

Solid Waste and Marine Litter Management Trends in the Wider Caribbean Region

Tendencias en el Manejo de Desechos Sólidos y Desechos Marinos en la Región del Gran Caribe

Tendances en Matière de Gestion des Déchets Solides et des Déchets Marins dans la Région des Caraïbes

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EXTENDED ABSTRACT

Introduction

Trash is now ubiquitous in the environment, including on beaches and the ocean, posing significant risk to public health and economic sectors such as tourism, fisheries, and shipping as well as to wildlife. Land-based sources contribute 80% and sea-based sources 20%, of marine litter. Plastics make up most of the marine litter and it was estimated that in 2010, between 4.8 - 12.7 million metric tons of plastic entered our oceans (UNEP 2016) and could reach 250 million tons by 2025 (Jambeck et al. 2015).

A significant increase in solid waste generation accompanied by inadequate waste management in many countries, and limited public awareness, are among the factors that have created what may be one of the biggest environmental concerns of the time. Solid waste arises from various economic sectors and activities, either directly or indirectly. In addition, citizens' consumption of goods, personal habits (e.g., use of plastic bags and packaging), and waste practices (e.g., littering, poor household waste separation) contribute to the problem of marine litter.

With limited recycling and markets for solid waste, and space constraints in the small islands, countries in the Wider Caribbean Region (WCR) are struggling to deal with the vast quantities of waste produced. Currently, solid waste collection exists primarily in urban areas and in certain parts of cities and municipalities. Infrastructure is lacking, and fees collected are inadequate to expand waste collection and disposal services. A significant proportion of municipal solid waste is disposed in open dumpsites, which has severe consequences for humans and the environment. For instance, it was estimated that in the Latin America and Caribbean region, 145,000 tons per day of waste are disposed in open dumpsites, including 17,000 tons per day of plastic (UNEP 2018). Solid waste generation is expected to increase in the region as human populations continue to grow, in the absence of more sustainable production and consumption patterns and adequate solid waste management infrastructure.

Results from the State of Convention Area Report on Marine Pollution of the Caribbean Sea (SOCAR)

The WCR is among the world regions with the highest floating microplastic and macroplastic concentrations (UNEP CEP 2019). While these modelled estimates of floating plastics are in broad agreement with sea-based direct observations and shoreline surveys, there is need to obtain empirical data for the region on the volume of plastic (floating and submerged), sources, and fate in the marine environment, as well as for further investigation of the impact on ecosystems and human health and associated economic costs.

It has been estimated that in 2015 the resident population of the WCR generated 79 million tons of solid waste, which is projected to increase to 84 million in 2020. From this, 1.3 million tons of plastics were introduced to coastal waters of the WCR in 2015. First estimates of solid waste generated by the combined resident populations and by tourists in the Eastern Caribbean countries in 2015 amounted to 663,000 tons and 49,000 tons, respectively. (UNEP CEP 2019)

Some of the dangers associated with microplastics include:

- i) Microplastics adsorb organic pollutants from the surrounding seawater and when ingested, can deliver harmful chemicals to marine fauna and humans.
- ii) Owing to their small size, microplastics can easily enter the marine food chain and eventually be transmitted to humans. In Grenada, for example, in a recent study, microplastics were found in the gut of all species of marine fish analysed (Taylor and Morrall 2018).
- iii) Plastic resin pellets (2 to 4 mm diameter) adsorb and concentrate persistent organic pollutants (POPs) from the surrounding seawater (Takada and Yamashita 2016). POPs were detected in all samples collected and analyzed under the International Pellet Watch Programme, including those from remote islands.

Policy Responses

While bans of single-use plastic bags and polystyrene foam products have swept across the Caribbean in the last few years, solid waste management improvements continue to be a major challenge. While addressing plastic pollution using the

circular economy approach is gaining momentum, the by-products of plastic recycling can be just as or even more harmful than the uncycled plastic itself especially if policy, legislative and regulatory frameworks for dealing with these by-products are not in place.

Conclusions and Recommendations

Plastic pollution is gaining increasing attention at all levels, although more needs to be done. The long-term ecological and public health consequences of plastic are still largely unknown, given the product lifespans of up to 500 years and the diverse potential effects of different forms of plastic and the byproducts of its recycling and incineration. Further investigations are required on the long-term impacts of plastic on human and ecological health and associated economic costs.

The large number of national, regional, and global programmes as well as single-use plastic bans demonstrates significant political commitment. More attention is however needed to improve national solid waste management systems, including the prevention and reduction side as well as increased recycling.

Concern over plastic pollution of the ocean is explicitly expressed in Sustainable Development Goal 14.1 and Contracting Parties to the Land-Based Sources of Marine Pollution Protocol (LBS Protocol) of the Cartagena

Convention for the WCR have added marine litter as a priority pollutant under the Protocol. Contracting Parties to the LBS Protocol can consider working jointly to address marine litter by building awareness, advancing initiatives on marine litter including solid waste management improvements, policy development, national monitoring programmes, amongst others and through regional mechanisms such as the Caribbean Node for Marine Litter jointly hosted by the Cartagena Convention Secretariat and the Gulf and Caribbean Fisheries Institute (GCFI).

KEYWORDS: Marine litter, plastics, pollution, solid waste, Caribbean Sea

LITERATURE CITED

- Jambeck, J. et al. 2015. Plastic waste inputs from land into the ocean. *Science* **347**(6223):768 - 771.
- Takada, H. and R. Yamashita. 2016. Chapter 7.2 Pollution status of persistent organic pollutants. Pages 165 - 176 in: IOC-UNESCO and UNEP (2016). *Large Marine Ecosystems: Status and Trends*, United Nations Environment Programme, Nairobi, Kenya.
- Taylor, M.E. and C.E. Morrall. 2018. Microplastics in fish from Grenada, West Indies: Problems and Opportunities, *World Academy of Science, Engineering and Technology International Journal of Marine and Environmental Sciences* **12**(8).
- UNEP-CEP. 2019. *State of Convention Area Report on Marine Pollution*.
- UNEP. 2016. *Global Waste Management Outlook*.
- UNEP. 2018. *Waste Management Outlook for Latin America and the Caribbean*.

Map of Status of Single Use Plastics and Styrofoam Bans in the Wider Caribbean Region

