

Mangrove Vegetation and Sediment Type Influences on Macrobenthic Infauna in Overwashed Mangrove Ecosystems: A Case Study from Pari Islands, Jakarta, Indonesia

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(Accepted November 30, 2018)

ABSTRACT

Mangrove vegetations and sediment types influence the community structure of macrobenthic infauna in mangrove ecosystems. Those effects are mostly studied in riverine and fringing mangrove ecosystems, with no attention on overwashed ones. The present study analysed effects of mangrove vegetations (i.e. total area, coverage, and density) and sediment types (i.e. gravel, sand, silt, and clay) on macrobenthic infauna (i.e. total abundance, richness, and taxa composition) in the overwashed mangrove ecosystem of Pari Islands, Jakarta, Indonesia. Mangrove area was calculated based on Geographical Information System and remote sensing satellite data, while coverage and density were quantified using a quadratic plot of 10x10 m. Sediment and macrobenthic infauna samples were collected using a hand corer with covering an area of about 0.02 m². Effects of mangrove vegetations and sediment types on total abundance and richness were analysed using Generalised Linear Mixed Model, while those on taxa composition were analysed using Redundancy Analysis. Results showed that mangrove vegetations did not provide significant effects on macrobenthic infauna. In contrast, both clay and gravel significantly influenced total abundance and taxa composition but not richness. Therefore, sediment types were more influential than mangrove vegetations in structuring macrobenthic fauna in the overwashed mangrove ecosystems.

Key words: mangrove vegetation, sediment type, macrobenthic infauna, overwashed mangrove ecosystems, Pari Islands, Indonesia