

POLYCHAETE ASSEMBLAGES AS INDICATORS OF ENVIRONMENTAL DISTURBANCE IN SELECTED MUDFLAT HABITATS OF MANILA BAY, PHILIPPINES

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ABSTRACT

Anthropogenic pressures linked to urbanization, industrialization, and other coastal activities are increasingly impacting coastal and estuarine ecosystems, altering environmental conditions and benthic communities. Among the most abundant and diverse benthic taxa are the polychaetes, which exhibit varying sensitivities to environmental disturbance—making them potentially useful as ecological indicators. Meanwhile, information on polychaete assemblages in tropical coastal environments, particularly in the mudflat habitats of Manila Bay, Philippines, remains limited. This study aims to assess polychaetes as environmental disturbance indicators in selected mudflat habitats of Manila Bay. Specifically, polychaete assemblage composition and structure will be characterized and their responses to different disturbance levels will be evaluated through community metrics, abundance-biomass comparison (ABC), and k -dominance curves. The study will be conducted in three selected mudflat sites: Tanza Marine Tree Park in Navotas, Las Piñas-Parañaque Wetland Park, and Kawit, Cavite. Three sampling stations, representing low, moderate, and high disturbance levels, will be established along a determined disturbance gradient within each location. Sampling will be carried out across three seasonal periods, corresponding to wet, cool-dry, and warm-dry seasons. Polychaetes will be collected via sediment coring and identified to the lowest practicable taxonomic level. Biological parameters such as abundance, biomass, species richness, diversity, evenness, and dominance will be measured. Water temperature, water pH, dissolved oxygen, salinity, sediment grain-size composition, and sediment organic matter will also be analyzed. Relationships between environmental conditions and polychaete assemblages, as well as similarities among sampling stations, will be examined through canonical correspondence analysis and cluster analysis, respectively. The study is expected to contribute data on polychaete responses to disturbance in tropical mudflat ecosystems and their viable application in Manila Bay environmental assessment.

Keywords: *Polychaetes, environmental disturbance, Manila Bay, mudflats, bioindicators*