



## BIODIVERSITY OF ZOOPLANKTONS FROM MAHASANGAVI RESERVOIR, PATODA, BEED (MS) INDIA

DHERE R.M.\*

Department of Zoology, Swa. Sawarkar Mahavidyalaya, Beed - 431122, MS, India.

\*Corresponding Author: Email- [rdhere@gmail.com](mailto:rdhere@gmail.com)

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**Abstract-** The present investigation was carried out to study the zooplankton at the Mahasangavi Reservoir, Taluka Patoda District Beed. Variation and the abundance of zooplankton during the study period from April 2013 to March 2014 were described. Higher population density of zooplankton in rainy season is observed and the results are discussed.

The members of the zooplankton community are important for their major role in the tropics dynamics and in energy transfer in the aquatic ecosystem. They provide food for fishes in the freshwater bodies and play a major role in the fish production. The zooplankton samples were collected from April 2013 to March 2014 during early morning hours using a plankton net with mesh of 100 m. The zooplankton samples were preserved in 5% formalin. The different species of Rotifers, Cladocerans and Copepods were isolated and studied under compound microscope for their taxonomic identification.

**Keywords-** Reservoir, Zooplanktons, Mahasangavi, India

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### Introduction

Zooplankton is small non photosynthetic free swimming or floating forms. They occupy an intermediate position in the food webs, many of them feed on algae and bacteria and in turn they are fed by numerous invertebrates and fishes.

Studies on tropical zooplankton are fragmentary Chapman [1]. In India the work on fresh water zooplankton is primarily by Nayar [2] Kannan & Job [3], probably because in their epilogue to the SIL committee investigations suggested several approaches to the study of the zooplankton of aquatic fauna.

Zooplankton is heterotrophic organisms that consume phytoplankton and transfer energy to higher level. Zooplankton is small non photosynthetic free swimming or floating forms. They occupy an intermediate position in the food webs, many of them feed on algae and bacteria and in turn they are fed by numerous invertebrates and fishes.

### Study Area

Mahasangavi Reservoir, 18°47'37"N 75°26'21"E, Patoda, Beed (MS) India [Fig-1].

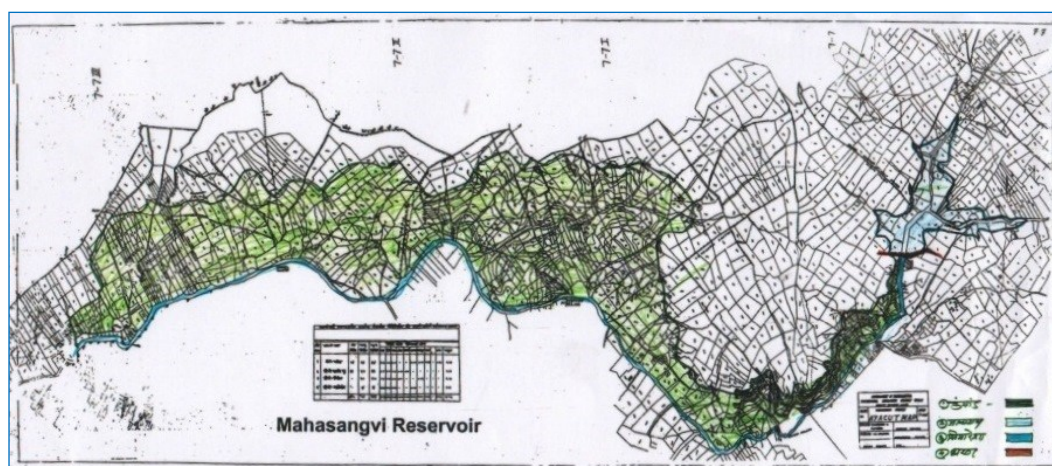


Fig. 1- Map of Mahasangavi Reservoir (Study Area)

**Materials and Methods**

For the study of three different stations were selected (SI, SII & SIII) The zooplankton samples were collected once in a month from April 2013 to March 2014 during early morning hours using a plankton net with mesh of 100 mm (IAAB).

The zooplankton samples were preserved in 5% formalin. The different species of Rotifers, Cladocerans and Copepods were isolated and were studied under compound microscope for their taxonomic identification using standard taxonomic publications Kodarkar [4], Dhanapathi [5].

**Result and Discussion**

Seasonal variations in the qualitative and quantitative presence and abundance of zooplankton differ from environment to environment depending upon the physico-chemical regime of the system. Many investigators reported greater quantity of zooplankton in an aquatic ecosystem associated with enhanced enrichment. The highest concentration of phosphate phosphorus and chlorophyll was found contributory to the main peak of zooplankton in Rewalsar lake of Himachal Pradesh [7]. Most of the work on zooplankton in our country is still in infanance stage. However many workers [7-10] came forward to study the zooplanktonic fauna.

Zooplankton recorded from three different station SI, SII & SIII zooplankton diversity are summarized in [Table-1]. Among the zooplankton constituents the species of Rotifera, species of Cladocera and species of Copepoda are found. Rotifers are dominant over other groups both in the number of species and population. Such results are also been reported by various workers in water bodies. [11-13].

Throughout the year rotifers dominated other groups with maximum number of rotifers recorded in rainy season. The temperature and nutrient present during rainy season are responsible for the population density of rotifers.

Among the zooplanktons the sequence of dominance was Rotifers > Cladocera > Copepoda. During rainy season increased temperature and rainfall is responsible for the maximum number of zooplankton as compared to summer and winter season. Similar findings are also reported by Patalas [14].

The total number of individuals per litre at the sampling site SI, SII and SIII in rainy season shows higher density of zooplankton due to dilution of existing water. Among the zooplankton rotifers occur more dominantly than cladocerans and copepods. Rotifers utilize nutrients and phytoplankton more frequently to build their population as compared to cladoceran and copepods. This is the reason for the throughout world distribution of rotifers [15].

The group of Rotifera was mainly represented by *Brachinous sp*, *Keratella sp*, *filinia sp*, *Aplanch sp*, *Testudinella sp*. The group of cladocera was reported by *Daphnia sp*, *ceriodaphnia sp*, *Moina sp* and *Bosmina sp*. The group of copepoda was mainly represented by *Cyclops*, *Diaptomus sp*, *Neodiaptomus sp*, *Calanoid sp* and *Naupli*.

Zooplankton comprising of Rotifers, Cladoeerans and Copepods are considered to be most important in terms of population density, biomass production, grazing and nutrient regeneration in any aquatic ecosystem [16]. The planktonic organisms in aquatic systems are essential links in the food chain. Rotifers, Cladocerans and Copepods constitute the major groups of zooplankton in freshwater ponds. Many serious attempts to study zooplankton population

were made in the past in order to understand their role in the ecosystem [13].

**Table 1-** Zooplankton Count per liter

April 2013 to March 2014	Season		
	Summer	Monsoon	Winter
<b>S-I</b>			
- Rotifera	29	42	26
- Cladocera	18	33	17
- Copepoda	15	21	12
<b>S - II</b>			
- Rotifera	27	49	27
- Cladocera	19	36	16
- Copepoda	17	23	13
<b>S - III</b>			
- Rotifera	30	48	28
- Cladocera	14	34	23
- Copepoda	11	23	17

**Zooplanktons from Mahasangavi Reservoir**

[Fig-2], [Fig-3], [Fig-4], [Fig-5] & [Fig-6] showing observed zooplanktons from Mahasangavi reservoir.



**Fig. 2-** *Brachionus calyciflorus*



**Fig. 3-** *Keratella tropica*



Fig. 4- *Brachionus diversicornis*



Fig. 5- Male *Diaptomid Copepod*



Fig. 6- *Diaptomid naupli*

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**Conflicts of Interest:** None declared.

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