E-09

A COMPARATIVE STUDY OF SOME ASPECTS OF THE ENVIRONMENTAL GEOCHEMISTRY OF SOME LAKES IN SRI LANKA

C. B. Dissanayake, S. V. R. Weerasooriya
and **A. Senaratne**
(Dept. of Geology, University of Peradeniya)

Kandy lake, Polgolla reservoir, Castlereigh reservoir, Nuwara wewa (Anuradhapura) and Parakrama Samudra were investigated for their water quality and environmental influences. High average NO_3^- levels (20 mg/l) were reported from the Castlereigh reservoir whereas Nuwara wewa and Parakrama Samudra had low (0.02 mg/l) NO_3^- levels. Both lakes however had high Kjeldhal-N (5 mg/l) indicating a slow nitrification of the organic matter present in the lakes.

In the Kandy lake, both total and soluble phosphorus contents are relatively high (TP-20 mg/l; SP-10 mg/l) indicating a tendency towards eutrophication of the lake. In the Polgolla reservoir, a noteworthy feature observed was the elevated NO_2^- level (3 mg/l) an indication of active denitrification.

The conductivity of water showed a two-to three-fold increase in the wet zone lakes when compared to those in the dry zone, indicating a relative abundance of free ions in the groundwater regime, in the wet zone. All the lakes studied had comparable pH, ranging from 5 to 7.

Nearly 1,000 water samples from different locations covering the entire island were studied for their NO_3^- contents. It was found that the value of 20 mg/l represented a high concentration when compared to the background values. The low levels of NO_3^- (0.01-0.5 mg/l) were also measured by uv spectrophotometry (λ = 206 nm) and the results compared with the values obtained by specific ion electrodes. The two sets of values agreed reasonably well. The interference by Cl^- and HCO_3^- ions was reduced by the use of Ag_2SO_4 and the ionic strength adjustor (ISA).

This work was supported by a NARESA grant.

Reference

1. Dissanayake, C. B., Senaratne, A., Weerasooriya, S. V. R. *and* de Silva, S. H. G. (1982). The environmental pollution of Kandy Lake : a case study from Sri Lanka. *Environmental International*, **7**, 343-351.