



AUS
SEABED

News

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Dear AusSeabed Community,

Post the Steering Committee elections, the AusSeabed Community has continued to be supported in our Working Groups by dedicated and enthusiastic 'new starters'. Well, they have always been active in areas of AusSeabed and the greater Community, but they are volunteering more time to work with current working group members helping to develop areas that the mapping, surveying and science community find important for Australia. Working Groups strive to help the community understand and improve data standards and acquisition techniques through provision of tools and guidelines. So let's see who the 'new starters' are:



Rob Beaman – LiDAR Guidelines

Nigel Townsend – QAX

Otilija Borisovaite – Backscatter Guidelines and QAX

Aidan Fitzallen – Backscatter and LiDAR Guidelines and QAX (that's top loading)

Lawrence Hillary – Indigenous engagement

Andy Waddington – LiDAR Guidelines

At the July Steering Committee meeting, there was discussion on governance and updating the Terms of Reference (ToR) to better define the Steering Committee composition and operating principles while maintaining the founding concepts of AusSeabed. The ToR review will also address the Working Groups to provide more guidance for volunteers. I have led in with Working Groups for this Newsletter because they are the backbone of influencing change and guiding our Community in collaborative success. The outputs of AusSeabed Working Groups are generated by the Community for the Community and offer a united direction and methodology. Workload wise, we limit the number of Working Groups active so that tasks can be achieved, but we also want to know what other areas need dedicated focus so new Groups can be formed to address those activities in the future. Your involvement in these activities is important, and valued.

Happy reading,

Richard Cullen

Chair - AusSeabed Steering Committee

AusSeabed Steering Committee election and membership changes

Thank you to everyone who participated in the AusSeabed Steering Committee election, whether nominating, joining a working group or voting! Congratulations to Mary Young, Ralph Talbot-Smith, Martin Tunwell, and Kevin Mackay, who were all returned to the Steering Committee. This year saw a record-breaking number of votes cast.

It's the community who really make AusSeabed the success it is, and we're delighted with the community's continued growth.

We would also like to take this space to thank former chair, CMDR Nigel Townsend, and retiring SC member, Stuart Edwards, for the time and efforts they have put into AusSeabed. Both have left big shoes to fill. We welcome Matt Boyd to the standing member position for CSIRO and congratulate the AHO's Richard Cullen on his unanimous election to the Chair position.

Deakin Marine Mapping Lab enhances mapping capabilities with Ocean Infinity partnership

Deakin University's Marine Mapping Lab has enhanced their mapping capabilities by partnering with industry specialists at Ocean Infinity.

Last year, this collaboration resulted in the successful setup of their mapping vessel, M/V Yolla, with the state-of-the-art Kongsberg EM 2040P sonar system. This new sonar system allows for high resolution seabed mapping in shallow coastal regions. The partnership with Ocean Infinity has also helped to ensure that the data collected adheres to rigorous industry standards and has resulted in increasing the accuracy and reliability of Deakin's marine mapping capabilities.

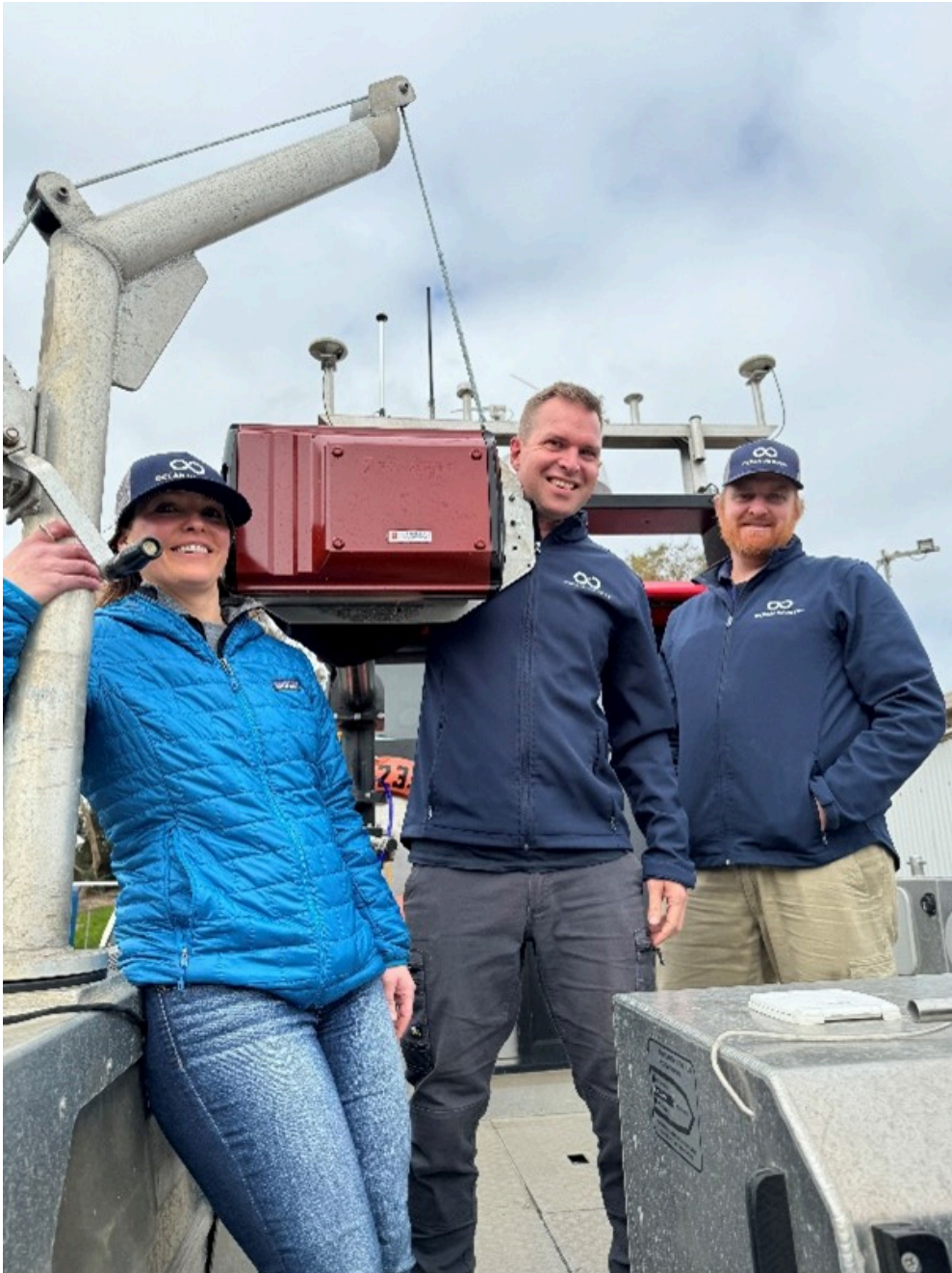


Figure 1. Mary Young (left) from Deakin University with Martin Tunwell (middle) and Dan Warner (right) from Ocean Infinity.

Photo was taken on board the M/V Yolla with the Kongsberg EM2040P installed.

Since the installation of the new sonar system, Deakin has continued their ongoing efforts to map the state waters of Victoria, funded through the Victorian Department of Energy, Environment and Climate Action (DEECA).

Currently their efforts are focused in the southwest of the state between Port Fairy and Portland. These recent surveys have led to uncovering some fascinating geological features, including an extension of the Tyrendarra lava flow from the Budj Bim volcanic eruption that occurred around 35,000 years ago (Figure 2). The lava flow, which travelled over 50 kilometres to reach its current location, was above water during lower sea level stands. This dataset provides a further glimpse into the region's volcanic history.

These data are being collected for DEECA to understand sediment compartments across the state for monitoring coastal change. However, seabed data has many uses and is also being used to understand the distributions of marine species and communities to improve management of the marine environment. The multi-purpose use of these datasets shows how seabed data is a vital resource for both environmental monitoring and ecological research.

As the Deakin Marine Mapping lab continues their commitment to map Victorian state waters, these datasets will become available on AusSeabed for anyone to access.

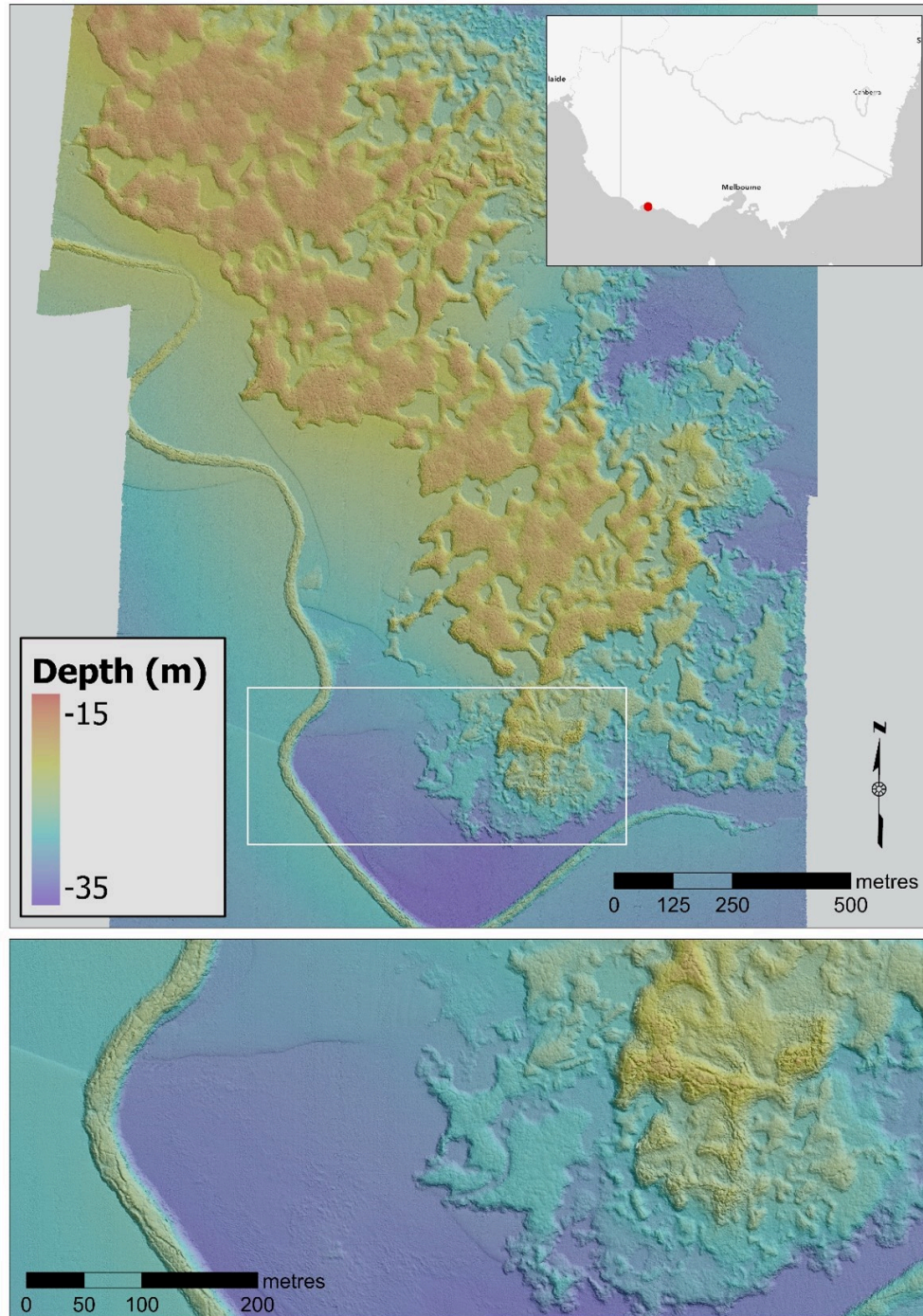
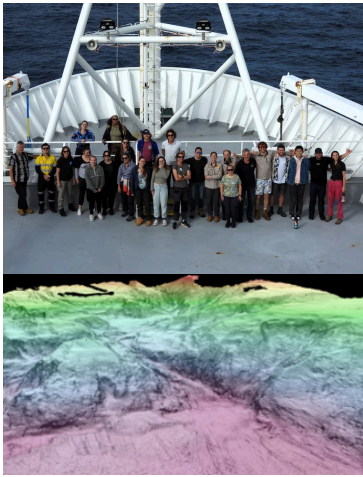


Figure 2. Bathymetry of the Tyrendarra Lava flow gridded at 25 cm resolution.



View of North Solitary Canyon from the west

INV2024_04 - Linking East Australian Current dynamics and submarine canyon geomorphology to marine ecosystem hotspots

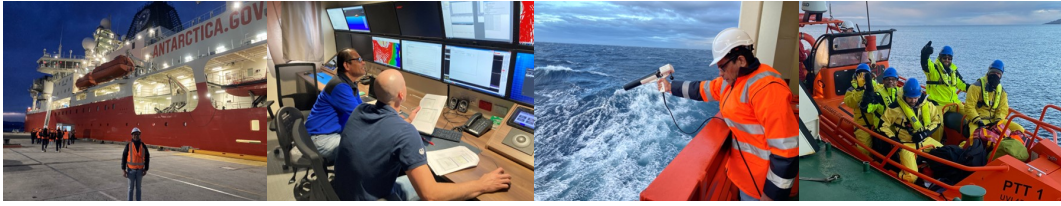
Alysha Johnson

On the 7th of June, a team of scientists boarded the R/V Investigator in Sydney to begin a month-long scientific voyage. The CSIRO lead voyage set to explore the relationship that the East Australian Current has with two canyons on the east coast of Australia: the North Solitary Canyon, and the Richmond Canyon. A multitude of deployments and sampling methods were undertaken to gain new insight into hydrography, ocean circulation, benthic biology, and geomorphology of each canyon.

Over the month-long voyage, over 110 CTD and 30 deep camera tows were deployed. Thousands of eDNA samples were collected. Bathymetric mapping was undertaken, not only to visualise the canyons in a greater resolution, but to explore the continental shelf with collaboration of Traditional Owners of Sea Country, Gumbaynggir, Bundjalung and Yeagil. Overall, both canyons were mapped with MBES, increasing the coverage and quality of bathymetric data within the region.

This work was undertaken on the R/V Investigator enabled by the Marine National Facilities and Marine Parks Australia. The interdisciplinary team included researchers and students from CSIRO, UNSW, University of Queensland, University of Wollongong, the Minderoo Foundation, University of Tasmania and collaborating offshore with Geoscience Australia,

Pioneering the Future of Marine Science: The V6 Nuyina Voyage



The Australian Antarctic Division (AAD) recently embarked on the V6 Nuyina voyage, a pivotal mission designed to elevate the standards and readiness of marine science operations. This voyage, a testament to collaborative effort and cutting-edge technology, brought together key players from the AAD, Geoscience Australia (GA), and the Australian Defence Force (ADF).

Purpose and Objectives

Continuing the efforts from the previous V5 voyage, the primary goal of the V6 Nuyina voyage was to conduct a comprehensive science systems commissioning exercise. This included developing and refining vessel-specific Standard Operating Procedures (SOPs) for Nuyina and training AAD, Serco, GA, and ADF personnel in the correct operation of advanced science systems.

Testing and Calibration of Science Systems

A variety of sophisticated science systems were put to the test during this voyage. Among the systems evaluated was the Multibeam Echo Sounder (MBES). One of the critical tasks for the MBES was conducting a patch test. This test involves a series of calibration procedures that are essential for ensuring the accuracy of the multibeam sonar system. By carefully adjusting the MBES settings, the team can correct for any systematic errors related to the ship's motion, sensor misalignment, and other factors. This calibration is crucial for producing precise seafloor maps, which are fundamental for marine research.

The patch test is not a one-time event but a routine procedure that must be performed regularly to maintain the accuracy of the system. This is especially important as the vessel has recently completed a dry dock. The dry dock process can cause changes in the ship's structure and alignment, making it imperative to recalibrate the MBES to ensure optimal performance.

In addition to the MBES, the Seapath navigation systems were calibrated to enhance the accuracy of the vessel's navigation. This calibration procedure involved acquiring data in both dynamic (moving) and stationary conditions, ensuring that the Seapath systems could accurately track the vessel's position under various operational scenarios.

Following the application of the patch test and calibration results to the MBES systems, the acquired bathymetric data aligned well with the Australian Hydrographic Office (AHO) Reference Surface, confirming the system's accuracy.

Collaboration and Training

The V6 Nuyina voyage was a remarkable example of inter-agency collaboration. Participants from the AAD, GA, and the ADF worked together seamlessly, each bringing their expertise to the table. This collaboration was crucial not only for technical training but also for fostering a cohesive team capable of undertaking complex scientific missions.

The training component of the voyage was extensive, with hands-on sessions for AAD technical personnel, Serco crew members, and participants from GA and the ADF. Clear communication and precise coordination were emphasized throughout the training, ensuring that all team members could operate the sophisticated equipment efficiently and safely. Back deck deployment operations were a prime example of the need for this level of coordination, but the principle applied across all aspects of the mission. Additionally, the training covered procedures and SOPs specific to operating the MBES in polar environments, which pose unique challenges and require special attention.

Ensuring Future Success

By the end of the V6 Nuyina voyage, the team had ensured that critical science equipment is fully operational and personnel are well-trained. This lays a solid foundation for the success of future marine science voyages. The success of this voyage is fundamental to supporting the Australian Antarctic Program, applying Earth sciences to the collaborative effort, and ensuring that Antarctica remains valued, protected, and understood. With calibrated equipment and trained crews, the Nuyina is now better equipped to undertake significant scientific endeavours, contributing valuable data and insights to the global understanding of marine environments.

In conclusion, the V6 Nuyina voyage stands as a testament to the dedication and expertise of the AAD and its partners. It highlights the importance of meticulous preparation, clear communication, and precise coordination in advancing marine science. The lessons learned and skills acquired during this voyage will undoubtedly pave the way for groundbreaking discoveries in the years to come.

Publications

26th April 2024

AHO Reference Surfaces Rottneest

0.5m: <http://pid.geoscience.gov.au/dataset/ga/149392>

PROD: <https://portal.ga.gov.au/restore/d4ddbb8d-ca3b-4962-b20c-06b3229904ee>

7th May 2024

Macquarie Island Bathymetry 10m - 210m (CSIRO) in2020_v06 - multi-resolution

10m: <https://doi.org/10.25919/vss6-mz18>

PROD: <https://portal.ga.gov.au/restore/d28f2eac-2335-4c69-8558-f910a7af7d3e>

13th May 2024

Southern Great Barrier Reef Shelf Bathymetry

2m: <http://pid.geoscience.gov.au/dataset/ga/145133>

PROD: <https://portal.ga.gov.au/restore/a5f615e5-eef9-4480-b054-c14e8e71cc1f>

17th May 2024

Bass Strait Maritime Heritage Survey Bathymetry 2m - 50m (CSIRO) in2019_v07

10m: <https://doi.org/10.25919/mdh4-2f17>

PROD: <https://portal.ga.gov.au/restore/84ccd53e-7b0f-45d0-8d41-bdc786b13869>

13th June 2024

Great Australian Bight Bathymetry 10m - 210m (CSIRO) in2017_c01

10m: <https://doi.org/10.25919/mwpj-mt62>

PROD: <https://portal.ga.gov.au/restore/262d6b40-cebe-40d6-9fcb-09b61dd66300>

Southern Ocean Transit Bathymetry 100m (CSIRO) in2019_t01

10m: <https://doi.org/10.25919/10p5-ma84>

PROD: <https://portal.ga.gov.au/restore/670c4ab3-21a8-44f0-a69a-34638bfb0122>

14th June 2024

Southern Ocean Bathymetry 10m - 210m (CSIRO) in2023_v04 - multi-resolution

10m: <https://doi.org/10.25919/vmrq-qx23>

PROD: <https://portal.ga.gov.au/restore/df90bebf-5b6d-4cdf-b5c6-e36558f7dde7>

Eastern Australia Bathymetry 10m - 210m (CSIRO) in2016_v04 - multi-resolution

10m: <https://doi.org/10.25919/dtm6-sr60>

PROD: <https://portal.ga.gov.au/restore/f2e32fa7-3852-4dad-9396-fcf13923ff2e>

Great Barrier Reef Bathymetry 10m - 210m (CSIRO) in2016_v05 - multi-resolution

10m: <https://doi.org/10.25919/77rz-5v92>

PROD: <https://portal.ga.gov.au/restore/b9c2be5b-973c-49d8-adf0-f3b08686dfaf>

West Australia Coast Bathymetry 10m - 210m (CSIRO) in2017_v05 - multi-resolution

10m: <https://doi.org/10.25919/whtc-3e60>

PROD: <https://portal.ga.gov.au/restore/be10969f-a0e3-4e24-8c03-997db4c00504>

Southern Ocean Time Series Bathymetry 10m - 210m (CSIRO) in2018_v02 - multi-resolution

10m: <https://doi.org/10.25919/j6a8-9t49>

PROD: <https://portal.ga.gov.au/restore/7790942e-aad2-4779-81ea-c3692b252a16>

Sydney to Broome Transit Bathymetry 10m - 210m (CSIRO) in2017_t01 - multi-resolution

10m: <https://doi.org/10.25919/8rn9-tt17>

PROD: <https://portal.ga.gov.au/restore/1fc3b660-82ab-45a3-b930-c04592f793a7>

Henderson to Hobart Transit Bathymetry 10m - 210m (CSIRO) in2017_t02 - multi-resolution

10m: <https://doi.org/10.25919/jph0-x369>

PROD: <https://portal.ga.gov.au/restore/25d264ae-4daa-4311-8e8f-f1e4e83ddbc7>

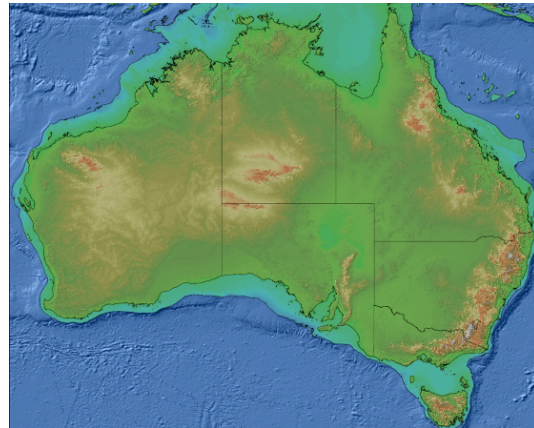
Cairns to Darwin Transit Bathymetry 10m - 210m (CSIRO) in2022_t01
10m: <https://doi.org/10.25919/smbr-d681>
PROD: <https://portal.ga.gov.au/restore/e1f4f81b-0bcb-40e8-9f9a-38d0119fa592>

Bass Strait Bathymetry 10m - 210m (CSIRO) in2017_c02
10m: <https://doi.org/10.25919/j2w8-b494>
PROD: <https://portal.ga.gov.au/restore/e8069452-11c8-4ed6-8290-eece70c27171>

Tasmanian Coast Bathymetry 10m - 210m (CSIRO) in2018_e01
10m: <https://doi.org/10.25919/xraw-z434>
PROD: <https://portal.ga.gov.au/restore/3c8ed475-2642-49c6-bde2-04f2b64baa07>

South East Queensland Coast Bathymetry 10m - 210m (CSIRO) in2017_e03
10m: <https://doi.org/10.25919/6bhs-bv32>
PROD: <https://portal.ga.gov.au/restore/14dea693-9ec8-484d-bde9-c0b8cfc4252a>

Technical Guidelines on the Archaeological Assessment of First Nations Underwater Cultural Heritage in Commonwealth Waters



The Department of Climate Change, Energy, the Environment and Water is seeking feedback on the draft Technical Guidelines on the Archaeological Assessment of First Nations Underwater Cultural Heritage in Commonwealth Waters.

These guidelines aim to address the demand for Commonwealth standards for archaeological assessment and management of First Nations underwater cultural heritage.

To read the draft guidelines and submit your feedback visit the [consultation website](https://consult.dcceew.gov.au/technical-guidelines-archaeological-assessment-of-fnuch) (<https://consult.dcceew.gov.au/technical-guidelines-archaeological-assessment-of-fnuch>).

IBSC Recognised S-5B Hydrographic Surveyor and S-8B Nautical Cartographer Program 2024 Enrolments.

Enrolments are now open for the 2024-25 deliveries of the IBSC Recognised S-5B Hydrographic Surveyor and S-8B Marine Geospatial Programs delivered by IIC Academy.

The S-5B Hydrographic Surveyors Program will begin in September. This course comprises 13 weeks of online self-paced and instructor-led theory, followed by a 9 week practical in Australia (planned for the Gold Coast), starting May 2025.

If students numbers allow, practicals will be delivered in Canada and Europe.

The S-8B Nautical Cartographers Program will be delivered online over 22 weeks, starting in September. This program gives students the necessary theoretical and practical knowledge and skills required to produce nautical charts.

For more information, please contact takhou.law@iictechnologies.com (<mailto:takhou.law@iictechnologies.com>) or hydrographicsurveyor@iicacademy.com (<mailto:hydrographicsurveyor@iicacademy.com>).

Further details on the programs can also be found at: <http://www.iicacademy.com> (<http://www.iicacademy.com>).

GeoHab Backscatter Working Group (BSWG)

The GeoHab Backscatter Working Group (BSWG) is an international group of experts on seafloor backscatter data acquisition and seabed mapping sonar systems such as multibeam sonar systems, with the objective to improve the quality, consistency and usefulness of backscatter data.

In 2015 the BSWG published the Backscatter measurements by seafloor-mapping sonars. Guidelines and Recommendations (<https://zenodo.org/records/10089261>) (<https://zenodo.org/records/10089261>).

BSWG recently re-organised in 9 thematic branches (Calibration, Acquisition, Processing, Interpretation, Variability, Multi Water-column, Communication, Young BSWG) and the authors of the BSWG 2015 report were surveyed to inquire about the feasibility of an update. The result of this survey are now available here (https://www.dropbox.com/scl/fi/etv88guy9uyf3lp4u2rub/20230811_BSWG_Guidelines_report_update_feasibility_SUMMARY?rlkey=a0383zf60mm2u6e7pkl2lqids&e=1&st=eqoddw9a&dl=0).

To stay up to date with the latest GeoHab Backscatter Working Group news or to contribute to the furtherance of collaborative backscatter initiatives please visit the [BSWG website](http://10.5281/zenodo.10089261) (<http://10.5281/zenodo.10089261>) and [LinkedIn page](https://www.linkedin.com/company/bswg/) (<https://www.linkedin.com/company/bswg/>).

Reading Corner



(<https://www.abc.net.au/news/2024-07-10/underwater-canyons-super-highways-seafloor-research-science/104072182>) **Researchers discover underwater submarine canyons in month-long survey of seafloor** (<https://www.abc.net.au/news/2024-07-10/underwater-canyons-super-highways-seafloor-research-science/104072182>).

(<http://oceanexplorer.noaa.gov/news/oer-updates/2024/us-australia-collab.html>) **Wreck of MV Noongah identified 55 years after ship was lost at sea** (<https://www.csiro.au/en/news/All/News/2024/July/Wreck-of-MV-Noongah-identified>) (<http://oceanexplorer.noaa.gov/news/oer-updates/2024/us-australia-collab.html>).

Events and Working Groups