

Characterisation, quantification, and analysis of the spatial distribution of microplastics in subsurface waters of the Gulf of Cadiz



microplastics in subsurface waters of the Gulf of Cadiz

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Where are the microplastics? A ubiquitous concern

The marine environment are polluted by microplastics (MPs) on a global scale. Several studies has demonstrated the presence of these particles from the poles to the tropics and from the surface waters to the deep blue sea. Studies show that this pollutant appears to be not just a physical particle in the environment, but a chemical and dynamic cocktail that is worth further study to understand its medium- and long-term impact on ecosystem.

Studies show that the Gulf of Cadiz (GoC) is polluted by MPs, but this information lacks a comprehensive characterisation of the particles found. Moreover, is always the same distribution? And the same synthetic polymers? What is their abundance?

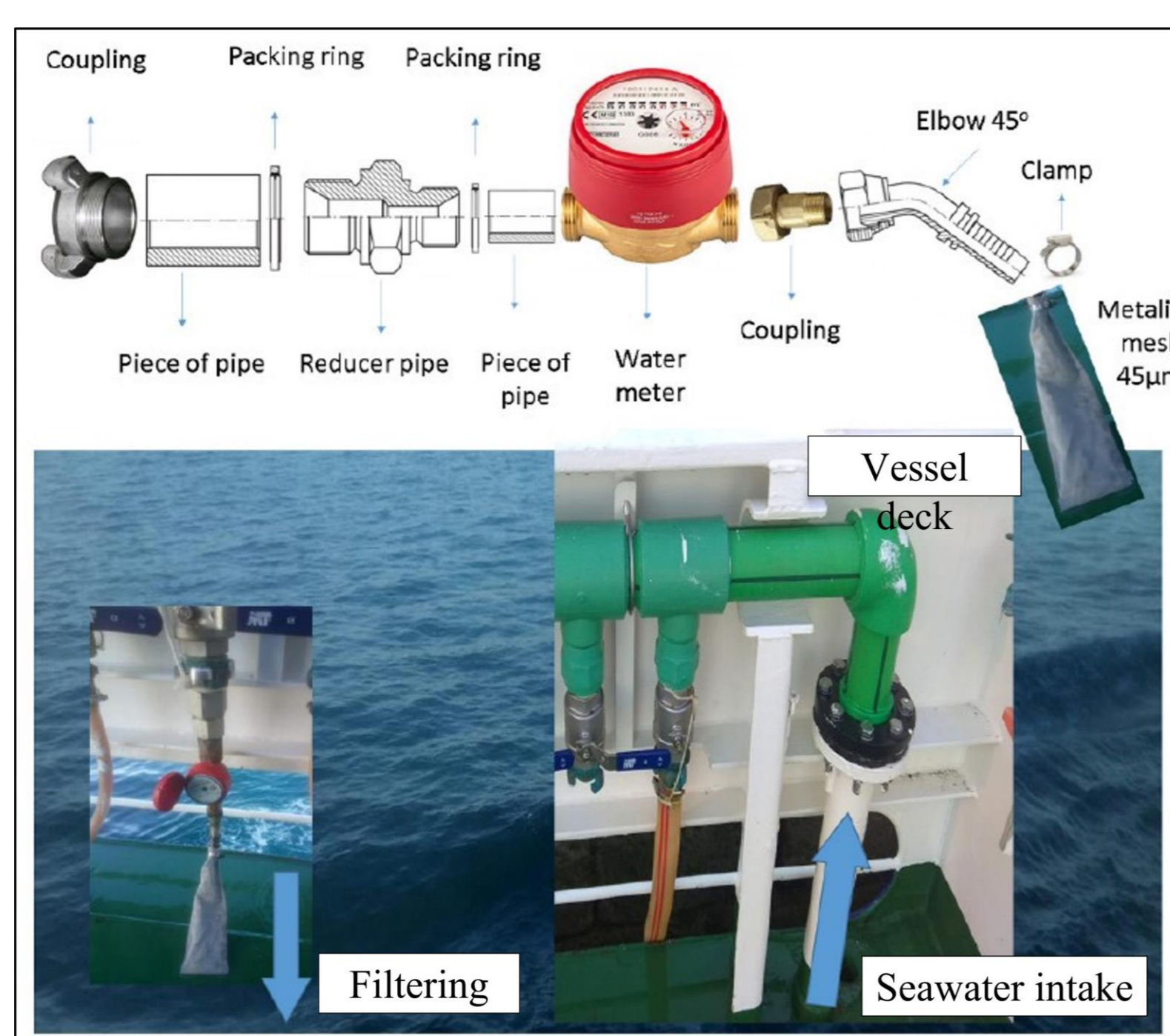
Let's find out!

We have studied the water column of the Gulf of Cadiz in summer 2021 (STOCA 08 21).

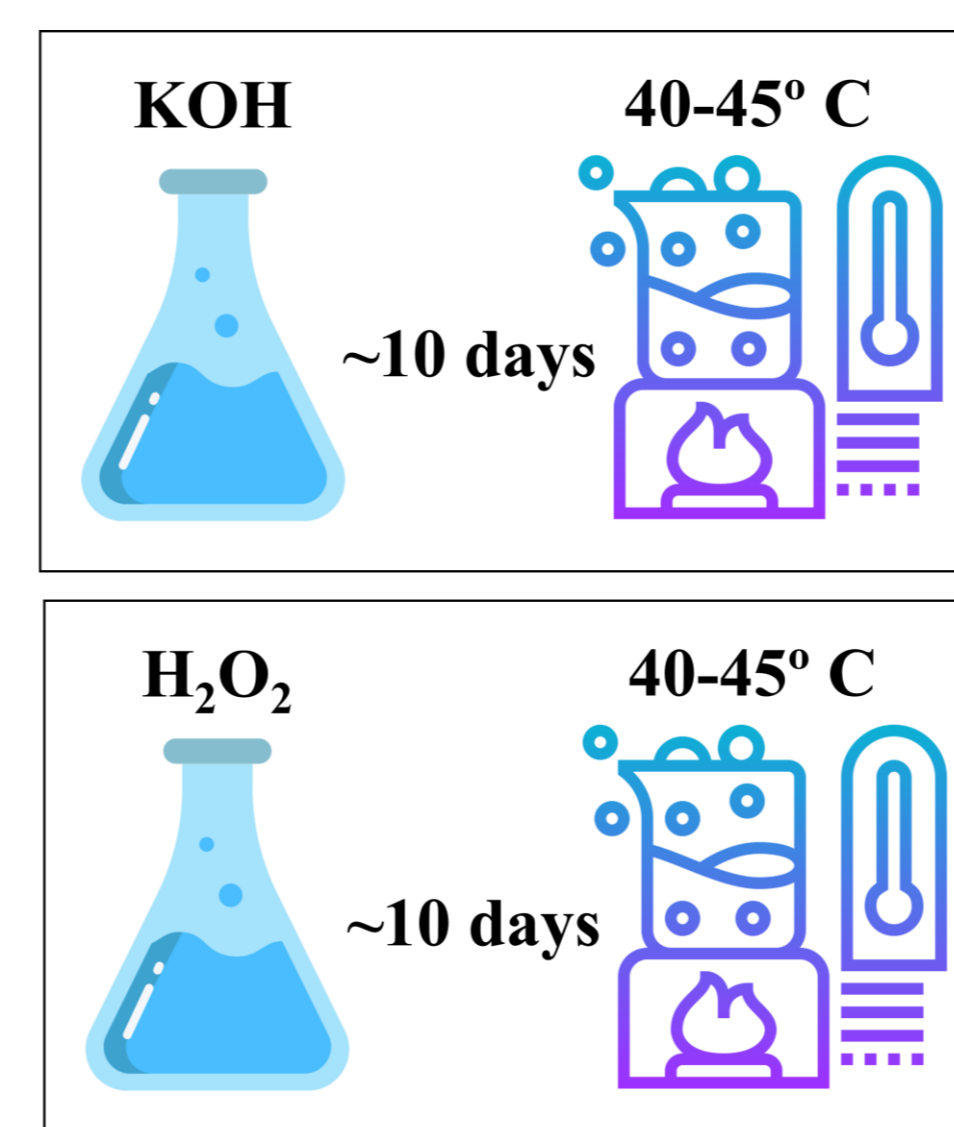


There are several technics to study the MPs in the column water and identify MPs

We use the vessel's own pumping system to sampling the subsurface waters

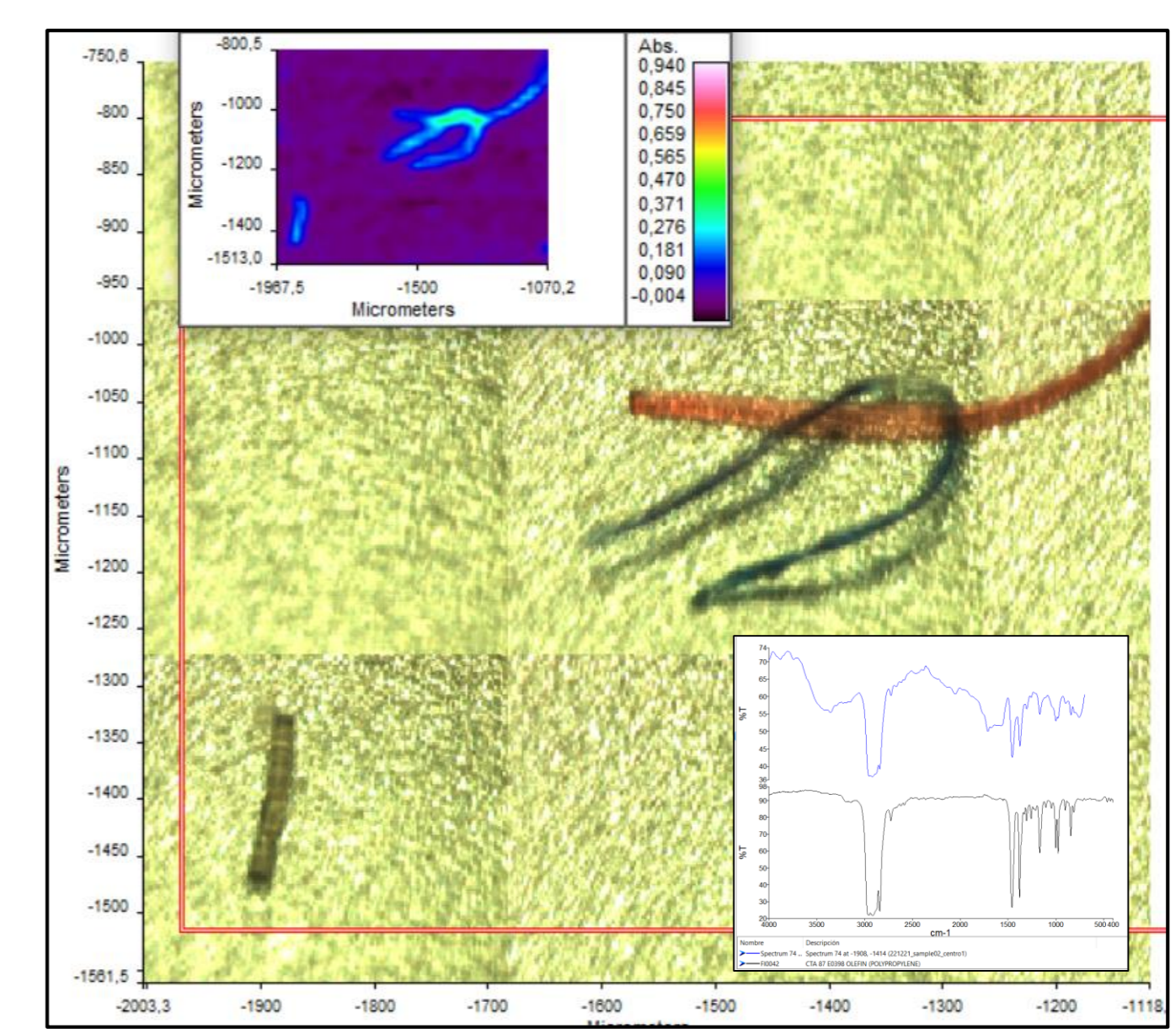


What happened with the particulate matter sampled? We need to find the MPs



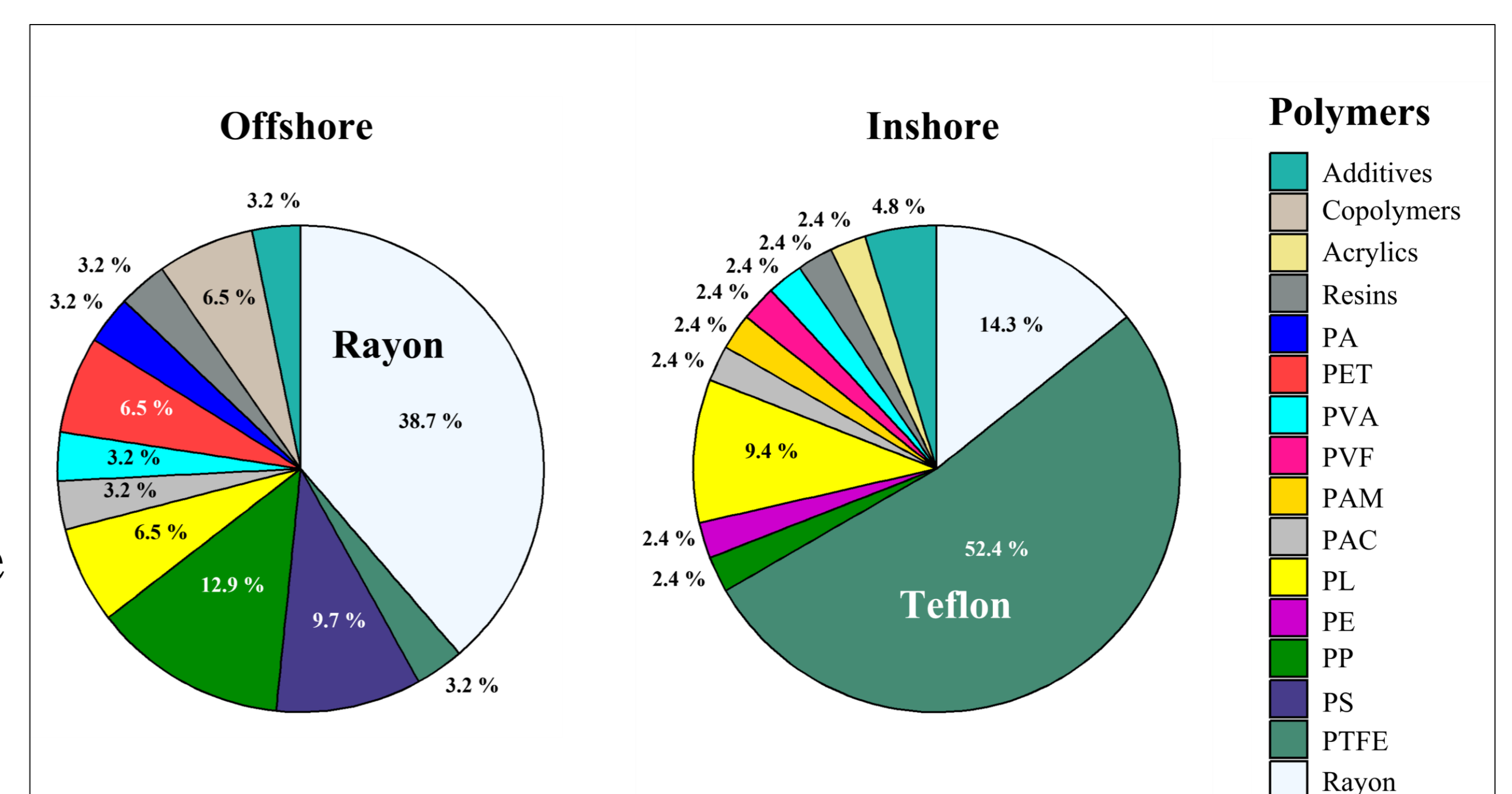
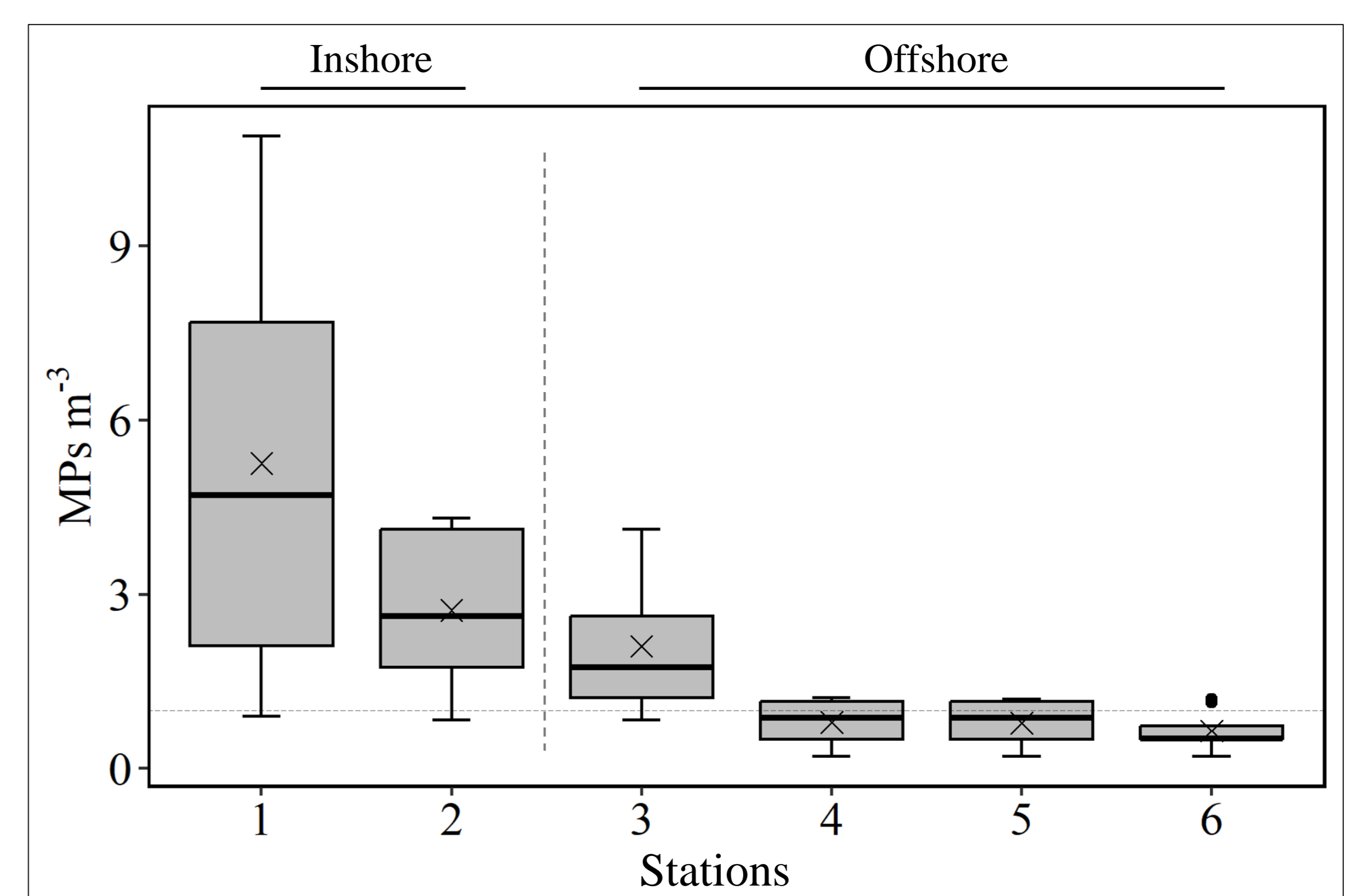
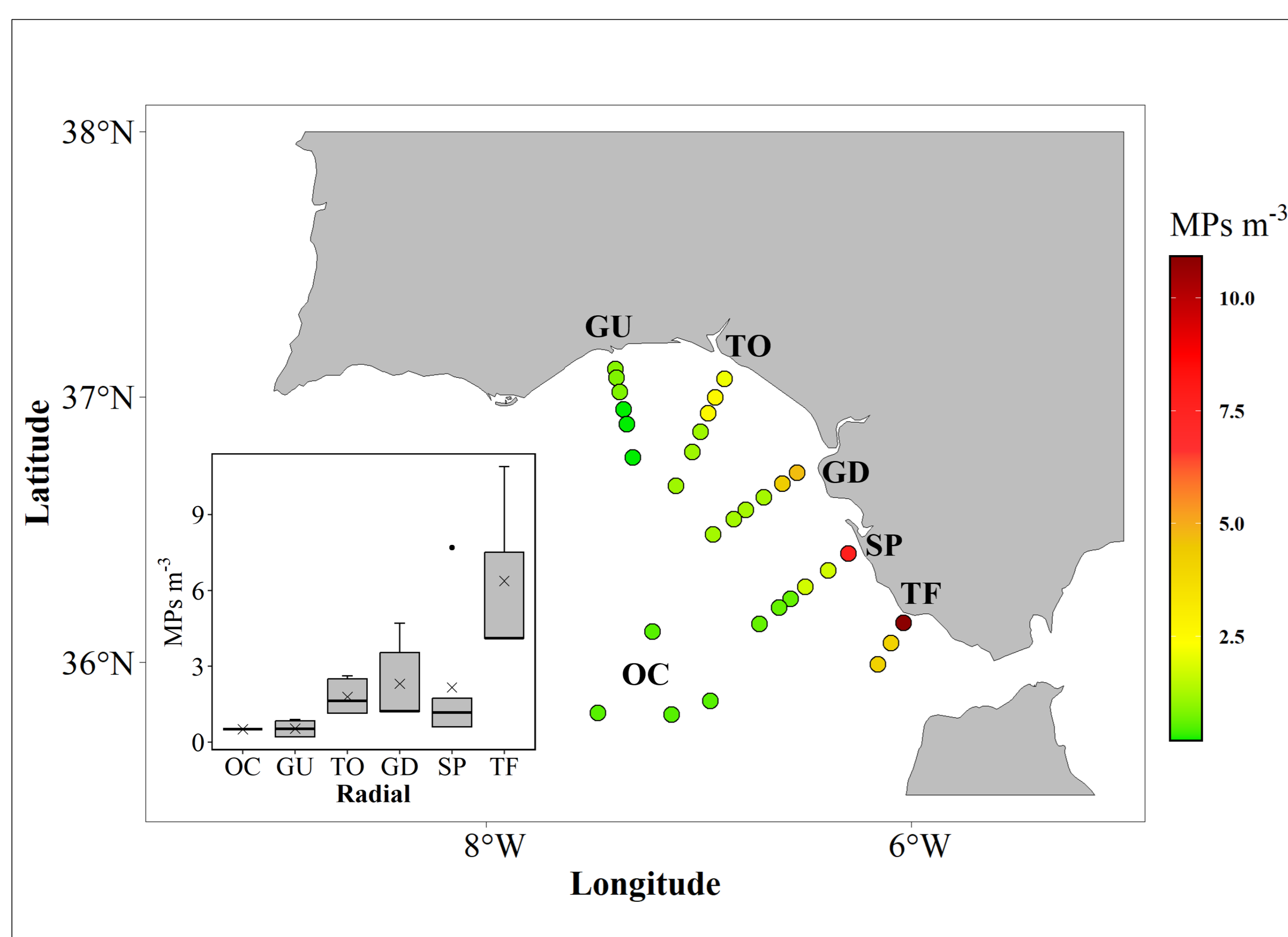
Digestion of the organic matter

To be or not to be. Are these particles MPs??



μ-FTIR

What do we find? A clear pattern in the spatial distribution and a new characterization of the polymers



The results found in this study in the GoC show the dynamism of this pollutants. The summer population increase in coastal areas could explain the high abundance of MPs in the most polluted stations. In the same way, the quasi-permanent upwelling at Trafalgar, eastern of the GoC, could explain the high concentration of MPs in this area.

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