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Water Quality Assessment of Nangal Wetland (National Wetland), Punjab, India

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Wetlands are very productive ecosystems, which help in the regulation of biological cycles, maintenance of water quality, nutrient movement and provides support for food chains. Wetlands are areas where water is the primary factor controlling the environment and associated plant and animal life. So, the present study was carried out to evaluate the physico-chemical parameters of Nangal Wetland. This wetland is located in District Ropar, is a balancing reservoir situated over the Sutlej river at latitude 31°24'13.52"N and longitude 76°22'03.05"E with 1172 feet elevation. It spreads over an area of 700 acres. Water samples were collected once in every month from February 2013-January 2014. The range, mean and standard deviation of physico-chemical parameters were estimated as: Air Temperature(°C) 16.2-40(26.29±8.19), Water Temperature(°C) 15-22.4(18.4±2.92), pH 7-7.9(7.44±0.29), Conductivity(µs/cm) 170-355(280.05±58.56), Total Dissolved Solids(mg/l) 120-220(156.25±33.51), Turbidity(NTU) 1.2-6.5(11.27±8.33), Total alkalinity(mg/l) 42-200(87.91±49.42), Salinity(mg/l) 100-700(222.72±144.52), Chloride(mg/l) 5.42-25.84(15.51±6.29), Total Hardness(mg/l) 70-228(149.31±44.88), Calcium(mg/l) 16.82-58.02(39.06±10.64) and Magnesium(mg/l) 1.7-28.18(13.84±7.64). A significant variation in these parameters was observed throughout the study period and the values of the measured parameters were compared with World Health Organisation standards for water quality. The findings show that all the measured physico-chemical parameters lies within the tolerable limits. Hence, this wetland is very productive in nature and attracts thousands of migratory birds, fishes, reptiles, some important mammals and plants. Therefore, it is important to estimate the physico-chemical parameters of Nangal Wetland regularly due to its strategic importance.

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