



IHO Data Centre for Digital Bathymetry

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Hosted by NOAA's National Centers for
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GEBCO Guiding Committee

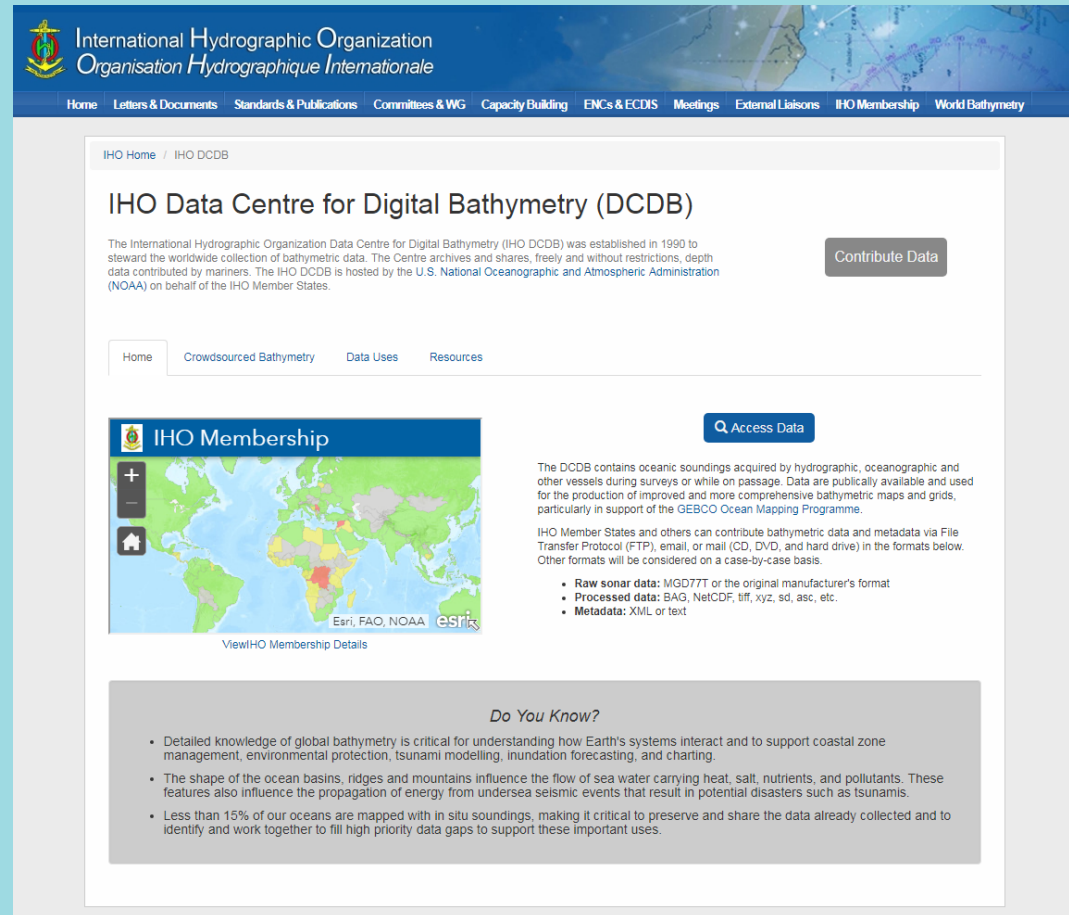
Canberra, Australia
November 14, 2018

IHO Data Centre for Digital Bathymetry

The recognized international repository for all deep ocean bathymetric data collected by hydrographic, oceanographic and other vessels.

Since 1990, NOAA's NCEI (formally NGDC) has hosted the DCDB on behalf of the IHO Member States.

Raw sonar data, processed data, crowdsourced bathymetry



International Hydrographic Organization
Organisation Hydrographique Internationale

Home Letters & Documents Standards & Publications Committees & WG Capacity Building ENCs & ECDIS Meetings External Liaisons IHO Membership World Bathymetry

IHO Home / IHO DCDB

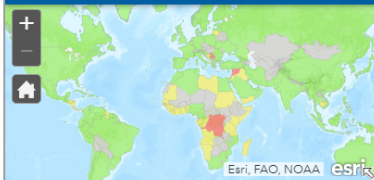
IHO Data Centre for Digital Bathymetry (DCDB)

The International Hydrographic Organization Data Centre for Digital Bathymetry (IHO DCDB) was established in 1990 to steward the worldwide collection of bathymetric data. The Centre archives and shares, freely and without restrictions, depth data contributed by mariners. The IHO DCDB is hosted by the U.S. National Oceanographic and Atmospheric Administration (NOAA) on behalf of the IHO Member States.

[Contribute Data](#)

Home [Crowdsourced Bathymetry](#) [Data Uses](#) [Resources](#)

IHO Membership



Esri, FAO, NOAA esri

[View IHO Membership Details](#)

[Access Data](#)

The DCDB contains oceanic soundings acquired by hydrographic, oceanographic and other vessels during surveys or while on passage. Data are publicly available and used for the production of improved and more comprehensive bathymetric maps and grids, particularly in support of the GEBCO Ocean Mapping Programme.

IHO Member States and others can contribute bathymetric data and metadata via File Transfer Protocol (FTP), email, or mail (CD, DVD, and hard drive) in the formats below. Other formats will be considered on a case-by-case basis.

- **Raw sonar data:** MGO77T or the original manufacturer's format
- **Processed data:** BAG, NetCDF, tif, xyz, sd, asc, etc.
- **Metadata:** XML or text

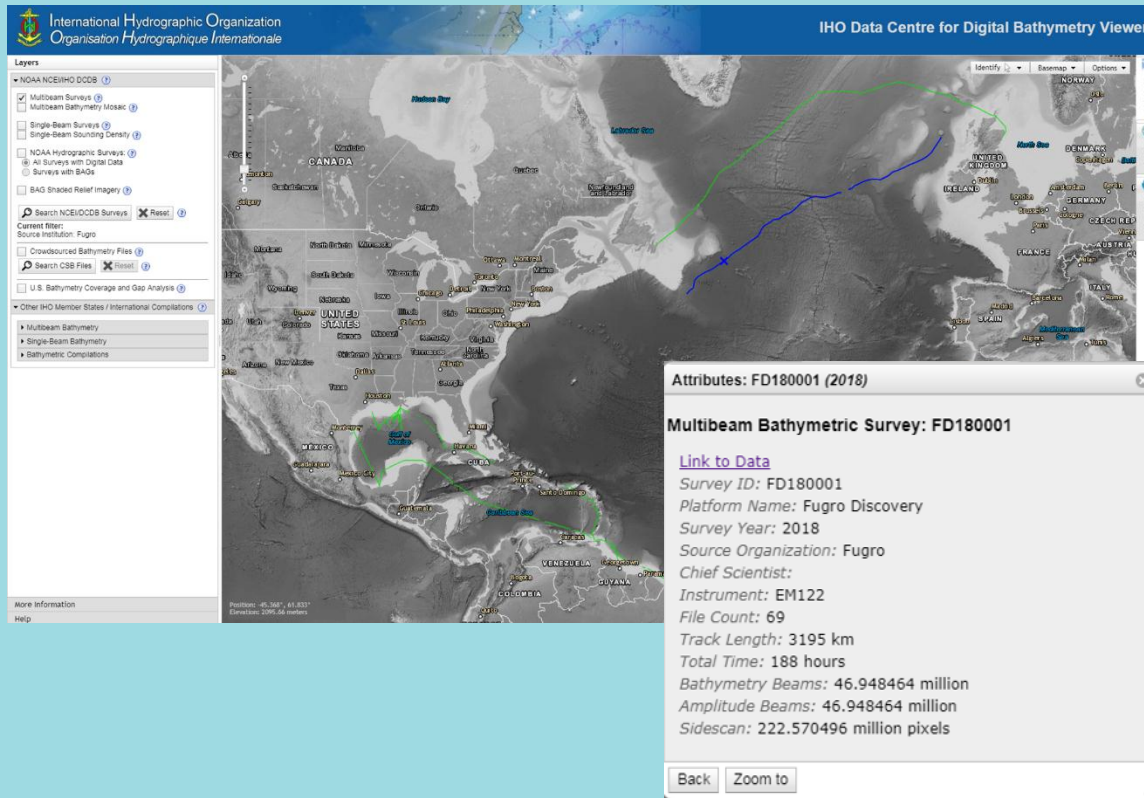
Do You Know?

- Detailed knowledge of global bathymetry is critical for understanding how Earth's systems interact and to support coastal zone management, environmental protection, tsunami modelling, inundation forecasting, and charting.
- The shape of the ocean basins, ridges and mountains influence the flow of sea water carrying heat, salt, nutrients, and pollutants. These features also influence the propagation of energy from undersea seismic events that result in potential disasters such as tsunamis.
- Less than 15% of our oceans are mapped with in situ soundings, making it critical to preserve and share the data already collected and to identify and work together to fill high priority data gaps to support these important uses.

ngdc.noaa.gov/iho/

Industry Contributing Data

Fugro Marine GeoServices



NOAA/DCDB worked with Fugro to identify metadata gaps and offer suggestions for improved data packaging to allow Fugro to provide a more complete product.

This has allowed Fugro to quickly identify a workflow and delivery method that promotes consistency across the fleet

Multibeam: 14 surveys, ~140 Gb

Water column sonar: 11 surveys, 350 Gb

Industry Contributing Data

Ocean Infinity

FILTERS

[BACK TO NEWSPAGE](#)



PERFORMANCE

OCEAN INFINITY DONATES 120,000 SQUARE KILOMETERS OF DATA FOR MISSING MALAYSIAN AIRLINER TO GEBCO SEABED 2030 PROJECT

21/06/2018

Ocean Infinity donated 120,000 square kilometers of data from the search for missing Malaysian airliner to The Nippon Foundation-GEBCO Seabed 2030 Project.

Ocean Infinity's data was collected by a fleet of eight Autonomous Underwater Vehicles (AUVs), enabling the surveying company to gather data much more quickly than traditional mapping missions during its recent Indian Ocean search for the missing Malaysian airliner, MH370.

"Our deep water search for MH370 demonstrated the most rapid collection of high-resolution sonar data in history, and we are thrilled on World Hydrography Day to announce our donation to such a pioneering initiative," announced Oliver Plunkett, CEO of Ocean Infinity.

[Read full article](#) Press Release – Ocean Infinity donates data from search to GEBCO

DCDB is currently working with OI to properly prepare and transfer their data to the archive.

Crowdsourced Bathymetry

Fishing, tug boats, sailboats, cruise ships



Other

- International (e.g., Ireland, Germany)
- Industry



Research & Exploration (not NOAA)

UNOLS Fleet (26 vessels)



NCEI - DCDB

Long Term Archiving
Data Discovery
RAW BATHY (+)



Public

Google
ESRI

SB2030
RDACCs

NOAA Charting & Exploration

- NOS OCS
- OAR OER





International Hydrographic Organization
Organisation Hydrographique Internationale

Layers

☒ NOAA NCEI/WHO DCDB

☒ Multibeam Surveys [?](#)

☒ Multibeam Bathymetry Mosaic [?](#)

☐ Single-Beam Surveys [?](#)

☐ Single-Beam Sounding Density [?](#)

☐ NOAA Hydrographic Surveys [?](#)

☒ All Surveys with Digital Data

☐ Surveys with BAGs

☐ BAG Shaded Relief Imagery [?](#)

☒ Search NCEI/DCDB Surveys [?](#)

☒ Crowdsourced Bathymetry Files [?](#)

☒ Search CSB Files [?](#)

☐ U.S. Bathymetry Coverage and Gap Analysis [?](#)

Other IHO Member States / International Compilations

▼ Multibeam Bathymetry

☐ Global Multi-Resolution Topography Synthesis (GMRT) [?](#)

☒ EMODnet Multibeam Surveys [?](#)

☒ EMODnet Digital Terrain Model (DTM) [?](#)

☒ NRCan Multibeam Surveys [?](#)

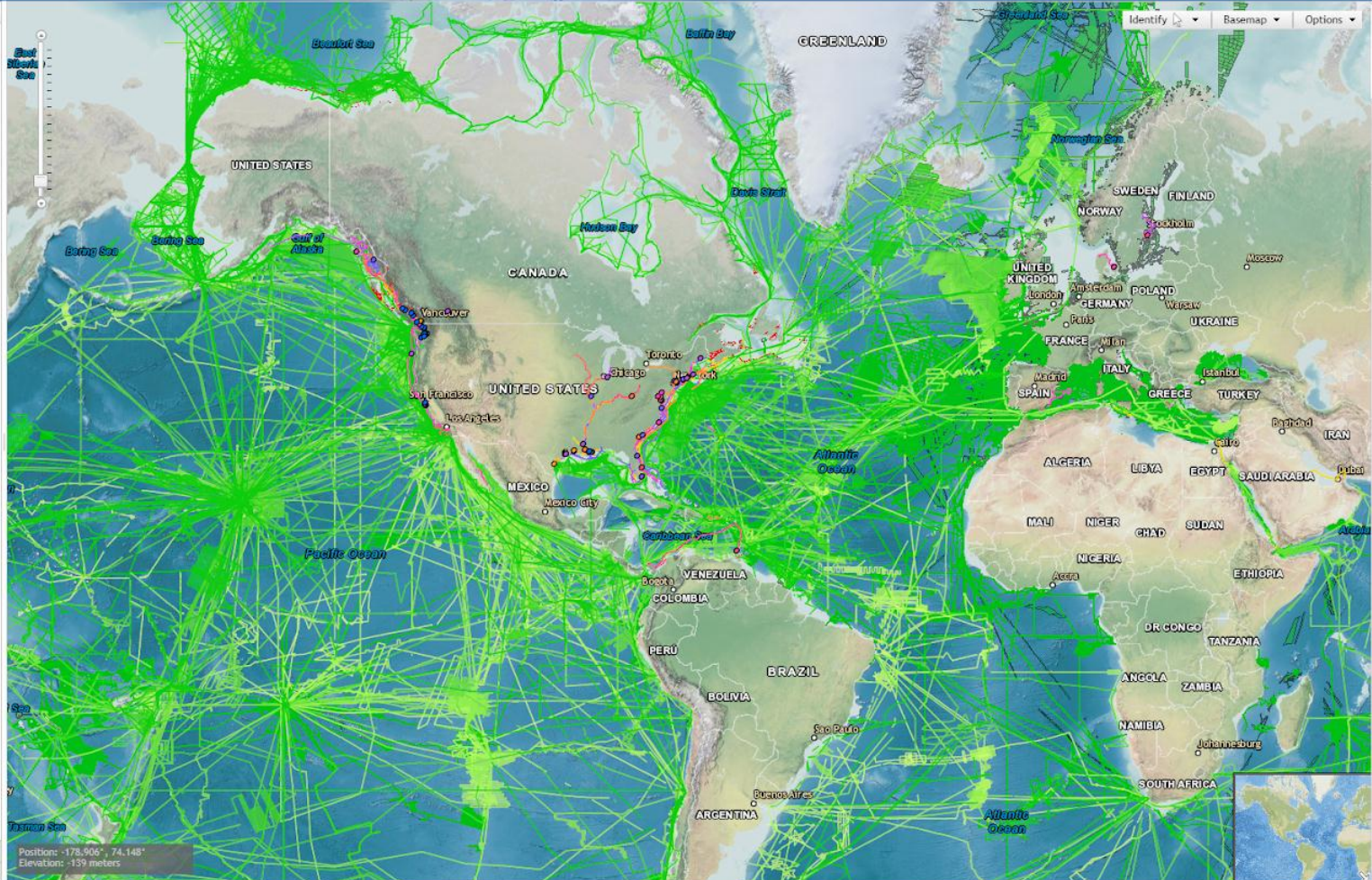
☒ NRCan Multibeam Shaded Relief [?](#)

☒ MAREANO Multibeam Surveys [?](#)

☒ MAREANO Multibeam Shaded Relief [?](#)

► Single-Beam Bathymetry

► Hydrographic Surveys (Multibeam and/or Single-Beam)

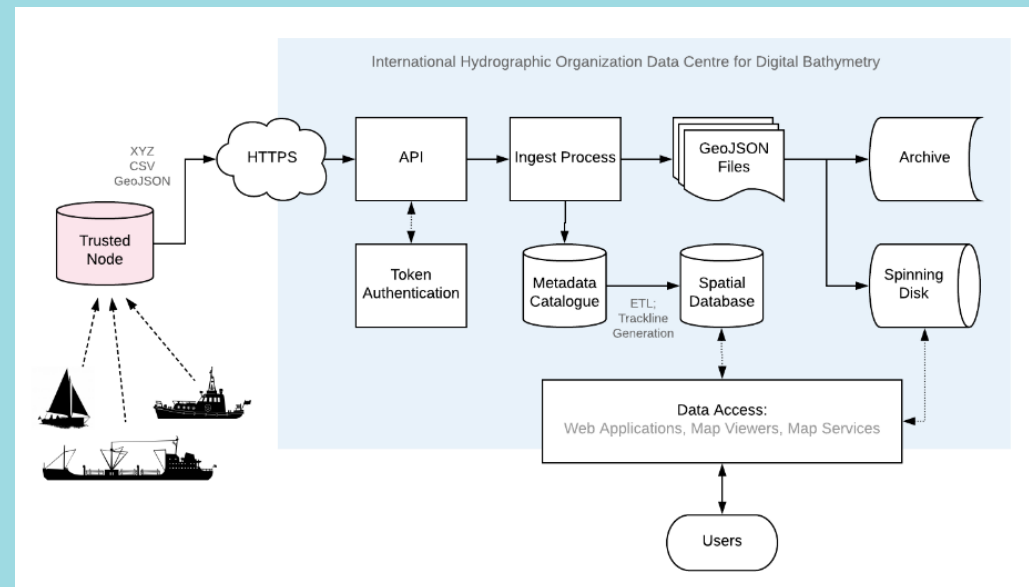


https://maps.ngdc.noaa.gov/viewers/iho_dcdb/

IHO DCDB Enhancements for CSB Data

This Year:

- Hardened system to prepare for expansion to more data providers.
- Streamlined new contributor onboarding SOP.
- Implementing option for user to choose delivery format (CSV or GeoJson)
- Added ability to filter by “date added to database” in map viewer
- NOAA Bathymetry Module
 - Stores echosounder and GPS NMEA strings that a ship outputs
 - Parses and posts the data to the IHO DCDB



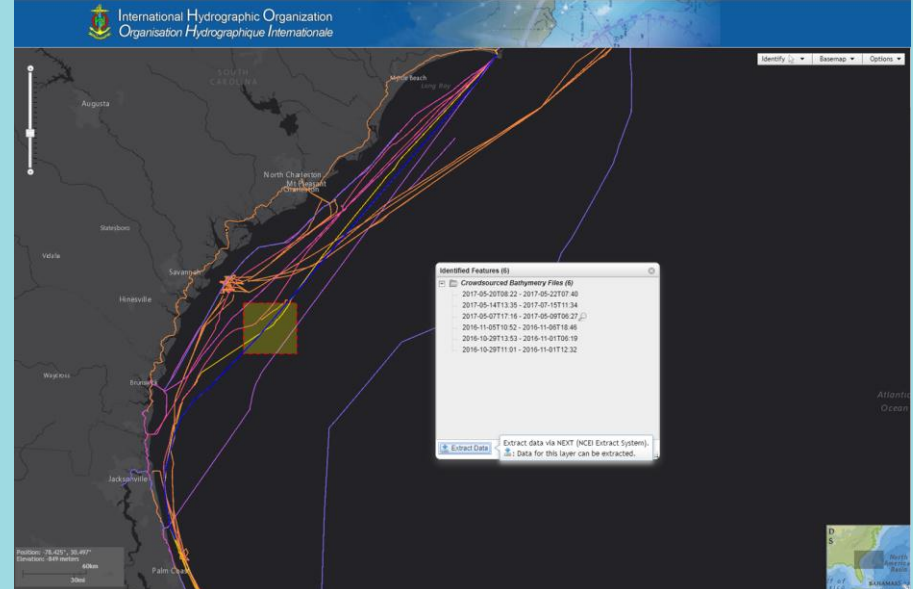
The screenshot shows a web-based search interface titled 'Search Crowdsourced Bathymetry Files'. It includes several search criteria with dropdown menus and date pickers: 'Date of Data Collection' (Start and End), 'Date Added to Database' (Start and End), 'Provider', 'Platform Name', and 'Platform ID'. There is a 'Zoom to Results' checkbox and three buttons at the bottom: 'Reset', 'Cancel', and 'OK'.

IHO DCDB next steps:

- Expand beyond pilot data provider to include more trusted data providers in CSB project (*Currently working with FarSounder Inc.*)
- Continue to ingest map services to provide a more accurate representation of where data exists
- Continue to ingest, archive, create tracklines of where data was collected to visualize on map, and provide individual file-based delivery of data.

VISION

- Develop bathymetric sounding point store in cloud.
- Provide a variety of services, for ex:
 - Users can generate bathy grids of a given area using user-specified resolution
 - Show data density, guiding future data collection efforts



IHO Crowdsourced Bathymetry WG

TASK: Prepare an IHO publication on policy for trusted crowdsourced bathymetry to provide guidelines on the collection and assessment of CSB data.

- 2015 CSBWG established by the IHO IRCC
- Dec 5-6, '17 CSBWG-5 meeting (Monaco)
- Jun 19-21, '18 CSBWG-6 meeting (Boulder, CO)
- Oct '18 IHO Council 2 approval of B-12 Edition 1.0.0
- 1 Jan '19 B-12 Edition 1.0.0 to be published on IHO website (will be placed in the list of Standards and Publications)
- Feb , '19 CSBWG-7 meeting (Quebec City), shift focus to outreach and data uses; Industry Day



CWBWG-5: Monaco



CWBWG-6: Boulder, Colorado, USA

Chair: Jennifer Jencks
Vice Chair: Serge Gosselin
Secretary: David Wyatt

What We Do

Our shared vision is an Atlantic that is healthy, resilient, safe, productive, understood and treasured so as to promote the well-being, prosperity and security of present and future generations.

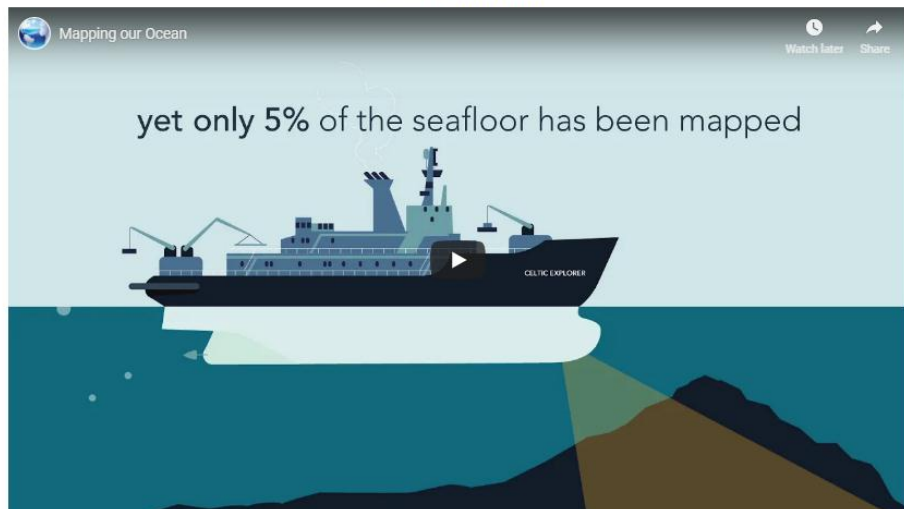
Together, we in Canada, the European Union and the United States of America, are building a community across and along the Atlantic Ocean focusing on these five key areas.

An Atlantic Ocean Map

WHAT IS IT?

To date, just 5% of the ocean floor has been mapped. Under AORA, the remainder of the Atlantic Ocean floor will be charted, making it the best-understood ocean on Earth.

Seabed Mapping



An Atlantic Ocean Map
Ocean Observation
Food from the Ocean
A Healthy Ocean
Ocean Literacy

- 5th Meeting of the Galway Statement Implementation Committee, Ottawa, Ontario, 23 Apr
- ASMIWG9 and Industry Workshop, Lisbon, Portugal, 29-30 May

Task: AORA Atlantic Seabed Mapping International Working Group (ASMIWG) was established to identify the steps required to implement a seabed mapping strategy.

Task: Identify potential pilot areas in the North Atlantic by using a GIS-based overlay technique based on selected attributes of the marine environment.

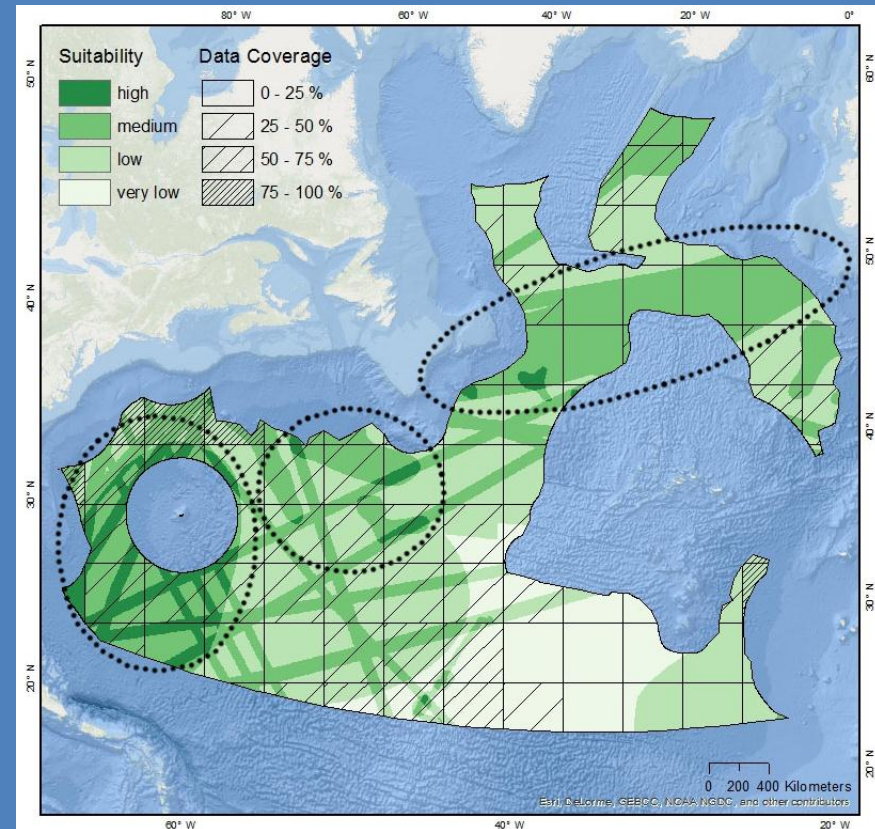
Driven by logistics and opportunistic research vessel time we are currently working on two “Pilot Areas” within our Project:

1) Northeast Atlantic

- Closer to European Coast
- 2018 *RV Celtic Explorer* mission completed June 2018. Builds on previous ASMIWG Transect work.

2) South Bermuda

- Closer to North American Coast
- NOAA *Okeanos Explorer* survey mission completed July 2018.
****This can be considered the first dedicated government survey (non transect) in support of AORA/ASMIWG**
- Very interesting preliminary data – now available for analysis. Many features in a “featureless” seafloor landscape.



Analysis result map showing the suitability of potential target sites and the percentage of multibeam data coverage. This work was published in *The Journal of Ocean Technology* winter 2018 issue, JOT: Mapping the Deep.



Thank You!

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