

THE NIPPON FOUNDATION-GEBCO

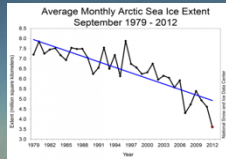
# SEABED 2030

Geo-Enabling  
for  
Our One Ocean

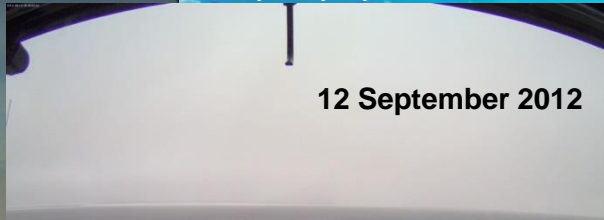
Jamie McMichael-Phillips  
Director



Courtesy: Larry Mayer, UNH



13 September 2008



12 September 2012



Arctic Ocean 80°N/156°W



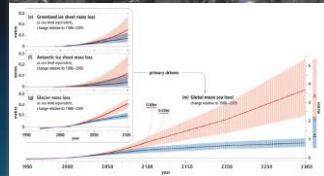
Ocean Pollution

Courtesy: Larry Mayer, UNH



# You Can't Properly Manage what you Haven't Measured

Predicted global mean sea level rise by 2300  
600 million people live within 10 m above sea level

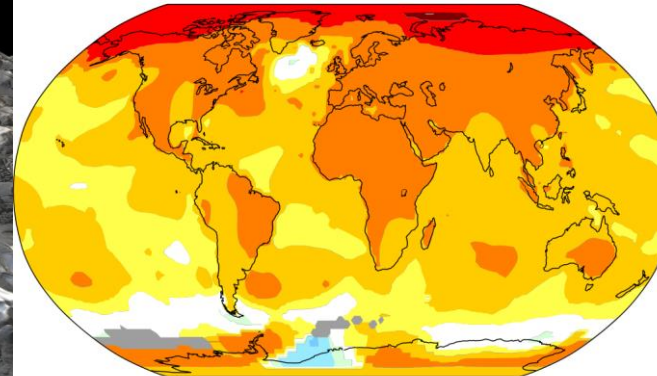


RCP8.5  
RCP2.6

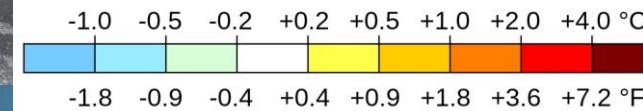
Ryder Fjord, N Greenland

Courtesy: Martin Jakobsson, SU

Temperature change in the last 50 years



2011-2021 average vs 1956-1976 baseline



Climate

Courtesy: NASA



Alaska 1975

Courtesy: NOAA

## OCEAN DECADE CHALLENGES



### DECADE OUTCOMES

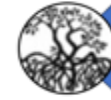
"THE OCEAN WE WANT"

- A clean ocean
- A healthy and resilient ocean
- A productive ocean
- A predicted ocean
- A safe ocean
- An accessible ocean
- An inspiring and engaging ocean



**Pollutants**

Coastal -bathymetry



**Ecosystems**

Mapping central



**Food from the Ocean**

Bathymetry dependent



**Ocean economy**

Mapping intensive



**Ocean-climate nexus**

Modelling, SLR, etc.



**Ocean-related risks**

Bathymetry intensive



**Ocean observing system**

Georeferencing



**Ocean digital representation**

Central facility



**Capacity development**

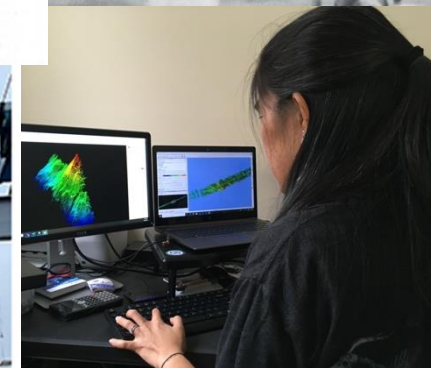
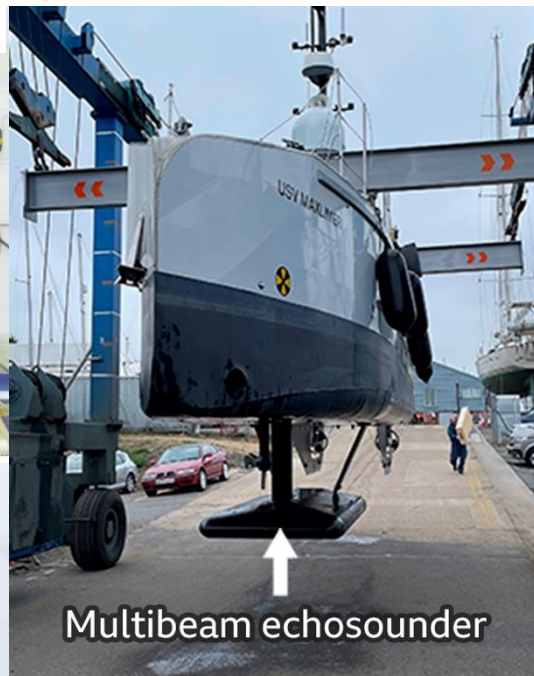
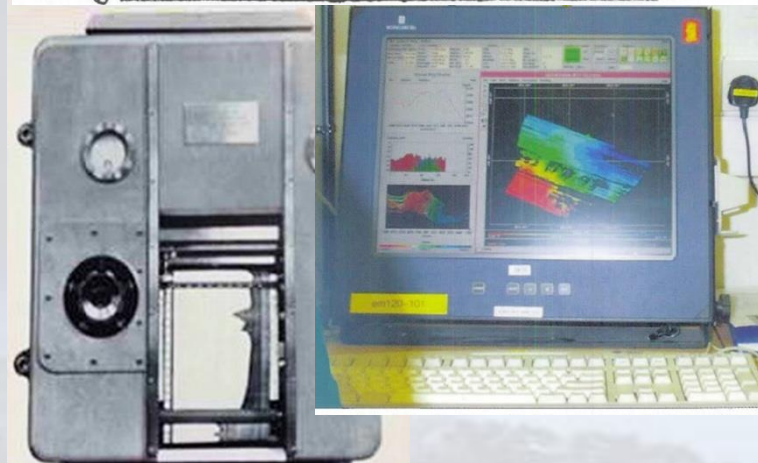
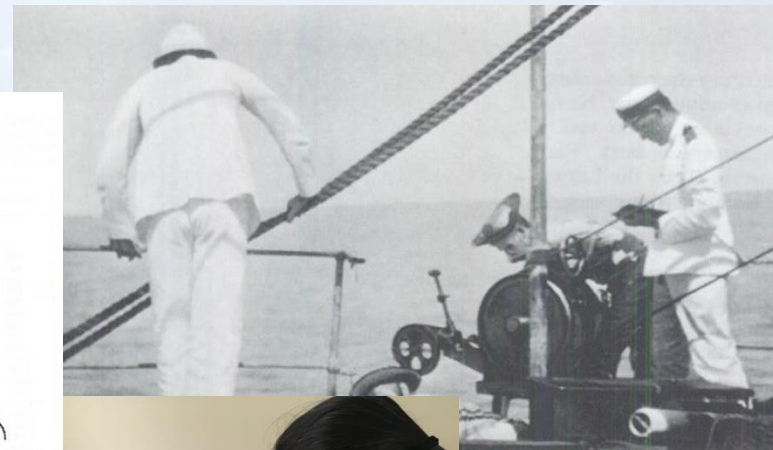
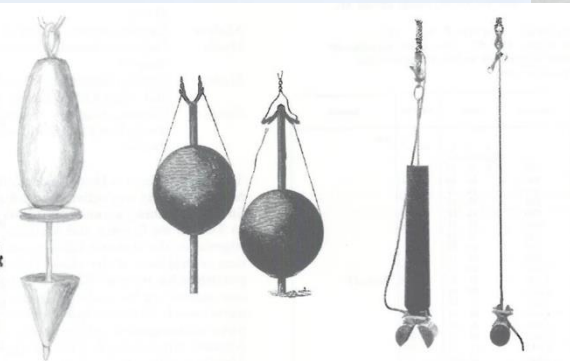
Strongly needed



**Behaviour change**

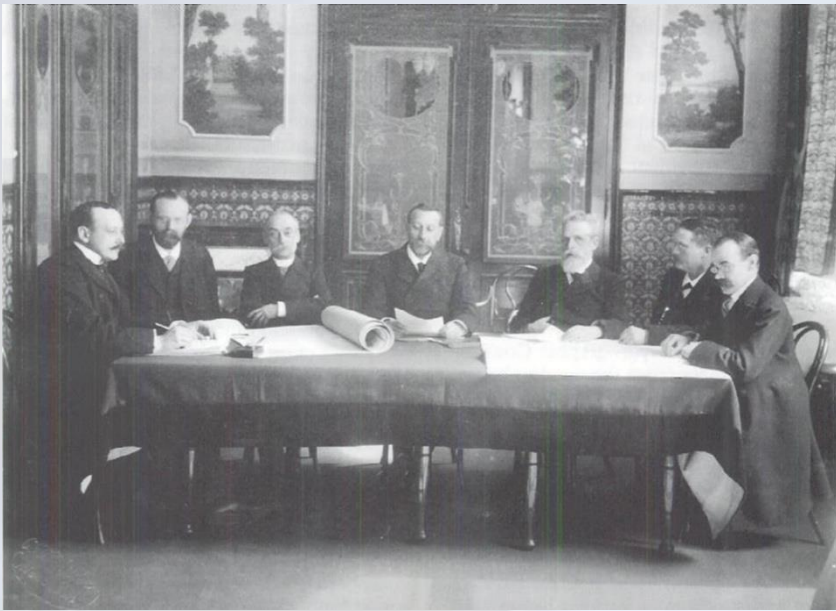
Resonates with people

# Gathering Depth Information



# The General Bathymetric Chart of the Oceans

## GEBCO



Established  
1903



# GEBCO

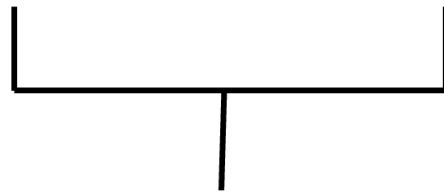
Today the **General Bathymetric Chart of the Oceans** is a joint programme of:

- The **International Hydrographic Organization**
- &
- The **Intergovernmental Oceanographic Commission**

Aim: to provide authoritative, publicly-available bathymetry (depth) data sets of the world's oceans

The GEBCO community is largely a voluntary force of international scientists and hydrographers

*Seabed 2030 is an “accelerator” to fast-track GEBCO’s aim*

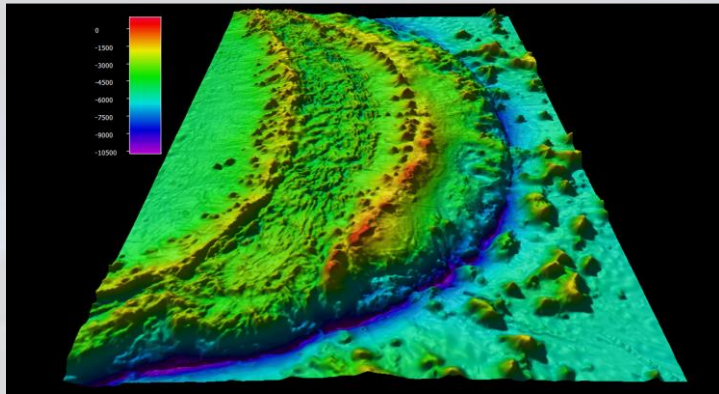


GEBCO Guiding Committee



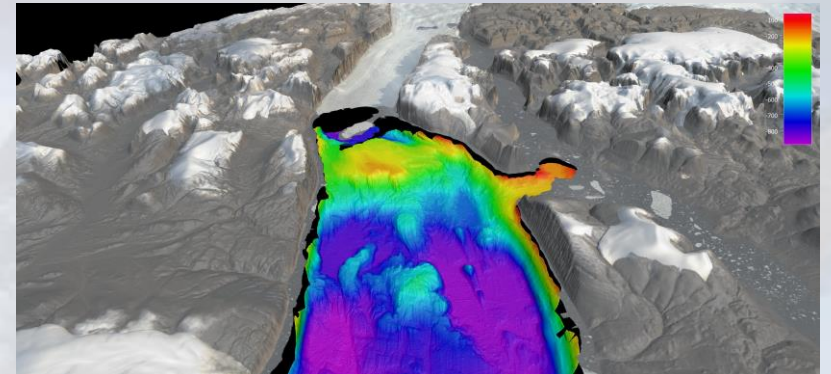
# ***World Hydrography Day Theme***

## **Hydrography contributing to the United Nations Ocean Decade**



*Courtesy: Larry Mayer, UNH*

*Courtesy: Martin Jakobsson, SU*



# OCEAN DECADE CHALLENGES



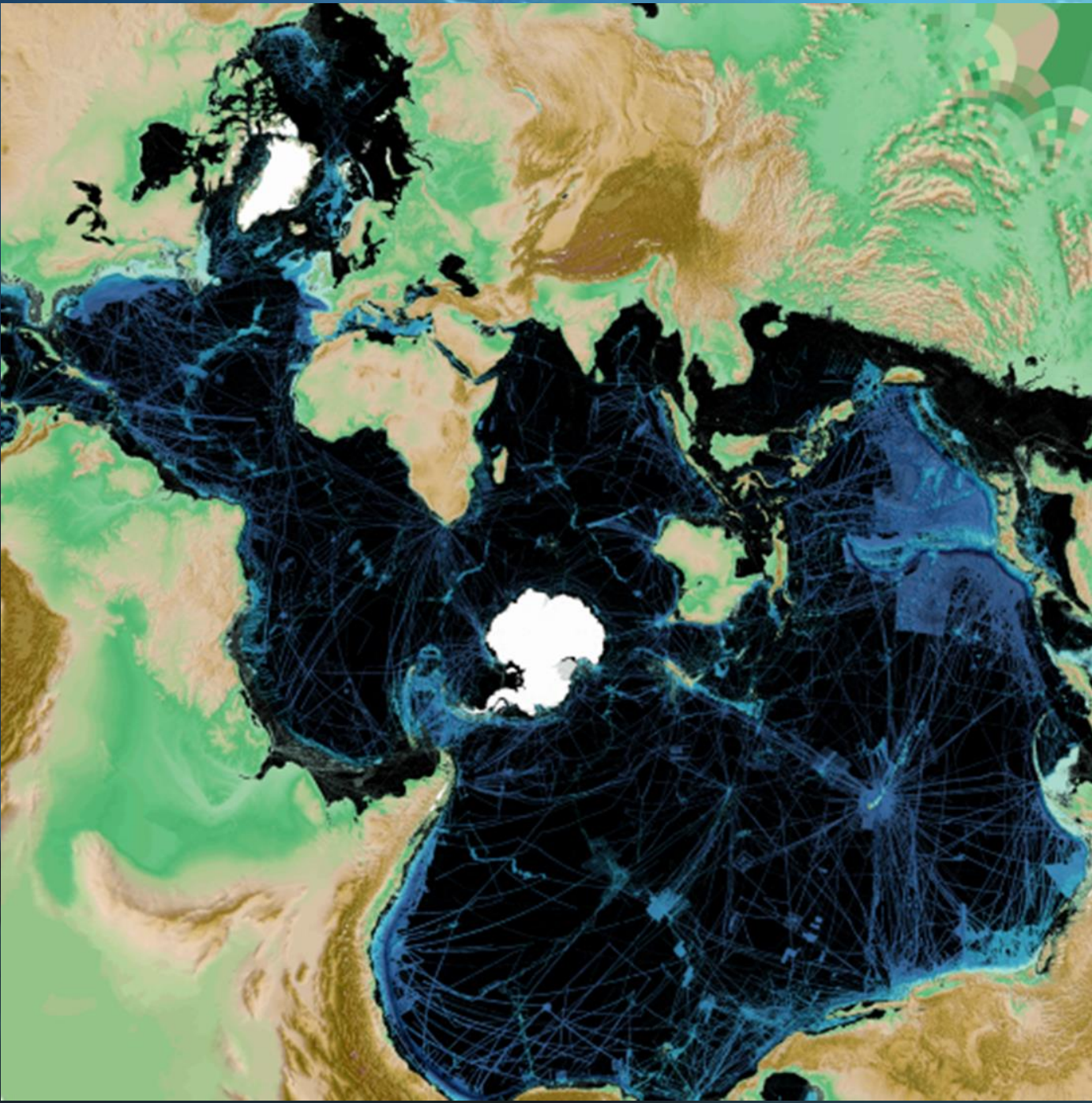
## DECADE OUTCOMES

**"THE OCEAN WE WANT"**

- A clean ocean
- A healthy and resilient ocean
- A productive ocean
- A predicted ocean
- A safe ocean
- An accessible ocean
- An inspiring and engaging ocean

	<b>Pollutants</b>	Coastal -bathymetry
	<b>Ecosystems</b>	Mapping central
	<b>Food from the Ocean</b>	Bathymetry dependent
	<b>Ocean economy</b>	Mapping intensive
	<b>Ocean-climate nexus</b>	Modelling, SLR, etc.
	<b>Ocean-related risks</b>	Bathymetry intensive
	<b>Ocean observing system</b>	Georeferencing
	<b>Ocean digital representation</b>	Central facility
	<b>Capacity development</b>	Strongly needed
	<b>Behaviour change</b>	Resonates with people





*It really is .....*

# **Our One Ocean!**

*Seabed 2030 Vision:*

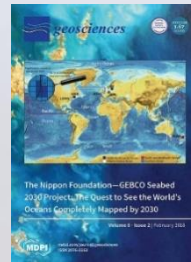
**100% of our Ocean Floor  
mapped by 2030**



# Seabed 2030

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

Seabed 2030 is an “accelerator” to fast-track GEBCO’s aim



**Endorsed Decade Programme**

June 2016

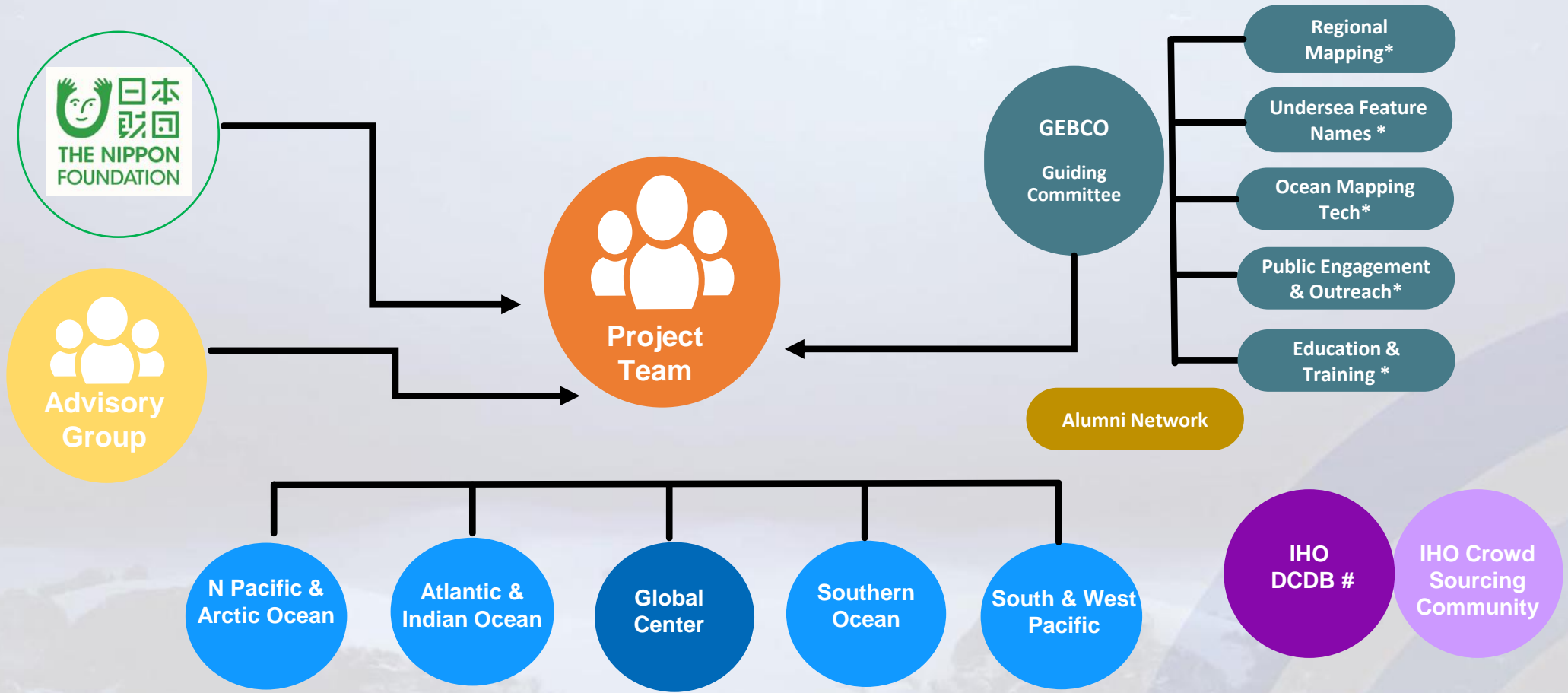


June 2017



June 2021

# Seabed 2030 Network

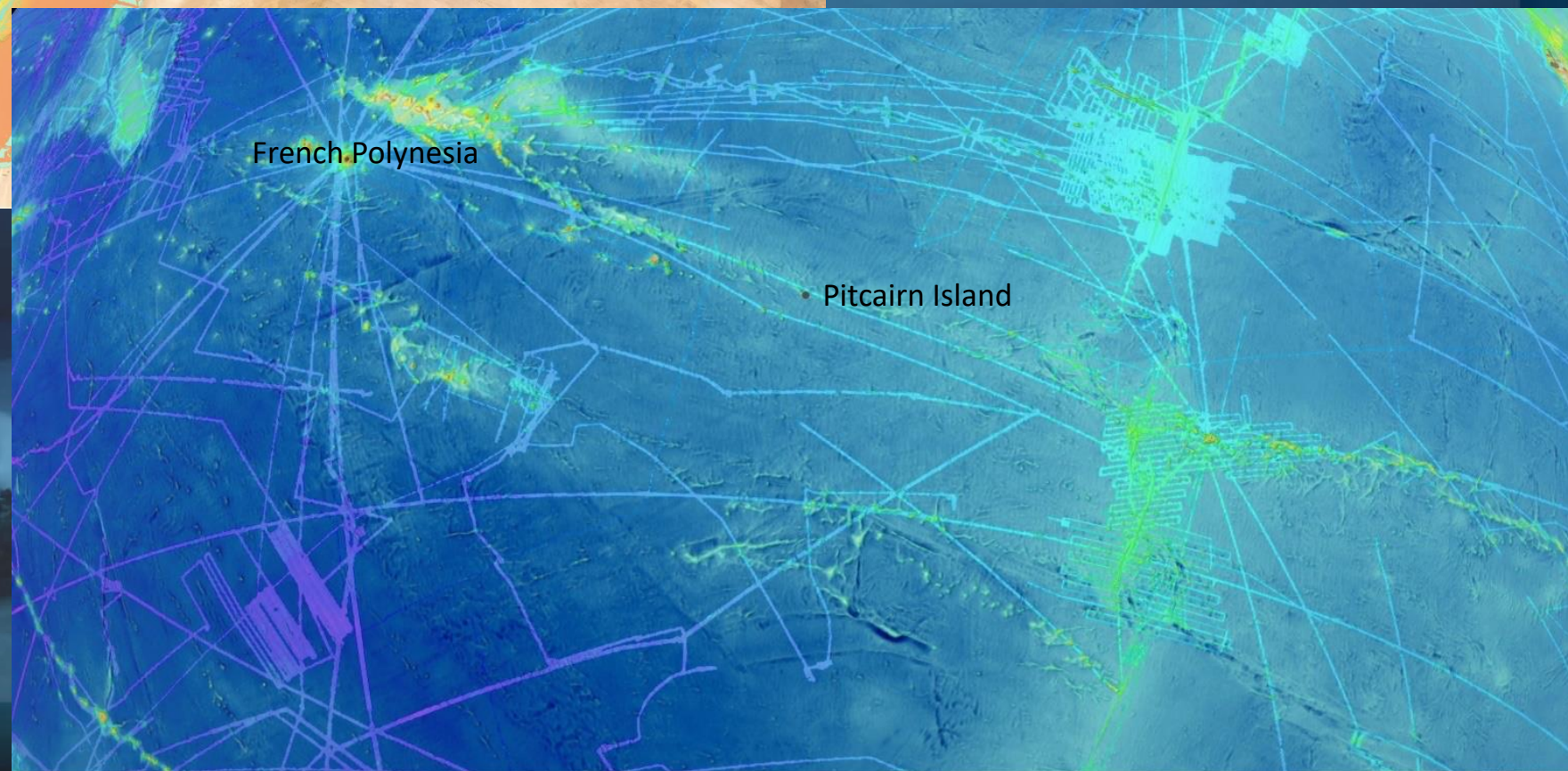
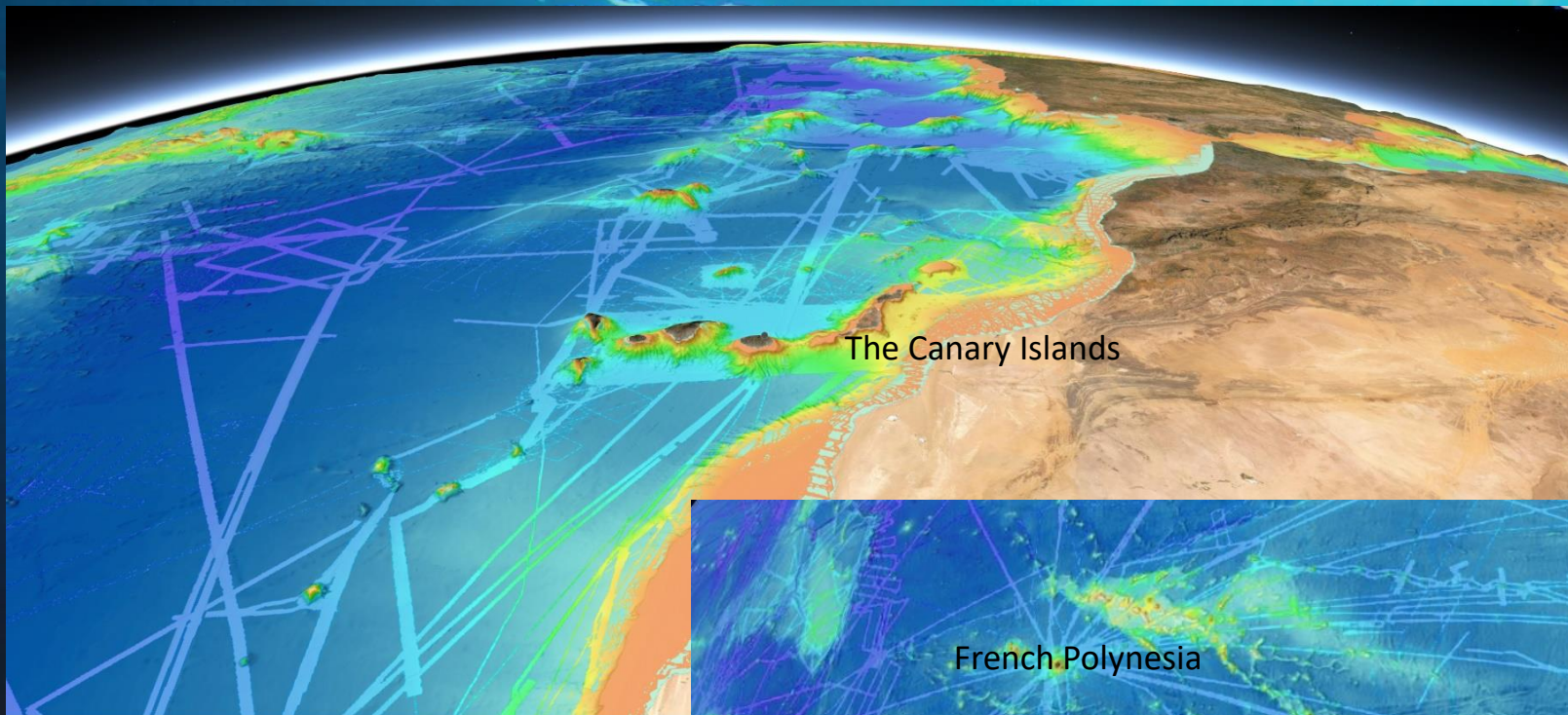


**4 “Regional Centers” + 1 “Global Center”**

(\* GEBCO Sub Committees)

(# Data Centre for Digital Bathymetry)

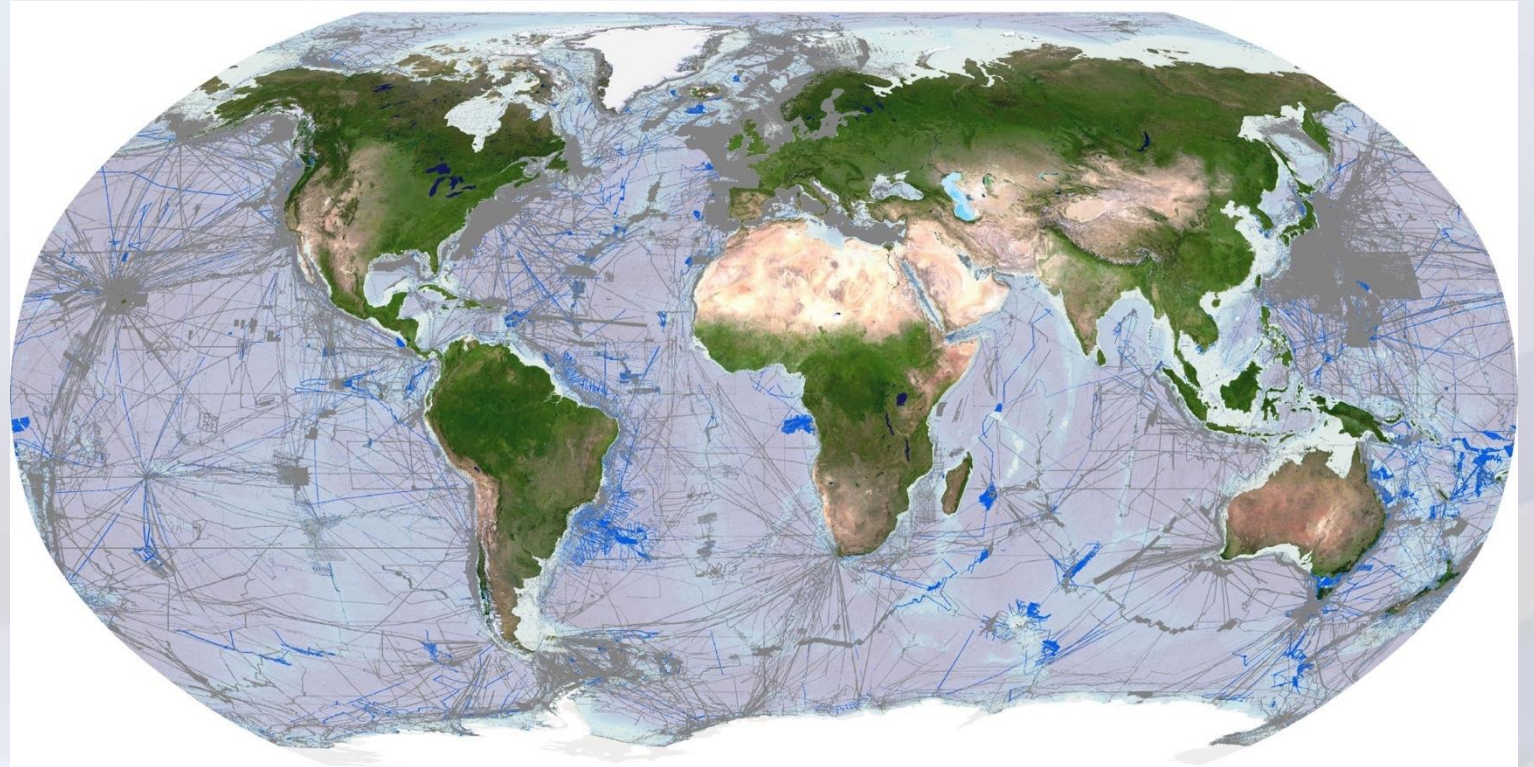
# Paucity of Depth Information



## Progress so far...

### GEBCO 2022 Grid Delivery

- GEBCO Grid stood at 6% coverage when Seabed 2030 began
- Ocean mapping coverage now stands at **23.4%** (June 2022)
- Still over 3/4 of the ocean floor to be mapped



— Data to GEBCO 2021  
— Data additions to 2022

Courtesy: Pauline Weatherall, NOC



# Collaboration through Partnerships

- Mapping our Ocean Frontiers

- *IB Oden* - Arctic
- *EV Nautilus* & *DSSV Pressure Drop* - Pacific
- *USCGC Healy* - NW Passage
- *RV Polarstern* - Atlantic & Southern Ocean
- *RV Tangaroa* - Pacific
- *CCGS John P Tully* – Pacific
- *RV Pourquoi Pas* - Atlantic



Credits (clockwise from top left): Stockholm University, Ocean Exploration Trust , Caladan Oceanic, Canadian Coast Guard, Genavir/Ifremer, NIWA,, AWI, US Coast Guard

# Collaboration through Partnerships

- IHO Crowd Sourcing Initiative – SB2030 support
  - South Africa/Greenland/Palau
  - SW Pacific
  - Global organisations
- Satellite Derived Bathy (SDB)
- Fugro transit bathy - 2 million sq km milestone

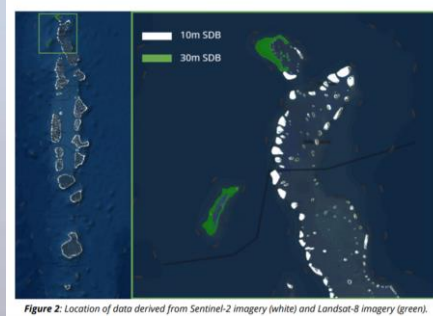
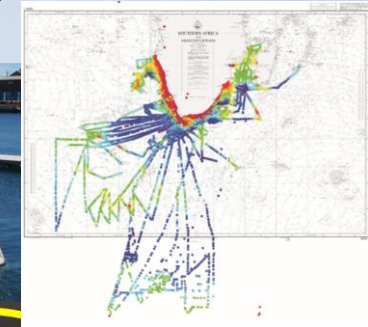


Figure 2. Location of data derived from Sentinel-2 imagery (white) and Landsat-8 imagery (green).



Courtesy: SANHO



Copyright: Fugro

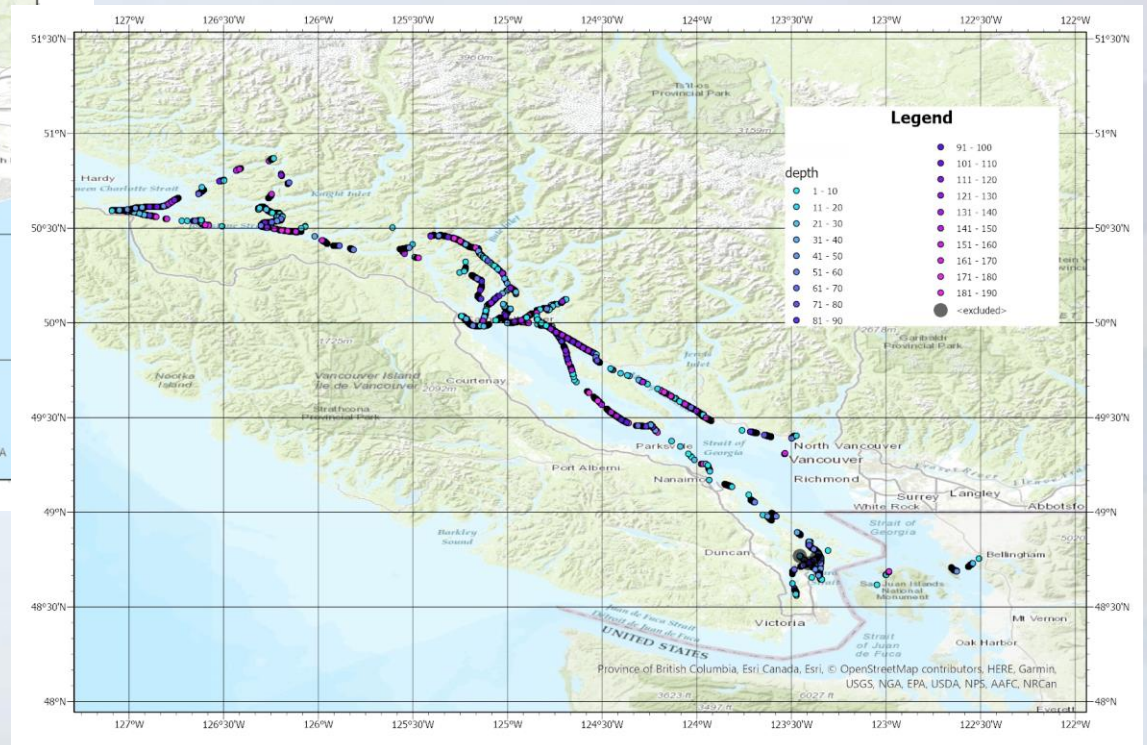
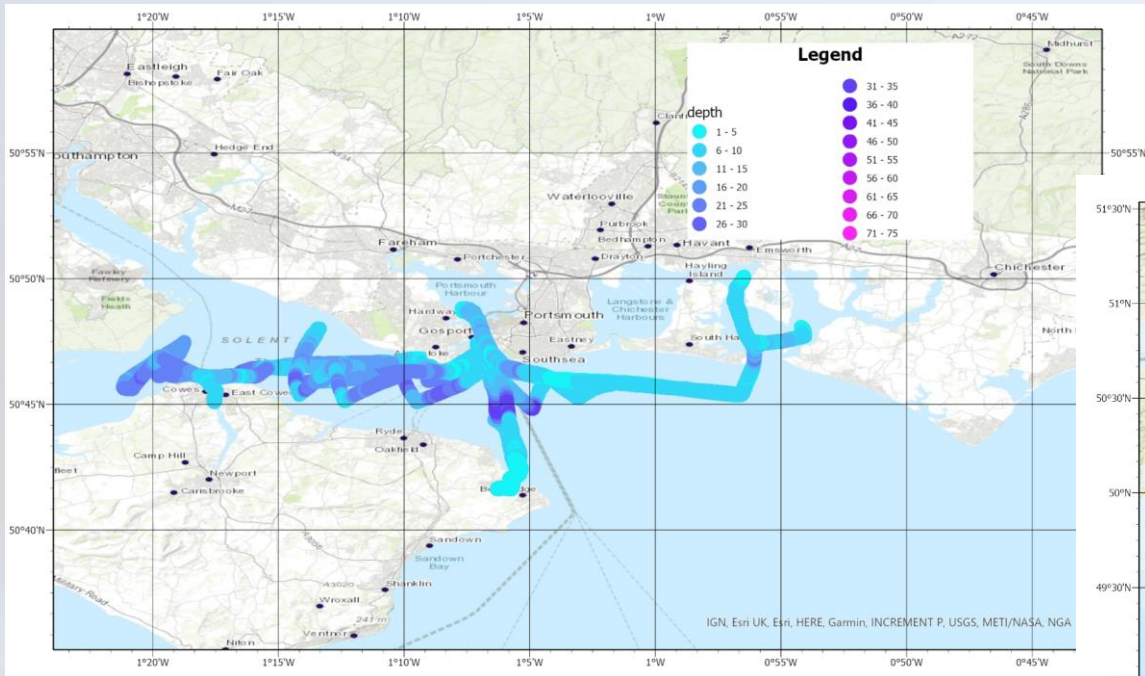
# Seabed 2030 TRUSTED NODE

- Global Center (hosted by UK NOC) acting as a Trusted Node.
- Processing data from collectors using loggers provided via Seabed 2030
  - 14 data sets received to date.
  - Majority from International SeaKeepers Society
- Supported by UNH, in-house app developed to process raw data to GeoJSON
- Option to upload the data to IHO DCDB via their data submission API
- Work underway to modify app to include QC checks to:
  - enable identification of data files that will fail DCDB data acceptance criteria
  - highlight issues in the data files for further investigation.
- Collaborating with TerraDepth to look at utility/cost of Absolute Ocean platform:
  - to provide visualizations of submitted CSB data back to contributors





# TRUSTED NODE – FEEDBACK TO COLLECTORS

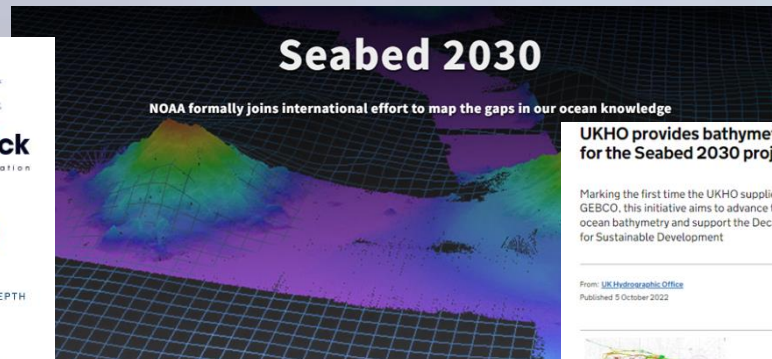


# Collaboration through Partnerships

- Wide variety of data donors
- Growing number of MOU partners
- Increasing collaboration with academia, industry, philanthropy & governments

plus

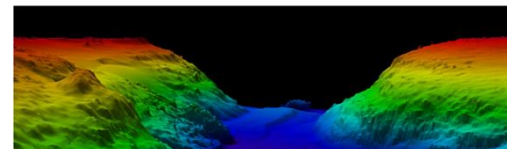
and



29 June, 2022

We know less about the ocean floor than we do about the surface of the moon and Mars. But by the end of the decade we may know the general outline of our undersea contours and crevasses, thanks to an international project called Seabed 2030. The mapping initiative – formally known as The Nippon Foundation-General Bathymetric Chart of the Oceans Seabed 2030 Project – launched in 2017 to “produce the definitive map of the world ocean floor by 2030.”

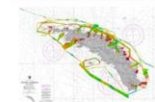
This week, NOAA Administrator Rick Spinrad signed a memorandum of understanding in conjunction with the [United Nations Ocean Conference](#) that formalizes U.S. participation in Seabed 2030. The memorandum also describes best practices and protocols for this type of data collection, which will help build positive collaboration between all [involved countries and partners](#).



## UKHO provides bathymetric surveys for the Seabed 2030 project

Marking the first time the UKHO supplies data directly to GEBCO, this initiative aims to advance the understanding of ocean bathymetry and support the Decade of Ocean Science for Sustainable Development

From: UK Hydrographic Office  
Published: 5 October 2022



The UK Hydrographic Office (UKHO) has started supplying bathymetric survey data for non-UK waters to the General Bathymetric Chart of the Oceans (GEBCO) after signing the memorandum of understanding (MOU) with The Nippon Foundation-GEBCO Seabed 2030 Project (Seabed 2030) earlier this year.

The MOU was signed with the goal of advancing the industry’s understanding of ocean bathymetry and supporting the UN Decade of Ocean Science for Sustainable Development. The UKHO has agreed to provide bathymetric data gridded map products and advise on data management methods and best practice, to support the ambitious goal of completely mapping the world’s oceans by 2030 (Seabed 2030).

The UKHO has started supplying data that covers the South Atlantic and the waters around Antarctica to GEBCO via the Seabed 2030 Southern Ocean Regional Centre – located at the Alfred Wegener Institute. This data is an important contribution to the International Bathymetric Chart of the Southern Ocean (IBCSO), GEBCO and Seabed 2030. The supplied data has combined 13,500 nm<sup>2</sup>, including South Georgia (1,500 nm<sup>2</sup> with 55,539 data points) and Antarctica (12,000 nm<sup>2</sup> with 2,931,105 data points).

This marks the first time, outside of the UK, that the UKHO has supplied data directly to GEBCO for inclusion in its products. It follows the success of a



# Thank you

