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Chapter 2

Economically important indigenous fish of the Mahanadi River

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DOI: <https://doi.org/10.5281/zenodo.11124811>

ABSTRACT

India has very rich resources for fishing, having many coastal states. The fishing communities heavily depend on the oceans and rivers for their livelihood. One such major river of times is the Mahanadi River, home to a huge variety of indigenous fish, some of which are economically significant. The trade of these indigenous fish in national and international markets can enhance the country's economy. Therefore, knowledge of economic indigenous fish is essential for their conservation and sustainable use. The present condition of the Mahanadi River is very disheartening. The river is progressively drying up due to climate change, urbanization, sand mining, and other anthropogenic causes. There is a need to save the Mahanadi River from further deterioration to conserve the fish population and retain the livelihood of the fishing community.

Keywords: Culture, economy, fishermen, Mahanadi River, urban markets

INTRODUCTION

India is home to several beautiful lakes and rivers with varying numbers based on different classification methods. India has 8 major river systems, with more than 400 rivers in total. The country's major rivers are the Ganges, Yamuna, Brahmaputra, Godavari, Narmada, Krishna, Kaveri, and Mahanadi (<https://en.wikipedia.org>). Rivers play an important role in the lives of the people in India due to their crucial part of India's geography, culture, and economy. They are vital for irrigation, drinking water, and means of transportation, and are deeply embedded in the religious and cultural background of the country. The Mahanadi River is a major river in East Central India.

It drains an area of around 132,100 square kilometres and has a total length of about 900 kilometres (Tyagi *et al.*, 2021). Mahanadi is also known for the Hirakud Dam considered as the first major multipurpose river valley project after India's independence in 1947 (Choudhury *et al.*, 2012). Originating in Chhattisgarh, the Mahanadi flows through Odisha before finally joining the Bay of Bengal by different branches passing along the coastal line of Cuttack and Puri districts of Odisha. The main branches of the Mahanadi River meet the Bay of Bengal at Paradeep and Nuagarh. Brahmani is its main tributary (Deshpande and Singh, 2010). The other major tributaries of Mahanadi are the Suktel, the Jeera, the Jonk, the Ibb, the Ong, and the Tel. Mahanadi River is also known for its large delta and the river basin is shared by the States of Maharashtra, Chhattisgarh, Jharkhand, and Odisha (Kumar *et al.*, 2013).

The Mahanadi River is the dwelling ground of a diverse variety of aquatic fauna, among which fish occupy the majority portion. For fishermen, fish is an integral part of their lives, as it not only provides livelihood to them but also has cultural significance. Fish are not only important for economic and commercial value, rather they also play a very active role in maintaining the balance of the ecosystem (Kumar, 2014). In the current scenario, the Mahanadi River is drying up due to climatic changes, global warming, urbanization, and other anthropogenic activities. This is the cause of the gradual decline in the fish population in the river making the fishermen involved in anti-social activities due to loss of their livelihood. Therefore, there is a need to save and revive the Mahanadi River to conserve the fish population and rescue the fishing community. Keeping the economic importance of the fish for the fishing community in mind, an effort was made to document the indigenous fish resources found in the Mahanadi River.

METHODOLOGY

Taking into consideration the deteriorating condition of the Mahanadi River affecting the fishermen's livelihood by hampering the fish population, a survey was carried out at Naraj, Cuttack, Odisha to document the indigenous fish of the Mahanadi River that are economically important. The fish were collected from the fishermen (Figure 1) after their catch and they were identified by studying the field characters, online sources, and available literature (Kand *et al.*, 2023; Burma *et al.*, 2023).

RESULTS AND DISCUSSION

From the survey conducted in the study area, 51 indigenous fish species belonging to 20 families and 38 genera were enumerated. Out of the 51 fish species, most of the fish species belonged to the family Cyprinidae with 17 fish species followed by family Channidae with 4 fish species. 3 species each belonged to the family Ambassidae, family Bagridae, family Mastacembelidae, family Schilbelidae, and family Siluridae. *Ailia coila*, *Amblypharyngodon mola*, *Anguilla benghalensis*, *Catla catla*, *Chanda nama*, *Channa gachua*, *Channa marulius*, *Channa striata*, *Chitala chitala*, *Cirrhinus mrigala*, *Cirrhinus reba*, *Heteropneustes fossilis*, *Labeo bata*, *Labeo calbasu*, *Labeo rohita*, *Mastacembelus armatus*, *Notopterus notopterus*, *Ompok bimaculatus*, *Salmostoma bacaila*, *Sperata aor*, *Wallago attu*, and *Xenentodon cancila* from Mahanadi River having high economic importance and high demand in urban markets (Table 1).

Table 1: Indigenous fish found in the Mahanadi River

Scientific name	Common name	Family
<i>Ailia coila</i>	Baunsapatri	Schilbeidae
<i>Amblypharyngodon mola</i>	Mahurali	Cyprinidae
<i>Anabas testudineus</i>	Kou	Anabantidae
<i>Anguilla benghalensis</i>	Bami	Anguillidae
<i>Catla catla</i>	Bhakura	Cyprinidae
<i>Chanda nama</i>	Chandi	Ambassidae
<i>Channa gachua</i>	Chenga	Channidae
<i>Channa marulius</i>	Sahala	Channidae
<i>Channa punctatus</i>	Gadisha	Channidae
<i>Channa striata</i>	Seula	Channidae
<i>Chitala chitala</i>	Chitala	Notopteridae
<i>Cirrhinus mrigala</i>	Mirikali	Cyprinidae
<i>Cirrhinus reba</i>	Pohola	Cyprinidae
<i>Clarias batrachus</i>	Magura	Claridae
<i>Clupisoma garua</i>	Pania	Schilbeidae
<i>Ctenophryngodon idella</i>	Dalakhia macha	Cyprinidae

<i>Cyprinus carpio</i>	Bilati rohi	Cyprinidae
<i>Eutrolichthys vacha</i>	Bachha	Schilbeidae
<i>Glossogobius giuris</i>	Baligarada	Gobiidae
<i>Gudusia chapra</i>	Orati	Clupeidae
<i>Heteropneustes fossilis</i>	Singi	Saccobranchidae
<i>Labeo bata</i>	Bata	Cyprinidae
<i>Labeo calbasu</i>	Kala bainsi	Cyprinidae
<i>Labeo rohita</i>	Rohi	Cyprinidae
<i>Lepidocephalichthys guntea</i>	Jimani todi	Cobitidae
<i>Macrornathus aral</i>	Todi	Mastacembelidae
<i>Mastacembelus armatus</i>	Gomi todi	Mastacembelidae
<i>Mastacembelus punctatus</i>	Bomi	Mastacembelidae
<i>Monopterus albus</i>	Kochia	Synbranchidae
<i>Mystus tengara</i>	Tengara kantia	Bagridae
<i>Mystus vitatus</i>	Kantia	Bagridae
<i>Nandus nandus</i>	Bhutusi	Nandidae
<i>Notopterus notopterus</i>	Phalli	Notopteridae
<i>Ompok pabo</i>	Pabda	Siluridae
<i>Ompok bimaculatus</i>	Ghee pabda	Siluridae
<i>Osteobrama cotio</i>	Chilti	Cyprinidae
<i>Pangasius bocourti</i>	Jalanga	Pangasiidae
<i>Parambassis lala</i>	Nali nai chandi	Ambassidae
<i>Parambassis ranga</i>	Nai chandi	Ambassidae
<i>Pethia phutunio</i>	Kuji kerandi	Cyprinidae
<i>Pethia ticto</i>	Kuji kerandi	Cyprinidae
<i>Puntius sophore</i>	Patia kerandi	Cyprinidae
<i>Puntius terio</i>	Kakachia kerandi	Cyprinidae
<i>Puntius ticto</i>	Kutri	Cyprinidae
<i>Rasbora daniconius</i>	Dandikiri	Cyprinidae
<i>Salmostoma bacaila</i>	Jaralli	Cyprinidae
<i>Sperata aor</i>	Ari	Bagridae

<i>Tetraodon fluviatilis</i>	Benga putti	Tetraodontidae
<i>Trichogaster fasciata</i>	Khaska	Anabantidae
<i>Wallago attu</i>	Baliah	Siluridae
<i>Xenentodon cancila</i>	Gangeitodi	Belonidae

Singh *et al.*, (2015) gathered data on the ornamental fish diversity and species richness of the Hirakud Reservoir and recorded 54 fish species, of which, 20 species were classified as indigenous ornamental fishes, and 6 species were ornamental as well as food fish. Patel *et al.*, (2016) documented the status of fish diversity in the Mahanadi River in Raigarh district of Chhattisgarh from November 2011 to May 2012 and reported a total of 54 species under 36 genera, 21 families, and 7 orders. Chandran *et al.*, (2019) recorded 55 species belonging to 42 genera, 21 families, and 9 orders from the study conducted in the Ib River, a tributary of the Mahanadi River between February 2016 and January 2017. In 2021, Tyagi *et al.*, reported a total of 121 fish species, of which 66 species were food fishes, 22 had ornamental importance and 33 species had both food and ornamental value from 40 sites in the entire stretch of Mahanadi starting from Chhattisgarh to Bay of Bengal from November 2012 to September 2018. Chandran *et al.*, (2022) reported a total of 71 fish species belonging to 48 genera, 22 families, and 8 orders from Tel River, a tributary of the Mahanadi River.



Figure 1: Fishermen catching fish from the Mahanadi River

CONCLUSION

From the study, it was concluded that the Mahanadi River is a rich source of various indigenous fish. The fishermen catch fish in the river to earn some income for their household. The present survey carried out at Naraj; Cuttack documented 51 fish species that are of economic importance to the fishing community. It was also concurred that the current situation of the Mahanadi River is very concerning. The water level of the river is decreasing progressively due to urbanization, sand mining, climate change, and other anthropogenic activities. Thus, the fish are dying because of the unsuitable river conditions hampering the livelihood of the fishing community. Therefore, there is a need to develop strategies to save Mahanadi from further deterioration, thereby conserving the fish population and livelihood of the fishermen.

Acknowledgement

Authors are thankful to the local communities of study areas.

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