D-60: Trophic status of Kotmale reservoir and nutrient loading through the tributaries in the catchment

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Investigations have been carried out since January 1993 on the trophic status and nutrient loading effects of Kotmale reservoir.

The main objective of the present investigation was to find out the causes for the eutrophication process.

Sampling was carried out once a month in 11 major tributaries in the catchment and in 10 sampling locations of the Kotmale reservoir. Physical properties, pH, conductivity, total dissolved salts and turbidity and the Chemical properties such as alkalinity, dissolved oxygen, dissolved sulphide, ammonia, nitrate and nitrite contents were measured at the site.

Samples were transported to the laboratory for further chemical analysis and for determination of species composition and enumeration.

The pH values recorded in the reservoir varied between 6 to 8.5 and low pH values upto 5.6 were recorded in some tributaries neighbouring tea estates.

Conductivity values of the reservoir ranged from 32 s/μ to 85 s/μ and in some very low conductivity values about 18 s/μ had been recorded.

The mean dissolved oxygen concentrations of the tributaries were 5 mg/1. The reservoir indicated deoxygenation together with thermal stratification along the vertical profile of the water mass.

In most of the tributaries, nitrate content was high, around 1.0 mg/l together with high phosphate values upto about 0.2 mg/l. The highest phosphate content was recorded in Kotmale Oya.

The tributaries in the immediate catchment and in the upper catchment were responsible for the eutrophication process of the reservoir.