



STUDIES OF MACRO-BENTHOS IN SARANGPURI LAKE, DIST- WARDHA (M.S)

U. W. Fule¹, S. S.Ningare¹ and P.M.Telkhade²¹Hutatma Rashtriya Arts and Science College, Ashti.²Arts, Commerce and Science College, Tukum, Chandrapur
patankar.kargi@gmail.com**Abstract:**

Benthological variables are particularly useful in measuring the water quality and such biological monitoring can provide resolution in space and time. Pollution is a major cause of environmental deterioration. The use of Macro-benthos as bio-indicator in the assessment of water quality realized better understanding in the field of limnology as compared to biotopes characteristics. Insect and Molluscs are the tolerant species in the changing condition of water ecosystem. The present study is carried out to study Macro-benthos in Sarangpuri lake in the year 2008-09. In the present investigation, total 20 species from four major groups were observed viz. Gastropoda, Nematoda, Oligocheta and Insecta. In Gastropoda 07 species were recorded, Nematode 02 species, Oligocheta 02 species and Insecta 9 species.

Keywords: Macro benthos, lake, Water, Quality.

Introduction:

Benthic organisms which inhabit on the bottom of water body. This group of organism recognized as very important group in detecting the water quality and these organisms move away from pollution site. They have shown sensitivity to pollution. They can be relatively easily collected handles and identified. They are linked with food web of fishes and also play an important role in mud water exchange of biological nutrients. Many of the benthic forms are detritivores and depend to a large extent on organic detritus as food. As the detritus reach the bottom, it enters a web of energy transfer that sustains the benthic community. Thus, the benthic macro invertebrates play a key role in the mineral recycle and, in turn serve as food of fish.

Benthological variables are particularly useful in measuring the water quality and such biological monitoring can provide resolution in space and time, Tittizer and Kothe (1978) and Price (1978). Better understanding in recent years about benthos and its environment results of their exploitation from water bodies. Water bodies leading to enrichment of the nutrient level beyond proper line. The present study was carried out to study Macro-benthos in Sarangpurilake during year 2008-09.

Material and Methods:

During the period of investigation, benthic samples were collected with the help of a tray type sampler (Size 30 × 25 × 50 m) with a sliding thin but hard iron plate covering the entire mouth of the tray. After sliding away iron plate the tray of the sample was placed firmly on the bottom by hand and then inserting the plate covered the mouth. Samples transferred into the

volume was measured to sort out organism. Sample suspension was prepared in water and was filtered through 2 mm and 0.5 mm mesh size.

The filtrate was transferred into a tray and added sugar solution (10 gms in 250 ml). Due to increase in the density of water benthic organisms floats on the surface and were picked-up with the help of dropper and preserved in 4% formalin for identification, Tonapi (1980) and Pennak (1989).

Observation and Result:

In the present investigation, total 20 species from four major groups were observed viz. Gastropoda, Nematoda, Oligocheta and Insecta. In Gastropoda 07 species were recorded, in Nematode 02 species, in Oligocheta 02 species and in Insecta 9 species were observed. Gastropoda consist of 07 species, which are *Bellamya bengalensis* (Lamarck), *Gyrauluscon vexiusculus* (Hutton), *Indoplanor bisexustus*(Deshayes), *Lymnaea accuminata* (Lamarck), *Pilaglobosa*, *Thiarascabra*, *Thiara tuberculata* (Muller), . Among which *Bellamya bengalensis* (Lemark) and *Indoplanor bisexustus* (Deshayes) and *Thiara scabra* were dominantly observed. However, *Thiara tuberculata* (Muller) were least in appearance. The benthic macro-invertebrates represented in the Table 1 and photo plate I

Discussion:

Benthic organisms are of great ecological significance because they constitute the food of fish and their productivity plays an important role in sustaining food chain and food web. Benthos plays an important role in the secondary productivity of fresh water lakes

through exchanging of allochthonous and autochthonous materials in a lake ecosystem. In the present investigation, total 20 species from four major groups were observed viz. Gastropoda, Nematoda, Oligocheta and Insecta. In Gastropoda 07 species were recorded, in Nematode 02 species, in Oligocheta 02 species and in Insecta 9 species. Similarly, Goraiet *al.*, (2005) reported 4 groups of Benthic organisms consisting Gastropoda (3 species), Insects larvae (01 species), Oligochaetae (08 species). Zade and Sitre (2012) recorded Nematoda 01 species, Oligocheta 09 species, Insecta 01 species and Gastropoda 02 species at Urban lake. Shrinivas (2004) recorded total 13 species of macrobenthicinvertebrates belonging to three major groups. Annelids, Anthropods and Mollusca have been encounter in the littoralzone of Banjara lake. Tijare (2012) recorded 11 species of Gastropods in some lentic water bodies of Gadchiroli District. Benthic macroinvertebrates can be used as a barometer of overall biodiversity in aquatic ecosystem. The abundance of benthic fauna greatly depends on physical and chemical property of the substratum (Paul and Nandi, 2003). The study of aquatic ecosystem without the study of its benthos is incomplete. Many benthic forms are detritivores and play a key role in the mineral recycling of organic matter, and many benthic insect larvae and Oligochaeta are the major food

sources for small and big bottom feeders. (Anitha, 2002) Aquatic invertebrate serve as a primary food source for many fishes. They are the preferred indicator of long term water quality due to their limited mobility.

Table 1.: Diversity of Macro-invertebrates in Sarangpurilake

S.N	Name of Macro-invertebrates
A)	Gastropoda
1	Bellamyabengalensis (Lamark)
2	Gyraulconvexiusculus (Hutton)
3	Indoplanorbisxustus (Deshayes)
4	Lymnaeaaccuminata (Lamark)
5	Pila spp.
6	Thiarascabra
7	Thiaratuberculata (Muller)
B)	Nematode
1	Diplogaster factor
2	Rhabdolimus minor.
C)	Oligocheta
1	Limnodrilushoffmeisteri
2	Tubifextubifex (Muller)
D)	Insecta
1	Ophiogomphus sp.
2	Aniseps spp.
3	Anopheles larva
4	Chironomus spp.
5	Corixa spp.
6	Culex larva
7	Dineutus spp.
8	Eristalis spp.
9	Notonecta spp.



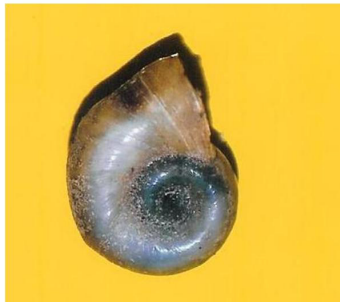
Lymnaea spp



Pila globossa



Thiara tuberculata



Indoplanorbis exustus



Faunus ater

Plate 1: Diversity of Macro-invertebrates in Sarangpuri lake

References-:

- Anitha, G.** (2002): Hydrography in relation to benthic macro-invertebrates in Mir-Alamlake, Hyderabad, Andhra Pradesh, India. Ph.D. Thesis. Osmnaia University, Hyderabad. A.P. India.
- Chandrashekhar, S.V.A.**(1994): Macrozoobenthic fauna as indicator of pollution in HussainSagar , Hydrabad. Oikoassay, 11(1and 2): Pp. 13-15.
- Gorai, A.C., Rekha, Gupta, P. Chattarj and T. Chatterjee** (2005): Studies on the macro-zoobenthos of two fresh water ponds, Dhanbad, Jharkhand, India. J. of Aqua. Biol. 20 (2): Pp. 58 - 62.
- Mylinski, E. and Ginsburg W.** (1977): Macro-invertebrate as indicators of pollution. J. AWWA.69: Pp. 530-534.
- Paul, S. and Nandi N.C.** (2003): Studies on intertidal macro-zoobenthos of Hugli river in and around Calcutta in reletion to water and soil conditions, Zoological Survey of India Occasional paper No.213.2 and 136
- Pennak, R.W.** (1989): Fresh water invertebrates of the United States 3/e. 628: John Wiley and Sons Inc., New York.
- Price, D.R.H.** (1978): Fish as Indicator of water quality. Paper presented at the international symposium on biological indicators of water quality in new castle. Proc. Indian Acad. Sci. (63): Pp.57 – 66
- Sarkar, S.K.**(1989): Seasonal abundance of benthos macrofauna in a fresh water pond . Envi. And Ecol.:Pp. 113-116.
- Tijare, R.V.** (2012): Biodiversity of Mollusca present in some lentic water bodies of Gadchiroli District, M.S. India. J. Bionano Frontiers Spe.Issu. Vol. 5(2-1): Pp.55-56
- Tittizer, T. and Kothe P.** (1978): Possibilities and limitations of biological methods of water analysis. Paper presented at the international Symposium on biological indicators of water quality a new castle.
- Tonapi, G.T.** (1980): Freshwater animals of India, An ecological approach.Oxford and IBH Publishing Company, New Delhi.
- Vasisht, H.S. and Bandal, R.S.** (1979): Seasonal variation of benthic fauna in some North Indian lake and ponds. India. J.Envi. 6(2:) Pp. 33-37.
- Zade, S.B. and Sithe S.R.** (2012): Biodiversity of benthic macroinvertebrates in a polluted Urban lake of Nagpur M.S. India .J. Bionano Frontiers Spe.Issu. Eco Reso: Pp.67-69