JOURNAL PUNJAB ACADEMY OF SCIENCES (Peer Reviewed Open Access Journal)
JPAS, 20: 28-31 (January-December, 2020)
Available online at www.jpas.in
ISSN 2229-7014 (P)

QUANTITATIVE AND QUALITATIVE ASSESSMENT OF ZOOPLANKTON OF LIMBOTI DAM, LOHA TALUKA IN NANDED DISTRICT (M.S.)INDIA

S. K. Pawar[1] and Arvind Chavhan[2*]
[1]Department of Zoology, Gramin MahavidyalayaVasantnagar, (Kotgyal)
Tq.Mukhed, Nanded, MS.,India.
[2]Department of Zoology, Digambarrao Bindu College, Bhokar, Nanded, MS.,India
E-mail: drarvindc@dbcbhokar.edu.in

ABSTRACT
Zooplankton diversity reflects the quality of water also they are good indicators of the changes in water quality because they are strong affected by environmental conditions and respond quickly to changes in water quality. Hence quantitative studies of Zooplankton are of great importance. In the present study was conducted to the quantitative and qualitative assessment of Zooplankton of Limboti dam of Loha Taluka in Nanded District Maharashtra, India during the year June 2018 to May 2019. Presently 25 Zooplankton genera representing various group 10 species of Rotifera, 6 species of copepod, 5 species of Cladocera, 4 species of Ostracoda. The highest count of Rotifera 10 species was record in the month of May.
Keywords : Limboti dam, Zooplankton, Cladocera, Rotifera, Ostracoda.

INTRODUCTION
Water is an essential component for survival of life on earth which important for human as well as an aquatic life. Fresh water are used for domestic and irrigation purposes and provide ecosystem for aquatic life especially fish there by functioning as a source of essential significant elements of the world's biological diversity. Pollution is considered as it affect plankton community and by day at the faster rate of deterioration. Most important biotic components in water of Zooplankton because it affecting food chain, food webs, energy flow and cycling of mater of aquatic ecosystem, they also helps for the energy conservation (Kabra 2016), Manickam et. al., (2018). Zooplanktons were abundant during summer season, whereas minimum is during rainy season in the Nagral dam during study period. The summer season Zooplankton population was found to be higher, it might be attributed to favourable environment conditions and availability of food (Phytoplankton) in the lake ecosystem. Also rich in nutrient loading may support of Zooplankton abundance population. In India, considerable work has been done on ecology and seasonal distribution of Zooplankton than other tropical and sub-tropical countries (Slatia and Dutta 2013). Zooplankton by their heterotrophic activity plays a key role in the cycling of organic materials in aquatic ecosystems and are used as bioindicators of environmental quality. The present papers with quantitative and qualitative,assessment of Zooplankton in Limboti dam in Loha Taluka from Nanded District, Maharashtra, India.

MATERIAL AND METHODS
Study Site
The Limboti dam was selected for the study of quantitative and qualitative. assessment of Zooplankton. The Limboti dam is a large reservoir having full water spread area

during rainy season. There is wide scope for the further development in the fisheries sectors 6000 hector field comes under irrigation of this dam. The under capacity of this dam is 3.5 T.M.

For the present study water samples was collected from four different sampling sites. For Zooplankton collection water samples were collected in early morning hours from all the sampling stations by towing the plankton collecting net of mesh size 25 μ and preserved in 4% formalin, 2-3 drops of glycerin added to it. A pinch of detergent powder was also added to avoid the aggregation of Zooplankton. Samples were collected in separate glass phials with label containing name of site, date of sampling time of sampling etc. The preserved Zooplankton samples were kept stored at low temperature, below 20^{o}C until analysis. Identification of the Zooplankton in the respective samples was done separately with the help of the available standard reference materials. Shiel (1945), APHA (1989), Dhanapathi (2000).For the enumeration of Zooplankton, coslab inverted microscope and compound micros cope were used. The quantitative and qualitative assessment of Zooplankton was carried out by using Sedgwick-Rafter cell. The species belonging to each group were noted down and number of individuals in each species was counted. This study is an attempt to investigate the quantitative and qualitative changes in the assessment of the Zooplankton in this dam.

RESULTS AND DISCUSSION

The total 25 species of Zooplankton were recorded from Limboti dam. Among 25 species, rotifer was dominant with 10 species followed by 6 species of copepod, 5 species of cladocera and 4 species of ostracoda. The list of Zooplankton observed is given in table 1 and 2.

The total number of Zooplankton and monthly average Zooplankton number per ml are given table. The prominent group of Zooplankton identified during present study was rotifera, copepoda, cladocera and ostracoda. The amount of material food in the dam is the most important parameter determining the efficiency of supplementary feed intake by fish by growth. The present water body has exhibited a significant monthly changes and species biodiversity of Zooplankton species with their maximum values. Zooplankton is the intermediate link between phytoplankton and fish, which are the secondary producers in the aquatic environment. Zooplanktons are good indicators of changes in water quality, because they are strongly affected by environmental conditions and responds quickly to change in environmental quality. Hence, quantitative and qualitative assessment study of Zooplanktons is of great importance. The present observation is similar to those observation many by other workers. Kadam and Tiwari (2012), Watkar and Barbate (2013), Ramakrishna (2014, PATEL et. al., (2015), Kabra (2016), Dabhade Pawar (2017, 2018, 2019) and Chhaba(2019).

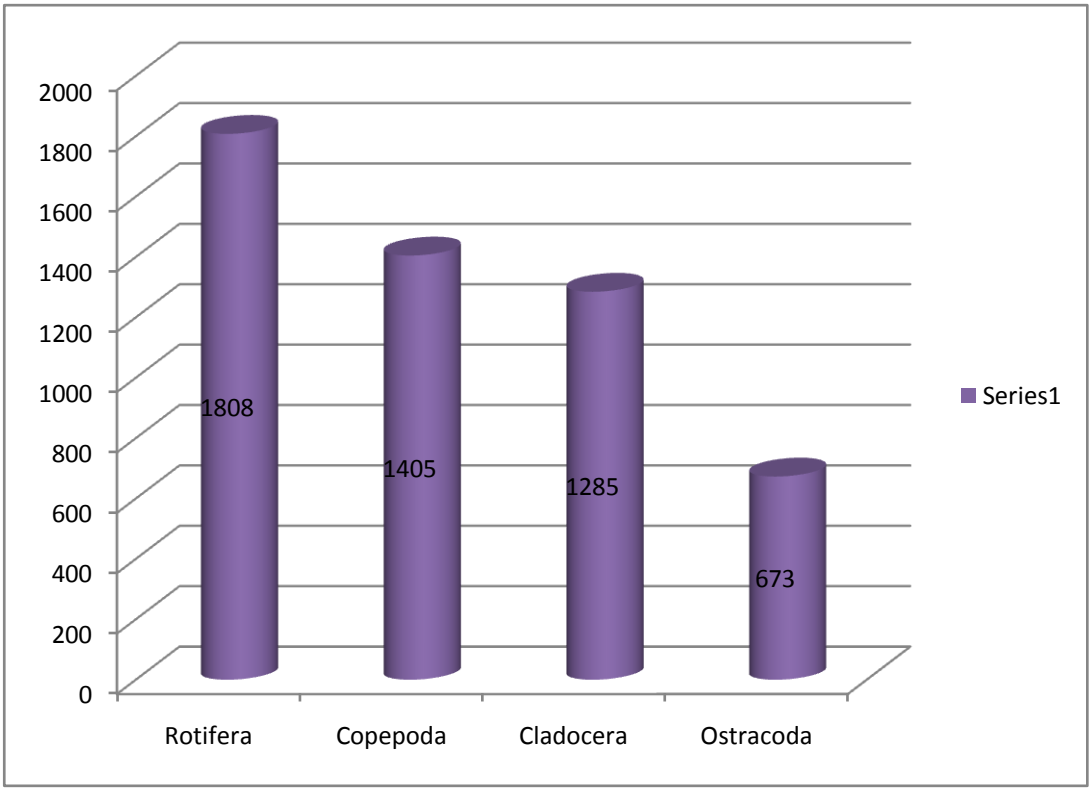
Table 1. Checklist of Zooplankton from Limboti dam.

I) Rotifera :- *Asplanchaintermedia, Brachious durgae, B. calyciflorus, B. falcatustypical, B. rubens, B. caudatus, Filiniabory, Keratella Philodena, K. crassa, Notholea.*
II) Copepoda :- *Argulus foliaceous, Cyclops sternus, Mesocyclops, Microcyclops varicans, Nauplius, Undinula valgaris.*
III) Cladocera :- *Alonarectangula richardisars, Ceriodaphin laticaudata, Diaphanosomabirgei, Moinabrachiata jurine, Simocephalus vetulus.*
IV) Ostracoda :- *Cypris, Heterocypris, Thermocyclops, Stenocypris.*

Table 2.Month wise quantitative and qualitative Assessment (No/Lit) of Different Zooplankton group of Limboti DamDuring the Year June 2018 to May 2019.

Zooplankton Group	Monsoon Season				Winter Season				Summer Season				Total
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Rotifera	52	80	95	110	171	198	209	233	218	188	156	98	**1808**
Copepoda	90	98	113	132	106	119	127	148	121	110	133	108	**1405**
Cladocera	48	77	103	117	129	135	141	127	124	112	93	79	**1285**
Ostracoda	15	21	33	48	61	78	85	68	73	64	74	53	**673**
Total Zooplankton	**205**	**276**	**344**	**407**	**467**	**530**	**562**	**576**	**536**	**474**	**456**	**338**	**5168**

Figure 1. Different Zooplankton Group in Limboti dam during the year June 2018 to May 2019.



REFERENCES

APHA. 1998. Standard Method for the Examination of Waste Water, American Public Health Association, Washington DC: 874.

Dabhade D.S. and Chhaba S.G. 2019. Zooplankton Diversity Around Washim region of Maharashtra International Journal of Advance and Innovative Research, 6 (2) (II): 332-336.

Dhanapathi MVSSS. 2000. Taxonomic notes on the Rotifera, Indian Association of Aquatic Biologist, Hyderabad. Vit, 178 Pp.

Gajanan Sontakke and Satish Mokashe. 2014. Diversity of Zooplankton in Dekhu Reservoir from Aurangabad, Maharashtra, Journal of Applied and Natural Science 6 (1) 131-133.

Kabra P.D. 2016. Quantitative Analysis of Zooplanktons of Fresh Water Ecosystem in Washim Town, Maharashtra, India, 6 (5):1-7.

Kadan, S.S. and Tiwari L.R. 2012. Zooplankton Composition in Dabanu Creek-West Coast of India. Research Journal of Recent Sciences, 1 (5): 62-65.

Manickam, N.,Bhavan, P.S.,Santhanam, P. Rajgopal B., Thirunavukarasu M. V. S., Annamalai A., Gopalan R., Rajendran U. and Madhayan Karthik. 2018. Impact of Seasonal Changes in Zooplankton Biodiversity in Ukkadam Lake, Coimbatore, Tamilnadu, India and Potential future implication of climate change, 79-85.

Patel Y., Shaikh H. M. and Patel N.G. 2015. Seasonal Variations in density and diversity of Zooplankton of Waghur Dam near Jalgaon (M.S.) India, Flora and Fauna 21 (1): 24-30.

Pawar S.K. 2017. Population Kinetics and Seasonal Fluctuation of Zooplankton of Vishnupuri Dam, Nanded District, (M.S.) India, Int. Res. J. of Science and Engineering, 5 (6) : 145-148.

Pawar S.K. 2018. Assessment of Zooplankton of Karadkhed Dam, District Nanded, Maharashtra, India, J. of Life Sciences, 6 (3) : 825-828.

Pawar S.K. 2019. Quantitative Analysis of Zooplankton of Ghagardara Dam, District Nanded, Maharashtra, India, Int. J. of Life Sciences, 7 (3) : 577-579.

Ramakrishna S. 2014. Zooplankton Seasonal abundance in relation to Physicochemical feature in Yelahanka Lake, Bangalore, India, Global Journal for Research Analysis, 3 (6) 218-1219.

Shiel R.J. 1945. A quide to identification of rotifers, Cladocerans and Copepods from Australian inland water. Co-operative research centre for fresh water ecology identification guide no.3, Urbora, University of Luinois, 117.

Slathi, D. and Dutta S.P.S. 2013. Hydrobiological Study of Subtropical Shiwalik Lake, Jammu, J and K, India. International Journal of Chemical Environmental and Biological Sciences (IJCEBS), 1 (1): 143-148.

Watkar A.M. and Barbate. 2013. Studies on Zooplankton Diversity of River Kolar, Saoner, Dist. Nagpur, Maharashtra, Journal of Life Sciences and Technologies, 1(1): 26-28.