International Journal of Fisheries and Aquatic Research
ISSN: 2456-7248; Impact Factor: RJIF 5.44
Received: 13-07-2020; Accepted: 28-07-2020; Published: 14-08-2020
www.fishjournals.com
Volume 5; Issue 3; 2020; Page No. 38-41

Ichthyofaunal diversity of of Guathia Taal, a wetland of district Bahraich, U.P. (India)

Sadguru Prakash[1], Dilip Kumar Yadav[2]
[1]Department of Zoology, M.L.K. (P.G.) College, Balrampur, Uttar Pradesh, India
[2] Department of Zoology, Kisan P.G. College, Bahraich, Uttar Pradesh, India

Abstract
Fishes are very important components of the wetlands and they play an important role in food wed. The results of the present study reveal that occurrence of 29 fish species belonging to 20 genera 14 families and 8 orders. The member of order Cypriniformes were dominated by 10 species followed by Siluriformes (7 species); Ophiocephaliformes (3 species); Perciformes (4 species); Osteoglossiformes (1 species); Clupiformes(1species); Beloniformes (1 species) and Synbranchiformes (2 species). As per latest version of IUCN Red List, out of 29 fish species identified, 1 species comes under EN(Endangered), 1 under NT (Near threatened),1 under VU (Vulnerable), 3 under NE (not evaluated) and 23 under LC (least concern) so far. All the species reported in the present study are reporting first time under mopping survey programme. It is concluded that the fish in this area are under threat due to anthropogenic activities such as overfishing and pollution of the river. Therefore, conservation action plan are needed for conservation of rare and threatened fish in this area. The considerable attention should be paid to conserve fish species comes under EN and NT categories.

Keywords: ichthyofauna, conservation status, Guthia Taal

Introduction
Fish is one of the most important components of food for human beings, because it provides high-quality rich protein, lipids, vitamins, minerals, essential amino acids and fatty acids for the growth, development and maintenance of a healthy human body and prevents several nutritional deficiency diseases. Fishes are also richest sources of ω3 polyunsaturated fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Minerals present in fishes can be essential or non-essential for human body. Minerals such as calcium, phosphorus iron, copper, zinc and manganese are essential and play important roles in biological systems.**[1]** So it is essential to study the distribution and availability of fish from freshwater rivers, lakes, reservoir, wetlands and pond. Fish constitutes almost half of the total number of vertebrates in the world and live in almost all conceivable aquatic habitats. Out of 30,900 species of vertebrate, about 22,000 living fish species have been recorded.**[2]** Out of 22,000 fish species have been recorded out of which 2500 (11%) species are found in India [3].

Wetlands support vast biodiversity of flora and fauna, provide food and shelter to organisms that thrive in. They occur where the water table is at or near the surface of the land, or where the land is covered by water. Wetlands are among the world's most productive environments [4]. Wetlands like lake, taal etc. are of utmost importance for several reasons. They represent only a part of our land bases but they provide shelter to a great number of plant and animal species including birds, mammals, reptiles, amphibians, fish and invertebrate species. Now-a-days wetlands and other deep-water habitats is globally a subject of great ecological interest due to their socio-economic values and ecosystem services which has necessitated the need for reliable broad-based information on their ecological status. The ecological functioning of these ecosystems has been greatly affected by the growing anthropogenic activities

India is endowed with 2.36 million hectares of ponds and tanks, 2.05 million hectares of reservoirs and 5,82,86,000 hectares of fresh water wetlands [5]. These waterbodies have rich and diversified fish fauna characterized by many rare and endemic fish species. But due to irrational fishing practices, environmental aberrations like reduction in water volume, increased sedimentation, water abstraction, and pollution over the years this diversity is decline and even few species have been lost from the freshwater ecosystem of India and some are belonging under endemic, endangered and threatened category [6].

Natural waters have more stable conditions under which the fish evolve, hence enlisting biodiversity and its distribution over time and space becomes important. Until we know the diversity and variations over time and space, it is difficult to plan conservation and the development projects related to water resources. Knowledge of fish diversity of particular region is essential not only for rational management of ichthyofauna of that region but also for their conservation strategies. Many researchers are studied taxonomy, biodiversity and distribution of freshwater fishes from various lentic waterbodies like ponds, taals, wetlands etc. in U.P [7, 11]. Hence an attempt has been made to study the fish fauna of Guthia taal, a wetland of Bahraich district of eastern Uttar Pradesh.

Materials and Methods
Details of the study area, details of sampling sites, methods of collection of samples, preservation of fish specimen is as follows:

Study area
Guthia Taal is a large shallow perennial horse shoe shaped lentic waterbody. The total catchment area of wetland is about 75.9ha. Out of 75.9ha, 25.3ha is situated in Guthia, 25.3ha in Rucknapur, 22.77ha in Dihawa Sher Bahadur Singh

and 2.53ha in Nawgeya villages, of Kaiserganj Tahseel of district Bahraich. But in summer season its water spread area becomes reduced up to 37.95ha. It is situated between the latitude 27.2537^0N- $81{\cdot}54313^0$E. The Taal is enriched with several type of vegetation such as *Nymphaea*, *Nelumbo* and Nymphya as well as aquatic birds like Duck, Saras and Bagula. The water of Taal is used for Agriculture and fish culture. The abundant food attracts hundreds of resident and migratory birds including Siberian crane during winter season.

Sampling Sites

To study the ichthyofauna of Guthia taal of Baraich districts of U.P., fish samples were collected / purchased from three stations (*i.e.* S-1 at Ruknapur, S-2 at Guthia and S-3 at dihawa Sher Bhadur Si villages) during July, 2019 to June, 2020.

Fig 1: Setellite image showing Guthia Taal, a wetland and its surroundings

Preservation of Fish specimen

The collected fish specimens were preserved 10% formaldehyde solution at the sampling site. Small fish specimens (less than 10cm) were preserved directly without incision or opening of visceral cavity. But larger specimens were preserved with incision on belly. The preserved specimens were stored in the plastic containers. Colours of the specimen were also recorded before preservation.

Identification of fish specimen

Identification of fish specimens was done up to species level while identifying its natural colour, pattern of scales, fins, mouth pattern, identification marks like black or red spots, Bloch on operculum, paired and unpaired fins and body parts with the help of standard literature [12, 15].

Fig 2: Image of Guthia Taal

Results and Discussion

The present study indicated that the Guthia taal is rich in fish fdiversity. In the present study total 29 fish species belonging to 20 genera, 14 families and 8 orders were collected from three sampling stations during entire study period. Their vernacular names with family, order and conservation status are given in the table1.

The Guthia Taal, a wetland ecosystem supports diverse stock of carps, catfishes, perches, featherbacks, gobies and eels so on. Availability and Conservation status of fish species of the Guthia taal is given in table1. *Amblypharyongodon mola*, *Glossogobius giuris* and *Mastacembelus aculeatus* are very rarely found in the taal. Out of 29 fish species, 3 were very rare, 11 rare, 6 moderate and 9 were Commonly found. Besides native fishes, exotic fish, *Cyprinus carpio* was also present in this wetland. *Catla catla*, *Labeo rohita*, *Cyprinus carpio*, *Ompok pabda* and *Puntius tictio* are rare and have been recorded during rainy season. There may be a possibility that these fishes might have entered in taal through rain water.

Table 1: Ichthyofauna of Guthia Taal, a wetland of Baharaich.

S.N.	Ichthyofauna	Common Name	Availability In Taal	Conservation status
Order- Cypriniformes; Family- Cyprinidae				
1.	*Catla catla* (Hamiliton)	Bhakur	Rare	LC
2.	*Labeo rohita* (Hamiliton)	Rohita	Rare	LC
3.	*Labeo calbasu* (Hamiliton)	Karaunchh	Rare	LC
4.	*Labeo bata* (Hamiliton)	Bata	Common	LC
5.	*Cirrhinus mrigala* (Hamiliton)	Naini	Rare	LC
6.	*Cirrhinus reba* (Hamiliton)	Reba	Common	LC
7.	*Cyprinus carpio* (Linnaeus)	Common carp	Rare	VU
8.	*Puntius sarana* (Hamiliton)	Sarana	Common	LC
9.	*Puntius ticto* (Hamiliton)	Two spot barb	Moderate	LC
10.	*Amblypharyongodon mola* (Hamiliton)	Mola	Very Rare	LC
Order- Siluriformes; Family- Bagridae				
11.	*Mystus vittatus* (Bloch)	Tengara	Common	LC
12.	*Mystus tengara* (Hamiliton)	Tengara	Rare	LC
13.	*Mystus aor* (Hamiliton)	Tengara	Common	LC
Order- Siluriformes; Family- Siluridae				
14.	*Wallago attu* (Schneider)	Pardni	Common	LC
15.	*Ompak pabda* (Hamiliton)	Pabdah catfish	Rare	NT
Order- Siluriformes; Family- Clariidae				
16.	*Clarias batrachus* (Linnaeus)	Mangur	Moderate	LC

Order- Siluriformes; Family- Saccobranchidae				
17.	*Heteropneustes fossilis* (Bloch)	Singhi	Moderate	LC
Order- Ophiocephaliformes; Family- Ophiocephalidae				
18.	*Channa punctatus* (Bloch)	Saura	Common	NE
19.	*Channa striatus* (Bloch)	Saura	Common	LC
20.	*Channa gachua* (Hamiliton)	Saura	Rare	LC
Order-Perciformes; Family- Gobiidae				
21.	*Glossogobius giuris* (Hamiliton)	Balia	Very Rare	LC
Order-Perciformes; Family- Anabantidae				
22.	*Anabas testudineus* (Bloch)	Climbing Perch	Rare	LC
Order-Perciformes; Family- Osphronemidae				
23.	*Colisa fasciatus* (Bloch)	Rainbow gourami	Moderate	NE
Order-Perciformes; Family- Ambassidae				
24..	*Chanda nama* (Hamiliton)	Chanda	Moderate	NE
Order -Osteoglossiformes ; Family- Notopteridae				
25..	*Notopterus notopterus* (Pallas)	Patara	Common	LC
Order -Clupeiformes ; Family-Clupeidae				
26.	*Gudusia chapra* (Hamiliton)	Suiya	Rare	LC
Order - Beloniformes; Family- Belonidae				
27.	*Xenentodon cancila* (Hamiliton)	Kauwa machhali	Moderate	LC
Order -Synbranchiformes; Family- Mastacembeleidae				
28.	*Mastacembelus armatus* (Lacepede)	Bam	Rare	LC
29.	*Mastacembelus aculeatus* (Bloch)	Bam	Very Rare	EN

On the basis of rate of decline, population size, area of geographic distribution and degree of population, distribution fragmentation etc., IUCN (International Union for Conservation of Nature) Red List (2016) classified the species into nine groups including EN (Endangered), VU (Vulnerable), NT (near threatened), LC (least concern) and NE (not evaluated). As per latest version of IUCN Red List, out of 29 fish species identified, 1 species comes under EN, 1 under NT,1 under VU,3 under NE and 23 under LC. So far. Considerable attention should be paid to conserve fish species comes under EN and NT categories.

Conclusion

It may be concluded that the Guthia taal hosts a number of freshwater fish species. The occurrence of fishes attracts many piscivorous migratory birds to this wetland. However, the fish fauna especially very rare, rare and moderate species is at risk due to several anthropogenic activities like over fishing and recreational activities besides water pollution. The gradual degradation of wetland due to these factors can cause lot of this fish diversity. It is suggested that the fishery authorities should investigate and practice the proper exploitation and management of this fishery resources according to ecological principles. Thus it is duty of each one to play an important role to conserve fish diversity as this plays and handover the valuable biodiversity in the healthy condition to the future generation and for sustainable development of this wetland.

Acknowledgements

Authors are highly grateful to the Principal M.L.K. P.G. College, Balrampur for providing necessary laboratory facilities.

References

1. Nurnada AA, Azrina A, Amin I, Mohd Yunus AS, Mohd Izuan Effendi H. Mineral contents of selected marine fish and shellfish from the west coast of Peninsular Malaysia, International Food Research Journal. 2013; 20(1):431-437.
2. Jayaram KC. The freshwater fishes of the Indian Region.2nd edition.Narmada Publishing House, Delhi, India, 2010.
3. Nagma M, Khan A. Studies on fresh water fish fauna of district Bijnor in Western Uttar Pradesh, India. Int. J. Life Sci. Bitec. And Pharm. Res. 2013; 2(3):410-417.
4. Verma AK, Prakash S. Qualitative and quantitive analysis of macrozoobenthos of Beghel Taal, a wetland of U.P. Indian Journal of Biology. 2018; 5(2):127-130.
5. Kumar U, Choudhary S, Kumar M, Paswan R. Physico-chemical Prameters of Gamhi water body of the Kaula Chaur (Wetland) Of Begusarai District (Bihar). Proc. Zool. Soc. India. 2015; 14(1):1-6.
6. Bhakta JN, Bandyopadhyay PK. Fish diversity in freshwater perennial water bodies in east Midnapore district of West Bengal, India. Int. J Environ. Res. 2008; 2(3):255-260.
7. Prakash S. Fish diversity of Semara Taal, a wetland of district Siddharthnagar (U.P.), India. International Journal of Fisheries and Aquatic Research. 2020a; 5(2):7-9.
8. Prakash S. Conservation status of fishes reported from Semara Taal of distinct Siddharthnagar (U.P.), India. International journal of fauna and Biological studies. 2020b; 7(3):21-24.
9. Prakash S, Singh D. Conservation status of Ichthyofauna of Baghel Taal, a wetland of district Bahraich (U.P.), India. IRE Journals. 2020; 3(11):2020.
10. Prakash S, Verma AK. Studies on different fish genera in Alwara lake of Kaushambi. Bioherald: An International Journal of Biodiversity & Environment. 2015; 5(1-2):60-62.
11. Prakash S, Verma AK. Conservation status of fresh water fishes reported in Alwara Lake of District Kaushambi (U.P.). International Journal of Zoology Studies. 2016; 1(5):25-27.
12. Datta Munshi J, Srivastava S. Natural history of fishes and systematic of freshwater fishes of India. Narendra Publishing House New Delhi, 1988.
13. Day F. The fauna of British India including Ceylon and Burma. Fishes Taylor and Francis, London, 1989.
14. Menon AGK. The fauna of India and adjacent countries.,

pisces 4 (Part-I). Homalopteridae, Zoological Survey of India, Calcutta, 1992.
15. Srivastava Gopalji. Fishes of U.P. and Bihar, Vishwavidalaya Prakashan Chowk, Varanasi, India, 1998.