



ICHTHYOFAUNAL DIVERSITY OF UDUTORE HALLA JALASHAYA AND ITS ASSOCIATED RIVER STRETCH, CHAMARAJANAGAR DISTRICT, KARNATAKA, INDIA

Audiology

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ABSTRACT

The present study was conducted to document the ichthyofaunal diversity of Uduore Halla Jalashaya (Kachanahally Dam), an irrigation reservoir in Hanur Taluk, Chamarajanagar district, Karnataka, and its associated river stretch. Field surveys were carried out from February 2026 using standard fishing methods across multiple sampling sites. A total of 20 freshwater fish species belonging to 8 orders and 12 families were recorded. Cypriniformes was the dominant order (7 species) and Cyprinidae was the most species-rich family (6 species). Of the recorded species, 16 are Least Concern, 2 are Vulnerable (*Cirrhinus mrigala* and *Wallago attu*), and 2 are Near Threatened (*Hypselobarbus carnaticus* and *Ompok bimaculatus*) per the IUCN Red List. Key physicochemical parameters were largely within acceptable limits, though elevated iron and ammonia levels indicated mild anthropogenic stress. This is the first systematic ichthyofaunal record from this reservoir and provides baseline data for future fisheries management and conservation.

KEYWORDS

Ichthyofaunal Diversity, Uduore Halla Jalashaya, Chamarajanagar, Freshwater Fishes, Iucn Conservation Status

INTRODUCTION

India ranks ninth globally in freshwater fish diversity, with approximately 930 freshwater species out of a total of 2,500 fish species (Kar, 2003). Karnataka supports around 240 riverine fish species across 14 orders and 38 families (Mogalekar et al., 2021). The Cauvery basin alone harbours 109 species, many endemic to the Western Ghats. Comprehensive surveys have confirmed the exceptional ichthyofaunal richness of the broader Cauvery system (Roshith et al., 2022; Sreenivasan et al., 2021), but smaller irrigation reservoirs in Chamarajanagar district remain entirely unstudied. Fish assemblages are reliable bioindicators of aquatic ecosystem health (Pathak & Tyagi, 2010), and baseline surveys of unexplored water bodies are essential for both scientific documentation and conservation planning. The Uduore Halla Jalashaya, located near the ecologically significant Male Mahadeshwara Hills, is one such unstudied water body. The present study aims to document its fish diversity, assess water quality, and evaluate the conservation status of recorded species.

MATERIALS AND METHODS

Study Area: Uduore Halla Jalashaya (Kachanahally Dam) is an irrigation reservoir constructed across the Uduore Halla, a tributary of the Cauvery River, near K. Gundapura, Hanur Taluk (approx. 12°08'N, 77°12'E), Chamarajanagar district. Its catchment area is approximately 700 km². The reservoir is surrounded by scrub forest and agricultural land and is in close proximity to the Male Mahadeshwara Hills Wildlife Sanctuary. Both lentic backwater and lotic river-stretch habitats are present.

Fish Collection and Identification: Field surveys were conducted from February 2026. Fish were sampled at multiple sites using cast nets (5–10 m), gill nets of varying mesh sizes, drag nets, and bamboo traps during early morning and late evening sessions. Specimens were identified using standard references (Jayaram, 2010; Talwar & Jhingran, 1991) and verified against FishBase (Froese & Pauly, 2020). IUCN conservation status was assessed using the IUCN Red List (2021).

Water Quality: Water samples were collected from all sites and analysed for 16 physicochemical parameters following APHA (2017) standard methods. Results were compared against WHO recommended limits.

RESULTS

Species Diversity: A total of 20 freshwater fish species were recorded, belonging to 8 orders and 12 families (Table 1). Cypriniformes was the most species-rich order (7 species; 35%), followed by Siluriformes (4 species; 20%), Mugiliformes, Anabantiformes, and Osteoglossiformes (2 species each; 10% each), and Synbranchiformes, Beloniformes, and Cichliformes (1 species each; 5% each). Among families, Cyprinidae was most diverse with 6 species, followed by Siluridae, Ambassidae, and Notopteridae with 2 species each. The remaining 8 families were represented by 1 species each.

Table 1: Freshwater fish species recorded from Uduore Halla Jalashaya with IUCN conservation status (LC = Least Concern;

NT = Near Threatened; VU = Vulnerable)

Sl.	Order	Family	Common Name	Scientific Name	IUCN
1	Cypriniformes	Cyprinidae	Indian Carp	<i>Catla catla</i>	LC
2	Cypriniformes	Cyprinidae	Common Carp	<i>Cyprinus carpio</i>	LC
3	Cypriniformes	Cyprinidae	Orange-fin Labeo	<i>Labeo calbasu</i>	LC
4	Cypriniformes	Cyprinidae	Rohu	<i>Labeo rohita</i>	LC
5	Cypriniformes	Cyprinidae	Carnatic Carp	<i>Hypselobarbus ussurnaticus</i>	NT
6	Cypriniformes	Cyprinidae	Mrigal	<i>Cirrhinus mrigala</i>	VU
7	Cypriniformes	Danionidae	Cauvery Rasbora	<i>Rasbora caverii</i>	LC
8	Siluriformes	Siluridae	Butter Catfish	<i>Ompok bimaculatus</i>	NT
9	Siluriformes	Siluridae	Freshwater Shark	<i>Wallago attu</i>	VU
10	Siluriformes	Clariidae	Walking Catfish	<i>Clarias batrachus</i>	LC
11	Siluriformes	Bagridae	Striped Catfish	<i>Mystus vittatus</i>	LC
12	Mugiliformes	Ambassidae	Glass Perchlet	<i>Chanda nama</i>	LC
13	Mugiliformes	Ambassidae	Indian Glassy Fish	<i>Parambassis ranga</i>	LC
14	Anabantiformes	Anabantidae	Climbing Perch	<i>Anabas testudineus</i>	LC
15	Anabantiformes	Channidae	Striped Snakehead	<i>Channa striatus</i>	LC
16	Osteoglossiformes	Notopteridae	Ghost Knifefish	<i>Notopterus notopterus</i>	LC
17	Osteoglossiformes	Notopteridae	Clown Knifefish	<i>Chitala chitala</i>	LC
18	Synbranchiformes	Mastacembelidae	Tire Track Eel	<i>Mastacembelus armatus</i>	LC
19	Beloniformes	Hemiramphidae	Tropical Halfbeak	<i>Hyporhamphus limbatus</i>	LC
20	Cichliformes	Cichlidae	Nile Tilapia	<i>Oreochromis niloticus</i>	LC

IUCN Status: Of the 20 species, 16 (80%) were Least Concern, 2 (10%) Vulnerable — *Cirrhinus mrigala* and *Wallago attu* — and 2 (10%) Near Threatened — *Hypselobarbus carnaticus* and *Ompok bimaculatus*. No critically endangered or endangered species were recorded.

Water Quality: Most parameters were within WHO limits (Table 2).

Iron levels (11.3–11.8 mg/L) were markedly above the WHO limit of 0.1 mg/L. Average ammonia (4.47 mg/L) also exceeded the safe threshold, pointing to agricultural runoff from the upstream catchment. BOD (5.9 mg/L) and COD (39.6 mg/L) indicated mild organic loading.

Table 2: Selected physicochemical water quality parameters of Uduore Halla Jalashaya (= exceeds WHO guideline)

Parameter	Observed Value	WHO / Standard Limit
pH	7.9-8.9 (avg. 8.24)	6.5–8.4
Temperature (°C)	28–32	–
Dissolved Oxygen (mg/L)	5.0–7.0	> 5.0
BOD (mg/L)	5.9 (avg.)	< 5.0
COD (mg/L)	39.6 (avg.)	< 30
TDS (mg/L)	105-172 (avg. 157)	< 500
Iron (mg/L)	11.3–11.8	< 0.1 Δ
Ammonia (mg/L)	0.8-10.2 (avg. 4.47)	< 0.5 Δ
Total Hardness (mg/L)	84-112 (avg. 101)	< 300

DISCUSSION

The 20 species recorded are comparable to similar-sized water bodies in the region - the Seeta River (20 species; Narasimha et al., 2016) and Durgadahalli Lake (10 species; Shivaraju et al., 2018) - but lower than larger reservoirs such as the Tungabhadra (76 species; Bhushan et al., 2022) and Tunga Reservoir (43 species; Naik et al., 2015). The consistent dominance of Cypriniformes and Cyprinidae in the recorded assemblage is well-documented across Karnataka's freshwater systems (Gangadhara et al., 2015; Mogalekar et al., 2021) and reflects the broad ecological tolerance of carp-family fishes in lentic environments.

The co-occurrence of exotic species - *Oreochromis niloticus* and *Cyprinus carpio* - with native commercially important carps is ecologically significant. Roshith et al. (2022) documented a progressive increase in tilapia dominance in the Middle Cauvery, and Pownkumar et al. (2022) identified exotic species as a key driver of native fish decline in the basin. The two Vulnerable species (*Cirrhinus mrigala*, *Wallago attu*) and two Near Threatened species (*Hypselobarbus carnaticus*, *Ompok bimaculatus*) recorded in this study are listed as declining elsewhere in Karnataka and face pressures from overfishing, habitat alteration, and competition with exotics.

Elevated iron (11.3–11.8 mg/L vs. WHO limit of 0.1 mg/L) and ammonia (avg. 4.47 mg/L) signal anthropogenic stress likely originating from agricultural runoff in the upstream catchment area. Increased BOD and COD, though not yet critical, may worsen during summer when water levels fall. These conditions could reduce reproductive success in sensitive species, highlighting the need for pollution control and regular water quality monitoring.

Figure : Study Area and location



CONCLUSION

This study presents the first systematic ichthyofaunal survey of the Uduore Halla Jalashaya, documenting 20 freshwater fish species from 8 orders and 12 families. The dominant Cypriniformes pattern is consistent with Karnataka-wide trends. The presence of two Vulnerable and two Near Threatened species alongside invasive exotics identifies this reservoir as a site of conservation concern. Reducing agricultural runoff, regulating exotic species introduction, and enforcing sustainable fishing practices are recommended as priority management actions. The data generated here provide a valuable baseline for future monitoring and conservation planning in

this part of the Cauvery drainage system.

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