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ICHTHYOFAUNAL DIVERSITY OF GHUNGUTTA DAM SURGUJA DISTRICT (C.G.)

Smt. Deepika Toppo[1], Dr. Shubhada Rahalkar[2] and Dr. Atul Kumar Tiwari[3]
[1]Research Scholar Zoology, Govt. Bilasa Girls P.G. College Bilaspur (C.G.)
[2]Prof. of Zoology, Govt. Bilasa Girls P.G. College Bilaspur (C.G.)
[3]Associate Prof. & Head School of Environmental Biology
A.P.S. University Rewa (M.P.)

ABSTRACT :

Fish fauna of fresh water basically represent the diversity and their abundance. Fishes plays a very significant role in the human economy by providing pretentious food. India has got vast potential for development of inland fisheries. Present research is related with analysis and diversity of zooplanktons of Ghunghutta dam of Surguja District (C.G.) for duration of two year from January 2020 to December 2021. The Ghunghutta dam is located in Surguja district (22^{0}94N latitude & 83^{0}164E Longitude) of northern Chhattisgarh in India. Ghunghutta is a medium irrigation project which was constructed in 2002 across the river Ghunghutta which is a tributary of Rehar Sub basin Sone in the Ganga basin. The Dam is 14km. from the district head quarter Ambikapur. The Dam water use is domestic purposes, irrigation, aquaculture etc. Present research fish diversity results reveal the occurrence of 21 species of fish belonging to six orders, nine families and 16 genera. The species of order Cypriniformes were most dominant by nine species were observed.

KEYWORDS : *Fish diversity, Ghunghutta Dam.*

INTRODUCTION

Water is a quite essential natural element for all kinds of life. Rivers play a significant role because they serve the purpose of various human activities, such as bathing, disposal of sewage, irrigation, electricity generation, industrial production and disposal of industrial waste, etc. During the process of cultural evolution, natural resources have been brutally exploited by man. The losses in agriculture, the gain in industrialization and population explosion have stressed the natural resources. Rivers are major habitats for large number of aquatic animals. These animals use the river banks for various purposes like basking, resting and breeding. Simultaneously, these river banks are also used for agriculture purposes. The extensive use of agriculture on the habitat of aquatic animals has an adverse impact on the populations. Freshwater ecosystem and their resources are an important part of human life and activity, and health of those freshwater ecosystems is visible in the wellbeing of the fish assemblage the support. Minns (1989) reported that in lotic environment, the diversity, community structure and species assemblages are influenced by various biotic and abiotic variables. In present times, biological diversity has assumed great significance, especially after the earth summit. The ichthyofanunal diversity refers to verity of fish species. Besides this, fisheries are emerging as an important economic activity globally. Fisheries play an important role in the socio-economic development of the country, as it is a valuable source of livelihood for a huge section of economically

backward population. The study and conservation of ichthyofaunal diversity is not merely a topic of scientific quest as it has great economic and moral significance thereby having relevance on the survival of humanity on this earth.

Present research is related with analysis and diversity of fish of Ghunghutta dam of Surguja District (C.G.) for duration of two year from January 2020 to December 2021. The Ghunghutta dam is located in Surguja district (22^{0}94N latitude & 83^{0}164E Longitude) of northern Chhattisgarh in India. Ghunghutta is a medium irrigation project which was constructed in 2002 across the river Ghunghutta which is a tributary of Rehar Sub basin Sone in the Ganga basin. The Dam is 14km. from the district head quarter Ambikapur. The Dam water use is domestic purposes, irrigation, aquaculture etc.

The Ghunghutta Dam in Surguja, Chhattisgarh, supports a rich variety of fish species, making it an ecologically important habitat for aquatic biodiversity. Fish diversity is vital for maintaining ecological balance and sustaining local fisheries, which play a key role in the socio-economic well-being of nearby communities. The composition and distribution of fish species are shaped by several ecological factors, including water quality, habitat structure, and food availability. A thorough understanding of fish diversity in this reservoir offers valuable insights into its ecological health and helps guide sustainable management strategies.

MATERIAL AND METHODS:-

The study was conducted at Ghunghutta Dam, situated in Surguja, Chhattisgarh. This dam serves as a significant water reservoir for irrigation and supports diverse aquatic ecosystems. The fishes were collected from the Ghunghutta dam every month by repeated netting for the period of two year from January 2020- December 2021. The fish specimens were preserved in a 10% formaldehyde solution for taxonomic analysis. Fishes were identified with the help of Day (1889), Qureshi and Qureshi (1983), Talwar and Jhingran (1991), Jayram (1999).

Fig.1- Satellite view of study site Ghunghutta Dam

RESULT AND DISCUSSION:-

The Fish fauna is an important aspect of fishery potential of a water body. It is observed that the distribution of fish species is quite variable because of geographical and geological conditions. In the present investigation results reveal the occurrence of 21 species of fish belonging to six orders, nine families and 16 genera. The species of order Cypriniformes were most dominant by nine species were observed. (Table no. 1&2).

Out of twenty one species having high economic value these are *Catla catla, Labeo rohita, Cirrhinus mrigala, Cirrhinus reba, Ctenopharyngodon idella, Hypophthalmichthy smolitrix, Cyprinus carpio, Pethia ticto, Chela cachius, Oreochromis mossambicus, Anabas testudineus, Mystus carassius,*

Mystus vittatus, Mystus tengara, Mystus cavasius, Pangasius pangasius, Ompok bimaculatus, Clarias batrachus, Channa punctatus, Channa striata and Notopterus notopterus.

Table 1. Taxonomic Account of Fish Fauna Reported in Ghunghutta Dam, Surguja (C.G.).January 2020-December 2021

Class/Sub-Class/ Order/Division/ Family/Sub-Family	**Taxonomic Name Genus/Species**	**Commen Name**	**Status**
Class Actinopterygii Sub class Neopterygi Division Teleostei Order Cypriniformes Family Cyprinidae	1.*Catla catla* *2.Labeo rohita* *3.Cirrhinus mrigala* *4.Cirrhinus reba* *5.Ctenopharyngodon idella* *6.Hypophthalmichthys molitrix* *7.Cyprinus carpio* *8.Pethia ticto* *9.Chela cachius*	Catla Rohu Mrigal Reba carp Grass carp Siver carp Commen carp Spotted barb Chengli	**+++** **+++** **+++** **+++** **+++** **+++** **++** **+** **++**
Order Cichliformes Family Cichlidae	*10.Oreochromis mossambicus*	Mozambique tilapia	+++
Order Perciformes Family Ananantidae	*11.Anabas testudineus*	Climbing perch	+
Order Siluriformes Family Bagridae	*12.Mystus carassius* *13.Mystus vittatus* *14.Mystus tengara* *15.Mystus cavasius*	catfish Striped Catfish Tengara Catfish Catfish	+ ++ + +
Family Pangasiidae Family Siluridae	*16.Pangasius pangasius* *17.Ompok bimaculatus*	Catfish Two-spot Catfish	+++ +
Family Clariidae	*18.Clarias batrachus*	Magur (Catfish)	+
Order Anabantiformes Family Channidae	*19.Channa punctatus* *20.Channa striata*	Lati Snakehead fish	+ +
Order Osteoglossiformes Sub- order Notopteroidei Family Notopteridae	*21.Notopterus notopterus*	Patola	+
+++ Most abundant, ++ Abundant, + Less Abundant			

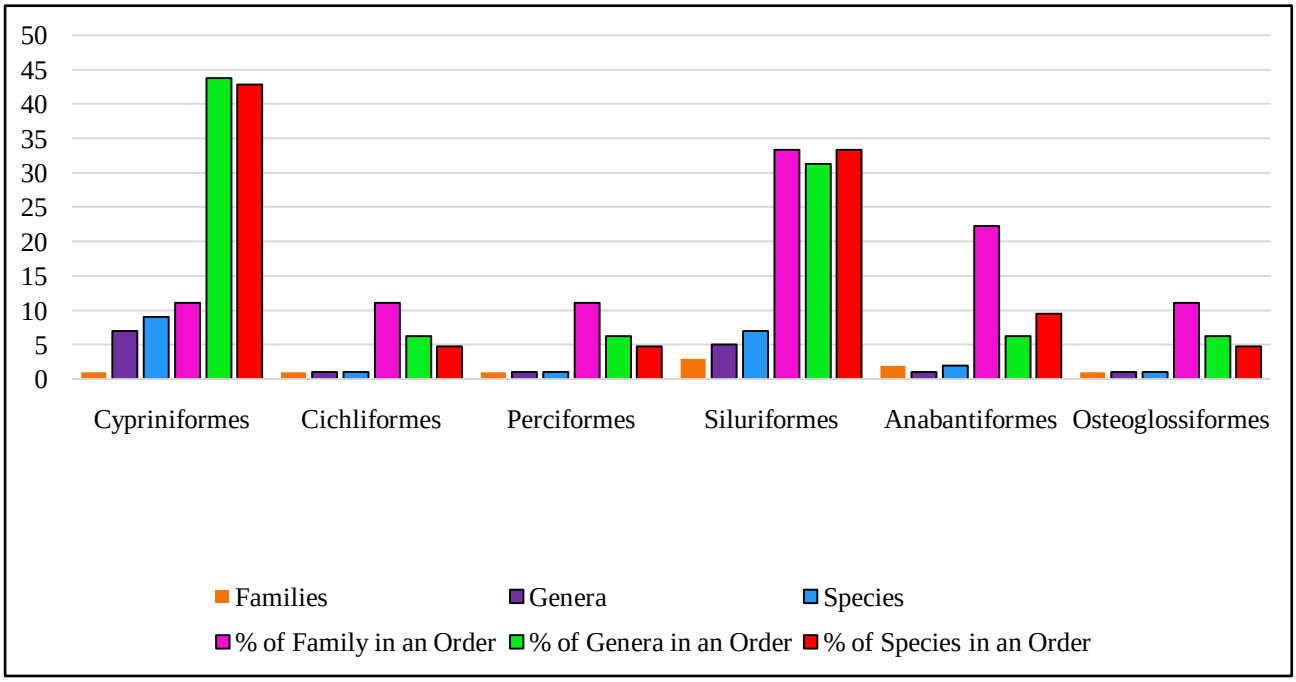
Table 2. Number and Percent Composition of Families, Genera, and Species across Various Orders.

S.No.	Order	Families	Genera	Species	% of Family Genera in an Order	% of Genera in an Order	% of Species In an Order
1.	Cypriniformes	1	7	9	11.11	43.75	42.85
2.	Cichliformes	1	1	1	11.11	6.25	4.76
3.	Perciformes	1	1	1	11.11	6.25	4.76
4.	Siluriformes	3	5	7	33.33	31.25	33.33
5.	Anabantiformes	2	1	2	22.22	6.25	9.52
6.	Osteoglossiformes	1	1	1	11.11	6.25	4.76

In terms of the distribution of genera and families across different orders, the order Cypriniformes comprises 7 genera (43.75%) within 1 family (11.11%). Siluriformes consists of 5 genera (31.25%) across 3 families (33.33%). Perciformes includes 1 genera (6.25%) within 1 families (11.11%). Cichliformes includes 1 genera (6.25) within 1 families (11.11). Anabantiformes includes 1 genera (6.25) within 2 families (22.22). Finally, Osteoglossiformes comprises a single genus (6.25%) within a single family (11.11%). Cypriniformes is the major order with 9 species, contributing 42.85% to the total. Siluriformes follows with 7 species, contributing 33.33%, while Perciformes includes 1 species, contributing 4.76%. while Cichliformes includes 1 species, contributing 4.76%. While Anabantiformes includes 2 species, contributing 9.52% and Osteoglossiformes is the 1 species each, contributing 4.76%.

Graph No.1. Number and Percent Composition of Families, Genera, and Species Across Various Orders.

Due to more fecundity of major carps and suitable environmental conditions, relatively higher population density of cypriniformes was evident in the dam similar observations were earlier made by Talwar and Jhinran (1991), Das and Chand (2003), Pathak and Mudgal (2005) Sharma (2003). In a



study on similar lines, Valsangar (1993) recorded 17 indigenous and 5 introduced fish species from Shivaji Sagar reservoir a cross koyana river in Maharashtra. Sakhare and Joshi (2002) observed 28 fish species including a species of craps, 5 of cat fishes, 2 of Feather bace, 5 of Live Fishes in Hirakud reservoir. Hiware and Pawar (2006) recorded 43 fish species from Nathsagar dam paithan in Aurangabad district Krishna and Piska (2006) reported 31 Icthyofaunainsecret lake, Durgamcheru, Rangareddy District. Jayabhaye & Khedkar (2008) recorded 25 fish species belonging to 14 genera, 8 families and 6 orders from Sawana dam. A perusal of literature reveals that Shukla and Pandey (2019) while studying a lake in Rewa district recorded a maximum diversity of Cyprinidae followed by Channidae, Anabantidae and Bagridae while S. Krishna (2023); Saket and Pandey (2019), recorded maximum fish diversity reported in Cyprinidae.

CONCLUSION:

The present investigation concluded that Ghunghutta Dam is a healthy water body supporting a diverse range of freshwater fish species. However, the fish population faces constant threats from eutrophication and illegal fishing activities. To prevent the depletion of freshwater fish resources, it is essential to ban illegal fishing practices. Further studies should be conducted to gather detailed information on the seasonal production and ecology of fishes. In light of the findings from this study, it is imperative to formulate proper policies and take necessary measures to ensure the conservation of fish populations, so future generations can continue to benefit from this vital resource.

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Smt. Deepika Toppo
Research Scholar Zoology, Govt. Bilasa Girls P.G. College Bilaspur (C.G.)