EDITORIAL

Contamination of freshwater environments with microplastics

Sophie Jones*

Sophie Jones. Contamination of freshwater environments with microplastics. J Environ Geol. 2021;5(3):1.

EDITORIAL

Due to its numerous advantages, plastic is one of the most widely produced and utilised materials on the planet. However, the widespread use of plastics and ineffective waste management has had detrimental consequences for ecosystems. Plastic deterioration in the environment produces microplastics, which are plastic particles with a diameter of less than 5 mm. Due to their widespread distribution in aquatic ecosystems and unknown potential eco toxicological effects, they are a global issue. Various researches have been carried out in order to assess the presence and effects of MPs in the marine environment. The presence of MPs in freshwater systems, on the other hand, is still understudied, making data retrieval problematic. The goal of this editorial is to address the most important features of MPs pollution sources in lakes and rivers, with a focus on freshwater sediments as a site of accumulation and habitat for benthic animals, which are important components of food webs and play a critical role in energy/contaminant transfer mechanisms, but are currently underappreciated.

Plastic (from the Greek "plastikos," which means "moldable") is made up of synthetic organic polymers that are often formed by polymerizing monomers sourced from oil, gas, or coal. With the discovery of vulcanised rubber and polystyrene in the 19th century, synthetic polymers were first discovered. Mass manufacture began in 1950, and the European Union presently has around 30,000 polymer compounds registered.

Despite the availability of hundreds of polymers, only a few types of plastic account for 75% of total plastic demands like Polyethylene (PE), Polystyrene (PS), Polyethylene Terephthalate (PET), Polyvinylchloride (PVC), and Polyurethane (PU), Polypropylene (PP). In 2013, worldwide plastic output exceeded 288 million tonnes per year in 2016, worldwide plastic production was over 322 million tonnes; and by 2050, worldwide plastic output is expected to reach a staggering 33 billion tonnes, with 10% of it ending up in the oceans. With a steady production of synthetic polymers of 64.4 million tonnes per year and a plastic demand of 51.2 million tonnes per year, Europe is one of the most important markets for plastics (together with China and North America). Germany, Italy, France, the United Kingdom, and Spain are the most popular destinations in Europe. Plastic has revolutionised human life, since it is now employed for a wide range of applications due to its remarkable characteristics: light weight, durability, versatility, and low cost of production. However, there are also disadvantages to the current "plastic age", such as plastics long half-life, excessive use, and ineffective waste management, which results in an unpleasant accumulation of these elements in the environment.

Due to its widespread distribution and accompanying environmental repercussions, plastic waste has become a global concern; over time, plastics have accumulated in the environment and are now found in every environmental compartment and matrix. Furthermore, the majority of the plastic that is widely distributed in the environment is eventually deposited in aquatic ecosystems. Each year, around 4812.7 million tonnes of rubbish enter the oceans, accounting for 50%-80% of rubbish found on beaches, floating on the water surface, and on the bottom. Plastic and garbage can be discharged directly into aquatic ecosystems or transferred from the mainland. Public littering, incorrect waste disposal, waste dump run-offs, tourism, industrial activities, and combined sewer systems are all thought to contribute significantly to the plastic pollution of the aquatic environment.

If waste management infrastructure does not improve, it is anticipated that the total amount of plastic available to enter the ocean will grow by one order of magnitude by 2025. When plastic is released into the environment, its residence period is predicted to be in the tens to hundreds of years. Because high resistance leads to low disintegration and a long half-life in the environment, plastics' endurance is a double-edged sword, resulting in the widespread persistence of MPs. Plastic litter is a severe concern for both economic and biological reasons: While it degrades the aesthetic value of aquatic ecosystems, it is also likely to represent a harm to biodiversity due to aquatic creatures ease of uptake. Plastic can convey chemicals to live organisms, which could be additives or contaminants in the water. Plastic pellets do, in fact, have the ability to absorb hydrophobic contaminants and then desorb them into habitats or organisms.

Department of Environmental Geologist, University of Johannesburg, Africa

Correspondence: Jones S, Autonomous vehicle's effects on greenhouse gas emissions, E-mail: Sophiejones01@gmail.com
Received: April 17, 2021, Accepted: May 21, 2021, Published: May 27, 2021