## D–52: A comparative survey of productivity and respiration of two lagoons in Southern Sri Lanka

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Rekawa (05° 58' N and 80° 47' E) and Magalle (06° 01' N and 80° 14' E) are two important lagoons on the Southern coast of Sri Lanka. The two lagoons differ from each other floristically. Rekawa lagoon is of much socio-economic importance, and urban influence on the Magalle lagoon is quite visible. Productivity and respiration are two important parameters which denote the nutrient status and the magnitude of phototrophic organisms in a water body, An increase in the amount of nutrients leads to an increase in the number of phototrophic organisms and productivity is therefore a direct indicator of the nutrient status. Respiration which indicates loss of carbon through organisms becomes an indirect indicator of the amount of microorganisms and decomposition.

Winkler's method which is used to estimate very small quantities with high accuracy was used to determine concentration changes in dissolved oxygen.

Variation in Gross Primary Productivity (G.P.P), Net Primary Productivity (N.P.P) and Respiration (Res) were determined at diurnal surveys conducted during two different time periods of the year. Both lagoon systems showed that

G.P.P, N.P.P. and Res. are closely related to one another and that G.P.P. is always higher than N.P.P. Also it was found that G.P.P. and N.P.P. are highest during 1200 to 1600 h and 1000 to 1200 h respectively and lowest during 2000 to 0200 h. Also the G.P.P at Rekawa lagoon is higher during the day than at Magalle, while respiration at Magalle lagoon was notably higher during the day than at Rekawa.

The results of an earlier survey on phytoplankton of the two lagoons indicated that the total phytoplankton count is lower at Magalle than at Rekawa though Magalle has a higher biodiversity with reference to phytoplankton. This factor could be responsible for the lower G.P.P and N.P.P. values for the Magalle lagoon. In an extensive study on the water quality of this lagoon, the effect of urban influence on this lagoon was well established. Microoganisms are prevalent in such environs increasing the consumption of oxygen which is reflected as higher rates of respiration.