

A comprehensive survey on micro-plastic contamination in African oceanic frameworks

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Introduction

Marine pollution is a pressing environmental issue with severe implications for aquatic ecosystems. Understanding the sources of marine pollution is essential for developing effective strategies to mitigate and prevent further contamination. This article explores the major sources of marine pollution in water, including both point sources and non-point sources, shedding light on the culprits responsible for the degradation of our precious marine environments. Point sources of marine pollution refer to identifiable and localized pollution inputs. These sources release pollutants directly into the marine environment through specific discharge points. Industrial activities such as manufacturing, mining, and chemical production can release various pollutants, including heavy metals, toxic chemicals, and untreated wastewater, directly into water bodies. Industrial discharges contribute significantly to marine pollution, impairing water quality and harming marine life. Inadequately treated or untreated sewage from municipal wastewater treatment plants is a major source of pollution in coastal and marine areas. Sewage contains organic matter, nutrients, and pathogens, posing risks to marine ecosystems and public health.

Description

Excessive use of fertilizers, pesticides, and animal waste in agriculture leads to nutrient pollution and the introduction of harmful chemicals into water bodies. Agricultural runoff carries pollutants from fields into rivers, ultimately reaching coastal and marine areas, causing eutrophication and harming marine ecosystems. Urban areas generate significant pollution through storm water runoff. This runoff carries a wide range of pollutants, including debris, chemicals, heavy metals, and nutrients, from streets, parking lots, and industrial areas into water bodies. Urban runoff contributes to the degradation of coastal and marine environments. Airborne pollutants, including toxic chemicals and heavy metals, can be deposited onto the ocean surface through atmospheric deposition. These pollutants originate from

industrial emissions, vehicle exhaust, and agricultural activities. Atmospheric deposition contributes to the contamination of marine ecosystems, particularly in remote or sensitive areas. Plastic waste, originating from various sources such as single-use plastics, littering, and inadequate waste management, is a significant contributor to marine pollution. Plastics can enter water bodies through rivers and coastal runoff or directly from maritime activities. Once in the ocean, plastics break down into micro plastics, further polluting marine ecosystems. Shipping and other marine activities contribute significantly to marine pollution. Ships discharge ballast water, used for stability during transit, into the ocean, often introducing non-native species and potential pathogens to new ecosystems.

Conclusion

Marine pollution arises from various sources, both point sources and non-point sources, as well as shipping and offshore activities. Identifying and addressing these sources is crucial for effective pollution control and prevention measures. By implementing strict regulations, promoting sustainable practices, improving waste management systems, and investing in cleaner technologies, we can mitigate the sources of marine pollution and work towards preserving the health and biodiversity of our oceans 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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