
Searching hotspots of neustonic microplastics contamination in the Canary Islands.

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Abstract

The Canary Islands are in the North Atlantic subtropical gyre and are influenced by the African coastal upwelling and the Canary Current, which is fed by the Azores Current that transports high concentrations of plastics that eventually reach the Canary Islands archipelago (Eriksen et al., 2010). To study the status and impact of microplastics on the sea surface, the IMPLAMAC expedition was conducted in October 2021 from Lanzarote to La Gomera, and 12 surface water samples were collected from the Canary Islands with a manta net. Our results are highly variable in the concentration of microplastics and zooplankton. We obtained microplastic concentration values between 0.31 items/m³ in Arrecife (Lanzarote) and 137.96 items/m³ in Pasito Blanco (Gran Canaria). The latter value is due to the presence of a swath of marine litter. The most abundant taxonomic group was copepods, except at some stations where fish eggs and larvae predominated. The most frequent type of marine litter was fragments, followed by tar and fibres. The most frequent colors found were white, black, and blue, coinciding with the colours most frequently ingested in marine fauna. We obtained a low microplastic-zooplankton ratio, except in Pasito Blanco (Gran Canaria) where the ratio was 1.5. These values reveal the potential negative impact of microplastics and associated chemical pollutants on the marine environment and biota, especially on filter-feeding animals. The objectives of this study were to find hot spots of microplastic pollution in surface waters, to quantify and characterise microplastics and neustonic zooplankton. With this study it will be possible to observe the evolution of microplastic pollution in surface waters with respect to the study previously carried out by Herrera et al. 2020. This study corroborates that the Canary Islands are a hotspot for the accumulation of microplastics.

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