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DIVERSITY OF FISH IN RIVER HIRAN, JABALPUR REGION (M.P)

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ABSTRACT

The goal of the current study is to give a general overview of the fish variety in the Jabalpur region's river Hiran. The biological and diverse physical-chemical characteristics that control the distribution and productivity of distinct fish species are connected with fish diversity. Fish are widely distributed, and most of them are farmed for human consumption. Fish from the river Hiran have been gathered, categorised, and identified in five separate sample locations as part of the present investigations. According to the study, these sample sites have records for sixteen different species of fish. Three main fish species were seen to be abundant: catfish, major carps, and minor carps. The several species of fish belonging to order Cypriniformes, Siluriformes, Osteoglossiformes, Synbranchiformes and Anabantiformes are recorded too. Out of these Cypriniformes is the most dominant group with recorded 08 species of fishes. The main reason behind the declining species diversity is introduction of exotic species, habitat destruction and over-fishing. A nearly factory also add up to the contribution to an extent.

KEYWORDS: Hiran River, Fish Diversity, Jabalpur region.

INTRODUCTION

Freshwater ecosystems exhibit significant diversity and a broad spectrum of physical and chemical parameters, which profoundly impact aquatic life. Fluctuations are a physically and chemically harmful state. Impair the organisms' capacity to coexist with other populations in the environment by reducing their production and interfering with physiological processes. The two fundamental elements of the aquatic environment are phyto and zooplanktons. Thus, there is a close relationship between the quantity and quality of these two aquatic ecosystem components and drinking water quality and fisheries.

River HIRAN touches Jabalpur and is a major tributary of River NARMADA in Jabalpur District of Madhya Pradesh. It originates from KUNDESHWAR and after covering long distance it confluence into river NARMADA at Heerapur. River HIRAN in recent years becomes a wastes water disposal site. A number of drains loaded with sewage, domestic waste and dairy effluents in the catchment area of river have aggravated the pollution problem.

The capital of Central India, Jabalpur, often referred to as Sanskardhani, was formerly known as MAHAKOSHAL. One of the biggest cities and diverse enterprises, it is located about in the centre of India (between the coordinates of 23° 10' latitude and 79°57E, longitude, and with a general elevation of about 393 metres above man seal level). The headquarters and factories of W.C.R. Jabalpur are located along the Narmada River, which is the fifth-largest river in India.

MATERIALS AND METHODS

For the present study Five sampling stations were selected at the Hiran River (Kimdeshwar, Khitoula, Ghat Simariya, Khinni and Hirapur). the period of investigation was two years from April 2021 to March 2023.

At several areas, fish species were captured with the assistance of local fishermen and tribal people. The specimens were put in 5% formalin, and Day F. (1878)[4] and Jayaram K.C. (1981)[5] from the literature were used to identify them. The following techniques were used to measure species diversity.

$$\text{Number of species} = \frac{\text{Number of species}}{\text{Total number of individuals}} * 100$$

RESULTS AND DISCUSSION

Data collected from the above mentioned sampling sites was utilized to estimate the fish diversity in the river Hiran. 16 species of fish belonging to different orders were recorded. Cypriniformes was observed to be the most dominating order with recorded 08 species (Table 1) and rest other were Siluriformes, Osteoglossiformes, Synbranchiformes and Anabantiformes with 4, 1, 1 and 1 species respectively. Similar data was recorded by Sunita Bakaware, et.al., (2013).[6] They observed 51 species of fishes belonging to 7 orders and included 15 families, alongwith higher diversity level in winters and lower in summers. Dominance of Cypriniformes in Hiran river was also documented in 2013[7] by Vipin Vyas et

al.

Due to this, large scale degradation of physico – chemical parameters and very poor catchment of fishes is recorded in summers thus reflecting low diversity level. Some external factors also adds up to this situation such as introduction of exotic species, simple habitat destruction resulting from human withdrawls for human acts like agriculture, irrigation etc and direct exploitation such as impoundments, migration of species etc. (V. Vyas et. al., (2006).[8] As per comparing the data with the literature of Rao K.S et. al., (1991)[9] it is quiet clear that around 31 species were at the threat of decline and can be considered as endangered species. The threatened Ichthyofauna of river Narmada in western zone were studied by Verma D. and Kanhere R.R (2007).[10]

Table 1: List of fishes recorded in river Hiran during April 2021 to March 2023.

Order	Family	Genera
Cypriniformes	Cyprinidae	*Catla catla*
Cypriniformes	Cyprinidae	*Cyprinus carpio*
Cypriniformes	Cyprinidae	*Cirrhinusreba*
Cypriniformes	Cyprinidae	*Labeogorius*
Cypriniformes	Cyprinidae	*Labeorohita*
Cypriniformes	Cyprinidae	*Labeocalbasu*
Siluriformes	Bagridae	*Mystusseenghala*
Cypriniformes	Cyprinidae	*C-Mrigala*
Siluriformes	Siluridae	*Wallago attu*
Siluriformes	Clariidae	*Clariosbatrachus*
Siluriformes	Hetropneustidae	*Heteraneustesfossilis*
Anabantiformes	Anabanlidae	*Anabas testudineus*
Anabantiformes	Channidae	*Channa punctatus*
Osteoglossiformes	Notopteroidei	*Notopterus*
Synbranchiformes	Mastaccmbelidae	*Mastacembelus*
Cypriniformes	Cyprinidae	*Amblypharyngodon mola*

CONCLUSION

The findings showed that the overall decline in fish fauna abundance in the river Hiran compared to references is a clear sign of habitat destruction, which appears to be brought on by a nearby factory, rituals performed by the local villagers, and poisoning of the fish fauna through the use of pesticides and plant extracts from nearby fields. In light of this, I would like to wrap up and finish my research by stating that it is imperative to investigate the life cycle characteristics and demographics of the most significant endangered species in this Holy River. Since a dearth of research in this area might endanger some edible fish and lower the quantity and calibre of fish life in the River Hiran.

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