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SOURCES AND PATHWAYS OF MICROPLASTICS IN FRESHWATER AND TERRESTRIAL ENVIRONMENTS

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The increase in global use of plastic over the last 30 years has culminated to an estimated global annual production of 300 million tonnes. Microplastics (< 5mm) are of particular concern due to their small size and their ability to absorb and release organic contaminants. More than a decade of research has found MPs to be ubiquitous in the marine environment. Microplastics research at GMIT, Galway aims to assess sources, determine pathways and environmental fate of microplastics in freshwater systems. Sources of microplastic pollution were identified and investigated in terms of abundance, size and morphology. Separation techniques including elutriation, centrifugation, density separation and filtration were used to separate microplastics from media including sewage sludge, sediments, water and biota. Separation remains a critical aspect, which needs to be standardised in this emerging field of research. These studies highlight the need for changes in procedures and processes within the microplastics sources and receptors and the importance of inclusion of microplastics as a factor within the waste management system to reduce risk to human health, priority species and habitats.

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