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STATUS OF CATFISH DISTRIBUTION AND PROTECTION IN ALWARA LAKE, KAUSHAMBI DISTRICT (U.P.)

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Abstract

The natural resources are badly exploited by humans due to scientific and technological development. So there arises the need of the conservation of the natural resources. The conservation of environmental resources refers to management of human use of biosphere so that it yields maximum sustainable benefit to the present generation while maintaining its potential to meet the requirements of the future generations. A good index of stable, rising, dynamic and economically productive water bodies is the diversity of fish. An attempt was made to research the fish fauna that naturally occurred during all 12 months of 2014 in Alwara lake in Kaushambi district, Uttar Pradesh. A total of 89 fish species belonging to 45 genera, 21 families and 9 orders were described during the exploration. Of these, 18 species of catfish belonging to 6 families of the Siluriformes order have been reported. According to the latest edition of the IUCN Red List, 3 out of 18 species of catfish known are protected by the NTT (near threatened), 12 are NE (not evaluated) under LC (least concern) and 3 species so far..

Keywords: *Fish diversity, Siluriformes, Catfishes, Conservation status, Sarus crane, Alwara lake*

I. INTRODUCTION

Fish are exclusively marine animals and comprise nearly half of the world's total number of vertebrates. They belong to the phylum: chordata, subphylum: vertebrata, super class: fish[1]. Not only are fish used as a good source of food for mankind, but they are also economically important.The medicinal point of view, however, also plays a crucial role in the aquatic ecosystem's second tropical stage. The studied lake has a rich fish fauna, and steps to preserve genetic resources need to be considered[2].Catfishes are part of the order

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Siluriformes, a large group of ray-finned fishes. Most of these occur in fresh water and are so called because barbels (whiskers) are present around their mouths. Via their flattened wide heads and the long whisker-like barbels that protrude from the muzzle, these can be easily recognized. The catfish have no scales, but are fleshy and rayless[3].In the shoulder and dorsal fins, posterior fins and sharp defensive spines. To produce sounds, they use the swim bladder.

The lake under investigation is located in the Yamuna basin of the Kaushambi district of Uttar Pradesh, which is part of India's Gangetic Plain (northern region). The water level in this lake decreases during summer and winter, but increases during the rainy season. The name of the lake is derived from Alwara village[4]. PaurKashi Rampur is surrounded by Lake Alwara in the east, Tikara in the north, Shahpur in the south, and the Yamuna River in the west. The annual flooding of the neighboring Yamuna River gives rise to a wide variety of fish fauna and establishes after the rainy season, the great openness of farmland.

A literature review revealed that some researchers such as Prakash et al (2015a, 2015b, 2015c) and Verma et al were investigating this lake for limnological, zooplanktonic and phytoplanktonic properties.(2016a, 2016b, respectively). The said lake was also studied by zoologists such as Prakash et al (2014, 2016), Verma et al, to study the various aspects of Indian sarus cranes on a large scale (2015, 2016c, 2016d)[5]. Different researchers on fish bio-diversity of different fresh water bodies in India have made a large number of attempts and efforts, but detailed information has been given.Only Verma et al are responsible for the fish diversity in Alwara lake (2016e)[6].

Debate area

Alwara Lake is part of the village of Alwara, which is located in the ManjhanpurTahsil block of Sarsawan in the Kaushambi district of Uttar Pradesh[7]. The lake is more than 75 km from Allahabad, 25 km from Manjhanpur (Kaushambi district headquarters) and 290 km by road from Lucknow. The nearest railway station is Bharwari, 35 km away, and the closest one is Bharwari. Bamrauli (Allahabad) Airport is 70 km away. It is between latitude 25024'05.84 "S-25025'10.63 "N and longitude 81011'39.49 "E—"81012'57.95"W with MSL-81.08 meter altitude."

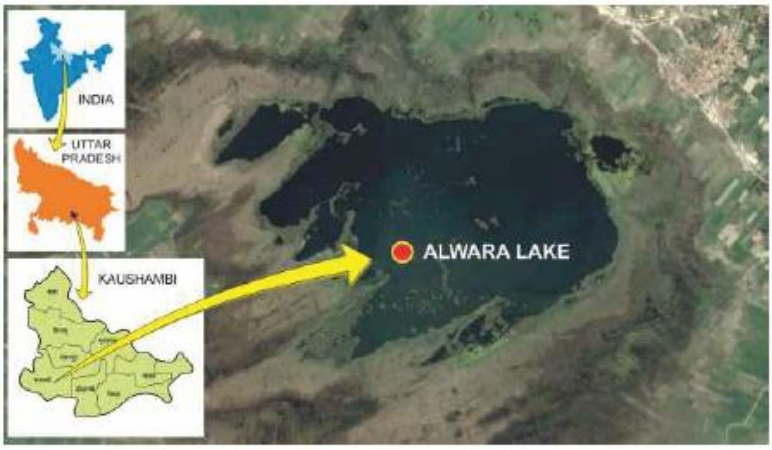

Figure 1: Area of Debate in kaushambi(U.P.)

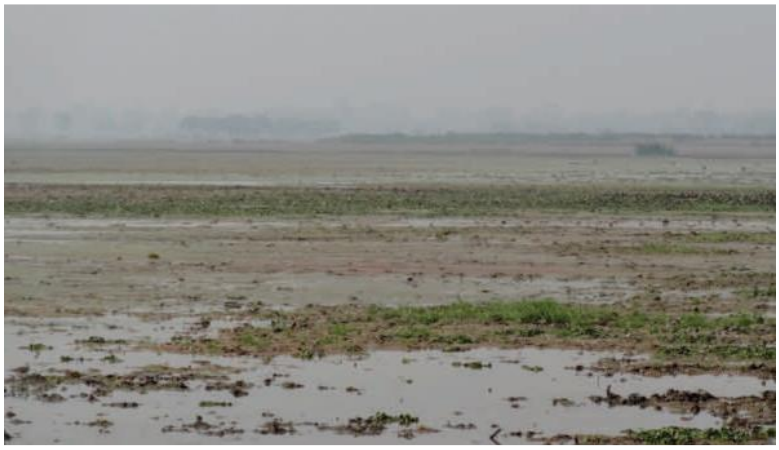

Figure 2: Alwara Lake in kaushambi

For the current research, fish were captured and collected from a few sites on Alwara Lake by hand-nets, gill nets, cast nets, hooks, drag nets, primarily during fishing season, with the aid of local people and fishermen. Fish catch and processing investigations were performed twice a month for a duration of one year, from January 2014 to December 2014.Using the standard keys of Mishra (1959), Day (1989), Jhingran (1991), Jayaram (1999) and Srivastavavava, fishes have been described (1998). Local residents and people, the fishermen also assisted the author in completing the survey programme in different ways.During the study period, Verma et al (2016e) reported and collected a total of 89 freshwater fish species belonging to 9 orders, 21 families and 45 genera from the sampling sites.

Cypriniformes fishes were found to be dominant out of 9 orders, containing 43 species, followed by Siluriformes with 18 species. 18 species of catfish belonging to 6 different families were reported during the current investigation under the order Siluriformes. The catfish reported are shown in the table given, including their zoological names, family and conservation status.Six families belong to the 18 species of catfish recorded: Bagridae (8 species), Siluridae (2 species), Sisoridae (1 species), Clariidae (2 species), Saccobranchidae (1 species) and Schilbeidae (1 species) (4 species)[8]. The IUCN Red List categorized the

species into nine categories, including NE (not evaluated), LC (least concern) and NT, on the basis of the rate of decline, population size, geographic distribution area and population degree, distribution fragmentation, etc (near threatened)[9]. Three of the 18 species of catfish studied here have been submitted to the NT community.

S.No.	Zoological name	Family	Conservation status
1.	*Mystus seenghala*	Bagridae	NE
2.	*Mystus cavasious*	Bagridae	LC
3.	*Mystus bleekeri*	Bagridae	LC
4.	*Mystus (=Hemibagurus)menoda*	Bagridae	LC
5.	*Mystus tengara*	Bagridae	LC
6.	*Mystus vittatus*	Bagridae	LC
7.	*Mystus (=Sperata) aor*	Bagridae	LC
8.	*Rita rita*	Bagridae	LC
9.	*Wallago attu*	Siluridae	NT
10.	*Ompak pabda*	Siluridae	NE
11.	*Bagarius bagarius*	Sisoridae	NT
12.	*Clarias batrachus*	Clariidae	LC
13.	*Clarias gareipinous*	Clariidae	NE
14.	*Heteropneustes fossilis*	Saccobranchidae	LC
15.	*Ailia coila*	Schilbeidae	NT
16.	*Clupisoma garua*	Schilbeidae	LC
17.	*Eutropiichthys murius*	Schilbeidae	LC
18.	*Eutropiichthys vacha*	Schilbeidae	LC

Figure 3: Species of catfishes in Alwara lake

At the same time, some endangered plant species, such as lotus, were also found by the scientist. An emblem of Indian cultural heritage, deeply connected with Hindu mythology, art and history, is the lotus or Indian lotus or holy lotus. The National Flower of India is the Indian lotus.

II. CONCLUSION

18 species of catfish belonging to 6 families of the Siluriformes order were reported by the author. Of the 18 species of catfish reported, 3 species are NT species, 12 LC species and 3 NE species so far. This lake's natural climate and weather also help the survival of many threatened and vulnerable plant and animal species, Sarus crane. The lake studied provides a good habitat for Indian sarus cranes, as their number has been growing continuously for the past 3-4 years (Prakash et al 2014, 2016 and Verma et al 2016c, 2016d). Therefore, in order to understand biodiversity, a thorough analysis of this lake is important in order to design and execute an effective conservation action plan. The genetic resources of fish and other species will certainly be preserved by this constructive initiative..

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