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Analysis of Water Quality Using Physico- Chemical Parameters of Sugahav reservoir at Mukhed Dist.Nanded.

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Abstract

This Paper deals with the Physico–chemical Parameters of Sugahav at Mukhed dist. Nanded Maharashtra. Monthly Changes in Physical and Chemical Parameters such as Water Temperature, Turbidity, Total Dissolved Solids, pH, Dissolved Oxygen, Free Carbon dioxide and Total Hardness, Chlorides, Alkalinity, Phosphate and Nitrates were analyzed for a periods of one year from 1st January 2014 to 31st December 2014.The results indicate that the tank is Non-polluted and can be used for Domestic, Irrigation and Fisheries.
Keywords: Reservoir, Physico-chemical parameter

1. Introduction

Water is life and no life can exist without water. So it playas an essential role in human life .The world health organization (WHO)report that 36% urban and 65% of ruler Indian were without access to drinking safe water. Water is scarce and valuable resource ,it has many beneficial uses such as drinking ,irrigation, navigation, propagation of wild life fisheries etc .but due to increased human population industrialization ,use of fertilization in agriculture and other man made activity .The natural resources are got heavy and varied pollution in aquatic environment causing of pollute water quality and depletion of aquatic biota It is therefore the quality of drinking water should be checked at a regular time of interval.

The present study involves the analysis of water quality using physico-chemical parameters of Sugahav reservoir at Mukhed Dist. Nanded. It is located longitude 18^0 28^I to 18^047^1 north to 77^0 10^1 to 77^0 45^1 east of the equator.

2. Material and methods

The water samples from Sugahav reservoir were collected from two different stations in the morning hours between 10 to 12 am in polythene bottle regularly for every month. The water samples were immediately brought in to laboratory for the estimation of various physico -chemical parameters like water temperature were recorded at the time of sample collection by using thermometer. While other parameters pH ,turbility, total dissolved solid .Dissolved Oxygen ,total hardness alkalinity ,chloride ,phosphate nitrate, biological oxygen demand were estimated in the laboratory by using standard laboratory method (Trivedy and Goel,1986, APHA 1985).

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Table-I: physico -chemical parameters of Sugahav reservoir at Mukhed

MONTH	Temp	pH	Turbidity	TDS	D.O	Hardness	Alkalinity	chloride	Phosphate	Nitrates	BOD
UNIT	^{0} C	-	NTU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
January	19.2	8.02	7.30	187.61	5.98	120	90.62	28.3	1.10	1.19	2018
February	22.6	8.06	7.20	205.26	4.86	98	120.83	31.0	1.28	3.28	2.23
March	26.4	8.40	6.40	162.15	5.28	110.78	160.47	32.5	1.60	2.73	2.4
April	27.8	8.30	6.10	157.25	4.72	162.02	169.92	30.6	2.34	1.29	3.13
May	28	8.60	5.80	113.23	4.34	184.75	175.20	38.5	1.23	2.63	3.23
June	26.6	7.80	10.20	210.47	5.34	171.23	130.0	34.3	2.63	3.42	2.34
July	21.4	7.60	11.25	246.30	7.12	150.0	145.0	26.5	3.87	6.2	2.87
August	21.2	7.60	11.10	222.62	7.05	94.2	138.0	29.3	5.57	9.7	2.47
September	20.6	7.50	10.50	180.24	6.43	97.2	113.0	30.6	6.20	11.8	2.76
October	19.5	7.40	10.20	143.34	6.28	90.27	120.0	29.4	1.50	4.67	2.34
November	19.2	7.60	8.62	150.62	5.82	102	116.0	30.0	1.30	3.21	2.68
December	18	7.90	9.20	160	5.37	118.87	110.0	30.8	1.30	2.53	2.38

3. Result and Discussion

[3.1] Water Temperature

The area under the project is in semidry zone, there is a rapid increase in temperature after the month of January; April and May is the hottest months. The climate of the year is divided into four seasons, hot season from March to May; South-west monsoon from June to September; Post-monsoon from October to November; winter from December to February. However the Water temperature plays an important factor which influences the chemical, bio-chemical characteristics of water body. The maximum temperature of 30 ^{0} C was recorded in May and a minimum of 18^0 C was recorded in month of December in the year 2014. Water temperature in summer, was high due to low water level, high temperature and clear atmosphere our result were found similar to Salve and Hiware 2008.

[3.2] pH

pH was alkaline values ranges from 7.4 to 8.5.The maximum pH value (8.6) was recorded in the month of May (summer) and minimum (7.4) in the month of October. Most of bio-chemical and chemical reactions are influenced by the pH. The reduced rate of photosynthetic activities reduces the assimilation of carbon dioxide and bicarbonates which are ultimately

responsible for increase in pH.

[3.3] Turbidity

The present study turbidity of water fluctuates from 4.20 NTU to 11.25 NTU. The maximum value of 11.25 (2012) NTU was recorded in the month of July. The increasing value of turbidity in rainy season silt, clay and

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other suspended particles supported to increase the turbidity value. Dagaonkar and Saksena (1992),Gang at (2006)and Medudhula et at(2012) have also reported high value of turbidity in rainy season .The minimum value 4.20 NTU recorded in the month December (winter) because settlement of silt, clay result in low turbility.

[3.4] Total Dissolved Solid

Total dissolved solids value ranges from 113.23 mg/l to 246.30 mg/l .The maximum value 246.30 mg/l was recorded in the month of July supporting to heavy rainfall minimum value 113.23 mg/l in the month of May.

[3.5] Dissolved Oxygen

Dissolved oxygen is vital to aquatic funa, play critical role in life process of animal so it is important aquatic parameters. The value of D.O from 5.37 mg/l to7.12 mg/l .The minimum value 4.34 mg/l reported in month of May, due to high temperature increase the rate of decomposition of organic matter and limited flow of water .The maximum value 7.12 mg/l reported in the month of July.

[3.6] Total Hardness

In the present study total hardness from90.27 mg/l to 184.75 mg/l. The maximum value 184.75 mg/l was recorded in the month of May and Minimum value 90.27 mg/l recorded in the month of October. The increase in hardness is due to decrease in water volume and increase in the rate of evaporation at high temperature .The finding was similar to Hujare 2008.

[3.7] Alkalinity

Total alkalinity range from 90.62 mg/l to 175.20 mg/l .The maximum value are (175.20 mg/l) recorded in month of May and minimum value (90.62 mg/l)recorded in the month January. The finding was similar to Hujare 2008 and Basavraja simpi et.al (2011) also reported that it was maximum in summer and minimum in winter due to high photosynthesis rate.

[3.8] Chlorides

The values of chlorides range from 28.3 mg/l to 38.5 mg/l. The maximum value was recorded in the month of May (38.5 mg/l) and minimum value was recorded in the month of January(28.3 mg/l) Similar result were reported by swarnalatlha and Narsing rao (1998), umavathi et.al(2007) Basavraja simpi et.al at (2011),Medudhula Thirupathaiah et al (2012)

[3.9] Phosphate

The value of phosphate from 1.10 mg/l to 6.20 mg/l. The maximum value was recorded in the month of September 6.20 mg/l and minimum value in the month of January (1.10 mg /l). The high values of phosphate in September was associated to rainfall, mainly agriculture run off surface water runoff, could have contributed to the inorganic phosphate content.

[3.10] Nitrates

The value of nitrate ranges from 1.19 mg/l to 11.8 mg/l. The maximum value was recorded in the month of September(11.8 mg/l) and minimum value recorded in month of January (1.19 mg/l) .

[3.11] Biochemical Oxygen demand (BOD)

In the present study the BOD value range from 2.18 mg/l to 3.23 mg/l .The maximum in BOD value was recorded in the month of May (3.23 mg/l) and minimum the month of January (2.18 mg/l) Devaraju et al (2005)was reported similar observation.

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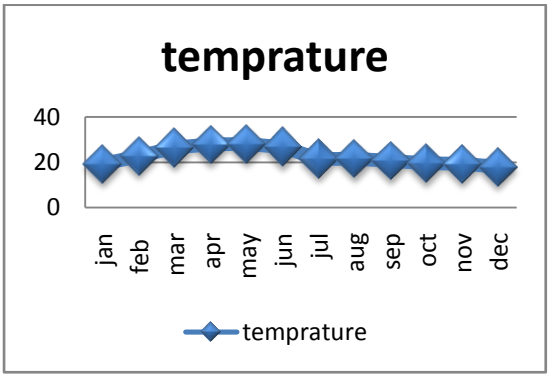

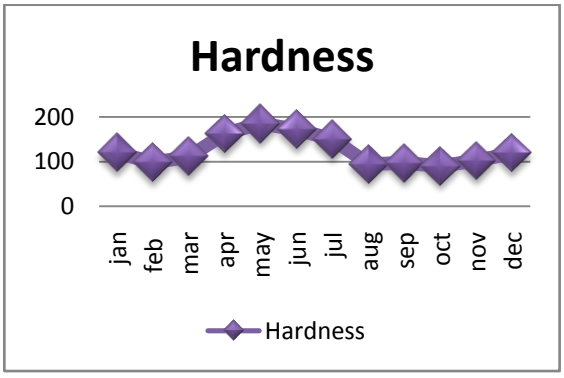

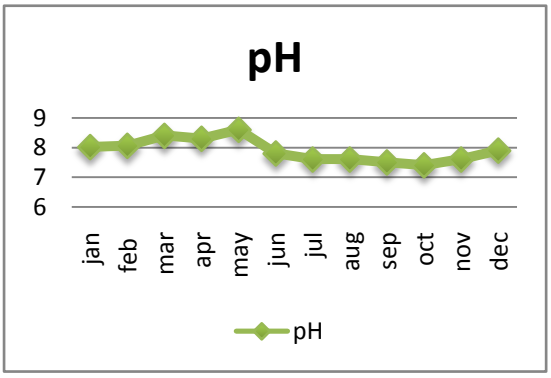

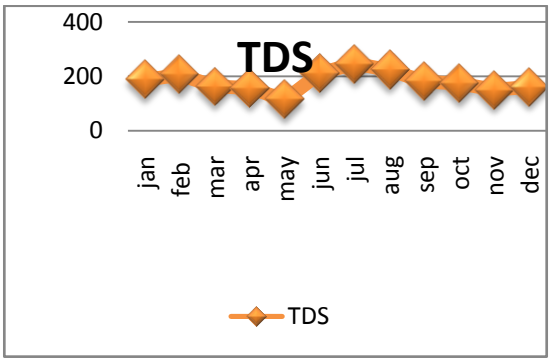

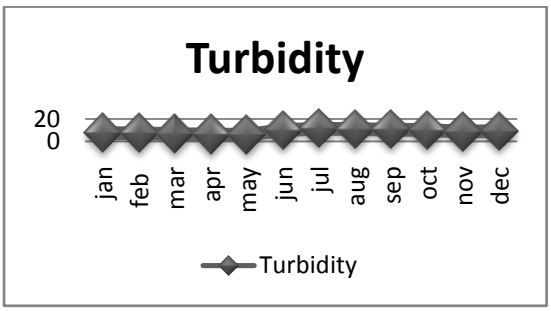

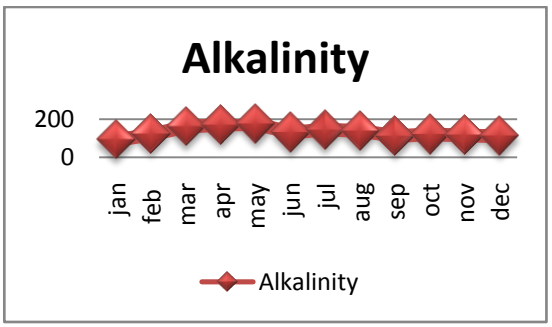

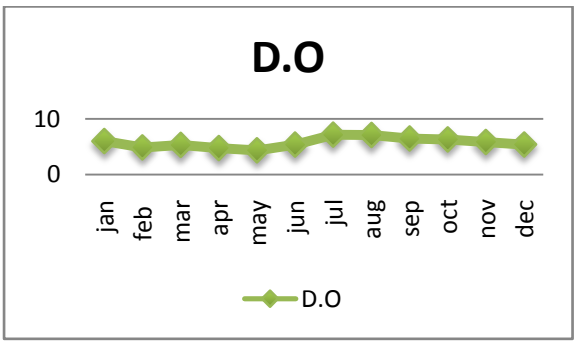

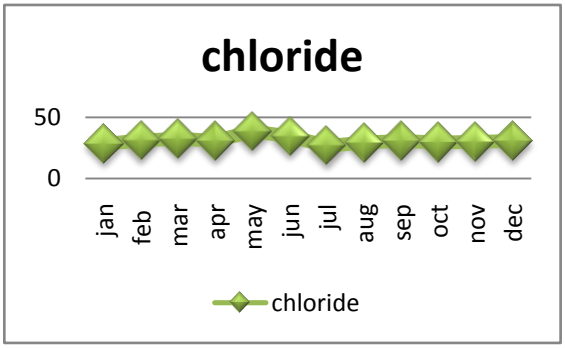

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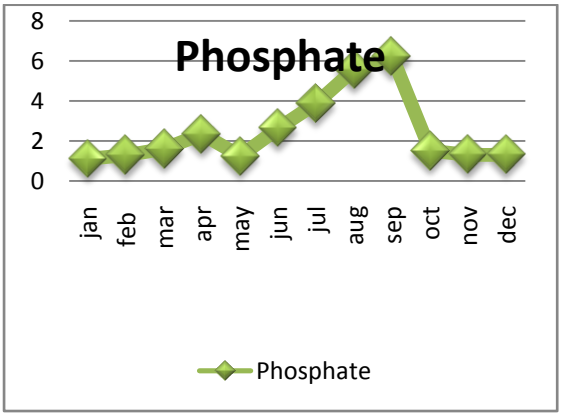

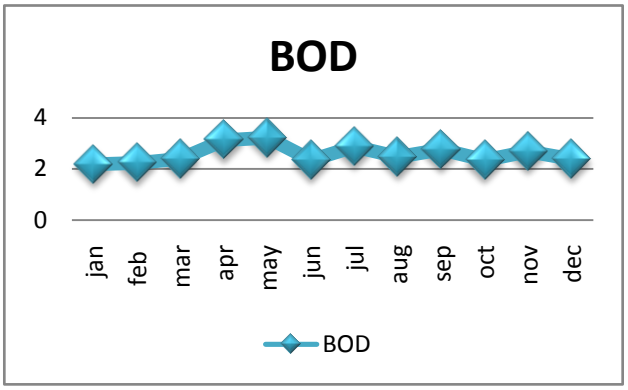

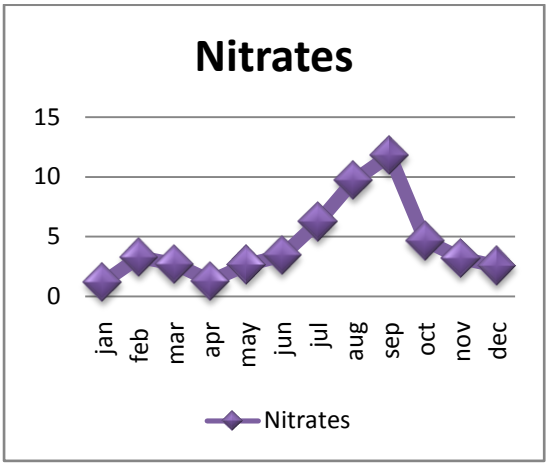

4. Conclusion

Physico-chemical properties of water in Sugahav reservoir at Mukhed were within desirable limits. The finding of present investigations suggested that water in reservoir was no harmful to pisiculture, irrigation and drinking purpose.

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