MACQUARIE University
SYDNEY·AUSTRALIA

Patterns of oyster recruitment across tidal elevation gradients are dependent on predator mitigation methods

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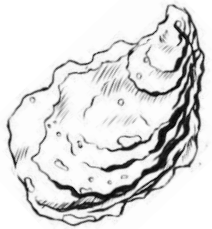
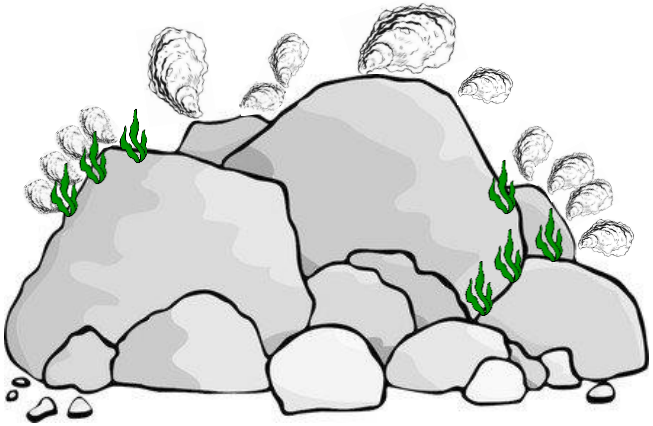
<u>Oyster recruitment</u> is key for oyster reef formation and maintenance!





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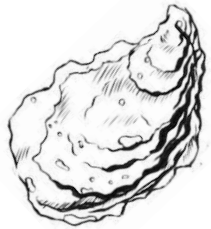
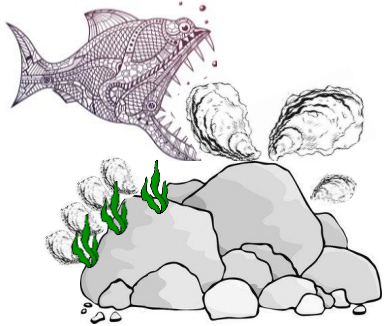


On natural oyster reefs, recruitment is generally greater within the reef's interstices than in the reefs' edges.



Protection from predators

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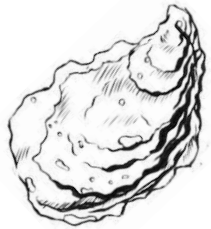
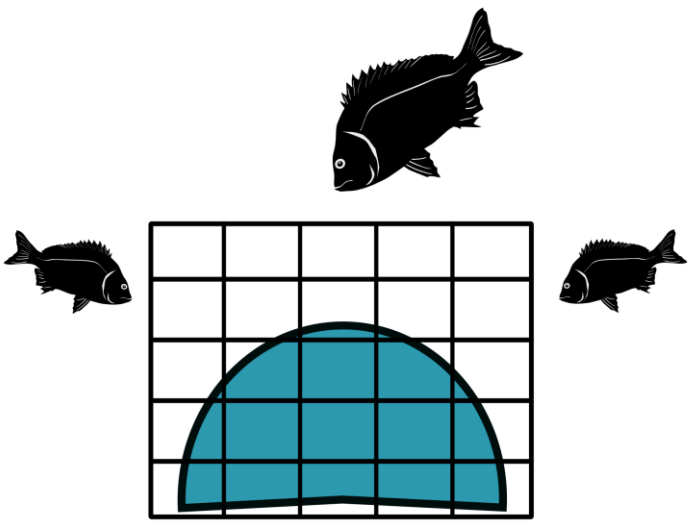
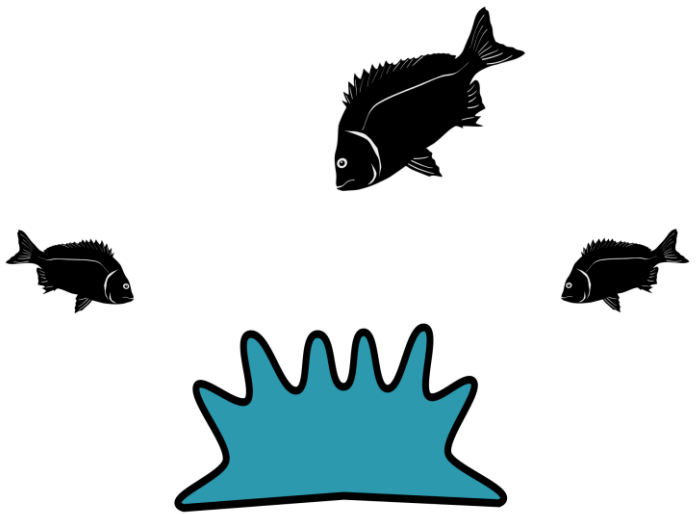
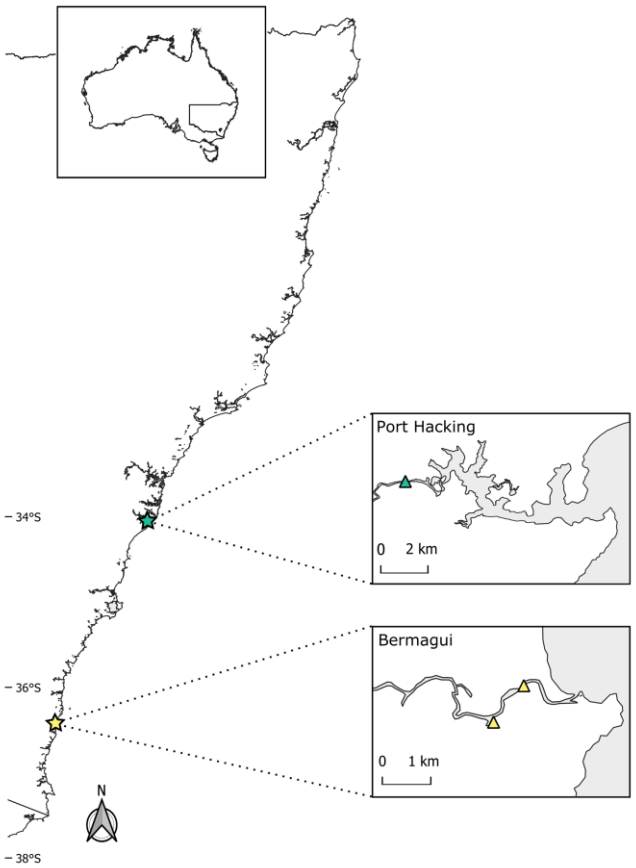
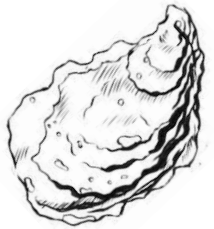


Restoration projects often focus on protecting recruits from predators by caging substrates or by providing substrates with higher structure complexity





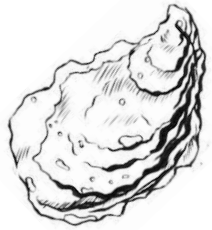


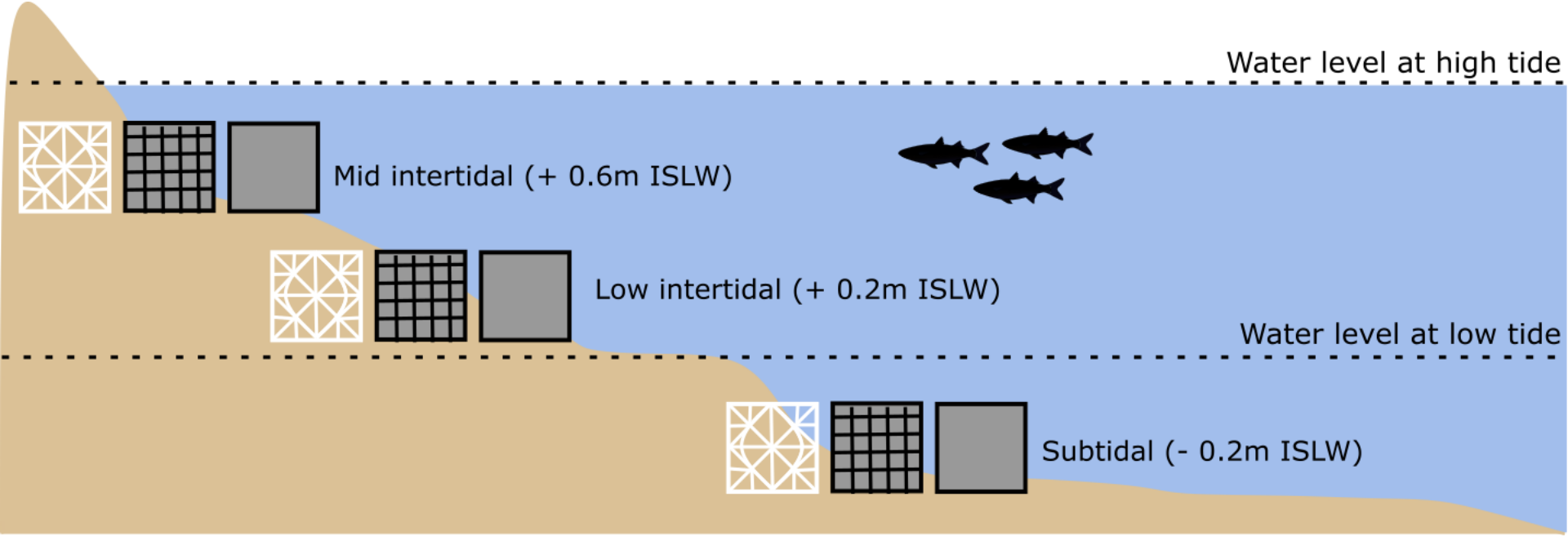


FIELD EXPERIMENT

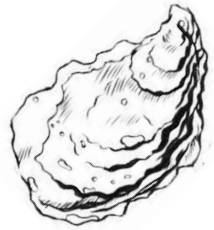
- 3 Sites
- 3 Treatments: Caged and bare concrete + BESE elements
- 3 Tidal elevations per site

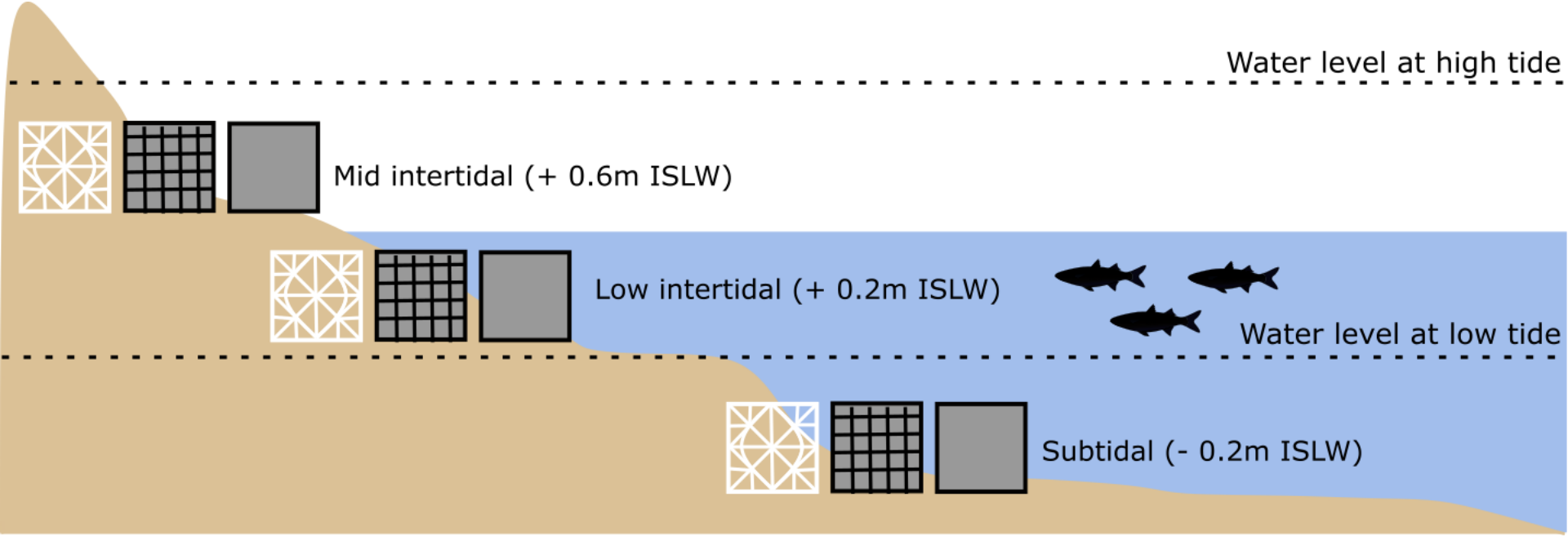
Experimental Design





Experimental Design





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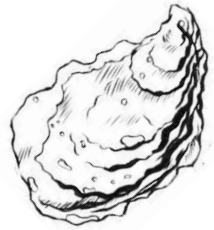
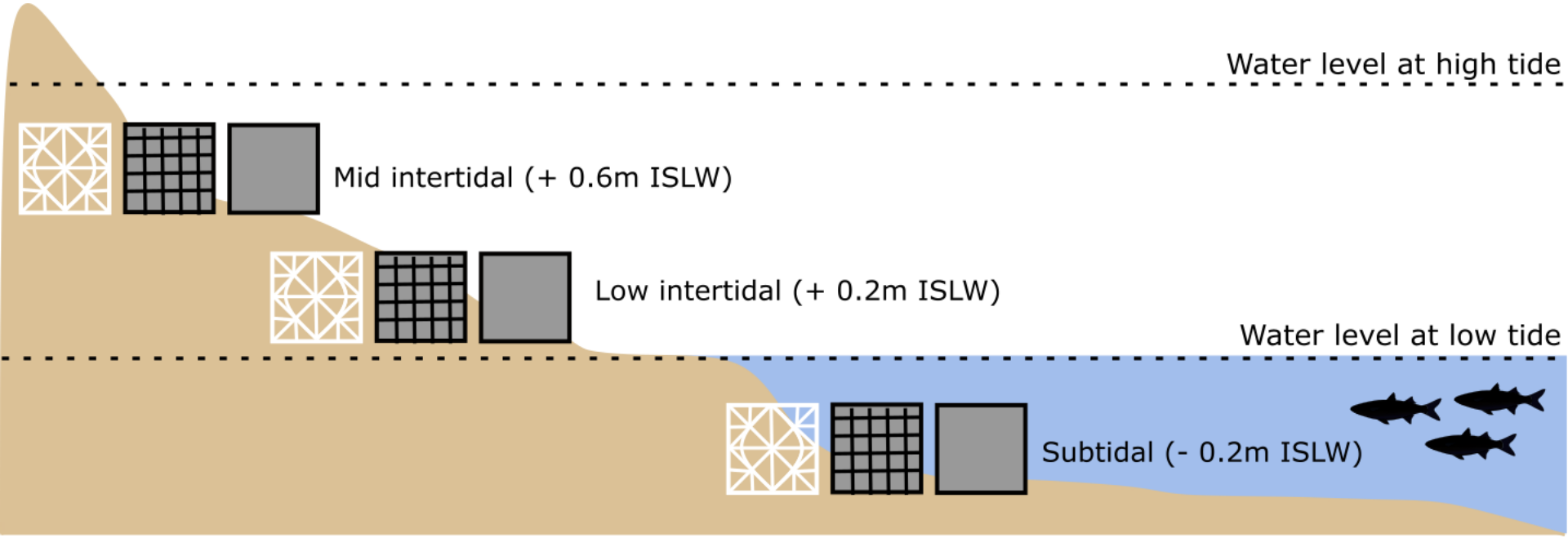
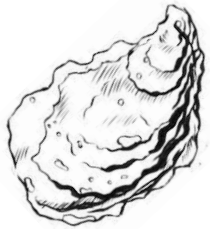


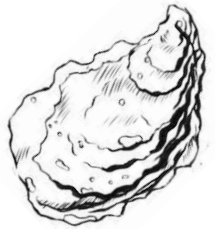


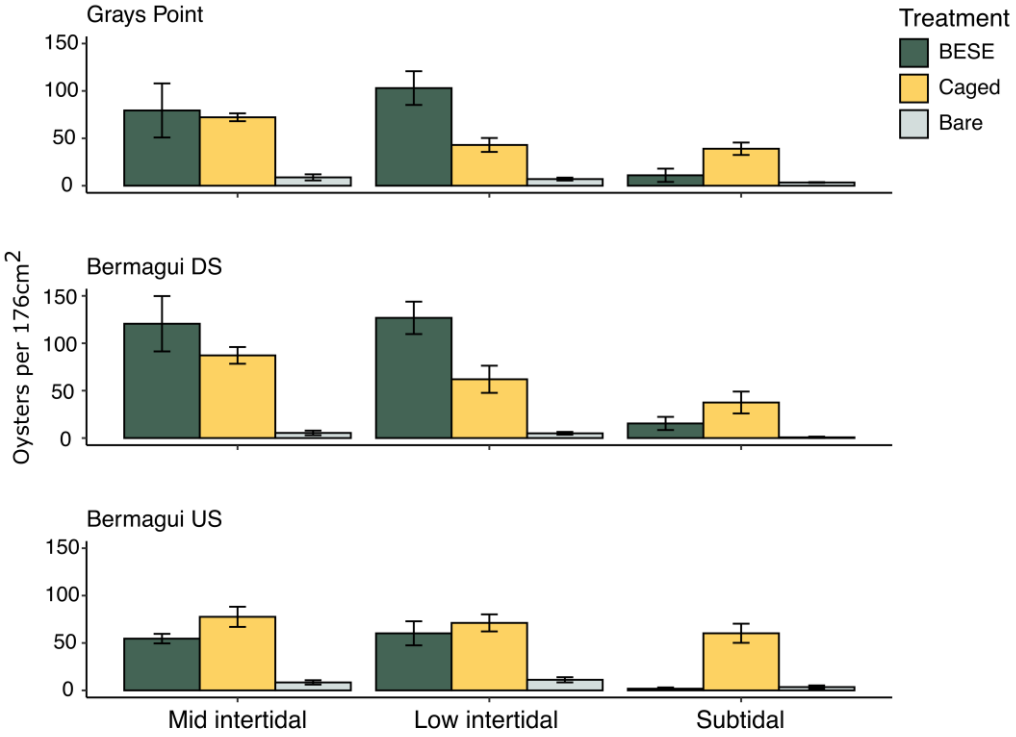
Data Collection



- 15 cm ∅ cores
- Oyster density, volume and size distribuition.
- Biodiversity assessment (associated invertebrates)

Results – Oyster density (oysters/m^2)





Higher recruitment rates at both BESE units and Caged concrete in the intertidal

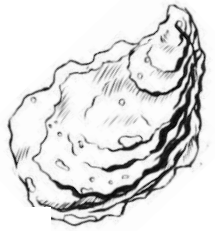
Low recruitment at BESE units and bare concrete on the subtidal

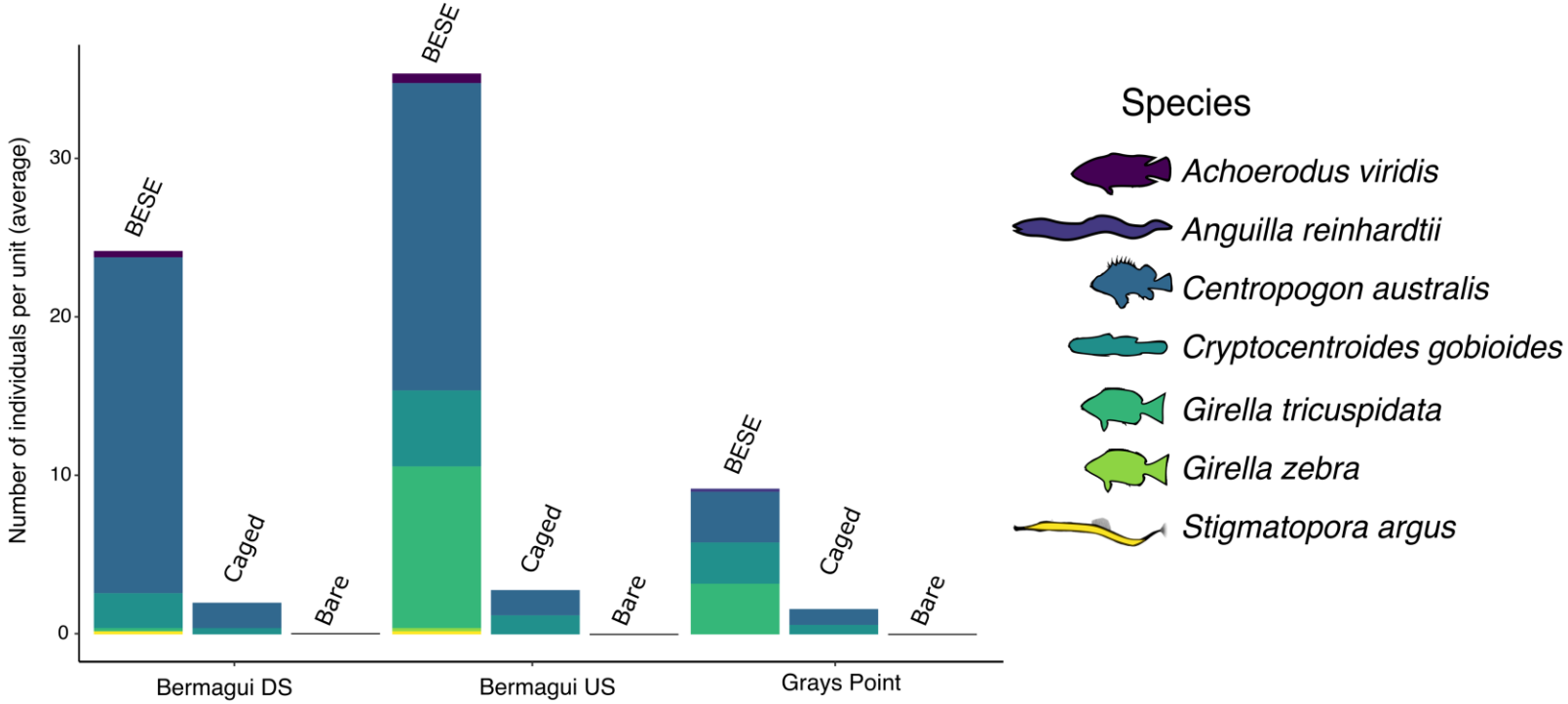
Similar pattern for shell accretion

Uncaged →

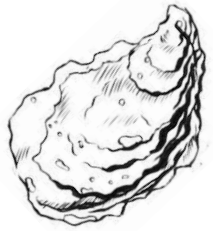
← Caged

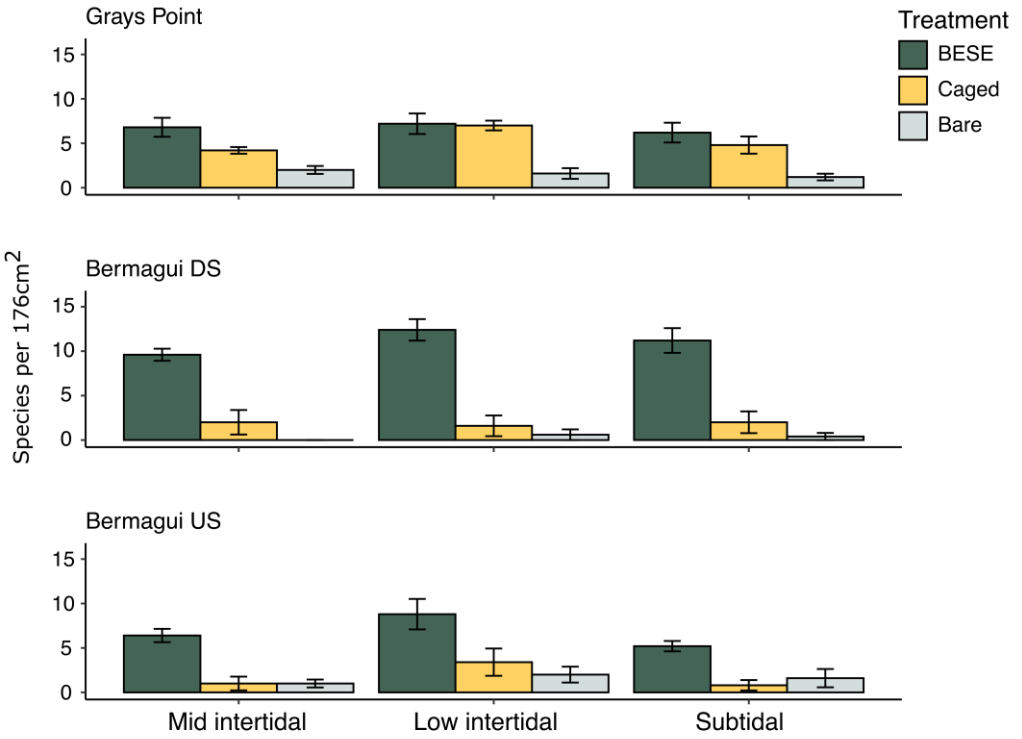
Associated Fish - Subtidal





Associated Invertebrates - Richness



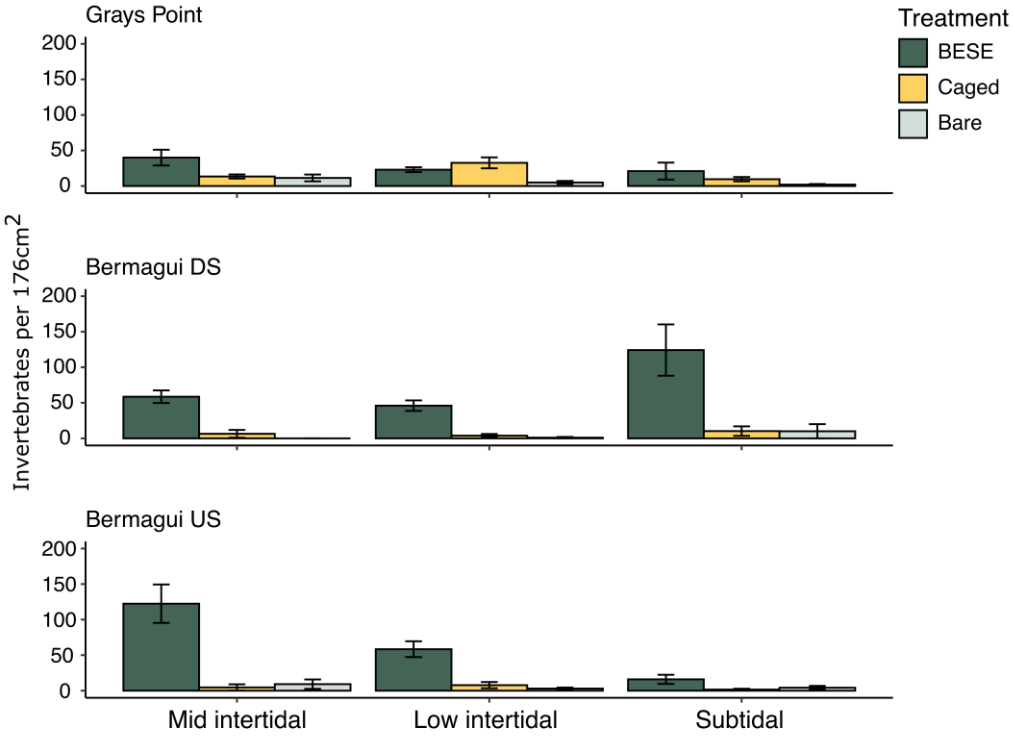


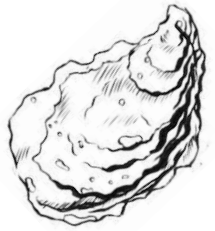
85 species of invertebrates

Greater richness on BESE

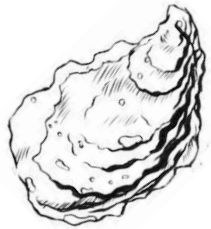
Site * Treatment variation

Associated Invertebrates - Abundance





In a nutshell...



- Both BESE units and caged concrete had high recruitment rates
- Low recruitment at unprotected substrate (predation)
- BESE units supported greater abundances of associated invetebrates.
- BESE units supported a greater number of species.
- Performance of BESE substrate on the subtidal was not great (small fish?)






Thank you!