



# International Journal of Research in Academic World



Received: 29/February/2023

IJRAW: 2023; 2(3):152-153

Accepted: 12/March/2023

## Study of Fish Diversity of Karanji Lake, District Yavatmal, (M.S.) India

\*<sup>1</sup>Wanjari AJ\*<sup>1</sup>Department of Zoology, S.M. Arts, Commerce and Science College, Kelapur (Pandharkawada), Yavatmal, Maharashtra, India.

### Abstract

The current study was carried out to find the diversity and abundance of fishes in the selected sites of Karanji Lake in Maharashtra for a period of 1 year that is from June 2021 to July 2022. Fishes belongs to 5 orders and 8 families were collected during the course of study period. Total 21 species of different 18 genera were recorded from the Karanji Lake. The order Cypriniformes were dominated by 9 species followed by Osteoglossiformes 5 species, Siluriformes and Synbranchiformes with 3 species each, Perciformes 2 species and Beloniformes with only one species. Family Cyprinidae was dominant group with 9 species in the assemblage composition in which *Catla catla*, *Labeo rohia*, *Cirrhinus mrigala* and *Puntis Ticto* were found most abundant. Highest number of species were observed on site 4 followed by site 2. For the measurement of diversity a total of two diversity indexes were used Shannon and Simpson index. Shannon index showed the similar trend and ranged from 2.27 to 3.48 and Simpson index ranged from 0.01 to 0.02. The present data was compared to the previously published data and it showed that the overall diversity is still conserved but there is massive decrease in the number of particular species. Therefore proper scientific management of the aquatic resource, implementation of laws for illegal fishing, further study regarding the activities effecting the diversity and implementation of new methods and protocols for their sustainable conservation is at urgent need.

**Keywords:** Diversity, abundance, fishes, Karanji Lake

### Introduction

Fishes are rich in nutrients and rich source of protein (12% to 25%), hence constitute a stable, important and delicious food item in the diet of many people. There is great demand of fishes in India which is useful commercially for peoples and development of nations. India possesses vast inland fishery resources in the forms of rivers, lake, canals, man-made impoundments, wetlands etc. There is great diversity of fishes in this aquatic ecosystem. Fishes form an important constituent of these aquatic ecosystem having various biogenic complexes and ecological features (Karthth and Rao; 1990). India is rich in diversity of fishes but there is need of survey of diversity of fishes in different types of habitats all over the country for extensive development of aquaculture.

### Material and Methods

**Study Site:** Karanji lake is located 14 km away from Pandharkawada city & 136 km away from Nagpur at an altitude of (780-37°-00'N;200-08-00 E) in district Yavatmal of Maharashtra state. The main physical feature are; maximum depth 15.60 m; mean depth 7.80 m, area 4.24 km<sup>2</sup>. The Seasonal feature is a period of cool from October to February (min-max;8.9-28.0c). October & March are transition months with variable weather. The month July to September are wetter, whereas the remaining three month (April; May & June) are typically warmer (18.2-48.60c). It

has three well marked seasons namely rainy, winter & summer with an average rainfall of about 103.00 mm.

**Weather:** According to Metrological department of India, the seasonal feature is a period cool from October to February (Min-max; 7.6-28.7°C), October and March are transition month with variable weather, whereas the remaining three-month (April, May and June) are typically warmer (18-48.6 °C). It has three well marked season namely rainy, winter and summer with an average rainfall of about 102.00 mm.

### Methods

The study was carried out during the year January 2021 to December 2022 for 12 months. Fishes collected from Karanji Lake, Dist.-Yavatmal (M.S.) India, with the help of local fisherman using different types of nets namely Cast nets, Gill nets, and Drag nets. After catching, fishes were identified, if not possible immediately photographs were taken with the help of digital camera Nikon. The meristic and morphometric characters were measured and identified with the help of standard keys and books (Day Francis, 1994; Qureshi and Qureshi, 1983; Jhingran, 1997; Daniels, 2002 and Gupta and Gupta, 2006) [2, 6, 4, 3].

### Results

The result shows that, the area was with different fish variety and rich in fish diversity. Fishes belongs to 5 orders and 8 families were collected during the course of study period.

Total 21 species of different 18 genera were recorded from the Karanji Lake. The order Cypriniformes were dominated by 9 species followed by Osteoglossiformes 5 species, Siluriformes and Synbranchiformes with 3 species each, Perciformes 2 species and Beloniformes with only one species. Family Cyprinidae was dominant group with 9 species in the assemblage composition in which *Catla catla*, *Labeo rohia*, *Cirrhinus mrigala* and *Puntis Ticto* were found most abundant whereas *Puntitus sarana* and *Rasbora*

*daniconius* were less found less abundant or rare. In Family Osteoglossiformes, Species *Garra lamta* was most abundant. Some other species from all species abundant and less abundant (Table-1). Among 21 species, cypriniformes was most dominant constituting 39.13%, followed by order Osteoglossiformes 21.73%, Order Siluriformes and Synbranchiformes constitute 13% each and Order beloniformes constituting 4.34% of the total species.

**Table 1:** Fish Diversity of Karanji Lake.

Order	Family	Scientific name	Common name	Status
Osteoglossiformes	Notopteridae	<i>Nototeru notopterus</i>	Feather back	+
		<i>Notopterus chitala</i>	Moly	-
		<i>Hypothalmichys molitrix</i>	Silver car	++
		<i>Ctenopharyngodon idella</i>	Grass carp	+
		<i>Garra lamta</i>	Garra	+++
Siluriformes	Siluridae	<i>Mystus tengara</i>	Tengra	++
		<i>Wallago attu</i>	Fresh watershank	+
	Claridae	<i>Clarius batrachus</i>	Mangur	++
Beloniformes	Heteropneustidae	<i>Heteropneustus fossils</i>	Singur	-
Synbranchiformes	Mastacembelidae	<i>Mastacembelus pancalus</i>	Malga	++
	Cichlidae	<i>Tilapi mossambicaa</i>	Telapi	+
	Anabantidae	<i>Anabas testudineus</i>	Koi	++
Cypriniformes	Cyprinidae	<i>Labeo rohita</i>	Rohu	+++
		<i>Labeo calbasu</i>	Calbasu	++
		<i>Cirrhinus mrigala</i>	Mrigala	+++
		<i>Cyprinus carpio</i>	CommonCarp	++
		<i>Puntitus ticto</i>	Ticto	+++
		<i>Rasbora daniconius</i>	Black line Rasbora	+
		<i>Puntitus sarana</i>	Khavli	+
		<i>Oxygaster bacaila</i>	Indian glass barb	++
		<i>Oxygaster gora</i>	-	+
		<i>Catla catla</i>	Catla	+++

Abbreviations: +++: Most abundant, ++: abundant, +: Less abundant, -: Rare

## Conclusion

Biodiversity and fish production is extremely important for fisheries management and conservation. The work has been concluded with recent data regarding fish diversity of Karanji lake contribute a better knowledge of fish fauna in this region. It will be beneficial to make future strategies for development of fish fauna conservation and management at Karanji Lake. The present study shows that Karanji Lake has economic importance in local as well as city market. The fisherman unable to identify the fishes and their value, so, the local fishermen need to aware about it by organizing training or counseling which will help to get more profit and it will help to conservation. The aquatic biodiversity of this Lake is getting depleted alarmingly as a result of various factors like habitat loss, pollution and introduction of exotic species, overexploitation and other anthropogenic activities. The loss is severe in freshwater ecosystem harbor 40% of the fish species so far recorded. Thorough survey of the aquatic ecosystems and a national fish inventory would help to make a database. The diversity of fish in Karanji Lake is excellent indicators of water quality. Hence, conservation and management strategy is needed to conserve this important ecosystem. Karanji Lake which is in the protected area could play a significant role in conserving the freshwater aquatic species of high conservation importance in India and other

developing countries. The study also advocates a need to revise the approach and management of the protected area to maintain ecological integrity and restore the loss of aquatic diversity.

## References

- Daniel RJR. Freshwater fishes of peninsular, India. University press (India) private limited 3-5-819 Huderguda, Hyderabad, India, 2002.
- Day, Francis. The fishes of India; beings natural history of fishes known to inhabit the seas and freshwater of India, Burma and Celon, Fourth Indian Reprint. Jagmander Book Agency, New Delhi, 1994, I(II).
- Gupta SK, Gupta PC. General and applid Ichthyology (Fish and Fisheries) S. Chand and company Ltd. Ram Nagar, New Delhi, India, 2006.
- Jhingran VG. Fish and Fisheries of India, 1997.
- Kartha KN, Rao KS. Environmental status of Govind sagar reservoir Fishery Technol. 1992; 29:14-20.
- Qureshi TA, Qureshi NA. Indian fishes (Identification of India Teleosts). Bris Brother, Sultania Road, Bhopal, India, 1983.