

# CORRELATION BETWEEN WATER QUALITY AND PLANKTON COMPOSITION IN AN URBAN LAKE IN SRI LANKA

**PADMINI DE ALWIS AND HEMANTHA DASSANAYAKE**

National Aquatic Resources Agency, Crow Island, Colombo 15,  
Sri Lanka

The Beira Lake is one of the manmade urban lakes situated in the city of Colombo and has been in existence for about five centuries. The lake area was gradually reduced to 175 acres due to the vast developmental activities in its immediate surroundings. Although in the past it was reported to have been an attractive and fine piece of wetland with crystal clear water, the accelerated eutrophication process has resulted in the present deterioration of the water quality.

A detailed study was conducted immediately after the appearance of blue-green algal bloom. Physico-chemical and biological aspects were studied to ascertain the environmental conditions for the purpose of developing a management strategy to improve the lake's environment. This study revealed that the amounts of phosphorous and nitrogen compounds have greatly increased in the recent past. The lake receives nutrients from a number of point sources and inlets which serve as diffused sources from non-sewered populated areas. These inorganic compounds together with alkaline pH have increased the algal productivity destroying the delicate balance of the lake. Major changes have occurred in the composition and abundance of aquatic life. The composition of phytoplankton showed an increased number of blue-green algae but a decrease in green algal species and diatoms. *Microcystis* species became dominant among the phytoplankton population. The occurrence of a few zooplankton species were also observed. Among them, *Paramecium* and *Verticella* were found to have increased in the Beira Lake waters. The study indicated that changes in the composition of plankton is directly related to the concentration of nutrients and other pollutants in the lake waters.

