Assessing the bottom water quality of a Ramsar site subjected to anthropogenic disturbances: A case study in Kuching Wetland National Park, Sarawak, Malaysia

ABSTRACT

Recently the interest of public and stakeholders were focus on the environmental status of Kuching Wetland National Park (KWNP) due to the increase of urbanization processes and anthropogenic activities. A field sampling which covered 10 stations was conducted at the outer and inner boundary of KWNP in August 2011 during high tide. Physico-chemical water parameters were recorded. Triplicate of near bottom water samples were collected using 2.5 L Van don water sampler (Wildco®) for further analyses of nutrient, chlorophyll a (chl a), biological oxygen demand (BOD) and total suspended solids (TSS). The aimed of the study were to assess the water quality of KWNP and to determine the distribution pattern of physico-chemical components and its relationship to the phytoplankton chlorophyll a concentrations in water between the outer and inner part of KWNP. One-way analyses of similarity indicated that all the study sites were significantly different between stations (p-value < 0.05) and boundaries (p-value < 0.05). Water temperature, pH, ammonium nitrogen (NH4–N) and inorganic phosphorous (Inorg–P) were known affecting the abundance of phytoplankton communities. The concentrations of nitrate nitrogen (NO3–N) at the outer and inner boundaries of KWNP were over-ranged as compared to Malaysia marine standards.