

Study the Fish Diversity of Aadpathar (Dorha) and Dhoopkot Reservoir in Devbhog Block, Dist.-Gariaband Chhattisgarh State India

*1Avinash R Nichat, ²S Kumar and ³Ajit Hundat

^{*1}Assistant Professor Department of Zoology Govt. M.V.V. PG College Bhakhara, Dhamtari, Chhattisgarh, India.

^{2, 3}Head of Department, Department of Zoology, Government D.B. Girls P.G. College Raipur, Chhattisgarh, India.

Abstract

Biodiversity is key part of environment. Ecology health depends on diversity of fauna, Icthyofauna must for inland water marsh, rivers, reservoirs. Chhattisgarh state inland water resource fulfill with fish fauna. A study was conducted to observe fish diversity in Devbhog block of Gariaband district Chhattisgarh state-India, two major water resource Dorha dam and Dhoopkot dame. During month of January 2022 to December 2022. Total of 34 fish species under, 12 families and 7 orders were recorded. Family Cyprinidae dominated with 41% followed by Bagridae, Schilbeidae, Siluridae, Saccobranchidae, Claridae, Notopteroidae, Ophiocephalidae, Anabantidae, Centropomidae, Mastacembelidae, Cichlidae, Lethrinidae and so on. Both dame open in to narrow canal which is connect to Tel river through another canal Aadpathar to Belarjor, because connection with river, some fish variety also come from Tel river streamline in rainy season, Tel river connected to Mahanadi so on. Distribution of natural diversity and niche affected by human activity its needed to awareness program and restrict humane interference at this area.

Keywords: Dame, season, dominant, canal, sreamline, connection

Introduction

The ichthyofauna of a particular region must be managed logically, and conservation efforts must take into account the fish diversity of that region. Also necessary for the exploitation and scientific advancement of aquaculture is familiarity with the local fish fauna. The health of the ecology and the prosperity of our society depend on the diversity of inland waters. Additionally, it is crucial for its economic worth as a habitat for species with high commercial value and because it contributes significantly to global food and nutritional security. Total 591284.00 metric ton of fish production 2021-22 in Chhattisgarh [7]. Rashtriya Krishi Vikas Yojana (RKVY), a government-sponsored program, had a definite impact after it was put into place in 2007. During that time, Chhattisgarh's fisheries grew by 13.8% in 2008-09, compared to just 1.2% in 2007-08, and then saw an all-time growth rate of 30.97% in 2010-11. The article also mentions a number of other factors that have contributed significantly to the state's thriving aquaculture ^[15]. Less than 1% of the Earth's surface is made up by freshwater environments, which are

home to 10% of all species (Strayer and Dudgeon, 2010)^[1]. There are around 34, 800 species of fish in the world Fish Base ^[2], with about 11.7 percent found in Indian waters sources. There are valid scientific descriptions for around 24, 600 extant fish species in 482 families and 57 orders. However, freshwater environments are losing biodiversity at a much faster rate than terrestrial ecosystems (Dudgeon *et al.*, 2006 ^[3]). It is interesting that, after amphibians, freshwater fishes are considered to be the second most vulnerable animal group (Sala *et al.*, 2000 ^[4]; Olden *et al.*, 2010 ^[5]).

The state of Chhattisgarh, which is in the centre of India, has a rich cultural history and a diverse natural environment. [8]. It is a land with marshes, rivers, reservoirs, lakes, ponds, and mountainous terrain. The majority of these locations are unknown and untamed. With a diverse spectrum of biological species, the Chhattisgarh district of Gariaband has a unique cultural and ecological identity ^[9]. Devbhog block of Gariaband district has been an unexplored area for fresh water ecosystem. Aadpathar (Dorha) dame and Dhoopkot reservoir mainly for irrigation and fishing purpose.



Fig 1: Gariyaband district (C.G.)

Material and Methods

Gariaband district is situated in the divercity rich state Chhattisgarh and Odisha border ^[10]. Devbhog is one of the block of five and both fish research site located near it. Devbhog in National Highway 130c and distance is 220km from state capital Raipur and 127km from district center. Fish collected during fishing month of January 2022 to December 2022 except breeding season of the fish. The fish collected and there local name, occurrence habit and habitat and important information from the local fisherman and and tribes. Local fishing net use by them like pambi, khara, fanshanet cast net, dragnet, gillnet, fykenet liftnet etc. Altitude (above MSL) m Year of commissioning Catchment

area (sq miles) Water spread area (ha) Gross storage capacity (million m3) Annual fluctuation in water level(m) Maximum depth of reservoir (m) Total catch (ton) (2018-19) Number of fishermen ^[6]

Devbhog Block



Fig 2: Gariyaband district (C.G.) table-Reservoir formation



Fig 3: Observation Dorha dam



Fig 5: Oreochromis mossambicus



Fig 8: Hypophthalmichthys mlitrics



Fig 4: Observation site Aadpathar (Dorrha) dam



Fig 6: Channa punctatus



Fig 9: Mystus aor



Fig 10: Labeo rohita



Fig 11: Catla catla







Fig 13: Oreochromis mossambicus



Fig 14: Channa punctatus



Fig 15: Notopterus notopterus





Fig 17: Channa marulius



Fig 18: Wallago attu



Fig 19: Lethrinus nebulosus



Fig 20: Mastacembelus armatus



Result

Class-Teleostomi

On the study of Dorha and Dhoopkot dams Devbhog area at our study time of Jaruary to December recorded 34 spesies of fishes belong to the 7 order.14 spesies belongs to Cypriniformes, 7 spesies to Siluriformes, 5 spesies to Ophiocephaliformes, 2 of Clupiformes, 3 spesies to Perciformes, 1 spesies to Cichiliformes, 2 spesies to Synbranchiformes. Among all family cyprinidae is dominant family belongs to 14 fish spesies. According to the data that are available, there haven't been any recent scientific investigations of the local fish species. Few studies have been started in India to describe the diversity and assemblage of fish.

Table 1: Collected fish Name with Local name

Order	Family	Local name	Genera	Number
Cypriniformes	Cyprinidae	Catla	Catla catla	62
		Mrigal	Cirrhinus mrigala (Ham)	12
		Borai/Reba	Cirrihinus reba(Ham.)	29
		Rohu	Labeo rohita (Ham)	30
		Kariya	Labeo calbasu(Ham)	12
		Bata	Labeo bata (Ham)	8
		Kotari	Puntius chola ticto (Ham)	36
		Jarhi kotari	Puntius sophore (Ham)	22
		Pateli	Cyprinus carpio (Linn.)	18
		Dadhaiya	Rasbra daniconius (Ham)	32
		Dadai	Nemachelius botia (Ham)	92
			Nemachelius beavani (Ham)	6
		Ruduva	Nemachelius aurius (Ham)	56
		Sarangi	Systomus sarana (Ham.)	20
Siluriformes	Siluridae	Pabda	Ompok bimaculatus (Bloch)	14
		Padhan (Balia)	Wallago attu (Sclin)	16
	Bagridae	Singhi	Mystus seenghala (Skyes)	14
		Tengna	Mystus tengara (Ham)	36
		Singhar	Mystus aor (Ham)	14
	Saccobranchidae	Kewai	Heteropneustus fossilis(Bloch)	22
	Claridae	Mongri	Clarias batrachus(Linnaeus)	8
Clupeiformes	Notopteroidae	Chitala	Chitala chitala	10
		Fali	Notopterusnotopterus (Palls)	14
Ophiocephaliformes	Ophiocephalidae	Sanwal	Channa marulius (Ham)	28
			Channa gachua (Ham)	12
		Bhunda	Channa striatus (Bloch)	10
		Khoksi	Channa punctatus (Bloch)	34
	Anabantidae	Keuu	Anabas testudineus (Bloch)	16
Perciformes	Centropomidae	Chanda	Parambasis nama (Ham)	59

		Glass fish	Parambasis ranga (Ham)	8
	Lethrinidae	Sherni	Lethrinus nebulosus	16
Cichliformes	Cichlidae	Tilapiya	Oreochromis mossambicus (Peters)	12
Synbranchiforms	Mastacembelidae	Bami	Mastacembelus armatus (Lacepede)	11
		Choti Bami	Mastacembelus pancalus (Ham-Buch)	20



Chart 1: Percentage contribution of Fish order in total landing with pie chart

Discussion

The dwindling fish biodiversity and conservation challenges in Indian pond systems have received a lot of attention. Chhattisgarh's fish fauna needs to be thoroughly explored because it has received little research. In current research of fish the populations of *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita*, *Labeo calbasu*, *Ompok bimaculatus*, *Channa striata*, *Cirrhinus reba*,

Heteropneustes fossilis, mystus etc. are high demanding food fish. Biodiversity in both reservoir because of habitat and rich source of food like bethonic, pelagic phytoplankton and zooplankton also, both dame open in to narrow canal which is connect to Tel river through another canal Aadpathar to Belarjor, is because connection with river, some fish variety also come from Tel river streamline in rainy season, Tel river connected to Mahanadi so on.

Conclusion

The results of the present study revealed that, Aadpathar and Dhoopkot reservoir of Chhattisgarh state being a fresh water resource of fishes, support a rich diversified fish fauna. However, fish diversity of the reservoir is declining due to several anthropogenic threats such as over exploitation, indiscriminate killing of juveniles-adults, excessive water extraction, leaving inadequate water for fish, aquatic pollution, etc. 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 Ichthyofauna of this region.

Advices

We conclude by these work this area is as soon isolate from humane interferences as civilization town planning and industrialization local tribes conserve these natural diversity, but in future chain of development due to pollution and disturbing of natural niches these diversity may be destroy. So our suggestion to government body and local public to protect and maintain these diversity by awareness program and restrict humane interference in these area.

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