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STUDIES ON EFFECT OF TEMPERATURE ON OXYGEN CONTENT OF BHANDARWADI DAM WATER AT PANGAON DIST. LATUR (M.S.)

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A B S T R A C T

Oxygen is very important and vital for all living organisms because it's essential to maintain the metabolic processes responsible for the production of energy for reproduction and growth. The dissolved oxygen affects the nutrients availability resulting change in the productivity of the entire water body. In the present study the monthly variation of dissolved oxygen recorded were 5.1 to 7.8 mg/L , 5.2 to 7.7 mg/L , 5.1 to 7.4 mg/L and 5.0 to 7.4 mg/L at spot S_1, S_2, S_3 and S_4 respectively. The water temperature is one of the most important parameter of aquatic ecosystem. They influence the physico-chemical and biological properties of an aquatic system. When water temperature is most suitable for the growth of aquatic animals and reproduction in pre-winter and post –winter months. The oxygen content of water decreases with rise in temperature. In the present investigation the monthly variation of water temperature recorded were 25.1 to 38.1 0c , 25.2 to 36.2 0c, 25.4 to 36.8 0c and 27.0 to 36.9 0c at spot S_1, S_2 S_3 and S_4 respectively. The monthly variations of dissolved oxygen content and water temperature in the present investigation were found to be well within the permissible limits prescribed by WHO and ICMR and suitable for the growth of fishes. The study carried out of one year during the June2007 to May 2008.

Key Words:- Bhandarwadi dam, Dissolved oxygen, Water temperature.

Introduction

The freshwater bodies of India have a large number of rivers ponds dam, impoundment etc. Water bodies are essential to humans not only for drinking purpose but also for fish culture, irrigation, energy production, and industry. About 80% of earth surface is covered by water but the inland freshwater availability is account for less than one percent. The Bhandarwadi reservoir is basically constructed for irrigation purpose. But in recent days the water of Bhandarwadi dam supply for the drinking purpose for human beings.

Materials and Methods

The every month the water sample was collected in the crew capped air tight, opaque polythene container for a period of one year June2007- May2008. At four sampling stations i.e. S_1, S_2 S_3 and S_4 respectively. The temperature of water was recorded in the field itself with the help of centigrade thermometer ^{o}c. The dissolved oxygen was estimated by Wrinkle's method in the laboratory suggested by APHA (1995) & IAAB (1998).

RESULTS AND DISCUSSION

The monthly variations of Dissolved oxygen and water temperature are represented in table No. 1. In the present investigation the amount of dissolved oxygen was found to be maximum in the month of December at spot S_1 and S_2, September at Spot S_3 and January at Spot S_4 the seasonal variation of dissolved oxygen was found in the winter season and minimum was found in summer season at Spot S_1, S_2, S_3 and S_4 respectively. In the present study the monthly variation of dissolved oxygen ranging from 5.1 to 7.8 mg/L, 5.2 to 7.7 mg/L, 5.2 to 7.4 mg/L and 5.1 to 7.4 mg/L at Spot S1, S2, S3 and S4 respectivley. Simillar observation were made by Yeole and Patil (2005) studied on the Yedshi lake District Washim and reported that the range of dissolved oxygen 6.0 to 7.5 mg/L. Kanwate and Kulkarni (2005) reported that the range of dissolved oxygen between 4.87 to 8.72 mg/L. Sedamkar and Angadi (2003) recorded minimum dissolved oxygen 5.2 mg/L and maximum 10.4 mg/L in the Pala tank near Gulbarga. A Positive correlation was observed between the temperature and dissolved oxygen in Mirik lake at Darjelling stated by Jha *et.al.* (2003) But Radhika et.al (2004) recorded the dissolved oxygen ranges from 4.83 to 7.11, 4.11 to 6.81 and 4.71 to 6.80 mg/L during pre- monsoon, Monsoon and post monsoon respectively. She stated that no significant variations in dissolved oxygen were encounted both spatially and temporally in the water of Vallayni Lake.

In the present investigation the water temperature ranges between 25.1 to 38.1- ^{0}C , 25.2 to 36.2 ^{0}C 25.4 to 36.8 ^{0}C and 27.0 to 36.9 ^{0}C at spot S1, S2, S3 and S4 respectively. The seasonal variation of water temperature the minimum was recorded in the winter season and maximum was recorded in the summer season but moderate was recorded in rainy season. Similar observation were made by Jayaraju and Sharma (1994) reported the seasonal value of water temperature the maximum in summer season & minimum in winter season. Singh (2000). sedemkar & Angadi (2003), surve *et.al.* (2005).

In the present investigation the positive co-relation was observed between the water temperature and dissolved oxygen.

Table No. 1 Monthly mean values of dissolved oxygen & water temperature from Bhandarwadi reservoir during the year June 2007 to May 2008.

Months	Parameters							
	Dissolved oxygen mg/L				Meter temperature ^{0}C			
June	5.6	5.4	5.1	5.1	37.1	36.2	36.2	36.9
July	5.9	5.8	5.0	4.9	30.4	30.2	31.4	31.2
August	6.9	6.8	6.9	6.0	31.2	30.2	31.1	30.1
September	7.1	7.2	7.4	6.8	30.2	31.2	30.2	32.4
October	7.2	7.2	7.2	7.0	29.1	29.1	29.6	30.2
November	7.3	7.4	7.0	7.4	25.1	25.2	26.2	27.8
December	7.8	7.7	7.2	7.3	26.1	26.9	25.4	26.8
January08	7.1	7.2	7.1	7.4	27.1	27.4	27.5	27.0
February	7.0	6.9	6.9	6.9	27.4	27.8	26.9	27.4
March	6.0	5.8	5.7	5.3	29.2	30.1	31.2	31.2
April	5.2	5.6	5.2	5.0	33.9	35.1	36.1	36.1
May	5.1	5.2	5.2	5.1	38.1	36.1	36.8	36.2

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