

# Wuthering Wild

ENVIS-RP Newsletter on Biodiversity & Traditional Knowledge



ICTHYOFAUNAL DIVERSITY OF  
HIRAN RIVER SIHORA (M.P.)

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## From the Coordinator's Desk



It is with pleasure that I present the 'July to September 2021' issue of *WUTHERING WILD* newsletter for the second quarter of the financial year 2021-2022, covering snapshot of the various activities and advancements of the center.

In this quarter, Van Mahotsav from 1-7 July 2021 a Peepal Plantation drive was ran for 1 lakh plantation of trees,

International Vulture Awareness Day (IVAD-2021) on first Saturday of September i.e. 4<sup>th</sup> September 2021 was held and on this occasion "Capacity Building of BMCs for Vulture Conservation in Uttar Pradesh" Workshop was organized, online workshops on Snake Identification & First Aid on 21<sup>st</sup> September 2021.

Additionally, for this issue, Dr. Arvind Kumar Shrivastava, Head, Department of Zoology, Hawabagh College, Narmada Road, Jabalpur have contributed some interesting research of their field. Dr. Shrivastava is working on Biodiversity and Conservation Biology. Hiran River is one of the most important tributary of Narmada River. The River is the lifeline of the people resides in nearby villages mostly for various domestic activities. The fish diversity of the river is still unexplored and not documented. During the study in the river a total 40 species of fresh water fishes belonging to 6 orders, 13 families, and 23 genera were recorded from the study. Out of 40 species, 3 species are endangered, 5 species vulnerable, 24 species are lower risk threatened, 2 species are exotic and 2 species are not evaluated categories. Many species in the river are being threatened various human activities, invasive alien species, and destructive fishing. More ever removal of sewage runoff into the river causes severe threats to fish diversity. The observation recorded in the present study may prove valuable as are reference for assessing the changes due to the environmental conditions in locality in future. The fish fauna assemblage zoogeographical, fisheries, biodiversity and distribution in river. Total number of fishes recorded shown a good indication of rich diversity.

**Prof. Amita Kanaujia**  
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# **Ichthyofaunal Diversity of Hiran River Sihora (M.P.)**

**Dr. Arvind Kumar Shrivastava**

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Hiran River is one of the most important tributary of Narmada River. The River is the lifeline of the people resides in nearby villages mostly for various domestic activities. The fish diversity of the river is still unexplored and not documented. During the study in the river a total 40 species of fresh water fishes belonging to 6 orders, 13 families, and 23 genera were recorded from the study. Out of 40 species, 3 species are endangered, 5 species vulnerable, 24 species are lower risk threatened, 2 species are exotic and 2 species are not evaluated categories. The study revealed that many species in the river are being threatened various human activities, invasive alien species, and destructive fishing. More ever removal of sewage runoff into the river causes severe threats to fish diversity . The observation recorded in the present study may prove valuable as are reference for assessing the changes due to the environmental conditions in locality in future. The present study mainly focuses on fish fauna assemblage zoogeographical, fisheries, biodiversity and distribution in river. Total number of fishes recorded during this study has shown a good indication of rich diversity.

**Key words:** Ichthyofaunal , Hiran River , Diversity

## **INTRODUCTION**

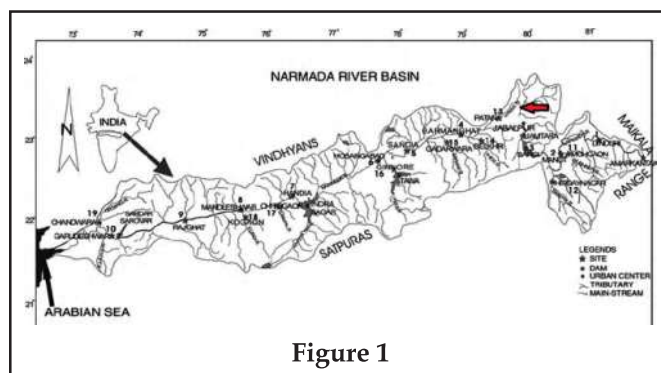
Fish being a valuable and easily accessible source of food and are of immense economic importance to mankind. They are a good source of protein, vitamins, and minerals. They can be used for a variety of purposes like food, sport, ornament, biological control, and high medicinal values.

Madhya Pradesh blessed with vast aquatic resources and sustaining rich fish diversity is a major source of livelihood. In recent times, rational prospecting of fish diversity has assumed great significance in the backdrop of existing and emerging threat perceptions. Conservation of fish would , therefore, be essential to protect the ecological integrity.

A few recent works on different aspects of fish diversity were also confined the main stream in the central part of Narmada (Vyas et.al, 2006-07). Very first record of fish diversity of Narmada was on hill stream of Satpura ranges (Hora & Nair 1941). Later Tawa and Barna tributaries were dammed to form reservoir and studies were done on these reservoirs. Vyas et.al, (2009) worked

on Ganjal River which joins Narmada River near the backwaters of Indira Sagar. Vyas and Vishwakarma (2013) more recently worked on Sip a tributary, which joins Narmada River near the backwaters of Indira Sagar reservoir.

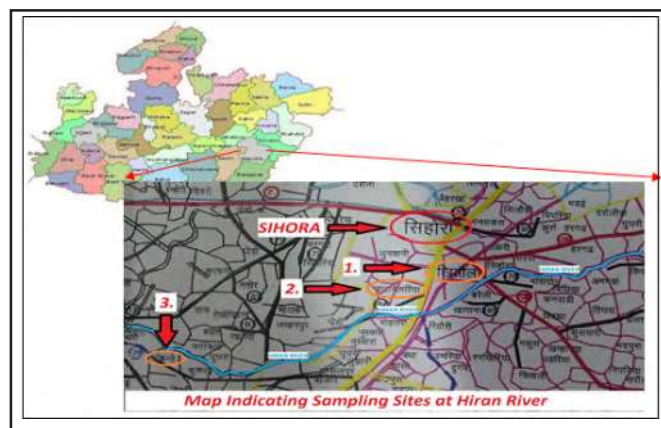
The river Narmada has 41 tributaries of which 22 are on the left bank (south) and 19 on the right bank (north) with the catchment area of more than 3500 sq. Km. The major tributaries are Banjar, Hiran, Kolar, Sukta, Tawa



Tendoni, Beda, Sher, Shakkar, Man, Hathni (Jobat) Halone and Goi rivers. Hiran River is one of the most important tributary of Narmada River (Figure 1).

## **HIRAN RIVER**

Hiran River rises in the Bhanrer range in the Jabalpur district of Madhya Pradesh near the Kundam village, Jabalpur at an elevation of 600m. Geographical coordinates of its origination are at the north latitude of 23°12' and east longitude of 80°27'. The river flows in a generally southwesterly direction for a total length of 188 km. to join the Narmada from the right near Sankal



village. Hiran has the distinction of being the biggest right bank tributary of the Narmada and drains a total area of 4,792 sq. Km. The sub-basin covers part of areas of Jabalpur and Damoh district of M.P. Figure 2.

The River is the lifeline of the people resides in nearby villages mostly for various domestic activities. Fishing for livelihood and food is a common practice of the local community. The fish diversity of the river is still unexplored and not documented.

## MATERIALS AND METHODS

The present study, conducted in Hiran river, has been carried out over a period of one year. A pre-field survey was done for final selection of the sites. The sampling sites were selected in upstream, midstream and downstream areas covering all representative habitat types. The sampling sites were chosen on the basis of accessibility and variability in habitat.

Local fishermen were engaged for the collection of fish samples from the sampling stations. Sampling kits include transparent wide mouthed plastic Jar for dipping fish, preservatives like formalin, polyethylene bag etc. A good camera for photography, colored papers, and one notebook was also arranged. Fish samples were collected from selected three sampling sites under each sampling station. Most of the samples were identified in situ and all the samples were brought to the laboratory in preserved condition for further taxonomic studies.

The sampling was carried out seasonally covering pre-monsoon, monsoon, post-monsoon and winter seasons.

The fishes were collected using monofilamentous gill nets of 10-50 mm mesh sizes. We also used cast nets of 10-25 mm mesh sizes for collecting fish in shallow areas. Fish specimens were also collected from different fish landing sites. All the specimens were preserved in 4% formaldehyde solution at the field.

Fishes brought to laboratory were preserved in 10% formalin solution in separate specimen jar according the size of specimen. The fishes were identified using standard keys of Jayaram (1999), Qureshi & Qureshi (1983), Jhingran (1991), Day (1994) and Shrivastava (1998).

## RESULTS AND DISCUSSION

During the study of ichthyofaunal diversity of Hiran River, a total of 40 fish species were recorded fewer than six orders, thirteen families and twenty three genera from all sites. **(Table-1)** Seventeen species of cypriniformes, ten species of siluriformes, eight species of perciformes, two species of osteoglossiformes and synbranchiformes. One species of Beloniformes have

**Table 1: Systematic Account of Fishes collected from Hiran River Sihora M.P.**

Phylum	:	Chordata
Subphylum	:	Vertebrata
Grade	:	Pisces
Class	:	Osteichthyes
Subclass	:	Actinopterygii
Subdivision	:	Teleostei

1	Order : Beloniformes Sub-Order: Belonoidei Family : Belonidae <i>Xenentodon cancila</i> (Hamilton,1822)	21	Order : Perciformes Family : Anabantidae <i>Anabas testudineus</i> (Bloch,1792)
2	Order : Cypriniformes Family : Cyprinidae <i>Catla catla</i> (Hamilton,1822)	22	Order : Perciformes Family : Ambassidae <i>Chanda nama</i> (Hamilton,1882)
3	Subfamily : Labeoninae <i>Cirrhinus mrigala</i> (Hamilton,1822)	23	Order : Perciformes Family : Chandidae <i>Parambassis ranga</i> (Hamilton,1882)
4	<i>Cirrhinus reba</i> (Hamilton,1822)	24	<i>Channa gachua</i> (Hamilton,1882)
5	Subfamily: Cyprininae <i>Cyprinus carpio</i> (Hamilton,1822)	25	Family : Channidae <i>Channa marulius</i> (Hamilton,1882)
6	Subfamily: Labeoninae <i>Labeo bata</i> (Hamilton,1822)	26	<i>Channa punctata</i> (Bloch,1973)
7	<i>Labeo calbasu</i> (Hamilton,1882)	27	Order : Perciformes Suborder : Channoidaei Family : Channidae <i>Channa striata</i> (Bloch,1973)
8	<i>Labeo fimbriatus</i> (Bloch, 1975)	28	Family : Cichlidae Subfamily: Psedocrenilabrinae <i>Oreochromis mossambicus</i> (Peters,1852)
9	Subfamily: Cyprininae <i>Labeo gonius</i> (Hamilton,1882)	29	Order : Siluriformes Family : Clariidae <i>Clarias batrachus</i> (Hamilton,1882)
10	<i>Labeo rohita</i> (Hamilton,1882)	30	Order : Siluriformes Family : Schilbeidae <i>Clupisoma garua</i> (Hamilton,1882)
11	<i>Puntius conchonius</i> (Hamilton,1822)	31	<i>Eutropiichthys vacha</i> (Hamilton,1882)
12	<i>Puntius ticto</i> (Hamilton,1882)	32	Family : Heteropneustidae <i>Heteropneustes fossilis</i> (Bolch,1794)
13	<i>Puntius chola</i> (Hamilton,1882)	33	Family : Bagridae Subfamily: Bagrinae <i>Mystus bleekeri</i> (Day,1877)
14	<i>Puntius sophore</i> (Hamilton,1882)	34	<i>Mystus cavasius</i> (Hamilton,1822)
15	<i>Puntius sarana</i> (Hamilton,1882)	35	<i>Mystus tengara</i> (Hamilton,1822)
16	Subfamily: Danioninae <i>Rasbora daniconius</i> (Hamilton,1882)	36	<i>Mystus vittatus</i> (Bloch,1794)

been recorded. The cyprinidae family is dominant and sub dominant family is channidae. The members of family cyprinidae were dominated by 17 species, followed by channidae 5 species, Bagridae 4 species, mastacembelidae 2 species, Notopteridae 2 species, schilbeidae 2 species, and siluridae 2 species each, Belonidae, Anabantidae, Ambassidae, Cichlidae, and Claridae one species of five family. Family cyprinidae was represented by the *Catla catla*, *Cirrhinus mrigala*, *Cirrhinus reba*, *Cyprinus carpio*, *Labeo bata*, *Labeo calbaru*, *Labeo fimbriatus*, *Labeo gonius*, *Labeo rohita*, *Puntius conchoni*, *Puntius ticto*, *Puntius chola*, *Puntius sophore*, *Puntius sarana*, *Rasbora daniconius*, *Rasbora rasbora* Tor tar while *Xentodon cancila* represented family Belonidae, Bagridae by *Mystus bleekeri*, *Mystus cavasius*, *Mystus tengara* and *Mystus vittatus*, siluridae by *Wallago attu* and *Ompok bimaculatus*, Mastacembelidae by *Mastacembelus panculus* and *Mastacembelus armatus*. Ambassidae by *Chanda nama* and *Parambassis ranga* Ophiocephalidae by *Channa punctatus*, *Channa marulius*, *Channa stratus* and *Channa gachua*. Heteropneustidae by *Heteropneustes fossilis*, Schilbeidae by *Clupisoma garua* and *Eutropiichthys vacha*, clariidae by *Clarias batrachus*, Cichlidae by *Oreochromis mossambicus*, Perciformes by *Anabas testudineus*, Notopteridae by *Notopterus chitala* and *Notopterus notopterus*, schilbeidae by *Clupisoma garua* and

**Table 2: Composition of genera and species under different in Family.**

S.No.	Families	Genera	% of contribution of genera to family	Species	% of contribution of species to families
1	Beloniformes	1	4.5	1	2.5
2	Cypriniformes	6	27.2	17	42.5
3	Notopteridae	2	9.0	2	5.0
4	Anabantidae	1	4.5	1	2.5
5	Ambassidae	1	4.5	1	2.5
6	Channidae	2	9.00	5	12.5
7	Cichlidae	1	4.5	1	2.5
8	Clareidae	1	4.5	1	2.5
9	Schilbeidae	2	9.00	2	5.0
10	Heteropneustidae	1	4.5	1	2.5
11	Bagridae	1	4.5	4	20.0
12	Siluridae	2	9.0	2	5.0
13	Mastacembelidae	1	4.5	2	5.0

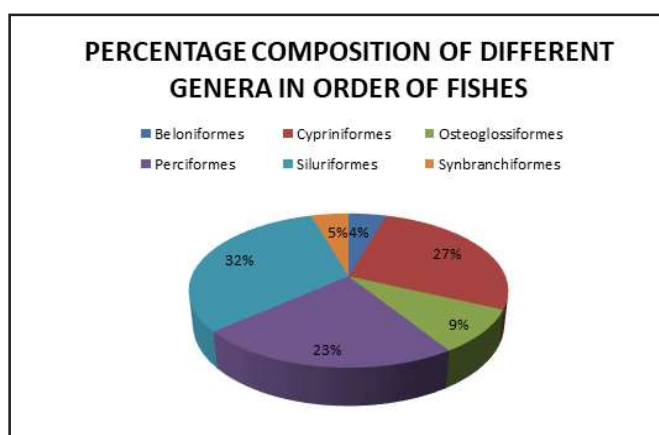
*Eutropiichthys vacha*. From all the sampling stations, cyprinidae formed the largest dominant family contributing 17 species (42.5%) Channidae formed the subdominant family contributing 5 species (12.5%) and rest of the family followed the order of abundance. (Table-2)

During the studies 332 fish individuals were collected

from three sites. There were six orders, thirteen families, 23 genera and 40 species. Out of all these *Rasbora daniconius* has the maximum number of individuals. Among all these families cyprinidae was most dominant family constituting 42.5% individuals, which is followed by Channidae (12.5%) Bagridae, (10%) Notopteridae, Schilbeidae, Siluridae and Mastacembelidae (5%) and

**Table 3 : Composition of genera and species under different in orders.**

S.No.	Order	Genera	% of genera in order	Species	% of species in order
1	Beloniformes	1	4.5	1	2.5
2	Cypriniformes	6	27.2	17	42.5
3	Osteoglossiformes	2	9.0	2	5.0
4	Perciformes	5	22.7	8	20.0
5	Siluriformes	7	31.8	10	25.0
6	Synbranchiformes	1	4.5	2	5.0



**Figure 3**

Anabantidae, Ambassidae, Cichlidae, Clareidae and Heteropneustidae (2.5%), respectively (Table-3). Percentage composition of various fish groups of the river is, carps group were the most dominant with 30%, followed by live fish 17.5%, cat fish 15%, spinyeel 2%, snake headed 10% and rest of the groups with 27% (Figure-3)

**Conservation status of fishes of Hiran river:** According to CAFF (2006), three species are endangered which are *Tor tor*, *Eutropiichthys vacha* and *Ompok bimaculatus*, five species are vulnerable these are *Cirrhinus reba*, *Puntius chola* *Channa marulius*, *Mystus bleekeri* and *Mastacembalus armatus*. Whereas twenty four species fall under risk near threatened viz. *Catla catla*, *Cirrhinus mrigala* *Labeo bata*, *Labeo calbasu*, *Labeo fimbriatus*, *Labeo gonius*, *Labeo rohita*, *Puntius conchoni*, *Puntius ticto*, *Puntius Shophore*, *Puntius Sarana*, *Notopterus notopterus* *Anabas test udineus*, *Channa gachua*, *Channa marulus*, *Channa punctatus*, *Channa Straita*, *Clupisoma garua*, *heteroprieustus fossilis*,

*Mystus cavasius*, *Mystus tengara* *Mystus vittatus* and *Mastacembelus panculus*. One species fall under Lower risk least concern category viz. *Rasbora daniconius*. While two species are not evaluated and two are exotic fishes. The species of *Clarias*, *Channa*, *Mastacembelus*, *Heteropneustes*, etc. have air breathing organs and fetch good market value as live fish. *Puntius* and *Ambassis*

species have ornamental value due to small size and bright colors and can be used as aquarium fishes. However, *Labeo calbasu* and *Tor tor* found to be a rare species in the present study (**Table-4**).

With the onset of southwest monsoon, heavy influx of freshwater occurs in the river in early June and July

**Table 4: Local name and biodiversity status of fishes.**

S.No.	Name of Fishes	Local name	CAMP 1998	CAFF 2006	IUCN
1	<i>Xenentodon Cancila</i>	Suja	LR-nt	LR-nt	Least Concern
2	<i>Catla catla</i>	Katla	VU	LR-nt	Not Evaluated
3	<i>Cirrhinus mrigala</i>	Mrigal	LRnt	LR-nt	Vulnerable
4	<i>Cirrhinus reba</i>	Rewah, Naren	VU	VU	Least Concern
5	<i>Cyprinus carpio</i>	Common Carp	EX	EX	Vulnerable
6	<i>Labeo bata</i>	Bata	LRnt	LRnt	Least Concern
7	<i>Labeo calbasu</i>	Kolot	LRnt	LRnt	Least Concern
8	<i>Labeo fimbriatus</i>	Cut rohu	LRnt	LRnt	Least Concern
9	<i>Labeo gonius</i>	Kursha	LRnt	LRnt	Least Concern
10	<i>Labeo rohita</i>	Rohu	LRnt	LRnt	Least Concern
11	<i>Puntius conchoni</i>	Pothi	LRnt	LRnt	Least Concern
12	<i>Puntius ticto</i>	Ticto	LRnt	LRnt	Least Concern
13	<i>Puntius chola</i>	Chola	VU	VU	Least Concern
14	<i>Puntius sophore</i>	Katha, Kotri	LRnt	LRnt	Least Concern
15	<i>Puntius sarana</i>	Kotra	LRnt	LRnt	Least Concern
16	<i>Rasbora daniconius</i>	Zanjara and Dhera	NE	LRlc	Least Concern
17	<i>Rasbora rasbora</i>	Dhera	NE	LRlc	Least Concern
18	<i>Tor tor</i>	Mahaseer	EN	EN	Near threatened
19	<i>Chitala chitala</i>	Patola chital	NE	NE	Least Concern
20	<i>Notopterus notopterus</i>	Patola	LRnt	LRnt	Data deficient
21	<i>Anabas testudineus</i>	Kowai	LRnt	LRnt	Least Concern
22	<i>Chanda nama</i>	Chahal	NE	NE	Least Concern
23	<i>Parambassis ranga</i>	Kokhai	NE	NE	Least Concern
24	<i>Channa gachua</i>	Bhutna, gilwa	LRnt	LRnt	Least Concern
25	<i>Channa marulius</i>	Dhowk, sol	LRnt	VU	Least Concern
26	<i>Channa punctata</i>	Samhal, Kabra	LRnt	LRnt	Least Concern
27	<i>Channa striata</i>	Samhal, morrul	LRnt	LRnt	Least Concern
28	<i>Oreochromis mossambicus</i>	Tilapia	EX	EX	Near threatened
29	<i>Clarias batrachus</i>	Mangur	VU	VU	Not Evaluated
30	<i>Clupisoma garua</i>	Garu	LRnt	LRnt	Least Concern
31	<i>Eutropiichthys vacha</i>	Bachna	EN	EN	Least Concern
32	<i>Heteropneustes fossilis</i>	Singhi	LRnt	LRnt	Least Concern
33	<i>Mystus bleekeri</i>	Tengra, Katula	VU	VU	Least Concern
34	<i>Mystus cavasius</i>	Tengra	LRnt	LRnt	Least Concern
35	<i>Mystus tengara</i>	Tengra	LRnt	LRnt	Least Concern
36	<i>Mystus vittatus</i>	Tengra	LRnt	LRnt	Least Concern
37	<i>Ompok bimaculatus</i>	Pabda	EN	EN	Near threatened
38	<i>Wallago attu</i>	Padhin	LRnt	LRnt	Near threatened
39	<i>Mastacembelus pancalus</i>	Baam	LRnt	LRnt	Least Concern
40	<i>Mastacembelus armatus</i>	Bammi	NE	VU	Least Concern

EN = Endangered; VU = Vulnerable; LR-lc = Lower risk least concern; NE = Not evaluated; EX= Exotic; D = Data deficient; LR = near threatened.

developing a freshwater habitat. Consequently, the high floods during monsoon changes the entire system. The human anthropogenic activities and over exploitation leads to rapid decline in the fish diversity. Though commercially important species are available they are not abundant to make fishery commercial and economical. Conservation measures require afforestation in catchment and awareness on illegal fishing and killing of brood fishes and Juveniles.

The present study of fishes in Hiran River showed that most of the fish species recorded were widely distributed in the rivers of Madhya Pradesh. The fish species like *Rasbora daniconius*, *Puntitus conconius*, *Cirrnina mrigal* were more dominant.

Therefore the present investigation reveals that Cyprinid fishes are found to be the more dominant group than others which is supported by other studies also [Table-1]

The fish species recorded from Hiran River, the following are considered as economically important and cultivable fishes including *Notopterus notopterus*, *Cyprinus carpio*, *Oreochromis mossambicus*, *Labeo rohita*, *Catla catla*, *Mystus seenghala*, *Channa striatus*, *Channa marulius* and *Channa punctatus*.

The current study has also shown that the river inhabit the ornamental fishes like *Puntius ticto*, *Puntius chola*, *Puntius-shobore*, *Chanda nama* & *Chanda ranga* etc. The Hiran stretch have breeding ground of some species viz., *Ompok bimaculatus*, *Labeo bata*, *Labeo calbasu* and other carps which are likely to be disappearing because of construction work. The loss of breeding grounds of these fishes would have a negative impact on the population of these fishes in the river.

Exotic species viz. *Cyprinus carpio* and *Oreochromis mossambicus* recorded in the present study. This might be due to accidental entry from some of fish farms in the basin during rainy season. However due attention should be paid to the presence of these species, as they may dominate and even eliminate the native fish fauna of the river.

The study findings showed that fish diversity in the studied area is reducing with the decline in water quality. The reduced fish diversity eventually decreases the fish production of native species and creates extinction of several species. These consequences eventually create instability in the socio-economic sector of the study area in terms of increased poverty of local fishermen. The polluted stretch of the river tolerant species such as *Oreochromis mossambicus* is thriving well, and commercially important, native species such as *Wallago attu*, *Labeo calbasu*, *Puntius* sp. Etc., are considered to be

threatened by increasing water pollution. This investigation would be used as a tool for controlling the water pollution at Sihora town and conserving the fish species in the Hiran River.

Out of the 40 species, three species *Tor tor*, *Ompok bimaculatus* and *Eutropiichthys vacha* are endangered. Five species vulnerable, twenty four species are lower risk near threatened, two species are exotic and two species are not evaluated categories. The study revealed that many species in the study area are being threatened various human activities, invasive alien species and destructive fishing moreover, removal of sewage runoff into the river causes severe threats to fish diversity. The findings of the present study underline the importance of Hiran River in providing preferred abode for fishes.

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### **Ichthyofaunal diversity of Chilika Lake, Odisha, India: an inventory, assessment of biodiversity status and comprehensive systematic checklist (1916–2014)**

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Chilika Lake, an assemblage of marine, brackish and freshwater ecosystems, on the east coast of India is a designated Ramsar site and a biodiversity hotspot. Intensive ichthyofaunal inventories and biodiversity assessments were carried out during 2000–2014 and documented 317 species belonging to 207 genera, in 88 families and 23 orders, including two endemic (Gobiidae) and one exotic cichlid species (*Oreochromis mossambicus*). In total, 255 collections (178 collections of previously recorded species and 77 that represent newly recorded species) were made during a post-restoration survey accounting for 80.44% retrieval of historically documented species. This paper presents an updated and comprehensive checklist of the lake's ichthyofauna (1916–2014), which is comprised of 278 food fishes, 271 (85.49%) migratory and 46 (14.51%) are resident species indicating that the lake fishery is largely migratory species-dependent. An account of faunal characteristics for 129 commercially important species is provided. The checklist also documents 48 threatened species and 103 species under different categories of conservation status.

### **Ichthyofaunal Diversity of Ashti Lake, Tal. Mohol, Dist. Solapur (M.S.)**

**D.S. Nikam, P.S. Salunkhe, A.L. Shaikh, A.B. Kamble and K.R. Rao**

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The ichthyofaunal diversity is a good indicator of health of aquatic ecosystem. A good piscine diversity represents the balanced ecosystem. Taking this into consideration

the ichthyofaunal diversity of Ashti Lake is studied during present investigation. The Ashti Lake is huge and spread over area about 1145 hectare area. The lake is old and was constructed in 1881. Total 23 species of fishes belonging to 21 genera, 12 families and 5 orders were identified from the lake. The order Cypriniformes was found to be dominant among fishes. The results were discussed with recent literature.

### **Ichthyofaunal Diversity of Chulkinala Reservoir A.S.**

**Kumar Naik, Jitendra Kumar, S. Benakappa, S.R. Somashekara, H.N. Anjanayappa, N. Manjappa and V. Mahesh**

Natural reservoirs formed by river barrages are good repositories of fresh water fish in India. But, their quantity and diversity are threatened due to severe stress inflicted by the elements, responsible for anthropogenic environmental degradation. There is a pressing need to catalogue the ichthyofaunal assemblage and biodiversity in these man-made reservoirs to facilitate propagation of food fishes and alienation of predators. This paper elucidates the biodiversity of fish in Chulkinala reservoir in north Karnataka, which was not studied earlier. The data collected every month during March 2007 to February 2008 from three landing centres totaling 8729 fishes revealed the presence of 45 species belonging to 15 families and 5 orders. The harvest was the highest in monsoon (4690, 53.73%) followed by summer (2548, 29.19%) and winter (1491, 17.08%) seasons. Cypriniforme was the predominant order with 21 species (7293, 83.55%). *Catla catla* was the predominant species (2680, 30.70%) followed by *Labeo rohita* (1670, 19.13%), and *Cirrhinus mrigala* (873, 10.00%) of this order. These three species together constituted 59.83% of the total harvest. The indices of biodiversity (Margalef richness index, Shannon-Wiener index, Pielou's evenness index, Simpson index) revealed maximum biodiversity in monsoon season, with respect to species richness (43) and abundance (N=330.15 kg). The Bray-Curtishierarchical cluster analysis indicated maximum similarity (93.87%) in species composition in the months of March and April, representing last quarter of summer and first quarter of monsoon. The K-dominance curve showed high density of fish species in the monsoon season, compared to other two seasons. Multidimensional scaling (MDS) analysis demonstrated low (<0.1) stress value (0.02) and close similarity (80%) in species composition and abundance during different seasons, suggesting good ordination of the collected samples. The study tends to conclude that Chulkinala reservoir is a rich repository of indigenous fishes with wide biodiversity, but invasive species like

*O. mossambicus* and *O. niloticus* are grave threats to their subsistence.

### **Ichthyofaunal Diversity and Species Richness of Lower Anicut Reservoir, Tamil Nadu, India: Recommendations and Conservation Action**

**Sivakumar R<sup>1\*</sup>, Mathialagan R<sup>2</sup>, Chandrasekar S<sup>3</sup> and Rajasekaran N<sup>2</sup>**

<sup>1</sup>Department of Zoology, Government Arts College (Autonomous), India; <sup>2</sup>Department of Life Science, MASS College of Arts & Science, India; <sup>3</sup>Department of Zoology, V.O. Chidambaram College, India

Ichthyofaunal diversity and species richness of Lower Anicut reservoir, Tamil Nadu, India: Recommendations and Conservation Action. Faunal biodiversity is an essential for stabilization of an ecosystem, protection of overall environmental quality for understanding intrinsic worth of all species on the earth. Ichthyobiodiversity mainly focused to variety of species richness depending upon circumstance and scale it could refer alleles or genotypes within species of life. The sampling point a branch of Cauvery, specifically Kollidam (Coleroon) river, Lower Anicut was selected for the present work carried out. Species identification was followed by colour patterns of body, fins, measurements and counts were clearly observed. Additionally, the results of high-resolution image were used to extrapolate and assess the morphological identification. Species richness and availability was categorized as TY (Throughout Year), TYLQ (Throughout Year in Little Quantity), TYBQ (Throughout Year in Bulk Quantity), SQM (Small Quantity during Monsoon), BQM (Bulk Quantity during Monsoon), R (rare), ER (Extremely Rare) and NE (Not Evaluated). Following, the objectives and importance of this study to required and updated the information about diversity of fishes and its conservation through survey of sampling, fisher folk, fish researchers, government personnel and experienced persons in relation to fisheries sectors. The assessment and documentation of the Ichthyofaunal diversity and species richness in Lower Anicut reservoir, Tamil Nadu thereby to evaluate the conservation status of species, taking into reflection in riverine health and making the people more aware about local environment and its conservation for their existence. Keywords: Ichthyodiversity; Species richness; Taxonomy; Species identification; Classification of species and Conservation.

### **Ichthyofaunal diversity of the Kadana reservoir in Mahisagar district, Gujarat, India**

**Toral Muniya, Hitesh Kardani, Kiran Gohel, Aarti Joshi and Piyush Vadher**

The present study deals with Ichthyofaunal diversity of Kadana reservoir, Gujarat. Sampling was done at every

month during July 2018 to February 2019. Total 32 species from 6 orders, 13 families and 22 genera were recorded during the present study. Cypriniformes was the dominant order in term of species diversity (12 species) followed by Siluriformes (10 species), Perciformes (6 species) and Synbranchiformes (2 species) and Osteoglossiformes and Beloniformes were represented by 1 species each. Dominant families were Cyprinidae (12 species) followed by Bagridae (4 species), Siluridae and Channidae (3 species), Mastacembelidae (2 species), 1 species of Claridae, Heteropneustidae, Schilbeidae, Cichlidae, Ambassidae, Gobiidae, Belonidae and Notopteridae families. Total of 32 species of fishes were recorded during study period. Out of these 1 species comes under vulnerable status, 27 fish species comes under status of least concern, 1 fish species comes under data deficient status and 4 fish species comes under near threaten. During month of February highest fish diversity was found. Average fish diversity was found during month of July and lowest diversity was found during the month of November. This is first ever study on the fish diversity of Kadana reservoir and would help in explore the fish fauna of Kadana reservoir. Keywords: Kadana reservoir, Ichthyofaunal diversity, Seasonal variation, physico-chemical parameters.

### **Current status of ichthyofaunal diversity of various water sources of western Uttar Pradesh, India**

**Seema Jain**

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Fishes constitute an economically important group of vertebrate. These constitutes an important group and are very useful in biological researches. The present study has been conducted on different water bodies of Western Uttar Pradesh, India. The aim of this investigation was to identify fish diversity in water bodies (ponds, river & its tributaries) and also documentation of all the available species inhabiting this region. The results revealed the occurrence of 61 fish species belonging to 38 different genera, 19 different families and 9 different orders. The order Cypriniformes was dominant with 23 species followed by Siluriformes with 15 species, Perciformes (8 species), Clupeiformes (4 species), Ophiocephaliformes (4 species), Beloniformes (2 species), Mastacembaliformes (2 species), Tetrodontiformes (2 species) and Mugiliformes (one specie). Cyprinids and Silurids found to be numerically abundant and also showed high species richness. There is no documentary record available of the present study area till date regarding its aquatic fauna. Keywords: Ichthyofaunal diversity, aquaculture, biological research, water bodies.

### Van Mahotsav - 1-7 July, 2021

The Uttar Pradesh government had set a target of planting 30 crore saplings during the Van Mahotsav (afforestation festival) which began in the first week of July this year. Saplings of different types of big trees were planted throughout district for the complete July month. Universities and Colleges of the state participated in the Mahotsav.

University of Lucknow also organised plantation drive which were carried out by Envis RP-IWS from 1st July to 15th July. During this period saplings of peepal alongwith saplings of other big trees were planted at different places in hostel, campus of the university and Colleges affiliated to University of Lucknow.

The Honorable Vice-Chancellor Prof. Alok Kumar Rai inaugurated the Peepal Plantation Drive in University of Lucknow on 1st of July. He planted saplings of Peepal and other trees at various departments and hostels of university. Prof. Amita Kanaujia, coordinator of Institute of Wildlife Sciences coordinated the drive. She encouraged everyone to plant atleast one sapling of peepal tree on the basis of theme "A Person, A Plant".

A total of 51,000 plants were planted and distributed in the University and colleges affiliated to Lucknow University. Students of various departments of University of Lucknow along with students from colleges affiliated to University of Lucknow participated enthusiastically in the plantation drive. Professors from departments of University and colleges planted saplings themselves and encouraged students and other staff members for the same. Peepal registered for plantation. Colleges of Lucknow, Lakhimpur Khiri, Rae Barilly Sitapur, and Hardoi participated in the plantation drive.





### International Vulture Awareness Day (4 September 2021) - Capacity Building of BMCs for Vulture Conservation in Uttar Pradesh Workshop

The first Saturday in September each year is International Vulture Awareness Day. It takes place to raise awareness about the importance of vultures and to promote the vital work carried out by conservationists around the world to conserve and protect them. Additionally, it is a valuable resource for vulture workers to learn about the activities of their colleagues and to perhaps develop new

collaborations or exchange information. Keeping this in consideration ENVIS-RP, Institute of Wildlife Sciences, University of Lucknow organized a workshop in collaboration with U.P State Biodiversity Board, Lucknow on 4th September 2021. Prof. Amita Kanaujia hosted this workshop on Zoom platform. 80 audiences attended the workshop. Participants from different backgrounds attended the workshop for example students, locals from block level and village level and forest officials from different forest divisions. Capacity building of BMC is important for awareness of people at ground level to conserve the species. Prof Kanaujia spoke about the morphology and ecology of different vulture species of Uttar Pradesh. She also discussed the different threats faced by the species of the region and steps that can be taken to mitigate them. She also discussed the various conservational activities that she along with her team of research scholars have under taken to secure the future of all the vulture species of Uttar Pradesh.

### An online Workshop on Snake Identification & First Aid 21<sup>st</sup> September 2021

An online workshop was organized to aware the students, teachers, hostlers, common masses etc. The two main speakers Mr. Aditya Tiwari, Founder of Prayavanram Society and well known snake rescuer of Lucknow, UP and eminent Dr. Vivekanshu Verma, Fellow of Indian Society of Toxicology (F.I.S.T.) Honorary Toxicology Expert, Central Bureau of Investigation (CBI), Associate Consultant & Fellow, Department of Emergency & Trauma Care, Medanta - The Medicity, Gurugram, Associate Editor: Journal of Indian Medicolegal & Ethics Association (JIMLEA) 2019-20 and Associate Faculty: Post Graduate Diploma in Medical Toxicology, Amrita Institute (Kochi), Saveetha Medical College (Chennai) & Chitkara School of Health Sciences (Chandigarh). The program was organized by under supervision of Prof Amita Kanaujia, Coordinator, ENVIS-RP, Institute of Wildlife Sciences, University of Lucknow. More than 100 participants from all over the India took part in above workshop and were aware of this important topic which was timely organized during the rainy season.



## ENVIS-RP Query Form

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Role of Traditional Biodiversity in Conservation	

## Call for Papers

The ENVIS-RP, Institute of Wildlife Sciences, ONGC Centre for Advanced Studies, University of Lucknow is designated ENVIS-Resource Partner for "Biodiversity and Traditional Knowledge issues". Our Quarterly Newsletter "Wuthering Wild" is dedicated to publishing papers on the above. The newsletter is widely circulated at the State, National and International levels.

We are seeking papers for our forthcoming issues and invite contributions in the context of state of Biodiversity and Traditional Knowledge of Uttar Pradesh including Biodiversity assessment, Biodiversity index, Environmental factors and Biodiversity, Biodiversity and Ecotourism, Traditional Flora and Fauna, Importance of Traditional Biodiversity, Utility of Traditional Knowledge in Human Welfare, Economic Assessment of Traditional Biodiversity, Biodiversity Legislation and Laws and Regulatory Systems, Biodiversity and Wildlife Education, Awareness & Participation Issues.

The papers in English should Generally contain between 2,500 and 3,000 words and may include charts, tables, diagrams, illustrations or photos of high resolution.

Publication of Papers will be subject to acceptance by the Editor.

Please send hard copies and one soft copy of the manuscript (A4 size, 12 font size, double spaced) to the editor "Wuthering Wild" at Coordinator, ENVIS-RP, Institute of Wildlife Sciences, ONGC Centre for Advanced Studies, University of Lucknow, Lucknow-226007, Uttar Pradesh or email at [envisiwlulko@gmail.com](mailto:envisiwlulko@gmail.com) or [kanaujia.amita@gmail.com](mailto:kanaujia.amita@gmail.com) and indicate "Papers for Newsletter Wuthering Wild" in subject line.

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We would appreciate if you send your comments and suggestions to

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