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Preliminary studies on seagrass habitat water quality and estimation of shrimp fishery productivity in the Negombo Lagoon

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The present study was to evaluate the seagrass habitat water quality and shrimp fishery productivity in the Negombo Lagoon. The objectives of the study were to investigate the distribution of seagrass habitats, water quality parameters and to estimate economic value of seagrass ecosystems. Seagrass habitats provide habitats and also act as nursery grounds for economically and ecologically important shrimp species. The seagrass habitats located in the Negombo lagoon mainly Kadolkele, Negombo Pitipana, Aluthkuruwa, Thalahena, Sethapaduwa, Liyanagemulla, Katunayake and Kurana were selected for this study. The shrimp population depends on both physical and chemical parameters of the seagrass habitats. Sampling was conducted fortnightly and salinity, ammoniacal - nitrogen, nitrate - nitrogen, nitrite - nitrogen and phosphate-phosphorous and number of shrimp larvae, total shrimp catch and mean shrimp prices were measured during one year from July 2007 to July 2008.

Kodolkele, Thalahena and Kurana had the highest abundance of seagrass communities. It was found that the abundance of shrimp catch in seagrass habitat areas is higher than in areas without seagrass habitats. The abundance of shrimp larvae in the Negombo Lagoon was negatively correlated with salinity and nitrite-nitrogen content in the water and is positively correlated with nitrite - nitrogen, ammoniacal - nitrogen and phosphate-phosphorous content in the habitats. The seasonality in the shrimp catch and water quality parameters were observed with peak periods from May/June to October/November, which apparently coincided with the south west monsoon and the onset of the north east monsoon of the island, respectively.