

**SEASONAL VARIATIONS IN PHYSICO-CHEMICAL PARAMETERS OF THE
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Mangalore, Dakshina Kannada, Karnataka, India
pjshinepj@gmail.com**ABSTRACT**

This paper presents the analysis of Physico-chemical parameters of the estuarine region of Gorai Creek zone, Mumbai, Maharashtra, India. The study was conducted for a period of 2 years between May 2017 to May 2019 to determine the factors affecting the water quality and biodiversity of the area. Gorai Creek is known for its margin of thick lush mangrove vegetation housing a large variety of birds and other fauna. For the study, nutrients, chlorophyll-a, and environmental parameters were investigated during the 24 months. The physical, chemical and biological parameters of this estuarine water followed a seasonal rhythm and were induced by the annual cycle of the monsoon. Surface water temperature ranged from 27.4°C to 32.2°C with a wide range of salinity from 1.20 PSU to 27.10 PSU followed by Dissolved Oxygen (DO) from 2.11 to 4.57 g/L. The concentration of chlorophyll-a was found to be varying from 0.02 to 0.15 mg/m³. Nitrate, phosphate and ammonium concentrations ranged between 0.40 to 3.53 mg/L, 0.01 to 1.92 mg/L and 0.06 to 1.24 mg/L, respectively. Pearson correlation coefficients showed a significant relationship between nitrate and TDS, nitrate and pH, ammonium and salinity, temperature and salinity, temperature and TDS, phosphate and light attenuation in the estuarine environment. The estuary was found to be mesohaline in nature. Estuarine Water Quality Index (EWQI) calculated from phosphate (PO₄), suspended matter (SM), and dissolved oxygen (DO) indicate very good water quality (4.95). The significantly seasonal difference for salinity, water temperature and, TDS was observed probably related to tidal flow and upstream river runoff.

Keywords: Estuary, Physico-chemical parameters, Nutrients, Chlorophyll a, Gorai Creek