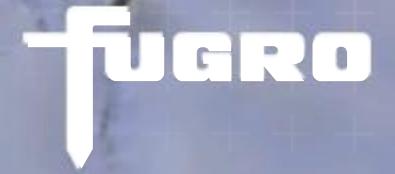


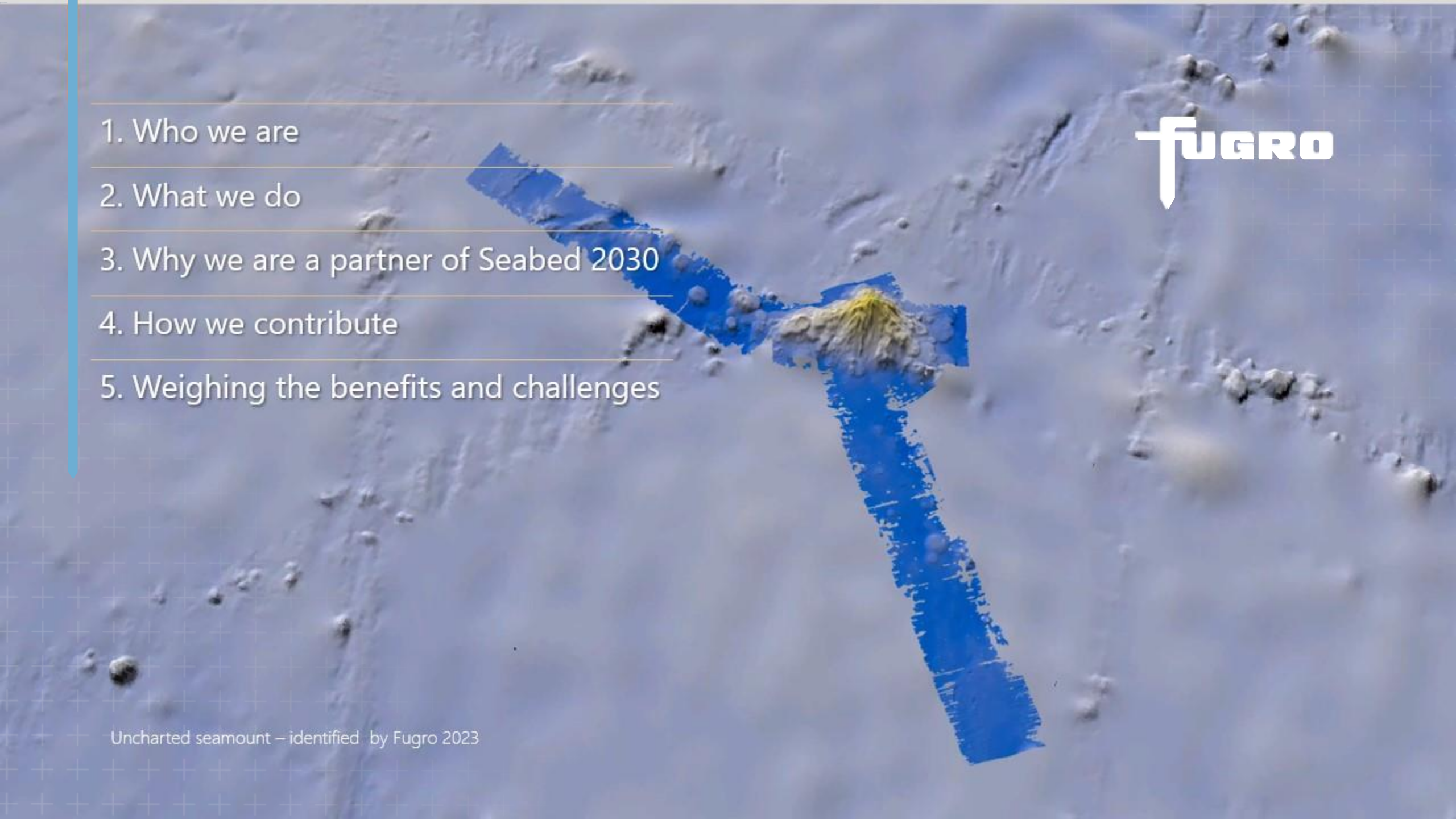


Fugro and the Nippon Foundation – GEBCO Seabed 2030 Project

Seabed 2030 5th SaWPac Regional Mapping Community Meeting

Holly Woytak - 12 July 2023



- 
- The background of the slide is a detailed bathymetric map of a seafloor. A prominent feature is a large, elongated seamount with a central peak, highlighted in a bright blue color. The surrounding seafloor is depicted in various shades of blue and grey, showing numerous smaller seamounts and ridges. A light blue vertical bar is positioned on the left side of the slide, behind the list of topics.
1. Who we are
 2. What we do
 3. Why we are a partner of Seabed 2030
 4. How we contribute
 5. Weighing the benefits and challenges

Uncharted seamount – identified by Fugro 2023

1. Who we are

Who we are, how we behave,
what's important to us



We are determined
to deliver



We prepare
for tomorrow



We do what's
right



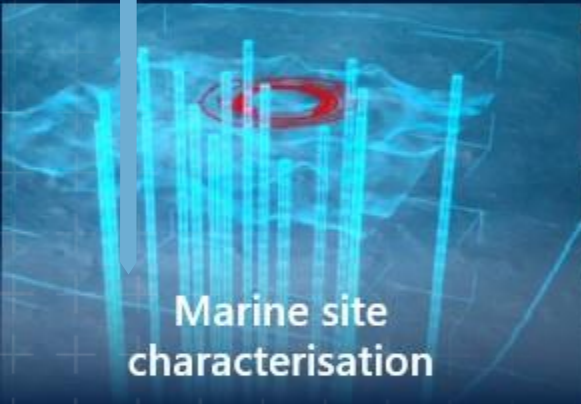
We build
trust

fugro
60 YEARS

fugro

2. What we do: Unlocking insights from Geo-data

Using our 'triple A' approach, we support our clients in managing their project risks during construction and operation of their assets, both on land and at sea



Marine site
characterisation



Marine asset
integrity



Land site
characterisation



Land asset
integrity

Acquisition of Geo-data

| **Analysis** of Geo-data

| **Advice** based on expertise

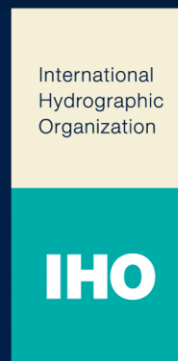
2. What we do: global player with local presence

We meet our clients' local Geo-data needs by mobilising global resources quickly and effectively



THE NIPPON FOUNDATION-GEBCO

SEABED 2030



Fugro's Role in Seabed 2030

- Collect in-transit bathymetry (multibeam) using Fugro vessels
- Prepare data for upload
- Upload data to IHO Data Centre for Digital Bathymetry (DCDB)
- Encourage partner participation



3. Why we are a partner of Seabed 2030

Seabed 2030 seamlessly connects with our values

Purpose

Together we create a safe and liveable world

Values



We are determined to deliver



We prepare for tomorrow



We do what's right



We build trust

Vision

Be the world's leading Geo-data specialist

Unlocking insights from Geo-data to support clients to design, build and operate their assets safely, efficiently and sustainably

Strategy



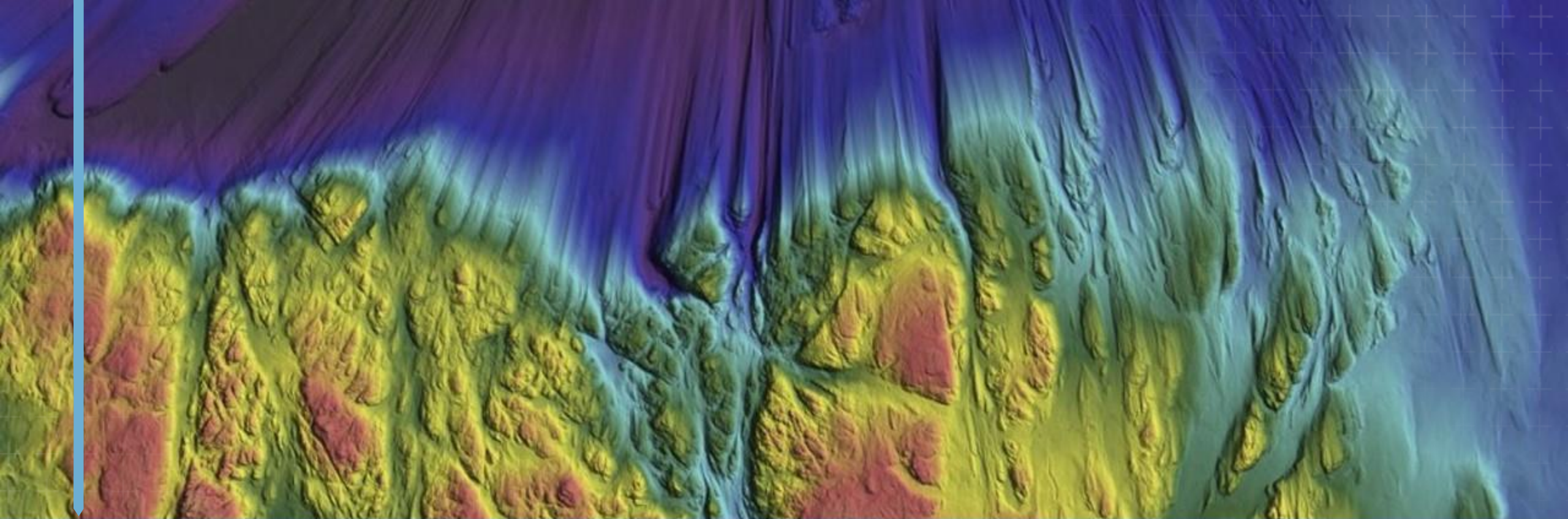
Capture growth in new ocean economy



Leverage core expertise in new growth markets



Differentiate by integrated digital solutions

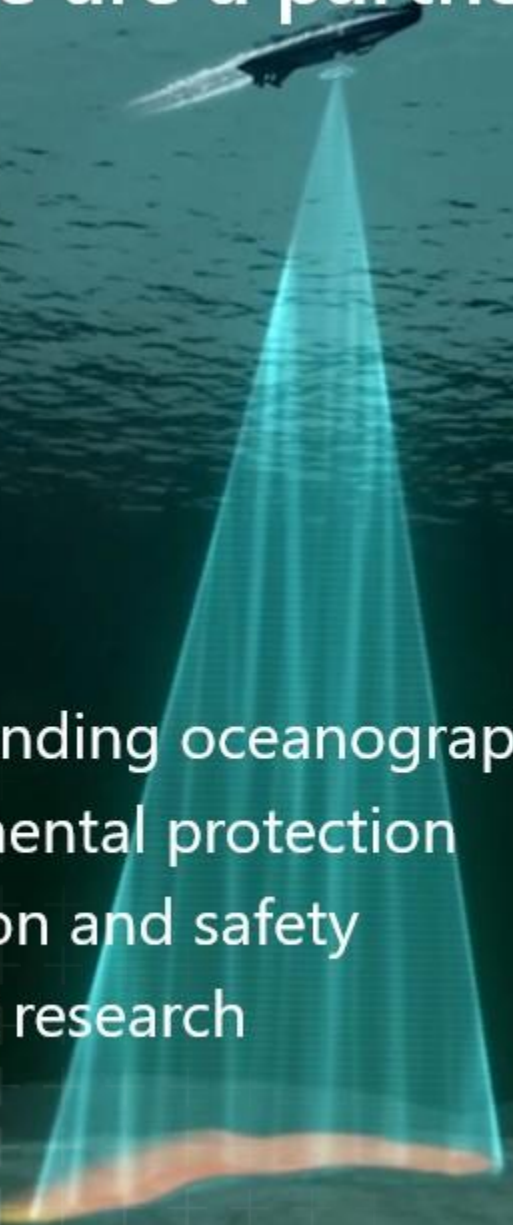


"It's critical that the private sector helps lead this global initiative. We collectively have much to offer and gain from a sustainable, equitable ocean economy."

Mark Heine CEO



4. Why we are a partner: good ocean stewardship

- 
1. Understanding oceanography
 2. Environmental protection
 3. Navigation and safety
 4. Scientific research

Fugro has contributed
2,36 million km²
of bathymetric data to
Seabed 2030, an area
approximately the size of
Algeria

© Vemaps.com

4. Why we are a partner: benefits for private sector

Information as the currency of progress

Revolutionize multiple industries, from offshore energy to telecommunications, marine transportation to fisheries management.

Sustainable development

Responsible Ocean stewardship, Marine resource management, sustainable use of marine resources, biodiversity

Driving innovation

Technological advancements, contribute to global scientific community

The world is changing faster than ever before...



Population growth

2.0B

Additional people
between now and
2050



Urbanisation

2.5B

People move to cities
between now and
2050



Technology

80B

Additional connected
devices between now
and 2050



Climate change

1.5-
2.0°C

Predicted maximum
temperature rise by
2050



Engaged society

92%

Population expect
ESG-inclusive
company behaviour

5. How we do it: leveraging existing systems

We leverage the equipment on our specialised vessels during transit opportunities

Fugro OARS® and Fugro Back2Base®

Global network of remote operations centres



7
uncrewed
surface vessels



65
remotely
operated
vehicles



10
remote
operations
centres



27
specialised
service vessels



4
autonomous
underwater
vehicles



● Remote operation centres

Ships of opportunity

FUGRO

FUGRO

Benefits and challenges

Visibility in the ocean-climate nexus

- Builds trust and credibility
- Promotion of our brand
- Leverage core expertise

Strategic placement

- Corporate data group
- Seconded an expert to the IOC-Secretariat in Paris
- Future private/academic and governmental partnerships?

Aligns with our purpose

- Purpose driven company
- Investment in our future

Collecting data in territorial seas

- Additional processes and roadblocks

Lack of funding

- Volunteering time

Benefits of a wholly mapped and observed ocean



Environmental Benefits

- Climate models
- Weather prediction
- Ocean acidification models



Socio-Economic Benefits

- Fisheries / Aquaculture
- Energy
- Minerals
- Commerce / Shipping



Risk Mitigation Benefits

- Marine geo-hazards
- Tsunamic models
- Flood inundation models



Knowledge Economy Benefits

- Scientific research
- Cultural heritage
- Medicine / Pharma

Seabed mapping challenge

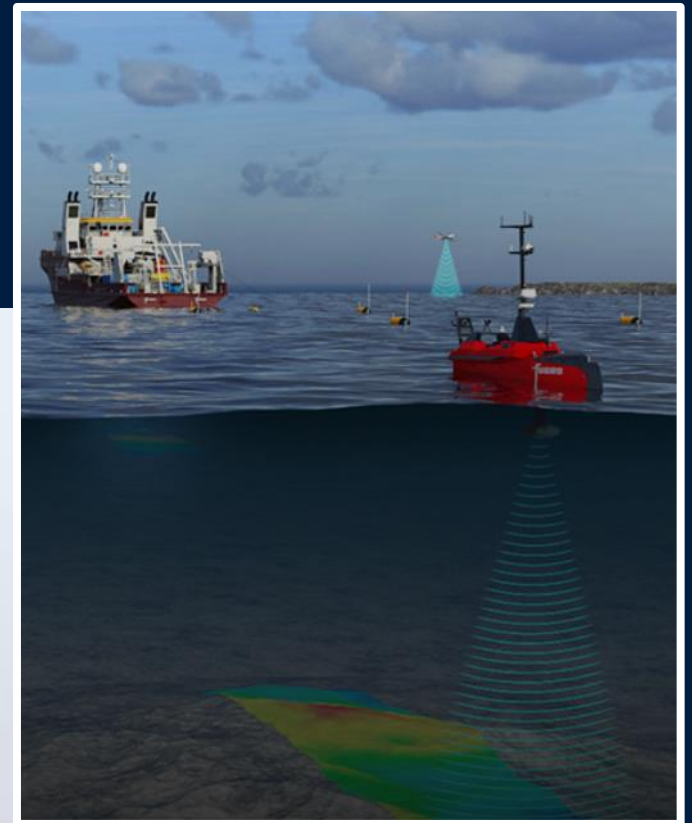
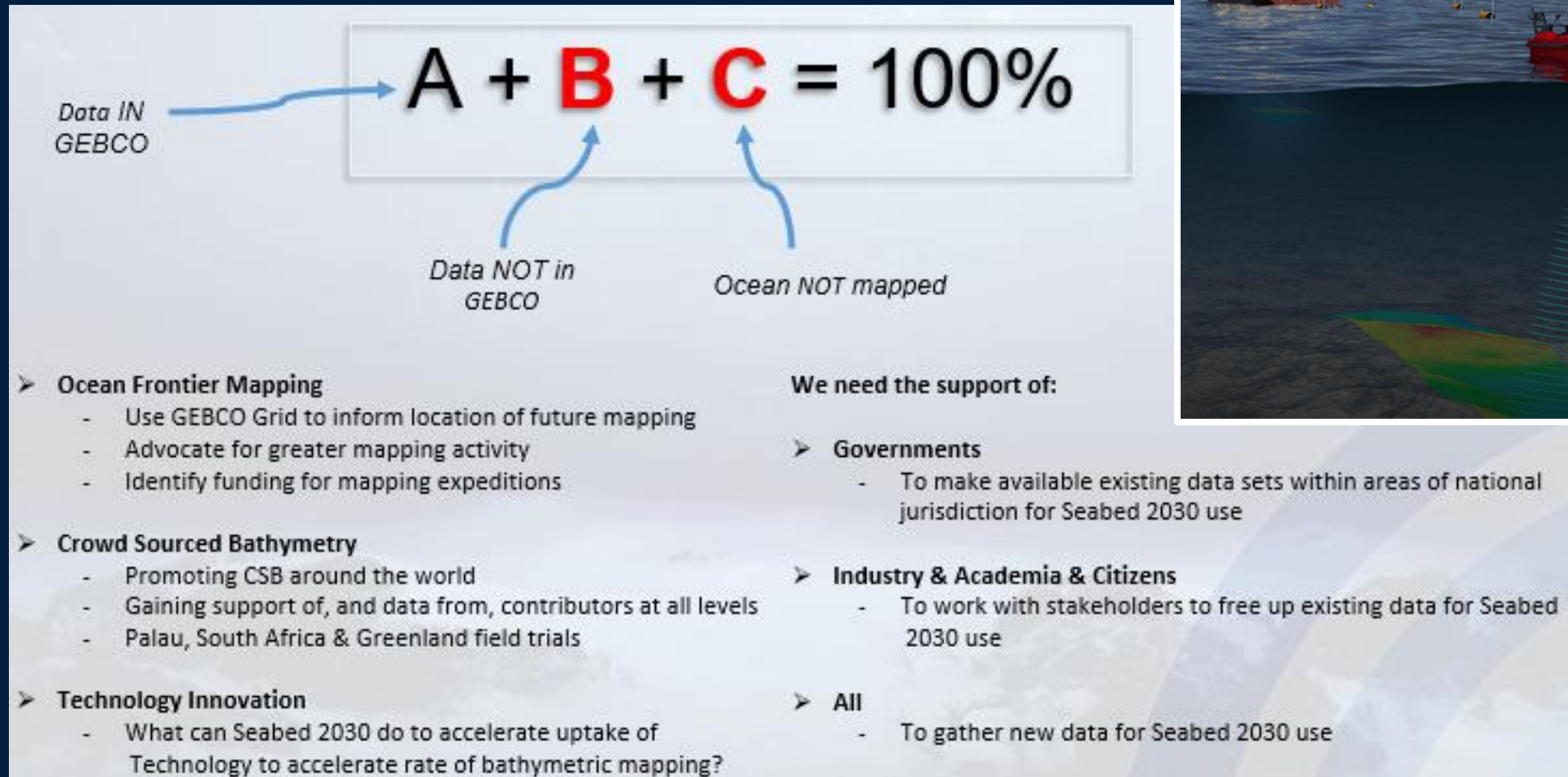
~25% of the seabed is currently mapped by direct observations.

Crowdsourced Bathymetry

- Collection of depth measurements from vessels
- Role of CSB: Fills the gaps, identifies uncharted features, verifies charts
- <https://seabed2030.org>

Filling the Seabed 2030 data gap

Achieving "100% of the ocean floor mapped by 2030"



Ocean Decade actions on data & private sector data

Ocean Decade Data Coordination Group

- Established by the Secretariat of IOC-UNESCO
- Focused on strategic exchange and coordination between data generators, managers and users
- Formed in 2021 after public call for nominations
- Comprised of 25 expert members
- First meeting held on 16 December 2021



**2021
2030** United Nations Decade
of Ocean Science
for Sustainable Development



Born from a partnership between IOC-UNESCO and Fugro

Ocean Data Private Sector Working Group

- Established by the Secretariat of IOC-UNESCO
- Focused on increasing public access to private sector data through development of equitable frameworks and mechanisms
- Formed in late 2021 with first meeting held on 7 February 2022
- Comprised of members from the private sector who own, hold or collect (on an owner or holders behalf) ocean science data



Layers

▼ Bathymetric Surveys

- ☒ Multibeam Survey Tracklines ?
- ☒ Multibeam Survey Footprints ?
- ☒ Multibeam Bathymetry Mosaic ?
- ☒ NOAA NOS Hydrographic Data: ?
 - ☒ All Surveys with Digital Data
 - ☐ Surveys with Bathymetric Attributed Grids (BAGs)
 - ☐ Surveys without Digital Data
- ☐ BAG Color Shaded Relief ?

- ☒ Single-Beam Surveys ?
- ☒ Single-Beam Sounding Density ?

?

Current filter:
Source Institution: Fugro

☐ Crowdsourced Bathymetry Files ?

?

▼ Digital Elevation Models

- ☐ DEM Footprints ?
 - ☐ DEM Color Shaded Relief ?
 - ☒ All DEMs
 - ☐ Continuously Updated Digital Elevation Model (CUDEM)
- Bathymetric-Topographic Tiles

▼ Coastal Lidar

- ☐ Topo-Bathy/Bathy Lidar Datasets ?

Grid Extract

More Information

Help

Search Bathymetric Surveys

Visible Layers: Multibeam, All NOS
Hydrographic Surveys

Min Year: Max Year:

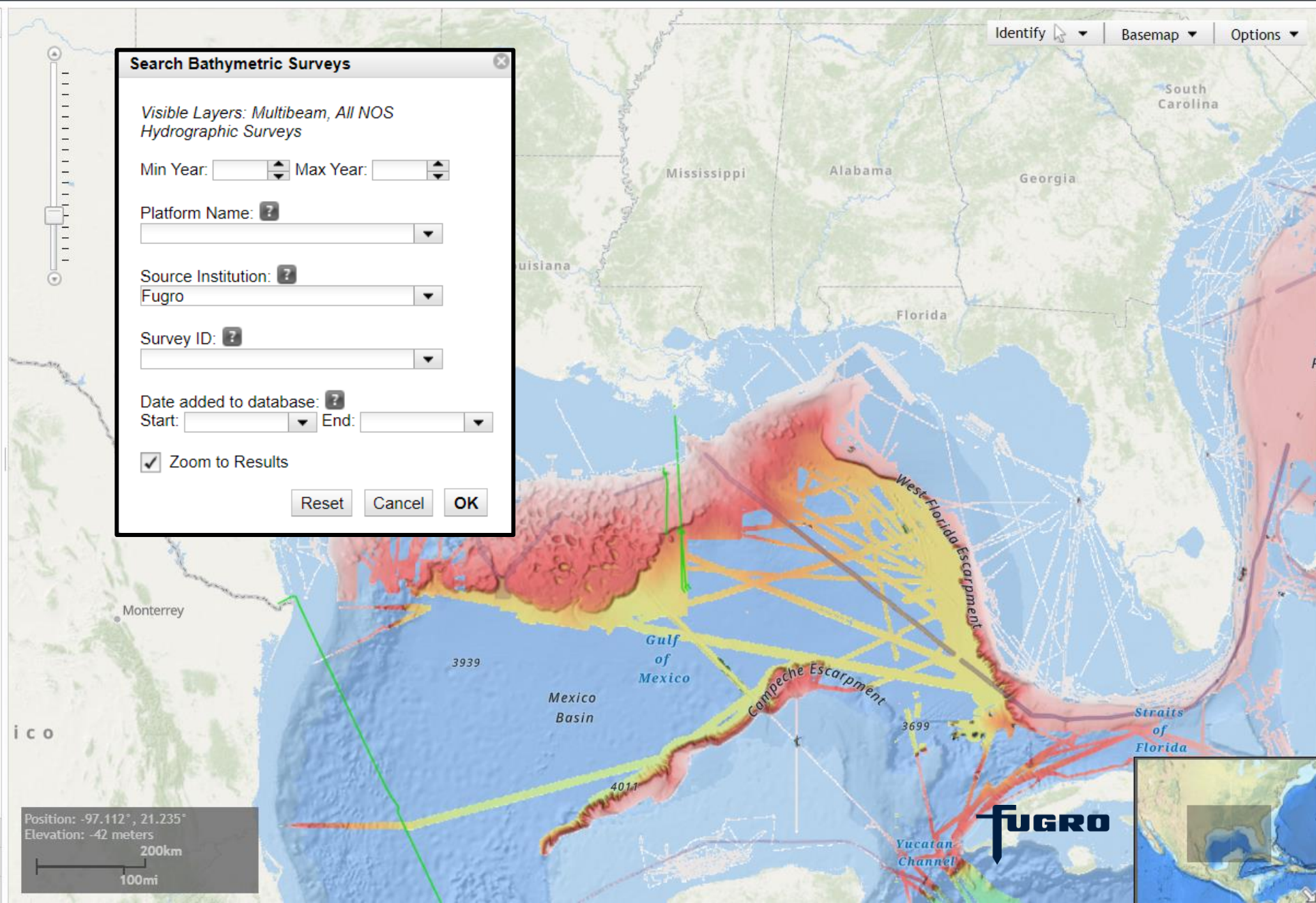
Platform Name: ?

Source Institution: ?
Fugro

Survey ID: ?

Date added to database: ?
Start: End:

☒ Zoom to Results



Why support Seabed 2030 and the Ocean Decade

The direct and indirect benefits of participation



Business Opportunities

Seabed 2030 and the UN Ocean Decade will create collaborative ocean science business opportunities for public-private-academic partnerships.



Access to Improved Global Bathymetry

The success of Seabed 2030 and the UN Ocean Decade will lead to larger and more complete public data sources for global bathymetry and ocean observation data to support future business needs.



Engagement

Participation in such high-profile global sustainability initiatives leads to thoughtful discussions and positive engagement with employees, suppliers, clients and shareholders.



Sustainability Agenda

Deliver a low cost, but meaningful contribution to the Seabed 2030 and UN Ocean Decade initiatives by filling data gaps while contributing very positively to corporate Sustainability Objectives.



Potential Tax Benefits (TBC)

Still to be confirmed, but the contribution of bathymetric and/or ocean observation data could be considered a charitable contribution, subject to tax benefits in some jurisdictions.



Reputation Benefits

Engagement with and participation in these initiatives will promote the corporate brand and enhance corporate reputation in ocean science to new communities and stakeholders.

What can I and/or my organization do to help improve our understanding of the world's oceans?

Data Contributions to Seabed 2030

- In-transit bathymetry
- Any vessel type (AUV, pleasure craft, fishing, research, to shipping)
- Repeating surveys
- Policy makers, scientists, corporations, explorers, small/large boat owners
- Get involved: csb@seabed2030.org



Peruvian Navy, Lima (2000)



Pachacamac Ruins (2000)

Thank you

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 HWoytak@fugro.com

 www.fugro.com