

## Crowdsourced Bathymetry Working Group Work Plan

### CSBWG Tasks and Work Plan

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

<b>Work Item</b>	<b>Title</b>	<b>Priority</b> <i>H-high M-medium L-low</i>	<b>Next milestone</b>	<b>Start Date</b>	<b>End Date</b>	<b>Status</b> <i>P-planned O-ongoing C-completed S-Superseded</i>	<b>Contact Person(s)</b>	<b>Related Pubs / Standard</b>	<b>Remarks</b>
A-1	Review B-12 Edition 3.0.0	M	Identify review cycle	2023	?	P	CIDCO/G Morissette	B-12 Edition 3.0.0	
A-2	Capture suggested updates to B-12 Edition 3.0.0	M	Consolidate and share suggestions	2023	?	P	CIDCO/G Morissette	B-12 Edition 3.0.0	Discussion topic at CSBWG15
B1	Define the shape and nature of the IHO CSB Initiative and how this relates to the work of the CSBWG	H	CSBWG15 IRCC16	Aug 2023	March 2024	O	Sam Harper	B-12 Edition 3.0.0	
B2	Produce proposal and submit to UN Decade as an action	M	CSBWG16	March 2024	?	P	Evert Flier	B-12 Edition 3.0.0	
C-1	Capture issues regarding national policy/regulations /culture affecting the endorsement of CSB	H	Consolidate and draft proposed solutions to overcome them	2023	CSBWG15	O	C. Rathnayake	CSBWG10: Responses to IHO Circular Letters on CSB	Known issues reviewed, grouped and discussed. Issues prioritized and proposed solutions underway.
C-2	Draft proposed rationale to the issuing of a new brief circular letter (and questionnaire) to MS explaining the purpose of IHO CL 21/2020 and	H	Present to CSBWG and determine whether to issue to MS	2023	CSBWG14	C	Chair	IHO CL 21/2020	Decision made at CSBWG15 that, at present, the rationale does not exist to draft a new CL. Will coordinate with Outreach Team on future messaging and engagement

	encouraging a positive response								(includes for IRCC Workshop)
C-3	Request the policy framework(s) or guideline(s) adopted by coastal States who positively responded to IHO CL 21/2020 or IRCC CL 01/2020	H	Draft and issue request to National Hydrographers. Consolidate and develop guidance for other coastal States	2023	CSBWG15	O	Chair	IHO CL 21/2020, IRCC CL 01/2020	The team has drafted an email for review and input by the CSBWG.
C-4	Educate CSBWG members on International Law of the Sea as it pertains to passage sounding collection.	H	S Keating to provide presentation to CSBWG14; provide resource materials to CSWBWG	2023	CSBWG15	P	S. Keating	CSBWG14-3.1: CSB and International Law	
D-1	Produce guidance for use of CSB data for SOLAS nautical cartography and other product	M	Agree on wording of guidance, and decide where to publish it	2023	Dec 2023	O	A. Klemm	B-12 and S-44 Annex A (Matrix)	Fruitful discussion at last Work Group D Meeting. No decisions made, but discussed options to write concise guidance in B-12, or provide guidance to S-44 & HSWG/DQWG for improving the matrix guidance in Annex A. Concerns include having guidance for classification duplicated in both B-12 and S-44, as well as having CSB integrated in S-44, which may allow MS to interpret CSB as hydrographic survey. There was also a suggestion to move CSBWG into a sub-working group under HSSC/HSWG (may give more credence to CSB in the eyes of HO's?) in the same way as SDB-PT and the B-13 Guidance to SDB is today.

D-2	Evaluate the CSB data stored in the IHO DCDB for use in nautical cartography.	H	Provide feedback to DCDB, and set a meeting to discuss priorities	2023	Ongoing	O	A. Klemm, G. Masetti	B-12, DCDB CSB Metadata standard	Top priority is clarity and assurance of a stable and robust API for accessing the CSB data in the DCDB programmatically. Will need to meet again with DCDB data managers to understand way forward. Also, A. Klemm will start a "data rescue" project using data fusion techniques to attempt to fix erroneously timestamped data
D-3	Engage with industry to ensure the required tools exist to efficiently use DCDB-hosted CSB data for navigational products.	M	Dependent on progress made on D-1 and D-2	2023	Ongoing	O	A. Klemm		Discussed that it may not need to be industry that creates a solution for processing CSB. Utmost importance is clear documentation and sample scripts for programmatically accessing the DCDB API (which could be done in the open-source community). Also, A. Klemm packaged his CSB processing tool within NOAA Coast Survey's Pydro Tool Suite (which is publicly available for download). Only works on US data as it uses the NOAA tide/waterlevel API and discrete tide zone models for tide correction automation. The source code is available on GitHub.
D-4	Engage with other IHO WGs to ensure suitable standards exist for describing CSB data and displaying CSB data on ECDIS.	M	Dependent on progress made on D-1 and D-2	2023	Ongoing	P	A.Klemm		This is dependent on D-1 and may be remedied through the classification matrix in S-44 Annex A. CSBWG should work with HSWG to test the classification matrix in

									Chapter 7 and the guides in Annex A and provide feedback. Academic work on how to quantify uncertainty of CSB data is ongoing. It is not definite that CSB data requires new/separate standards for portrayal on ECDIS (or paper charts) not already included in S-101, S102, S-4, and S57. A change of CATZOC definitions is not possible as S57 is a locked standard and the classes must remain identical between the products. Some countries (USA/NOAA) determine CATZOC of CSB mainly through comparison against other qualified data and display source metadata in S101 and S102's Raster Attribute Table without any special cartographic portrayal rules. The decision of how CSB can be used in a chart rests on the cartographers of the respective HO with the help of CATZOC in addition to internal bathymetric data supersession policies.
E-1	Revisit and update (if necessary) the original intent of the CSB/SB2030 Coordinator (Co) role.	H	Revisit current definition(s) of Co role & draft a simple & clear role description.	2023	August 2023	C	B. Baron		
E-2	Work with each Co to develop a regional strategy to aim to achieve the goals of the CSBWG	H	Make a plan on how will we support Cos	2023	August 2023	C/O	B. Baron		

	and SB2030								
E-3	Raise awareness of CSB in IHO Capacity Building Subcommittee	M	TBD	2024	Ongoing	P	B. Baron		
F-1	Identify objectives of industry team	H		2023	August 2023	C	Teledyne/A Bergstrom	7 reports from held meetings	Low participation from industry outside Teledyne.
F-2	Elaborate further on made findings	M		2024		P	Teledyne/A Bergstrom		
G-1	Capture known issues identified by current Trusted Nodes	M	Develop guidance for current and future Trusted Nodes	2023	August 2023	P	CIDCO/G Morissette		
H-1	Review, recommend, and document the data flow of standard processing stages for data capture		Present to CSBWG for discussion	2023	Dec 2023	P	CCOM/B Calder		
H-2	Review current metadata structure for CSB data for completeness, encoding methods, validation mechanisms, and support for end-user database mapping		Recommend modifications	2023	Dec 2023	P	CCOM/B Calder		
H-3	Consider potential extensions of the current GeoJSON		Recommend modifications	2023	Dec 2023	P	CCOM/B Calder		
H-4	Investigate possible extensions to the DCDB S3 data store and OGC services		Consolidate suggestions for future development at DCDB.	2023	Dec 2023	P	CCOM/B Calder		

H-5	Establish recommendations for one or more use cases of CSB, and associated guidelines for data products		Collaborate with other working groups preparing specialized products (e.g., for HO use)	2023	Dec 2023	P	CCOM/B Calder		
I-1	Develop draft outreach coordination plan	M	Finalize draft 1-2yr comms & outreach plan	2023	Feb 2024	O	S Grasty (MtG/T Kearns)		
J-1	Compile a list of potential types of recognition and potential incentives that would motivate individuals and/or organizations to participate in CSB		For each potential type, develop a short summary of action required to support its implementation	2023	August 2023	O	Fugro/D Millar		
J-2	Develop Recognition and Incentive Strategy Plan		Gather feedback at CSBWG14 and finalize	2023	Dec 2023	P	Fugro/D Millar		