



STUDY OF ZOOPLANKTON DIVERSITY IN JAKKAPUR DAM, AT OSMANABAD DISTRICT IN MAHARASTRA.

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ABSTRACT

The Jakkapur Dam is located at near Jakkapurwadi, dist. Osmanabad. It is about 8 km from the main town in Omerga. It is an earthen dam. The present Investigation deals with, The study of monthly changes of diversity & density of zooplankton in Jakkapur Dam. The work was carried out for a period of one year from June 2015 to May 2016. The population status of zooplankton consisted of 30 genera categorized into 3 major group, Rotifera 12 types, Copepoda 4 types & Cladocera 14 types were found.

Key words: Zooplankton, Diversity, Rotifera, Density.

Introduction:

In ecologically, zooplankton are of the most important biotic components & diverse group of heterotrophic organisms that consume phytoplankton, regenerate nutrients via Their metabolism & transfer energy to higher trophic levels. It play an important role in recycling nutrients as well as cycling energy within their respective environment. These are the main sources of natural food for fish which is directly related to their survival and growth & are base of food chains and food webs in all aquatic ecosystem (Miah et. al. 2013).

Zooplankton is varied from site to site within the same location with similar ecological conditions and as such both qualitative and quantitative studies of zooplankton in a water body are of great importance in managing successful aquaculture operations. Zooplankton is a good indicator of changes in water quality because it is strongly affected by environmental condition and responds quickly to changes in physical and chemical condition as well as environmental conditions. Zooplankton communities respond to a wide variety of disturbances including

nutrients loading acidification sediments, input etc. It is a well suited tool for understanding water pollution status (Contreras et. al. 2009). The density and diversity/zooplankton in freshwater ecosystem controlled by several factors, Temperature, dissolved oxygen and organic matter are important factors which control in growth of zooplankton. Hannazto & Yasuno (1985) Bhakti & Rana (1987) Several Researches have used the different zooplankton group to evaluate the tropic status and pollution potential of the water body. The present study was an attempt for reporting zooplankton diversity of Jakkapur, Dist. Osmanabad.

Material and Methods

The study area Jakkapur Dam located at near Jakkapurwadi, Dist. Osmanabad. It lies between 76-34'-0" & 17-48',-30". It is about 8 km from the main town in Omerga and 90km in Osmanabad. It is an earthen Dam.

Zooplankton sampling

The study was conducted for a period of one year from June 2015 to May 2016 Zooplankton were sampled weekly from the site following standard method of Battish (1992). Then the sample were filtered and placed in Tarson (100 ml) Container, Subsequently fixed in Lugol's Solution and stored in cool and dark place. For studying the diversity of zooplankton sample were taken in Sedgwick Rafter counting chamber & observed under a light microscope under required magnification(X 10 initially followed X 40) & the specimen were identified following literature of Battish (1992), Edmondson (1959) Michael and Sharma (1998), Sharma & Sharma (2008).

Result & Discussion

During the present study 30 genera of zooplankton were recorded from the wetland belonging to the three groups viz. Rotifera, Cladocera, Copepoda. Among the recorded genera 12 belongs to Rotifera, 4 belongs to Copepoda and 14 belongs to Cladocera. Similar observation was made by many researchers. throughout the Country Kar & Kar (2013) reported 26 species of zooplankton from an Oxbow Lake of cachar, Assam. Tyor et.al (2014) studied zooplankton diversity in a shallow lake Gurgaon, Haryana revealing Rotifera with highest diversity followed by Cladocera & than Copepoda showing least diversity, Pawar (2014) reported 66 species of zooplankton in some freshwater bodies around Satara District of Maharashtra in India. The abandoned status of zooplankton in group recorded from Jakkapur Dam were depicted in table:1. The present study revealed that the freshwater body that was Investigated comprised of Cladocera 14 genera Copepoda 4 genera & Rotifera 12 genera. Where Cladocera constituted the most dominating group 45%, The total zooplankton followed by rotifer contributing 35% & Copepoda contributing 20% to the total zooplankton. Different species of zooplankton showed their abundance according to the favourable condition.

The Population density status of Zooplankton recorded from Jakkapur Dam is depicted Table -2. During the study period among Cladocera-Sida species, Alona species, Bosmina sp., Daphnia, Diaphanosoma, Chydorus ciliates, Moina sp., recorded throughout the year and among Rotifera Keratella sp., Lacane sp. Brachionus Mytilina, Cyphalodella sp., Rotaria sp. Scardium sp. Were recorded throughout the year and Copepoda –Nauplius and Mesocyclops were recorded throughout the year. Present investigation reveals high value of species richness reflecting the suitability of the wetland for the dominant species (Arora & Mehra 2003). In the present study the site was characterized by greater diversity of zooplankton taxa during winter season.

During the present study Rotifera group was reported to be dominant among all other zooplankton groups. In tropical freshwater wetlands dominance of rotifer group is a common characteristic, similar was reported from the study of Mwebaza-Nadwula. The Present investigation revealed that the population density of Rotifera group reported from the study site vary in different seasons. Its density was reported to be highest in the month of December. Rotifera density was followed by that of Cladocera and then that of Copepoda as similar as it was reported by Tyor et al.(2014) during their study of zooplankton diversity in a shallow lake of Gurgaon, Haryana where Rotifera was followed by Cladocera and then Copepoda showing least diversity and dominance with only 4 genera constituting 20% of the total zooplankton population.

Conclusion

The present study on Jakkapur Dam it exhibits rich and diversified zooplankton which is dominated Rotifera throughout the study period which reveals that the wetland is very much suitable for aquaculture as zooplankton particularly rotifer are known to be the best food for the fish larvae for aquaculture. The study is a useful contribution to reveal the diversity of zooplankton in tropical floodplains in general which on the other hand is useful in maintaining aquaculture in natural floodplain in particular. Thus, keeping in view the importance of the study, steps should be taken for the conservation and maintenance of the fresh water wetland.

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TABLE NO.1
MONTHLY VARIATION OF ZOOPLANKTON IN JAKKAPUR DAM FROM
JUNE -2015 TO MAY-2016

CLASS	GENRA	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FAB	MAR	APR	MAY
	Daphania sp.	+	+	+	+	+	+	+	+	+	+	+	+
CLADOCERA	Monia Sp.	+	-	-	-	+	+	+	+	+	+	+	+
	Alona Sp.	+	+	+	+	+	+	+	-	+	+	+	+
	Alonella sp.	+	+	+	+	+	+	-	-	+	+	+	+
	Bosmina Sp.	-	+	+	+	+	+	+	+	+	-	+	+
	Chydorus Sp.	+	+	+	+	+	+	+	+	-	+	+	+
	Sida Species	+	+	+	+	+	+	+	+	+	+	+	+
	Bosminopsis Sp.	+	+	+	-	-	+	+	+	+	-	+	+
	Diaphanosoma Species	+	+	+	+	-	+	+	-	-	+	+	+
	ScapholeberisSp.	+	+	-	+	+	+	+	+	+	+	+	+
	Macrothris Sp.	-	-	+	+	+	-	-	+	+	+	+	+
	Chydorus ciliates	+	+	+	-	+	-	+	+	+	+	+	+
	Ceriodaphania Sp.	+	+	+	+	-	-	-	+	+	+	+	+
	Moina daphania Sp.	+	-	+	+	+	+	+	-	-	+	+	+
COPEPODA	Nauplius Sp.	+	+	+	-	+	+	+	+	-	+	+	+
	Mesocyclops Species	+	+	+	+	-	+	+	+	-	+	+	+
	Thermocyclops Sp.	+	+	+	+	+	-	+	+	+	+	-	+
	Heliodiaptomus Sp.	+	+	+	+	+	+	+	+	+	+	-	+
ROTIFERA	Brachionus Sp.	-	+	+	+	+	+	+	+	+	+	+	-
	Polyarthra Sp.	+	+	+	-	-	-	-	+	+	-	+	+
	Keratella Sp.	+	+	+	+	+	+	+	+	+	+	-	-
	Lepadella Sp.	-	+	+	+	+	+	+	+	-	-	+	+
	Lacana Sp.	+	+	+	+	+	+	+	+	+	+	-	+
	Ascomorpha Sp.	-	+	+	+	+	-	-	-	-	+	+	+
	Testudinella Sp.	+	+	+	+	+	+	+	+	+	+	-	-
	Cephalodella Sp.	+	+	+	+	+	+	+	+	+	-	+	+
	Mytilina Sp.	+	-	+	+	+	+	+	+	-	+	-	+
	Filinia Sp.	-	+	+	+	+	+	+	+	+	+	+	+
	Rotaria Sp.	-	-	+	-	-	+	+	-	+	-	+	-
	Scaridum Sp.	+	+	+	-	-	+	+	-	+	+	+	+

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