



## SEASONAL VARIATION AND DISTRIBUTION OF ZOOPLANKTON IN KALINJUR LAKE (VELLORE DISTRICT) TAMILNADU

K. Santhi<sup>1</sup>, Dr .N.Uma Chandra Meera Lakshmi<sup>2</sup>

Research scholar<sup>1</sup>, Assistant professor<sup>2</sup>

Department of Zoology, Auxilium College, Katpadi- 632006 Vellore (Dist),  
Tamilnadu, India .

### ABSTRACT:

The Present Work aims to Study the Seasonal Distribution and diversity of Zooplankton in Kalinjur lake Vellore District for One Year from January 2019 to December 2019. We have recorded 20 Species of Which ,7 species belong to Ostracods,5 to Daphnia,3 to Mysis,3 to Rotifer,2 to Copepod. Among Zooplankton Was the dominant group throughout the study period and the highest count was recorded in the month of august 2019. Zooplankton community is also correlated with physicochemical parameters.

**KEYWORDS:** Zoolplankton , Diversity, Kalinjur lake, Vellore district, Ostacods, Daphnia, Mysis, Rotifera, Copepoda.

### INTRODUCTION:

The zooplankton community is composed of both primary consumers (which eat phytoplankton ) and secondary consumers (which feed on the other zooplankton). They provide a direct link between primary producers and higher trophic levels like fish. Nearly all fish depend on zooplankton for food during their larval phases and some fishes continue to eat zooplankton throughout their entire lives ( Madin et al.2001)

The study of fresh water zooplankton even of a particular area is extensive and complicated due to environmental physical, geographical and chemical variations involving ecological , extrinsic and intrinsic factors.

The water body have their physico –chemical and biological characteristics. The biota of surface water is governed by various environmental conditions. Zooplankton supports the economically important fish population .They are major mode of emery transfer between phytoplankton and fish. A number of workers such as Ayyappan & Gupta (1980) Chakravarty, (1985), Balkhi et al (1987) have reported on different aspects of Zooplankton inhabiting Indian freshwaters

### MATERIAL METHODS:

#### STUDY AREA:

The freshwater Kalinjur lake is situated near Katpadi taluk, Vellore .Its area is about 1 hectare and has average depth of 4-7 feet .this lake is rain fed and it is used by the people for many purposes. The bottom soil of the lake is sandy and surrounded by vegetation. Fishes such as Catla Catla, Tilapia, Mossambica, were seen this lake.

**COLLECTION AND PRESERVATION:**

Net method only plankton of (No.25 mesh size 50 m) can be collected .Depending on the fineness of the filtering portions, a number of monofilament nylon materials are available. The collected material was transferred to different plastic containers. Back laboratory the specimens were studied live and later preserved in 4% formalin for subsequent observations simultaneous water samples were collected for water quality studies.

Water samples collected for the purpose of estimation of various parameters were brought to the laboratory and subjected to analysis immediately as far as possible .estimation of parameters such as total dissolved solids , PH, dissolved oxygen, total alkalinity,hardness,fluoride,iron,ammonia,nitrate,nitrite,phosphate,chlorine.

**,RESULTS AND DISCUSSIONS:**

1) The values recorded for physicochemical variables during the study period are mentioned in (TABLE

Table 1: Average values of physic-chemical variables

s.no	parameters	Winter	summer
1	PH	7.5	8.5
2	ALKALINITY	350	360
3	HARDNESS	355	370
4	CHLORIDE	270	280
5	CALCIUM	105	170
6	FLUORIDE	1.5	2.0
7	IRON	0.2	0.3
8	AMMONIA	3.0	5.0
9	NO <sub>2</sub>	0.2	0.3
10	NO <sub>3</sub>	45	75
11	PHOSPHATE	0.0	0.0
12	CHLORINE	0.2	0.4

Results of chemical examination are expressed in mg/l, expert pH and temperature.

The most important parameters concerning lake ecology are atmospheric, Color, odour, water temperature, PH etc. Variation in the following chemicals level such as alkalinity, hardness, Chloride, Nitrate, Natrite, Calcium, Iron, Ammonia, etc. Are also very important from the water chemistry point of view. Due to them variation in the physicochemical variables the productivity of different ponds varies considerably.

The population of zooplankton in kalinjur lake consist of Mysis, Rotifer, Copepoda, Daphnia, ostracoda. The total number recorded were 3000 liter of which Ostrcoda.

1010 (33.66%), Daphina 920 (30.66%), Mysis 430 (14.33%) ,Rotifera 420 (14.00%), Copepoda 220(7.33%).all the above mentioned zooplanktons were dominant throughout the year .diversity analysis shows that ostracoda have 7species ,daphnia 5,Mysis 3.rotifera 3,copepod 2.the diversity of zooplankton groups is mentioned in Table 2

**TABLE 2: composition of zooplankton**

Months	Ostracoda	Daphnia	Mysis	Rotifera	Copepoda
Jan	144	123	134	154	165
Feb	500	453	536	235	234
March	1.732	1532	456	350	340
April	1.600	1453	1583	590	450
May	1.456	1230	1700	356	570
June	1.345	1250	967	1704	790
July	1.534	1345	980	750	34
August	1.121	1000	645	345	56
Sept	1.090	957	345	569	76
Oct	154	135	231	98	45
Nov	123	110	130	67	65
Dec	107	95	56	34	23
Total	10.904	9.683	7.763	7.435	2,848
% of plankton diversity	33.66	30.66	14.33	14.00	7.33

The lowest count zooplankton abundance was recorded during the rainy season (when all the zooplankton groups had very low values).the main reason for this is not immediately known but we believe that predation by juvenile fish may have contributed to the decline in zooplankton.

Concurrent samples taken showed high density of the juveniles of *Oreochromis niloticus* and *clarias* spp. during the post rainy season (*Okogu* 2008). The Juveniles of *Oreochromis* spp. and *Claris* spp. are obligate zooplanktivores (*Mwebaza-Ndawula* 1944, *Ovie \$ Ovie*2002). Fish predation on zooplankton during this season may have led to low zooplankton population.

### Conclusion

Among the zooplankton in kalinjur lake 20 species belong to rotifer, Mysis, Daphnia, Copepoda, Ostracods. During the study period seasonal fluctuations of zooplankton community have been observed .from the above results and discussion I conclude that this lake is suitable for fish culture.

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