HYDROLOGIC MONITORING AND ANALYSIS OF THE MANGROVE ECOSYSTEMS OF MAHE TOWN, INDIA

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ABSTRACT

The mangrove vegetation of the Mahe town, a territory of Pondicherry on the Western coast of India is a unique ecosystem that exists dependent upon the hydrological regime. Therefore, an extensive study to understand the hydrological systems and the alterations that have taken place due to anthropogenic activities in and around the mangrove ecosystems is essential for the efficient management of natural resources and the inter-dependent environment. The present study was conducted from January 2019 to January 2020 to record the results of the hydrologic monitoring, modeling, and analysis in the mangrove vegetative structure and assemblage in the Mahe Estuary. The study results establish that the annual maximum tidal range has increased by about 0.5 m in the eastern and central parts during the last decade. About 70% area remains in higher salinity condition (>20 ppt) for at least 2 months a year. Organic pollution calculated indicates that the creek is within the Environmental Quality Standard (EQS) with an average Dissolved Oxygen (DO) of 4.99 mg/L. Total Ammonia, Nitrate (NO_3), and Phosphate (PO_4) levels are present in sufficient quantity for the aquatic life to survive. Lead and Chromium occasionally exceed the EQS limit, especially along the western side. The studies indicate that there have been anthropogenic influences affecting the creek region but to a smaller extent and need further monitoring.

Keywords: Mangrove, Hydrological systems, Mahe Estuary, Environmental Quality Standard