

STUDIES ON THE DIVERSITY OF FRESHWATER FISHES IN KUPPANATHAM DAM, CHENGAM, THIRUVANNAMALAI DISTRICT, TAMILNADU

R. Sandhiya¹, N. Susithra²

P.G., Research Department of Zoology.

Adhiyaman Arts and science college for Women Uthangarai Krishnagiri Tamilnadu

¹PG student, P G Research Department of Zoology

²Assistant Professor, Department of Zoology

ABSTRACT

The present study was carried out to assess the diversity of freshwater fishes in Kuppanatham dam, Chengam taluk, Thiruvannamalai district, Tamilnadu, during August 2025 to January 2026. Monthly fish samples were collected. A total of 20 fish species belonging to 11 families and 8 order, Cypriniformes was found to be dominant. This study helps in evaluating the ecological health of the dam ecosystem through fish diversity patterns.

Key words: Fish diversity, season and Ecological condition.

INTRODUCTION

In land waters and fresh water biodiversity constitute a precious natural resource in profitable, artistic, aesthetic, scientific and educational terms (Vijaylaxmi *et al.*, 2010). India has a large spread of fresh water coffer in the form of gutters, conduits, budgets, lakes, etc. with further than 10.86 million people being dependent on these systems and their fisheries (Sarkar *et al.*, 2015). Fresh water biodiversity has declined faster than either terrestrial or marine biodiversity over the once 30 times. In corridor of earth, declining swash inflow rates have been a major cause for species loss (Plafkin *et al.*, 1989) and are likely to be further reduced by warming temperatures, reduced rush and increased pullout for agrarian and other mortal uses (Vorosmarty *et al.*, 2000).

Freshwater fishes play a significant part in global biodiversity (Reid *et al.*, 2013). Around the world roughly 22,000 species of fishes have been recorded out of which 11 are set up in India, that is about 2,500 species of fishes of which 930 live in freshwater and 1,570 are marine (Ubarhande *et al.*, 2011). India is one of the mega biodiversity countries in the world and occupies the ninth position in terms of freshwater mega-biodiversity (Shinde *et al.*, 2009). Life on the earth is different at numerous situations, beginning with genes and extending to the wealth and complexity of species, life form and functional places, organized in spatial patterns from natural communities to ecosystems, regions and beyond (Colwell, 2009).

Tamil Nadu is south- eastern state of India and blessed with varied freshwater fisheries coffer due to actuality of Eastern Ghats on the North and Western Ghats on the west. Rivers forming from Western Ghats and Eastern Ghats has been conferred with different fish germplasm coffer (Devi and Indra, 2003; Mogalekar *et al.*, 2015).

The present study revealed that the physical niche variables play crucial part in the distribution of fishes in Kuppanatham dam at a present disquisition was accepted to study the freshwater fish diversity of Kuppanatham dam Thiruvannamalai district of Tamilnadu.

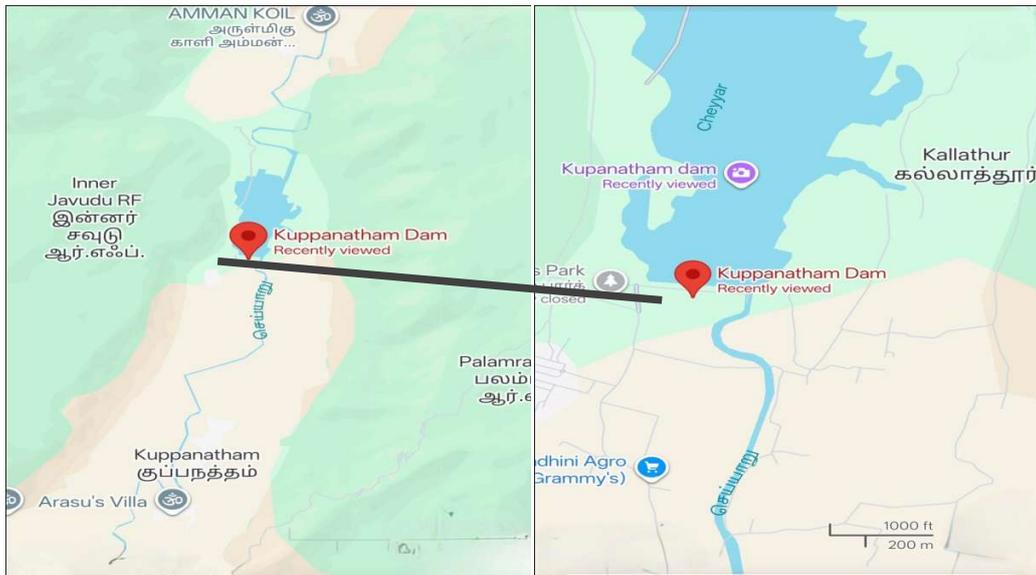
STUDY AREA

Kuppanatham dam in Thiruvannamalai district of Tamilnadu, India.

Kuppanatham dam was constructed solai swash near Paramanandal village in Chengam Taluk of Tiruvannamalai District. The water for the Kuppanatham Dam originates from downfall, primarily collected in the Cheyyar River, which flows from the Jawadhu Hills and Thenmalai Hills in the Tiruvannamalai District, with water being released for irrigation and drinking needs in near townlets.

Kuppanatham Dam is erected across the Solai River (also linked to the Cheyyar River system), near Chengam, and while exact distance from Tiruvannamalai is not specified, it serves girding townlets with a 700 mcft capacity, serving growers in Chengam & Kalasapakkam taluks. The dam began construction in 1987, aiming to use the Solai River. Despite being untreated, it came functional around 2008, with water releases starting to profit husbandry.

During the period of disquisition from August 2025 to January 2026, yearly fish sample were collected, mugged, linked and saved for farther reference.



COLLECTIONS AND IDENTIFICATION OF FISHES

Fish collections were done during the month August 2025 - January 2026 from the, Kuppanatham force with the help of original fisher man using gillnets of standardized confines with several mesh sizes. Fish samples were collected between 7 and 8 AM and transport to the laboratory incontinently for unborn analysis. Fishes brought to laboratory were saved in 10 formalin results separate instance jar according to the size of species. Small fishes where directly placed in the 10 formalin result. Will large fishes where given gash in there abdomen and saved. Fishes where linked up to the species position, with the help of standard keys given by Day (1967), Jayaram(1999), Talwar and Jhingran(1991).

Species uproariousness was simply estimated by the variety of fish species in Kuppanatham dam, water sample were collected for farther analysis. Fishes were collected fresh and identification was done at the point itself. The evidence photos were snapped and characters were noted along with fish formula and their morphometric. Fish fauna of a force principally represents the fishes diversity and their cornucopia. Indian budgets save a rich variety of fish species, which support to the marketable fisheries. The fishes heads were collected using colorful fishing styles.

For identification following morphological character were considered

- 1) Total Length, Standard Length- Body depth, Head length, Eye Diameter.
- 2) Position of mouth supra terminal and frontal.
- 3) Presence of absence of barbells, number of barbells and position and length of barbells.

- 4) Height and length of Rearward fin, length of pectoral and pelvic fins, length and heights of caudal peduncle, length of longest fin shaft and the number and position of backbones and shafts, side line scale count.
- 5) Spots blotches, bands and marks etc.

RESULT

During the study period different fish kinds have been observed in the Kuppanatham dam, Thiruvannamalai District, India. In the present diversity study in Kuppanatham dam fishes of 20 species belonging to 11 families and 8 order were linked from the Kuppanatham dam in number of catches carried out during the study period of August 2025 to January 2026. The specific, common and original name of the species, together with the methodical position, marketable value and vacuity were described in Table 1. The result of present disquisition revealed circumstance of 20 fish species belong in to 8 orders and 11 families. The order Cypriniformes set up dominant with 9 species of commercially product also followed Siluriformes with three species and Aulopiformes with two species and Cichliformes with two species and each one species of Characiformes, Anabantiformes, Perciformes, Scombriformes.

Number and chance composition of family, genera and species under different orders are shown in table 2 and Figure 1- 4.

Almost cornucopia order of Cypriniformes in generally all places there species of a *Catla catla*, *Labeo rohita*, *Cirrhines*, *mrigal* species. Rohu colorful of fishes is known kannadi kendai. *Catla catla* colorful of fishes conversational name kulla kendai, kannadi kendai, kora meen and mirgal meen.

The chance donation of family wise to the order shown in Table 2 and Figure.1. Diversity of linked fish species of family wise chance composition analysis were appertained as the Siluriformes was the most dominant species. Cypriniformes 18.18%, Siluriformes 27.27%, Aulopiformes 9.09%, Cichliformes 9.09%, Characiformes 9.09%, Anabantiformes 9.09%, Perciformes 9.09% and Scombriformes 9.09%. Grounded on the species were anatomized by chance of number of individualities in each order and family. Followed, genera wise analysis of chance composition the Order set up Cypriniformes to be the dominant group represented by 9 species 47.36% donation of total species followed by Siluriformes 3(15.78%) species, Aulopiformes 2(10.52%), Cichliformes 1(5.26%), Characiformes 1(5.26%), Anabantiformes 1(5.26%), Perciformes 1(5.26%) and Scombriformes 1(5.26%).

Number and chance composition of family and species of fishes under colorful order shown in table 2 and Figure2.

Number and chance of species of fishes under colorful order. Diversity of identification fish order wise chance composition analysis were appertained on the Cypriniformes(45%), Siluriformes (15%), Aulopiformes (10%), Cichliformes(10%), Characiformes(5%), Anabantiformes (5%), Perciformes(5%) and Scombriformes (5%).

The result showed that the area was rich in fish memoir diversity. Fishes belonging to orders and families were collected, during the study period. Numerous collected fishes having profitable significance after fish collection in the original fish request.

The foods available to fishes in the dam were planktonic and oceanographic communities conforming of factory and creatures. The phytoplanktonic communities were generally represented by major group of algae, like green algae, desmids, diatoms. Colorful beast naiads, worms and some immature stages of fishes ate also set up as occasional plankton. The oceanographic food communities available to fish are small water nonentity, colorful worms, nematodes etc.

In the present study, identification of the fish samples was followed by their order wise categorization.

TABLE :1 THE DIVERSITY OF FRESHWATER FISHES IN KUPPANATHAM DAM DURING AUGUST 2025 – JANUARY 2026

ORDER	FAMILY	SPECIES	COMMON NAME	VERNACULAR NAME
Cypriniformes	Cyprinidae	Catla catla	Catla	Kora meen
		Cyprinus carpio	Carp	Sadharana kendai
		Cirrhinu cirrhosus	Mrigal carp	Mirgal meen
		Labeo rohita	Rohu	Kannadi kendai
		Puntinus rohita	Pool barb	Kulla kendai
		Ctenopharyngodo idella	Grass carp	Pulla kendai
		Systemus salana	Olive barb	Pungalla
	Crucial carb	Prussian carb	Karamatti	
	Cobitidae	Cobitis taenia	Spined loach	Ayirai maan
Siluriformes	Clariidae	Clarias gariepinus	African Catfish	Kelluthi
	Pangasiidae	Pangasiandon hypophthalmus	Pangas	Anai meen
	Ictaluridae	Black bullhead	Catfish	Kelluthi
Aulopiformes	Notopteridae	Brozen featherback	Notopterus	Val meen
		Clown featherback	Chitala ornata	Kuthirai valai
Cichliformes	Cichlidae	Oreochromis niloticus	Nila Tilapia	Jilapi
		Oreochromis mossambicus	Mozambique Tilapia	Karuppu Jilapi
Characiformes	Serrasalminidae	Piaractus brachypomus	Red bellied Pacu	Yeri vaval
Anabantiformes	Channidae	Channa marulius	Snake head fish	Viral
Perciformes	Polynemidae	Eleutheronema tetradactylum	Thread fin	Kaala meen
Scombriformes	Sphyraenidae	Guinean barracuda	Spyraena guachancho	Kaankai maan

PHOTOPLATE 1: FISH DIVERSITY OF KUPPANATHAM DAM THIRUVANNAMALAI DISTRICT



Catla catla



Cyprinus carpio



Cirrhinu cirrhosus



Labeo rohita



Puntinus sophore



Ctenopharyngoda idella



Systemus salana



Crucial carp



Cobitis taenia



Clarias gariepinus



Pangasianodon hypophthalmus



Black bullhead



Bronze featherback



Clown featherback



Oreochromis niloticus



Oreochromis mossambicus



Piaractus brachypomus



Channa marulius



Eleutheronema tetradactylum



Guinean barracuda

TABLE :2 NUMBER OF PERCENTAGE COMPOSITION OF FAMILY GENERA AND SPECIES OF FISHES UNDER VARIOUS ORDER.

ORDER	FAMILY	GENES	SPECIES	% FAMILY IN AN ORDER	% GENES IN AN ORDER	% SPECIES IN AN ORDER
Cypriniformes	2	9	9	18.18%	47.36%	45.00%
Siluriformes	3	3	3	27.27%	15.78%	15.00%
Aulopiformes	1	2	2	9.09%	10.52%	10.00%
Cichliformes	1	1	2	9.09%	5.26%	10.00%
Characiformes	1	1	1	9.09%	5.26%	5.00%
Anabantiformes	1	1	1	9.09%	5.26%	5.00%
Perciformes	1	1	1	9.09%	5.26%	5.00%
Scombriformes	1	1	1	9.09%	5.26%	5.00%
TOTAL	11	19	20			

Figure 1 : Percentage Contribution of Family to the Orders.

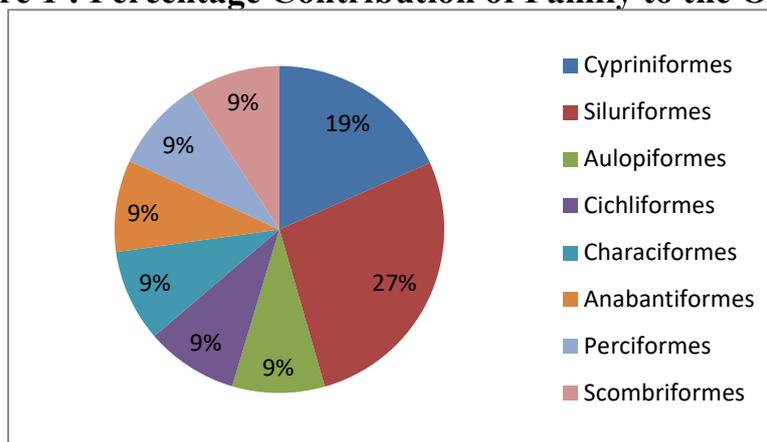


Figure 2: Percentage Contribution of Genus to the Orders

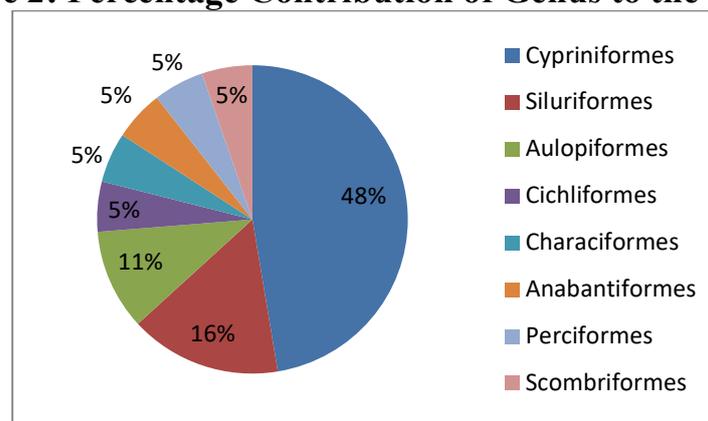


Figure 3: Percentage Contribution of Species to the Orders

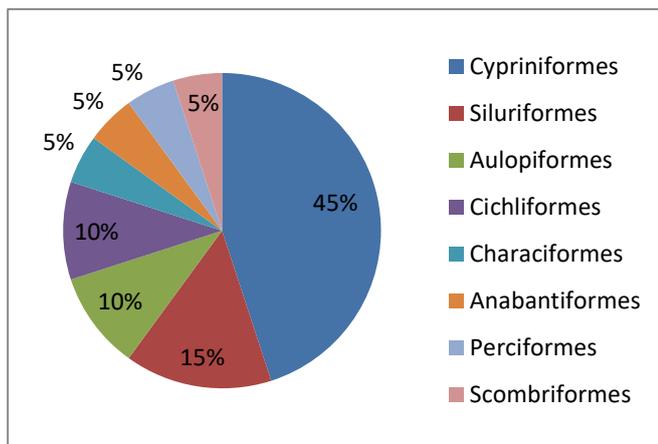
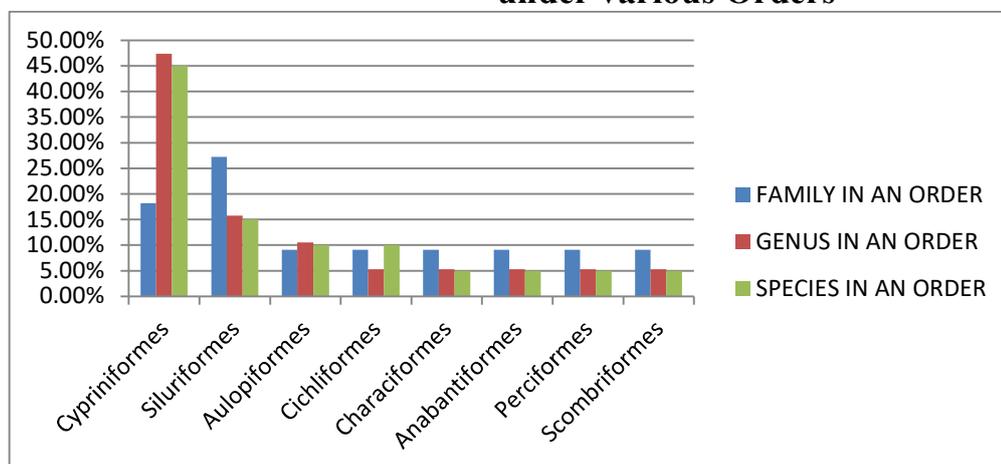


Figure 4: Number of Percentage Composition of Family, Genera and Species of Fishes under various Orders



DISCUSSION

Biodiversity is essential for stabilization of ecosystem, protection of overall environmental quality for understanding natural worth of all species on the earth (Ehrlich and Wilson, 1991). In the present fish diversity study 20 species of different 11 families and 8 orders were recorded from the Kuppanatham dam during the period August 2025 to January 2026.

In the present study, freshwater fish diversity of Kuppanatham dam was recorded 20 species of fishes under 8 order and 11 family. In former studies colorful workshop have studied the fish faunal diversity and circumstance from lakes of Kolhapur district. They recorded and conformed the 28 species has 3 orders, 17 genera.

REFERENCE

1. Colwell, R.K. (2009) Biodiversity Concepts, Patterns and dimension, 257- 263.
2. Day F. (1967). The fishes of India Vol. 1 and 2 Jagamander agency New Delhi.
3. Devi, K. R. and Indra, T. J. 2003. An streamlined roster of Ichthyofauna of Eastern Ghats Zoos' publish 18(4) 1067- 1070; <http://dx.doi.org/10.11609/JoTT.ZPJ.18.4.1067-70>.
4. Ehrlich, P.R. and Wilson, E.O. (1991) Biodiversity Studies — Science and Policy. Science, 253, 758- 762 [http:// dx.doi.org/10.1126/science.253.5021.758](http://dx.doi.org/10.1126/science.253.5021.758).
5. Jayaram, K.C.(1999), The brackish fishes of the Indian region. Nerendra Publishing Hose, New Delhi.

6. Mogalekar, H. S., Jawahar, P., Francis, T., Karal Marx, K., Sujathkumar, N. V., Canciyal, J. and Pavinkumar, P. 2015. Review on New Records of Freshwater Fishes from India with Note on Distribution and Conservation Status *Journal of Monoculture in the Tropics* 30 (3- 4) 203- 224.
7. Plafkin, J. L., Barbour, M. T., Porter, K. D., Gross, S. K. and Hughes, R. M (1989). *Rapid Bioassessment, Protocols for use in Aqueducts and Rivers*. Oceanographic macro pets and fish. EPA, Washington DC, USA. 440/4- 89/001.
8. Reid, G.M., Contreras MacBeath, T. and Csatádi, K., 2013. Global challenges in brackish - fish conservation related to public fences and the terrarium assiduity. *International Zoo Yearbook*, 47(1), pp.6- 4
9. Sarkar, U. K., Sharma, J. and Mahapatra, B. K.(2015). A review on the fish communities in the Indian budgets and improvement of fisheries and submarine terrain. *J. Aquac. Res. Dev.*, 6 297
10. Shinde, S.E.Paithane, R.Y., Bhandare and Sonawane, D.L.(2009) Ichthyofaunal diversity of Harsool Savangi Dam quarter Aurangabad(M.S.), India, *World J. Fresh Mar.Sci.*, 1 (3) 141- 143.
11. Talwar, P. K. and Jhingran, V.G. (1991). *Inland fishes of India and conterminous Countries*. Oxford and I B H publishing co, New Delhi, pp. 116.
12. Ubarhande, S.B., Jagtap, J.T. and Sonawane, S.R (2011) Ichthyofaunal diversity from Ambadi Dam, Taluka Kannad quarter Aurangabad (Maharashtra), *Recent exploration in Science and Technology*, 3(6) 34- 37.
13. Vijayalaxmi, C., Rajshekar, M. and Vijaykumar, K (2010). Fresh water fishes distribution and diversity status of Mullameri River, a minor influent of Bheema River of Gulbarga District, Karnataka. *Int. J. Systems Biol.*, 2 1- 9.
14. Vorosmarty, C.J., Green, P., Salisbury, J. and Lammers, R.B.(2000). Vulnerability from Climate Change and Population Growth. *Science*,289284-288.