



Fish Diversity at Seetadawr Lake of District Shravasti, Uttar Pradesh, India

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Abstract

Fish constitute an important group of Vertebrates and are very useful in biological researches. The present study on fish diversity at Seetadwar lake of district Shravasti was carried out from July 2019 to June 2020 for a period of one year. Fishes are very important from the biodiversity point of view. Therefore, during the present investigation, fishes were collected and identified. The aim of this study was to reveal the fish diversity of fish species in this lake. The various fishes collected from this lake are found to be very common in respect of other lentic and lotic water bodies of Shravasti belt and are represented by 6 orders, 11 families, 15 genera and 23 species. The family Cyprinidae was observed as the most abundant of all, consisting 7 species. Although, 23 species were recorded, genus *Mystus* and *Channa* were the dominant. There is no documentary record available of the present study area till date regarding its aquatic fauna.

Keywords: Fish diversity, Fresh water and Seetadwar lake.

Introduction

Fish diversity comprises of species richness (number of species in a defined area), species abundance (relative number of species) and phylogenetic diversity (relationships between different groups of species, Gorman and Karr, 1978). Fish constitutes half of the total number of vertebrates in the world. They live in almost all conceivable aquatic habitats. 21,723 living species of fish have been recorded of an commercial fishes of importance were found in vertebrates out of these 8,411 are freshwater species and 11,650 are marine (Burton et.al. 1992). In India there are 2,500 species of fishes of which 930 live in freshwater and 1,570 are marine (Kar et.al. 2006).

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India is one of the 12 mega biodiversity countries having two biodiversity hotspots, namely the western Ghats and the Eastern Himalayas that are included amongst the top eight most important hotspots in the world. It also has rich fresh water (rivers, irrigation, canals, tanks, lakes and reservoirs) fish diversity. This diversity is being eroded each day mainly because of unending anthropogenic stress. This diversity is not only the wealth of India and the world but it also has serious implications on fishery. Thus there is an urgent need for proper inventorisation and documentation of this fish diversity in order to develop a fresh water fish diversity information system having both bioinformatics and georeferenced databases of fish and fish habitat. Fresh water fish diversity in country is endowed with vast and varied resources possessing river ecological heritage and rich biodiversity. Fresh water fishery sites are varied like 45,000 km. of rivers, 1,26,334 km of canals, ponds and tanks 2.36 million hectares and 2.05 million hectares of reservoirs (Ayappan and Birdar, 2004). The assessment of fresh water fishes is done mainly on the basis of 6 drainage systems in the country. These are Indus river system, Upland cold water bodies, Gangetic river system, Brahmaputra river system, East flowing river system and West flowing river system.

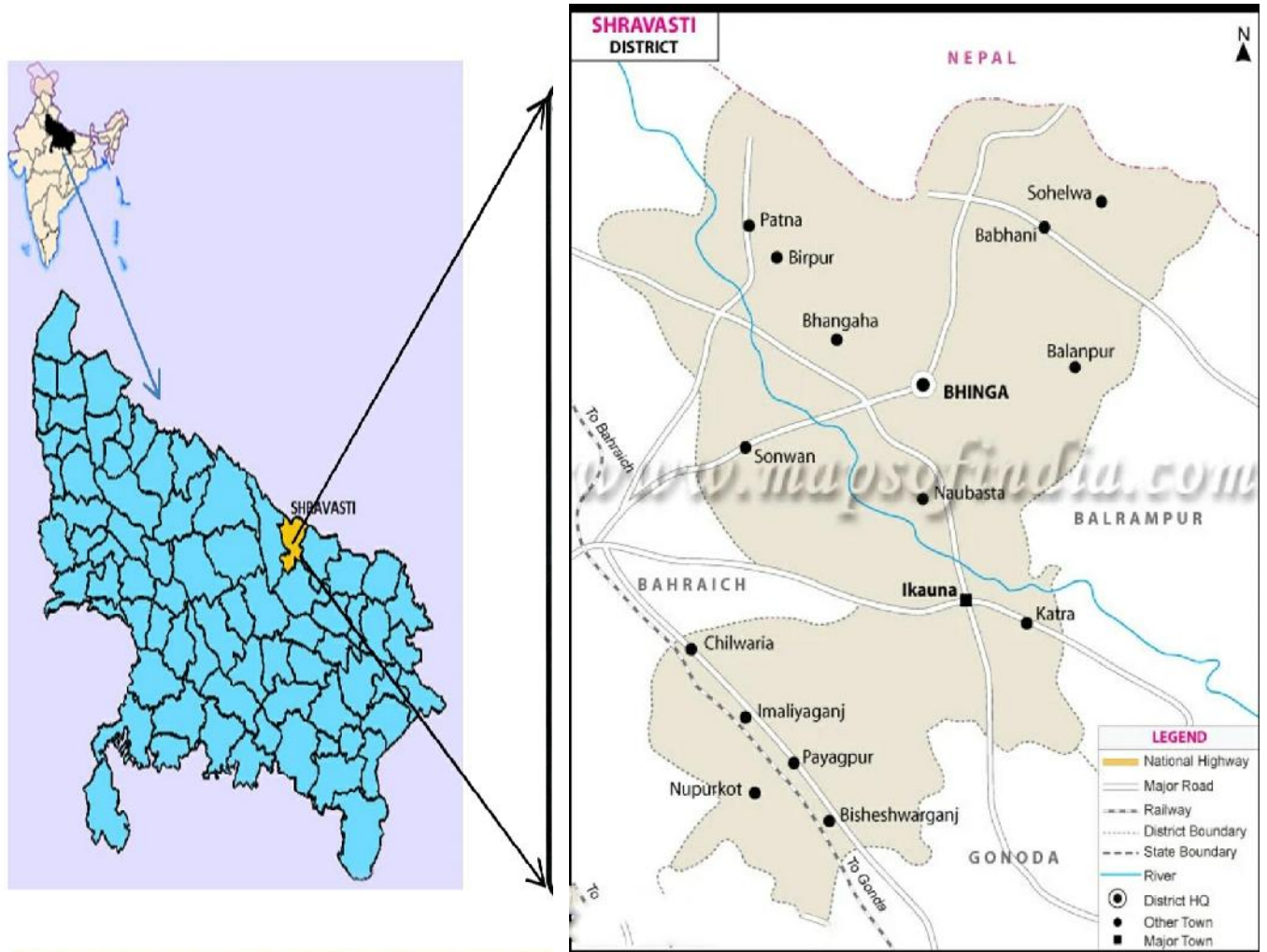
In Uttar Pradesh, India Nagma and Khan (2013) reported that 36 fish species belonging to 6 orders, 11 families and 23 genera were collected and identified at district Bijnor (U.P.), India, Seema Jain (2017) reported 61 fish species belonging to 38 different genera, 19 different families and 9 different orders. The order Cypriniformes was dominant with 23 species followed by Siluriformes with 14 species, Perciformes 8 species, Clupeiformes 4 species, Ophiocephaliformes 4 species, Mastacembaliformes 3 species, Beloniformes 2 species, Tetrodontiformes 2 species and Mugiliformes with one species and Ichthyofaunal diversity comprised of 19 families namely Clupeidae 2 species, Notopteridae 2 species, Cyprinidae 23 species, Siluridae 2 species, Bagridae 7 species, Sisoridae 1 species, Schilbeidae 2 species, Saccobanchidae 1 species, Clariidae 1 species, Belontiidae 1 species, Hemiramphidae 1 species, Mugilidae 1 species, Ophiocephalidae 4 species, Centropomidae 3 species, Nandidae 2 species, Anabantidae 2 species, Gobiidae 1 species, Mastacembelidae 3 species, Tetrodontidae 2 species were collected and recorded at various water sources of western Uttar Pradesh,

India and Verma et.al. (2018) reported 45 commercially important fish species belonging to 7 orders, 17 families and 32 genera were collected and identified Bakhira lake, Uttar Pradesh, India.

The species diversity of an ecosystem is often related to the amount of living, nonliving and organic matter present. In the field of Fish fauna there is valuable work given an incision in their abdomen and preserved. As per economic importance, scope of fish and fisheries especially in Uttar Pradesh, but it is natural to study the distribution and availability of fish from fresh water. The objective of the present study was to document the fish fauna at Seetadwar lake located district Shravasti, Uttar Pradesh, India.

Location of study area

Shravasti district is the eastern part of Uttar Pradesh covering an area of 1858.20 Sq.km., latitude of Ikauna Shravasti is 27.5110988 and longitude is 81.9805002. Shravasti is a part of historic Avadh was carved out from Gonda district to the south and Bahraich district to the west. Shravasti also borders Balrampur to the east and Nepal's district Dang -Deukhuri to the north east and Banke district Nepal to the north west. It is the frontier district of eastern Uttar Pradesh with northern boundaries marching with Nepal for a long distance of the district. The district is traversed by a large number of annual and perennial water bodies (Map : 1). Seetadwar lake is very well known from ancient period. It is regarded as historical symbol of worship by Hindus. It is also important from ethical point of view because Maa Seeta had disappeared in the core of the earth at this place that is why it is called Seetadwar (Fig.1). It is a natural and historical lake of this region of eastern Uttar Pradesh, spread about 750 acres area and situated near Ikauna town on Balrampur - Bahraich road at a distance of about 30 km from P.G. Department of Zoology, M.L.K.P.G.College, Balrampur, Uttar Pradesh.



Map - 1: Location of study area of District Shravasti (U.P.), India



Fig.1 : Seetadwar lake

Materials and Methods

In Seetadwar lake, fishes were caught and collected for the present study from four sites of this lake by hand nets, gill nets, cast nets, hook and drag nets with the help of local people and fisherman mainly during the time of fishing. Investigation regarding fish capture and collection were conducted fortnightly that is three time in a month for the period of one year from July 2019 to June 2020 (Fig.1).

Fishes were identified by using the standard keys of Day (1989), Jhingram (1991) and Srivastava (2002). Interaction with local people also assisted the authors in various ways for data collection and identification.

Results and Discussion

During the entire study period 23 species belonging to 11 families, 15 genera and 6 order were collected and identified. The details of these fishes are listed in Table :1.

Table 1: Fish Diversity at Seetadwar lake of district Shravasti (U.P.), India
(Data of July 2019 to June 2020)

S.No	Order	Family	Scientific name	Common name
1	Beloniformes	Belontiidae	<i>Xenentodon cancila</i>	Kauwa
2	Cypriniformes	Cyprinidae	<i>Catla catla</i>	Bhakur
3	Cypriniformes	Cyprinidae	<i>Cirrhinus mrigala</i>	Nain
4	Cypriniformes	Cyprinidae	<i>Cirrhinus reba</i>	Nain/ Raia
5	Cypriniformes	Cyprinidae	<i>Labeo rohita</i>	Rohu
6	Cypriniformes	Cyprinidae	<i>Labeo calbasu</i>	Black rohu /Karonchh
7	Cypriniformes	Cyprinidae	<i>Cyprinus carpio communis</i>	Common carp
8	Cypriniformes	Cyprinidae	<i>Puntius ticto</i>	Sidhari
9	Clupeiformes	Notopteridae	<i>Notopterus notopterus</i>	Patra
10	Clupeiformes	Notopteridae	<i>Notopterus chitala</i>	Chital / Moya
11	Perciformes	Anabantidae	<i>Anabas testudineus</i>	Kawai
12	Perciformes	Centropomidae	<i>Chanda nama</i>	Chanari
13	Perciformes	Centropomidae	<i>Chanda ranga</i>	Chanari
14	Perciformes	Nandidae	<i>Nandus nandus</i>	Dhebari
15	Siluriformes	Bagridae	<i>Mystus aor</i>	Dariai tengra
16	Siluriformes	Bagridae	<i>Mystus vittatus</i>	Tengra / Striped dwarf catfish
17	Siluriformes	Bagridae	<i>Mystus tengara</i>	Tengra
18	Siluriformes	Clariidae	<i>Clarias batrachus</i>	Mangur
19	Siluriformes	Heteropneustidae	<i>Heteropneustes fossilis</i>	Singhi
20	Siluriformes	Siluridae	<i>Wallago attu</i>	Padhni
21	Ophiocephaliformes	Ophiocephalidae	<i>Channa gachua</i>	Chanaga
22	Ophiocephaliformes	Ophiocephalidae	<i>Channa punctatus</i>	Girai
23	Ophiocephaliformes	Ophiocephalidae	<i>Channa striatus</i>	Sauri

The order- Cypriniformes was observed as the most abundant including family- Cyprinidae contains 7 species: Among Cyprinidae: *Catla catla*, *Cirrhinus mrigala*, *Cirrhinus reba*, *Labeo rohita*, *Labeo calbasu*, *Cyprinus carpio* were recorded while other second abundant order- Siluriformes were observed and contains 6 species - *Mystus aor* (Bagridae), *M. vittatus* (Bagridae), *M. tengra* (Bagridae), *Clarias batrachus* (Clariidae), *Heteropneustes fossilis* (Heteropneustidae) and *Wallago attu* (Siluridae). The above discussed fish species were the major composition of fish diversity in this lake. Other species such as *Xenentodon cancila* (Belontiidae), *Notopterus notopterus* (Notopteridae), *Notopterus chitala* (Notopteridae), *Anabas testudineus* (Anabantidae), *Chanda nama* (Centropomidae), *Chanda ranga* (Centropomidae), *Nandus nandus* (Nandidae), *Channa gachua* (Ophiocephalidae), *Channa punctatus* (Ophiocephalidae) and *Channa striatus* (Ophiocephalidae) were also found. *Heteropneustes fossilis* and *Mystus aor*, *M. vittatus* and *Mystus tengra* species are economically important but these fish species are illegally exploited by the local peoples of this area. Several workers have survey works in various rivers, lakes and ponds water bodies regarding the abundance and distribution of fishes. Dubey (1959), Jayram (1999) Singh and Mishra (2001), Srivastava (2002), Tewari (2006), Regi and Kumar (2012), Shukla and Singh (2013), Nagma and Khan (2013), Kumar (2013), Kumar and Singh (2013), Verma (2015), Wani and Gupta (2015), Seema Jain (2017) and Verma (2018).

Conclusion

The result of this study shows that Seetadwar lake is very rich in fish diversity and sustains high productivity, this water body is most suitable for fish culture. This observation can be utilized for decision making conservation and management in a scientific manners. There is an immediate need of more conservation programme in order to retain this natural fresh water bodies of Seetadwar lake in eastern Uttar Pradesh region.

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