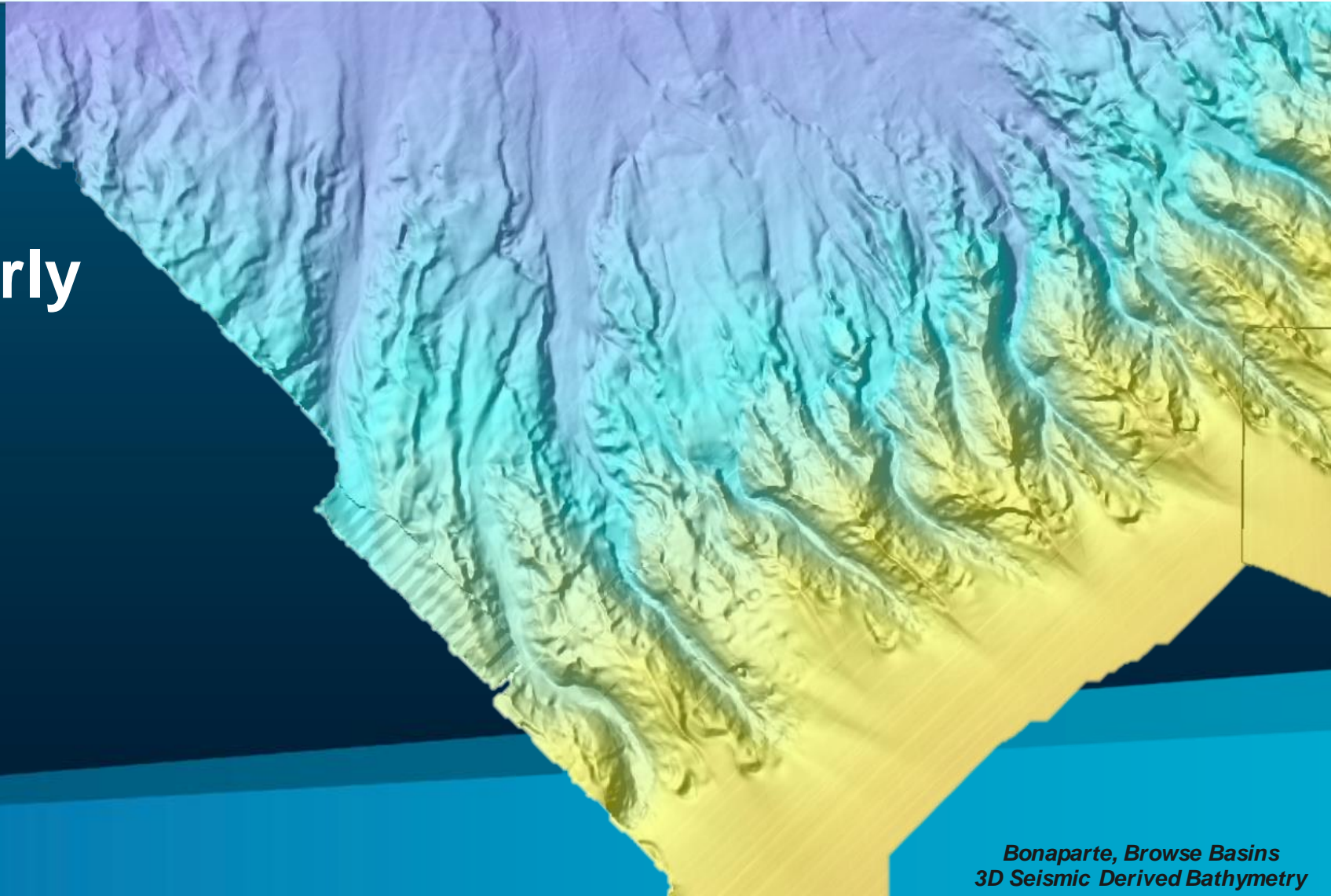


# AusSeabed Quarterly Showcase

April – June 2023

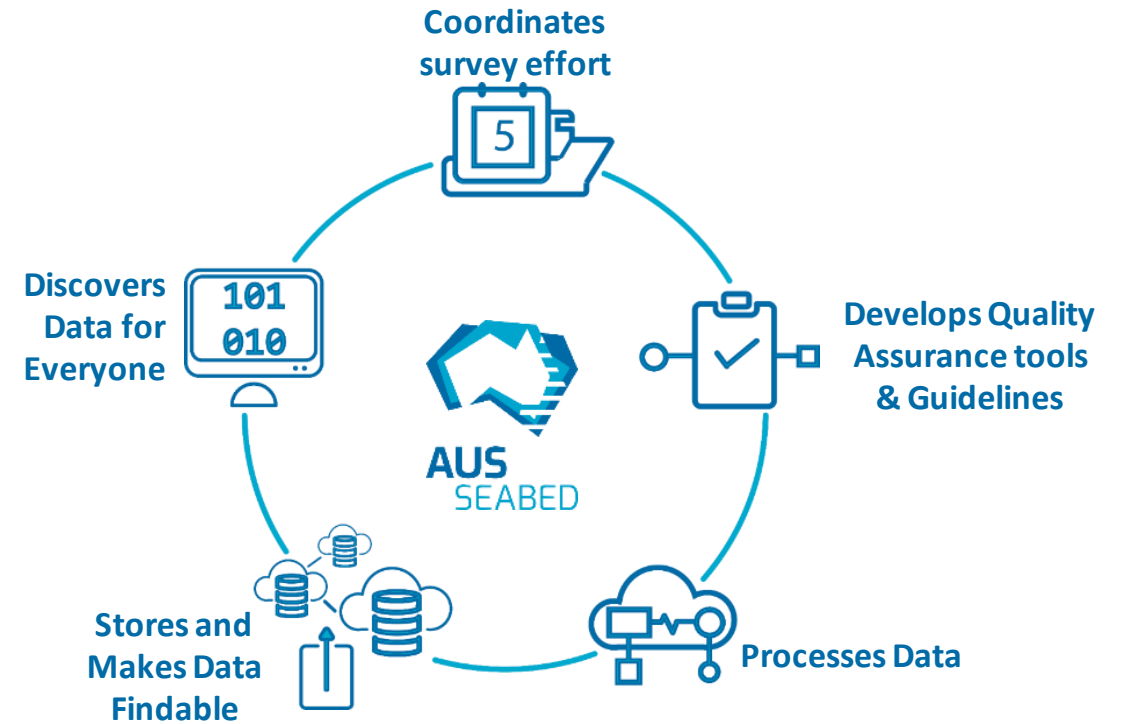
20 July 2023



*Bonaparte, Browse Basins  
3D Seismic Derived Bathymetry*


# Agenda

1. Introduction and welcome
2. Increment Overview
3. Data Acquisition (NSW)
4. New Dynamic Coverage Services
5. Published Datasets
6. WA Data Access Portal
7. QAX 2.0
8. Geomorphology 2 Part Scheme
9. Aus/US MoU - Wiki
10. AMSA Symposium Update
11. AusSeabed Steering Committee Election
12. Workplan 23-24
13. Next Quarter



# Increment Overview

Natalie Lennard,  
Geoscience Australia



2025 Program Goals	Products			Marine Data Register - Tranche 1 ✓	
	Coverage		Updated Seabed Coverage <small>(formerly "holdings")</small> ✓ Data quality usability framework ✓	QAX 2.0 ✓ Data & Infrastructure Modernisation Project <small>(formerly Integrated delivery pipeline)</small> ✓	
	Engagement	Annual workshops ✓			GMRT -AusSeabed Aus/US partnership → Open-source processing
		July-Sept	Oct-Dec	Jan-March	Apr-June
2022/23					

# Data Acquisition

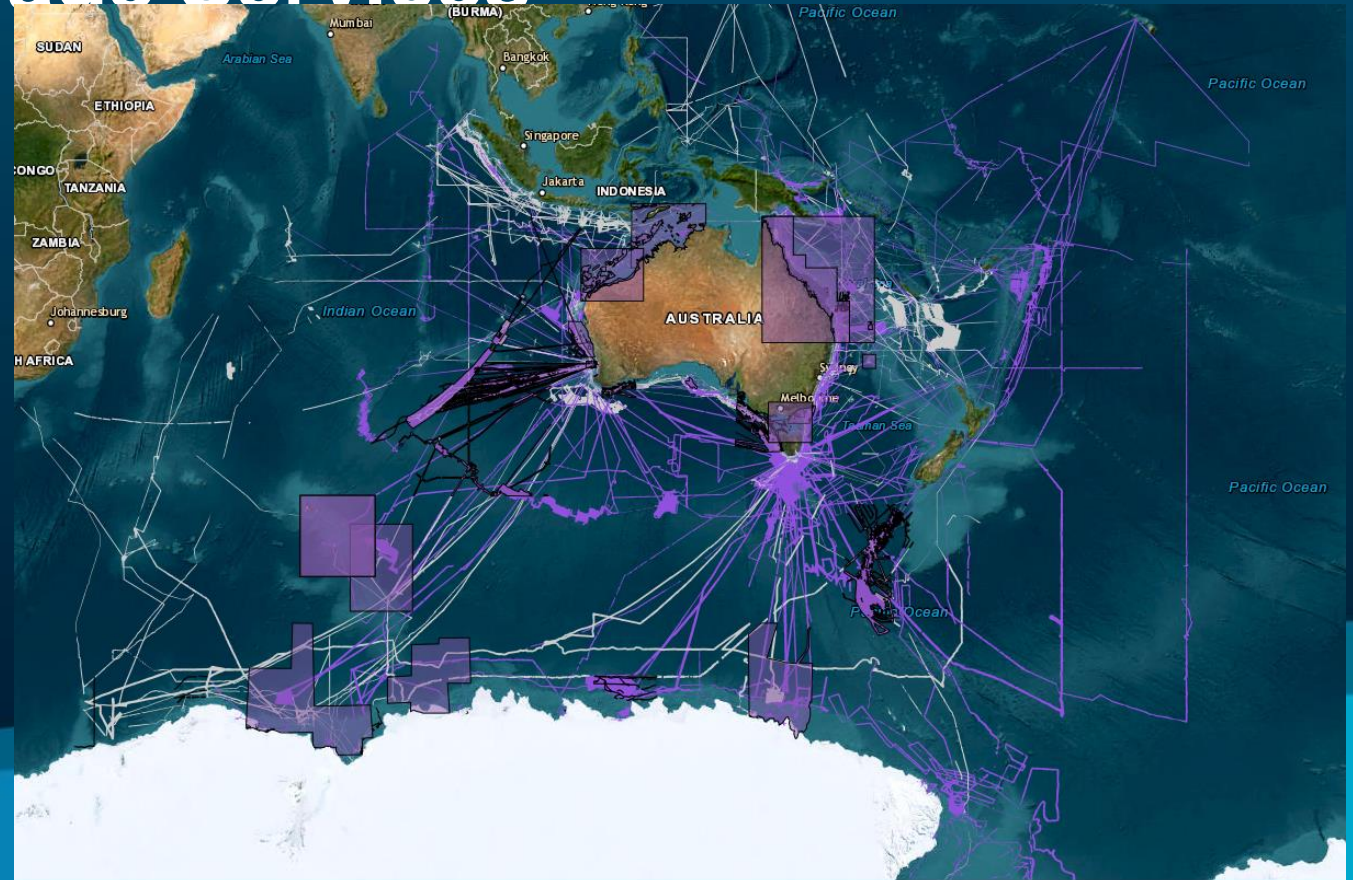
Tim Ingleton,

NSW Department of Planning, Industry and Environment



# New Dynamic Coverage Services

Neal E, Michal W & Quynh P  
Geoscience Australia



# New Dynamic Coverage Services

- **What**

These Coverages represent an update to the knowledge of bathymetry data and a change from a snapshot version to dynamic layers. As data is received or published the coverages are updated and then each night the Portal is refreshed.

The new Layers can be found in the Portal under the AusSeabed Coordination menu:



Title 2021 version	New Title
AusSeabed Bathymetry Holdings (by survey)	Bathymetry Coverage (Survey-Acquisitions) 2021
AusSeabed Bathymetry Holdings (compilations)	Bathymetry Coverage (Compilations) 2021

New Dynamic Layers
Bathymetry Acquisitions Coverage (Dynamic)
Bathymetry Compilations Coverage (Dynamic)

# New Dynamic Coverage Services

- **Why** – to improve the overall data management practices (process improvements) of the AusSeabed team and to provide a faster turn-around to the marine community increasing data availability knowledge.
- **Progress/Status**
  - 90% of existing polygons simplified (maintaining area) to improve performance and visualisation
  - Existing attributes cleaned and missing attributes updated
  - Additional attributes added, population of these where it was simple to gather
  - Additional Layers collected from WA DoT, Gold Coast LiDAR, CSIRO and all products published to end of May 2023 included.
  - Published version on the Portal – With nightly updates as data becomes available



# New Dynamic Coverage Services

- **New Features**

- Dynamic updates
- Backups/Disaster recovery
- Additional Data
- Additional Attributes
- Additional Filters
- Updated Styles

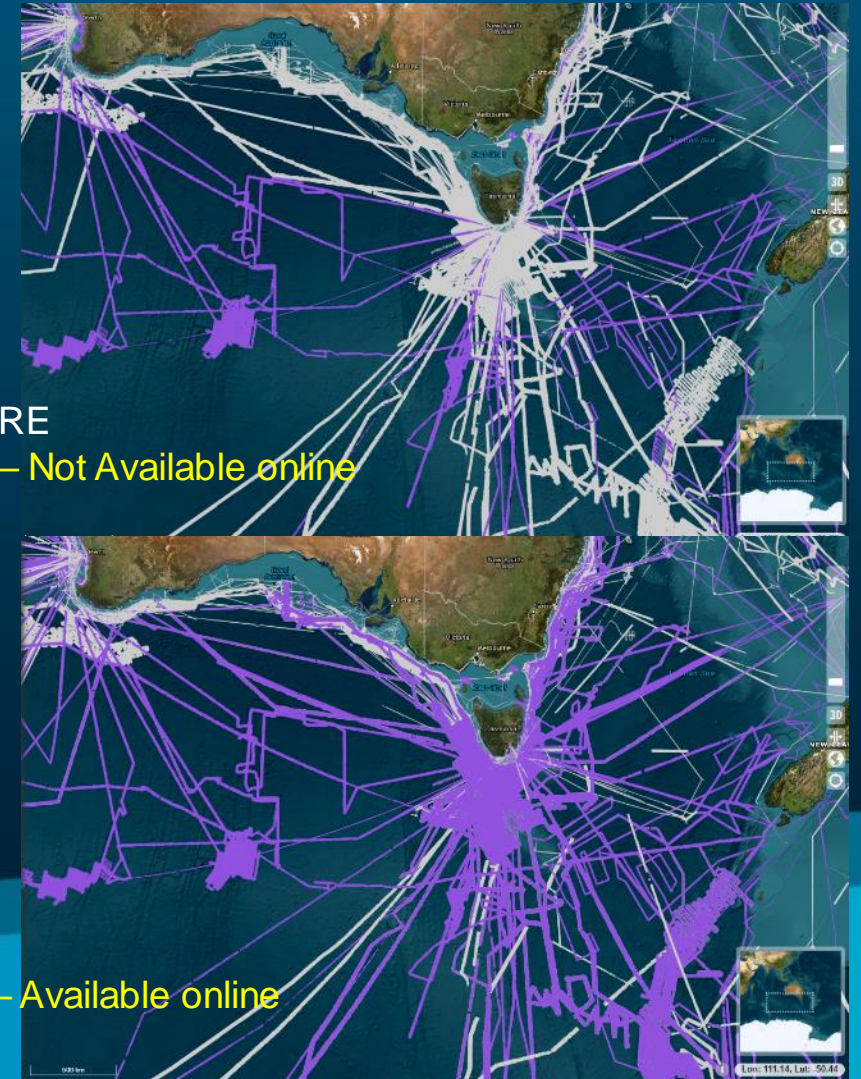
# New Dynamic Coverage Services

- **New Features**

- Additional Data (>300 new records)
  - WA DoT
  - Gold Coast LiDAR
  - CSIRO and
  - all products by the GA ASB Hub published since the end of 2021
- Additional data now available online

BEFORE  
White – Not Available online

AFTER  
Purple – Available online



# New Dynamic Coverage Services

- **New Features**

- Additional Attributes

OGC_ID	893
NAME	Tasman and Coral Sea
GAID	4868
NEWGAID	20200017S
SURVEYID	FK201228
PUBLISHED_DATE	2021-04-09
PLATFORM_NAME	RV Falkor
BATHY_TYPE	Multibeam
SENSOR	Kongsberg EM302 and EM710
COLLECTING_ORGANISATION	JCU/UQ
PRINCIPAL_INVESTIGATOR	Dr Robin Beaman JCU
OWNER_COUNTRY	Australia
START_DATE	2020-12-28
END_DATE	2021-01-25
START_LOCATION	Brisbane
END_LOCATION	Brisbane
AREA_KM2	40285.48
BATHY_URL	<a href="http://pid.geoscience.gov.au/dataset/ga/145279">http://pid.geoscience.gov.au/dataset/ga/145279</a>
BKSCT_URL	N/A
L3_GRIDDED_ASB	Yes
EMBARGO	N/A
SOURCE	Research

# New Dynamic Coverage Services

- New Features
  - Additional Filters

Bathymetry Acquisitions Coverage (Dynamic) ★

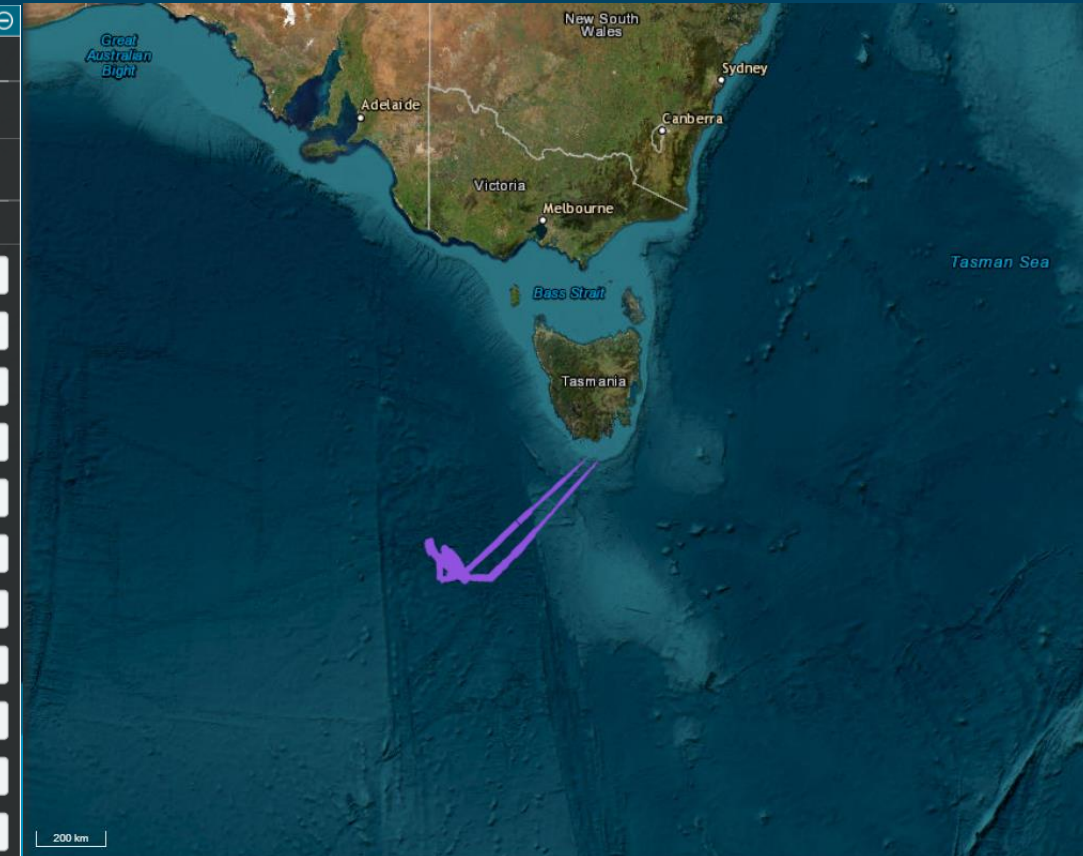
About | Legend | Filter (off) | Fit Extent | Remove

Opacity  100%

Style

Remove Filter | Include Null Values | Apply Filter

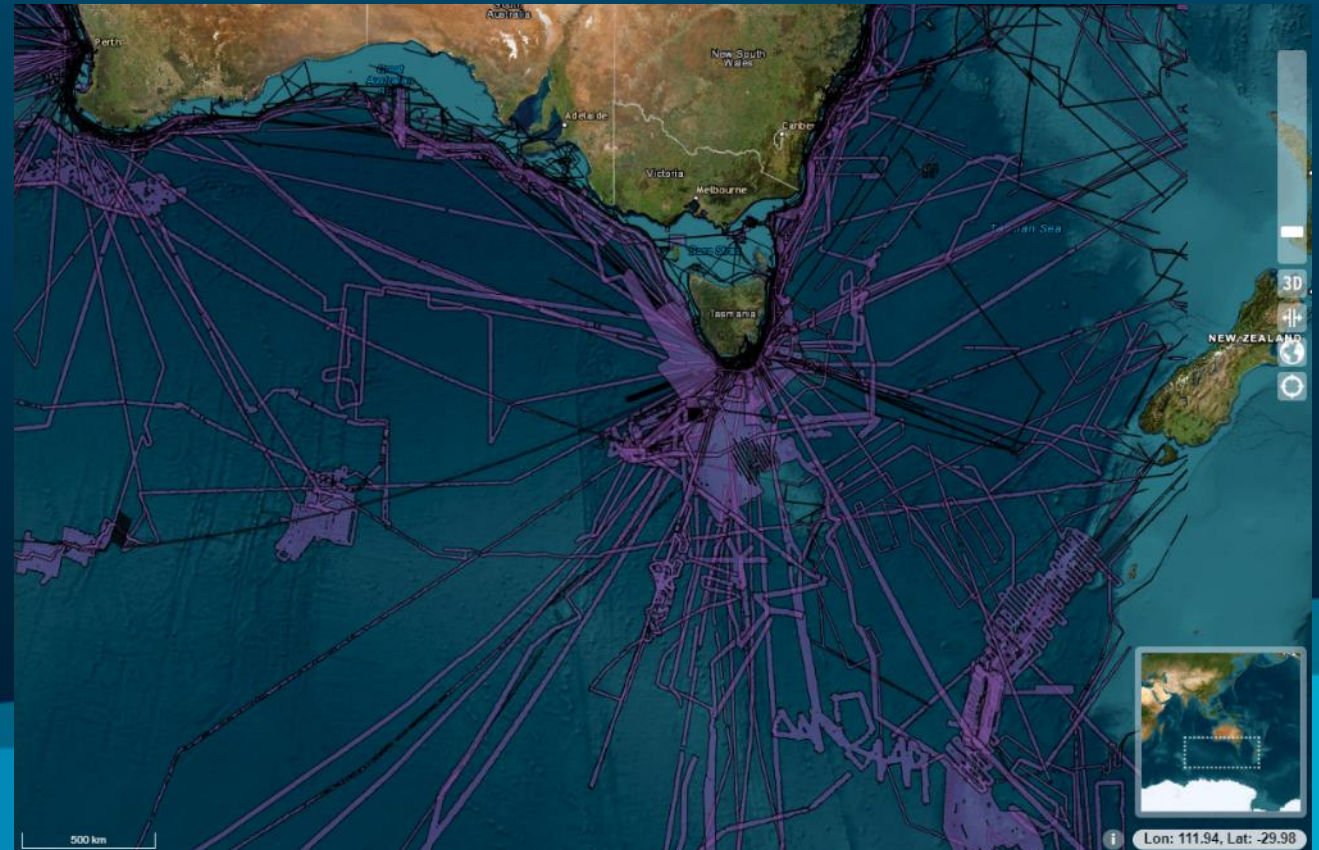
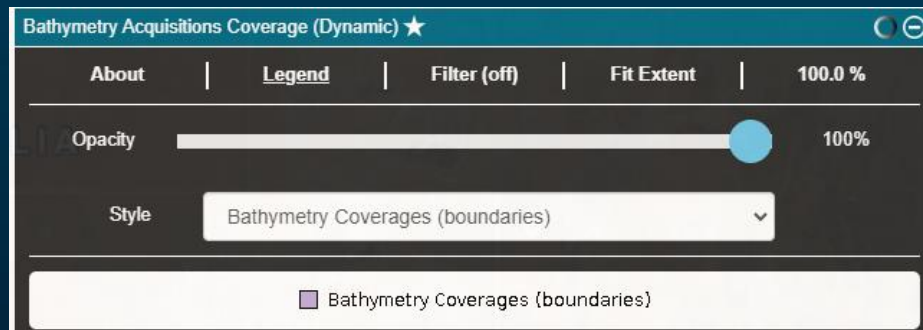
Name	<input type="text"/>
GAID	<input type="text"/>
SurveyID	<input type="text" value="IN2022_V03"/>
Bathymetry Instrument Type	<input type="text"/>
Platform Name	<input type="text"/>
Sensor	<input type="text"/>
Owner Country	<input type="text"/>
Acquiring Organisation	<input type="text" value="CSIRO"/>
Industry Type	<input type="text"/>
Area (Sq Km)	<input type="text"/>
Publication Date	<input type="text"/>





# New Dynamic Coverage Services

- New Features
  - Updated Styles





# New Dynamic Coverage Services

- **What's Next**

- Populate Additional Attributes
- Determine what else is required to assist in developing What is Mapped statistics

- **Lessons Learned**

- Always plan for complexity
- Can't always plan for resource changes
- Plan a stretch task – we changed the delivery from another annual update to dynamic services



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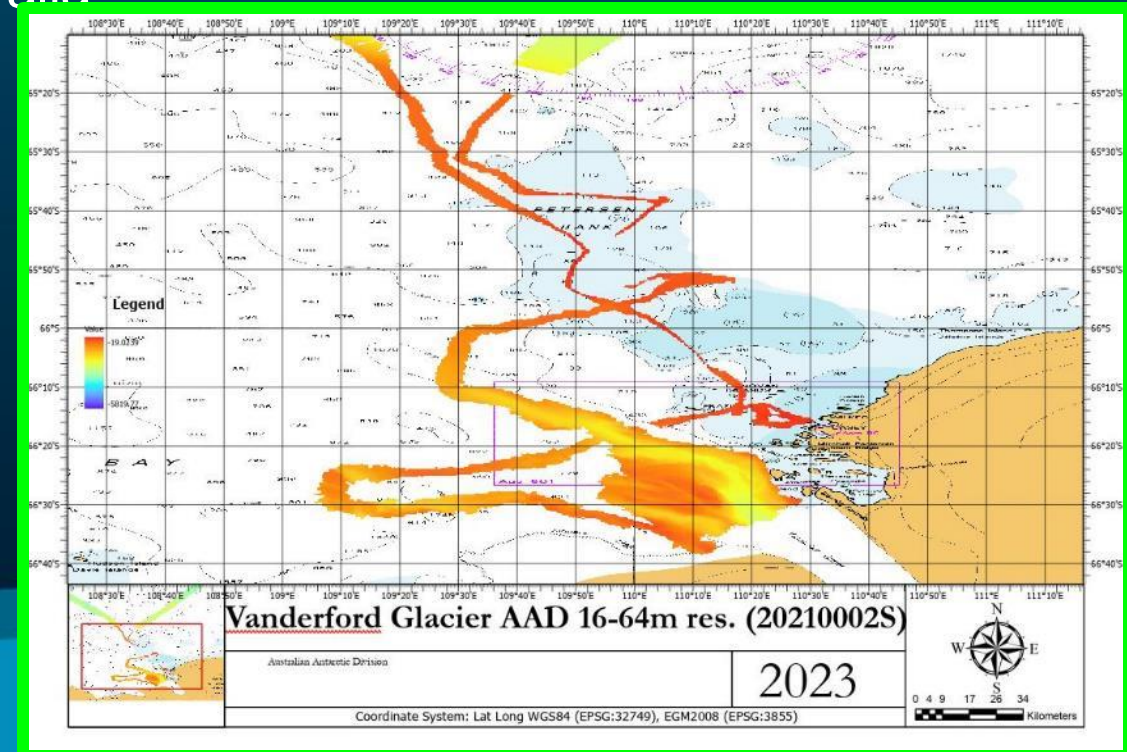
NIWA  
Taihoro Nukurangi



HIPP  
HydroScheme Industry Partnership Program

## 5. Published Datasets

Ops, Noise Suppressors, Geoscience Australia





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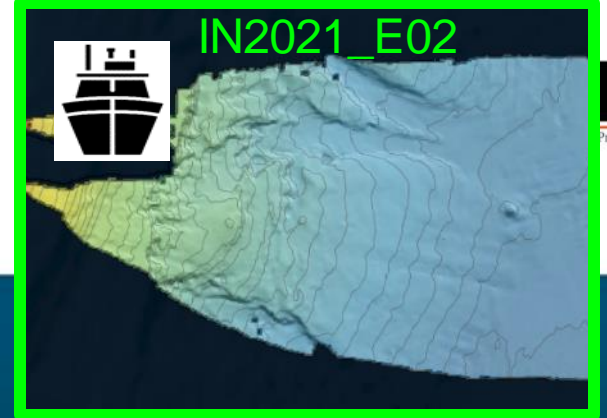
IN2015\_E02



Huon Marine Park  
Area ~2, 250 km<sup>2</sup>



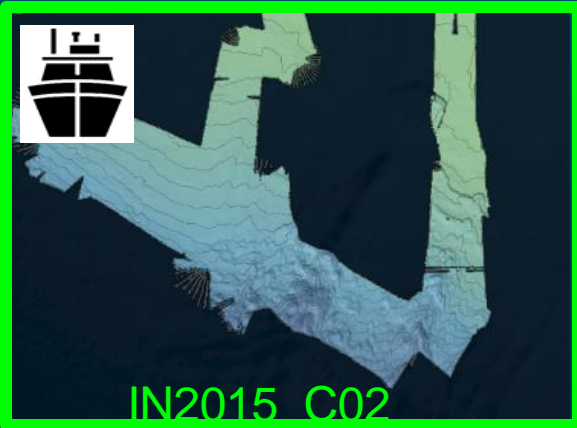
IN2021\_E02



Freycinet Marine Park  
Area ~4, 433 km<sup>2</sup>



IN2015\_C02



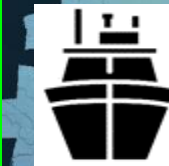
Great Australian Bight  
Area ~2, 250 km<sup>2</sup>



TAN2021\_V01



Macquarie Ridge Complex  
Area ~18 887 km<sup>2</sup>



IN2023\_V01



Cape Darnely, East Antarctica  
Area ~188 251 km<sup>2</sup>



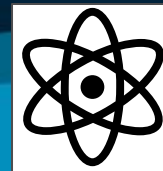
Research &  
Management



Fishing



Infrastructure



Energy



Tourism



Defence





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Label on AusSeabed Marine Data Portal

Institute

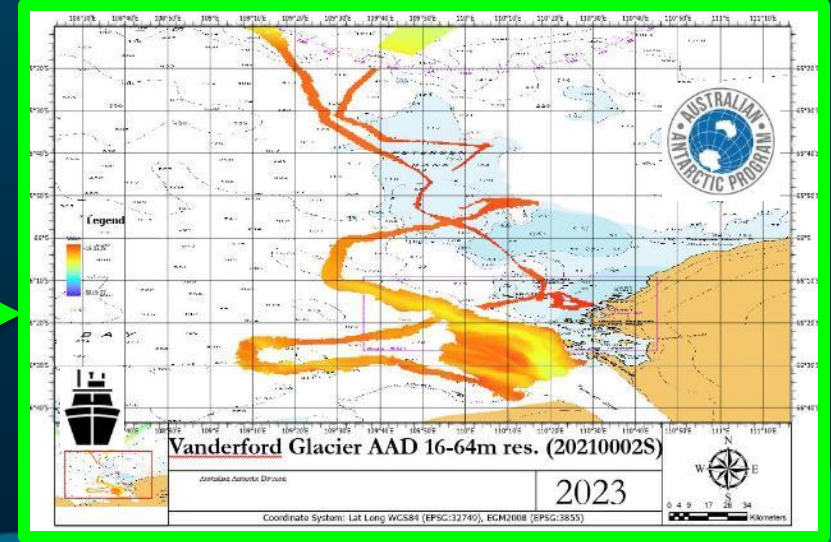
# What's next?

1st Survey  
Published

Published

Total of 37 bathymetry products  
- 26 New surveys  
- 11 Revised  
Multi-res - (New Capability)  
- 1 AAD (New Contributor)

Tasman Sea Bathymetry 16m - 64m (CSIRO) ss200611	CSIRO
Antarctic Bathymetry 5m - 210m (CSIRO) in2019_v01 - multi-resolution	CSIRO
Vanderford Glacier Bathymetry	AAD
Great Australian Bight 10m - 210m (CSIRO) in2015_c01 - multi-resolution	CSIRO
Great Australian Bight 10m - 210m (CSIRO) in2015_c02 - multi-resolution	CSIRO
Southern Ocean 10m - 210m (CSIRO) in2015_e01 - multi-resolution	CSIRO
Huon Marine Park Bathymetry 5m-210m (CSIRO) in2015_e02 - multi-resolution	CSIRO
South-Eastern Tasmania 10m - 210m (CSIRO) in2015_e03 - multi-resolution	CSIRO
South-Eastern Tasmania 10m - 210m (CSIRO) in2015_e04 - multi-resolution	CSIRO
Freyncinet Marine Park Bathymetry 10m - 210m (CSIRO) in2015_e05	CSIRO
Storm Bay 5m - 210m (CSIRO) in2021_e01 - multi-resolution	CSIRO
Freyncinet Marine Park Bathymetry 5m - 210m (CSIRO) in2015_e05	CSIRO
South-East Tasmania 5m - 210m (CSIRO) in2015_e05	CSIRO
South-East Tasmania 5m - 210m (CSIRO) in2015_e06	CSIRO
Southern Ocean 5m - 210m (CSIRO) in2015_e07	CSIRO
Macquarie Island 5m - 210m (CSIRO) in2015_e08	CSIRO
Southern Ocean 5m - 210m (CSIRO) in2015_e09	CSIRO
Hobart to Sydney Transit Bathymetry 10m - 210m (CSIRO) in2016_t01 - multi-resolution	CSIRO
Southern Ocean 10m - 210m (CSIRO) in2016_t02 - multi-resolution	CSIRO
East Australia 10m - 210m (CSIRO) in2016_t03 - multi-resolution	CSIRO
East Australia 10m - 210m (CSIRO) in2016_t04 - multi-resolution	CSIRO
East Australia 10m - 210m (CSIRO) in2016_t05 - multi-resolution	CSIRO
East Australia 10m - 210m (CSIRO) in2016_t06 - multi-resolution	CSIRO
Sydney to Hobart Transit Bathymetry 10m - 210m (CSIRO) in2016_t07 - multi-resolution	CSIRO
Fiji to Hobart Transit Bathymetry 10m - 210m (CSIRO) in2016_t08 - multi-resolution	CSIRO
Hobart to Sydney Transit Bathymetry 10m - 210m (CSIRO) in2016_t09 - multi-resolution	CSIRO
Australian Eastern Continental Margin Bathymetry 10m - 210m (CSIRO) in2017_v03 - multi-resolution	CSIRO
Hobart to Brisbane Transit Bathymetry 10m - 210m (CSIRO) in2018_t01 - multi-resolution	CSIRO
Brisbane to Hobart Transit Bathymetry 10m - 210m (CSIRO) in2018_t02 - multi-resolution	CSIRO
East Australian Current Bathymetry 10m - 210m (CSIRO) in2018_v04 - multi-resolution	CSIRO
East Australian Current IMOS Bathymetry 10m - 210m (CSIRO) in2022_v06 - multi-resolution	CSIRO
Cape Darnley East Antarctica Bathymetry 10m - 210m (CSIRO) in2023_v01 - multi-resolution	CSIRO
Tasman Sea Margin Bathymetry 10m - 210m (CSIRO) in2022_v05 - multi-resolution	CSIRO
Heard and Macdonald Islands Bathymetry 10m - 210m (CSIRO) in2016_v01 - multi-resolution	CSIRO
Indian Ocean Territories Seamount Bathymetry 10m - 210m (CSIRO) in2022_v08 - multi-resolution	CSIRO
Southern Ocean Time Series Bathymetry 10m - 210m (CSIRO) in2019_v02 - multi-resolution	CSIRO
Indian Ocean Bathymetry 10m - 210m (CSIRO) in2019_v03 - multi-resolution	CSIRO



Total: ~1, 440, 561 km<sup>2</sup>  
(~18% area of Australia)



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**HIPP**  
HydroScheme Industry Partnership Program

# What's next?

Releasing  
Entity

Label on AusSeabed Marine Data Portal

Vessel

AHO	Western approaches to Torres Strait, QLD 2020 30m	MV Pacific Conquest; VH-VEH Cessna 441;USV
AHO	Gulf St Vincent (North), SA 2020 30m	MV Pacific Conquest, USV
AHO	Backstairs Passage, SA 2021 30m	MV Ocean Dynasty
AHO	Camden Sound (North-West) WA 2022 30m	MV Ocean Dynasty; MV Empress
AHO	Banks Strait to Cape Barren, TAS 2022 30m	MV Offshore Solution; SMB Indigo
AHO	Cape Barren to Babel Island, TAS 2021 30m	MV Ocean Dynasty; MV Pacific Crest
AHO	Flinders Island NE, TAS 2021 30m	MV Offshore Surveyor
UWA	Otway, Gippsland Basins and Bass Strait Bathymetry 2022 30m	Various
Ocean Infinity	Norfolk Island Nearshore and Coastal Habitat Mapping AU420 Bathymetry 2021 1m	M/V Offshore Solution
AHO	Approaches to Darwin, Beagle Gulf (HIPP SI 1002) Bathymetry 2020 30m	SV Limitless and PHS Zephyr
AHO	Mavis Reef (East), Bonaparte Archipelago (HIPP SI 1011) Bathymetry 2020 30m	MV Warrego
CSIRO	SE Tasmania (CSIRO) (SS01/2008)	Southern Surveyor
GA	Austrea 1 Bathymetry 1999 100m	L'Atalante
CSIRO	Tasmanian Seamounts 2 (CSIRO) (SS02/2007)	Southern Surveyor

Queued





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## Strengthened ties between CSIRO and GA through collaborative innovation

- Developing multi-resolution capability provided opportunity to learn from each other
- Better understanding each others processes has enhanced co-ordination
- Efficient upgrade to new dynamic update system (minimal disruption to services)



<https://portal.ga.gov.au/persona/marine>

# WA Data Access Portal

Ralph Talbot-Smith,  
Western Australia Department of Transport



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# QAX 2.0

Lachlan Hurst,  
FrontierSI

## QAX 2.0 Focus

Identify and address issues preventing the adoption of QAX for bathymetry quality assurance checks.

Establish working group to support development of roadmap, prioritisation, and provide domain expertise.

Engage broader bathymetry community.

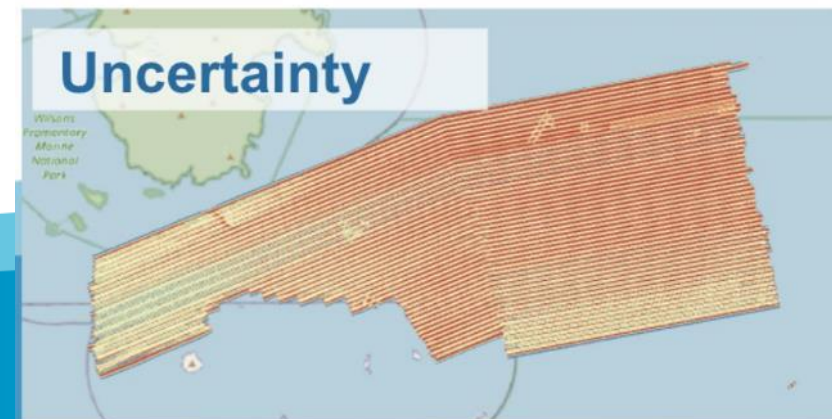


# Gridded Input Files

Issue 1: QAX **required input files to be translated** into 3 band GeoTIFFs, with bands in a specific order

Issue 2: QAX **required all three bands** to run any check

QAX now supports single and 3 band GeoTIFFs. Specific ordering is not required, but naming conventions must be adhered to. Checks no longer require all 3 bands.





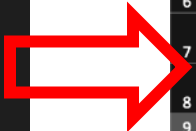
# Report Outputs

Issue: No easy way to export QAX result summary information

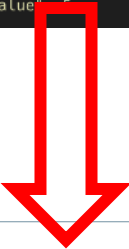
QAJSON generated by QAX can now be saved to an Excel worksheet.

QAJSON

```
{
  "checks": [
    {
      "info": {
        "id": "5e2afd8a-2ced-4de8-80f5-111c459a7175",
        "name": "Density Check",
        "version": "1",
        "group": {
          "id": "",
          "name": "",
          "description": ""
        }
      },
      "inputs": {
        "files": [
          {
            "path": "Z:\\proj\\in2018_Combined.tif",
            "file_type": "Survey DTMs"
          }
        ],
        "params": [
          {
            "name": "Minimum Soundings per node",
            "value": 5
          }
        ]
      }
    }
  ]
}
```



	A	B
1		in2018_c01_CombinedSurface_CUBE
2	File Name	in2018_c01_CombinedSurface_CUBE_2m
3	Latest Update	
4	Summary	
5	Number of Nodes	312451
6	DENSITY	
7	Number of Nodes with density fails	553
8	% of nodes with 9 soundings or greater	99.34709762
9	100% of nodes on SF	
10	Density Check comment	
11	UNCERTAINTY	
12	Number of Nodes with Uncertainty Fails	0
13	% of Nodes with Uncertainty Fails	0
14	TVU Check comment	
15	RESOLUTION	
16	Resolution Check QAX Message	GridCheckState.cs_fail
17	HOLES	
18	Number of Holes	11
19	Number of empty nodes	13
20	Number of Holes >8m2	
21	% of Nodes with Holes	0.004160479



QAX v1.0.22

File Utilities Help

View

SummaryScore BoardJson Text

Data Level

survey\_products

Score Board

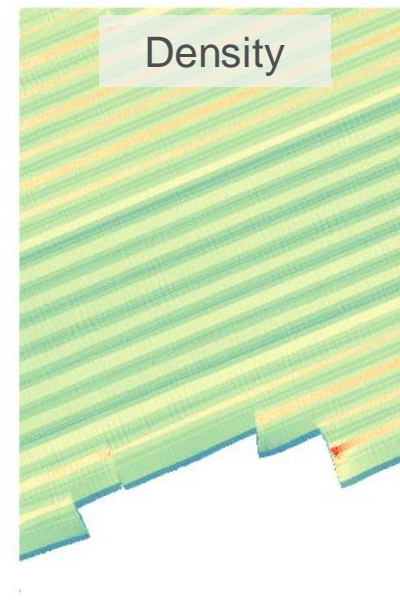
ID	Check	Input	Status	QA Pass
e80...	Hole Finder Check [v.1]	in2018_c01_CombinedSurface_CU...	completed	✖
c731...	Resolution Check [v.1]	in2018_c01_CombinedSurface_CU...	completed	✖
b5c0... bf9c- d0b...	Total Vertical Uncertainty Check [v.1]	in2018_c01_CombinedSurface_CU...	completed	✔
5e2a...	Density Check [v.1]	in2018_c01_CombinedSurface_CU...	completed	✖
0451...	Flier Finder Check [v.1]	in2018_c01_CombinedSurface_CU...	completed	✖

# Coverage Area

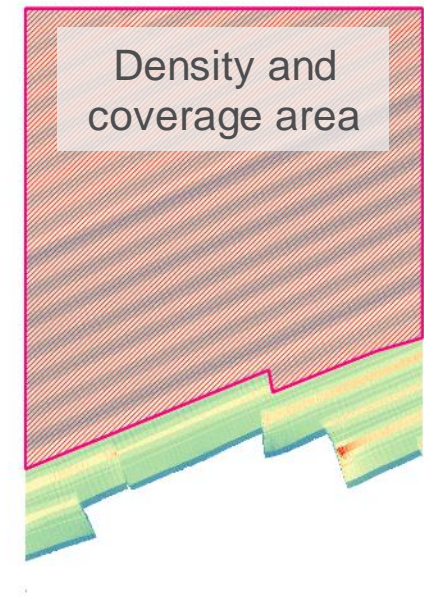
Issue: QAX would often fail datasets due to low density and/or holes around edges of dataset

A coverage area can now be specified within QAX. QA checks are only run on the data within this coverage area.

Bonus: use a coverage area to run QA over small problematic areas of large datasets



QAX QA result			
Density Check [v.1]	in2018_...	completed	✖



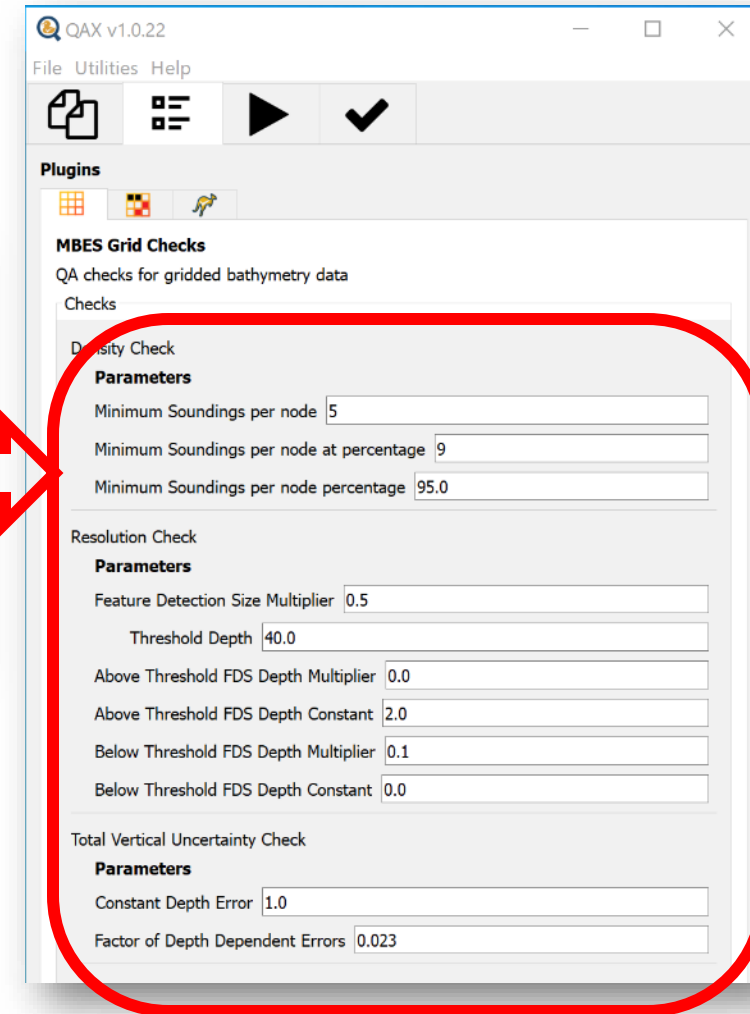
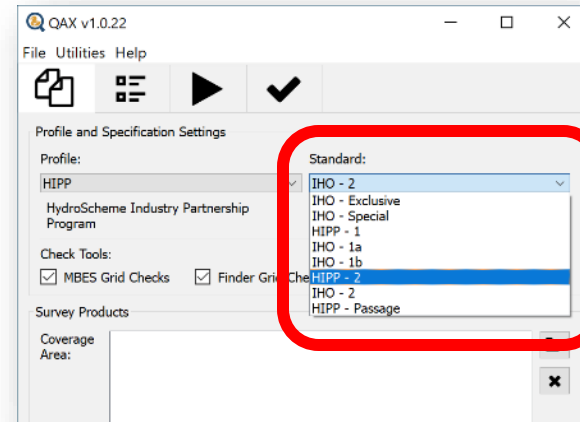
QAX QA result			
Density Check [v.1]	in2018_...	completed	✔



# Common Standard Defaults

Issue: user must provide a series of parameters to each check that are generally taken from common standards.

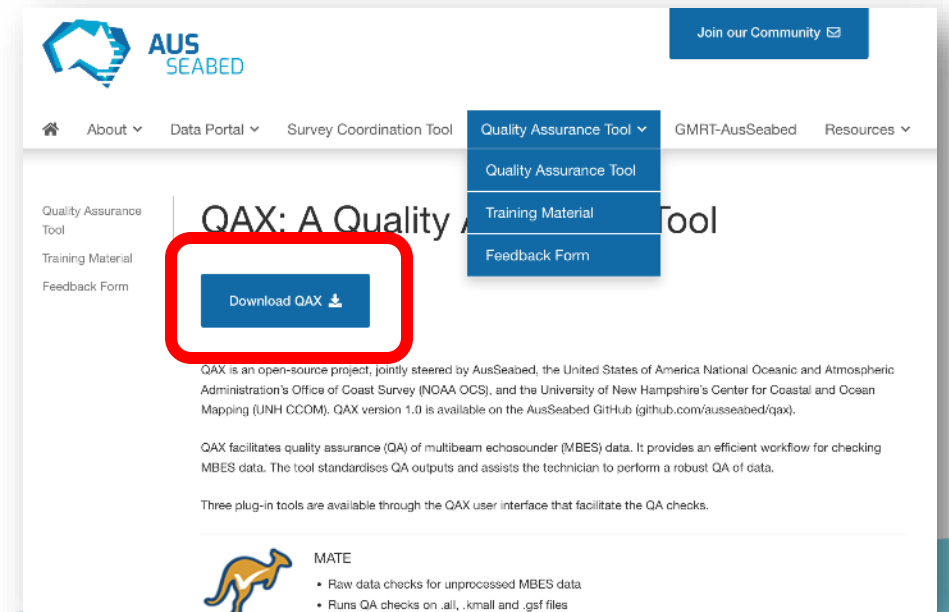
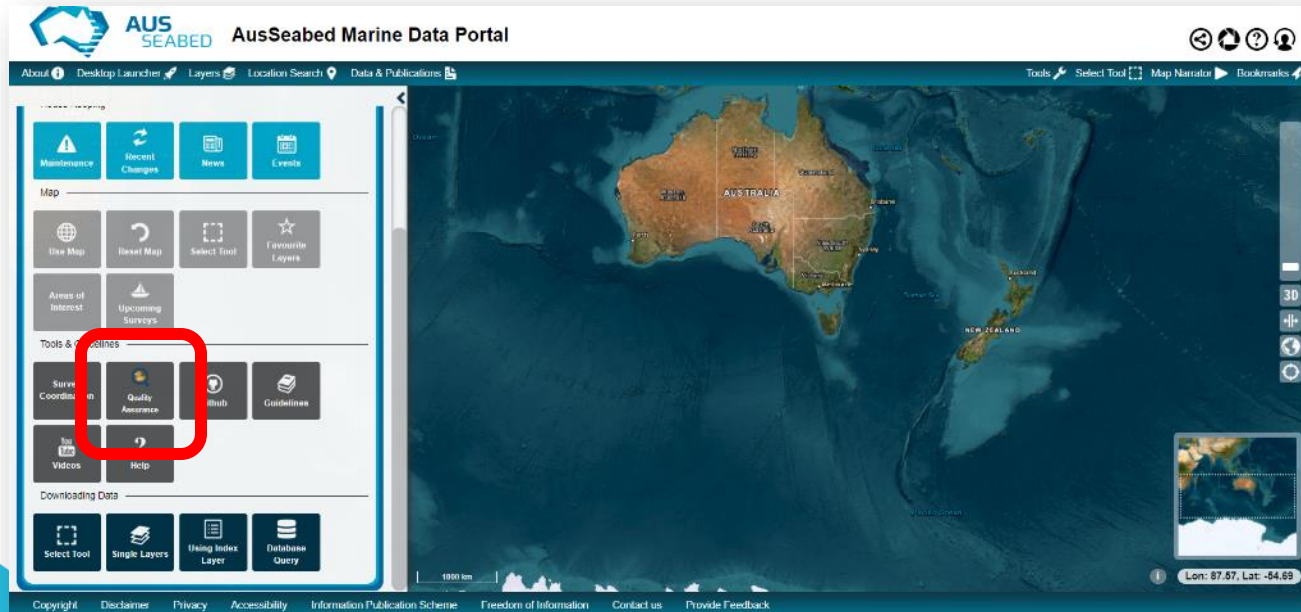
Users can now select from a list of common standards, selecting a standard will populate the default check input parameter values.



# Release

Available now

<https://github.com/ausseabed/qax/releases>



# Working Group

Charles Collins - EGS Survey

Ian Phillips - Australian Hydrographic Office

Justy Siwabessy - Geoscience Australia

Paul Kennedy - Guardian Geomatics



## What's Next

Expanded working group

Developing list of potential QAX 3.0 features

Diversification of QAX development team

Develop support plan

## Contact

[ausseabed@ga.gov.au](mailto:ausseabed@ga.gov.au)



# Geomorphology 2-Part Scheme

Rachel Nanson,  
Geoscience Australia

# Aus/US - Ocean Mapping Wiki

Emma Hickerson, Geoscience Australia

## Home

kjerram edited this page 2 weeks ago · 93 revisions



The Ocean Mapping Community Wiki is hosted by the [Multibeam Advisory Committee \(MAC\)](#). This is a collaborative space to share resources and expertise from the global ocean mapping community, with the aim of improving data quality for all.

The value of this wiki depends on community involvement. Your helpful resources, best practices, and 'lessons learned' are welcome! Get involved by becoming a contributor or joining the public [discussions](#) and [troubleshooting](#) forums.

## Announcements

Check out the [Community Announcements and Awareness](#) section for non-commercial news from around the ocean mapping community.

## Contributing

We hope you'll [add your expertise](#) to the conversation and [provide feedback](#).

See the [Contribution Guidelines](#) to see who is contributing and how we are moderating the site content.

## Recently updated

1. Share your EK80 troubleshooting and requests with the [EK80 Ocean Best Practices Working Group](#)
2. Help out your navigators with the [ECDIS Converter](#) for survey line plans
3. Share non-commercial news under the [Community Announcements and Awareness](#) section

### Pages 17

#### Home

- Announcements
- Contributing
  - Recently updated
- Multibeam topics
- Other mapping topics
  - Mapping basics
  - ADCP resources
  - Midwater mapping
  - Subbottom profiling
  - Positioning
    - Helpful links
- Resources
  - Open-source data tools
  - Best practices
  - Helpful presentations and papers
  - Why map the ocean?
  - Multibeam Advisory Committee
- Contact us

#### Assessment Tools

- Ocean Mapping Community (OMC) Wiki released in 2022
- Hosted by the [Multibeam Advisory Committee](#).
- Centralized, living, and public platform for highlighting new and up-to-date resources
- Examples of common approaches that can be adapted for various mapping missions
- Not intended to replace best practice repositories or manufacturer guidance

[Home](#) · [oceanmapping/community Wiki](#) · [GitHub](#)



# Data Acquisition

ejheffron edited this page on Jun 10 · 16 revisions

Resources for planning and conducting a multibeam survey.

Add / modify topics as needed. This page is not going to be a one-size-fits-all SOP, as platforms, systems, and survey requirements vary wildly. These resources may be split into different pages as they grow.

See [Transit Mapping](#) for optimizing mapping opportunities on transits.

## Planning

Where do you want to survey?

## Finding existing data

Links to data repositories and planning resources

1. [GMRT resources](#) - only processed data is published to this grid; GMRT includes much more than bathymetry
2. [GMRT Map Tool](#) - select subsets of GMRT data for download in a variety of formats
3. [GEBCO](#) - download grids with or without satellite altimetry mask
4. [Seabed2030](#) - a global effort to map the seafloor in high resolution
5. [IHO Data Centre for Digital Bathymetry](#) - find out where industry and other non-public data exists
6. [NCEI Bathymetry Viewer](#) - most of the data in this mosaic is not processed - user beware
7. [EMODnet Bathymetry](#) - European data portal, including access requests for non-public data
8. [AusSeabed Data Portal](#) - Australian marine data resources, including national compilations and regional surveys
9. [SCUFN](#) - find a seafloor feature name, or submit a name for a new seafloor feature!

## Planning surveys

1. [NOAA Tides & Currents](#) -
2. [SmartMap](#) - sound speed forecasting and line planning web service
3. [UNH Map Portal](#) - web map apps for CCOM-related data products; also available to integrate with ESRI Arc Pro/Online
4. [AusSeabed Survey Coordination](#) - identify areas of interest and coordinate survey plans within Australian waters

### Pages 17

- [Home](#)
- [Assessment Tools](#)
- [Backscatter Normalization](#)
- [Backscatter Processing](#)
- [Calibration \(Patch Test\)](#)
- [Contributing](#)

### ▼ [Data Acquisition](#)

[Planning](#)[Finding existing data](#)[Planning surveys](#)[Creating line plans](#)[Finding ancillary information](#)[Coverage](#)[Acquisition](#)[Sound speed](#)[Runtime parameters](#)[Filters](#)[Watchstanding](#)[Processing](#)[Metadata](#)[Examples](#)

- [Dimensional Control](#)

- [Hardware Health](#)

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See [Transit Mapping](#) for optimizing mapping opportunities on transits.

## Planning

Where do you want to survey?

## Finding existing data

Links to data repositories and planning resources

1. [GMRT resources](#) - only processed data is published to this grid; GMRT includes much more than bathymetry
2. [GMRT Map Tool](#) - select subsets of GMRT data for download in a variety of formats
3. [GEBCO](#) - download grids with or without satellite altimetry mask
4. [Seabed2030](#) - a global effort to map the seafloor in high resolution
5. [IHO Data Centre for Digital Bathymetry](#) - find out where industry and other non-public data exists
6. [NCEI Bathymetry Viewer](#) - most of the data in this mosaic is not processed - user beware
7. [EMODnet Bathymetry](#) - European data portal, including access requests for non-public data
8. [AusSeabed Data Portal](#) - Australian marine data resources, including national compilations and regional surveys
9. [SCUFN](#) - find a seafloor feature name, or submit a name for a new seafloor feature!

## Planning surveys

1. [NOAA Tides & Currents](#) -
2. [SmartMap](#) - sound speed forecasting and line planning web service
3. [UNH Map Portal](#) - web map apps for CCOM-related data products; also available to integrate with ESRI Arc Pro/Online
4. [AusSeabed Survey Coordination](#) - identify areas of interest and coordinate survey plans within Australian waters

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- [QPS Qimera](#) - commonly used by the UNOLS fleet and ocean exploration programs; full capability for expert users with simple processing paths for non-experts (e.g., new watchstanders, interns)
- [Saber](#) - not as commonly used outside Leidos
- [SonarScope](#) - Matlab-based multibeam processing package from IFREMER

## QA/QC software

Software for checking multibeam data quality and completeness from acquisition and through final surfaces.

- [QAX](#) - a joint project between AusSeabed, NOAA, and CCOM (see project on [GitHub](#))

## Seafloor characterization

Software for characterizing and/or classifying seafloor by morphology, backscatter, and other parameters. These options expand upon built-in tools available in some multibeam data processing packages listed above.

- [Seabed Geomorphology Tools](#) - Python tools for classifying seabed based on shape, backscatter, sub-bottom/seismic, and other data

## Data archive

Data submission to an archive or repository depends on the pre-mission agreement between the various organizations involved. It is strongly recommended to have a pre-determined data management plan so that these details are well known before the vessel/vehicle return to port.

In general, raw data should be submitted to NCEI. Processed grids to be incorporated into the GEBCO grid can be submitted through the [GEBCO site](#).

### Contributing

▸ [Data Acquisition](#)

▸ [Dimensional Control](#)

▸ [Hardware Health](#)

▾ [Multibeam Data Processing](#)

Processing software

[QA/QC software](#)

Seafloor characterization

Data archive

NCEI

Packaging the data

▸ [Sea Acceptance Testing](#)

▸ [Software Updates](#)

▸ [Sound Speed](#)

▸ [Top 10 multibeam issues](#)

▸ [Transit Mapping](#)

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<https://github.com/oceanmapping/co>



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► <a href="#">Data Acquisition</a>
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► <a href="#">Transit Mapping</a>
Show 2 more pages...

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## Best practices

1. [Ocean Best Practices](#) - a repository for ocean science SOPs from around the world
2. [IHO-IO GEBCO Cookbook](#) - a technical reference manual focused on how to build grids
3. [NOAA OER Deepwater Exploration Mapping](#) - a reference for NOAA OER mapping operations on the NOAA Ship *Okeanos Explorer*
4. [Australian Multibeam Guidelines](#) - a technical reference manual focused on multibeam operations

## Helpful presentations and papers

1. [Sonar Synchronization and Tradeoffs](#)
2. [Rolling Deck to Repository Overview](#) - 2020 RVTEC
3. [Open Vessel Data Management](#) - 2020 RVTEC
4. [Lessons Learned from a Successful Integration of the EM 304 MKII Variant Multibeam Sonar](#)
5. [Ocean Exploration in a Data-Rich World](#) - white paper from 2022 National Ocean Exploration Forum
6. [Exploring the use of Sound Speed Profiles...](#) - 2022 Ocean Sciences
7. [Calibration of Acoustic Instruments](#) - Summarizes fundamental sonar theory and details calibration methods.
8. [Multibeam Sonar Theory of Operation](#) - a clear overview of sonar concepts (multibeam and sidescan)

## Why map the ocean?

Most of this wiki focuses on *how* to map the watery [71% of our planet](#). Here are a few examples of *why*.

Beyond the critical role of [safety of navigation](#), ocean mapping is important for a wide array of reasons:

1. confirming [plate tectonics](#) and [ancient oceans](#)
2. understanding [ocean circulation](#) and [climate](#)
3. studying [historic tsunamis](#) and [present risks](#)
4. managing [fisheries](#) and [food sources](#)
5. tracking [sources of greenhouse gases](#)
6. routing [global submarine cables](#)
7. catching up to maps of [our moon](#) and [Mars](#)

### Home

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### Assessment Tools

### Backscatter Normalization

### Backscatter Processing

### Calibration (Patch Test)

### Contributing

# Ocean Mapping Community Wiki

<https://github.com/oceanmapping/community/wiki>

The bottom of the slide features a decorative graphic consisting of several overlapping triangular and quadrilateral shapes in various shades of blue, ranging from a deep navy to a light sky blue, creating a modern, abstract design.

# AMSA Symposium

Tim Ingleton,

NSW Department of Planning, Industry and Environment



AUS  
SEABED










# Steering Committee Elections

Aero Leplastrier

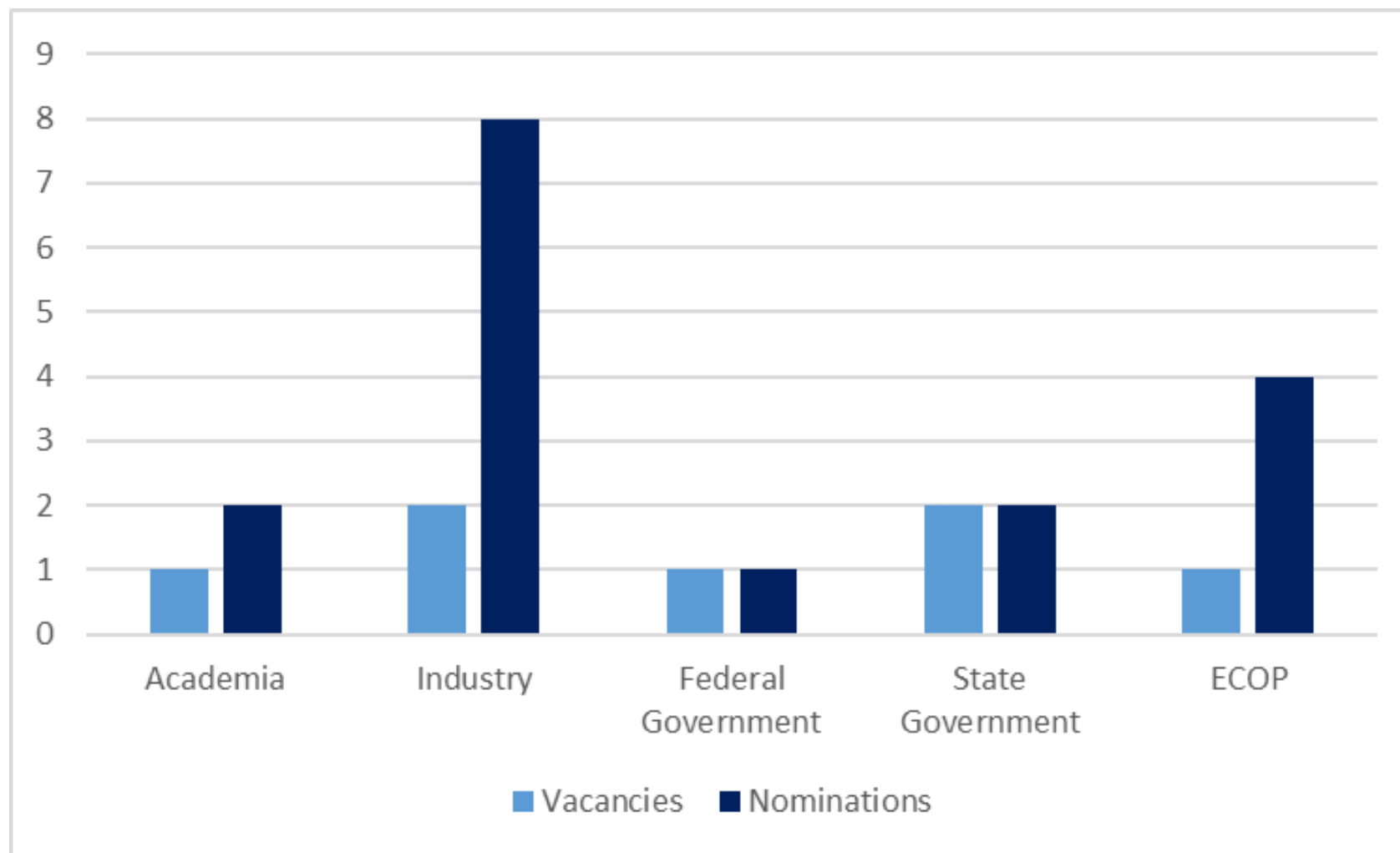


# 2023 Steering Committee memberships up for renewal







A number of organisations reached the end of their terms on the committee this year.

Sector	Early Career Ocean Professional	Academic	Industry	Industry	Federal	State Gov	State Gov
Member Organisation	Queensland University of Technology	Curtin University	IIC Technologies	Hydrographic and Cadastral Survey	Department of Agriculture, Water and Environment	South Australian Research Development Institute	New South Wales Department of Planning and Environment
Organisation representative							
	Mardi McNeil	Iain Parum	David Crossman (Deputy Chair)	Richard Cullen	Cath Sampson	Mark Doubell	Tim Ingleton

# Nomination details






# 2023 Steering Committee Renewal – Returning Organisations

	Academic	Federal		State Gov		State Gov
Sector	Curtin University	Department of Climate Change, Energy, the Environment and Water		New South Wales Department of Planning, and Environment		South Australian Research Development Institute
Member Organisation		Parks Australia	Environmental Data and Future Systems Section	Water, Wetlands and Coastal Science		
Organisation representative						
	Iain Parum	Cath Sampson	Merinda Nash	Tim Ingleton	Tom Doyle	Mark Doubell

# 2023 Steering Committee Renewal – Incoming members

The following organisations and representatives are joining the SC for the first time

Sector	Early Career Ocean Professional	Industry	Industry
Member Organisation	University of Wollongong	EOMAP	Kongsberg Discovery
Organisation representative			
	Alysha Johnson	Emily Twiggs	Henry Johnson



# Steering Committee membership history

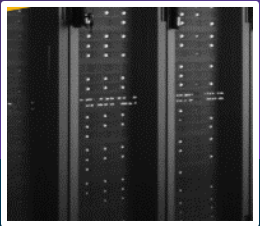
	2018	2019	2020	2021	2022	2023	2024
Kim Picard, Geoscience Australia						Standing member	
Scott Nichol, Geoscience Australia					Standing member		
Natalie Lennard, Geoscience Australia							Standing member
Wendy Stewart, Australian Hydrographic Office		Standing member					
Nigel Townsend, Australian Hydrographic Office			Standing member - Deputy Chair			Standing member - Chair	
Richard Cullen, Australian Hydrographic Office							Standing member
Tara Martin, CSIRO		Standing member					
Stuart Edwards, CSIRO Marine National Facility					Standing member		
Johnathon Kool, Australian Antarctic Division		Federal representative					
Cath Samson, Parks Australia				Federal representative			
David Logan, Parks Australia						Federal representative	
Merinda Nash, Department of Climate Change, Energy, the Environment and Water							Federal representative
Daniel Lerodiasconou, Deakin University (Acting for VIC Government)	State representative						
Ralph Talbot-Smith, WA Department of Transport				State representative			
Tim Ingelton, NSW Department of Planning, Industry and Environment			State representative				
Gretchen Grammer, SA Research and Development Institute			State representative				
Mark Doubell, SA Research and Development Institute					State representative		
Tom Doyle, NSW Department of Planning, Industry and Environment							State representative
James Daniell, James Cook University		Academic representative					
Vanessa Lucieer, University of Tasmania		Academic representative					
Mary Young, Deakin University				Academic representative			
Iain Parnum, Curtin University				Academic representative			
Hugh Parker, Fugro		Industry representative					
Nathan Quadros, FrontierSI		Industry representative - Deputy Chair					
Paul Kennedy, Guardian Geometrics		Industry representative					
Clive Fraser, FrontierSI			Industry representative				
David Crossman, IIC Technologies Australasia			Industry representative		Industry representative - Deputy Chair		
Martin Tunwell, iXblue Pty Ltd, Ocean Infinity Aus						Industry representative	
Richard Cullen, Hydrographic and Cadastral Survey					Industry representative		
Geoffrey Lawes, iXblue Pty Ltd					Industry representative		
Henry Johnson, Kongsberg Discovery							Industry representative
Emily Twiggs, EOMAP							Industry representative
Kevin Mackay, National Institute of Water and Atmospheric Research				International representative			
Mardi McNeil, QLD University of Technology					Early Career Ocean Professional		
Alysha Johnson, University of Wollongong							Early Career Ocean Professional

# AusSeabed Workplan Overview 23/24

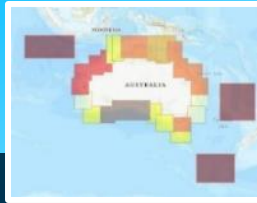
Kim Picard,  
Geoscience Australia

# Steps towards achieving our 2025 roadmap ... 2030

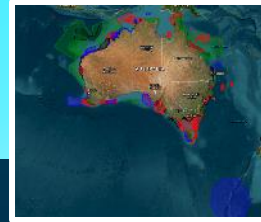
Preparation for scaling



2030 AusBathyTopo Series



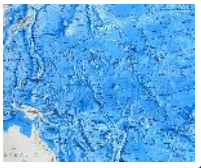
National Seabed Mapping Plan



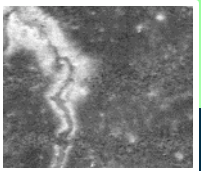
Data Modernisation



Boosting International Engagement



Backscatter Product Initiation

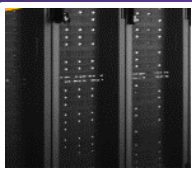


Governance and Operations

# Steps towards achieving our 2025 roadmap ... 2030

## Preparation for scaling

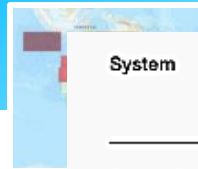
2 yrs



- Services with clear lines of responsibility & plan
- Tools with seamless experience for all users

## 2030 AusBathyTopo Series

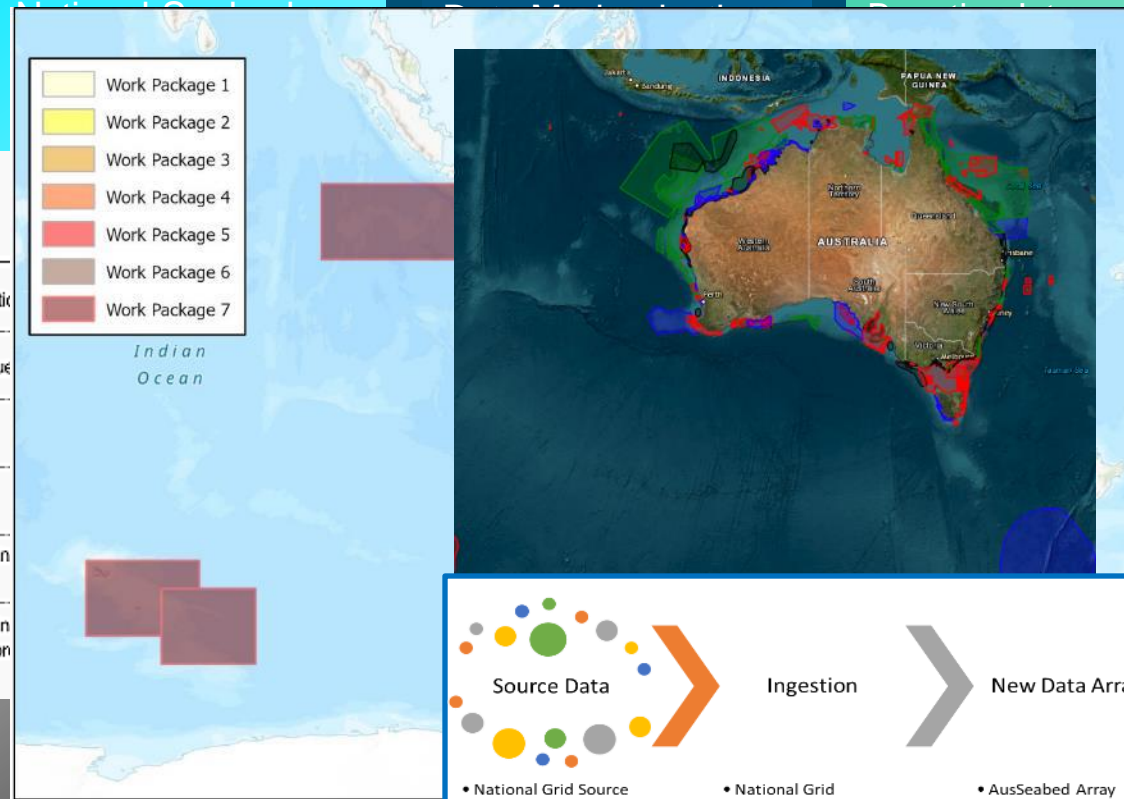
7 yrs



- Regional series current Nations
- MBES backlog
- Data coverage production line

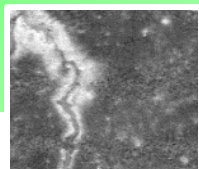
### System

Survey Coordination  
Product Catalogue  
QIAX/MATF  
Geoserver  
Processing Pipeline  
Packaging  
Processing Pipeline  
Raw to Refined product



## Backscatter Product Initiation

1 yr



- Product specs and guidelines
- New backscatter product published

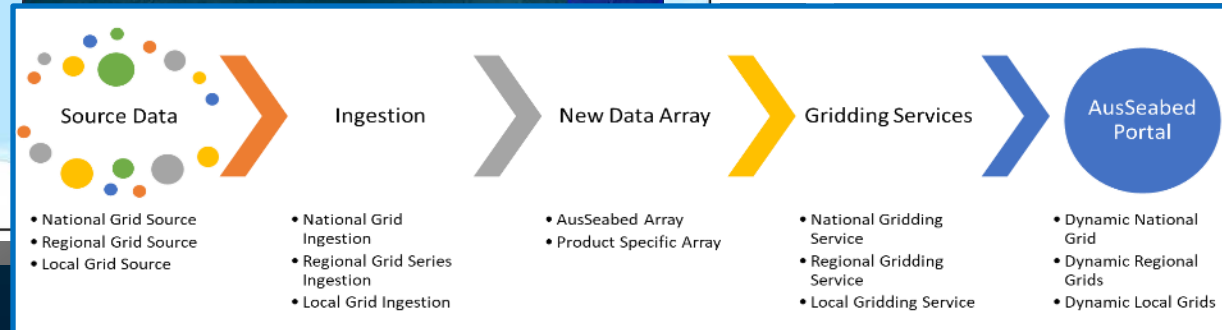
### BENEFITS

Increased infrastructure sustainability

Improve services to the community

Improve decision-making areas of high government interest

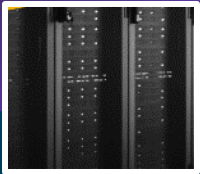
Efficiency-gain through stop-shop & strategic alignment



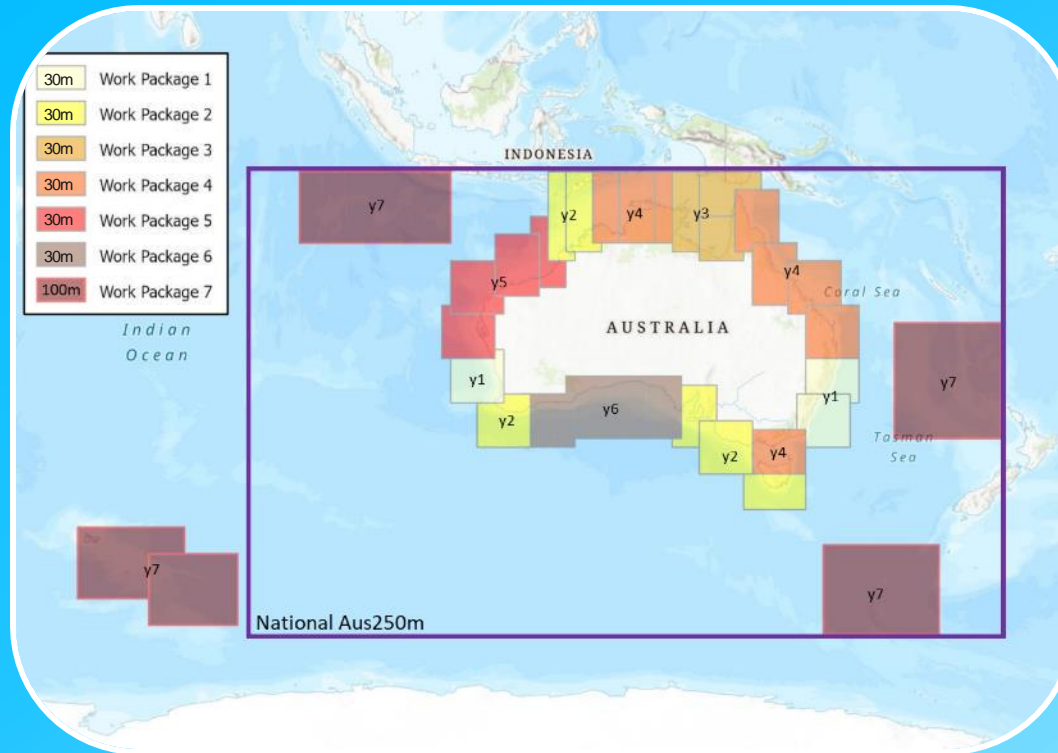


# Aligning and optimising our efforts

## Preparation for scaling



## Bathymetry Grid Series by 2030

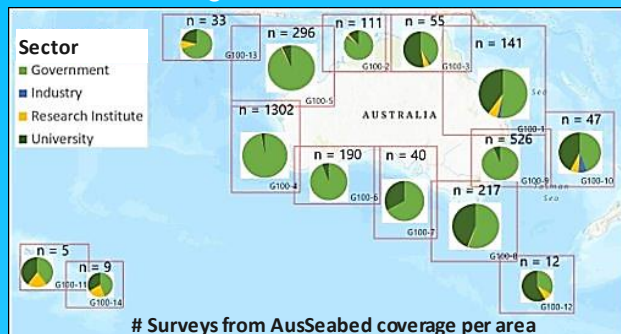


## Data Custodianship Modernisation



## Aligning

- Data partners
- Contributing Hubs



## National Seabed Mapping Plan





# Program Increment – The Next Quarter


Natalie Lennard,  
Geoscience Australia

# Last year's workplan.....



2025 Program Goals	Products			Marine Data Register - Tranche 1 ✓	GMRT -AusSeabed ↻
	Coverage		Updated Seabed Coverage (formerly "holdings") ✓ Data quality usability framework ✓	QAX 2.0 ✓ Data & Infrastructure Modernisation Project (formerly Integrated delivery pipeline) ✓	
	Engagement	Annual workshops ✓			Aus/US partnership → Open-source processing
		July-Sept	Oct-Dec	Jan-March	Apr-June
2022/23					

# Last year's workplan.....



2025 Program Goals	Products			Marine Data Register - Tranche 1 ✓	GMRT -AusSeabed ↻
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	Engagement	Annual workshops ✓			Aus/US partnership → Open-source processing
		July-Sept	Oct-Dec	Jan-March	Apr-June
2022/23					

## The next quarter

<b>Governance</b>	<ul style="list-style-type: none"><li>• Annual Reporting</li><li>• Work planning</li><li>• Steering Committee – 27/7/23</li><li>• Executive Board – 14/8/23</li><li>• Recruitment</li></ul>
<b>Preparation for Scaling</b>	<ul style="list-style-type: none"><li>• Geoserver Replacement</li><li>• Marine Data Register – security and data migration</li></ul>
<b>2030 AusBathyTopo Series</b>	<ul style="list-style-type: none"><li>• Communications</li><li>• Recruitment</li><li>• Prioritisation of Data</li><li>• GA/AHO Licences definition</li><li>• Processing insourcing</li></ul>
<b>National Seabed Mapping Plan</b>	<ul style="list-style-type: none"><li>• June Workshop Report</li><li>• Quality Framework</li><li>• QAX Scoping</li><li>• Reporting Framework for Sufficiently Mapped Seafloor</li></ul>
<b>Data Modernisation</b>	<ul style="list-style-type: none"><li>• Project Initiation</li><li>• Data Analysis and design commencement</li></ul>

## For later.....

<b>Backscatter Product Initiation</b>
<b>International Engagement</b>



Special thanks to  
our departing  
Program Director  
**Kim Picard**





**Thankyou**

**Contact us**

[Ausseabed@ga.gov.au](mailto:Ausseabed@ga.gov.au)  
[www.ausseabed.gov.au](http://www.ausseabed.gov.au)