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A study of selected water quality parameters to evaluate the current status of Bolgoda lake

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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 solid waste, increasing recreational activities, reclamation, harvesting of vegetation for different purposes and due to invasive exotic species. This study was carried out to evaluate the present water quality status at selected sites through out the Bolgoda lake in order to develop protection and remedial measures.

Nine locations were selected from the Bolgoda lake, monthly sampling was carried out from September 2008 to May 2009, representing the dry and wet seasons in the year.

1.Borupana bridge	2.Kospelena Bridge,	3.Moratuwa Bridge and
4. Panadura Bridge	5. Hirana ferry	6. Rukgaha ferry
7. Mahabellana bridge	8. South lake bathing place	9. South lake jetty

The selected water quality parameters (pH, PO_4^{3-}, Turbidity, Conductivity, TDS, Salinity, COD, DO, NH_3, NO_2^-, NO_3^- ,Temperature) were determined according to standard test methods published by American Public Health Association.(APHA).
During dry season Borupana bridge (location 1) showed higher levels of DO (7.9 mg/l) compared to other sampling days, while recording lower NH_3 and NO_3^- levels. The COD ranged from 22- 32, while showing higher levels (47-56 mg/l) in September and October 2008.

At the sampling sites in the south lake, DO changed between 6 to 8 mg/l. These sites showed lower levels of free NH_3 compared to Borupana bridge. At locations along the river**,** salinity, conductivity and TDS increased during the dry season from location no. 1 to 4, thereafter decreasing from location no 5 to 9. COD also increases from location no 1 to 4 and decreases from 4 to 5 and thereafter shows no change. The temperature, pH and DO showed no change along the river. PO_4^{3-} content gradually decreases from location no 1 to 4 and increases from 4 to 5. No change was observed in the levels of NH_3, NO_3^- and PO_4^{3-} from location 5 to 9.

In the wet season, conductivity values are lower (< 0.1 S/m) at all locations except at location 4 (Panadura). However, in the dry season the conductivity values are higher (> 0.1 S/m) at all locations except location 1 (Borupana bridge). These data are the results of a preliminary study carried out on the ambient water quality of Bolgoda lake and will serve as baseline data to monitor any further pollution due to anthropogenic activities.

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