

# The IHO Crowdsourced Bathymetry Working Group 15

*Welcome, Opening Remarks & Report to IRCC*





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# IHO Crowdsourced Bathymetry Initiative

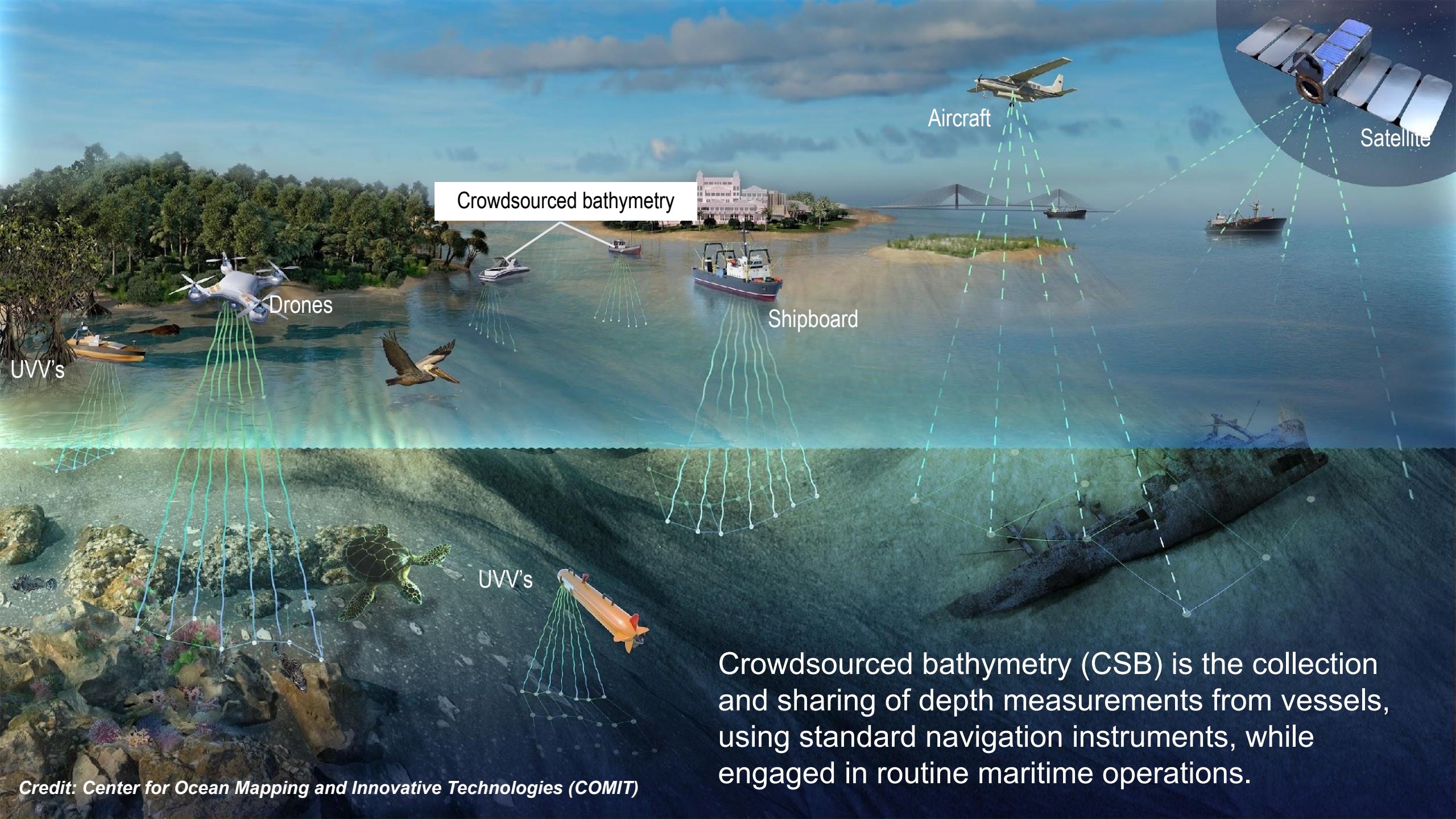
International  
Hydrographic  
Organization

In 2014, the International Hydrographic Organization (IHO) initiated a collaborative project to encourage mariners to collect and contribute “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.







Crowdsourced bathymetry

Drones

Aircraft

Satellite

Shipboard

UUV's

UUV's

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

Credit: Center for Ocean Mapping and Innovative Technologies (COMIT)





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# CSB Working Group

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- **Chair:** Jennifer Jencks, USA; **Vice Chair:** Belén Jiménez Barón, New Zealand
- **Representatives from 18 Member States:** Argentina, Canada, China, Denmark, France, Germany, India, Iran, Italy, Jamaica, Lebanon, Mexico, Netherlands, New Zealand, Norway, Portugal, South Africa, Sri Lanka, Sweden, UK, Uruguay, USA
- **IHO Secretariat:** IHO Assistant Director Sam Harper, IHO Director Luigi Sinapi



**CSBWG14 - Stavanger, Norway**

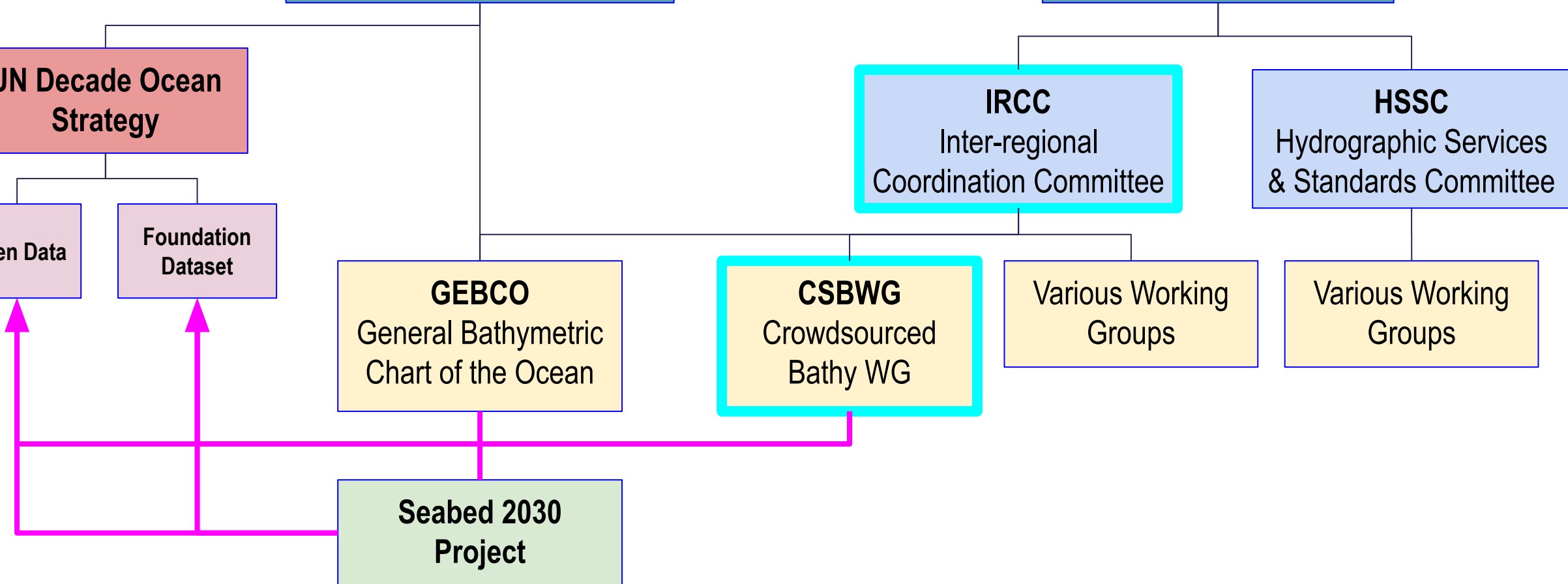
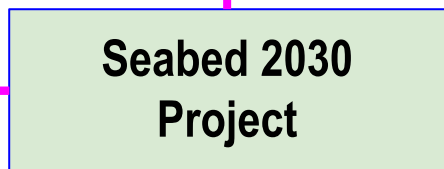
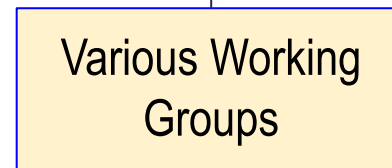
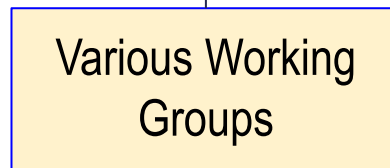
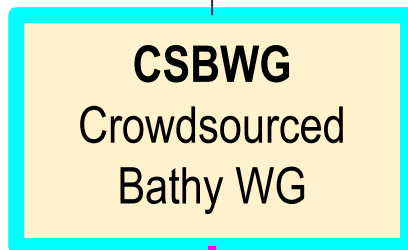
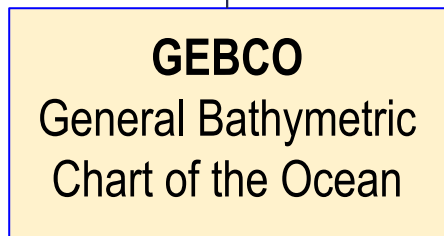
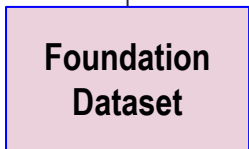
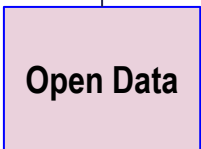
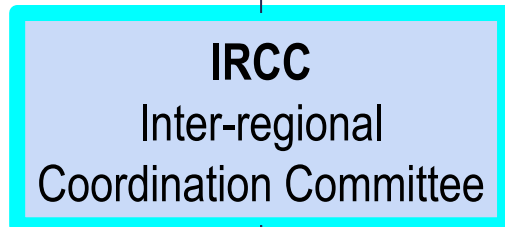
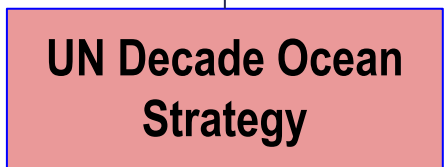
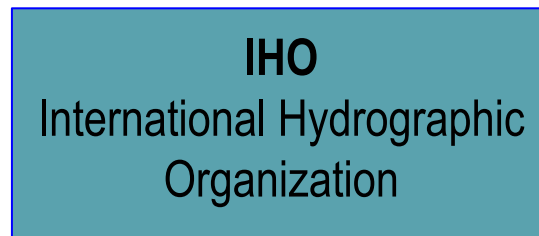
- **Observers and expert contributors:** CCOM-JHC, CIDCO, CIRES, COMIT, Da Gama Maritime Ltd, Dongseo U, Dock Tech, ECC AS, ESRI, FarSounder, FLIR Systems AB, Fugro, GMATEK, Inc., Great Lakes Observing System (GLOS), H2i, Inkfish, International Seakeepers, James Cook U, JAMSTEC, Navico/C-Map, ONE Data Tech Co., Orange Force Marine, PYA, Seabed 2030, Sea-ID, SevenCs/ChartWorld, Teledyne CARIS, World Maritime University, and World Ocean Council



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# Governance

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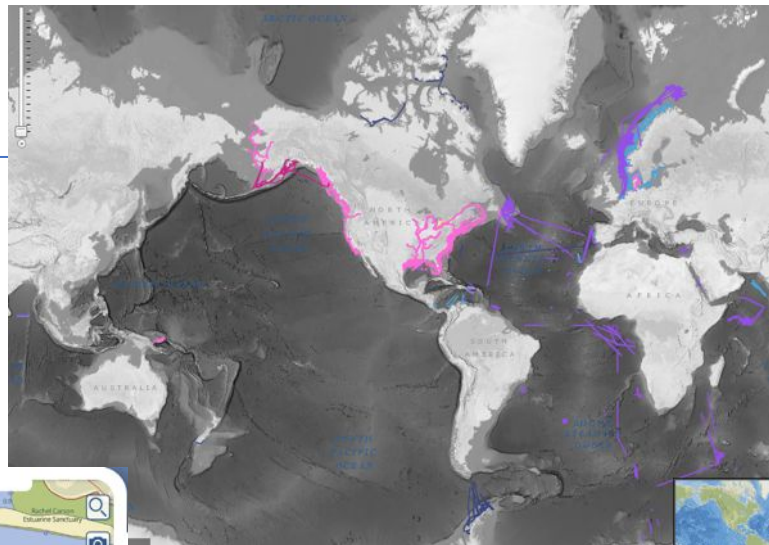


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# CSBWG Highlights

International Hydrographic Organization

- B-12 Ed. 3.0.0 (and a growing number of ancillary supporting documentation)
- 14 CSBWG meetings, 1 Industry Forum
- A robust IHO DCDB-hosted CSB data infrastructure
- An ever-growing interest from industry and academia to participate
- CSB/Seabed 2030 Coordinators from *most* RHCs
- Informational flyers encouraging participation from the greater community
- 10 Work Items focused on a variety of CSB-related topics



International Hydrographic Organization



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International Hydrographic Organization

### CITIZEN SOURCED DATA

HELP REVEAL THE DEEP AND SHARE YOUR DATA

**CROWDSOURCED DEPTH INFORMATION**

Commercially owned ships can participate in increasing our knowledge of the ocean by sharing depth measurements from navigation instruments while out at sea. Known as Crowdsourced Bathymetry (CSB), this information can help identify uncharted features such as seamounts and canyons, verify charted information, and help fill the gaps where no data exists.

**CRUISE SHIPS**

Many expedition cruise ships explore the world's oceans, often in areas where data is sparse, non-existent, or of poor quality. These are exactly the places where contributions to global seafloor mapping efforts can have the greatest impact.

By contributing data, cruise ships can help avoid accidents, environmental damage and make the oceans a safer place for all. Additionally, participation in this global effort can be included in the cruise line's marketing materials highlighting the various ways they contribute to scientific endeavors.

ship's NMEA data bus. Routinely measured parameters such as under keel depth and position, can then be stored, uploaded and contributed to local and global mapping initiatives. These contributions can also benefit navigational safety, detect unknown hazards, and aid other mariners and ocean scientists.

To minimise effort on the part of the ship's crew, data collection and contribution of data can occur by using either built-in navigation software systems that are participating in the CSB initiative, or through a small hardware data logger that can be interfaced to the

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## CSBWG Highlights

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- In recent years, we have started to see a change in the way many coastal States view CSB, with ***Palau and Kiribati*** as the most recent supporters
- We also know that anecdotally, other nations are currently on the complicated journey of getting approval through their legislative processes



**To date, 35 coastal States (green) have replied positively to IHO CL 01/2020 & IRCC CL 21/2020**

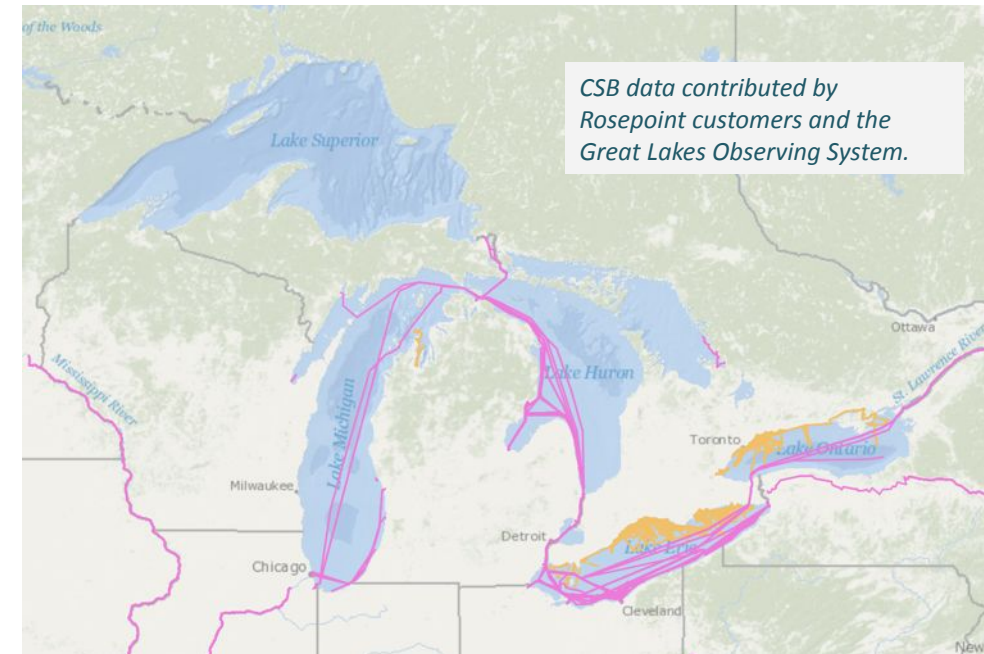
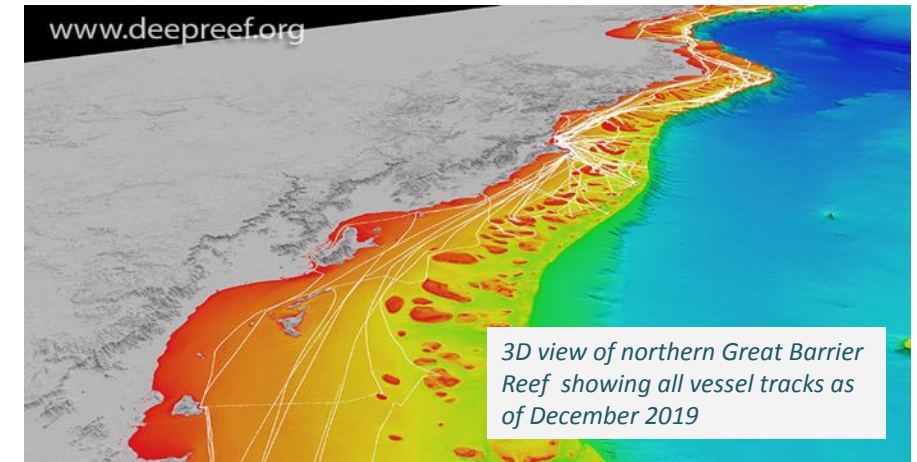


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# With growing momentum comes a growing responsibility

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- Are we ready? Can we support the ever-increasing number of parties saying they want to get involved?
- How do we respond to demand? How do we manage expectations?
- This is a GREAT problem to have!
- As a WG, we need to continue to strive to become more efficient, smarter and collaborative to the needs, questions, concerns of our communities
- We must continue to identify both roadblocks and solutions!







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## CSBWG Highlights: **New ToRs**

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- A. Maintain the IHO publication B-12 through periodic reviews and updates identified by Member States;
- B. Engage with HOs and IHO Member States on matters relating to CSB uses, including but not limited to Nautical Cartography;
- C. Monitor Member State and Regional Hydrographic Commission progress regarding development of best practices and CSB initiatives and incorporate into B-12 as appropriate;
- D. Investigate ways to foster and facilitate data providers (i.e.: Trusted Nodes), increase data contributions and identify incentives on how and why mariners should become involved;
- E. Investigate and promote greater end use of CSB data in and outside the hydrographic community;



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## CSBWG Highlights: **New ToRs**

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- F. Provide guidance on data quality and standards for CSB in liaison with appropriate IHO Working Groups;
- G. Liaise with other relevant IHO and allied bodies involved with CSB data to improve coordination and promote its use and development;
- H. Liaise closely with the IHO Data Centre for Digital Bathymetry (DCDB) as it continues to develop technology to collect, display and distribute CSB data to the public;
- I. Encourage and support all aspects of the CSB data life cycle from acquisition through archival to discovery and distribution, emphasizing automation and efficiency whenever possible; and
- J. Encourage and expand scholarly discourse regarding the benefits of CSB to support U.N. Decade on Ocean Science and GEBCO objectives by encouraging contributions to scientific, legal, and policy literature.





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## CSBWG Highlights: **New Work Items**

- A. Maintain and update IHO CSB Guidance Document (B-12)
- B. Submit IHO CSB initiative as a UN Decade Action
- C. Gather, prioritize and respond to HO-specific issues/opportunities regarding national policy/regulations related to CSB
- D. Gather and prioritize HO-specific issues relating to CSB data, including but not limited to Nautical Cartography
- E. Support CSB/SB2030 Coordinators in their RHC engagement
- F. Discuss and propose potential software tool support for HOs
- G. Clarify support identified by current Trusted Nodes needed for current and future Trusted Nodes.
- H. Clarify all aspects of the CSB data cycle and capture known issues, requirements and suggested enhancements.
- I. Develop a communication plan in coordination and collaboration with related efforts (SB2030, GEBCO, etc)
- J. Develop a recognition & incentive strategy plan



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## **Actions Requested of IRCC15 (June 2023)**

- a) Note the contents of this report;
- b) Approve new Terms of Reference (Annex A)**
- c) Encourage more CSBWG participation by coastal States**
- d) Acknowledge the CSBWG meeting regime of every 8 months**
- e) Encourage all Member States to review IHO CL 21/2020 and, if possible, offer a positive response, even if qualified, to enable provision of CSB data into the public domain collected from ships within waters subject to their national jurisdiction.
- f) Encourage all coastal states to review IRCC CL 1/2020 and, if possible, offer a positive response, even if qualified, to enable provision of CSB data into the public domain collected from ships within waters subject to their national jurisdiction.
- g) Encourage Member States to release datasets or subsets into the public domain via the IHO DCDB;
- h) Encourage Member States to support the CSB initiative with positive actions, such as requiring all research vessels to collect bathymetric data for late uploading, when on passage or when it does not interfere with other research activities;
- i) Take what other action is deemed necessary.





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## **Actions Requested of IRCC**

- a) Note the contents of this report;
- b) **Approve new Terms of Reference** (Annex A) - **Approved**
- c) **Encourage more CSBWG participation by coastal States** - **Approved**
- d) **Acknowledge the CSBWG meeting regime of every 8 months** - **NOT Approved**
- e) ~~Encourage all Member States to review IHO CL 21/2020 and, if possible, offer a positive response, even if qualified, to enable provision of CSB data into the public domain collected from ships within waters~~

**IRCC tasked the CSBWG in liaison with the IHO Secretariat to organize an online IRCC workshop on the benefit of Crowdsourced Bathymetry and how to expand data contribution**

- ~~g) Encourage Member States to release datasets or subsets into the public domain via the IHO DCDB;~~
- ~~h) Encourage Member States to support the CSB initiative with positive actions, such as requiring all research vessels to collect bathymetric data for late uploading, when on passage or when it does not interfere with other research activities;~~
- i) Take what other action is deemed necessary.



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# **IRCC WORKSHOP ON CROWDSOURCED BATHYMETRY**

26 April 2024 - Virtual

The workshop will present an overview of CSB activities, legal considerations and experiences from the hydrographic community on CSB as a collaborative approach to gather and share depth data.

National Hydrographers, or their Deputies, are strongly encouraged to participate & attend.

**IHO CIRCULAR LETTER 14/2024**

*[https://iho.int/uploads/user/circular\\_letters/eng\\_2024/CL14\\_2024\\_EN\\_v1.pdf](https://iho.int/uploads/user/circular_letters/eng_2024/CL14_2024_EN_v1.pdf)*





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# **CSBWG15**

|          | <b>Work Item</b>   | <b>Lead</b>            | <b>Team</b>   |
|----------|--|------------------------|---|
| <b>A</b> | Maintain and update IHO CSB Guidance Document (B-12)   | Guillaume Morissette   | Georgie Zelenak, Idris Salaudeen  |
| <b>B</b> | Submit IHO CSB initiative as a UN Decade Action  | Evert Flier            | Jenn Jencks, Sam Harper, David Miller   |
| <b>C</b> | Gather, prioritize and respond to HO-specific issues/opportunities regarding national policy/ regulations related to CSB | Jenn Jencks            | Evert, Steve Keating, Chandana Rathnayake, Denis Haines   |
| <b>D</b> | Gather and prioritize HO-specific issues relating to CSB data, including but not limited to Nautical Cartography         | Anthony Klemm (acting) | Giuseppe Masetti, Hans Oias, Andy Talbot, Akim Mahmud, Michel Breton  |
| <b>E</b> | Support CSB/SB2030 Coordinators in their RHC engagement  | Belen Jimenez Baron    | Jenn, Evert, Anthony, Denis   |
| <b>F</b> | Discuss and propose potential software tool support for HOs  | Brian Jensen           | Emma Wise, Meredith Payne, Mathieu Rondeau, Idris S., Benjamin Barbier, Knut Hartman  |
| <b>G</b> | Clarify support identified by current Trusted Nodes needed for current and future Trusted Nodes.                         | Guillaume Morissette   | Matt Zimmerman, Linden Brinks, Brian Calder, Colin Thomson  |
| <b>H</b> | Clarify all aspects of the CSB data cycle and capture known issues, requirements and suggested enhancements.             | Brian Calder           | Shaul Solomon, Colin, Giuseppe, Guillaume, Georgie, Brian Miles   |
| <b>I</b> | Develop a communication plan in coordination and collaboration with related efforts (SB2030, GEBCO, etc)                 | Sarah Grasty           | Steve Monk., Meredith, Akim M., David M., Derek Niles, Tim Kearns, Belen, Pauline Weatherall, Jennifer Cheveaux, Idris, Chandana, Denis |
| <b>J</b> | Develop a recognition & incentive strategy plan  | David Miller           | Matt Z., Linden B., Sarah G., Jennifer C.   |





**Questions?**

*AI design by Liva Goba*