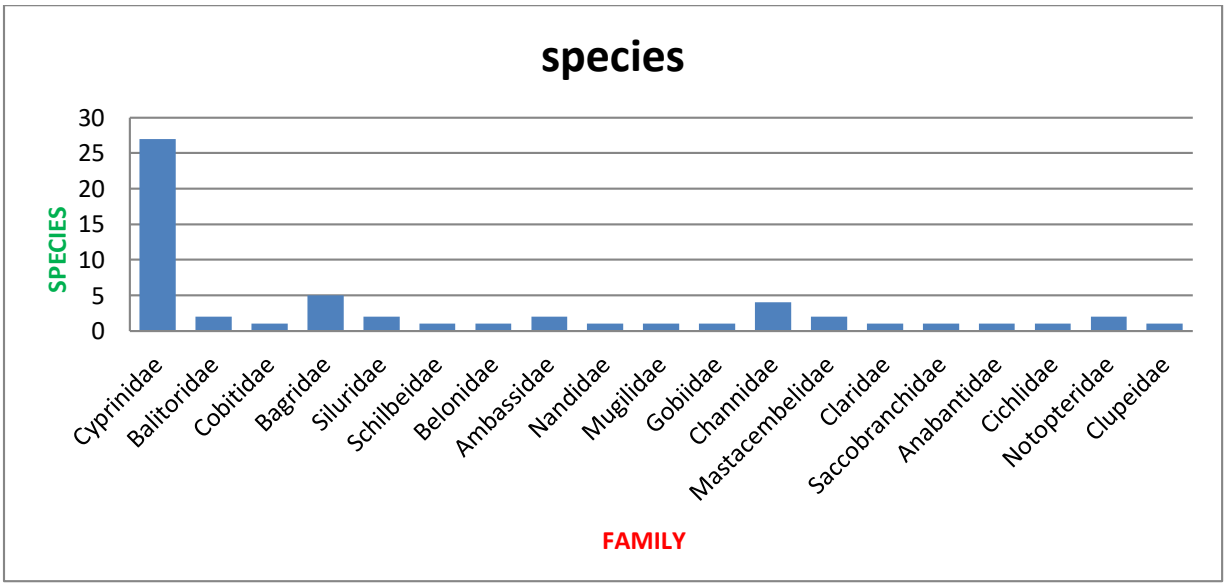
Table .1 fish diversity survey of Murumsilli reservoir, Dhamtari district C.G.

S.No.	Fish Species	Local name
	Notopteridae	
1.	*Notopterus notopterus* (Pallas)	Patora
2.	*Notopterus chitala* (Ham.)	Chatra
	Clupeidae	
3.	*Gudusia chapra* (Ham-Buch)	Chhuria
	Cyprinidae	
4.	*Catla catla* (Ham-Buch)	Katla
5.	*Labeo rohita* (Ham-Buch)	Rohu
6.	*Labeo bata* (Ham-Buch)	Dongali
7.	*Labeo calbasu* (Ham-Buch)	Kannas
8.	*Labeo Jimbriatus* (Bloch)	Potish
9.	*Labeo gonius* (Ham-Buch)	Kulus

10.	*Cirrhinus mrigala* (Ham-Buch)	Mrigal
11.	*Cirrhinus reba* (Ham-Buch)	Borai
12.	*Osteobrama vigorsii* (Sykes)	Hilati
13.	*Osteobrama cotio cotio* (Ham-Buch)	Thewali
14.	*Puntius ambassis* (Ham-Buch)	lari-kotri
15.	*Puntius phutunio* (Ham-Buch)	Gulthi-kotri
16.	*Puntius ticto* (Ham-Buch)	Gabdukotri
17.	*Puntius sophore* (Ham-Buch)	Kotri
18.	*Puntius sarana sarana* (Ham-Buch)	Kotra
19.	*Salmostoma bacaila* (Ham-Buch)	Sirangi
20.	*Chela laubuca* (Ham-Buch)	Norangi
21.	*Amblypharyngodon mola* (Ham-Buch)	Mahroli
22.	*Salmostoma phulo* (Ham-Buch)	Rangi
23.	*Barilius bendelisis* (Ham-Buch)	Kokti
24.	*Barilius barila* (Ham-Buch)	Chhekra
25.	*Aspidoparia morar* (Ham-Buch)	Pakla
26.	*Parluciosoma daniconius* (Ham)	Dandai
27.	*Esomus danricus* (Ham-Buch)	Dhendri
28.	*Danio devario* (Ham-Buch)	Amashaini
29.	*Garra gotyla gotyla* (Gray)	Butuwa
30.	*Cyprinus carpio* (Linn.)	Common carp
	Balitoridae	
31.	*Nemacheilusaurius* (Ham)	Rudwa
32.	*Nemachelius botia* (Ham)	Dadai

	Cobitidae	
33.	*Lepidocephalus guntea* (Ham-Buch)	
	Bagridae	
34.	*Aorichthys seenghala* (Sykes)	Tengra
35.	*Aorichthys aor* (Ham-Buch)	Singhara
36.	*Mystus bleekeri* (Day)	Singhad
37.	*Mystus cavasius* (Ham-Buch)	Tengna
38.	*Mystus vittatus* (Bloch)	Gathiya tengna
	Siluridae	
39.	*Wallago attu* (Schneider)	Padhin
40.	*Ompok bimaculatus* (Bloch)	Belia
	Schilbeidae	
41.	*Clupisoma*garua (Ham.)	Gaur
	Belonidae	
42.	*Xenentodon cancila* (Ham-Buch)	Gainda
	Ambassidae	
43.	*Chanda nama* (Ham-Buch)	Chandeni
44.	*Chanda ranga* (Ham)	Chandeni
	Nandidae	
45.	*Nandus nandus* (Ham-Buch)	Nanda
	Mugilidae	
46.	*Rhinomugil corsula* (Ham-Buch)	Tetka
	Gobiidae	
47.	*Glossogobius giuris* (Ham-Buch)	Rudwa
	Channidae	

48.	*Channa striatus* (Bloch)	Bhunda
49.	*Channa gachua* (Ham.)	Changa
50.	*Channa punctatus*(Bloch)	Khoksi
51.	*Channa marulius* (Ham.)	Sanwal
	Mastacembelidae	
52.	*Macrognathus pancalus* (Ham-Buch)	Bambi
53.	*Mastacembelus armatus* (Lacepede)	Bambi
	Claridae	
54.	*Clarias batrachus* (Linn.)	Mangur
	Saccobranchidae	
55.	*Heteropneustus fossilis*(Bloch)	Singhi
	Anabantidae	
56.	*Anabas testudineus* (Bloch)	Keu
	Cichlidae	
57.	*Oreochromis mossambicus* (Peters)	Tilafiya



Result and discussion

Since the commencement of studies, 57 species belonging to 19 families and 36 genera were reported from Madam Silli Reservoir.(table 1) Cyprinidae was most dominated family contribute 27 species of the total species. Second and third dominated family is Bagridae and channidae contribute 5 and 4 species. Notopteridae, Balintidae, Ambassidae, mastacembelidae, and siluridae family have 2-2 species each. Clupedae, cabtidae, Schibeidae, Belondae, Nandidae, Muglidae, Gobiidae, Claridae, Saccobrandidae, Anabantidae, and Cichlidae family have 1-1 species each.

Among the Cyprinidae family : Catla catla , Labio rohita , Cirrhinus mrigla are the dominated fishes, Major carp were recorded good number. ,Netive fishes ,minner and medium sized carp Labeo calbasu, Labeo bata, Puntius ticto ,Puntius sophore were also observed in this Reservoir. Many researchers have reported the dominance of cyprinidae family in their research work. Sahu sachin *et al.* (2013) Agrawal R.K., Thiske sanjay *et al*.(2014)

The present study also focuses on the variety of the fish in murrum silli reservoir.

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15. Biodiversity of inland water bodies is important for the maintenance of ecosystem health and for the ecosystem itself the well-being of our society.