

Evaluation of Water Quality of Bindusara Dam at Pali District Beed Maharashtra State

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Abstract

Bindusara river Dam at Pali a minor reservoir in district Beed. physico chemical parameters of Pali Dam were studied at monthly interval from June 2018 to May 2019. In the present investigation the water temperature range from 11.2 to 32.8 °C. pH range from 7.2 to 8.3. CO₂ range from 0.03 to 1.0 mg / lit. Dissolve oxygen range from 4.5 to 6.7 mg / litre. Alkalinity range from 87 to 173 mg / litre. chlorinity range from 30 to 67 mg/ liter during the year 2018-2019. at three different sampling spot. physico-chemical characteristics of Pali Dam water Reservoir is suitable for the development of aquaculture.

Keywords: - physico-chemical parameter, Bindusara Dam.

INTRODUCTION

Life is depend on water its need is very important for any living organism it is universal truth. This precious natural solvent is useful for various purposes like drinking, irrigation, industry, fish culture and many other activities which fulfil human needs. The main objective of the study is to evaluate dam water quality of pali reservoir along with its suitability as habitat for aquatic animals. In theory, it is possible to have water with high hardness that contains no calcium. Calcium is the most important divalent salt in pisciculture water.

Material and Methods

The present studies selected Pali reservoir and to assess the water quality this dam is useful to the fish culture For this three sampling stations where selected. This spot names as spot A, spot B and spot C respectively. The spot A is situated near the highway bridge of Pali. Spot B is away from 1/2 kilometre from site A. spot C is located near the kolwadi 1km away from site B. Water sample where collected from three station during June 2018 to 2019. The sample where collected every month in a plastic bottle of 2 litre early in the morning 8 a. m. The temperature and pH were noted at site and physico chemical analysis was carried out within 24 hours of collection. Following standard procedure (APHA 1995) and Trivedi Goel (1984) using method of FAO (1997).

Results and Discussion

Physico-chemical parameters of Pali Dam water during the year June 2018 to May 2019 shows in table. In the present investigation the water temperature ranges from 18.2 to 29.4 °C, 20.1 to 32.7 °C and 20.9 to 32.1 °C at spot A, B and C respectively. The physico-chemical analysis of Pali Dam water is represented in table 1 in the year 2018-2019. The temperature vary from 18.2 to 32.2 degree Celsius minimum temperature recorded at spot A and maximum recorded at spot C. The seasonal trend of water temperature the minimum was found in the winter season and maximum is summer season according to Welch(1952) all physiological and metabolic activities of life

such as feeding, reproduction, movement and distribution of aquatic organism. It is greatly influenced by temperature similar observation where made by Jaya Raja et al (1994) in river maneru and Jain et al(1996). Dhare and Gaikwad (2006) reported the water temperature in the present study the range of parameters is quite suitable for the growth of fishes.

Second vital factor of natural water is pH it is the scale of alkalinity and acidity of water measures the concentration of hydrogen ion in the present investigation the pH range between 7.2 to 8.3 at spot A, 7.6 to 8.7 at spot B and 7.4 to 8.4 at spot C. The maximum and minimum PH value where recorded at the spot B. The seasonal trend of the pH minimum and maximum was noted in the rainy season Awingale (1967) reported that the PH ranged between 6.5 to 9.5 has been found to be suitable for fish production (Jhingran 1974). In the present investigation the pH recorded range is 7.2 to 8.3 is most suitable for fish culture when the results correlated with above researches.

Carbon dioxide in the environment gives an opportunity to plants and phytoplankton to synthesis their food during the process of photosynthesis. In the present work the carbon dioxide range between 0.03 to 0.2 mg per litre At Spot C. occurrence of free carbon dioxide during summer season in the Reservoir but absent or very in winter and rainy season it is good conditions of water for the pisciculture.

Oxygen is important for metabolism of all aquatic organism which possesses aerobic respiration (wetzel 1975). In the present study the dissolved oxygen ranged from 4.5 to 6.7 mg /lit 4.8 to 6.10 mg/lit and 5.1 to 7.2 mg/litre at spot A, B and C respectively similar observation where made by Kanwate and Kulkarni (2005).

Alkalinity is the cause of carbonate and bicarbonate ion its salts the present investigation the total alkalinity ranges from 85 to 135 mg/ litre at spot A 145 to 171 milligram per litre at spot B and 12.5 to 17.5 at spot c. The chloride is an important parameter for fish culture. In the present study the chloride ranges between 34 to 61 milligram per litre 32 to 63 mg/ litre 32 to 61 milligram per litre at spot A, B and C respectively (Jangle 2000) reported chloride value. Gupta B.K (1999) physicochemical analysis of drinking water. Khatpekar and Nandkar (2017). Observe the chloride value.

CONCLUSION

In the present investigation all the parameter of Pali reservoir water were study during the year of June 2018 to May 2019. the range of the water temperature was 15.2 to 32.2 °C. pH ranges between 7.2 to 8.3. Dissolved oxygen Ranges 4.5 to 6.7 mg/litre. Carbon dioxide Ranges 0.03 to 1.01 mg/lit. was favourable for the development of aquatic animals and aquaculture. physicochemical parameters of Pali Dam Reservoir water during the year June 2018 to may 2019 is favorable for aquatic animals.

Physico-chemical parameters of Pali (Būdusara) dam water during the year June 2018 to May 2019.

Parameters	Spot	Months											
		June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May
1) Temp (0 degree celcius)	A	29.5	25.4	24.6	24.1	23.5	20.4	18.2	17.5	19.2	17.3	28.3	30.1
	B	30.2	27.4	25.1	25.4	23.4	23.2	18.9	20.5	23.8	28.4	28.4	32.8
	C	29.2	26.8	23.2	22.8	22.1	21.7	20.10	20.10	24.2	29.6	30.2	32
2)Dissolved CO2(mg/L)	A	0.03	0.03	0.04	0.05	0.05	0.04	0.06	0.05	0.06	0.07	0.07	0.08
	B	0.04	0.03	0.05	0.06	0.07	0.06	0.05	0.06	0.07	0.07	0.8	0.2
	C	0.3	0.04	0.03	0.04	0.06	0.05	0.04	0.07	0.08	0.10	0.9	0.1
3)Dissolved O2(mg/l)	A	6.3	6.2	6.5	6.7	6.5	6.10	6.8	6.6	6.4	6.7	5.4	4.5
	B	6.3	6.4	5.1	6.5	6.6	6.9	6.7	6.8	6.7	6.10	7.2	4.8
	C	6.8	6.8	5.8	6.2	6.3	6.5	6.2	6.3	0.5	6.7	7.2	5.1
4)Alkalinity (Mg/l)	A	118	125	116	146	142	85	100	120	85	168	120	165
	B	193	198	184	192	190	172	181	195	200	205	215	227
	C	192	172	165	160	155	145	132	147	152	162	192	220
5)Chlorinity (mg/l)	A	45	47	50	52	57	62	60	63	52	54	48	34
	B	36	38	43	57	65	67	64	38	39	35	45	47
	C	43	48	41	52	65	67	62	66	32	35	36	32
6)PH	A	7.2	7.6	7.9	8.0	8.2	8.3	8.2	7.8	7.9	8.0	8.1	8.2
	B	7.7	8.7	7.7	7.9	8.1	8.2	8.0	7.6	7.8	7.7	7.5	7.8
	C	7.5	8.1	8.3	8.2	8.0	7.9	7.5	8.1	8.2	7.9	8.2	8.1

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