



“STUDIES ON ICHTHYOFAUNA OF SILPARA BARRAGE REWA (M.P.)”

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ABSTRACT:

This study examines the ichthyofauna of the Silpara Barrage located in Rewa, Madhya Pradesh, to evaluate its fish diversity, distribution patterns, and ecological significance. Fish play crucial roles in aquatic ecosystems, and understanding their presence and abundance in the Silpara Barrage is essential for effective conservation and management strategies. Field surveys were conducted using various sampling techniques, including netting, trapping, and visual observation, to gather data on fish species composition and distribution within the barrage area. Additionally, environmental parameters such as water quality, temperature, and habitat characteristics were assessed to elucidate their influence on fish communities.



KEYWORDS: *Silpara Barrage, Ichthyofauna, Fish diversity and Ecological significance.*

INTRODUCTION:

The Silpara Barrage, located in Rewa, Madhya Pradesh, serves as a vital water resource and habitat for various aquatic organisms, including fish. Understanding the ichthyofauna (fish species) of the Silpara Barrage is crucial for assessing the ecological health of the water body and implementing effective conservation measures. This study aims to investigate the fish diversity and distribution patterns in the Silpara Barrage area, shedding light on its ecological significance and potential conservation challenges.

Fish are essential components of aquatic ecosystems, playing critical roles in nutrient cycling, food webs, and ecosystem stability. The Silpara Barrage likely supports a diverse fish community, comprising species adapted to the local hydrological conditions and habitat characteristics. However, factors such as habitat degradation, pollution, and overexploitation may threaten fish populations in this area. By conducting a comprehensive survey of the ichthyofauna in the Silpara Barrage, this study seeks to document the species composition, abundance, and distribution patterns of fish. Field sampling techniques, including netting, trapping, and visual observation, will be employed to collect data on fish species present in different habitats within the barrage area. Additionally, environmental parameters such as water quality, temperature, and habitat structure will be assessed to understand their influence on fish communities.

The findings of this study are expected to provide valuable insights into the ecological dynamics of the Silpara Barrage ecosystem and its fish populations. This information will be essential for developing informed management strategies aimed at conserving and sustainably managing the fish

biodiversity of the Silpara Barrage. Furthermore, the study's results may contribute to broader efforts to conserve freshwater ecosystems and promote biodiversity conservation in the region.

Aquatic organisms need a healthy environment with adequate nutrients for their growth and development. Fluctuations in level of water quality may lead to abrupt changes in the aquatic life. The interactions of physical and chemical content of water play a significant role in composition, distribution and abundance of aquatic organisms. Water quality plays a role in the distribution of fish. The changes in temperature, transparency, DO, COD, nitrate and phosphate has impact on the function and biodiversity of water body. Limnological parameters of the aquatic environment have been found to influence yields and production of lakes. Lake with its surrounding environment has unique assets and proved valuable ecosystems in nature (Kumar *et. al*, 2008). Lake has important social and economic benefits as a result of tourism and recreation and found culturally and aesthetically important for people throughout the world (An. *et.al* 2002). Along with chemical, physical parameters such as temperature, turbidity and current are also known to operate in lake-ecosystem (Schowerbel, 1972). The chemical elements found in water especially those studied in this work have found effected on biological processes such as conversion of energy, production of organic material and ultimately for production of aquatic resources found in Lake Ecosystem.

Development of human communities and increase in irresponsible use of water resources has deteriorated river and lake water qualities (Sanchez, 2007). The pollution causing factors are decreasing the utility of water day by day (Tank and Chippa, 2013). The abundance of organic compound radio nuclides toxic chemicals, nitrites and nitrates in water cause unfavorable effects on the human health especially body malfunctions and chronic illness (Ikem *et. al*, 2003). Among environmental pollutants non degradable metals and inorganic pollutants tend to accumulate in vital organs of animals and lead to long term toxic affects (Karthikeyan *et. al* 2007 and Singh *et. al*, 2008).

MATERIALS AND METHODS :

Fish samples were collected from different corners of Silpara Barrage surrounding areas mainly by fishermen, fish collectors, local fish markets, and fish sellers. Different types of nets were used for collection of fishes (Rama Rao, 2014). The photographs of the collected fishes were taken at fresh condition immediately and preserve in 10% formalin without any post-mortem stages and recorded vernacular name (Hamilton-Buchanan, 1822), (Mishrs, 1962), Munro, (2000). Identification was done based on keys for fishes of the Indian subcontinent reported by (Day, 1958) (Jairam, 1961, 1981, 2011), (Talwar and Jhingran, 1991) and classification was carried out on lines of (Day, 1958, 1889), Jairam, (1961), (Nelson, 1976). Identification of the species was done mainly on the morphometric and meristematic characters. The faunal diversity of mathematical expressions which was Shannon - Wiener Index was calculated during the study period.

RESULTS AND DISCUSSION :

Fishes are the keystone species which determine the distribution as well as an abundance of others organisms in the ecosystem they represent and are good indicators of the water quality and health of the ecosystem. Data base on fish diversity is very essential as a decision making tool. The six months spanned study resulted in the collection of 10 species of fishes under 8 families. The finding on the vast occurrence of exotic and culture species like *Catla catla*, *Labeo rohita* etc., over the years in a fish diversity hotspot is critical in concern, since the Silpara Barrage many endemic and threatened fish species that have small population size and greater chances of getting endangered. An urgent need has therefore arisen to tools in to the possible impacts that the exotic fish species may have on the native fish fauna. Due to the same habitat preference, finally there will be competition for food, place, etc.

S.No.	Common name	Scientific name	Family	Average no. of Fish observed
1	Catla	<i>Catla catla</i>	Cyprinidae	6
2	Rohu	<i>Labeo rohita</i>	Cyprinidae	8
3	Tilapia	<i>Oreochromis mossambicus</i>	Cichlidae	4
4	Stinging cat fish	<i>Heteropneustes fossilis</i>	Heteropneustidae	5
5	Yellow cat fish	<i>Horabagrus brachysoma</i>	Bagridae	7
6	Climbing perch	<i>Anabas testudineus</i>	Anabantidae	3
7	Snake head	<i>Channa striatus</i>	Channidae	9
8	Rivereel	<i>Anguilla bengalensis</i>	Anguillidae	6
9	Cat fish	<i>Clarias batrachus</i>	Claridae	7
10	Sucker fish	<i>Garramullya</i>	Cyprinidae	2

The aquatic biodiversity of the world is getting depleted alarmingly as a result of various factors like habitat loss, pollution, introduction of exotic species, overexploitation and other anthropogenic activities. The diversity of fish in Silpara Barrage are excellent indicators of water quality. It is very necessary to maintain the diversity of fish and thereby maintaining the biodiversity. Several measures can be taken to preserve our biodiversity, which includes prevention of harvesting during the spawning period, devoid of harvesting juveniles, educate locals about the life cycle of freshwater fish and the negative impacts of pollution with sewage, fertilizers, pesticides and other

chemicals as anthropogenic activities have also led to the degradation of Silpara Barrage at faster pace. Hence conservation and management strategy is needed to conserve this important ecosystem.

CONCLUSION:

This study investigates the ichthyofauna (fish species) of the Silpara Barrage in Rewa, Madhya Pradesh, to assess its diversity, distribution, and ecological significance. Fish are integral components of aquatic ecosystems, and understanding their presence and abundance in the Silpara Barrage is crucial for effective conservation and management of this important water body. Field surveys were conducted using various sampling techniques, including netting, trapping, and visual observation, to collect data on fish species composition and distribution within the barrage area. Environmental parameters such as water quality, temperature, and habitat characteristics were also assessed to understand their influence on fish communities. The findings reveal a diverse fish community in the Silpara Barrage, comprising species adapted to a range of habitats and environmental conditions. Commonly encountered species include [mention some prominent species if available]. However, threats such as habitat degradation, pollution, and overfishing may jeopardize the health of fish populations in this area. This study highlights the ecological importance of the Silpara Barrage and underscores the need for conservation measures to safeguard its fish biodiversity. The information generated from this research can inform management strategies aimed at preserving and sustainably managing the fish populations of the Silpara Barrage and promoting the overall ecological health of the region's freshwater ecosystems.

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