

## Taxonomic assessment of ichthyofaunal diversity of Dagadparwa Dam, Akola, Maharashtra

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### Abstract

Dagadparwa dam serves as an important ecologically significant freshwater biological hotspot within the Akola district. The present study assessed the ichthyofaunal diversity within the freshwater ecosystem of Dagadparwa dam from period of March 2024 to September 2024. Identification of fish was performed and carried out by using recognized standard taxonomic keys in appropriate standard literature with emphasis on external morphological features, traits and fin formulae. Based on the identification, a total of six species were documented during the study period. These species belonged to the orders Channiformes, Siluriformes, Cypriniformes, Cichliformes and were represented by the families Channidae, Siluridae, Cyprinidae, Cichlidae. The findings provide a baseline reference for understanding the fish diversity of Dagadparwa dam and contribute to regional biodiversity documentation.

**Keywords:** Ichthyofaunal diversity, dagadparwa dam, biodiversity

### Introduction

Fish constitute one of the most prominent and ecologically significant components of inland aquatic fauna and are widely recognized as an important source of protein. For sustaining ecosystem stability and long-term development, the survival of fish across diverse aquatic habitats is essential (Nikam *et al.*, 2014) [9]. Fishes represent an important component of natural biological wealth. With abundant natural water resources, Maharashtra is a key state for fish production and possesses considerable scope for fisheries development (Pawara *et al.*, 2014) [11]. Human activities exert substantial stress on freshwater fish communities, resulting in marked ecological modification (Shelke, 2014) [13].

Fish diversity functions as a sensitive and reliable environmental bioindicator of aquatic environmental quality. Similar to zooplankton, ichthyofaunal patterns provide an effective biological framework for biomonitoring and determining the trophic status of freshwater ecosystems of dam (Kawade and Pandarkar, 2016) [7]. Fish have been valued for their nutritional and medicinal benefits from early historical period to modern era (Gadwe *et al.*, 2017). A comprehensive assessment of fish faunal diversity constitutes a critical component for optimizing freshwater resource utilization and ensuring the sustainable and economically viable management of lake ecosystems in India (Patode *et al.*, 2021) [10]. Freshwater lakes sustain a diverse assemblage of organisms, including fish, zooplankton, phytoplankton and aquatic insects, collectively forming the primary food resources for fishes (Bansod *et al.*, 2024) [1].

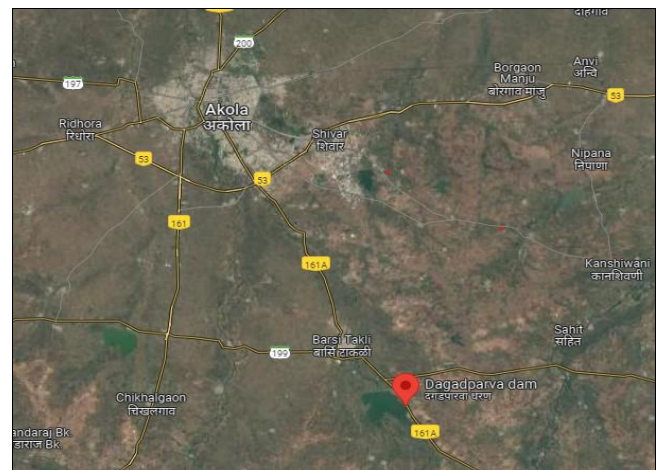
The freshwater water body selected for the present investigation supports a variety of fish species and sustains a variety of fish species and sustain regular fishing activities. Proper investigation, identification and documentation of

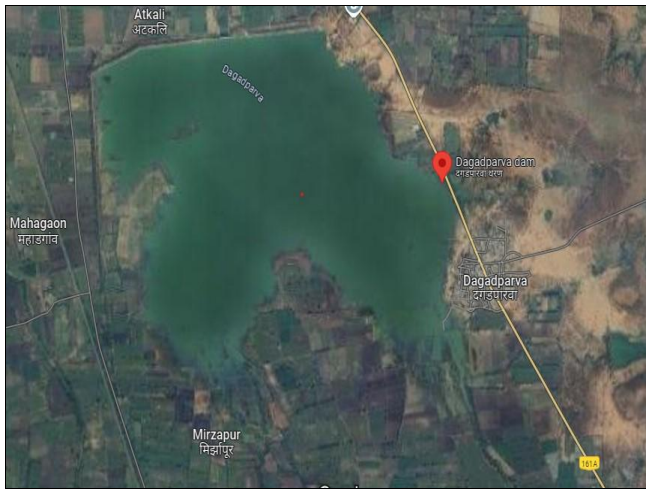
fish species provide essential information for sustainable management, conservation planning and long-term monitoring of dam ecosystem.

### Materials and Methods

Dagadparwa is a village situated in Barshitakli taluka of Akola district, Maharashtra, India. The district lies at approximately, 20°42'26.0208" N latitude and 77°0'10.65" E longitude within the Vidarbha region. The Dagadparwa dam, constructed on Vidrupa river is located nearly 19 km from Akola city. Dagadparwa village is situated at around 02°77' E longitude and 20°43' N latitude. Ecologically, the dam plays a crucial role in sustaining regional biodiversity.

**Fish Identification:** Fish samples were collected between March 2024 to September 2024 with the cooperation of local fishermen using drag nets and cast nets. Identification was based on external morphological characteristics using standard literature of Talwar and Jhingran (1991) [14], Jayaram (1999) [6] and Jadhav, 2012 [5].





**Fig 1 A):** Satellite image indicating location of Dagadparwa dam within Akola district, Maharashtra, B) Zoomed satellite view of precise location of Dagadparwa dam indicating general geographic region

**Results**

In the present investigation, six fish species were identified belonging to four orders: Channiformes, Siluriformes, Cypriniformes and Cichliformes. These species were represented by the families Channidae, Siluridae, Cyprinidae, Cichlidae families respectively recorded during the study period of March 2024 to September 2024.

Among the six species, one species *Channa marulius* (Murrel) belong to family Channidae of order Channiformes. Another species, *Ompok bimaculatus* (Butter Catfish), belongs to the family Siluridae of the order Siluriformes,. Three species namely *Catla catla* (Catla), *Labeo rohita* (Rohu), *Cirrhinus mrigala* (Mrigal) belong to the order Cypriniformes and family Cyprinidae. One species, *Oreochromis mossambicus* (Tilapia), belongs to the family Cichlidae of order Cichliformes was also recorded during the study.

**Table 1:** Order-wise and family-wise classification of Fish species recorded at Dagadparwa dam

Order	Family	Scientific Name	Common name
Channiformes	Channidae	<i>Channa marulius</i>	Murrel
Siluriformes	Siluridae	<i>Ompok bimaculatus</i>	Butter Catfish
Cypriniformes	Cyprinidae	<i>Catla catla</i>	Catla
		<i>Labeo rohita</i>	Rohu
		<i>Cirrhinus mrigala</i>	Mrigal
Cichliformes	Cichlidae	<i>Oreochromis mossambicus</i>	Tilapia



*Channa marulius*



*Ompok bimaculatus*



*Catla catla*



*Labeo rohita*



*Cirrhinus mrigala*



*Oreochromis mossambicus*

**Discussion**

Ichthyofaunal survey of Ujani dam, Solapur, revealed seventeen species of six orders and ten families, underscoring the richness and ecological significance of its aquatic biota (Shaikh and Bansode, 2024) [1, 12]. In Wadhadi dam of Yelabara, Maharashtra, total thirteen fish species were identified, encompassing six orders and families, thereby reflecting substantial ichthyofaunal diversity within the reservoir (Thakare and Joshi, 2023) [15]. Twenty-two fish species belonging to six orders, eleven families and nineteen genera were recorded from Khadkpurna Reservoir, Buldana (Nagmote *et al.*,2023) [8]. Eight species belonging to six families of four orders documented from Pimpalgaon (Wakhaji) dam,Nagpur (Gurchal and Bhatkulkar,2024) [4]. A survey conducted in Nagad dam, Aurangabad documented twenty fish species belonging to four orders and eight

families, underscoring the reservoir diverse ichthyofaunal composition (Shelke, 2014) [13]. In the Pothara dam, Samudrapur, Wardha, seventeen fish species distributed across four orders and five families were documented, confirming a well-diversified fish community in the dam ecosystem (Chaudhari and Sitre,2020) [2]. Earlier studies mentioned in the discussion have also reported the species *Channa marulius*, *Ompok bimaculatus*, *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala* and *Oreochromis mossambicus* species which were identified in Dagadparwa dam, Akola. The present study indicates that conservation efforts can effectively support the preservation of fish species in dam ecosystems. By documenting species diversity and distribution, the study emphasizes the role of research in sustaining aquatic biodiversity within the dam ecosystem.

### Conclusion

The present study documents the fish diversity of Dagadparwa dam, district Akola, Maharashtra, where six species belonging to four orders and four families were recorded. Three species - *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala* - belong to the family Cyprinidae of the order Cypriniformes. One species, *Channa marulius* classified under family Channidae of order Channiformes, *Ompok bimaculatus* is a member of the family Siluridae and the order Siluriformes. Another one species identified was *Oreochromis mossambicus*, belonging under the family Cichlidae of order Cichliformes. Overall, the dam water provides good and suitable environment for fishes.

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