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Diversity and Composition of Benthic Macroinvertebrates in Puttalam Lagoon, Sri Lanka**Hettige N.D.* , Wickramaarachchi W.D.N.***Environmental Studies Division, National Aquatic Resources Research and Development Agency,
Colombo, Sri Lanka***nadeeshahettige7@nara.ac.lk***Abstract**

Puttalam Lagoon is the third-largest lagoon which is located in the Northwestern Province of Sri Lanka. There are numerous aquatic biodiversity studies in this lagoon. Benthic macroinvertebrates plays in important role in aquatic ecosystems due to their ability to promote mineralization, mixing of sediments and cycling of organic matter. However, benthic macroinvertebrates assemblage in the lagoons of Sri Lanka is not comprehensively discussed. Thus, the present study was conducted to identify the diversity and composition of benthic macroinvertebrates in the Puttalam lagoon. Benthic samples were collected in sixteen sampling sites (KL 1-KL 16) by covering the entire lagoon using the Grab sampler (N=36 samples/lagoon) in July 2017. In the laboratory, collected sediments samples were wet sieved and separated according to particle size, subsequently benthic macroinvertebrates were preserved in 70% ethanol for further analyses. Finally, all taxa were examined using a microscope and identified using standard identification keys. Shannon diversity and Pollution tolerant indices were calculated. Total of 12.5 individuals/m² belong to classes Gastropoda, Bivalvia, Polychaeta, and Crustacea, were identified. Among them, 33 families and two unidentified families were recorded. Class Gastropoda was identified to be dominant in the total composition of benthic macroinvertebrates. Class Bivalvia was the second most dominant benthic macroinvertebrates in the lagoon. The highest (5.6 individuals/m²) and lowest (0.025/m²) abundance of gastropods were found in KL 16 (near Puttalam town) and KL 2 (middle of the lagoon near Kalpitiya area), respectively, whereas the highest and the lowest abundance of bivalves were recorded at KL 3 and KL 2 (south edge of the lagoon) respectively. Locations from the southern part of the lagoon (near Puttalam town) found pollution to tolerant benthic macroinvertebrates. Shannon diversity index and Pollution tolerance index of the lagoon were 1.61 and 28, respectively. In conclusion, both indices showed that the health of the lagoon is in moderate condition in this rapid assessment survey. Furthermore, gastropods were found as the most dominant benthic macroinvertebrates in the lagoon during the study period. This study provides baseline information of the Puttalam Lagoons' benthic macroinvertebrates.

Keywords: Benthic macroinvertebrates, Diversity, Composition, Puttalam Lagoon