

**Report of the Crowd-Sourced Bathymetry Working Group****Submitted by:** Chair**Related Documents:** IHO CSBWG5 report, draft IHO CSB Guidance Document (B-12)**Related Projects:** none

<b>Chair:</b>	Jennifer Jencks, USA
<b>Vice-Chair:</b>	Serge Gosselin, Canada
<b>Secretary:</b>	David Wyatt, IHO
<b>Member States:</b>	Argentina, Australia, Brazil, Canada, China, Denmark, Finland, France, India, Italy, Japan, Nigeria, Norway, Philippines, Portugal, Turkey, UK, USA
<b>Expert Contributors:</b>	Caris, Sea-ID, PYA, TeamSurv, GEBCO, SevenCs/Chartworld

*See Annex A for full details***1. Meetings Held During Reporting Period**

The working group held its fifth meeting at the Secretariat of the International Hydrographic Organization, Monaco, on 5 and 6 December 2017. In the absence of the Chair of the CSBWG, Ms Jennifer Jencks (USA, Director of the DCDB), the Vice-Chair, Mr Serge Gosselin (Canada), chaired the meeting which was attended by representatives from nine Member States (Canada, Denmark, France, Italy, Nigeria, Norway, Portugal, UK and USA), and observers and expert contributors from the Baltic and International Maritime Council (BIMCO) and Sea-ID. Secretary-General Dr Mathias Jonas, Director Mustafa Iptes and Assistant Director David Wyatt (Secretary) represented the IHO Secretariat.

**2. Work Programme**

The CSBWG received verbal reports from the chapter leads who had been tasked to coordinate the drafting of specific sections of the B-12 Guidelines. During the meeting the various draft chapters of the guidelines were developed further, taking into account the feedback received in response to IHO Circular Letter 49/2017. The final draft version of the B-12 Guidelines will be made available on the IHO website prior to the presentation to the IRCC at its 10<sup>th</sup> meeting in Goa, India, in June 2018. Subject to the endorsement of the IRCC, this will be followed by consideration by the IHO Council at its 2<sup>nd</sup> meeting and submitted for adoption by the IHO Member States towards the end of 2018. The participants also considered the future tasks which could be addressed by the WG in response to the discussions undertaken by IHO member States at Assembly-1 and Council-1 and initial proposed draft revisions to the ToRs were developed for further consideration.

It was agreed that the Chair, Vice-Chair, Editor and chapter leads should meet to coordinate the final proofing of the document to be submitted to IRCC10. Immediately after the Canadian Hydrographic Conference in Victoria on 30 March 2018 was identified as a suitable date and venue. It was further agreed that the next meeting of the working group should progress the work in preparing Edition 2.0.0 and review the outcomes of IRCC10 with respect to Council-1 instructions on expanding the scope of the tasks to be undertaken by the CSBWG. It is therefore planned to hold a sixth meeting of the CSBWG in Boulder, Colorado, USA on 19-21 June 2018.

The CSBWG considered future tasks which could be addressed in response to discussions at Assembly-1 and Council-1; initial proposed draft revisions to WG ToRs were developed for consideration by IRCC10, see Annex C, these included potential new tasks for the CSBWG to address:

- Increase data contribution and incentives on how and why to become involved;
- Identify potential uses of CSB by HOs and how it can be portrayed, with concrete and useful examples;
- Provide guidance on data quality and standards for CSB for potential future Bathymetric Information Overlay (BIO) to be displayed on an ECDIS or ECS;
- Maintain B-12 and propose amendments as appropriate; and
- Liaise with other IHO bodies involved with and potential uses of CSB data, such as GGC, MSDIWG, DQWG and HSPT.

The report of the meeting and the supporting papers will be available from the CSBWG section of the IHO web site: [www.iho.int](http://www.iho.int) > [Committees & WG](#) > [IRCC](#) > [CSBWG](#)

### **3. Progress on IRCC Action Items**

The Crowdsourced Bathymetry Working Group (CSBWG) is tasked by the Inter-Regional Coordination Committee (IRCC) to develop a draft IHO publication on policy for trusted crowdsourced bathymetry (CSB). This CSB Guidance Document will provide guidelines on the collection and assessment of CSB data for inclusion in the global bathymetric data set which is maintained in the IHO Data Centre for Digital Bathymetry (DCDB). A first draft of this Guidance Document was completed and made available via the IHO website to the public in 2017.

### **4. Problems Encountered**

- The CSBWG has received minimal feedback from IRCC participants on the draft of the CSB Guidance Document.
- There continues to be a need to overcome a degree of scepticism on the concept within some sections of the maritime an overly cautious focus on potential, although untested, legal issues and concern on commercial exploitation of data. Increased awareness and information as well as stakeholder engagement/involvement should all help to overcome these reservations.

### **5. Any Other Items of Note**

- 6.** It is worth noting that relevant guidance regarding potential environmental impact information (ie: acoustical impacts) of crowdsourced bathymetry data collection is currently being discussed for potential inclusion in Edition 2.0.0 **Conclusions and Recommendations**

The continued importance of liaison with other IHO bodies, as well as appropriate engagement with industry to progress the work items, was identified as a key enabler for the project. It was also noted the significant progress achieved.

**7. Justification and Impacts**

N/A

**8. Actions Required of IRCC**

The IRCC is invited to:

- a. Note the contents of this report;
- b. Circulate the draft CSB GD for formal consultation with IHO Member States and relevant stakeholders;
- c. Encourage IHO Member States to release datasets or subsets into the public domain via the IHO DCDB;
- d. Request IHO Member States state their policy on data gathering restrictions within their maritime areas of jurisdiction to enable CSB activities to be undertaken;
- e. Request IHO Member States to support the CSB initiative with positive actions, such as requiring all research vessels collect bathymetric data for late uploading, when on passage or when it does not interfere with other research activities;
- f. Request the IHO to support a scaled trial of CSB data collection as a follow on to earlier pilot programs.
- g. Approve the proposed revisions to the ToRs and RoPs, see annex C;
- h. Reappoint the WG to continue its work under the proposed revised ToRs; and
- i. Take what other action is deemed necessary.

Annexes:

- A. List of members.
- B. Draft Edition 1.0.0 CSB Guidance Document (see CSBWG web page: [https://www.iho.int/srv1/index.php?option=com\\_content&view=article&id=635&Itemid=988&lang=en](https://www.iho.int/srv1/index.php?option=com_content&view=article&id=635&Itemid=988&lang=en))
- C. Proposed revised ToRs.

**IHO Crowd-Sourced Bathymetry Working Group (CSBWG)**  
**List of Members**

<b>Member State</b>	<b>Organization</b>	<b>Name</b>	<b>E-mail (correspondence)</b>	<b>E-mail (Google Calendar, Drive, &amp; Hangout access)</b>
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## CROWD-SOURCED BATHYMETRY WORKING GROUP (CSBWG)

### Terms of Reference

(as adopted by IRCC-7, June 2015)

Ref. 7<sup>th</sup> IRCC Meeting (Mexico City, June 2015)  
10<sup>th</sup> IRCC Meeting (Goa, June 2018)

#### 1. Preamble

The 5<sup>th</sup> Extraordinary International Hydrographic Conference (EIHC-5) considered Proposal 4 on Crowds-Sourced Bathymetry (CSB) and decided by Decision 8 to task the IRCC to establish a Working Group (WG) to prepare a new IHO publication on policy for trusted crowd-sourced bathymetry, taking into account EIHC-5 Proposal 4 and the comments made during the Conference. At the first session of the IHO Assembly and the first meeting of the IHO Council, it was agreed that the scope and tasks of the CSBWG should be considered by the IRCC with a view to expanding the role of the CSBWG beyond that of maintaining IHO publication B-12 - IHO Guidelines for Crowdsourced Bathymetry – to include consideration on the potential the uses and portrayal of CSB, guidance on data quality and standards, and incentives to increase data contribution by mariners. The IRCC tasked the CSBWG to take into account the programmes already being progressed by other IHO bodies, such as the GEBCO Seabed 2030 and standards development by DQWG and HSPT, and to liaise with these bodies to ensure a harmonized approach and results.

#### 2. Objectives

- a. Prepare a~~Maintain draft the IHO publication B-12 – IHO Guidelines on Crowdsourced Bathymetry. on policy for trusted crowd-sourced bathymetry for consideration and endorsement by the 8<sup>th</sup> meeting of the IRCC in 2016.~~
- b. Investigate and highlight ways to increase data contributions and incentives on how and why mariners should become involved. The draft IHO publication on policy for trusted crowd-sourced bathymetry should provide guidelines on the collection and assessment of CSB data, not only for potential use for charting purposes but also for its wider use in non-navigational applications. The WG should:
  - (1) take into account EIHC-5 Proposal 4 and the comments made during the Conference;
  - (2) take into account the ongoing work to enhance the IHO Data Centre for Digital Bathymetry (DCDB) as a data discovery and upload/download portal for Crowd-Sourced Bathymetry;
  - (3) take into account the lessons learned and specifications created during the IHO CSB pilot project involving the Professional Yachting Association, Sea-ID and the DCDB, together with any other relevant CSB trials or operational services;
  - (4) actively seek input from other international organizations, industry and invited Expert Contributors on their methods and use of

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~~crowd-sourced information;~~

~~(5) seek advice and input from relevant HSSC Working Groups as required;~~

~~(6) identify the nature and minimum level of metadata required to accompany any crowd-sourced bathymetry data;~~

~~(7) identify methods for assessing and designating the uncertainty of crowd-sourced bathymetry, both as individual observations from a single observer and as repeat or duplicate observations from the same or different observers;~~

~~(8) identify preferred formats for the submission, exchange and preservation of crowd-sourced bathymetry data, taking into account the relevant international standards and existing industry or community practices; and~~

~~(9) base its recommendations, wherever possible, on established and accepted crowd-sourced data gathering principles.~~

c. Identify potential uses of CSB by Hydrographic offices (HOs) and investigate how it can be portrayed, with examples and useful land equivalents.~~The WG should identify potential legal and liability issues associated with the collection or use of crowd-sourced data and provide this information to IRCC for further consideration and guidance on how they should be addressed.~~

d. Provide guidance on data quality and standards for CSB in liaison with appropriate IHO Working Groups;

e. Liaise with other IHO bodies involved with, and potential users of, CSB data, such as GGC, MSDIWG, DQWG and HSPT;

f. Monitor Member State and Regional progress regarding development of best practices and CSB initiatives; and

g. Liaise with the IHO Data Centre for Digital Bathymetry (DCDB) as it continues to develop technology to collect and distribute CSB to the public.

### 3. Authority

a. The WG is a subsidiary of the Inter Regional Coordination Committee (IRCC) and its work is subject to IRCC approval.

~~b. The need for the WG to continue shall be confirmed at each meeting of the IRCC.~~

### 4. Composition and Chairmanship

a. The WG shall comprise representatives of IHO Member States, invited Expert Contributors, including members of IHO-IOC Technical Sub Committee on Ocean mapping (TSCOM) and Observers from accredited NGIO, all of whom have expressed their willingness to participate and are encouraged to attend, and a representative of the IHO Secretariat.

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- b. Member States, invited Expert Contributors and Observers may indicate their willingness to participate at any time. A membership list shall be maintained, posted on the IHO website and confirmed annually.
- c. Invited Expert Contributor membership is open to entities and organizations that can provide a relevant and constructive contribution to the work of the WG.
- d. The Chair and Vice Chair shall be a representative of a Member State. ~~Unless already decided by the IRCC, the~~ election of the Chair and Vice-Chair should be decided at the first meeting following each ordinary session of the Assembly and, in such case, shall be determined by vote of the Member States present and voting.
- e. If a secretary is required it should normally be drawn from a member of the WG.
- f. If the Chair is unable to carry out the duties of the office, the Vice-Chair shall assume the Chair with the same powers and duties.
- g. Invited Expert Contributors shall seek approval [of membership /for attendance] from the Chair.
- h. Invited Expert Contributor membership may be withdrawn in the event that a majority of the MS represented in the WG agree that an Expert Contributor's continued participation is irrelevant or unconstructive to the work of the WG.
- i. All members shall inform the Chair in advance of their intention to attend meetings of the WG.
- j. In the event that a large number of Invited Expert Contributor members seek to attend a meeting, the Chair may restrict attendance by inviting the Invited Expert Contributors to act through one or more collective representatives.

## 5. Procedures

- a. The WG should work primarily by correspondence.
- b. ~~The WG should meet at least once every year, whenever possible, in conjunction with another related conference or meeting. When meetings are scheduled, and in order to allow any WG submissions and reports to be submitted to IRCC on time, the WG meetings should not normally occur later than nine weeks before a meeting of the IRCC. The venue and date of the meeting shall be decided at the previous meeting, in order to facilitate participants' travel arrangements. The Chair or any member, as considered necessary, with the agreement of the simple majority of all members of the WG, can call extraordinary meetings. The WG should attempt to meet annually, and wherever possible, with another convenient forum.~~
- c. The WG should seek advice and input from relevant HSSC WGs as required.
- d. Decisions should generally be made by consensus. If voting is required on issues or to endorse proposals presented to the WG, only IHO Member States may cast a vote. Votes at meetings shall be on the basis of one vote per MS represented at the meeting. Votes by correspondence shall be on the basis of one vote per MS represented in the WG. In all cases of voting, a majority shall be

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determined based on the number of Member States casting a vote.