

ISBN: 978-620-2-67120-0

## Chapter 6

### Studies on Limnological Parameters of Community Pond

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#### Abstract

Limnology is related to the study of fresh water ecosystem as well as their physical, chemical, geological and biological aspects of that ecosystem. Bramhani pond spread over nearly about two hectares of area at the centre of Sundargarh town, Odisha, India. The study of different physico-chemical parameters were done for about five alternative days in the month of winter from 24<sup>th</sup> December ,2019 to 2<sup>nd</sup> January,2020. For the studvarious parameters, the sampling of water from the different sites of pond at the morning time that is 9.00 AM. The analysis of water was carried out in laboratory using the standard method of APHA-AWWA-WEF,1999, Abbasi,1998 and by using the systronic water analyser – 371. The results of this study revealed that the physico-chemical parameters were slightly change. During the period of this study different parameters were determined that are atmospheric temperature, water temperature, colour, transparency, pH, conductivity, salinity, turbidity, total hardness, Magnesium hardness, Calcium hardness, BOD,COD,total dissolved solid, dissolved oxygen. Also study the biological species like zooplankton, fishes and birds. Correlation of the above different parameters can be obtained by simple linear regression equation of type  $Y=A+Bx$  .Due to different practises like increasing population, advance agriculture , presence of various contaminants and anthropogenic activities the water of the pond become highly polluted. water is play a vital role in survival of human, plants , animals and microbes and also for the aquatic ecosystem surround it. Availability of good water also able to prevent the diseases and improve the water quality. This study gives idea about the present status of Bramhani pond and also determined the suitability of water for the irrigation, agriculture, fishery and mainly for drinking purpose. This present status determine by both quality and quantity of the different parameters of that pond. The value of this water is compare with WQI value and found that water of this pond is in moderate condition, suitable for various practices and quite unfit for the drinking purpose. The important attributes of the water quality such as water temperature(12.52C -19.7C ),electrical conductivity(406 $\mu$ S/cm-411.4 $\mu$ S/cm ), salinity( 0.256ppt-0.268ppt ),turbidity(1.214NTU), pH (6.97-7.124 ), dissolve oxygen(9.21mg/l-10.836mg/l), BOD (4mg/l),COD(24mg/l), Magnesium