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Species composition, distribution and biomass of sea-grasses in Rekawa, an estuarine lagoon

Sea-grasses are important primary producers in coastal ecosystems. The primary production by epiphytes on sea-grasses is also remarkably high. Sea-grass mats trap suspended particles in overlying water increasing the zone of light penetration, boosting further the productivity. Sea-grasses also protect the shoreline from erosion. Nevertheless the scientific records on species composition, distribution and biomass of sea-grasses in Sri Lanka is meagre. Rekawa lagoon has rich, extended sea-grass bed, and therefore, a detailed study was undertaken.

The water surface area, mangrove area and adjoining land uses were mapped using the aerial photographs taken in 1994 and Arc-View 3.2 software. Six species of sea-grasses were identified using standard keys. The total coverage and the cover by individual species were estimated by establishing parallel lines with about 20 m intervals using a GPS. The GPS values at the beginning and end of each sea-grass patch were recorded while travelling along each transect and then plotted in a GIS of the lagoon. Abundance was estimated by sampling the sea-grasses using 20 cm X 20 cm quadrates placed at 10 m intervals along a line perpendicular to the shore. The samples were washed, separated into species and transported to the laboratory in lagoon water. Wet weight of each species was recorded after cleaning free of epiphytes with a paintbrush. The sea-grass species that were present are *Halophyla ovalis*, *Halophyla ovata*, *Halophyla decipiens*, *Potamogeton pectinatus*, *Najas marina* and *Ruppia maritima*. The coverage was calculated by estimating percentage coverage of each quadrate by individual species. Eight clearly distinct sea-grass patches in the shallow areas (< 0.75 m) of the lagoon were identified. The area covered was estimated as 39 ha, which is 17% of the total lagoon surface. The 30 m band of each patch bordering the shoreline was a mixed population in general. The deeper areas were dominated by *H. ovalis*. As Rekawa lagoon is reported as nutrient rich, light is the limiting factor for sea-grass distribution and hence, *H. ovalis* appears to have the advantage of being a competitor for light. Abundance was expressed as mean biomass per unit area. *H. ovalis* was also the most abundant in terms

of biomass and coverage (1298 g wet wt./ m2 and > 90%, respectively). *N. marina* was the rarest covering only 0.01% and having only 0.02 g wet wt/m2. Presence of *P. pectinatus* was also very low (0.4%).