

# **Changes in seagrass ecosystems in Negombo lagoon with special reference to past development activities**

**Pahalawattarachchi, V<sup>1</sup>., Jayamanne S.C<sup>1</sup>, Amarasinghe, M.D<sup>2</sup>**

**<sup>1</sup>Inland Aquatic Resources Division, National Aquatic Resources Research and Development Agency (NARA), Colombo -15, Sri Lanka**

**<sup>2</sup>Department of Botany, University of Kelaniya, Kelaniya, Sri Lanka.**

## **Abstract**

It has been revealed that the seagrass ecosystems in Negombo lagoon are rapidly changing over past years due to various reasons. Salinity variations, life cycle changes, over-loading of effluents, nutrients and sediments in the lagoon appear to be the direct reasons for the changes. Eutrophication has resulted filamentous algal mats that float over the seagrass beds obscuring them from light and subsequent loss of leaves, consequently decreasing primary productivity of seagrasses.

Biomass of seagrass species encountered in the samples taken in triplicate at 0.0m, 50m and 100m from the shoreline from 05 localities in Negombo lagoon was collected in 1998 and 2004. These localities represented the western eastern and the northern parts of the lagoon. Changes in standing stock (dry weight at 60<sup>0</sup> C) of seagrasses in northern, eastern and western parts of the lagoon were calculated for 1998 and 2004.

Results indicate that the average annual biomass of seagrasses in Madabokka at Kadolkele (northern side) area has decreased by 93% during the study period (234.15±40.52 g dry weight m<sup>-2</sup> in 1998 and 15.68g ±7.84g dry weight m<sup>-2</sup> in 2004). Along the western shore of the lagoon at Bassiyawatta, the total biomass calculated for 1998 has reduced by 50% over this 06-year period while 62% and 47% increase was observed in the seagrass communities on the eastern shore at Kurana/Katunayake area, and Liyanagemulla respectively. Values for species diversity index revealed that the species diversity of seagrasses also have changed over the study period and this would have contributed to the changes in total biomass/ m<sup>2</sup> of these communities. The possible reasons for those changes, along with the lagoon management implications are discussed in the paper in relation to recent development activities around Negombo lagoon.