

# PHYTOPLANKTON DIVERSITY IN KURNUR DAM, DIST. SOLAPUR, (M.S.) INDIA.

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## Abstract:

The Kurnur Dam is located about 13 Km from Akkalkot city, at latitude 17°37' 0" N and longitude 76°13' 2" E. This dam located near Kurnur village Tal- Akkalkot, Dist-Solapur. During the present study period the water samples collected from the Kurnur dam with the interval of one month during the period of one years (June 2014 to May 2015) from the selected spots of Kurnur dam. A result shows that the Kurnur Dam contains the Phytoplankton's represented by 16 species. There are 6-species belonging to Chlorophyceae, 4 species belonging to class Bacillariophyceae, 4-species belonging to Myxophyceae and 2-species belonging to Euglenophyceae. Phytoplanktons are the producers in the aquatic environments. The Phytoplankton's are the richest source of the Aquatic animals. In standing water bodies many Phytoplanktons act as Nutrient supply and productivity. The details diversity of phytoplankton of Kurnur Dam discussed in this text.

**Key words:** Phytoplankton, Kurnur Dam.

## I. INTRODUCTION

The Kurnur Dam is located about 13 Km from Akkalkot city, at latitude 17°37' 0" N and longitude 76°13' 2" E. This dam located near Kurnur village Tal- Akkalkot, Dist-olapur. The purpose of constructing this dam is to provide water for nearby 16 villages. This dam is having catchment area about 1254 sq. km. The measurements of Kurnur Dam are, maximum height of Dam is 15.20 meters and Length is 886 meters. This dam is having gross command area of water catchment of 1254 sq. km.. Whereas the cultivable command area is about 59.02 M C M. and Irrigable command area is about 98.81%. The climate of Akkalkot Taluka is mainly dry extend in June when humidity rises. The dryness is little lesser till the month of November. Kurnur Dam also called "KURNUR DHARAN" is an earth fill Project on Bori River near Akkalkot (13 Km) in Solapur District of Maharashtra. Phytoplanktons are the producers in the aquatic environments. The Phytoplankton's are the richest source of the Aquatic animals. In Indian standing water bodies many authors studied Phytoplanktons, Nutrient supply and productivity as Sreenivasan (1974), Mathew (1992), Pandey et al (1990), Sing (1995), Patil S. and Sahu B. K. (1993), Verma (1995), Meshram (1996), Kanhere (1997), Singh (1999), Sampath Kumar and Rama Krishna (2004). No previous record of Phytoplankton diversity found so by considering the importance of phytoplanktons from Kurnur Dam was studied.

## II. MATERIAL AND METHODS

During the present study period. The water samples collected from the Kurnur dam with the interval of one month during the period of one year from the selected 4 spots from dam.

In aquatic ecosystem the physical, chemical characters of water effects on the abundance of species, composition of species, its stability, its productivity as well as physiological conditions of aquatic organisms which are present the water body. In a biological analysis of water body includes collection, counting and its identification of aquatic organism fauna. In biological analysis of phytoplankton's the following characters are analyzed.

For the collection of planktons 200 liters of water samples were filtered through plankton net number 25 bolting silk cloth Pundhir, P. and K.S. Rana (2002). The collected planktonic sample was concentrated to a 50 ml volume and it was preserved into 4% formalin solution for further study. Each planktonic replicate identified under research microscope with its standard identification with its monographs as well as keys which was suggested by APHA (1985) and Tonapi (1980) etc. Identification was made up to species level with the help of standard texts as Pennak (1978), Tonapi(1980), APHA (1985).

Fresh water biology by Vard and Wipple, Zooplanktons by Battis. The book of IAAB, Hyderabad, water analysis method.

### III. OBSERVATION AND RESULTS

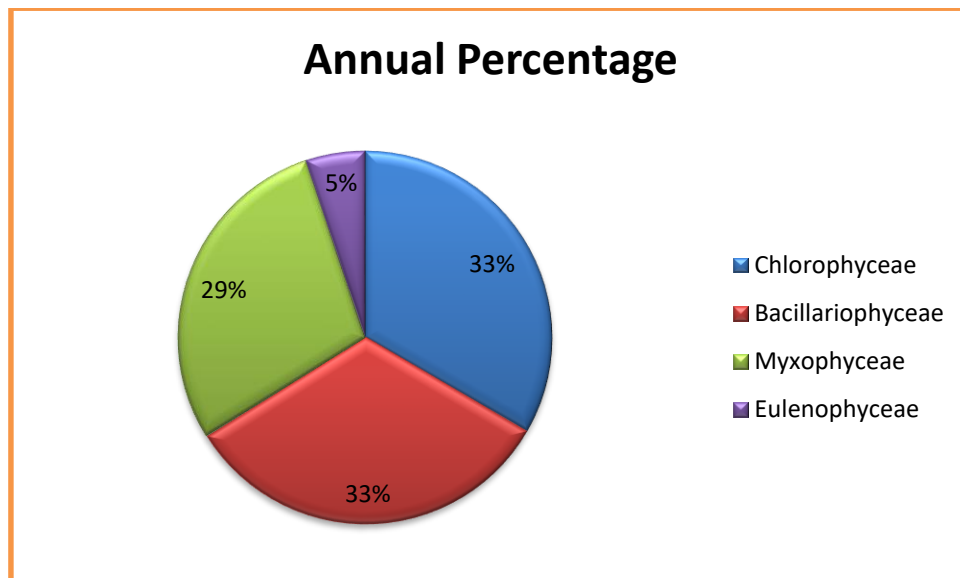
The lists of phytoplankton's observed in Kurnur Dam during the study period are as given in Table No 1. The 16 species of Phytoplankton observed in Kurnur dam. There are 6-species belonging to Chlorophyceae, 4 species belonging to class Bacillariophyceae, 4-species belonging to Myxophyceae and 2-species belonging to Eulenophyceae. The maximum peak density of phytoplankton's observed during summer season throughout a year.

**Table No- 1: The Phytoplankton species observed from Kurnur Dam.**

Class	Genera	Jun	Jul	Aug	Sep	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May
Chlorophyceae	<i>Chlorella</i>	09	13	18	16	22	25	19	21	19	21	15	18
	<i>Pediastrum</i>	05	10	06	04	07	02	02	01	03	07	03	03
	<i>Scenedesmus arcuatus</i>	01	04	03	00	08	02	08	08	02	04	03	02
	<i>Oedogonium</i>	07	06	09	06	10	13	14	16	12	08	09	03
	<i>Spirogyra</i>	03	12	19	09	22	24	21	13	18	13	23	04
	<i>Volvox</i>	04	10	16	10	20	21	23	10	14	12	20	03
Bacillariophyceae	<i>Cyclotella sps.</i>	34	20	16	11	03	02	01	06	08	10	13	10
	<i>Fragillaria sps.</i>	07	07	09	13	18	21	24	26	27	23	17	11
	<i>Pinnularia sps.</i>	09	07	06	14	17	19	22	25	28	21	15	09
	<i>Melosira granulate sps.</i>	07	09	07	13	18	20	21	23	22	20	14	08
Myxophyceae	<i>Anabena sps.</i>	07	08	06	10	12	14	17	19	23	16	11	05
	<i>Chroococcus minor sps.</i>	10	08	07	13	16	19	19	20	24	15	09	07
	<i>Mycrocystic elgans</i>	06	09	10	10	12	16	21	24	17	11	08	04
	<i>Nostoc sps.</i>	06	09	07	12	15	20	19	21	16	15	10	09
Eulenophyceae	<i>Euglena spirogyra</i>	01	03	02	05	08	02	10	05	04	03	03	01
	<i>Euglena eherenbergii</i>	02	07	05	02	11	03	12	07	06	05	02	03

**Table- 2-Annual Percentage of Phytoplankton of Kurnur Dam from June-2014 to May-2015.**

Class	Annual Percentage
<i>Chlorophyceae</i>	<b>33.33%</b>
<i>Bacillariophyceae</i>	<b>32.82%</b>
<i>Myxophyceae</i>	<b>28.71%</b>
<i>Eulenophyceae</i>	<b>5.12%</b>



Graphical presentation-1 - Annual Percentage of Phytoplankton of Kurnur Dam from June-2014 to May-2015.

#### IV. RESULTS AND DISCUSSION

The table No. 01 is showing that, the monthly as well as seasonal variations of Phytoplankton at four different sampling stations of the Kurnur Dam during June 2014 to May 2015.

##### Phytoplankton- *Chlorophyceae*:

During the Year of investigation, the monthly period observation, i.e. June 2014 to May 2015, the Maximum number of Phytoplankton- Group *Chlorophyceae* were observed at sampling stations A, B, C and D respectively. In the observation of this group there are 06 species are recorded during investigation period i.e. *Chlorella* sps., *Pediastrum* sps., *Scenedesmus arcuatus* sps., *Oedogonium* sps., *Spirogyra* sps., *Volvox* sps., etc. Out of these all 6 species the *Chlorella* sps., was dominant than other species.

##### Phytoplankton- *Bacillariophyceae*:

During the Year of investigation, the monthly period observation, i.e. June 2014 to May 2015, the Maximum number of Phytoplankton- Group *Bacillariophyceae* were observed at sampling stations A, B, C and D respectively. In the observation of this group there are 4 species are recorded during investigation period i.e. *Cyclotella* sps., *Fragillaria* sps., *Pinnularia* sps., *Melosira granulate* sps. etc. Out of these all 4 species the *Fragillaria* sps. was dominant than other species.

##### Phytoplankton- *Euglenophyceae*:

During the Year of investigation, the monthly period observation, i.e. June 2014 to May 2015, the Maximum number of Phytoplankton- Group *Euglenophyceae* were observed at sampling stations A, B, C and D respectively. In the observation of this group there are 2 species are recorded during investigation period i.e. *Euglena spirogyras* ps., *Euglena eherenbergii* sps. etc. Out of these all 2 species the *Euglena eherenbergii* was dominant than other species.

##### Phytoplankton- *Myxophyceae*:

During the Year of investigation, the monthly period observation, i.e. June 2014 to May 2015, the Maximum number of Phytoplankton- Group *Myxophyceae* were observed at sampling stations A, B, C and D respectively. In the observation of this group there are 4 species are recorded during investigation period i.e. *Anabena* sps., *Chroococcus minor* sps., *Mycrocystic elgans* sps., *Nostoc* sps. etc. Out of these all 4 species the *Anabena* was dominant than other species.

The table No.- 2 are showing that, the monthly as well as seasonal variations of **Annual Percentage of Phytoplankton** at four different sampling stations of the Kurnur Dam during June 2014 to May 2015.

During the Year of investigation, the monthly period observation, i.e. June 2014 to May 2015, the value of Annual Percentage of Phytoplankton was observed 33.33%, 32.82%, 28.71% and 5.12% at sampling stations A, B, C and D respectively, i.e. in this the maximum percentage was *Chlorophyceae* group i.e 33.33% and the minimum value of Annual Percentage of Phytoplankton was observed *Eulenophyceae* group i.e 5.12% from sampling stations A, B, C, and D respectively,.

During the plankton study of Kurnur Dam, the phytoplankton was belongs to four groups i.e. Bacillariophyceae with 06 species chlorophyceae with 04 species and Euglenophyceae with 03 species. The phytoplanktonic distribution from table of 04 groups of algae levels that the chlorophyceae was dominant during the investigation period. This type of work was carried out from various areas from various workers. All workers are proving such type of study to explain ecology of phytoplankton as well as its diversity and distribution. They play important role in fish food, good indicator of tropic status as well as pollution in water P.K. Mudbe, et. al, (2010).

In present investigation the bulk of phytoplankton diversity was observed in the Kurnur dam. The temperature factor was effect on the phytoplanktonic distribution in the water body. Kumar and Kumar (2012), Giller, P. S. and Malmqvist, Bjorn (2002), Kaushal (2007), Dutta et.al. (2009) etc. and they prove that the temperature factor plays important role in phytoplankton distribution with respect quantity as well as its quality Nirmal Kumar et.al, (2005).

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