{rokbox title=|Spatial distribution of initial marine litter concentrations :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-requirements-marine-litter-concentration-mediterranean-soto-et-al-2024-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-requirements-marine-litter-concentration-mediterranean-soto-et-al-2024.jpg{/rokbox}

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Abstract: The pollution of the seas by anthropogenic debris represents a significant environmental and socioeconomic concern. It is of paramount importance to accurately monitor the amount of marine litter in the oceans. However, there is considerable variation in the reported values of marine litter concentrations in certain areas. This uncertainty can be attributed to the inadequacy of the sampling strategies employed. This study analyzes the spatial and temporal requirements for the marine litter sampling in order to obtain accurate estimates of the actual marine litter concentration with the Mediterranean Sea serving as a case study. We conducted a series observing system simulation experiments based on the outputs of a high-resolution modeling system. Our results demonstrate that the strategies employed in the majority of observational campaigns are inadequate for obtaining acceptable uncertainty ranges. The average concentration uncertainty, both spatial and temporal, was quantified in relation to the parameters of the sampling strategies.

Keywords: Mediterranean sea, Marine litter, Sampling strategies, Observing system simulation experiment