THE NIPPON FOUNDATION-GEBCO SEABED 2030

Kevin Mackay
Head: South and West Pacific Centre

THE NIPPON FOUNDATION | General Bathymetric Chart of the Oceans | IHO International Hydrographic Organization | United Nations Educational, Scientific and Cultural Organization | Intergovernmental Oceanographic Commission

GEBCO

GEBCO Guiding Committee

` The **Ge**neral **B**athymetric **C**hart of the **O**cean'

'… a joint project of **IHO** & **IOC**, managed by the GEBCO Guiding Committee (GGC)'

'…aiming to provide the most authoritative, publicly-available bathymetry data sets of the world's oceans.'

'… largely a **voluntary** community of international **scientists** and **hydrographers** collaborating with the support of their parent organizations.'

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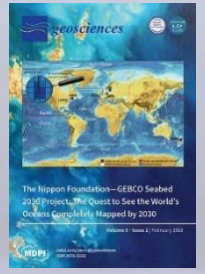
Seabed 2030

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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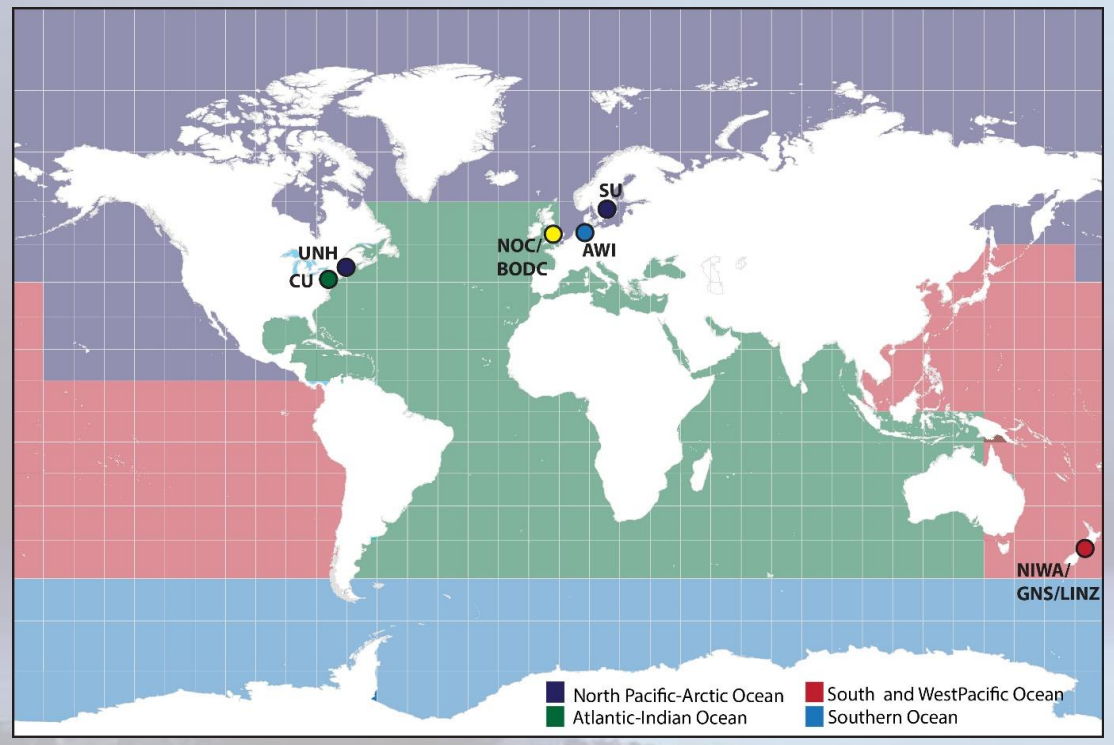
The Network of Centers



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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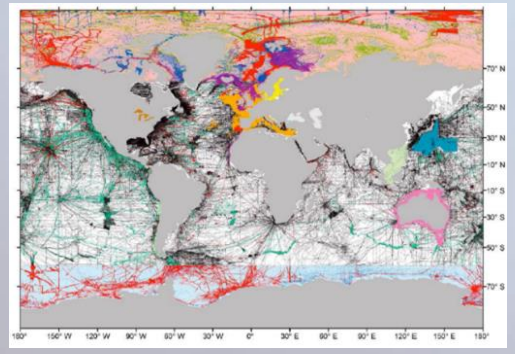
Seabed 2030 Phase 1: Existing Data



- Ingest all available existing data (Y)
- Catalogue embargoed existing data (Y)
- Develop new high-res GEBCO product
- Develop user tools for GEBCO products

GEBCO 2014
30-arc second Grid

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

Data IN GEBCO

Data NOT in GEBCO

'Map the Gaps' = ocean NOT mapped

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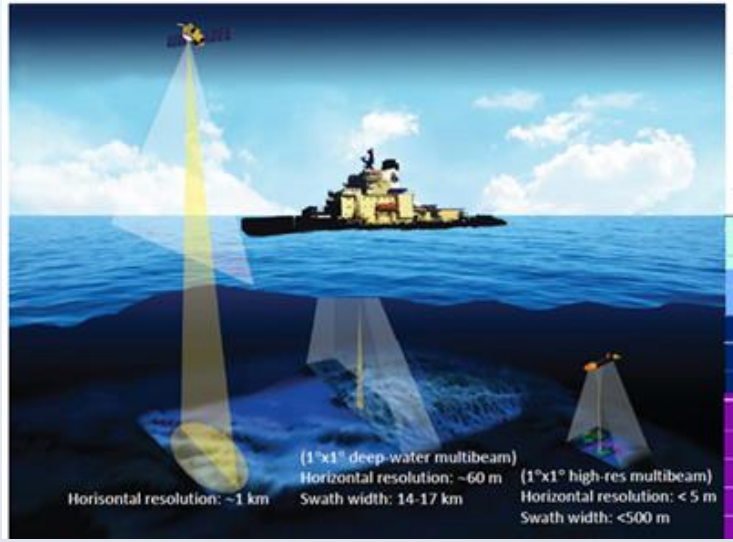
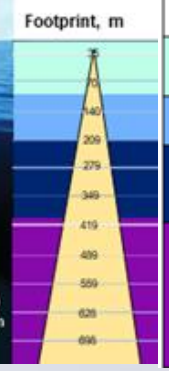
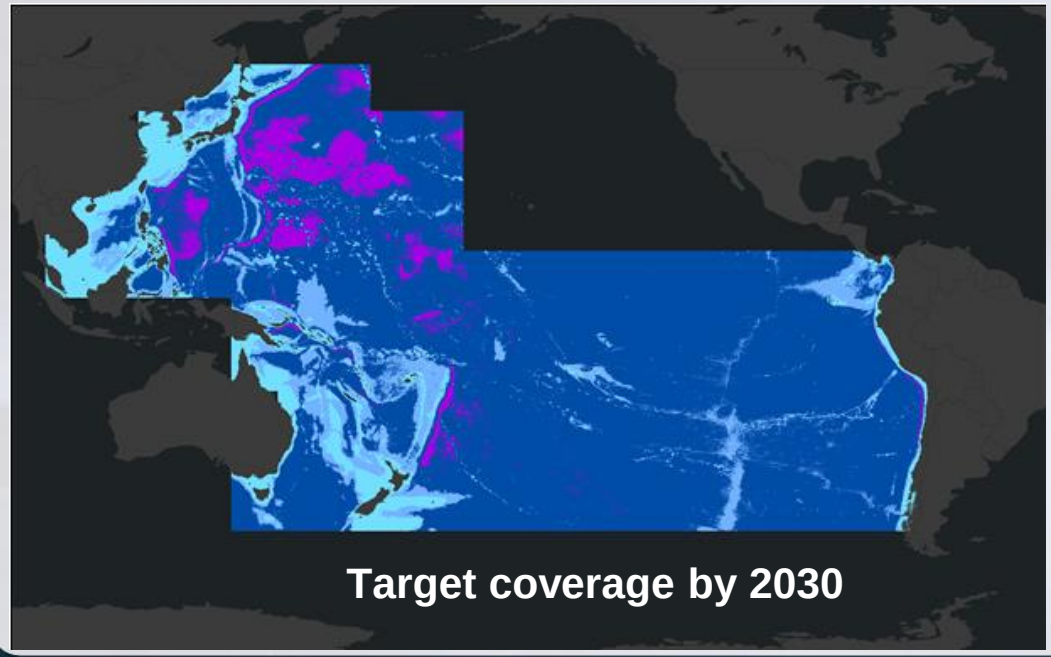
Seabed 2030

South and West Pacific centre mapping targets





Depth Range	Target grid resolution
0 – 1500 m	100 × 100 m
1500 – 3000 m	200 × 200 m
3000 – 5750 m	400 × 400 m
5750 – 11000 m	800 × 800 m



Target coverage by 2030

GEBCO_2014 30 arc-sec (~1 km) grid

GEBCO_2019 15arc-sec (~500m) grid

GEBCO_2020 15arc-sec (~500m) grid

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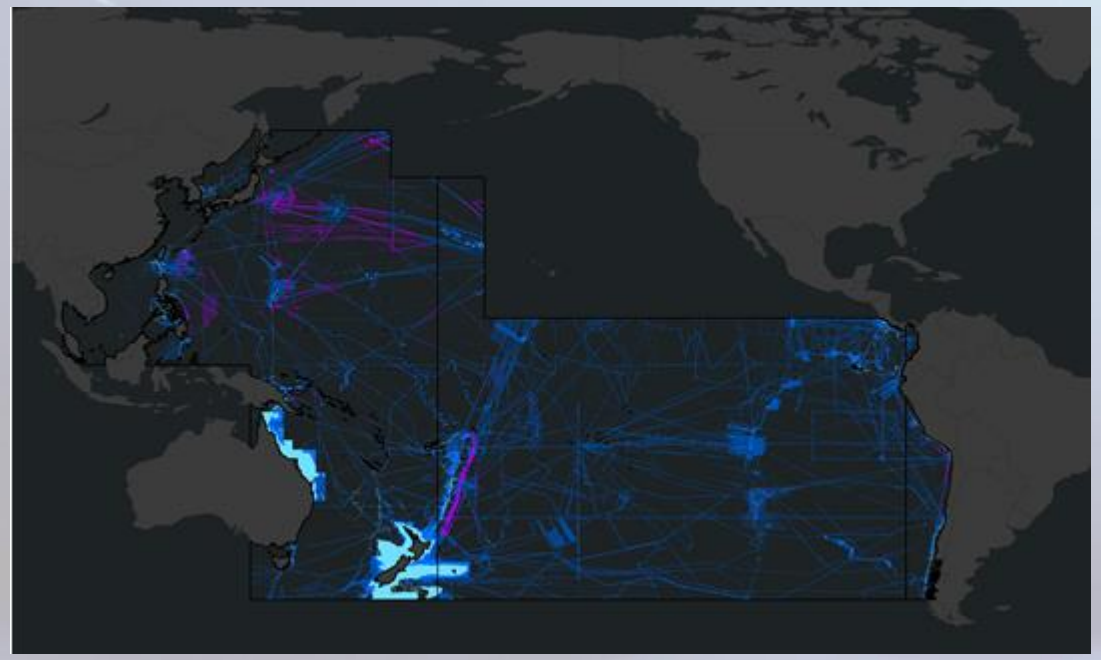
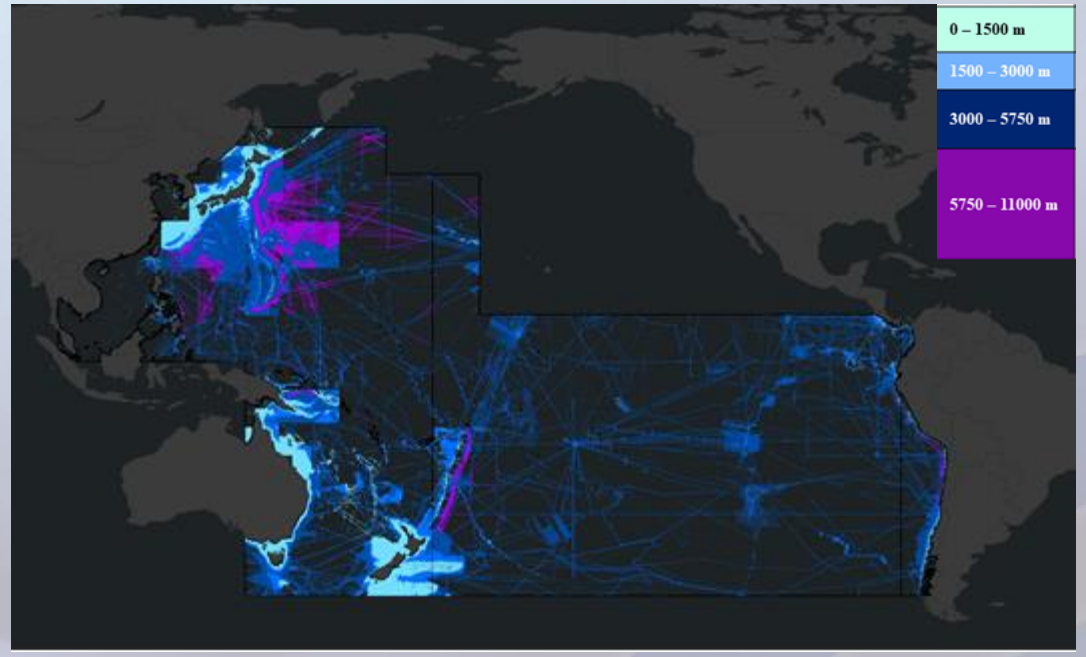
Seabed 2030/GEBCO progress to date



SaWPaC for GEBCO_2019



SaWPaC for GEBCO_2020

GEBCO_2019 and **GEBCO_2020** are 15arc-sec (~500m) grids

2019: ~ 13% of cells populated

2020: ~ 24% of cells populated

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The GEBCO 2020 Grid

Ocean mapping coverage now stands at **19%**

14.5million km^2 of new data in last year

- ~1.6 x size of continental Australian landmass

At 6% when Seabed 2030 Project began - so steady progress

What does this all look like ……..?

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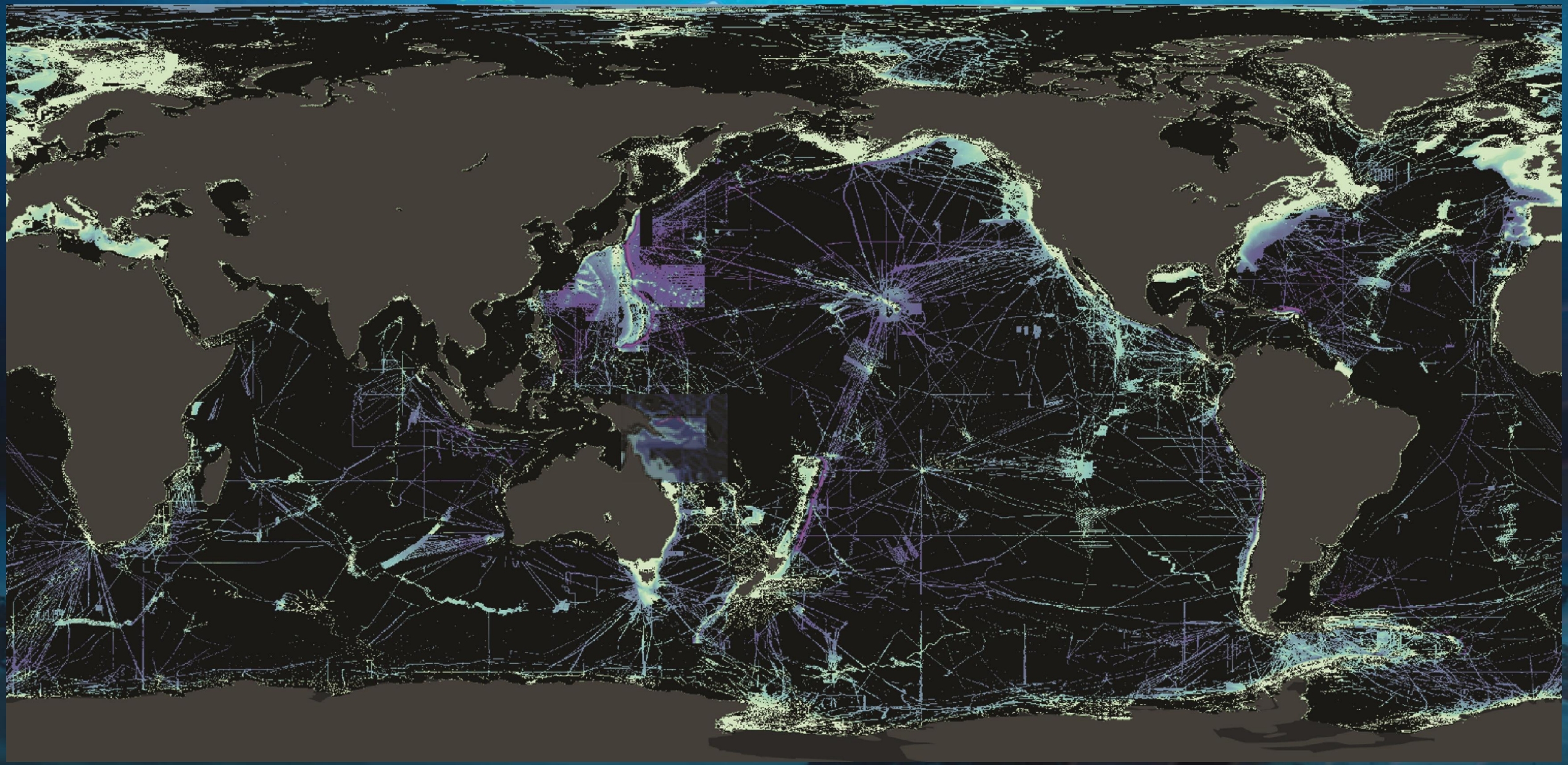
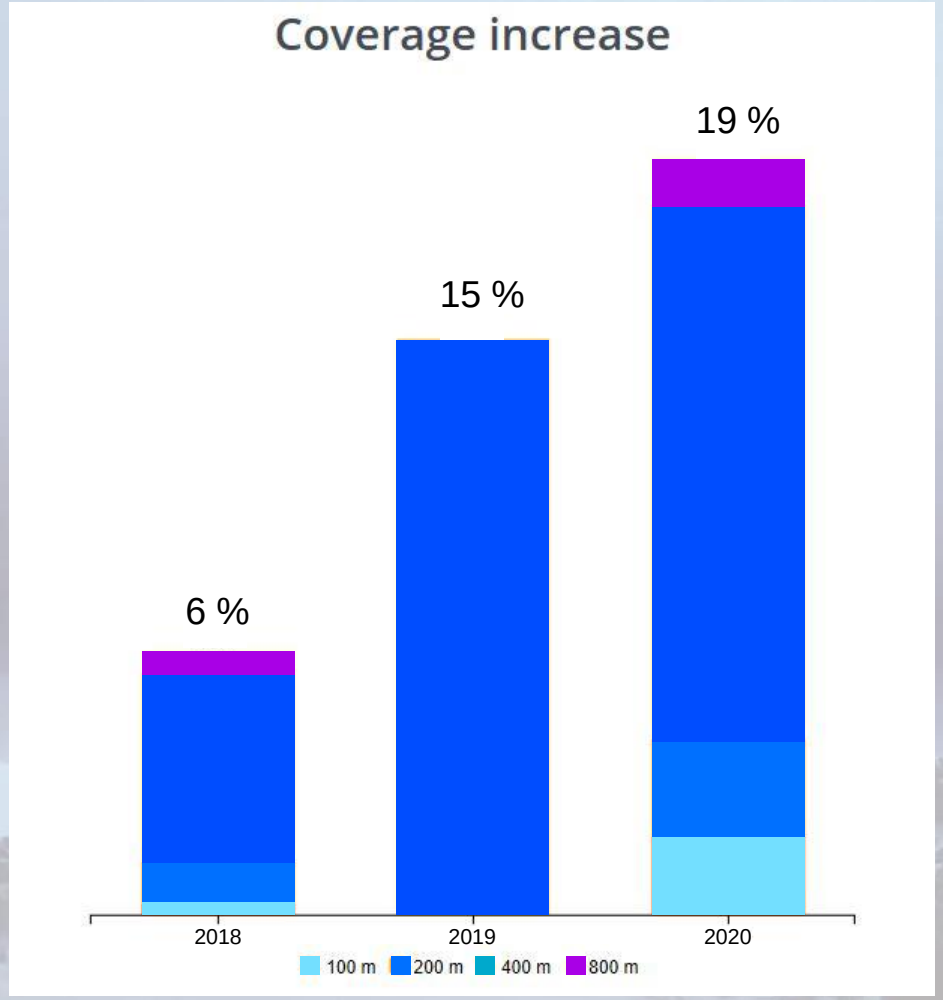


Courtesy of Vicki Ferrini, Columbia University

Seabed 2030 - Progress to Date



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?

GEBCO-NF ALUMNI

Shell OCEAN DISCOVERY XPRIZE

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What we ask of you……

- ***Noting** that*
  - Some 70% of the Earth covered by the ocean, yet today we have mapped only ~ 19%
  - Seabed shape is fundamental not only to safety of navigation but also to many ocean processes that:
    - Drive ocean current circulation, affecting climate & sea level rise predictions.
    - Allow forecasting of tsunami wave propagation & other dynamic phenomena (incl. sediment transportation; wave action; & underwater hazards).
    - Allow better understanding of marine habitats, eco-systems and much more
    - Offer opportunities for new discoveries …….
- ***Please ……***

THE NIPPON FOUNDATION-GEBCO SEABED 2030

What we ask of you……

- ***Please join us in supporting Seabed 2030 by:***

  - Promoting the vital need to map the entire seabed
  - Encouraging your own organisations and clients to make existing seabed mapping data available for use by **AusSeabed** and **Seabed 2030** in the GEBCO Grid
    - *Non commercially sensitive/sanitised data if possible*
    - *Transit data between projects*
    - **seabed2030.gebco.net/contributions**
  - Helping us gather Crowd Sourced Bathymetry (CSB) to be used by **Seabed 2030** in the GEBCO Grid
  - Supporting future seabed mapping projects where data can be used by **AusSeabed** and **Seabed 2030** in the GEBCO Grid
  - Innovating technology that will accelerate seabed mapping

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Thank you

Sponsors

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UNESCO
United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Regional and Global Center Hosts

University of New Hampshire

National Oceanography Centre
NATURAL ENVIRONMENT RESEARCH COUNCIL

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

Stockholm University

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

NIWA
Taihoro Nukurangi

GNS Science

Land Information New Zealand
Toitū te whenua

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Connect with Seabed 2030:

seabed2030.gebco.net/contributions

seabed2030.gebco.net/get_involved

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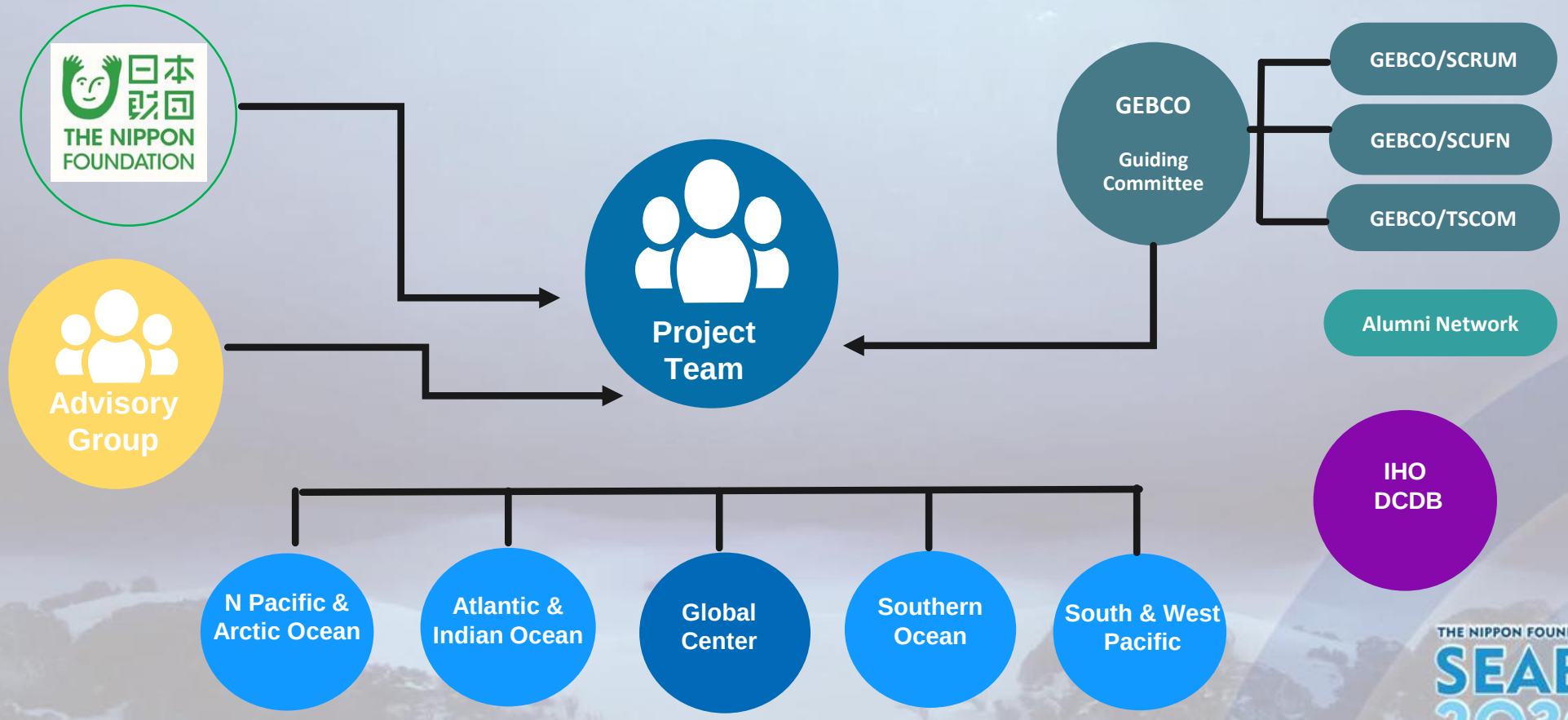
Seabed 2030 Network



4 Regional Centers + 1 Global Center

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