

## Beautiful Biodiversity on the Seafloor

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On the 9th of March 2022 the world was shown incredible images of the Endurance at ~3000 metres on the Antarctic seafloor. The ship is beautifully preserved, and the biodiversity living on board includes stalked crinoids, sea anemones, hydroids, sponges, sea squirts and crustaceans. Viewing this ship through the eyes of a biologist, I equate these images to a rare insight into temporal succession and the eventual colonisation of new marine habitats. It is like an accidental 'settlement plate experiment' for 100 years.



*Image from the Endurance 22 Expedition – seen around the world. Falklands Maritime Heritage Trust/National Geographic/AP*

Over the last few months, I also spent some time looking at imagery on the seafloor to try and piece together a greater understanding of the unique biodiversity and ecosystem functions of the deeper Falklands ...and thought I would take this opportunity to share some of SAERI's beautiful photographs from the Burdwood Bank at depths of ~100 to 800 metres.

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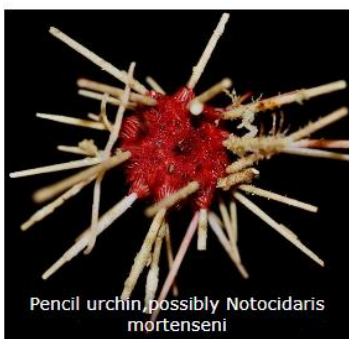
A brittle Star, possibly a juvenile *Astrotoma agassizi*, clinging to Stylasteridae (lace) coral skeleton



Unidentified crustacean, possibly *Eurypodius longirostris*



Pencil urchin, possibly *Notocidaris mortenseni*



Pencil urchin, possibly *Notocidaris mortenseni*



Sea urchin, *Sterechinus agassizii*



Brachiopod, possibly *Liothyrella sp.?*



*Caryophylliidae Scleractinian* (cup) coral from the Burdwood Bank



Aboral (top) view of an unidentified brittle star



Oral view (bottom) view of an unidentified brittle star



Unidentified gastropod shell



Serolid isopods



Dorsal (top) view of a gastropod shell, possibly *Belaturricula sp.*



Ventral (bottom) view of a gastropod shell, possibly *Belaturricula sp.*



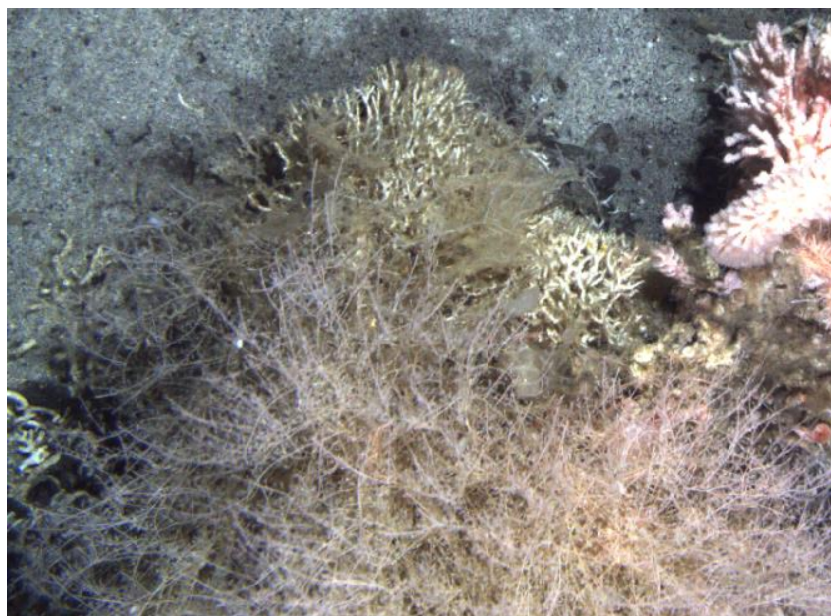
Unidentified isopod

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Image above: In deeper waters off the Burdwood Bank (below 100 metres), coral habitats represent vitally important oases for productive and thriving seafloor communities. These benthic communities (such as *Stylasteridae* (lace) and gorgonian (soft) corals pictured here from 608 metres) play a number of important roles on the seafloor, such as the filtration of nutrients, habitat for other reliant species and the long-term sequestration of carbon dioxide 'blue carbon'.

Image right: *Stylasteridae* (lace) and gorgonian (soft) corals and hydrozoan diversity at 800 metres on the Burdwood Bank

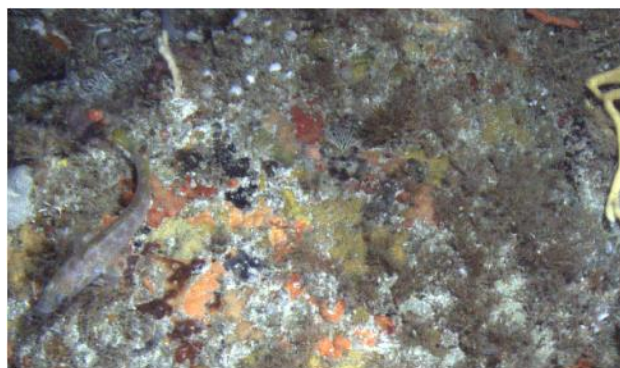


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Left: An example of a habitat-forming bryozoan, possibly *Arachnopusia sp.*, with multiple accompanying seafloor animals such as corals, crinoids, sponges and more at 100 metres on the Burdwood Bank.

Right: The basket star *Gorgonocephalus chilensis* and sea urchin *Sterechinus agassizii* at 100 metres on the Burdwood Bank.



Left: Biodiversity at 100 metres on the Burdwood Bank, including crinoids, gorgonian corals, sea stars and more.

Right: Biodiversity on the Burdwood Bank at 100 metres, including sponges, corals and more.

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Left: A *Macrourus* sp., more commonly known as grenadiers or rattails, from 800 metres on the Burdwood Bank.

Right: Crustacean, *Thymops birsteini*, at 600 metres on the Burdwood Bank.

## Acknowledgements:

Seafloor and specimen images are from 2019, when SAERI collaborated with the British Antarctic Survey on Darwin Initiative grant funded work to collect data on the proposed southern Burdwood Bank Marine Managed Area during two voyages on the RRS James Clark Ross (JR18003 and JR19002).

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