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images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-first-assessment-anthropogenic-particle-ingestion-pontellid-copepods-fagiano-et-al-2023.jpg{/rokbox}

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First assessment of anthropogenic particle ingestion in Pontellid copepods: *Pontella mediterranea* as a potential microplastic reservoir in the Neuston

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Abstract: Hyponeustonic species, living at the interface between the atmosphere and the oceans, comprise one of the most understudied and vast critical marine biotope, constantly exposed to high concentrations of anthropogenic contaminants and microplastic (MPs). Copepods of the Pontellidae family represent the primary components of this biotic assemblage worldwide, and their interaction with MPs is still unknown. We studied this interaction for the first time in *Pontella mediterranea*, assessing the ingestion of anthropogenic particles (APs) in 2793 individuals collected by manta trawl in the Northern Alboran Sea. We observed *P. mediterranea* abundances ranging from 41.67 to 1174.83 ind/m3, with a mean ingestion of 0.11 APs/ind, predominantly composed of MPs. These results confirm the low ingestion values observed for other copepod taxa. However, given its abundance, this species could retain an average of 45.15 and a maximum of 220 APs per m3 of seawater (APs/m3), mostly composed of cellulose acetate and cotton fibers. The abundances of APs were evaluated in surface (0–12 cm) and sub-surface waters (5 m depth) by combining manta trawl and Continuous Underway Fish Egg Sampler sampling. The AP abundances found (surface waters: 0.67 ± 1.04 APs/m3; subsurface waters: 3.85 ± 2.67 APs/m3) were consistent with those previously observed in the Mediterranean basin, confirming that the ingestion values observed in *P. mediterranea* are not due to a local accumulation of environmental MPs. Results highlight how this neustonic copepod could represent one of the largest reservoirs of APs within the upper layers of the oceans, representing an entry point for these particles within food webs. Considering the worldwide distribution and abundance of this family of copepods, the results are of environmental concern.

Keywords: Microplastics, Copepods, Microplastic ingestion, Pontellidae, Marine pollution, Zooplankton