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Primary pro ductivity of logoons and estuaries, when compared to other coastal waters on the continental shelf, is estimated to be ten or fifteen times higher. Phytoplankotan are the most important primary producers in aquatic ecosystems. Malala and Garanduwa lagoons are situated in the southern coastal belt. Their fishery resources although provide livelihood for fishing communities living in their vicinity, very few studies have been focused on these lagoons. Sampling was carried out fortnightly, from 09.00 am to noon,

from August 1995 to October 1997.One station located at the middle of each lagoon was selected for sampling. Primary Productivity was estimated according to the " light and dark bottle method" (Vollenweider, 1974). Samples were by a Ruttner sampler, from four different depths at 0.5 m intervals. Dissolved oxygen was measured (Winkler method – Strickland & Parsons, 1965).

Depth-integral gross production (GP) per day (day length = 12 h) was calculated for the euphotic zone (Zeu) (Ganf, 1972) whereas for Malala due to its high turbulence, production for whole water columm was considered. Dept-integral respiration
(□ r) per day (24 h) was caculated or the whole water column.

Chlorophyll-a content and other physicohemical parameters were also measured. Common Phytoplankton genera were identified. In Garanduwa and Malala annual gross primary productivity (GPP) was respectively 12440 and 8116 kg C ha $^{-1}$, net primary productivity (NPP) was respectively 2094 and 1994 kg C ha $^{-1}$, annual community respiration was respectively 10346 and 6123 kg C ha $^{-1}$, Mean chlorophyll-a content was 16.28 (13.99 and 08.86 (04.62. Common phytoplankton genera in both lagoons are *Chlorella, Gleocapsa, Navicula, Piniularia* and Cosmarium. NPP in Garanduwa positively correlated with chlorophyll-a content (r= 0.45) while it negatively correlated with temperature (r=-0.43) and dissolved Oxygen (r=-0.40) in Malala.

Primary productivity, chlorophyll-a content and phytoplankton diversity were higher in Garanduwa than in Malala GPP is high when water from Lunugamwehera reservoir is released through the lagoon. In Garanduwa high GPP was seen during first inter monsoon and south-west monsoon seasons as rain water enter from higher elevations during these seasons.