



**AQUATIC INVERTIBRATES DIVERSITY OF SARANGPURI LAKE, ARVI,
DISTRICT- WARDHA, INDIA (M.S)**

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Abstract:

Sarangpuri lake is one of major lake in Wardha District of Maharashtra State. It is located about 3 kms away from Arvi city. It is positioned at 20.59 N and 79.14 E. Arvi has an approximate altitude of 828 meters. The storage Capacity of a storage tank is 1.64 mm³. The town is getting the piped Water supply since year 1918 and the source of water supply is a storage tank known as Sarangpuri reservoir. This paper deals with the identification of the Aquatic faunal diversity of this wetland. Studies were conducted during December 2018 to November 2019. Five taxa of protozoans, 13 rotifers, 10 crustaceans, 9 insects, 6 annelids, 6 molluscans, 2 oligocheta, 2 nematode and 1 nemertina were identified in the water samples collected from four sites of Sarangpuri lake.

Keywords: Aquatic invertebrate, Sarangpuri lake, Species diversity.

Introduction:

Certain living organism serve the purpose of monitoring the environmental pollution as they are tolerant adverse environmental conditions. These are term as bio-indicators and are capable of measuring the actual response of organisms or populations to the environmental quality. The physiological and biological diversity of species allows a wide range of indicator species of various environmental situations. In the present time both toxic and nontoxic pollutants have been found to distort the natural structure of biological communities. A definite clue regarding the typical organisms is given by the survey and the analysis of various types of waters and by correlating their physic-chemical characteristics with existing fauna and flora. It has been shown by many investigators that the degree of water pollution can be estimated almost exactly by using typical organisms. A variety of aquatic organisms have widely been used as biological indicators to as certain the quality of water (Polivanayya and Sergeyava, 1978; Saksena,1987;Roy and Datta Munshi,1993; Kumar, 1994 & 1998). Sarangpuri lake is a major wetland situated near Arvi. Water in this lake is used by villagers for drinking and agricultural purpose. So limnological studies have been carried out on this wetland from December 2018 to November 2019. In this paper studies relating species diversity of aquatic invertebrate animals have been discussed.

Materials And Methods:

Four sites were selected over the entire area of Sarangpuri lake from each corner. Sample collection was done periodically from December 2018 to

November 2019 in a wide mouthed polythene bottle (250ml) tied to a planktonic net. For each sample 50 litres of water was allowed to pass through the net. The water samples were preserved in 5% formaline solution on spot to and were to the laboratory for microscopic examination. Benthic Samples were collected with the help of Ekman's dredge and the samples were sieved through a mesh size of 0.5 to 0.6mm. For identifying the fauna standard literature was consulted (Ward & Whipple,1959; Pennak,1978; Tonapi, 1980; Williams and Feltmate, 1992). Biodiversity indices of various Aquatic invertebrate species was calculaed by following formula

Biodiversity indices- number of different species (richness)/Total number of individuals (evenness)

Results And Discussion:

Table-1 : Identified aquatic invertebrate animals in Sarangpuri lake (2018-2019)

TABLE- Monthly Variations, Average, Biodiversity Indices in Aquatic invertebrate Animals in Sarangpuri Lake During Year 2018-2019																
Sr. No.	Name of The Species	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Total	Average	Biodiversits Indices
Protozoa																
1	Amoeba spp.	1	1	2	1	1	0	10	17	15	2	1	1	52	4.25	0.017
2	Paramecium spp.	1	2	2	0	1	0	8	7	7	4	2	1	35	2.91	
3	Arcells spp..	10	12	16	12	6	5	4	0	1	2	0	0	68	5.41	
Rotifera																
1	Asplanchna brightwell	3	3	2	3	2	2	2	0	1	2	3	3	26	2.16	0.011
2	Brochionus calyciflorus	10	3	3	11	7	2	2	2	13	23	11	10	97	8.08	
3	B.pictalis	11	3	3	10	8	2	2	2	12	24	10	11	98	8.16	
4	B.quadridentara	13	17	5	14	14	14	9	0	0	9	14	14	123	10.25	
5	B.bidentata	10	12	3	13	12	11	8	0	0	8	12	10	99	8.25	
6	B.falcatus	14	15	18	7	11	2	2	2	3	1	2	11	88	7.33	
7	B.caudatus	12	12	16	8	10	2	2	2	2	1	2	10	79	5.75	
8	Polyarthra indica	12	12	3	3	4	4	3	0	0	0	8	8	57	4.75	
9	Empiphanus senta	12	10	17	10	9	0	0	6	6	15	15	12	112	9.33	
10	Filinia longiseta	0	0	16	16	19	16	12	13	27	27	11	13	170	14.16	
11	F.oppliensis	20	9	6	19	21	8	8	6	6	12	12	10	137	10.08	
12	Karatelli tropica	0	0	4	7	0	0	0	7	6	10	10	0	44	3.66	
13	K.vegra	8	10	3	12	8	7	8	0	0	7	12	8	83	7	

Ujwala W. Fule

Insecta																
1	Opliomplus spp.	10	4	0	0	3	6	8	10	7	3	2	1	54	4.5	0.014
2	Aniseps spp.	8	4	2	1	1	0	10	12	10	15	10	1	74	6.16	
3	Anopheles larve	10	6	4	3	8	5	15	25	22	18	15	12	143	11.83	
4	Chironomous spp.	8	5	3	2	1	1	7	15	17	18	12	8	97	8.08	
5	Corixa spp..	7	3	2	2	1	0	4	7	7	4	2	1	40	2.5	
6	Culex spp.	7	8	4	3	1	2	8	12	13	14	11	10	93	6.91	
7	Dineutus spp.	6	5	3	2	0	0	0	8	4	7	8	5	48	4	
8	Eristalis spp..	4	3	1	1	0	0	1	2	6	7	5	4	34	2.83	
9	Notonecta glouca	1	1	2	1	1	0	15	12	17	10	8	7	75	6.25	
Crustacea																
1	Alona spp.	3	4	3	3	4	2	0	0	0	1	2	3	25	2.08	0.019
2	Chydoris spp.	2	2	2	2	1	3	2	1	0	2	3	2	22	1.83	
3	Daphnia spp.	4	4	1	1	1	2	7	4	0	1	3	3	31	2.58	
4	Eurycercus spp.	8	8	2	2	1	1	5	3	5	2	2	2	41	3.58	
5	Cyclops agilis	3	6	15	17	17	23	6	3	13	18	12	3	136	1.14	
6	Eucyclops spp..	15	8	2	2	2	2	4	0	1	3	3	6	48	4	
7	Mesocyclop spp..	2	4	12	10	10	25	4	2	8	8	10	2	97	8.08	
8	Diaptomus spp.	9	17	12	12	6	6	2	0	1	4	8	15	92	7.66	
9	Alona monocantha	2	2	2	2	3	1	0	0	0	1	1	2	16	1.33	
10	Moina brachiata	2	11	2	0	3	7	3	0	1	3	7	7	46	3.83	
Annelida																
1	Holobdella spp.	8	8	11	6	6	8	9	0	0	0	6	6	68	4.83	0.015

2	Plaeobdella spp..	6	12	1	6	5	8	10	12	3	2	2	2	69	5.83	
3	Stylaria locustris	9	9	4	7	7	3	0	0	0	7	7	10	63	5.22	
4	Nais spp..	7	8	12	10	12	7	10	11	8	7	5	7	104	8.66	
5	Chaetogasterspp.	3	4	5	5	3	2	0	0	0	2	1	2	27	2.22	
6	Tubifex tubifex	1	1	2	7	7	3	0	0	0	15	12	10	58	4.83	
Mollusca																
1	Lymnea haldemani	1	2	3	1	3	2	6	2	7	2	1	0	30	2.5	0.02
2	L.perger	5	4	3	10	15	12	8	7	8	0	0	0	72	6	
3	L.palustris	7	10	10	8	10	9	4	5	7	1	2	3	76	6.33	
4	Gyraculus Spp.	1	2	1	3	1	1	1	2	1	0	0	0	13	1.09	
5	Pisidium dublem	1	4	0	1	1	1	7	4	10	8	0	1	38	3.16	
6	Hydrobia spp..	3	4	6	10	10	9	5	3	11	7	1	2	71	5.84	
Nematods																
1	Diplogaster facto	8	4	0	0	3	6	5	7	3	3	10	8	57	4.75	0.016
2	Rhabdominous minar	3	7	10	8	11	12	8	3	8	0	0	0	70	5.16	
Nemertina																
1	Prostoma subrum	1	2	1	7	0	1	2	1	3	0	0	0	18	1.5	0.055
Oligocheta																
1	Limnodrilus hoffmesteri	10	15	3	3	8	8	5	0	0	2	9	8	71	5.84	0.004
2	Tubifex tubifex (muller)	0	0	1	1	7	7	2	3	1	2	5	7	36	3	

The identified aquatic fauna of Sarangpuri lake has been tabulated in Table-1. It consisted of plankton, nekton and benthic organisms. The aquatic invertebrates were found to be high in species diversity in the area which were undisturbed and rich in aquatic vegetation.

The protozoan population was represented by Paramecium sp., Arcella sp., Amoeba sp., Platyophrya sp., and Diffflugia sp. Verma and Dalela (1975) have reported Diffflugia sp. And Arcella sp. in eutrophic waters. Similarly observed by Sevwane et al. (2006) in Irai river at Irai dam, Chandrapur.

In Sarangpuri lake 13 rotifer taxa were identified out of these Asplanchna brightwell, Brachionus calyciflorus, B.plicatilis were found to be dominant. Pandey et al. (2007) reported the abundance of rotifers in the river Panar (Bihar). Nimgare et al. (2012) also recorded the similar results at Simbhora dam Morshi.

Crustacea of Sarangpuri lake was represented by 10 genera, followed by cladocerans. The greatest abundance of cladocerans was found near the vegetation. Dorlikar et al. (2012) also recorded abundance of cladocerans in Gorewada reservoir, Nagpur. Copepods are pelagic and so were also abundant in the plankton population.

Insecta consist of 9 species which are Ophiogomphus sp., Aniseps sp., Anopheles larva, Chironomus sp., Corixa sp., Culex larva, Dieutus sp., Eristalis sp., Notonecta glauca, among which Ophiogomphus sp. And Aniseps sp. Showed its dominants however Anopheles larva and Culex larva showed least appearance. Bath and Kaur (1997) have reported 26 insect species from Harike wetland.

The annelid population of Sarangpuri lake was composed of 6 taxa. The abundance of mud, debris, mucus, and decaying matter of the lake provide suitable nourishment for the survival and the growth of annelids. Bath (1997) reported 8 annelid genera from Harike wetland.

The molluscan fauna of sarangpuri lake included 6 genera. Out of which Lymnea sp. Pleurocerca sp. and Gyraulus sp. dominated the population. In contrast to this, Bath (1997) reported 28 genera of molluscas.

The rest of the aquatic invertebrate fauna of Sarangpuri comprised of two genera of nematode, oligochaeta, and only one genera of nemertina. All these animals were found in the benthic substrate or on the debris of decaying vegetation.

Conclusion:- In the present investigation Rotifers were found to be dominating over other

aquatic invertebrates. High number of benthic invertebrates indicate that reservoir is free from domestic activities. The reservoir water is not polluted and free from sewage contamination. Looking at the utility of the reservoir and a varied rich biodiversity, proper measures are essential to avoid the degradation of reservoir in future.

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