

# STUDIES ON FISH DIVERSITY OF MAHANADI, NEARBY ZOBRA ANICUT, CUTTACK, ODISHA, INDIA

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## Abstract

A study was conducted to observe the fish diversity near Zobra Anicut in the river Mahanadi of Cuttack during December, 2019 to March, 2020. As no study has been conducted in this area regarding fish diversity, it is essential to gain knowledge on this for rational management and better conservation of the fish fauna in each and every region additionally for the exploitation and scientific development of aquaculture. Current study shows (n=22) species of fishes able to identified in the time bound period of time and others are kept for further identification. we got to know the diverse species present in the particular region. Most and majority of the fish species (n=11) were collected belonging to the Family: Cyprinidae and Order: Cypriniformes.

**Keyword :** River Mahanadi, Zobra anicut, Fish diversity, Identification

## INTRODUCTION

In this era, global warming and sudden climate change are two important matter of concern as they greatly affect animals, plants and micro-organisms. Odisha is highly blessed with a wide range of fish fauna; it is no way exceptional from the current impact of environmental changes. For a better tomorrow, we should keep monitoring on the changing factors. The fish fauna should not be used only for economic purposes. It is also necessary to save the aquatic environment to keep the ecosystem undisturbed as far as possible.

Fish is considered as gill-bearing, cold-blooded aquatic vertebrate that lacks limbs and lives wholly in water and breathes using lungs mostly. Fish diversity indicates the various types of fish fauna present in a particular habitat. Fresh water fishes the fishes live their total or partial part of life in fresh water or brackish estuaries. There were 32,500 species of fishes in the world (Nelson, 2006). Looking at the history of fresh water fish studies in India, the contribution of Hamilton-Buchanan (1822) cannot be ignored in the 'Fishes of Ganges ' and by others like Jerdon (1849). A great work had been conducted and recorded by Francis Day in his publication i.e 'Fishes of India '(1875-1878). Fresh water fishes are important component of global biodiversity (Reid *et. al.*, 2013). India is highly diverse in nature having a wide range of fish fauna constituting 1027 species (Gopi *et. al.*, 2017). Odisha exhibits about 13.92% of total fresh water fish fauna of India (Dutta *et. al.*, 1993). The fish fauna got affected by many reasons like habitat, aquatic biodiversity (Chaki *et. al.*, 2014; Galib *et. al.*, 2016 a; Parvez *et. al.*, 2017).

In India, the Mahanadi river is considered as the 3<sup>rd</sup> largest river in the peninsular region sharing its drainage basin (80°30'-86°50' E and 19°20'-23°35' N) within the states of Chhattisgarh, Jharkhand and Odisha. It originates from the Baster Hills of Chhattisgarh and passes through especially of Eastern Ghats and finally joins the Bay of Bengal passing along the coastal area like Cuttack, Puri of Odisha. The Mahanadi and its branch i.e river Bramhani together form a large delta where they meet the Bay of Bengal. The Cuttack city is present at the head of its delta. Review of literature demonstrated that many researchers had conducted their study on fish diversity on the river Mahanadi. The present study was carried out near Zobra anicut, in Cuttack city, in the river of Mahanadi where no study on fish diversity has been conducted yet. This has been started in the month of December, 2019 and completed in March, 2020.

## MATERIALS AND METHODS

### Study site

The present study was conducted in the river Mahanadi near the region of Zobra Anicut ( from the starting point to the ending point of the bridge ), located in Cuttack district.

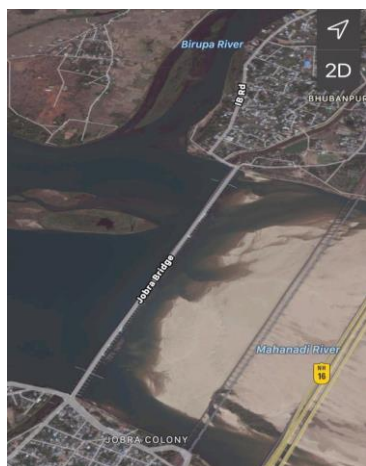


Fig.1. Study site



Fig.2. Fish catch



Fig.3. Collection of fishes

### Collection

The fishes were collected from different landing centres near the bridge. Most of the fishes has been collected by the help of a local fisherman who caught the fishes by the net directly from the study site of the river.

### Preservation

A solution was made with 4-6 % of formalin. After collection, the specimens were labelled and preserved in the formalin solution and brought to Zoology Department laboratory of CUTM lab for further analysis.

### Identification

The majority of the species were identified on the field itself. The unidentified specimens were identified with the help of keys provided by Dutta *et. al.*, (1988), Talwar and Jhingram (1991), Jayram (1994) and Das *et. al.*, (2010) and also many websites from google.

## RESULTS AND DISCUSSION

The samples of fish species were identified and arranged according to their taxonomic order, family, genus and species. The economic importance and their conservation status were taken into consideration while doing so. The study recorded 22 species belonging to 19 genera, 12 families and 7 orders (table- 1). The study shows that Cyprinidae is the most abundant family contributing 50 % of the total species of all the families found in Zobra anicut area, Cuttack.

Similar work also done by Day (1978) reported 146 species mostly present in Cuttack region of Mahanadi and described it in his famous book "Fishes of India ". Tamboli and Jha (2010) reported different fish species in river Mahanadi. Hora (1940) recorded 43 species, Chouhan (1947) reported 54 species from Tel river; Jayram and Majumdar (1976) had found 42 fish species, Desai and Shrivastava (2004) reported 48 species and Omprakash *et. al.*, (2004) reported 65 species from Mahanadi.

Table 1. Showing the fish species collected for Zobra anicut, Cuttack

Sl. No	Common name	Scientific name	Family	Order
1	Pohala	<i>Cirrhinus reba</i>	Cyprinidae	Cypriniformes
2	Kala bainshi	<i>Labeo calbasu</i>	Cyprinidae	Cypriniformes
3	Ari (cat fish)	<i>Mystus seenghala</i>	Bagridae	Siluriformes
4	Tengara cat fish	<i>Mystus tengara</i>	Bagridae	Siluriformes
5	Mahurali	<i>Amblypharyngodon mola</i>	Cyprinidae	Cypriniformes
6	Pool barb	<i>Punctius sophore</i>	Cyprinidae	Cypriniformes
7	Silver fish (glass perchlet)	<i>Chanda nama</i>	Ambassidae	Perciformes
8	Thantia fish (needlefish)	<i>Xenentodon cancila</i>	Belonidae	Beloniformes
9	Gangetic ailia	<i>Ailia coila</i>	Schilbeidae	Siluriformes

10	Mola carplet	<i>Amblypharyngodon mola</i>	Cyprinidae	Cypriniformes
11	Snake head fish (Gadisha)	<i>Channa marulius</i>	Channidae	Anabantiformes
12	Pool barb	<i>Puntius ticto</i>	Cyprinidae	Cypriniformes
13	Bata labeo	<i>Labeo bata</i>	Cyprinidae	Cypriniformes
14	Large razor belly minnow	<i>Oxygastor bacaila</i>	Cyprinidae	Cypriniformes
15	Puffer fish (Benga putti)	<i>Tetraodon fluviatilis</i>	Tetraodontidae	Tetraodontiformes
16	Rohu (Rohi)	<i>Labeo rohita</i>	Cyprinidae	Cypriniformes
17	Catla (Bhakura)	<i>Catla catla</i>	Cyprinidae	Cypriniformes
18	Basa (Jalanga)	<i>Pangasius bocourti</i>	Pangasiidae	Siluriformes
19	Goby fish	<i>Glossogobius giurus</i>	Gobiidae	Cypriniformes
20	Common carp	<i>Cyprinus carpio</i>	Saccobrachidae	Siluriformes
21	Cat fish (Singi)	<i>Heteropneustes fossilis</i>	Saccobrachidae	Siluriformes
22	Chital fish	<i>Notopterus notopterus</i>	Notopteridae	Osteoglossiformes

*Labeo rohita**Catla catla**Pangasius bocourti**Chanda nama**Cirrhinus reba**Mystus tengara**Puntius sophore**Xenentodon cancila*

*Channa marulius**Labeo calbasu**Mystus seenghala**Amblyphangodon mola**Ailia coila**Labeo bata**Oxygastor bacaila**Tetraodon fluviatilis*

## CONCLUSION

This present work on fish diversity of the River Mahanadi clearly shows that this particular area ( Zobra anicot ) is endowed with a variable type of fishes. Most are considered as edible fishes. The study clearly indicated the abundance of the species mostly belonging to the family Cyprinidae and order Cypriniformes .Hence the majority of fishes are belonged to this family. So the economic potential of theses fishes might be used for domestic purposes. Study on their habit and habitat are required for assessing their export potential looking at the demand in the international market.

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