

In situ microplastics ingestion by Antarctic marine benthic invertebrates

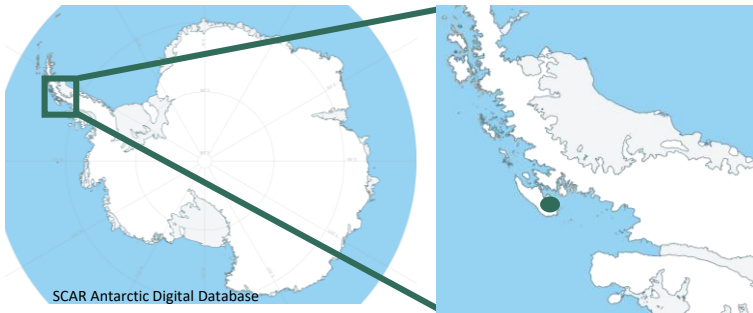
Jessica Hurley¹, Jorg Hardege¹, Katharina C. Wollenberg Valero¹, Simon A. Morley²

¹University of Hull, ²British Antarctic Survey

Introduction

- Microplastics (<5mm) are an increasing threat to marine ecology of the Southern Ocean.
- Benthic invertebrates are important candidates for analysis due contact with sediments and trophic level.

Methods



Epifaunal, predatory polychaete *Barrukia cristata* and infaunal, filter-feeding bivalve *Laternula elliptica*

Tissue digestion - KOH

Filtration - 22µm

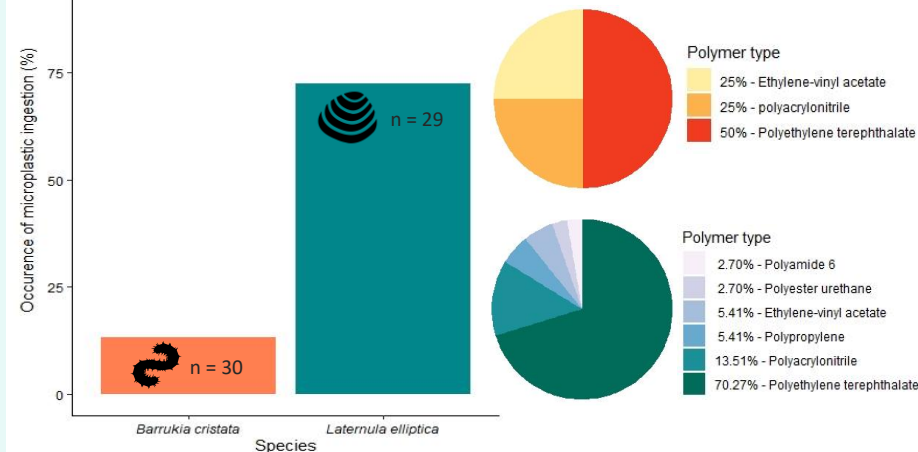
Polymer ID - µFTIR

Highlights

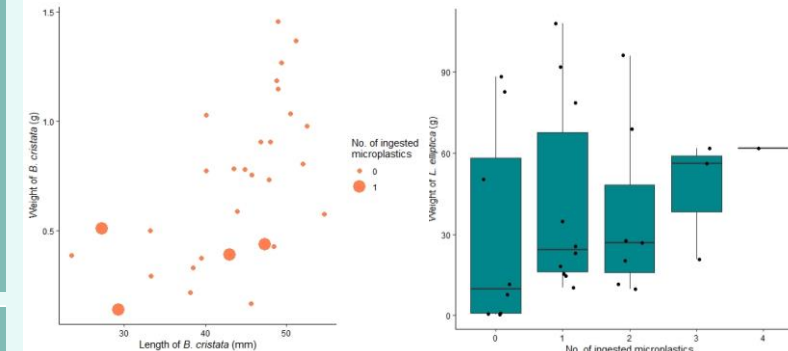
- 44.06% of all individuals ingested 1-4 microplastics of length 213.33-3761.65µm.
- PET, PAN, and PP were the most common polymer
- Filter-feeders ingested more Microplastics

Results

- *B. cristata* ingested 0.13 ± 0.36 microplastics/individual Fibers of mean length $1052.78 \pm 343.22 \mu\text{m}$, Blue (n=3) and Black (n=1).
- *L. elliptica* ingested 1.28 ± 1.10 microplastics/individual Fibers (n=33) and fragments (n=4) of mean length $1270.18 \pm 920.62 \mu\text{m}$. Blue, Black, White, Red, Green, Orange and Transparent.



Results



The weight and length of *B. cristata* were not significantly different between the number of ingested microplastics; $p = 0.585$, $p = 0.0875$.

There was not a significant correlation between the weight of *L. elliptica* and the number of microplastics ingested, and the size of ingested microplastics; $p = 0.1434$, $p = 0.5603$.

Conclusion

- Microplastics ingestion and species-specific differences confirmed in Antarctic marine benthic invertebrates.
- Future research required to determine wider impacts.