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## A preliminary study on water quality assessment and pollution status of Madu Ganga

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Madu Ganga drainage basin covers an area of 700 acres and was designated as a Ramsar Convention site in 2003. The main objectives of the research were to assess the water quality in Madu Ganga and thereby identify its pollution status. Water quality parameters, both physicochemical and biological, were studied for a period of four months. Five sampling sites were selected from the mouth of the estuary to the upper reaches of the river, namely Balapitiya, Galmanduwa, Kothduwa, Kadapaunuduwa, and Wathugedara, primarily based on ease of access. Physicochemical parameters, *viz.* water temperature, pH, conductivity, DO, BOD<sub>5</sub>, COD, salinity, alkalinity as well as nitrate and phosphate content were assessed. Biological parameters, *viz.* phytoplankton and zooplankton densities, benthic macroinvertebrates (*Littorina* sp., mussels, clams, red midge larvae, *Penaeus indicus*, *Penaeus monodon*, *Metapenaeus dobsoni*, *Macrobrachium rosenbergii*), and most probable number (MPN value) of *E. coli* bacteria were studied. The range of mean values of the above parameters at five sampling sites was water temperature: 29 - 33 °C, pH: 7.20 - 8.32, conductivity: 0.8 - 21.3 mS, DO: 2.78 - 8.35 mg/L, BOD<sub>5</sub>: 8.08 - 10.63 mg/L, COD: 18.52 - 27.13 mg/L, alkalinity: 0.0005 - 0.0018 mg/L, salinity: 0.94 - 4.17 ppt, nitrates: 0.05-0.45 mg/L, and phosphates: 0.007-0.029 mg/L. Zooplankton density and phytoplankton density was 19-35 ind/ml and 22-48 ind/ml, respectively. MPN values were recorded below 10. Based on the results of this preliminary study, Madu Ganga is polluted by *E. coli* bacteria, and its water is saltier than pure freshwater, hence its water appears unsafe for human consumption. It is recommended to have regular monitoring and implement appropriate measures to reduce the extent of pollution in Madu Ganga.

**Keywords:** Madu Ganga, pollution, water quality

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