

## 2. Impact of Idol Immersion on Water Quality of Pinglakshi Lake of Risod in Washim District

**Pravin Kawle**

<sup>1</sup>Department of Chemistry, Shri R. L. T. College of Science, Akola.

**Rahul Gaikwad**

Department of Chemistry, VitthalRukhmini College, Sawana.

---

### **Abstract :**

In this paper the impact of ganesh idol immersion on water quality of lake is discussed. For this study 'Pinglakshi Lake of Risod' was selected as sampling station because large number of ganesh idol are immersed at this point from that area. The work of collecting sample is performed in two steps - i.e. water sample collected a day before idol immersion (water sample I) and a day after idol immersion (water sample II). The changes in physico-chemical properties were observed i.e. changes in pH, DO, BOD, COD, phosphate, nitrate, chloride, total alkalinity, total hardness etc. were recorded by conducting experimental analysis on the basis of changes in parameters it is concluded that level of water pollution increases and causes adverse effect on aquatic life. Idol immersion in natural reservoir with hazardous substances causes threat to the environment. Because it is manmade water pollution, it can be stopped or reduced by awareness among the people and society.

**Keywords :** Idol immersion, Pinglakshi lake, physico-chemical properties.

### **Introduction :**

Maharashtra had faced several droughts in the past. From which 1972 and 2012 was the worst of them. The 1972 drought was concerned mainly with food and fodder. But 2012 drought was concerned with drinking water, hence called 'man made' drought. At one side there is a big problem of man made drought and other side we pollute the natural reservoir by performing idol immersion [1-2]. In general water pollution occurs due to the pollutants from city sewage and industrial waste discharge into water bodies, which affect aquatic life and human beings.

The pollution due to idol immersion is so harmful because these idols are made of non-biodegradable pop and are painted with toxic dyes.



When these biodegradable and non-biodegradable substances come in contact with water it get polluted and becomes poisonous. The present study shows that after idol immersion oxygen level in water falls to 50% as well as how water quality degrade to deteriorating level [3-4]. For this study we take the review of paper Analysis of physico-chemical properties of Pawailake during festival season in Mumbai metropolis and demonstrate according to standard procedure [5].

#### **Material and Method :**

For this study the samples were collected from 'Pinglakshi lake' from three different sides. These samples are collected before and after idol immersion. They are collected in plastic bottles. After the experimental analysis of both the sample I and II we compare following parameters such as pH, DO, BOD, COD, alkalinity, TDS, hardness, nitrate. The water analysis has been carried out in research laboratory of chemistry, as per the standard method APHA(2005).



Sample before immersion      Sample after immersion      Pinglakshi Lake

#### **Result and Discussion**

**1. pH :** The pH is a term used rather universally to express the intensity of the acid or alkaline condition of a solution. It is a way of expressing the hydrogen ion concentration, or more precisely the hydrogen-ion activity. In the field of water supplies, it is a factor that must be considered in chemical coagulation, disinfection, water softening and corrosion control.

The average pH of water before idol immersion is 7.10 whereas after idol immersion it is 8.16. There is increase in pH of water due to harmful material and toxic chemicals used during manufacturing of idols.

**2. BOD :**The range of possible readings can vary considerably water from an exceptionally clear lake might show a BOD of less than 2 ml/L of water. Raw sewage may give readings in the hundreds and food processing wastes may be in the thousands. After idol immersion 13.5 mg/lit before idol immersion 13.0 mg/lit

**3. COD :**Chemical oxygen demand (COD) test determine the oxygen required for chemical oxidation of organic matter with the help of strong chemical oxidant. The test can be employed for the same purpose as the BOD tests taking into account its limitation. COD determination has an advantage over BOD determination in that the result can be obtained in 2 hours as compared to 5 days requires for BOD test. Further the test is relatively easy, gives reproducible results and is not affected by interference as the BOD test. Before idol immersion 27.42 mg/lit and after idol immersion 64.00 mg/lit.

**4. DO :**Dissolved oxygen refers to the level of free, non-compound oxygen present in water or other liquids. It is an important parameter in assessing water quality because of its influence on the organisms living within a body of water. In limnology (the study of lakes), dissolved oxygen is an essential factor second only to water itself. A dissolved oxygen level that is too high or too low can harm aquatic life and affect water quality. Before immersion of idols 6.40 mg/lit and after immersion of idols is 5.30 mg/lit.

**5. TDS :**Total Residue is the term applied to the material left in the vessel after evaporation of sample and its subsequent drying in an oven at a definite temperature (103°C to 105°C) for 24 hours. The total residue include non-filterable residue (suspended solids) and filterable residue (i.e. dissolved solids). The suspended solids can be found by filtering the water sample and weighting the residue left on filter paper. The difference between the total solids and suspended solids will then represent nothing but the dissolved solids.

Before idols immersion T.D.S was found to be 535 mg/lit. and after idols immersion it was 565 mg/lit.

**6. Conductivity:**The average conductivity of water before idol immersion is found to be 58.76µS/cm and after idol immersion it is 109.44µS/cm. It shows that there is slightly increase in conductivity of water.

**7. Chloride:**The concentration of chloride present in water sample before idol immersion is 86 ppm and increase to 97 ppm after idol immersion. There is increase in concentration of chloride ion.

**8. Alkalinity:**The alkalinity of water sample before idol immersion is found to be 220.07ppm and increased to 129.03 ppm after idol immersion. In both the water sample only bicarbonate alkalinity is present.

The experimental result shows gradual changes in parameter before and after idol immersion. before idol immersion 5.30 mg/lit and after idol immersion 6.20 mg/lit.

**9. Hardness:**Hardness is strictly due to impurities like  $\text{Ca}^{++}$  and  $\text{Mg}^{++}$  can be estimated by complexometric titration, before idol immersion 212 ppm and after idol immersion 232 ppm.

**10. Nitrate :**Unlike temperature and dissolved oxygen, the presence of normal levels of nitrates usually does not have a direct effect on aquatic insects or fish. However, excess levels of nitrates in water can create conditions that make it difficult for aquatic insects or fish to survive. before idol immersion 29 mg/lit and after idol immersion 44.2 mg/lit.

### Conclusion

From the above discussion the present study shows that the immersion of idol had bad effect on environment and water quality. Actually the water pollution is caused due to various unnecessary religious activities. Idol immersion is one of these activities because POP, chemicals, colors, paints, oils, deteriorates the water quality.

Careless immersion of idols in water bodies triggered a new problem which affects public health at large scale. Scientist in India worried about number of idols being immersed is rising significantly year after year.

Water pollution caused by idol immersion can be stopped or reduced

- by maintaining the cleanliness of water bodies after idol immersion.
- by adopting eco-friendly ganesh festival.
- by creating awareness among people and society.

### Possible solutions

- To establish water tanks in sufficient number and encourage the people to immerse ganesh idol is must be on high priority.
- Immersion only those idol which are made of unbaked mud, clay or other biodegradable material are allowed to immerse in water bodies.
- Idols can be coloured by using natural colours like haldi, chandan, kesar etc.
- Items containing harmful chemicals should be avoided.

### References

- 1) N.C.Ujjania and AzharA. Multani. Impact of idol immersion activities on the Water Quality of Tapi River, Research Journal of Biology, 01, 11-15, (2011).

- 2) Watkar A. M. and Barbate M. P., Impact of idol immersion Activities on the Water Quality of Kolar River, Inter, Research J. of Environmetntal Science, 3(3), 39-42, (2014).
- 3 ) Jadhav P. and Dongare M., Evaluation of dissolved oxygen In Ex Situ Ganesh Idol immersion,Nature Environment an Pollution Technology,8(3), 561-564 (2009).
- 4) Vyas A. and Bajpai A., Water quality survey and monitoring study of idol immersion in context of lower lake, In: Proceedings of tall 2007: the 12th World Lake Congress edited by Sen Gupta M and Dalwani R 1818-1823 (2008).
- 5) Umesh B. Kakdeand Aarti S. Nagarsekar, A Study of Physico-Chemical Parameters of Mithi River Water in Mumbai Metropolis, International Research Journal of Chemistry , 2321-3299, (2014).