

Crowdsourced Bathymetry Update

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IHO

International
Hydrographic
Organization

IHO Crowdsourced Bathymetry Initiative

In 2014, the International Hydrographic Organization (IHO) initiated a collaborative project to enable mariners to collect “crowdsourced bathymetry”.

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

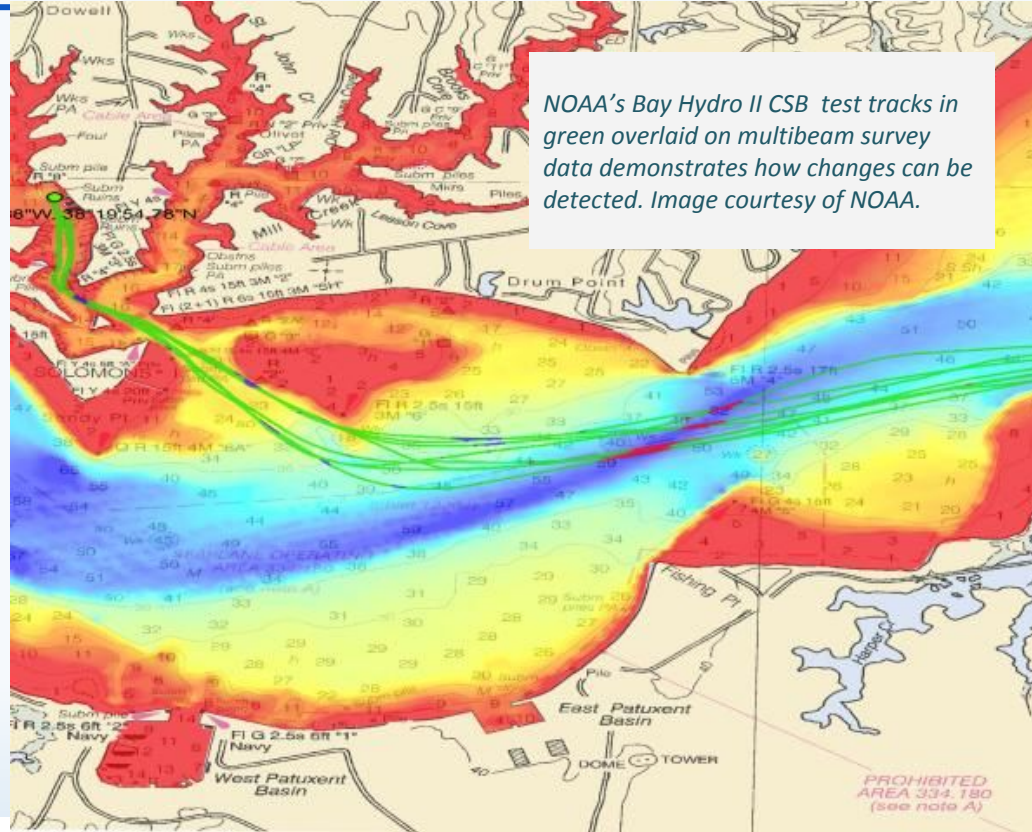
A Working Group was formed and tasked to develop ***B-12 IHO Guidance on Crowdsourced Bathymetry*** that states the IHO’s policy towards, and best practices for, the collection and contribution of CSB.

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

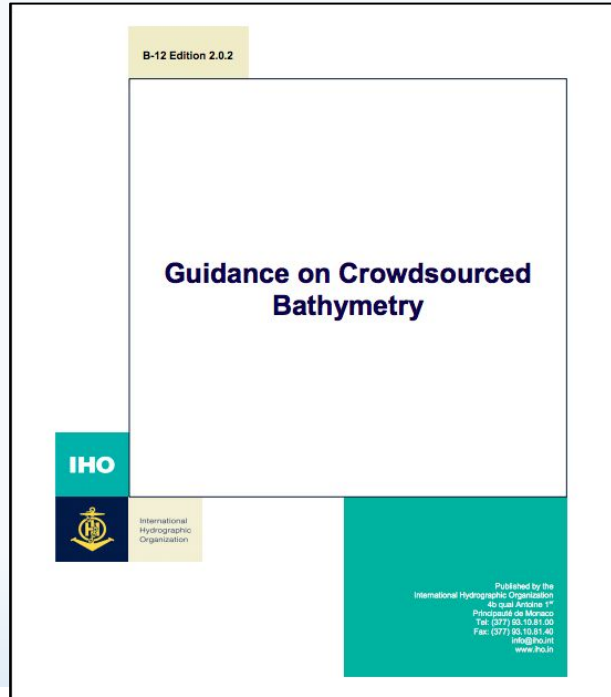


The Value of CSB Data

- 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 (Canada not listed) ==>
- The DCDB will filter out CSB data collected from the waters of all coastal countries not included on the positive list.
- The initial results showed two things:
 - The CL ask was not clear
 - There is a lot of work to do to convince nations of the value and importance of CSB

Summary analysis of positive responses

1. Based on the comments received to the questionnaire in Annex B to IHO CL 11/2019, the following table will be 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
Cyprus	All waters	Provide copy of dataset to Hydrographic Office
Denmark	All waters	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	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.”*

The IHO encourages member states to review CL 21/2020 and, if possible, offer a positive response by the requested deadline of 4 September.



CSB Contributors

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



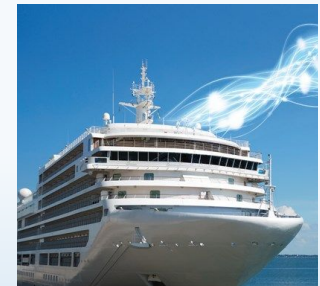
www.rosepointnav.com

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



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

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

Bureau of Marine Transportation - Palau

- Loggers en route

Provision of data loggers

- NMEA0183 and NMEA2000
- Installation support (where needed)



Seabed 2030-funded CSB Field Trials

Collaboratory Mapping Greenland (CMG) - as Greenland Institute of Natural Resources

- Aim is to provide depth data acquired through collaboration between local communities.
- Data collection will be done through on-ship engagement across Greenland:
 - >50 fishing vessels of various sizes
 - >10 transport vessels
 - numerous small boats.
- 30 loggers en route



IHO CSB Working Group

- **9 meetings; 1 Industry workshop**
- Chair (Jennifer Jencks, USA) and Vice-Chair (Marta Pratellesi, Italy)
- **Representatives from 14 Member States:**
 - *Canada, Croatia, Italy, Nigeria, Norway, Philippines, Denmark, Finland, France, Germany, India, Netherlands, Portugal, UK, & USA*
- **Observers and expert contributors:**
 - *CCOM-JHC, ChartWorld/SevenC's, CIDCO, Da Gamma Maritime Ltd, Dongseo U, ECC AS, ESRI, FarSounder, FLIR Systems AB, Fugro, GMATEK, Inc., James Cook U, JAMSTEC, Navico/C-Map, ONE Data Tech Co., Olex, PYA, Seabed 2030, TeamSurv, Teledyne CARIS, Sea-ID, World Maritime University, and World Ocean Council*
- **IHO:** Assistant Director David Wyatt



CSBWG2: 10-11 Jan 2016
Boulder, Colorado, USA



CWBWG8:23-25 Oct 2019
Monaco

CROWDSOURCED BATHYMETRY

DATA COLLECTION, PROVIDER & USER COMMUNITIES

COMMERCIAL

- Shipping
- Submarine Cable
- Energy
 - Seabed Mining
 - Geophysical Industry
- Fishing
- Cruise Ships
- Yachting
- Maritime legal, insurance, investment companies

NON-COMMERCIAL

- Recreational boating
- Recreational fishing
- Vessel operators
- NGOs

SOFTWARE COMPANIES

- Rosepoint
- CARIS
- Garmin/ActiveCaptain
- Navionics
- NobelTec/Time Zero

ACADEMIC & RESEARCH COMMUNITIES

INDIGENOUS COMMUNITIES

HARDWARE COMPANIES

- Sea-ID
- FarSounder
- GMATek
- Garmin
- WASSP

IHO

- Hydrographic Offices
- IHO Working Groups

GOVERNMENT VESSELS

- Coast Guard

TRAINING ORGANIZATIONS

- Warsash

COMMERCIAL CROWDSOURCE COMPANIES

- Olex
- TeamSurv

PRODUCT GENERATORS

- SevenCs

OBSERVATION COMMUNITIES

- Voluntary Observing Systems (VOS)

CSB/Seabed 2030 Ambassador

The CSBWG has submitted a paper to the IRCC requesting:

“Support for the modification of the current “RHC Seabed 2030 Ambassador” to a joint “RHC CSB/Seabed 2030 Ambassador.”

This figure would also serve as a member of the IHO CSBWG and as the point of contact to the relevant Seabed 2030 regional centers and be charged with leading the discussion of the future tasks for RHCs that will be formalized with the new IHO Strategic Plan (to be discussed during A-2).”

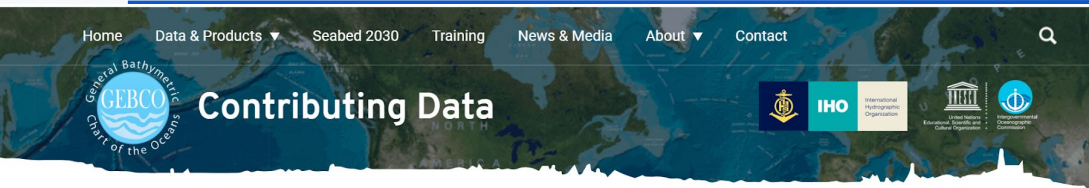


CSB/Seabed 2030 Ambassador

- Liaise with appropriate GEBCO Seabed 2030 Regional Data Assembly and Coordination Centres
- Consider traditional hydrographic collection methods as well as others that may apply, including CSB, SDB, scientific data collection, and industry-specific data and serve as a point of contact for other working groups accordingly.
- Report the state of regional ocean mapping efforts, including national statistics (according to Reg. Centre data)
- Lead regional efforts to coordinate potential data collection opportunities, connecting data providers with the appropriate GEBCO Regional Centres.
- Encourage national commitments for data sharing and new data collection.
- Develop joint regional campaign mapping plans for areas outside national jurisdiction.
- Ensure that efforts to collect data for Seabed 2030 are coordinated within the region
- Place a strong emphasis on acknowledging participation from data providers.



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).

Jump to

> [Our data contributors](#)

> [Join the Crowdsourced Bathymetry initiative](#)

Share this



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 Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO. GEBCO is continually working to improve its data products and gratefully acknowledges all data contributions to help map the gaps.

Seabed 2030 is a collaborative project between The Nippon Foundation and GEBCO to inspire the complete mapping of the world's ocean by 2030 and to compile all bathymetric data into the freely-available GEBCO Ocean Map.

PRIVACY NOTICE:

Your email contact will only be used by the GEBCO and the Seabed 2030 Team to contact you about the data sets of which you have made us aware. We will take all reasonable precautions to protect your personal data from loss, misuse, or alteration. We will not forward or sell on your email contact to 3rd parties.

* Required

Email address *

Your email

Your Name *

Your answer

Your Organization *

Your answer

Country or Organization who holds these data *

Your answer

Data Sharing status *

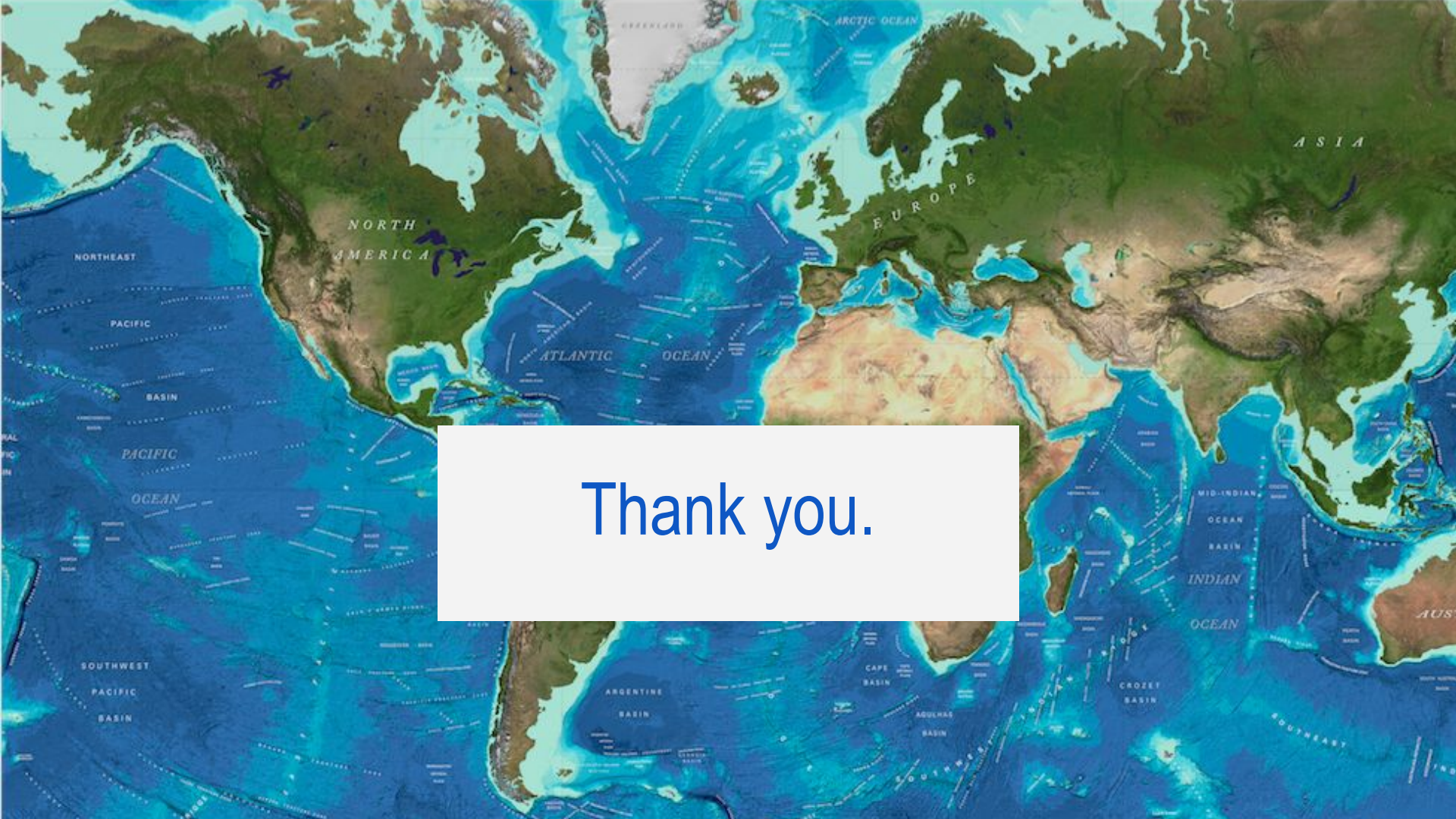
- Open Access - freely available
- Restricted Access (e.g. can be included in GEBCO products, but not disseminated as provided)
- Embargoed
- Other: _____

Region of the World Ocean *

Check all that apply

- Arctic Ocean
- Atlantic Ocean
- Indian Ocean
- North Pacific Ocean
- South and West Pacific Ocean
- Southern Ocean

gebc0.net/about_us/contributing_data/



Thank you.