

## Effect of Micro Plastics on Aquatic Ecosystem

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### ABOUT THE STUDY

Plastic discharge into almost all environmental components has increased along with the expansion in global plastic manufacturing. Plastics typically biodegrade but instead fragment into micro plastics and nano plastics through various mechanisms, which have been identified as pervasive contaminants in all marine habitats throughout the world. Skin abrasions, bone injuries, restricted feeding but increased hunger, and asphyxiation by drowning are all made worse by being entangled in plastic trash. Ingesting plastic results in intestinal obstruction, which may harm the gut lining and increase morbidity and death. The micro plastics small sizes facilitate their distribution into tissues and organs as well as their transfer through the gastro-intestinal membranes *via* endocytosis-like processes. Micro plastics promote the dysregulation of gene expression in biological system, which is necessary for the management of oxidative stress, and they also activate the Nuclear E2-related factor (Nrf) signaling pathway in marine vertebrates and invertebrates. These modifications cause the oxidative stress, immunological reactions, genomic instability, endocrine system disruption, neurotoxicity, reproductive abnormalities, embryo toxicity, and trans-generational toxicity that are caused by micro plastics.

Micro plastics have the capacity to draw viruses, metals, and organic pollutants from the environment into living things. As a result of their interaction, which increases the harmful effects, this exacerbates its toxicological profile [1]. Early studies employed seabirds as bio indicators and concentrated on the build-up of plastic in the marine environment, as well as the entanglement and consumption of marine animals. In addition to other dangers, man-made pollution, notably an increase in micro particulate pollutants, poses a threat to the world seas. Sponge, algae, an aquatic filter-feeding creature, can take in small foreign particles, making it possible for it to function as a bio indicator for micro particulate pollution [2].

Large number of these aromatic compounds are known to be broken down by bacterial communities, and various members of naturally occurring bacterial consortia have been described as the

cooperating in syntrophic association to flourish in highly polluted waters and sediments, making them potential candidates as bio indicators of environmental pollution [3]. A variety of microbial groups with cellulolytic and de-chlorination abilities were discovered to be present in the fiber bank sediments, which are the product of historical paper industry activity. Micro plastics are tiny plastic particles less than 5 mm in size that have entered into the ecosystem and contaminated it. Even though there have been several examinations into MPs in the environment, including a number of scathing evaluations, the most of them have been marine environments [4].

### CONCLUSION

The majority of African and Asian nations, which are significant sources of the world's plastic pollution, have yet to fully grasp the magnitude of micro plastic contamination. Therefore, the majority of these nations have not yet taken steps to minimise, reuse, or recycle plastics in order to improve their ability to reduce their usage. A variety of Persistent Organic Pollutants (POPs) have accumulated in marine waters and sediments as a result of decades of intense discharge from industrial operations into coastal systems, having negative effects on aquatic ecosystems and the local biota. Due to their bio toxicity and resilience to environmental deterioration, POPs are among the most dangerous compounds resulting from industrial activity.

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