Physical and chemical dangers postured by smaller scale plastic to ocean urchins

Sonia Manzo*

Department for Sustainability, University of Technology Sydney, Australia

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Introduction

Micro plastics, the tiny particles of plastic less than 5 millimeters in size, have become a pervasive and persistent form of pollution in water bodies worldwide. These particles, derived from various sources, pose significant environmental challenges due to their long-lasting nature. This article explores the persistence of micro plastics pollution in water, highlighting the factors contributing to their longevity, the implications for ecosystems, and the urgent need for effective strategies to address this enduring environmental issue. One of the key reasons for the persistence of micro plastics pollution in water is their slow degradation. Most conventional plastics used in everyday products are designed to be durable, with degradation processes taking hundreds of years or more. The continuous exposure to sunlight, water, and mechanical forces in aquatic environments leads to fragmentation of larger plastic items into smaller micro plastic particles. However, these micro plastics still persist for extended periods, contributing to the long-term contamination of water bodies. Micro plastics can be transported over long distances by water currents, wind, and marine organisms, leading to their widespread distribution.

Description

The burial of micro plastics hampers their natural degradation processes and can lead to long-term storage in aquatic environments. As a result, even if the release of new micro plastics into the water is minimized, the legacy pollution from previously deposited micro plastics remains a concern. Micro plastics in water can interact with organic matter and adsorb toxic chemicals. The adsorption of Persistent Organic Pollutants (POPs) onto micro plastics can prolong their persistence and potential impact on ecosystems. Additionally, micro plastics can form aggregates with other suspended particles and organic matter, further influencing their fate and transport. These interactions contribute to the persistence of micro plastics in water by preventing their efficient removal through natural processes. The persistence of micro plastics in water has far-reaching implications for aquatic ecosystems. Micro plastics can disrupt ecological processes, including nutrient cycling, primary production, and species interactions. The accumulation of micro plastics in sediments and habitats can alter the physical structure and function of ecosystems, affecting biodiversity and the overall health and resilience of aquatic environments. The long-term exposure to micro plastics can also impact reproductive success, growth, and survival of aquatic organisms, further cascading effects throughout the food chain. Addressing the persistence of micro plastics pollution in water requires a multi-pronged approach.

Conclusion

The persistence of micro plastics pollution in water presents a formidable challenge for environmental conservation and sustainability. The slow degradation, transport mechanisms, sedimentation, and interaction with organic matter contribute to their enduring presence in aquatic ecosystems. To combat this issue, it is crucial to implement strategies that address the sources of micro plastic pollution, enhance waste management practices, and invest in advanced technologies for water treatment. By taking decisive action, we can strive to minimize the persistence of micro plastics in water, protect our precious aquatic environments, and ensure a healthier future for our planet and its inhabitants.

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Conflict of Interest

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

*Corresponding to

Sonia Manzo

Department for Sustainability,

University of Technology Sydney, Australia

Email: Sonia_manzo@enea.au