



# THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION

## SEABED MAPPING: THE KEY FROM SCIENCE TO POLICY TO PRACTICE FOR A SUSTAINABLE OCEAN

Rear Admiral **LUIGI SINAPI**  
IHO DIRECTOR

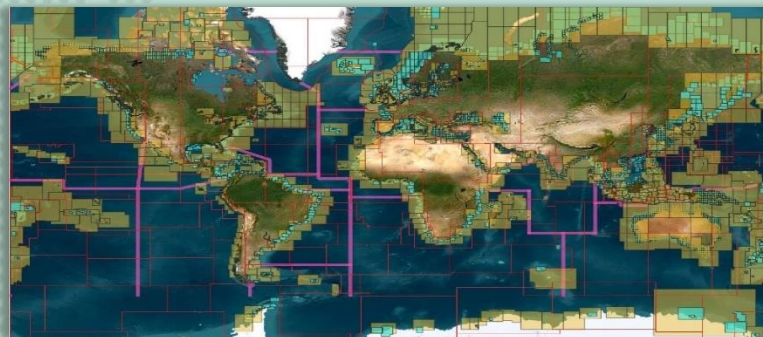
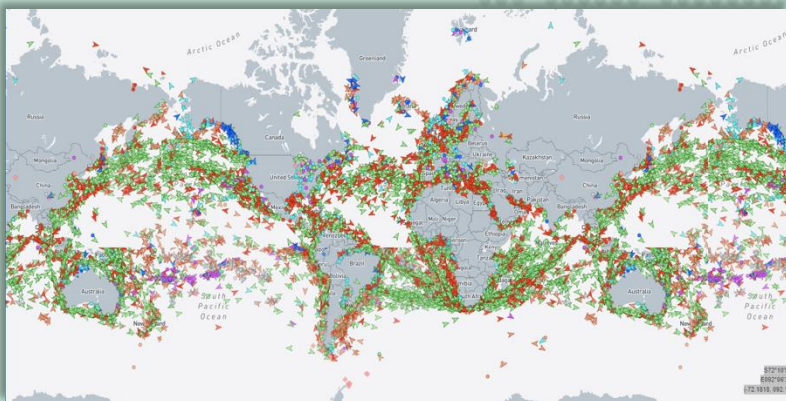


IHO

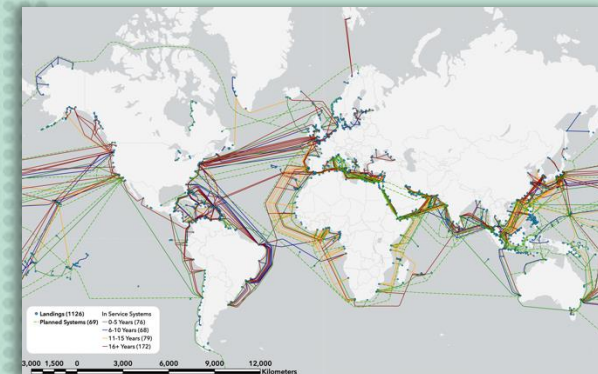
# A CROWDED AND PRODUCTIVE OCEAN!

International Hydrographic Organization

ABOUT **35 MILLION SHIPS** OF ALL CLASSES



**1.688.524 KM** SUBMARINE CABLES (2024)



ABOUT **22.000 ELECTRONICAL NAUTICAL CHARTS (ENC)** ON THE MARKET




MAIN SEA ROUTES




## INTERNATIONAL SEA TRADE

**20** | international trade had a  
**21** | total economic value of over **\$28 trillion**



**80-90%** of the volume of goods   
(70% if we consider their value)  
is transported by sea thanks  
to some **100,000 large cargo ships**



**20** | **12.3 billion tons** sea trade reached  
**23** |  Expected to grow  **2024 2.4%**  **2025 2.6%**



**IHO**

# THE UNKNOWN OCEAN FLOOR!

International Hydrographic Organization



## OCEANS

**1903-2017: from 0% to 6,7%**

**2017-2024: from 6,7% to 26,1% (Note)**

*Note: At best only one depth value in area ~ size of a soccer pitch  
(1 x depth value in 100x100m box)*



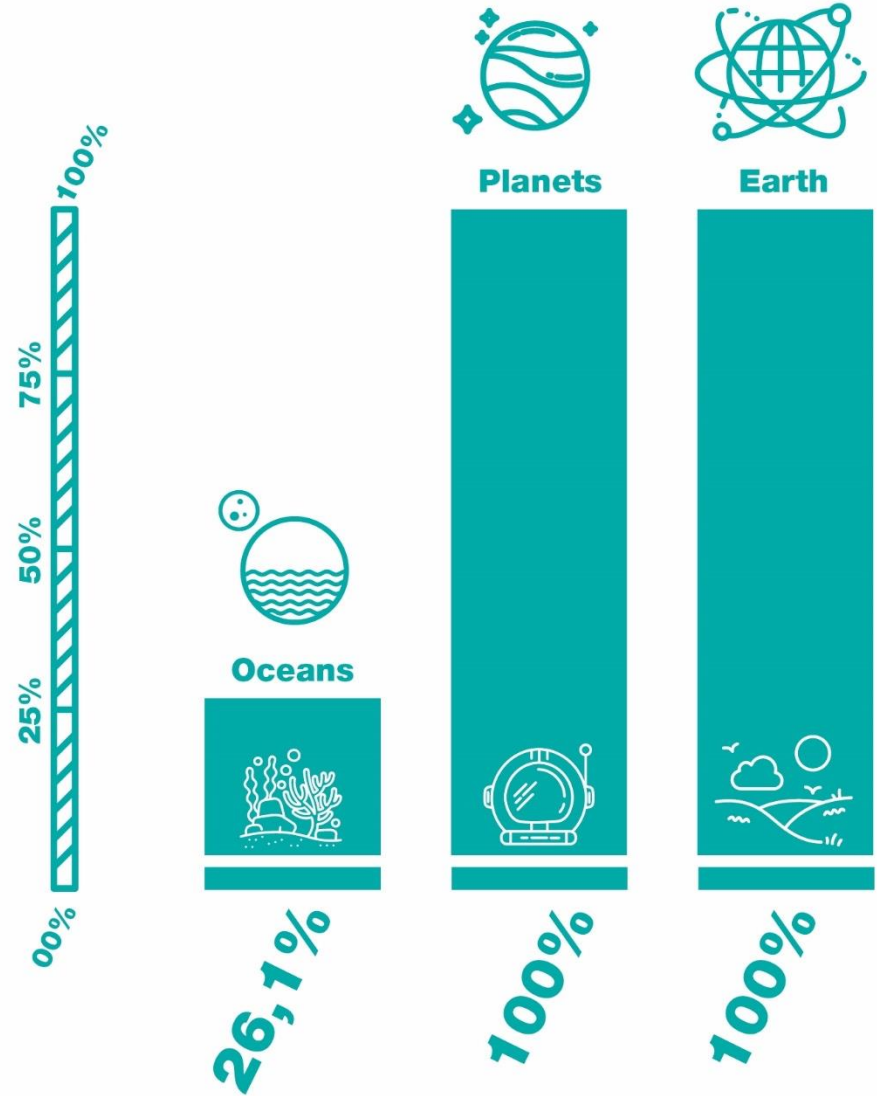
## EMERGED LANDS

**2005: 100% coverage of all land with DEM (Digital Elevation Model) at 10 meters**



## PLANETS IN THE SOLAR SYSTEM

**2021: 100% detailed topographic coverage of the Moon, Venus and Mars**

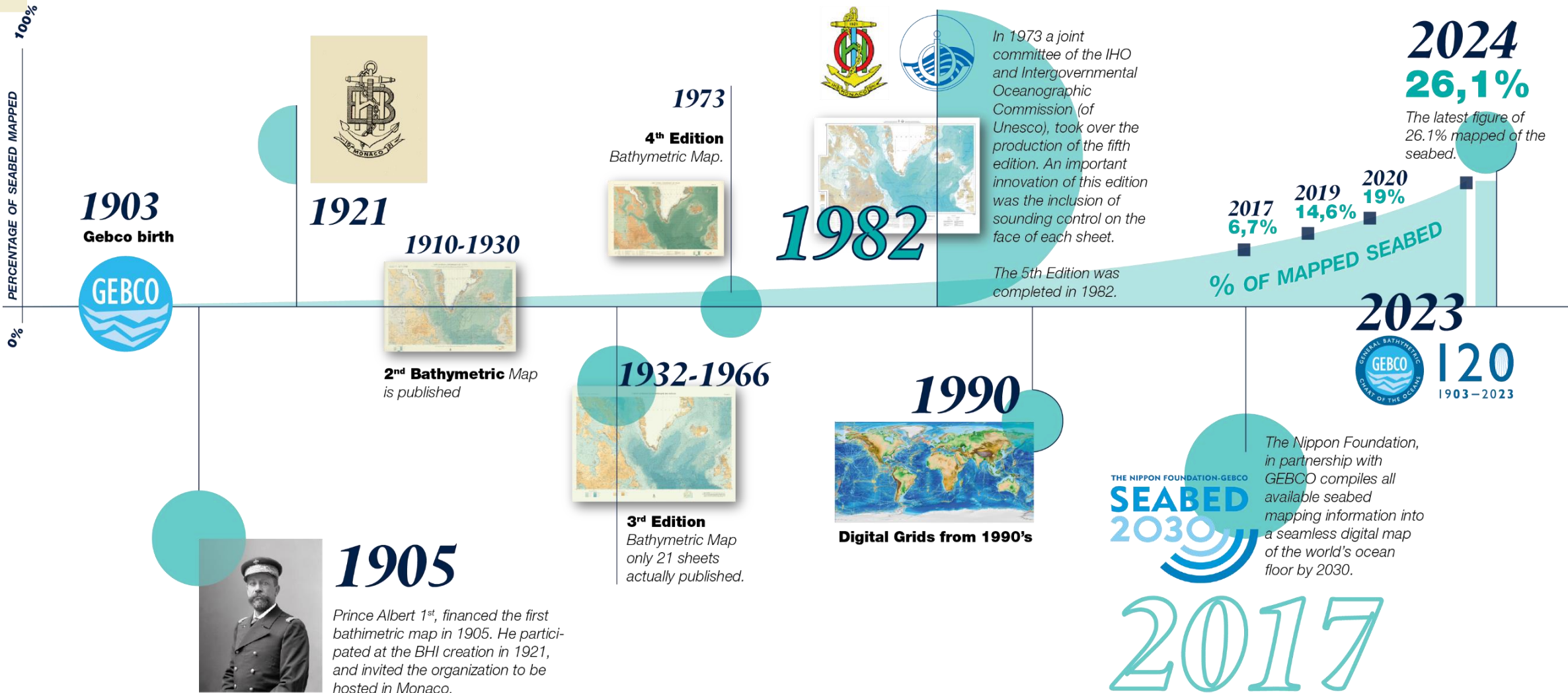




IHO

# GEBCO: THE GLOBAL OCEAN MAPPING PROGRAMME

International Hydrographic Organization

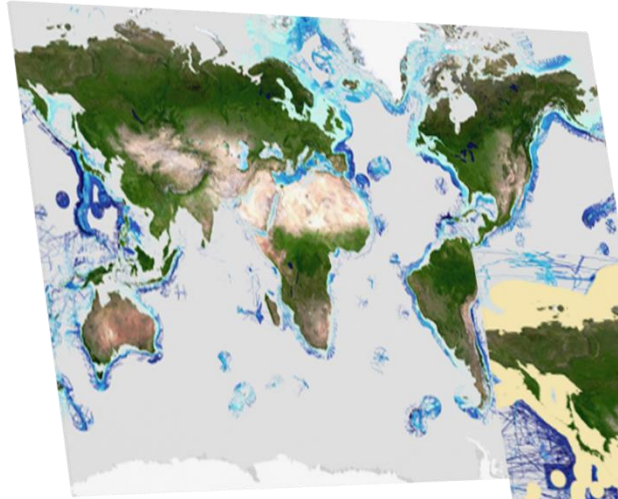




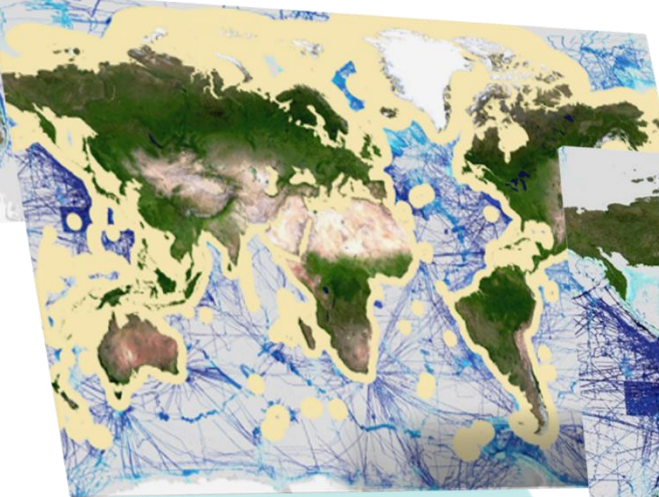
**IHO**

# THE LATEST GEBCO MAPS – JUNE 2024!

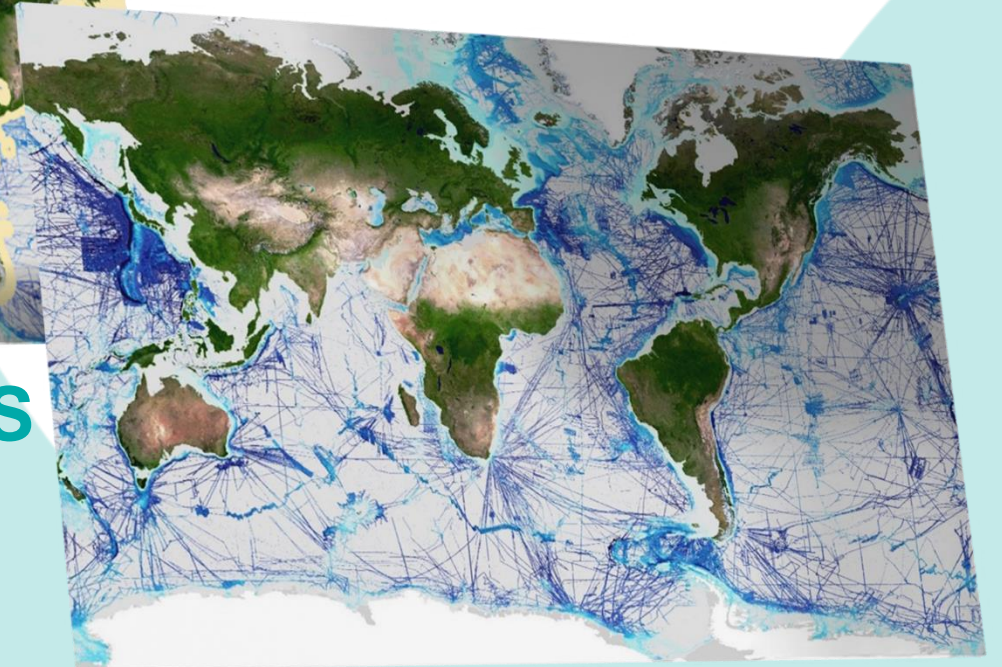
International  
Hydrographic  
Organization



**EEZ**  
**33,7%**



**HIGH SEAS**  
**24,3%**



**GLOBAL MAP**  
**26,1%**



IHO

# SEABED MAPPING: THE VALUE CHAIN

International  
Hydrographic  
Organization

## The Seabed Mapping Value Chain



### The Need

The data, science and tools to meet the Decade Societal goals and SDGs

### Data

The collection and storage of seabed data

### Information

Data manipulation and aggregation

### Knowledge

Doing the science and creating derived products

### Wisdom

Making informed decisions and taking action

### The Impact

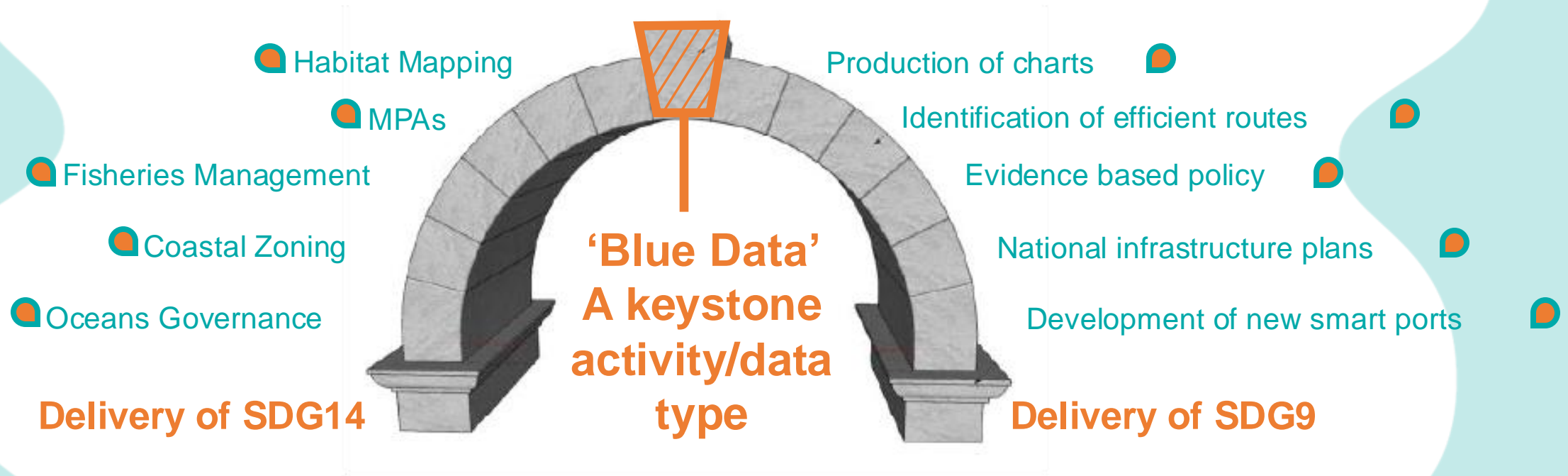
The mutual delivery of multiple SDGs



IHO

# HOW DOES HYDROGRAPHY FIT INTO SDGs

International  
Hydrographic  
Organization

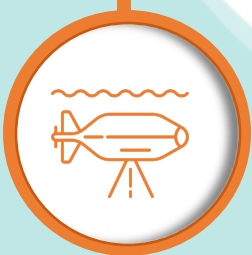




IHO

# SEABED MAPPING: FROM SCIENCE TO POLICY TO PRACTICE

International Hydrographic Organization



SCIENCE



INTERNATIONAL HYDROGRAPHIC ORGANIZATION  
Strategic Plan 2021-2026

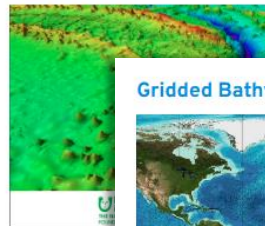


POLICY

Crowd Sourced Bathymetry



## Seabed 2030



Seabed 2030 is the Nippon Foundation's global bathymetric mapping project. It brings together a global community of scientists and hydrographers to produce the definitive global bathymetric map of the world's seafloor by 2030 and beyond.

[Read more](#)

## Gridded Bathymetry



GEOBCO's gridded bathymetry data sets are available to download via our Web Map Services.

[Read more](#)

## Data & Products



GEOBCO produces and makes available a range of bathymetric data sets and products. This includes a global bathymetric grid; gazetteer of undersea feature names, a Web Map Service and printable maps of ocean bathymetry.

[Read more](#)



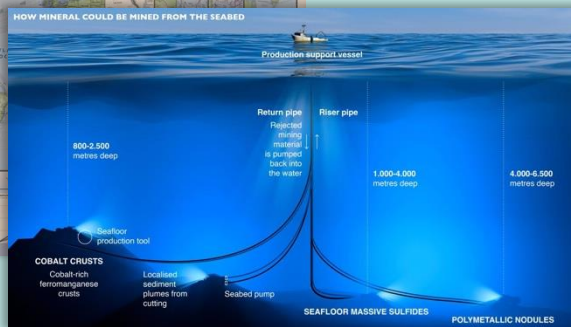
PRACTICE



## SUBMARINE CABLE MAP 2024



From SEA







IHO

# SEABED MAPPING & OCEAN ECONOMY

SOURCE: THE WORLD BANK / OECD

International Hydrographic Organization

Minerals, Sand, Gravel

Seafood

Energy

Biodiversity

Marine biotechnology



Transport and trade

Tourism and recreation

Coastal protection

Waste disposal

Carbon sequestration

## HYDROGRAPHY: SUPPORTING



## SUSTAINABLE DEVELOPMENT



Beyond their primary purpose of ensuring safe navigation at sea, nautical and bathymetric charts derived from hydrographic surveys directly support almost all aspects of the Ocean Economy<sup>1</sup>, and the furthering of hydrography will be one of the main themes in the upcoming UN Decade of Ocean Science for Sustainable Development<sup>2,3</sup>



In 2030, the Ocean Economy will contribute:

**40 million**

full-time equivalent jobs in ocean-based industries<sup>1</sup>

&

**\$3 trillion**

in global gross value added (GVA), doubling in value from \$1.5 trillion in 2016<sup>1</sup>

**less than**

And yet,

**0.05%**

of the ocean floor has been mapped to the level of detail possible with today's technology<sup>4</sup>



IHO

# KEY CHALLENGES FOR SEABED MAPPING

International  
Hydrographic  
Organization



***Finance solutions for primary data collection, both domestically and as an essential global resource***



***'Red Tape' and the lack of consistent permitting processes***

Including interpretation of MSR provisions within UNCLOS



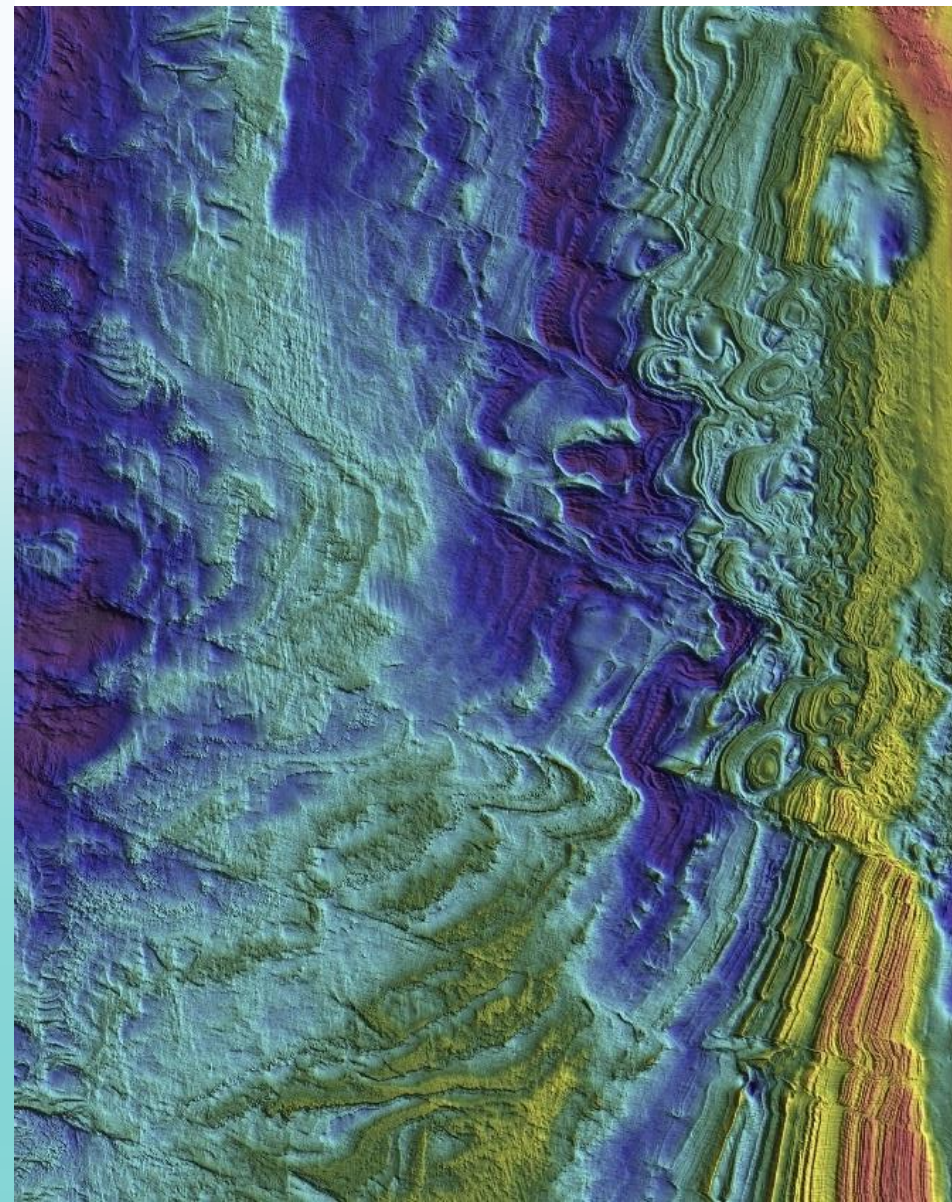
***Technology scope for innovative solutions to meet the scale of the task***

Scope for innovative solutions to meet the scale of the task



***Data sharing***

Reduce the amount of data that is currently embargoed and not in the public domain





IHO

# ACCELERATING THE SUSTAINABLE USE OF THE OCEAN

WORLD HYDROGRAPHY DAY 2025 MOTTO

International Hydrographic Organization



## The IHO commitment:

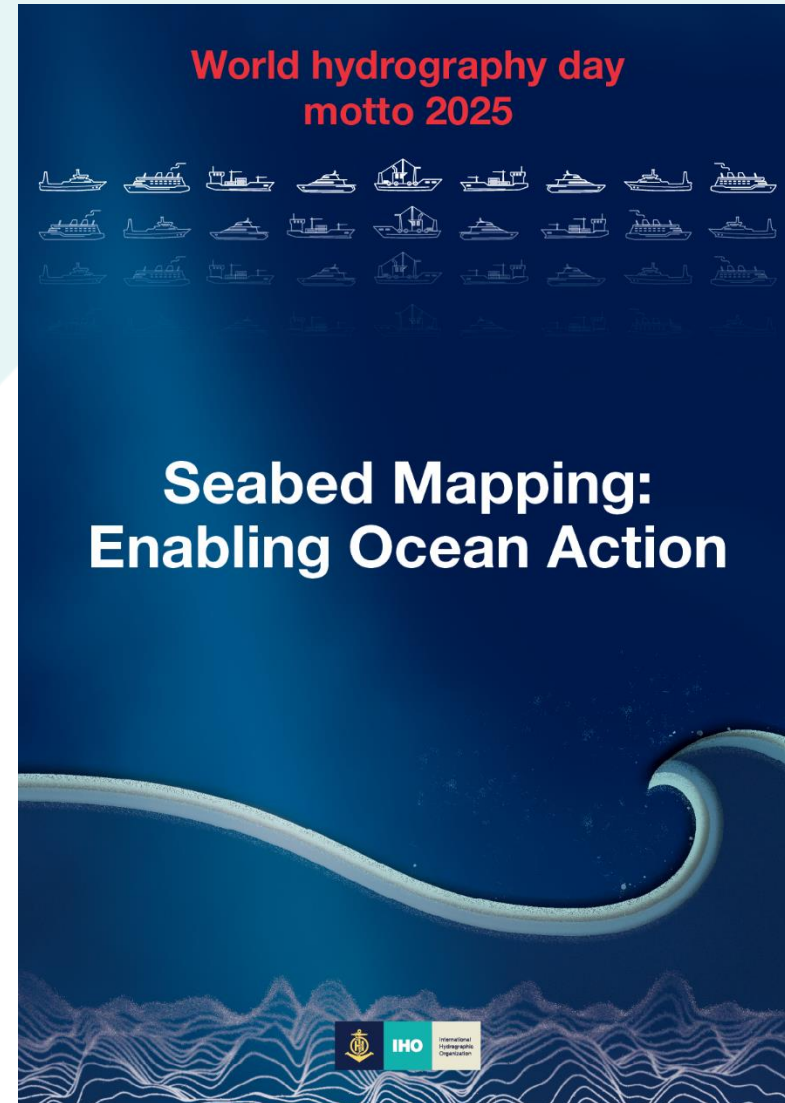
**SEABED MAPPING:** Producing tangible and re-usable products and services

**SEABED MAPPING:** The basis for building sustainability



## The IHO proposal:

**SEABED MAPPING** is a **PRIORITY** for the International Community and the sustainable use of the **OCEAN**



*Seabed Mapping: Enabling Ocean Action*



# THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION

# THANK YOU VERY MUCH FOR THE ATTENTION

Rear Admiral **LUIGI SINAPI**  
IHO DIRECTOR