
Microplastics pollution in sediments of Moroccan urban beaches: The Taghazout coast as a case study

Mohamed Ben-Haddad^{*†} and Aicha Ait Alla¹

¹Laboratory of Aquatic Systems: Marine and Continental Environments (AQUAMAR) – Ibn Zohr University, Morocco

Abstract

This work describes the spatiotemporal analysis of microplastics (MPs) pollution in sediments collected on a high urbanized beach located in Taghazout coast, central Atlantic part of Morocco. The study area is mainly composed of moderately well-sorted fine sands with an average density of MPs that ranged between 915 MPs/kg in 2018 and 1448 MPs/kg in 2019. The most polluted sites were in the south part of Taghazout coast, close to facilities of where beachgoers are often found. Microplastic Pollution Index (MPPI), Microplastic Impact Coefficient (CMPI), Agglomerative Hierarchical Clustering (AHC), and Multidimensional Scaling (MDS) revealed spatiotemporal variation of MPs pollution. Thus, the principal component analysis (PCA) showed a low correlation between the sediment characteristics (i.e., grain size, sorting, skewness) and MPs densities. Overall, the outputs of this baseline recommend implementing plastic management strategies to eliminate or at least minimize the collateral effects generated by MPs pollution in sediments of urbanized beaches.

Keywords: Microplastics, coastal studies, waste management, pollution, Sediment

^{*}Speaker

[†]Corresponding author: m.benhaddad94@gmail.com