Microplastic adhering to marine invertebrates - first observations and discussion of potential effects

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Abstract

During a recent biodiversity study marine invertebrates were found with blue microplastic granules attached to their body surface. The animals originated from subtidal samples collected in a British estuary. In nearly half of the samples animals with blue granules were present. The granules were regularly distributed on the body surface and firmly attached, but not all specimens of the same species were affected.
If present in a sample, granules were usually found on oligochaetes, but also on other animals (eg. crustaceans or polychaetes).
Most studies on the immediate effects of microplastic on marine invertebrates focus on ingestion of particles (uptake of sediment containing plastic or via gills and subsequent endocytosis; see review by Duis & Coors 2016).
The adherence of microplastic to the body and the related threats are not well understood. Potential physical damage as well as altered behaviour, such as reduced ability to move (oligochaetes) or swim (amphipod shrimps), are other effects worth investigating. In the course of routine biodiversity assessments, affected animals could easily be extracted to allow for further studies such as nature of microplastics or to monitor changes in their presence after a ban of microbeads is introduced for example in cosmetics.