THE NIPPON FOUNDATION-GEBCO SEABED 2030

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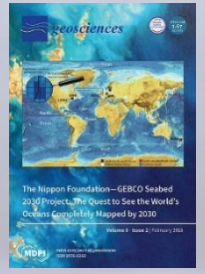
THE NIPPON FOUNDATION | GEBCO General Bathymetric Chart of the Oceans | IHO International Hydrographic Organization | unesco Intergovernmental Oceanographic Commission | 2021 2030 United Nations Decade of Ocean Science for Sustainable Development

8th EAHC Steering Committee Meeting, 10 December 2021

SEABED 2030

A collaborative project between The Nippon Foundation and GEBCO to inspire the complete mapping of the world's ocean by 2030 and to compile all bathymetric data into the freely-available GEBCO Ocean Map.

Forum for Future Ocean Floor Mapping



THE OCEAN CONFERENCE
UNITED NATIONS, NEW YORK, 5-9 JUNE 2017

June 2016

June 2017

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The Network of Centers

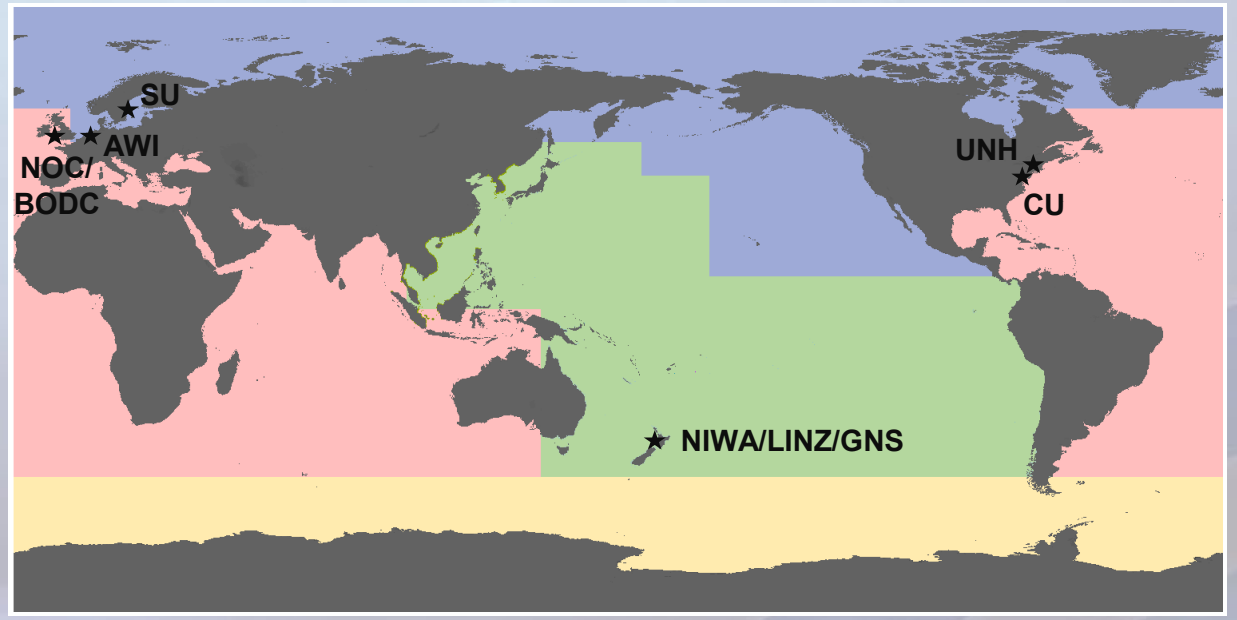
North Pacific –Arctic Ocean
Stockholm University & University of New Hampshire
(**SU** & **UNH**)

Southern Ocean
Alfred-Wegener-Institut (**AWI**)

Atlantic-Indian Ocean
Lamont-Doherty Earth Observatory,
Columbia University (**CU**)

South-West Pacific Ocean
National Institute of Water & Atmospheric Research (**NIWA**)
Land Information New Zealand (**LINZ**)
GNS Science (**GNS**)

Global Center
British Oceanographic Data Centre,
National Oceanography Centre (**NOC/BODC**)



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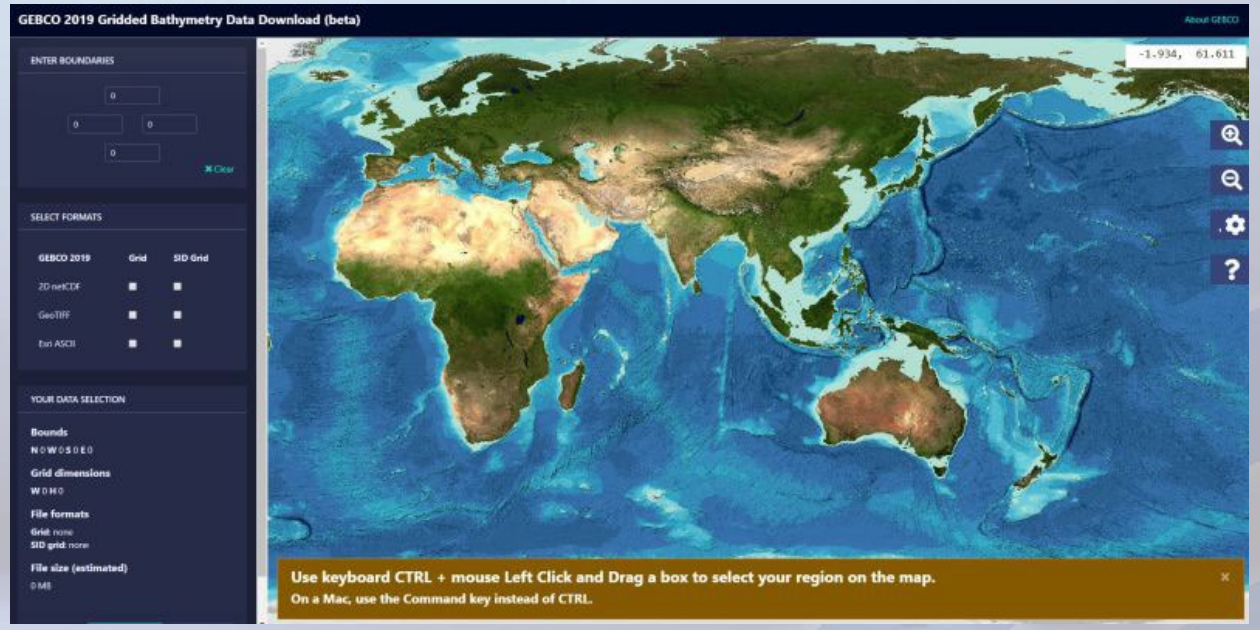
GEBCO Gridded Bathymetry Data

- The GEBCO_2021 grid, is a global terrain model for ocean and land at 15 arc-second (~480 m) intervals.
- It is accompanied by a Type Identifier (TID) Grid that gives information on the types of source data that the GEBCO_2021 Grid is based
- It is NOT a portal to the underlying data
- Ultimately to move to a variable resolution grid by 2030.



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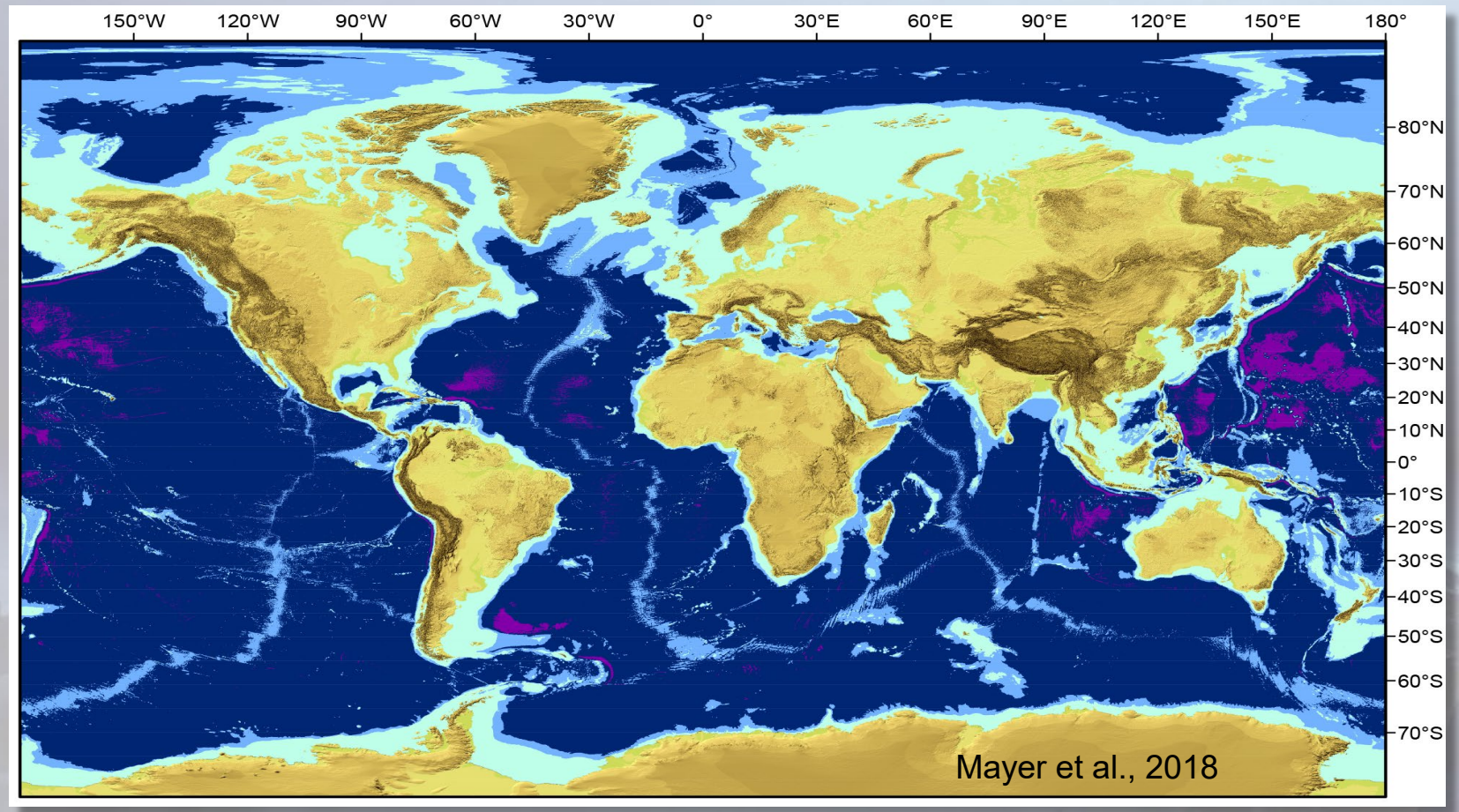
What does”100% mapped mean?

Depth-dependent resolution goals



100x100 m (0-1500 m)

200x200 m (1500-3000 m)

400x400 m (3000-5750 m)

800x800 m (5750-11000 m)

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Seabed 2030 Phase 2: Mapping the Gaps

$$X + Y + \mathbf{Z} = 100\%$$

Ocean Frontier Mapping

- Use GEBCO Grid to inform location of future mapping
- Advocate for greater mapping activity
- Identify funding for mapping expeditions

Crowd Sourced Bathymetry

- Promoting CSB around the world
- Gaining support of, and data from, contributors at all levels

Technology Innovation

- What can Seabed 2030 do to accelerate uptake of technology to accelerate rate of bathymetric mapping?

SAILDRONE Missions

https://seabed2030.org/news/saildrone-surveyor-completes-maiden-voyage-san-francisco-hawaii

UTAS: Two Oceans Two Technologies

https://www.mapthegaps.org/projects/utas-operations

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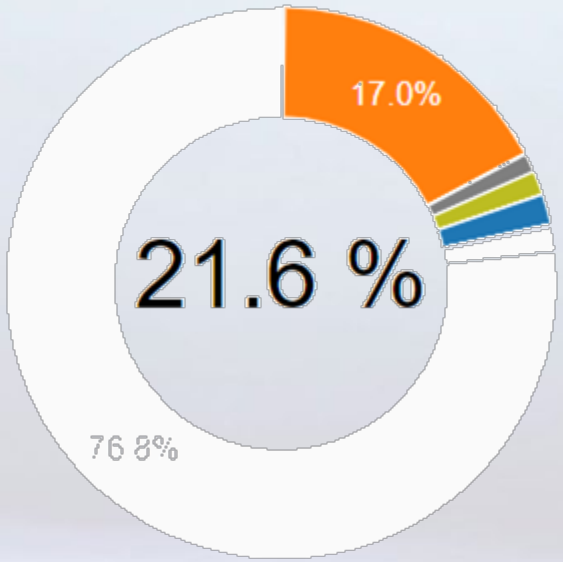
Global Coverage as of Oct 2021

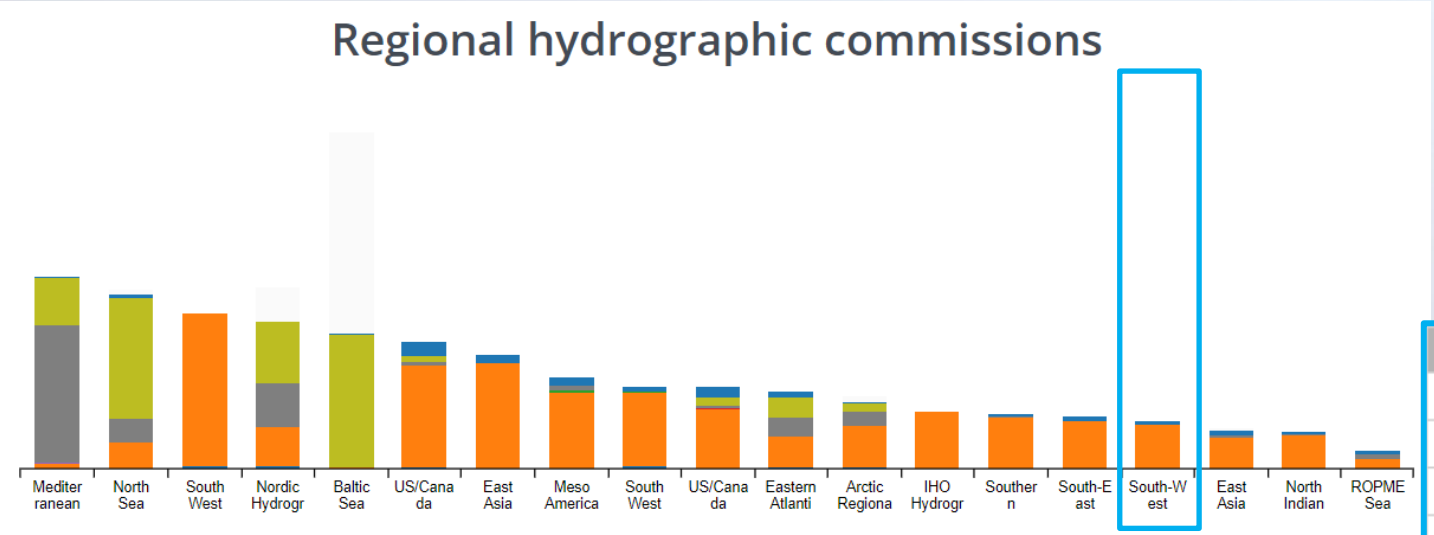


Singlebeam Multibeam Seismic Isolated sounding ENC sounding Lidar Depth measured by optical light sensor
Combination of direct measurement methods Pre-generated grid Digital bathymetric contours from charts Bathymetric sounding
Predicted based on helicopter/flight-derived gravity data Depth estimated by calculating the draft of a grounded iceberg using satellite-derived freebord measurement
Unknown source Steering points Land (negative topography) Upcoming, processing, (not included in total)
Interpolated based on a computer algorithm (not included in total) Grid including interpolated (not included in total) No data

https://seabed.geo.su.se/stat/#2/-16.8/79.8

East Asia Hydrographic Commission Coverage

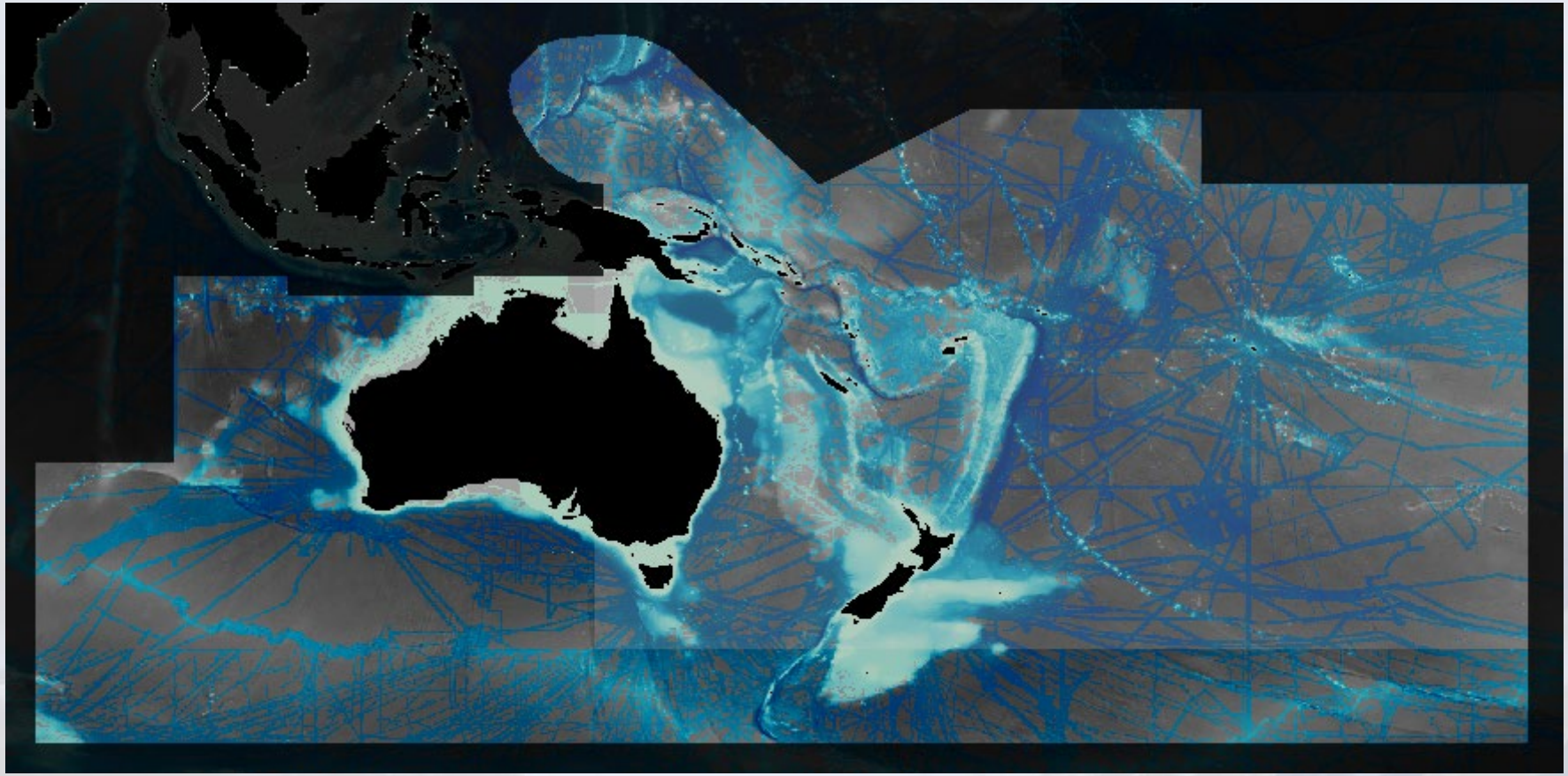
as of Oct 2021



South-West Pacific Hydrographic Commission	
Total	12.81
Singlebeam	0.13
Multibeam	11.56
Seismic	0.02
Isolated sounding	0.00
ENC sounding	0.00
Lidar	0.00
Depth measured by optical light sensor	0.00
Combination of direct measurement methods	0.19
Pre-generated grid	0.00
Digital bathymetric contours from charts	0.01
Bathymetric sounding	0.90

https://seabed.geo.su.se/stat/#2/-16.8/79.8

Data Contributions* within SWPHC Region (as of 15 Feb 2022)



- NIWA
- LINZ
- CSIRO
- AusSeabed
- NOAA NCEI / IHO DCDB
- LDEO (GMRT)
- Calypso Science
- Caladan Oceanic LLC
- Waikato Regional Council
- MGDS
- PANGAEA
- JAMSTEC
- SOPAC
- UNOLS R2R

** to SaWPac from Feb 2021*

Target Engagement with countries/entities in the region

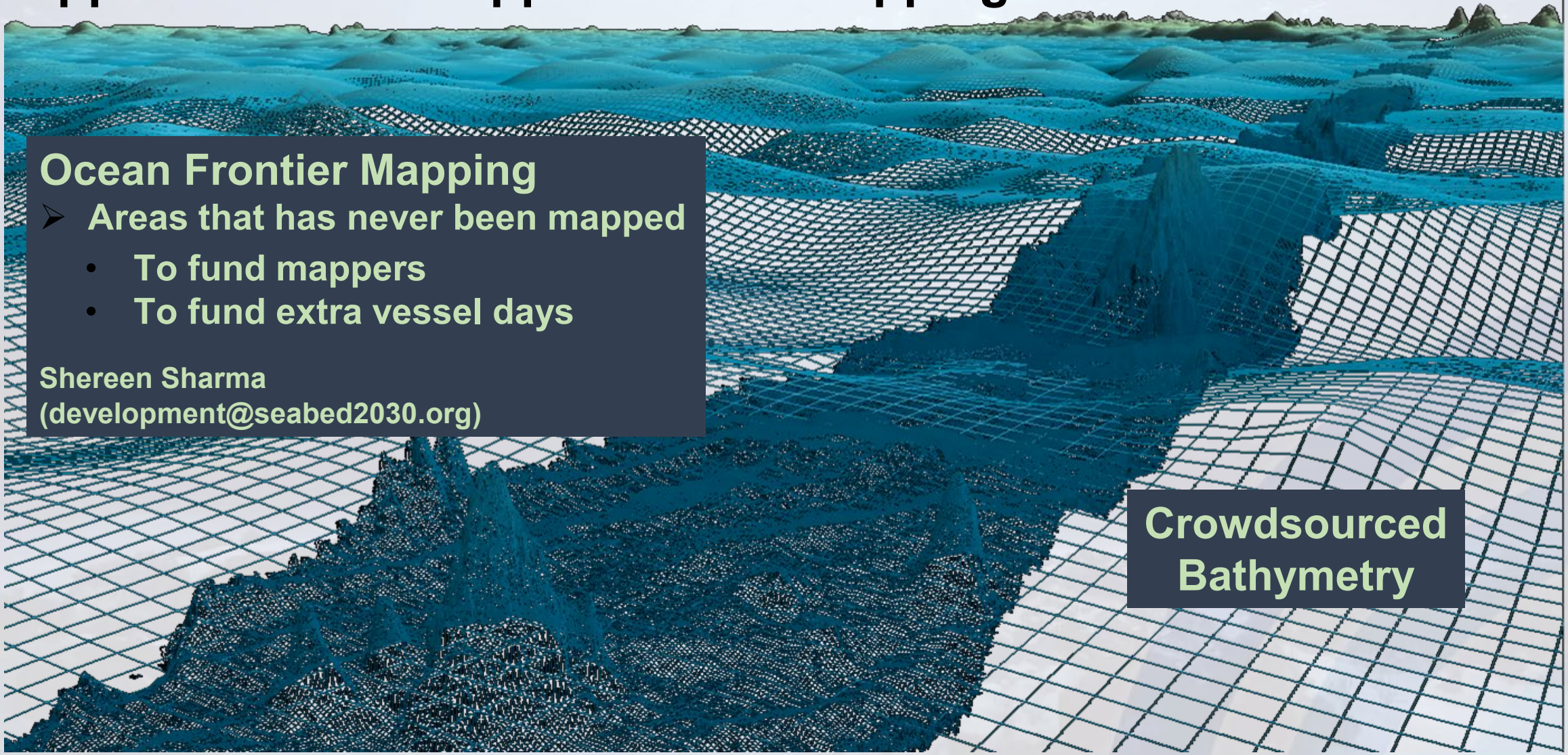
Working with the IHO Regional Hydrographic Commission CSB/Seabed 2030 Coordinator – Mr Stuart Caie

- **Promote ocean mapping activities**
- **Promote CSB**
- **Capacity-building**
- **Data gaps identification**
- **Coordinate mapping missions**

Please answer the SaWPac Community Survey

https://arcg.is/0ibPqm

Opportunities to Support Ocean Mapping Activities



Ocean Frontier Mapping

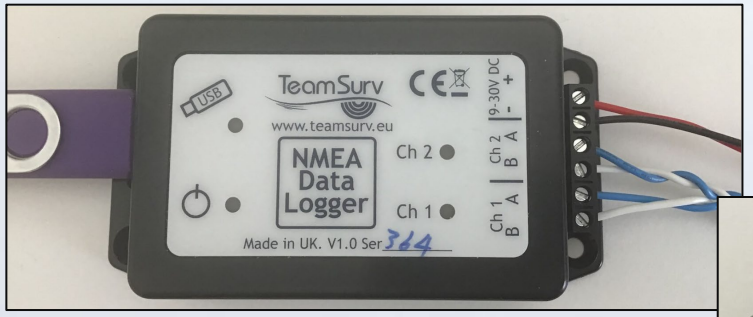
- Areas that has never been mapped
  - To fund mappers
  - To fund extra vessel days

Shereen Sharma
(development@seabed2030.org)

Crowdsourced Bathymetry

Crowdsourced Bathymetry Activities

- IHO CSBWG
- Palau
- New Zealand
- Solomon Islands
- Samoa
- Shipping Industry



CSBWG Document: DataLogger_ConnectionInstructions

World Ocean Council Workshop to Advance Seabed Data Collection by Shipping Sector

WOC & Seabed 2030 Collaborate on Opportunity for Companies to Support Safe & Sustainable Shipping

Many shipping companies already have the tools needed to be a part of the solution for sustainable ocean use. The Seabed 2030 project aims to create a complete map of the world ocean floor by 2030, using equipment commonly available on marine vessels.

As a core partner of Seabed 2030, the World Ocean Council (WOC) is hosting workshops about the project, which aligns with the WOC's SMART Ocean-SMART Industries (SO-SI) program. SO-SI's mission is to ensure industry data collection and sharing is coordinated, efficient and available to public agencies and the scientific community, in support of a safe and sustainable maritime industry.

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https://www.oceancouncil.org/media/world-ocean-council-workshop-to-advance-seabed-data-collection-by-shipping-sector/

Parting Words

IRCC12 Action Item 19

Encourage all Member States to make existing seabed mapping data available for use by Seabed 2030 in the GEBCO Grid.

Seabed 2030 provides Member States with a mechanism to respond to

UN General Assembly Resolution A/RES/72/73

'285. *Encourages* Member States to consider contributing to mechanisms that encourage the **widest possible availability of all bathymetric data**, so as to support the sustainable development, management and governance of the marine environment;'

Seabed 2030 allows Member States to make a cost-effective contribution to:

- ✓ UN Ocean Decade activities and SDG 14
- ✓ completing the GEBCO Ocean Map,
- ✓ producing the 'comprehensive digital atlas of the ocean'

(UNGA R&D Priority 1)

Thank you

THE NIPPON FOUNDATION

General Bathymetric Chart of the Oceans
GEBCO

IHO
International Hydrographic Organization

unesco
Intergovernmental Oceanographic Commission

University of New Hampshire

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

National Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL

AWI
ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR- UND MEERESFORSCHUNG

Stockholm University

NIWA
Taihoro Nukurangi

GNS SCIENCE

Land Information New Zealand
Toitū te whenua

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