PHYSICO CHEMICAL PARAMETERS OF NASPUR LAKE ADILABAD DISTRICT (A.P).

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ABSTRACT: Present paper deals with the physic-chemical parameters of Naspur lake, Manchiryal mandal, Aailabad district. The work was carried out during the period of Sep-2011 to Aug 2012.This lake was established for Irrigation, Drinking water and Fish culture purpose last two decades back. It was in the out of 7 km distance from Manchiryal town. Singareni coal mine employs are living in the Manchiryal town, day by day expanding of city population last two decades .In rainy season it's receiving city sewage .industrial wastes, coalmine dust run off to the lake. This type of water injuries to the health of human other aquatic fauna. So there is an urgent requirement for its extent of pollution which will help us in further management of conservation. During the study period examine the physic-chemical parameters such as: atmosphere temperature, water temperature, pH, electrical conductivity, alkalinity, total hardness, TDS, Ca.Mg, chlorides, sulphates and phosphate, following stranded methods (APHA 1998).
 Now this lake is becoming eutrophic nature.
Key Words: Naspur Lake, physic-chemical parameter, Adilabad.

INTRODUCTION

Water is an one of the most impotent available substances on the earth. The survival and quality of human life depends up on the availability of fresh water. The aquatic animal's life directly or indirectly depends on water quality status (A.Bajpai, 1993). (A.Mishra et.al.1993).(Sayeshwara,2010).Water quality study provide the current information about the suitability of water for designated uses and to improve existing condition (Lloyl 1992).

Now a day's most of the aquatic ecosystem receives million liters of municipal sewage, industrial and agricultural runoff. Its cause to nutrient enrichment cause to the etrophication in aquatic ecosystem.(A.A.Ansari,2006) .Pollution of the aquatic environment by inorganic and organic chemicals is a major factor tarts to the survival of aquatic organisms and including fish population(Saeed and Shaker 2008).The main object of this paper to examine the physicchemical parameters of Naspur lake and to suggested to conservation methods.

METERIAL AND METHODS

The investigation was carried out to study the physico chemical and biological aspect of the lake during September 2011 to August 2012, The Naspur lake situatuated 7 km distance from Manchiryal town, Adilabad district Figure-1. 100ht paddy field is irrigation under this lake .Water sample were collected in morning hours at 6-00 am to 8-00am.

Figure-1: Naspur Lake

Physical chemical parameters such as: temperature, pH, TDS, electrical conductivity, alkalinity, total hardness, TDS, Ca.Mg, chlorides, sulphates and phosphate, following were analyzed in the laboratory by using stranded methods (APHA, 2005).

RESULTS

The result of physic-chemical characteristics of Naspur lake water has been submitted in Table.1. Correlation coefficient values are given in Table. 2.

Temperature-Atmosphere, Water Temperature, an important role plays in determine the growth of organisms ultimately the water quality. Excess amount of nutrients, high temperature cause to the eutrophicaton.The maximum temperature was 38ºC in the month of May, and minimum 19ºC was recorded in the month of January. Although the water temperature recorded was consistently lower than the atmosphere temperature. Atmosphere temperature positive correlated with water temperature, electric conductivity, total hardness,calcium,chloride phosphate, sulphate and negative correlated with,pH,transparence,TDS,Mg,alkalinity, Water Temperature positive correlated with electric conductivity, total hardness, calcium chloride phosphate ,sulphate and negative correlated with pH, transparence, TDS, Mg, alkalinity.

Ph- The high variation in Ph of water is an indicate the highest productivity nature of lake water .The maximum value of Ph was recorded 8.5 in month of May and minimum 7.8 was recorded in the month of September. In study period i.e. Sep-11 to Aug- 2012 Ph showed high significant positive relationship with water temperature. Its negative relationship with pH.

Transparence- Intensity of light cause to the growth of planktons, it an indicator of productivity. The maximum value of transparence was recorded 23cm in month of April and minimum 14.2 was recorded in the month of August. In study period i.e. Sep-11 to Aug- 2012 transparence showed high significant positive relationship with water temperature.

Electric Conductivity -Electric conductivity is a numerical expression ability of an aqueous solution to carry electric current. It's the best indicator of water pollution as conductivity is the indirect measure of TDS, nutrient. The maximum value of conductivity 1820µm was recorded in month of July and minimum1140 µm was recorded in the month of April. In study period i.e. Sep-11 to Aug- 2012. Electric conductivity showed high significant positive relationship with water temperature. Its shows negative relationship with Ph, Transparence.

Total dissolve solids- Total dissolved solids are composed mainly of, chlorides, Sulphates, Phosphates, Nitrates, Calcium,Megnisium,Sodium,Potassium,Iron,Megnesium carbonates, bicarbonates(H.R.Esmaeli and M.S.Joshi2005). The maximum value of TDS 1325mg/lit was recorded in month of September and minimum980 mg/lit was recorded in the month of May. In study period i.e. Sep-11 to Aug- 2012. Total dissolved solids showed high significant positive relationship with water temperature, Electric conductivity. Its shows negative relationship with pH, Transparence.

Total Hardness- The maximum value of total hardness 162 mg/lit was recorded in month of April and minimum 88 mg/lit was recorded in the month of September. Salve and Hiwre (2006), S.E Shinde *et.al* 2011) reported that TH high in winter low in summer and monsoon season. In study period i.e. Sep-11 to Aug- 2012. Total hardness showed high significant positive relationship with water temperature, Electric conductivity. Its shows negative relationship with pH, Transparence, total dissolved solids.

Table.No.1 Physico-chemical parameters of Naspur lake,Adilabad district

	11-Sep	Oct	Nov	Dec	12-Jan	Feb	Mar	April	May	Jun	July	Aug
Atmosphere tem	29.8	29	26	24	19	25	31	34	38	35	31	28
water temperature	28.5	26.6	25.2	22	18	23.9	29.5	32.8	36.2	33	29	26.2
pH	7.8	8.2	8.1	8.3	8.7	8.4	8.5	8.3	8.2	8.1	8	7.9
Transparence	16.8	22.4	25.8	22	23	25	19	23	22.1	20	17.1	14.2
Conductivity	1530	1810	1720	1500	1410	1302	1250	1140	1620	1770	1820	1725
TDS	1325	1174	1198	1209	1145	1250	1102	995	980	1050	1188	1215
Total hardness	88	119	122	128	135	130	150	162	141	121	110	98
ca	62	65	70	74	80	89	92	101	110	92	83	79
Mg	16	55	52	53	55	41	58	51	31	29	28	19
Alkalinity	250	302	310	325	268	181	160	192	110	102	190	232
Cl	65	71	56	54	63	69	72	73	74.2	69.2	71	68
P	1.2	1.12	0.9	0.97	1.22	0.99	1.2	2.2	3	1.9	1.2	1.05
S	1.8	1.6	1.04	1.1	1.3	1.44	1.7	2.2	2.8	3.2	1.9	1.5

Calcium- The maximum value of calcium 110 mg/lit was recorded in month of May and minimum 62mg/lit was recorded in the month of September. In study period i.e. Sep-11 to Aug- 2012. Ca showed high significant positive relationship with water temperature, Electric conductivity. Its shows negative relationship with pH, Transparence, total hardness, total dissolved solids.

Magnesium- The maximum value of magnesium58 mg/lit was recorded in month of March and minimum 16 mg/lit was recorded in the month of September. In study period i.e. Sep-11 to Aug- 2012 Mg showed high significant positive relationship with water temperature, Electric conductivity, Calcium. Its shows negative relationship with pH, Transparence, total hardness, total dissolved solids.

Alkalinity- Separation of alkalinity soft & hard water scale is 40mg/lit. J.B.Moyle (1949). The maximum value of 325mg/lit was recorded in month of December and minimum102mg/lit was recorded in the month of June. In study period i.e. Sep-11 to Aug- 2012 Alkalinity showed high significant positive relationship with water temperature, Electric conductivity. Its shows negative relationship with pH, Transparence, total hardness, total dissolved solids, .

Chlorides-The maximum value of Chlorides 74.2mg/lit was recorded in month of May and minimum54mg/lit was recorded in the month of December. Chlorides increase in summer and decrease in winter (Singh 1960, ZafarA.R.1964) In study period i.e. Sep-11 to Aug- 2012 Chlorides showed high significant positive relationship with water temperature, Electric conductivity, and Ca. It's shows negative relationship with pH, Transparence, total hardness, total dissolved solids, alkalinity, Mg.

Phosphates-The maximum value of Phosphates 3.0mg/lit was recorded in month of May and minimum 0.9mg/lit was recorded in the month of November high value of phosphate during summer may be attributed to the decrease water level and release of phosphate due to decomposition of organic matter.(Seenyya and Jafar ,1979, and Saha 1984). In study period i.e. Sep-11 to Aug- 2012 Phosphate showed high significant positive relationship with water temperature, Electric conductivity, Ca, Chloride. Its shows negative relationship with pH, Transparence, total hardness, total dissolved solids, Mg, Alkalinity

Table.2. Correlation coefficient of Naspur lake

Atmosphere	Water						Total hard ness	Ca	Mg	Alkalinity	Cl	P	S
	Temp	Temp	pH	Transparence	E.Conductivity	TDS							
Atmosphere tem	1												
water temperature	0.99589	1											
pH	-0.406	-0.391	1										
Transparence	-0.2459	-0.213	0.5756	1									
E.Conductivity	0.13299	0.083	-0.605	-0.297	1								
TDS	-0.6114	-0.619	-0.341	-0.228	0.187	1							
Total hard ness	0.16336	0.1908	0.7579	0.578	-0.663	-0.75	1						
ca	0.58015	0.6022	0.3298	0.136	-0.379	-0.83	0.6935	1					
Mg	-0.3802	-0.374	0.7883	0.6864	-0.421	-0.24	0.7025	0.0096	1				
Alkalinity	-0.7223	-0.735	-0.004	0.1934	0.123	0.597	-0.289	-0.816	0.3691	1			
Cl	0.6767	0.6712	-0.013	-0.265	-0.108	-0.5	0.2553	0.5982	-0.233	-0.742	1		
P	0.76462	0.777	0.0163	0.0844	-0.103	-0.83	0.4558	0.7902	-0.18	-0.68	0.564	1	
S	0.84667	0.8406	-0.205	-0.187	0.138	-0.67	0.1593	0.637	-0.416	-0.842	0.646	0.8117	1

Sulphates- it's a present in fertilizer they contribute to the water body from agricultural runoff. The maximum value of Sulphates 3.2mg/lit was recorded in month of June and minimum1.1mg/lit was recorded in the month of December. Reddy et.al (2009) high value recorded in monsoon season. In study period i.e. Sep-11 to Aug- 2012, Sulphates showed high significant positive relationship with water temperature, Electric conductivity, phosphate, chloride, Ca,. Its shows negative relationship with pH, Transparence, total hardness, total dissolved solids, Mg, alkalinity.

CONCLUSSION

The present study revel that Naspur Lake was polluted by the sewage water and domestic uses that's why the lake was polluted.

To prevent the lake pollution   some measures to be take.

1. Treatment of sewage water and avoid the municipal sewage connection to lake,
2. Aviod the washing of cloth,
3. Bating of cattle,
4. Dumping of Agricultural waste,

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