
Microplastic contamination in deep -sea sediments: the case of the Kuril Kamchatka trench.

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Abstract

Recently, deep-sea trenches were described as trash bins and ultimate sink of anthropogenic litter, mostly represented by plastic and Microplastic (MP). The negative effects of MP on the deep environment are point of discussion in several topics, as it might be the cause imbalances of delicate ecological and biological interactions and affects the food web at all its levels. A comprehensive characterisation and realistic quantification of MP affecting these remote areas is therefore an important step required to estimate the level of environmental disturbance caused by these and the resulting negative effects. Moreover, it is not less important to establish the pathways with which MP is reaching the deep-sea floor, for a better understanding of the nature of contamination. Within the deep MiPoll project, in collaboration with Senckenberg World of Biodiversity and the Alfred Wegener Institute for Polar and Marine Research, we contribute to the evaluation of MP contamination in the abyssal and hadal sediment of the Kuril Kamchatka trench, located in the North West Pacific Ocean. By analysing sediment samples collected during the KuramBio II expedition in summer 2016, we assessed the presence of microplastic in the trench, in sediments at a depth range of 5143-9450 m. Moreover, a heterogeneous microplastic distribution through the sediment column and different microplastic concentration and polymer types among sampling stations located in different areas of the trench reflects the high dynamics of this environment and the numerous forces that drive the deposition processes and the in situ recast of this contaminant at the trench floor.

Keywords: Microplastic, Deep, sea, Hadal trenches

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