

Adam Greenland

Land Information New Zealand

On behalf of the **Seabed 2030 South and West Pacific Centre**

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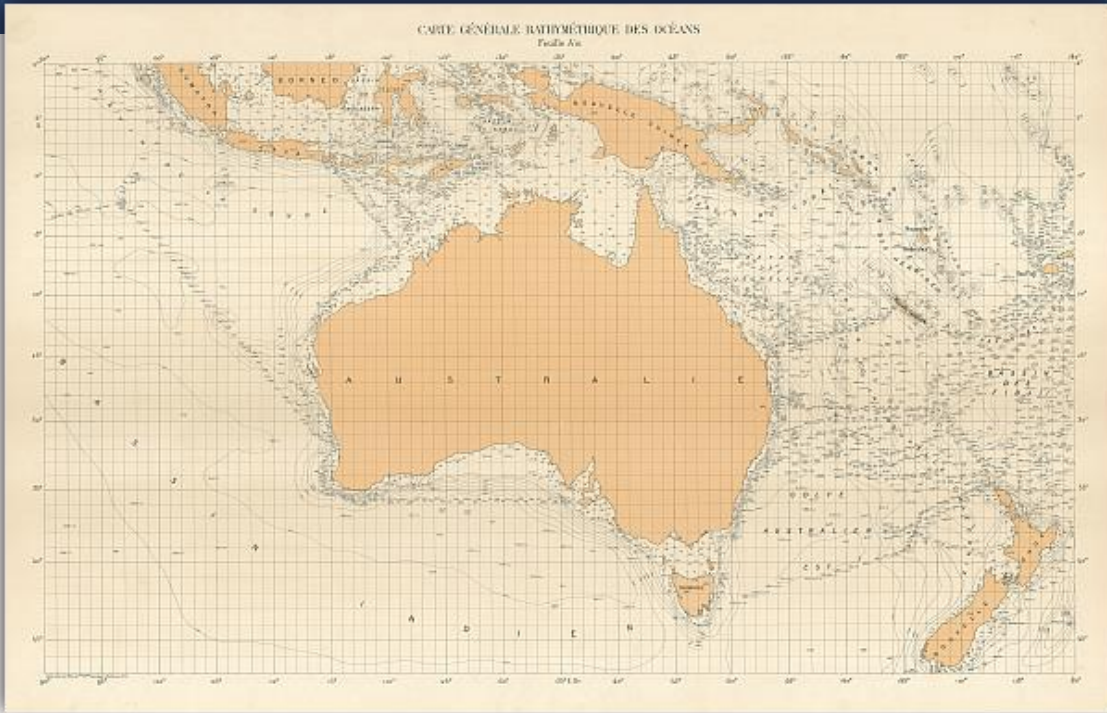
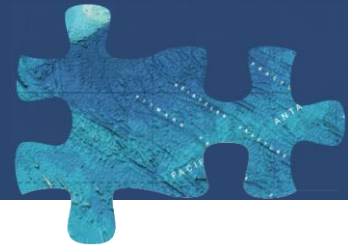
SWPHC17

February 2020

Using the ESRI Bathymetry Information System in the Nippon Foundation-GEBCO Seabed 2030 project



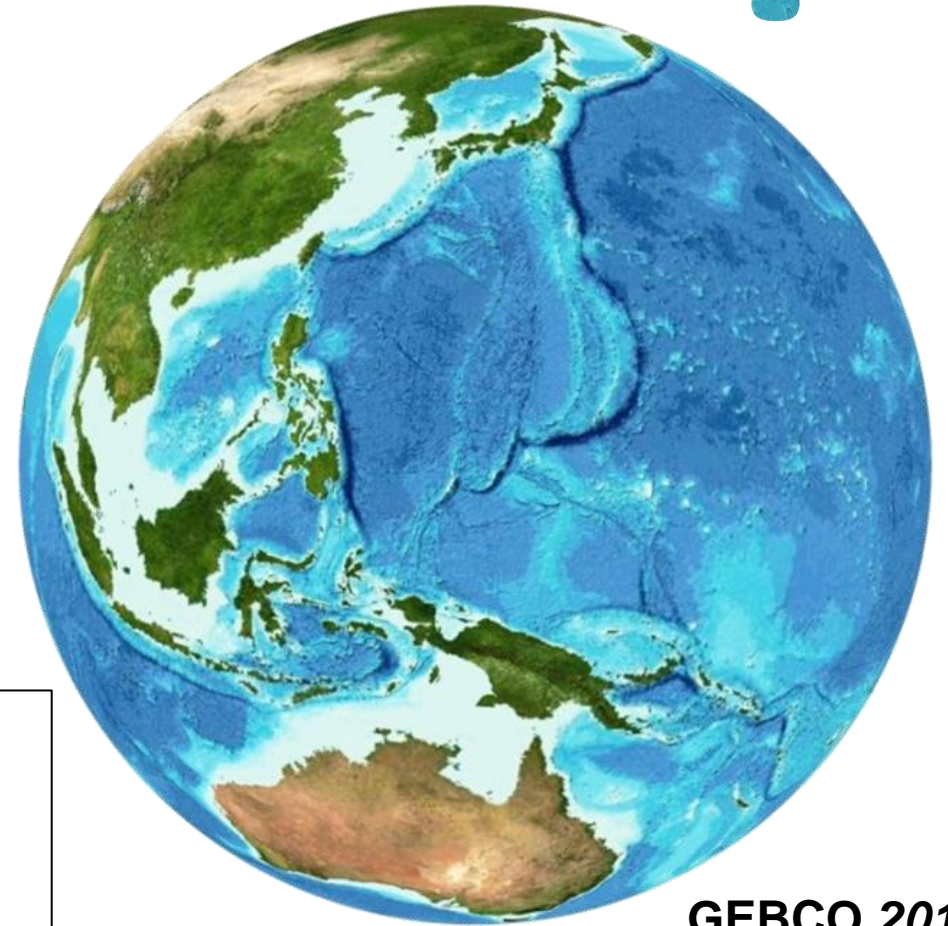
GEBCO (General Bathymetric Chart of the Ocean)



1st Edition – 1903

Usage of global gridded bathymetric data:

- Global coverage, lower resolution
- Not for safety of navigation
- Accessible to all
- Mapping of the ocean floor, modelling



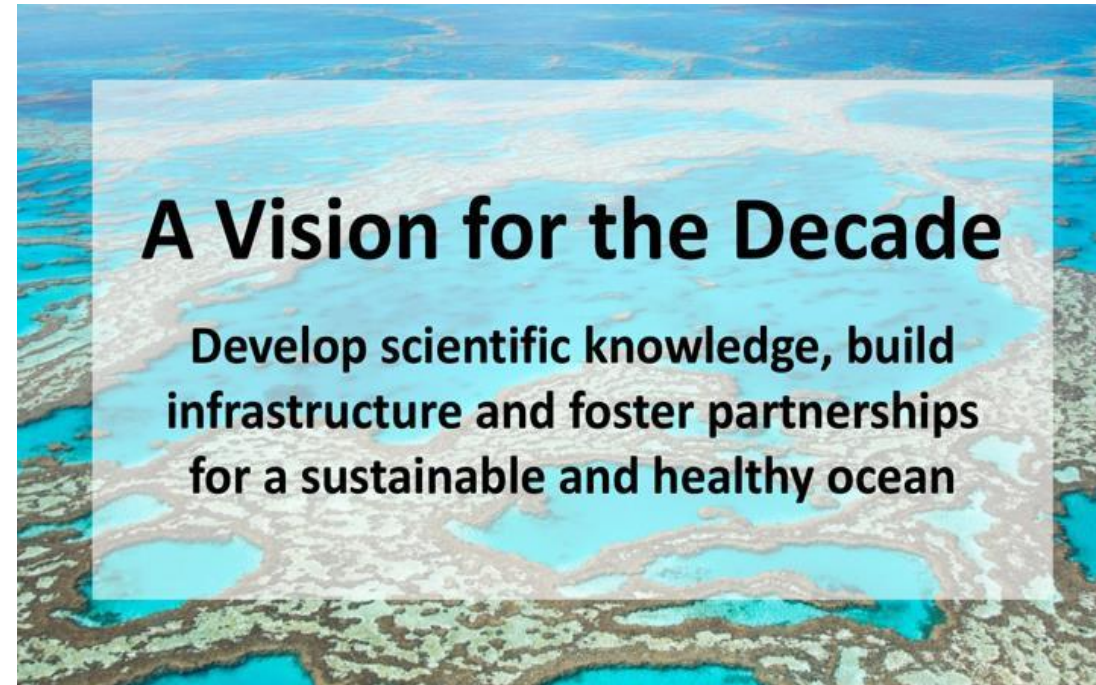
GEBCO 2014

<https://www.gebco.net>

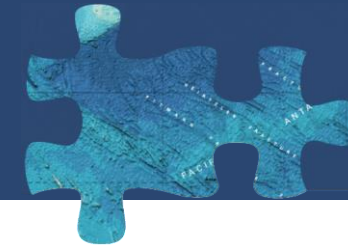
The UN Decade of Ocean Science for Sustainable Development (2021-2030)



UN Sustainable Development Goal 14



Seabed 2030: Regional Data Centers



ESRI
Kongsberg Maritime
Green Climate Fund
XPRIZE



SB 2030
Project Team

SU

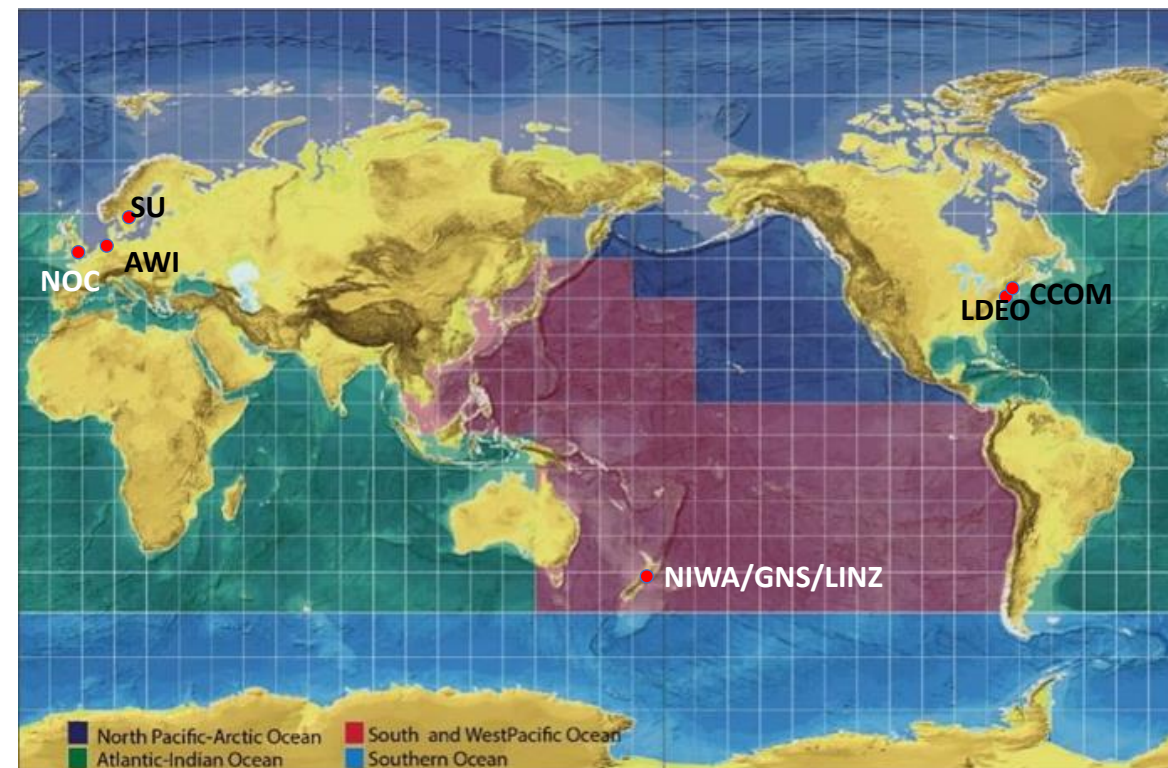
LDEO

NOC

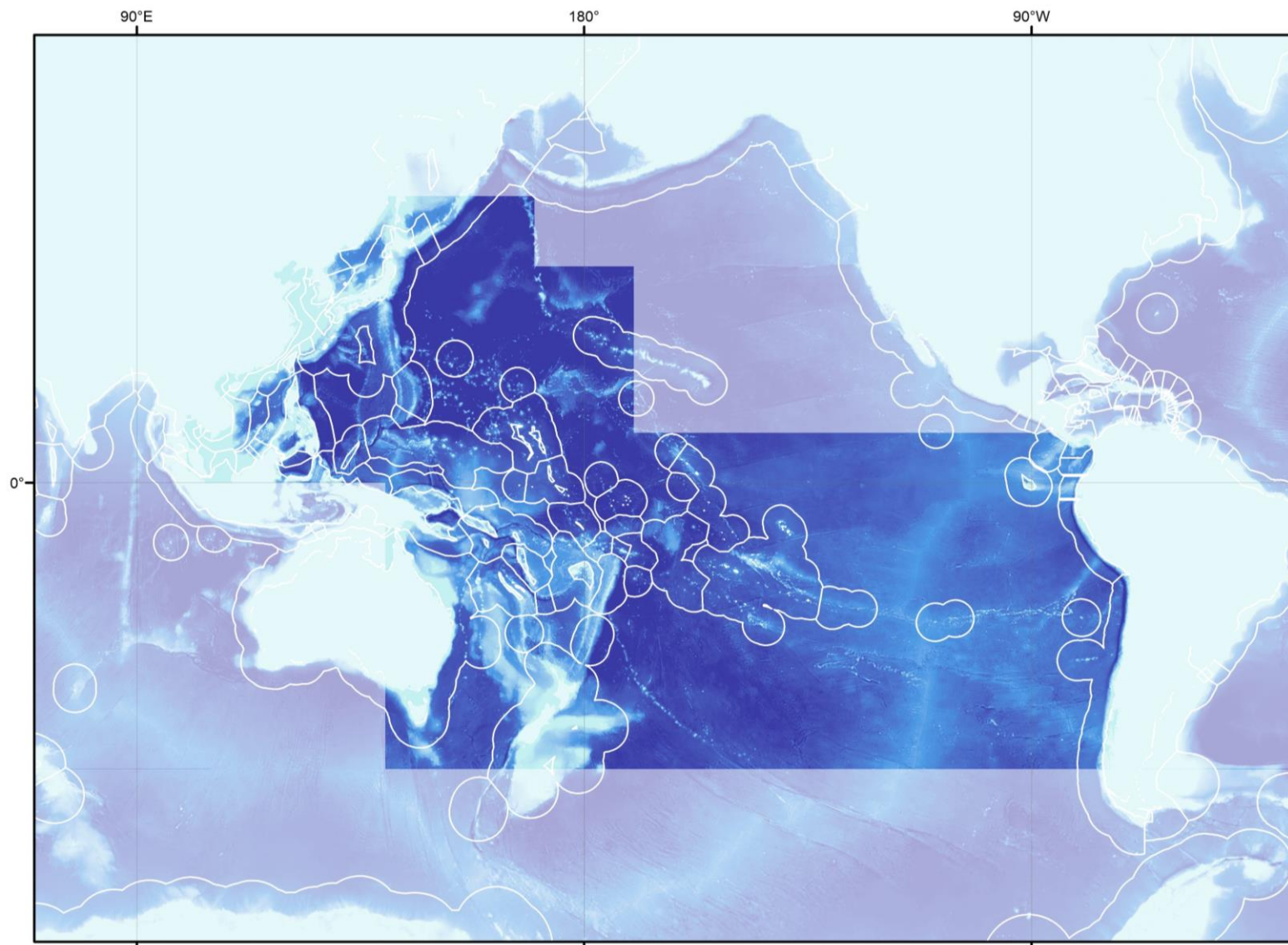
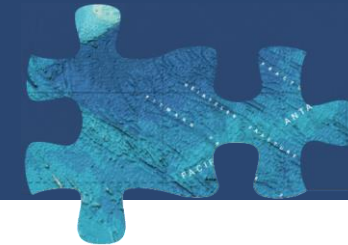
NIWA

AWI

Regional Seabed 2030 data centres



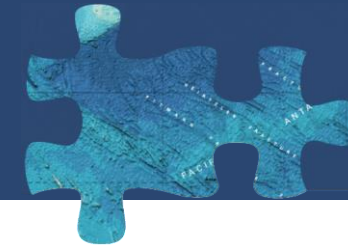
Seabed 2030 South and West Pacific Centre



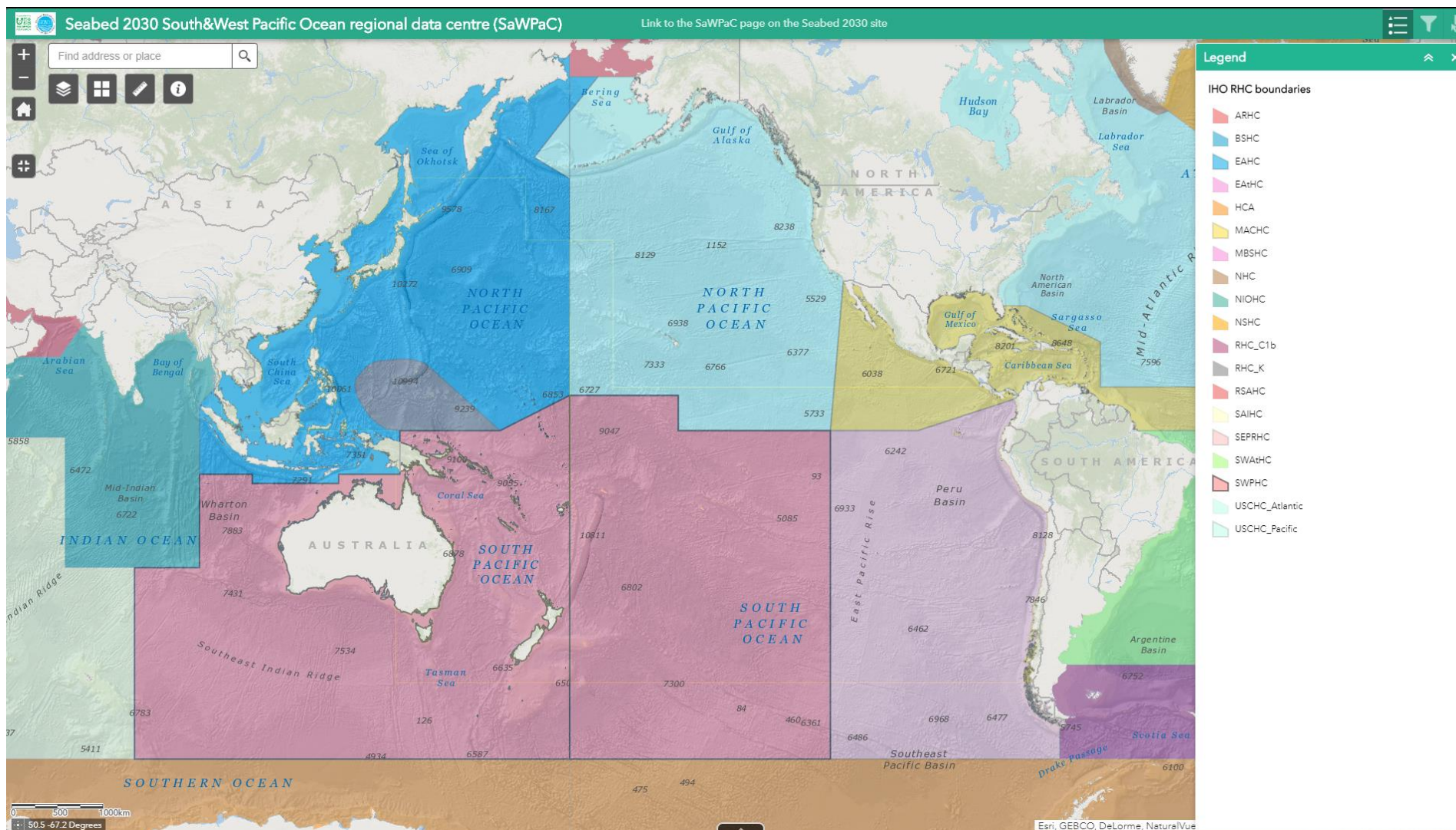
- 123,515,000 km² of ocean
- 67,000,000 km² outside national jurisdiction
- 39 countries and territories
- ~80% deeper than 3000 m
- Includes the two deepest ocean trenches:
 - Mariana Trench (10,994 m)
 - Kermadec Trench (10,047 m)

Inaugural workshop of SaWPaC

March 3-6, 2019



IHO Regional Hydrographic Commissions boundaries



Seabed 2030 South and West Pacific Centre



Nippon Foundation-GEBCO Seabed 2030 project

// South & West Pacific regional data centre

[Web app](#)



[Overview of the Seabed 2030 project](#)

[1st regional workshop in Wellington, March 2019](#)

[Seabed 2030 concept](#)

[GIS resources for the regional mapping community](#)

[Explore coverage of bathymetric data](#)

1st workshop of the S&W Pacific data centre

March 3-6, 2019

Wellington, New Zealand

[Workshop program](#)

[Workshop participants](#)

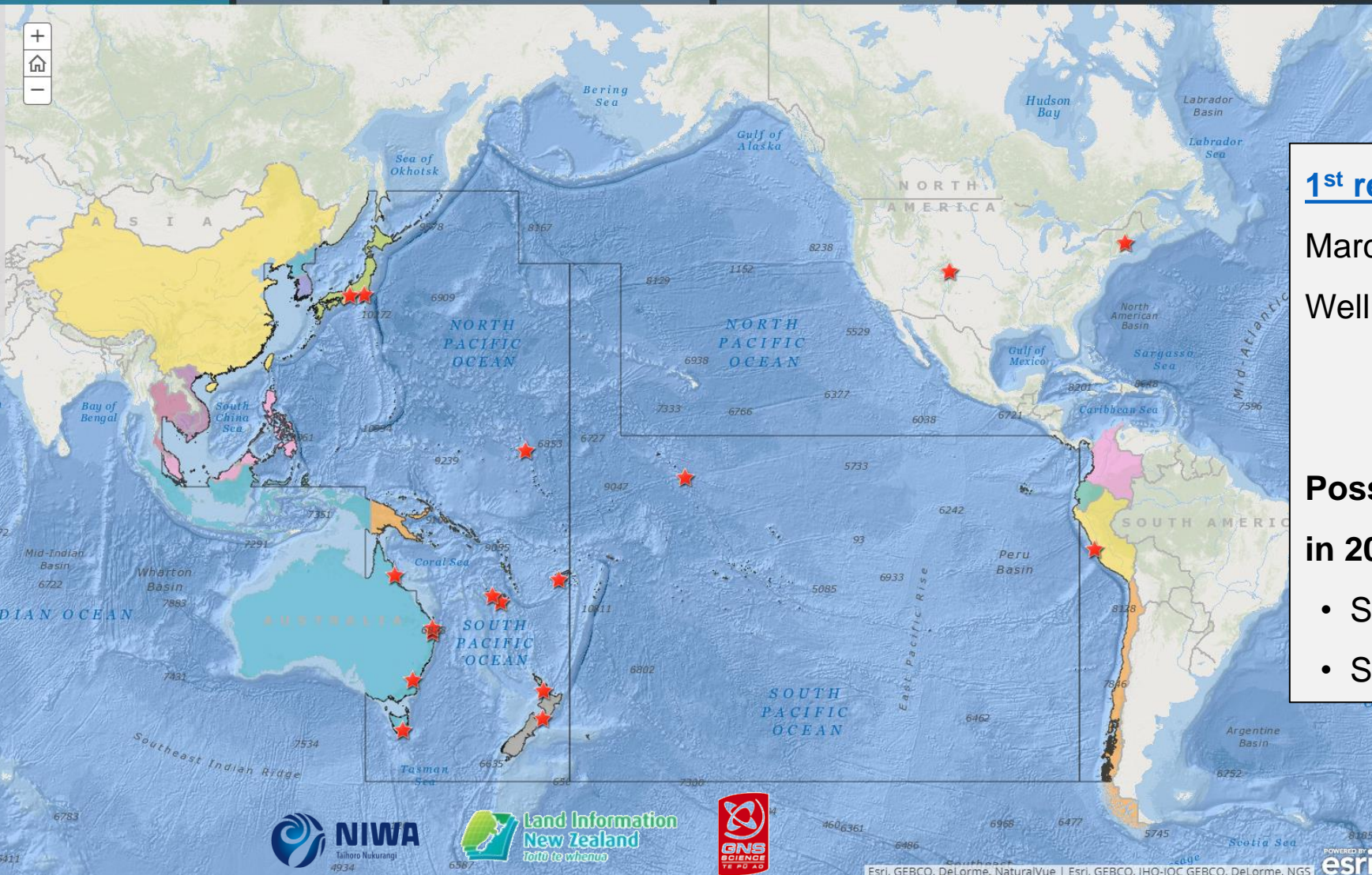
[Presentations by participants](#)

[Report](#)

Click on the map locations to find out who participated in the workshop, and to access their presentations (if available).

Contact us at: pacific@seabed2030.org

[South and West Pacific regional data centre team members](#)



1st regional workshop

March 3-6, 2019

Wellington, NZ

Possible workshops in 2020

- South East Asia
- South America



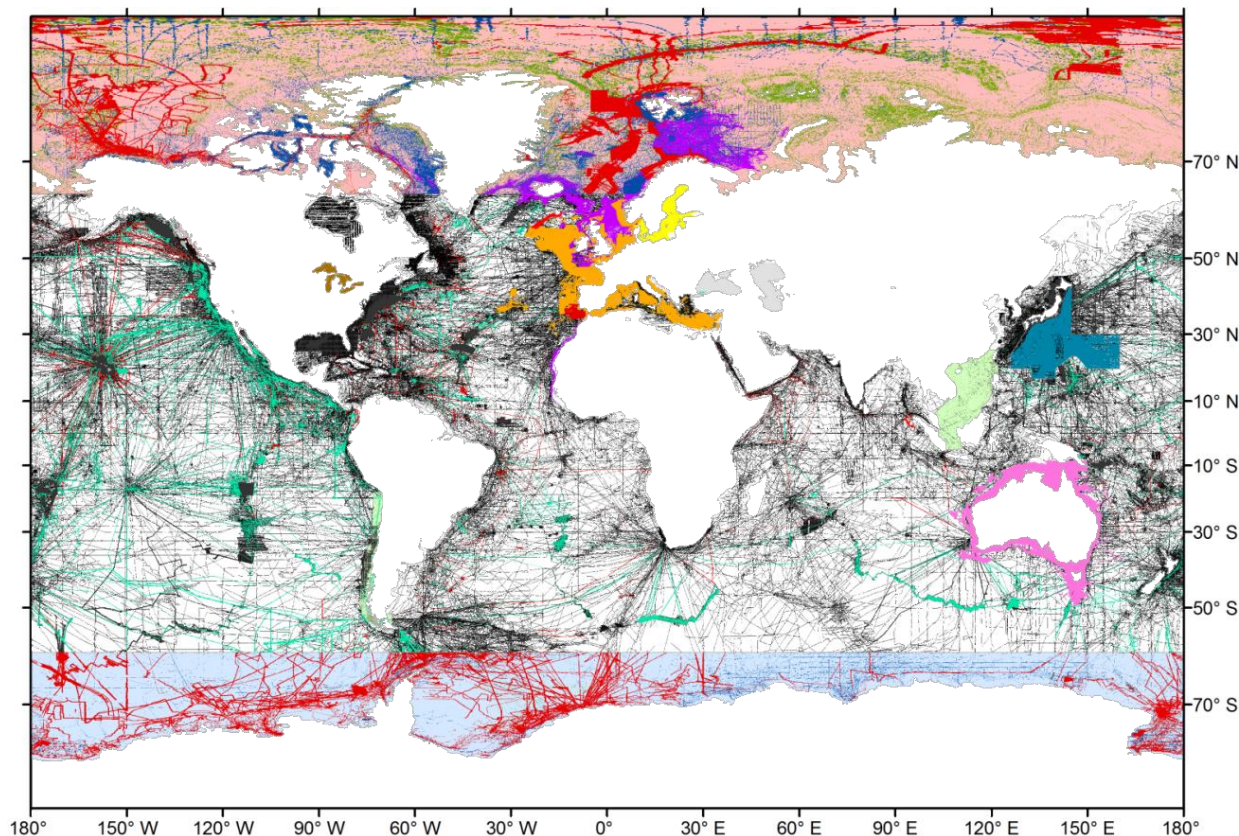
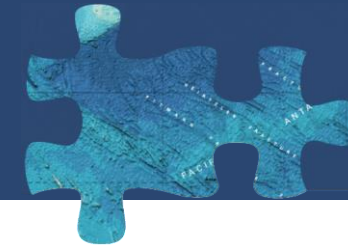
➤ Regional engagement activities in 2018-2019

- *Australasian Hydrographic Society seminar*, [Fiji](#)
- *South-West Pacific Hydrographic Commission (SWPHC) 16th meeting*, [Niue](#)
- *25th International Ocean Data Exchange (IOC) Committee of the UNESCO/IOC*, [Japan](#)
- *12th Intergovernmental Session of the IOC Sub-Commission for the Western Pacific (WESTPAC-XII)*, [Philippines](#)
- *Hydrography Day seminar “Hydrographic information driving marine knowledge”*, [Fiji](#)
- *New Zealand Marine Sciences Society conference*, [New Zealand](#)
- *Pacific Community Workshop on UN Decade of Ocean Science for Sustainable Development*, [New Caledonia](#)
- *Australian Marine Sciences Association conference*, [Australia](#)
- *New Zealand ESRI User Conference*, [New Zealand](#)
- *International Research Vessels Operators meeting*, [Australia](#)

➤ Hosting interns in 2018-2019

- NF/GEBCO scholars (from hydrographic offices of Japan and Malaysia), [University of New Hampshire](#)
- ENSTA Bretagne, [France](#)

Seabed 2030 working concept

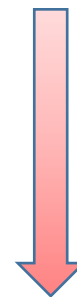


GEBCO 2014 SID layer

From GEBCO 2014 to GEBCO 2019, and on

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

known



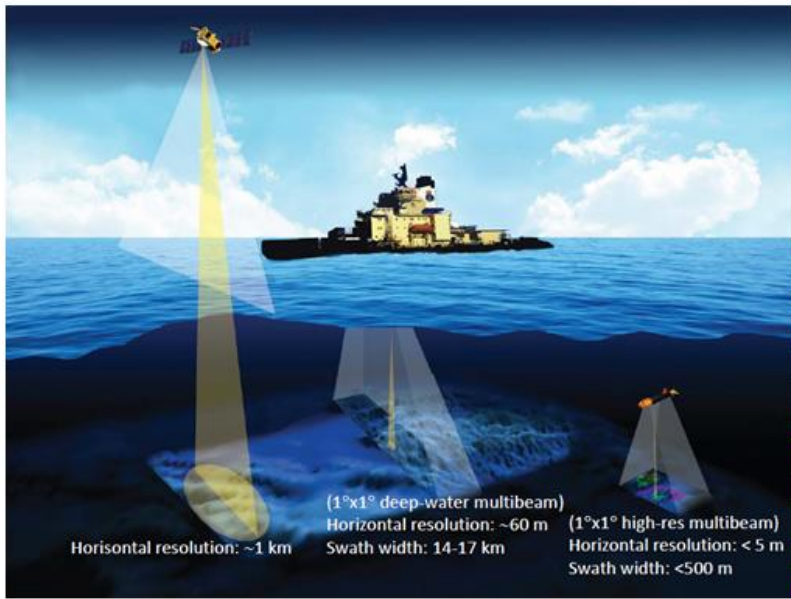
unknown

X: Data in GEBCO products

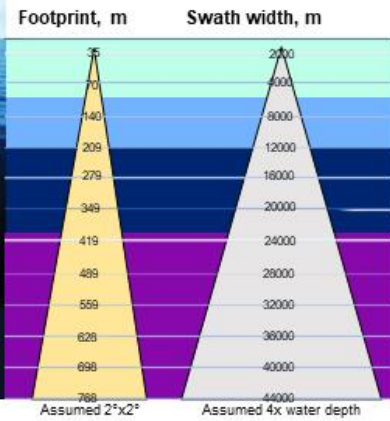
Y: Data that exists but are not yet integrated

- Public
- Embargoed

Z: Data that must be acquired

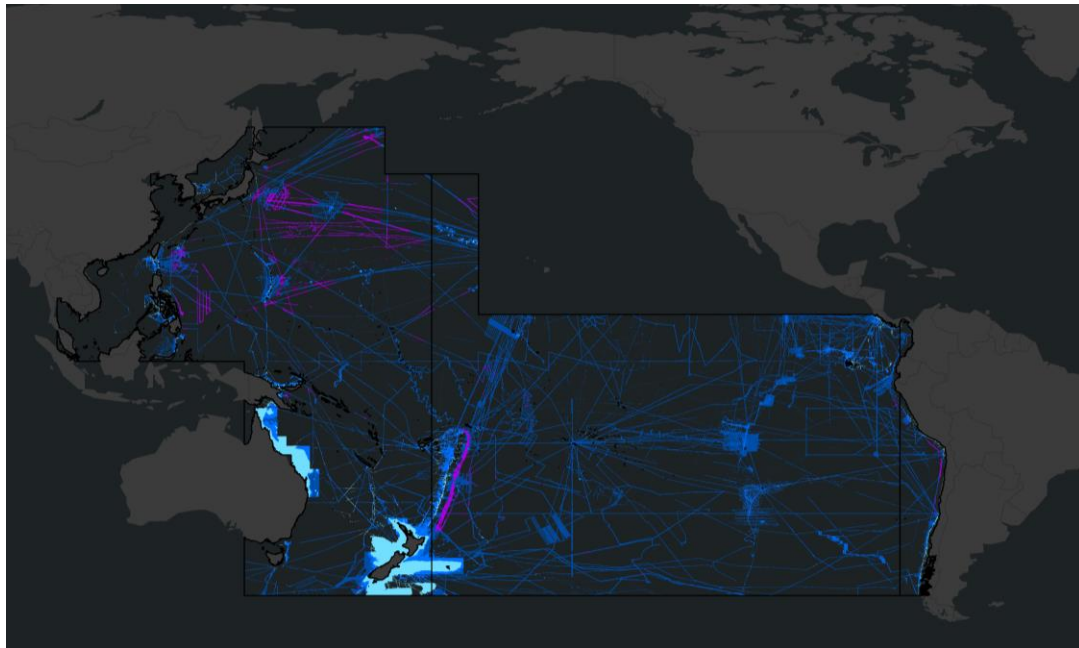
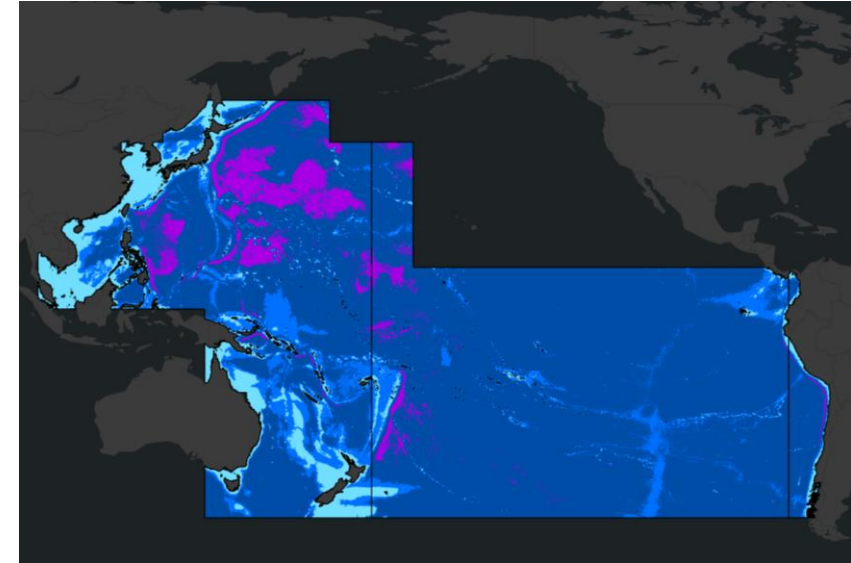


Seabed 2030 target grid resolution is based on the average beam footprint for a specified depth range of a modern multibeam system installed on a surface vessel.

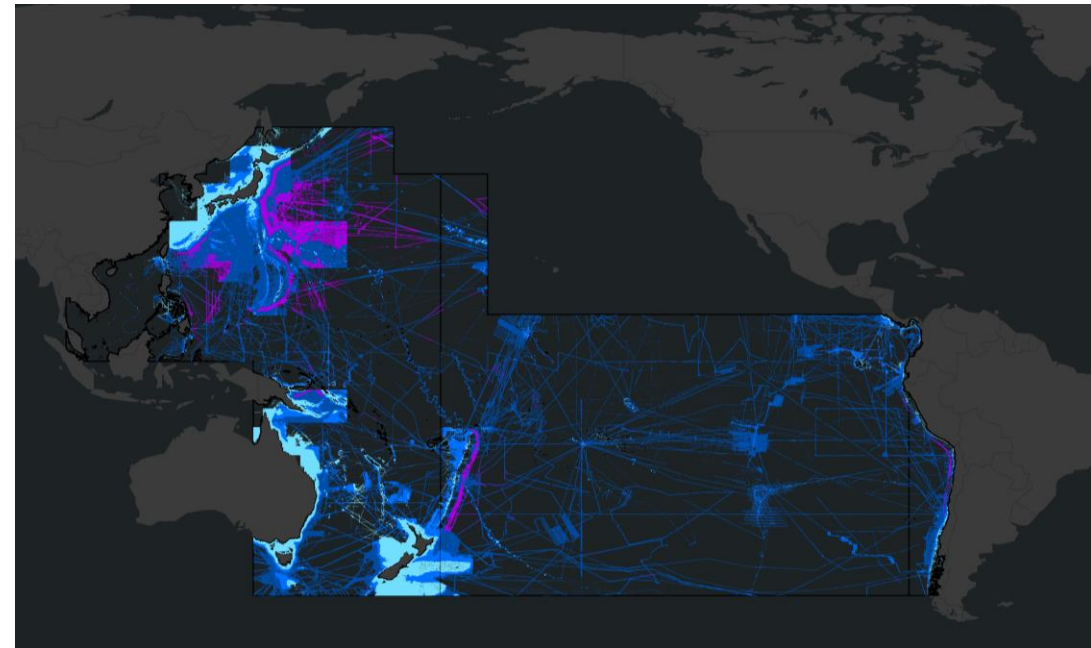


Depth Range	Target grid resolution
0 – 1500 m	100 × 100 m
1500 – 3000 m	200 × 200 m
3000 – 5750 m	400 × 400 m
5750 – 11000 m	800 × 800 m

Seabed/GEBCO 2030 target coverage



Seabed/GEBCO_2019 coverage

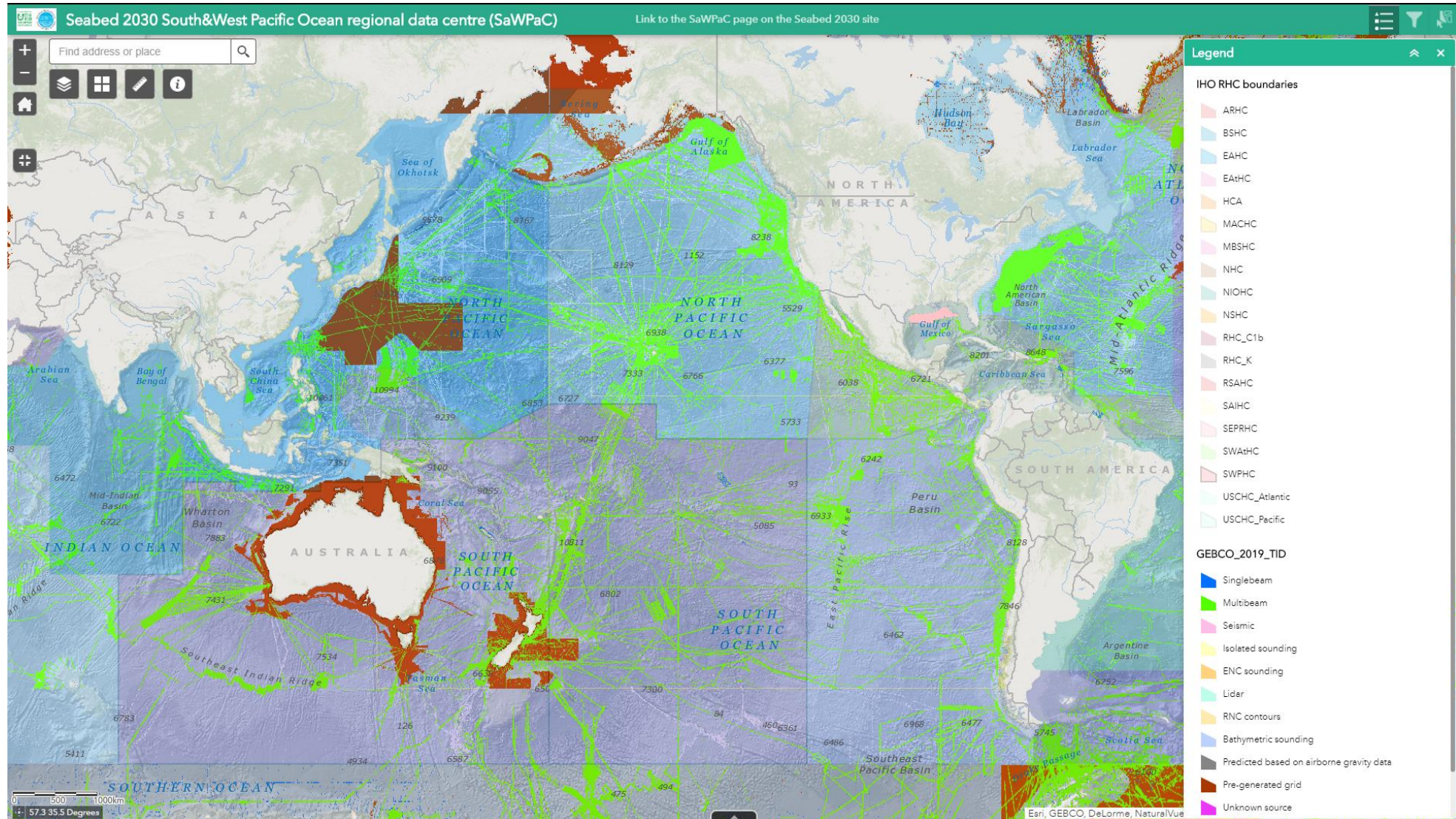


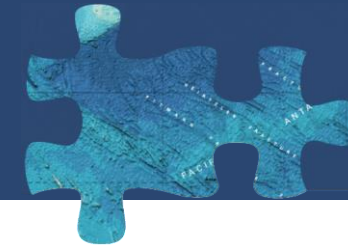
Seabed/GEBCO_2020 (draft) coverage

Seabed 2030 South and West Pacific Centre

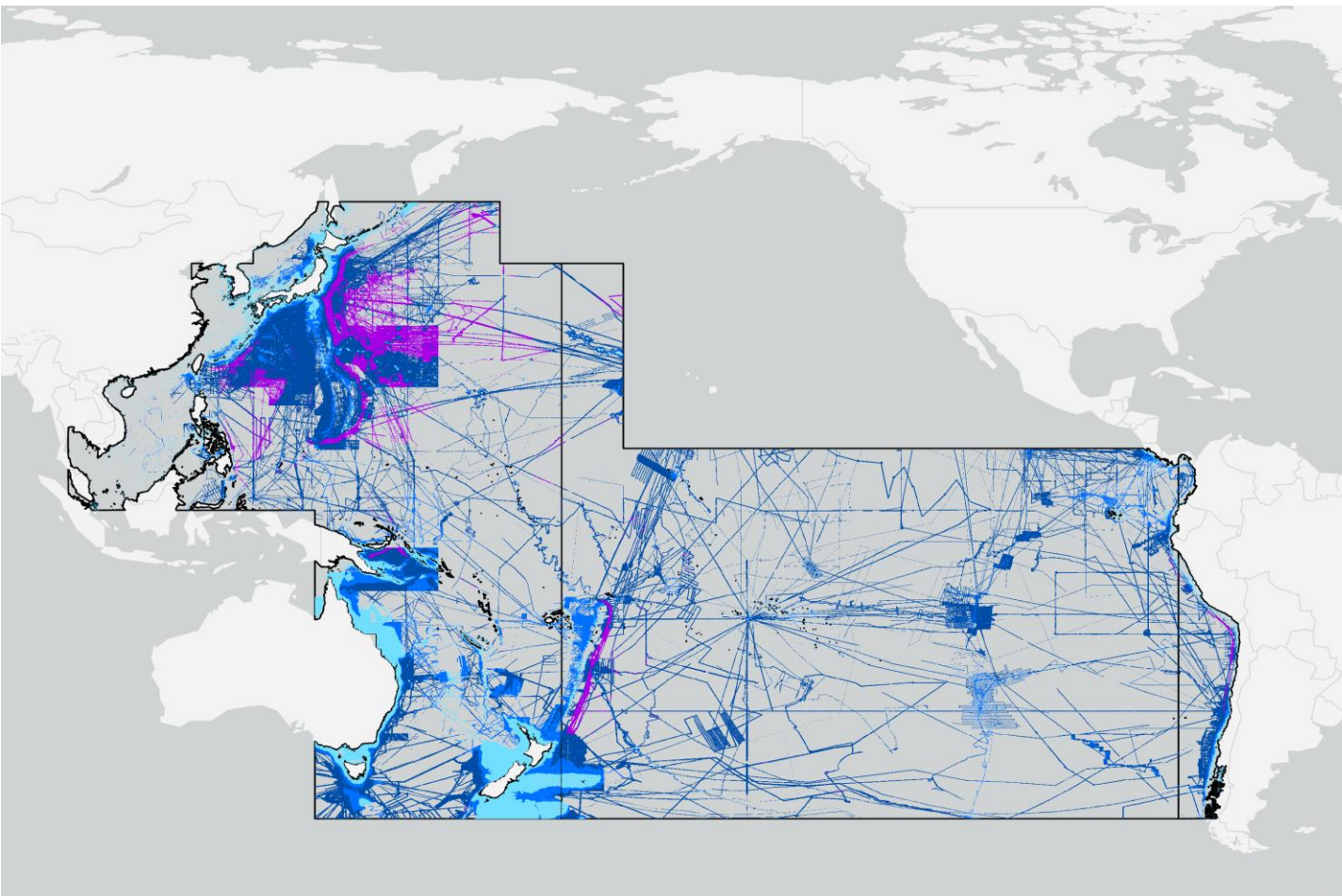


Coverage included into the GEBCO_2019 grid





GEBCO_2020 (draft) grid



~ 24% of 15arc-sec grid cells populated

~ 19% == multibeam data

Major regional contributors in 2019

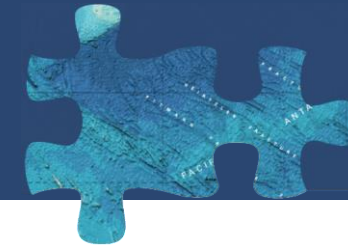
- JAMSTEC
- Geoscience Australia
- MGDS
- NOAA NCEI multibeam bathymetry database
- Olex (single-beam data from fishing vessels)
- SHOM
- Ocean Exploration Trust

Awaiting submission in 2020

- IFREMER

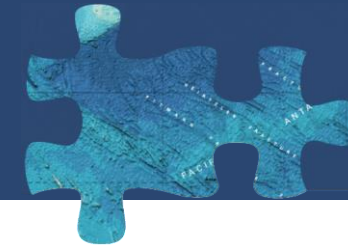
Potential sources of crowd-sourced bathymetry

- Fishing, cargo, leisure vessels



ENC data available to GEBCO/Seabed 2030 in the Pacific region

Source	Description and Reference
Korea Hydrographic and Oceanographic Administration (KHOA), Republic of Korea	ENC soundings and contours, Korean Peninsula
East Asia Hydrographic Commission (EAHC)	ENC soundings and contours, South China and Eastern Archipelagic Seas
Chilean Navy Hydrographic and Oceanographic Service (SHOA), Chile	ENC soundings, Pacific off Chile
Directorate of Hydrography and Navigation (DHN), Peru	ENC soundings and contours, Pacific off Peru
Instituto Oceanografico de la Armada (INOCAR), Ecuador	ENC soundings and contours, Pacific off Ecuador
Land Information New Zealand (LINZ), New Zealand	ENC soundings and contours
Australian Hydrographic Service (AHS), Australia	ENC soundings and contours (TBC)



2020 IHO Regional Hydrographic Commission meetings in the Pacific region

RHC	Dates	Location
East Asia HC	February 5-7	Tokyo, Japan
South-West Pacific HC	February 10-14	Wollongong, Australia
South-East Pacific HC	March 30 – April 3	Valparaiso, Chile

2020 regional Seabed 2030 meetings

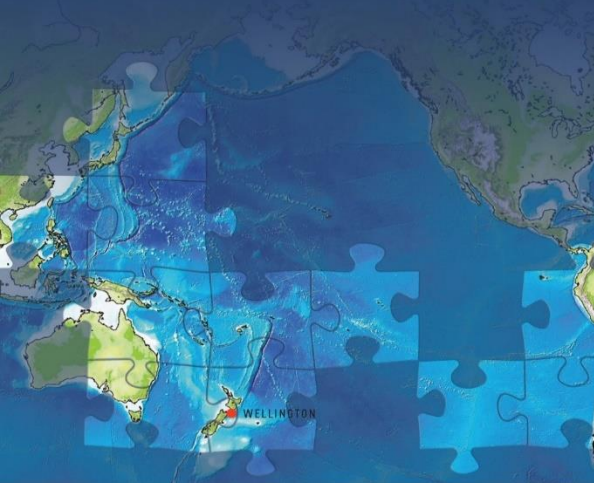
AMSA/NZMSS Conference, July 5-9, Sydney

- Proposal for a workshop submitted (**Seabed mapping within AusSeabed and Seabed2030: open data supporting marine planning**)



Seabed2030 South and West Pacific Centre

100% of the World's ocean
floor mapped by 2030



[SaWPaC Open Geospatial Data](#)

[SaWPaC story map](#)

<https://seabed2030.gebco.net>

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@seabed2030 