



AusSeabed Newsletter No. 20 November 2020

Dear AusSeabed Community,

I hope you all took the opportunity to celebrate NAIDOC week this month, celebrating the diversity, achievements and rich history of Aboriginal and Torres Strait Islander peoples. The AusSeabed Outreach, Education and Training team embraced the event initiating the development of a First Nations Collaboration Strategy, identifying First Nations rights and aspirations to our marine environment as well as opportunities for AusSeabed to support meaningful collaboration and engagement with hydrographic data. This month I was out at sea on the Arafura Marine Park survey on-board the Solander. There were some incredible sites (especially above Money Shoal!) and I look forward to you all exploring the data collected. Be sure to read through the summary below, as well as an exciting update from the Falkor.

In Outreach news, Ralph Talbot Smith presented on AusSeabed and the value of seabed mapping at the West Australia workshop on “Principles for Managing Aboriginal Underwater Cultural Heritage”. The workshop was hosted by the Australasian Institute for Maritime Archaeology and the ARC National Centre of Excellence for Australian Biodiversity and Heritage (CABAH) on the 15th of October.

I am also pleased to announce that, following the conclusion of our four part webinar series, *Bringing the seabed to you*, all materials have now been made available on the [AusSeabed website](#). This includes recordings of each session which I encourage you to revisit, or catch up on any you may have missed.

The Steering Committee meeting will be taking place on the 24th November with a long list of agenda items prior to the Executive Board meeting in December. Updates on each will be provided next month.

Best wishes, Kim Picard

Webinar Materials

Webinar materials from the four part webinar series, *Bringing the seabed to you*, are now accessible through the [AusSeabed website](#). Scroll down the Publications and Presentations page to find presentation PDFs from each speaker as well as statistical summaries, published Q&As and the session recordings.

Upcoming Events

Australian Marine Sciences Association (AMSA) 2021

- Monday 2 November 2020: Early Bird Registration Closes (2020 Registration Fees)
- Thursday 25 February 2021: Early Bird Registration Closes (2021 Registration Fees)
- Friday 26 February 2021: Standard Registration Opens
- Monday 21 June 2021: Online Registration Closes
- Sunday, 27 June 2021: AMSA Conference 2021 Opens
- Friday, 2 July 2021: AMSA Conference 2021 Closes

[Click here](#) for more information.

International Conference on Biology and Geology of Coral Reefs

3rd – 4th December

Sydney, Australia

[Click here](#) for more information.

5th World Conference on Marine Biodiversity

13th – 16th December

Virtual (Auckland, New Zealand)

[Click here](#) for more information.

Quarterly AusSeabed Showcase

The Quarterly AusSeabed Showcase will be held this coming Monday the 23rd of November at 11 am AEST. The event aims to increase the general awareness of the work being done within the program to our colleagues, broader stakeholders, and the public. The agenda will consist of 5 minute lightning talks on the recent achievements and progress on a number of the program's key components, followed by an open discussion

to cover any questions raised throughout the talks, and will close with an overview of the program vision for the next three months.

Please register for the showcase by following this link: https://zoom.us/meeting/register/tJ0uf-GrqTgvH9MdRy-g-p_vQFbhRjNNPmjI. Registration will generate an automated email containing the meeting link and calendar event reminders.

Outreach, Education and Training

On Thursday 15 October 2020, Ralph Talbot-Smith presented AusSeabed to 'Principles for Managing Aboriginal Underwater Cultural Heritage (UCH)' workshop at the WA Maritime Museum, Fremantle. The UCH workshop timing is to align with the AACAI/ ICOMOS Australia Future Forum (<https://www.aacai.com.au/event/future-forum-2020/>), The intent of Future Forum 2020 is to bring together heritage practitioners – in Aboriginal communities, representative bodies, industry, consultancy bodies, academia and government – to explore and discuss what the future of Aboriginal heritage management could look like in this state. It also aims to showcase current achievements and future plans for enhancing Aboriginal heritage management, including Aboriginal community-led research, innovations and collaborative projects. At the UCH workshop Ralph also presented the 2009 Bathymetric Lidar in the form of a oblique Google Earth fly-through as a tool to assist Underwater Cultural Heritage sites going forward. The ability for the AusSeabed data to enable this sort of product was highlighted.

Members of the Outreach Education and Training group alongside the Chairs and support staff have held their 1st AusSeabed-First Nations Collaboration Strategy meeting. A number of initiatives were discussed, and a draft paper raised.

Highlights and Other News

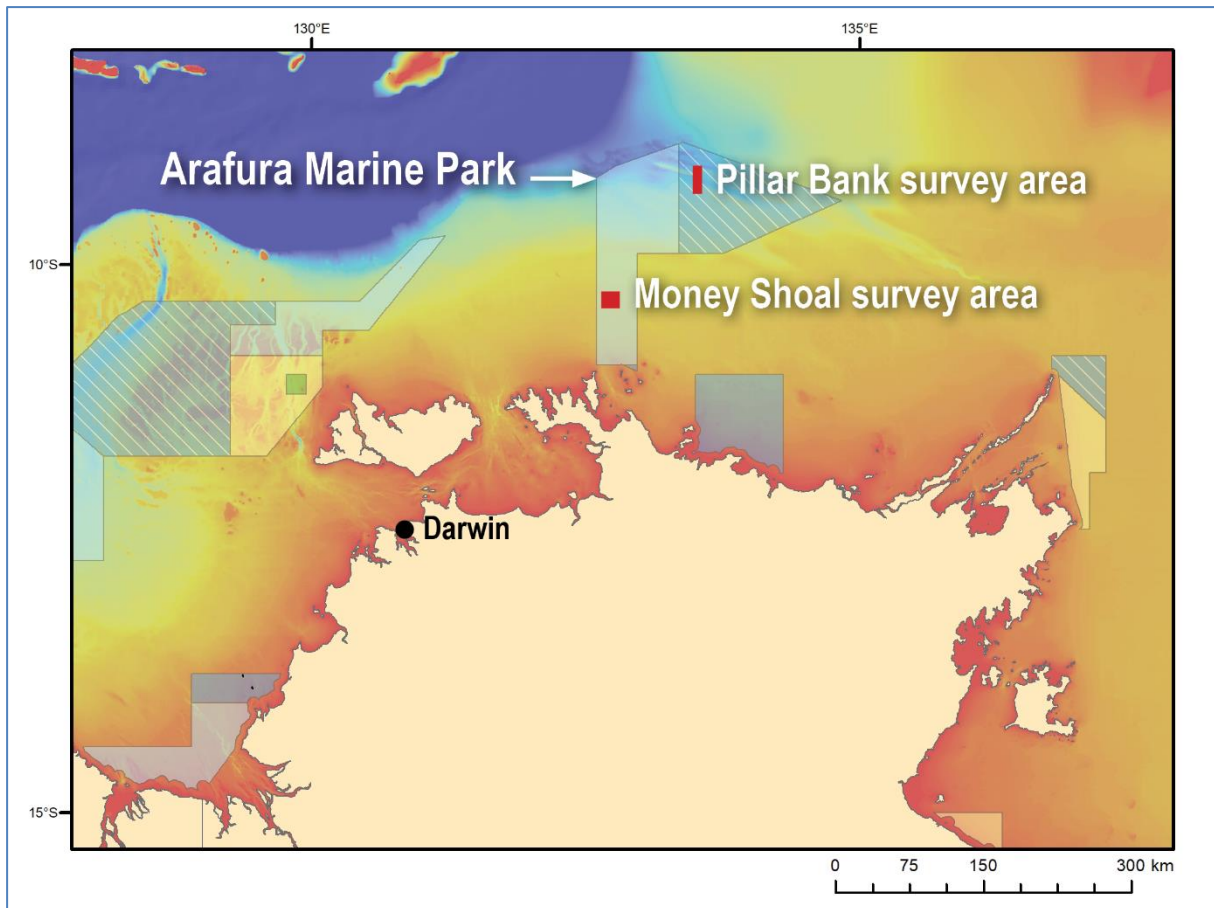
Arafura Marine Park Survey



Credit: Australian Institute of Marine Science (AIMS)

This month, a Marine Biodiversity Hub team embarked on a two-week voyage to survey seafloor habitats and biodiversity in shelf waters of the Arafura Marine Park, North Marine Parks Network. The survey, undertaken on-board RV Solander, was a collaborative project funded through the NESP Marine Biodiversity Hub with researchers and technicians from Geoscience Australia and the Australian Institute of Marine Science.

Completed on the 15th November, the survey was considered a great success, achieving the key science objectives of mapping and characterising seabed habitats in Arafura Marine Park – including acquisition of high resolution multibeam data coupled with spectacular imagery of seabed features and the diverse biological communities they support.



Credit: Geoscience Australia

Keep an eye out for a media release on the [NESP website](https://www.nesp.gov.au/).

<https://www.scimex.org/newsfeed/abundant-corals-and-fishes-emerge-from-the-ancient-contours-of-arafura-marine-park>

R/V Falkor Expedition

At 10:00 on the 22nd of October, the Falkor discovered and mapped a new Detached Reef. This new reef rises about 500 m in vertical height above the surrounding broad ledge. The reef is blade-like in plan view, with the shoal part of the reef (that part of reef shallower than 70 m depth) about 300 m long by 50 m wide. The shoal depth measured was 41.6 m, so with predicted tides of 1.6 m (Raine Island at 1000), results in a shoal depth of 40.0 m (vertical datum LAT).

This new reef is not a danger to navigation, but it is significant that one can still discover such tall reefs (~500 m high) in the far northern Great Barrier Reef, which speaks to the remoteness of the area and rarity of opportunities to map with modern technologies in such deeper waters. Looking at old charts from the 1800s, which first mapped these Detached

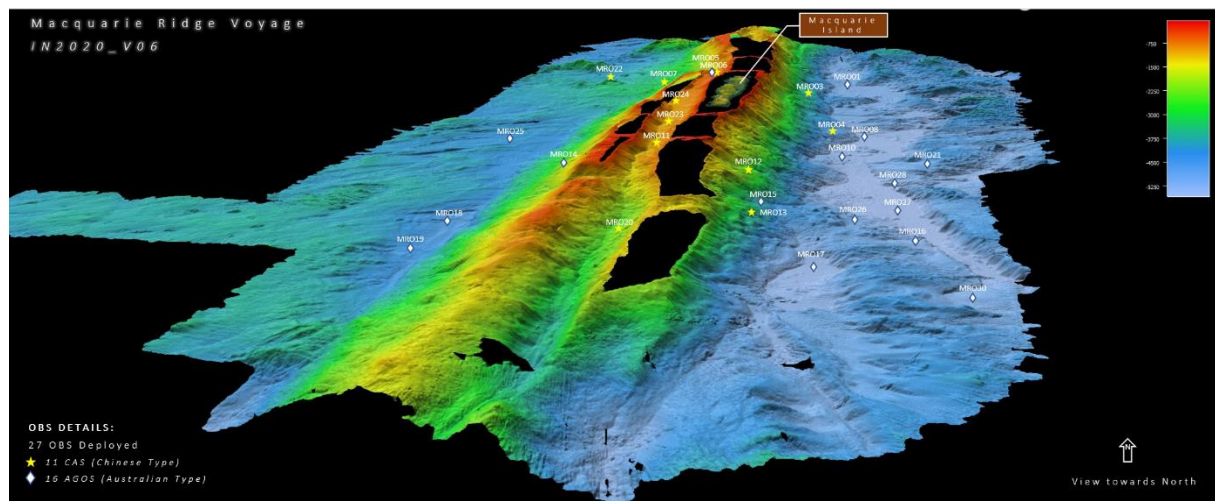
Reefs, the Falkor's discovery is the first new Detached Reef to be mapped in the Great Barrier Reef in over 120 years.

Voyage to Unlock Macquarie Island's Geological Secrets

A research voyage aimed at shedding light on Macquarie Island's underlying structure and geological evolution, while also enabling monitoring of future earthquakes and tsunamis that could affect Australia and New Zealand was completed last month.

IMAS Professor Mike Coffin and including scientists from ANU, the voyage on Australia's national research vessel RV Investigator, owned and operated by CSIRO, allowed researchers to produce the first high-resolution maps of the seafloor surrounding Macquarie Island, much of it lying within the island's Nature Reserve and Macquarie Island Marine Park.

At the same time, ANU scientists led by Professor Hrvoje Tkalčić deployed seismometers on the seafloor around the island to allow them to investigate the region's crustal and mantle structure as well as its seismicity.



Credit: CSIRO

For more information regarding this recent voyage visit:

<https://www.imas.utas.edu.au/news/news-items/voyage-to-unlock-macquarie-islands-geological-secrets>

Consortium for Ocean Leadership (COL) Workshop

The Consortium for Ocean Leadership is pleased to announce that the final report on the *Workshop to Identify National Ocean Exploration Priorities in the Pacific* has been submitted to NOAA OER, and is now publicly available.

This report, as well as all other workshop materials, will remain available on the COL website. Please feel free to hit link below.

<https://oceanleadership.org/discovery/ocean-exploration/>

https://oceanleadership.org/wp-content/uploads/2020/11/OceanExploration_PacificPriorities_WorkshopReport_NOV2020.pdf

Geoscience Australia's Digital Earth Australia Coastlines (DEA Coastlines) product

DEA Coastlines is a continental dataset that includes annual shorelines and rates of coastal change along the entire Australian coastline from 1988 to the present. The product combines Landsat satellite data from Geoscience Australia's Digital Earth Australia program with tidal modelling to map the typical location of the coastline at mean sea level for each year.

The DEA Coastlines product contains three layers:

1. Annual coastlines: A vector polyline dataset from 1988 to 2019 that represents the median or 'typical' position of the coastline at approximately mean sea level tide (0 m AHD) for each year.
2. Rates of change statistics: A point dataset providing robust rates of coastal change statistics for every 30 m along Australia's non-rocky (clastic) coastlines.
3. Continental summary: A point dataset giving the average rate of change (in metres per year) for significant statistics points within a moving 5 km window along the coastline.

Release of Module 4 – a method for providing baseline mapping of intertidal and subtidal ecosystems in Queensland

Ecosystem mapping and characterization are essential tools for ecosystem-based management (EBM). Unlike terrestrial landscapes where we have comprehensive wetlands and RE mapping, integrated mapping of intertidal and subtidal ecosystem in Qld is largely unavailable, with a few exceptions including Central Queensland / Great Sandy Strait, general mangrove/ saltmarsh and some high level mapping in Moreton

Bay. With coastal development pressures, and the importance of the GBR and Moreton Bay to our economy, addressing this knowledge gap for intertidal and subtidal ecosystems is a priority, to address management questions such as:

- what biophysical factors are influencing the nature, extent and dynamics of ecosystems, and what is their current known nature and extent?
- what and where are ecosystems available for fish to use and move between, do any of these ecosystems need rehabilitation, to support fisheries production?
- where should new monitoring and field data be located to represent ecosystem extent, type and change, what kind of data and what standards are there to collect this data?
- why are there hundreds of marine datasets, how can these datasets talk to each other, and where is an ecosystem map I can use?

Module 4 *A method for providing baseline mapping of intertidal and subtidal ecosystems in Queensland*, was released in August on *Wetland Info*. It provides an operational approach to attribute-based mapping and spatial database design, which

- logically steps through the process of cross-walking (translating) many different source datasets to the attributes and categories of the classification scheme, capturing areas of change (naturalness, biomass, variability) associated with each attribute.
- provides a synthesis process for each biophysical attribute, by assembling, compiling and creating precedence of source datasets in order of confidence, preserving links back to the source data.
- describes a process to map ecosystems by combining attribute synthesis datasets according to rules underpinning the nature of that ecosystem, as guided by the technical experts who understand what drives that ecosystem.

The result is a rich and versatile spatial synthesis database suitable for a variety of different uses, disciplines and applications, with transparent links back to source datasets, and with quality assurance in place for continuous improvement.

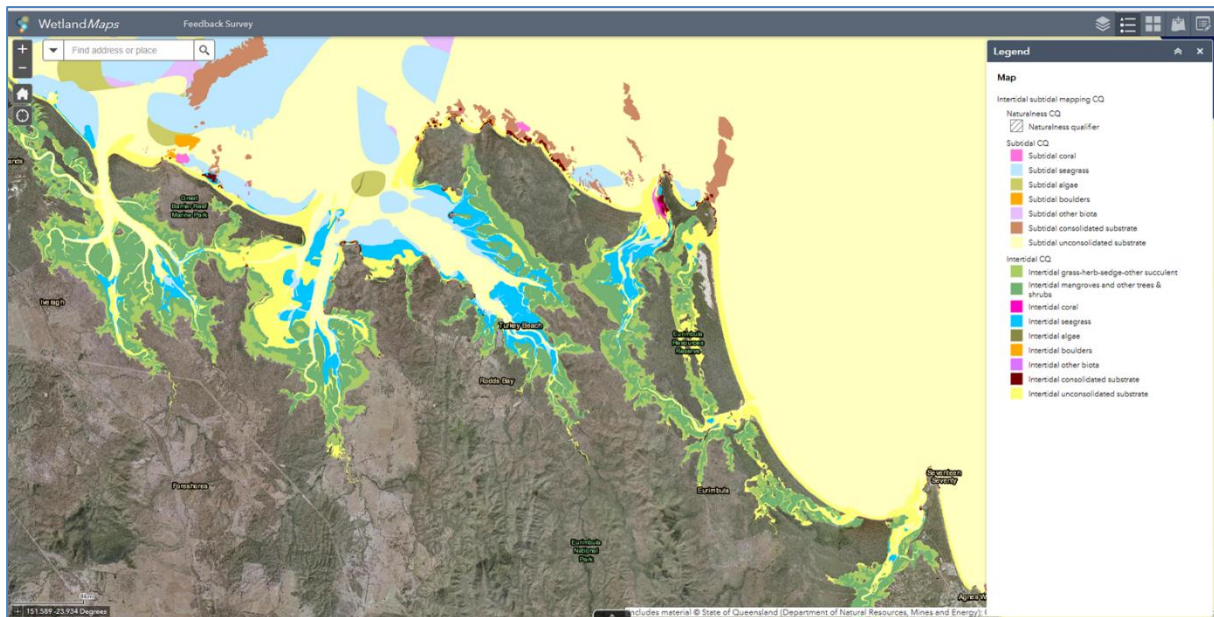
Seascape scale ecosystem types and mapping examples in Module 4 are drawn from workflows for the intertidal and subtidal mapping in Central Queensland ([see project factsheet](#)). This mapping project highlighted difficulties in data integration and the gaps in basic data inventory, due to the lack of standardised field data collection methods in Queensland.

Collecting standard data collection for intertidal and subtidal ecosystems to enable seamless integration

A project has commenced to develop principles and standards for inventory collection that aligns with the Queensland Intertidal and Subtidal Classification Scheme. The intent is that stakeholders/officers have standards to adhere to when collecting inventory data, so that, when the time comes to do the intertidal and subtidal mapping collaboratively, there are mutually compatible data sets available for seamless transfer into the mapping.

Wetlands EPP DES are actively liaising with key stakeholders doing inventory work to ensure their work aligns with the scheme, including Geoscience Australia, JCU seagrass mapping group, Science Under Sail and others.

If you would like to know more about which biophysical attributes to collect, check out the attributes pages (Module 3), the full list of attributes and categories in Module 1 appendix. Stay tuned for further information and updates, and follow us up on wetlands@des.qld.gov.au to discuss your ideas and projects!



For more information on wetland management resources, visit [Wetland/Info](#)

Job Vacancies

Data Manager for South and West Pacific Seabed 2030 Centre - NIWA

A vacancy is available, for a two-year period, to manage the bathymetry database of the Seabed 2030 South and West Pacific Regional Center, based at the at the New Zealand National Institute of Water and Atmospheric Research (NIWA).

[Find out more and how to apply](#) from the job advert on the Science New Zealand web site.

The closing date for applications is 29th November 2020.

Seabed 2030 is a collaborative project between the [Nippon Foundation of Japan](#) and [GEBCO](#). It aims to bring together all available bathymetric data to produce the definitive map of the world ocean floor by 2030 and make it available to all.

NIWA hosts the [South and West Pacific Regional Center](#) for Seabed 2030. It acts as the regional focus for data compilation and co-ordination activities for Seabed 2030 in the South and West Pacific region.

For more information contact Kevin Mackay: kevin.mackay@niwa.co.nz

<https://careers.sciencenewzealand.org/blob/Data+Manager+Seabed+2030+-+October+2020.pdf?bm=extjd&id=0jlg1gk2rc7ar8exiqh28x3kt&v=2>

Operations Analyst - Geoscience Australia vacancy

The National Earth and Marine Observation group at Geoscience Australia is looking for a 12-months non-ongoing Operations Analyst to provide routine services in support of the

management of data hubs, processing of data, provision of data access and production services, data management policy and practice, provision of product quality assurance, testing and publishing services, reporting, service monitoring, database maintenance, coordination and technical advice, relationship management, client support, and provision of support for mission critical systems and Emergency Management services.

A large proportion of the work will be focused on progressing the AusSeabed Data Hub work plan, therefore strong knowledge in marine hydrographic and geophysics data management and processing will be highly regarded.

To apply, go to <https://candidate.aurion.cloud/ga/production/vacancies/2914313349547998~1/edit>

Calling all prospective Masters students

Regional geophysical data analysis near Cape Darnley, East Antarctica.

This Master project has the objective of undertaking a data review on previously collected seafloor geophysical data held by Geoscience Australia and/or other Antarctic nations, to facilitate identifying target locations for future Pleistocene coring sites on the RV Investigator mission (IN2022_V01) to the Cape Darnley region (15 Jan. -11 Mar. 2022; Chief Scientist Dr Alix Post). The sediment cores will be crucial to providing records of previous warmer interglacials and will provide an analogue for understanding the impact of any future changes in bottom water production associated with a warming climate.

Subject to Marine National Facility and ANU travel and pandemic policies, and success with the Master project, the student may be invited to participate on the 2022 voyage. The project has the potential to be expanded to a PhD project at ANU as a result of voyage data becoming available for additional research opportunities.

This project is offered under Geoscience Australia's supported Master projects program at the Research School of Earth Sciences at ANU.

Closing date for applications: 31 December 2020

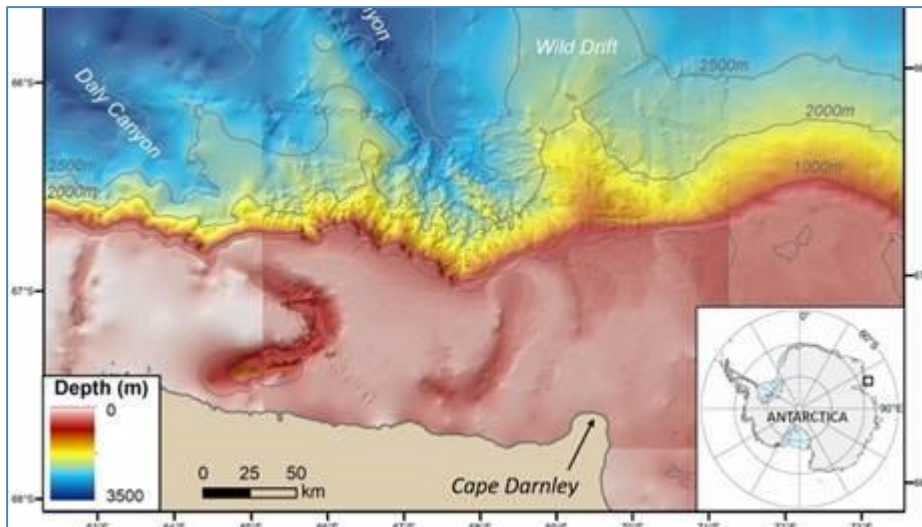
Start date: February 2021

GA Scholarship eligibility: Australian students only

Supervisor: Assoc. Prof. Leanne Armand (ANU) (Leanne.Armand@anu.edu.au)

Other members: Dr Alix Post (Geoscience Australia) (Alix.Post@ga.gov.au)

For further information: <http://rses.anu.edu.au/study/student-projects/regional-geophysical-data-analysis-near-cape-darnley-east-antarctica>



Resources

We were recently alerted to some exciting marine resources!

Multibeam Advisory Committee Multibeam Assessment Tools

<http://mac.unols.org/resources/assessment-tools>

NOAA OER Deepwater Exploration Mapping Procedures Manual

<https://oceanexplorer.noaa.gov/data/publications/mapping-procedures.html>

OceanBestPractices (OBP)

<https://repository.oceanbestpractices.org/>

UNESCO International Oceanographic Data and Information Exchange

<https://www.iode.org/>

OGC Marine Data Working Group

<https://www.ogc.org/projects/groups/marinedwg>

Working Group on Fisheries Acoustics, Science and Technology [Github](#) Page which points to:

- [AcMeta](#): A metadata convention for processed acoustic data from active acoustic systems
- [SONAR-netCDF4](#): The SONAR-netCDF4 convention for sonar data

Chirp Sub-bottom Profiling Best-practices and Processing

<https://eartharxiv.org/repository/view/685/>

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