AusSeabed Newsletter No. 30 June 2022

Dear AusSeabed community,

I hope you all have had a productive year as we bring the financial year to a close. Here at AusSeabed we have begun reflecting on the year gone and looking ahead into the next financial year. This has involved working on our new AusSeabed Strategy, a five-year roadmap and our next year's work plan.

I would like to make you all aware that I will be stepping down as the Chair of AusSeabed and leaving this role in CMDR Nigel Townsend's (RAN, CPHS1, Australian Hydrographic Office) capable hands. Nigel has been a proactive and committed member within AusSeabed and our Steering Committee since 2019, and I am looking forward to the perspective he brings to leading AusSeabed over the next two years.

I have felt privileged to hold the role of Chair of AusSeabed since the program's inception in 2018. I am proud of the state I am handing the Steering Committee over in, as we have constructed a solid foundation for it to stand. New perspectives are important in leadership roles, and it is important to hand over responsibilities to ensure direction is representative of the community.

It has been an inspiring and motivational position to be in over the past four years, as we have watched the broader community grow and embrace a new level of collaboration. We are lucky to be in a time of change within our field as we see seabed mapping rising to find its place on the global stage, as demonstrated by the significant presence of Seabed 2030 at the upcoming United Nations conference in Lisbon.

We are looking forward to closing out this year, and unveiling an enhanced Data Hub infrastructure, new technology developed through the GMRT-AusSeabed program and a new presence within the Sea Museum. We will present all this and more at our annual workshop to be held on the 12th of August. Don't worry if you have not registered for AMSA, you can still attend either in person, or virtually. Look out for registration details in July.

It was a pleasure leading this community

Kim Picard,

AusSeabed Steering Committee Chair

AusSeabed at AMSA

Our Annual Workshop is returning to AMSA this year! Join us in-person or online on Friday August 10th. In this workshop, we will focus on how AusSeabed can help you to benefit from our data infrastructure, tools and our community which is committed to collaboration. The workshop will begin with our AGM where we will cover highlights from our past year, discuss the upcoming year and introduce our new AusSeabed strategy.

We will then have a series of five presentations:

- Help to collect new data in national areas of interest

- HIPP program: Connecting Australian Marine stakeholders to hydrographic surveyors

- Do you have the data that the community needs, whether in state or Commonwealth waters or high seas?

- Take the data contributor test: Are you a Contributing Data Partner or a Contributing Hub?

- How to be an AusSeabed outreach champion.

We will conclude with a Panel on *How to implement AusSeabed tools in your team* and break-out sessions *Diving down into AusSeabed* which will provide targeted training and engagement on our tools and services.

We will be endeavouring to facilitate on-line participation, so look out for registration information in the coming weeks.

Join us to learn more about the AusSeabed upcoming program, discuss your experience and your needs, and how you can become a collaborator.

AMSA symposia:

Dr Mick O'Leary will be presenting the keynote presentation at this event.

The seabed, ancient culture and the discovery of underwater song-lines

AusSeabed community member Dr Mick O'Leary presented an engaging TEDx talk at the end of last year. The exciting talk is now available to view online, and if you want to find out more watch Mick keynote at our AMSA symposia: *Multi-disciplinary approaches to monitor change and connections through seafloor mapping*.

In his TEDx presentation Mick recounts his experience discovering seafloor features linked to ancient song-lines. Evidence of the First Australians has been hidden since the oceans rose – until now. Australia's First underwater archaeological survey hasn't just discovered a treasure trove of artefacts, but a completely unexpected and spine-tingling revelation connecting modern day indigenous Australians with their ancestors from more than 10,000 years ago.

[We showed a song was 10,000 years old – by looking underwater | Mick O'Leary | TEDxKingsParkSalon](#)

[Storymap](#) made by Mick O'Leary about his search for submerged Rock Art:

Awards for AusSeabed

The AusSeabed Survey Coordination Tool has won an award for technical excellence! The tool developed in collaboration with Geoscience Australia, FrontierSI and the Australian Hydrographic Office, has recently been upgraded with the NESP National Areas of Interest for Seabed Mapping, Characterisation and Biodiversity Assessment.

The Survey Coordination Tool is being used by 140 individuals across 68 organisations. It aims to increase the visibility of stakeholder activities by providing platform for organisations to share their areas of interest or planned survey areas for seabed mapping data. Stakeholder areas of interest can

be submitted to the Hydroscheme Program with the tool and viewed by the hydrographic surveying community, opening new avenues for collaboration.
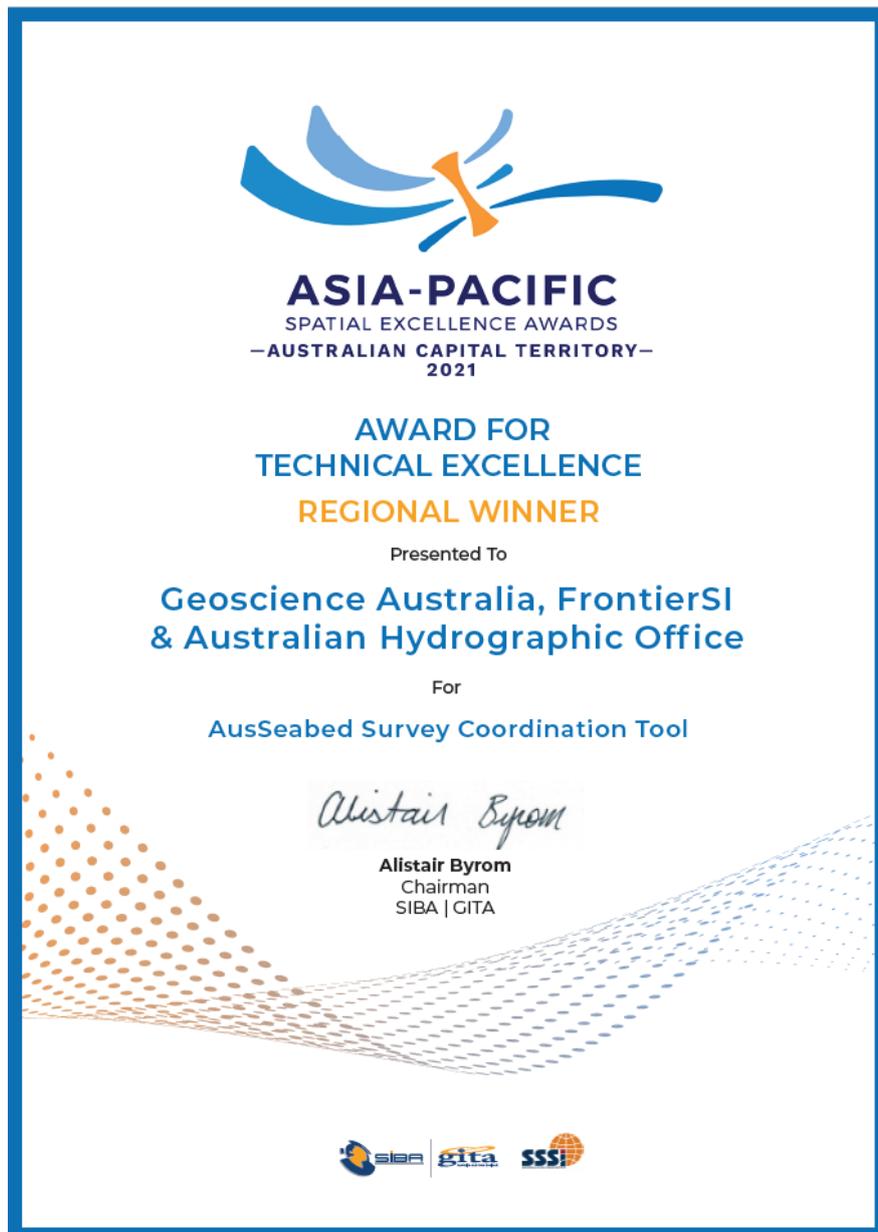
Data Portal Enhancements

The AusSeabed Data Portal has undergone some enhancements to the suite of tools available (https://portal.ga.gov.au/persona/marine)

We have a new Desktop Launcher which is a one stop shop to engage with AusSeabed, our information and our community. It has all the links you need to access data, upcoming news and events, maintenance, and any recent Portal changes from AusSeabed. You will also be able access

tools and guidelines, and find out the best methods of downloading data from the Portal. We've also made it easier to visualise and download data from an area of interest.

We also have a new selection of Dynamic colour ramps and Draw and Annotate Tools that allows you to personalise maps and associated datasets so you can use them in publications and presentations. For any maps that are created from this process, we kindly ask that you cite us. Check out our live demo of the Portal here (starts at 39:00)

If you do encounter some bugs in our newly released system, please let us know at ausseabed@ga.gov.au or use the feedback tool through the launcher itself.

AusSeabed in the Sea Museum

AusSeabed has been working with the Sea Museum (formerly the Australian National Maritime Museum) on providing some images of seabed data for the upcoming *Shaped by the sea* exhibition. The exhibition opens soon so remember to book your visit in the coming months https://www.sea.museum/whats-on/exhibitions/shaped-by-the-sea

AusSeabed Quarterly Showcase now online

Thank you to those who attended our recent Quarterly Showcase. If you were not able to attend, the recording is now available to view online.

In this showcase we highlighted:

- the NESP-funded National Areas of Interest functionality on the Survey Coordination Tool

- an update on newly published datasets and upcoming datasets to be published

- a peek into new AusSeabed Data Infrastructure that is under development

- an update on new product specifications for L0-L3 bathymetric data which are intended to guide data contributors

- an overview of new functionality released for the AusSeabed Data Portal

Our next quarterly showcase will be held on the 14th of July

Seabed2030 Official Side Event to the United Nations Ocean conference

Seabed 2030 Official Side Event at UN Ocean Conference, 29 June 2022 in Lisbon.

Join Seabed2030 in-person or online for this high-level panel session which will look at the benefits of ocean mapping from a global perspective, and explore how mapping data is essential to supporting the UN SDG 14 and Decade outcomes, as well as safeguarding our future and that of the planet. For more information and registration details see link.

New Southern Ocean bathymetry map

The new version of IBCSO (International Bathymetric Chart of the Southern Ocean) has now been published:

This version is expanded to 50 S and has actual sounding data in 23% of the 500m grid cells.

PDF ARTICLE

Revealing NSW's Sea-crets!

New South Wales Department of Planning and Environment launched a new web-viewer interface at the state's annual Coastal Conference on the NSW north coast at Kingscliff last week. The viewer called **'Seabed NSW'** allows non-geospatial experts access to view the state's marine LiDAR and landform layers recently developed by the departments Coasts

and Marine Science Team. The new digital maps cover some 6500 km^2 of the coastline from the beach dunes, beaches, shoreface and sub-tidal inner shelf to depths of ~30-35 m. The landform layers have been developed using a semi-automated geomorphometric analysis (Linklater et al, 2019) using the recent LiDAR and multi-beam surveys. Stakeholders like councils, land councils and community groups can now explore their section of coast without having to use specialist software or rely on other expertise. The maps and layers can be used by marine conservation groups, surfers, fishers, scientists and government agencies as they provide detail on the distribution of sea floor habitats and assist management of marine ecosystems. The highly detailed an accurate data are provided as part of the state's Coastal Management Program, supporting coastal councils in producing their coastal management plans. The advanced imaging of the coast provides cutting-edge information to support these science-based assessments. For DPE researchers the data will be used to update our wave prediction tools, understand sediment transport mechanisms and better inform shoreline change modelling.
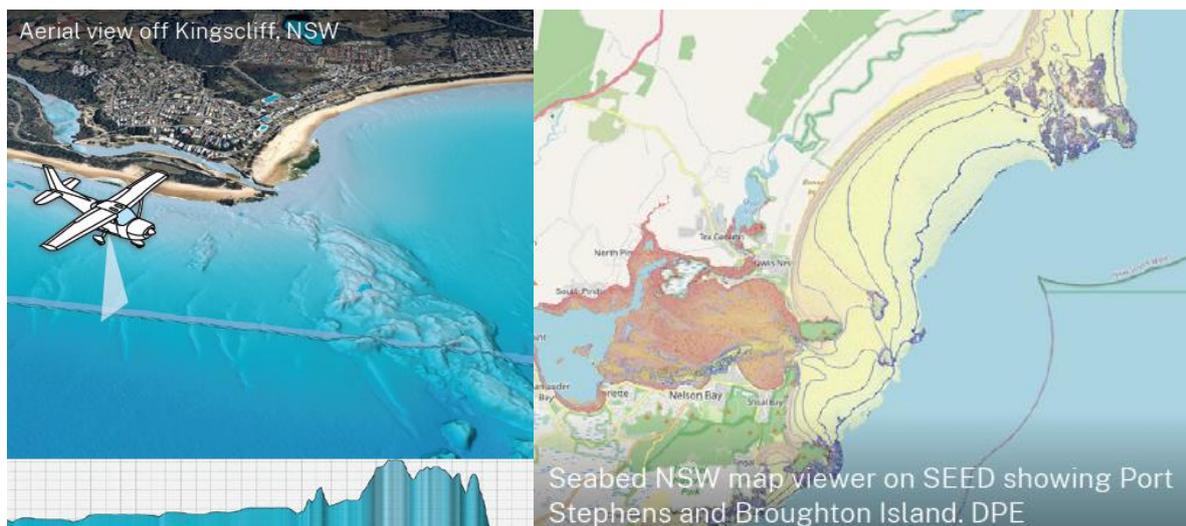
The SeabedNSW web-viewer is now accessible through the NSW environmental data hub SEED (Sharing and Enabling Environmental Data) accessed here or by connecting through a QR code with a smartphone (see below). The mapping was funded by the NSW Government under the $83.6 million Coastal Reforms funding package.

International collaboration on a two-part seafloor geomorphology classification scheme

Regional, national and local datasets provide foundational information for a broad range of marine applications and end users. The geomorphic characterisation of seafloor data requires standardised, multi-scalar and inter-jurisdictional approaches to enhance user uptake and cross-disciplinary utility.

The Geoscience Australia geomorphology working group, led by Dr Rachel Nanson, has spearheaded an ongoing collaboration between geoscience agencies in the United Kingdom (British Geological Survey), Norway (Geological Survey of Norway), and Ireland (Geological Survey Ireland and University College Cork) to develop a standardised and consistent two-part mapping and classification approach to meet the needs of the international seafloor geomorphology community.

Part 1 is comprised of an illustrated glossary of terms that can be used to guide morphological classification of bathymetry data, and was published online in 2020 (Dove et al., 2020). Geoscience Australia has since been developing a set of user-friendly GIS semi-automation tools to facilitate this step (Huang et al., 2022 in prep). Dr Zhi Huang is leading the development of these tools and their test application to a selection of Australian bathymetry datasets from the AusSeabed portal. The tools apply consistent definitions and algorithms to map seafloor bathymetric high and low features, generate a large number of attributes, and automatically assign polygons to morphology feature classes using standardised terminology from Dove et al. (2020).

Part 2 of the scheme classifies Part 1 Morphology shapes with their geomorphic interpretation. The framework for this second step similarly draws on well-established schemes to produce a series of new geomorphic classification trees and mapping approaches for a broad spectrum of seafloor settings. Rachel recently presented the draft geomorphic scheme to the community at GeoHab 2022 and will lead a targeted workshop on the method at the International Conference on Seafloor Forms, Processes and Evolution in Malta in July. The workshop, in collaboration with the Submarine Geomorphology Working Group of the International Association of Geomorphologists, invites comments and feedback on the new scheme from international seafloor geomorphology specialists. Over 60 participants have so far registered for the workshop! If you would like an opportunity to get involved with Part 2 (but cannot make it to Malta!), Rachel will present the scheme at the AMSA conference and invites you to join the workshop mailing list: Rachel.Nanson@ga.gov.au

These morphology and geomorphology mapping advances will facilitate the development of new local and regional seafloor geomorphology products which will be made available to the community via the AusSeabed portal.

Partnering to document benthic habitats in Franklin and Zeehan Marine Parks

Parks Australia is partnering with the Institute for Marine and Antarctic Studies (University of Tasmania) and CSIRO to document the distribution of benthic habitats and communities in Franklin and Zeehan Marine Parks in the South-east Marine Parks Network. This knowledge is the foundation of marine park management - an equivalent to vegetation maps for terrestrial park management.

Over 21 days a total of 3000 nautical miles were covered to collect fine-scale multibeam mapping for the entire continental shelf of the Zeehan Marine Park (763 km^2) and 52% of the Franklin Marine Park (350 km^2). With the wild weather at the western extreme of Bass Strait forcing the researchers to run for shelter at times, it took another 26 days to collect 300 drop camera observations in each park to ground truth seafloor features identified through multibeam mapping.
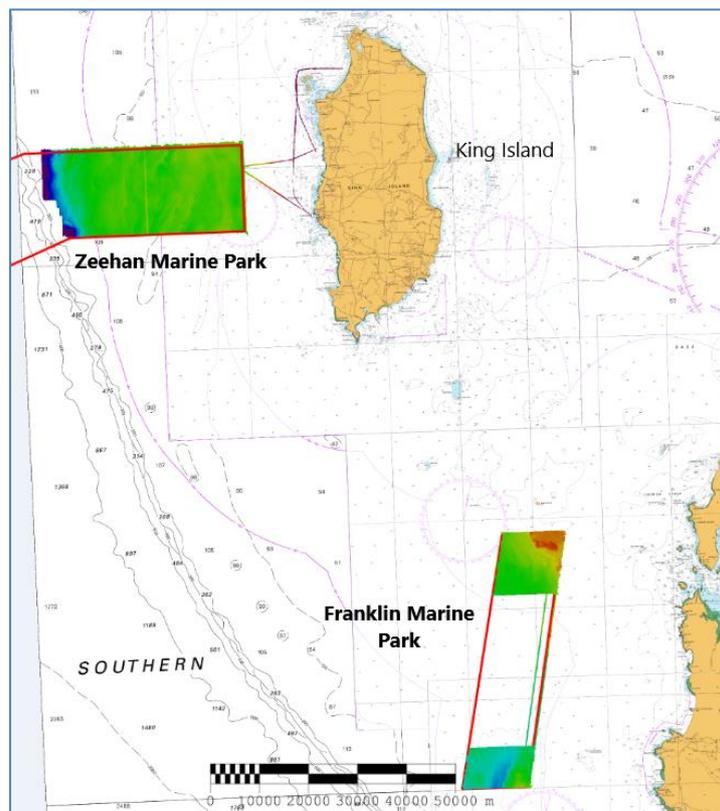
Areas of Zeehan and Franklin Marine Parks mapped with fine-scale multibeam during March 2022. Source: CSIRO

Much of the Franklin Marine Park is dominated by coarse, swell-impacted sediments at around 80 m depth, but the northern section contains complex reef formed by volcanic lava flows, which at its shallowest depths of 35m support *Ecklonia radiata* kelp forests - a rare habitat type in Australian Marine Parks. In the southern end of the park, limestone pavement outcrops, and is sponge dominated in areas of higher relief.

By contrast, Zeehan Marine Park is primarily low-profile, often sand-inundated, platform reef (limestone pavement) across much of the shelf, with regular 2-3m high ledges with flat steep faces. This ledge morphology strongly contrasts with the Flinders Marine Park in eastern Bass Strait where similar limestone pavement reefs have ledges that are typically strongly undercut, forming significantly more habitat for reef-associated species such as rock lobster and striped trumpeter.
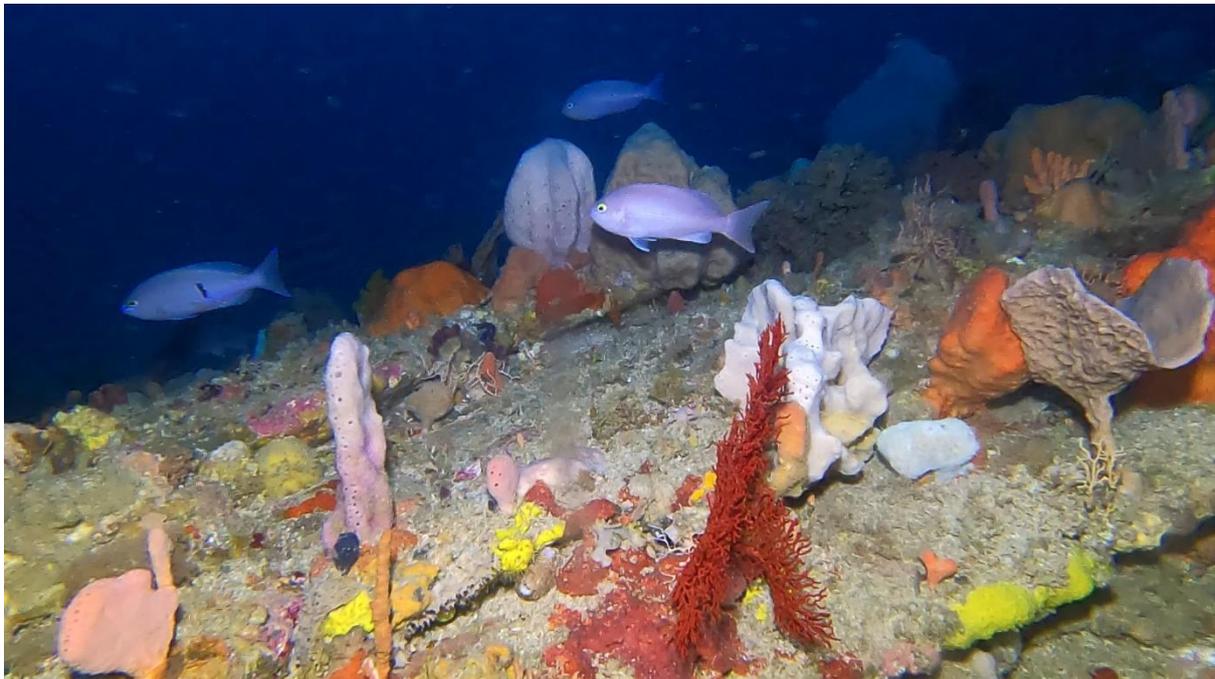
Sponge dominated habitats in Franklin Marine Park as observed via a new drop camera system. Source: IMAS

Understanding the fine-scale morphology of reefs is an important part of the mapping process if species/habitat relationships are to be better resolved, and bathymetric surveys coupled with appropriate ground truthing are an important step in this process.
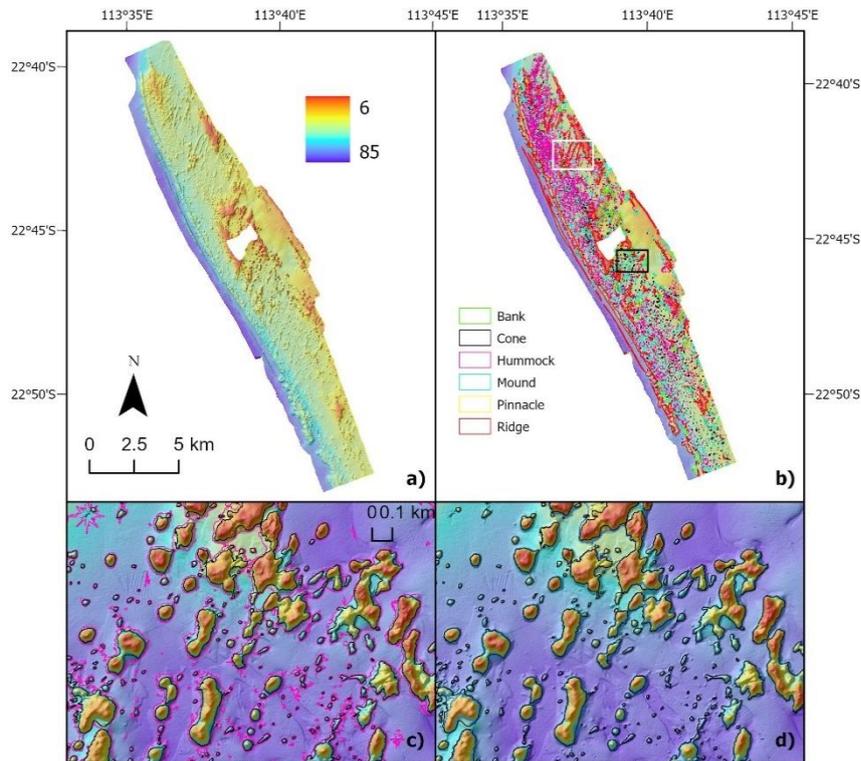
Example of morphology semi-automation tool output for bathymetric high features (Huang et al., 2022 *in prep*).

Reading corner

- Tectonic Influence on the Geomorphology of Submarine Canyons: Implications for Deep-Water Sedimentary Systems
  https://www.frontiersin.org/articles/10.3389/feart.2022.836823/full

- PhD student Alysha Johnson has created a feature on our Data Portal. https://search.informit.org/doi/epdf/10.3316/informit.315003344527447

- Seabed2030 e-newsletter 'In-depth' May 2022
  https://www.gebco.net/news_and_media/indepth_may22.html

- Victoria sets "game changing" offshore wind target of 9GW to replace coal
  https://reneweconomy.com.au/victoria-sets-game-changing-offshore-wind-target-of-9gw-to-replace-coal/

- Technology Solutions to Determine Maritime Zones https://chinaus-icas.org/research/technology-solutions-to-determine-maritime-zones/

If you do not have access to materials, contact us for a PDF copy

UPCOMING EVENTS

SCAR Open Science Conference: 1-10 August 2022

SCAR 2022 Open Science Conference.

There is a long list of Geoscience relevant sessions, and a session dedicated to the seafloor titled "The Antarctic seafloor: ecosystem interactions and environmental drivers of change".

Australian Marine Sciences Association (AMSA): 7-11 August 2022

The 58th annual AMSA Conference will be held in Cairns from **7 - 11 August, 2022.**

This conference is shaping to be the first face-to-face AMSA national meeting since Fremantle in 2019. The local organising and scientific committees are working hard to put together a great conference program

37th International Conference on Coastal Engineering

WHEN: **4-9 December 2022**

WHERE: **International Convention Centre, Sydney NSW**

The goal of the ICCE is to promote academic and technical exchange on coastal related studies covering a wide range of topics including coastal waves, nearshore currents, coastal structures, sediment transport, coastal morphology, beach nourishment, natural hazards and coastal management.

More Info

Share your work with the AusSeabed community

Finally, a reminder as always that anyone with an interest in AusSeabed can sign up to the newsletter mailing list on our website, where you can also check out past issues. And please send any items for the next newsletter to AusSeabedNews@ga.gov.au