

RESEARCH ARTICLE**Study of Zooplakton Population In Shahanur Reservoir With Reference to Fishery Activity****Khalokar Sapana P***Department of Zoology, Shri R.R. Lahoti Science College, Morshi. Dist- Amravati, India.*Email: ssapanas@rediffmail.com**Manuscript details:**

Received: 24 December, 2013
 Revised: 04 January, 2014
 Revised Received 26 February, 2013
 Finally accepted : 15 March, 2014

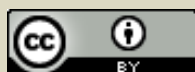
Date of publication (online):
 30 March, 2014

ISSN: 2320-964X (Online)
 ISSN: 2320-7817 (Print)

Editor: Dr. Arvind Chavhan

Citation: Khalokar SP (2014) Study of Zooplakton Population In Shahanur Reservoir With Reference to Fishery Activity, *International Journal of Life Sciences*, 2 (1): 90-92.

Copyright: © Khalokar SP, This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

**ABSTRACT**

Shahanur reservoir has a diverse assemblage of plankton and zooplanktons and are the most important biotic factor. In aquatic ecosystem, zooplankton and phytoplanktons are extensively studied. Production of zooplankton in co-ordination with organic inputs in the form of supplementary food is essential for optimum growth of fishes. In shahanur dam, specially rotifers, cladocerans, copepods and protozoans are observed during 2008-2009. Major carps constitute the main fishery of the lake whereas catfishes and minor carps were smallest components of catch during 2008-2009. This paper discusses the various zooplankton population of shahanur reservoir with reference to the fishery activity.

Key word: Shahanur Reservoir, Zooplankton, Phytoplankton, Rotifers, Cladocerans.

INTRODUCTION

Planktons are the important biotic component of aquatic habitat. They are the indicators of ecological environment and have the universal occurrence in natural water and also according to the quality of water. Plankton communities play an important role in the aquatic environment which depicts the ecological features (Sharma and Sarang, 2004).

Planktons are divided as phytoplankton and zooplanktons, where phytoplankton communities play an important role in biosynthesis of organic material. Whereas, zooplanktons are the important component of secondary production, both the planktons provide a link between producer and secondary consumers.

A number of workers have made the investigation to understand the various aspects of planktons such as plankton population, their percentage seasonal variation, productivity and their interrelationship between biological community and physicochemical parameters. Planktons can determine the trophic status and quality of water of lakes and reservoir (Ganapati, 1962). Among notable workers Sharma (1979) studies rotifers from west Bengal and Lewis (1979) made analytical study of zooplankton at the water bodies in New York. Ganapati (1966) studies rotifers fauna of Ajawa reservoir. Many studies have suggested an increase in the quantity of phytoplankton would result in an increase in quantity of zooplankton (Gulati, 1985).

In present investigation, an attempt has been made to evaluate plankton and fish production of Shahanur dam, so as to understand their utilization at different trophic level of different seasons.

MATERIALS AND METHODS

Study site

Shahanur dam is minor project constructed across Shahanur River, located 10 km away from Anjangaon city in district Amaravati of Maharashtra state. The impoundment having water spread area of about 139.19 sq.km and drainage capacity coupled with depth 47.85 lit³ indicates high productive potential reservoir 46.04 lit³.of dam. Monthly sample were collected from two different sampling stations for a period of September 2008 to February 2009.

Method

Zooplanktons were collected by filtering 25 litres of water samples through plankton net of bolting silk 25 by following standard methods (APHA, 1998). The filtered plankton was then collected in 50 ml bottle and preserved in 5% formalin. All zooplanktons were allowed to settle. Supernatant plankton free water was removed with the help of pipette and the sample was reduced to the desired volume. Zooplanktons in the sample were then identified using keys and monographs and then were taken for the quantitative analysis using 'Sedgwick Rafter Counting Cell' method outline by Welch (1948).

RESULTS AND DISCUSSION

Mostly protozoans, rotifers and cladocerans are found in Shahanur dam. The monthly variations in the rotifers biodiversity at different stations are given in the table 1. During present investigation Rotifers dominated in the dam during the month of January and February 2009 and their minimum population was seen during September to December 2008. Species richness is a

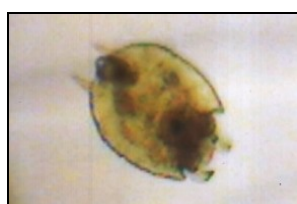
good indication of dynamic state of communities. At the same time cladocerans are also studied from different stations in same dam and here also 4 types of cladocerans are recorded. Daphnia were dominant cladocerans in dam during the month of January and February 2009 and their minimum population was seen during November and December 2008.

Water was muddy during summer and monsoon and was clear during winter. At times it was slightly greenish (August to October). Plankton shows the variation in their population according to seasonal changes and physical parameters also affect the population of planktons. The high predation also leads to the low specific diversity of zooplankton and evidence by low value of concentration dominance, As like Verma and Shukla (1970).

Table 1: List of zooplankton recorded in Shahanur Dam

Sr. No.	Zooplankton Species	Class
1	<i>Branohionous quadridentatus</i>	Rotifer
2	<i>Karatella tropica</i>	Rotifer
3	<i>Testidunella</i>	Rotifer
4	<i>Lecan luna</i>	Rotifer
5	<i>Stenocypris</i>	Protozoa
6	<i>Arcella</i>	Protozoa
7	<i>Centroptis</i>	Ostracod
8	<i>Cypris</i>	Ostracod
9	<i>Cyclop</i>	Copepods
10	<i>Mesocyclop</i>	Copepods
11	<i>Thermocyclop</i>	Copepods
12	<i>Daphnia</i>	Cladocerans
13	<i>Leydigia</i>	Cladocerans

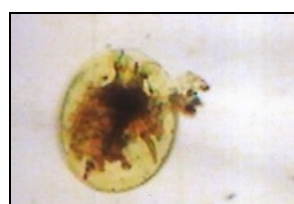
Plate showing Rotifer from Shahanur Dam during 2008-09



B. quadridentatus



Karatella tropica



Testidunella

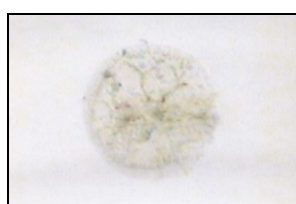


Lecan luna

Plate showing protozoa and Ostracod from Shahanur Dam during 2008-09



Stenocypris



Centroptis



Cypris

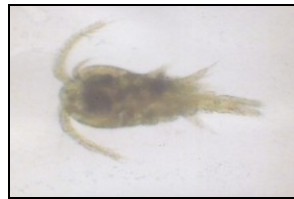


Arcella

Plate showing Copepods from Shahanur Dam during 2008-09



Cyclop



Mesocyclop



Mesocyclop (Female)

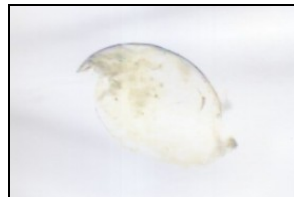


Thermocyclop

Plate showing Cladocerans from Shahanur Dam during 2008-09



Daphnia

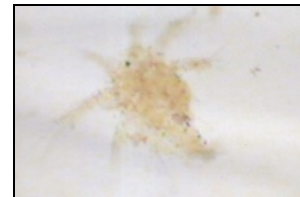


Leydigia

Plate showing Insect from Shahanur Dam during 2008-09



Insect Larvae



Nauplius larvae

The rotifers, characterized by the presence of an anterior wheel like rotating corona form large communities in Indian water (Yusuf 1989; Dhanapati, 2003). In present study also rotifers dominated the shahanur dam during winter season, showing presence of 6 species throughout the year 2008-2009. The changes in the physico-chemical, interspecific and intraspecific composition, pollution level and the presence or absence of planktonorous and piscivorous fauna are some of the factors influencing rotifers species composition and structure in any ecosystem. Species richness is a good indication of dynamic state of communities. Penak (1957) has pointed out that when more than one genus of the same group occur in any water body,are genus are more abundant than others. Warren (1971) suggested that the continued persistence of species at a particular location is a sure evidence of favorable environment for its existence. But its absence is not always indicative of unfavourable conditions.

Cladocerans forms an important component of zooplanktons and forms the most dominant group of fish food organisms 20 different species were recorded during present investigation with dominance of *Bosmina*, *Daphnia* and *Moina*. The annual periodicity of the cladoceran species seems to be highly variable depending on the reproductive cycles of these organisms. Low population of phytoplankton results into the low standing crop of in zooplankton.

REFERENCES

- APHA (1998)Standard methods for the examination of water and wastewater, American Public Health Asso. Soc. Pub., Washington D.C.
- Dhanpathi R (2003) Rotifers from Andrapradesh,India-III.*Hydrobiologia*,48(1):9-16.
- Ganpati (1962) Environmental Health. 4, 1.
- Gulati (1985) Zooplankton Structure and Grazing Activities in Relation to lakes, *Ergebnisseder Limnologie*. 21: 91-102
- Lewis (1979) Zooplankton Community Analysis at Water bodies, 15-22.
- Pennak RW (1978) Freshwater invertebrates of United States second Edn.John Willey sons Inc., NewYork.
- Sharma (1979) Study of Rotifers.
- Sharma LL and Sarang N (2004) Physicochemical Limnology and Productivity of Jaisamandlek, Udaipur (Rajasthan). *Poll. Res.*, 23 (1):87-92.
- Varma SR and Shukla GR (1970) The Physicochemical Conditions of Kamla Nehru Tank, Muzaffarnagar (U.P.) in Relation to Biological Productivity. *India J. Environmental Health*, 12,110-128.
- Welch PS (1948) In: Limnological Mehods (Blackston Co., Philadelphia, 381.
- Yusuf AR (1989) Zooplankton Studies in India with special Reference to north India: Management of Aquatic Ecosystem, Narendra P. House Delhi.399, 309-324.