

Microplastics in the food chain?

Occurrence of microplastics in brown shrimp (*Crangon crangon*) and blue mussel (*Mytilus edulis*)

Karen Bekaert, Lisa Devriese, Griet Vandermeersch, Hannelore Theetaert, Johan Robbens

Chemical monitoring and product technology unit

Institute for Agricultural and Fisheries Research, Ankerstraat 1, 8400 Ostend, Belgium

+32(0)59/569889 lisa.devriese@ilvo.vlaanderen.be



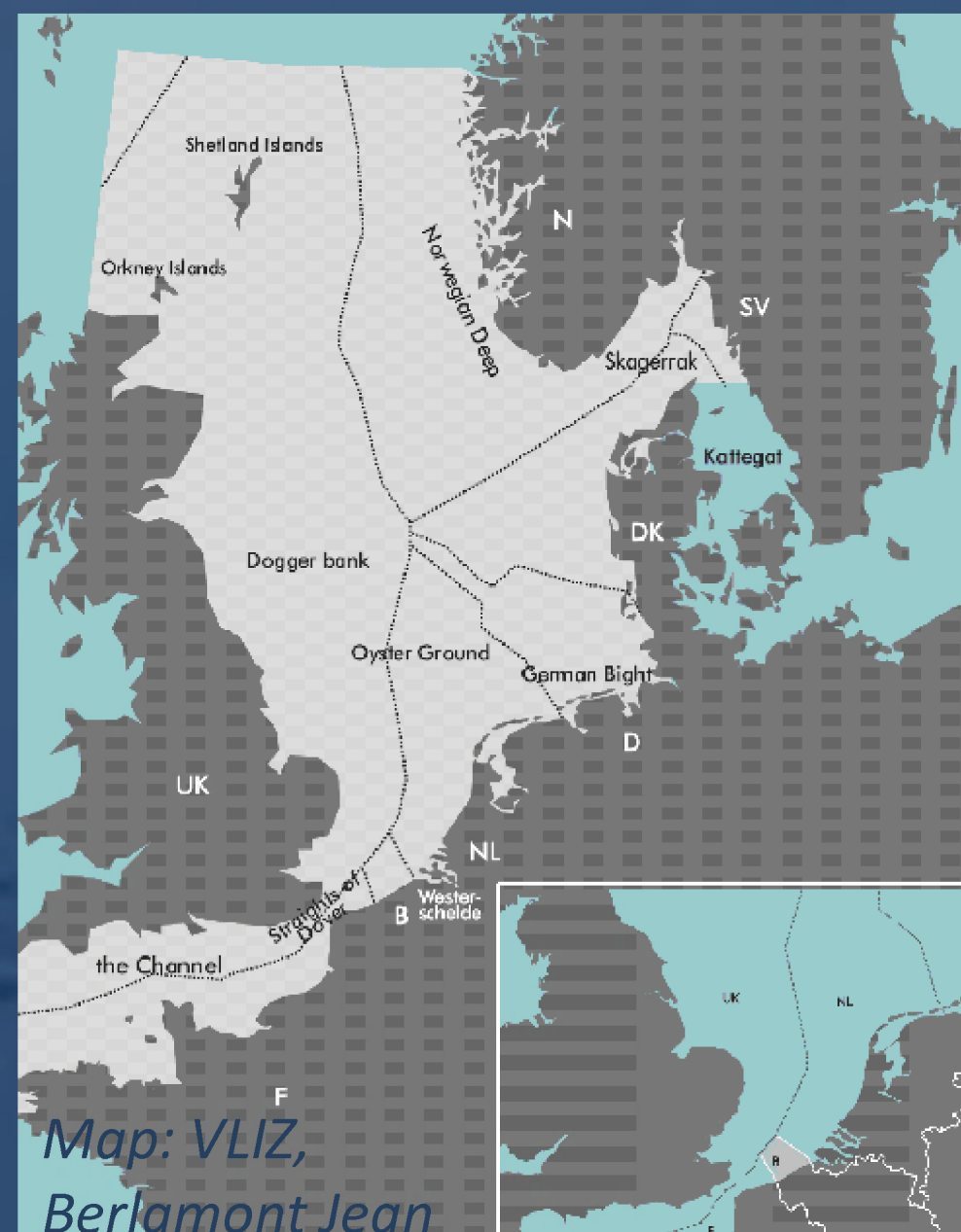
Goal

Evaluation of the number of microplastics (MP) ingested by brown shrimp (*Crangon crangon*) and blue mussel (*Mytilus edulis*), two important seafood dishes in Belgium.



Sampling locations

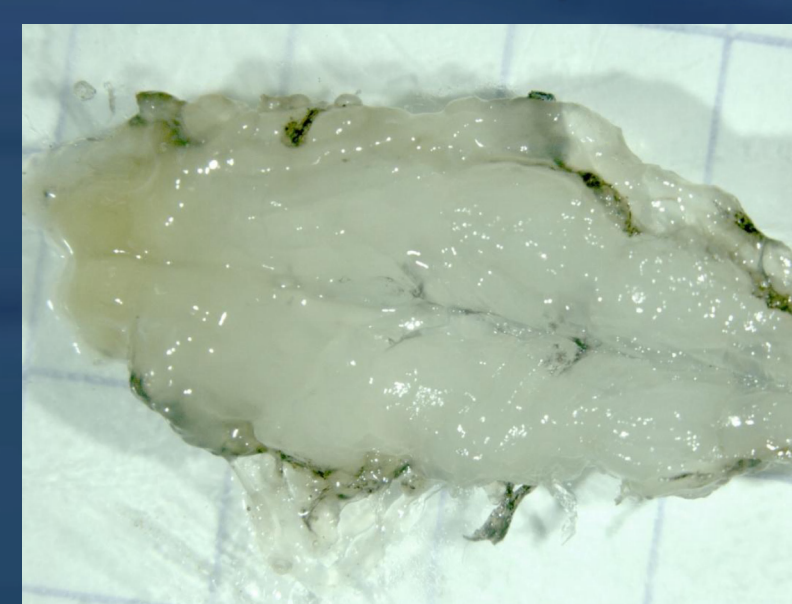
Belgian Part of the North Sea



Tissues

Shrimp: Total shrimp

Shrimp body: without shell, head, digestive tract



Mussel body: body after gut depuration

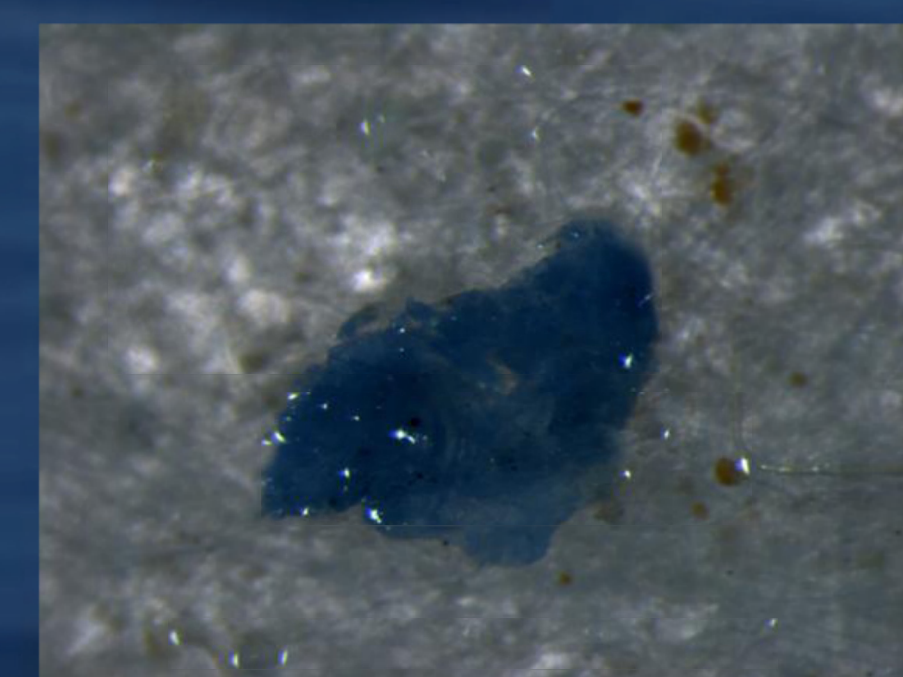
Destruction Method

- 5 organisms + 3 blanks
- Acid destruction $\text{HNO}_3:\text{HClO}_4$ (4:1 v/v)
- 50ml acid / 10g tissue



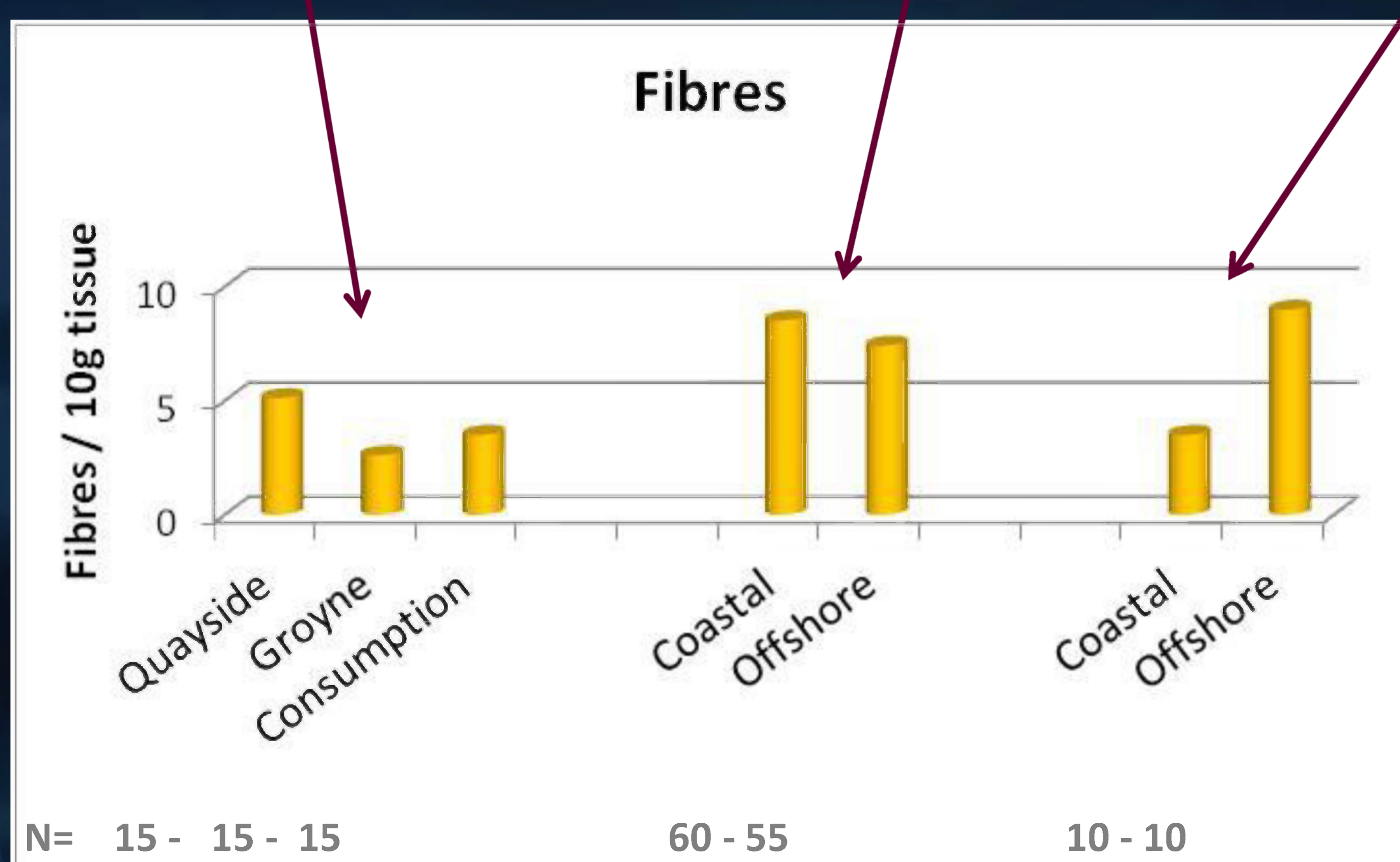
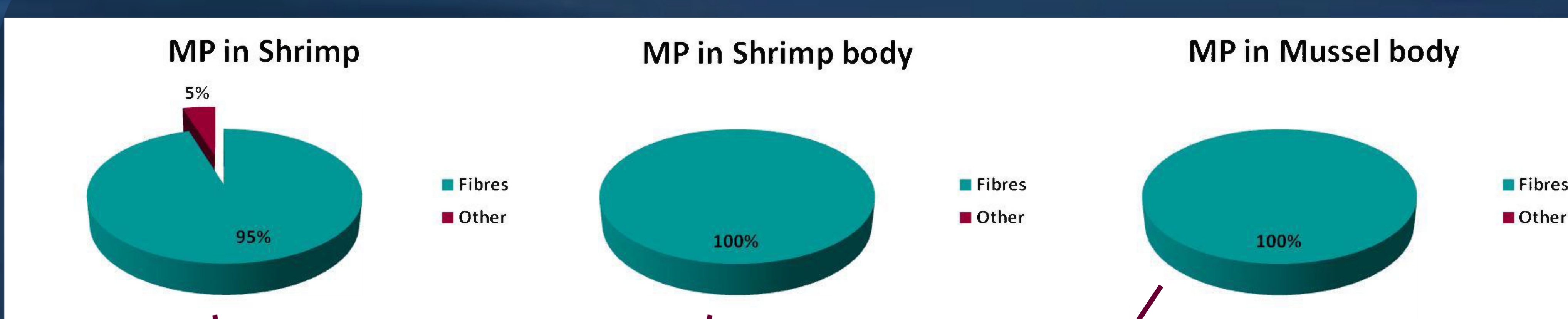
Detection

- Stereo microscope
- Verification of microplastics: hot needle
- Classification: shape and colour



De Witte et al. 2014 Submitted

Results



• 95 – 100% of detected MP are synthetic fibres.

• Only fibres are observed in tissues of mussel and shrimp.

• Other MP (e.g. granules, film, spherules) are only noticed in digestive tract of organisms.

Conclusion

Ingested microplastics:

→ large variation between samples and individuals

→ in tissues: only fibres!

→ in digestive tract: also other microplastics!

→ Average fibres in shrimp body: 6 / 10 g tissue

→ Average fibres in mussel body: 4 / 10 g tissue

Acknowledgement

Research has been supported by EU InterReg 2 Seas (MICRO 09-002-BE) and EU 7th Framework programme (ECsafeSEAFOOD 311820). Shiptime RV Belgica was provided by Belspo. Shiptime Simon Stevin was provided by VLIZ and DAB Vloot.

