

Combined Effects of Microplastics and Climate Change on Marine Life

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Abstract : This research creates an urgent and complex challenge for marine ecosystems. Microplastics were primarily found on land, but now they are pervasive in marine environments as well, affecting a wide range of marine species, from zooplankton to larger mammals that live in those environments. These pollutants interfere with major biological processes like feeding and reproduction, causing disruption throughout the food web as microplastics are getting accumulated at different trophic levels. Meanwhile, climatic changes made these effects more accelerated, and the concentration of microplastics due to these occurrences is increasing day by day. Rising temperatures, melting ice, increased runoff due to rainfall, and shifting wind patterns are transforming marine life in a way that intensifies the burden on marine life. This dual stress is particularly present in fragile ecosystems of marine life, such as coral reefs and mangroves. Addressing this twisted crisis requires not only efforts to restrain plastic pollution but also adapts strategies for climate mitigation. This research emphasizes the critical need to combine approaches to save marine biodiversity and withstand the rapid changes in the environment.

Keywords : microplastic pollution, climate change impacts, marine ecosystems, biodiversity threats, zooplankton ingestion, trophic accumulation, coral reef degradation, ecosystem resilience, plastic pollution mitigation, climate adaptation strategies, SST, sea surface temperature

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