BEST: International Journal of Humanities, Arts, Medicine and Sciences (BEST: IJHAMS)
ISSN (P): 2348-0521, ISSN (E): 2454-4728
Vol. 6, Issue 7, Jul 2018, 25-32

THE ASSESSMENT OF PHYSICO-CHEMICAL CHARACTERISTICS OF A FRESH WATER LAKE AND ITS SUITABILITY FOR FISH CULTURE

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ABSTRACT

An investigation has been carried on the physico-chemical characteristics of Hasanparthy Lake in Warangal district, Telangana State for the period from June 2015 to May 2016. Water samples were collected from the lake and analyzed using standard laboratory methods and procedures. The results of the water analysis showed a variation in some of the parameters at the different sampling stations within the lake. The parameters that were studied included Water Temperature, PH, Turbidity, Electrical Conductivity, Total Alkalinity, Total Hardness, Dissolved Oxygen, Biological Oxygen Demand, Chemical Oxygen Demand, Chlorides, Sulphates and Phosphates. Water Temperature was maximum (29.5±2.05˚C) during the summer and minimum (24.8±6.37˚C) during the winter. Maximum PH (8.07±0.19) was recorded during the summer season and minimum (7.12±1.66) during winter. Turbidity was observed maximum (59.27±36.51NTU) during the winter and it was minimum (17.95±0.22NTU) during the rainy season. Total Dissolved Solids were maximum (85.6±0.30mg/lit) during the winter and minimum (13.43±28.37mg/lit) during the summer. EC was recorded 487.5±63.5µmhos/cm during the summer and it was 411±99.13 µmhos/cm during the winter season. Total Alkalinity was recorded 139.2±12.8mg/lit during the summer and was 90.4±23.00mg/lit during the winter season. Total Hardness maximum was recorded 106.2±20.4mg/lit in summer and was 83.5±5.40mg/lit during the rainy season. The Dissolved Oxygen was recorded 8.27±0.72mg/lit during the summer and it was minimum (5.2±0.78mg/lit) during the rainy season. Biological Oxygen Demand was recorded 3.42±0.25mg/lit during the summer and during the winter season it was 2.87±0.81mg/lit. Chemical Oxygen Demand was recorded 8.97±0.14mg/lit during the rainy season and it was 7.17±0.85mg/lit during the summer. Chlorides were 77.35±4.38mg/lit during the summer and minimum (72.80±1.94mg/lit) during the winter season. Sulphates were 5.82±0.43mg/lit during the rainy season and they were 4.77±0.68mg/lit during summer. Phosphates were 3.6±0.30mg/lit during the rainy season and they were 2.27±0.33mg/lit during the summer season. The seasonal variations in various water parameters and the probable reasons for their increase and the decrease were discussed in the light of current literature pertaining to aquatic biology.

KEYWORDS: Hasanparthy Lake, Physico-Chemical Parameters & Seasonal Variation