

Ichthyofaunal Diversity of Uthala Dam, Shirur Kasar, District Beed, Maharashtra, India

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Abstract : Freshwater fish diversity is an important component of aquatic biodiversity and contributes significantly to ecosystem stability and inland fisheries. The present study was conducted to document the fish diversity of Uthala Dam, Shirur Kasar, District Beed, Maharashtra, India during 2024–2025. Fish samples were collected periodically and identified using standard taxonomic literature. A total of 12 fish species belonging to 6 families and 3 orders were recorded. The family Cyprinidae showed maximum dominance with 7 species (58.33%), while Cypriniformes was the dominant order. The recorded fish fauna included economically important carps, catfishes and other freshwater species. All recorded species belonged to the Least Concern (LC) category. The study provides baseline information on fish diversity of Uthala Dam and highlights its importance as a freshwater habitat supporting ichthyofaunal diversity in the Shirur Kasar region of Beed district.

Keywords: Fish diversity, Ichthyofauna, Uthala Dam, Shirur Kasar, Beed, Maharashtra.

1. Introduction

Freshwater fishes are an important component of aquatic biodiversity and play a vital role in maintaining ecological balance, food-web structure and economic resources. They contribute significantly to inland fisheries and provide livelihood support to local communities (Jayaram, 2010; Talwar & Jhingran, 1991). India possesses rich freshwater fish diversity due to its extensive river systems, lakes and reservoirs. The freshwater fish fauna of India is represented by several economically important groups, mainly belonging to Cypriniformes, Siluriformes and Perciformes (Day, 1878; Talwar & Jhingran, 1991). Reservoir ecosystems provide suitable habitats for diverse fish communities and require regular biodiversity assessments for their conservation and management. Maharashtra supports a diverse freshwater fish fauna, and several studies have documented fish diversity from rivers and reservoirs of the state (Kharat et al., 2003). Beed district contains several important freshwater bodies supporting rich ichthyofaunal diversity. Studies from nearby reservoirs, including Sindphana Dam near Shirur Kasar, have reported significant fish diversity and emphasized the ecological importance of regional aquatic ecosystems. Uthala Dam, located in Shirur Kasar Tehsil of Beed District, Maharashtra, is an important freshwater resource supporting aquatic biodiversity. However, information regarding its fish fauna is limited. Therefore, the present study was undertaken to document the fish diversity of Uthala Dam with emphasis on species composition and taxonomic diversity.

2. Materials and Methods

2.1 Study site

The present study was conducted at Uthala Dam, Shirur Kasar, District Beed, Maharashtra, India. The reservoir represents an important freshwater ecosystem of the region and supports aquatic biodiversity along with local irrigation activities. The study area experiences a tropical semi-arid climate with seasonal variations in temperature and rainfall, mainly influenced by the southwest monsoon.

2.2 Sample Collection

Fish diversity assessment was carried out during 2024–2025. Fish samples were collected periodically from different locations of Uthala Dam with the help of local fishermen using traditional fishing gears such as gill nets, cast nets and drag nets. The collected specimens were photographed, examined for external morphological characters and identified using standard taxonomic literature (Day, 1878; Talwar & Jhingran, 1991; Jayaram, 2010). The scientific names and taxonomic classification of recorded fishes were

updated according to currently accepted nomenclature. The recorded species were categorized based on their family, order and conservation status following available literature and the IUCN Red List criteria.

2.3 Data Analysis

The collected data were analyzed to assess the fish diversity of Uthala Dam. The recorded fish species were evaluated based on their species composition, taxonomic distribution and diversity pattern. The fish fauna was classified according to their respective orders and families to understand the dominance and representation of different taxonomic groups. The percentage contribution of individual fish groups was calculated to determine their relative occurrence in the reservoir ecosystem. The conservation status of each recorded species was assessed according to available literature and IUCN Red List categories to understand their present status and ecological importance.

3. Observations and Results

The present investigation was carried out to assess the freshwater fish diversity of Uthala Dam, Shirur Kasar, District Beed (Maharashtra), India during 2024–2025. The study revealed the occurrence of diverse fish fauna representing different taxonomic groups. A total of 12 fish species belonging to 6 families and 3 orders were documented during the study period.

The recorded ichthyofauna consisted mainly of commercially important freshwater fishes, including Indian major carps, catfishes and air-breathing fishes. The family Cyprinidae showed maximum representation with seven species, followed by Bagridae, Clariidae, Heteropneustidae and Channidae. The dominance of cyprinid fishes indicates their better adaptation and ecological suitability to reservoir conditions.

Table 1 represents the systematic account of fish diversity recorded from Uthala Dam, Shirur Kasar, District Beed (M.S.). The recorded fishes were classified according to their order, family, scientific name, common name and conservation status. The fish fauna showed dominance of the family Cyprinidae, represented by economically important carps such as *Catla catla*, *Labeo rohita* and *Cirrhinus mrigala*. Other recorded groups included catfishes (Siluriformes) and air-breathing as well as predatory fishes (Perciformes).

Table 1. Systematic Account of Fish Diversity Recorded from Uthala Dam, Shirur Kasar, District Beed (M.S.), India Sr. No.

	Order	Family	Scientific Name	Common Name
1	Cypriniformes	Cyprinidae	<i>Catla catla</i> (Hamilton, 1822)	Catla
2	Cypriniformes	Cyprinidae	<i>Labeo rohita</i> (Hamilton, 1822)	Rohu
3	Cypriniformes	Cyprinidae	<i>Cirrhinus mrigala</i> (Hamilton, 1822)	Mrigal
4	Cypriniformes	Cyprinidae	<i>Labeo calbasu</i> (Hamilton, 1822)	Kalbasu
5	Cypriniformes	Cyprinidae	<i>Ctenopharyngodon idella</i> (Valenciennes, 1844)	Grass carp
6	Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i> Linnaeus, 1758	Common carp
7	Cypriniformes	Cyprinidae	<i>Puntius sophore</i> (Hamilton, 1822)	Pool barb
8	Siluriformes	Bagridae	<i>Mystus tengra</i> (Hamilton, 1822)	Tengra
9	Siluriformes	Clariidae	<i>Clarias batrachus</i> (Linnaeus, 1758)	Magur
10	Siluriformes	Heteropneustidae	<i>Heteropneustes fossilis</i> (Bloch, 1794)	Singhi
11	Perciformes	Channidae	<i>Channa punctata</i> (Bloch, 1793)	Spotted snakehead
12	Perciformes	Cichlidae	<i>Oreochromis mossambicus</i> (Peters, 1852)	Tilapia

The presence of diverse fish groups indicates that Uthala Dam provides suitable habitat conditions for freshwater fishes. Most recorded species belong to the Least Concern (LC) category, suggesting their stable status at a regional level. The observed fish composition is comparable with other freshwater reservoirs of Beed district, where cyprinid fishes were reported as dominant groups (Pawar, 2014).

3.1 Order-wise Composition of Fish Diversity

Table 2 shows the order-wise distribution of fish species recorded from Uthala Dam. Among the recorded fish fauna, the order Cypriniformes showed the highest contribution (58.33%), followed by Siluriformes (25.00%) and Perciformes (16.67%). The dominance of Cypriniformes indicates the suitability of reservoir conditions for carp and other cyprinid fishes.

Table 2. Order-wise Distribution of Fish Species

Sr. No.	Order	Number of Species	Percentage Contribution (%)
1	Cypriniformes	7	58.33
2	Siluriformes	3	25.00
3	Perciformes	2	16.67
Total		12	100

3.2 Family-wise Composition of Fish Diversity

Table 3. Family-wise Distribution of Fish Species

Sr. No.	Family	Number of Species	Percentage Contribution (%)
1	Cyprinidae	7	58.33
2	Bagridae	1	8.33
3	Clariidae	1	8.33
4	Heteropneustidae	1	8.33
5	Channidae	1	8.33
6	Cichlidae	1	8.33
Total		12	100

Table 3 represents the **family-wise composition of fish diversity**. The family **Cyprinidae** was the dominant group with the highest number of species (58.33% contribution), while other families such as Bagridae, Clariidae, Heteropneustidae, Channidae and Cichlidae were represented by single species. The higher representation of Cyprinidae reflects their wide distribution and adaptability in freshwater habitats.

3.3 Conservation Status of Recorded Fish Species

Table 4 presents the conservation status of recorded fish species. Most recorded species belong to the Least Concern category (LC) category according to IUCN status. This indicates that the recorded fishes are currently widespread and not under immediate threat; however, regular monitoring is essential for maintaining freshwater fish diversity in Uthala Dam.

Table 4. Conservation Status of Recorded Fish Species

Sr. No.	Conservation Category	Number of Species	Percentage (%)
1	Least Concern (LC)	12	100
2	Near Threatened (NT)	0	0
3	Vulnerable (VU)	0	0
4	Endangered (EN)	0	0

4. Discussion

The present study provides information on the freshwater fish diversity of Uthala Dam, Shirur Kasar, District Beed (Maharashtra), India. The recorded fish assemblage showed the dominance of the order Cypriniformes, particularly the family Cyprinidae, which is a common feature of Indian freshwater ecosystems. The higher representation of cyprinid fishes may be attributed to their wide ecological adaptability, diverse feeding habits and suitability to reservoir environments (Talwar & Jhingran, 1991; Jayaram, 2010). The occurrence of major carps such as *Catla catla*, *Labeo rohita* and *Cirrhinus mrigala* indicates the fisheries importance of Uthala Dam. Similar dominance of cyprinid fishes has been reported from other reservoirs of Beed district. Few authors recorded rich fish diversity from Sindphana River Dam near Shirur Kasar, with Cyprinidae forming one of the dominant groups. Comparable observations were also reported from Majalgaon Reservoir, where a diverse assemblage of economically important freshwater fishes was documented (Pawar, 2014).

The presence of catfishes such as *Mystus tengara*, *Clarias batrachus* and *Heteropneustes fossilis* indicates the availability of varied ecological niches within the reservoir. These fishes are well adapted to changing environmental conditions and contribute to the

overall diversity of freshwater fish communities. The occurrence of *Channa punctata* reflects the presence of predatory fish groups, which play an important role in maintaining ecological balance through regulation of prey populations. The presence of *Oreochromis mossambicus* indicates the occurrence of introduced fish species, which are commonly reported from several freshwater reservoirs of Maharashtra.

The fish diversity observed in Uthala Dam is comparable with other freshwater bodies of the Beed region, including Sindphana Dam, Majalgaon Reservoir and Bendsura Reservoir, where diverse ichthyofaunal communities have been reported (Pawar, 2014; Sirsat, 2022). The present findings highlight the importance of Uthala Dam as a habitat supporting freshwater fish diversity and emphasize the need for sustainable management practices for long-term conservation of aquatic resources.

Conclusion

The present study provides baseline information on the freshwater fish diversity of Uthala Dam, Shirur Kasar, District Beed (Maharashtra), India. The investigation revealed the presence of diverse fish groups representing different taxonomic categories, with dominance of the family Cyprinidae and the order Cypriniformes. The occurrence of economically important fishes such as Indian major carps and other freshwater species indicates the ecological and fisheries significance of the reservoir.

The fish diversity of Uthala Dam reflects its suitability as a freshwater habitat supporting native and commercially valuable fish populations. Regular monitoring, sustainable fishing practices and conservation measures are recommended to maintain the ichthyofaunal diversity and ecological stability of the reservoir ecosystem.

The present work contributes valuable baseline data on fish diversity of the Shirur Kasar region and may serve as a reference for future biodiversity studies and management planning of freshwater resources in Beed district.

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