



“Diversity Of Freshwater Fishes From The Washim District, Maharashtra”

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Abstract: The main aim of this study is to assess the fisheries potential of the Washim District and identify edible wild fish species. The findings are useful not only for researchers but also for local fishermen, as they help in understanding fish diversity, tolerance, and selecting the right mix of species for fish farming to maximize yield. The study identified 17 fish species from 12 genera and 8 families in the area. Among them, Cypriniformes species such as *Labeo rohita*, *Catla catla*, *Cirrhinus mrigala*, *Cyprinus carpio*, *Labeo boggut*, *Garra mullya*, and *Puntius sophore* were recorded. This paper provides a detailed discussion of the diversity of these species.

Keywords: Fish Diversity, Fresh water, Washim, Maharashtra.

INTRODUCTION

Fish are the most diverse group of vertebrates, with over 22,000 species. Among them, approximately 58% live in marine environments, 41% in freshwater, and about 1% migrate between salt and freshwater. Marine fish are the most diverse, as oceans cover 70% of the Earth's surface. In contrast, freshwater habitats make up only about 1% of the planet, yet they support around 8,000 fish species (**Khodake & Petare, 2020**).

Biodiversity and the ecosystems it sustains are invaluable gifts of nature, essential for the continuation of life as we know it. Biodiversity refers to the diversity and variability of plants, animals, and microorganisms within an ecosystem. Ichthyodiversity, a subset of biodiversity, specifically denotes the diversity of fish species. Depending on the context and scale, it can also encompass genetic variation within fish populations, species composition within fish communities, and species distribution across aquatic ecosystems (**Battul et al., 2007**).

Fish are the only major group of vertebrates that have significantly influenced human civilization from ancient times to the present. They serve as an important and affordable source of protein for people of all economic backgrounds. Therefore, studying their distribution and availability in freshwater reservoirs and tanks is crucial (**Shelke, 2016**).

Maharashtra is home to a diverse range of fish species and abundant freshwater resources, including rivers, irrigation canals, dams, and lakes. As a major state for fish production, it possesses rich natural water resources and holds great potential for the expansion and development of its fisheries. A large number of researchers have extensively studied the fish diversity, including [7-16].

Fish diversity is rapidly declining due to constant human activities. Beyond enriching our planet, biodiversity plays a crucial role in fisheries. Therefore, comprehensive research and documentation of fish diversity are urgently needed to develop an information system that includes bioinformatics and geo-referenced databases of fish species and their habitats. Although the Washim District has been extensively surveyed, no study has specifically listed the fish species found in the current research area. This study aims to catalog the freshwater fish diversity of Washim District, Maharashtra.

MATERIALS AND METHODS

Study Area

Washim District, located in the Vidarbha region of Maharashtra, is known for its diverse aquatic ecosystems, including rivers, reservoirs, lakes, and small water bodies. The district lies between 19°43' and 20°30' North latitude and 76°37' and 77°44' East longitude. It experiences a tropical climate with distinct summer, monsoon, and winter seasons, influencing the aquatic biodiversity and habitat conditions for freshwater fish species. The major water sources in the district include the Penganga River, Adan River, and smaller tributaries, along with several reservoirs and irrigation dams that support fisheries. These water bodies provide suitable habitats for various freshwater fish species, contributing to the region's ecological and economic significance. Due to increasing human activities such as agriculture, urbanization, and overfishing, freshwater biodiversity in Washim District faces challenges. This study aims to document and analyze the fish diversity in the region, helping in conservation efforts and sustainable fisheries management.

Collection of fish samples

Fish samples were collected from various rivers and dams across the Washim District to assess freshwater fish diversity. The sampling was conducted across different seasons to account for variations in fish populations due to climatic changes and breeding cycles.

Sampling Locations

The study focused on major water bodies in the Washim region, including:

River: Penganga River.

Dams: Ekburji dam, Sonala dam, Tornala dam, Khandala dam.

Sampling Methods

Fish specimens were collected using various traditional and scientific methods, ensuring minimal harm to aquatic life:

Cast nets and drag nets were used in shallow waters.

Gill nets and trap nets helped in capturing fish from deeper waters.

Electrofishing (where permitted) was used in select areas to sample fish populations without harming them.

Local fishermen's expertise was utilized to identify common species and seasonal variations.

Identification and Preservation

Collected fish samples were identified based on morphological characteristics using standard taxonomic keys. Live specimens were documented through photography, and some were preserved in 10% formalin for further laboratory analysis. **Day (1889)** and **Talwar & Jhingran (1991)** used conventional literature to identify fish.

RESULTS:

The current study identified 17 species of freshwater fish in Washim District, belonging to 12 genera and 8 families. The table below presents the freshwater fish species recorded during the study.

Sr. No	Order	Family	Fish Species
1	Cypriniformes	Cyprinidae	<i>Catla catla</i> (Jhingran 1966)
2	Cypriniformes	Cyprinidae	<i>Labeo rohita</i> (Hamilton-Buchanan 1822)
3	Cypriniformes	Cyprinidae	<i>Cirrhinus mrigala</i> (Hamilton Bachanan, 1822)
4	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i> (Linnaeus 1758)
5	Cypriniformes	Cyprinidae	<i>Labeo boggut</i> (Sykes 1838)
6	Cypriniformes	Cyprinidae	<i>Garra mullya</i> (Sykes 1841)
7	Cypriniformes	Cyprinidae	<i>Puntius sophore</i> (Hamilton Bachanan, 1822)
8	Cypriniformes	Cyprinidae	<i>Cirrhinus reba</i> (Hamilton Bachanan 1822)
9	Siluriformes	Siluridae	<i>Ompok bimaculatus</i> (Lacepede 1803)
10	Siluriformes	Bagridae	<i>Mystus bleekeri</i> (Day)
11	Siluriformes	Bagridae	<i>Mystus cavasius</i> (Hamilton Bachanan 1822)
12	Siluriformes	Siluridae	<i>Wallago attu</i>
13	Perciformes	Cichlidae	<i>Tilapia mosumbica</i> (W.K.H pterus 1852)
14	Perciforme	Gobiidae	<i>Glossogobius giuris</i> (Hamilton Bachanan 1822)
15	Synbranchiformes	Mastacembelidae	<i>Mastacembelus armatus</i> (Scopoli 1777)
16	Osteoglossiformes	Notopteridae	<i>Notopterus notopterus</i> (pallas 1769)
17	Anabantiformes	Channidae	<i>Channa Striata</i> (Bloch)

Table 1: List of fresh water fishes from the Washim District Region

Sr. No	Species	Local name	Economic Status	Site of Collection
1	<i>Catla catla</i> (Jhingran 1966)	Catla	High	Ekburji dam
2	<i>Labeo rohita</i> (Hamilton-Buchanan 1822)	Rohu	High	Sonala dam
3	<i>Cirrhinus mrigala</i> (Hamilton Bachanan, 1822)	Mrigal	High	Sonala dam
4	<i>Cyprinus carpio</i> (Linnaeus 1758)	Carp	High	Penganga River
5	<i>Labeo boggut</i> (Sykes 1838)	Boggut	Less	Tornala dam
6	<i>Garra mullya</i> (Sykes 1841)	Mullya	Less	Khandala dam
7	<i>Puntius sophore</i> (Hamilton Bachanan, 1822)	Pool Barb	High	Tornala dam
8	<i>Cirrhinus reba</i> (Hamilton Bachanan 1822)	Reba Carp	Less	Ekburji dam

9	<i>Ompok bimaculatus</i> (Lacepede 1803)	Patole	High	Ekburji dam
10	<i>Mystus bleekeri</i> (Day)	Tengra	Less	Sonala dam
11	<i>Mystus cavasius</i> (Hamilton Bachanan 1822)	Tengra	Less	Sonala dam
12	<i>Wallago attu</i>	Ballo	High	Ekburji dam
13	<i>Tilapia mosumbica</i> (W.K.H pterus 1852)	Jilebi	Less	Penganga River
14	<i>Glossogobius giuris</i> (Hamilton Bachanan1822)	Baila	High	Tornala dam
15	<i>Mastocemelus armatus</i> (Scopoli 1777)	Baam	High	Ekburji dam
16	<i>Notopterus notopterus</i> (pallas1769)	Patala	Less	Sonala dam
17	<i>Channa Striata</i> (Bloch)	Sarata	High	Ekburji dam

Table 2: List of fresh water fishes from the Washim District with their Economic Status.

The study's findings indicate that Cypriniformes dominate the fish assemblage, accounting for 50% of the total fish diversity. This group includes species such as *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala*, *Cyprinus carpio*, *Labeo boggut*, *Garra mullya*, and *Puntius sophore*.



Catla catla



Labeo rohita



Puntius sophore



Cirrhinus mrigala



Cyprinus carpio



Ompok bimaculatus



Labeo boggut



Garra mullya



Mystus cavasius

*Cirrhinus reba**Tilapia mosumbica**Glossogobius giuris**Mystus bleekeri**Mastacembelus armatus**Notopterus notopterus**Wallago attu**Channa Striata*

Photoplate: fresh water fishes from the Washim District, Maharashtra

DISCUSSION:

The study on fish diversity in Washim District, Maharashtra, recorded 17 species belonging to 12 genera and 8 families. The order Cypriniformes was the most dominant, represented by 8 species, followed by Siluriformes (4 species), Perciformes (2 species), Synbranchiformes (1 species), Osteoglossiformes (1 species), and Anabantiformes (1 species). Washim District has a rich and diverse fish fauna with significant fisheries potential. Notably, 10 out of the 17 recorded species hold high economic value.

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REFERENCES:

1. Battul, P. N., Hiware, C. J., & Zade, S. B. (2007). Fish diversity from Ekruk Lake near Solapur, Maharashtra. *Journal of Aquatic Biology*, 22(2), 68-72.
2. Khodake, S. P., & Petare, R. K. (2020). Ichthyodiversity in Malangaon Water Reservoir in Khandesh Region of Maharashtra, India. *International Journal of Creative Research Thoughts (IJCRT)*, 8(4), [Article]. ISSN: 2320-2882.
3. Shelke, A. D. (2016). Ichthyofaunal biodiversity of Girna Dam (Girna River), Dist. Nasik, Maharashtra, India. *World Journal of Fish and Marine Sciences*, 8(3), 135-141.

4. **Day, F. (1889).** *The fauna of British India, including Ceylon and Burma: Fishes* (Vols. 1 & 2). Taylor and Francis.
5. **Day, F. (1878).** *The fishes of India, being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma, and Ceylon* (Vols. 1 & 2, Text and Atlas in 4 parts). London.
6. **Talwar, P. K., & Jhingran, A. G. (1991).** *Inland fishes of India and adjacent countries* (Vols. 1 & 2). Oxford & IBH Publishing Co. Pvt. Ltd.
7. **Bandopadhyay, P. K. (1999).** Fish diversity in freshwater perennial water bodies in East Midnapore District of West Bengal, India. *International Journal of Environmental Research*, 2(3), 255-260.
8. **Ahmad, S. M., Kumar, A., & Manjappa, S. (2008).** Fish diversity of Sogane and Santhekadur tanks, Shimoga, Karnataka, India. *Current Biotica*, 5(1), 46-55.
9. **DeviPrasad, A. G., Rajesh, K. M., & Yajurvedi, H. N. (2009).** Studied fish diversity and its conservation in major wetlands of Mysore. *Journal of Environmental Biology*, 30(5), 713-718.
10. **Goswami, A. P., & Landmankodi, P. C. (2010).** Diversity of fishes from freshwater reservoir Nyari II of Rajkot district, Gujarat. *Electronic Journal of Environmental Sciences*, 3, 23-26.
11. **Sarwade, J. P., & Khillare, Y. K. (2010).** Studied fish diversity of Ujani Wetland, Maharashtra, India. *Journal of Fish Diversity of Ujani Wetland*, 1, 173-179.
12. **Jadhav, B. V., Sathe, T. V., & Shinde, M. B. (2011).** Studied freshwater fish fauna of Koyna River, northern Western Ghats, India. *Journal of Threatened Taxa*, 3(1), 1449-1450.
13. **Thirumala, S., Kiran, B. R., & Kantaraj, G. S. (2011).** Fish diversity in relation to physicochemical characteristics of Bhadra reservoir of Karnataka, India. *Advances in Applied Science Research*, 2(5), 34-47.
14. **Muruga, S., & Prabaharal, C. (2012).** Fish diversity in relation to physico-chemical characteristics of Kamala Basin of Darbhanga District, Bihar, India. *International Journal of Pharmaceutical and Biological Archives*, 3(1), 211-217.
15. **Gohil, M., & Mankodi, P. C. (2013).** Diversity of fish fauna from downstream zone of River Mahisagar, Gujarat State, India. *Research Journal of Animal, Veterinary and Fishery Sciences*, 1(3), 14-15.
16. **Islam, M. R., Saikia, B., & Deka, P. (2013).** Studied fish diversity and fishing gears used in the Kulsi River of Assam, India. *Annals of Biological Research*, 4(1), 289-293.