

# The IHO Crowdsourced Bathymetry Working Group 11



# IHO Crowdsourced Bathymetry Initiative

In 2014, the International Hydrographic Organization (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 Data Centre for Digital Bathymetry (DCDB) built a data pipeline that allows the public to contribute, and discover and download CSB data via a web-based map viewer interface.



# IHO Crowdsourced Bathymetry Initiative

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



# IHO CSB Working Group

- **10 meetings; 1 Industry workshop**
- Chair (Jennifer Jencks, USA) and Vice-Chair (Pete Wills, CA)
- **Representatives from 14 Member States:**
  - *Canada, Croatia, Italy, Nigeria, Norway, Philippines, Denmark, Finland, France, Germany, India, Netherlands, New Zealand, Portugal, UK, & USA*
- **Observers and expert contributors:**
  - *CCOM-JHC, 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, Sea-ID, SevenCs/ChartWorld, TeamSurv, Teledyne CARIS, World Maritime University, and WOC*
- **IHO:** Assistant Director David Wyatt



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



**CWBWG8: 23-25 Oct 2019**  
Monaco

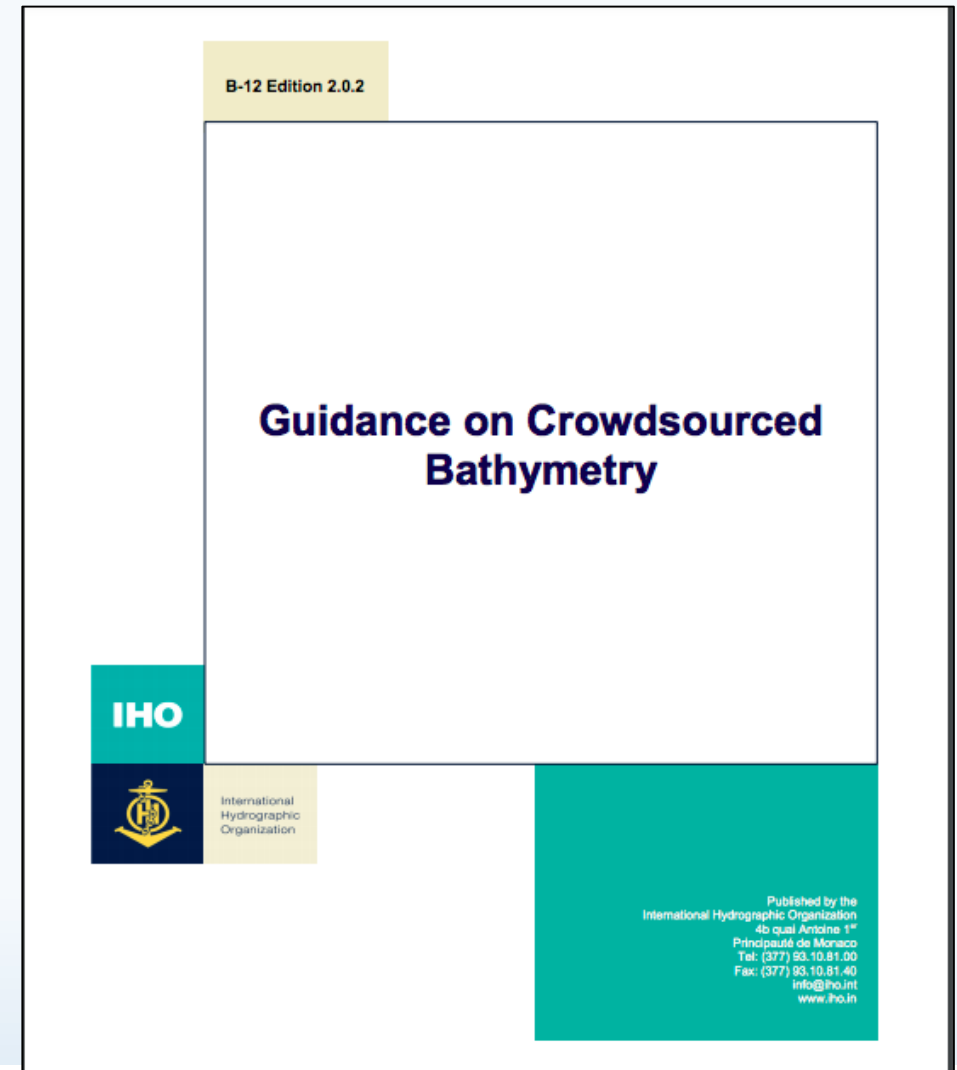


# IHO CL 11/2019

## “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.

[https://iho.int/uploads/user/pubs/bathy/B\\_12\\_Ed2.0.3\\_2020.pdf](https://iho.int/uploads/user/pubs/bathy/B_12_Ed2.0.3_2020.pdf)



# 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 & IRCC CL 01/2020

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- All Coastal States are now requested to indicate their position on the ***provision of CSB data*** from ships within waters subject to their national jurisdiction into the public domain
- To date, 30 coastal states (green) have replied positively
- The geographic filter will be updated in 2021 to reflect updated coastal state positions.



[iho.int/uploads/user/circular\\_letters/eng\\_2020/CL21\\_2020\\_EN\\_v1.pdf](https://iho.int/uploads/user/circular_letters/eng_2020/CL21_2020_EN_v1.pdf)

[iho.int/uploads/user/Inter-Regional%20Coordination/IRCC/IRCC\\_Letters/IRCC\\_Letter\\_2020\\_01\\_CSBS\\_Activities.pdf](https://iho.int/uploads/user/Inter-Regional%20Coordination/IRCC/IRCC_Letters/IRCC_Letter_2020_01_CSBS_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-lc@iho.int](mailto:cl-lc@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:





# CSBWG Terms of Reference

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- A. Maintain the IHO publication B-12 through periodic reviews and updates identified by Member States;
- B. Monitor Member State and Regional progress regarding development of best practices and CSB initiatives and incorporate into B-12 as appropriate;
- C. Investigate and [highlight / promote] ways to increase data contributions and incentives on how and why mariners should become involved.
- D. Define potential uses of CSB for Hydrographic offices (HOs) with examples and useful land equivalents;
- E. Provide guidance on data quality and standards for CSB in liaison with appropriate IHO Working Groups;
- F. Liaise with other relevant IHO subordinate bodies involved with CSB data to promote its use and development; and
- G. Liaise closely with the IHO Data Centre for Digital Bathymetry (DCDB) as it continues to develop technology to collect and distribute CSB to the public.





IHO

# CSBWG Highlights: CSB Guidance and Outreach

IHO Publication B-12: CSB Guidance Document.

International  
Hydrographic  
Organization

The Secretary noted that B-12 currently falls under appendix 2 of IHO resolution 2/2007, as amended, which is inconsistent with it being a guidance document and not an IHO standard.

***Action:*** Consider submitting a proposal to HSSC for B-12 to be removed from the list in appendix 2 of resolution 2/2007, as amended.

Removing B-12 from the list means that the process for amending and revising will be much less exhaustive.

B-12 Edition 2.0.2

## Guidance on Crowdsourced Bathymetry

IHO



International  
Hydrographic  
Organization

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IHO

## Actions Requested of IRCC

International  
Hydrographic  
Organization

- a) Note the contents of this report;
- b) **Consider submitting a proposal to HSSC for B-12 to be removed from the list in appendix 2 of resolution 2/2007, as amended.**
- c) **Encourage all Member States to respond to 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.
- d) **Encourage all RHC Chairs to bring the IRCC CL 1/2020 to** the attention of all coastal states within their respective RHC, encouraging them to 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.
- e) Encourage Member States to release datasets or subsets into the public domain via the IHO DCDB;
- f) 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;
- g) Take what other action is deemed necessary.

# Agenda

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# We should all be good at this by now !!

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- Use a headset to avoid interferences;
- **Mute** your microphone & turn **camera OFF** when you're not speaking;
- To speak, either (a) turn camera ON and raise your hand, or (b) request to speak in the chat window
  - Please wait for the Chair or Vice Chair to give you the floor
  - After speaking, please **mute** the microphone even if you plan to ask the floor again;
  - Please turn off camera when you are done with the conversation
- The chat window will be available during the meeting and the Secretariat will monitor it, questions may be asked here.
- If you plan to share your screen, please contact the Chair and Secretary; and
- Focus on the agenda item being considered, avoiding distraction.



# CSB/Seabed 2030 RHC Coordinators

RHC	Country	Coordinator Name
NHC (Nordic)	Norway	Evert Flier
NSHC (North Sea)	Germany	Patrick Westfeld
MBSHC (Mediterranean and Black Seas)	Lebanon	Joud Sayah
ARHC (Arctic)	Norway	Evert Flier
BSHC (Baltic Sea)	Denmark	Jens Peter Hartmann (CSB)
	Sweden	Hans Öiås (SB2030)
USCHC	USA	Andy Armstrong
EAHC (East Asia)		
EAtHC (Eastern Atlantic)	Portugal	Commander João Vicente, Engineer Leonor Veiga
SEPRHC (South-East Pacific)		
SWPHC (South-West Pacific)	New Zealand	Stuart Caie
MACHC (Meso American & Caribbean Sea)	Mexico	Cecilia Cortina Guzman
SAIHC (Southern African and Islands)	S. Africa	Commander Christoff Theunissen
NIOHC (N. Indian Ocean)	India	Commander Rahul Bhatt
RSAHC (ROPME Sea Area)		
SWAtHC (SW Atlantic)	Uruguay	Commander Niki Eugenio Silvera
HCA (HC on Antarctica)	Under discussion	

# Proposed Plan for Uncertainty Section

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- Incorporate CSBWG-agreed-upon amendments into sections and clarify outstanding issues and remaining work.
  - Summarize original and new suggestions/positions on issues
- Capture ALL edits as “track changes” and comments within section
- Distribute “track changes” & “clean w/ comments” section to CSBWG for feedback (**early Dec**)
- Hold intersessional CSBWG meeting (VTC) to review section (**early Jan**)
  - Achieve consensus on suggestions
  - Identify outstanding issues/work to be addressed by Drafting Team
- Redistribute updated section to Drafting Team for review and feedback (**mid Jan**)



# Proposed Plan for ALL Sections

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- Incorporate CSBWG-agreed-upon amendments into sections and clarify outstanding issues and remaining work. Summarize original and new suggestions/positions on issues.
- Redistribute updated section to Drafting Team for review and feedback (*mid Jan*)
- Leads to hold VTC meeting with Drafting Team to further discuss outstanding issues/newly proposed amendments (*late Jan*)
  - The goal will be to achieve consensus where possible and to clarify status on ongoing issues
- Redistribute updated section to CSBWG for review and feedback (*late Feb*)
- Discuss new updates (results of consensus), CSBWG feedback and remaining issues at CSBWG 12 (*late Mar/early Apr*)
  - ***Note that if no consensus on remaining issues then simple majority of MS present is sufficient***

