

Travel to the profound: Plastic contamination within the hadal of deep sea trenches

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Introduction

In recent years, the presence of micro plastics in water bodies has emerged as a critical environmental concern worldwide. Micro plastics, tiny particles of plastic less than 5 millimetres in size, are ubiquitous and have been found in oceans, rivers, lakes, and even drinking water. These minuscule particles pose a significant threat to aquatic ecosystems and human health. Understanding the sources of micro plastic pollution is crucial for developing effective strategies to mitigate this global problem. This article explores the primary sources of micro plastics in water and highlights the need for collective action to address this invisible menace. A significant contributor to micro plastic pollution in water is the shedding of synthetic fibres from clothing and textiles during laundering. Fabrics made from materials such as polyester, nylon, and acrylic release countless microscopic fibres into wastewater with each wash. As these fibres enter water bodies through sewage systems or discharge, they become persistent pollutants that can be ingested by marine organisms and accumulate throughout the food chain. Plastic debris, such as bottles, bags, and packaging materials, gradually breaks down due to weathering and exposure to sunlight, leading to the release of micro plastics. These larger plastic items undergo mechanical and chemical degradation processes, resulting in smaller particles that are easily transported by wind and water currents. These fragmented micro plastics contaminate rivers and oceans, posing a grave threat to aquatic biodiversity and ecosystems. Road transportation is another significant contributor to micro plastic pollution.

Description

Vehicle tires, primarily composed of synthetic rubber, constantly shed tiny rubber particles as they wear down on road surfaces. These tire wear particles, along with other road-related debris, are washed into storm water systems during rainfall events, eventually finding their way into

rivers and oceans. Tire wear and road runoff contribute a substantial portion of micro plastics found in urban water bodies. Micro plastics are also prevalent in personal care and cosmetic products. Exfoliating agents, like microbeads, used in face scrubs, body washes, and toothpaste, are often made of plastic. These microbeads are too small to be effectively filtered by wastewater treatment plants, leading to their release into rivers and seas. Moreover, products containing micro plastics, such as lotions and creams, can directly enter water bodies through bathing or swimming activities, exacerbating the contamination. Numerous industrial processes contribute to micro plastic pollution in water. Plastic production and processing industries generate significant amounts of micro plastics as a by-product during manufacturing. Additionally, industries involved in the production of paints, coatings, and cleaning agents release plastic particles into wastewater through their operations. These industrial activities contribute to the widespread distribution of micro plastics, impacting both freshwater and marine ecosystems. Agricultural practices also play a role in micro plastic pollution. The use of plastic mulch films in farming, which help suppress weeds and conserve moisture, degrades over time, releasing micro plastics into the soil. Irrigation systems utilizing plastic components, such as drip tape and sprinkler heads, can introduce micro plastics into water bodies through runoff and drainage. The incorporation of plastic-based fertilizers and pesticides further exacerbates the issue.

Conclusion

The sources of micro plastic pollution in water are diverse and interconnected, requiring a multidimensional approach to tackle this pervasive problem. Raising awareness among individuals and industries about the consequences of micro plastics on the environment and human health is essential. Stricter regulations, such as bans on single-use plastics and the development of eco-friendly alternatives, are crucial for reducing the release of micro plastics into the environment.

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Additionally, improving wastewater treatment processes and investing in innovative technologies for micro plastic capture can help mitigate the existing contamination. By addressing the sources of micro plastic pollution collectively, we can work towards safeguarding our water resources and preserving the delicate balance of our ecosystems for future generations.

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Conflict of Interest

The author declares there is no conflict of interest in publishing this article.

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