



Ichthyofaunal taxonomic diversity of Tatipudi Reservoir, Vizianagaram District, Andhra Pradesh, India

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Abstract: The study of ichthyofauna was evaluated the taxonomic composition and diversity of fish species in Tatipudi Reservoir, Andhra Pradesh, during the period from Feb 2023 to Jan 2025. Fish samples were collected from two selected landing stations, recording a total of 54 finfish species. These species belonged to 12 orders, 17 families, and 36 genera, including 4 exotic species. A comprehensive checklist was prepared documenting current scientific nomenclature, trophic levels, fishery status, and IUCN Red List status (2025). Based on feeding habits, fish species were classified into herbivorous (2.0–2.5), omnivorous (2.5–3.5), and carnivorous (3.5–4.5) trophic categories. Omnivorous species dominated the assemblage, contributing 46.29%, followed by carnivorous (31.48%) and herbivorous species (22.22%). Population status analysis showed that common species constituted the highest proportion (48.15%), followed by rare (27.77%), abundant (16.66%), and moderately distributed species (7.41%). According to the IUCN Red List (2025), most of the species were categorized as Least Concern (85.18%), while 11.11% were Near Threatened, and 1.8% Not Evaluated or Data Deficient.

Key Words: Ichthyofaunal diversity, taxonomic composition, Trophic levels, Population status, IUCN Red List status

1. INTRODUCTION:

India is one of the world's mega biodiversity countries, ranking ninth in terms of freshwater mega-biodiversity (1). Biodiversity is the degree of variation of living forms within a particular ecosystem; biodiversity is necessary for ecological stabilization, conservation of overall environmental quality, and comprehending the inherent worth of all species on the planet, as expressed by Ehrlich et al., (2). Indian subcontinent has around 2500 fish species, 930 of which are freshwater and 1570 of which are marine (3). There are 801 freshwater fishes present (4). Ichthyofaunal diversity refers to the diversity of fish species that exist depending on context and magnitude; it can relate to alleles or genotypes within life forms within a fish community as well as species or life forms that exist throughout aquaculture environments (5). There are approximately 21,723 extant fish species in the world, including 8,411 freshwater species and 11,650 marine forms. The current study provides the most recent database of fish species and is the first description of fish fauna in Tatipudi Reservoir.

2. OBJECTIVES

- To document and identify the fish fauna in the occurrence of Tatipudi Reservoir
- To assess the fish Population status each species in the Tatipudi Reservoir
- To evaluate and summarize the trophic level and IUCN status of each recorded species in the Tatipudi Reservoir



Fig 1. Overall view of Tatipudi Reservoir



Fig 2. GPS picture



Fig 3. Outlet view of Tatipudi Reservoir

3. MATERIAL AND METHODS:

The Tatipudi Reservoir is located at approximately 18.1716° N latitude and 83.1939° E longitude in Gantiyada Mandal of Vizianagaram District, Andhra Pradesh, India. The reservoir was constructed across the Gosthani River during the period 1963–1968 and has a water storage capacity of 3.32 TMC, with a catchment area of 332.72 km². Fish samples were collected fortnightly from February 2023 to January 2025 from two selected landing stations, namely Mosalikandi (18.208465° N, 83.178624° E) and Bondapalli (18.177321° N, 83.203244° E) (Figs. 1, 2 and 3). Representative fish species were carefully collected with the assistance of local fishermen using various fishing gears and basket traps (6). In the laboratory, the samples were thoroughly washed, and photographic documentation was carried out. The specimens were initially fixed in glass jars and subsequently preserved in a 10% formalin solution. Species-level identification was performed using classical taxonomic approaches, including morphometric measurements, meristic counts, and diagnostic morphological characters. Fish species identification was carried out following standard and validated taxonomic keys and guidelines (7-12).

4. RESULTS:

The present study assessed the taxonomic composition and diversity of fish species in the Tatipudi Reservoir, Andhra Pradesh, over a two-year period from February 2023 to January 2025. A total of 54 fish species were recorded from the two selected landing stations. A comprehensive checklist of finfish species was prepared, including their updated scientific names, trophic levels, fishery status, and IUCN Red List status (2025), verified through published literature and web-based databases such as Froese and Pauly (13,14) (Table 1). Overall, the study documented 54 finfish species representing 12 orders, 17 families, and 36 genera, including four exotic species, from the Tatipudi Reservoir. Among the recorded orders, Siluriformes contributed the highest family level diversity (33.33%), followed by Cypriniformes (25.00%). The remaining orders Anguilliformes, Beloniformes, Cyprinodontiformes, Channiformes, Gobiiformes, Osteoglossiformes, Anabantiformes, Cichliformes, Synbranchiformes, and Perciformes each contributed 8.33% to family diversity. Genus-level diversity was highest in Cypriniformes (44.44%), followed by Siluriformes (16.66%), Cichliformes (8.33%), Synbranchiformes and Perciformes (5.55% each), while the remaining genera individually contributed 2.77%. Species diversity was also highest in Cypriniformes (44.44%), followed by Siluriformes (20.37%), Cichliformes (5.56%), and Anguilliformes, Beloniformes, Synbranchiformes, and Perciformes (3.70% each). The remaining species collectively accounted for 1.85% of the total diversity (Table 2; Fig. 4).

In the present investigation, fish species were classified into different trophic levels based on their feeding habits and assigned trophic level ranges, namely herbivores (2.0–2.5), omnivores (2.5–3.5), and carnivores (3.5–4.5). The trophic composition revealed a dominance of omnivorous species, with 25 species accounting for 46.29% of the total, followed by carnivorous species with 17 species (31.48%) and herbivorous species with 12 species (22.22%) (Table 3;



Fig. 5). In the present investigation, the population status of the recorded fish species was categorized as common, rare, abundant, and moderate. Of the total taxa, 26 species were classified as common, contributing 48.15% of the total, followed by 15 rare species (27.77%), nine abundant species (16.66%), and four moderately abundant species (7.41%) (Table 4; Fig. 6).

5. DISCUSSIONS:

In the present study, the documented 54 finfish species representing 12 orders, 17 families, and 36 genera, including four exotic species. In comparison, Laxminarayana et al., (15) reported the occurrence of 59 fish species belonging to 11 orders, 23 families, and 39 genera during the period from February 2022 to January 2023, of which five species were exotic. Similar observations were reported from other freshwater bodies in the Andhra Pradesh and Telangana State region (16, 17, 18, 19, 20, 21,22).

In the current observation Siluriformes contributed the highest family level diversity followed by Cypriniformes and other family species. The similar observations were recorded in Jhanjhavathi Rubber Dam, Parvathipuram Manyam District, the order Cypriniformes was dominant, represented by 17 species contributing 41.46% of the total fish diversity, followed by Siluriformes with 10 species, Channiformes with three species, and Anabantiformes, Synbranchiformes, and Perciformes, each represented by two species (16). At the Narayanapuram Anicut on the Nagavali River, Srikakulam District, a total of 19 fish families were recorded, with Siluriformes contributing the highest proportion (31.57%), followed by Perciformes (26.31%) and Cypriniformes (10.53%). The orders Osteoglossiformes, Cyprinodontiformes, Anguilliformes, Beloniformes, and Channiformes each contributed 5.26% to the total family composition (17). With respect to genus-level diversity, studies from the Lower Manair Dam, Karimnagar District, indicated that 12 genera under the family Cyprinidae contributed 29.27% of the total genera, while three genera each under Gobiidae and Anabantidae contributed 7.32% (18). In a subsequent study from the same reservoir, the generic composition revealed that Cyprinidae was again dominant, contributing 12 genera (30.77%), followed by Anabantidae with three genera (7.69%). Two genera each were recorded under Cobitidae, Bagridae, Siluridae, Schilbeidae, Gobiidae, Cichlidae, and Ambassidae, each contributing 5.13%, while a single genus was reported under Notopteridae (19).

Earlier studies on ichthyofaunal diversity have elucidated the species composition of fishes belonging to different families across various freshwater ecosystems. At the Narayanapuram Anicut on the Nagavali River, Srikakulam District, the family Cyprinidae was found to be the most dominant, contributing 39.29% of the total fish species, followed by Bagridae (8.93%) and Channidae (7.14%). The families Cobitidae, Siluridae, Schilbeidae, Clariidae, Anguillidae, Cichlidae, and Ambassidae each accounted for 3.57% of the total species composition (20). Similarly, in the Kalinga Dal Reservoir, the number and percentage composition of families, genera, and species under different orders were documented. Out of a total of 18 families, Perciformes contributed the highest number with seven families, followed by Siluriformes with five families and Cypriniformes with two families. The remaining orders Anguilliformes, Channiformes, Cyprinodontiformes, and Osteoglossiformes were represented by one family to the total family composition (21). The comparable patterns have been reported from other freshwater ecosystems. A study conducted at the Gotta Barrage, Hiramandalam, analyzed the trophic community structure of recorded fish species and documented the dominance of top-level carnivores (39%), followed by mid-level carnivores (28%), predators (17%), omnivores (14%), and herbivores or planktivores (2%) (22). Similar trophic-level distributions were also reported by other authors, with top-level carnivores comprising 39%, followed by mid-level carnivores (28%), predators (17%), omnivores (14%), and herbivores or planktivores (2%) (23). The predominance of omnivorous finfish species observed in the present study is further supported by findings from the Gosthani River at Tagarapavalasa, Visakhapatnam, where omnivorous species constituted the highest proportion with 22 species (46.81%), followed by carnivorous species with 16 species (34.04%) and herbivorous species with nine species (19.14%) (24).

Similar patterns of population status distribution have been reported by several authors from other freshwater ecosystems. In Sunamudi Gedda, a tributary of the Mahendranaya River in the Eastern Ghats at Venkatavarada Rajapuram, 35.90% were categorized as common, followed by 28.20% abundant species, 20.51% moderately abundant species, and 15.39% rare species in the total catch (25). In the Wyra Reservoir, Khammam District, common species constituted the highest proportion (43.75%), followed by 22.92% moderately abundant species, 18.75% rare species, and 14.58% abundant species of the total catch (26). Comparable results were also reported from the Gotta Barrage, where 25 species were recorded as common, followed by 12 abundant species, seven moderately abundant species, and five rare species of the total catch (27). At the Lower Manair Dam, the population status analysis revealed 21 common species, 19 abundant species, 14 moderately abundant species, and 10 rare species (19). Furthermore, studies conducted in freshwater perennial tanks of Jammikunta Mandal, Karimnagar District, reported 44.64% common species as dominant, followed by 32.14% moderately abundant species, 14.28% abundant species, and 8.93% rare species (28).



The comparable trends in IUCN conservation status have been reported from other freshwater ecosystems. At the Gotta Barrage, Hiramandalam, 41 species were categorized as Least Concern, followed by five species as Near Threatened, and one species each as Vulnerable, Not Evaluated, and Data Deficient (27). Similarly, in the Peddagedda Reservoir, Vizianagaram District, 82.93% of the recorded species were classified as Least Concern, whereas 9.75% of species fell under the categories of Near Threatened, Not Evaluated, Data Deficient, and Vulnerable. Further, studies from the Lower Manair Dam, Karimnagar District, documented that 79.69% of the identified species were classified as Least Concern, while three species were reported as Near Threatened and four species (6.25%) were categorized under Endangered, Vulnerable, and Not Evaluated status (19), the similarity was observed the present recorded data. Overall, the species-wise percentage contribution of ichthyofauna in the present study closely aligns with earlier reports from comparable freshwater systems. Among the recorded species, *Labeo rohita*, *Catla catla*, and species of *Channa* were found to be dominant in the total catch across the sampling stations.

Table: 1. Taxa of fishes and their order, family, genus, species, population status and IUCN status at Tatipudi reservoir

No.	Order / Family	Scientific Name	Trophic level	Population Status	IUCN Status
1	Anguilliformes/ Anguillidae	<i>Anguilla bengalensis</i>	3.8	R	NT
2		<i>Anguilla bicolor</i>	3.6	R	NT
3	Beloniformes/ Belonidae	<i>Hyporhamphus limbatus</i>	3.1	R	LC
4		<i>Xenentodon cancila</i>	3.9	R	DD
5	Cypriniformes/ Cyprinidae	<i>Cirrhinus reba</i>	2.5	R	LC
6		<i>Cirrhinus mrigala</i>	2.4	C	LC
7		* <i>Ctenopharyngodon idella</i>	2.0	M	LC
8		* <i>Cyprinus carpio</i>	3.1	R	LC
9		<i>Garra gotyla</i>	2.0	R	LC
10		<i>Hypophthalmichthys molitrix</i>	2.0	R	NT
11		<i>Labeo catla</i>	2.8	A	LC
12		<i>Labeo calbasu</i>	2.0	C	LC
13		<i>Labeo fimbriatus</i>	2.0	R	LC
14		<i>Labeo rohita</i>	2.2	A	LC
15		<i>Osteobrama cotio</i>	2.9	C	LC
16		<i>Puntius chola</i>	2.5	A	LC
17		<i>Puntius ticto</i>	2.2	A	LC
18		<i>Puntius sophore</i>	2.6	A	LC
19		<i>Puntius terio</i>	2.6	R	LC
20		<i>Systemus sarana</i>	2.9	C	LC
21	Cypriniformes/ Danionida	<i>Amblypharyngodon mola</i>	3.3	A	LC
22		<i>Danio devario</i>	3.0	C	LC
23		<i>Esomus danrica</i>	2.4	R	LC
24		<i>Rasbora daniconius</i>	3.1	C	LC
25		<i>Salmostoma bacaila</i>	3.2	C	LC
26		<i>Salmostoma phulo</i>	3.2	C	LC
27	Cypriniformes / Cobitidae	<i>Lepidocephalichthys guntea</i>	2.7	M	LC
28		<i>Nemacheilus corica</i>	2.8	R	LC
29	Cyprinodontiformes/ Aplocheiidae	<i>Aplocheilus panchax</i>	3.8	C	LC
30	Channiformes/ Channidae	<i>Channa marulius</i>	4.5	R	LC
31		<i>Channa orientalis</i>	3.8	C	NE
32		<i>Channa panctata</i>	3.8	A	LC
33		<i>Channa striatus</i>	3.6	C	LC
34	Gobiiformes/ Gobiidae	<i>Glossogobius giuris</i>	3.7	C	LC
35	Osteoglossiformes/ Notopteridae	<i>Notopterus notopterus</i>	3.5	C	LC
36	Siluriformes/ Bagridae	<i>Mystus bleekeri</i>	3.3	C	LC



37		<i>Mystus cavasius</i>	3.4	C	LC
38		<i>Mystus gulio</i>	4.0	R	LC
39		<i>Mystus tengara</i>	3.2	A	LC
40		<i>Mystus vittatus</i>	3.1	A	LC
41	Siluriformes/ Claridae	<i>Clarias batrachus</i>	3.4	C	LC
42		* <i>Clarias gariepinus</i>	3.8	R	LC
43	Siluriformes/ Heteropneustidae	<i>Heteropneustes fossilis</i>	3.6	C	LC
44	Siluriformes/ Siluridae	<i>Ompok bimaculatus</i>	3.9	C	NT
45		<i>Wallago attu</i>	3.7	C	NT
46		<i>Eutropiichthys vacha</i>	3.9	C	LC
47	Anabantiformes /Anabantidae	<i>Anabas testudineus</i>	3.0	M	LC
48	Cichliformes / Cichlidae	* <i>Oreochromis mossambicus</i>	2.2	M	NT
49		<i>Pseudotropheus maculatus</i>	2.7	C	LC
50		<i>Etroplus suratensis</i>	2.9	C	LC
51	Synbranchiformes / Mastacembelidae	<i>Mastacembelus armatus</i>	2.8	C	LC
52		<i>Macrognathus pancalus</i>	3.5	C	LC
53	Perciformes / Ambassidae	<i>Chanda nama</i>	3.9	C	LC
54		<i>Parambassis ranga</i>	3.6	C	LC

A= Abundant (76-100%); C = Common (51-75%); M = Moderate (26-50%); R = Rare (1-25%) of the total catch. EN- Endangered; VU- Vulnerable: LC- Least concern; DD- Data deficient; NE- Not evaluated, NT: Near threaten. *Exotic fishes Sl. nos: 7, 8, 42 and 48

Table: 2. Number and percent composition of families, genera and species of fishes under various orders

S.No	Orders	% of families in an order	% of genera in an order	% of species in an order
1	Anguilliformes	8.33	2.77	3.70
2	Beloniformes	8.33	2.77	3.70
3	Cypriniformes	25.00	44.44	44.44
4	Cyprinodontiformes	8.33	2.77	1.85
5	Channiformes	8.33	2.77	7.41
6	Gobiiformes	8.33	2.77	1.85
7	Osteoglossiformes	8.33	2.77	1.85
8	Siluriformes	33.33	16.66	20.37
9	Anabantiformes	8.33	2.77	1.85
10	Cichliformes	8.33	8.33	5.56
11	Synbranchiformes	8.33	5.55	3.70
12	Perciformes	8.33	5.55	3.70

Table: 3. Taxonomic trophic level of fish species at Tatipudi Reservoir

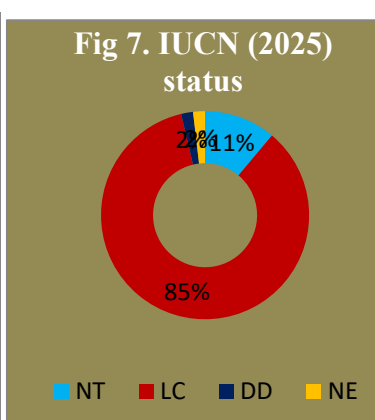
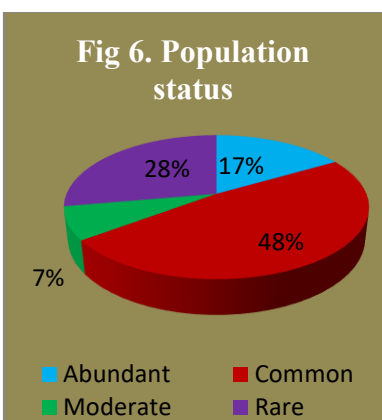
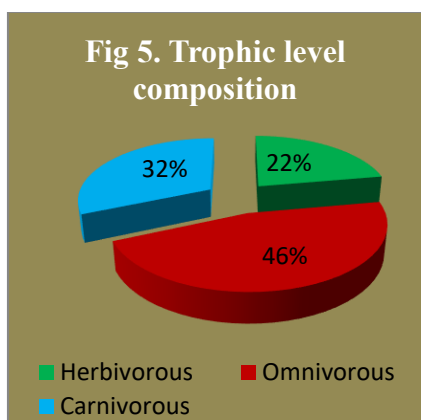
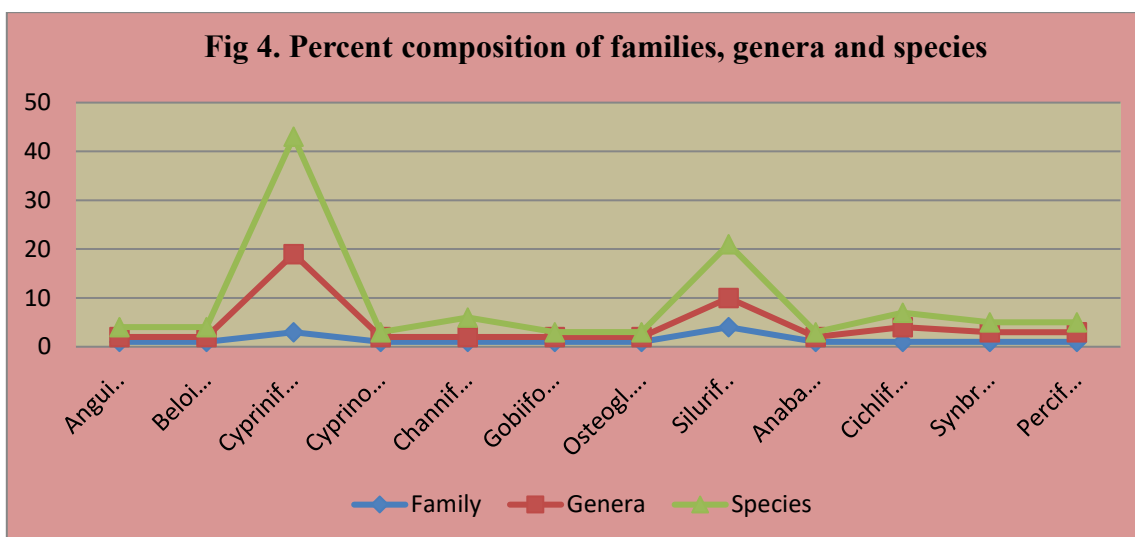
Trophic level	Herbivorous (2.0–2.5)	Omnivorous (2.6–3.5)	Carnivorous (3.6–4.5)
Number of species	12	25	17
% Composition	22.22	46.29	31.48

Table: 4. Taxonomic composition of population status and IUCN (2024)

Population Status	Abundant (76-100%)	Common (51-75%)	Moderate (26-50%)	Rare (1-25%)
Number of species	9	26	4	15



% Composition	16.66	48.15	7.41	27.77
IUCN (2025)	NT	LC	DD	NE
No. of species	6	46	1	1
% contribution	11.11	85.18	1.85	1.85



6. CONCLUSION:

The study concludes that Tatipudi Reservoir supports a rich and diverse assemblage of finfish species, dominated by omnivorous taxa, reflecting a balanced and productive ecosystem. The predominance of common and Least Concern species indicates overall ecological stability, although the presence of Near Threatened and rare species highlights the need for continued monitoring and sustainable fishery management to ensure long-term conservation of the reservoir’s ichthyofaunal diversity.

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DECLARATION:

The methodology was developed collaboratively by all authors. KRR, JK, and PA contributed to the completion of this work and carried out the habitat and IUCN status analyses of the wild flora. The final manuscript was read and approved by all authors.

**COMPETING INTERESTS:**

Authors have declared that no competing interests exist

ETHICAL APPROVAL

This study was conducted in accordance with international ethical standards set by the Institutional Animal Care and Use Committee (IACUC).

CONSENT TO PARTICIPATE

Not applicable as commercial fishing gear was operated in the reservoir, the local fishermen and fisherwomen were involved in the sampling study.

DATA AVAILABILITY STATEMENT

The authors confirm that all data supporting the findings of this study are included within the manuscript.

REFERENCES:

- Mittermeier RA, CG Mitemeir. (2011): Megadiversity Earth's biologically wealthiest Nation. In mc Allister, D.E. A Lttamilton and B. Harvery (Eds.), Global S.V. Rankhamb /Rec Res Sci Tech, 3, 11-1313 fresh water Biodiversity sea wind Cemex, Mexico city," 1997: 1-140.
- Ehrlich PR., and Wilson EO. (1991): Biodiversity studies science and policy. *Science*, 253, 758-762.
- Kaur, H., Datta, S.N. and Singh, A. (2017): Fish Catch Composition and Biodiversity Indices at Harike Wetland- A Ramsar Site in India. *J. Anim. Res*, 7(5), 935–941.
- <https://www.fishbase.se/search.php> Fish Base (2025).
- Burton PJ, AE Balisky, LP Coward, SG Cumming, DD Kneschwaw. (1992): The value of managing biodiversity. *The Forestry Chronicle*, 68(2), 225-237.
- Rama Rao. K, (2014 a): A study on fishing craft and gear in Lower Manair Dam, Karimnagar Dt. Andhra Pradesh, India. *Int. J. M. Dis. Edu. Res.* (2014 (a)) 3: 5 (2): 56-68.
- Day, F., (1958): The fishes of India, being a natural history of the fishes known to inhabit the seas and freshwater of India, Burma and Ceylon, text and atlas, London, William Dawson and Sons Ltd., 195-198.
- Jayaram, K. C. (1999): The freshwater fishes of the Indian region. Narendra Publicatin New Delhi, India, 551.
- Jayaram K.C. (2011): The Freshwater Fishes of Indian Region Narendra Publication House, New Delhi, 2nd Edition.
- Talwar P.K. and Jhingran A.G. Inland fishes of India and Adjacent Countries, Balkemra, Rotterdam, Vol. A. (1991).
- Menon A.G.K. (1999): Check list - freshwater fishes of India, Records of the Zoological Survey of India, Occasional. 175- 366.
- Munro, I. S. R. The Marine and Freshwater Fishes of Ceylon. *Biotech Books*, Delh(2000).
- Froese, R., Pauly, D., (eds.). Fish Base. [version 12/2020] <http://www.fishbase.org> (2024) <https://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>
- Eschmeyer's Catalog of Fishes - version of 9 (2025): (Continually updated since the early 1980s, around the turn of the month)
- Laxminarayana G, K. Rama Rao and M. Ratnakala. (2024): Taxonomic Check List of Ichthyofaunal Diversity at Hiramandalam Reservoir, Srikakulam Dt. Andhra Pradesh, India. *Uttar Pradesh. Journal of Zoology*, 45 (9), 177-187.
- K Rama Rao, Madina Praveena. (2023): An annotated checklist of Ichthyofaunal diversity of Janjhavathi Rubber Dam, A tributary of Nagavali River, Parvathipuram Manyam Dt. of Andhra Pradesh, 2023, *International Journal of Zoology Studies*, 8(3), 74-79.
- Rama Rao. K and R. Ramachandra Rao. (2021): Ichthyofaunal Diversity of Narayanapuram Anicut at Nagavali River, Srikakulam District of Andhra Pradesh, India. *Uttar Pradesh Journal of Zoology*, 42(19), 24-35.
- Rama Rao K and Leela, B. (2016): Ichthyo fauna and hydrophyte floral diversity in the Lower Manair Dam at Karimnagar district, (Telangana State) India: *International Journal of Fisheries and Aquatic Studies*, 4(3), 109-118.
- Rama Rao. K. (2014b): Ichthyo faunal bio diversity in the lower Manair Dam at Karimnagar district; Telangana State: India, Pelagia Research Library. *Advances in Applied Science Research*, 5(5), 237-248.
- Rama Rao, K and R. Ramachandra Rao. (2021): Ichthyofaunal Diversity of Narayanapuram Anicut at Nagavali River, Srikakulam District of Andhra Pradesh, India. *Uttar Pradesh Journal of Zoology*, 42(19), 24-35.
- Rama Rao K. (2018): Ichthyo faunal diversity in the Kalinga Dal reservoir at foot hills of Mahendragiri, Mandasa mandal, Srikakulam district, Andhra Pradesh State: India. *International Journal of Fauna and Biological Studies*, 5(2), 89-96.
- Rama Rao K. (2023): Ichthyofaunal diversity of Gotta Barrage at Hiramandalam, Vamsadhara River, Srikakulam Dt. Andhra Pradesh, India. *International Journal of Zoology Studies*, 8 (2), 23-28.



23. Haojie Su, Yuhao Feng, Jianfeng Chen, Jun Chen, Suhui Ma, Jingyun Fang, Ping Xie. (2021): Determinants of trophic cascade strength in freshwater ecosystems: a global analysis *Ecology*, *Ecology*, 102(7), 1-12.
24. Rama Rao, K., Jaya, P., Prameela, J., Shyamala, K., Radha, S. A., & Sharmila, B. (2024): Taxonomic Check List of Ichthyofaunal Diversity in Gosthani River at Tagarapuvalasa, Visakhapatnam, Andhra Pradesh, India. *Uttar Pradesh Journal of Zoology*, 45(10), 57–64.
25. Rama Rao. K and Vinod Kumar M. (2017): Ichthyofaunal biodiversity in the Sunamudi Gedda a tributary of Mahendranayana, Eastren Ghats at Venkatavarada Rajapuram, Mandasa, Srikakulam Dt. Andhra Pradesh, India. *International Journal of Multidisciplinary Educational Research*, 8 (2), 35-61.
26. Rama Rao K. Srinivasulu Ch, Ravi Shankar V, Srinivas Kumar G, Venkateswararao M, Amaravathi D And Glory B. (2019) . Studies on Ichthyofaunal Diversity of Wyra reservoir in Khammam District, Telangana State, India. *Trends in Biosciences*, 12(4), 1-11.
27. K. Rama Rao. (2023): Ichthyofaunal diversity of Gotta Barrage at Hiramandalam, Vamsadhara River, Srikakulam Dt. Andhra Pradesh, India. *International Journal of Zoology Studies*, 8 (2), 23-28.
28. Rama Rao K, G Srivanthika, B Shivakumar, M Shivaji and A Sirisha. (2017): Ichthyofaunal diversity of Jammikunta mandal freshwater perennial tanks at Karimnagar district; Telangana State: India. *International Journal of Fisheries and Aquatic Studies*, 5(6), 383-391.
29. IUCN Red List of threatened species, version 2024. www.iucnredlist.org.
30. Rama Rao K., R. Ramachandra Rao and N. Veerabhadra Rao. (2022): Ichthyofaunal Diversity of Peddagedda Reservoir at Vizianagaram District, Andhra Pradesh, India. *International Journal of Recent Scientific Research*, 13 (11(A)), 2460-2464.