

A MULTI-COMPARTIMENTAL APPROACH OF MICROPLASTIC DISTRIBUTION IN THE NORTHERN ALBORAN SEA.



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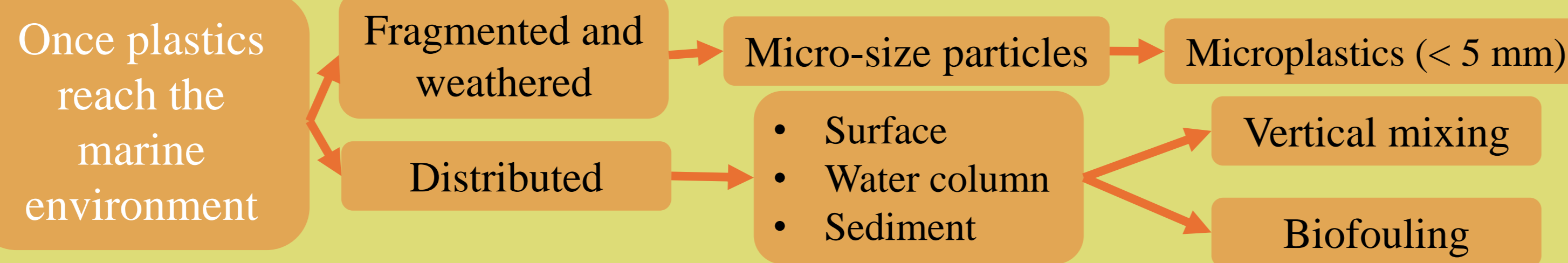
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Introduction

Marine litter is a growing environmental problem. 80% of this debris is plastic, a material of special concern due to its persistence and potential toxicity.



Underestimated microplastic concentration in the ocean by traditional surface measurements.

Aim

Filling the gaps of data and information about the presence and distribution of microplastics.

Oceanographic Campaign SANIMED

We have studied microplastic distribution of the Northern Alboran Sea in March 2024.

Methodology

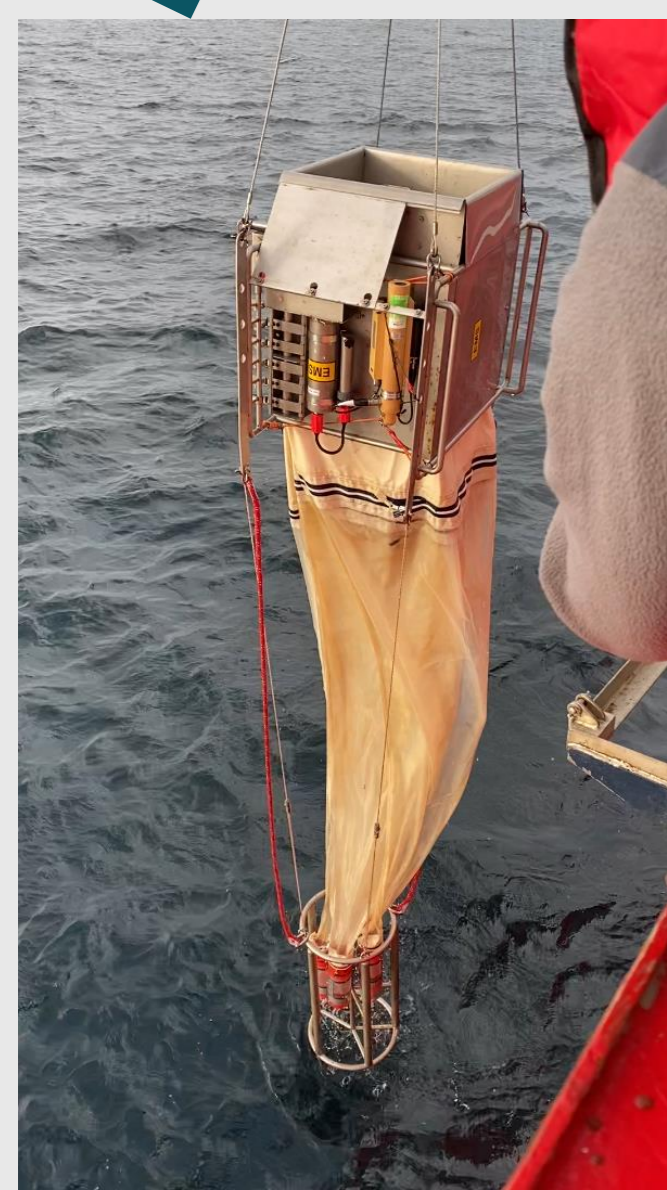
Sampling Methods

Expendable Bathythermograph (XBT)



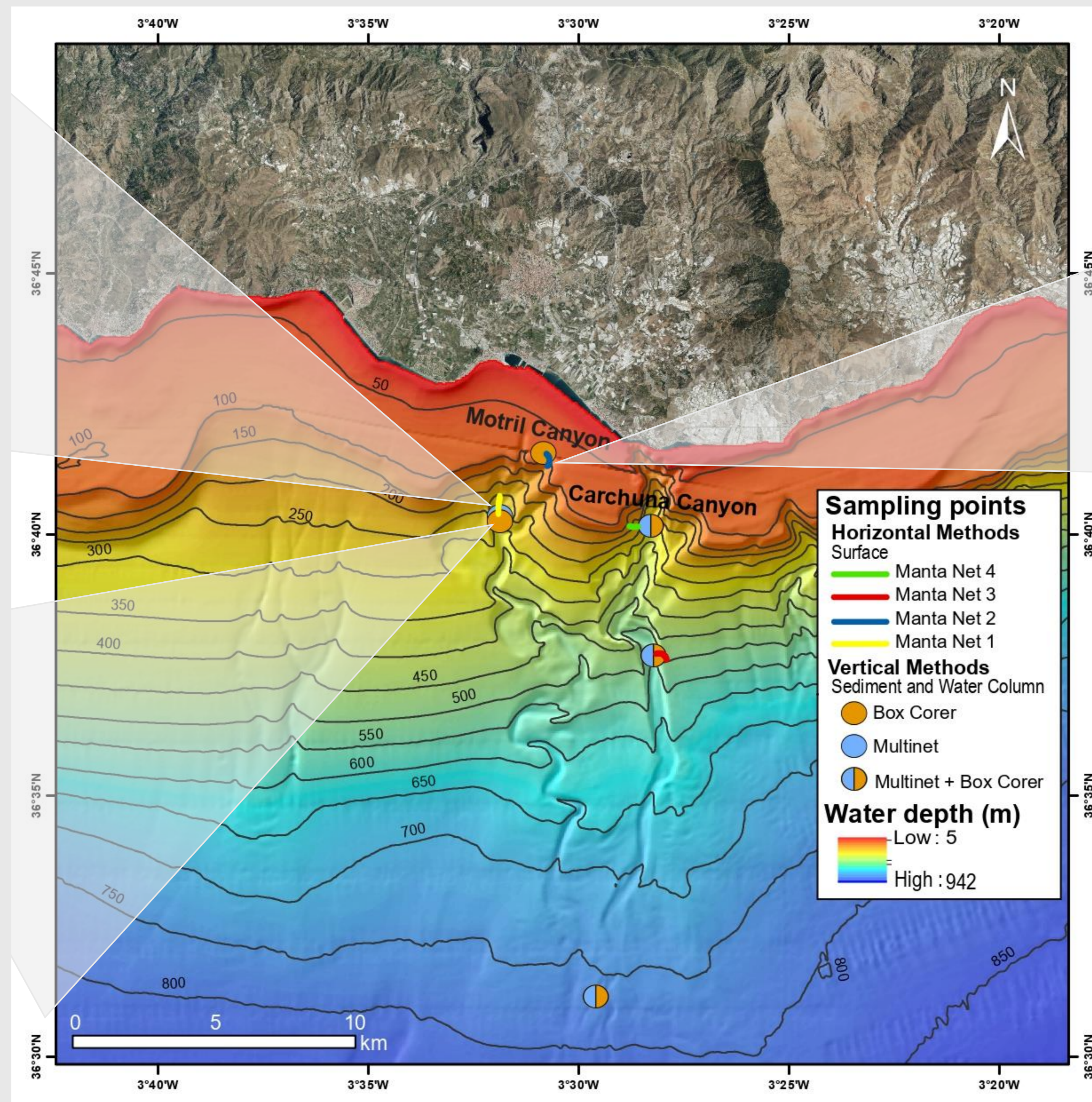
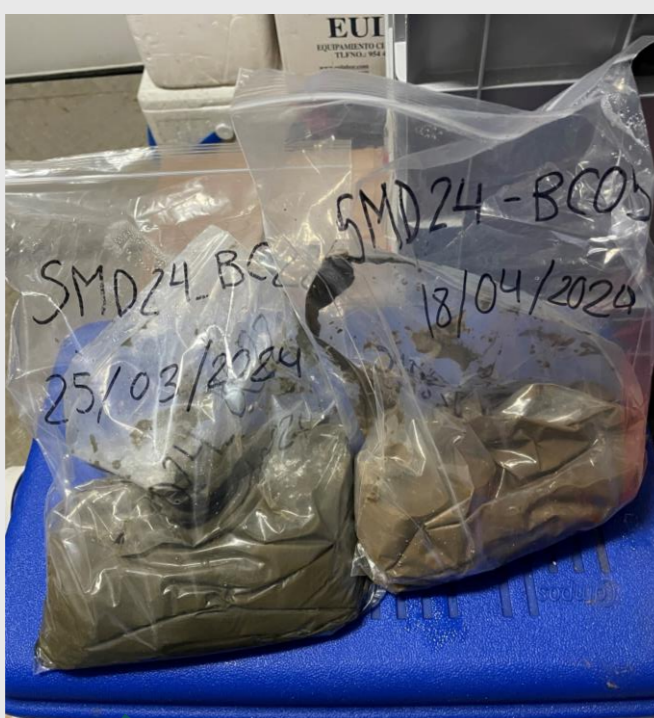
MultiNet

Water column samples were collected using a MultiNet with five nets, 200 µm mesh size, for vertical sampling. The aperture depth of each net was estimated based on the profiles obtained from the Expendable Bathythermograph (XBT).



Box Corer

Sediment samples



Five sampling points:

Motril Canyon

- Upper segment
- Middle segment

Carchuna Canyon

- Upper segment
- Canyon
- Lobe canyon

Manta Net



Sea surface samples were collected using a Manta Net (200 µm mesh size) for horizontal collections.

Storage

The water samples were preserved in 90% ethanol.



The sediment samples were stored at 4°C.

The sediment samples went through a density column extraction before the visual analysis.

Laboratory Analysis

Visual analysis



Stereomicroscope and tweezers
Processed samples by separating microplastics individually from the matrix.



Petri dishes
Each individual microplastic was placed in a petri dish.

Image analysis



ImageJ/Fiji software
• Particle measurements.
• Particle RGB color.

Plastic polymer analysis



Fourier transform infrared spectroscopy (FTIR)

Conclusion

It is expected that the results will provide additional observational data to understand how microplastics concentrate and distribute in the water column and in different environmental compartments according to variables such as particle type, shape, polymer composition or size.

Acknowledgements

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