

PRELIMINARY STUDY ON PHYSICO - CHEMICAL AND BIOLOGICAL PARAMETERS OF COASTAL WATER OF TREIS ISLAND, NICOBAR, INDIA

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Abstract

Information available on the physico-chemical and biological parameters of seawater of Treis Island, Little Nicobar is scanty. Hence, this study was carried out to understand the seawater quality in terms of nutrient levels and pollution, if there any. During the survey it was observed that the area was very turbulent due to its geographical location. The total area of Treis Island is 0.42 km² with undulating terrain and evergreen forest cover. The seawater samples were collected at three locations around the Treis Island to study the various physico-chemical parameters like temperature, pH, total suspended solids, salinity, dissolved oxygen and nutrients in seawater. The samples were also collected to determine the biological parameters such as chlorophyll 'a', phaeophytin, phytoplankton abundance and diversity. The nutrient concentrations were estimated using standard methods and it was found to be in the range of open seawater levels as follows: nitrite 0.44-0.54 μmol/L, nitrate 0.41-0.62 μmol/L, phosphate 0.02-0.05 μmol/L, total phosphorus 0.36-0.45 μmol/L and silicate 3.60-4.24 μmol/L. Ammonia was found to be below detectable limit which indicates a pollution free oceanic condition. Altogether, 52 species of phytoplankton were re-ordered during analysis of samples. Average phytoplankton density in the area was 1093 Nos./L, whereas average chlorophyll 'a' and phaeophytin concentration were 0.20 and 0.14 mg/m³, respectively; whereas the other parameters were low, depicting an oligotrophic condition similar to open ocean waters. Further, this study indicates that physico-chemical and biological parameters of Treis Island is within the range of open seawater and free from anthropogenic sources of pollution.

Keywords: Physico-chemical parameter, Chlorophyll, Andaman and Nicobar, Little Nicobar, India.