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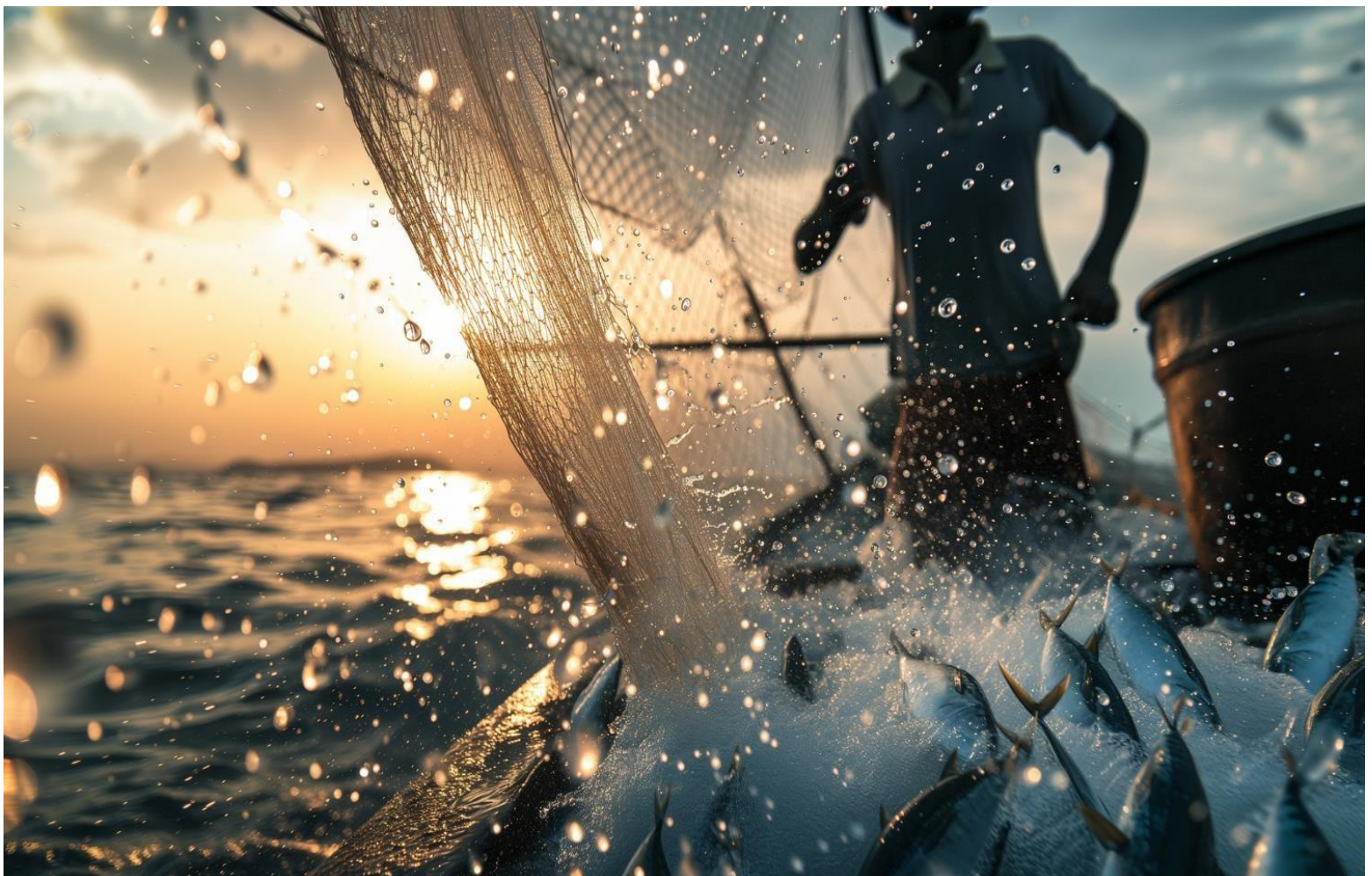


IJFAQ

INTERNATIONAL JOURNAL OF FISHERIES AND AQUACULTURE



Journal ID: 3480-2610



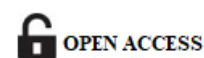
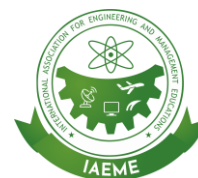
IAEME Publication

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FISH BIODIVERSITY IN SOME SELECTED RESERVOIRS OF SHAHUWADI TEHSIL OF KOLHAPUR DISTRICT, MAHARASHTRA (INDIA)

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ABSTRACT

In aquatic ecosystems fishes are the top level consumers in the food chain. The present study of fish diversity in selected reservoirs of Shahuwadi Tehsil of Maharashtra (India) was carried out to study the fresh water fish diversity and its potential towards Pisciculture in selected reservoirs. Three reservoirs Manoli, Ninai-Parle, Gelawade are selected for fish collection and fishes are also collected from local fisherman. Maharashtra state has rich freshwater ichthyofaunal diversity due to many natural and artificial water resources like rivers, lakes, reservoirs, dams irrigation canals and conventional lakes which nurtures the diverse fish fauna. The present study of fish diversity was undertaken during period of September 2024 to August 2025. During the study period 70 species of fishes belonging to 8 orders, 15 families and 22 genera are recorded. Cypriniformes like the Labeo rohita, Catla catla, Cirrhinus mrigala, Cyprinus carpio, Labeo boggut, Garra mullya, are most prevalent species.

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The present study makes an effort to enlist the variety of freshwater fishes found in the Three selected fresh water reservoirs Manoli, Ninai-Parle and Gelawade of Shahuwadi Tehsil Maharashtra.

Key words: Ichthyofauna, Diversity, Pisciculture, Reservoirs, Food Chain

Cite this Article: Dr. Nandkumar K. Kamble, Dr. Suvarna B. Pol, Dr. Ashiya M.Momin. (2026). Evaluation of Some Toxic Metals in Commonly Consumed Fish *Cyprinus Carpio* from Mula Dam in Ahilyanagar District of Maharashtra, India. International Journal of Fisheries and Aquaculture (IJFAQ), 3(2), 1-12, DOI: https://doi.org/10.34218/IJFAQ_03_02_001

INTRODUCTION

There are over 19000 reservoirs in India covering 3, 15, 366 ha and many more are under construction (Sugunan, 2000). Reservoir fishery in India is also important from social economic point of view as it has the potential of providing employment to about 2 million peoples (Khan et al, 1991). In Maharashtra fresh water aquatic ecosystems including reservoirs, rivers, irrigation canals, dams, and lakes. These fresh water ecosystem has important role to develop inland fisheries. These freshwater water resources, has high production potential and diverse fish populations. In the field of fish diversity of different freshwater bodies earlier contributions were made by many workers (Khedkar, 2005; Rao et al, 1998; Sharma and Nayak, 2001; Sone et al, 2008; Srivastava et al, 2008; Pawar and Pandarkar, 2010; Pawar et al, 2011) Throughout the country, there are more than 6000 freshwater rivers. India is among the countries which have rich biodiversity and with reference to freshwater diversity occupies the ninth position (Shinde et al., 2009 and Jain et al., 2014). Since 1961, there has not been notable progress in the studies of the diversity of freshwater fishes on the west coast of India. India is among the countries which have rich biodiversity and with reference to freshwater diversity occupies the ninth position (Shinde et al., 2009 and Jain et al., 2014) [4, 19]. In India there are 2,500 species of fishes of which 930 lives in freshwater and 1,570 are marine (Ubarhande et al, 2011 and Das et al, 2014).

There are about 450 families of freshwater fishes globally. Roughly 40 are represented in India. Fish is not only useful as staple food but also used as biological control agent. But due to water pollution there is a constant decrease in the number of fishes.

The fish diversity was studied by many workers to a great extent that includes Sarwade et al. (2010), Jadhav et al., (2011), Thirumala et al., (2011), Muruga (2012), Gohil and Mankodi (2013), Islam et al., (2013), Bose et al., (2013), Khanna and Fouzia (2013), Mohite and Samant (2013), Chouhan et al., (2013), Sirajudheen and Khan (2014) and Londhe (2015). Now a days due to Fish diversity is declining rapidly each day due to unending anthropogenic stress the fish diversity is declining.

Mittermeier and Mitemeir (1997) [12] have recorded the 8,411 freshwater and 11,650 fishes from the world. Jayaram (1999) [6] and Kar (2003) [7] have reported the 2500 fish species from India, among these fish species 1,570 are marine and 930 are freshwater species.

Natural habitat destruction, water pollution and introduction of exotic species has resulted in depletion of ichthyofaunal diversity (Revenga, 2005) [18]. This resulted in a drastic fall in the production of fishes. Although many of the researchers have studied the fish diversity in various states of India (Lal et al., 2013; Sayyad and Dhamani, 2018; Dalavi and Pawar, 2022).

The study of fish diversity is necessary to design and develop commercial fisheries or to further the knowledge of fishery resource as a basis for their conservation and management

Knowledge of the quantity and types of fishes that comprise the fauna is absolutely necessary to any program designed to explore and develop commercial fisheries or to further the knowledge of fishery resource as a basis for their conservation and management [5]. Overexploitation of fishes from natural freshwater bodies including lakes, rivers, reservoirs etc exceeds the rejuvenation capacity of it. Thus, there is need of assessment of Ichthyofauna associated with different fresh water wetlands, which will help in planning methods for their production.

The freshwater reservoirs, including rivers, irrigation canals, dams, and lakes are wealth of Maharashtra. The Maharashtra state has potential for producing fish and natural water resources for developing its fisheries. The present study of fish diversity in selected reservoirs of Shahuwadi Tehsil of Maharashtra (India) was undertaken during period of November 2024 to October 2025

Study Area:

1. The Manoli Dam is located in the Amba Valley, Shahuwadi tehsil, Kolhapur district, at approximately **16.943359° N latitude and 73.801845° E longitude**. The Manoli Dam with a reservoir capacity of 0.18 TMC

2. The Parali Ninai Dam, also known as the Kadvi Dam, is located in the Parali Ninai area of Kolhapur. The Ninai Parle dam is located at approximately **17°0'15" N latitude and 73°52'14" E longitude**. This location is in the Tehsil, of Shahuwadi in Kolhapur district of Maharashtra, India.
3. Gelawade Dam, officially known as Kasari Dam, is an earthen and masonry dam situated on the Kasari River in Shahuwadi Tehsil, Kolhapur District, Maharashtra. It features a gross storage capacity of 2.77 TMC (billion cubic feet)

Gelawade Dam is located in the Shahuwadi taluka of Kolhapur district, Maharashtra, near the Amba Ghat and Vishalgad forest fringe. Its coordinates are approximately 16.9427° N latitude and 73.8058° E longitude.

Origin of Research Problem: Freshwater fishes that are one of the important protein-rich food sources easily available to humans. Freshwater reservoirs are unique habitat with representatives of varieties of fishes. The present study is undertaken to design and develop the pisciculture in these selected reservoirs.

Materials and methods:

Fish Sample Collection: During study period collection of fishes were carried with the help of local fishermen from November 2024 to October 2025. Fish samples were collected from every week from selected reservoirs Parali -Ninai Dam, Manoli Dam and Gelawade Dam during the study period with the help of skilled local fishermen by various fishing crafts, gears with variable mesh size. For capturing the fish mono-filamentous gill nets (10-30mm mesh size), cast nets (10 25mm mesh size) and drag nets, and also used local crafts (Hodi) for fishing. Sampling points were distributed throughout the site to cover its whole area and location was changed for the collection of fish fauna according to the season.

Identification of fish sample: Identification of fishes was done up to species level at fish landing center to get its natural color, pattern of scales, fins, mouth pattern, identification marks like black spot, blotch on operculum, paired and unpaired fins and body parts with the help of identification keys available from central or state fisheries departments. The fishes were identified by referring standard literature (Day, 1986; Talwar and Jhingran, 1991; Jayaram, 1999; Qureshi and Qureshi, 1983; Vishwanath et al., 2014). A popular website of fish study, www.fishbase.org was also referred for identification of species and for other aspect. According to the season, locations were changed for successive fishing operation.

Table 1 Fish species recorded in selected reservoirs during study period September 2024 to August 2025

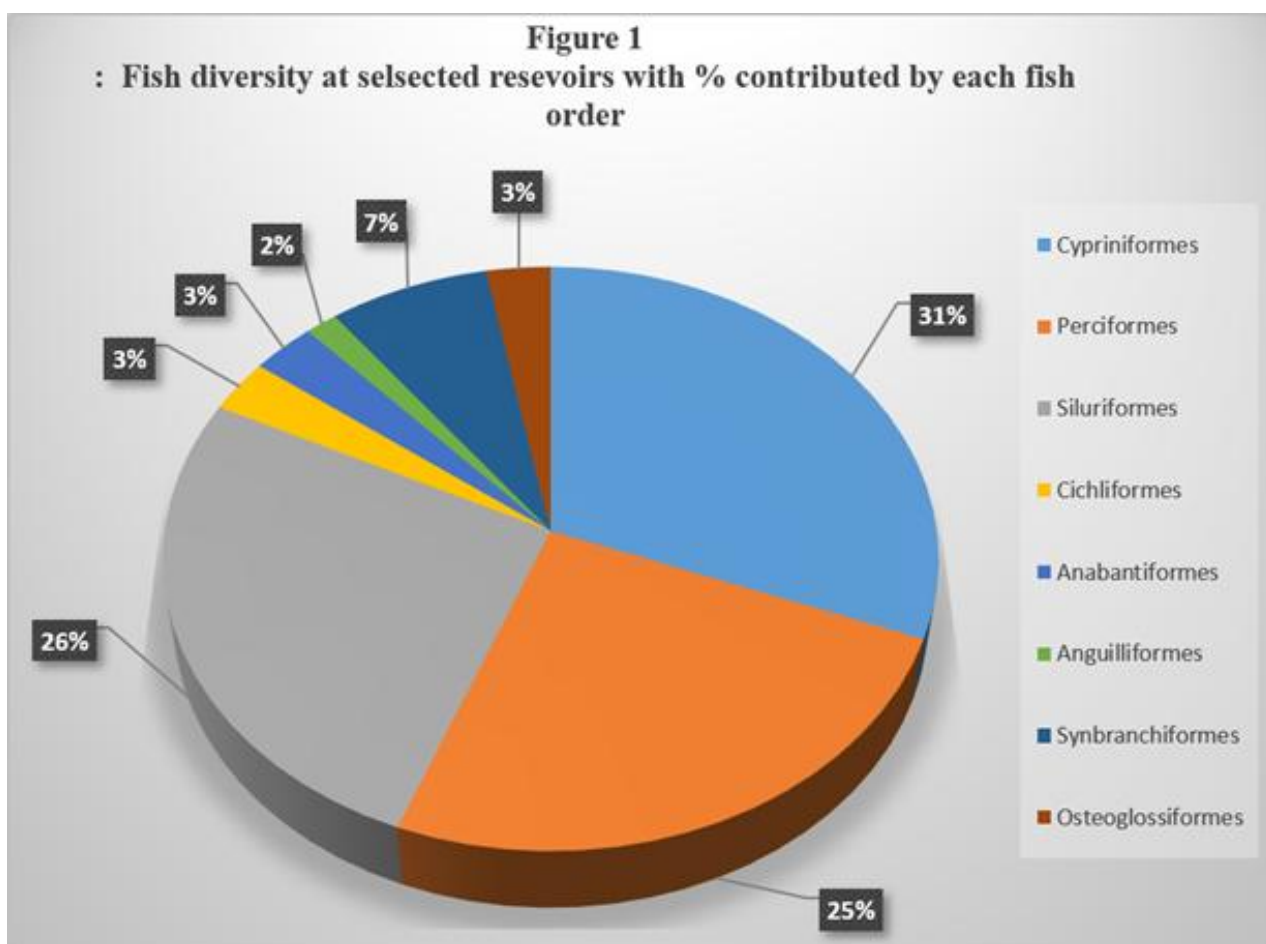
Sr. No.	Order	Family	Species Name	Study Area		
				Manoli Dam	Parle-Ninai Dam	Gelawa de Dam
1	Cypriniformes	Cyprinidae	<i>Cirrhinus mrigala</i> (Hamilton)	+	+	+
			<i>Labeo rohita</i> (Hamilton)	+	+	+
			<i>Cirrhinus reba</i> (Hamilton)	-	+	+
			<i>Catla catla</i> (Hamilton)	+	+	+
			<i>Labeo calbasu</i>	+	+	-
			<i>Labeo bata</i> (Hamilton)	-	+	+
			<i>Labeo gonius</i>	-	-	+
			<i>Cyprinus carpio</i> (Linnaeus, 1758)	+	+	+
			<i>Puntius chilinoideus</i> (Hamilton, 1822)	+	-	+
2	Perciformes	Cichlidae	<i>Oreochromis mossambicus</i> (Peters)	-	+	+
			<i>Tilapia mosombica</i> (W.K.H. pterus 1852)	+	+	-
		Channidae	<i>Channa punctatus</i> (Bloch)	-	+	+
			<i>Channa marulius</i> (Hamilton 1822)	+	+	-
			<i>Channa striatus</i> (Bloch, 1793)	-	+	+
		Goboidae	<i>Glossogobius siur</i> (Ham-Buchanan)	+	-	+
			<i>Glossogobius giuris</i> (Hamilton)	+	+	-
		Ambassidae	<i>Chanda nama</i> (Hamilton)	-	+	+
		Nandidae	<i>Nandus nandus</i>	-	+	-
3	Siluriformes	Bagridae	<i>Mystus bleekeri</i> (Day)	+	+	-
			<i>Mystus cavasius</i> (Hamilton)	+	-	+
			<i>Mystus seenghala</i>	-	-	+
			<i>Rita rita</i> (Valenciennes 1840)	+	+	-
		Claridae	<i>Clarias batrachus</i>	-	+	-
		Siluridae	<i>Mystus malabaricus</i> (Jerdon)	+	+	+
			<i>Wallago attu</i>	+	+	+
			<i>Ompok bimaculatus</i> (Bloch)	-	+	+
		Pangasiidae	<i>Pangasius pangasius</i>	+	+	-
4	Cichliformes	Chichlidae	<i>Oreochromus mossambicus</i>	-	+	+
5	Anabantiformes	Anabantidae	<i>Anabas testudineus</i>	+	+	-
6	Anguilliformes	Anguillidae	<i>Anguilla bengalensis</i>	-	-	+
7	Synbranchiformes	Mastacembelidae	<i>Mastacembalus armatus</i> (Scopoli 1777)	+	+	+
			<i>Macrognathus aculeatus</i> (Bloch)	-	+	-
			<i>Macrognathus pancalus</i> (Hamilton)	+	+	-
			<i>Macrognathus saculeatus</i>	-	+	+
8	Osteoglossiformes	Notopteridae	<i>Notopterus notopterus</i> (Pallas, 1769)	+	+	-

(+) = Reported, (-) = Not Reported

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Table -2: Distribution of fishes recorded in selected reservoirs during study period.

Sr.No.	Order	Family	No of Species
1	Cypriniformes	01	21
2	Perciformes	05	17
3	Siluriformes	04	18
4	Cichliformes	01	02
5	Anabantiformes	01	02
6	Anguilliformes	01	01
7	Synbranchiformes	01	05
8	Osteoglossiformes	01	02
	Total	15	68



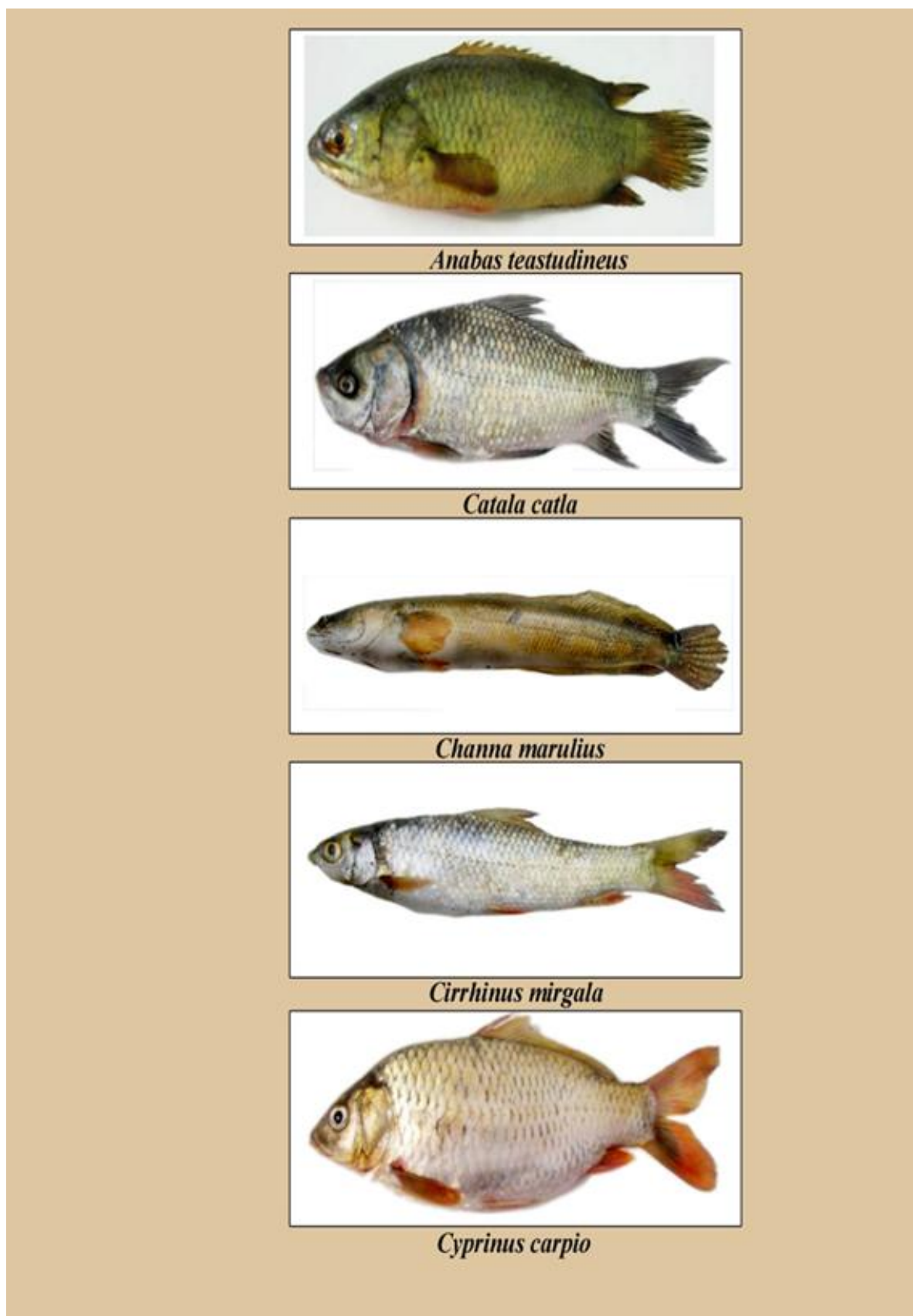


Figure 2: Fish species found in selected reservoirs from September 2024 to August 2025.

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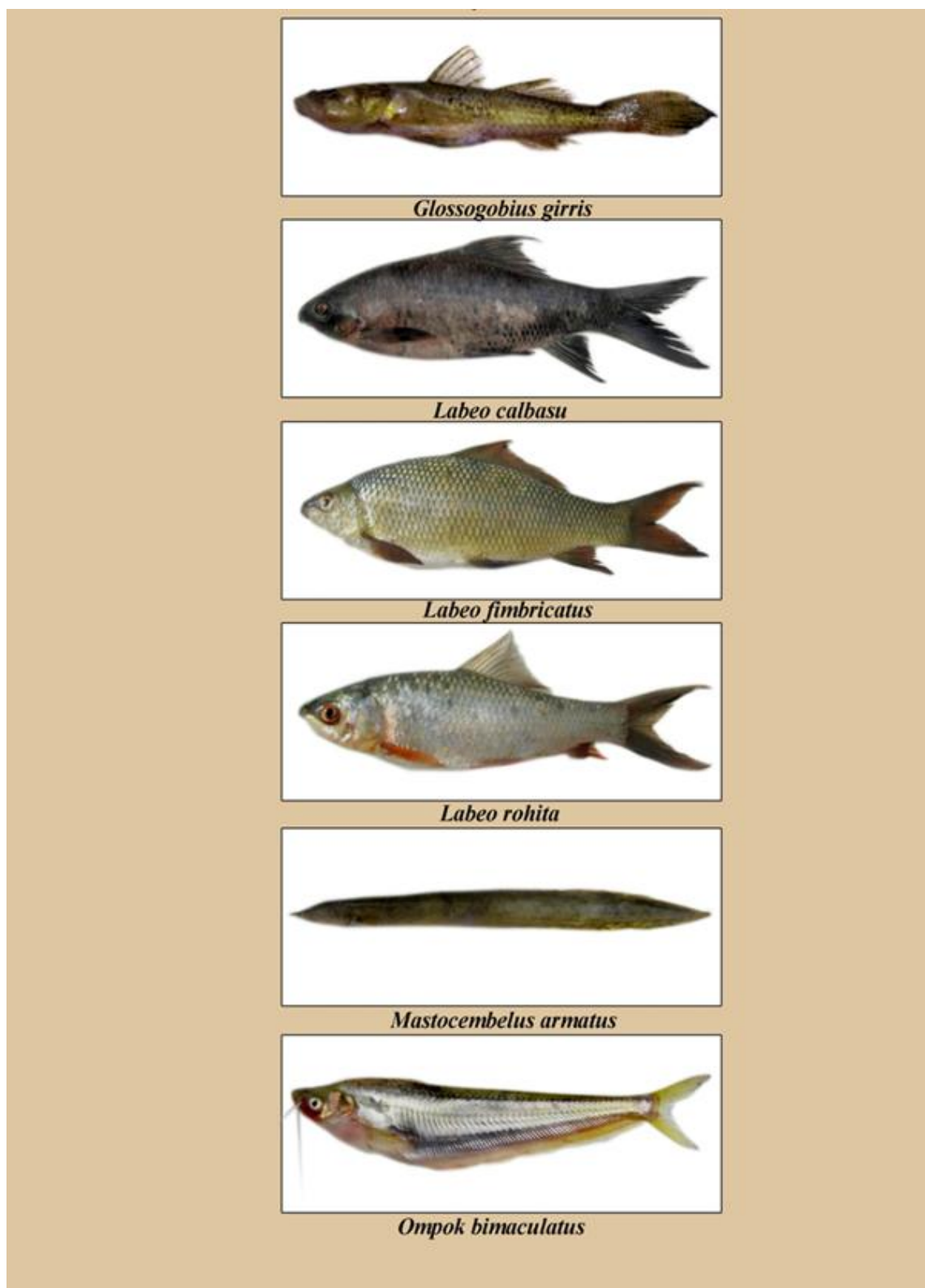


Figure 3: Fish species found in selected reservoirs from September 2024 to August 2025.

RESULTS

The present study recorded a total of **68 fish species representing 8 orders and 15 families** from the selected reservoirs (Table 1 and 2). Order **Cypriniformes was the most diverse**, contributing **21 species**, which accounted for approximately **30.9%** of the total fish species recorded. The dominance of Cypriniformes may be associated with the habitat structure, food availability, water conditions, aquatic vegetation and other local environmental factors. The second most species-rich order was **Siluriformes**, with **18 species (26.5%)**. The order **Perciformes** was represented by **17 species**, contributing about **25.0%** of the total recorded fish diversity. The three orders Cypriniformes, Siluriformes and Perciformes contributed **56 species**, representing approximately **82.4%** of all fish species recorded. These three orders shows more fish assemblage in the selected reservoirs. The remaining orders were comparatively less diverse. **Synbranchiformes** contributed **5 species (7.4%)**, while **Cichliformes, Anabantiformes and Osteoglossiformes** each contributed **2 species (2.9%)**. **Anguilliformes** was represented by only **one species (1.5%)**, making it the least represented order in terms of species richness. (Fig.1,2 & 3)

DISCUSSIONS

The variation in species numbers among different orders has importance for maintaining the quality and heterogeneity of reservoir habitats. Among the selected reservoirs Parle-Ninai Dam showed a comparatively has more representation of fish species. The several fish species are absent in one or both of the other reservoirs this may be due to each reservoir provides a range of habitat conditions suitable for different fish species.

Manoli Dam varied diversity of fishes species belonging to different families indicates that this reservoir is capable of supporting species with different ecological requirements.

Gelawade Dam also showed a distinct fish assemblage, with different fish species. The presence of *Anguilla bengalensis*, which was not recorded from Manoli or Parle-Ninai Dam, adds a distinctive component to the fish community of Gelawade Dam

CONCLUSION

Ninai-Parle reservoir has a wide variety of fish species. The majority of the fish species in the Ninai-Parle reservoir belong to the family Cyprinidae of the order Cypriniformes. The distribution of fish fauna showed that Ninai-Parle reservoir has more potential for fish production and is suitable for scientific pisciculture.

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The fishermen should make aware about scientific training for fishing which may help in high yield of fish production in the Ninai-Parle reservoir. This study helps for planning and implementing conservation measures to encourage fishermen about fishing by offering scientific training.

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