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EDITORIAL

Microplastics are Everywhere

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Abstract
The widespread use and misuse of plastics has resulted in serious environmental degradation issues which need to be addressed with immediate effect. One of the most prevalent forms of marine debris in our lakes and seas is plastic. Debris made of plastic can be of any size or shape. Microplastics, however, are plastic particles that are smaller than five millimetres. These tiny pieces could take decades or more to degrade fully. Thus, it is important to manage plastic use and disposal.

Keywords: Microplastic; Pollution; Environmental; Degradation; Nanoplastics

Introduction
One of the most serious environmental issues today is plastic pollution, which poses a threat to the quality of the world's water and its ecosystems (Zhang et al., 2022). Microplastic pollution in aquatic life systems has become a global issue in recent years due to its ubiquitous nature (Almas et al., 2022). Plastic pollution in aquatic environments is present in all the spheres of the hydrosphere ranging from surface water to benthic sediment. Plastic is becoming a topic of emerging concern due to its internalization, its long retention time, and its deleterious effects on aquatic flora and fauna (Pisani et al., 2022). In combination with stress induced by climatic conditions, microplastics can cause increased multiple stress effects. The multi-effects can potentially affect the health and resilience of species and ecosystems. The efficiency of existing drinking water treatment procedures in eliminating microplastics from sources of potable water and tap water has come under scrutiny (Pulido-Reyes et al., 2022).

Microplastics
There are several sources of microplastics, including larger plastic garbage that breaks down into smaller and smaller particles. Furthermore, microbeads, a kind of microplastic, are incredibly tiny pieces of synthetic polyethylene plastic that are used as exfoliants in toothpaste and other health and cosmetic products. Furthermore, although it is challenging to identify them, nanoplastics are believed to be present in sources of drinking water. Microplastics found in tap water and sources of drinkable water have raised questions regarding the efficiency of current drinking water treatment techniques in removing these pollutants. These tiny particles easily get through water filtration systems and end up in the Great Lakes and ocean, endangering aquatic life. Mechanical abrasion and solar UV radiation typically work together to degrade plastic surfaces and liberate micro- and nanoplastics (Sun et al., 2022). Oil traces have been found on coasts all around the world as a result of several accidental spills. On coastal rocks, their partial evaporation and solidification may cause the creation of a new solid structure that agglomerates with other substances, chiefly microplastics (though wood, glass, sand, and rocks have also been discovered), yielding a new plastic formation, dubbed "plastitar" for the first time (Domínguez-Hernández et al., 2022). Marine animals are likely exposed to significant amounts of microplastics. Biodegradable polymers (BPs) have great prospects of replacing traditional plastics, however, their biodegradation is subject to rigorous requirements. Long-term accumulation of BPs in the environment and their eventual breakdown into biodegradable microplastics (BMPs) put ecosystems and wildlife at peril (Yu et al., 2022).

Numerous researches have been carried out to look into the impact of micro particle accumulation in freshwater and marine environments. Researchers believe that plastic particles may cause harm in a variety of ways. As with the long and thin fibres of asbestos, which may irritate lung tissue and cause cancer, these also may irritate merely by their presence if they are small enough to reach cells or tissues. These may be a parallel with air pollution: sooty particles from power plants, car exhausts, and forest fires known as PM10 and PM2.5 (particulate matter measuring 10 microns and 2.5 microns) are known to lodge in the airways and lungs, and high amounts can harm respiratory systems. Nevertheless, PM10 concentrations are thousands of times higher than microplastic concentrations observed in the air. Chemical toxicity is more likely to have detrimental consequences in bigger microplastics if any.

Plasticizers, stabilizers, and colours are added by manufacturers, and many of these ingredients are dangerous, interacting with endocrine (hormonal) systems. However, the pace at which these compounds migrate out of the plastic specks and the rate at which the specks pass through our systems determine whether ingesting microplastics enhances our exposure to them. Both of these are variables that researchers are only now beginning to investigate.

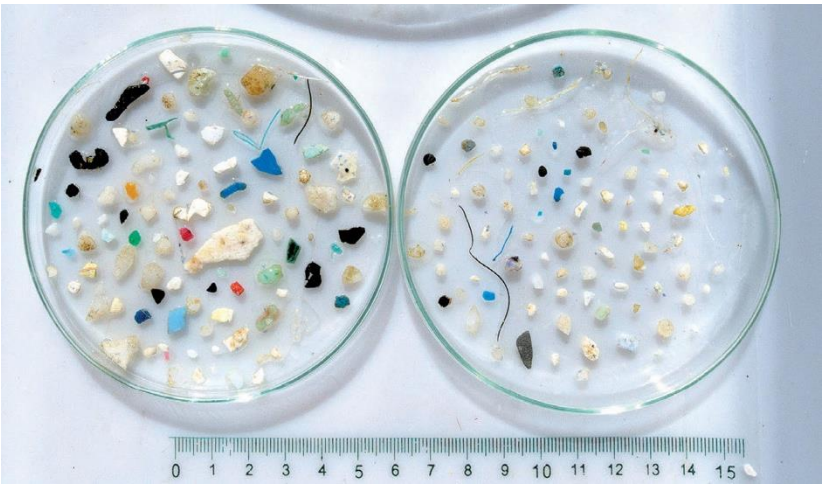

Fig. 1. Microplastics (Bollendorff S - Tara Expeditions Foundation) (Surfrider Foundation, 2020)

Another theory is that chemical pollutants are attracted to microplastics in the environment, which are subsequently consumed by animals that ingest the contaminated specks. Animals, on the other hand, take in pollutants through their food and water. It is therefore possible that, if primarily uncontaminated plastic particles are consumed, they may help to remove pollutants from animal stomachs.

The marine ecosystem, including surface waters, the water column, and benthic sediments, is littered with plastic. If future estimates of increasing plastic output come true, marine plastic pollution is predicted to rise. On the other hand, national and international initiatives are aimed at reducing marine plastic pollution (Miller et al., 2022). We still don't understand a lot of things, though. In the United States, microbeads were banned in 2015. On the other hand, microplastics continue to be a serious problem. We can help keep plastic out of the water by a simple way. Reduce, reuse, and recycle are the three R's to remember.

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Author Contributions

Z.S. conceived the concept and wrote the manuscript.

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