



## STUDY OF PHYTOPLANKTON IN AMBADI DAM OF TELWADI (KANNAD) MAHARASHTRA ANIL A. KSHIRSAGAR

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### ABSTRACT

The present paper is mainly focus on the study of phytoplankton of Ambadi dam of Telwadi Kannad District Aurangabad. The members of Chlorophyceae, Cyanophyceae, Bacillariophyceae and Euglenaceae are observed in water samples of three different sites of dam. The highest number of genus *Oscillatoria* (62), *Euglena* (60), *Pinnularia* (53) and *Spirogyra* (43) are observed in different water samples.

**KEYWORDS** : Ambadi dam (Telwadi), Phytoplankton, water samples etc.

### Introduction:

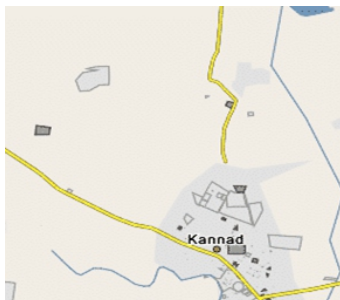
Ambadi dam is located in the Telwadi of Kannad .The dam is constructed by irrigation department of Government of Maharashtra. It is a medium irrigation project for water conservation. It is built up on the river Shivana or Ambadi. River Shivana is the tributary of river Godavari. It originates from Satmala hilly region, Pitalkhora of Kannad taluka and it runs from west to east. The paper is mainly deals with the study of phytoplankton. In this dam phytoplankton diversity are the microscopic bodies which are aquatic and autotrophic components. They are floats on the surface of water as well as live in ponds, lakes rivers, stagnant water etc. Phytoplankton is the basic food source of higher aquatic animals. The growth of phytoplankton depends on availability of sunlight, carbon dioxide and basic nutrients.

The completion of Ambadi dam was in the year 1978. The length of dam is 2210m and height is about 19.28m. The catchment area is about 141.35 km. The gross storage capacity is about 12.78 MCM. The water is used for irrigation area per hectare is 2147. The total irrigation area of dam is 3709 hectare and total irrigation capacity 9.42Mcum. The full reservoir level is 653.48m. There are two canals viz. left and right with the length of 10.50km and 6km respectively. The purpose of construction of this dam is to supply water for drinking, domestic use and irrigation purpose at Kannad villages. Fishing practices like culture and capture is also carried out by local peoples. The geographical background of this region is a plane in south and south west, hilly region. At the east presence of Satmala hills and Gautala sanctuary at the north and north east regions respectively. From mean sea level the height of dam is 943m and maximum height of the region is 953m. The average rain fall of this region is 688mm.

### Materials and Methods:

The water samples are collected from the different sites of Ambadi dam of Kannad. The collected samples were observed in laboratory under microscope. After microscopic evaluation of the water samples various types of phytoplankton are identified and count their numbers. The collection and observations is carried out from three different sites of dam. Temporary slides are prepared and observed under microscope.

### Study Area: (Location and satellite view of Ambadi Dam):



**Table: 1 shows salient features of Ambadi Dam:**

Sr.No.	Attributes	Features
1	Name of Dam	Ambadi
2	River	Shivana
3	Purpose of construction of dam	Irrigation
4	Completion of projects	1978
5	Total length of dam	2210 km
6	Basin name	Godavari
7	Total height of dam	19.28
8	Catchment area	141.35 km
9	Gross storage capacity	12.28 MCM
10	Storage water capacity	9.42 Mcum
11	Dead storage capacity	2.58 MCM
12	Full reservoir level(M)	653.48 m
13	Dam type	Earthen
14	Location of dam	Telwadi(Kannad)
15	State	Maharashtra

### Observations:

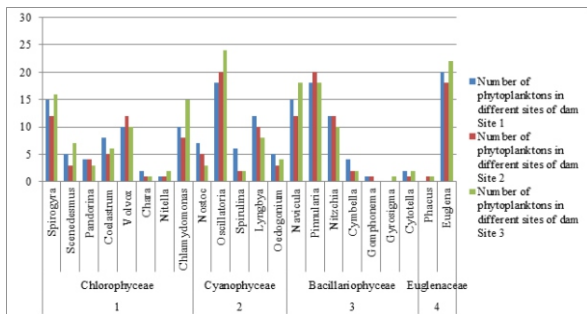
The water samples are collected from the three different sites of Ambadi dam. These water samples are observed under microscope. The different types of phytoplankton are reported and observed. The phytoplankton's are mainly belongs to class Cyanophyceae, Chlorophyceae, Bacillariophyceae and Euglenaceae etc. The genus like *Spirogyra*, *Coelastrum*, *Pandorina*, *Scenedesmus*, *Volvox*, *Chara*, *Nitella*, *Chlamydomonas*, *Nostoc*, *Oscillatoria*, *Spirulina*, *Lyngbya*, *Oedogonium*, *Navicula*, *Pinnularia*, *Nitzschia*, *Cymbella*, *Gomphonema*, *Gyrosigma*, and *Cyclotella* etc.

**Table: 2 Shows number of Phytoplanktons observed in three different sites dam with their graphical representation.**

Sr.No.	Class	Type of phytoplankton	Number of phytoplanktons in different sites of dam		
			Site 1	Site 2	Site 3
1.	Chlorophyceae	<i>Spirogyra</i>	15	12	16

		Scenedesmus	05	03	07
		Pandorina	04	04	03
		Coelastrum	08	05	06
		Volvox	10	12	10
		Chara	02	01	01
		Nitella	01	01	02
		Chlamydomonas	10	08	15
2.	Cyanophyceae	Nostoc	07	05	03
		Oscillatoria	18	20	24
		Spirulina	06	02	02
		Lyngbya	12	10	08
		Oedogonium	05	03	04
3.	Bacillariophyceae	Navicula	15	12	18
		Pinnularia	18	20	18
		Nitzschia	12	12	10
		Cymbella	04	02	02
		Gomphonema	01	01	00
		Gyrosigma	00	00	01
		Cytotella	02	01	02
4.	Euglenaceae	Phacus	00	01	01
		Euglena	20	18	22

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**Discussion:**

The water samples are collected from the three different sites of Ambadi dam. During the observation highest number of algae are observed from Cyanophyceae (Oscillatoria), Euglenaceae (Euglena), Bacillariophyceae (Pinnularia) and Chlorophyceae (Spirogyra). There are 6500 species of Chlorophyceae recorded worldwide by Singh (1960). Phytoplankton diversity is appeared as paradox Hutchinson (2007). The relationship between phytoplankton diversity and environmental factors has great importance in an assessment of pollution status Buric et.al. (2007) the phytoplankton in a particular water body was essential for choosing an appropriate method for maintenance of desired ecosystem, Perkyatko et.al. (2007). Bhivgude et.al. (2010) observed Chlorophyceae is a dominant species than other zooplanktons in Nagziri tank of Beed. Similarly results noted by Prescott (1939). Barhate (1985) considered that high percentage of dissolved oxygen is favorable for growth and development of Cyanophyceae. Protozoans are dominant was recorded in Gurha Brahma Jammu by Dutta et.al. (2009).

Phytoplanktons are primarily produces and very useful tools for the biomonitoring of water body, Stoermer (1977). In the present paper the highest number of genus reported from three different sites are Oscillatoria (62), Euglena (60), Pinnularia (53), and Spirogyra (43) etc.

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