Macrobenthic Diversity and Community Composition in the Pahang Estuary, Malaysia

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Abstract
The Pahang estuary is known to be one of the most productive natural ecosystems in Malaysia and provides food for a variety of organisms. Unfortunately, many species are increasingly threatened there because of declining conditions in natural aquatic ecosystems. Macrobenthic community composition has been extensively used to determine the quality of the aquatic environment for a long time. The Pahang estuary is undergoing poor conditions in water quality and riverbank vegetation because of sand dredging and other human activities. These activities prove the greatest threats to habitat loss, degradation of water quality, and declining indigenous fish population. Based on the above perspectives, a study was conducted to determine the benthic community composition of the Pahang estuary, Malaysia. The study was divided into three zones. Zone 1 was identified as lowest diversity in the microbenthic community in Pahang estuary with the diversity index (H′) of 0.35, only polychaete worms and bivalves were identified from this area. Polychaete represented by Neries sp., bivalve class was represented by Yoldia sp. in this zone. For Zone 2, the number and types of benthic communities were low because of human disturbance, but they still exist because of detritus that acts as food and habitat provided by the mangrove. This area was identified as lowest diversity index of macrobenthos (polychaetes, bivalves, and gastropods) with the value of 0.31. The diversity index for Zone 3 was highest among all three zones, with the diversity index of 0.38 along with three classes of macrobenthos, which were polychaete, bivalves, and gastropods. Polychaete was represented by Neries sp., bivalves by Yoldia sp., and gastropods by Nassarius sp., respectively. The lower diversity of the macrobenthic community reveals the alarming conditions of the Kuala Pahang because of massive human disturbances along the Pahang estuary. Long-term monitoring for species diversity is necessary for the sustainable development of aquatic resources in this fascinating tropical estuary.

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