
PRELIMINARY SURVEY OF BIOLOGICAL INDICATORS IN KANDY LAKE

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Kandy Lake is an ornamental fresh water body in Sri Lanka, which was built by the last king of the Country, the King Sri Wickrema Rajasinghe between 1810 and 1812. The quality of the lake water has been investigated since 1979 and these results indicated that the lake faces the problem of eutropication. The appearance of *Microcystis* bloom during mid April 1999, indicated the severity of the organic pollution. A large number of effluent canals drain in to the lake carrying a continuous flow of sewage and domestic waste matter. The existing information suggests high nitrates and phosphate concentration in the lake.

The objective of the present study is a preliminary survey of plankton species, which can be used as biological indicators to determine the water quality and the level of eutropication of the lake. A hypothesis has been tested on preliminary basis, which has to be improved through detailed experimental investigations in future.

Field investigation were carried out in Kandy Lake from Jan.-June 2000. Information collected was analyzed to determine Physico-chemical properties of the lake water, composition of plankton species, their relative abundance and relationship between nutrients and prominent plankton species.

Majority of the total plankton density was composed of phytoplankton compared to zooplankton density of the lake. Therefore it is impossible to use top down control of algal biomass using zooplankton in Kandy lake as in many other tropical water bodies

Bacillariophyceae was the most abundant group during most months of the year. *Melosira* spp also contributed significantly towards the biomass of lake plankton. The Most prominent plankton spp of the lake was *Microcystis aeruginosa* which belongs to the group Cyan bacteria. There was a direct correlation, between *Microcystis* number and the amount of phosphate present in the lake water, which could be used in developing a bio indicator determining trophic status of lakes. At the beginning of the study both. *Microcystis* density and phosphate levels were high. With the decrease of phosphate level, *Microcystis* density decreased and *Melosira* species gradually became the dominant species.

The Zooplankton composition was made up of Copepods, Cladocerans and rotifers. Species composition was high among rotifers and a clear-cut seasonal variation was observed among them. The majority of the zooplankton was small in size and their influence on the phytoplankton community could be considered as negligible due to high phytoplankton biomass. All the zooplankton recorded in the study belongs to the category of typically tropical zooplanktons.

There is a significant relationship between *Microcystis* density and Orthophosphate level which could be used in determining status of eutropication of the lake