Study of the Diversity of Benthic Macro-Invertebrates at Panadura Estuary in Sri Lanka

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Panadura estuary situated in the western province in Sri Lanka where Bolgoda lake opens into Indian Ocean harbours a lot of aquatic biodiversity. Therefore, main objective of this study was to identify the diversity of benthic macro-invertebrates, to assess the correlation between physico-chemical parameters and macro-benthic invertebrate diversity and to evaluate the pollution level in the estuary with respect to the diversity of benthic macro-invertebrates in Panadyra estuary. Both sediment and bottom water samples were obtained from 19 randomly selected sampling locations in Panadura estuary. Collected Benthic macro-invertebrate samples were wet sieved and identified using standard identification keys. The diversity of benthic macro — invertebrates was determined by using Shannon — Weiner index, richness was calculated using Margalef s index and the health status of the estuary was determined by using Pollution Tolerance Index. Similarities among macro-benthic communities at different locations were determined by using Bray — Curtis similarity coefficient. This study also attempted to determine the physico — chemical determinants that govern the spatial variation. Individuals of 1708 species of macro benthos belonging to 14 families were identified. Planobidae, Haminoidae and Veneridae were the most abundant families. The lowest species richness and diversity was reported at PE6 while highest species richness and diversity was reported at PE7. The sampling locations were separated into several clusters based on the diversity of macro benthos. The major physico-chemical parameters which had effect on the diversity of macro benthos were Biochemical oxygen demand and nitrate nitrogen concentration. Shannon Weiner diversity index in each location at Panadura estuary was in between 2 — 3 and Pollution Tolerance Index in each location was lower than 20. Both these indices confirmed that the aquatic health of Panadyra estuary was in poor condition.

Key words: Benthic macro- invertebrates, Diversity, Pollution

Acknowledgements: *The authors are thankful to the National Aquatic Resources Research and Development Agency for providing funds to carry out this research project.*