

## **An initial assessment of a few physico-chemical characteristics of the water at Ambala Lake in Tahsil Ramtek, District Nagpur (MS), India.**

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### **Abstract**

Present investigation Ambala belongs to the Ramtek. Sections of the Ambagad mountain range are located on Ramtek's western border district Maharashtra. Initially a few physico-chemical parameters like temperature, conductivity, total dissolved solid, turbidity, pH, and dissolved oxygen were analysed. The collected water sample noted and examine for purpose of ecological stability. From the analysis of some water parameters we suggest that the range of physico-chemical parameters is below the permissible limit but lake is slightly polluted due to the anthropogenic contamination.

**Keyword:** *Ambala lake, physico-chemical parameters, Pollution*

### **Introduction**

Water is a transparent and nearly colorless chemical substance. Its chemical formula is H<sub>2</sub>O. It also occurs in nature as snow, glaciers, ice packs and icebergs, clouds, fog, dew, aquifers and atmospheric humidity. Limnology is closely related to aquatic ecology and hydrology, which study aquatic organisms in particular regard to their hydrological environment. Limnology is sometimes equated with freshwater science but it also comprises Earth. The functional unit of aquatic habitat is aquatic ecosystem. Water quality programs give the current information required for the most beneficial improvement and supervision for the beneficial applications (Bobdey *et al.*, 2014). The acquisition of meaningful data the study of inland salt lakes. Hydrobiology is the science of life and life process in water. Aquatic habitat is one of the major natural habits on Earth.

### **Materials and Methods**

Water plays very crucial role in cycling the various inorganic and organic substances required to perform and sustain life on demands correct sampling and preservation procedures. It has been scientifically proved that the shorter the time interval between sample collection and analysis, more accurate are the results. The analysis of water samples is to be performed preferably in the field. The analysis of certain parameters such as, temperature, conductivity, total dissolved solid, turbidity, pH, and dissolved oxygen is to be performed in the field by using portable ELIKO makes a digital water analysis kit on the station of collection by the laboratory techniques given by APHA (2012). The study was carried out for the period of six months (from Oct. 2021 to Sept. 2021). Several researchers work on hydrobiology, limnology field on the basis of water quality the above parameters of our findings plotted in the form of graphical representation.

### **Results and Discussion**

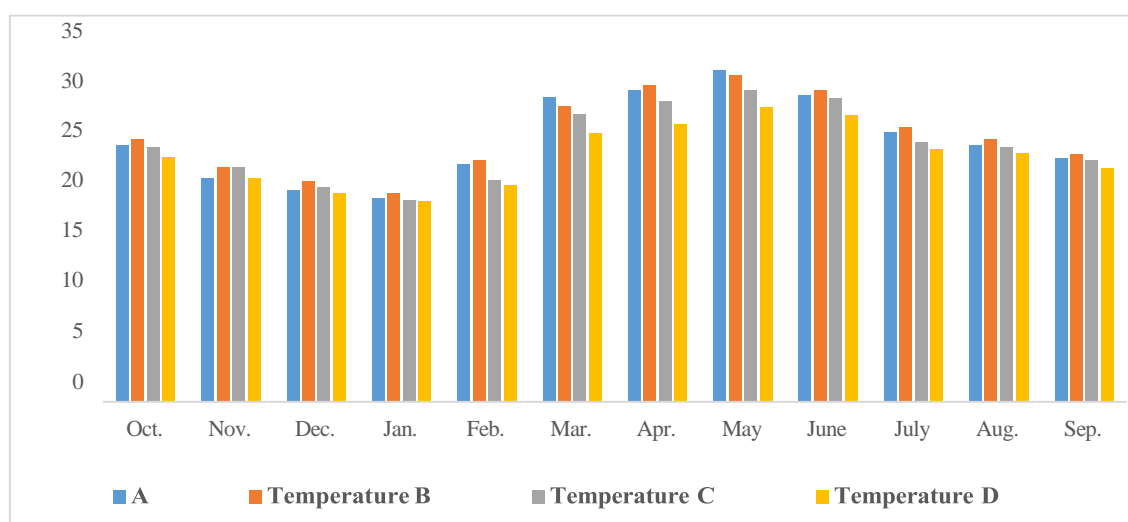
Temperature of the Ambala lake showing peak values in the summer months and least values in the winter months. Minimum temperature noted 19.28 °C in the month of January and 31.4°C in May month during the investigation. Electric conductivity maximum values 385 µmhos/cm during monsoon period and minimum 141 µmhos/cm during winter time. Total dissolved solid ranges from 177 mg/L to 408 mg/L. Turbidity ranges from 1.7 NTU to 16.5 NTU. pH values ranges from 7.1 to 8.5, above parameters maximum during monsoon and

minimum during winter months. Dissolved oxygen ranges from 5.6 mg/L to 14.8 mg/L maximum during winter months and minimum in summer months. The values are corroborated with the findings of Ingale *et al.*, (2015) from Bhiwapur lake, Nagpur (M.S.), India. Gharpure *et al.*, (2017) from Vena river Hingana region, Nagpur, Khiratkar *et al.*, (2017) from Labhansarad Dam in Warora Taluka of Chandrapur District, Maharashtra State, India. Watkar *et al.*, (2017) from Kolar river, near Saoner region, Nagpur. Gorghate *et al.*, (2020) from Chichtola Lake in Gondia District of Maharashtra State, India and Ingale *et al.*, (2018).

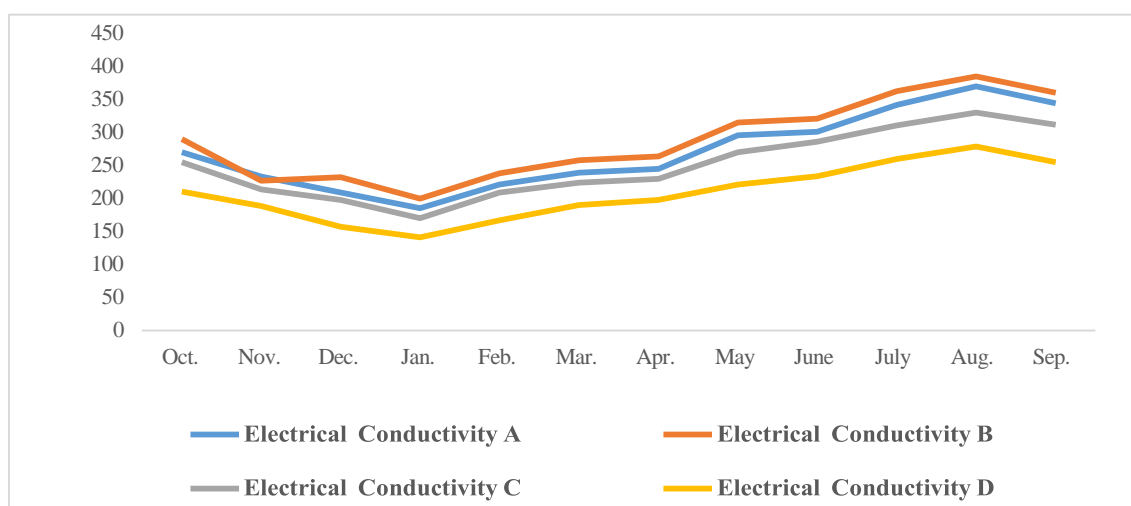
### Conclusion

From the study it's concluded that some physico-chemical parameters of Ambala lake, Ramtek affected from anthropogenic activities in water such as holy baths, asthivisarjan/dasakriya puja, which might soon cause serious water pollution in the study area.

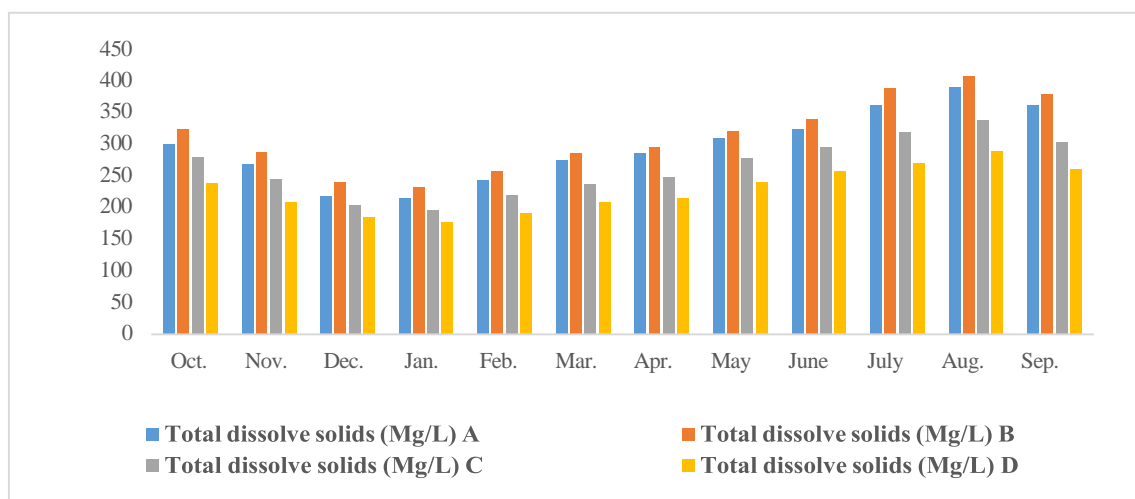
**Fig. no. 1:** Water temperature of Ambala lake Ramtek during Oct. 2021 to Sept. 2022



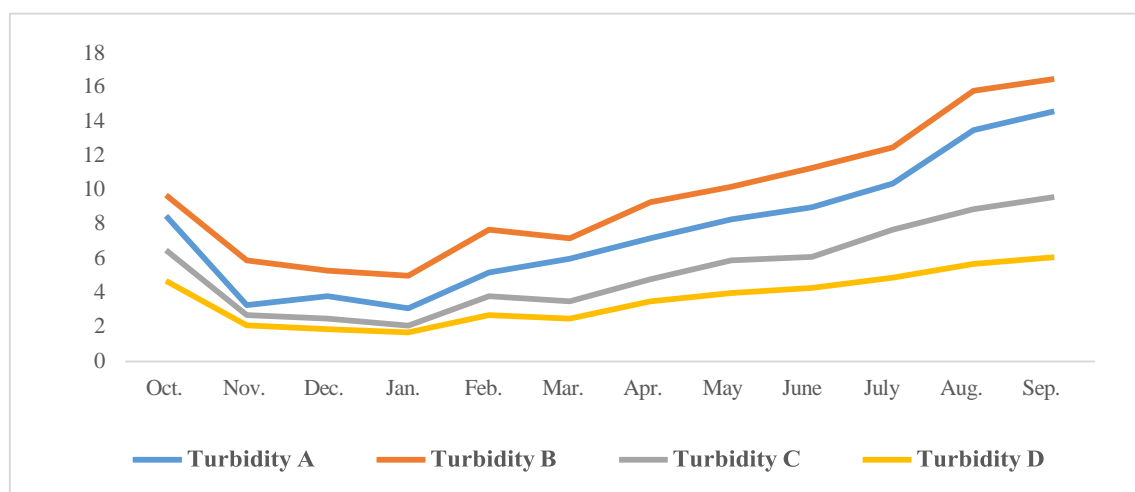
**Fig.no. 2:** Electric Conductivity of Ambala lake Ramtek during Oct. 2021 to Sept. 2022.



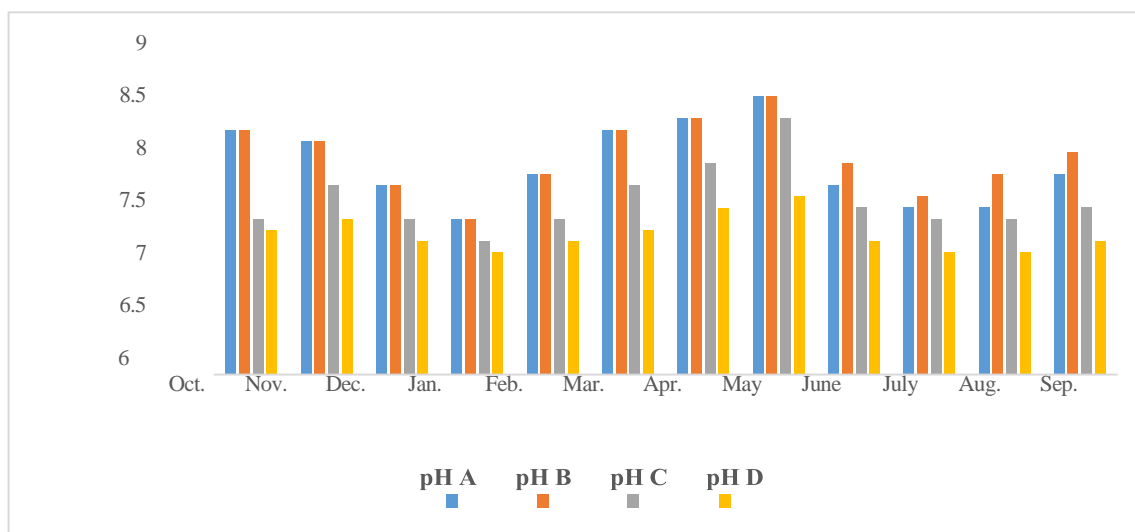
**Fig. no. 3:** TDS of Ambala lake Ramtek during Oct. 2021 to Sept. 2022.



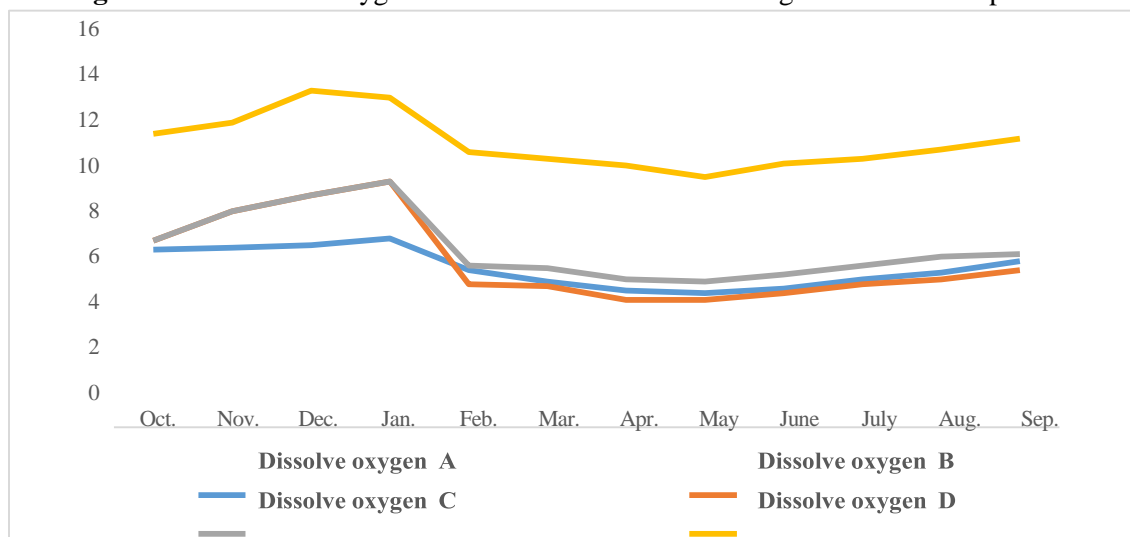
**Fig. no. 4:** Turbidity of Ambala lake Ramtek during Oct. 2021 to Sept. 2022.



**Fig. no. 5:** pH of Ambala lake Ramtek during Oct. 2021 to Sept. 2022.



**Fig. no. 6:** Dissolved oxygen of Ambala lake Ramtek during Oct. 2021 to Sept. 2022.



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### References

- APHA (2012).** Standard Methods for the Examination of Water and Waste Water. 22nd Edition, American Public Health Association, American Water Works Association, Water Environment Federation.
- Bobdey AD., Ingale PP and Lonkar AN (2014).** Evaluation Water Quality in Bhiwapur Lake, Dist. Nagpur (M.S) India on the Basis of Some Physico- Chemical Parameters. *International Journal of Researchers in Biosciences Agriculture & Technology*, Special Issue 3.
- Gharpure VL, Bhatkulkar M and Ingale PP (2017).** Preliminary Study of Water Quality With Respect To Some Physico-Chemical Parameters in Vena River. *International Journal of Researchers in Biosciences Agriculture & Technology*, V, Special Issue 2. 1161-1164.
- Gorghate ND, Raut MB and Ingale PP (2020).** Assessment of water quality status of Chichtola Lake in Gondia District of Maharashtra State, India. *Int. Res. J. of Science & Engineering*, 8 (6). 235-240.
- Ingale PP, Bobdey AD and Gorghate ND (2018).** Comprehensive hydrobiological status of Bhiwapur Lake of Maharashtra, India: an environmental aspect. *Journal of the Chinese Advanced Materials Society*, 6, 4, 655–665.
- Khiratkar S, Kamdi R, Ingale PP and Gorghate ND (2017).** Preliminary study of Some Physico-Chemical Parameters in Labhansarad Dam in Warora Taluka of Chandrapur District, Maharashtra State, India. *International Journal of Researchers in Biosciences Agriculture & Technology*, V. Special Issue (2), 965-968.
- Watkar A, Bobdey AD, Ingale PP and Bhagat VB (2017).** Evaluation of Physico-chemical Parameters of Kolar River Water Samples with reference to Pearson's Correlation Coefficient. *International Journal of Researchers in Biosciences Agriculture & Technology*, V Special Issue (2). 756-764.