

Abstract

Natural eco-systems in Sri Lanka are increasingly under threat by various land based human activities during the last two decades. Wetlands are also experiencing large scale pollution as a result of such activities, being dumping sites for both solid and liquid wastes. Bolgoda wetland, which is a prominent wetland and site for tourism in Sri Lanka, is also threatened with pollution due to disposal of domestic and industrial effluents, dumping of solid waste, increase in recreational activities, reclamation, harvesting of vegetation for different purposes and due to invasive exotic species.

The Bolgoda lake system is situated in the low country wet zone of Sri Lanka. It is made up of two major basins called Bolgoda South Lake and Bolgoda North Lake connected by a narrow stream called Bolgoda ganga. This study was carried out to evaluate the present status of water quality at selected sites throughout the Bolgoda Lake. Monthly sampling was carried out and turbidity, pH and temperature were measured during sapling, while DO, COD, PO_4^{-3} , NO_3^- , NO_2^- , NH_3 , conductivity, salinity, TDS and heavy metals were analyzed in the laboratory during the period of July 2008 to June 2009.

Conductivity of the Bolgoda Lake system showed clear difference in the wet and dry seasons. Highest conductivity was always recorded at Panadura Ganga. Salinity and TDS also showed similar variation to conductivity. Throughout the Bolgoda Lake system the temperature ranged from 28 °C to 34 °C. DO in Weres Ganga at Borupana, was found to be higher in the dry season (6.2 to 7.9 mg/l) than in the wet season (1.4 to 4 mg/l). In the majority of cases, Panadura Ganga at Moratuwa bridge showed higher DO, turbidity levels and pH values compared to the other sites. Highest levels of NH_3 , NO_2^- and PO_4^{-3} were recorded in Weres Ganga, compared to other locations. NO_3^- levels recorded in Bolgoda system were below the limits for portable water quality. Highest COD in the system was recorded in Panadura Ganga. Heavy metals such as cadmium, copper, iron, nickel, zinc, lead, arsenic, and selenium were detected in Bolgoda Lake system while chromium was not detected in any part of the lake.

The above data indicates that the water quality of Bolgoda Lake is below the standards for potable water. These details will no doubt serve as baseline data to monitor any further pollution due to anthropogenic activities.