

The Nippon Foundation – GEBCO SEABED 2030

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100% of the Ocean Floor Mapped by 2030



Seabed 2030 Mission



To empower the world to make *policy decisions*, use the ocean *sustainably* and *undertake scientific research* based on detailed bathymetric information of the Earth's seabed

Supports United Nations Sustainable Development Goal 14:
to conserve and sustainably use the world's oceans,
seas and marine resources



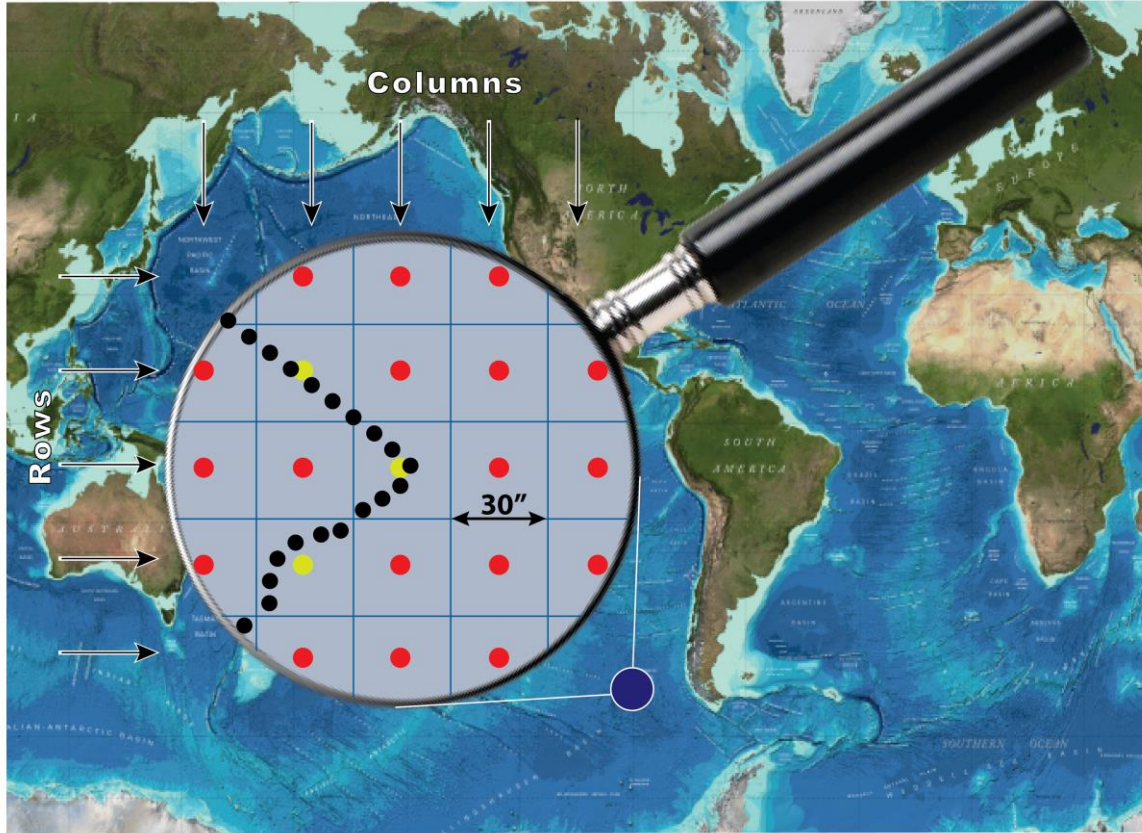
2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

SDG14 will be impossible to achieve without a comprehensive map of world's ocean floor



**SUSTAINABLE
DEVELOPMENT
GOALS**

What does “100% mapped” mean?



The GEBCO global terrain model grid

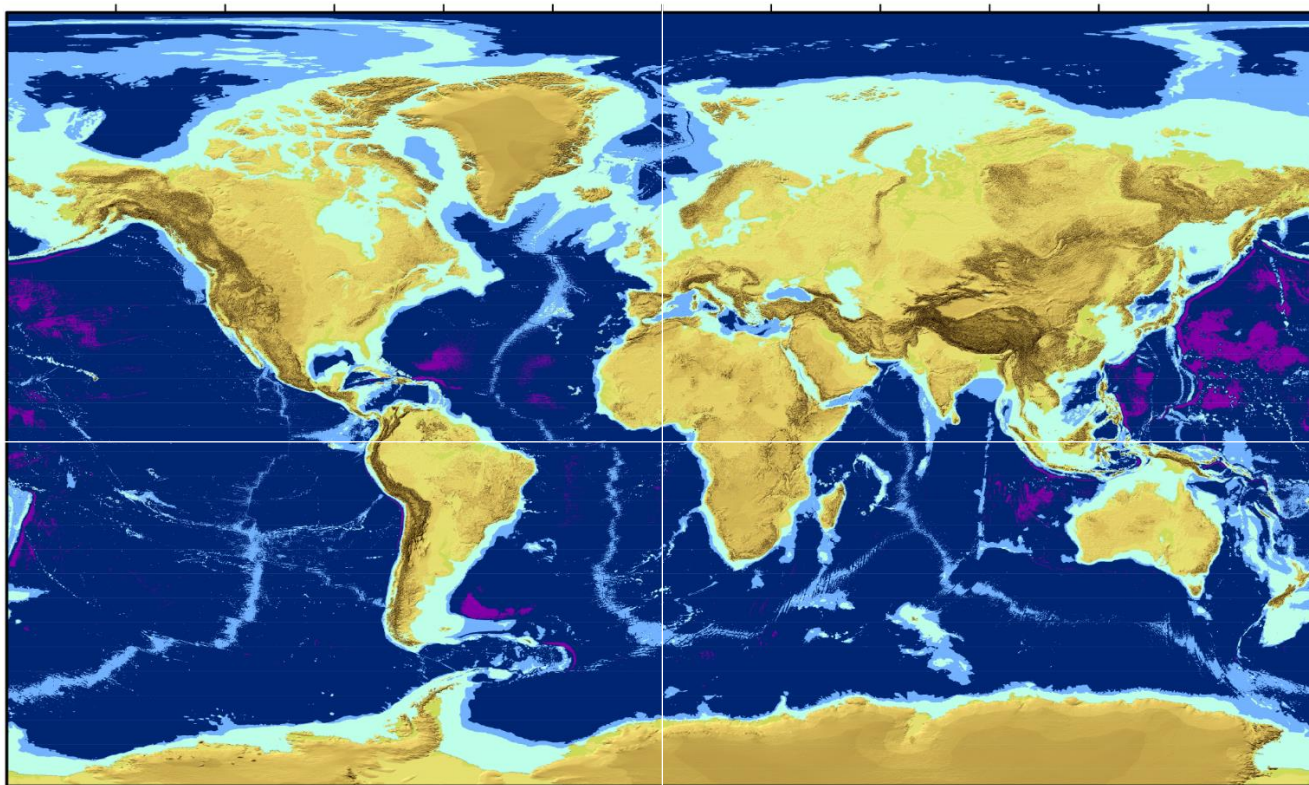
- ship-track soundings + interpolation guided by satellite-derived gravity data
- Includes regional grids which may be based on different interpolation models

18% of 30'' cells have depth measurements

6% of 15'' cells have depth measurements

- Real depth measurements
- Interpolated depth values
- Depth values derived from statistics of real depth values.

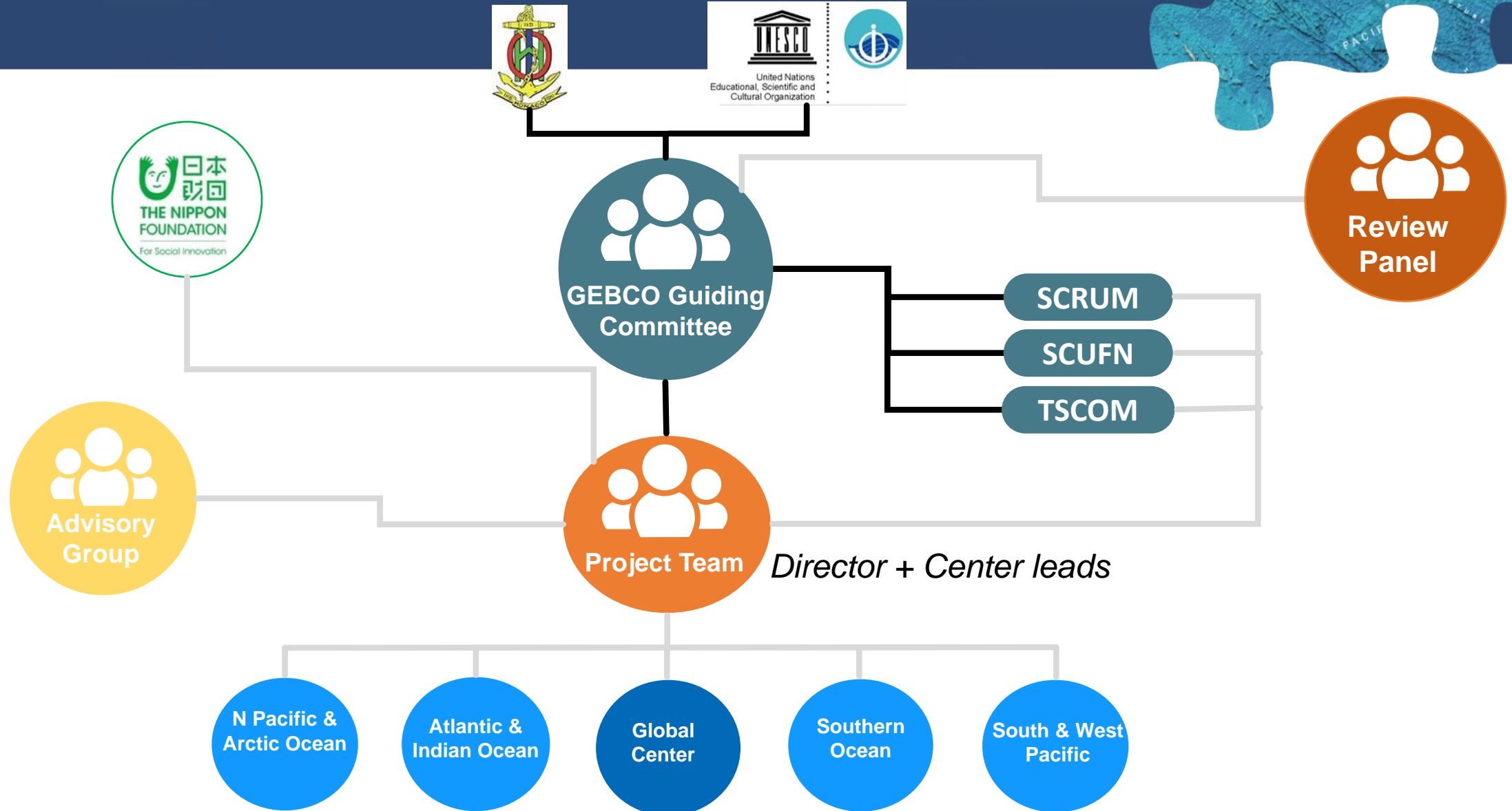
Target Grid Variable Resolution



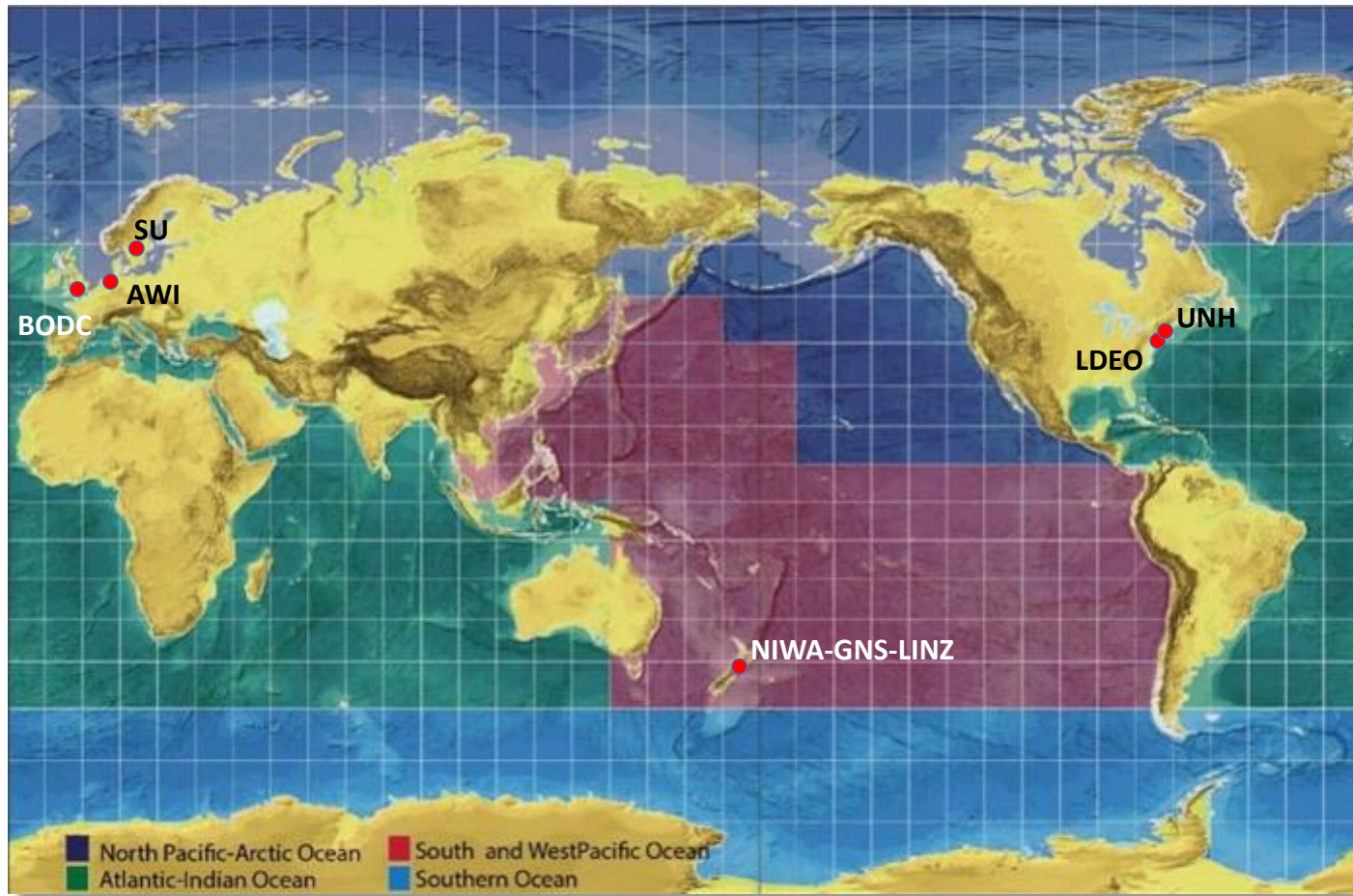
**Target GEBCO Grid
Depth-dependent Variable Resolution**

Depth Range	Resolution	% of ocean
0–1500 m	100 × 100 m	13.7
1500–3000 m	200 × 200 m	11
3000–5750 m	400 × 400 m	72.6
5750–11,000 m	800 × 800 m	2.7

Seabed 2030 Governance & Operations

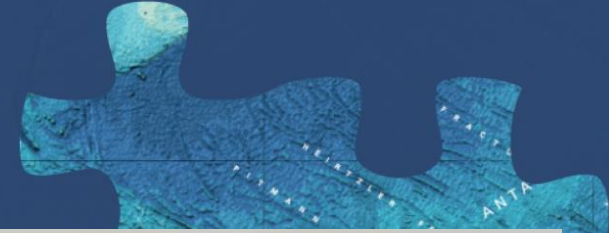


Regional Approach



- Regional stakeholders
- Regional data assembly & coordination
- Regional products feed into global GEBCO products
- Follows successful model of GEBCO Regional Mapping approach

Seabed 2030 Governance & Operations



Operational since 1st February 2018

Leader Team (from left to right): Graham Allen;
Vicki Ferrini; Larry Mayer; Helen Snaith;
Boris Dorschel; Pauline Weatherall;
Martin Jakobsson; Geoffroy Lamarche;
Comms: Patrick Orr; Henry Gilliver



Dawn Wright
Chief Scientist, ESRI



Bjorn Jalving
Executive VP,
Kongsberg Maritime



Dr. Kilaparti Ramakrishna
Head of Strategy,
Green Climate Fund

Yulia Zarayskaya
NF-GEBCO Alumni
Team Lead XPrize



Four Pillars of Seabed 2030



- Data Assembly and Coordination
 - Integrate and process existing data & **gap analysis** to inform future mapping missions
 - Promote data sharing by encouraging contribution of data to the IHO DCDB
 - Create new data products – distribute through GEBCO
- Global Community Engagement
 - Identify & engage stakeholders through community events, traditional & digital media
- Consolidate Technical and Human Capacity
 - Explore and leverage new technology
 - Engage GEBCO Nippon Foundation Training Project Alumni
- Cross-cutting area of Corporate Governance
 - Strong stakeholder communication
 - Legal and accounting standards

Seabed 2030 Culture



- Co-operation and Community Building
 - 3,000 individuals, 40 organizations, 50 countries and growing
- Coordination
 - Initial Seabed 2030 focus on > 200 meters water depth
 - Hydrographic Offices critical < 200 meters water depth
- Crowdsourcing
 - Fishing boats, cargo, cruise ships, private yachts...
- Credit and Attribution
 - Recognize data contributions, in-kind services, promotion, capacity building...



<https://seabed2030.gebco.net>

 @seabed2030

Seabed 2030 Phases



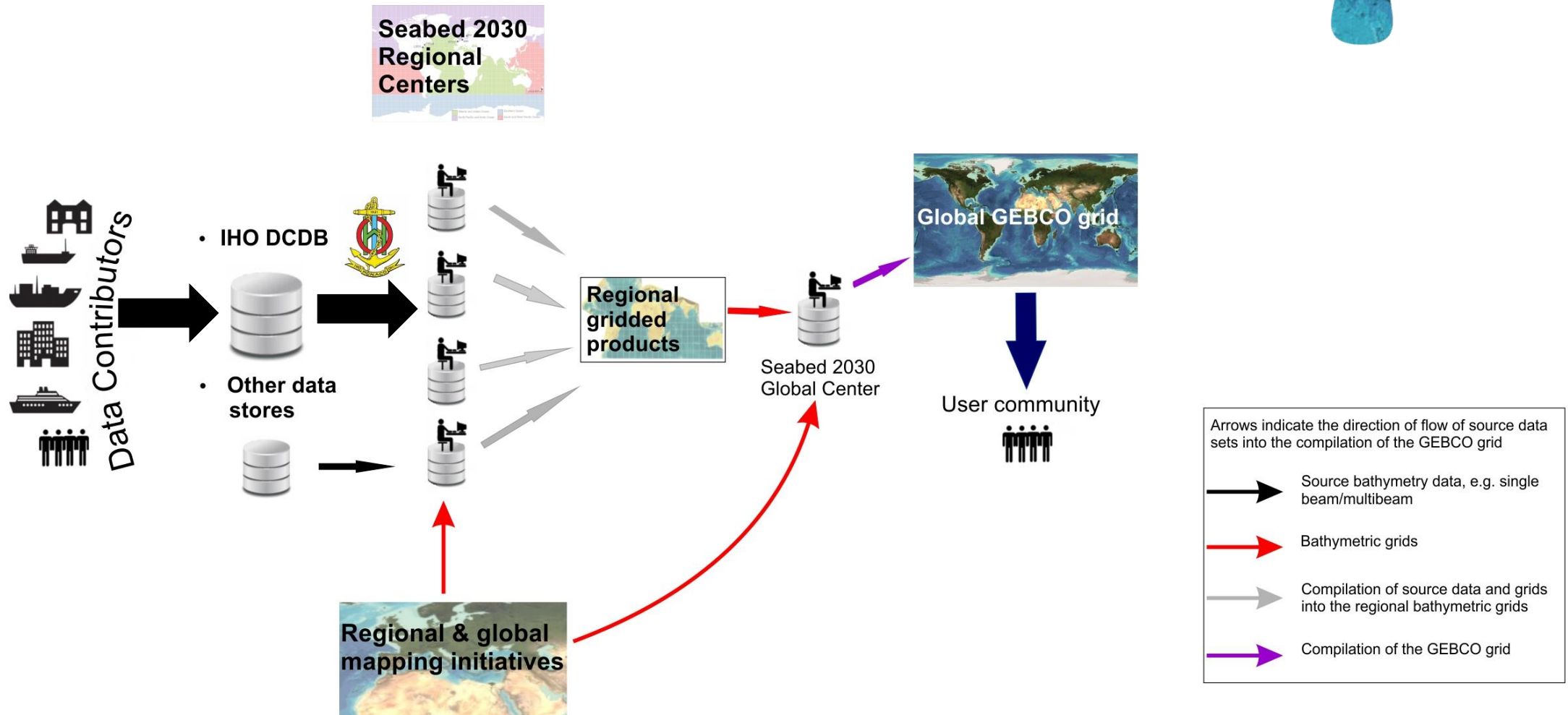
$$X + Y + Z = 100\%$$

GEBCO_2014

Data
NOT
in Grid

Map
the
Gaps

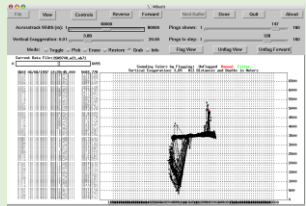
Seabed 2030 Preferred Data Flow



Other supported data flows



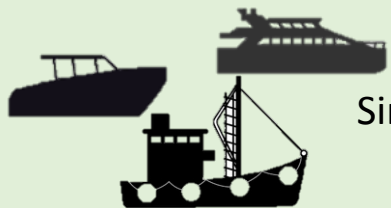
Data Sources



Raw &
Processed
Swath Files



ENC xyz



Single-beam



Gridded data

Options to submitting data directly to Regional or Global Centers:

1) Public data access (*preferred*)

Data forwarded to IHO-DCDB for archive and public access

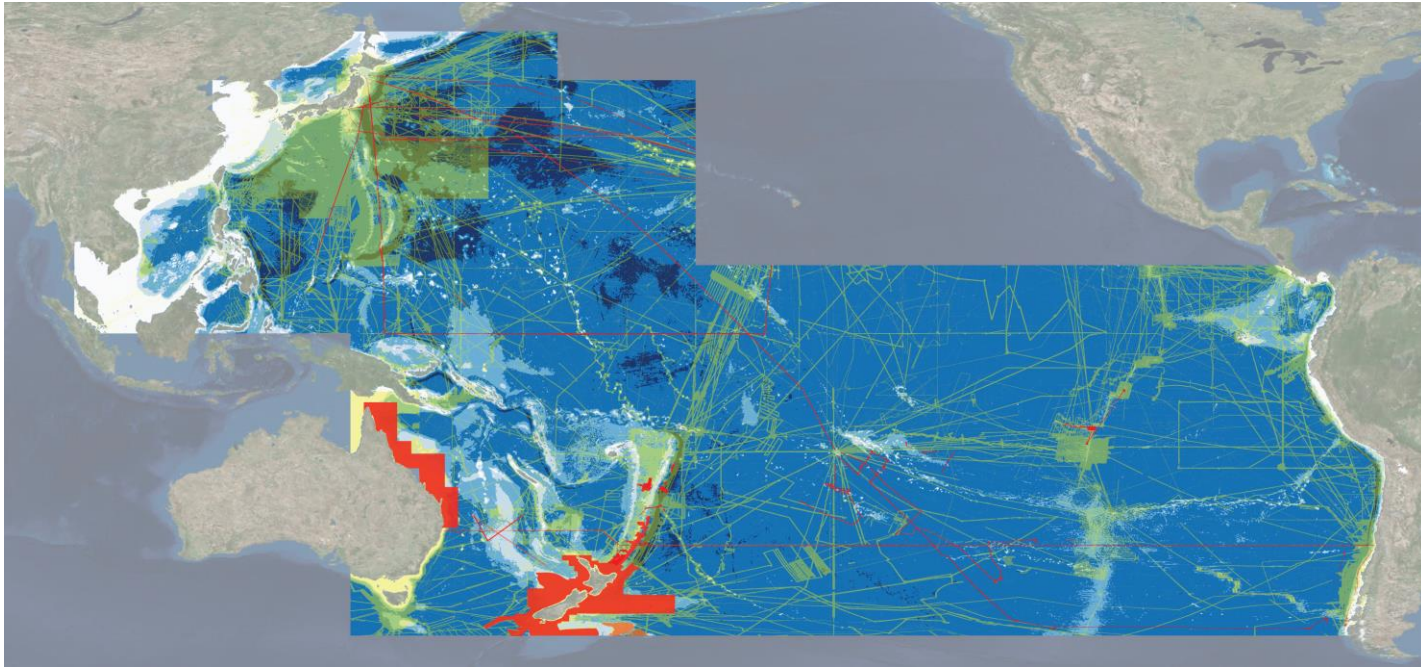
2) Restricted data access

Data forwarded to IHO-DCDB for archive and restricted access

3) Private data access

Data not forwarded to IHO-DCDB, archived at Seabed 2030 Center
Usage restricted to only inclusion in GEBCO Products;
no distribution of data

The South and West Pacific Centre



- 123,515,000 km² of ocean
- 67,000,000 km² outside national jurisdiction
- 39 countries and territories
- ~80% deeper than 3000 m
- Includes the two deepest ocean trenches:
 - Mariana Trench (10,994 m)
 - Kermadec Trench (10,047 m)

The South and West Pacific Centre Data coverage



Based on Oct 2018 Gap analysis

	Area (km ²)	% of area	Available Data (km ²)	Available Data (% of area)
0 - 200 m	4,989,826	4%	1,342,377	27%
200 - 1500 m	5,258,836	4%	2,156,631	41%
1500 - 3000 m	13,068,933	11%	4,600,667	35%
3000 - 5750 m	93,198,225	75%	19,692,187	21%
5750 - 11000 m	6,999,943	6%	2,919,090	42%
Total	123,515,763		30,710,952	25%

SaWPac mainly deep water ->

How you can get involved



- Contribute data
- Acquire data to fill gaps in coverage
- Regional Mapping Committees
- GEBCO Meetings
- Spread the word!

<https://seabed2030.gebco.net>

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Call to Action



- Support data availability at Seabed 2030 target resolution
- Facilitate legal availability at Seabed 2030 target resolution
- Engage with Regional Centers or Global Center
- Support & promote GEBCO activities & products

South and West Pacific Regional Center Mapping Committee Inaugural Workshop

Inaugural Seabed 2030 South and West Pacific Meeting

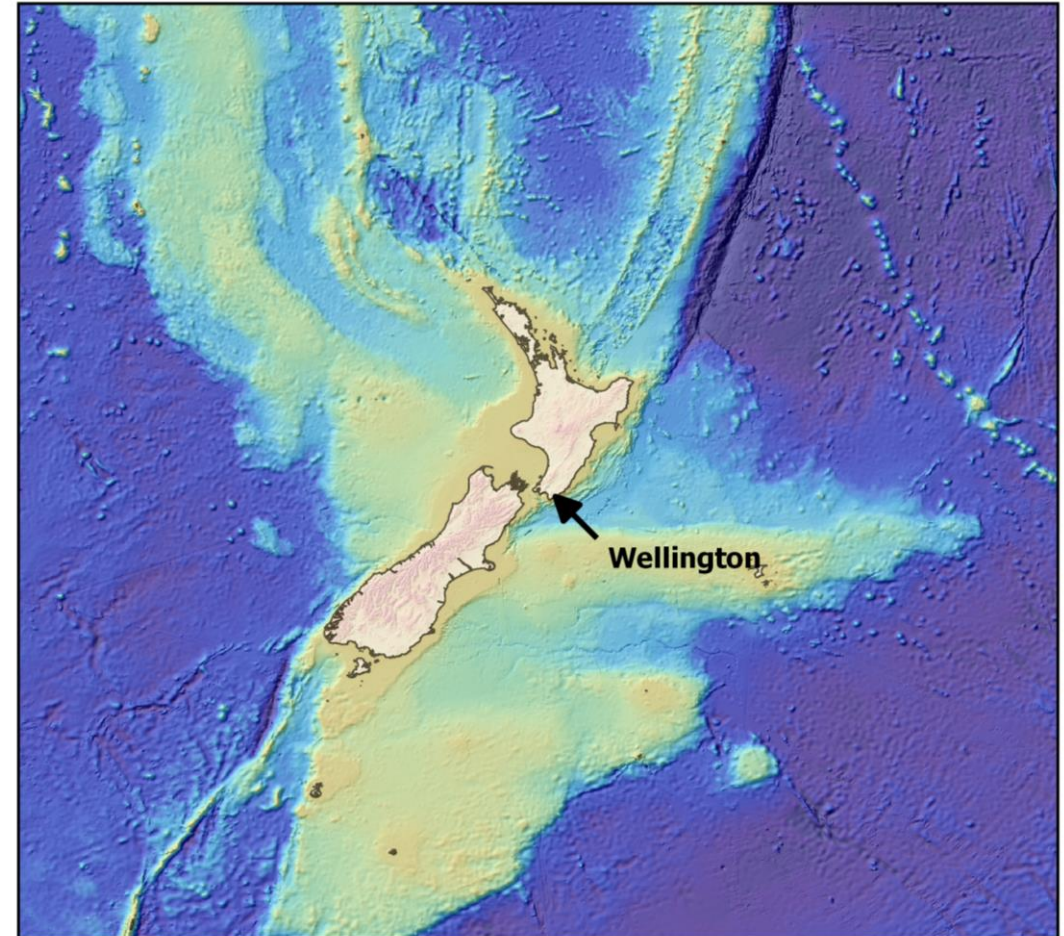
11th – 13th Feb 2019 - Wellington, New Zealand

All welcome! pacific@seabed2030.org

- Establish Regional Mapping Committee
- Identify sources of bathymetric data
- Methods for data sharing and management
- Identify upcoming voyages

Register on

https://seabed2030.gebco.net/data_centers/first_swpacific_polar_meeting.html



Key Documents



**The Nippon Foundation – GEBCO – Seabed 2030
Roadmap for Future Ocean Floor Mapping**

Roadmap

<https://seabed2030.gebco.net/>

10 year Business Plan

**GEBCO Nippon Foundation Seabed 2030 Project
Business Plan**

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Technical paper

<https://seabed2030.gebco.net/>
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Thank you!

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NIWA
Taihoro Nukurangi

Break down of the source of data types that the GEBCO grid is based on



Grid cell type (30 arc-second)	GEBCO_2014	New grid
Interpolation guided by satellite-derived gravity data	66.5%	62.4%
Interpolation guided by computer programme, e.g. GMT	14%	14.3%
Multibeam	9%	12.4%
Single beam	1.9%	1.8%
Pre-generated grid	2.7%	4.3%
Unidentified track type	3.9%	2.8%
Isolated soundings, e.g. ENC soundings	0.1%	0.1%
Contours	1.9%	1.9%