

Occurrence of microplastics in *Mytilus edulis* and *Arenicola marina* collected along the French-Belgian-Dutch coast



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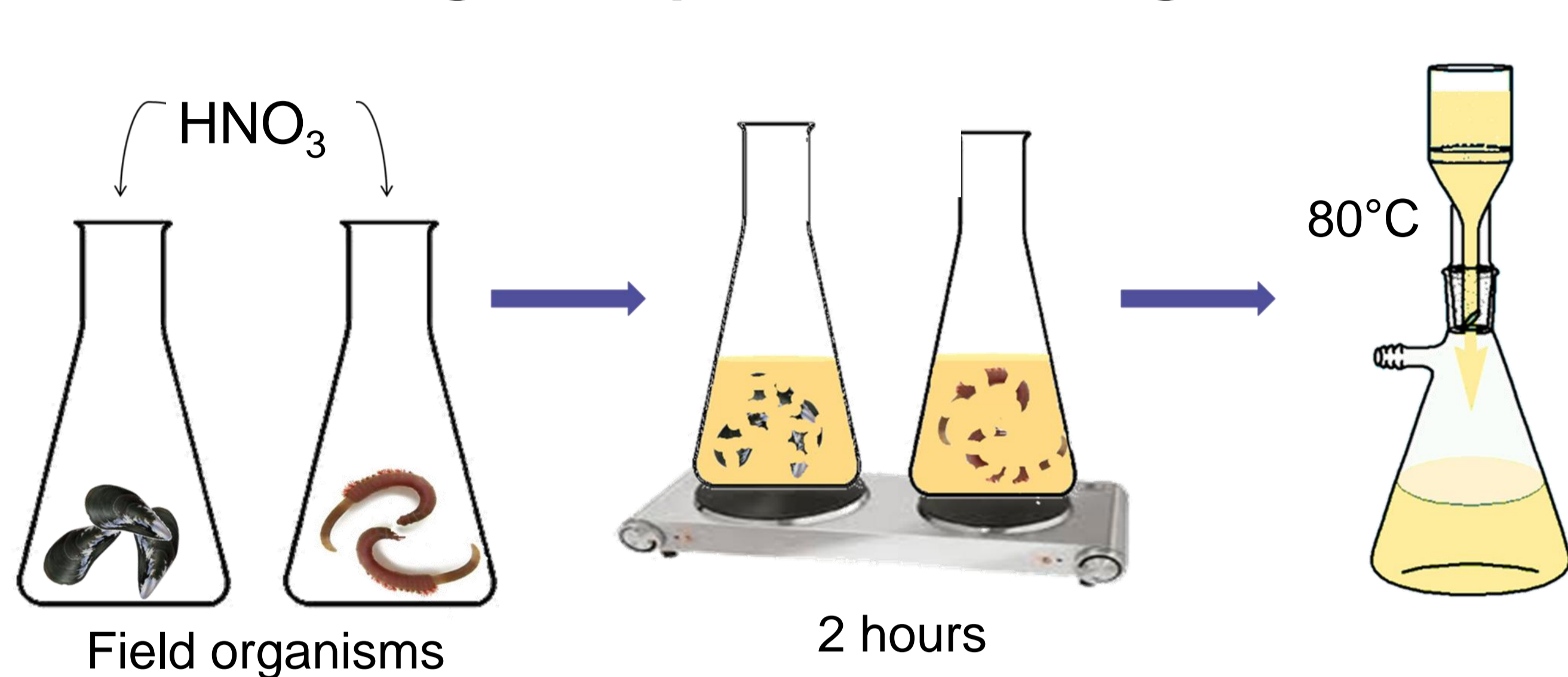


Introduction

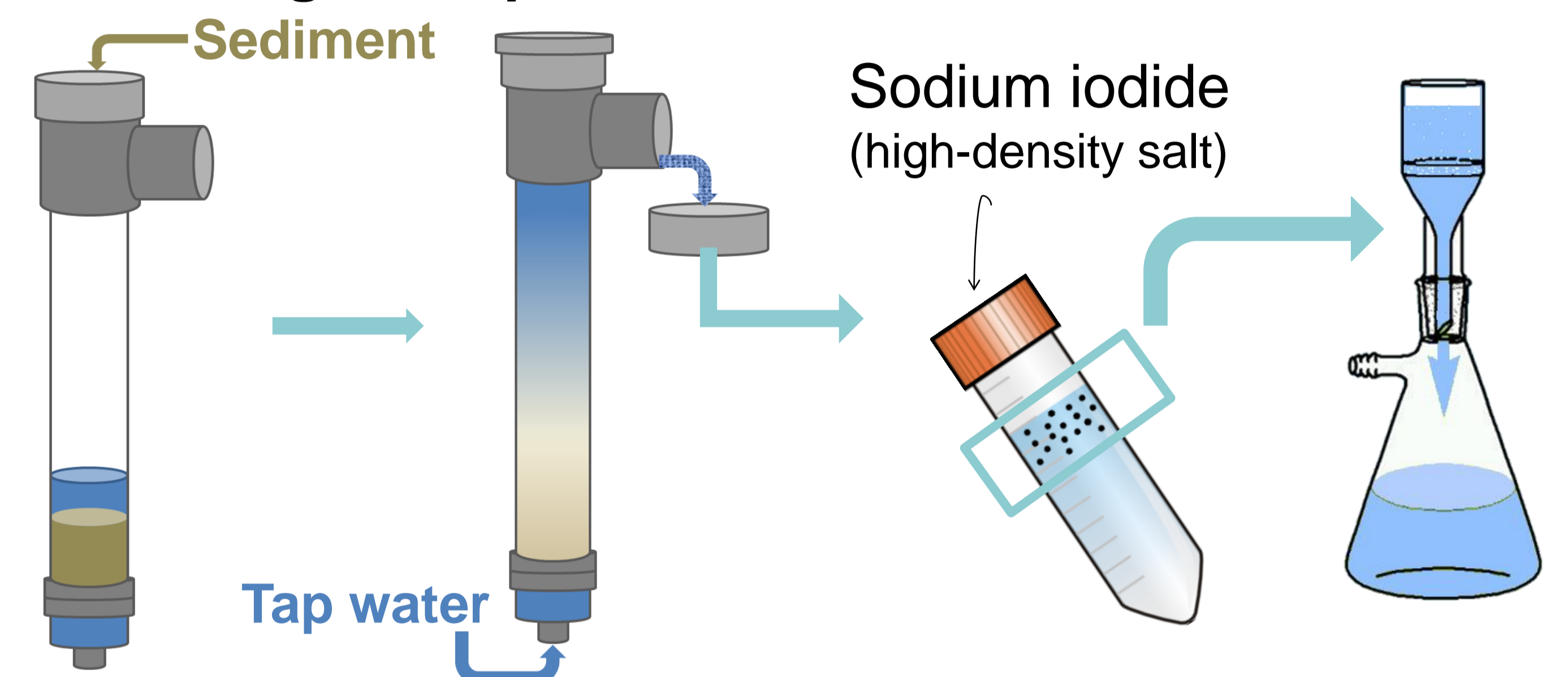
It is difficult to assess the relevance (risks of adverse effects) of laboratory observations concerning the ingestion of microplastics, since the exposure concentrations (range 1 000 – 50 000 mg.kg⁻¹ sediment) are over a thousand times higher than any concentration observed in the field (range <1 – 200 mg.kg⁻¹sediment). The aim of this project was to study the presence, and if present, the concentrations of microplastics in two marine species in the field: (i) the blue mussel *Mytilus edulis* and (ii) the lugworm *Arenicola marina*.

Materials & Methods

Extracting microplastics from organisms

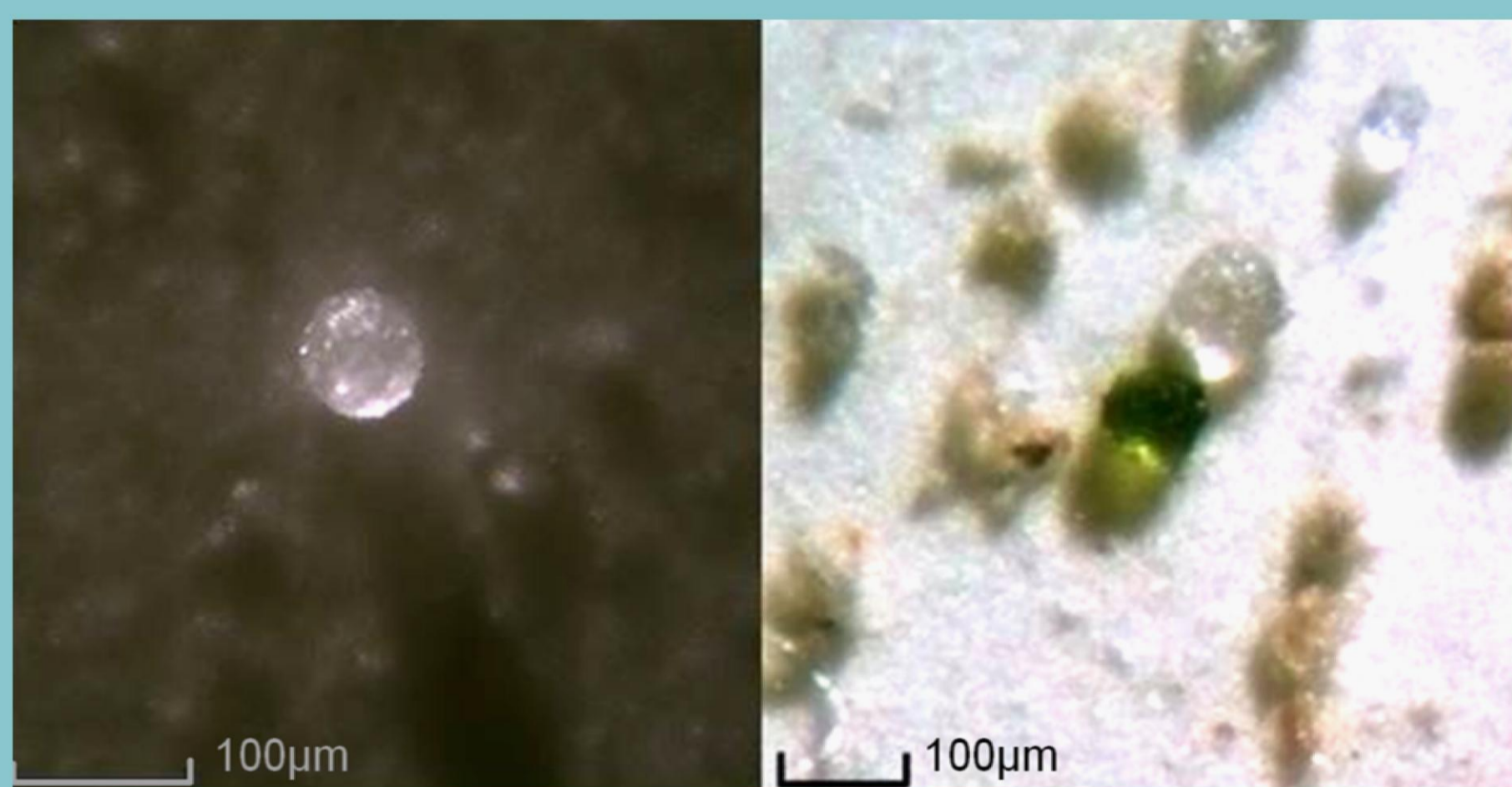


Extracting microplastics from environmental media



Results & Discussion

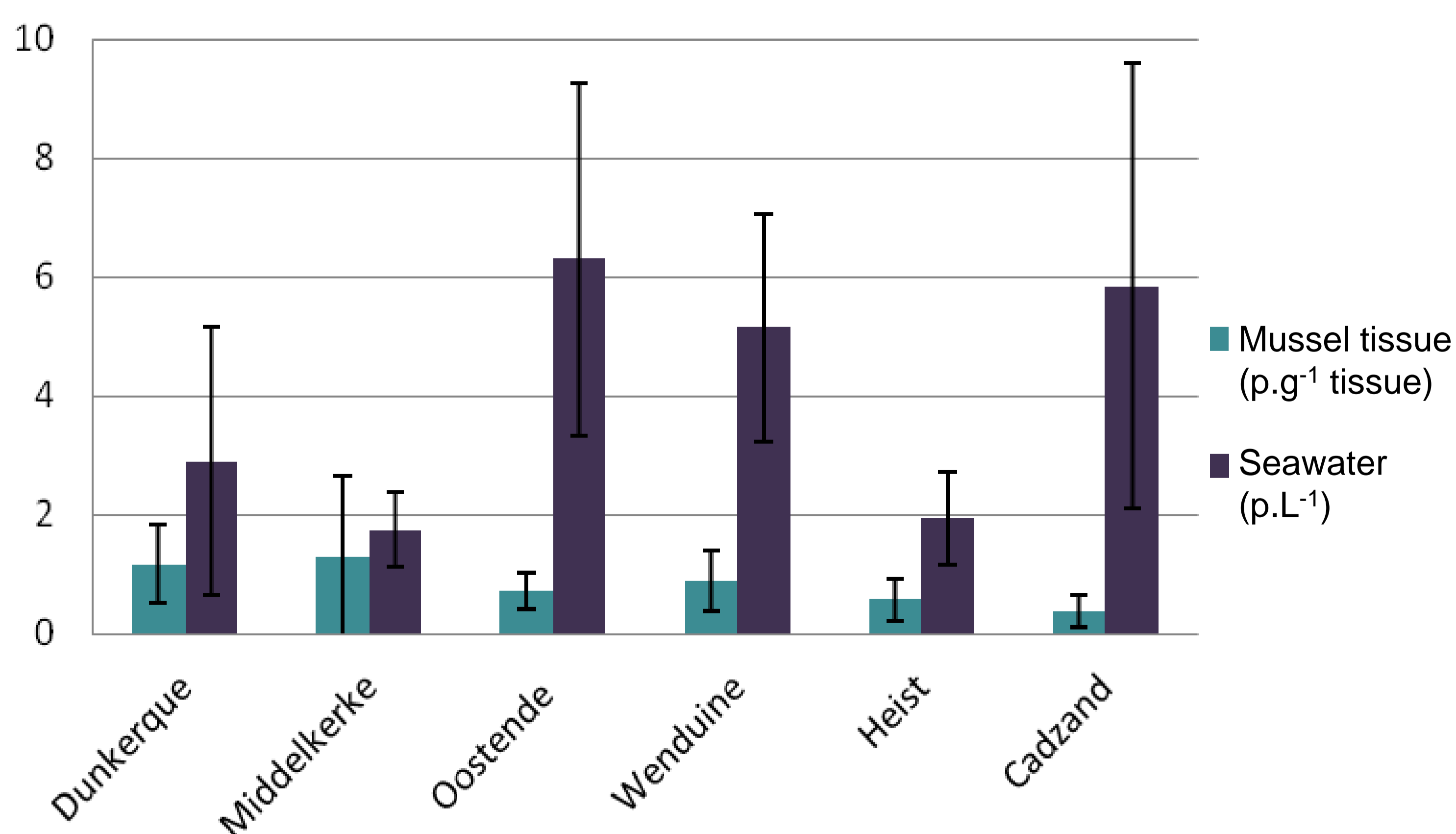
Initial detection of particles



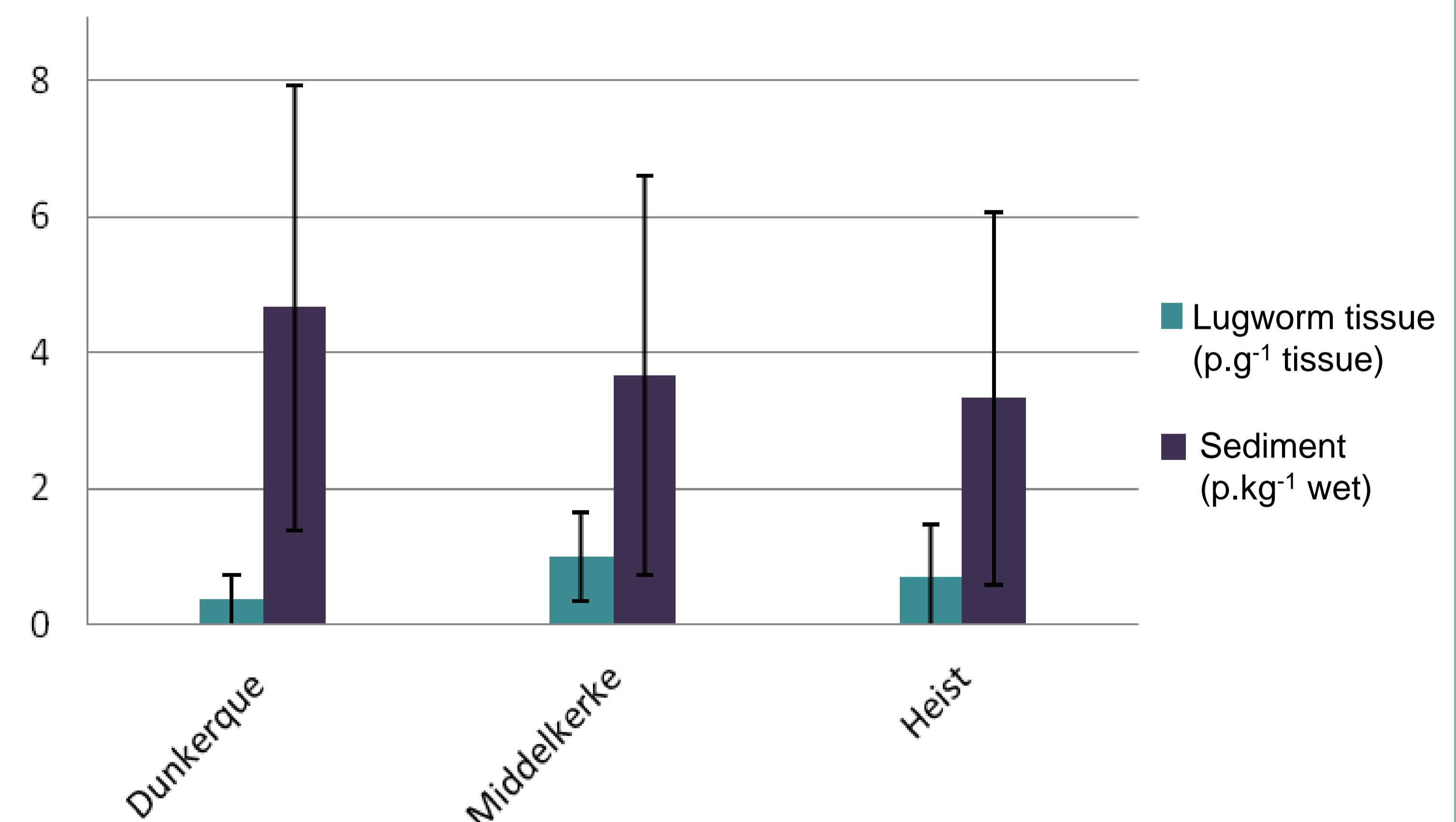
Identification using Raman-spectroscopy

	<i>Mytilus edulis</i> tissue	Seawater	<i>Arenicola marina</i> tissue	Sediment (wet)
Suspicious Particles	2 p.g ⁻¹	10 p.L ⁻¹	3 p.g ⁻¹	27 p. kg ⁻¹
Confirmed Microplastics	1 p.g ⁻¹	4 p.L ⁻¹	1 p.g ⁻¹	2 p. kg ⁻¹

Microplastics in *M. edulis* and seawater



Microplastics in *A. marina* and sediment



Microplastics present in all samples!!

For the first time, an assessment of the transfer of microplastics from both the water and the sediment matrix to marine organisms

Conclusion

Microplastics are present in marine organisms in the field.

At each investigated sampling point, microplastics were present in the lugworm *Arenicola marina* (1 particle.g⁻¹ tissue) and in the mussel *Mytilus edulis* (1 particle.g⁻¹ tissue).