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Research Article

STUDY OF ZOOPLANKTON POPULATION IN BAGHEL TALAB OF DISTRICT BAHRAICH (U.P.), INDIA

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ABSTRACT

The work was carried out for a period of one year from May 2018 to April 2019. The population status of zooplankton in freshwater Baghel Talab considered four groups protozoan, rotifers, crustacean and meroplanktonic organisms. Meroplanktonic organisms (Eristalissp. larvae and Ptychoptersp. larvae) were the most dominant sp. which indicated this water body is most suitable for the pisciculture.

Key Words:

Zooplankton, population and Baghel Talab.

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INTRODUCTION

The zooplankton occupy a central position between the autotrophs and other heterotrophs and form an important link in food web of the freshwater ecosystem. Zooplankton is the intermediate link between phytoplankton and fish, which are the secondary producers in the aquatic environment. It contains both herbivores and carnivores, the later belonging to the tertiary producers or even to some higher level of production. The knowledge of their abundance, composition and seasonal variation is an essential prerequisite for any successful pisciculture programme. Zooplankton is a good indicator of changes in water quality because it is strongly affected by environmental conditions and responds quickly to changes in environmental quality. Hence study of zooplankton population are of great importance. In the present study of zooplankton population in freshwater Baghel Talab is very important because this water body is most suitable for pisciculture.

MATERIALS AND METHODS

Study Area: Baghel Talab is located at payagpur block of district Bahraich Uttar Pradesh, India. It lies between 27°23'59" N, 81°44'34"E. and spread around 14 miles. It is situated about 29 km. from district head quarter Bahraich, 8km. from payagpur

and 117 km. from state capital Lucknow. This place is in the border of the Bahraich and Shravasti district (Map. 1, 2 & 3).



Map 1 Location of study area in India

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Zooplankton Sampling: The study was conducted during the period from May 2018 to April 2019. Zooplankton collected monthly from five station using plankton net made up of bolting silk (mesh size 35µm) and preserved in 4% formaline, counting of zooplankton was done by using Sedgewick Rafter cell. Zooplankton were identified as per the method followed by Battish (1992), Ward and Whipple (1992), Simpson (2011) and Sudha (2012).

(May) and minimum in the spring month (February). This is not conformity to the finding of Eggleton (1931) and Devey (1945) who observed the maximum zooplankton in April and minimum in September in American lake, while Srivastava (1956) and Tripathi (2006) observed maximum zooplankton in the summer months (May & June) and minimum in the spring month (February) from a lake of Lucknow (U.P.) and Seetadwar lake of Shravasti district (U.P.), India. Michael (1969) concluded the peak period in the month of January and April but Mandal and Moitra (1975), Jana and Manna (1975), Bose and Lakra (1994), Pandey (2007) and Tripathi (2015) found maximum peak during summer months which is quite conformity to the finding of this investigation. The differences in the occurrence peak zooplankton might be due to the different nature of the water bodies, difference in the composition of abiotic factors of water and soil and the variation in the productivity of different water bodies. Some workers such as Tripathi (2006), Pandey (2007) and Tripathi (2016) correlation bottom community with the fish productivity and accordingly this water body is most suitable for Pisciculture.



Map 2 Location of study area in U.P.



Map 3 Location of study area in District Bahraich (Payagpur) U.P.

RESULTS AND DISCUSSION

Zooplankton of the investigating water body was collected in the year May 2018 to April 2019, composed of five species of protozoan, two species of rotifers, four species of crustacean, five species of meroplanktonic organisms (Table:1) and their total number of aquatic zooplankton of different forms recorded in Baghel Talab, (Table:2). Altogether 16 species of zooplankton was collected during entire period of investigation and their fluctuation of zooplankton were recorded in 4-16 organisms/ltr. Highest zooplankton were recorded in the month of May 2018 and lowest in the month of February 2019. Their increasing trend was found from February to May and again in September. Their decreasing trend was recorded from October to March and from May to September. During the investigation presence of zooplankton was maximum in the summer month

CONCLUSION

In the present study protozoan, rotifers, crustaceans and meroplanktonic organisms formed the zooplankton population & the importance of these investigations for fish culture practices is suggested in Baghel Talab.

Table 1 Zooplankton community in Baghel Talab of district Bahraich (U.P.), India. (Data May 2018 to April 2019)

Zooplankton	Months											
	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Protozoan												
Euglena sp.	+	+	+	+	+	+	+	+	+	+	+	+
Amoeba sp.	+	+	+	+	+	+	+	+	+	+	+	+
Vorticella sp.	+	+	-	-	+	-	-	-	-	-	-	-
Arcella sp.	+	+	-	-	-	-	-	-	-	-	-	-
Loxodes sp.	+	+	+	-	-	-	-	-	-	-	+	+
Rotifers												
Rattulus sp.	+	-	+	+	-	-	-	-	-	-	+	+
Notholca sp.	+	+	-	+	+	+	+	+	+	-	+	+
Crustacean												
Sida sp.	+	+	+	-	+	+	+	+	+	+	-	+
Bosmina sp.	+	+	+	+	+	+	+	+	-	-	+	+
Cyclops sp.	+	+	-	+	+	-	-	-	-	-	-	+
Moina sp.	+	+	+	-	-	-	-	-	+	-	+	-
Meroplanktons												
Eristalis sp.	+	+	+	+	+	+	+	+	+	+	+	+
Ptychoptera sp.	+	+	+	+	+	+	+	+	+	-	-	+
Hydroporus sp.	+	+	+	-	+	+	+	+	-	-	+	+
Dixa sp.	+	+	+	-	-	-	-	-	-	-	+	+
Psychoda sp.	+	+	-	-	-	-	-	-	-	-	-	+

Note + = Present
- = Absent

Table 2 Total number of aquatic zooplankton species of different forms recorded from Baghel Talab of District Bahraich (U.P.) India (Organisms/l.) (Data May 2018 to April 2019)

Months	Protozoan	Rotifers	Crustacean	Meroplanktons	Total Zooplankton
May	05	02	04	05	16
June	05	01	04	05	15
July	03	01	03	04	11
August	02	02	02	02	08
September	02	01	03	03	09
October	03	01	02	03	09
November	02	01	02	03	08
December	02	01	01	02	06
January	02	-	01	02	05
February	02	-	01	01	04
March	03	02	02	04	11
April	03	02	03	05	13

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