D-12: Chlorophyll "a" density, species composition and population structure of phytoplankton in Randenigala reservoir

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Information from a preliminary investigation on chlorophyll "a" density species composition and population dynamics of phytoplankton in Randenigala reservoir from May 1992 to Nov. 1992, is reported.

For plankton sampling, a station closer to the dam was selected. Sampling was conducted from surface to bottom at 10 meter intervals. Chlorophyll "a" was determined at 10 m depth at surface in 3 major stations and 8 sub stations once a month.

Chlorophyll "a" values at surface and at 10 meter depths in the reservoir were very low. The highest and lowest values recorded were 0.07 ug/l and 0.005 ug/l at surface and 0.04 ug/l and 0.003 ug/l at 10 meter depth in May and December respectively.

The phytoplankton community consisted mainly the green and blue green algae. Twenty two species of Chlorophyceae, 3 species of Cyanophyceae, 2 species of Bacillariophyceae and 2 species of Xanthophyceae were found. The standing crop of Chlorophyceae ranged from 95x106 m-3 to 17x106 m-3. However, low numbers were recorded for Cyanophyceae, Bacillariophyceae and Xanthophyceae ranging from 5x106 m-3 to 1x106 m-3, 2x106 m-3 to 0.25x106 m-3,5x106 m-3 to 1x106 m-3 respectively. *Straurastrum* spp. was represented in large numbers and *Staurastrum limneticum* was a prominent species.

Number of phytoplankton per cubic meter decreased with increasing depth. Low numbers of phytoplankton were recorded even in the bottom water column when there was continuous power generation.

Three plankton pulses of *Pediastrum* spp., *Straurastrum* spp., *Cosmarium* spp. were recorded in mid May, end of July and in mid September respectively.

The highest chlorophyll "a" concentration inter-related with the phytoplankton pulses. With the appearance of Microcystis spp. pulses the population density of other species decreased.

The results indicate that the high density of chlorophyll "a" is correlated with the high density of phytoplankton. The seasonal fluctuation of plankton pulses also inter-related with chlorophyll "a" concentration in the environment.