Environment Conservation Journal 10(1&2) 81-83, 2009
(ISSN 0972-3099)

ASEA

# Occurrence of zooplankton in a perennial freshwater reservoir of Wadgaon Dam during monsoon season at Nagpur District

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Received on : 13-09-2008 Revised on : 15-12-2008 Accepted on : 25-01-2009

**Abstract**

The zooplankton occupy a central position between the autotrophs and heterotrophs and form an important link in the food chain of a freshwater ecosystem. The occurrence and abundance of zooplankton is always influenced by physico-chemical factors and the level of nutrients present in the water body. In this context a perennial freshwater reservoir Wadgaon dam is studied with respect to zooplankton population to assess the types of zooplankton present. Qualitative studies on the zooplankton in the Wadgaon dam reservoir situated in the Nagpur district were undertaken in monsoon months to assess the extent of forms present. The reservoir water is uncontaminated and clean with no influence of man made activities in the vicinity. The zooplankton population of the reservoir water is found to be represented by five different groups *viz. Protozoa*, *Rotifera*, *Cladocera*, *Copepoda* and *Ostracoda* represented by about 21 different forms. The present study indicate the uncontaminated nature of reservoir water due to absence of pollution indicator species in the reservoir water.

**Keywords :-** *Zooplankton, Autotroph, Hetetrotroph, Wadgaon dam, Physico-chemical*

## Introduction

The inland water bodies are closed ecosystem in which zooplankton hold a key position in the trophic level, food chain and energy flow of the ecosystem. As producers and consumers, plankton play an important role in the transformation of energy from one trophic level to the next higher trophic level ultimately leading to fish production which is the final product of aquatic environment.

The occurrence and abundance of zooplankton in freshwater ecosystems depends on its productivity, which in turn is governed by the physico-chemical parameters and level of nutrients available in the ecosystem. A large amount of work has been done on plankton world-wide by various researcher on various water bodies like Reddy (2001), Kodarkar (1994), Malin (1984), Pai and Berde (2005), Pawar and Pulle (2005), Schindler and Noven (1971). But still there are many reservoirs and water bodies worldwide where there is no work reported till date. So keeping this in view present work on zooplankton was undertaken on a water body situated in Nagpur district of Maharashtra.

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## Materials and Method

The Wadgaon dam is a big reservoir situated near butibori on state highway connecting Nagpur to Chandrapur. This beautiful water body has abundant water available through out all the seasons and is a oligo-trophic type of water body with clear water. The zooplankton samples were collected from the littoral zone at two sites by filtering 50 liters of water through plankton hand net of bolting nylon cloth (mesh size 45 µm in early morning hours between 9 to 11 A.M. twice a month. The procedure for collection storage and analysis of samples were followed as per Standard Methods (APHA, 1989). The zooplankton samples were preserved in 4% formalin. The samples were

identified using Standard literature (Battish, 1992; Edmondson, 1992; Dhanpathi, 2000 and Michel and Sharma , 1988).

**Table 1: List of zooplankton Species in Wadgaon reservoir during monsoon months**

| Type of species present in the reservoir water | Month | |
|---|---|---|
| | July | August |
| Protozoa | | |
| *Difflugia* sp. | + | + |
| Rotifera | | |
| *Asplanchna* sp. | - | + |
| *Anuropsis fissa* | - | + |
| *Brachionus diversicornis* | - | + |
| *Brachionus calyciflorus* | + | + |
| *Brachionus falcatus* | + | + |
| Epiphanes senta | + | + |
| *Filinia* sp. | - | + |
| *Keratella tropica* | - | + |
| *Testudinella* sp. | + | + |
| Cladocera | | |
| *Bosmina* | + | + |
| *Chydorus* | + | + |
| *Macrothrix* sp. | + | + |
| *Simocephalus* | + | + |
| *Sida crystalina* | - | + |
| *Alona costata* | + | + |
| Copepoda | | |
| *Cyclops* sp. | + | + |
| *Diaptomus* | + | + |
| *Copepod nauplius* | + | + |
| Total forms present in the reservoir water | 13 | 19 |

## Results and Discussion

The zooplankton in Wadgaon dam reservoir is composed of five distinct groups viz. protozoa, rotifera, cladocera, copeopda and ostracoda represented by about 21 different species. In July month five different groups of zooplankton are present represented by 15 different forms while in August month 5 different groups of zooplankton are represented by about 21 forms. The protozoa is represented by only one form, rotifera by 9 different forms, cladocera by 6 different forms, copepoda by 3 forms and ostracoda by 2 forms. The ostracoda thrives on fine detritus and as the detritus is available in monsoon in abundance the ostracods occur in large number.

The rotifers play an important role as grazers and suspension feeders within the zooplankton community. The difference in periodicity and population density of different rotifer species can be analyzed by considering the nutritional ecology and biotic interactions. The rotifer species exhibit marked differences in their tolerance and adaptability to changes in physico-chemical and biological parameters. Chandrasekhar (1996) observed that in summer and monsoon the factors like water temp, turbidity, transparency and dissolved oxygen play an important role in controlling the diversity and density of rotifers. In the present study 9 different kinds of rotifers are present in the water body.

The water of the lake was clear with very less turbidity observed in monsoon months i.e. July and August from the sampling points. The present studies confirm that the lake is uncontaminated and free from human interference as no indicator species is found in the water body.

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