



Litter on the seafloor along the African coast and in the Bay of Bengal based on trawl bycatches from 2011 to 2020

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ABSTRACT

We present the occurrence of seafloor litter on the coast of Africa and in the Bay of Bengal based on records from the EAF-NANSEN Programme in 2011 to 2020. Litter bycatch records from 534 bottom trawls were standardized to km² before analysis. Three percent of the records indicated areas of high littering and the highest densities occurred from 100 to 300 m in depth and 50 to 100 km from the coast. Littering was lower in the Indian Ocean compared to Atlantic Africa. Plastic objects and fishing gear dominated the recorded items (47 % and 22 % respectively) but, regional differences were pronounced. Plastic dominated North Atlantic and East African records (58 % and 80 % respectively) and fishing gear dominated (69 %) in South Atlantic Africa while records from the Bay of Bengal were a mix of categories. The relation between littering and population density, marine industry, major cities, and rivers is discussed.

1. Introduction

The marine environment is subject to pollution threats from several sources, including litter. UNEP defines marine litter as any persistent solid matter, manufactured or transformed, discarded, disposed of, or abandoned in the marine and coastal environment (UNEP, 2009). Litter is made up of a wide range of sizes, shapes and compositions, including plastic, metal, glass and wood. Categories of litter and their densities vary greatly among locations, and litter, in general, has been found in almost all marine habitats ranging from surface waters down to the deep-sea milieu (Barnes et al., 2009). The estimates of the quantity of floating plastics on the ocean surface are approximately 1 % or less of the estimated quantity of plastics that enters the ocean/year (van Sebille et al., 2015). This demands attention to sunken litter, and the underlying factors that contribute to such litter. Marine litter that is composed of

some materials that are denser than seawater, such as glass, metals, and certain types of polymers, easily reach the bottom of open seas and oceans, where they can become entangled in corals, interfere with benthos, or even become buried in sediment (Pattiaratchi et al., 2021). Targeted studies of seafloor litter require visual seafloor mapping, however, observations from camera or video are available only from a few study areas (Pham et al., 2014, Bergmann et al., 2017, Buhl-Mortensen and Buhl-Mortensen, 2017). In the absence of adequate dedicated seafloor litter surveys, litter captured as ‘bycatch’, during bottom trawl surveys, can provide valuable information on seafloor littering (Grøsvik et al., 2018). In the African region and Bay of Bengal, a growing number of studies have focused on the accumulation of litter on beaches and in offshore surface waters, but there is little information on litter in deeper waters (Pattiaratchi et al., 2021; Loulad et al., 2017). Marine litter has the potential to have a negative impact on fishing activities, which

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