

The study conducted in sparsely populated and unpopulated areas of North Sulawesi reveals that litter pollution is highly prevalent in these regions, likely due to their proximity to urban hotspots. Lightweight plastics from households dominate the types of litter found. The upper beach and reef moat were identified as significant areas where litter accumulates, and the distribution and density of litter varied with weather conditions and seasons. Reef flats were also found to be major sinks for submerged litter. The study highlights the risk of litter entanglement for branching corals, leading to severe damage and mortality. However, corals that shed the litter were able to recover. The research provides important insights for developing targeted cleanup strategies, emphasizing the need for expanded waste management, recycling efforts, and better waste removal infrastructure in urban areas and small islands. Efforts to reduce the use of disposable single-use items, such as small volume drinking cups, are recommended. It is also suggested to organize cleanup events in uninhabited beaches and waters to mitigate the impact of litter on marine ecosystems. The study's findings contribute to a better understanding of marine litter pollution in Indonesia and support the country's goals of reducing plastic waste entering the ocean. The research was funded by various organizations and institutions, and the authors express their gratitude to those who supported the study.