

Hydrobiology of reservoir Thodga, Ahmedpur Dist. Latur 413515 (MS) India

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ABSTRACT

Thodga reservoir is a minor irrigation reservoir at Thodga, Ahmedpur Dist Latur. The reservoir is constructed in the year 1994 for irrigation purpose. The total catchment area of reservoir is 46.7589 sq. km. The village Thodga use this water for irrigation and pisciculture. The fishermen society also use this water for pisciculture activities. The hydrobiology aspects of this reservoir are studied in three i.e. Rainy, Winter and Summer. The biotic and abiotic factors of this reservoir were studied. The details of these factors are given in the text.

Key words- Thodga, Hydrobiology

INTRODUCTION

Number of minors, medium and major reservoirs are constructed for irrigation and pisciculture activities. Reservoirs play important role in developing the agriculture sector. The runoff water is stored in the form of dams and reservoirs for irrigation, pisciculture, power generation etc. Several scientists have worked on hydrobiological conditions of reservoir in India [1] [2] [3], [4][5][6][7][8][9][10][11][12].

MATERIAL AND METHOD

For the study two spots were selected namely Spot A and Spot B. The spot A is near waste weir and spot B is at the opposite of spot A the area of this spot is infested with many aquatic plants. The samples were collected in morning hours between 7.00 am to 8.00 am and calculated as per the guidelines given in Trivedi and Goel (1986).

RESULT AND DISCUSSION

Biotic and Abiotic factors are important in the production of pond. Water is the primary requisite for pisciculture and which offers most favorable conditions for the existence of fishes and other organisms. Physicochemical factors of a particular water body have effects on the fish production of that water body. Physicochemical factors play an important role in the distribution and the survival of aquatic life. Fish production is also dependent on these factors [13] studied water qualities of several ponds in Manipur, Assam, West Bengal, Orissa, Madhya Pradesh, Andhra Pradesh in relation to fish production. According to him pH ranges from 6.5 to 7.5 is most favorable for fish production. The total alkalinity below 20ppm is indicative of poor production. Dissolved Oxygen content below 5ppm may be considered unfavorable for fish production where as normal condition of oxygen above 7ppm is

suitable for productive water body. Abidi and Thakur [14] suggested the ideal values of physicochemical characteristics of fresh water some of them are as follows.

- 1) Temperature (Tropical Climate): 25°C to 32°C
- 2) Total Alkalinity: 50 to 300 mg/lit
- 3) Dissolved Oxygen: 5 to 10 mg/lit
- 4) Free Carbon dioxide = more 3 mg/lit
- 5) Productivity = 1000 to 3000 mgC/m³/day

Sewell probably did the first study of water quality of a fish pond in India, when he studied the mortality of a fish in the museum tank in Calcutta. Banergea and Roy Choudhary [15] has studied physico-chemical features of Chilka lake, Dwivedi and Choudhary [16] has studied hydrobiology of Kettham lake. Desilva [17] studied limnological aspects of three main made lakes of Srilanka. Trivedi and Goel [18] studied the changes in pH, Do₂ content free Co₂ at three ponds of Mangloor (Karnatka).

Table 1: shows the Physico-chemical parameters

Month	Temperature				pH		Do		Co ₂		Alkalinity		Turbidity	
	Air A & B		Water A & B		Spot A	Spot B	Spot A	Spot B	Spot A	Spot B	Spot A	Spot B	Spot A	Spot B
June	32	30	24	23	7.4	7.9	8.6	8.7	0.8	0.6	48.73	49	42	44
July	31	31	22	23	7.4	7.8	8.5	8.7	0.81	0.6	49.60	49.1	40	44
Aug	31	30	23	22	7.3	7.9	8.5	8.8	0.82	0.67	51.2	49.2	40	45
Sept	32	30	23	21	7.5	7.7	8.7	9.0	0.73	0.7	56.33	50.1	39.5	46
Oct	30	29	24	22	7.6	7.2	8.6	9.1	0.5	0.75	58	51.2	39	46
Nov	30	29	22	20	7.7	7.2	8.7	9.2	0.5	0.8	60.1	52.2	37	42
Dec	29	27	22	19	7.7	8	8.8	9.2	0.4	0.8	62.4	54.1	33	40
Jan	30	28	20	21	7.5	8	8.9	9.1	0.42	0.6	64	56.7	33	40
Feb	31	29	21	24	8	8.1	8.9	9.0	0.39	0.6	63	58.2	32	39
Mar	32	32	24	25	8	8	9.0	9.2	0.33	0.5	65.2	59.7	30	39
Apr	34	34	24	26	7.9	7.9	9.1	9.3	0.32	0.5	62.1	60.2	30	35
May	35	35	25	26	7.8	7.8	8.9	9.1	0.5	0.4	61	64.3	35	33
Avg.	31.41	30.30	21	22.6	8.3	7.7	8.7	9.03	0.54	0.62	58.47	58.59	39.12	41.08

The temperature was recorded by standard thermometer and average values of Temperature was ranged between 31.41°C and 30.30.3°C at spot A and B. Similarly the average values of water temperature ranged between at spot A 21°C and 22.6°C at spot B. The pH was recorded by standard pH meter it was ranged at spot A between 8.3 to and 7.7 at spot B similar results were observed that water is favorable for pisciculture. The dissolved oxygen contents are expressed in mg/lit and it was ranged 8.7 mg/lit and 9.03mg/lit at spot B. The carbon dioxide is expressed in mg/lit and it was ranged at spot A 0.54 mg/lit and 0.62 mg/lit at spot B. The Alkalinity is expressed in mg CaCO₃/lit and it was ranged between 58.47 mg C/lit and 58.59 mg C/lit at spot B. The results of turbidity show 39.12 at spot A and 41.08 at spot B. The turbidity was recorded by Secchi disc method and it was more at both the spot in rainy season due to optimum rain fall and mixing of runoff water in the rainy season.

The above results show that the ideal values of physico-chemical characters of fresh water reservoir Thodga. The reservoir is potable for fish culture.

Conflicts of interest: The authors stated that no conflicts of interest.

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