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## Physico-chemical and biological environment of Malala lagoon at Bundala National park under overwhelming fresh water influence

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Bundala National Park situated in Southern Sri Lanka is the only Ramsar wetland system in the country. Malala lagoon, the largest water body in Bundala National Park is a very productive ecosystem that is demarcated by a sand bar on east adjacent to sea and a narrow canal to Embillakala water body. The main objectives of this study were to investigate some of physico-chemical parameters, variation of the biological component and investigation of biological indicators dictating the lagoon status due to fresh water input. Two transects (3000 m) were studied. Each transect was divided to ten sites separated each other by 300 m. Study was carried out from November, 2000 to mid March, 2001 with 7 sampling visits. Measured salinity levels (from 1.06±0.01 g/L to 0.71±0.02 g/L towards sand bar) along the transects were low and indicated fresh water conditions. Fresh water rotifer (*Brachionis plicatilis*) distribution (From 0 to 131±13 /L towards sand bar), fresh water jelly fish distribution (From 3 ±0.5 to 131 ±13 /L towards sand bar)and fresh water bivalve(*Psidium conventus*)distribution (From 5 ±0.8 to 22± 4 /L towards sand bar) clearly indicated the fresh water influence. Nutrient loading such as nitrate (ranged from 147.0± 3.8 to 189.4 ±3.8 µg/L) and phosphate (from 75.0 ±2.3 to 121.3± 28 µg/L towards sand bar) was much higher indicating fresh water back up. Freshwater input via Embillakala to Malala lagoon was overwhelming especially June to February. This increased water input in to lagoons may result in an increase in the area of wetland. Long-term exposure to fresh water may change habitat characteristics. Continuous monitoring programs may be necessary to implement a management system to maintain the lagoon conditions.

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