

# **New methods for the detection and quantification of microplastics**

## **MSc. thesis at the Flanders Marine Institute (VLIZ)**

### **Broader context**

Between the recent UN resolution on marine litter and the various calls to action against microplastics, it is clear that plastic pollution is a rapidly growing concern for the health of our global ocean and ocean life. An ever growing number of academic papers demonstrates the potential for significant harm caused by microplastics in various animals of all trophic levels. Yet, without reliable knowledge of the environmental concentrations of plastics in our oceans and seas, these results are nearly impossible to link to population dynamics of marine species or changes in ecosystem services. Due to their size, lack of mass, and relatively low abundance, microplastics can be challenging to find and identify in the natural environment. As a result, reported occurrences of microplastics are often in disagreement with estimated amounts of plastics in our oceans, based on theoretical mass balance equations.

### **MSc Thesis**

VLIZ wants to increase its knowledge on the regional occurrence of microplastics in the water column of the Belgian Part of the North Sea. To this end, the institute wants to evaluate its capability to collect and identify microplastics, before sampling throughout the Belgian North Sea. State-of-the-art methods for the identification – such as the recently described fluorescent staining (Erni-Cassola et al., 2017) – will be evaluated alongside scanning electron microscopy with energy-dispersive x-ray spectroscopy (SEM-EDS). A standardized sampling method for pelagic microplastics will be devised and validated, before exploring the spatiotemporal variation of the North Sea in search of potential regional pollution hotspots. Candidates should have good laboratory skills and meticulous attitude.

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