

11th Crowd-Sourced Bathymetry Working Group (CSBWG11) Meeting Report Part 1
Agenda Item 1 - B-12 Review Sessions

14-16 September 2021,
Virtual Meeting

Reading Notes:

- The CSBWG11 was split into two distinct components. The first was the B-12 Drafting team review sessions, and associated plenary discussion sessions (Agenda item 1), and the rest of the Agenda (Items 2-6), all of which we heard during the plenary session. In order to provide a coherent record of the deliberations, the CSBWG11 report has been split into two parts which reflect these distinct components. This is Part 1 of the report.
- Where possible, paragraph numbering is the same as the Agenda Item numbering and does not necessarily reflect the order in which matters were discussed;
- In some cases, subsections have been consolidated where the chair decided to take adjacent topics together, with numbering adjusted accordingly;
- Agenda Item 1. was spread over all three days, with a mixture of focused review and summary sessions. These sessions are presented herein as one consolidated section to aid coherence. Where a session took place as a full working group appropriate notation has been included.

1. CSB Guidance Document 2.03 (B-12)

1.1 Welcome and opening remarks

The Chair opened the meeting and gave a brief explanation of how the B-12 drafting sessions would work. She expressed her regret that once again this meeting was being held virtually, but thanked everyone for the intersessional work that had been undertaken.

David Wyatt (DW), added his welcome to participants and highlighted that this would be his last CSBWG meeting, as well as his last formal engagement on behalf of the IHO. He introduced Sam Harper (IHO Sec) as his successor.

IHO Sec introduced himself and gave a brief overview of administrative arrangements.

1.2 Overview of B-12 Drafting plan – Review Group

B-12 Review Group lead, Dr Thierry Schmitt (TS), provided an overview of why B-12 needed to be revised, highlighting the need to make it technology agnostic and focused on the needs of the end user as principle drivers. TS provided an overview of the structure of the document and noted the intersessional work to propose and discuss corrections. He explained the plan for the morning meetings over the next three days would be to review the proposed changes to the various sections, agree consensus where possible and discuss remaining issues ahead of reporting back to plenary in the afternoon sessions to seek the endorsement of the full working group. He noted that achieving consensus or agreeing a way ahead would be essential if the plan to present a revision to the Edition 2 of B-12 to IRCC in 2022 was to be achieved.

In summarising the plan for the next few days, the Chair reemphasised the importance of keeping the target audience in mind. Jens Peter Hartmann (JPH) indicated that he hoped that a Tracked Change version of the doc available post meeting for a final review by member states. The Chair indicated that this may well be the reality, but intention was to aim to make decisions through consensus so that progress could be made. DW and IHO Sec explained the process for IRCC approval, indicating that there would be another opportunity for MS to provide comment when the eventual final revision was presented via Circular Letter. Further, caution was advised not to fall into the trap of perpetual circulation of amended versions.

Post Meeting Note: IHO Sec has added references to each of the proposed changes to the document to aid monitoring progress and future work. These references are largely arbitrary and are based upon the IHO Sec's understanding of the conversation(s) that were had. It may be necessary to adjust or remove these references if they do not accurately distinguish between individual changes.

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1.3 B-12 INTRODUCTION – Discussion of Proposed Amendments

The session was facilitated and led by the Chair who went through each of the proposed changes and their status as recorded in the table below.

Ref	Key Points	Decisions	Actions	Lead
INTR1	Contributors	Agreed		
INTR2	<p>IHO statement on CSB – definition</p> <ul style="list-style-type: none"> - Denmark JPH expressed concern that the use of the term ‘standard navigational instruments’ - IHO/DW suggested that the modern usage of this term is now far broader and this has to be recognized - Belen Jimenez (BJ) re-emphasised the importance of differentiating between CSB and a Survey - Guiseppe Masetti (GM) suggested that the onward promulgation/sharing of the data should be included in the definition as it is an intrinsic component of the activity. Strong concurrence of this point from multiple members 	Further discussion required		
INTR3	<p>IHO statement on CSB – concern over referencing completeness in terms of time</p> <ul style="list-style-type: none"> - Evert Flier (EF) suggested ‘vast majority’ as opposed to ‘majority’ 	Agreed with addition		
INTR4	IHO statement on CSB – ref. global programmes	Agreed		

	<ul style="list-style-type: none"> - IHO advised against inclusion of SB2030 on the basis it is a private venture. Suggested that it should be replaced by a reference to the GEBCO programme - Endorsed inclusion of UN Decade of Ocean Science for Sustainable Development 			
INTR5	IHO statement of CSB	Agreed		
INTR6	Purpose and Scope	Agreed		
INTR7	<p>Purpose and Scope – uncertainty, quality, accuracy</p> <ul style="list-style-type: none"> - TS clarified that it needs to be clear that this doc should not provide advice on how to do a systematic survey as there is other documentation that does this. Therefore the proposed addition of the word 'systematic' should stay 	Agreed		
INTR8	<p>Target Audience – whether to include users as well as collectors</p> <ul style="list-style-type: none"> - IHO/DW refer ToRs include the consideration of potential uses, therefore include the term 'and users' is appropriate - Suggestion by Steven Keating (SK) suggested the cover all term of Stakeholders 	Further discussion required		

1.4 B-12 DATA CONTRIBUTION SECTION - Discussion of Proposed Amendments

The session was facilitated and led by the Chair who went through each of the proposed changes and their status as recorded in the table below.

Ref	Key Points	Decisions	Actions	Lead
DCON1	Data contribution – Update to title	Agreed		
DCON2	Data Contribution – Removal of IHO text relating to Antarctic Programmes' ships	Further discussion/research as to origin required		
DCON3	IHO DCDB – use of terms 'steward', 'freely and without restriction' - Question over the clarity of meaning of these terms in this context, especially for English Second Language persons	Agreed change to openly and stick with Steward as defined else where		
DCON4	The Trusted Node Model – Definition of a trusted Node - Question over the use of the word systematic to describe a trusted node. - A feeling from Sea ID and JPH that it provides context as to why the Trusted Nodes are necessary - Counter argument is that it is a superfluous term that has unhelpful connotations and that the fact that trusted Nodes are 'approved', negates the need for further characterization in the document.	Further consideration required	Belen Jimenez to provide replacement wording that is more concise, but has the appropriate level of detail.	BJ
DCON5	The Trusted Node Model – inclusion of transmission as well as logging	Agreed		

DCON6	<p>The trusted Node Model – Minimal description of what defines a trusted node</p> <ul style="list-style-type: none"> - Steve Monk (SM) stated that it provides a good definition, but nothing on how to become one - SH suggested having the 'how to become a trusted node' separate so it is easier to maintain without having to make a full revision to B12. 	Following a long discussion it was agreed that this element needs to be revisited		
DCON7	The trusted Node Model – data flow diagram – Keep or Remove?	Agreed		
DCON8	<p>Authentication Method – remove text</p> <ul style="list-style-type: none"> - Suggestion it could be moved to a stand alone table outside of the document 	Agreed		
DCON9	Overview of CSB data flow – new text	Agreed		
DCON10	Overview of CSB data flow – new text relating to areas of national jurisdiction	Agreed		
DCON11	Overview of CSB data flow – update diagram of data flow	Agreed		
DCON12	Submitting CSB data to DCDB – removal of text	Agreed		
DCON13	Accessing CSB data – updated diagram	Agreed		
DCON14	Entire document - Consistency	<p>Not capitalisation of crowdsource bathymetry – Agreed</p> <p>Data is Plural - Agreed</p>		

		Capitalise Trusted Node – Agreed URLS in footnotes - Agreed		
DCON15	Data Contribution – reference of potential users <ul style="list-style-type: none"> - Question over whether unofficial charts or EC Providers would be a better term - MRS suggested each of the flyers could be used as examples 	to be further discussed		
DCON16	IHO DCDB – definition of mariners and other is history in description of DCDB <ul style="list-style-type: none"> - GM questioned whether collectors and contributors are synonymous - Suggestion of replacing the term Mariners with vessels and/or platforms - Mathieu Rondeau (MR) suggested that since all collectors are contributors so just use contributors 	Further explanation/discussion is required	GM to indicate where clarification as to Contributors and Collectors definition is required.	GM
DCON17	The Trusted Node Model – raising expectation that TNs will supply data loggers FOC <ul style="list-style-type: none"> - SM suggested alternative wording”supplying access to...” 	Further discussion required		
DCON18	The Trusted Node Model – inclusion of a list of Trusted Nodes <ul style="list-style-type: none"> - Chair re-emphasied issues with have time lified information in B-12. We can have a list 	Agreed		

	on the IHO website but not until we have more Trusted Nodes			
DCON19	<p>The Trusted Node Model – Inclusion of text relating to how TN acts when data is collected in a nations territorial waters</p> <ul style="list-style-type: none"> - Chair referenced push back related to feasibility/authority of TNs to take on this responsibility - Note: may need to seek legal advice on this. The burden may well be on the person that passes the data outside of the region or nation that has jurisdiction. 	Needs further discussion		
DCON20	The Trusted Node Model – clarity on How to become a trusted node	Needs further discussion		
DCON21	The Trusted Node Model – clarity on criteria for becoming a trusted node	Needs further discussion		
DCON22	<p>Overview of CSB Data Flow – definition of High Seas and relationship to national jurisdiction</p> <ul style="list-style-type: none"> - Chair made it clear that it is not the mandate of the group to define terms such as these where they have already been defined in UNCLOS - Suggestion that ‘as defined in UNCLOS’ is added where appropriate 	Agreed		
DCON23	Overview of CSB Data Flow	Needs further discussion		

DCON24	Overview of CSB Data Flow – addition of text relating to where data is collected in waters of national Jurisdiction	Agreed		
DCON25	<p>Accessing CSB Data – Question over contents of data package e.g. a license.</p> <ul style="list-style-type: none"> - Chair clarified that there is no data license as access is open. - GM suggested that even where data is open access, it still needs a license. - Brian Calder (BC) stated that some users will not accept data without a license because there is no statement of legal parameters - IHO/DW suggested a generic license could be created that gave free and open access to the IHO MS' data held in the DCDB - Chair noted that this issue is bigger than B-12 and could/should be taken outside this discussion 	Further discussion required	<p>Suggestion for what such a license would look like</p> <p>Develop generic license that can be downloaded</p>	GM/BC/Chair

1.5 Overview of B-12 Drafting Plan – Full Working Group

1.6 Discussion of Intersessional and Day 1 Progress

The session was facilitated and led by the Chair who introduced the process and session. She explained that the discussion would focus on issues where agreement had not been reached, and that if a suggested way forward was forthcoming, a silence procedure would be used where silence from the floor would be taken as meaning consensus had been achieved.

Introduction Section:

	Key Points	Decisions	Actions	Lead
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INTR2	<p>IHO statement on CSB – Definition</p> <ul style="list-style-type: none"> - Main concerns surround the removal/inclusion of the term ‘standard Navigational Instruments’ - Also the inclusion of ‘sharing’ in the definition as it is an intrinsic part of the concept - Denmark – suggested key issue for them is to make sure that the difference between surveying and CSB is made clear, the former needing permission (in Denmark) and in their legislation is defined as the systematic collection of data. 	<p>Chair suggested that agreement here was unlikely so a smaller focused group to be formed to work up a definition</p>	<p>focused group to be formed to work up a definition</p>	<p>Chair</p>
INTR3	<p>IHO Statement on CSB – Notion of including NIPPON Foundation/GEBCO Seabed 2030 due to its status as ‘private endeavour’</p> <ul style="list-style-type: none"> - Director SB2030 registered his objection to the notion of SB2030 being a ‘private’ endeavour - EF/GGC Chair wished to note that whilst SB2030 is a private endeavour it has been endorsed by the UN Decade of Ocean Science for Sustainable Development. - IHO/DW made clear the unintended consequences of its inclusion and that it is a subordinate activity to the GEBCO Programme 	<p>Chair proposed to strike the term Private endeavour from the text - Agreed</p>		

INTR7	Purpose and Scope – removal of systematic from relevant text <ul style="list-style-type: none"> - Addition of the term ‘map’ 	Agreed the change		
INTR8	Target Audience – limited text <ul style="list-style-type: none"> - Suggestions on updated text that makes it clear that the guidance is for the contributor/collector, but that it can provide information to potential users - Chair made it clear that supplementary technical data can be provided in supporting documentation outside of B-12 - Chair proposed option 2 which introduces the term Stakeholders - EF suggested that this is too vague - Potential to use contributor and user rather than collector and stakeholder 	Deferred to further review		

Data Contribution Section:

Ref	Key Points	Decisions	Actions	Lead
DCON2	Data Contribution – Removal of IHO text relating to Antarctic Programmes’ ships <ul style="list-style-type: none"> - DW reminded the group that this text was a result of conversations HCA where it was considered that it should be included to distinguish between B-12 and an existing mechanism supported by MS 	Agreed to retain		

DCON4	<p>The Trusted Node Model – Definition of a trusted Node</p> <ul style="list-style-type: none"> - Question over the use of the word systematic to describe a trusted node. - DW proposed the word 'routinely' instead of 'systematically' 	Agreed to use 'Routinely'		
DCON6	<p>The trusted Node Model – Minimal description of what defines a trusted node</p> <ul style="list-style-type: none"> - SM suggested that further detail could be provided as an Annex to the document that deals with how to become a Trusted Node 	Agreed to remove and include into the How to Become a Trusted Node Document.		
DCON14	<p>Entire document – Consistency</p> <ul style="list-style-type: none"> - DW noted that the current suggestion conforms with the UN writing Style Guide, including the capitalisation of the Trusted Node - Chair noted that in many cases, data is referred to as singular when actually it is plural. This will be corrected in the final editorial review 	<p>No capitalisation of crowdsource bathymetry – Agreed</p> <p>Capitalise Trusted Node when a proper noun – Agreed</p> <p>URLS in footnotes - Agreed</p>		
DCON15	<p>Data Contribution – reference of potential users</p> <ul style="list-style-type: none"> - Chair proposed each of the flyers could be used as examples 	Agreed	Appropriate wording to be produced	Section Lead
DCON16	IHO DCDB – Is collector and contributor synonymous?	Agreed but section leads to consider context in making changes	Add clarification to glossary	Section Lead

	<ul style="list-style-type: none"> - It is suggested that since all collectors are contributors, so just use contributors 			
	Replace 'mariners' with 'vessels or other platforms'	Agreed where appropriate		
DCON19	<p>The Trusted Node Model – Inclusion of text relating to how TN acts when data is collected in a nations territorial waters</p> <ul style="list-style-type: none"> - Chair noted that it was unlikely that we would reach consensus, but invited comments - BJ observed that it felt like there is still a difference of understanding on what the role of the Trusted Node is, and what they are expected to do. - DW recalled that no MS had objected to the data being sent to the DCDB where the decision would be made centrally as to what data may need to be removed due to restrictions in waters of national jurisdiction - Conversation followed with multiple views expressed 	Defer for future discussions and possible inclusion in Additional Considerations		
DCON20	The Trusted Node Model – clarity on How to	Defer for future discussions		
DCON23	<p>Overview of CSB Data Flow</p> <p>Steve Keeting offered to help with wording relating to UNCLOS</p>	Defer for future discussions		

DCON24	Overview of CSB Data Flow – addition of text relating to where data is collected in waters of national Jurisdiction	Agreed		
DCON25	<p>Accessing CSB Data – Question over contents of data package e.g. a license.</p> <ul style="list-style-type: none"> - As far as section 1 goes, there are no changes required, however this will be further considered in the additional considerations section 			

1.7 B12 DATA COLLECTION SECTION – Discussion of Proposed Amendments

The session was facilitated and led by TS who went through each of the proposed changes and their status as recorded in the table below. He revisited the drafting plan and outlined the intention to go through the Data Collection and Metadata sections of B-12. He introduced Federica Foglini (FF) as a representative of TSCOM of GEBCO and chair of the Metadata working group and noted the opportunity to share expertise. He reminded the group of the two overriding principles covering this review; these being the focus on the target audience and being equipment agnostic.

Ref	Key Points	Decisions	Actions	Lead
DCOL1	<p>Section 2.2.2 Understanding NMEA 0183</p> <ul style="list-style-type: none"> - Suggested to remove all elements relating to NMEA 	Agreed		
DCOL2	<p>Section 2.1 Systems and sensors</p> <ul style="list-style-type: none"> - Proposal to include new text 	Agreed		
DCOL3	Section 2.1 Systems and sensors	Agreed with addition of link to C-15		

	<ul style="list-style-type: none"> - Proposed new text with specifics of type of sonar or collection system to make document more equipment agnostic - DW suggested that a ref to C15 may be useful to provide a resource for those who may be interested in detail on specific systems - Further suggestion that the ref/link be added as a footnote 			
DCOL4	<p>Section 2.1 Systems and sensors</p> <ul style="list-style-type: none"> - GM questioned the use of the term 'normal' - DW suggested the use of term 'routine' as a replacement - TS noted that once a clearer definition of CSB has been agreed, this may need to be revisited - Andrew Talbot (AT) questioned whether the text was need at all if CSB has been defined earlier in the document. - IHO Sec suggested that this could be reviewed in final editorial review 	Agreed with the insertion of 'routine'		
DCOL5	<p>Section 2.1.2</p> <ul style="list-style-type: none"> - Proposed insertion of text to make it more accurate 	Agreed		
DCOL6	<p>Section 2.1.2</p> <ul style="list-style-type: none"> - Proposed insertion of text to make it more accurate 	Agreed		

DCOL7	2.1.2 Positioning and motion sensor - Proposed renaming of section	Agreed		
DCOL8	2.1.2 Positioning and motion sensor - Added text to make more specific	Agreed		
DCOL9	2.2.1 Data loggers - Proposed new text	Agreed with 'eventually' replaced with 'if available'		
DCOL10	2.2.1 - Insertion of text to remain consistent and reassure potential users that integration with existing systems is possible and easy - DW queried the use of the term 'eventually' and suggested 'potentially' or 'if available'	Agreed with 'eventually' replaced with 'if available'		
DCOL11	2.2.2 Onboard data storage - Proposed insertion of text - AT suggested to remove text relating to detail of the data that needs to be stored and promulgated to remain consistent with edits elsewhere to reduce repetition	Agreed with suggested adjustments		
DCOL12	2.2.2 Onboard data storage - Proposed inserted text to clarify where advice could be sought relating to installation of hardware	Agreed		
DCOL13	2.2.3 Data transfer	Agreed		

	<ul style="list-style-type: none"> - Proposed insertion of text relating the option of transmitting the data to shore as opposed to just direct to a trusted node. 			
DCOL14	<p>2.3.1 Sensor offset</p> <ul style="list-style-type: none"> - Proposed insertion of text relating to vertical offset measurement 	Agreed		
DCOL15	<p>2.3.1 Sensor offset</p> <ul style="list-style-type: none"> - Proposed insertion of text relating to consequence of using a vertical offset between the transducer and the waterline - Suggestion that there may be a need to advise that there is the danger of a double correction where chart plotter is already set to read a waterline depth - A conversation relating to the possible variables that affect draft. It was noted that the group were getting into too much detail and that the document needs to provide clear, easily understandable advice - Georgianna Zelenek (GZ) noted that metadata could be used to capture the characteristics of the particular vessel with reads to variation in draft, offsets etc. - DW suggested that this may be an area where a reference to C-15 or a technical annex could be used 	General agreement but acknowledgment that consideration needs to be given to how the missing technical detail is presented, and how this relates/affects other sections in the document		
DCOL16	Entire document	Agreed with insertions		

	<ul style="list-style-type: none"> - Various elements where consistency issue arise - TS noted that during the final review, remaining issues will be corrected. - DW noted that the Hydrographic Dictionary (S32) should be the first reference when considering the consistency of use of terms and phraseology. 			
DCOL17	<p>Section 2.1</p> <ul style="list-style-type: none"> - Question over merit of referencing guidelines such as those of the IMCA - TS explained that by doing so, we may broaden the exposure to - IHO Sec cautioned about referring guidelines for which the IHO has no oversight or control 	Further discussion with wider group with required		
DCOL18	<p>2.2.1 Data loggers</p> <ul style="list-style-type: none"> - Suggestion of removing text due to potential duplication 	Agreed subject to final review of full document		
DCOL19	<p>2.2.3 Onboard data storage</p> <ul style="list-style-type: none"> - Suggested removal of text to make it less specific 	Agreed subject to final review of full document		
DCOL20	<p>2.2.4 Data transfer</p> <ul style="list-style-type: none"> - Suggested removal of text due to repetition and the introduction of a new concept that has not been defined. 	Agreed		

DCOL21	2.3.1 Sensor offset <ul style="list-style-type: none"> - Proposed new text to make it clear which offset methodology has been used 	Additional text required	Anders Bergstrom to propose additional text	AB
DCOL22	2.3.1 Sensor offset <ul style="list-style-type: none"> - Suggested clarification/discussion of text relating to the detail of offset measurements. - RB suggested that the onus should be on the Trusted Node to provide this advice and support. 	Additional text required	Thierry to draft new text	TS
DCOL23	2.3.1 Sensor offset <ul style="list-style-type: none"> - Suggested clarification of guidance relating to how sensor offsets should be recorded/measured through the provision of a new figure 	Agreed insertion of new figure		

1.8 B-12 DATA & METADATA SECTION – Discussion of Proposed Amendments

Ref	Key Points	Decisions	Actions	Lead
MDAT1	Section 3.2 <ul style="list-style-type: none"> - Proposal of new addition 	Agreed		
MDAT2	Section 3.2.1 Tidal Corrections <ul style="list-style-type: none"> - Proposed refined text to be more clear ref. the format of data 	Agreed		

MDAT3	<p>Section 3.2.3 Sound Speed</p> <ul style="list-style-type: none"> - Proposed new section - DW suggested that the new section is very technical, and the vast majority of potential CSB collectors would have no means of measuring sound speed and therefore may think that they are unable to take part. - General consensus formed that this topic is too complex for mariners - TS suggested that the new section could be added as a subsection under data collection. 	Seek clarification from wider group and those who proposed the text		
MDAT4	<p>Table 1. Required Information Date & Timestamp</p> <ul style="list-style-type: none"> - Proposed new text ref. NMEA RMC String - Brian Calder (BC) raised a concern about whether this was the appropriate NMEA string to extract the time stamp from 	Needs further discussion		
MDAT5	<p>Table 2. Optional Metadata Sensor Type Sounder</p> <ul style="list-style-type: none"> - General suggestion that 'required' may be a better term than 'optional' - A general concern was raised following a long conversation about the need to be clear who the target audience for B 12 is. This issue eclipsed the specific proposed addition. 	Needs further discussion		
MDAT6	Table 3. Trusted Node Metadata	Agreed		

	Proposed removal of reference to commercial companies			
MDAT7	<p>Table 3. Trusted Node Metadata Unique Vessel ID</p> <ul style="list-style-type: none"> - Proposed change to the convention of limiting the prefix to five characters to no limit 	Agreed		
MDAT8	<p>(throughout)</p> <ul style="list-style-type: none"> - Proposed discussion with regard to consistency when referring to types of echo sounders or data collection equipment, especially in light of the need to make the document equipment agnostic. - DW suggested that the Hydrographic Dictionary should be used as the starting reference point - Participants were invited to consider which term should be used from the following options: Sonar, Sounder, Echo-Sounder or Depth Sensor 	No agreement between Sounder or Depth Sensor. To be discussed with wider group		
MDAT9	<p>Table 1. Required Information Date & Timestamp</p> <ul style="list-style-type: none"> - Question over whether text needs to be amended - Current version specifies that the information can be extracted from the NMEA RMC string. - BC highlighted that the RMC string is not issued at the same time as the DBT string, 	Agreed to remove just the portion reading "This can be extracted from the NMEA RMC string."		

	<p>so the timestamp could be considerably different.</p> <ul style="list-style-type: none"> - Proposal is to remove the specification due to the complex nature of the detail 			
MDAT10	<p>Table 2. Optional Metadata Depth Sensor Model</p> <ul style="list-style-type: none"> - Question over whether text relating to the provision of a list of sensor models by Trusted Nodes should be removed - IHO Sec suggest that text should be removed on the basis that it would be difficult to maintain and largely superfluous anyway 	Agreed to remove text "In the future, a list of sounder models may be provided through Trusted Nodes"		
MDAT11	<p>Table 2. Optional Metadata Depth Sensor Frequency</p> <ul style="list-style-type: none"> - Question over whether text relating to the provision of a list of transducer frequencies by Trusted Nodes should be removed - Same reasoning to previous decision 	Agreed to remove text relating to the list of transducer frequencies		
MDAT12	<p>Table 2. Optional Metadata (potential addition)</p> <ul style="list-style-type: none"> - Question over the feasibility of having a metadata field relating to vessels that are known to provide high quality data. - Feeling that this would be difficult to define and potentially politically problematic. - BC suggested that this is something that could be revisited in the future 	Agreed not to include		

MDAT13	<p>Table 2. Optional Metadata (potential addition)</p> <ul style="list-style-type: none"> - Suggestion that data collector should be required to indicate what method they use for assigning time to depth. 	Agreed GZ and BC to propose text and description to be included	Text and description to be developed	GZ/BC
MDAT14	<p>Table 2. Optional Metadata (potential addition)</p> <ul style="list-style-type: none"> - Question as to whether Sound Velocity Value should be added - BC noted that we should be careful to use Sound Speed when rather than sound velocity as it doesn't have a direction. - BC also queried whether it was necessary on the basis that very few collectors would actually record sound Speed. 	Further discussion required		
MDAT15	<p>Table 2. Optional Metadata (potential addition)</p> <ul style="list-style-type: none"> - Question(s) surrounding various issues relating to the pre-processing of data. - IHO-Sec suggested that as the issue is still nascent, it could be deferred for further discussion 	Agreed to defer for future discussion		
MDAT16	<p>Table 2. Optional Metadata Potential additional table</p> <ul style="list-style-type: none"> - Question(s) surrounding various issues relating to the pre-processing of data. - IHO-Sec suggested that as the issue is still nascent, it could be deferred for further discussion 	Agreed to defer for future discussion		

1.9 Discussion of Day 2 Progress

The session was facilitated and led by TS who introduced the process and session. He explained that the discussion would focus on issues where agreement had not been reached, and that if a suggested way forward was forthcoming, a silence procedure would be used where silence from the floor would be taken as meaning consensus had been achieved.

Data Collection Section:

Ref	Key Points	Decisions	Actions	Lead
DCOL3	Section 2.1 Systems and sensors - No comments	Agreed with addition of link to C-15		
DCOL4	Section 2.1 Systems and sensors - No comments	Agreed with the insertion of 'routine' with final check undertaken when full document is reviewed.		
DCOL9	2.2.1 Data loggers - No comments	Agreed with 'eventually' replaced with 'if available'		
DCOL10	2.2.1 - No comments	Agreed with 'eventually' replaced with 'if available'		
DCOL11	2.2.2 Onboard data storage - No comments	Agreed with suggested adjustments		
DCOL14	2.3.1 Sensor offset - No comments	General agreement subject to caveats captured in DCOL14		

DCOL15	2.3.1 Sensor offset - No comments	General agreement but acknowledgment that consideration needs to be given to how the missing technical detail is presented, and how this relates/affects other sections in the document.		
DCOL16	Entire document - No Comments	Agreed with insertions and clarifications as relates to consistency issues		
DCOL17	Section 2.1 - No comments	Need to assess potential value referencing other sources of guidance.		
DCOL18	2.2.1 Data loggers - No comments	Agreed subject to final review of full document		
DCOL19	2.2.3 Onboard data storage - No Comments	Agreed subject to final review of full document		
DCOL20	2.2.4 Data transfer - No Comments	Agreed subject to final review of full document		
DCOL21	2.3.1 Sensor offset - AB provided updated text as per the action (Get from Thierry)	Additional text required (COMPLETE)	Anders Bergstrom to propose additional text	AB
DCOL22	2.3.1 Sensor offset	Additional text required	Thierry to draft new text	TS

	- Thierry provided updated text as per the action (Get from Thierry)	(Complete)		
DCOL23	2.3.1 Sensor offset - No comments	Agreed insertion of new figure		
NA	- MZ made the general observation that we may need to explain why this metadata is important and why we need it so that they feel compelled to do the best that they can.	MZ asked to provide some potential wording to reflect this	Produce wording explaining the importance of collecting metadata relating to offsets	MZ

Metadata Section:

TS and DW introduced Federica Foglini as chair of the GEBCO TSCOM Metadata working group chair, and thanked her for her contribution to the review of this section. FF explained the process we went through and noted that good consensus was found on most topics, therefore focus will be on those where issues remain.

Ref	Key Points	Decisions	Actions	Lead
MDAT3	Section 3.2.3 Sound Speed - No Comments	Seek clarification from wider group and those who proposed the text		
MDAT4	Table 1. Required Information Date & Timestamp - No Comments	Needs further discussion		
MDAT5	Table 2. Optional Metadata Sensor Type Sounder - No Comments	Needs further discussion		
MDAT8	(throughout)	Agreed to use Depth Sensor but with qualification		

	<ul style="list-style-type: none"> - DM suggested that Depth Sensor could be used first in the document but with a footnote to show that this term is interchangeable with the other terms - Proposal to strengthen language by replacing 'optional' with 'recommended' 	Agreed to replace optional with recommended		
MDAT11	Table 2. Optional Metadata Depth Sensor Frequency	Agreed to specify float and KHz sensor Frequency		
MDAT12	Table 2. Optional Metadata (potential addition) <ul style="list-style-type: none"> - Is this a feasible request? - No comments 	Agreed not to include		
MDAT13	Table 2. Optional Metadata (potential addition) <ul style="list-style-type: none"> - Agreement to add time 	Agreed GZ and BC to propose text and description to be included	Text and description to be developed	GZ BC BC
MDAT14	Table 2. Optional Metadata (potential addition) <ul style="list-style-type: none"> - Clarified that sound speed should be used 	Further discussion required		
MDAT15	Table 2. Optional Metadata (potential addition) <ul style="list-style-type: none"> - Question(s) surrounding various issues relating to the pre-processing of data. - IHO-Sec suggested that as the issue is still nascent, it could be deferred for further discussion - Long conversation on data processing and quality tags - DCDB already receive processed data 	Agreed to defer for future discussion		

	<ul style="list-style-type: none"> - BC advocates stating what has been done to the data vice give an indication as to our interpretation of the quality - BC also raise the issue of there being no distinction between raw and processed data and that a clear data lineage should describe what has been done 			
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1.10 B-12 UNCERTAINTY SECTION – Discussion of Proposed Amendments

TS introduced the morning session and introduced Mathieu Rondeau (MR) and Guiseppe Masetti (GM) who led and facilitated the session.

Ref	Key Points	Decisions	Actions	Lead
UNCY1	First recommendation is to rename the section to Data Quality Assessment	No consensus reached		
UNCY2	<p>Early on in the process there was consensus that/to:</p> <ul style="list-style-type: none"> - Reduce the amount of theory content to the bare minimum with a short intro about uncertainty, precision and accuracy concepts - Need to connect uncertainty and data quality (a recommendation of the DQWG), especially the use of vocabulary common to the Mariner (Precision vice Self-Consistency and Accuracy vice Peer-Consistency) - Also to remove content aimed at CSB users 			

UNCY3	<p>Proposed Addition – A data quality report</p> <ul style="list-style-type: none"> - Suggest that the TN or DCDB provides a data quality report - The intent is to stimulate the participation and engagement of contributors - Proposed text: - “The data quality report is a feedback that may be provided in the form of a short and easy to read document to the contributor by the Trusted Node. The report shows to the contributor a resume of the quality of the contributed CSB data based on the metadata evaluation, self consistency and peer consistency assessments.” 			
NA	<ul style="list-style-type: none"> - Edward Hands (EH) supported the notion of the revised section and approach and suggested that it will aid participation if feedback is given. - IHO Sec suggested that this concept should be worked on in parallel to the B12 revision but needs careful consideration and perhaps presentation back to the next full WG. - EF noted that providing feedback is really important, but this feedback should not just cover the quality of the data –how useful the data is with recommendations for improvements is important. - MR re-emphasized the importance of feedback given there is no real mechanism to do this currently 	Additional text to re-emphasise the importance of metadata. EH to produce appropriate wording	Develop wording to re-emphasise the importance of Meta data	MR/GM

	<ul style="list-style-type: none">- SQ raised the concern that the terms self-consistency and peer-consistency are very survey orientated rather than being applicable to the normal operations of CSB contributors- GM In summary suggested that there was consensus for the concept, but that this should be further developed for a potential annex- RB noted that as part of the GBR project, light feedback is routinely given and is an essential component. He also noted that this needs to be done quickly. He showed a screen grab of a 3D view as an example of how he illustrates- HS suggested that developing the relationships with contributors, but she noted that the mechanism for doing this changes depending on who you are working with. Therefore the nature or format of the feedback needs to change/be flexible- Many people noted that the benefit/burden balance on feedback from TN/DCDB needs to be carefully considered- Chair noted that the changes were so significant, that there was obviously more intercessional work required and therefore this should be recommended to the WG for information			
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	<ul style="list-style-type: none"> - EH stated that he would value more time to circulate the document amongst DQWG members. 			
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1.11 B-12 ADDITIONAL CONSIDERATIONS SECTION & ANNEXES – Discussion of Proposed Amendments

The session was introduced and led by the Chair. She remarked that unlike other sections, she was seeking to get consensus on some fairly fundamental changes to the focus and nature of the section, and that following this, the section would be redrafted and submitted to the wider group for endorsement. She suggested that this section requires broad consideration about what it is, where it is included, and whether the detail should be rolled into further sections and documentations.

Ref	Key Points	Decisions	Actions	Lead
NA	<p>The Chair started by posing four overarching questions:</p> <ul style="list-style-type: none"> - Should it be removed? - Should it be moved to another section? - Should it be moved to another document? - Do we need further discussion/advice? <p>The Chair then moved onto some specific considerations.</p>			
NA	<p>Three primary considerations are presented:</p> <ul style="list-style-type: none"> - Mariners proposing to collect bathymetric data as a “<i>passage sounding</i>” activity need to be aware of conditions that may be associated with collecting such environmental information within waters of national jurisdiction; 			

	<ul style="list-style-type: none"> - Those involved in the IHO CSB programme, whether as a data collector, a trusted node or a user, need to be aware of the conditions of the licensing regime under which the bathymetric data will be made available; - Those using data obtained from the IHO DCDB need to consider the nature and the uncertainty of the data and whether it is fit for the purposes intended. - SK stated that the historical reference to passage sounding is valuable, but so too is the mention of the responsibility of vessels over 300GRT to record these data. 			
NA	<ul style="list-style-type: none"> - GM asked whether we are giving due importance to the section. 			
NA	<p>GM asked why the term passage sounding was used rather than CSB?</p> <ul style="list-style-type: none"> - DW suggested that the use of a term that HOs were already familiar with rather than something new like CSB, then they would be more comfortable with embracing the concept and accepting the data for inclusion in their charts - GM suggested that the use of the term passage sounding would likely confuse the reader and we should stick with CSB. 			

	<ul style="list-style-type: none"> - DM disagreed with this suggestion on the basis that this could pose problems with some HOs which was not needed 			
NA	<ul style="list-style-type: none"> - EF noted that reference to GEBCO project should be replaced with GECO programme 	Agreed - GEBCO project should be replaced with GEBCO programme		
ADCN1	<p>Additional Considerations – General Observations</p> <ul style="list-style-type: none"> - Denmark: “additional considerations” needs to be more explicit (and brought back earlier in the document), so that, each targeted audience get a clear understanding of the legal/licensing characteristics. - DCDB: Suggest IHO Secretariat, CSB Chair and Vice Chair review to consider if updates are needed. - PW: Suggest removing this section altogether and integrating text with added-value into the other sections (eg: Introduction?) - DW recalled that there was a strong demand from industry for a clear statement of the legal position be made. However doing so would likely mean that none contributed for fear of litigation. It was accepted that there needed to be some sort of acknowledgement that each coastal state would have their own legal position and that the law of the land in a particular nation would always take primacy and 			

	<p>would therefor need to be considered by the potential contributor. In order to not put a potential participant off, the intent was to present this information as detailed to be considered, but not be all consuming.</p> <ul style="list-style-type: none">- SK noted the importance of the purpose of B-12 and that to should be a confidence building document and therefore it is reasonable to be subtle- BJ asked why the section is scary? She also said it should be a long text but is essentially just a disclaimer.- Chair and DW noted that a disclaimer is already included at the start of the document- DW asked whether SM representing the Superyacht community to comment on how they feel about the content of this section- SM suggested the main consideration of the SY industry is that they are not being tracked and they are not going to be held liable- Chair reflected that whilst there may be opposing views and that some may not understand why it is scary, it is the product of significant engagement over a number of years so the status quo should not be easily dismissed.- A number of participants including the chair noted that the current text and document has already been approved and endorsed			
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	<p>by MS through IRCC. Therefore the focus should be on improving the document rather than wholesale re-writing it.</p> <ul style="list-style-type: none"> - BJ Requested the opportunity to have this discussion with the wider group in the PM to get a full view of the perspectives of MS as to what should be done with the section - Chair agreed to this and explained that this is the intention 	Agreed		
ADCN2	<p>Additional Considerations</p> <p>“Those using data obtained from the IHO DCDB need to consider the nature and the uncertainty of the data and whether it is fit for the purposes intended.”</p> <ul style="list-style-type: none"> - Should be in DCDB Click-wrap use/license agreement. Member States should likely insist that there is one especially if IHO enjoys a level of legal immunity. Lawyers then drill down to the next level. - Licensing etc. could be merged into the DCDB section or removed and added to the Click-wrap agreement. - Various conversations about licensing and the fact that it has not been implemented - GM noted that the wording may need to be updated to reflect the licensing situation 		Action to work on licensing issue and to make proposal to next CSBWG12	DCDB/TNs/Data contributors

	<ul style="list-style-type: none"> - DW noted that the DCDB, as owned and endorsed by MS, has to make data available on a free of charge and without restriction of use. 			
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1.12 Discussion of Day 3 Progress

The Chair Introduced the session and invited MR and GM to provide an update to the work undertaken on the Uncertainty session. She noted that this particular session was potentially not at the same stage as the others, and that the discussion would be really useful in agreeing the next steps. She noted that MR and GM had undertaken a significant review of this section and thanked them for their efforts.

Uncertainty section:

Ref	Key Points	Decisions	Actions	Lead
NA	<ul style="list-style-type: none"> - MR summarized the approach that had been taken - He stated that they had done a comprehensive review of the section which resulted in a re-write which removed much of the detail, connected Uncertainty concepts with DQ terminology - 14 to 5 pages - Proposed addition of a data quality report to be produced by the TN or DCDB - He described the potential methodology that could be used - He asked for approval in principle to progress the two parallel activities 	<ul style="list-style-type: none"> - After a long discussion, it was agreed that more intersessional work was required before the wider group could properly take a view on the proposed changes. It was agreed that this work should be undertaken before the end of the year in an attempt to bring the work on this section back into line with the other sections 		

NA	<ul style="list-style-type: none"> - IHO Sec clarified proposed process of getting the next version of B-12 endorsed. 			
NA	<ul style="list-style-type: none"> - BC urged caution as to losing the detail but agreed that it could live in an ancillary document 			
NA	<ul style="list-style-type: none"> - The central issue of who is B-12 primarily aimed at was revisited. It was agreed it was difficult to move forward without clarity on this point - It was suggested that this is still not fully agreed 			

Additional Considerations:

Ref	Key Points	Decisions	Actions	Lead
NA	<ul style="list-style-type: none"> - Chair introduced the session - She noted she didn't have any specific comments - She wants to look at the big picture - She noted that the title is not perfect 			
NA	<p>She noted the primary intent of the section. Three primary considerations are presented:</p> <ul style="list-style-type: none"> - Mariners proposing to collect bathymetric data as a "<i>passage sounding</i>" activity need to be aware of conditions that may be associated with collecting such environmental information within waters of national jurisdiction; 			

	<ul style="list-style-type: none"> - Those involved in the IHO CSB programme, whether as a data collector, a trusted node or a user, need to be aware of the conditions of the licensing regime under which the bathymetric data will be made available; - Those using data obtained from the IHO DCDB need to consider the nature and the uncertainty of the data and whether it is fit for the purposes intended. 			
NA	<ul style="list-style-type: none"> - DW gave the background to the contents of the section and the rationale to the content. - He thought we need to address the title, but the position in the is correct 			
NA	<p>Chair presented 4 options:</p> <ul style="list-style-type: none"> - Move section to the front - Leave at the end - Remove section, incorporate relevant info into earlier sections - <i>Leave summary at the end AND incorporate relevant information into earlier sections</i> 			
NA	<ul style="list-style-type: none"> - SK thought it probably sits best at the end and asked a clarification of the use of passage soundings and suggested the inclusion of a parenthesis clarifying 'normal operations' to be consistent with CSB elsewhere in the document. 			

	<ul style="list-style-type: none">- JPH stated that it is less about where it sits, much more that why are more HOs not engaged with CSB and is it this part of B12 that needs to be changed?- Chair suggested that the feedback from HOs did not cite B12 as a reason. More commonly other reasons were given.			
NA	<ul style="list-style-type: none">- Chair returned to try and get consensus as to the way ahead:	Option 4 was endorsed as the approach going forward: <i>Leave summary at the end AND incorporate relevant information into earlier sections</i>		