

(124)

**Diversity of Fish and Shellfish in Negombo Lagoon Sri Lanka****Rathnayake R.M.S.W.\* , Dissanayake D.C.T.**

*Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura,  
Nugegoda, Sri Lanka*

*\*sulakkanawanshapaly@yahoo.com*

**Abstract**

Negombo lagoon (7° 6'-7° 12' N, 79° 49'-79° 53' E) is one of the most productive lagoons in Sri Lanka. It bears a high level of biodiversity and variations of fish and shellfish diversity was evident from time to time. This study aims to provide an update on fish and shellfish diversity in Negombo lagoon after being subjected to many anthropogenic and development activities in recent past. Three major areas of Negombo lagoon i.e. Kadolkele, Dungalpitiya and Kepungoda located 5 km distance to each other were selected as major sampling sites. Fish and shellfish sampling was done once a month from January to December 2018 using a seine net with 50 mm stretch mesh size. Triplicate samplings were conducted at each site. Salinity and surface water temperature were measured in-situ. Water samples were collected to determine Dissolved Oxygen (DO), pH, Nitrate-N and Orthophosphate. Shannon Weiner's diversity index ( $H'$ ), effective number of species (exp.SWI), species richness and species evenness were calculated and compared with respected to each site. A total of 51 species belongs to 33 families were identified during this study. Among them 44 species were finfish and 7 species were shellfish including shrimps and crabs. The highest diversity index and species evenness were recorded from Dungalpitiya site while the lowest was from Kadolkele. High evenness was observed from September to December in all most all the sites and the lowest evenness was evident in May. Species richness varied over the year and the highest and lowest values were recorded in Kepungoda ( $177.9 \pm 10.8$ ) and Kadolkele ( $92.24 \pm 12.3$ ) respectively. A drastic declination of species richness was recorded in June after reporting high species richness from March to May. A significant impact of water quality parameters to the diversity variation was observed in Negombo lagoon. Salinity and DO reported a significant impact to the diversity. Compared to previous studies the diversity of the lagoon habitats has been decreased and these updated information will be useful when designing lagoon management plan which is in the process of developing.

**Keywords:** Negombo lagoon, Fish and shellfish diversity, Diversity indices, Water quality