

A photograph of a deep-sea hydrothermal vent scene. The background is dark, and the foreground is dominated by a rocky structure covered in various marine life. On the left, a large, rounded, orange-colored vent chimney stands prominently. To its right, there are several branching, white and orange hydrothermal vent structures. In the lower right, a large, white, porous, tube-like structure is visible. The overall scene is illuminated by a bright light source, likely a submersible lamp, creating a high-contrast environment.

Deep-Sea Ecology @ SAMS

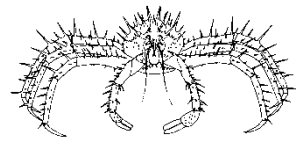
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Peter Lamont**





Current scientific interests:



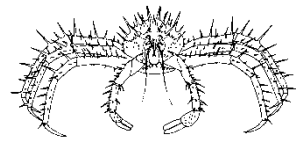
Habitats & regions

- Seamounts
SW Indian Ocean, NE Atlantic, Mediterranean
- Does diversity and composition vary across seamounts
- Investigating macrofaunal (>0.25mm) connectivity
- Characterising coral habitat complexity
- Defining deep-sea biotope assemblages
- Adaptation of fauna to their habitat
- Anthropogenic impacts including trawling and litter (especially microplastics)

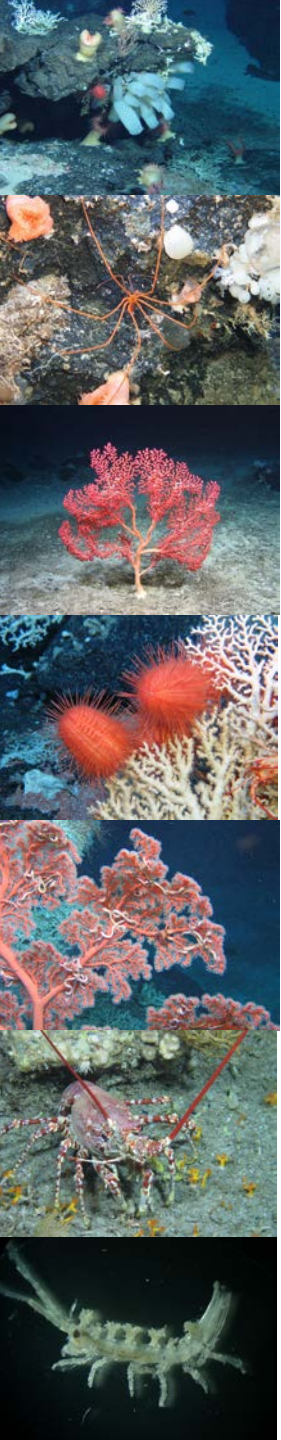
Underlying factors to consider:

habitat heterogeneity
topography
current flow
food input

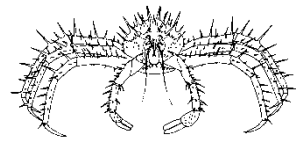
Current scientific interests:



- Continental margins
NE Atlantic, SW Indian Ocean, Papua New Guinea, Arctic (Yermak Plateau, Svalbard margin)
- Are long-term changes in bathyal fauna related to changes in food supply and hence changes in climate?
- Relationship between diversity and environmental variables e.g. water temperature, sediment grain size
- Impact of disposal of terrestrial mine waste in the DS

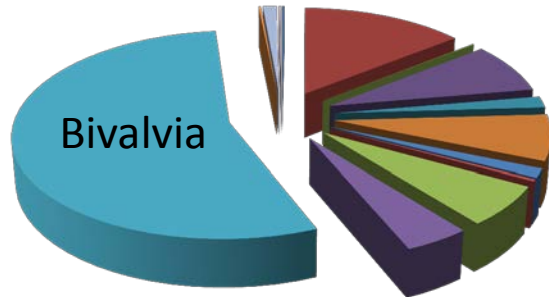


Long term changes:

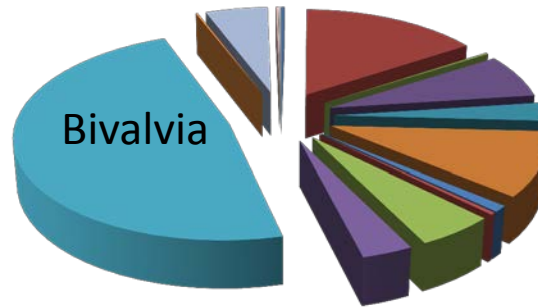


Are long-term changes in bathyal fauna related to changes in food supply and hence changes in climate?

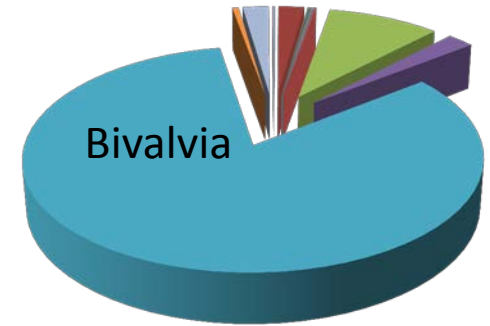
1983



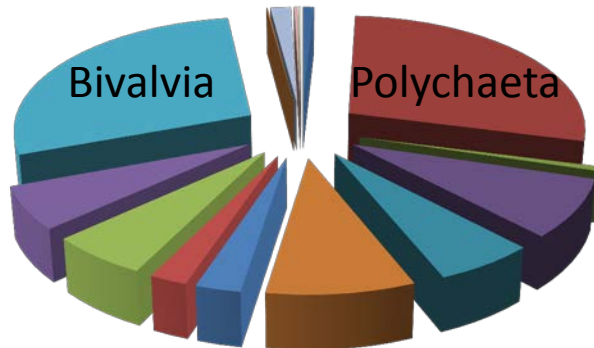
1987



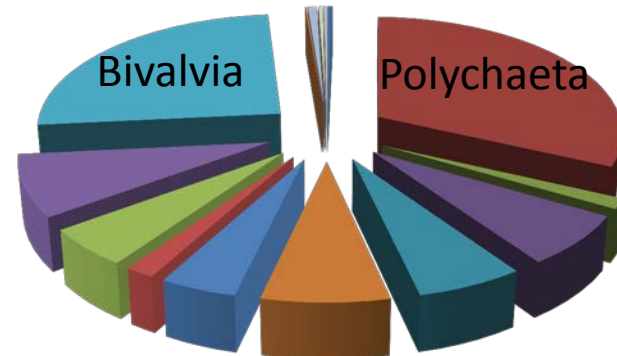
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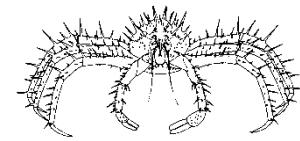


2013a

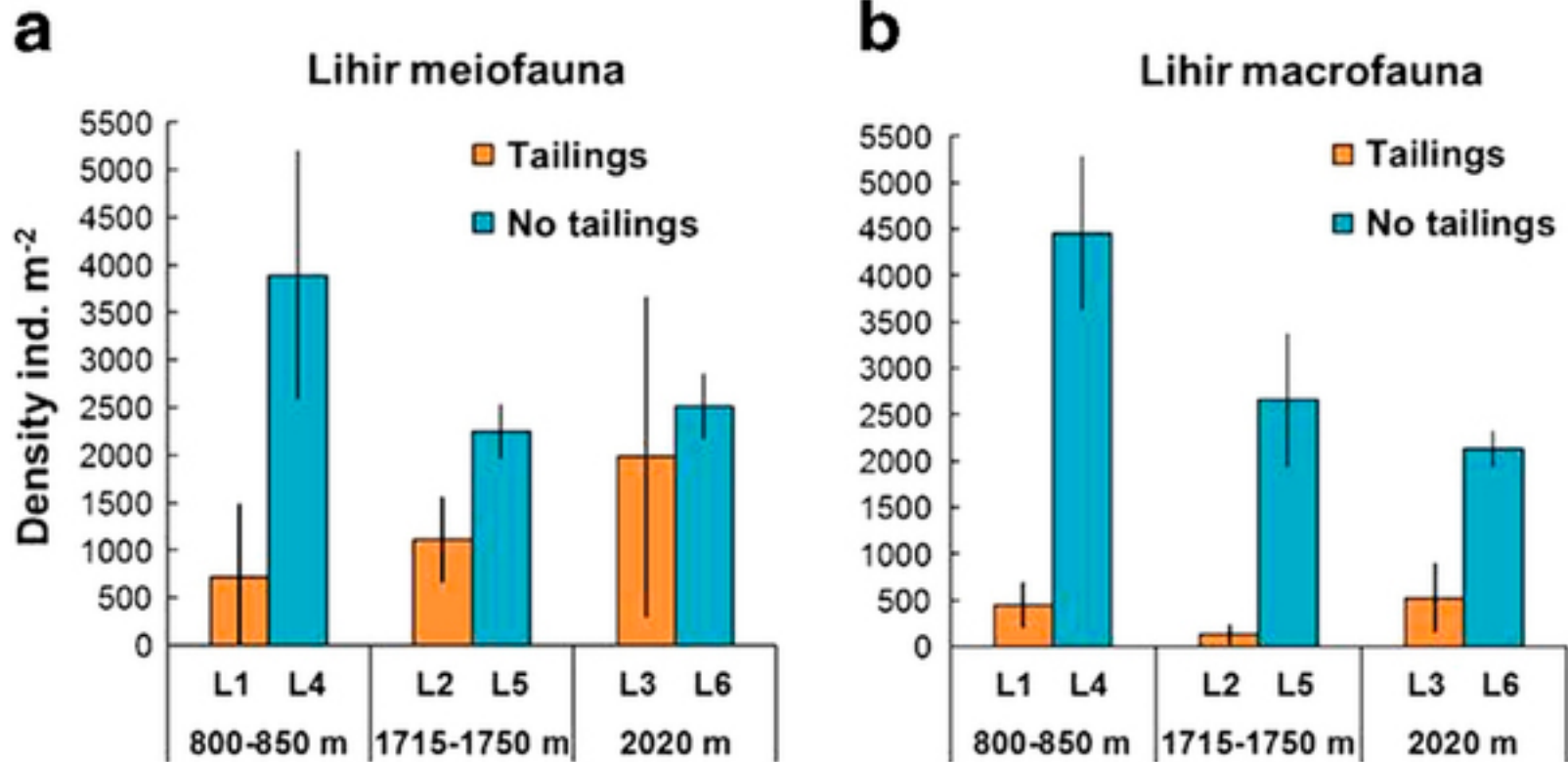


2013b

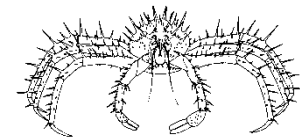




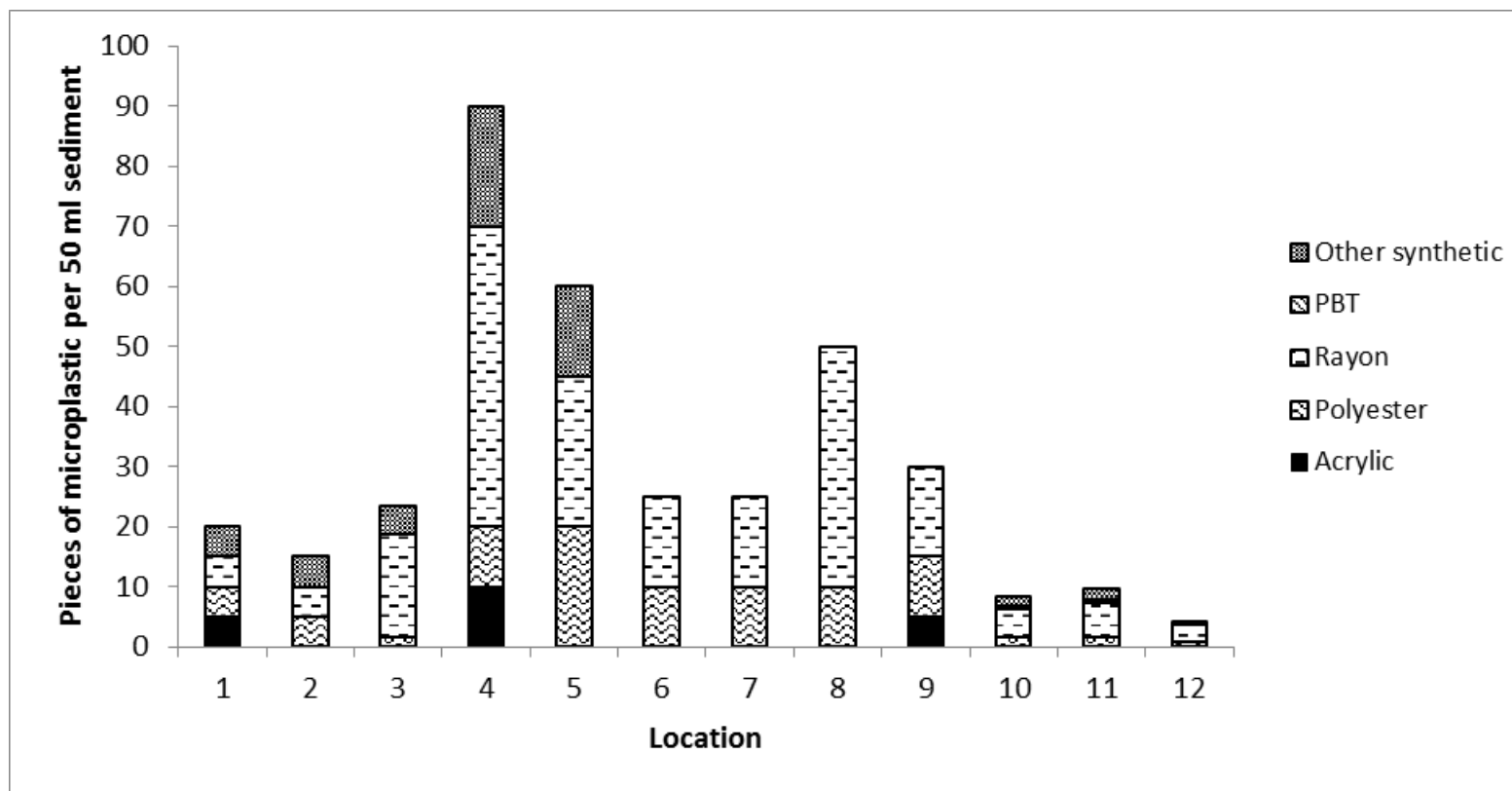
Deep Sea Tailings Placements:



Bars represent means (\pm SD) of replicate corer drops ($n = 3-7$ drops station⁻¹, with densities standardised to individuals m⁻². Depth-matched tailings and reference (no tailings) stations are shown in adjacent bars. (Hughes et al. 2015)



Microplastics in the deep sea:



The quantity and type of synthetic fibres found in 50 ml of sediment.
(Woodall et al. 2014)

Location:

1 & 2 – subpolar N Atlantic

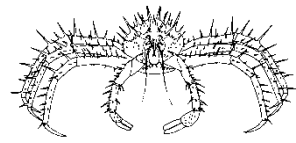
3,4 & 8 – NE Atlantic

5-7 & 9 – Mediterranean

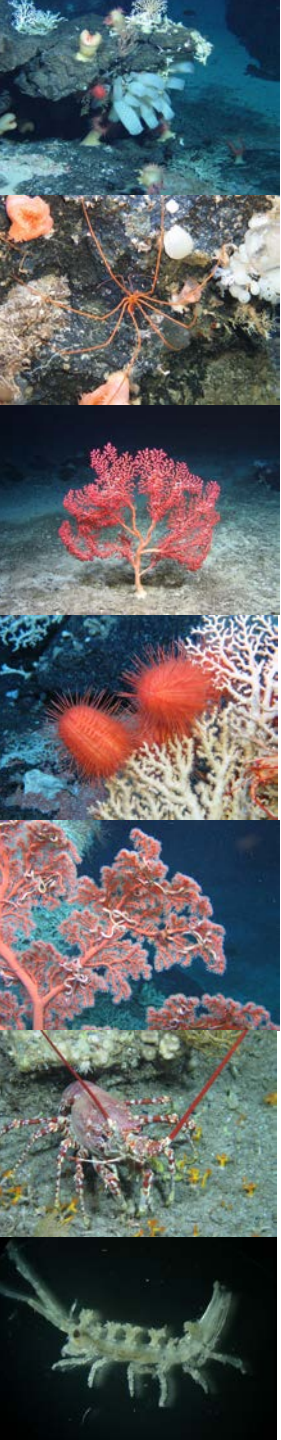
10-16 – SW Indian

Depth range : 300 – 3500m

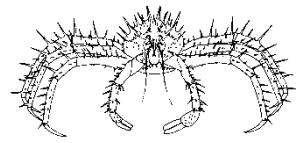
Future areas:



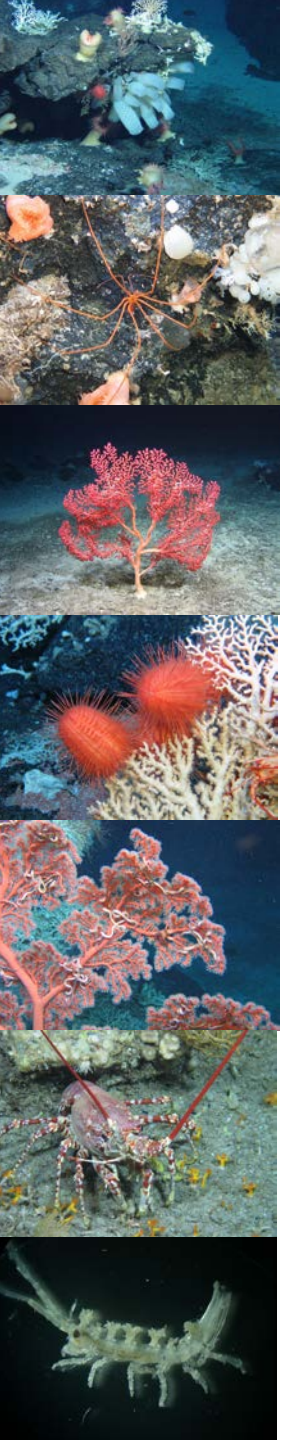
- Microplastics in the deep sea – PhD opportunity using new & historical samples
- Exploration for cold seeps in the Rockall-Hatton Basin
- Impact of mining (SMS) in deep water regions
- Expand seamount research

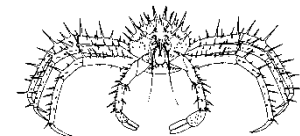


Networks/Partnerships:



- INDEEP - International network for Scientific investigation of deep-sea ecosystems
 - 4 WGs - Taxonomy, Biodiversity & Biogeography, Population Connectivity, & Ecosystem Function
- DOSI – Deep-Ocean Stewardship Initiative
 - integrate science, technology, policy, law and economics to advise on ecosystem-based management of resource use in the deep ocean
- MASTS – Marine Alliance for Science & Technology for Scotland
 - Apply for visiting Fellowships (e.g. Tina Molodtsova visiting)
- Deep-Sea Special Interest Group (via Challenger Society)





Capabilities here @ SAMS:

- Taxonomic capability – macrofauna (>0.25mm) and megafauna (what you can see in a photo)
- Taxonomic resources – extensive reference collection/specimen collection
- Epibenthic sled for soft sediment regions
- Excellent lab facilities
- Great place to work.....!

