



## Zooplankton Diversity of Pandu Lake, Bodhan, Telangana, India

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### Abstract

*A study on zooplankton distribution and abundance of Pandu Lake, Bodhan, Telangana, India was conducted during August 2002 to July 2004 to check its trophic status and provide new insights into its ecology. In the Pandu lake the pattern of zooplankton abundance was Rotifera > Ostracoda > Copepoda > Diptera > Cladocera. Among all the zooplankton, rotifers exhibited maximum diversity and population density throughout the study period. Results indicated the eutrophic nature of Pandu Lake.*

**Keywords:** Zooplankton, Rotifera, Cladocera, Copepoda, Diptera, Pandu Lake, Bodhan.

### Introduction

Zooplankton occupies an important position in the trophic structure and plays the major role in the energy transfer in an aquatic ecosystem. Zooplankton which form the base of aquatic food chains serve as bioindicators of water pollution and are also used in water quality monitoring<sup>1</sup>. The zooplankton inhabiting freshwater responds quickly to environmental changes and hence their species indices fluctuate<sup>2</sup>. Lakes that have different levels of primary productivity are characterized by different zooplankton assemblages<sup>3</sup>. In this regard an attempt has been made to study the impact of chlorides on zooplankton of Pandu Lake.

### Materials and Methods

Bodhan town is spread 21.36 km<sup>2</sup>. The town Bodhan is located at latitude 18°39' 36" N and longitude 77°52' 47" E. The present lake Pandu is located on the north side of Bodhan town near residential localities. Free catchment area of the lake is 1.65 square miles. The total capacity of Pandu Lake is 9.44 Mcft. Total spreading area of Pandu Lake is 109.22 ha. The depth of Pandu Lake is 7 ft. Zooplankton samples were obtained by passing 50 ml water through plankton net in each depth. Zooplankton samples were preserved in 4% formalin. Identification of Zooplankton was done with the help of fresh water biology<sup>4</sup>. Counting of organisms was done using Sedgwick- Rafter counter and the dilution technique and the population density of Zooplankton is represented per liter of water. Graphs were plotted using Microsoft Excel.

### Results and Discussion

**Rotifera:** Rotifers being an important food resource for fishes, act as an indicator of trophic status besides water quality of an

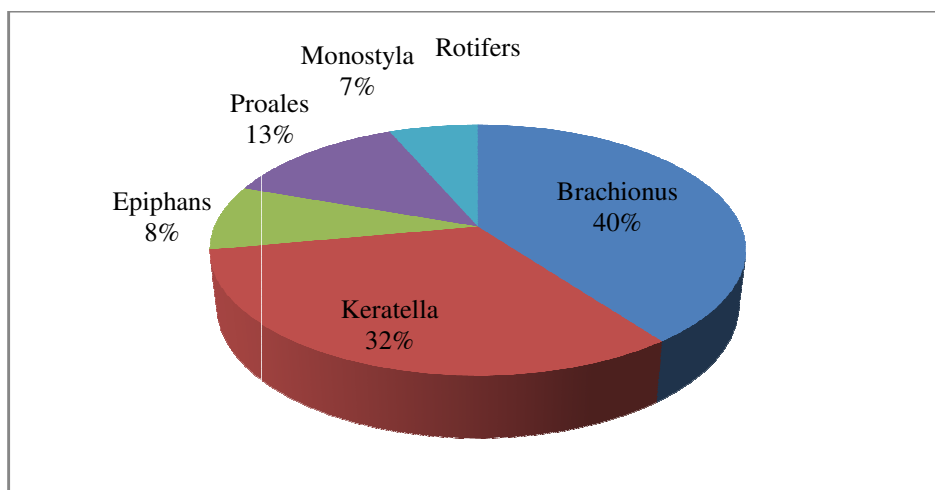
aquatic ecosystem<sup>5</sup>. The population of rotifers was found to be present in the lake water throughout the study period suggesting that rotifers could tolerate organic pollution of sewage origin. Rotifer genera observed were Brachionus, Keratella, Epiphans, Monostyla, and Proales (Figure-1). Brachionus was found to be the dominant genus among the rotifers. Presence of rotifers is also an indication of eutrophication as also observed in Bhadra Reservoir<sup>6</sup>.

**Cladocera:** In the present study, Daphnia and Cerodaphnia were recorded. The population density of Daphnia was found throughout the study period and was abundant in winter months. Cerodaphnia was found only in October to April (Graph). The similar observations were made in Pethwaj dam<sup>7</sup>. Abundance of cladocerans can be attributed to thick deposits of organic matter in an aquatic ecosystem<sup>8</sup>.

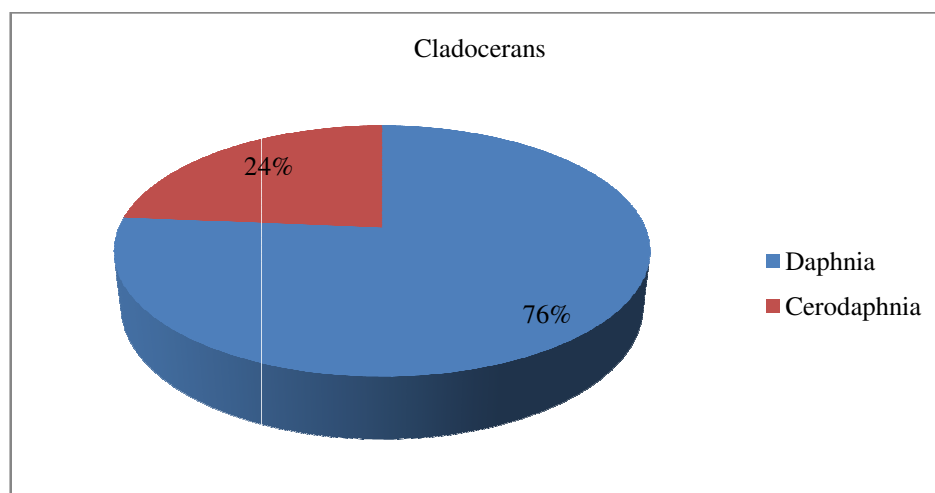
**Copepoda:** copepods occupied third position in the present investigation. They were represented by Cyclops and Nauplius larva which were found throughout the study period. Cyclops was found to be dominant in all the months (Figure-6).

**Ostracoda and Diptera:** Ostracod occupied second position (Figure-5) in the present study and was represented by Cypris. Cypris was found throughout the study period and was abundant during the month of March. The only dipteran observed was Chironomid larva. The monthly variations are depicted in Figure-6.

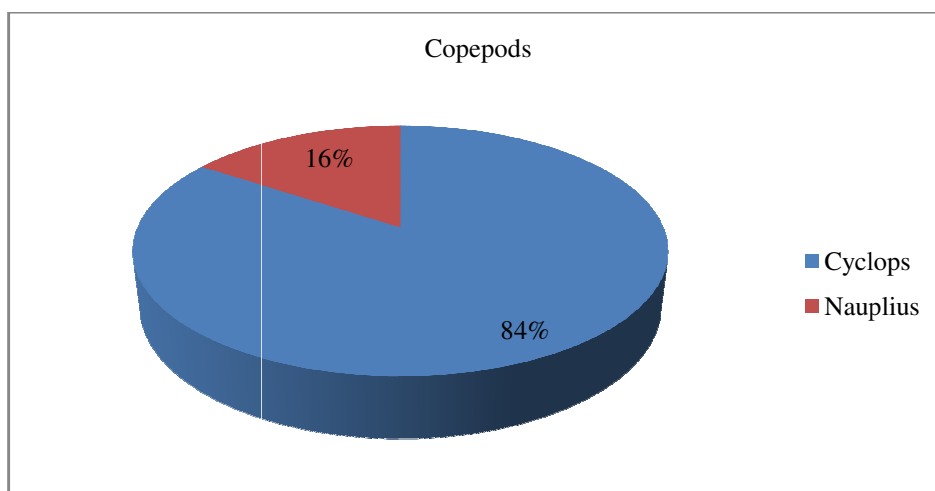
During the study period the order of dominance of zooplankton groups was as follows Rotifers > Ostracods > Copepods > Diptera > Cladocera (Figure-5) and average monthly variations of total zooplankton is depicted in Figure-6.



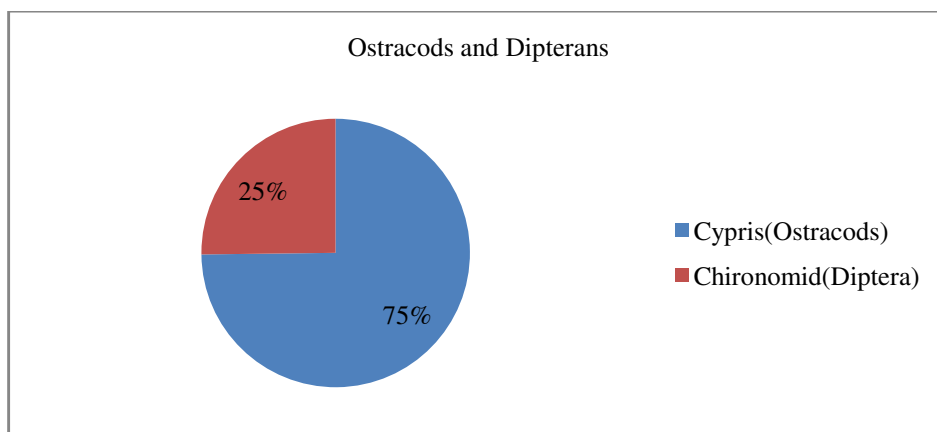
**Figure-1**  
Percentage representation of Rotifers in Pandu Lake



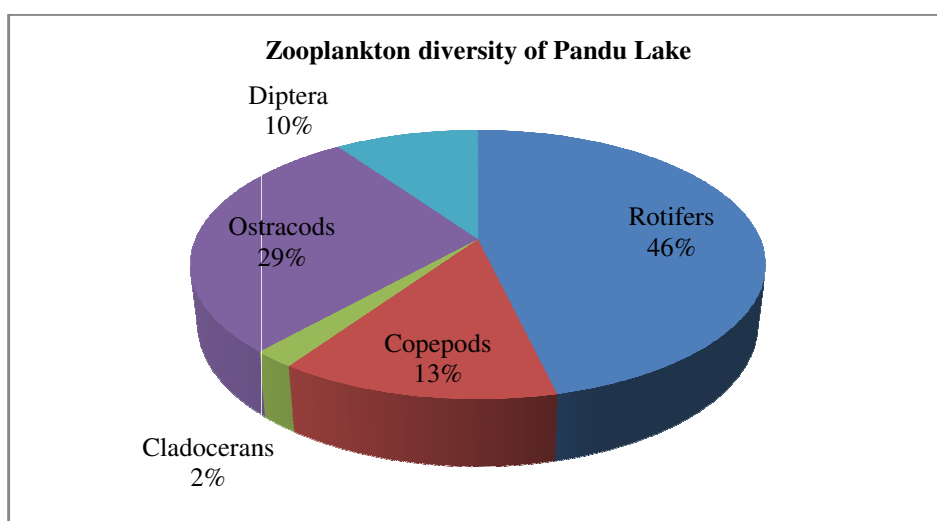
**Figure-2**  
Percentage representation of Cladocerans in Pandu Lake



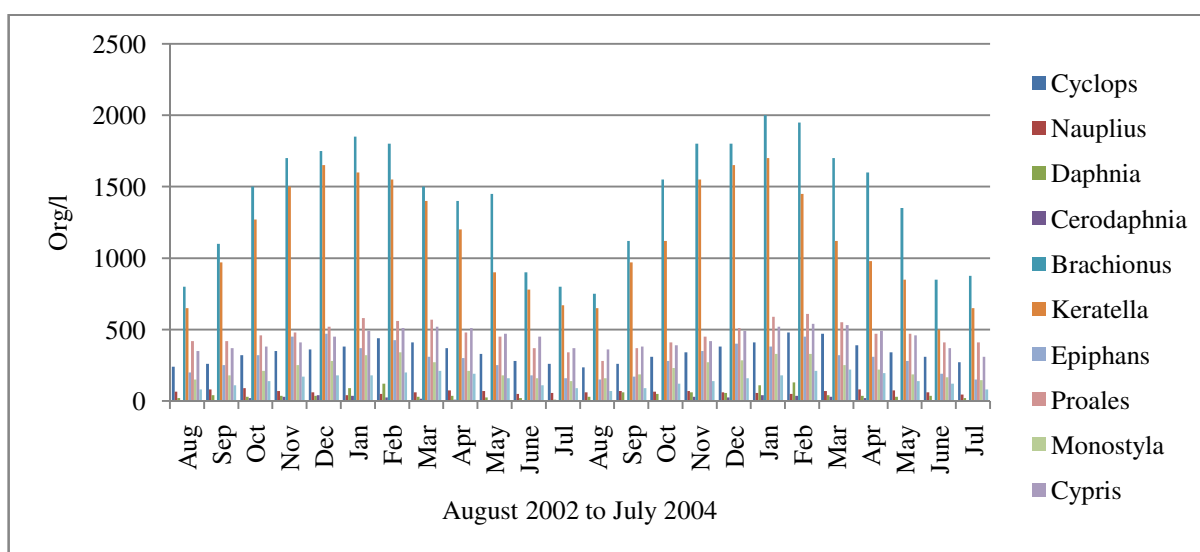
**Figure-3**  
Percentage representation of Copepods in Pandu Lake



**Figure-4**  
Percentage representation of Ostracods and Diptera in Pandu Lake



**Figure-5**  
Percentage representation of zooplanktons in Pandu Lake



**Figure-6**  
Monthly Variations of Zooplankton (org/l) of Pandu Lake

## Conclusion

Monthly distribution pattern of zooplankton in Pandu lake was Rotifera > Ostracoda > Copepoda > Diptera > Cladocera. These planktons are good indicators of water quality in Pandu lake and their ecological significance is suggesting to control the nutrient load which is a key source to eutrophication process.

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