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V. Fagiano, C. Alomar, M. Compa, J. Soto-Navarro, G. Jordá, S. Deudero, 2021. [Neustonic microplastics and zooplankton in coastal waters of Cabrera Marine Protected Area \(Western Mediterranean Sea\).](#)

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Abstract: The high abundance of microplastics in marine environments is becoming a growing threat for Marine Protected Areas (MPAs). Recent studies have identified microplastics (MP) as having multiple effects on biota, and it is of special interest to highlight their effects on zooplanktonic organisms. These organisms play a key role on local food web structures and there is a need to better understand the accumulation of MPs and associated contaminants within the food web. The present study addresses MP distribution and composition within Cabrera MPA as well as its effects on local zooplanktonic community composition. Neustonic microplastic and zooplankton abundance and composition were determined in the shallow coastal waters of Cabrera MPA during the summer season of 2019. Samples were taken using a sea surface manta-net, with a mesh size of 335 µm. MPs were found in all manta trawl samples for a total of 7047 MP with an overall mean abundance ($\pm$ SD) of 3.52 ($\pm$ 8.81) items/m³, a value higher than those reported for the majority of Western Mediterranean Sea basins. Qualitative and semi-quantitative analyses of the local zooplankton community suggest that its composition could be sensitive to MP abundances. Although no correlation was found between overall mean abundance of MP and zooplankton, a positive correlation was found between MP abundance and the abundance of the planktonic stage of the foraminifer *Rosalina globularis* (Tretomphalus). This species seems to be able to use MP for its dispersion. On the other hand, a negative correlation between MP abundance and Copepoda abundance was detected. This work confirms that the coastal zooplankton community composition within the MPA of Cabrera are not exempt from MP pollution and suggests important and complex interactions between MP and zooplankton organisms in coastal waters.

Keywords: Floating marine plastic debris, Zooplankton, Microplastic: zooplankton ratios, Balearic Islands