

**THE STUDY ON FRESH WATER FISH DIVERSITY AND THEIR ABUNDANCE IN  
WARANGAL DISTRICT, TELANGANA STATE, INDIA****V. Rajani\***

Department of Zoology, Kakatiya University, Warangal-506009, Telangana State, India.

**\*Corresponding Author: V. Rajani**

Department of Zoology, Kakatiya University, Warangal-506009, Telangana State, India.

Article Received on 18/01/2025

Article Revised on 08/02/2025

Article Accepted on 28/02/2025

**ABSTRACT**

Fishes are one of the important elements in the economy of many nations as they have been a stable item in the diet of many people. Freshwater fishes are important livelihood of poor people as it contains the important protein. Fishes are an integral part of freshwater various fresh water ecosystems. Fishes play an important role in energy flows, nutrient cycling and maintaining community balances fresh water ecosystems. The present study was carried out during the study period from June 2016 to May 2018 at Velair Lake, Warangal District, Telangana State, India. A Total of 28 species of fishes belonging to 6 orders have been identified, such as order Cypriniformes 13 Species falling under 8 genera, Order Siluriformes 7 Species falling under 5 genera, order Osteoglossiformes 1 Species falling under one genera, order Channiformes 2 Species falling under one genera, order Perciformes 4 Species falling under 3 genera and order Antheriniformes 1 Species falling under one genera. Order wise percentage composition is Cypriniformes (46%), Siluroformes (25%), Osteoglossiformes(4%), Channiformes (7%), Perciformes (14%), and Anthrniiformes (4%). The study thus states about the Lake has good potential of fish species and is still in a position to set a good example of conservation and sustainable management.

**KEYWORD:-** Fish Fauna, Velair Freshwater Lake.**INTRODUCTION**

The life depends on water and the quality of water can be determined through their physical, chemical and biological characteristic features. Water bodies are found at different geographical and geological areas. Fresh water ecosystems are highly dynamic and more complex than any other type of the ecosystems. Fresh water bodies include large number of rivers, reservoirs, impoundments, tanks, ponds and lakes. Among them lentic water bodies are major resource of water for human consumption and livestock. They are being used as main source of drinking and also used for domestic purposes and aquaculture practices. Fishes are the rich source of aquatic food rich in protein source inhabiting aquatic life. Fishes are the indicators of status of aquatic body related with aquatic pollution. Due to various anthropogenic activities in the catchment area like sewage disposal, industrial waste dumping, industrial effluents, domestic animal waste, vehicle washing the biochemical status of aquatic body makes the water body polluted that may hamper the aquatic life in that water body and makes the water body unfit for any human use. Warangal district has several tanks, temporary and permanent spread out over through the district. The vast stretches of these freshwater bodies have good scope for fisheries. The district has rich fish fauna and there is a

need to contemplate measures to protect the genetic resources. The main threat for the decline of various fish fauna may be due to indiscrimination, fishing of juveniles, industrialization, urbanization and destruction of natural environment, further deteriorating the situation. There is a need to take measures to protect the genetic resources of fish fauna, which are depleting enormously. The recent study henceforth has been contemplated to verify the fish germplasm resources in the freshwater bodies in the district. This study has given a vivid picture on the status of both torrential and plain water farms of Ichthyofauna and its biodiversity. Studies have been made on Ichthyofaunal diversity of various freshwater bodies in India during the last few decades (Jayaram 1981, Jhingran 1983, Dutta et al., 2001, Mishra et al., 2003). However, scanty information is available from this region of India (Murthy 2002). Chandrashekhar et al., (2004) enumerated limnological studies with respect to pisciculture in Saroornagar Lake. Pawar et al., (2006) studied fish fauna of Pethwadaj dam, Nanded. Kulkarni et al., (2008) studied fish and fisheries of Derala Tank, Nanded, Maharashtra. Rohankar (2009) studied biodiversity of fishes in Aheri lake of Maharashtra. In the present study it is aimed to evaluate the freshwater fish fauna in the Velair fresh water lake Warangal district, Telangana State, India.

## MATERIALS AND METHODS

### Study area

The study was carried out for a fresh water lake in Warangal district has been identified to assess its water quality. This lake is located at Velair village. The study is to take up fish culture in this lake. This lake is located 18°0' 21"N latitude and 79°19' 34"E longitude.

### Collection, Preservation and Identification

Monthly collections of fishes were made from four sampling stations of Velair fresh water lake for a period of two years from June 2016 to May 2018. The collection method includes netting with gill nets, cast net, fish traps and hand picking methods. All the collected fishes were photographed alive so as to present the natural colour. These fishes stored in 10% formalin and brought to the laboratory for identification. Collected Fishes were identified with the help of Day (1958), Talwar & Jhingran (1991), Jhingran (1997). The checklist of identified fish fauna was prepared and presented in the (Table No-1 and Table No-2).

## RESULTS AND DISCUSSION

The fish fauna is an important aspect of fish potential of a water body. The abundance and diversity of fish species is quite variable because of geological and geographical condition. The fish fauna found in Velair fresh water lake of Warangal district has been identified and presented in (Table No.1)

The 28 fish species were belonging to 6 orders in which Cypriniformes was dominant with 16 species followed by Perciformes with 5 species while the orders Siluriformes with 4 species, Channiformes with 3 species Osteoglossiformes with 2 species and Antheriniformes were represented with 1 species. The study thus states about the lake has good potential of fish species and is still in a position to set a good example of conservation and sustainable management (Table No-1 and Table No-2). Order Cypriniformes consists of 13 species belonging to two families among the collections of i.e., *Amphipharodon microlepis*, *Catla Catla*, *Cirrhinus reba*, *Cirrhinus mrigala*, *Cyprinus carpio carpio*, *Labeo rohita*, *Labeo potail*, *Punctius chola*, *Punctius titius*, *Punctius sophore*, *Punctius sarana sarana*, *Salmostoma bacalica*, *Lepidocephalus guntea*. In our present study order cypriniformes was found to be the most dominant group among the cyprinidae was the most dominant group. Dominance of cypriniformes and cyprinidae was previously reported by several authors in their investigations (Krishna et al., 2016; Raju et al., 2014; Rao et al., 2013). Order Siluriformes consists of 7 species belonging to four families *Mystus bleeker*, *Mystus cavacius*, *Mystus vittatus* three species belongs to family bagridae, *Ompok bimaculatus*, *Wallago attu* two species belongs to family siluridae, *Clarius batracus* belongs to family claridae, *Heteropneustes fossilis* belongs to family Heteropneustidae. Order-Osteoglossiformes consists of one species belongs to

*Notopterus notopterus* belongs to family Notopteridae. Order-Channiformes consists of two species belonging to one family *Channa punctatus*, *Channa striatus* belongs to family channidae. Order-Perciformes consists of 4 species belonging to three families *Glossogobius aureus* species belongs to family gobidae, *Anabas testudineus* species belongs to family Anabantidae, *Mastacembelus armatus*, *Mastacembelus pancus* species belongs to family Mastacembelidae. Order-Antheriniformes belongs to *Xenentodon canthila* species belongs to family Belontiidae. Order wise percentage composition is Cypriniformes (46%), Siluriformes (25%), Osteoglossiformes (4%), Channiformes (7%), Perciformes (14%), and Antheriniformes (4%) (Table-no-2, Fig no-2).

The studies on Ichthyofaunal diversity from different fresh water bodies of India have been carried out during the last few decades (Raju Talwar and Jhingran 1991; Sarkar and Benerjee, 2000; Mishra et al., 2003; Das and Chand, 2003; Sharma et al., 2004 and Pathak and Mudgal 2005). Yadav (2006) enlisted 77 species from Tadoba National Park, of which 46 species are common while 31 are uncommon. Lakes in India support rich variety of fish species, which in turn, support the commercial exploitation of the fisheries potential (Krishna and Piska, 2006). Pawar et al. (2007) were recorded 26 fish species from Pethwad dam Talukandhar in Nanded District, Maharashtra, India. Sharma (2008) reported 87 species in Issapur dam in district Yavatmal, Srikanth (2009) recorded 33 fish species belonging to 23 in three years study at Ramappa lake of Warangal district of Andhra Pradesh, Mokappa Naik and Hina Kousar (2012) reported 23 species in Talagappa Tank, Sagara Taluk, Karnataka, Narasimha Ramulu and Benarjee (2013) reported 30 species in the fish fauna of Nagaram tank of Warangal district, Andhra Pradesh, Thirupathaiah M, Samatha Ch, Sammaiah. Ch (2014) reported 25 species in Diversity and Conservation Status of Fish Fauna in Freshwater Lake of Kamalapur, Krimnagar District, Laxmappa and Ravindar Rao (2015) note down a total of 109 fish species belonging to 7 orders 19 families and 46 genera ichthyofaunal diversity in Telangana state, Krishna et al. (2016) reported 29 species of larvivorous fish from 6 orders, 14 families and 20 genera from Lake Kolleru. Seema Jain (2017) listed 61 fish species belonging to 38 genera from various water sources of Western Uttar Pradesh, India; Bhattacharya (2018) identified 102 freshwater fish species belonging into total 10 orders and 27 families in Bankura district.

Table No. 1: Fish genetic resources of velair fresh water lake during the year from june, 2016 to May, 2018.

I.Order-Cypriniformes					
Family	Genus	Species	Local Name		
Cyprinidae	Amblypharygodon	1. Amplypharygodonmicrolepis(Bleeker)	Kodipe		
	Catla(Valenciemes)	2. Catla Catla(Hamilton-Buchanan)	Botcha		
	Cirrhinus(Oken)	3. Cirrhinus reba (HamiltonBuchanan)	Arju		
		4. Cirrhinusmrigala(HamiltonBuchanan)	Merige		
	Cyprinus(Linnaeus)	5. Cyprinus carpio carpio	Bangaruthiga		
	Labeo(Cuvier)	6. Labeo rohita (Hamilton-Buchanan)	Rohu		
		7. Labeo potail(Sykes)	Bocche		
	Punctius(Hamilton)	8. Punctius chola(Hamilton Buchanan) 9. Punctius titius(HamiltonBuchanan) 10. Puctiussophore(HamiltonBuchanan) 11.Punctiussaranasarana(Hamilton Buchanan)	Parka Budda parka Parka Gundu parka		
Salmostoma(Hamilton)	12.Salmostoma bacalia(Hamilton)	Chandamama			
Cobitidae	Lepidocephalus(Bleeker)	13.Lepidocephalusguntea(Hamilton)	Ulshe		
II.Order-Siluriformes					
Bagridae	Mystus(Scopoli)	14.Mystus bleeker(Day) 15.Mystus cavacius(Hamilton) 16.Mystus vittatus(Bloch)	Jella Guddijella Errajella		
		Siluridae	Ompok(Lacepede)	17.Ompok bimaculatus(Bloch)	Buggadamma
			Wallago(Bleeker)	18.Wallago attu(Schneider)	Waaluga
Clarridae	Clarius	19.Clarius batracus (Linnaeus)	Marphoo		
Heteropneustidae	Heteropneustes(Muller)	20.Heteropneustesfossils(Bloch)	Inglikam		
III.Order-Osteoglossiformes					
Notopteridae	Notopterus(Lacepede)	21.NotopterusNotopterus(Pallas)	Vollenka		
IV.Order-Channiformes					
Channidae	Channa (Scopoli)	22.Channapunctatus(Bloch,Day) 23.Channa striatus	Mottapilla Korramatta/Murrel		
V.Order-Perciformes					
Gobidae	Glosogobius(Gill)	24.Glosobius giuris giuris (Hamilton)	Ushkedhanthi		
Anabantidae	Anabas(Cuvier)	25.Anabas testudineus (Bloch)	Burka		
Mastacembelide	Mastaembelus(gronovius)	26.Mastacembelus armatus (Lecepede)	Paapera		
		27.Mastacembelus panclus (Lecepede)	Chinni paapera		
VI.Order-Antherniformes					
Belonidae	Xenontodon(Ragan)	28.Xenentodon cancella (Hamilton)	Nayanikuntha		

Table No. 2: Ichthyofauna abundance of Velair Fresh Water Lake during the Year from June, 2016 to May, 2018.

S. No.	Order	No. of Families	No. of Genus	No. of Species	Percentage%
I	Cypriniformes	2	8	13	46%
II	Siluriformes	4	5	7	25%
III	Osteoglossiformes	1	1	1	4%
IV	Channiformes	1	1	2	7%
V	Perciformes	3	3	4	14%
VI	Antheriniformes	1	1	1	4%
	Total	12	19	28	100%

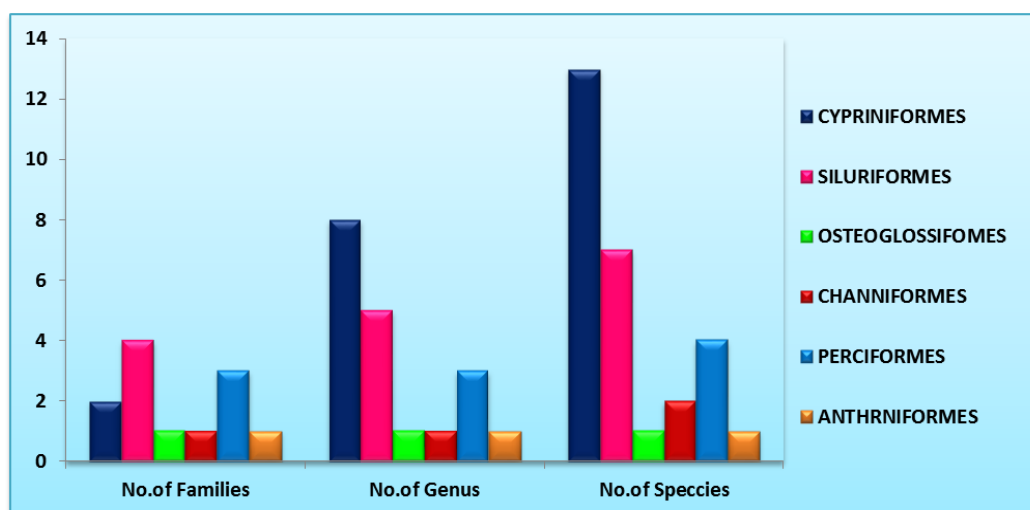


Fig. No. 1: Shows Number of families, genera and species of various orders of Velair Fresh Water Lake during the Year from June, 2016 to May, 2018.

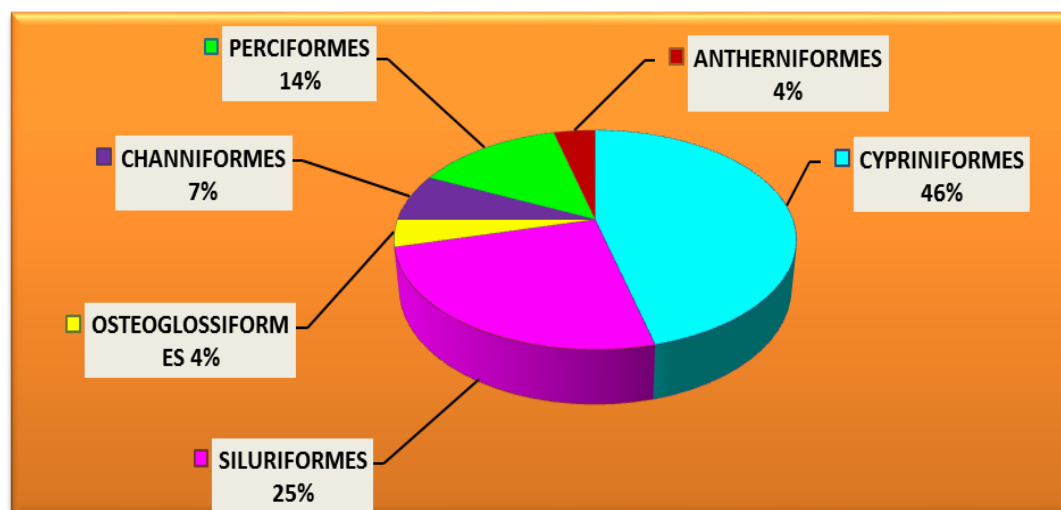


Fig. No. 2: Shows Percentage representation of different orders of fishes Velair Fresh Water Lake during the Year from June, 2016 to May, 2018.

## CONCLUSION

It may be concluded that the Velair Fresh water lake is found more suitable for fish culture. The tank has largest catchment area. Hence, this lake water can be utilized for the fish productive in large scale and variety of species can be cultural. Finally it appears that the Velair Fresh water lake is rich in fish diversity and a good potential for conservation of fish germplasm. Lake is fish culture has a huge bearing on the generation of rural employment, reduction of poverty and agriculture growth.

## REFERENCES

1. Bhattacharya M, Chini DS, Kar A, Patra BC, Malik RC, Das BK. Assessment and modeling of fish diversity related to water bodies of Bankura district, West Bengal, India, for sustainable management of cultural practices. Environment, Development and Sustainability, 2018; 20: 114.
2. Chandrashekar, S.V.A., Nalini C. and Kodarkar M.S. "Limnological studies with reference to pisciculture, case study of Saroornagar Lake, Hyderabad (AP). J. Aqua. Biol, 2004; 19(1): 197-200.
3. Das, S.K. and Chand B.K. Limnology and biodiversity of itchyofauna a pond of Southern Orissa. J. Ecotoxic. Environ. Monit, 2003; 13(2): 97-102.
4. Dutta, S.K., Z. Changsan, and M.K. Choudhary. Application of biological monitoring in water quality assessment, biomonitoring and zooplankton diversity. (Ed. B.K. Sharma) Department of Zoology. NEHU, Shillong, 2001; 164-173.
5. Jayaram K.C. "The Fresh water fishes of India". ZSI, 1981; 1-438.
6. Jhingram, V.G. Fish and Fisheries of India, Hindustan Publishing Corporation (India), Delhi, 1983.

7. Kulkarni, M.Y., Kulkarni, A.N. and Somvamshi V.S A Study on some aspects of Reservoir Fisheries of Derala Tank, Dist. Nanded, Maharashtra. Proceedings of Taal 2007; The 12th World Lake Conference, 2008; 12: 568-570.
8. Krishna, M and Piska, R.S. Ichthyofaunal diversity in secret lake Durgamcheruvu, Rangareddy district, Andhra Pradesh, India. J. Aqua.Biol, 2006; 22(1): 77-79.
9. Krishna CH, Rao JCS and Veeraiah K, Diversity of larvivorous fish fauna in Lake Kolleru (AP), India. Int. J. fauna Bio. Stud, 216; 3(3): 24-28.
10. Laxmappa B, Ravinder Rao Bakshi, Venkata Siva Narayana D. Studies on ichthyofaunal diversity of Krishna River in Mahabubnagar district, Telangana, India. International Journal of Fisheries and Aquatic Studies, 2015; 2(5): 99-104.
11. Mishra, S., Pradham, P., Kar, S. and Chakraborty, S.K. Ichthyofauna diversity of Midnapore, Bankura and Hooghly districts of South West Bengal. Rec. Zool. Surv. India. Occ. Paper, 2003; 2220: 1-66.
12. Murthy, D.S. Highlights of fisheries development in Andhra Pradesh. Fishing Chimes, 2002; 22(1): 64 – 70.
13. Mookappa Naik C. K. And Hina Kousar, “Study On Fish Diversity Status Of Talaguppa Tank, Sagara Taluk, Karnataka”, The Ecoscan, 2012; 6(3&4): 149-151.
14. Narasimha Ramulu K, Benarjee G. Fish Species Diversity of Nagaram Tank of Warangal, Andhra Pradesh. IOSR Journal of environmental science, Toxicology and food technology, 2013; 3(4): 14-18. www.Iosrjournals.
15. Pathak, S.K. and Mudgal L.K. Limnology and biodiversity of fish fauna in Viral reservoir, M.P.J. Comp Toxicol physicochemical, 2005; 2 (1 and II): 86-9.
16. Pawar S.K. J.S. Pulle and K.M. Shendge The study on phytoplankton of Pethwadaj Dam, Taluka Kandhar, District – Nanded, Maharashtra. J. Aqua, Biol, 2006; 21(1): 1-6.
17. Raju CHS, Rao JCS and Chalam GS, Biodiversity and Conservation status of Ichthyofauna of Lake Kolleru, Andhra Pradesh, India. Int. J. Sci. Res, 2014; 3(5): 555-563.
18. Rao JCS, Chalam GS and Raju CHS, Ornamental Fish Diversity of Lake Kolleru, the only Ramsar site in Andhra Pradesh, India. Bull. Env. Pharmacol. Life Sci, 2013; 2(7): 48-55.
19. Rohankar, L.H. Study of some physico-chemical and biological parameter Rural lake Aheri, dist, Gadchiroli, Maharashtra, India. Ph.D. thesis, Nagpur University, Nagpur (Maharashtra), 2009.
20. Sarkar and Benerjee Ichthyofauna of Damodar river system. *Proc. Zool. Sod. Culture*, 2000; 53(1): 41-54.
21. Seema Jain Current status of Ichthyofaunal diversity of various water sources of Western Uttar Pradesh, India. Int. J. of Fisheries & Aquatic Studies, 2017; 5(2): 473-478.
22. Sharma, Archana, Mudgal, L.K.Sharma, Anjana and Sharma Shailendra Fish diversity of Yashwant Sagar reservoir, Indore, (M.P.). Him. J. Env. Zool, 2004; 18(2):
23. Sharma C M ”Freshwater Fishes, Fisheries and Habitat prospectus of Nepal”, Aquatic ecosystem, health and management, 2008; 11, 3: 75-82.
24. Srikanth, K. Ecological significance of freshwater fishes. Ph. D. Thesis, Kakatiya University, Warangal, ANDHRA PRADESH (INDIA), 2009.
25. Talwar, P.K. and A.G. Jhingran. Inland fishes of India and adjacent countries. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi, 1991; 1-322.
26. Thirupathaiah M, Samatha Ch, Sammaiah Ch. Diversity and Conservation Status of Fish Fauna in Freshwater Lake of Kamalapur. Karimnagar District, Telangana, India, IOSR Journal of Environmental Science, Toxicology and Food Technology, 2014; 8(5): 9-24.
27. Yadav, B.E. Pisces, Fauna of Tadoba Andhari Tiger Reserve, Conservation Area Series, 2006; (25): 137-160.