

# **A Report on Fish Diversity and Habitat Study in Melagiris**



Submitted to The District Forest Officer, Hosur Forest Division, Tamil Nadu Forest Department

by Kenneth Anderson Nature Society, Hosur

# Fish Diversity and Habitat Study in Melagiris

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## Acknowledgements

We hereby acknowledge Shri A K Ulaganathan, IFS, CCF Dharmapuri Circle for his kind permission and encouragement to carry out the study. We also acknowledge the encouragement and assistance of Shri Rajendiran E, District Forest Officer, Hosur.

We are grateful to Dr. R Soranam (Asst. Prof.) and Dr.M Muralidharan, (Asst. Prof.) and Dr. A Sabaridasan of Sri Paramakalyani Center for Environmental Sciences (SPKCES), Manonmaniam Sundaranar University, Alwarkuruchi for shouldering the technical aspects of the study.

We acknowledge the logistical and field arrangements carried out by KANS members Thillairasan, Laxmeesha Acharya, George Tom, Arvind Adhi, Prem Kumar Aparanji, Veerabhadran and Shyam Kiran without which this study would have been impossible.

## Introduction

Little is known about the diversity of fishes in the stretch of Cauvery flowing between Mekedaatu and Biligundlu in the Melagiris. There is no known scientific research conducted in the near past focusing exclusively on this aquatic ecosystem.

Freshwater fishes have unfortunately escaped the attention of policy makers and public in India, even though the country harbors the greatest number of endemic freshwater fishes in continental Asia. Many of these species are threatened and some probably extinct. A third of all freshwater fishes globally are threatened with extinction making them one of the most important vertebrate groups in need of urgent conservation attention.<sup>i</sup> The Cauvery river basin alone has 96 fish species under 23 Families and 8 Orders. Many of them like the Mahseers are red-listed and studies show that they are on the verge of total elimination.<sup>ii</sup> A study by WWF-India in February 2013 calls for scientific and social studies in potential Mahseer habitats for identification, demarcation and notification of zero-tolerance zones and establishment of Mahseer Conservation Reserves and Community Reserves, especially in stretches like Shivanasamudram to Hogenakkal in the Cauvery<sup>iii</sup>.

Freshwater fishes are increasingly threatened by a range of factors, including habitat loss, over exploitation and biological invasions. These are mostly a result of catchment fragmentation, dam/weir construction, water and aggregate abstraction, and the prevalence of illegal and highly destructive fishing methods involving small mesh nets, poisons, electricity and dynamite.

Scientific information about fish diversity, endemism, presence of new and rare species, and fish migration were some of the crucial factors taken into consideration while analyzing the case for environment clearance for diversion of natural resources in places like Athirapally<sup>iv</sup>.

Therefore, there is an urgent need to collect and collate biological data to determine the current species diversity and occurrence to improve understanding of the biological and ecological requirements of fishes and their habitats in this stretch of the Cauvery river.

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## Objective

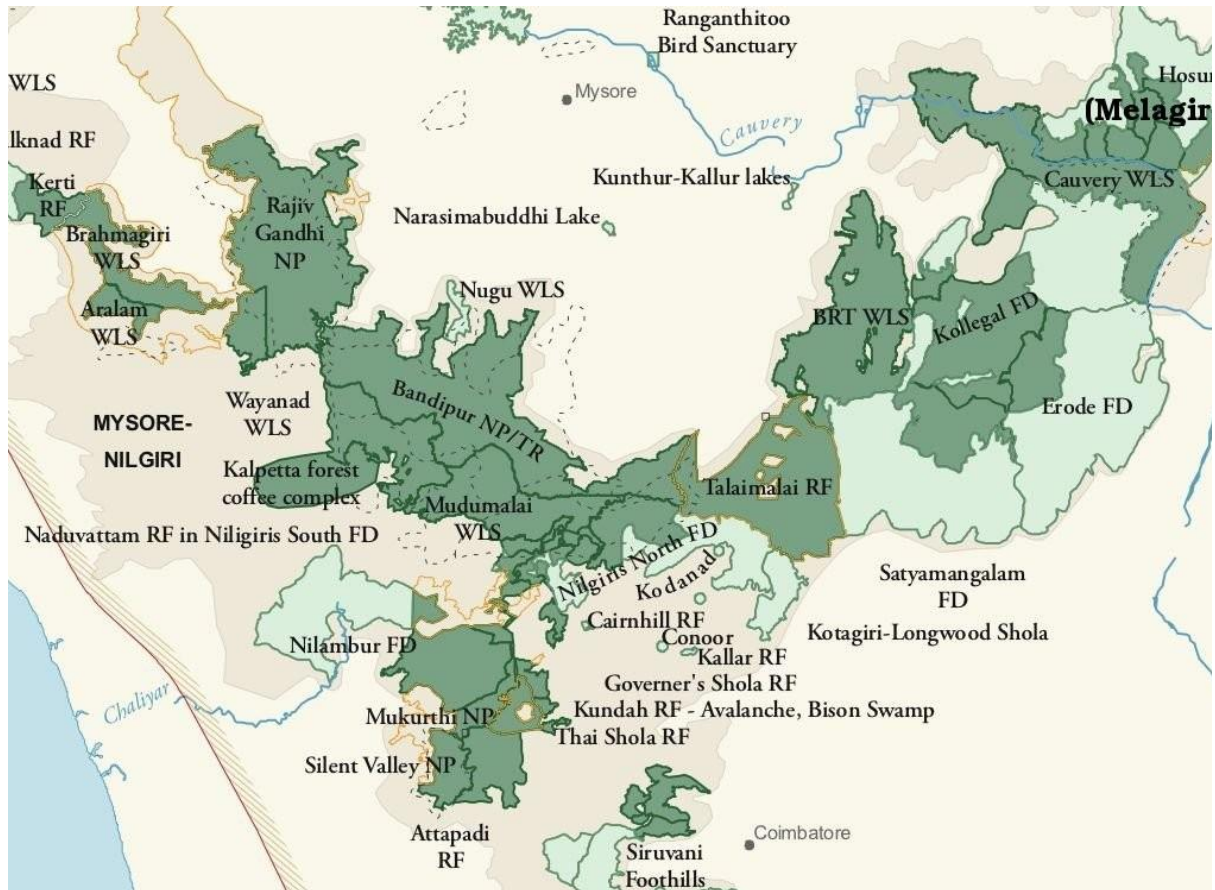
The principal objective of the study is to survey the fish diversity of Cauvery River in the Melagiris of the Hosur Forest Division and to prepare an inventory of species and understand the habitat structure.

## Study Area – The Cauvery and Melagiris

The Cauvery is a large South Indian river which originates at Talacauvery in Kodagu in the Western Ghats of Karnataka and flows generally South and East through Karnataka and Tamil Nadu for about 765 kilometers before emptying into the Bay of Bengal.

The Melagiris are a group of forested hills nestled between the Cauvery and Chinnar rivers, to the South-east of Hosur taluk in Tamil Nadu. It is located between 12° 41' - 12° 06' N latitudes and 77° 34' - 77° 58' E longitudes and has a total forested area of about 1000 sq. km. The Melagiris form part of an unbroken stretch of forests connecting Bannerghatta National Park (which forms its north-western boundary) to the forests of Cauvery Wildlife Sanctuary, Karnataka which forms its southern boundary separated by the river Cauvery. Further connectivity to tiger reserves of BR Hills, Sathyamangalam, Bandipur, Mudumalai and Nagarhole, makes this area an important constituent of a rich and biodiverse landscape.

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Map of Biodiversity Hot-spots - Conservation Outcomes, Critical Ecosystem Partnership Fund

Cauvery flows through Melagiris from Mekedaatu up to Hogenakkal passing through Kesthur, Bilikkal, Mallahalli, Natrampalayam and Woddapatty reserve forests of Hosur Forest Division. Thereafter the river flows through the Dharmapuri forest division through Badanavadi and Bevanur Malai reserve forests before entering the Stanley reservoir and Mettur Dam. This stretch of the Cauvery is the last forested tract of the river before it enters the agricultural plains.

This stretch of Cauvery also forms the interstate boundary between the states of Tamil Nadu and Karnataka. The river here flows through a broad valley between formation of hills cloaked on both banks by excellent dry deciduous forests. *Hardwickia binata*, *Albizia amara* are the dominant tree species on the slopes of the valley and *Terminalia arjuna*, *Barringtonia acutangula*, *Tamarindus indica*, *Pongamia pinnata*, *Syzygium cumini*, *Madhuca longifolia* etc grow along the river banks. This stretch of the forest shelters many red-listed species such as the Grizzled Giant Squirrel, Smooth Coated Otter, Lesser Fish Eagle, Marsh Crocodile and Four-Horned Antelope, Honey badger, Asian elephant, Common leopard etc., in addition to a rich and diverse flora on its banks. Tigers have been recorded from the Karnataka bank. This region is also a very important part of the Nilgiri Eastern Ghats Elephant Reserve.

A total of 31 sampling sites were selected between Mekedaatu (at the border of Tamil Nadu and Karnataka) and Biligundlu covering a length of around 36 kilometers. Latitudes and longitudes; topography, mean depth and habitat type are recorded (Table.1).



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*Sampling sites*

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**Table 1.** Details of the sampling sites along with physical attributes and land use patterns.

Sampling sites	Altitude (m)	Position	Mean Depth (m)	Topography	Habitat type
S1 (Kesthur)	518	N 12°12'31.2" E 77°30'43.5"	20-30	Bed rock, Boulders, Sand and Leaf litter, Riparian cover	Riffles, pools and cascade
S2 (Kesthur pallam)	301	N 12°11'58.8" E 77°31'39.7"	5-10	Big boulders, bedrock, pebbles, sand, and leaf litter	Cascade, pools and runs
S3 (Kaththekalmaduvu)	295	N 12°11'52.0" E 77°31'20.1"	5-10	Boulders, Sand, mud, leaf litter and Riparian cover	Runs, Pools and Cascade
S4 (Nagarkada)	297	N 12°11'58.7" E 77°32'05.9"	20-30	Bed rock, Boulders, Sand and Leaf litter	Riffles, pools and runs
S5 (Dabbaguli)	307	N 12°12'16.3" E 77°32'36.8"	15-25	Bed rock, Boulders, Sand and Leaf litter	Riffles, pools, cascade and runs

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S6 (Near Dabbaguli)	294	N 12°12'12.8" E 77°32'30.8"	25-35	Bed rock, Boulders, Sand and Leaf litter, Riparian cover	Riffles, pools and runs
S7 (Mamarathu maduvu)	295	N 12°11'49.1" E 77°33'44.1"	10-15	Bed rock, Boulders, Sand and Leaf litter	Riffles, pools and runs
S8 (Dollamathi)	244	N 12°12'01.4" E 77°34'12.7"	10-40	Bedrock, Riparian cover, Sand and Leaf litter	Runs, pools and Cascade
S9 (Near Dollamathi)	289	N 12°12'04.9" E 77°34'14.7"	10-30	Bed rock, boulders, Sand, Riparian cover	Riffles, pools and runs
S10 (Thirukanamada)	287	N 12°11'58.1" E 77°34'41.1"	30-40	Boulders, Sand and leaf litter	Riffles, pools and runs
S11 (Settiahalli)	294	N 12°11'56.1" E 77°34'48.5"	15-25	Bed rock, Boulders, Sand, Leaf litter, Riparian cover	Pools and runs
S12 (Near Settiahalli)	289	N 12°11'58.2" E 77°35'05.8"	15-25	Bed rock, Boulders, Sand, Leaf litter and Riparian cover	Pools and runs



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S13 (Near Uganiyam)	290	N 12°12'06.9" E 77°35'55.9"	20-30	Bed rock, Boulders, Pebbles Sand, Riparian cover	Riffles, pools and runs
S14 (Uganiyam)	292	N 12°12'03.1" E 77°35'49.7"	20-30	Bed rock, boulders, sand, mud, Riparian cover	Runs, pools and riffles
S15 (Uganiyathu Kadavu)	289	N 12°12'28.5" E 77°36'15.4"	4-5	Semi-boulders, bedrock, sand and Riparian cover	Runs, pools and Cascade
S16 (Mallahalli Pallam)	281	N 12°12'19.1" E 77°36'50.8"	10-15	Bed rock, boulders, sand, mud and Riparian cover	Runs, pools and Cascade
S17 (Kageri Pallam)	284	N 12°12'16.0" E 77°36'07.5"	15-25	Boulders, bed rock, sand and mud	Runs, pools and riffles
S18 (Anguli)	291	N 12°12'20.3" E 77°36'51.7"	25-35	Boulders, Bed rock and sand	Runs, pools and riffles
S19 (Thumbaguli)	287	N 12°12'12.8" E 77°37'47.5"	25-35	Boulders, bed rock, sand, mud and Riparian cover	Runs, pools and riffles

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S20 (Udupatti)	282	N 12°11'57.3" E 77°38'44.5"	15-25	Boulders, pebbles, sand and Riparian cover	Runs, pools, cascade and riffles
S21 (Rakkachi Kadavu)	283	N 12°11'58.2" E 77°38'01.7"	15-25	Boulders, pebbles, sand and Riparian cover	Runs, pools, cascade and riffles
S22 (Doddahalla)	272	N 12°11'49.1" E 77°40'05.7"	10-15	Semi-boulders, bed rock, sand, mud and Riparian cover	Runs, pools, cascade and riffles
S23 (Near Rasimanal)	283	N 12°11'58.0" E 77°39'30.8"	20-30	Boulders, bed rock, sand, mud and Riparian cover	Runs, pools, cascade and riffles
S24 (Rasimanal)	282	N 12°11'33.8" E 77°40'53.2"	20-30	Boulders, bed rock, sand, mud and Riparian cover	Runs and riffles
S25 (Thenmathi)	282	N 12°11'33.7" E 77°40'43.4"	15-25	Boulders, Semi-boulders, bed rock, sand, mud and Riparian cover	Runs, cascade and riffles

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S26 (Metteripatti)	274	N 12°11'23.4" E 77°41'22.7"	20-25	Boulders, bed rock, sand, mud and Riparian cover	Runs and riffles
S27(Kanakarayanmaduvu)	272	N 12°11'07.4" E 77°42'01.7"	5-10	Semi-boulders, sand, mud and Riparian cover	pools, cascade and riffles
S28 (Biligundlu)	275	N 12°18'31" E 77°71'78"	15-20	Boulders, bed rock, sand, mud and Riparian cover	Runs, cascade and riffles
S29 (Sunnambu Kadavu)	300	N 12°13'28.3" E 77°28'50.6"	5-15	Boulders, bed rock, sand and Riparian cover	Runs and riffles
S30 (Uduthara pallam)	298	N 12°12'18.8" E 77°28'49.4"	10-20	Big rock, Bed rock, Semi- Boulders sand and Riparian cover	Runs, pools and riffles
S31 (Mettubanda)	277	N 12°11'49.8" E 77°38'14.6"	5-15	Big rock, Bed rock, Semi- Boulders sand and Riparian cover	Runs, pools and riffles

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### **Methodology**

Non-destructive sampling methods suited to nature of the river course was employed. At each site cast nets were used until local species saturation was obtained. Visual surveys were used to detect fish presence. At sites with calm flow and uniform depth, gillnets were deployed to catch mobile fish species. Hooks and lines were used to catch predatory fish species such as eels (*Anguilla spp.*), catfishes and snakeheads (*Channa spp.*). Fish catches found in nets of fishermen were collected opportunistically wherever possible. Fishes were identified using taxonomic keys and photographic identification from various field guides. The taxonomic treatment provided by Jayaram, (2010) <sup>y</sup>for species identification was followed. The study was carried out between September 2014 and March 2016.



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**Table.2.** List of freshwater fish species

S.No	List of Fish species	Taxa	Family	IUCN status (2013)
1.	<i>Notopterus notopterus</i> (Pallas, 1769)	Osteoglossiformes	Notopteridae	Least concern
2.	<i>Anguilla bengalensis</i> (Gray, 1831)	Anguliformes	Anguillidae	Least concern
3.	<i>Barilius bendelisis</i> (Hamilton, 1807)	Cypriniformes	Cyprinidae	Least concern
4.	<i>Barilius gatensis</i> (Valenciennes, 1844)	Cypriniformes	Cyprinidae	Least concern
5.	<i>Cyprinus carpio</i> (Linnaeus, 1758)	Cypriniformes	Cyprinidae	Vulnerable
6.	<i>Cirrhinus reba</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
7.	<i>Cirrhinus cirrhosus</i> (Bloch, 1795)	Cypriniformes	Cyprinidae	Vulnerable
8.	<i>Devario aequipinnatus</i> (McClelland, 1839)	Cypriniformes	Cyprinidae	Least concern
9.	<i>Rasbora daniconius</i> (Hamilton, 1807)	Cypriniformes	Cyprinidae	Least concern
10.	<i>Garra mullya</i> (Skyles, 1839)	Cypriniformes	Cyprinidae	Least concern
11.	<i>Systemus sarana</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
12.	<i>Dawkinsia filamentosa</i> (Valenciennes, 1844)	Cypriniformes	Cyprinidae	Least concern

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13.	<i>Puntius bimaculatus</i> (Bleeker, 1863)	Cypriniformes	Cyprinidae	Least concern
14.	<i>Puntius dorsalis</i> (Jerdon, 1849)	Cypriniformes	Cyprinidae	Least concern
15.	<i>Puntius sophore</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
16.	<i>Barbodes carnaticus</i> (Jerdon, 1849)	Cypriniformes	Cyprinidae	Least concern
17.	<i>Puntius chola</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
18.	<i>Pethia conchonius</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
19.	<i>Tor khudree</i> (Skyles, 1839)	Cypriniformes	Cyprinidae	Endangered
20.	<i>Labeo calbasu</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
21.	<i>Labeo dero</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
22.	<i>Labeo kontius</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
23.	<i>Labeo rohita</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
24.	<i>Labeo ariza</i> (Hamilton, 1807)	Cypriniformes	Cyprinidae	Least concern
25.	<i>Labeo bata</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Least concern
26.	<i>Labeo pangunia</i> (Hamilton, 1822)	Cypriniformes	Cyprinidae	Near Threatened

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27.	<i>Hypselobarbus dubuis</i> (Day, 1876)	Cypriniformes	Cyprinidae	Endangered
28.	<i>Salmostoma clupeoides</i> (Bloch, 1795)	Cypriniformes	Cyprinidae	Least concern
29.	<i>Kantaka brevidorsalis</i> (Day, 1873)	Cypriniformes	Cyprinidae	Least concern
30.	<i>Nemacheilus trinangularis</i> (Day, 1876)	Cypriniformes	Balitoridae	Least concern
31.	<i>Lepidocephalichthys thermalis</i> (Valenciennes, 1846)	Cypriniformes	Cobitidae	Least concern
32.	<i>Sperata aor</i> (Hamilton, 1822)	Siluriformes	Bagridae	Least concern
33.	<i>Hemibagrus punctatus</i> (Jerdon, 1849)	Siluriformes	Bagridae	Critically Endangered
34.	<i>Mystus armatus</i> (Day, 1865)	Siluriformes	Bagridae	Least concern
35.	<i>Mystus cavasius</i> (Hamilton, 1822)	Siluriformes	Bagridae	Least concern
36.	<i>Ompok bimaculatus</i> (Bloch, 1794)	Siluriformes	Siluridae	Near Threatened
37.	<i>Pangasius pangasius</i> (Hamilton, 1822)	Siluriformes	Siluridae	Least Concern
38.	<i>Mastacembelus aramatus</i> (Lacepede, 1800)	Synbranchiformes	Mastacembelidae	Least concern
39.	<i>Etroplus maculates</i> (Bloch, 1795)	Perciformes	Cichlidae	Least concern

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40.	<i>Etroplus suratensis</i> (Bloch, 1795)	Perciformes	Cichlidae	Least concern
41.	<i>Etroplus canarensis</i> (Day, 1877)	Perciformes	Cichlidae	Endangered
42.	<i>Oreochromis mossambicus</i> (Peters, 1852)	Perciformes	Cichlidae	Near Threatened
43.	<i>Channa punctata</i> (Bloch, 1793)	Perciformes	Channidae	Least concern
44.	<i>Channa marulius</i> (Hamilton, 1822)	Perciformes	Channidae	Least concern
45.	<i>Parambassis ranga</i> (Hamilton, 1822)	Perciformes	Ambassidae	Least concern
46.	<i>Glossogobius giuris</i> (Hamilton, 1822)	Perciformes	Gobiidae	Least concern
47.	<i>Hyporhamphus xenthopterus</i> (Valenciennes, 1847)	Beloniformes	Hemiramphidae	Vulnerable
48.	<i>Xenentodon cancila</i> (Hamilton, 1822)	Beloniformes	Belonidae	Least concern

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**Table.3.** Fish species distribution. ‘+’ = Present; ‘-’ = Absent

S.No	List of Fish species	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
1.	<i>Notopterus notopterus</i> (Pallas, 1769)	-	-	-	-	*	*	-	-	-	-	-	-	*	*	-
2.	<i>Anguilla bengalensis</i> (Gray, 1831)	-	-	-	-	-	-	-	-	-	-	-	-	*	*	-
3.	<i>Barilius bendelis</i> (Hamilton, 1807)	*	-	*	*	*	*	*	*	*	*	*	*	*	*	-
4.	<i>Barilius gatensis</i> (Valenciennes, 1844)	-	-	-	*	-	-	-	*	*	*	*	*	*	*	*
5.	<i>Cyprinus carpio</i> (Linnaeus, 1758)	*	*	*	-	-	-	-	-	-	-	-	-	-	-	-
6.	<i>Cirrhinus reba</i> (Hamilton, 1822)	*	*	*	*	*	*	-	*	*	*	*	*	*	*	-
7.	<i>Cirrhinus cirrhosus</i> (Bloch, 1795)	-	-	-	-	-	-	-	*	-	-	-	-	*	*	-
8.	<i>Devario aequipinnatus</i> (McClelland, 1839)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
9.	<i>Rasbora daniconius</i> (Hamilton, 1807)	*	*	*	*	*	*	-	-	-	-	-	-	-	-	*
10.	<i>Garra mullya</i> (Skyles, 1839)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11.	<i>Systemus sarana</i> (Hamilton, 1822)	*	-	*	-	-	-	-	-	-	-	-	-	-	-	-
12.	<i>Dawkinsia filamentosa</i> (Valenciennes, 1844)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13.	<i>Puntius bimaculatus</i> (Bleeker, 1863)	-	-	-	-	-	-	-	*	*	*	*	*	*	*	*
14.	<i>Puntius dorsalis</i> (Jerdon, 1849)	-	-	-	-	-	-	-	*	*	*	*	*	*	*	*
15.	<i>Puntius sophore</i> (Hamilton, 1822)	-	-	-	-	-	-	-	*	-	-	*	-	-	-	*
16.	<i>Barbodes carnaticus</i> (Jerdon, 1849)	-	-	-	-	-	-	-	-	-	-	*	*	-	-	-
17.	<i>Puntius chola</i> (Hamilton, 1822)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*



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18.	<i>Pethia conchonius</i> (Hamilton, 1822)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19.	<i>Tor khudree</i> (Skyles, 1839)	-	-	-	-	-	-	-	-	-	-	-	*	*	*	
20.	<i>Labeo calbasu</i> (Hamilton, 1822)	*	-	*	*	*	*	-	*	*	*	*	*	*	*	-
21.	<i>Labeo dero</i> (Hamilton, 1822)	*	*	*	*	*	*	-	*	*	*	*	*	*	*	-
22.	<i>Labeo kontius</i> (Hamilton, 1822)	*	*	*	*	-	-	-	*	-	-	*	*	-	-	*
23.	<i>Labeo rohita</i> (Hamilton, 1822)	-	-	-	*	-	-	-	-	-	-	-	-	-	-	-
24.	<i>Labeo ariza</i> (Hamilton, 1807)	-	-	-	-	-	-	-	-	-	-	-	-	*	*	-
25.	<i>Labeo bata</i> (Hamilton, 1822)	-	-	-	*	*	*	-	-	-	-	*	*	-	-	-
26.	<i>Labeo pangunia</i> (Hamilton, 1822)	-	-	-	*	*	-	-	-	-	-	-	-	-	-	-
27.	<i>Hypselobarbus dubuis</i> (Day, 1876)	-	-	-	*	-	-	-	*	*	*	*	*	-	-	-
28.	<i>Salmostoma clupeoides</i> (Bloch, 1795)	-	-	-	-	-	-	-	-	-	-	-	-	*	*	-
29.	<i>Kantaka brevidorsalis</i> (Day, 1873)	-	-	-	-	*	*	-	-	-	-	-	-	*	-	-
30.	<i>Nemacheilus trinangularis</i> (Day, 1876)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
31.	<i>Lepidocephalichthys thermalis</i> (Valenciennes, 1846)	-	-	-	-	-	-	-	*	*	*	*	*	*	*	*
32.	<i>Sperata aor</i> (Hamilton, 1822)	-	-	-	-	-	-	-	*	*	*	*	-	-	*	-
33.	<i>Hemibagrus punctatus</i> (Jerdon, 1849)	*	-	-	*	*	*	-	*	*	*	*	*	*	*	-
34.	<i>Mystus armatus</i> (Day, 1865)	-	-	-	-	-	-	-	-	-	-	*	*	*	*	-
35.	<i>Mystus cavasius</i> (Hamilton, 1822)	*	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36.	<i>Ompok bimaculatus</i> (Bloch, 1794)	-	-	-	-	*	*	-	*	*	*	*	*	-	*	-
37.	<i>Pangasius pangasius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	*	-	-

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38.	<i>Mastacembelus aramatus</i> (Lacepede, 1800)	*	-	-	*	*	*	-	*	-	-	-	-	*	*	-
39.	<i>Etroplus maculatus</i> (Bloch, 1795)	-	-	-	*	-	-	-	-	-	-	*	-	*	*	-
40.	<i>Etroplus suratensis</i> (Bloch, 1795)	-	-	-	*	-	-	-	*	-	-	-	-	*	*	-
41.	<i>Etroplus canarensis</i> (Day, 1877)	*	*	*	*	-	-	-	*	*	*	*	*	-	-	-
42.	<i>Oreochromis mossambicus</i> (Peters, 1852)	*	*	*	*	-	-	-	*	-	-	-	-	-	-	*
43.	<i>Channa punctata</i> (Bloch, 1793)	-	-	-	*	-	-	-	*	-	-	*	*	-	-	-
44.	<i>Channa marulius</i> (Hamilton, 1822)	-	-	-	*	-	-	-	*	-	-	-	-	-	-	-
45.	<i>Parambassis ranga</i> (Hamilton, 1822)	*	*	*	*	*	-	-	-	-	*	*	*	*	*	*
46.	<i>Glossogobius giuris</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	*	*	-
47.	<i>Hyporhamphus xenthopterus</i> (Valenciennes, 1847)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
48.	<i>Xenentodon cancila</i> (Hamilton, 1822)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

‘\*’ = Present, ‘-’ = Absent

S1- Kesthur, S2- Kesthur pallam, S3- Kaththekalmaduvu, S4-Nagarkada, S5- Dabbaguli, S6- Near Dabbaguli, S7- Mamarathu maduvu, S8- Dollamathi, S9- Near Dollamathi, S10- Thirukanamada, S11- Settihalli, S12- Near Settihalli, S13- Near Uganiyam, S14-Uganiyam, S15- Uganiyathu Kadavu.

## Fish Diversity and Habitat Study in Melagiris

Continued.....

S.No	List of Fish species	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30	S31
1.	<i>Notopterus notopterus</i> (Pallas, 1769)	-	-	-	-	-	-	-	-	*	-	-	-	*	-	-	-
2.	<i>Anguilla bengalensis</i> (Gray, 1831)	-	-	-	-	-	-	-	*	*	*	-	-	-	-	-	-
3.	<i>Barilius bendelis</i> (Hamilton, 1807)	*	*	-	-	-	-	*	*	*	*	*	*	*	-	*	-
4.	<i>Barilius gatensis</i> (Valenciennes, 1844)	*	*	-	-	-	-	*	*	*	*	*	*	-	*	*	*
5.	<i>Cyprinus carpio</i> (Linnaeus, 1758)	-	-	-	-	-	-	-	*	*	*	-	-	-	-	-	-
6.	<i>Cirrhinus reba</i> (Hamilton, 1822)	*	*	-	-	-	-	*	*	*	*	-	-	-	-	-	*
7.	<i>Cirrhinus cirrhosus</i> (Bloch, 1795)	-	-	-	-	-	-	-	*	*	*	-	-	-	-	-	-
8.	<i>Devario aequipinnatus</i> (McClelland, 1839)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
9.	<i>Rasbora daniconius</i> (Hamilton, 1807)	*	*	-	-	-	-	-	-	*	*	*	*	*	-	-	-
10.	<i>Garra mullya</i> (Skyles, 1839)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11.	<i>Systemus sarana</i> (Hamilton, 1822)	-	-	-	-	-	-	-	*	*	*	*	*	*	-	*	*
12.	<i>Dawkinsia filamentosa</i> (Valenciennes, 1844)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13.	<i>Puntius bimaculatus</i> (Bleeker, 1863)	*	*	*	-	-	-	-	-	*	*	*	*	*	-	-	*
14.	<i>Puntius dorsalis</i> (Jerdon, 1849)	*	*	*	-	-	-	-	-	*	*	*	*	*	-	-	*
15.	<i>Puntius sophore</i> (Hamilton, 1822)	*	-	-	-	-	-	-	-	*	*	*	*	*	-	-	-
16.	<i>Barbodes carnaticus</i> (Jerdon, 1849)	-	-	-	-	-	-	-	*	*	*	-	-	-	-	*	-
17.	<i>Puntius chola</i> (Hamilton, 1822)	*	-	-	-	-	-	-	-	*	*	*	*	*	*	*	*

## Fish Diversity and Habitat Study in Melagiris

18.	<i>Pethia conchonius</i> (Hamilton, 1822)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19.	<i>Tor khudree</i> (Skyes, 1839)	-	-	-	-	-	-	-	*	*	*	-	-	-	*	*	*
20.	<i>Labeo calbasu</i> (Hamilton, 1822)	-	*	*	*	*	*	*	*	*	*	*	*	*	-	*	*
21.	<i>Labeo dero</i> (Hamilton, 1822)	-	*	*	*	*	*	*	*	*	*	*	*	*	-	-	*
22.	<i>Labeo kontius</i> (Hamilton, 1822)	-	-	-	*	*	*	*	*	-	-	-	-	-	-	-	*
23.	<i>Labeo rohita</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	*	*	*	*	-	*	-
24.	<i>Labeo ariza</i> (Hamilton, 1807)	-	-	-	-	-	-	-	*	*	*	*	*	*	-	*	*
25.	<i>Labeo bata</i> (Hamilton, 1822)	-	-	-	-	-	-	-	*	*	*	-	-	-	-	*	-
26.	<i>Labeo pangunia</i> (Hamilton, 1822)	-	-	-	*	-	-	-	-	-	-	-	-	-	*	*	-
27.	<i>Hypselobarbus dubuis</i> (Day, 1876)	-	-	-	-	-	-	-	*	-	-	-	-	*	*	-	-
28.	<i>Salmostoma clupeioides</i> (Bloch, 1795)	-	-	-	-	-	-	-	*	*	*	-	-	-	-	*	*
29.	<i>Kantaka brevidorsalis</i> (Day, 1873)	-	-	-	*	*	-	-	-	-	-	-	-	-	-	-	-
30.	<i>Nemacheilus trinangularis</i> (Day, 1876)	*	*	-	-	-	-	-	*	*	*	*	*	*	-	-	-
31.	<i>Lepidocephalichthys thermalis</i> (Valenciennes, 1846)	*	*	-	-	-	-	-	*	*	*	*	*	*	-	-	-
32.	<i>Sperata aor</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	*	-	-	-
33.	<i>Hemibagrus punctatus</i> (Jerdon, 1849)	-	-	-	-	-	-	-	*	*	*	*	*	*	-	*	*
34.	<i>Mystus armatus</i> (Day, 1865)	-	-	-	-	-	-	-	*	*	-	-	-	-	-	-	-
35.	<i>Mystus cavasius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	*	*	*	*	-	*	-	*	-
36.	<i>Ompok bimaculatus</i> (Bloch, 1794)	-	-	*	*	-	-	-	*	*	*	*	-	*	-	-	-

## Fish Diversity and Habitat Study in Melagiris

37.	<i>Pangasius pangasius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.	<i>Mastacembelus aramatus</i> (Lacepede, 1800)	-	-	*	*	-	-	-	*	*	*	-	-	*	-	-
39.	<i>Etroplus maculatus</i> (Bloch, 1795)	-	-	-	-	-	-	*	*	-	*	-	-	*	*	*
40.	<i>Etroplus suratensis</i> (Bloch, 1795)	-	-	*	*	*	-	-	*	*	*	*	-	*	-	*
41.	<i>Etroplus canarensis</i> (Day, 1877)	-	-	-	-	-	-	-	*	*	*	-	-	-	-	-
42.	<i>Oreochromis mossambicus</i> (Peters, 1852)	-	-	-	-	-	-	-	-	-	-	-	*	*	-	-
43.	<i>Channa punctata</i> (Bloch, 1793)	-	-	-	-	-	-	-	-	-	-	-	-	-	*	*
44.	<i>Channa marulius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	*	*	*	*	-	-	-	*
45.	<i>Parambassis ranga</i> (Hamilton, 1822)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
46.	<i>Glossogobius giuris</i> (Hamilton, 1822)	*	*	-	-	-	-	-	*	*	-	-	*	*	-	-
47.	<i>Hyporhamphus xenthopterus</i> (Valenciennes, 1847)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-
48.	<i>Xenentodon cancila</i> (Hamilton, 1822)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-

S16-Mallahalli pallam, S17- Kageri pallam, S18- Anguli, S19- Thumbaguli, S20- Udupatti, S21- Rakkachi Kadavu, S22- Doddahalla, S23- Near Rasimanal, S24- Rasimanal, S25- Thenmathi, S26- Metteripatti, S27- Kanakarayanmaduvu, S28- Biligundlu, S29- Sunnambu Kadavu, S30- Uduthara pallam, S31- Mettubanda



## Fish Diversity and Habitat Study in Melagiris

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## Fish Diversity and Habitat Study in Melagiris

**Table 4. Abundance of fish species from the streams/river of Melagiris forest region, Tamil Nadu.**

S.No	List of Fish species	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
1.	<i>Notopterus notopterus</i> (Pallas, 1769)	-	-	-	-	10	10	-	-	-	-	-	-	12	15	-
2.	<i>Anguilla bengalensis</i> (Gray, 1831)	-	-	-	-	-	-	-	-	-	-	-	-	8	10	-
3.	<i>Barilius bendelis</i> (Hamilton, 1807)	8	-	8	10	10	8	8	12	10	12	15	9	14	14	-
4.	<i>Barilius gatensis</i> (Valenciennes, 1844)	-	-	-	10	-	-	-	10	12	12	10	10	12	10	12
5.	<i>Cyprinus carpio</i> (Linnaeus, 1758)	3	4	4	-	-	-	-	-	-	-	-	-	-	-	-
6.	<i>Cirrhinus reba</i> (Hamilton, 1822)	10	12	10	10	12	15	-	12	12	10	15	15	14	14	-
7.	<i>Cirrhinus cirrhosus</i> (Bloch, 1795)	-	-	-	-	-	-	-	3	-	-	-	-	4	3	-
8.	<i>Devario aequipinnatus</i> (McClelland, 1839)	12	13	15	10	15	15	15	15	15	15	15	15	15	15	15
9.	<i>Rasbora daniconius</i> (Hamilton, 1807)	12	12	12	12	12	10	-	-	-	-	-	-	-	-	12
10.	<i>Garra mullya</i> (Skyles, 1839)	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
11.	<i>Systemus sarana</i> (Hamilton, 1822)	8	-	8	-	-	-	-	-	-	-	-	-	-	-	-
12.	<i>Dawkinsia filamentosa</i> (Valenciennes, 1844)	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
13.	<i>Puntius bimaculatus</i> (Bleeker, 1863)	-	-	-	-	-	-	-	8	8	9	10	10	10	10	10
14.	<i>Puntius dorsalis</i> (Jerdon, 1849)	-	-	-	-	-	-	-	8	8	9	10	8	10	10	10
15.	<i>Puntius sophore</i> (Hamilton, 1822)	-	-	-	-	-	-	-	6	-	-	6	-	-	-	5
16.	<i>Barbodes carnaticus</i> (Jerdon, 1849)	-	-	-	-	-	-	-	-	-	-	7	7	-	-	-
17.	<i>Puntius chola</i> (Hamilton, 1822)	8	8	9	10	10	10	10	10	15	15	15	15	10	10	10

## Fish Diversity and Habitat Study in Melagiris

18.	<i>Pethia conchonius</i> (Hamilton, 1822)	8	8	9	10	10	9	8	10	12	12	12	15	10	10	10
19.	<i>Tor khudree</i> (Skyles, 1839)	-	-	-	-	-	-	-	-	-	-	-	-	6	6	8
20.	<i>Labeo calbasu</i> (Hamilton, 1822)	15	-	15	15	12	12	-	15	10	13	14	15	15	15	-
21.	<i>Labeo dero</i> (Hamilton, 1822)	12	15	14	10	15	13	-	12	10	15	14	10	15	12	-
22.	<i>Labeo kontius</i> (Hamilton, 1822)	10	8	8	6	-	-	-	8	-	-	10	10	-	-	8
23.	<i>Labeo rohita</i> (Hamilton, 1822)	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-
24.	<i>Labeo ariza</i> (Hamilton, 1807)	-	-	-	-	-	-	-	-	-	-	-	-	6	6	-
25.	<i>Labeo bata</i> (Hamilton, 1822)	-	-	-	6	6	7	-	-	-	-	5	5	-	-	-
26.	<i>Labeo pangunia</i> (Hamilton, 1822)	-	-	-	5	5	-	-	-	-	-	-	-	-	-	-
27.	<i>Hypseobarbus dubuis</i> (Day, 1876)	-	-	-	3	-	-	-	3	4	3	3	3	-	-	-
28.	<i>Salmostoma clupeioides</i> (Bloch, 1795)	-	-	-	-	-	-	-	-	-	-	-	-	12	12	-
29.	<i>Kantaka brevidorsalis</i> (Day, 1873)	-	-	-	-	2	2	-	-	-	-	-	-	3	-	-
30.	<i>Nemacheilus trinangularis</i> (Day, 1876)	8	8	9	10	10	9	8	10	12	12	12	15	10	10	10
31.	<i>Lepidocephalichthys thermalis</i> (Valenciennes, 1846)	-	-	-	-	-	-	-	6	8	10	10	5	10	8	8
32.	<i>Sperata aor</i> (Hamilton, 1822)	-	-	-	-	-	-	-	6	6	7	6	-	-	8	-
33.	<i>Hemibagrus punctatus</i> (Jerdon, 1849)	3	-	-	2	2	4	-	2	4	4	3	3	3	2	-
34.	<i>Mystus armatus</i> (Day, 1865)	-	-	-	-	-	-	-	-	-	-	6	8	8	6	-
35.	<i>Mystus cavasius</i> (Hamilton, 1822)	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36.	<i>Ompok bimaculatus</i> (Bloch, 1794)	-	-	-	-	3	5	-	6	6	6	7	6	-	8	-
37.	<i>Pangasius pangasius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-

## Fish Diversity and Habitat Study in Melagiris

38.	<i>Mastacembelus aramatus</i> (Lacepede, 1800)	5	-	-	5	4	4	-	4	-	-	-	5	4	-	
39.	<i>Etroplus maculatus</i> (Bloch, 1795)	-	-	-	4	-	-	-	-	-	4	-	4	4	-	
40.	<i>Etroplus suratensis</i> (Bloch, 1795)	-	-	-	5	-	-	-	4	-	-	-	4	4	-	
41.	<i>Etroplus canarensis</i> (Day, 1877)	3	5	4	4	-	-	-	2	4	5	5	4	-	-	
42.	<i>Oreochromis mossambicus</i> (Peters, 1852)	3	3	4	2	-	-	-	3	-	-	-	-	-	3	
43.	<i>Channa punctata</i> (Bloch, 1793)	-	-	-	6	-	-	-	5	-	-	5	6	-	-	
44.	<i>Channa marulius</i> (Hamilton, 1822)	-	-	-	8	-	-	-	6	-	-	-	-	-	-	
45.	<i>Parambassis ranga</i> (Hamilton, 1822)	10	12	12	15	14	-	-	-	-	14	15	14	12	15	
46.	<i>Glossogobius giuris</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	6	6	
47.	<i>Hyporhamphus xenthopterus</i> (Valenciennes, 1847)	6	6	5	6	7	6	6	8	5	5	4	4	3	6	
48.	<i>Xenentodon cancila</i> (Hamilton, 1822)	8	8	5	6	7	6	6	8	5	5	4	4	3	4	
<b>Total No. of Individuals</b>		<b>187</b>	<b>152</b>	<b>181</b>	<b>226</b>	<b>196</b>	<b>175</b>	<b>91</b>	<b>232</b>	<b>196</b>	<b>223</b>	<b>272</b>	<b>246</b>	<b>282</b>	<b>287</b>	<b>176</b>

S1- Kesthur, S2- Kesthur pallam, S3- Kathiyekalmaduvu, S4-Nagarkada, S5- Debaguli, S6- Near Debaguli, S7- Mamarathu maduvu, S8- Thollumuthu, S9- Near Thollumuthu, S10- Thirukanamada, S11- Settahalli, S12- Near Settahalli, S13- Near Ukniyam, S14-Ukniyam, S15- Ukniyathu kadavu

## Fish Diversity and Habitat Study in Melagiris

Continued.....

S.No	List of Fish species	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26	S27	S28	S29	S30	S31
1.	<i>Notopterus notopterus</i> (Pallas, 1769)	-	-	-	-	-	-	-	-	4	-	-	-	5	-	-	-
2.	<i>Anguilla bengalensis</i> (Gray, 1831)	-	-	-	-	-	-	-	5	6	4	-	-	-	-	-	-
3.	<i>Barilius bendelis</i> (Hamilton, 1807)	10	12	-	-	-	-	12	14	14	10	10	8	8	-	12	-
4.	<i>Barilius gatensis</i> (Valenciennes, 1844)	8	10	-	-	-	-	6	8	8	10	12	12	-	15	12	10
5.	<i>Cyprinus carpio</i> (Linnaeus, 1758)	-	-	-	-	-	-	-	2	2	4	-	-	-	-	-	-
6.	<i>Cirrhinus reba</i> (Hamilton, 1822)	2	3	-	-	-	-	5	3	3	3	-	-	-	-	-	4
7.	<i>Cirrhinus cirrhosus</i> (Bloch, 1795)	-	-	-	-	-	-	-	4	4	5	-	-	-	-	-	-
8.	<i>Devario aequipinnatus</i> (McClelland, 1839)	12	13	15	10	15	15	15	15	15	15	15	15	15	15	15	12
9.	<i>Rasbora daniconius</i> (Hamilton, 1807)	8	10	-	-	-	-	-	-	10	12	12	10	10	-	-	-
10.	<i>Garra mullya</i> (Skyles, 1839)	10	10	15	10	15	15	15	15	15	15	15	12	12	10	15	12
11.	<i>Systemus sarana</i> (Hamilton, 1822)	-	-	-	-	-	-	-	5	8	4	4	6	6	-	6	6
12.	<i>Dawkinsia filamentosa</i> (Valenciennes, 1844)	12	13	15	10	15	15	15	15	15	15	15	15	15	15	15	15
13.	<i>Puntius bimaculatus</i> (Bleeker, 1863)	10	6	12	-	-	-	-	-	10	8	7	7	8	-	-	6
14.	<i>Puntius dorsalis</i> (Jerdon, 1849)	8	6	8	-	-	-	-	-	6	6	8	6	6	-	-	6
15.	<i>Puntius sophore</i> (Hamilton, 1822)	7	-	-	-	-	-	-	-	5	4	5	4	4	-	-	-
16.	<i>Barbodes carnaticus</i> (Jerdon, 1849)	-	-	-	-	-	-	-	4	4	3	-	-	-	-	4	-
17.	<i>Puntius chola</i> (Hamilton, 1822)	7	-	-	-	-	-	-	-	8	7	8	7	7	6	8	8

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18.	<i>Pethia conchonius</i> (Hamilton, 1822)	8	10	12	8	8	10	12	12	10	10	10	12	12	10	10	12
19.	<i>Tor khudree</i> (Skyes, 1839)	-	-	-	-	-	-	-	5	5	4	-	-	-	4	4	5
20.	<i>Labeo calbasu</i> (Hamilton, 1822)	-	15	12	12	12	15	10	10	13	14	14	10	10	-	15	15
21.	<i>Labeo dero</i> (Hamilton, 1822)	-	12	12	14	15	12	10	13	10	15	15	14	15	-	-	12
22.	<i>Labeo kontius</i> (Hamilton, 1822)	-	-	-	8	8	6	6	7	-	-	-	-	-	-	-	10
23.	<i>Labeo rohita</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	7	6	7	7	-	8	-
24.	<i>Labeo ariza</i> (Hamilton, 1807)	-	-	-	-	-	-	-	5	4	4	6	6	6	-	5	5
25.	<i>Labeo bata</i> (Hamilton, 1822)	-	-	-	-	-	-	-	6	5	5	-	-	-	-	5	-
26.	<i>Labeo pangunia</i> (Hamilton, 1822)	-	-	-	4	-	-	-	-	-	-	-	-	-	5	5	-
27.	<i>Hypselobarbus dubuis</i> (Day, 1876)	-	-	-	-	-	-	-	6	-	-	-	-	4	4	-	-
28.	<i>Salmostoma clupeioides</i> (Bloch, 1795)	-	-	-	-	-	-	-	7	6	6	-	-	-	-	8	8
29.	<i>Kantaka brevidorsalis</i> (Day, 1873)	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	-
30.	<i>Nemacheilus trinangularis</i> (Day, 1876)	7	7	-	-	-	-	-	6	6	5	8	8	7	-	-	-
31.	<i>Lepidocephalichthys thermalis</i> (Valenciennes, 1846)	5	4	-	-	-	-	-	5	5	8	7	7	7	-	-	-
32.	<i>Sperata aor</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-
33.	<i>Hemibagrus punctatus</i> (Jerdon, 1849)	-	-	-	-	-	-	-	3	3	3	2	4	3	-	2	3
34.	<i>Mystus armatus</i> (Day, 1865)	-	-	-	-	-	-	-	4	5	-	-	-	-	-	-	-
35.	<i>Mystus cavasius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	4	4	5	5	-	5	-	5	-
36.	<i>Ompok bimaculatus</i> (Bloch, 1794)	-	-	3	3	-	-	-	2	3	3	2	-	3	-	-	-

## Fish Diversity and Habitat Study in Melagiris

37.	<i>Pangasius pangasius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38.	<i>Mastacembelus aramatus</i> (Lacepede, 1800)	-	-	8	8	-	-	-	7	7	6	-	-	7	-	-
39.	<i>Etroplus maculatus</i> (Bloch, 1795)	-	-	-	-	-	-	7	7	-	8	-	-	8	7	7
40.	<i>Etroplus suratensis</i> (Bloch, 1795)	-	-	5	4	4	-	-	4	4	5	6	-	4	-	4
41.	<i>Etroplus canarensis</i> (Day, 1877)	-	-	-	-	-	-	-	5	4	4	-	-	-	-	-
42.	<i>Oreochromis mossambicus</i> (Peters, 1852)	-	-	-	-	-	-	-	-	-	-	-	6	6	-	-
43.	<i>Channa punctata</i> (Bloch, 1793)	-	-	-	-	-	-	-	-	-	-	-	-	-	7	7
44.	<i>Channa marulius</i> (Hamilton, 1822)	-	-	-	-	-	-	-	6	6	7	7	-	-	-	8
45.	<i>Parambassis ranga</i> (Hamilton, 1822)	12	13	15	10	15	12	15	12	15	15	12	10	14	12	11
46.	<i>Glossogobius giuris</i> (Hamilton, 1822)	5	6	-	-	-	-	-	4	4	-	-	5	5	-	-
47.	<i>Hyporhamphus xenthopterus</i> (Valenciennes, 1847)	6	4	5	6	7	6	6	4	5	5	4	4	3	6	6
48.	<i>Xenentodon cancila</i> (Hamilton, 1822)	8	7	5	4	8	6	6	8	6	5	4	4	3	4	4
<b>Total No. of Individuals</b>		<b>145</b>	<b>161</b>	<b>142</b>	<b>113</b>	<b>125</b>	<b>112</b>	<b>140</b>	<b>242</b>	<b>267</b>	<b>269</b>	<b>219</b>	<b>199</b>	<b>229</b>	<b>113</b>	<b>201</b>

S16-Malhalli pallam, S17- Kakeri pallam, S18- Anuguli, S19- Thumbaguli, S20- Udupatti, S21- Rakkachi kadavu, S22- Anjatti river, S23- Near Raasimanal, S24- Raasimanal, S25- Thenmathi, S26- Metteripatti, S27- Kanakarayan maduvu, S28- Biligundu, S29- Sunnambukadavu, S30- Udutharapallam, S31-Mettupanda.

## Fish Diversity and Habitat Study in Melagiris

**Table .5.** Percentage of Fish species recorded from the streams/river of Melagiris forest region, Tamil Nadu.

S.No	Order	Family	Genera	Species	Percentage (%)
1	Osteoglossiformes	Notopteridae	1	1	2.08
2	Anguliformes	Anguillidae	1	1	2.08
3	Cypriniformes	Cyprinidae	16	27	56.25
		Balitoridae	1	1	2.08
		Cobitidae	1	1	2.08
4	Siluriformes	Bagridae	3	4	8.33
		Siluridae	2	2	2.08
5	Synbranchiformes	Mastacembelidae	1	1	2.08
6	Perciformes	Cichlidae	2	4	8.33
		Channidae	1	2	4.17
		Ambassidae	1	1	2.08
		Gobiidae	1	1	2.08
7	Beloniformes	Hemiramphidae	1	1	2.08
		Belonidae	1	1	2.08
<b>Total</b>	<b>7</b>	<b>14</b>	<b>33</b>	<b>48</b>	<b>100</b>



## Discussion

A total of 48 species belonging to 7 orders, 14 Family, 33 Genera were recorded. The distribution, abundance and occurrence are summarized in Table.3, Table.4 and Table.5.

The most abundant order was Cypriniformes followed by Perciformes and Siluriformes. The family with the maximum number of representatives was Cyprinidae. The most abundant genus was *Puntius* followed by *Etroplus*, *Barilius*, *Mystus*, and *Labeo*.

By virtue of its size and flavour of *Ompok bimaculatus* and *Mystus armatus* is locally preferred and is widely consumed. During the last 20 years the wild populations of these species has suffered a steady decline of over 50 percent due to over exploitations, loss of habitat, pollution, siltation and destructive method like dynamite fishing (Mouler and Walker, 1998).

*Dawkinsia filamentosa*, *Puntius chola*, *Puntius dorsalis*, *Puntius sarana*, *Pethia ticto*, *Pethia conchoniis*, *Nemacheilus triangularis* and *Lepidocephalichthys thermalis* were the prominent ornamental fishes in our findings.

Economically important fish species such as *Labeo dero*, *Labeo calbasu*, *Labeo rohita*, *Labeo kontius*, *Labeo ariza*, *Labeo bata* and *Labeo pangusia*, *Cyprinius carpio* and *Cirrhinus cirrhosus*, *Cirrhinus reba*, *Ompok bimaculatus*, *Puntius carnaticus*, *Hemibagrus punctatus*, *Mystus armatus*, *Mystus cavasius*, *Etroplus suratensis*, *Oreochromis mossambicus* and *Channa punctata* were found in this region.

## Conservation status of fish species

The IUCN Red List classifies species based on criteria linked to population trend; size and structure; and geographic range into eight classifications. Species listed as Critically Endangered (CE), Endangered (En) or Vulnerable (Vu) are collectively described as Threatened. The Non-threatened categories are Near Threatened (NT) and Least Concern (LC). The other categories are Extinct in the Wild (EW), Extinct (E) and Data Deficient (DD). Unassessed species are classified under Not Evaluated (NE)

Of the total of 48 fish species collected from 31 study sites of the Cauvery river system in Melagiris, 10 species (20.83%) are under the Threatened category under IUCN (2013) classification.

### Critically Endangered

*Hemibagrus punctatus* (Nilgiri Mystus) a species recorded in the study is classified as Critically Endangered. This species has a fairly wide distribution in the study area occurring in 19 of the 31 sampling sites (61.29%), making the study area an important site for conservation of this species. As per IUCN website, *Hemibagrus punctatus* 'was known from three locations from which the species has not been recorded since late 1990s. Subsequent and recent surveys in the rivers have not recorded this species thereby suggesting a drastic decline of close to 100% due to habitat loss and other threats that are not yet clearly understood. The species identity may need further scrutiny in some locations it has been reported from, and in addition the confirmed locations need to be surveyed thoroughly before its status can be assessed as Extinct. It is therefore presently assessed as Critically Endangered (possibly extinct)'.

# Fish Diversity and Habitat Study in Melagiris

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## Endangered

Three species (6.25%) *Tor khudree*, *Hypselobarbus dubius* and *Etroplus canarensis* are classified as Endangered. *Tor khudree* occurred in 9 sampling sites (29.03%), however, none of the specimen measured up to the legendary sizes the species is famous for among sport anglers.

*Hypselobarbus dubius* occurred in 9 of the 31 sampling sites. As per IUCN Website, '*Hypselobarbus dubius* is listed as Endangered as the natural wild population is restricted to less than 100 km<sup>2</sup> area in four streams of the Cauvery River basin. This species is one of the most preferred food fish and are harvested from the rivers and reservoirs where it occurs. The species is under threat from an on-going decline in habitat quality as a result of pollution, destructive fishing and exotic species in its natural range. The species has been introduced to several different reservoirs and river systems where the populations are not viable due to similar threats. However, this assessment is only of the natural wild population'.

*Etroplus canarensis* occurred in 12 sampling sites. As per IUCN '*Etroplus canarensis* has been assessed as Endangered because of its restricted distribution to two locations, with an extent of occurrence (EOO) of less than 5,000 km<sup>2</sup> and an area of occupancy (AOO) of less than 500 km<sup>2</sup>. There is also an going decline in habitat quality as a result of pollution and sand mining, and the threat of over-collection for the pet trade'.

## Vulnerable

Three species (6.25%) were classified as Vulnerable. They are *Cyprinus carpio*, *Cirrhinus cirrhosus* and *Hyporhamphus xanthopterus*.

## Near Threatened

A total of 4 (8.33%) species namely, *Anguilla Bengalensis*, *Labeo pangusia*, *Ompok bimaculatus* and *Oreochromis mossambicus* (exotic) were classified as Near Threatened.

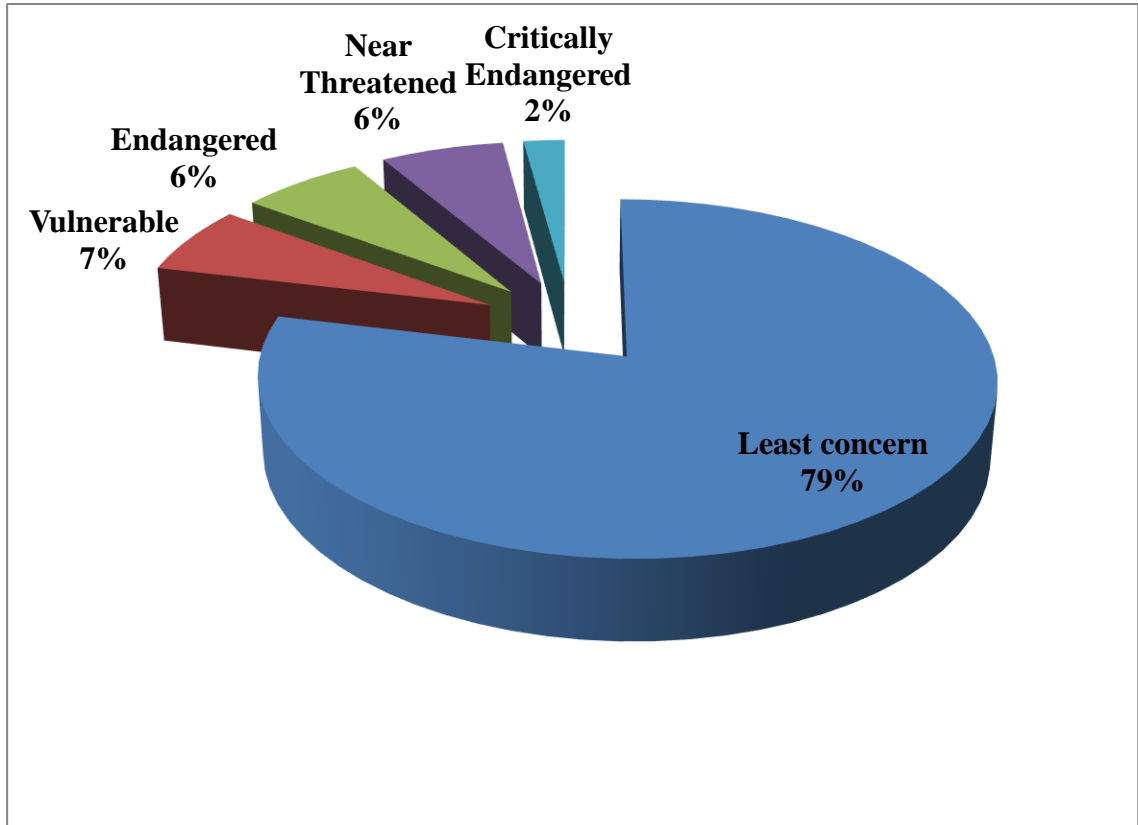
# Fish Diversity and Habitat Study in Melagiris

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## Exotic

*Oreochromis mossambicus* and *Labeo rohita* were the two exotic species noted in the study.

**Fig.1.** Conservation status of fish species



# Fish Diversity and Habitat Study in Melagiris

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## Conclusion

This study may be the first of its kind in the study area. The inventory of species recorded indicates that the Cauvery river system in the Melagiris supports Threatened and Endemic species. Further studies across seasons and life cycles are required to obtain a clearer picture of the Ichthyofaunal diversity of the Cauvery in the Melagiris.

A matter of grave concern is that the study did not produce even a single record of the charismatic species, *Tor mussullah* (Hump backed Mahseer or Orange Finned Mahseer) which is endemic to this region. Concerns have been raised that the introduced species *Tor khudree* (Blue finned Mahseer or Black Mahseer) may be displacing *Tor mussullah*, driving it towards extinction<sup>vi</sup>. Special conservation measures aimed at the reviving the species are the urgent need of the day.

*Oreochromis mossambicus* and *Labeo rohita* have been recorded during the study indicating that these exotic species have invaded wild habitats in the study area. The consequences of this invasion on fish diversity in the study area needs to be studied.

Interaction with the local fishermen indicates that fish diversity has reduced drastically. Illegal fishing is rampant, including dynamite and indiscriminate commercial fishing during spawning season using small mesh nets.

Commercial fishermen from Mettur dam operate along the entire stretch of the river when the waters are low. A clear evaluation of the legal status of this stretch of the river which occurs entirely within reserve forests is essential to understand whether the licenses issued by the fisheries department is valid in these waters. It is also reported that aquarium traders visit these waters to collect wild ornamental species.

The Cauvery river system above the study area has 12 irrigation dams and the flow varies between 5000 cusecs and as much as 175000 cusecs at Biligundlu during the SW Monsoons. In the drier months, many stretches of the river are reduced to a fraction of its width with barely

## Fish Diversity and Habitat Study in Melagiris

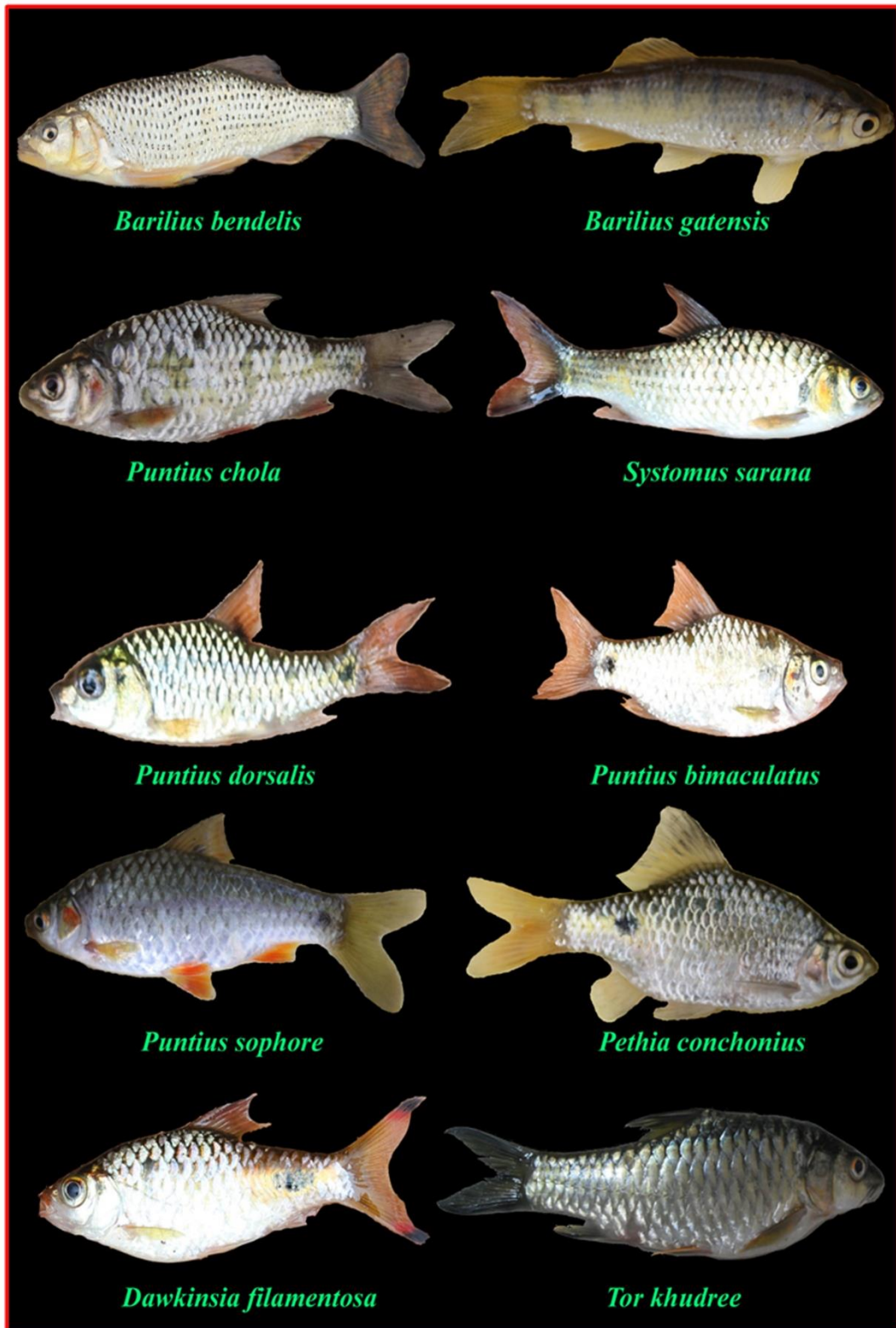
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discernible flow. The impact of this extreme variation in the water flow upon the fish population, diversity and ecosystem merits a thorough investigation.

Since the river in the study area flows entirely through reserve forests and one bank along the Karnataka side enjoys the status of a Wildlife Sanctuary under Wildlife Protection Act 1972, it may be worthwhile to explore the feasibility of declaring this stretch of Cauvery a Fish Sanctuary for freshwater fishes.

**Plates**

Plate 1





*Plate 2*

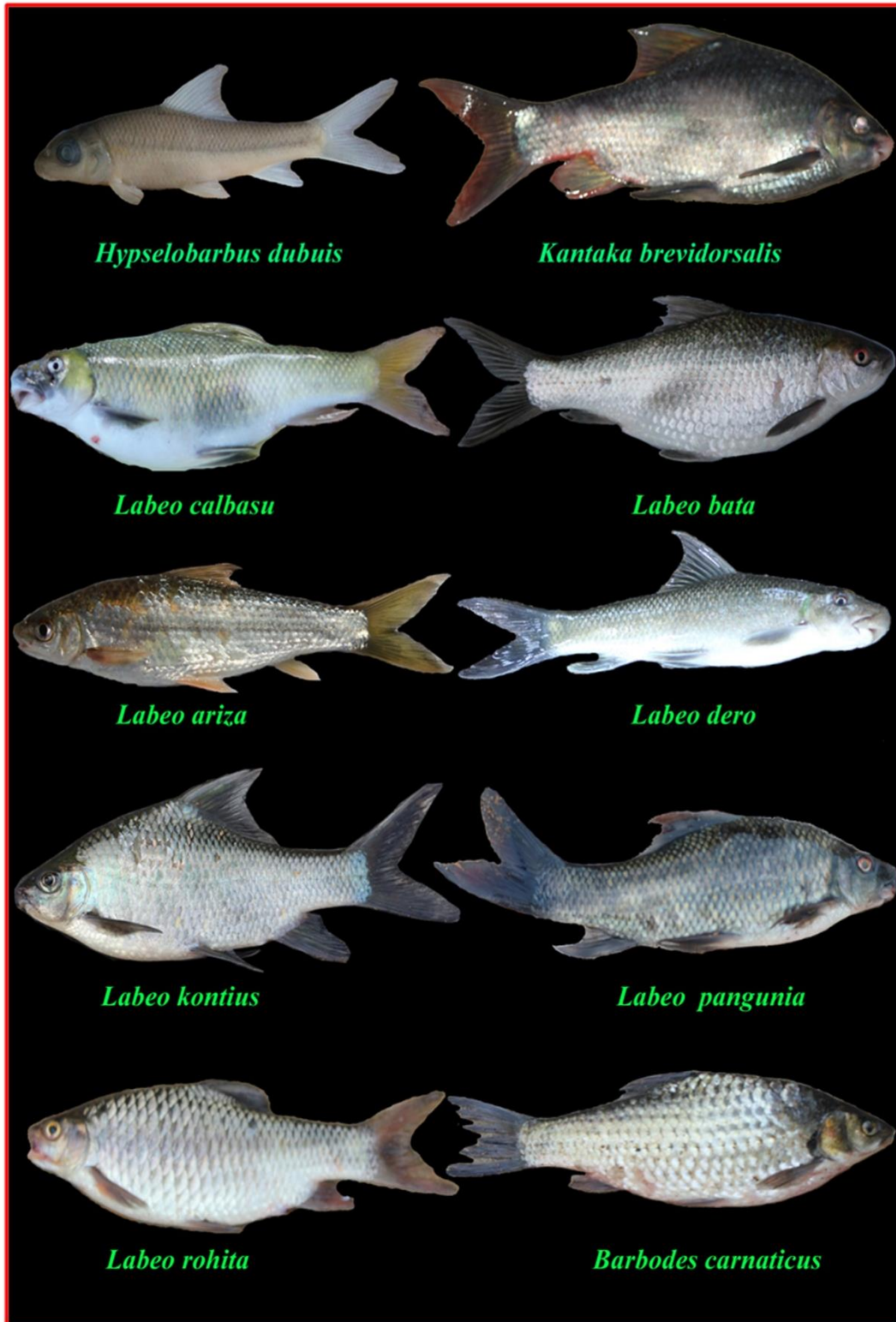


Plate 3

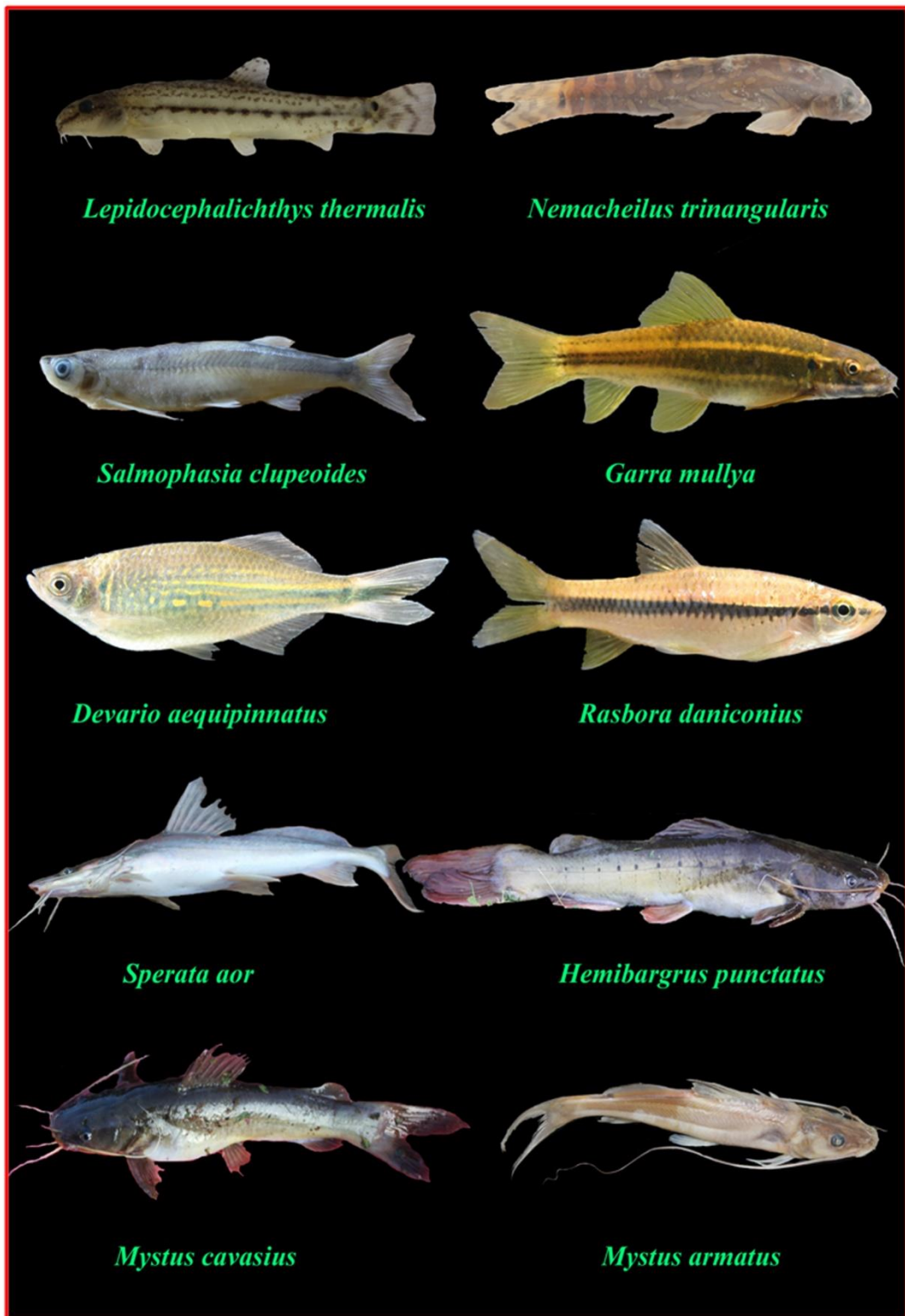
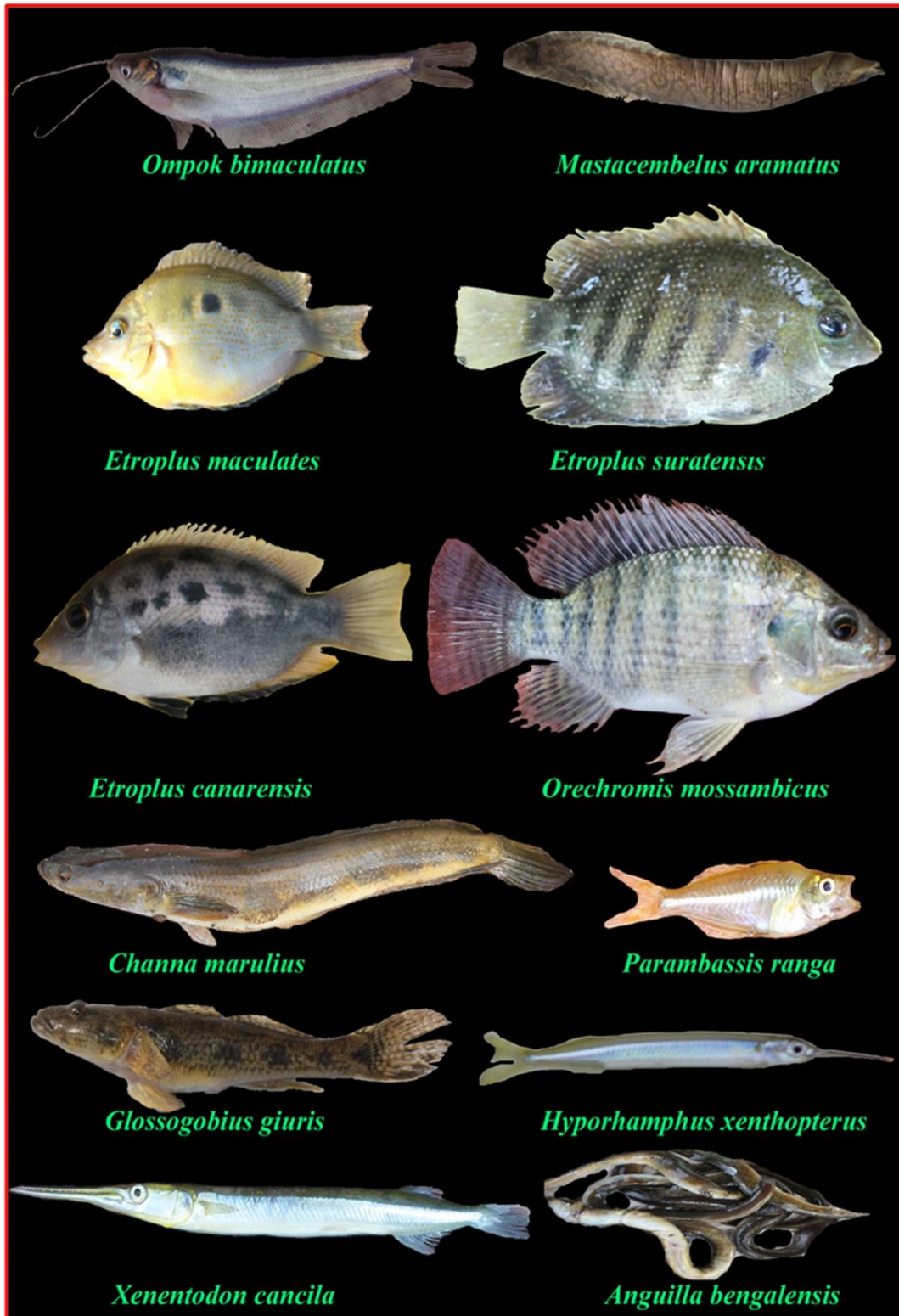
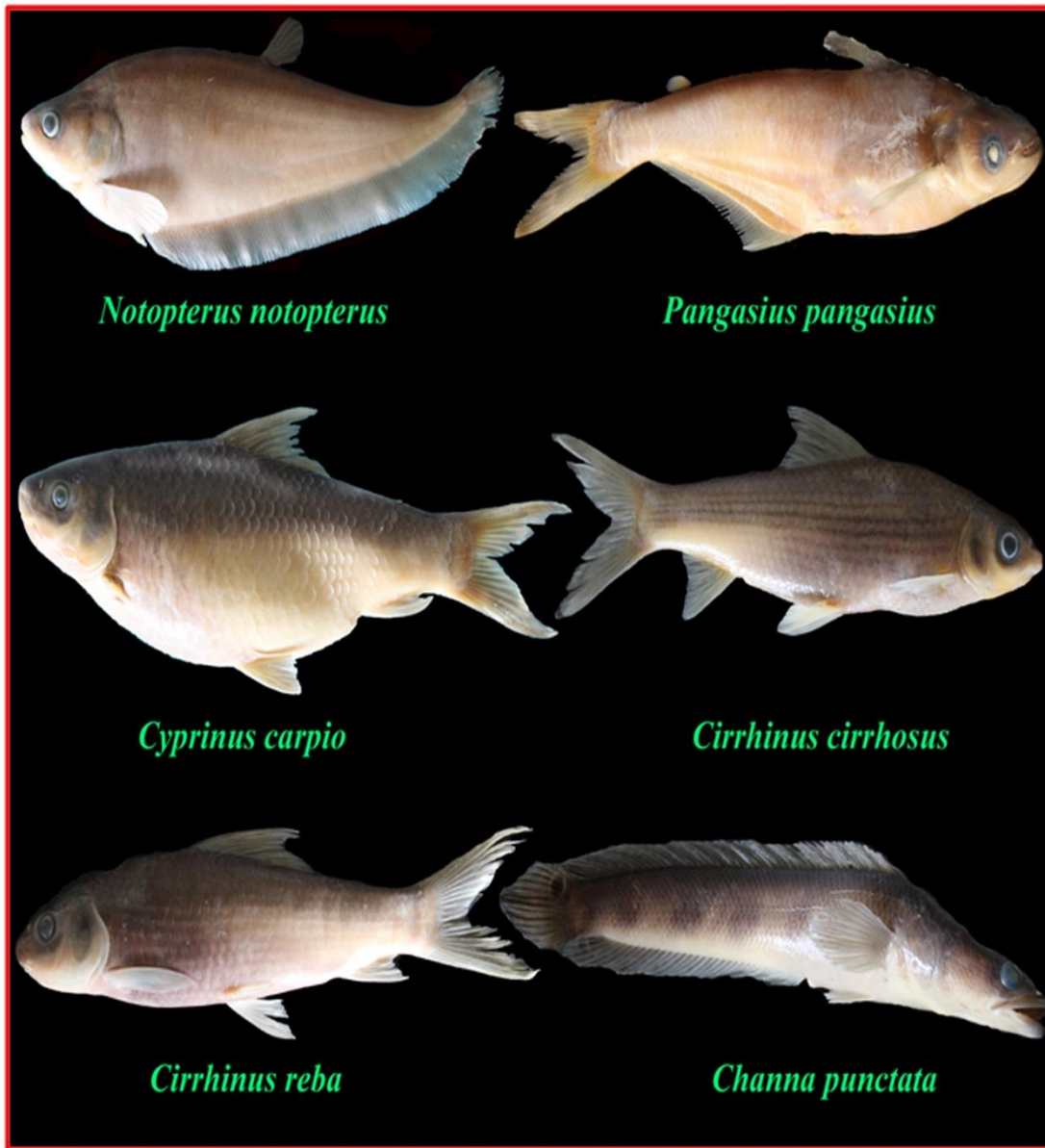


Plate 4





*Plate 5*



## References

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- <sup>i</sup>Conserving the endangered Mahseers (Tor spp.) of India: the Positive Role of Recreational Fisheries, Adrian C. Pinder and Rajeev Raghavan, Current Science, Vol. 104, No. 11, 10 June 2013
- <sup>ii</sup>Ecological Profile of Sharavathi River Basin, Ramachandra T.V. Et All, Sahyadri Conservation Series: 22 Envis Technical Report: 52, November 2012.
- <sup>iii</sup>Mahseer Conservation in India: Status, Challenges and the Way Forward, WWF-India February, 2013.
- <sup>iv</sup>Report of the Western Ghats Ecology Expert Panel, Part I, submitted to The Ministry of Environment and Forests, Government of India, 31 August 2011.
- <sup>v</sup> Jayaram, K.C. 2010. The Freshwater Fishes of the Indian Region. Second Edition. Narendra Publishing House, Delhi.
- <sup>vi</sup> The legendary hump-backed mahseer Tor sp. of India's River Cauvery: an endemic fish swimming towards extinction? Adrian C. Pinder, Rajeev Raghavan and J. Robert Britton, Endangered Species Research, Vol28: 11-17, 2015 (pages 11- 17)

## Fish Diversity and Habitat Study in Melagiris

<b>Checklist of fish species in the Cauvery River from Fishbase.org</b>						
Species	Name	Family	Habitat	Length (cm)	Trophic Level	Status
<a href="#">Anguilla bengalensis</a>	Indian mottled eel	Anguillidae	benthopelagic	200.0 TL	3.8	native
<a href="#">Anguilla bicolor</a>	Indonesian shortfin eel	Anguillidae	demersal	123.0 TL	3.5	native
<a href="#">Balitora mysorensis</a>	Slender stone loach	Balitoridae	demersal	6.1 TL	2.6	native
<a href="#">Balitora mysorensis</a>	Slender stone loach	Balitoridae	demersal	6.1 TL	2.6	native
<a href="#">Bangana ariza</a>	Reba	Cyprinidae	benthopelagic	36.6 TL	2.7	native
<a href="#">Bangana dero</a>	Kalabans	Cyprinidae	benthopelagic	75.0 TL	2.0	native
<a href="#">Barbodes carnaticus</a>	Carnatic carp	Cyprinidae	benthopelagic	60.0 TL	2.0	native
<a href="#">Barbodes wynaadensis</a>		Cyprinidae	benthopelagic	25.0 TL	2.8	native
<a href="#">Barilius gatensis</a>		Cyprinidae	benthopelagic	15.0 TL	3.2	native
<a href="#">Chanos chanos</a>	Milkfish	Chanidae	benthopelagic	219.6 TL	2.4	native
<a href="#">Cirrhinus cirrhosus</a>	Mrigal carp	Cyprinidae	benthopelagic	122.0 TL	2.4	native
<a href="#">Cirrhinus fulungee</a>	Deccan white carp	Cyprinidae	benthopelagic	36.6 TL	2.4	native
<a href="#">Ctenopharyngodon idella</a>	Grass carp	Cyprinidae	demersal	150.0 TL	2.0	introduced
<a href="#">Cyprinus carpio</a>	Common carp	Cyprinidae	benthopelagic	120.0 TL	3.4	introduced
<a href="#">Danio rerio</a>	Zebra danio	Cyprinidae	benthopelagic	4.6 TL	3.1	native
<a href="#">Dawkinsia arulius</a>	Arulius barb	Cyprinidae	benthopelagic	12.0 TL	2.7	native
<a href="#">Dawkinsia filamentosa</a>	Blackspot barb	Cyprinidae	benthopelagic	18.0 TL	2.6	native
<a href="#">Dawkinsia rubrotinctus</a>		Cyprinidae	benthopelagic	10.5 TL	2.7	native
<a href="#">Devario aequipinnatus</a>	Giant danio	Cyprinidae	pelagic	15.0 TL	2.9	native
<a href="#">Esomus danrica</a>	Flying barb	Cyprinidae	benthopelagic	13.0 TL	2.4	native
<a href="#">Etroplus suratensis</a>	Pearlspot	Cichlidae	benthopelagic	40.0 TL	2.9	native
<a href="#">Gagata itchkeea</a>		Sisoridae	benthopelagic	7.6 TL	3.2	questionable
<a href="#">Garra maclellandi</a>		Cyprinidae	benthopelagic	21.2 TL	2.0	native
<a href="#">Garra mullya</a>	Sucker fish	Cyprinidae	benthopelagic	17.0 TL	2.0	endemic
<a href="#">Garra platycephala</a>		Cyprinidae	benthopelagic	12.7 TL	2.2	native
<a href="#">Garra stenorhynchus</a>		Cyprinidae	benthopelagic	18.9 TL	2.0	native

## Fish Diversity and Habitat Study in Melagiris

<a href="#">Gibelion catla</a>	Catla	Cyprinidae	benthopelagic	182.0 TL	2.8	native
<a href="#">Glyptothorax annandalei</a>		Sisoridae	benthopelagic	11.5 TL	3.2	native
<a href="#">Glyptothorax madraspatanus</a>		Sisoridae	benthopelagic	11.5 TL	3.2	native
<a href="#">Haludaria fasciata</a>	Melon barb	Cyprinidae	benthopelagic	7.5 TL	2.9	native
<a href="#">Haludaria melanampyx</a>		Cyprinidae	benthopelagic	7.5 TL	2.9	native
<a href="#">Hemibagrus punctatus</a>		Bagridae	demersal	45.0 TL	3.5	native
<a href="#">Hypophthalmichthys molitrix</a>	Silver carp	Cyprinidae	benthopelagic	105.0 TL	2.0	introduced
<a href="#">Hypophthalmichthys nobilis</a>	Bighead carp	Cyprinidae	benthopelagic	178.1 TL	2.8	native
<a href="#">Hypseobarbus curmuca</a>	Curmuca barb	Cyprinidae	benthopelagic	120.0 TL	2.6	native
<a href="#">Hypseobarbus dobsoni</a>	Krishna carp	Cyprinidae	benthopelagic	57.3 TL	2.0	native
<a href="#">Hypseobarbus dubius</a>	Nilgiris barb	Cyprinidae	benthopelagic	25.0 TL	2.7	native
<a href="#">Hypseobarbus kolus</a>	Kolus	Cyprinidae	benthopelagic	30.0 TL	2.7	native
<a href="#">Hypseobarbus micropogon</a>	Korhi barb	Cyprinidae	benthopelagic	90.0 TL	2.0	endemic
<a href="#">Hypseobarbus mussullah</a>	Humpback mahseer	Cyprinidae	benthopelagic	150.0 TL	2.0	native
<a href="#">Labeo bata</a>	Bata	Cyprinidae	benthopelagic	61.0 TL	2.1	native
<a href="#">Labeo boggut</a>	Boggut labeo	Cyprinidae	benthopelagic	29.0 TL	2.3	native
<a href="#">Labeo calbasu</a>	Orangefin labeo	Cyprinidae	demersal	90.0 TL	2.0	native
<a href="#">Labeo fimbriatus</a>	Fringed-lipped peninsula carp	Cyprinidae	benthopelagic	91.0 TL	2.0	native
<a href="#">Labeo kontius</a>	Pigmouth carp	Cyprinidae	benthopelagic	61.0 TL	2.1	native
<a href="#">Labeo pangusia</a>		Cyprinidae	benthopelagic	90.0 TL	2.0	native
<a href="#">Labeo porcellus</a>		Cyprinidae	benthopelagic	35.0 TL	2.3	native
<a href="#">Labeo potail</a>		Cyprinidae	benthopelagic	30.0 TL	2.3	native
<a href="#">Labeo rohita</a>	Roho labeo	Cyprinidae	benthopelagic	200.0 TL	2.2	native
<a href="#">Lepidocephalichthys thermalis</a>	Common spiny loach	Cobitidae	demersal	46.4 TL	2.9	native
<a href="#">Megalops cyprinoides</a>	Indo-Pacific tarpon	Megalopidae	benthopelagic	150.0 TL	3.5	native
<a href="#">Mystus cavasius</a>	Gangetic mystus	Bagridae	demersal	48.8 TL	3.4	native
<a href="#">Mystus malabaricus</a>		Bagridae	demersal	15.0 TL	3.3	native
<a href="#">Mystus seengtee</a>		Bagridae	demersal	19.1 TL	3.3	native

## Fish Diversity and Habitat Study in Melagiris

<a href="#">Mystus vittatus</a>	Striped dwarf catfish	Bagridae	demersal	25.6 TL	3.1	native
<a href="#">Nemacheilus guentheri</a>		Nemacheilidae	demersal	6.8 TL	2.8	native
<a href="#">Nemacheilus guentheri</a>		Nemacheilidae	demersal	6.8 TL	2.8	native
<a href="#">Nemacheilus pulchellus</a>		Nemacheilidae	demersal	5.6 TL	2.8	endemic
<a href="#">Nemacheilus pulchellus</a>		Nemacheilidae	demersal	5.6 TL	2.8	endemic
<a href="#">Neolissochilus bovanicus</a>	Bowany barb	Cyprinidae	benthopelagic	36.0 TL	2.2	native
<a href="#">Notopterus notopterus</a>	Bronze featherback	Notopteridae	demersal	73.2 TL	3.6	native
<a href="#">Ompok bimaculatus</a>	Butter catfish	Siluridae	demersal	54.9 TL	3.9	native
<a href="#">Oreichthys coorgensis</a>		Cyprinidae	benthopelagic	3.3 TL	3.0	native
<a href="#">Oreichthys cosuatis</a>		Cyprinidae	benthopelagic	8.0 TL	2.9	native
<a href="#">Osteochilichthys brevidorsalis</a>	Kantaka barb	Cyprinidae	benthopelagic	15.0 TL	2.4	native
<a href="#">Osteochilichthys thomassi</a>	Konti barb	Cyprinidae	benthopelagic	32.0 TL	2.2	native
<a href="#">Pethia conchonius</a>	Rosy barb	Cyprinidae	benthopelagic	14.0 TL	2.9	native
<a href="#">Pethia narayani</a>	Narayan barb	Cyprinidae	benthopelagic	7.8 TL	2.5	native
<a href="#">Pethia ticto</a>	Ticto barb	Cyprinidae	benthopelagic	10.0 TL	2.2	native
<a href="#">Pterocryptis wynaadensis</a>		Siluridae	demersal	30.0 TL	3.8	native
<a href="#">Puntius cauveriensis</a>		Cyprinidae	benthopelagic	9.6 TL	2.6	native
<a href="#">Puntius chola</a>	Swamp barb	Cyprinidae	benthopelagic	15.0 TL	2.5	native
<a href="#">Puntius dorsalis</a>	Long snouted barb	Cyprinidae	benthopelagic	25.0 TL	2.8	native
<a href="#">Puntius mahecola</a>		Cyprinidae	benthopelagic	10.9 TL	2.6	native
<a href="#">Puntius parrah</a>		Cyprinidae	benthopelagic	15.0 TL	2.5	endemic
<a href="#">Puntius sophore</a>	Pool barb	Cyprinidae	benthopelagic	9.6 TL	2.6	native
<a href="#">Puntius vittatus</a>	Greenstripe barb	Cyprinidae	benthopelagic	5.0 TL	2.0	native
<a href="#">Rasbora caverii</a>	Cauvery rasbora	Cyprinidae	benthopelagic	10.0 TL	3.2	native
<a href="#">Rasbora daniconius</a>	Slender rasbora	Cyprinidae	benthopelagic	15.0 TL	3.1	native
<a href="#">Rhinomugil corsula</a>	Corsula	Mugilidae	pelagic	45.0 TL	2.4	native
<a href="#">Salmostoma acinaces</a>	Silver razorbelly minnow	Cyprinidae	benthopelagic	15.0 TL	3.2	native
<a href="#">Salmostoma balookee</a>	Bloch razorbelly minnow	Cyprinidae	benthopelagic	15.0 TL	3.2	native
<a href="#">Salmostoma belachi</a>		Cyprinidae	benthopelagic	13.1 TL	3.4	endemic



## Fish Diversity and Habitat Study in Melagiris

<a href="#">Salmostoma horai</a>	Hora razorbelly minnow	Cyprinidae	benthopelagic	10.0 TL	3.2	native
<a href="#">Salmostoma novacula</a>	Novacula razorbelly minnow	Cyprinidae	benthopelagic	12.5 TL	3.2	native
<a href="#">Salmostoma phulo</a>	Finescale razorbelly minnow	Cyprinidae	benthopelagic	12.0 TL	3.2	native
<a href="#">Salmostoma untrahi</a>	Mahanadi razorbelly minnow	Cyprinidae	benthopelagic	20.0 TL	2.3	native
<a href="#">Schistura kodaguensis</a>		Nemacheilidae	benthopelagic	4.4 TL	3.0	native
<a href="#">Schistura kodaguensis</a>		Nemacheilidae	benthopelagic	4.4 TL	2.8	native
<a href="#">Schistura semiarmata</a>		Nemacheilidae	benthopelagic	6.8 TL	2.0	native
<a href="#">Schistura striata</a>		Nemacheilidae	demersal	6.1 TL	2.8	native
<a href="#">Schistura striata</a>		Nemacheilidae	demersal	6.1 TL	3.0	native
<a href="#">Silonia childreni</a>		Schilbeidae	demersal	48.0 TL	4.2	native
<a href="#">Sperata aor</a>	Long-whiskered catfish	Bagridae	demersal	180.0 TL	3.6	native
<a href="#">Sperata seenghala</a>	Giant river-catfish	Bagridae	demersal	150.0 TL	3.8	native
<a href="#">Systomus sarana</a>	Olive barb	Cyprinidae	benthopelagic	42.0 TL	2.9	native
<a href="#">Tenulosa ilisha</a>	Hilsa shad	Clupeidae	pelagic-neritic	73.2 TL	2.9	native
<a href="#">Tor khudree</a>	Deccan mahseer	Cyprinidae	benthopelagic	50.0 TL	3.1	native
<a href="#">Wallago attu</a>	Wallago	Siluridae	demersal	240.0 TL	3.7	native