

RESEARCH REPORT

Quantitative Assessment of Zooplankton of Nilona dam, District, Yavatmal Maharashtra, India

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ABSTRACT

Zooplanktons are cosmopolitan in nature and they are found to inhabit all freshwater tropical wetlands. The present investigation deals with the study of the Quantitative Analysis of Zooplankton of Nilona Dam of Yavatmal Taluka in Yavatmal District, Maharashtra, India, The work was carried out for a period of one year from June 2016 to May 2017. During the present study, 36 genera of Zooplankton were recorded Among the recorded genera 10 species of Cladocera, 05 species of Ostracoda 06 species of Copepoda 15 species of Rotifera. Rotifera were the dominant group of Zooplankton recorded allover study. The excessive count of 1877 species was record in the month of May.

Keyword: Nilona dam, Zooplankton, Rotifers, Cladocera, Ostracoda, Copepoda.

INTRODUCTION

Zooplankton are a diverse group of heterotrophic organisms that consume phytoplankton, regenerate nutrients via their metabolism, and transfer energy to higher trophic levels (Steinberg and Robert, 2009). The seasonal fluctuations of Zooplanktons population can be expressed by various quantitative parameters such as population density, biomass and biochemical compound. Zooplanktons are important in nutritive level, temperature, and population used to determine the health of an ecosystem (purushothama et al. 2011). The biodiversity of phytoplankton of Zooplanktons are also rich in nature (Kangasabapathi and Rajan, 2010). (Salve and Hiware, 2010). Zooplanktons is good indicators of the changes in water quality because they are strongly affected by environmental conditions and respond quickly to changes in water quality. Zooplanktons are the intermediate link between phytoplankton and fish (Pawar, 2017a, 2017b, 2018a, 2018b, 2018c). The water of dam is used irrigation, fish culture and drinking purposes one of the most important aquatic resources. Hence qualitative and quantitative studies of Zooplanktons are of great importance in dam water body. The present investigation has been undertaken to study a quantitative analysis of Zooplankton in Nilona Dam.

MATERIALS AND METHODS

Study area:

Nilona Dam is located at yavatmal district of Maharashtra Nilona is situated on east south of the Yavatmal. It is at 78° C, 8° E longitude and 20° -23°N

latitude. The dam is surrounded by open hills, which drain water during monsoon. The main source of water is Waghadi River on which a dam is constructed. The Nilona Dam is an earthen lake 219 m. in length with maximum height 16 m. Full tank level (FTL) 6.89 MCM. and maximum water level (M.W.L.) 6.39 MCM.

Sample Collection Station and Nilona Dam



Station 1



Station 2



Station 3



Station 4



Nilona Dam



Zooplankton sampling:

The methods for the collection preservation and enumeration of plankton have been described monthly samples of Zooplankton were collected from Jun 2016 to May 2017, by using plankton net of mesh size 41 m. plankton samples, were collected from four fixed stations between 8:00 A.M. to 11:00 A.M. the sample were transferred to 500 ml. capacity plastic bottles and preserved using 4% formalin solution. Standard fauna and other literature were used for identification of different Zooplankton species. APHA (1989), Pennak (1989), Dhanapathi (2000). The number of Planktons Per liter was determined using Sedgwick rafter cell by taking 1 ml of approximately diluted sample and the observation was reported number of Zooplanktons per liter.

RESULTS

The remarkable group of Zooplankton identified during current study was Cladocera, Ostracoda, Copepoda and

Rotifera. The list of Zooplanktons identified is given below:

1. Cladocera: *Ceriodaphin laticaudata*, *Daphnia* sp., *Diaphanosoma* sp., *Moina* sp., *Sida* sp., *Moinodaphnia* sp. *Bosminia*, *Chydorus* sp., *Pseudosida* sp., *Chydorus* sp.

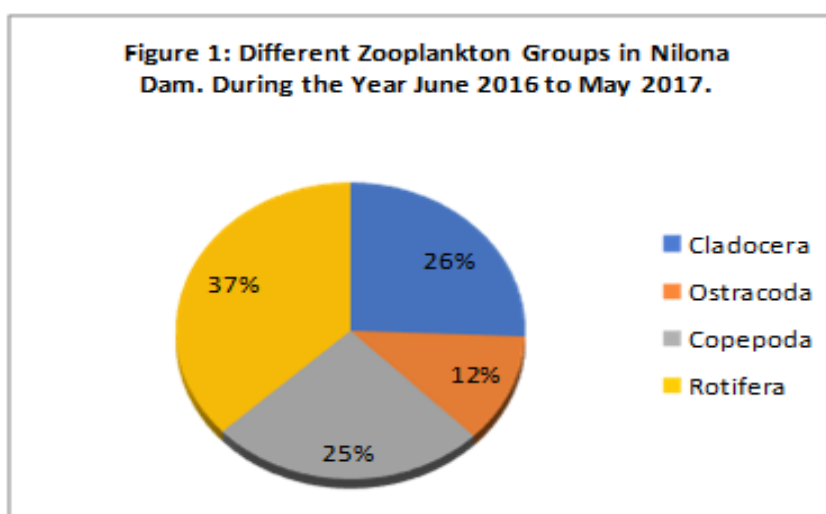
2.Ostracoda: *Strandesia*, *Stenocypris*, *Cypris*, *Heterocypris*, *Thermocyclops*.

3.Copepoda: *Cyclops* sp., *Mesocyclops* sp., *Microcyclops* sp., *Heliodiaptomus* sp., *Nauplius*, *Undinula valgaris*.

4.Rotifera: *Asplancha*, *A.intermedia*, *Brachious durgae*, *B. calyciflorus*, *B. falcatus typical*, *B.rubens*, *B. Caudatus*, *B. forficula*, *B. diversicornis*, *Filinia bory.*, *Cephalodella* sp., *K. crassa*, *K. chochlearis*, *K. tropica*, *Notholea* sp., The monthly fluctuation in the density Quantitative Analysis of different groups of Zooplanktons is shown in the table.

Table 1: Month wise Quantitative Analysis (No/Lit) of Different Zooplankton Groups of Nilona Dam During the Year June 2016 to May 2017.

Zooplankton Group	Monsoon Season				Winter Season				Summer Season				Total
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	
1	3	4	5	6	7	8	9	10	11	12	13	14	15
Cladocera	54	85	112	120	125	145	171	131	111	108	82	63	1307
Ostracoda	19	25	48	53	51	42	31	37	73	75	85	70	609
Copepoda	101	102	115	108	91	98	111	101	107	122	129	118	1303
Rotifera	58	100	109	121	184	210	240	272	247	139	111	92	1883
Total Zooplankton	232	312	384	402	451	495	553	541	538	444	407	343	5098



The amount of natural food in the dam is the most important parameter determining the efficiency of supplementary feed intake by fish by growth. The present observation is similar to those observation made by other workers. Ramakrishna (2014) Abdar (2015), Patel *et al.* (2015), Dede, and Deshmukh (2015), Jose *et al.* (2015), (Pawar, 2017a, 2017b, 2018a, 2018b, 2018c), Kehayias *et al.* (2014), Manickam (2015), Manickam *et al.* (2014), Watkar and Barbate (2013), Smitha *et al.* (2013).

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