

{rokbox title=|The threefold monitoring approach to detect marine litter presence and impact in bioindicator organisms :: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-bioindicadores-ingestion-plasticos-fauna-fossi-et-al-2017-thumb.jpg|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-bioindicadores-ingestion-plasticos-fauna-fossi-et-al-2017.jpg{/rokbox}

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, Teresa Romeo, Pietro Battaglia, Franco Andaloro, Ilaria Caliani, b, Silvia Casini, Cristina Panti, Matteo Bains, 2017.

[**Bioindicators for monitoring marine litter ingestion and its impacts on Mediterranean biodiversity.**](#)

Environmental Pollution (2017), <https://doi.org/10.1016/j.envpol.2017.11.019>

Abstract: The Mediterranean Sea has been described as one of the most affected areas by marine litter in the world. Although effects on organisms from marine plastic litter ingestion have been investigated in several oceanic areas, there is still a lack of information from the Mediterranean Sea. The main objectives of this paper are to review current knowledge on the impact of marine litter on Mediterranean biodiversity, to define selection criteria for choosing marine organisms suitable for use as bioindicator species, and to propose a methodological approach to assessing the harm related to marine litter ingestion in several Mediterranean habitats and sub-regions. A new integrated monitoring tool that would provide the information necessary to design and implement future mitigation actions in the Mediterranean basin is proposed. According to bibliographic research and statistical analysis on current knowledge of marine litter ingestion, the area of the Mediterranean most studied, in terms of number of species and papers in the Mediterranean Sea is the western sub-area as well as demersal (32.9%) and pelagic (27.7%) amongst habitats. Applying ecological and biological criteria to the most threatened species obtained by statistical analysis, bioindicator species for different habitats and monitoring scale were selected. A threefold approach, simultaneously measuring the presence and effects of plastic, can provide the actual harm and sub-lethal effects to organisms caused by marine litter ingestion. The research revealed gaps in knowledge, and this paper suggests measures to close the gap. This and the selection of appropriate bioindicator species would represent a step forward for marine litter risk assessment, and the implementation of future actions and mitigation measures for specific Mediterranean areas, habitats and species affected by marine litter ingestion.

Keywords: Bioindicators, Marine litter, Microplastic, Mediterranean Sea, Plastic ingestion, Toxicological impact