

THE NIPPON FOUNDATION-GEBCO

SEABED 2030

Webinar 3: Increasing Data Coverage: Crowdsourced Bathymetry and Data Coverage Polygons

Moderator:
Ms. Cecilia Cortina,
MACHC Seabed 2030 Coordinator

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

Ms. Jennifer Jencks, Director IHO Data
Center for Digital Bathymetry



International
Hydrographic
Organization



Welcome

MACHC Seabed 2030 Coordinator, Cecilia Cortina



Today's Agenda

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

10:10 - 10:30 Webinar 2: Recap & Homework Review (Head of RDACC for Atlantic & Indian Oceans)

10:30 - 11:00 CSB and the role of the HOs (IHO CSBWG Chair/Director DCDB)

11:00 - 11:30 Review of web app (Head of RDACC)

11:30 - 11:50 Provision of polygon coverage (Head of RDACC)

11:50 - 12:00 Conclusions and Homework for Next Session (Seabed 2030 Coordinator)



Logistics

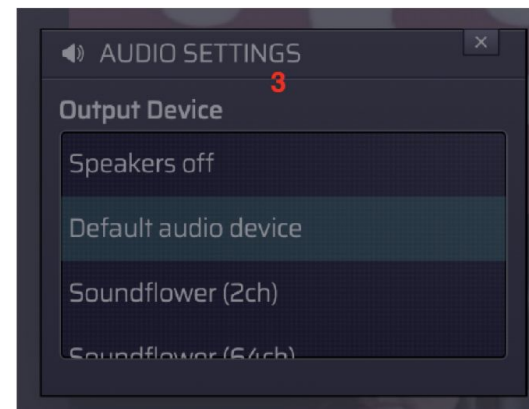
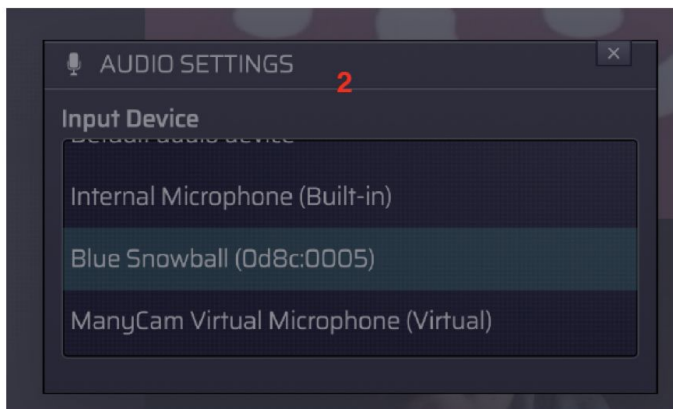
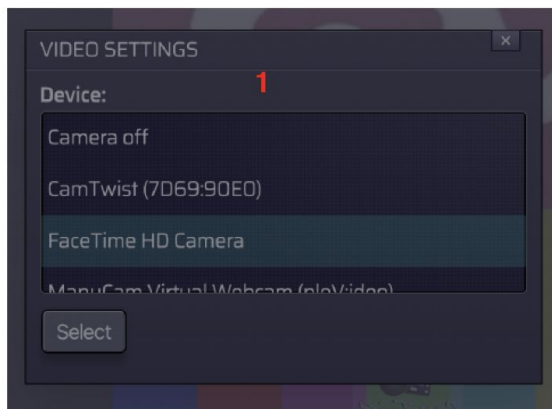
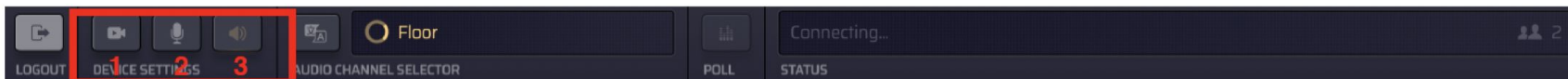
MACHC Chair, Ms. Kathryn Ries



Logistics

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

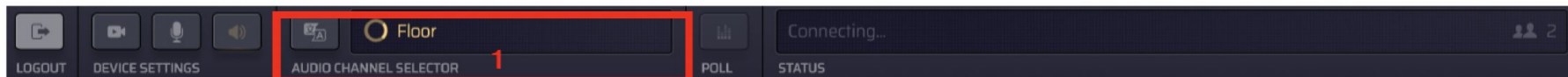
Select your **camera (1)**, **audio input device (2)** (microphone, headset, etc.), **output device (3)** (headphones, speakers, etc.)



Logistics

How to Select the Language of Your Audio Channel

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

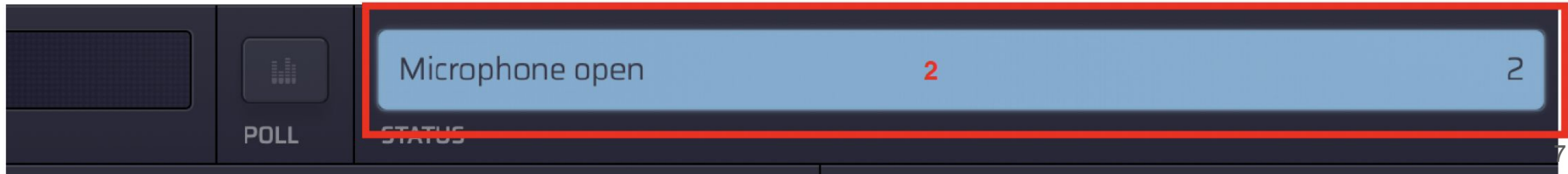
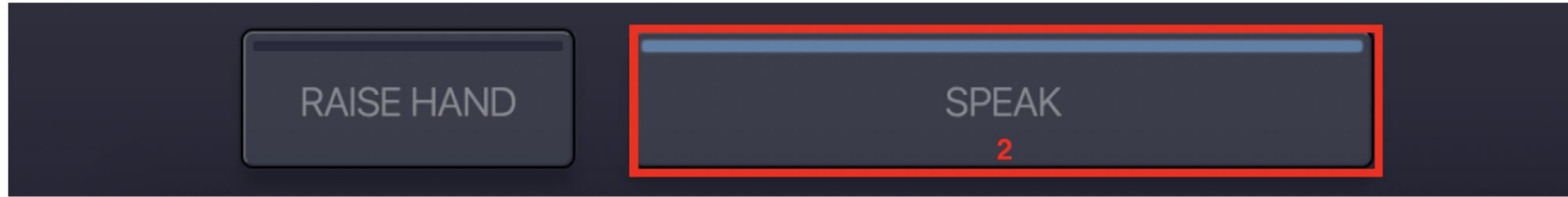
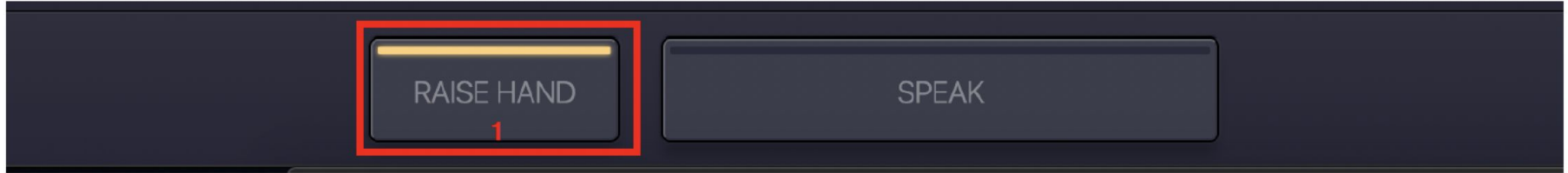


Logistics

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).

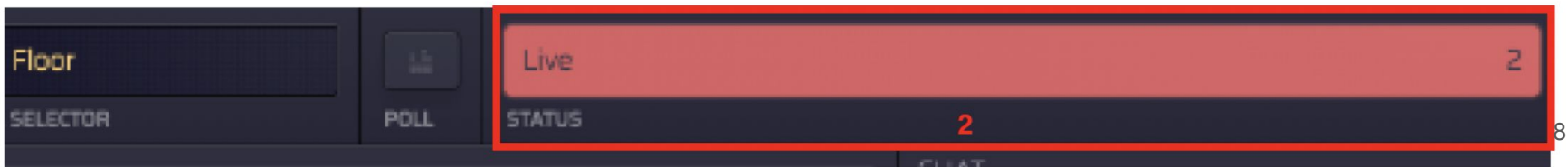
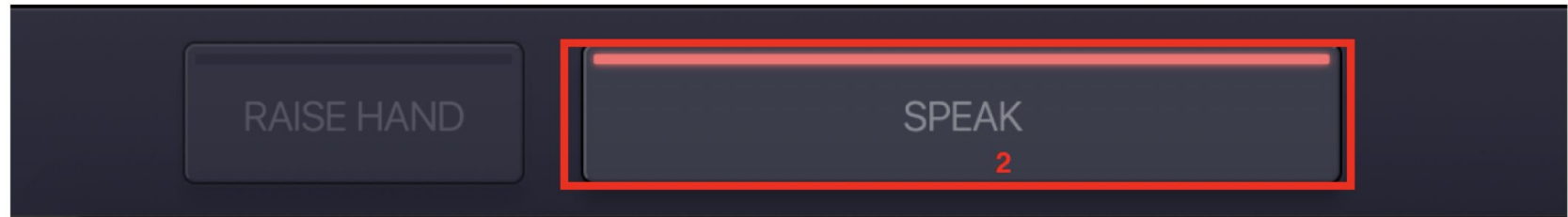
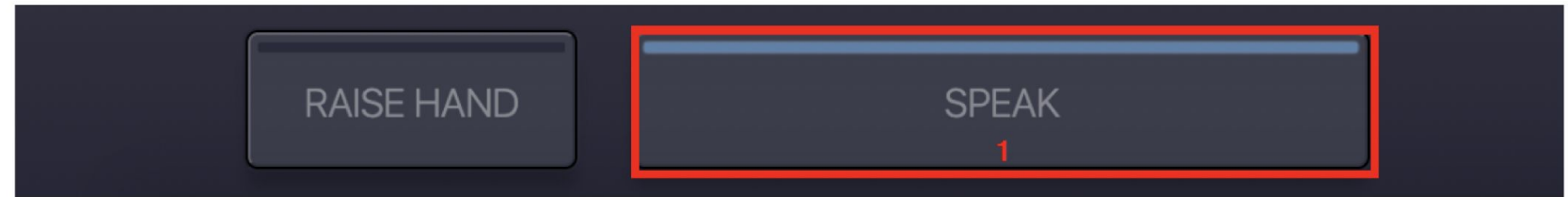


Logistics

How to Speak to the Room

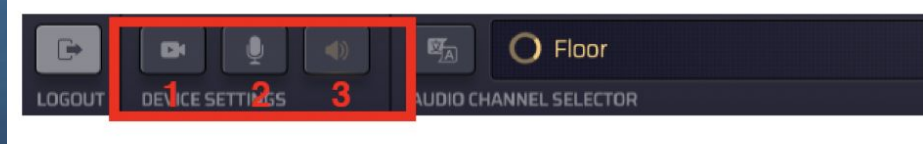
Press **Speak (1)**.

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 Speak

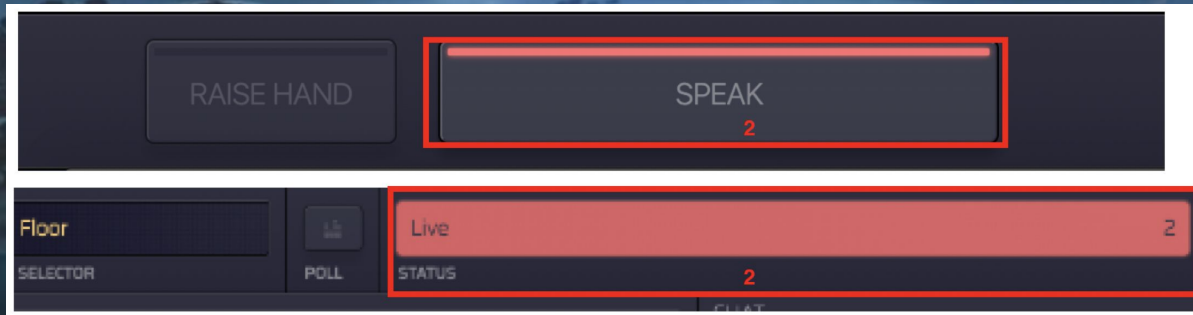
Make sure microphone (and video camera) is **ACTIVE**. This can be active through the entire meeting. We will not hear you if the Speak button is not **RED**



Once the Chair opens your microphone **BLUE**



Press the **SPEAK** Button. When it is **RED**, your microphone is live. To mute your microphone press **SPEAK** again.



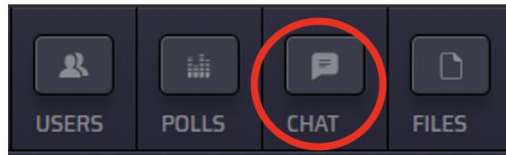
Logistics

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.



THE NIPPON FOUNDATION-GEBCO

SEABED 2030

Introduction, Recap & Homework Review

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



IHO

International
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United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

2020 MACHC Seabed 2030 Webinar Series: Webinar 3, Oct 9, 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.



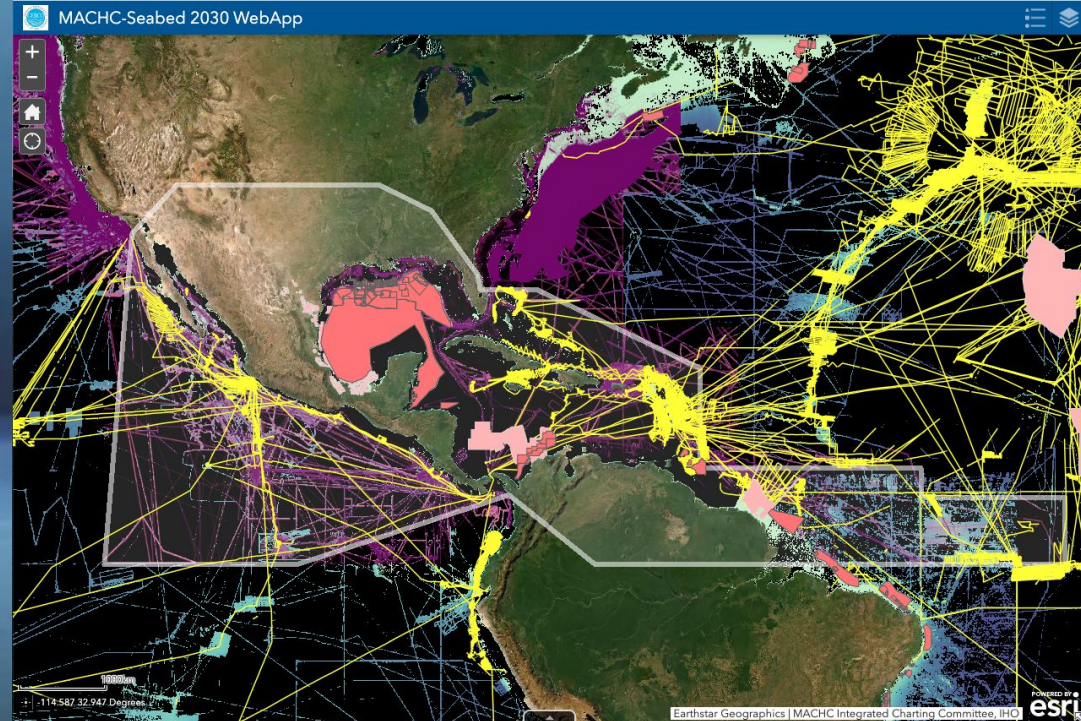
Goals for today

- Discussion and review previous webinars and Homework
- Introduce the IHO Crowdsourced Bathymetry initiative, how CSB can be contributed to the IHO DCDB, and how hydrographic offices can become involved.
- Web App
 - How to identify data gaps
 - Polygon coverage request: goals, formats, metadata
- Discussion and Homework for final webinar



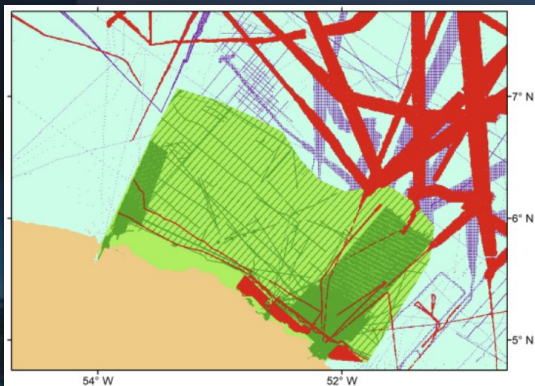
Recap Webinar 1: Where are we now?

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



Recap Webinar 2: How do we build the map?

- Data Assembly Process
 - Type Identifier (TID) Grid
- How to access data
- How to contribute data



Home » About » Contributing data

How to contribute data

Please use the form below to make contributions of multibeam and/ or single-beam survey data, individual soundings or existing grids to help update our gridded data sets and products. If you have any problems in completing the form, then please email this information to the Global Center (gdacc@seabed2030.org).

GEBCO Data Contribution Form

GEBCO's aim is to provide the most authoritative, publicly-available bathymetry of the world's oceans. It operates under the joint auspices of the International

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.

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](#)

IHO DCDB Data Viewer highlighting ship tracks and data availability over the Pacific Ocean and neighboring regions

Jump to

- > [Our data contributors](#)
- > [Join the Crowdsourced Bathymetry initiative](#)

Share this



Discussion & Review of Homework Assignment #2



Summary 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?



Summary of Outcomes from Homework #1

- Received responses from:
 - Antigua and Barbuda, Barbados, Belize, Brasil, Colombia, Costa Rica, El Salvador, Guyana, Mexico, Netherlands, Trinidad and Tobago, UK, USA, Fugro
- Responses include:
 - Committed to the process
 - Data will be shared
 - Transit data will be acquired
 - New polygons contributed to Web App
 - Challenges with data sharing**



Review of 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)
- Do you have technical challenges that we might be able to help you address?



CSB and the role of the HOs

Jennifer Jencks
Chair, IHO Crowdsourced Bathymetry Working Group
Director, IHO Data Center for Digital Bathymetry



Crowdsourced bathymetry (CSB) is the collection of depth measurements from vessels, using standard navigation instruments, while engaged in routine maritime operations.



The IHO Crowdsourced Bathymetry Initiative

In 2014, the IHO initiated a collaborative project to enable mariners to collect “crowdsourced bathymetry”.

A Working Group was formed and tasked to develop **B-12 IHO Guidance on Crowdsourced Bathymetry** that states the IHO’s policy towards, and best practices for, the collection and contribution of CSB.

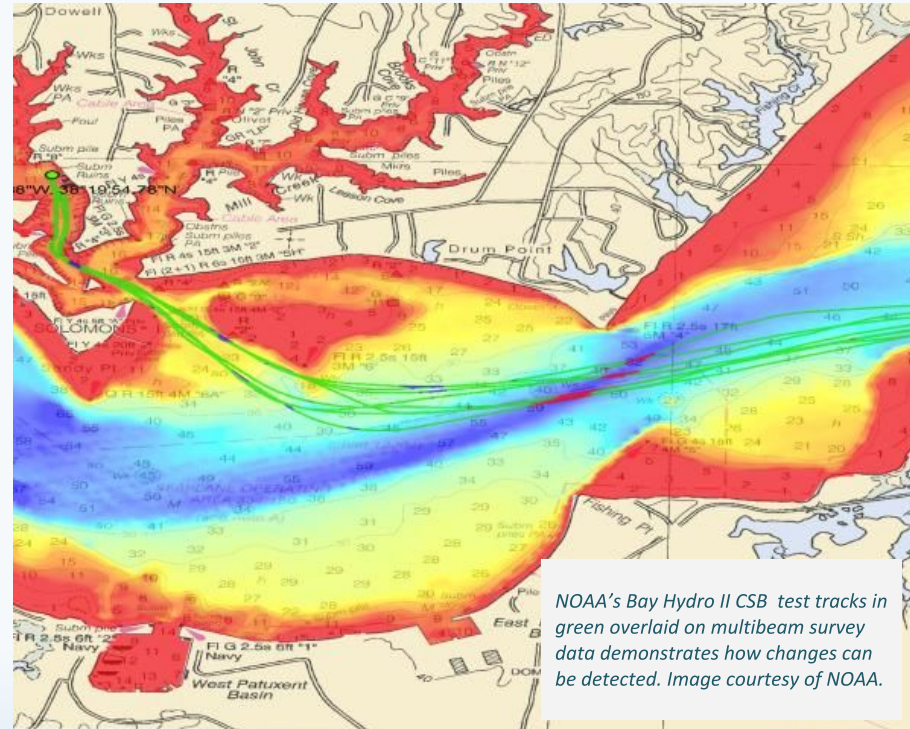
IHO DCDB built a data pipeline that allows the public to contribute, and then discover and download CSB data via a web-based map viewer interface.

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

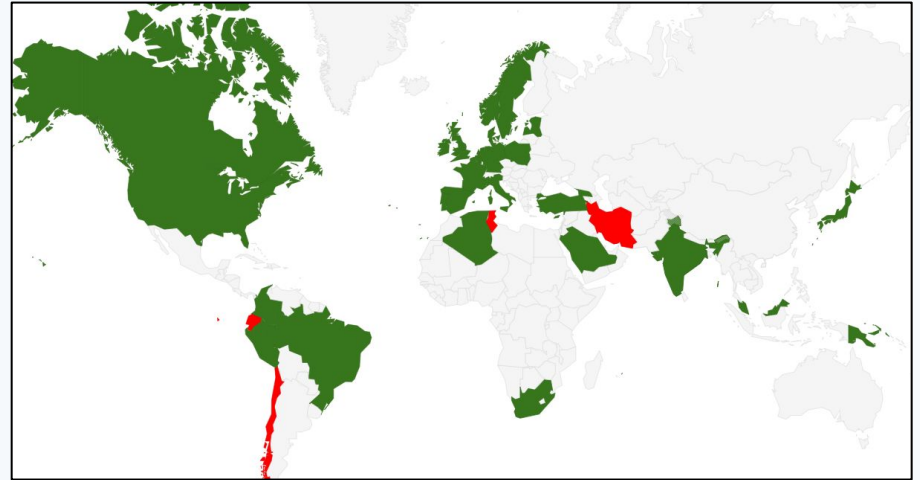
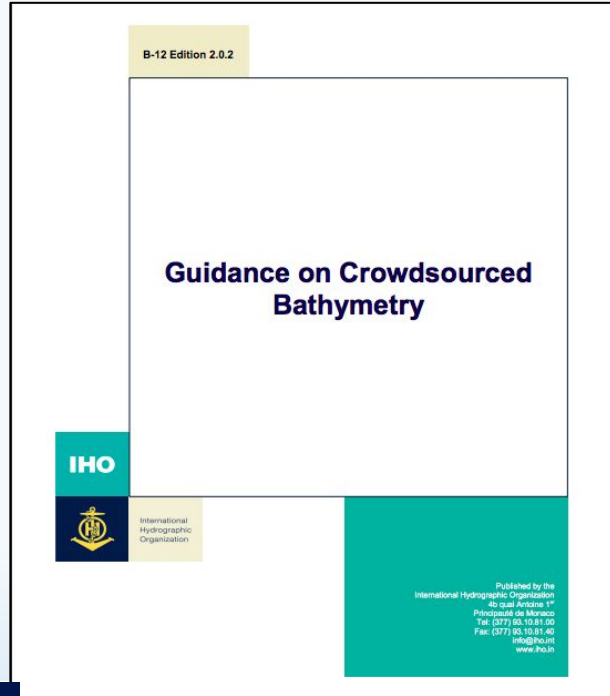


The Value of CSB Data:

- Data with scientific, commercial & research value at no cost to the public sector
- Fill gaps where data is scarce (eg: Arctic, SIDS)
- Useful along shallow, complex coastlines
- Identify uncharted features
- Assist in verifying charted information
- Confirm whether charts are appropriate for the latest traffic patterns.



“CALL FOR APPROVAL OF EDITION 2.0.0 OF IHO PUBLICATION B-12”



35 Member States approved the adoption of B-12 out of 38 replies.

IHO CL 11/2019 Annex B

“ACCEPTANCE OF CROWDSOURCED BATHYMETRY ACTIVITIES IN NATIONAL WATERS OF JURISDICTION”

- 15 IHO MS replied “positive”
 - CL 47/2019 provides a summary analysis of positive responses ==>
- The DCDB now filters out CSB data collected from the waters of all coastal countries not included on the positive list.
- The lack of initial replies showed that the CL ask was not clear.



ACCEPTANCE OF CROWDSOURCED BATHYMETRY ACTIVITIES IN NATIONAL WATERS OF JURISDICTION

1. Based on the comments received to the questionnaire in Annex B to IHO CL 11/2019, the following table is published as the Positive List to guide potential data gathering activities undertaken by the wider maritime community in waters of national jurisdiction:

Member State	Area	Specific actions required
Argentina	EEZ only	Provide copy of dataset to Hydrographic Office
Brazil	EEZ only	Provide copy of dataset to Hydrographic Office
Canada	All waters – no multibeam activity without prior permission	Inform Hydrographic Office of new dataset
Cyprus	All waters	Provide copy of dataset to Hydrographic Office
Denmark	All waters – no multibeam activity without prior permission	Inform Hydrographic Office of any variance with published chart
Georgia	All waters	Provide copy of dataset to Hydrographic Office
Germany	All waters	Inform Hydrographic Office of new dataset
Monaco	All waters	Provide copy of dataset to Hydrographic Office
Netherlands	All waters - Detailed bathymetric surveys of wreck sites around Bonaire, Curaçao, Saba, Sint Eustatius and Sint Maarten falls under UNCLOS definition of scientific research and thus requires prior permission, resultant data cannot be published until authorised	Inform Hydrographic Office of new dataset
New Zealand	All waters	Inform Hydrographic Office of new dataset
Norway	All waters – no multibeam activity without prior permission	Inform Hydrographic Office of new dataset
Philippines	Shipping routes and transit passages only	None
South Africa	EEZ only	Provide copy of dataset to Hydrographic Office
Sweden	EEZ only	Inform Hydrographic Office of new dataset
USA	All waters	None

IHO CL 21/2020

“...the IHO Secretariat...has revised the original questionnaire to simplify and clarify the information requested. Member States are requested to indicate their position on the **provision of CSB data from ships within waters subject to their national jurisdiction into the public domain** as well as highlighting, via the questionnaire provided in the Enclosure, any caveats they wish to apply to such provision.”

MACHC IHO Member States:

Brazil, Colombia, Cuba, Dominican Republic, France, Guatemala, Guyana, Jamaica, Mexico, **Netherlands**, Suriname, Trinidad and Tobago, United Kingdom, **United States of America**, Venezuela.

The IHO encourages member states to review IHO CL 21/2020 and, if possible, offer a positive response to the IHO Secretariat prior to the MACHC plenary (Nov 30 - Dec 3).

iho.int/uploads/user/circular_letters/eng_2020/CL21_2020_EN_v1.pdf

iho.int/uploads/user/circular_letters/esp_2020/CL21_2020_ES_v0.1.pdf



IRCC CL 1/2020

“...The Chairs of RHCs are requested to encourage associate members, observer States as well as any other coastal State within their region, to indicate their position on the **provision of CSB data from ships within their waters of national jurisdiction**”

MACHC Associate States:

Antigua and Barbuda, Barbados, Belize, Costa Rica, El Salvador, Grenada, Haiti, Honduras, Nicaragua, Panama, Saint Lucia, St Kitts and Nevis, St. Vincent and the Grenadines.

MACHC Observer States:

Dominica, Spain

The IHO encourages all coastal states to review IRCC CL 1/2020 and, if possible, offer a positive response to your Seabed 2030 Coordinator (Cecilia Cortina Guzman, cecilia.cortina@gmail.com) prior to the MACHC plenary (Nov 30 - Dec 3).

https://www.iho-machc.org/documents/seabed2030/IRCC_CL01_2020_EN_CSB_Activities.pdf



CL Questionnaire asks:

- Do you support or object to the CSB data provision for depth measurements from the internal waters, territorial sea, or EEZ of your country?
- Do you wish to be informed when such information is received by the IHO DCDB?
- Do you wish to review such information before its ingestion into the IHO DCDB?
- Do you wish for the opportunity to put caveats on the further dissemination of such data?

Enclosure to IHO CL 21/2020
IHO File S3/2649

CROWDSOURCED BATHYMETRY DATA PROVISION – COASTAL STATE POSITION FOR WATERS SUBJECT TO THEIR NATIONAL JURISDICTION

TEMPLATE FORM

(to be returned to the IHO Secretariat **no later than 4 September 2020**)

E-mail: cl-ic@iho.int - Fax: +377 93 10 81 40)

IHO clarification on Crowdsourced Bathymetry Activity

For the purpose of this Circular Letter, the following terms have the specified meanings:

Bathymetry is the determination of ocean, coastal, and inland water depths. The general configuration of sea floor as determined by profile analysis of depth data.

Crowdsourcing is a process by which people and/or groups voluntarily submit observations, data, or information to accomplish a task or goal.

Crowdsourced bathymetry is defined by the IHO as the collection of depth measurements from vessels, using standard navigation instruments, while engaged in routine maritime operations.

Crowdsourced bathymetry data provision is the transmission to the IHO Data Centre for Digital Bathymetry for ingestion, aggregation, categorization, and public dissemination of depth measurements made by vessels, using standard navigation instruments, while engaged in routine maritime operations.

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

Internal Waters, Territorial Sea, and Exclusive Economic Zone have the same meanings as are given those terms under the 1982 UN Convention on the Law of the Sea.

Questions:

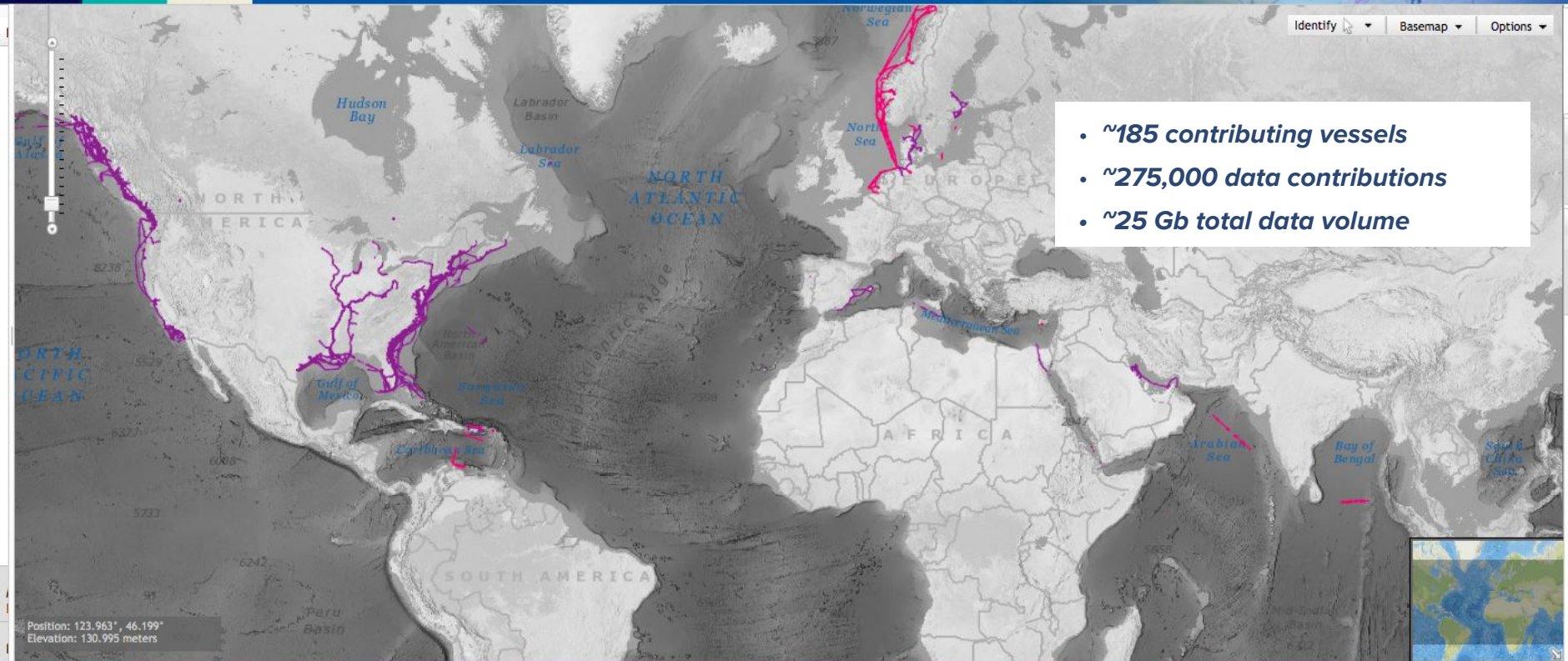
- 1) Do you support or object to the crowdsourced bathymetry data provision for depth measurements from the internal waters of your country?

SUPPORT

OBJECT

CAVEAT:





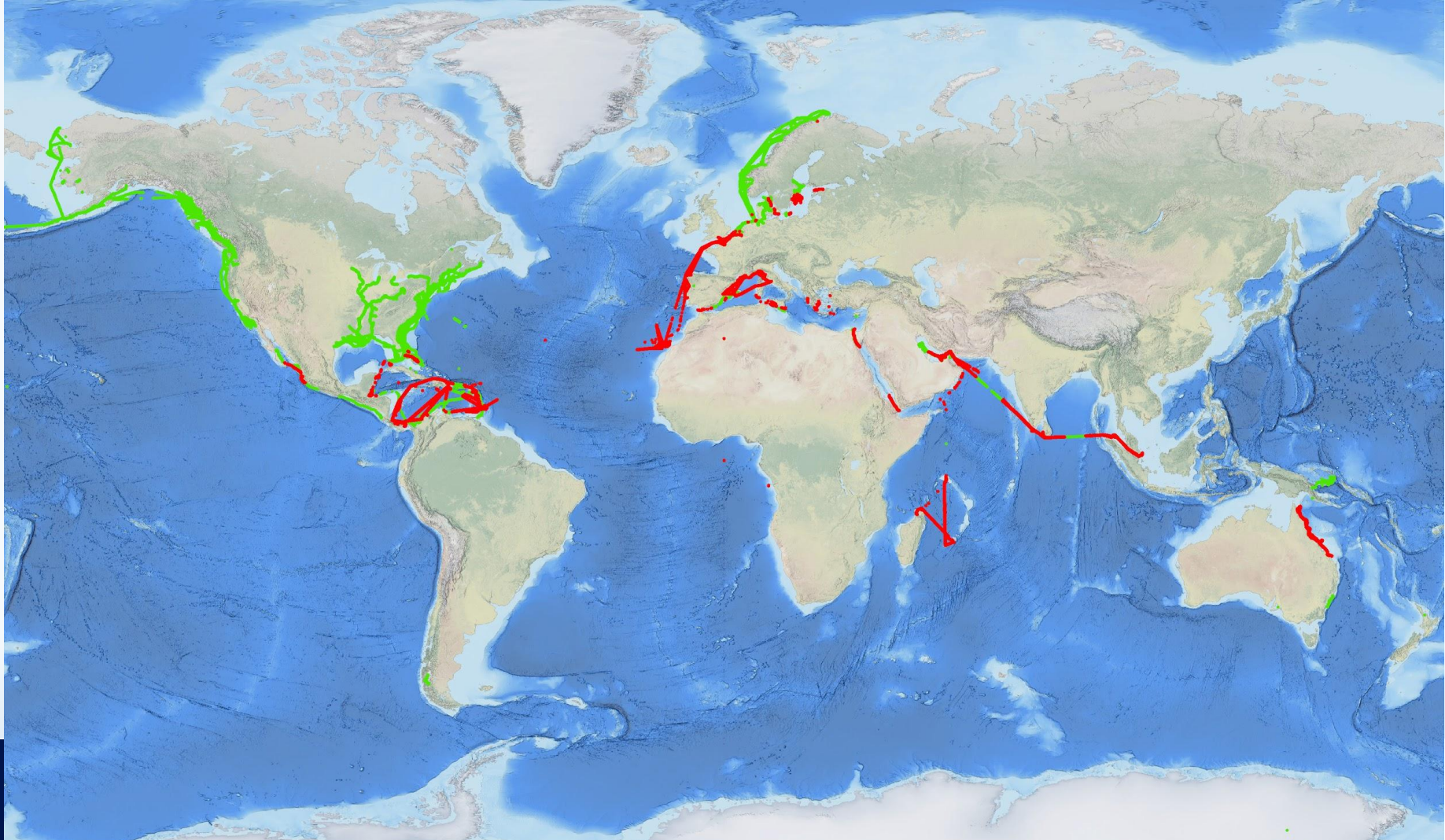


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Data Centre for Digital Bathymetry Viewer





ALL states are invited to ask questions and share perspectives.

Questions?



How to Contribute CSB Data

- The DCDB accepts CSB contributions through a network of "**Trusted Nodes**"
 - Eg: organizations, companies or universities serving as data liaisons between mariners (data collectors) and the DCDB.
 - Trusted Nodes may supply data logging equipment, provide technical support to vessels, download data from data loggers, and be responsible for data transfer directly to the DCDB.
- CSB data must be provided in either CSV or GeoJSON, and capture the minimum required information (XYZ, timestamp).



CSB Trusted Nodes - *Current*

Rose Point Navigation System

- Mariners can enable their electronic charting system log file to record *position, depth, and time*.
- When a mariner updates their software or chart catalog, data is transmitted to the DCDB



www.pcmaritime.com



www.rosepointnav.com

MacGregor/Carnival Cruise Line

- Voyage Data Recorders (VDR) are a mandated device for effectively all ships on international voyages.
- By default, this device is logging depth sounding data for IMO mandated shipborne single beam devices.



Voyage Data Recorder



CSB Trusted Nodes - *In-process*

James Cook University (Australia)

- Distributed inexpensive data loggers to ~100 volunteer vessels using their own echo sounder and GPS sensors along the Great Barrier Reef
- Data is at the DCDB
- Awaiting Australia's response to IHO CL 21/2020

Petroleum Geo-Services (PGS)

- Under discussions on setting up a bathymetric feed from PGS vessels to the DCDB



SmartLog USB data logger



Seabed 2030-funded CSB Field Trials

Objective:

1. Facilitate field trials that will accelerate CSB activity
2. Collect data in data scarce areas
3. Grow excitement about the CSB initiative
4. Develop a repeatable regional CSB mapping project strategy

In return, a potential program must guarantee the provision of staff to:

1. Hand out data loggers to the community
2. Assist local mariners in set up
3. Act as a data assembly center
4. Provide a copy of these data to the IHO DCDB to be used in the GEBCO grid



Seabed 2030-funded CSB Field Trials

The Institute For Maritime Technology & The South African Navy Hydrographic Office

- 200 data loggers have finally arrived (supply chain delays due to sourcing components post COVID)
- Testing to begin soon
- Data receipt expected in mid 2021

Provision of data loggers

- NMEA0183 and NMEA2000
- Installation support (where needed)

Where next?

Bureau of Marine Transportation - Palau

- 100 loggers en route

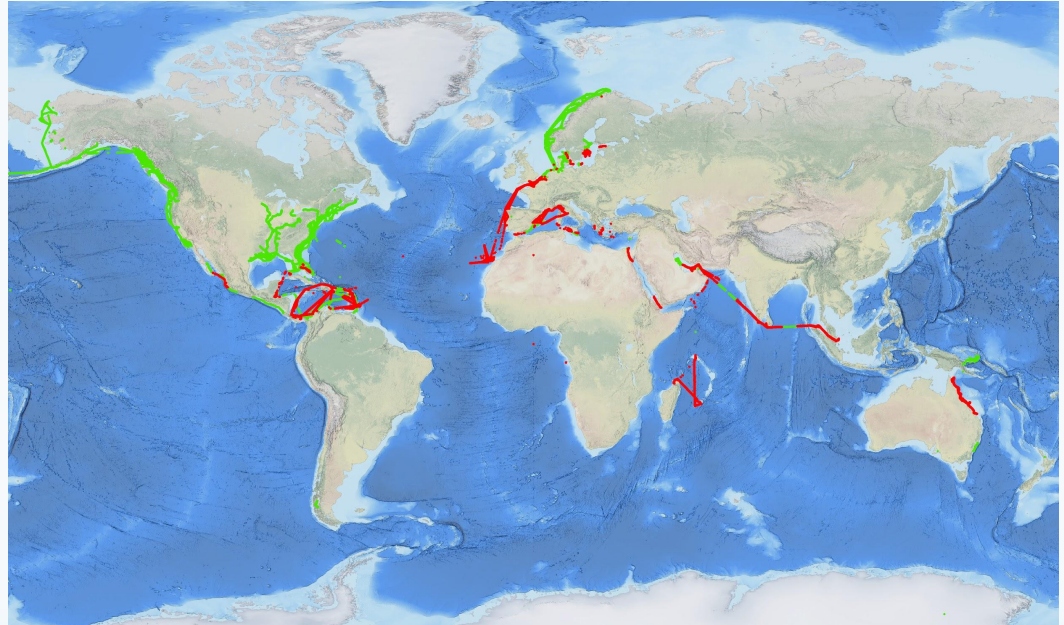
Greenland Institute of Natural Resources

- 30 loggers en route



How can HOs become involved?

- Offer a positive response to the IHO or IRCC Circular Letters before the MACHC Plenary Mtg (Nov 30- Dec 3)
- Participate in the IHO CSB Working Group
- ***Volunteer to become the next Seabed 2030-funded CSB Program!***



Please contact your Seabed 2030 Coordinator - Cecilia Cortina Guzman

cecilia.cortina@gmail.com



ALL states are invited to ask questions and share perspectives.

Questions?

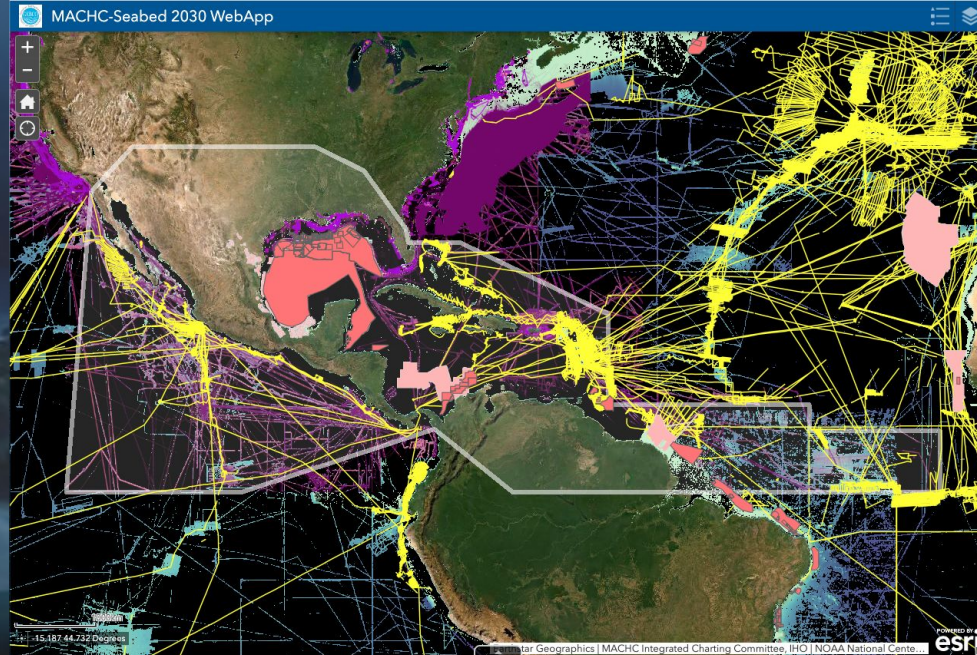


Review of web app



MACHC Region: Summary of known existing data

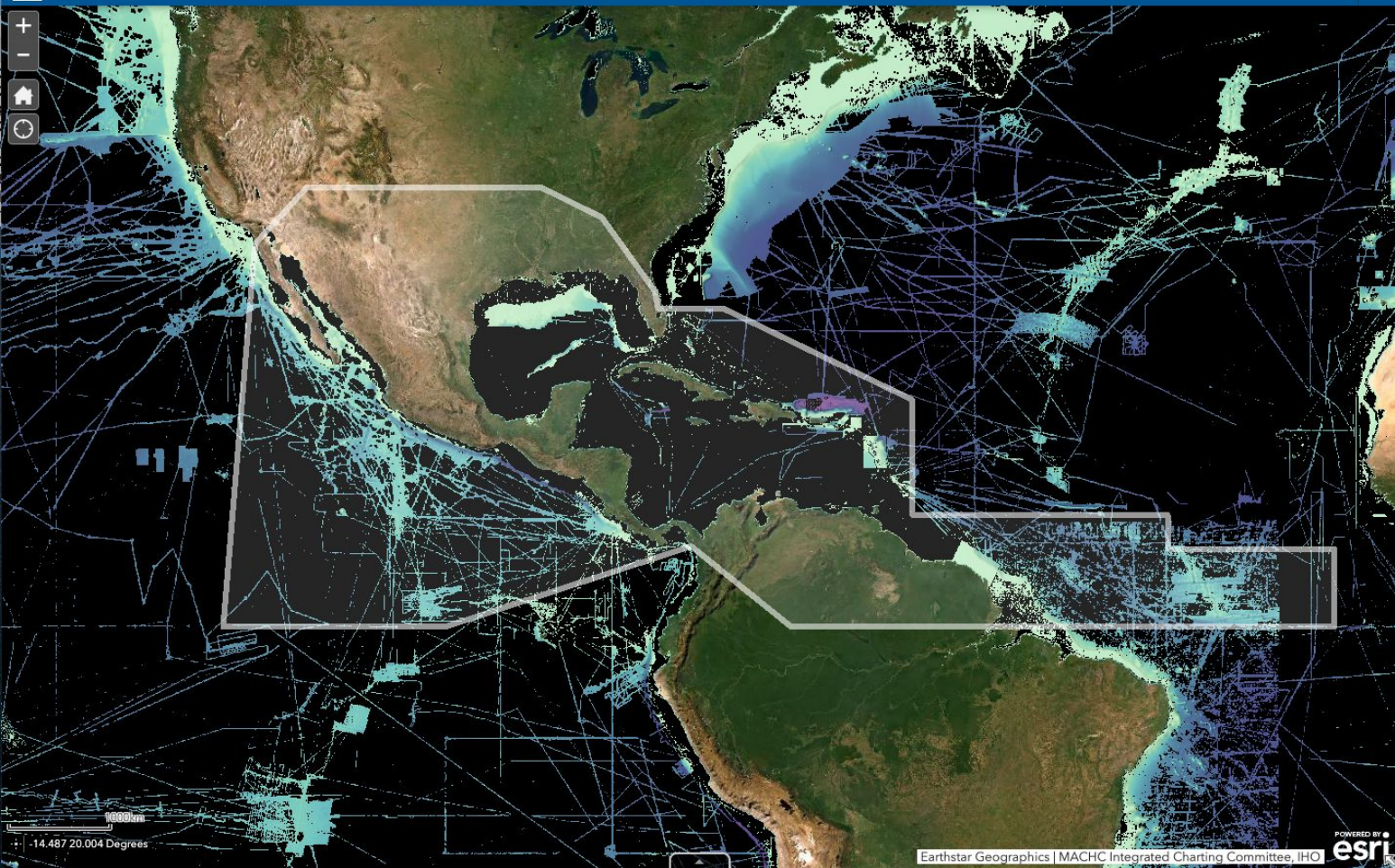
- Publicly Available Data - actively being integrated into Seabed 2030 regional data products
 - US NOS data
 - Multibeam data at IHO DCDB
- Non-public Data - Strategy needed to gain access to data for GEBCO/Seabed 2030
 - Industry
 - UNCLOS
 - EU Data
- Other??



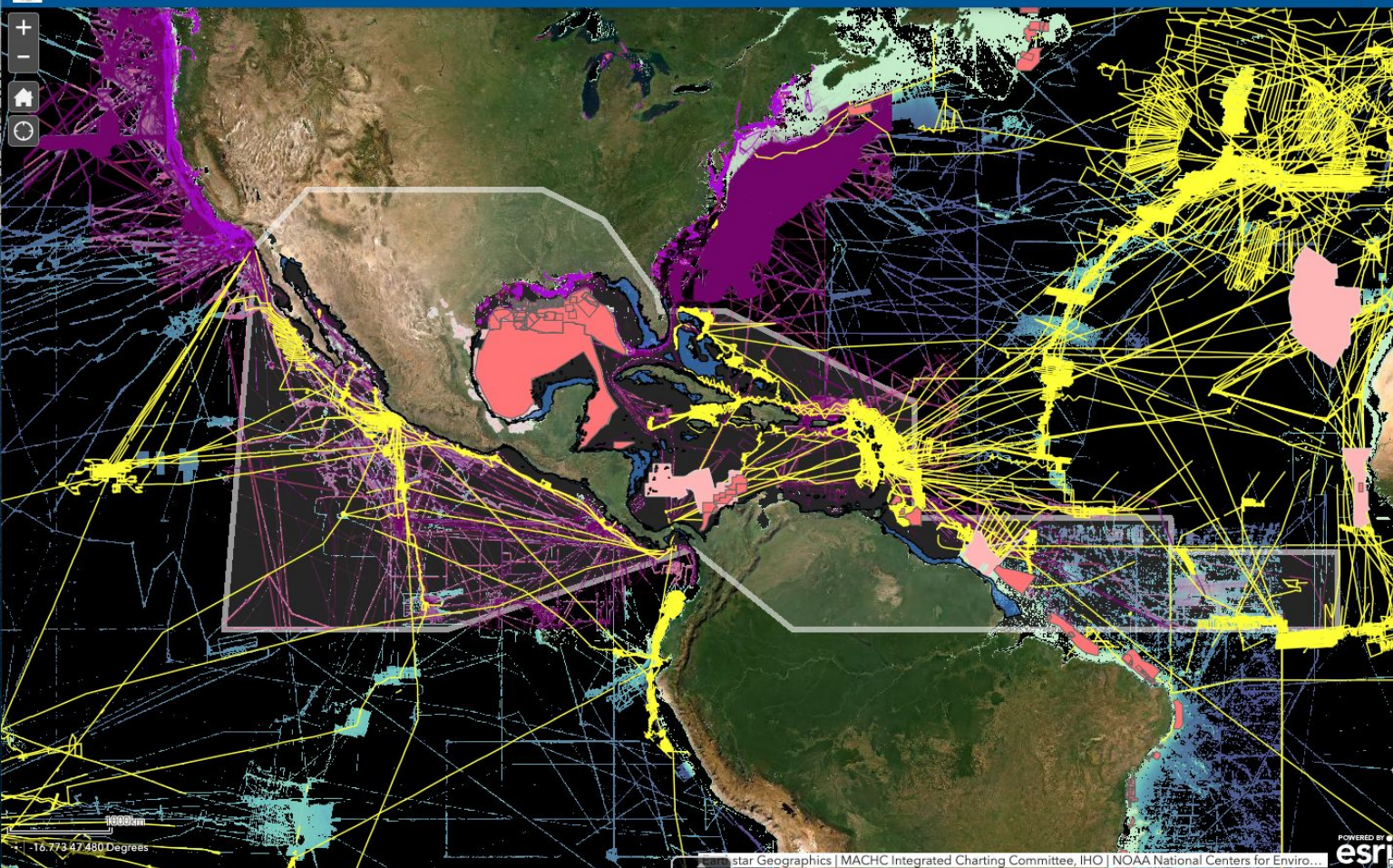
MACHC Region: GEBCO 2020 Coverage



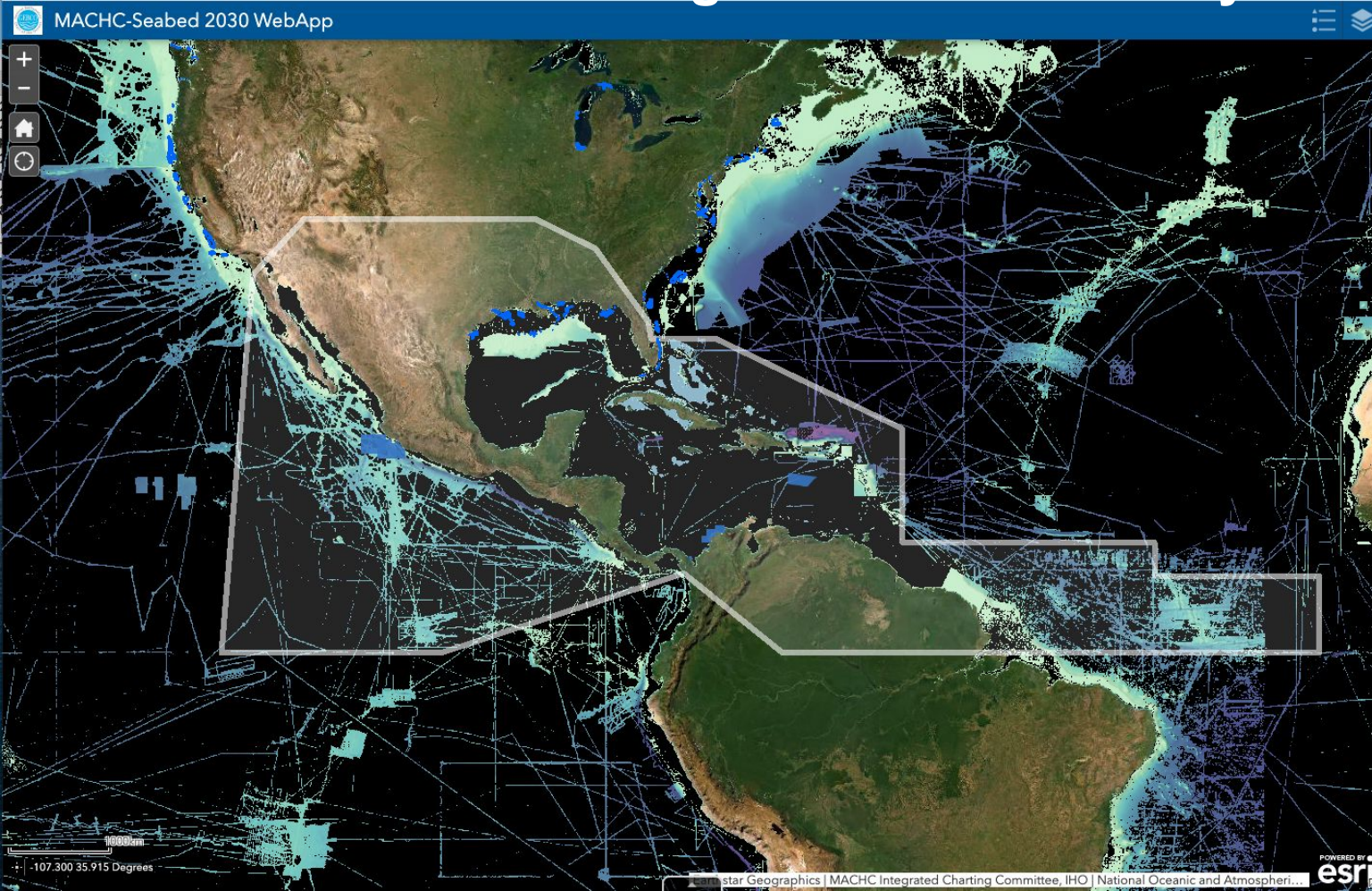
MACHC-Seabed 2030 WebApp



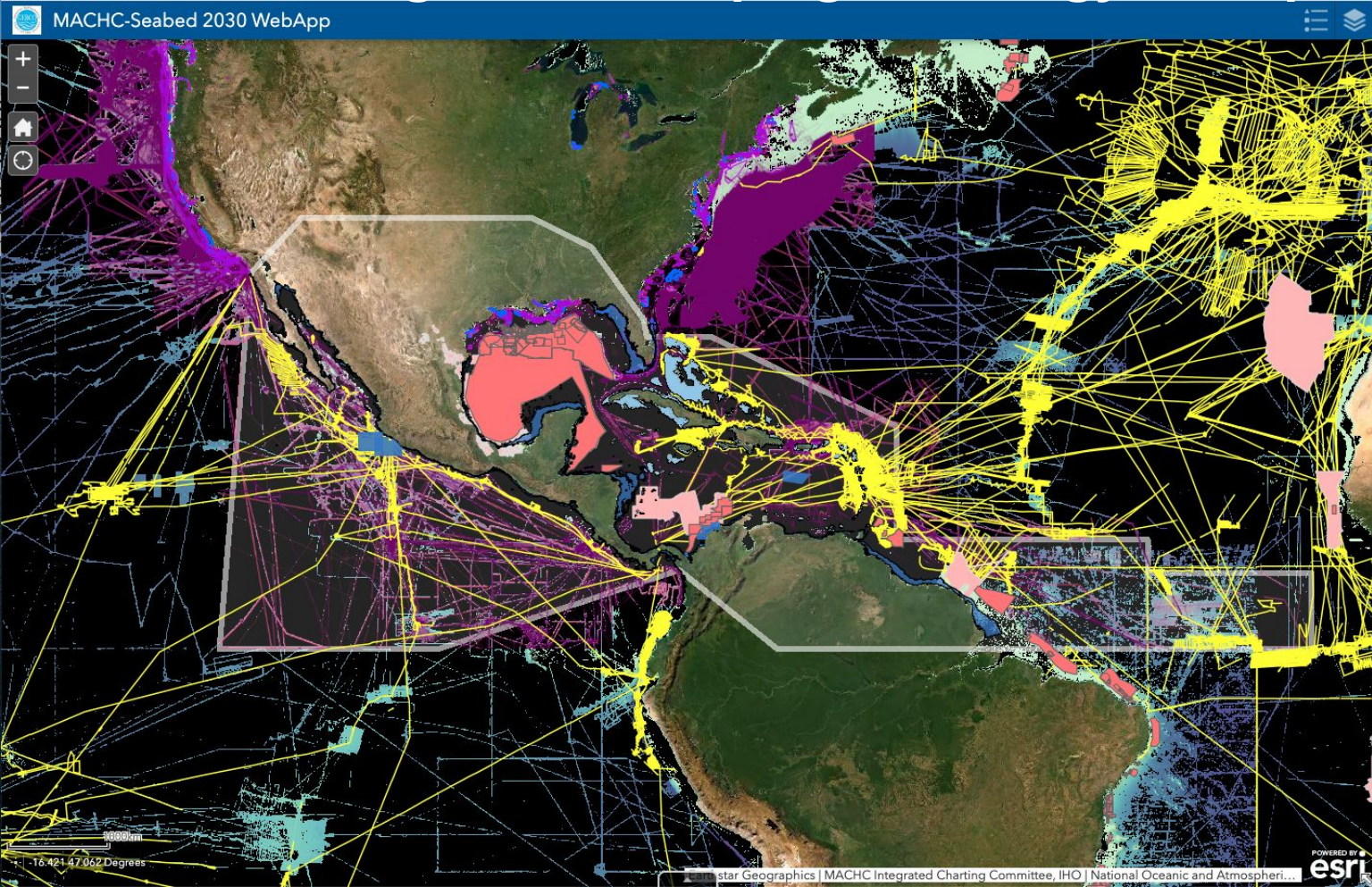
MACHC Region: Existing Data (Public/Non-Public)



MACHC Region: Planned Surveys



MACHC Region: Developing a Strategy to Map the Gaps



THE NIPPON FOUNDATION-GIEMO
**SEABED
2030**

Provision of polygon coverages



MACHC Region: Contributing Polygons

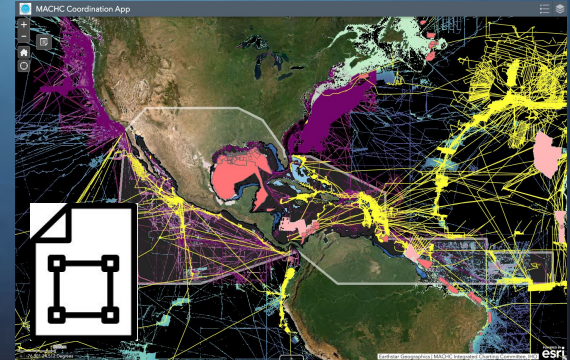
Shapefiles



Tabular Data



Draw Polygons in Web App



Requested Metadata for planned surveys:

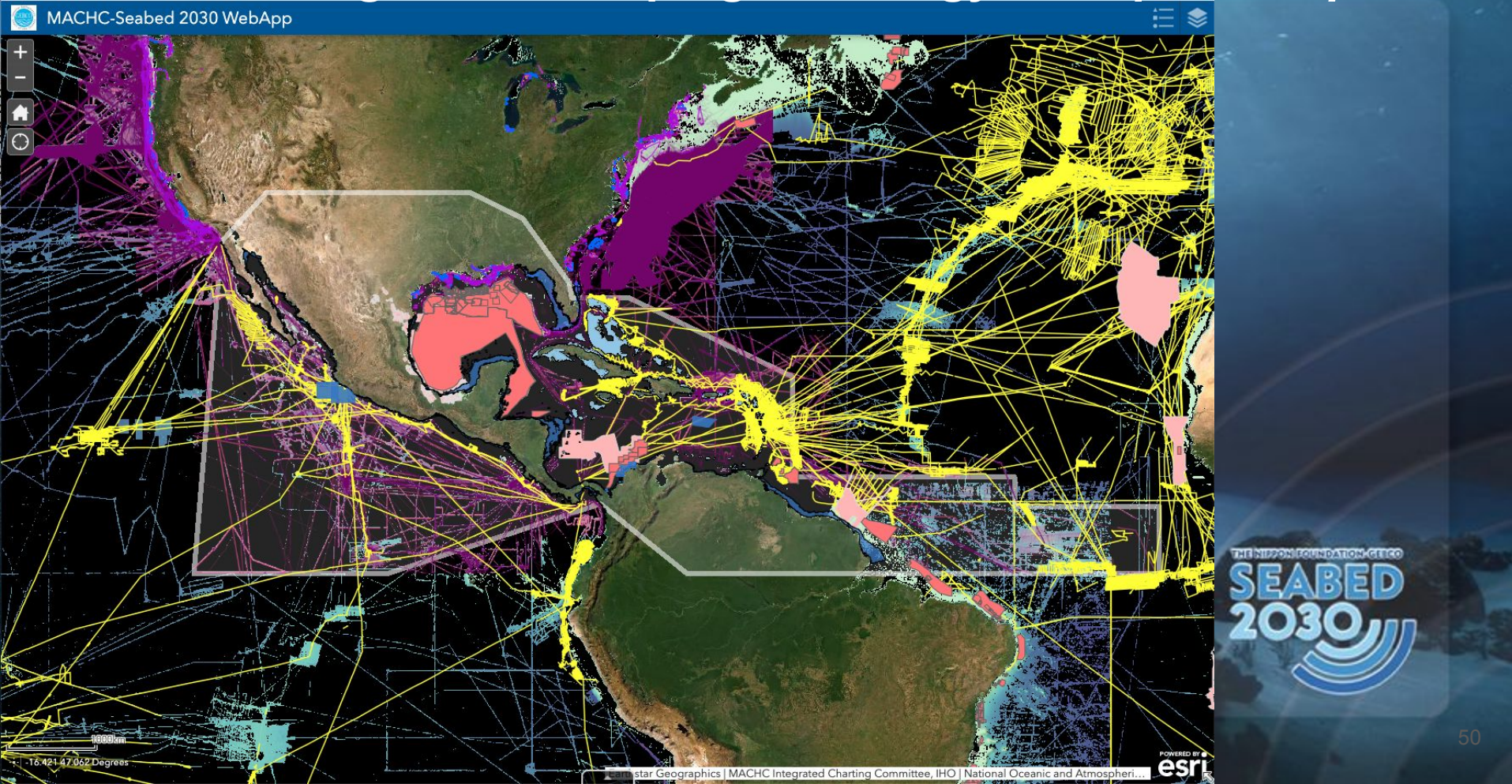
- Point of Contact, Country, Year, Total Area
- *Encouraged:* Survey Platform, Objective, Project Name

Requested Metadata for non-public data

- Device type, year of acquisition
- *Encouraged:* Point of Contact



MACHC Region: Developing a Strategy to Map the Gaps



Questions?



Summary

- 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



Summary

- Webinar 3:
 - IHO CSB Initiative - Introduction, description of how CSB can be used and contributed to the IHO DCDB, and how hydrographic offices can become involved.
 - Web App Review
 - Polygon Coverage - purpose, formats & metadata



Homework #3

- Encourage the review and response of IHO CL 21/2020 and IRCC CL 1/2020
- Consider participating in the next round of CSB Field Trials by receiving Seabed 2030-funded data loggers
- Contribute shapefiles/polygons of existing coverage and planned surveys
- Assemble information about technical challenges that we might be able to help you address

Provide above information to your MACHC Seabed 2030 Coordinator

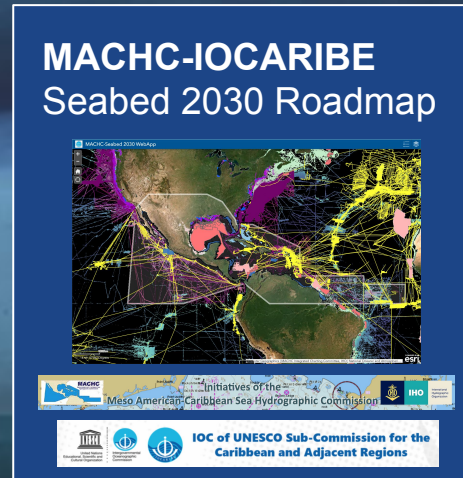
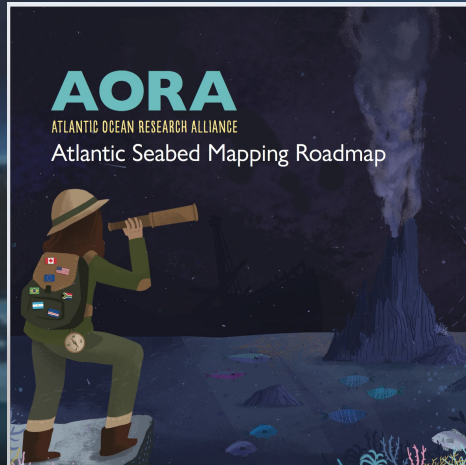
Cecilia Cortina Guzman: cecilia.cortina@gmail.com



Next Webinars in this Series

Webinar 4 - Oct. 23: Moving Ahead Together: Summary, Next Steps and Wrap up

- Summary of responses from participants
- Develop Seabed 2030 strategy for the MACHC Region
- Other?



Thank you!

Join us Oct. 23 for Webinar 4:
Moving Ahead Together:
Summary, Next Steps and Wrap up.



Webinar Documents, Presentations & Recordings:
https://www.iho-machc.org/documents/seabed2030_doc.html

