THE NIPPON FOUNDATION-GEBCO

SEABED 2030

Webinar 2: Building the Map

How do we build the map? How can you access & contribute data?

Moderator:
Ms. Kathryn Ries, MACHC Chair

Presenters:
Dr Vicki Ferrini, Head Seabed 2030 Atlantic/Indian Regional Center

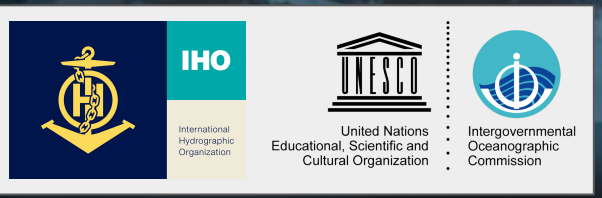
Ms Jennifer Jencks, Director IHO Data Center for Digital Bathymetry

MACHC Seabed 2030 Coordinator:
Ms Cecilia Cortina

2020 MACHC Seabed 2030 Webinar Series: Webinar 2, Sept 25, 2020

Welcome

Seabed 2030 Coordinator, Cecilia Cortina



Today's Agenda

10:00 - 10:15 Welcome & Logistics (MACHC Chair, IOCARIBE Chair, Seabed 2030 Coordinator)

10:15 - 10:45 Introduction, Recap and Homework Review (Head of RDACC for Atlantic & Indian Oceans)

10:45 - 11:45 How do we build the map? (Head of RDACC, Director DCDB)

- How the regional product is being developed
- Data formats and information needed
    - Metadata information to accompany data submissions (for data assembly + attribution)
- How to package/submit data and metadata
- How to access data

11:45 - 12:00 Conclusions and Homework for Next Session (Head of RDACC)

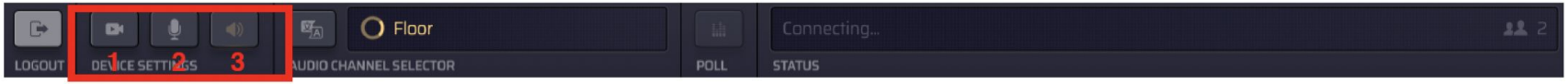
Logistics

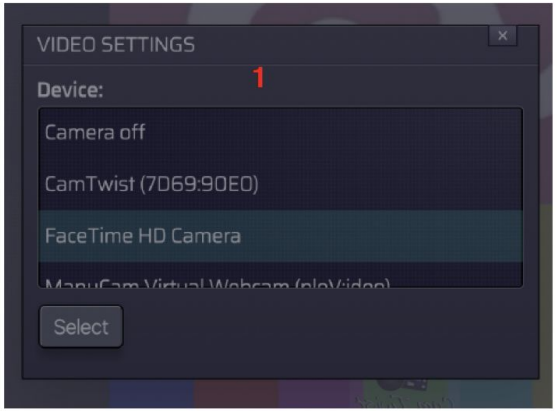
MACHC Chair, Ms. Kathryn Ries

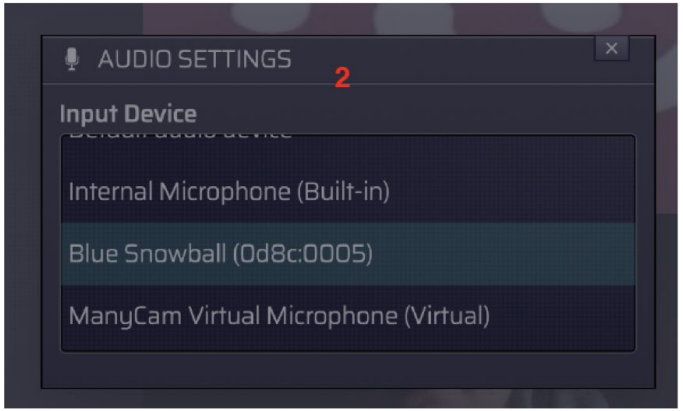
Logistics

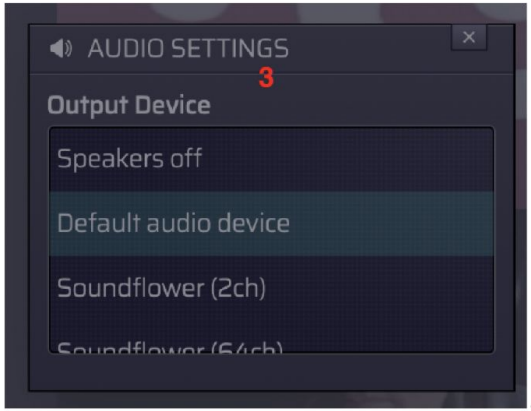
How to Select Your Microphone and Camera (Top Left of Screen)

Select your **camera (1)**, **audio input device (2)** (microphone, headset, etc.), **output device (3)** (headphones, speakers, etc.)





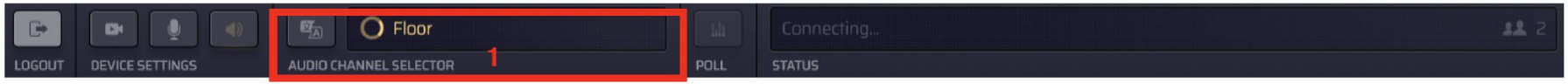




Logistics

How to Select the Language of Your Audio Channel

Select the **audio channel (1)** (language) you want to listen to.

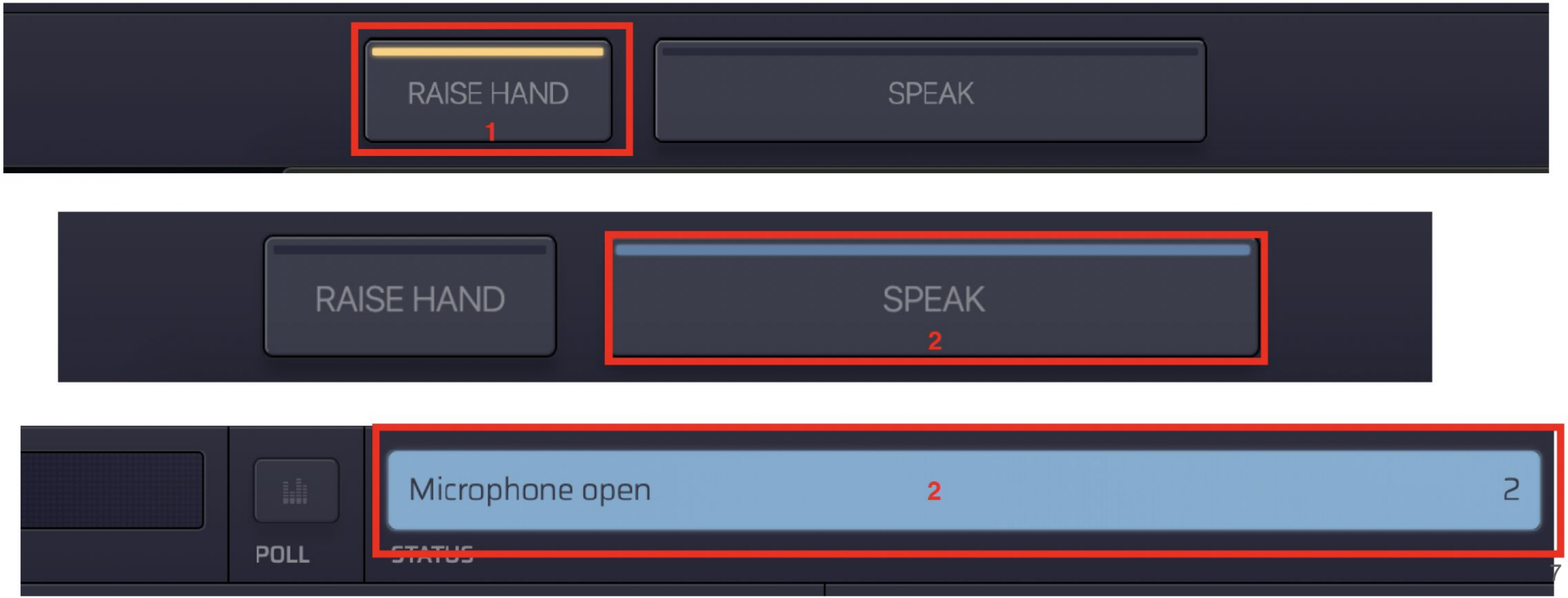


Logistics

How to Be Recognized by the Chair

Raise your hand, by pressing the button **Raise Hand (1)** to indicate the wish to speak.

When given the right to speak by the Moderator, Speak button will start glowing blue (2) and the Status line will say “Microphone open” (2).



Logistics

How to Speak to the Room

Press **Speak (1)**.

Your speak button should turn red (2), and your Status should say Live (2) - this indicated that you are currently live and streaming.

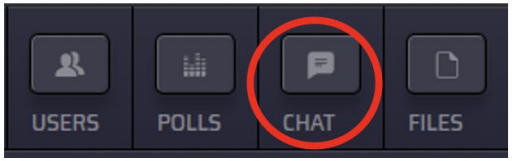
Logistics

How to Make a Video Channel Larger

Click on any video channel/square and it will move to the large viewing area.

How to Ask Questions Via Chat

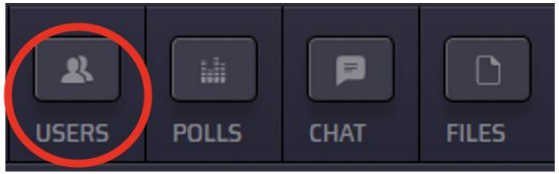
Although we encourage you to speak to the room on video and audio, you may also submit questions via chat. Click on the “CHAT” icon in the upper right and submit a question via text. Percy Pacheco will moderate this chatroom and raise questions to the Chair.



Logistics

How to See Who Else is in Attendance

Click on the “USERS” icon in the upper right to see who else is in attendance.



THE NIPPON FOUNDATION-GEBCO

SEABED 2030

Introduction, Recap & Homework Review

Dr. Vicki Ferrini, Head Seabed 2030
Atlantic/Indian Regional Center

2020 MACHC Seabed 2030 Webinar Series: Webinar 2, Sept 25, 2020

Overview of Webinar Series

Objectives of this Webinar Series

- Overview & Introduction:
  - Objectives, strategy and motivation of the Nippon Foundation - GEBCO Seabed 2030 Project
- Promote collaboration and coordination
- Review current status of ocean mapping for this region
- Demonstrate online tools that are available
- Engage the community of stakeholders
  - Gather information about existing data, planned mapping efforts
  - Input on needs of stakeholders with respect to tools, workflows, regional mapping priorities
- Develop a roadmap for completing mapping of the region by 2030

Webinar Schedule

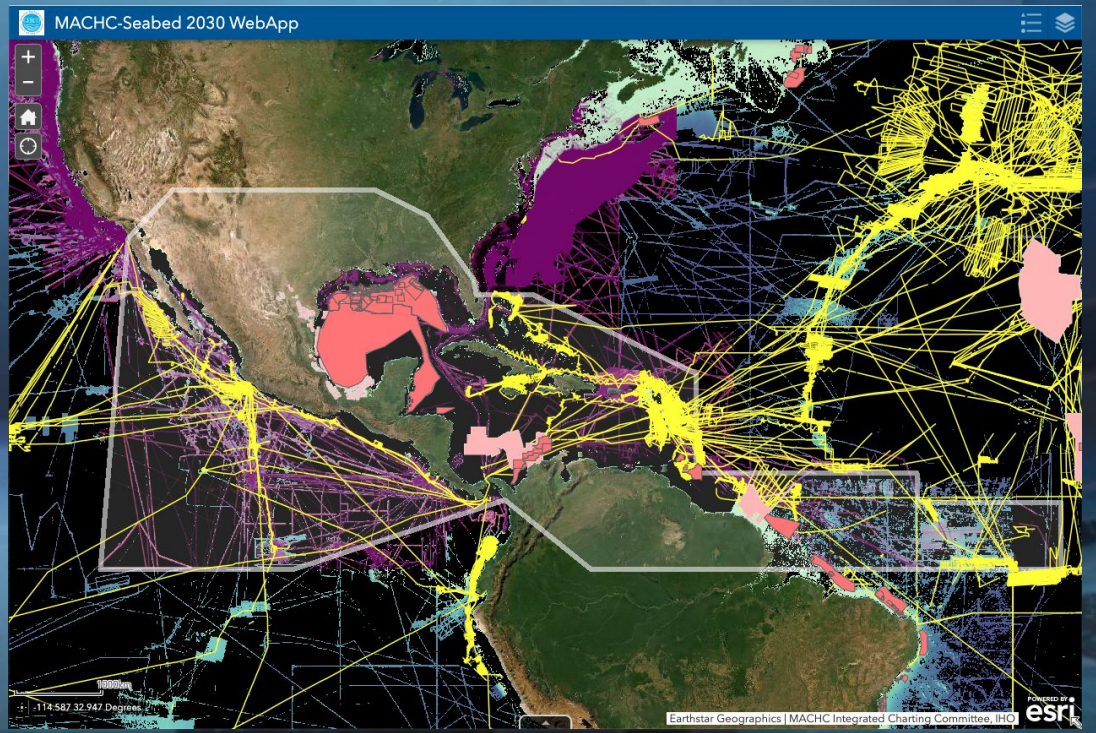
- Webinar 1 - Sept 11: Where are we now? Introduction and Goals including review of current mapping status in the region
- **Webinar 2 - Sept. 25: How do we build the map? How can you contribute data?**
- Webinar 3 - Oct. 9: Increasing Data Coverage: Crowdsourced Bathymetry and Data Coverage Polygons
- Webinar 4 - Oct. 23: Moving Ahead Together: Summary, Next Steps and Wrap up.

Goals for today

- Discussion and review of Homework from Webinar 1: Existing data
- Discussion of data compilation
  - How is the regional product built?
  - What metadata is needed and why?
- How to contribute data to Seabed 2030 and the IHO DCDB?
- How to access data from GEBCO and the IHO DCDB?

Recap Webinar 1: Where are we now?

- Project Goals
- Seabed 2030 - MACHC Web App
  - GEBCO 2020 Map & Coverage
  - Known Data Coverage Layers
    - Public Data
    - Embargoed Data
  - Planned Surveys
- Data Gaps



http://bit.ly/Seabed2030-MACHC

Recap Webinar 1: Where are we now?

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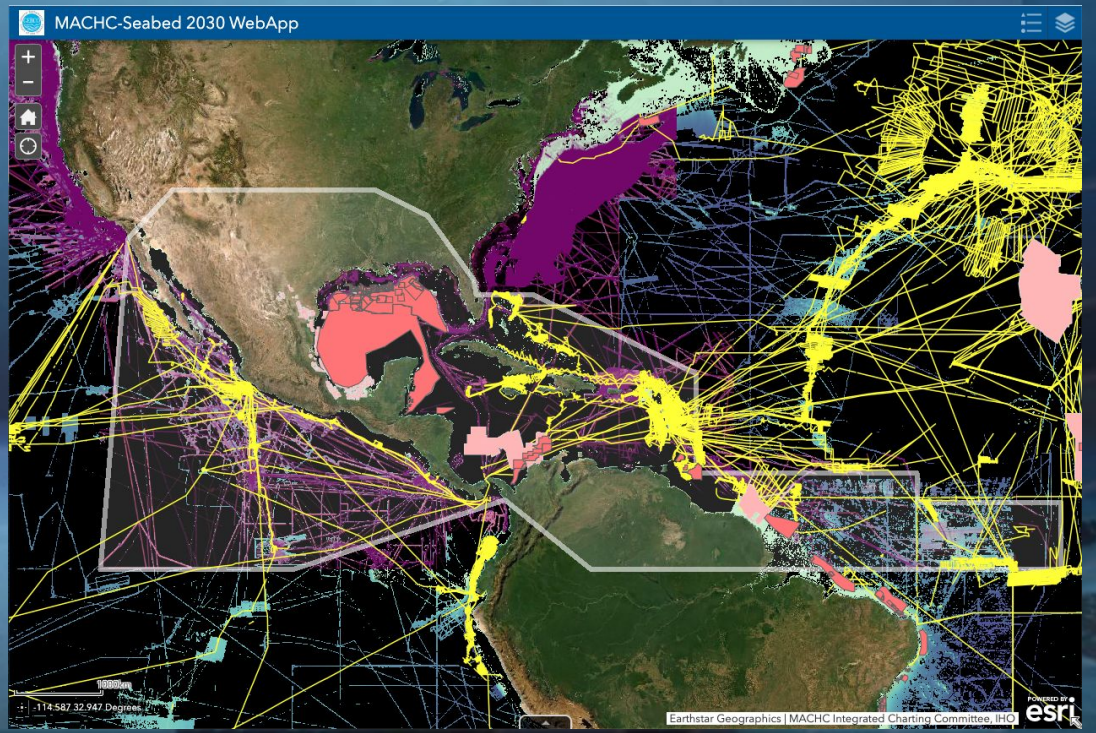


http://bit.ly/Seabed2030-MACHC

Discussion & Review of Homework Assignment #1

Review of Homework #1

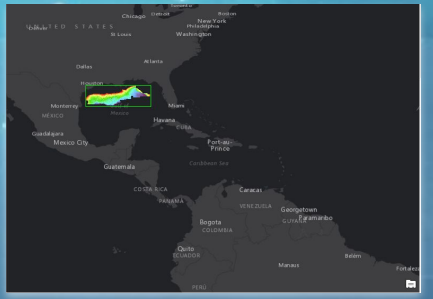
- Are there existing datasets that are not represented in the Seabed 2030 - MACHC web app?
- Are there technical challenges that we might be able to help you address?
- Have you thought about strategies for gaining access to non-public data?

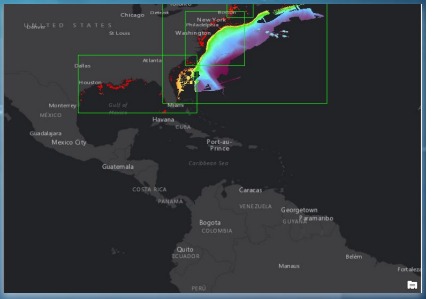
How is the Regional Map Being Developed?

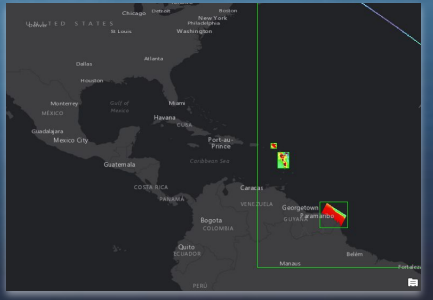
Regional Data Assembly

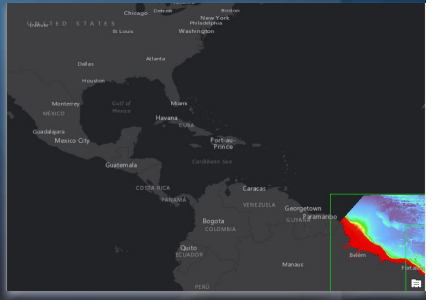
Integrate gridded data based on:

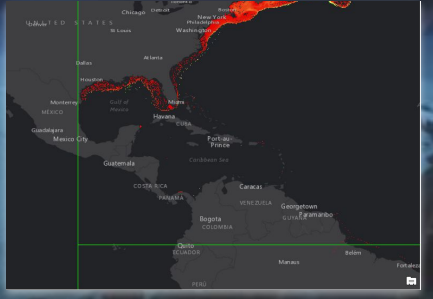
- Gridded contributions (DEMs)
  - BAGs, geotiffs, grd
- Isolated depth measurements
  - ENC, singlebeam, CSB, etc
- Raw and/or Processed swath data

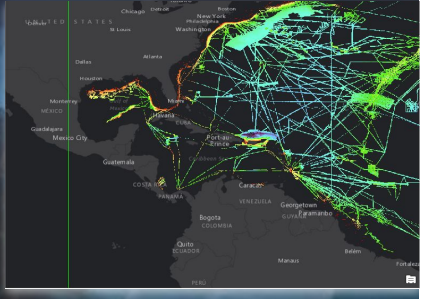






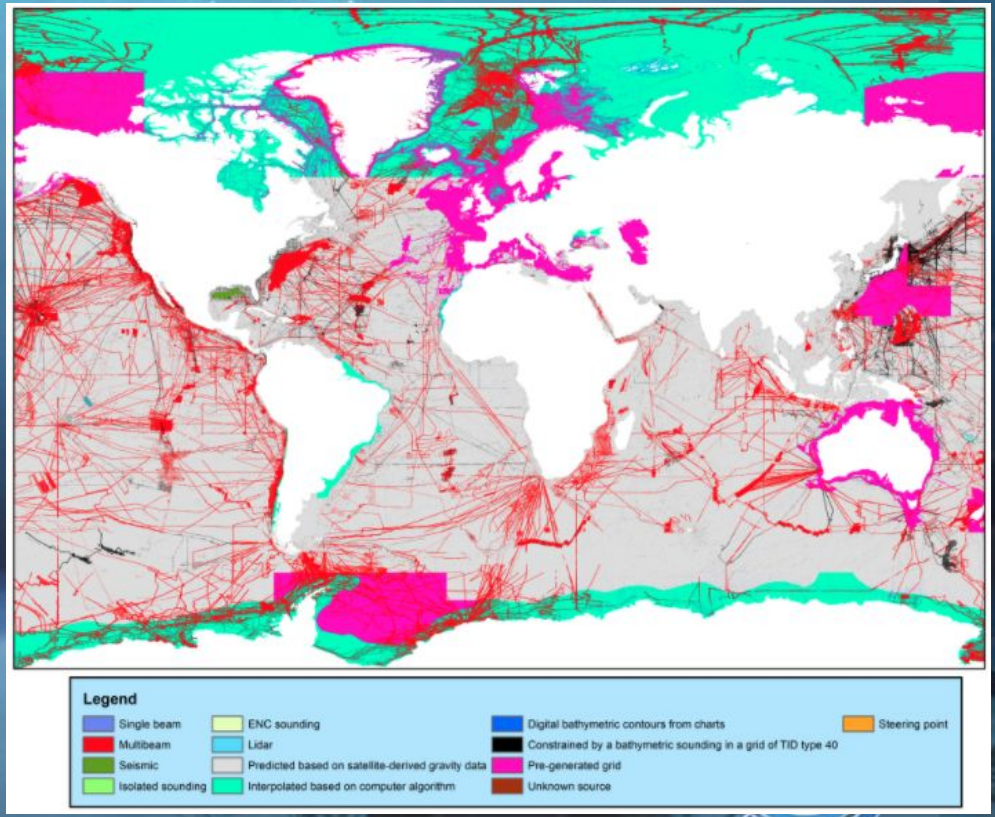






Type Identifier (TID)

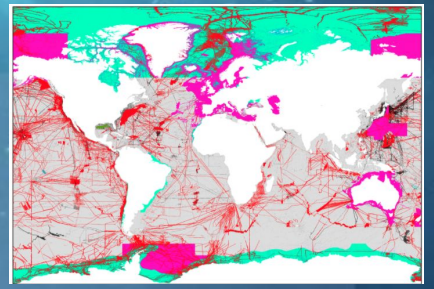
- Companion to grid to explain source type for elevation data
- Distinguishes direct from indirect measurements
- Identifies the kind of data that contributed to each grid node
- Helps prioritize data when combining overlapping observations

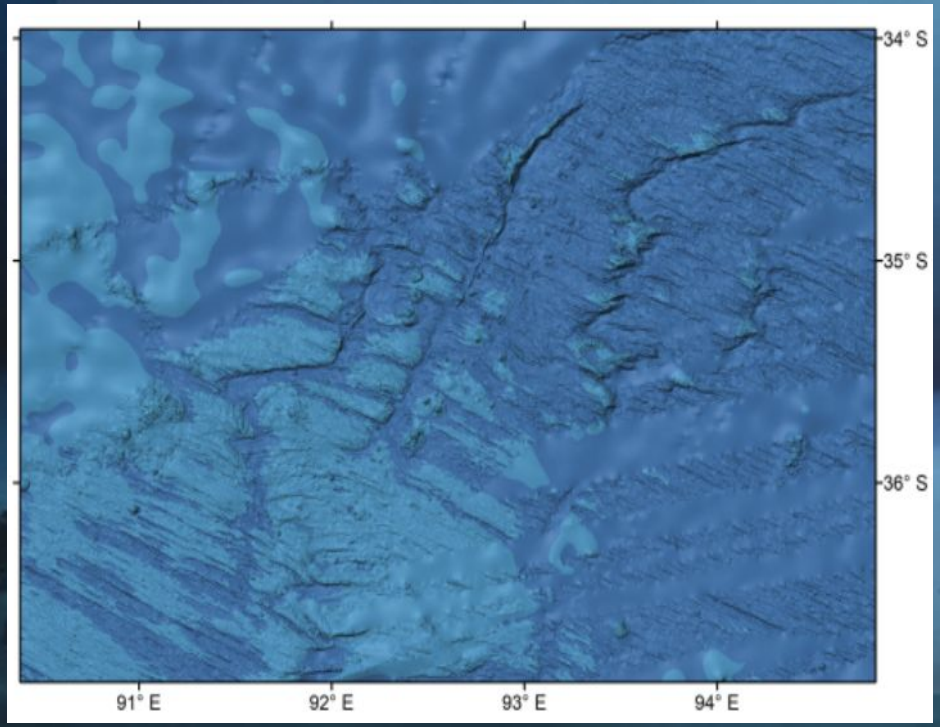


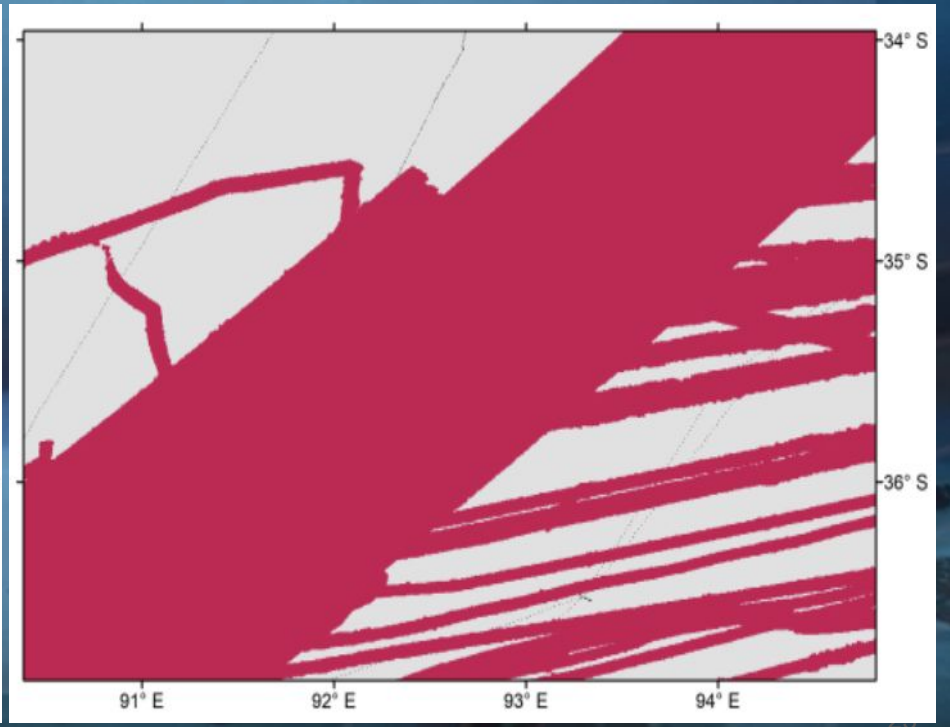
https://www.gebco.net/about_us/contributing_data/tid_grid.html

Type Identifier (TID)

- Explains differences in data resolution



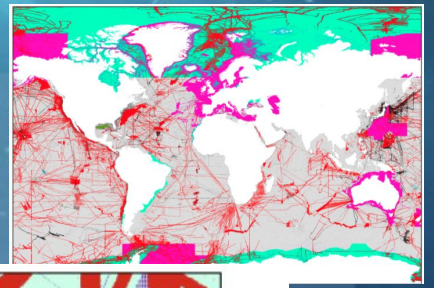




https://www.gebco.net/about_us/contributing_data/tid_grid.html

Type Identifier (TID) -

- Helps to distinguish “mapped” from “unmapped”



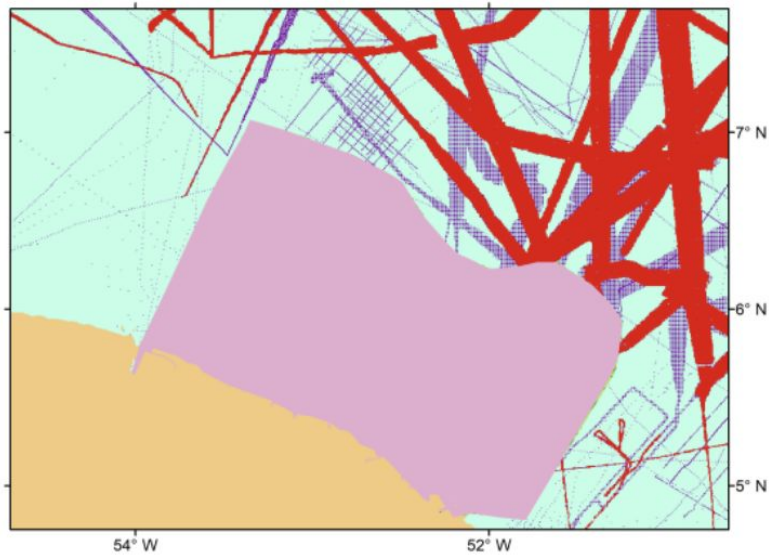


Figure 3A. Area of pre-generated grid shown in pink

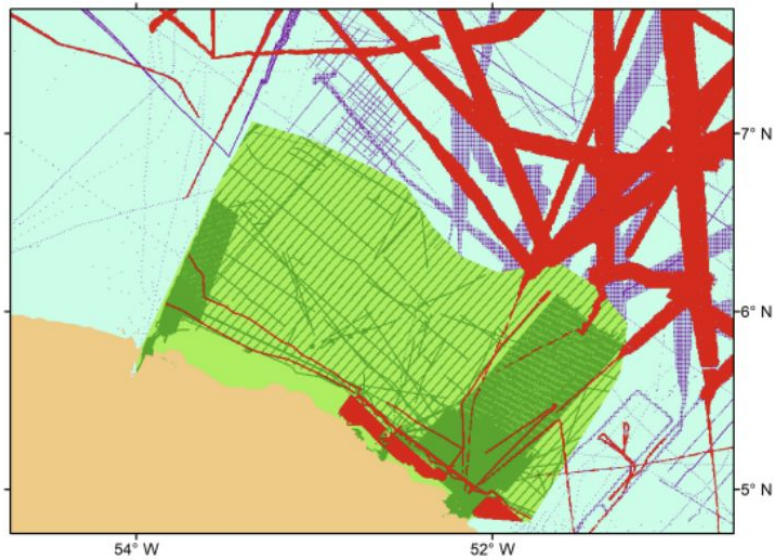


Figure 3B. Source data types used in the pre-generated grid are identified

Pregenerated grid

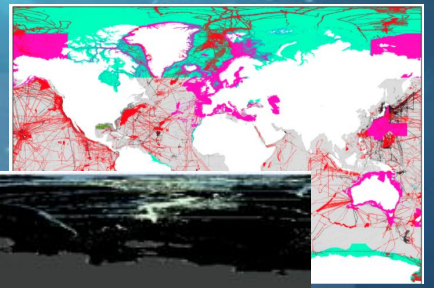
Interpolated based on a computer algorithm

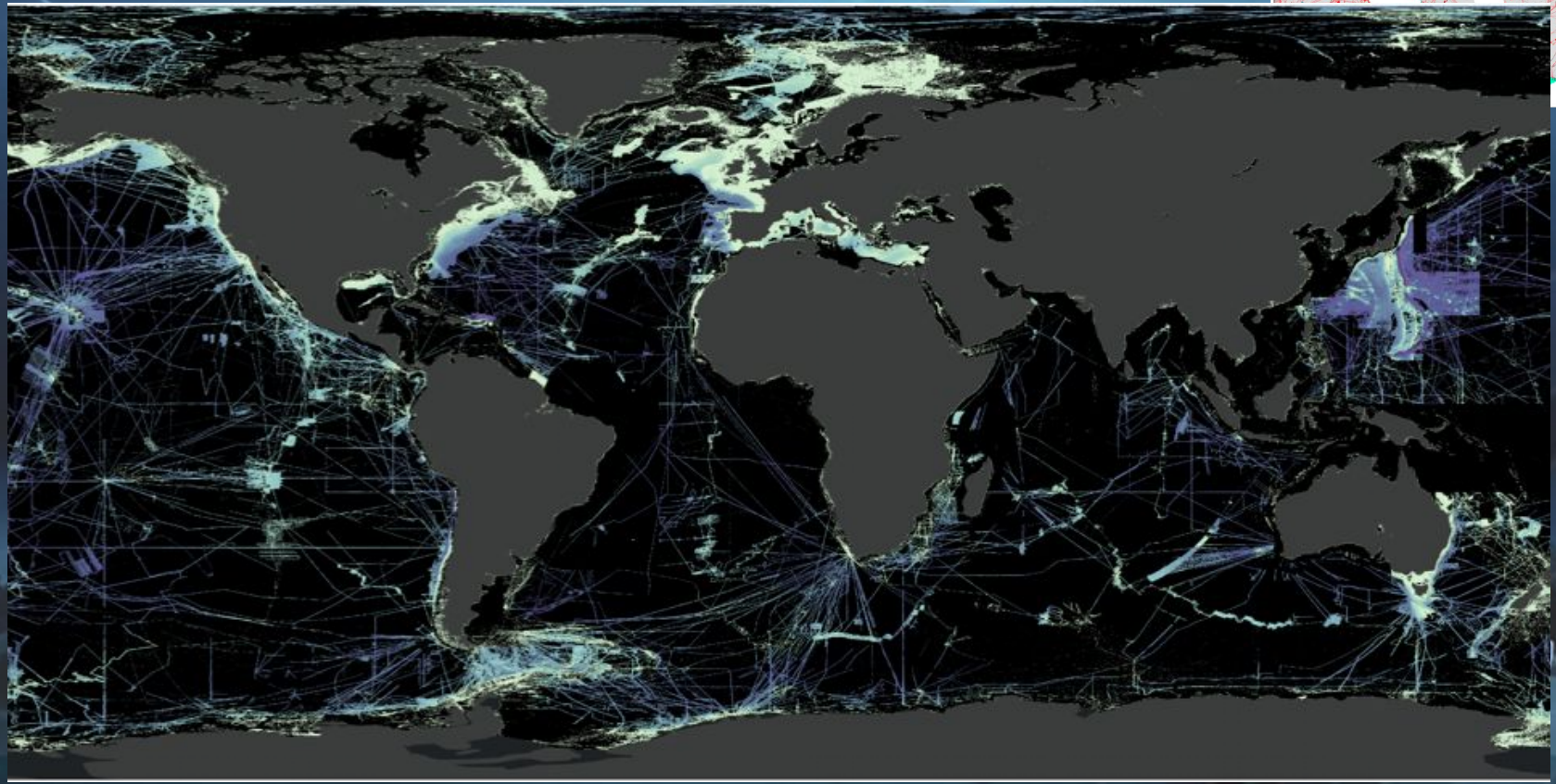
Single beam data

Multibeam data

https://www.gebco.net/about_us/contributing_data/tid_grid.html

Type Identifier (TID) - Visualize “mapped” areas



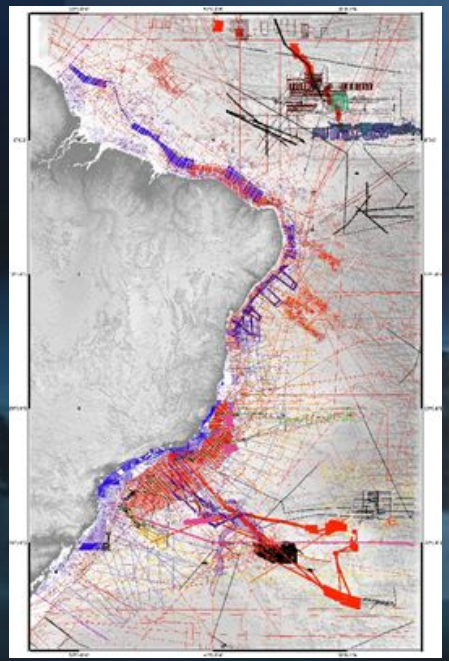


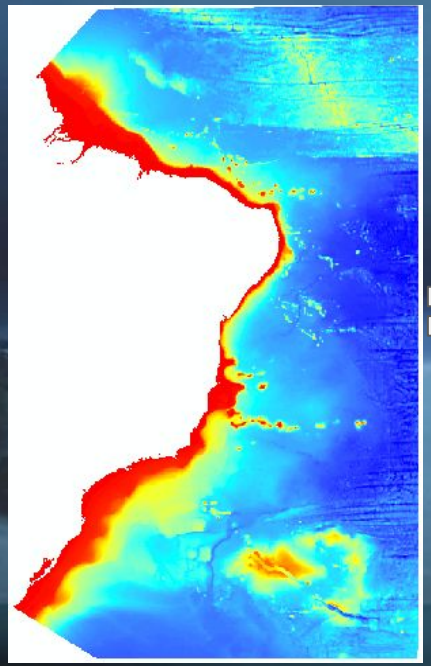
https://www.gebco.net/about_us/contributing_data/tid_grid.html

Type Identifier (TID)

If a grid is contributed, an accompanying TID grid is important to provide if

- Grid includes large areas that are interpolation
- Grid includes predicted and measured bathymetry





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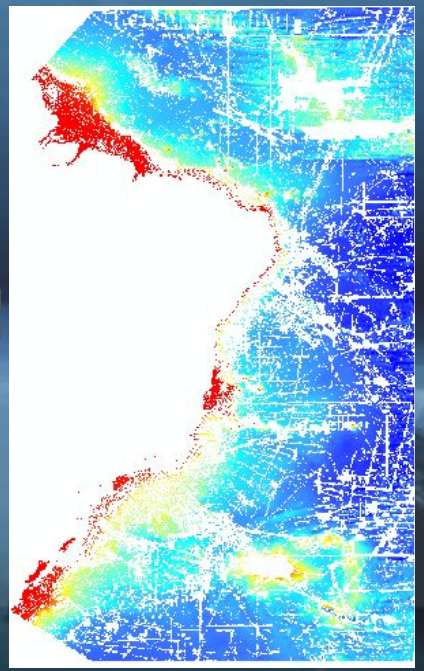

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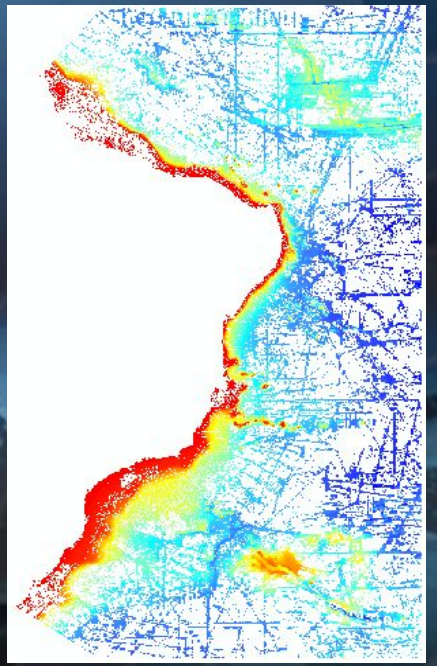

Questions?

How to Contribute Data

Home Data

Contributing data for public access

GEBCO encourages the sharing of source bathymetric data within the international community for the benefit of all.

The International Hydrographic Organization Data Center for Digital Bathymetry (IHO DCDB), manages a worldwide publicly-accessible digital data bank of oceanic soundings on behalf of the Member Countries of the IHO. Archiving data with the IHO DCDB ensures their long term preservation and public availability.

Contributing data for updating the GEBCO grid only

If source data cannot be made publicly available, data can still be contributed directly to GEBCO through the Seabed 2030 Project (as described in the form above).

The project prefers processed data in the form of multibeam grids, single beam tracks or pre-generated grids (i.e. a data set in gridded form based on a number of source data sets).

If submitting a pre-generated grid, please provide accompanying information describing source data types included in the grid and if areas are based on interpolation (e.g. as a Type Identifier Grid).

This information will better help us to 'map the gaps'.

Useful contacts

- Global Center gdacc@seabed2030.org
- IHO DCDB bathydata@iho.int
- Seabed 2030 Regional Centers

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How to

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How to Contribute Data to the IHO DCDB

Contact bathydata@iho.int for more information on contributing data or sharing web services to the IHO DCDB.
Refer to Submitting Marine Geophysical Data to the IHO DCDB for how to package and submit data.

Governments, organizations, academia, industry and individuals are encouraged to contribute data to the IHO DCDB.

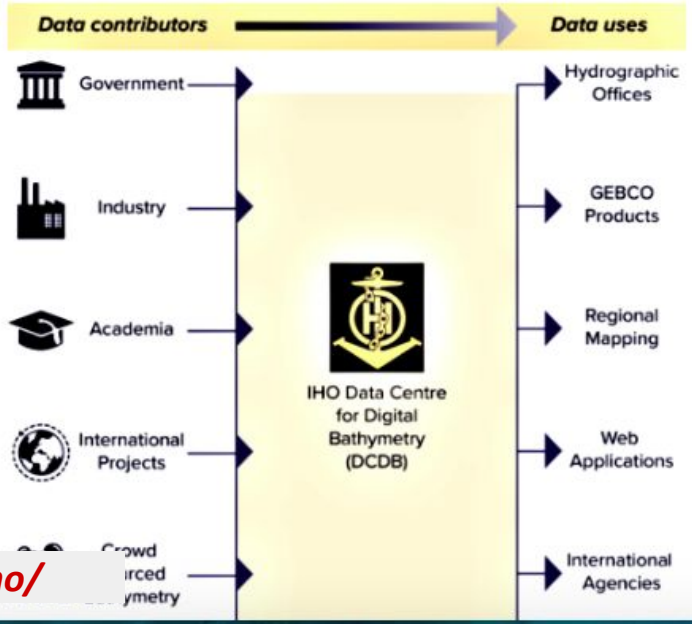
Bathymetric data and metadata can be submitted via File Transfer Protocol (FTP), email, or mail (hard drive) in the formats listed below.

- **Raw sonar data:** MGD77T or the original manufacturer's format
- **Processed data:** gsf, BAG, NetCDF, tiff, xyz, sd, asc, etc.
- **Metadata:** XML or text

Other formats and products will be considered on a case-by-case basis.

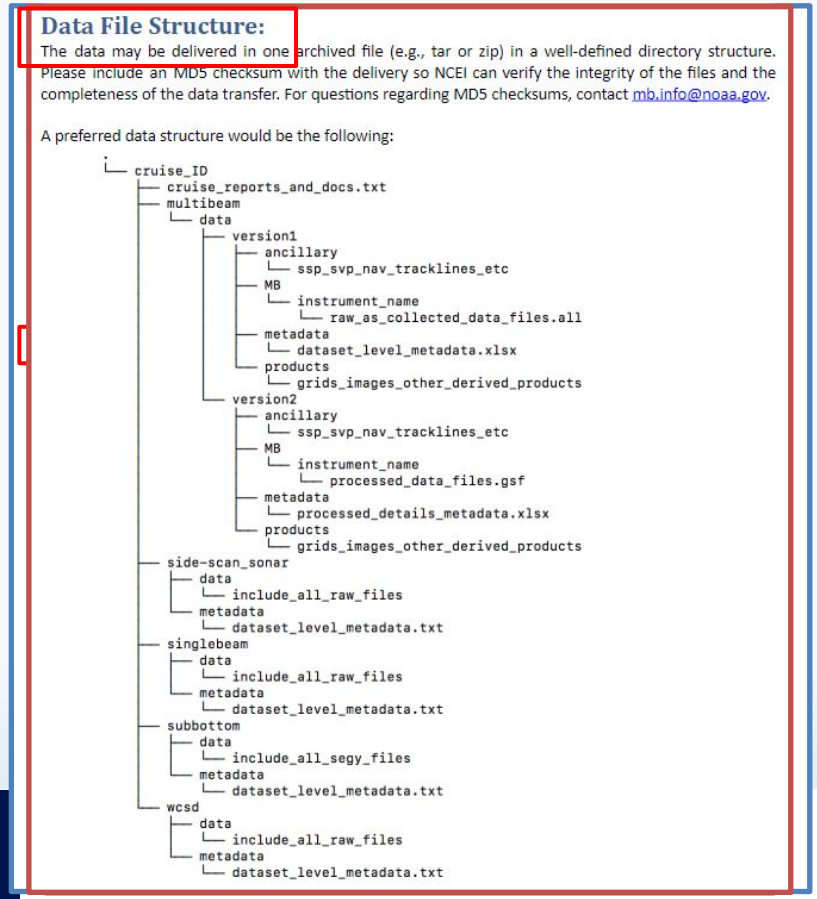
Learn more about contributing *crowdsourced bathymetry*.

IHO Member States are invited to provide sounding data extracted from their Electronic Navigational Charts (ENC). Only soundings from ENC cells in navigational purpose bands 2 and 3 are requested. For more information, please refer to IHO Circular Letter 11/2016.



ngdc.noaa.gov/iho/

IHO DCDB Resources = Data Management Guidelines



Data File Structure:

The data may be delivered in one archived file (e.g., tar or zip) in a well-defined directory structure. Please include an MD5 checksum with the delivery so NCEI can verify the integrity of the files and the completeness of the data transfer. For questions regarding MD5 checksums, contact mb.info@noaa.gov.

A preferred data structure would be the following:

```
.
└── cruise_ID
    ├── cruise_reports_and_docs.txt
    ├── multibeam
    │   └── data
    │       ├── version1
    │       │   ├── ancillary
    │       │   │   └── ssp_svp_nav_tracklines_etc
    │       │   ├── MB
    │       │   │   └── instrument_name
    │       │   │       └── raw_as_collected_data_files.all
    │       │   ├── metadata
    │       │   │   └── dataset_level_metadata.xlsx
    │       │   └── products
    │       │       └── grids_images_other_derived_products
    │       └── version2
    │           ├── ancillary
    │           │   └── ssp_svp_nav_tracklines_etc
    │           ├── MB
    │           │   └── instrument_name
    │           │       └── processed_data_files.gsf
    │           ├── metadata
    │           │   └── processed_details_metadata.xlsx
    │           └── products
    │               └── grids_images_other_derived_products
    ├── side-scan_sonar
    │   ├── data
    │   │   └── include_all_raw_files
    │   └── metadata
    │       └── dataset_level_metadata.txt
    ├── singlebeam
    │   ├── data
    │   │   └── include_all_raw_files
    │   └── metadata
    │       └── dataset_level_metadata.txt
    ├── subbottom
    │   ├── data
    │   │   └── include_all_segy_files
    │   └── metadata
    │       └── dataset_level_metadata.txt
    └── wcsd
        ├── data
        │   └── include_all_raw_files
        └── metadata
            └── dataset_level_metadata.txt
```

Developed data management guidelines and metadata templates to encourage data collectors into becoming data providers.

Guidelines on acceptable data **file formats**

Metadata

Requested file directory structure

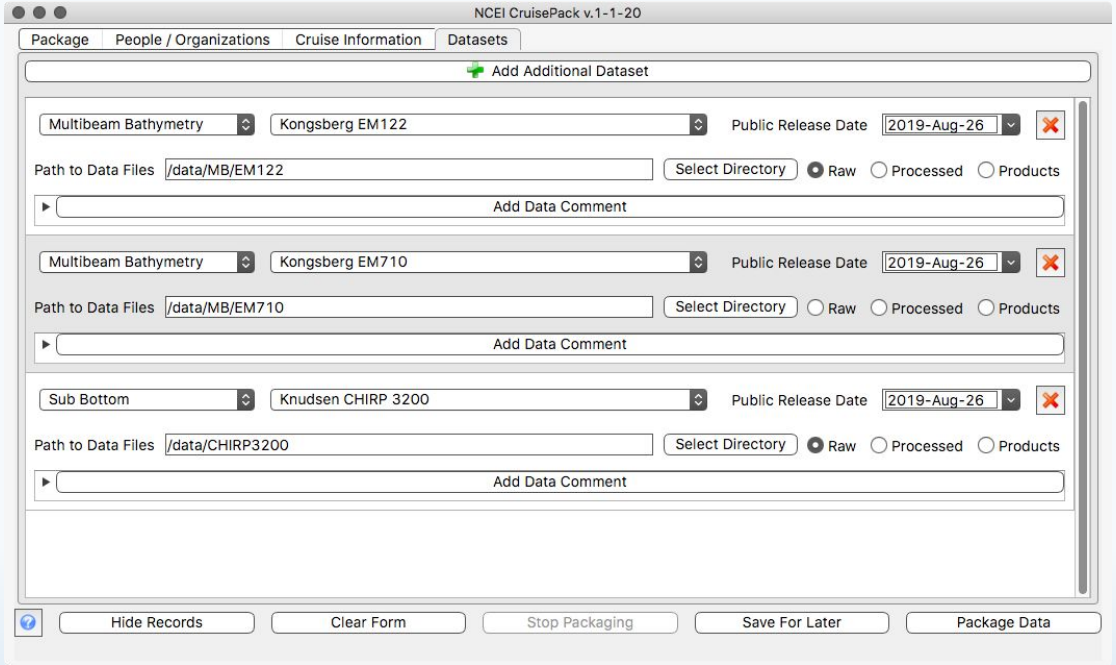
ngdc.noaa.gov/iho/SubmittingMarineGeophysicalData.pdf

IHO DCDB Resources = Data Packager Tool

Cruise Data Packager (CruisePack)

One tool to pack it all...

- Stand-alone packager for cruise-based data.
- Simple user interface with pulldown menus and controlled vocabularies
- Generates cruise-level and series level metadata files
- Creates consistent data packages



Questions regarding contributing data?

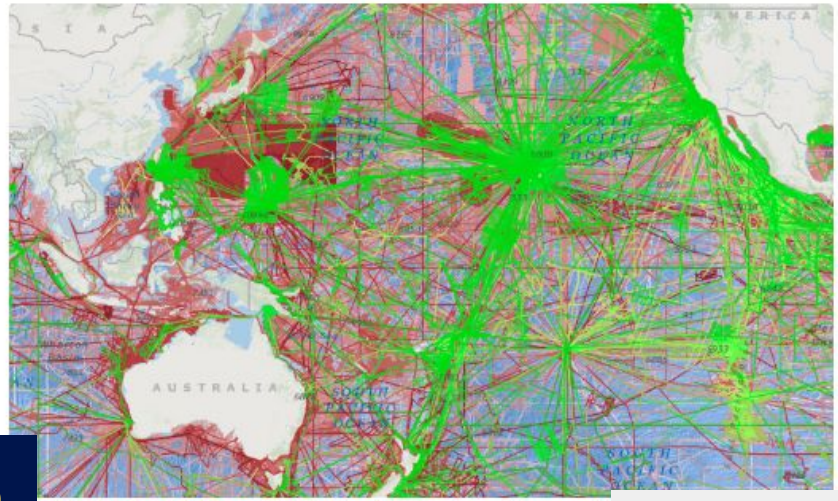
How to Access Raw and Processed Bathymetric Data

International Hydrographic Organization
Organisation Hydrographique Internationale

IHO DCDB Home | Contribute Data | Crowdsourced Bathymetry | CSB Mapping Projects

IHO Data Centre for Digital Bathymetry (DCDB)

The 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 Oceanic and Atmospheric Administration (NOAA) on behalf of the IHO Member States.



IHO DCDB Data Viewer highlighting ship tracks and data availa
Ocean and neighboring regions

The DCDB archive includes over 30 terabytes of oceanic depth soundings acquired with multibeam and singlebeam sonars by hydrographic, oceanographic and industry vessels during surveys or while on passage.

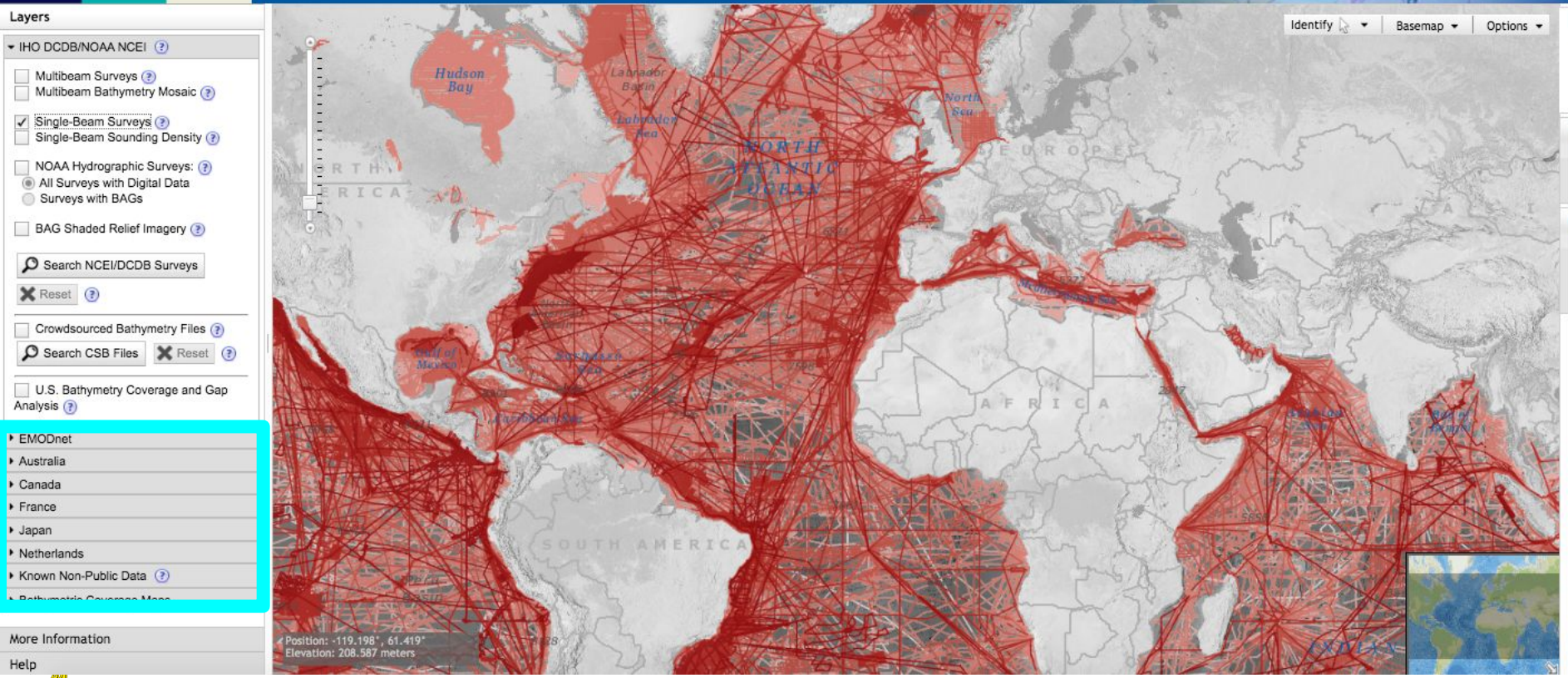
The DCDB also archives and provides access to data contributed in support of the IHO Crowdsourced Bathymetry (CSB) initiative.

The IHO DCDB Data Viewer shows the global coverage of the DCDB's bathymetric data holdings as well as the spatial extent of data archived at other repositories via web services.

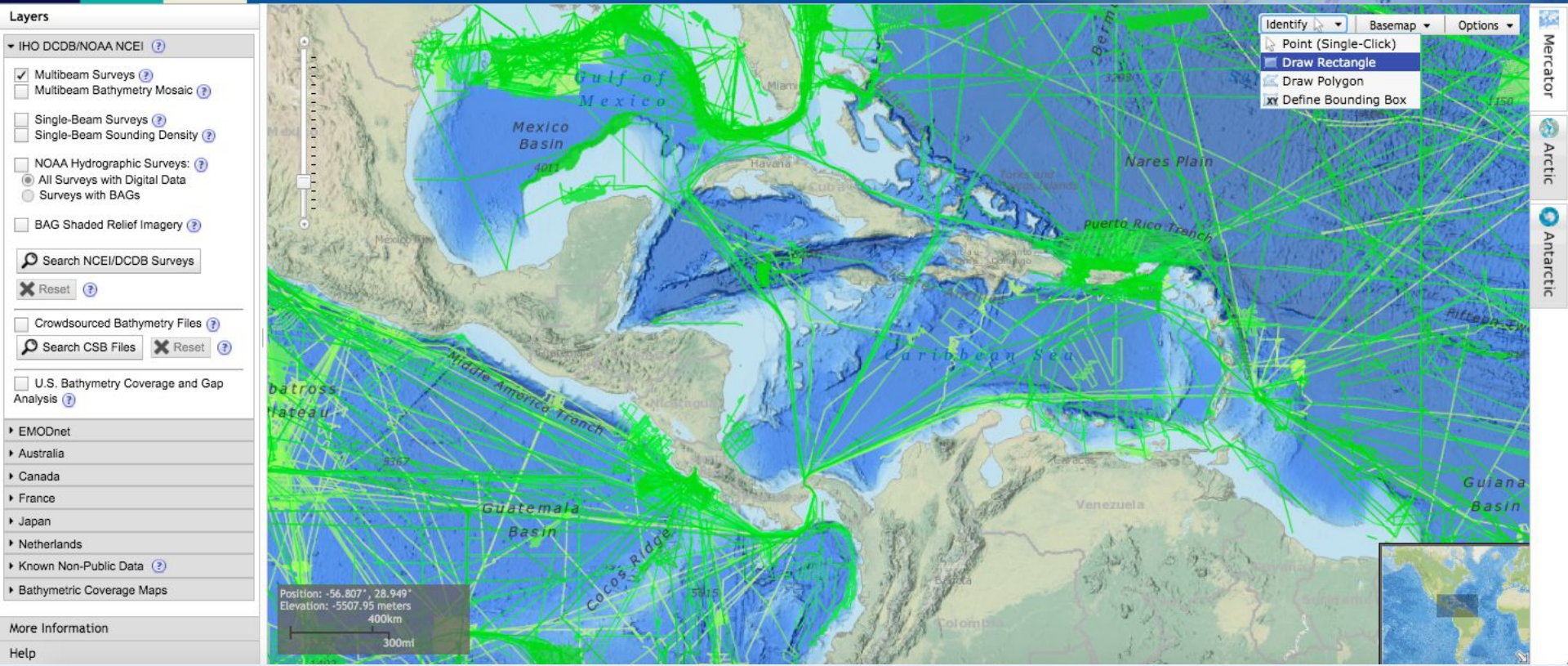
Access Data

ngdc.noaa.gov/iho/

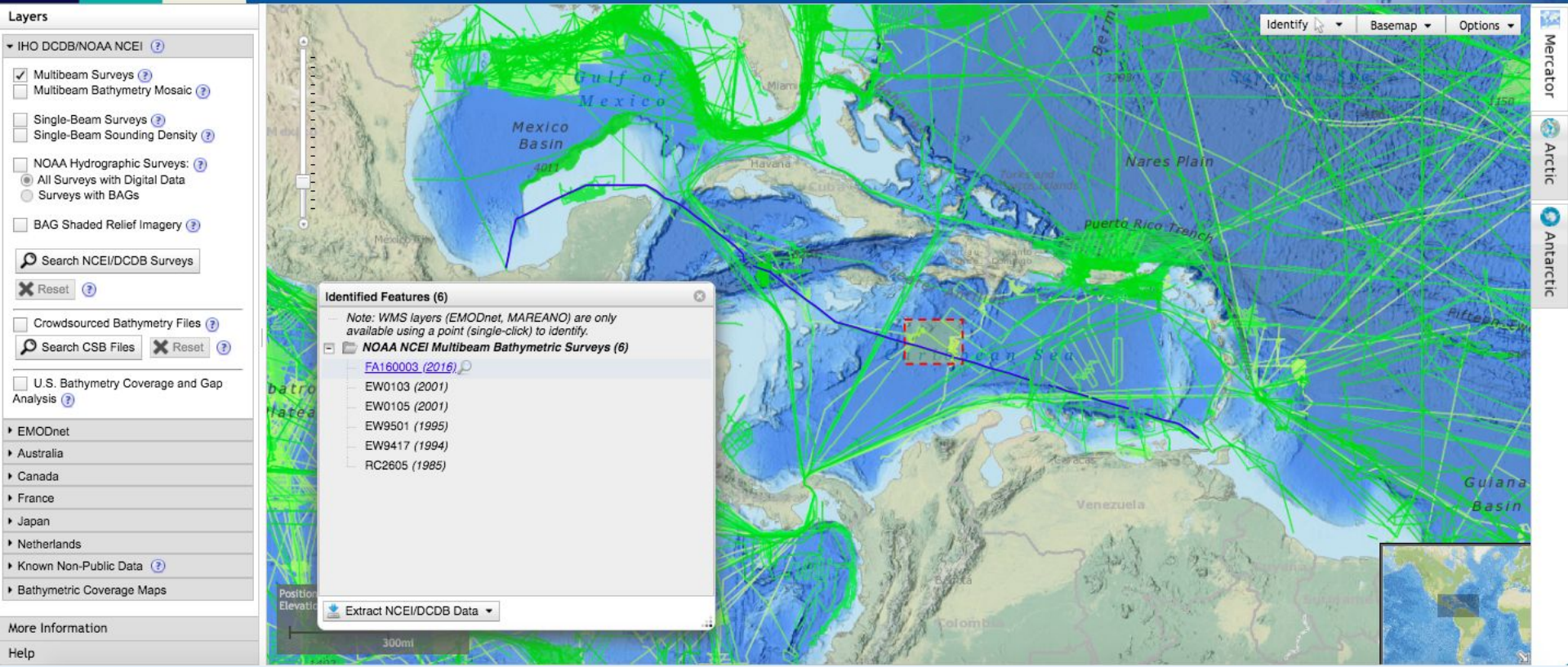
Data Centre for Digital Bathymetry Viewer



Data Centre for Digital Bathymetry Viewer

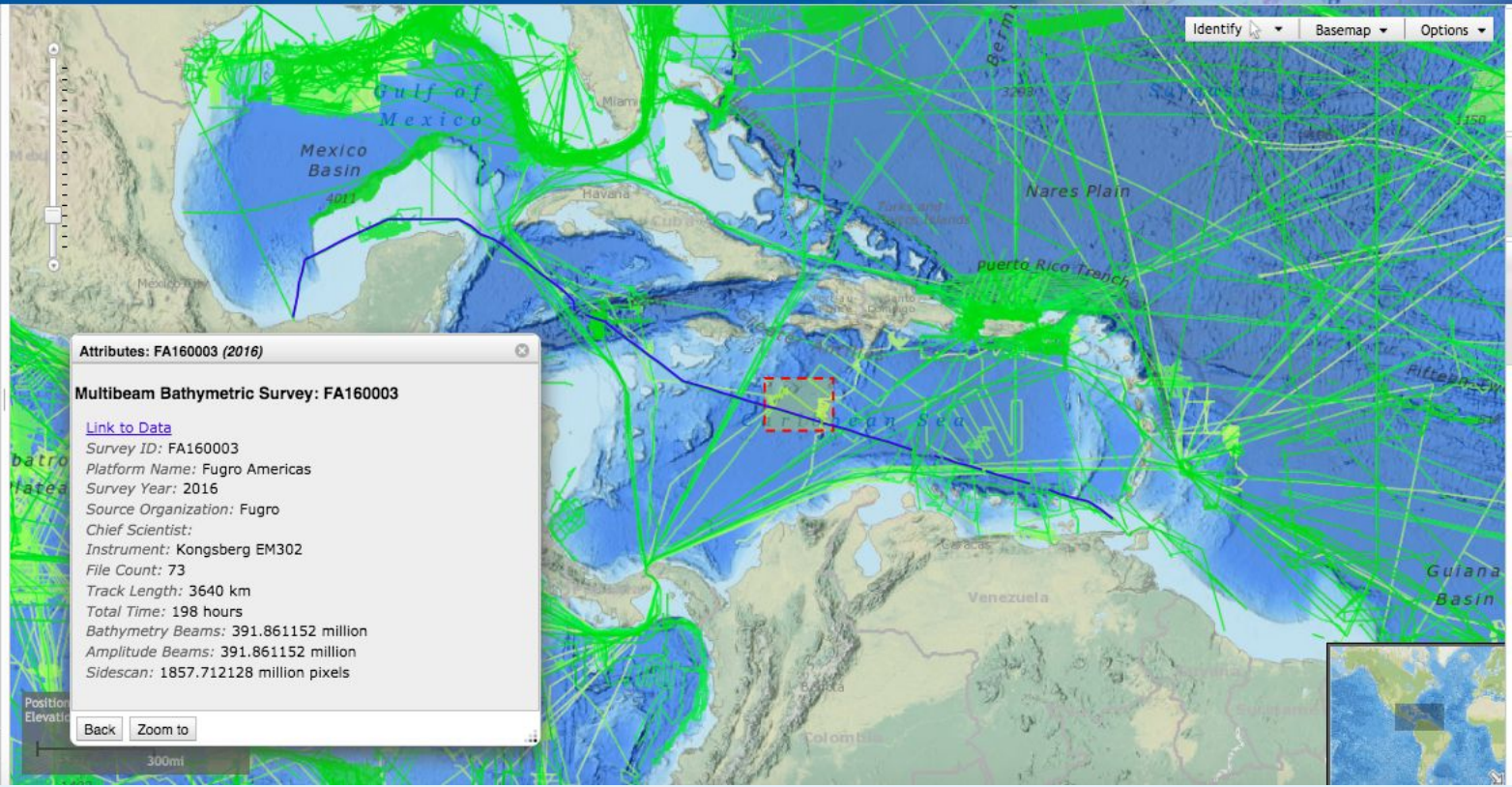


Data Centre for Digital Bathymetry Viewer



Option 1: Single survey selection

Data Centre for Digital Bathymetry Viewer



Multibeam Report for FA160003

Ship Name:	Fugro Americas
Chief Scientist:	
Source Organization:	Fugro
Start Date:	2016-09-30
End Date:	2016-10-15

View ISO Metadata

Download / Request All Files

[Expand All] [Collapse All]

File Information

Full Resolution Bathymetry as collected (raw): 73

Files	File Size	Description
0007_20161006_161234_Fugro_Americas.all.mb58.gz	1021.31MB	Kongsberg multibeam vendor format
0008_20161006_191233_Fugro_Americas.all.mb58.gz	289.33MB	Kongsberg multibeam vendor format
0009_20161006_221236_Fugro_Americas.all.mb58.gz	209.06MB	Kongsberg multibeam vendor format
0010_20161007_011234_Fugro_Americas.all.mb58.gz	268.33MB	Kongsberg multibeam vendor format
0011_20161007_041233_Fugro_Americas.all.mb58.gz	127.68MB	Kongsberg multibeam vendor format
0012_20161007_071237_Fugro_Americas.all.mb58.gz	97.50MB	Kongsberg multibeam vendor format
0013_20161007_101233_Fugro_Americas.all.mb58.gz	106.00MB	Kongsberg multibeam vendor format
0014_20161007_131237_Fugro_Americas.all.mb58.gz	122.78MB	Kongsberg multibeam vendor format
0015_20161007_161241_Fugro_Americas.all.mb58.gz	122.37MB	Kongsberg multibeam vendor format
0032_20161009_191223_Fugro_Americas.all.mb58.gz	128.37MB	Kongsberg multibeam vendor format

Multibeam Bat

Cruise Det

Project: Tra

Instrument: Ko

Data Quali

Number of Files:

Request Summary | Multibeam Surveys 1 | Help

Data Request Summary:

Multibeam Surveys

Files: 74

Compressed Size: 16.2 GB

Request Data:

Email | Submit Request

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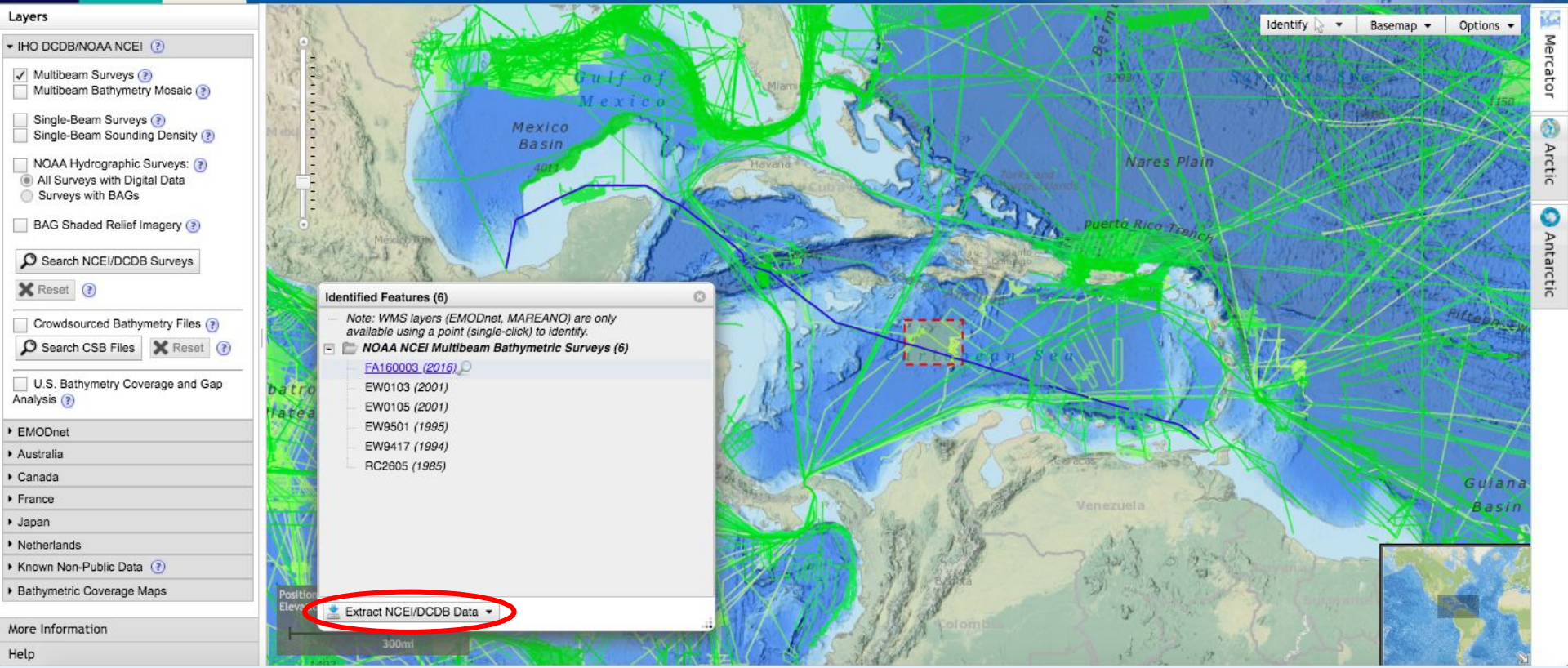
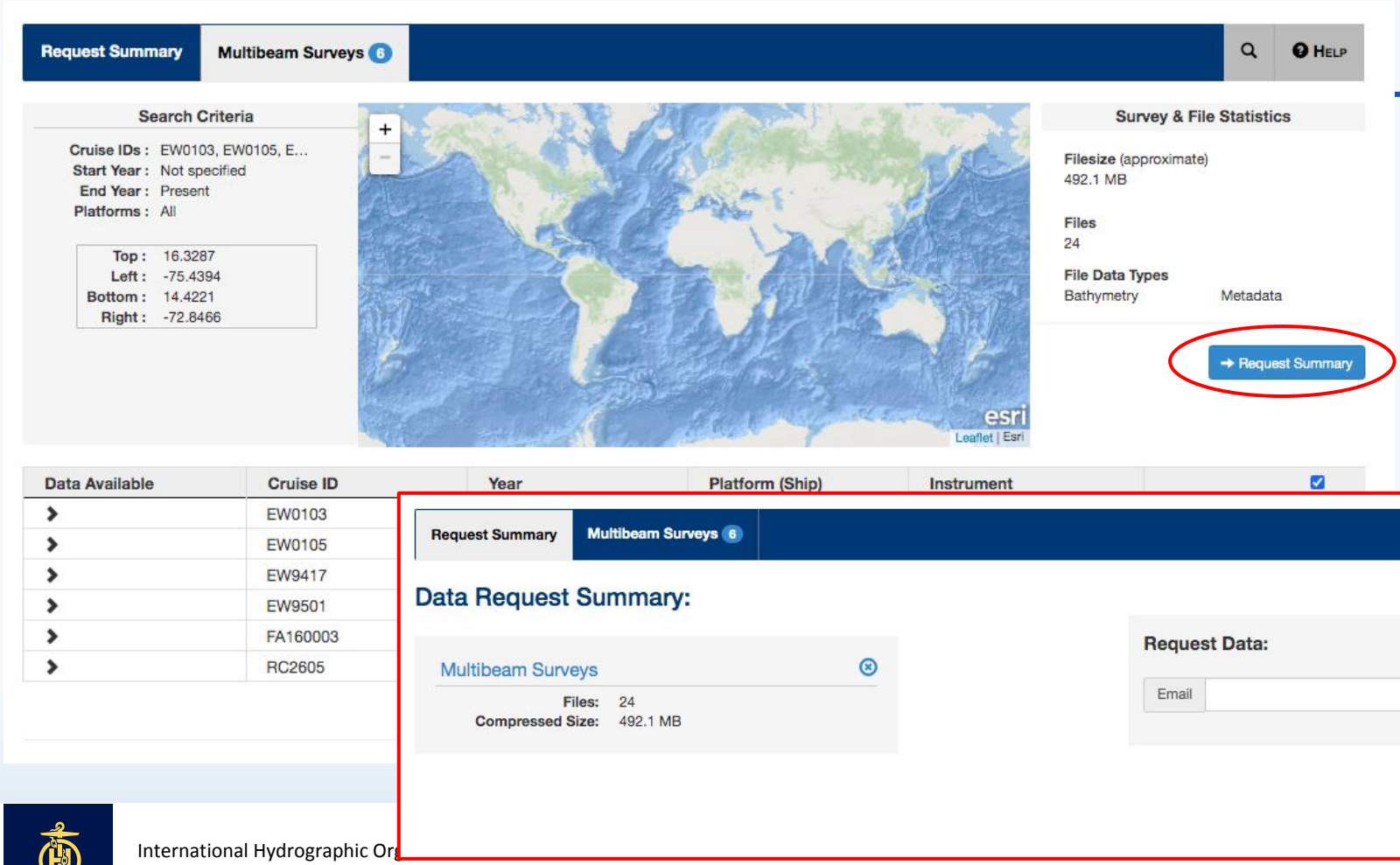
Organisation Hydrographique Internation

Data Centre for Digital Bathymetry Viewer



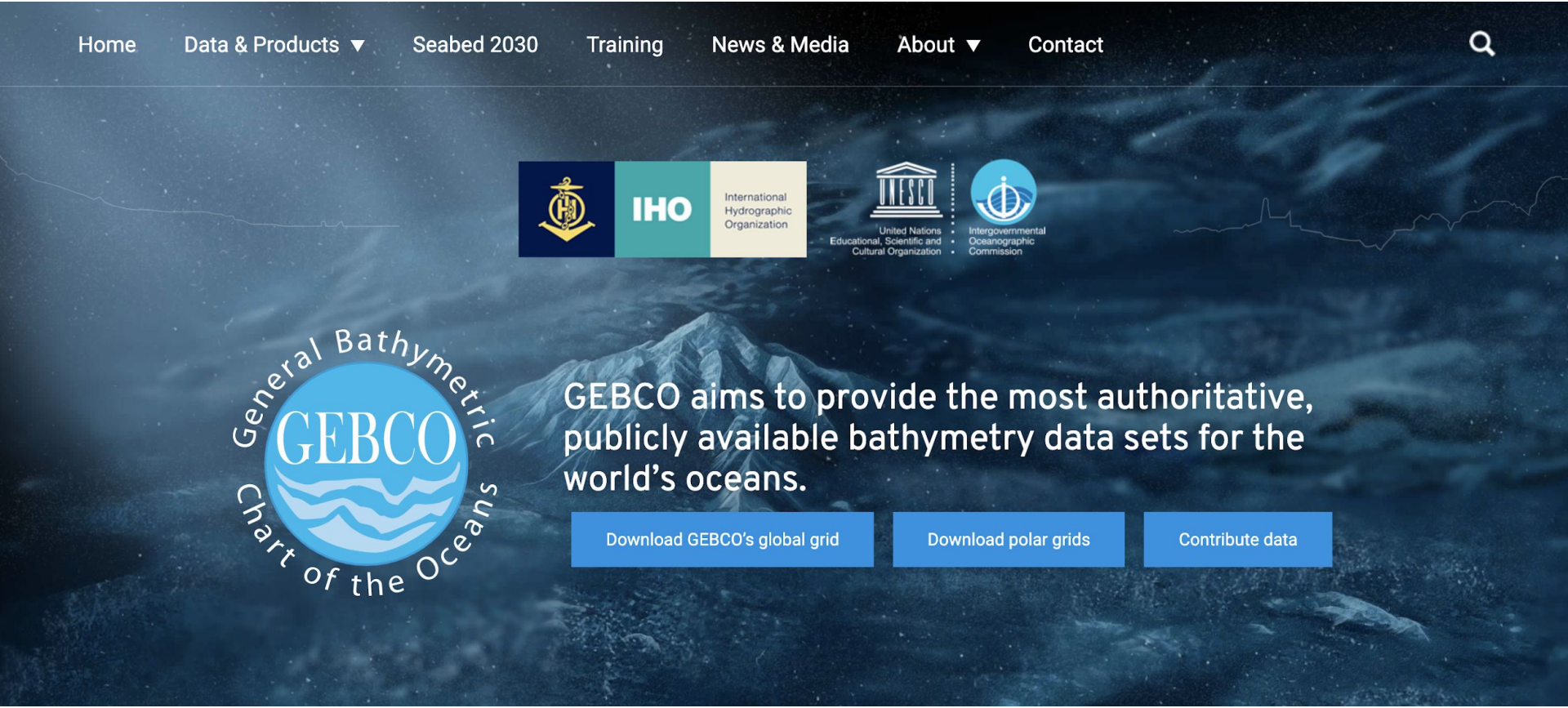
Option 2: Survey(s) selection within area of interest


Request Summary
Multibeam Surveys 6
Help
Search Criteria
Cruise IDs : EW0103, EW0105, E...
Start Year : Not specified
End Year : Present
Platforms : All
Top : 16.3287
Left : -75.4394
Bottom : 14.4221
Right : -72.8466
esri
Leaflet | Esri
Survey & File Statistics
Filesize (approximate)
492.1 MB
Files
24
File Data Types
Bathymetry
Metadata
Request Summary
Data Available
Cruise ID
Year
Platform (Ship)
Instrument
EW0103
EW0105
EW9417
EW9501
FA160003
RC2605
Request Summary
Multibeam Surveys 6
Help
Data Request Summary:
Multibeam Surveys
Files: 24
Compressed Size: 492.1 MB
Request Data:
Email
Submit Request

We're here to help!

- Our data delivery systems are not without limitations. System failures occur.
- The DCDB is working towards improved data discovery and delivery mechanisms that will increase our delivery capacity and reduce system failures.
- ***If you are experiencing issues with data deliveries, please reach out to us and we will get you the data you need!!***

How to access the GEBCO product



Download the GEBCO grid from: gebco.net or seabed2030.org

Home | Data & Products ▾ | Seabed 2030 | Training | News & Media | About ▾ | Contact

Gridded Bathymetry Data

Home » Data & Products » Gridded Bathymetry Data

Global ocean & land terrain models

GEBCO's gridded bathymetric data set, the GEBCO_2020 grid, is a global terrain model for ocean and land at 15 arc-second intervals. It is accompanied by a Type Identifier (TID) Grid that gives information on the types of source data that the GEBCO_2020 Grid is based.

- Download global coverage grids
- Download data for user-defined areas

More information about the grid, its terms of use and attribution.

Download global coverage grids

The GEBCO_2020 Grid and TID Grid can be download as global files in netCDF format or a set of 8 tiles (each with an area of 90° x 90°), giving global coverage, in Esri ASCII raster and data GeoTiff formats. The data filea are included in a zip file along with the data set documentation.

GEBCO_2020 Grid	netCDF (4 Gbytes, 7.5 Gbytes uncompressed)	Data GeoTiff (4 Gbytes, 8 Gbytes uncompressed)	Esri ASCII raster (5 Gbytes, 20 Gbytes uncompressed)
GEBCO_2020 TID Grid	netCDF 90 Mbytes, 4 Gbytes uncompressed)	Data GeoTiff (96 Mbytes, 7 Gbytes uncompressed)	Esri ASCII raster (108 Mbytes, 9.5 Gbytes uncompressed)

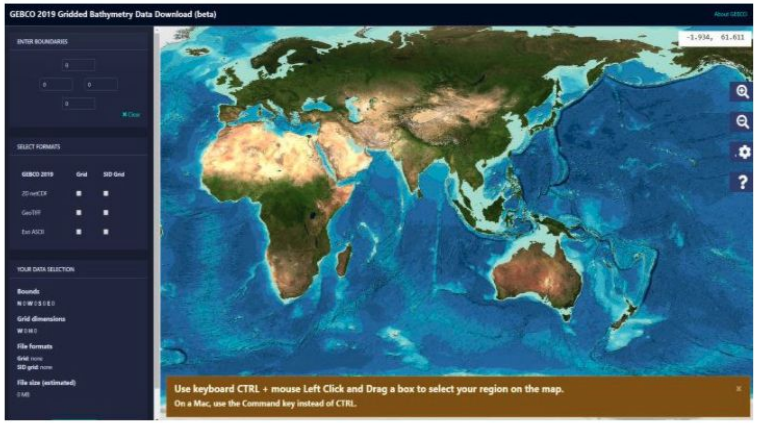
Jump to

- > Seabed 2030
- > Contribute data
- > IBCAO_v4
- > GEBCO Web Services
- > Printable maps
- > Historical GEBCO data
- > Imagery
- > Undersea feature nam
- > Historical GEBCO cha
- > IHO-IOC GEBCO Cook
- > History of GEBCO boo

Share this

Download data for user-defined areas

Use our application to select and download data in netCDF, Esri ASCII raster and data GeoTiff formats.



https://www.gebco.net/data_and_products/gridded_bathymetry_data/

Questions regarding data access?

Summary & Conclusions

- Webinar 1:
  - MACHC Web App - identify data gaps & share information about upcoming surveys
- Webinar 2:
  - How is the GEBCO product assembled for the MACHC Region
  - How to contribute data
  - How to access data

Homework #2

- Do existing data exist that can be contributed?
  http://www.gebco.net/about_us/contributing_data/
- Do you have upcoming surveys that you can share information about?
  - Assemble information about upcoming surveys and data acquisition opportunities (bounding box, polygons, shapefiles, coordinates)
  - Send to Seabed 2030 Coordinator
- Do you have technical challenges that we might be able to help you address?
- Sign up for the Seabed 2030 Newsletter!
  http://bit.ly/Seabed2030-subscribe
- Send Questions/Comments to Seabed 2030 Coordinator:
  cecilia.cortina@gmail.com

Next Webinars in this Series

- Webinar 3 - Oct. 9: Increasing Data Coverage: Crowdsourced Bathymetry and Data Coverage Polygons
- Webinar 4 - Oct. 23: Moving Ahead Together: Summary, Next Steps and Wrap up.

Thank you!

Join us Oct. 9 for Webinar 3:
Increasing Data Coverage: Crowdsourced Bathymetry and Data Coverage Polygons