

BRUTAL: trophic interaction and community responses in Antarctic benthic ecosystems



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Context



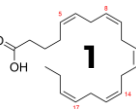
TANGO 



Estimating Tipping points in habitability of ANtarctic benthic ecOsystems under future GIObal climate change scenarios

BRAIN-be 2.0

Belgian Research Action through Interdisciplinary Networks



Context



TANGO 



Estimating Tipping points in habitability of ANtarctic benthic ecOsystems under future GIObal climate change scenarios

BRAIN-be 2.0

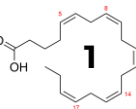
Belgian Research Action through Interdisciplinary Networks



- Gut content
- Metabarcoding
- Stable Isotope

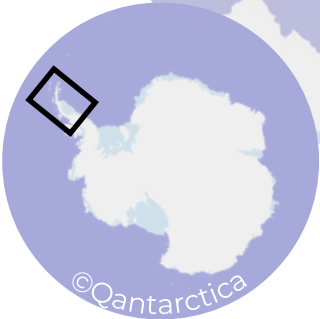
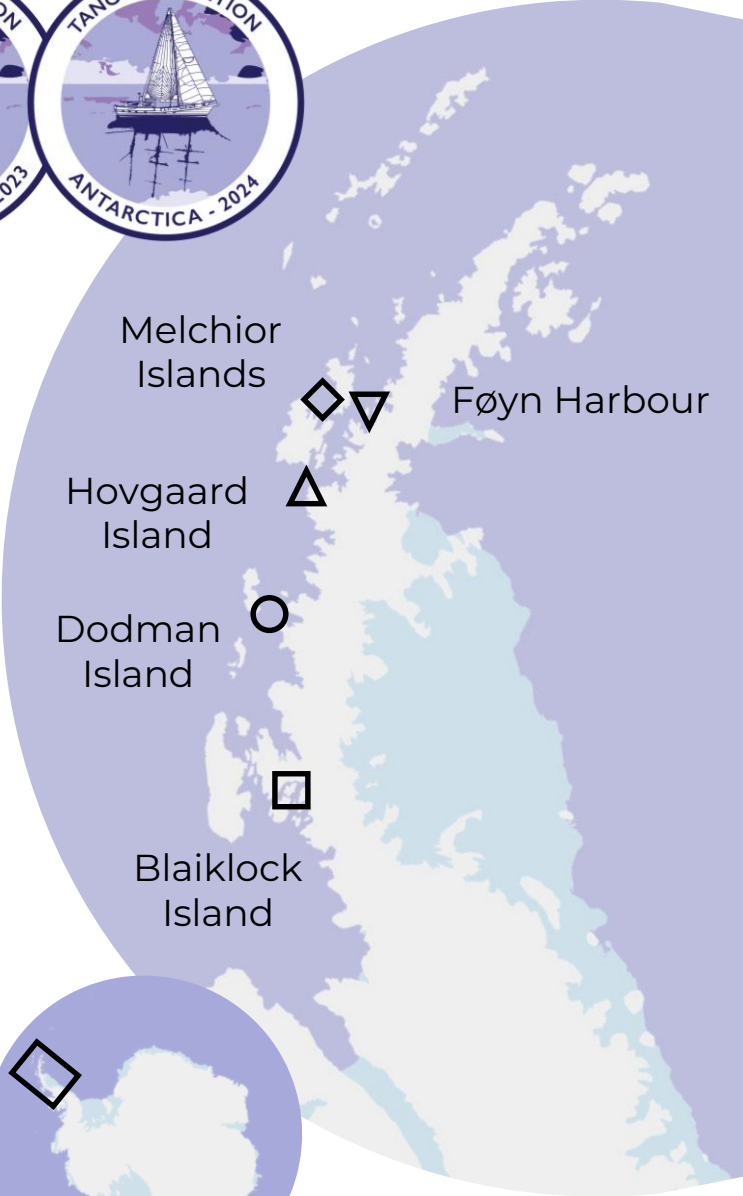
WP2 – Species interaction

- Fatty acid
- Highly branched isoprenoid



Context

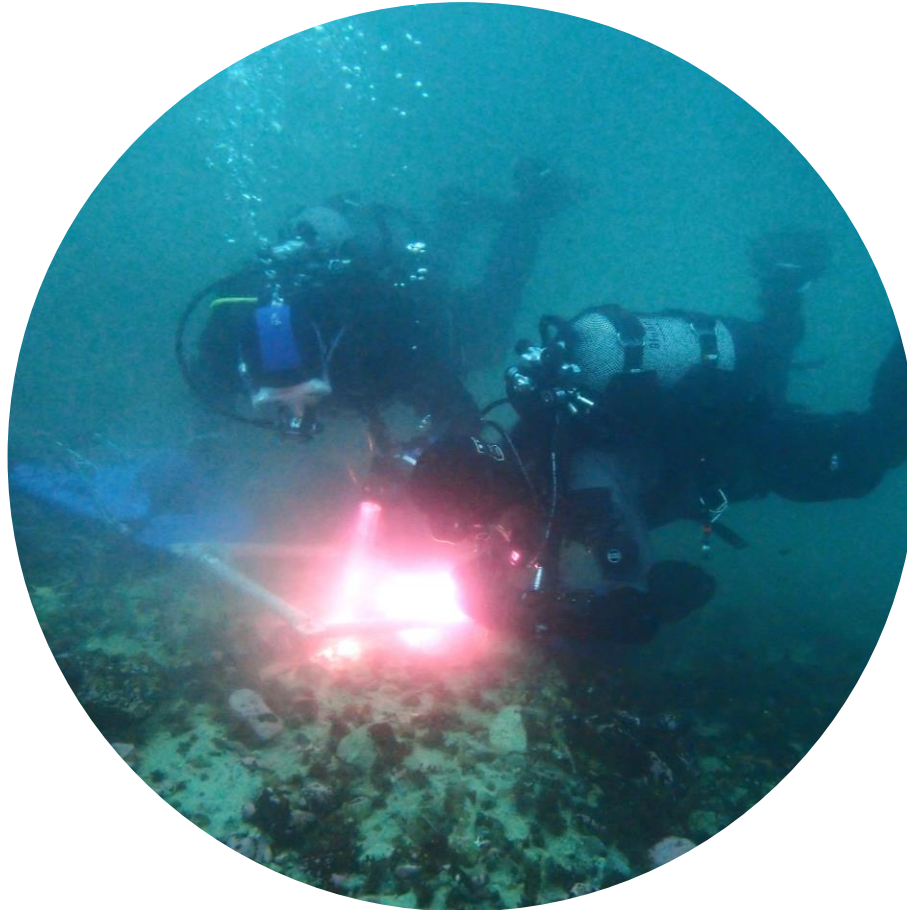
Expedition aboard the R/V Australis



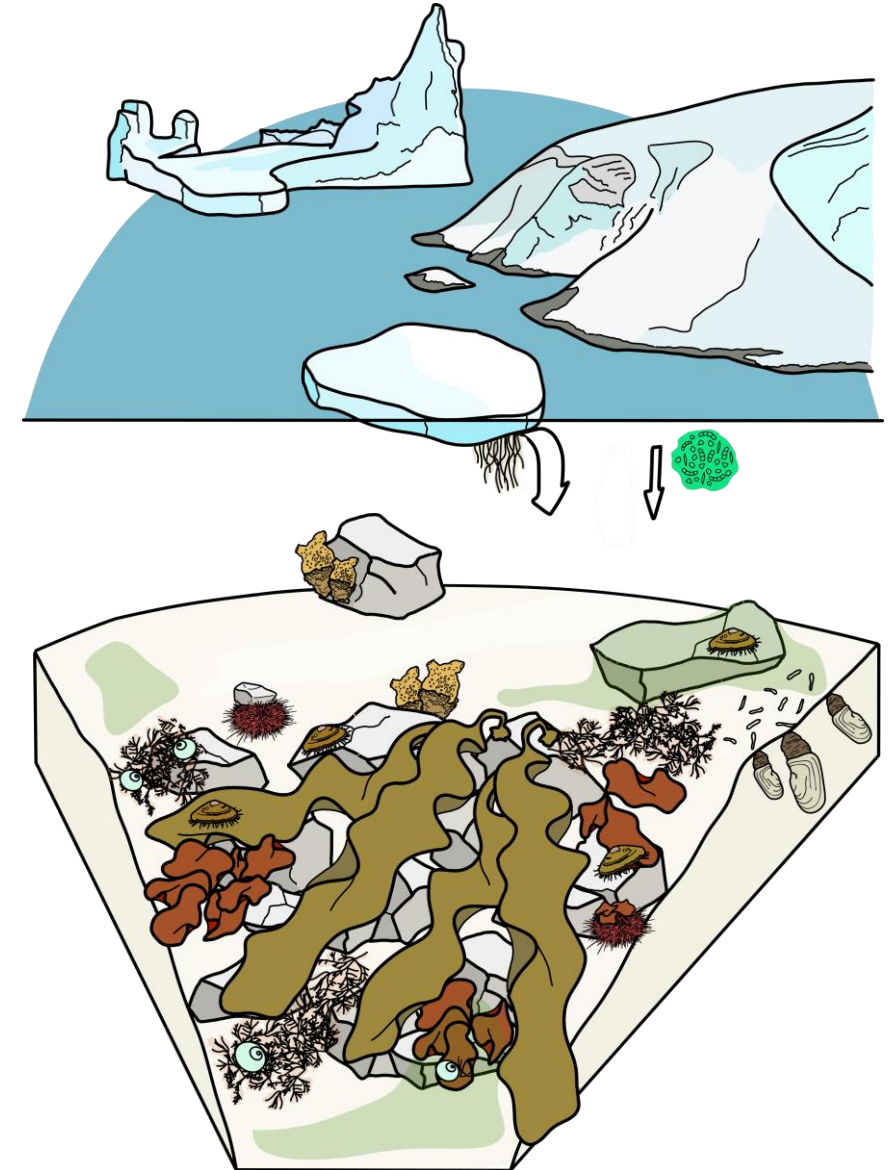
©Qantarctica

Sampling

*Food sources &
benthic consumers*

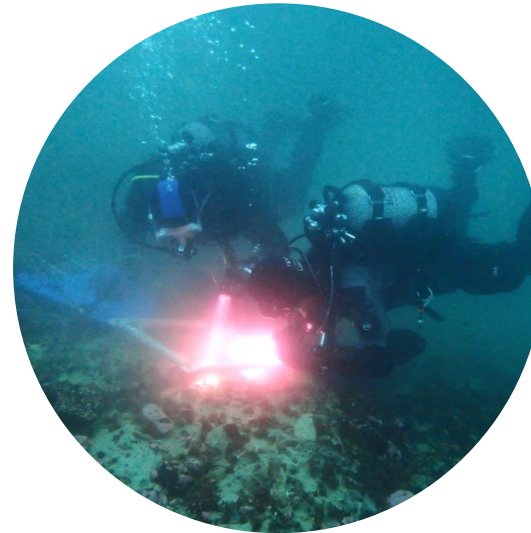


WEST ANTARCTIC PENINSULA



Sampling

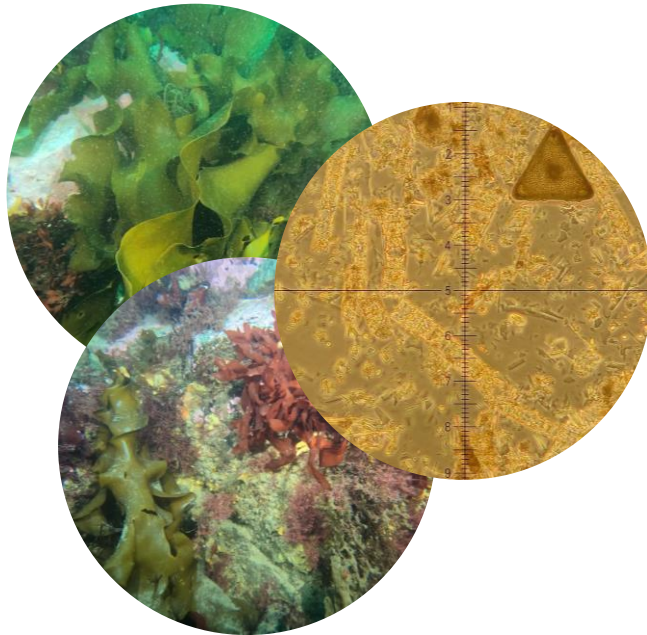
*Quadrat & transects
by scuba diving*



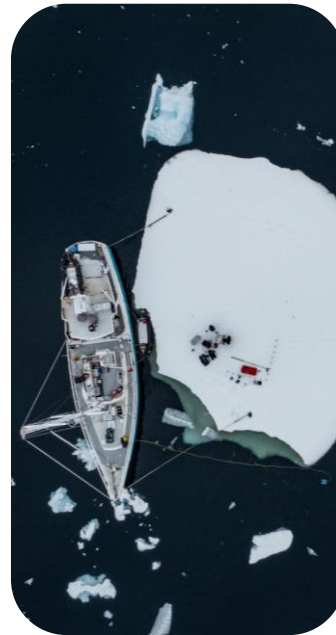
WEST ANTARCTIC PENINSULA



Food sources



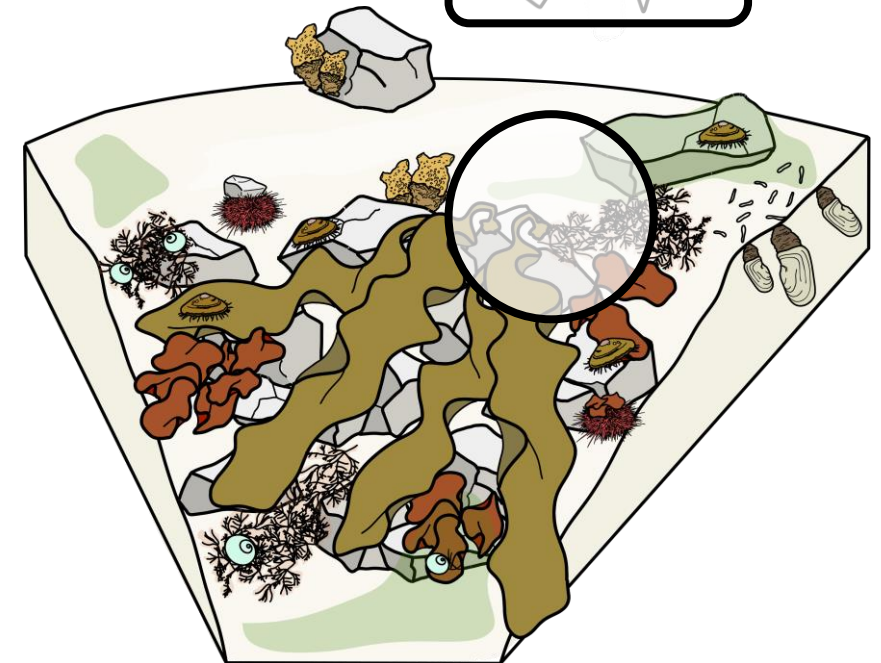
Benthic



Sympagic

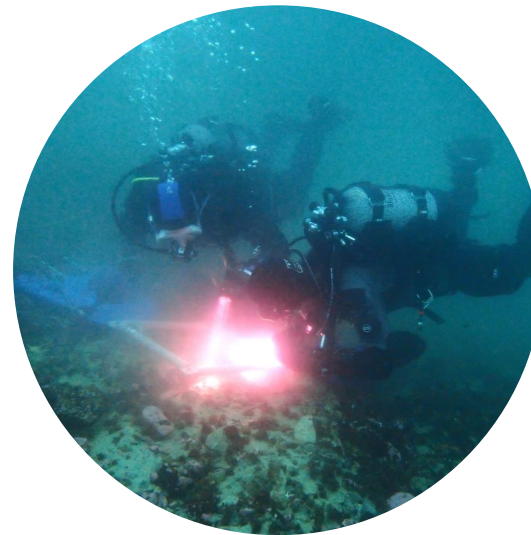


Pelagic

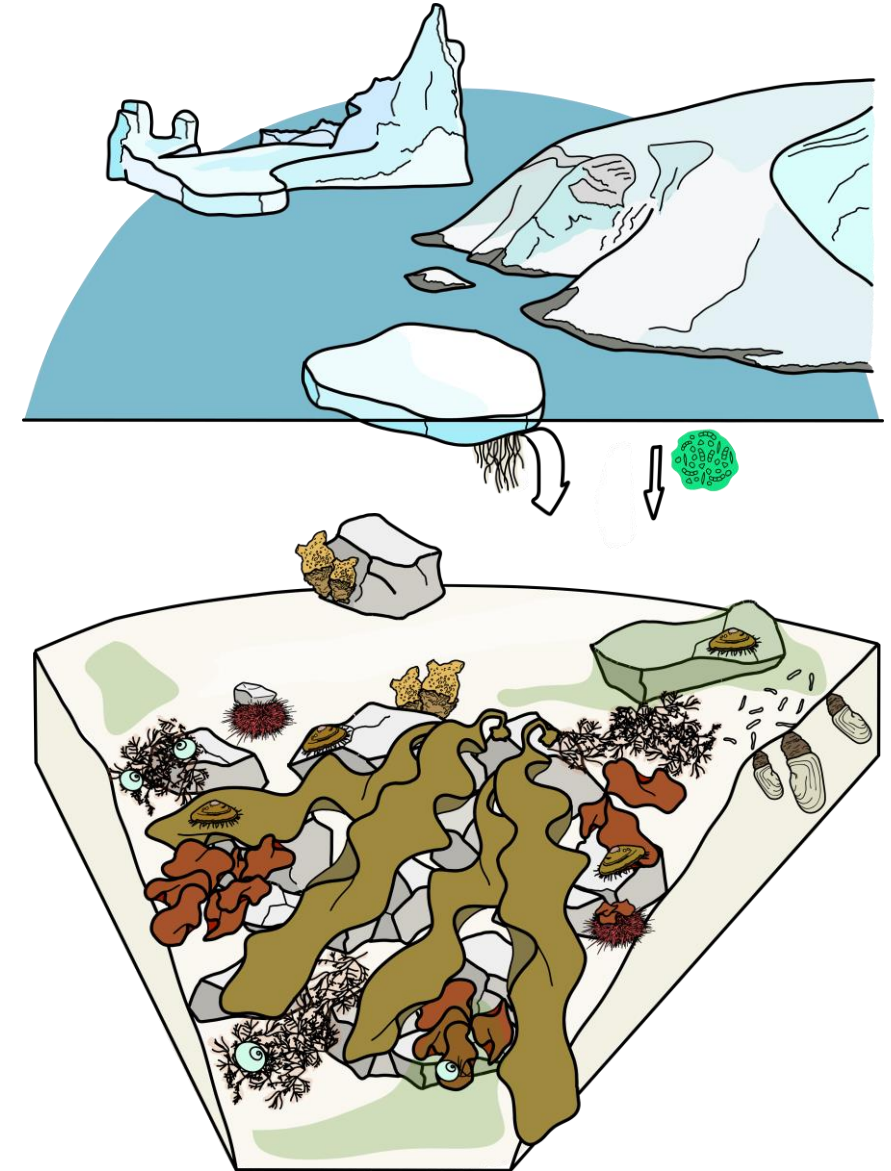


Sampling

*Quadrat & transects
by scuba diving*



WEST ANTARCTIC PENINSULA



Benthic consumers



Analyses

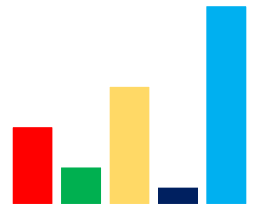
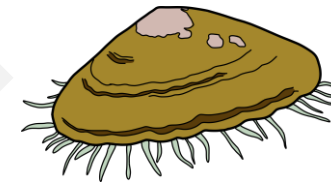
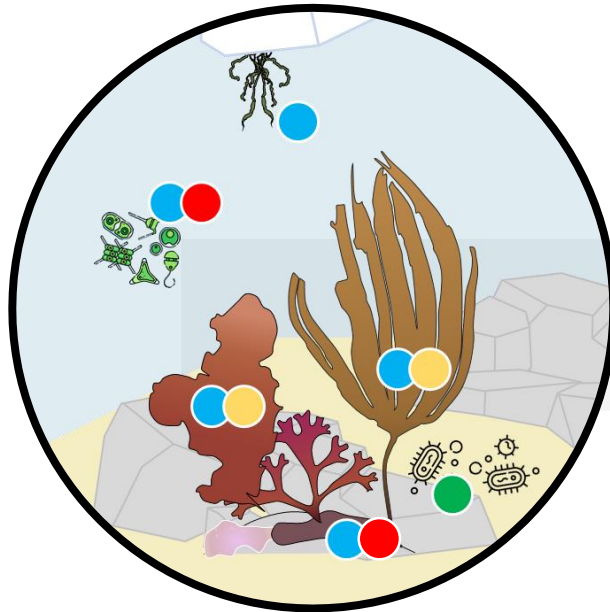
*Fatty acid
as trophic biomarker*

- Source synthesized FA
- Consumer modified FA

Consumers

Fatty acid contents

Food sources

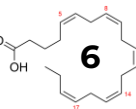


(Fry, 2006; Kelly and Scheibling, 2012)

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Polar Day IUEM

May 5th, 2025



Results

*Fatty acid
as trophic biomarker*



*Margarella
antarctica*



*Nacella
concinna*

What do they really graze on?

Results

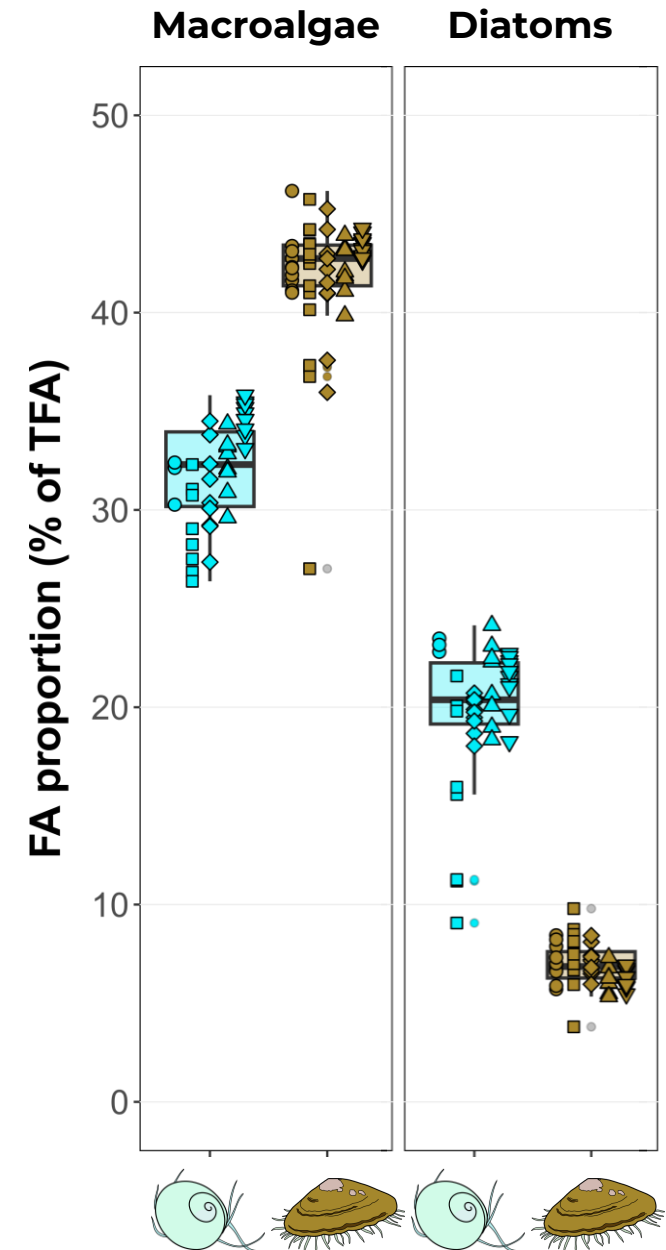
*Fatty acid
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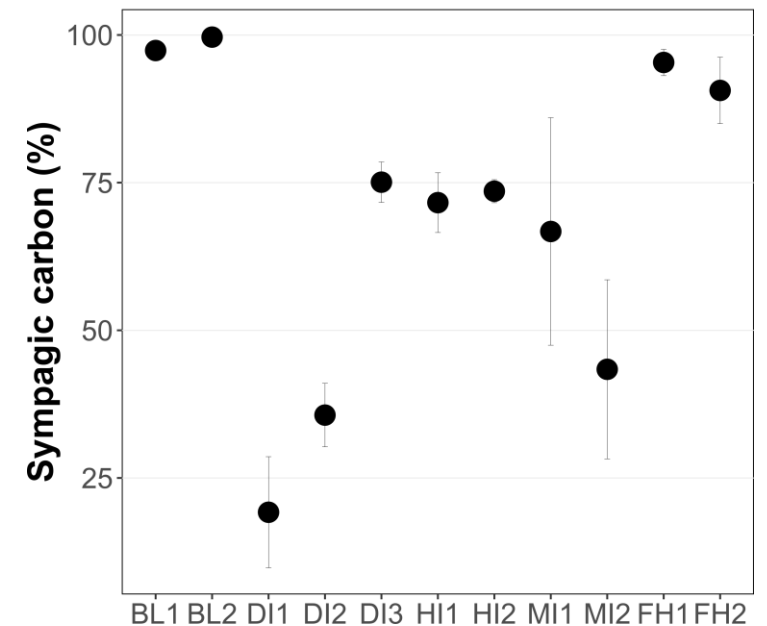
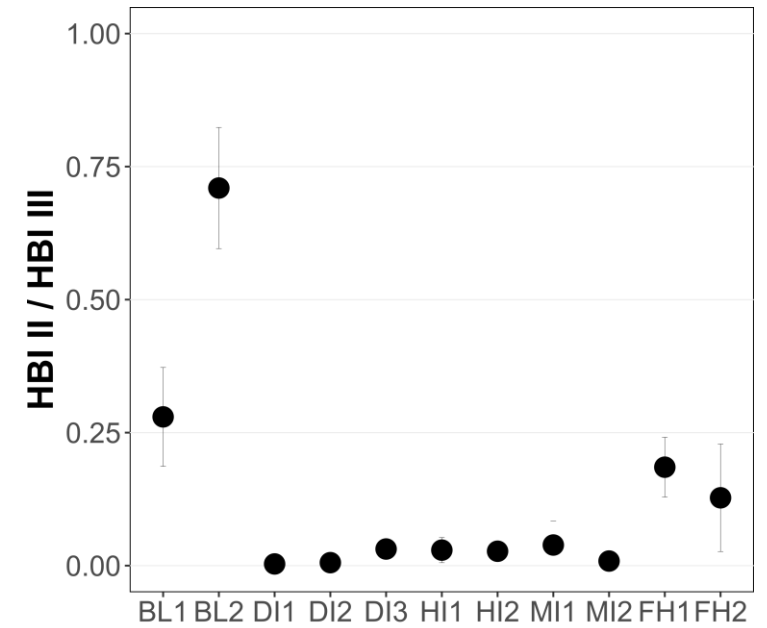
*Highly branched isoprenoid
as trophic biomarker*



*Margarella
antarctica*



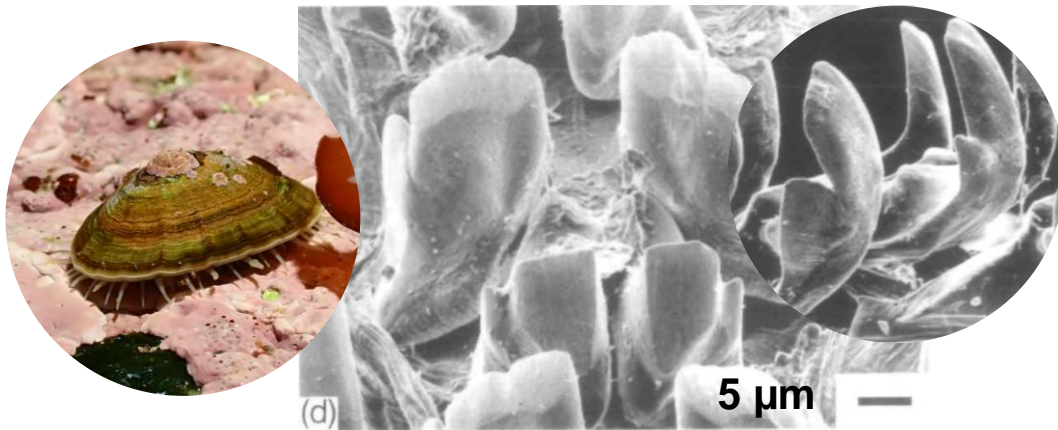
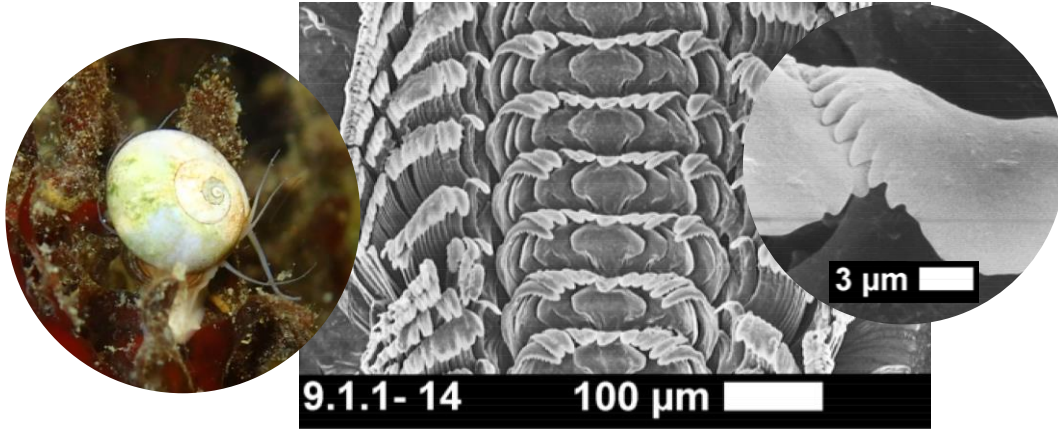
*Nacella
concinna*



What do they really graze on?

Discussion

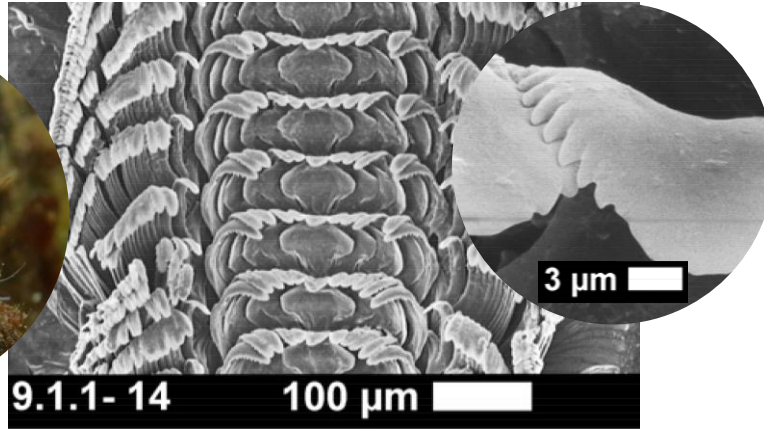
Gastropods radula morphology



(Steneck and Watling, 1982; Nolan, 1991; Linse, 2000; Vortsepneva et al., 2022)

Discussion

Gastropods radula morphology



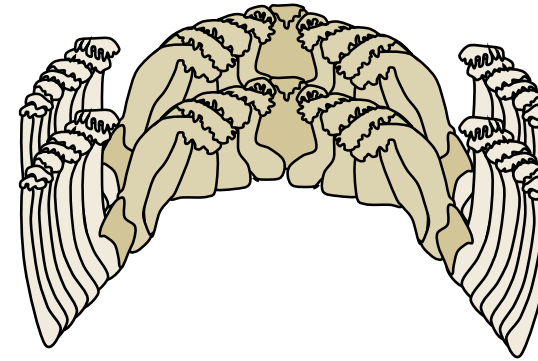
9.1.1- 14

100 μm

3 μm

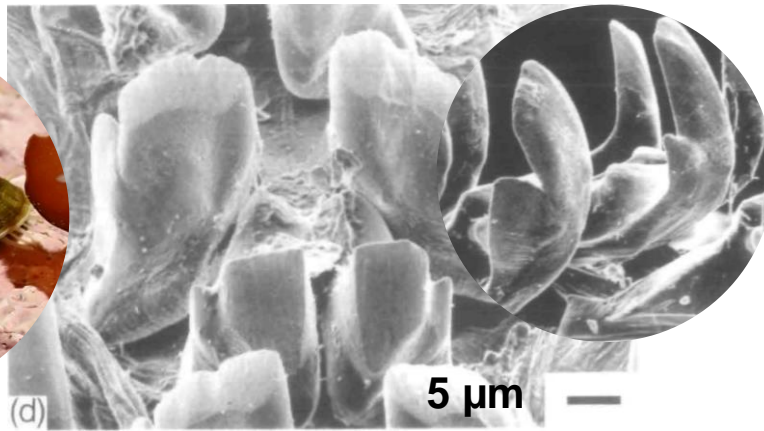
RHIPIDOGLOSSA

Excavation capability



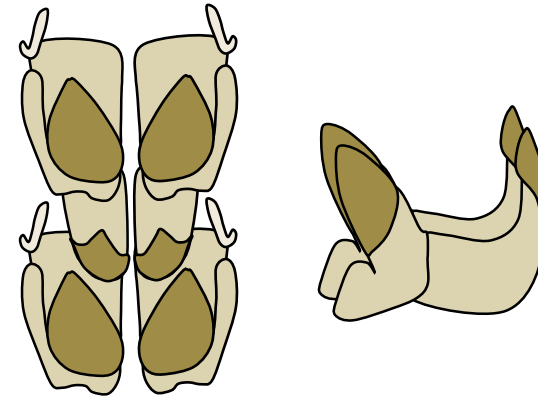
"Broom"

DOCOGLOSSA



(d)

5 μm

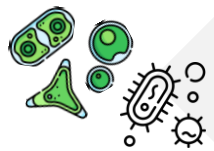


"Shovel"

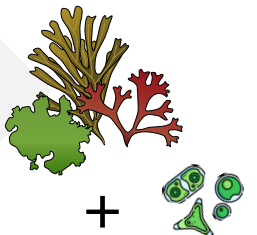


(Steneck and Watling, 1982; Nolan, 1991; Linse, 2000; Vortsepneva et al., 2022)

Take home message



Feeding structures offering different feeding capacity & trophic habits



Thank you for your attention

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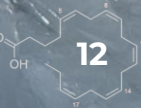


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Polar Day IUEM

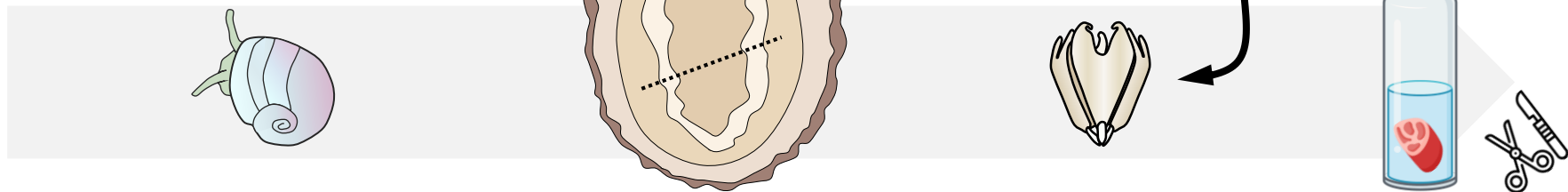
May 5th, 2025



Method

FA

Dissections



Whole organism

Foot muscle

Aristotle lantern

Gas Chromatography Flame Ionization Detector (GC-FID)



CHCl₃/MeOH
(2:1, v:v)

Saponification & Transmethylation
KOH-MeOH (0.5M) & MeOH-H₂SO₄ (3.4%, v:v)

FAME
(Hexane fraction)

GC-FID



Method

