Relevant papers to review?

<https://www.sciencedirect.com/science/article/pii/S0025326X19305089>

Tania Pelamatti, Iliana A. Fonseca-Ponce, Lorena M. Rios-Mendoza, Joshua D. Stewart, Emigdio Marín-Enríquez, Ana J. Marmolejo-Rodriguez, Edgar M. Hoyos-Padilla, Felipe Galván-Magaña, Rogelio González-Armas,

Seasonal variation in the abundance of marine plastic debris in Banderas Bay, Mexico,

Marine Pollution Bulletin,

Volume 145,

2019,

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https://doi.org/10.1016/j.marpolbul.2019.06.062.

(http://www.sciencedirect.com/science/article/pii/S0025326X19305089)

Abstract: A floating plastic monitoring program was conducted for two years on a weekly basis in Banderas Bay, Mexico. A total of 94 samples were collected from May 2016 to April 2018 in the southern part of the bay. Half (57%) of them contained plastic debris; 79% of it being <5 mm in length. Polypropylene and Polyethylene were the most abundant polymers, accounting for 45% and 43% of the plastic pieces (pp), respectively. The highest abundance of plastic pieces was found in July 2016, with a maximum of 0.3 pp/m3 found in one sample. The amount of floating plastics was significantly higher in the hurricane season compared to the dry season (p < 0.001). This suggests that rainfall may play a significant role in the offload of plastics from land-based sources into the bay.

Keywords: Plastics; Pacific Ocean; Mexico; Marine debris; Seasonality; Rainfall

<https://www.sciencedirect.com/science/article/pii/S0025326X20301739>

K. Immaculate Jeyasanta, Narmatha Sathish, Jamila Patterson, J.K. Patterson Edward,

Macro-, meso- and microplastic debris in the beaches of Tuticorin district, Southeast coast of India,

Marine Pollution Bulletin,

Volume 154,

2020,

111055,

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https://doi.org/10.1016/j.marpolbul.2020.111055.

(http://www.sciencedirect.com/science/article/pii/S0025326X20301739)

Abstract: This study investigates the mean concentration and characteristics of macroplastics (>2.5 cm), mesoplastics (5 mm - 2.5 cm) and microplastics (<5 mm) on eight sandy beaches along the shoreline of Tuticorin, Tamil Nadu. Prevalence of plastic litters varies among the study sites depending on the intensity of fishing and other human activities. Mean concentrations of macroplastics (1.38 ± 78 to 6.16 ± 94 items/m2), mesoplastics (2 ± 0.8 to 17 ± 0.11 items/m2) and microplastics (25 ± 1.58 to 83 ± 49 items/m2) were estimated in respect of the polymers composing them namely PE, PP, PET, NY, PS and PVC, of which PE is the most predominant polymer. At Sites 1, 2, 3, 5 and 8 there is correlation between the intensity of fishing activity and the concentrations of macro- (p = 0.02) and microplastics (p = 0.03). Sites 4, 6 and 7 there is correlation established between the degree of recreational activity and the concentrations of meso- (p = 0.02) and microplastics (p = 0.01).

Keywords: Beach sediment; Plastic pollution; Macro-, meso-, and microplastics; Clean Coast Index; FTIR-ATR

<https://www.sciencedirect.com/science/article/pii/S0025326X19309592>

S.W. Dunlop, B.J. Dunlop, M. Brown,

Plastic pollution in paradise: Daily accumulation rates of marine litter on Cousine Island, Seychelles,

Marine Pollution Bulletin,

Volume 151,

2020,

110803,

ISSN 0025-326X,

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(http://www.sciencedirect.com/science/article/pii/S0025326X19309592)

Abstract: The daily accumulation rates, composition, sizes and potential sources of marine litter collected on a remote island within the Western Indian Ocean were investigated. In total, 9119 items of marine litter were collected during 40 surveys, which equated to 0.0082 items·m−1·d−1. Between 2003 and 2019 there was a significant increase in the amount of litter deposited, with the highest daily accumulation rate recorded in 2019 (0.0255 items·m−1·year−1). All specific litter types increased over time and also differed significantly in their accumulation rates, with polystyrene fragments/pieces (0.00249 items·m−1·d−1), plastic items (0.00135 items·m−1·d−1) and plastic bottles (0.0011 items·m−1·d−1) being the most commonly encountered during this study. The majority of the litter found was ≤5 cm in size. Nearly all (>80%) litter collected was made of or contained some form of plastic. Recommendations for improved management of litter and the importance of establishing regular beach clean-ups within the Seychelles are briefly discussed.

Keywords: Daily accumulation rate; Marine litter; Marine debris; Seychelles; Small island developing states; Western Indian Ocean

<https://www.sciencedirect.com/science/article/pii/S0967063713001039>

Kyra Schlining, Susan von Thun, Linda Kuhnz, Brian Schlining, Lonny Lundsten, Nancy Jacobsen Stout, Lori Chaney, Judith Connor,

Debris in the deep: Using a 22-year video annotation database to survey marine litter in Monterey Canyon, central California, USA,

Deep Sea Research Part I: Oceanographic Research Papers,

Volume 79,

2013,

Pages 96-105,

ISSN 0967-0637,

https://doi.org/10.1016/j.dsr.2013.05.006.

(http://www.sciencedirect.com/science/article/pii/S0967063713001039)

Abstract: Anthropogenic marine debris is an increasing concern because of its potential negative impacts on marine ecosystems. This is a global problem that will have lasting effects for many reasons, including: (1) the input of debris into marine environments is likely to continue (commensurate with population increase and globalization), (2) accumulation, and possibly retention, of debris will occur in specific areas due to hydrography and geomorphology, and (3) the most common types of debris observed to date will likely persist for centuries. Due to the technical challenges and prohibitive costs of conducting research in the deep sea, little is known about the abundance, types, sources, and impacts of human refuse on this vast habitat, and the extreme depths to which this debris is penetrating has only recently been exposed. We reviewed 1149 video records of marine debris from 22 years of remotely operated vehicle deployments in Monterey Bay, covering depths from 25m to 3971m. We characterize debris by type, examine patterns of distribution, and discuss potential sources and dispersal mechanisms. Debris was most abundant within Monterey Canyon where aggregation and downslope transport of debris from the continental shelf are enhanced by natural canyon dynamics. The majority of debris was plastic (33%) and metal (23%). The highest relative frequencies of plastic and metal observations occurred below 2000m, indicating that previous studies may greatly underestimate the extent of anthropogenic marine debris on the seafloor due to limitations in observing deeper regions. Our findings provide evidence that submarine canyons function to collect debris and act as conduits for debris transport from coastal to deep-sea habitats.

Keywords: Litter; Deep sea; Submarine canyons; GIS; USA; California; Monterey Canyon; Unmanned vehicles

<https://www.sciencedirect.com/science/article/pii/S0956053X17305329>

Michelle E. Portman, Ruth E. Brennan,

Marine litter from beach-based sources: Case study of an Eastern Mediterranean coastal town,

Waste Management,

Volume 69,

2017,

Pages 535-544,

ISSN 0956-053X,

https://doi.org/10.1016/j.wasman.2017.07.040.

(http://www.sciencedirect.com/science/article/pii/S0956053X17305329)

Abstract: Marine litter has been a serious and growing problem for some decades now. Yet, there is still much speculation among researchers, policy makers and planners about how to tackle marine litter from land-based sources. This paper provides insights into approaches for managing marine litter by reporting and analyzing survey results of litter dispersal and makeup from three areas along an Arab-Israeli coastal town in view of other recent studies conducted around the Mediterranean Sea. Based on our results and analysis, we posit that bathing beach activities should be a high priority for waste managers as a point of intervention and beach-goers must be encouraged to take a more active role in keeping beaches clean. Further, plastic fragments on the beach should be targeted as a first priority for prevention (and cleanup) of marine litter with plastic bottle caps being a high priority to be targeted among plastics. More survey research is needed on non-plastic litter composition for which amounts and geographic dispersal in the region vary greatly from place to place along Mediterranean shores. In general, findings of this study lead us to recommend exploring persuasive beach trash can design coupled with greater enforcement for short term waste management intervention while considering the local socio-economic and institutional context further for long-term efforts.

Keywords: Marine litter; Marine Strategy Framework Directive; Land-based sources; In situ collection; Coastal litter; Bathing beaches

<https://doi.org/10.1016/j.marpolbul.2007.03.022>

Lorena M. Rios, Charles Moore, Patrick R. Jones,

Persistent organic pollutants carried by synthetic polymers in the ocean environment,

Marine Pollution Bulletin,

Volume 54, Issue 8,

2007,

Pages 1230-1237,

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https://doi.org/10.1016/j.marpolbul.2007.03.022.

(http://www.sciencedirect.com/science/article/pii/S0025326X07001324)

Abstract: Thermoplastic resin pellets are melted and formed into an enormous number of inexpensive consumer goods, many of which are discarded after a relatively short period of use, dropped haphazardly onto watersheds and then make their way to the ocean where some get ingested by marine life. In 2003 and 2004 pre-production thermoplastic resin pellets and post-consumer plastic fragments were collected and analyzed for contamination for persistent organic pollutants (POPs). Samples were taken from the North Pacific Gyre, and selected sites in California, Hawaii, and from Guadalupe Island, Mexico. The total concentration of PCBs ranged from 27 to 980ng/g; DDTs from 22 to 7100ng/g and PAHs from 39 to 1200ng/g, and aliphatic hydrocarbons from 1.1 to 8600μg/g. Analytical methods were developed to extract, concentrate and identify POPs that may have accumulated on plastic fragments and plastic pellets. The results of this study confirm that plastic debris is a trap for POPs.

Keywords: Persistent organic pollutants; Plastic contaminants; PCBs in plastics; DDTs in plastics; PAHs in plastics; Plastic debris; Plastic pellets

<https://doi.org/10.1016/j.marpolbul.2016.04.015>

Allan Thomas Williams, Peter Randerson, Carlo Di Giacomo, Giorgio Anfuso, Ana Macias, José Antonio Perales,

Distribution of beach litter along the coastline of Cádiz, Spain,

Marine Pollution Bulletin,

Volume 107, Issue 1,

2016,

Pages 77-87,

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https://doi.org/10.1016/j.marpolbul.2016.04.015.

(http://www.sciencedirect.com/science/article/pii/S0025326X16302107)

Abstract: A total of 59 categories of litter items were found at 20 beaches (13 mechanically cleaned, 7 non-cleaned) in the Cádiz tourist environment, Spain. Cluster Analysis and Principal Components Analysis were used to highlight similarities and contrasts between sites and/or associations between litter categories. Multivariate analyses separated beaches according to the total numbers of litter items present. Non-cleaned sites showed a variety of litter category abundance with distinct origins and abundant, ubiquitous items (plastic and glass fragments). Of the 7 non-cleaned beaches (49 litter categories) river-mouth sites were distinct due with high numbers of litter items. The sheltered inner part of Cádiz Bay beaches had a wide range of litter type. Many sites were associated with locally deposited recreational litter categories; while industrial/commercial/fishing categories were abundant only at a few sites, indicating items transported onto the shore from the Guadalete river.

Keywords: Beach grading; Cluster Analysis; Principal component analysis; Tourism; Coastal management; Morpho-dynamic beach state