



WATER QUALITY AND MICROBIAL CONTAMINATION STATUS OF WEST-SOUTH COASTAL WATERS IN SRI LANKA

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Abstract

The Western-Southern coastal belt in Sri Lanka has given more attention as around 40% of the country population inhabits this region and also it covers the commercial capital city, Colombo. The present study was aimed to identify the point sources of pollution towards the coastal belt of the west-south. Physico-chemical and microbiological parameters of coastal water were evaluated using the standard analytical and microbial methods. 64 sampling sites from Negombo to Mirissa coastal belt was selected and the sampling sites were categorized into 11 land segments based on the environment and land use practice type. pH values of most of the sampling sites remained within standards given for coastal water (5.5-9.0) except the location of the Mangala road site (9.6). Dissolved Oxygen (DO) was ranged between 0.65-20.19 mg dm⁻³ where the Electric Conductivity (EC) was within ranged between 2.2-69.2 mS cm⁻¹. Acceptable concentrations of nitrate (N-NO₃) (<0.1mg dm⁻³), nitrite (N-NO₂) (<0.1-2.94 µg dm⁻³) and ammonium (N-NH₄) (<0.1-19.57µg dm⁻³) were detected in all sampling locations. More than 90% of the sampling locations were found to be low nitrogenous pollutants while more than 95% of sites exceeded 100 µg dm⁻³ of total phosphate concentrations showing a suitable environment for algae growth. All the collected samples showed high COD (112.5-7318.86 mg dm⁻³) which was exceeded the coastal water quality standards. The oil and grease concentration varied between <2-192.34 mg dm⁻³. Among the sampling location, 85% of sampling sites were contaminated with both total coliform and faecal coliform bacteria and pathogenic *Salmonella* sp. were recorded in water drain to the coast via Dehiwala and Ratmalana canals. Thus, the results of the present study revealed that the west-south coast has been contaminated with pathogenic bacteria, oil and grease, phosphate and chemicals that indicate the Negambo to Mirissa coastal starch was polluted and continuous monitoring strategies are needed with a proper management plan to utilize the coastal zone for tourism, fishing, and recreational activities.

Keywords: *Coastal Pollution, Water quality, Total coliform, Total phosphate*