

Beach macro-litter monitoring and floating microplastic in a coastal area of Indonesia

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Abstract	Qualitative analysis of the structures of the polymers composing floating plastic debris was performed using attenuated total reflectance-Fourier transform infrared spectroscopy (ATR-FTIR), and the aging of the debris was assessed by measuring carbonyl group formation on the particle surfaces. Plastic material made up > 75% of the 2313 items collected during a three-year survey. The size, shape and color of the microplastic were correlated with the polymer structure. The most abundant plastic materials were polypropylene (68%) and low-density polyethylene (11%), and the predominant colors of the plastics were white, blue and green. Cilacap Bay, Indonesia, was contaminated with microplastic at a concentration of 2.5 mg.m ³ . The carbonyl index demonstrated that most of the floating microplastic was only slightly degraded. This study highlights the need to raise environmental awareness through citizen science education and adopting good environmental practices.
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