

Seasonal variation in temperature and dissolved oxygen in Khateshwar lake Dist -Yavatmal due to Pollution

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Abstract

Khateshwar lake is main source of drinking water for the People. The present investigation was undertaken to study seasonal variation in temperature and dissolved oxygen in khateshwar lake yavatmal due to pollution , In terms of temperature and dissolved oxygen samples were taken one year monthly from June 2018 to May 2019.. In present study value of temperature were maximum 35.2° C and minimum 21° C and value of dissolved oxygen were maximum 7.2 mg/lit in winter and minimum 1.4 mg/lit in summer. Value of temperature and dissolved oxygen are inversely proportional to each other indicate pollution..

Keywords: Khateshwar lake , temperature, dissolved oxygen, industrial pollution.

Introduction: -

Khateshwar lake in Yavatmal district (M.S). water is main source of irrigation, drinking and industrial purpose etc. river Khateshwar lake bank of people thrown garbage, waste material, Grazing animal, Industrial wastes are directly drained in to Khateshwar lake without any processing industrial effluents and agricultural wastes rapidly pollute Khateshwar lake water. Present work deals with the analysis of different variation in temperature and dissolved oxygen along with industrial discharge.

All organisms depend on oxygen plant and animals .free dissolved oxygen affects the temperature dissolved oxygen. water temperature and dissolved oxygen one of the important parameter in water quality assessment ,decrease of oxygen level may be due to organic matter present in industrial waste. organic inorganic salt, heavy metal, might matter present in industrial waste. The organic inorganic salt heavy metal might have interfered normal concentration of oxygen level. temperature and oxygen presence is essential maintain biological life in water and the effect of water discharge in water body are largely determined by oxygen. Temperature and dissolved oxygen are parameter directly related with biological change in water temperature affects the chemical reaction going on in natural water. Dissolved oxygen present in water is essential for living organism or aquatic plant and animals, low oxygen of dissolved oxygen occur death of living organism in water. Solubility decrease or increase with temperature and water in Khateshwar lake . The depletion of oxygen from water body depends on pollution quantity.

Material and Methods:-

Water samples were collected from three sampling station sampling station- A is near Khateshwar city and Station -B situated near bank of Khateshwar lake which is polluted sampling Station- C near industry. Sample were collected and analysed for one year monthly from June 2018 to May 2019. Water temperature and dissolved oxygen are analysed at sampling station with water analyse kit. Determination of temperature an

indicate pollution strength. Dissolved oxygen is useful for body test and body value is useful for pollution status of khateshwar lake which is cause by industrial waste, garbage waste, Grazing animals etc.

Result :-The value of temperature of water samples was recorded and shows fluctuation from water sample at all these station .Khateshwar lake water temperature maximum in the month of May 2019. Value of temperature at sampling station A - 23.2°C to 35.5°C . At station B -23.2°Cto 35.8°C and at sampling station C- 24.0°C to 36.2°C ,and the value of dissolved oxygen

.sampling station of A- 5.1 to 8.1 mg/ lit , the value of dissolved oxygen 2.0 to 4.3 mg /lit at sampling station -B and at sampling station-C - 1.8 to 3.6 mg/lit during june 2018 the value of temperature and dissolved oxygen are shown in table 1 and 2 the value of dissolved oxygen and temperature are given in observation table shows that temperature value are higher during May and lower during December. Dissolved oxygen value are inversely proportional i.e higher during December and lower during May. low value of dissolved oxygen in summer due to high water temperature in khateshwar lake shows pollution. Status , So There is need to conservation and management of Khateshwar lake . and the pollution status of Khateshwar lake is recommendedfor the investigation and conservation and management.

Monthly mean value of temperature °C year- 2018-19

Month	StationA	StationB	StationC
June	6.4	2.8	2.3
July	6.1	3.1	2.1
August	6.2	4.2	1.8
September	7.1	4.1	1.7
October	7.1	4.7	2.3
November	6.8	3.4	3.6
December	8.1	3.2	2.7
January	7.2	3.4	2.3
February	6.0	2.5	3.0
March	5.4	2.3	3.2
April	5.5	2.4	2.9
May	5.1	2.0	1.8

Monthly mean value of dissolve oxygen (Mg/L) Year- 2018-19

Month	StationA	StationB	StationC
June	27.0	31.8	32.1
July	28.1	29.2	31.0
August	29.0	30.2	30.2
September	29.1	30.0	31.0
October	28.2	29.0	29.2
November	28.3	29.4	29.3
December	25.0	23.2	24.0
January	25.1	24.1	24.2
February	28.2	31.5	30.1
March	30.2	32.3	32.8
April	32.3	32.4	35.1
May	35.1	35.8	36.2

Discussion:-

Baruah et al, (1993)recorded dissolved oxygen from river Gelabil ,Assam in the range of 2.5 to 9.6 mg/ lit .Saxena and Chauhan 1993 observed dissolved oxygen from river Yamuna at Agra . ranged between 2.0 to 7.5 mg/lit.In river Ganga at patina temperature recorded 21.1 to 35.8 °C by Pendse et al. (2000).Dutta (2001).observed the temperature in the range of 11.2 to 32.8 °C fromriver Basanter samba JammuSingh et al .(1998)studied water quality from Rapti river at Gorkhapur recorded water temperature at site –A 21.2 to 30.5 °C ,t site –B 22.2 °C and at site –C 5.5 to 31,2 °C Meenakshi Deshmukh et al.(1998) recorded water temperature from Kham river range from 18 to 32 °C Massrat Sultana et al (1999) recorded water temperature from river Godawari range from 19to 32 °C Kedar and patil (2002) recorded temperature range from 20.5 to 28.3 °C from Rishi lakh Karanja (Lad) dist washim .Naik et al (2002) recorded temperature range from 26 °C to 27 °C from puina lakh kalamnoori district Hingoli . Maharashtra . Thakareet,al. (2002) recorded temperature range from 32 °C from Dhamaswadi lake district Latur.

Conclusion:-

Low value and dissolved oxygen in summer due to high water temperature in Khateshwarlake shows pollution status of Khateshwar lake ,so there is need to conservation and management of Khateshwar lake and

Khateshwar lake is recommended for the investigation and Conservation. .

References:

1. **Bahura, C.K. (2001)** Diurnal cycle of certain Abiotic parameters of a freshwater lake, the Ganger lake, Bikaner, In the Thar desert of India. J. Aqal Biol., Vol. 16 (1 and 2) 1; 45-48.
2. **Baruah A.K.Sharma R.N and Baruah G.E. (1993)** Impact of sugar mill and distillery effluents on water quality assessment of river Gelabil, Assam. Indian J.Evnirn, Hlth., 35(4) : 288-293.
3. **Meenakshi B. Deshmukh and Lomte V.S. (1998)** Seasonal change physicochemical characteristic of Kham River.
4. **Saxena K.L., Chakrabarty R.N.Khan A.K.and Chandra H. (1966)** pollution studies of river Ganga near Kanpur, Indian J. Environ. Hlth., 8(4) : 270-285.
5. **Singh Shreeram, and Vinod K. (1988)** Variation in water quality of Ganga riverbetween Buxer and Ballia. Poll. Res., 7 (3&4) : 85-92