Rivers, lakes, and groundwater supplies are examples of freshwater ecosystems, which are vital resources required to sustain life on Earth.The amount of plastic produced annually rises despite increased awareness of plastic pollution and efforts to mitigate it. The manufacturing sector produces more than 280 million metric tons of plastic garbage per year [4–6].Previously thought to be mainly a marine issue, microplastics (MP) are now known to be a major contaminant that is invading freshwater bodies worldwide.The amount of plastic waste generated and the degree of polluted water bodies in the world are generally reflected by industrial development, income level, population size, and environmental awareness.An estimated 4.8 to 12.7 million metric tons of plastic end up in the ocean each year, but a 2017 study found that 80% of the waste in the ocean come from just five Asian countries: China, Thailand, Vietnam, Indonesia, and the Philippines [7].The mismanaged waste index (MWI) is defined as the sum of uncollected and improperly managed plastic waste divided by the totally generated plastic waste amount.Their origins are diverse and linked to both industrial operations and the fragmentation of larger plastic waste streams.1 illustrates the proportion of worldwide aquatic plastic pollution that reaches the ecosystems according to recent estimates [7].Table 1 contains various statistics related to global plastic pollution, allowing an assessment of the situation in different countries.Since the 1940s, when plastics were first produced in large quantities, the ecosystem's MP contamination has been an increasingly serious issue [1].Global plastic output has nearly quadrupled over the previous three decades and is predicted to reach 33 billion metric tons by 2050 [2,3].Consequently, a handful of the greatest polluted water bodies in the world are found in Africa, but most of the aquatic plastic pollution stems from Asia.Also, according to statistics from worldpopulationreview.com, various aspects of the problem of global plastic pollution in 2024 have been revealed (Table 1) [8].The transport and fate of this total plastic load are still poorly understood and how the resulting MP streams are divided into different transport routes.The oceans and marine ecosystems, however, will be one of the major final sinks for much of the MP. Fig.Questions about the transport of mp, their effects on aquatic life, and their potential health effects on humans are growing more urgent as they continue to influence the environment.

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