
Vertical distribution of microplastics in marine sediments

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Abstract

Microplastics (MPs) have been frequently detected in samples from marine environments, however the vertical distribution of microplastics in the marine sediment is a less understood topic. In this work, the distribution of MPs from an intertidal sediment core of 50 cm was obtained. This distribution can give a view of the evolution of MPs concentrations over time as markers of the Anthropocene. Intertidal core sample was taken at the Ría de Vigo employing a PVC tubing. Core sample was maintained frozen until analysis. Analysis was performed by stereo microscopy after organic matter digestion, flotation and filtration. An average of 127.8 microplastics per kg of sediment was obtained, being fibers the most common type. The general trend of types and sizes was similar to previous studies in the area. A negative, but not significant trend, was observed between MP number and depth. Increments of microplastics in deeper sediments can be linked to changes in MPs input, sedimentation rates, natural or anthropogenic disturbance of sediments or extreme environmental episodes. No significant correlation was found between size or type of the MPs and depth.

Keywords: sediment, Anthropocene

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