



Evaluation of Spatial Variation in Water Quality in Maduganga Lagoon and Estuary

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Abstract

Maduganga estuary and mangrove islets are a complex coastal wetland ecosystem situated in the Galle District of Southern Sri Lanka. Maduganga estuary and mangrove islets system which is located in Galle district of Sri Lanka were chosen for the study (6°18' N, 80°03' E). The total area of the estuary is 915 ha, of which 770 ha consist of open water, while islands account for 145 ha. The ecosystem is identified to be threatened by human activities carried out inside and around the ecosystem. Continuous monitoring and conservation activities are necessary for this ecosystem to sustain under current conditions. In this background this study focuses on monitoring and evaluating spatial variation of water quality in Maduganga lagoon, estuary and canal connecting to sea. Twenty locations were selected for studying the water quality and standard methods was used for water quality analysis. The water quality at each location of Maduganga estuary is complied with proposed ambient water quality standards for inland waters (Sri Lanka) (Aquatic life category). However each parameter shows a clear increase at the sampling location in boat ferry. It might be an initial indication of pollution of Maduganga estuary water near boat ferry. Further this location is very close to the sea outfall of the water body. Other than that a location near a bathing point is also showing a high chemical oxygen demand. Further, this point is located at a corner of the water body making water stagnant. It might be one of the reasons for observed high chemical oxygen demand. Observed increase in salinity and chloride is normal when it is close to river outfall. Further a cluster analysis was carried out on the results and it shows that upstream of Maduwa and downstream of Maduwa can be identified as two clusters roughly.

Keywords: *Maduganga, Water quality.*