Distribution and abundance of debris on two tropical Brazilian estuaries (7○S)

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Abstract

Marine debris is widely distributed at oceanic and coastal ecosystems. It is a growing problem with huge environmental, social, and economic impacts. Plastic is the most common debris type, with a growing usage worldwide due to its versatility and durability. Most plastic is incorrectly discarded on ecosystems and accumulate, threatening organisms, environment and human populations that depend on these resources. Estuaries have great ecologic, economic and social importance, but commonly suffer from a high load of debris mostly of them with terrestrial origin. In this study we made an effort to evaluate the composition, abundance and distribution of marine debris in two important tropical Brazilian estuaries, Mamanguape and Paraíba river estuaries. The latter is close to a big city and has strong anthropic impact, while the former is in a protected area. Trimonthly samplings were performed throughout 2021 in three stations of each estuary with beach seine nets. A total of 241 debris items were sampled, 97.1% of them in the Paraíba river estuary, with density and biomass averaging 0.029 ± 0.030 items/m2 and 0.072 ± 0.112 g/m2. Plastic was the most common category on both estuaries, with density and biomass averaging 0.015 ± 0.021 items/m2 and 0.045 ± 0.083 g/m2. The high load of debris in the Paraíba river estuary indicate the high degree of anthropic impact of this ecosystem, as expected and suggested by other indicators. Seasonal temporal variations throughout our study reflected the increase in the river influx and tended to be higher during periods of higher touristic activities. We highlight the need of a special attention to the Paraíba river estuary by the regional managers and competent authorities to promote the sustainable use of this important ecosystem which is a feeding, reproduction and nursery area by fish and invertebrate species, and sustain families that depend these resources.

Keywords: marine pollution, anthropic impact, plastic pollution

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