B-12 Guidance on Crowdsourced Bathymetry

Summary of intersessional discussions, decisions made and outstanding topics.

B-12 Guidance on Crowdsourced Bathymetry

Document-wide Edits & Conceptual Changes

Discussion Topics

Topics for Editorial Review Process

Yellow highlight in the document indicates potential areas of inconsistency (or a need to still update)..

1. Queen's English, not American English
   a. Metres, Centre

2. To capitalize or NOT to capitalize?
   - crowdsourced bathymetry, not Crowdsourced Bathymetry
   - Trusted Node, not trusted node
   - Member States and coastal States (“S” should be capitalized)

3. Is data (and metadata) singular? plural? (eg: “These data”, or “this data”)

4. Show websites as footnotes (easier to maintain and update)

5. Use “openly” rather than “freely and publicly”.

Topics for Editorial Review Process

Yellow highlight in the document indicates potential areas of inconsistency (or a need to still update)..

6. Refer to other B-12 “chapters”, not “sections
7. Replace current variety of terms (eg: mariners, contributors, etc) with “CSB data contributor(s)”
8. IHO CSB Initiative:
    a. “Programme” should be replaced with “Initiative”; consider whether “IHO CSB Initiative” should be referenced earlier in document
9. “Depth sensor” - instead of echosounder, echo-sounder, depth sounder, other
10. Do we want to/need to link to all the definitions?
11. How do we acknowledge B-12 document contributors (Annex D)?

B-12 Guidance on Crowdsourced Bathymetry

IHO Statement & Introduction

Discussion Topics

Discussion Topic #1: CSB Definition

From: IHO Statement on Crowdsourced Bathymetry

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

1. CSB is the collection of depth measurements from vessels while engaged in routine maritime operations.
2. CSB is the use and sharing of depth measurements (incidentally) collected from vessels while engaged in routine maritime operations.
3. CSB is the collection and provision of depth and other related measurements from platforms (satellite, aerial, surface or subsurface) while engaging in related operations.
4. CSB is the aggregation, use, and sharing of depth measurements (incidentally) obtained from vessels while engaged in routine maritime operations.

Decisions/Next Steps - Add “sharing”; leave in “standard navigation instruments”; Add suggestions 5-7 and and put to CSBWG for input and consensus.

Discussion Topic #1: CSB Definition cont…

From: IHO Statement on Crowdsourced Bathymetry

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

5. CSB is the collection and sharing of depth measurements collected from vessels while engaged in routine maritime operations
6. CSB is the collection and sharing of depth measurements collected from vessels, using standard navigation instruments, while engaged in routine maritime operations
7. CSB is the aggregation of depth data collected with existing navigation systems during routine operations.

Decisions/Next Steps - Add “sharing”; leave in “standard navigation instruments”; Add suggestions 5-7 and and put to CSBWG for input and consensus.

Discussion Topic #2: New text by IHO SG

International Hydrographic Organization

From: IHO Statement on Crowdsourced Bathymetry

New Text:

The resulting guidance as presented by means of this document has formed the basis for the global uptake of CSB as citizen science in the digital age.

The practical application of B-12 is also fundamental for the conduct of the collaborative Nippon Foundation GEBCO Seabed 2030 Project. As part of the project, simple data loggers are provided to local vessels operating near shore that do not fall under IMO regulations. Aiming to bring together all available bathymetric data to produce the definitive map of the world ocean floor by 2030 and make it available to this project is in full compliance with the targets of the GEBCO Programme.

From the SG: *The scenario has changed however in the interim. SB2030 has now become the status of a recognized project of the Ocean Decade and gains a lot of high level attention by policy makers and media all around the world. I think it would be unwise to ignore this. Therefore I am now of the view we should adopt a phrase explaining GEBCO´s and SB2030 interrelation.*

Discussion Topic #3: Use of the word “not”

Current Text: This document is ***not*** meant to provide advice or recommendations on systematic bathymetric data acquisition and processing, for these the interested reader is invited to consult the IHO C-13 and IHO S-44 6th edition.

Decisions/Next Steps **-** Consensus - keep sentence as is. **ACTION:** IHO to review options to highlight and/or italicize “not”.

Discussion Topic #4: Who are the intended users of B-12?

Current Text: The IHO seeks to inform and guide collectors of crowdsourced bathymetry data.

1. The IHO seeks to reach out to all potential crowdsourced bathymetric data collectors and users and provide them with guidance.
2. The IHO seeks to reach out to all potential crowdsourced bathymetric stakeholders and provide them with guidance.
3. The IHO welcomes the provision of all types of data to improve knowledge for the best possible representation of seabed and the water bottom. IHO seeks to inform and guide collectors of crowdsourced bathymetry data.
4. The IHO seeks to inform and guide all stakeholders of crowdsourced bathymetry data.

Decisions/Next Steps - Add suggestion 4: modify original sentence to change “collectors” to “all stakeholders” and put to CSBWG for input and consensus.

Discussion Topic #5: Description of Ch. 4

Current Text: Chapter Four, “Uncertainty”, delves into data quality issues, and discusses how mariners and end users can better understand the impact of various factors on the reliability of a dataset.

1. **Suggested Text:** "Chapter Four, “Data Quality Assessment”, delves into data quality concepts like uncertainty and data consistency, and discusses how to provide feedback and suggestions to the data contributor for improving future contributions."

Decisions/Next Steps - Put to CSBWG for input and consensus.

B-12 Guidance on Crowdsourced Bathymetry

Chapter 1: Data Contribution

Discussion Topics

Minor Edits - Drafting Team Consensus

(1) **From: 1. Data Contribution to the IHO DCDB**

Original Text: These data will in turn be made freely and publicly available through the IHO DCDB Map Viewer.

Replaced with: These data will in turn be made openly available through the IHO DCDB Map Viewer.

(2) **From: 1.1 IHO Data Centre for Digital Bathymetry**

Original Text: All data hosted by the DCDB on behalf of the IHO are discoverable and accessible online via the IHO DCDB Map Viewer.

Replaced with: All data archived by the DCDB on behalf of the IHO are discoverable and accessible online via the IHO DCDB Map Viewer.

New suggestion: Data archived by the DCDB on behalf of the IHO are discoverable and accessible online via the IHO DCDB Map Viewer.

Decisions/Next Steps - Put to CSBWG for input and consensus.

Minor Edits - Drafting Team Consensus cont'd…

(3) From: 1.2 Overview of CSB Data Flow

Original Text: CSB data, identified as belonging to the high seas (as defined in UNCLOS as "the area"), will be ingested into the DCDB database and made publicly discoverable and accessible without restrictions on its further reuse. When CSB data is collected within a country's jurisdiction, the IHO DCDB receives and redistributes the data in agreement with national legislation and caveats. Figure 1 illustrates possible scenarios that may be applied to contributed data, collected within waters of national jurisdiction, that may include a geographical location checking process and potential subsequent distribution actions.

Replaced with: CSB data identified as being of the seabed and ocean floor beyond the limits of national jurisdiction will be ingested into the DCDB database and made publicly discoverable and accessible without restriction on its use. When CSB data is collected within a country's jurisdiction, the IHO DCDB receives and redistributes the data in a manner that is consistent with national legislation and related caveats as communicated to and via the IHO. Figure 1 illustrates possible scenarios that may be applied to contributed CSB data that is acquired within maritime zones subject to national jurisdiction.

(4) From: 1.2 Overview of CSB Data Flow

Original Text: Further details of which coastal states support the provision of CSB data collected within their waters of national jurisdiction, along with any caveats they have articulated, are available from the IHO website

Replaced with: Further details of which coastal states support the distribution and access…

Minor Edits - Drafting Team Consensus cont'd…

(5) **From: 1.3 The Trusted Node Model**

Original Text: At present, individual data contributors are considered on a case-by-case basis but are encouraged to join an existing Trusted Node if possible.

Replaced with: While individual data contributions may be accepted, CSB data contributors will be encouraged to join an existing Trusted Node if possible.

(6) **From: 1.5 Accessing CSB data**

Original Text: When data retrieval and preparation are complete, the user is notified via email and is provided with a URL where they can retrieve the data package.

Replaced with: When data retrieval and preparation are complete, the user is notified via email and is provided with a URL where they can retrieve the data package. The data package will include the actual geojson and/or csv data files. The CC 1.0 data license will be included in the license field of the metadata. More information on the IHO licensing guidance for CSB data can be found in Chapter 4: Additional Considerations.

Discussion Topic #1: List example users; term “mariners”

From: 1.1 IHO Data Centre for Digital Bathymetry

Original Text: The Centre archives and shares, openly and without restriction, depth data contributed by mariners and others from across the world.

Replaced With: The Centre archives and shares, openly, depth data contributed by vessel owner/operators or their authorized agents from across the world. The contributors of these bathymetric data, like the users, can come from various sectors of the community, such as fishing, commercial shipping, hydrographic offices, recreational boating, super yachts, cruise ships, marine scientific research, marine contractors and others and in the context of this document are referred to as crowdsourced bathymetry (CSB) data contributors.

Decisions/Next Steps

- Consensus
- Replace the current variety of terms being used throughout document (eg: mariners, contributors, …) with “CSB data contributor(s)”
- **New question:** do we need to state “openly” here? The word “open” is in the sentence before.
    - **Decisions/Next Steps - ** Put to CSBWG for input and consensus.

Discussion Topic #2: Suggested Text from Denmark

From: 1.3 The Trusted Node Model

Original Suggestion: *When the CSB data is collected within a Country jurisdiction, Trusted Node must operate in agreement with national legislation and caveats.*

Edited Suggestion**:** *When CSB data is collected within a country's jurisdiction, the Trusted Node should operate in a manner that is consistent with national legislation and related caveats such as (but not necessarily limited to) communicated to and via the IHO.*

Decisions/Next Steps

- **ACTION:** JJ and IHO to review strategies used by other crowdsourced project
- **ACTION:** BJ, JJ, IHO to review via email, create proposal to send to this group before passing to broader working group
- **Question:** Is this the right location for this sentence in the section?
- **Decisions/Next Steps -** Put to CSBWG for input and consensus.

Discussion Topic #3: How to become a Trusted Node is still unclear

Addition of new section: **1.4 Submitting Data as a Trusted Node**

Addition of new supplementary document (Read Ahead Materials): **CSB Data Submission to the IHO DCDB Guidance Documentation_DRAFT.pdf**

Decisions/Next Steps

- Consensus on new section 1.4
- Review and discuss feedback from CSBWG on CSB Data Submission to the **IHO DCDB Guidance Documentation_DRAFT.pdf**
    - Note: Finalization of **IHO DCDB Guidance Documentation_DRAFT.pdf** is not required to complete/approve B-12

Discussion Topic #4: References to DCDB-maintained documents

From: 1.4 Submitting Data as a Trusted Node

DCDB proposes that both (1) *Trusted Node Data Submission Form* and the (2) *CSB Data Submission to the IHO DCDB Guidance Documentation* be made accessible to the reader via a url to the IHO DCDB website and NOT as an Annex to B-12.

Points for discussion:

- Both documents are maintained by the DCDB and will likely require updates and edits in the future.
- The CSBWG will be made aware of substantial edits via email and/or WG meetings
- Member States will be made aware of substantial edits via IHO CL

Discussion Topic #5: Updated Data Access Text

From: 1.5 Accessing CSB Data

Updated text regarding how to extract data from the DCDB viewer and a cloud-hosted point store.

Decisions/Next Steps

- Put to CSBWG for input and consensus.

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Chapter 2: Data Collection

Discussion Topics

Previous edits (globally described, as agreed per CSBWG11)

(1) Focusing on echosounders in broad terms

(2) Maintaining sufficient details (e.g. on optional inertial systems) without frightening the user about complexity

(3) Focus on data collection – not on onboard data management (any details concerning loggers have been removed) and not on data transmission (role of Trusted Nodes are meant to be covered elsewhere in the document)

Discussion Topic #1: Sensor offset – where to detail infos

From: 2.3 Relative location of the sensors

Original Text: If this offset is not automatically integrated, mariners should record their sensor offsets, plus the vertical measurement between the transducer and the waterline, and relay that information to their Trusted Node. .

Replaced With: If this offset is not automatically integrated**, most likely through the configuration options of the echosounder software**, mariners should record their sensor offsets, plus the vertical measurement between the transducer and the waterline, and relay that information to their Trusted Node.

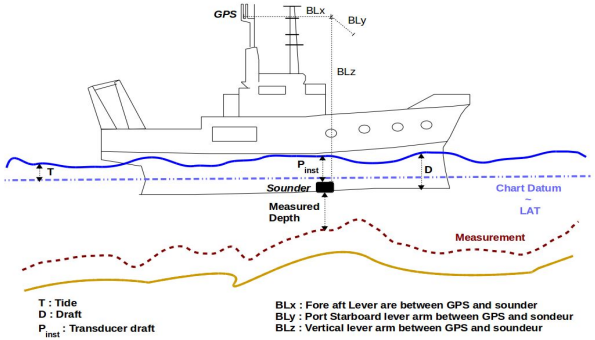
Decisions/Next Steps

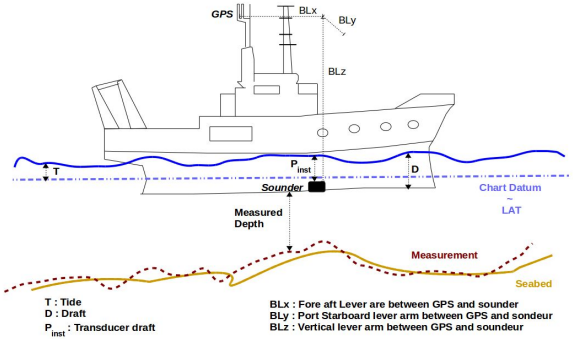
- Consensus

Discussion Topic #2: Sensor offset - effects

From: 2.3 Relative location of the sensor within the acquisition platform frame

Following figures to be added (originating from the uncertainty section) to describe more explicitly the consequences of poor relative measurements of the sensors





Decisions/Next Steps

- Consensus
- Harmonisation of the Figure numbering

Discussion Topic #3: Generalization of sensor offsets concept to more co systems (i.e. Multibeam)

From: 2. Data Collection

Context: Concluding notes of the chapter with the intention to generalize to multibeam system

Proposed text: Note that when using a multibeam echosounder all the above elements remain to be considered. An extra complexity is added because of the angular offsets between the respective reference frames of the sounder, the inertial motion unit and the boat. The calibration of the different angles composing this integrated system can be done through the so-called "patch test calibration" process, which is beyond the scope of this document.

Decisions/Next Steps

- Consensus

IHO International Hydrographic Organization

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Chapter 3: Data & Metadata

Discussion Topics

Minor Edits - Drafting Team Consensus

(1) **From: 3.3 Metadata and Data Formats**

Original Text: “Optional” and “Required”

Replaced with: “Recommended” and “Mandatory”

Discussion Topic #1: Reordering of topics

From: 3.3 Metadata and Data Formats

Suggestion:

- 3.1 Data Vs. Metadata
- 3.2 The Importance of Metadata
- 3.3 Metadata and Data Formats
  - 3.3.1 Mandatory Metadata from Trusted Nodes
  - 3.3.2 Mandatory Data
  - 3.3.3 Recommended Metadata - Vessel Information and Sensor Configuration
  - 3.3.4 Recommended Metadata - Data Processing

Decisions/Next Steps

- Reorganization of Section 3.3 intended to emphasize mandatory fields, consolidate them to the start of the section
- Consensus

Discussion Topic #2: Depth Sensor vs. Sounder

From: 3.1 Data Vs. Metadata, 3.3.2 Mandatory Data
Edition 2.0.3: Primarily uses “sounder”, with additional references to “echo-sounder”

Suggestion 1:

- “Depth sensor” would be the most generic and would require the least maintenance as changes are made in the future

Suggestion 2:

- “Echo Sounder” would be in agreement with S-32 IHO Dictionary

Suggestion 3:

- “Sounder” is frequently used by manufacturers

Decisions/Next Steps

- Drafting team agrees to “depth sensor”, recognizing that this will need to be consistent across all chapters.
- Put to CSBWG for input and consensus.

Discussion Topic #3: CRS of navigation data, vertical reference of depth, and vessel position reference point

From: 3.3.1 Mandatory Metadata from Trusted nodes

Edition 2.0.3: CRS not listed as a metadata field. Vertical Reference of Depth is in optional metadata as “Reference Point for Depth”

Suggestion 1:

- Incorporate these fields into Table 1. Trusted Node Metadata

Suggestion 2:

- Incorporate these fields into Table 2. Mandatory Information

Suggestion 3:

- Incorporate these fields into Table 3. Recommended Metadata - Vessel Information and Sensor Configuration

Decisions/Next Steps

- Consensus
- CRS, VR of depth, and vessel position should all be in mandatory table (suggestion 1)
- Language in table modified to include that “unknown” is an option for vertical portion. “Unknown” is not listed as an option for horizontal.

Discussion Topic #4: Specify vessel's PRP longitudinal and latitudinal geographic coordinates

From: 3.3.2 Mandatory Data

Edition 2.0.3: "The vessel's longitudinal geographic position" and "The vessel's latitudinal geographic position"

Suggestion 1:

- "The vessel's PRP (Position Reference Point) longitudinal geographic coordinate"
- "The vessel's PRP (Position Reference Point) latitudinal geographic coordinate"
- Addition of Vessel Position Reference Point in Section 3.3.1 (see discussion topic #3)

Decisions/Next Steps

- Consensus
- Language modified to "The vessel's PRP (Position Reference Point) longitude" and "The vessel's PRP (Position Reference Point) latitude"

Discussion Topic #5: Creation of generic “sensor description” composite metadata field

From: 3.3.3 Recommended Metadata

Edition 2.0.3: Numerous fields for sensor information including Sensor Type Sounder, Sounder Make, Sounder Model, Sounder Frequency, Sounder Draft, Uncertainty of Draft, and equivalent fields for GNSS. IMU not included.

Suggestion 1:

- Create a single “Sensor Description” composite field that contains type, make, model, and position for the sensor.
- Additional optional information would vary based on sensor and could be outlined in a note beneath Table 3.

Decisions/Next Steps

- Consensus

Discussion Topic #6: Level of Processing

From: 3.3.3 Recommended Metadata
Edition 2.0.3: Not included

Suggestion 1:

- Add "Data Processed" field to Table 3. Recommended Metadata - Vessel Information and Sensor Configuration. Anticipate true/false response. If true, optional fields in section 3.3.4 should be reviewed. If false, information in 3.3.4 is not needed.

Decisions/Next Steps

- Consensus

Discussion Topic #7: Additional Metadata Table for Processing

From: 3.3.4 Recommended Metadata - Data Processing

Edition 2.0.3: Metadata regarding data processing is not incorporated, or is insufficiently captured in Optional Metadata

Suggestion 1:

- Addition of new section 3.3.4 Recommended Metadata - Data Processing. Corresponding Table 4. Recommended Metadata for Processed Data proposed.

Decisions/Next Steps

- Consensus

Discussion Topic #8: Reference Point for Time

From: 3.3.4 Recommended Metadata - Data Processing
Edition 2.0.3: Not included

Suggestion 1:

- Incorporate as a field in the new Table 4: Recommended Metadata for Processed Data
- Propose calling field “Time Stamp Interpolation”

Decisions/Next Steps

- Consensus

Discussion Topic #9: Sound Velocity Value

From: 3.3.3 and 3.3.4
Edition 2.0.3: Not included

Suggestion 1:

- Maintain “Sound Speed Applied” field in the Optional Metadata table, with anticipated true/false response
- If true, specify that providers should review additional metadata fields in the Recommended Metadata - Data Processing table, where the Sound Speed Correction field has been added.

Decisions/Next Steps

- Consensus

Discussion Topic #10: Specification of SI units

From: 3.3, 3.3.3, and 3.3.4

Edition 2.0.3: Some metadata fields (such as depth) specify units should be in meters, but there is no blanket statement

Suggestion 1:

- Add the following to the beginning of 3.3. Metadata and Data Formats:
  - In the metadata description, the International System of Units (SI) should be used, with the allowed addition of knots (nautical miles per hour, specified to be exactly 1.852 km/h, or approximately 0.514 m/s)

Decisions/Next Steps

- Consensus

Discussion Topic #11: New version 3.0 convention needed, potential addition of xyz example

From: 3.3, 3.3.3, and 3.3.4

Edition 2.0.3: Some metadata fields (such as depth) specify units should be in meters, but there is no blanket statement

Suggestion 1:

- Reference convention 3.0 in "convention" field of 3.3.1 Mandatory Metadata from Trusted Nodes
- Use Brian Calder's sample file as a starting point for a new convention 3.0 geojson example in the annex
- Create additional annex demonstrating only mandatory fields in geojson format
- Create additional annex demonstrating xyz format

Decisions/Next Steps

- Consensus
- Include minimal viable versions of xyz and geojson as well as thorough xyz and geojson examples. Stand up outside of B-12 on DCDB website, CSBWG website, and/or github.
- External document "Sample Crowdsourced Bathymetry File Formats for Submission to the IHO Data Center for Digital Bathymetry" created. (see next slide)

Discussion Topic #11: New version 3.0 convention needed, potential addition of xyz example…cont.

Review Read Ahead Materials: **Sample CSB File Formats_DRAFT.pdf**

Feedback

-

Decisions/Next Steps

- Finalization of **Sample CSB File Formats_DRAFT.pdf** is not required to complete/approve B-12.

Discussion Topic #12: Inclusion of Encoding Information

From: 3.3 Metadata and Data Formats
Edition 2.0.3: Not included

Suggestion 1:

- Defer discussion, provide complete example of 3.0 and add references to the annex in Section 3 text
- Consider the creation of a companion document outside B-12

Suggestion 2:

- Expand scope of current edits to incorporate encoding information within Section 3 of B-12

Decisions/Next Steps

- Consensus
- Proceed with Suggestion 1
- Statement added indicating that external document “Sample Crowdsourced Bathymetry File Formats for Submission to the IHO Data Center for Digital Bathymetry” should be reviewed.

Discussion Topic #13: Controlled Vocabulary

From: 3.3 Metadata and Data Formats
Edition 2.0.3: Not included

Suggestion 1:

- Create a companion document outside of B-12. Potentially this could be part of an external "trusted node guide" that incorporates encoding and controlled vocabulary?

Suggestion 2:

- Create annotated version of 3.0 convention that includes detailed comments alongside the sample data and metadata

Decisions/Next Steps

- Consensus
- Defer creation of "encoding guide" that would capture discussion topics 12 and 13

Discussion Topic #14: Data license

Edition 2.0.3: Not currently included

Suggestion 1:

- The data license under which the Trusted Node is providing CSB data to the IHO DCDB should be captured in the metadata. Suggest adding "Data License" field to Table 1. Trusted Node Metadata
  - Description: The Creative Commons public domain dedication under which the Trusted NOde is providing CSB data to the IHO DCDB
  - Example: CCO
- Add the following to Section 3.3.1 text:
  - Note that the Data Field, "Data License", shall list only the Creative Commons 1.0 Universal public domain dedication (CC0). More information on data licensing can be found in Chapter 5: Additional Considerations.

Decisions/Next Steps

- Consensus
- Add a link to the URL pointing to licensing information (https://creativecommons.org/publicdomain/zero/1.0/)
- Accept adding this to mandatory TN metadata
- Language will need to be refined pending conversation in additional considerations chapter. Likely a statement about "policy decision"

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Chapter 4: Data Quality Assessment

Discussion Topics

Discussion Topic #1: Change chapter name

From: 4. Uncertainty

Several reviewers (Canada, Denmark, France, Norway) proposed to **improve chapter readability by refocusing on the contributor**. As part of this refocusing, a change in chapter name was proposed: **"Data Quality Assessment"**

Additional input:

- Brian Calder (BC): *The (hydrographic) community worked for **YEARS to agree on the term "uncertainty"**. I think it would be a very bad error to try to change that now, particularly for a qualitative (no pun intended) term like **"quality"** that is, **to all practical purposes, undefinable**.*
- Denis Hains (DH), supported by MaryRose Sheldon (MRS): *Uncertainty is a great word and should not disappear. But I suggest it is not the place here; the community targeted is broader than hydrographic. **Simplification is always better**. Especially in the context having this **document accessible and for non-expert**.*
- Samuel Harper (SH), Edward Hands (EH) recognize **uncertainty as a major component of Data Quality**. Then use Data Quality.

Decisions/Next Steps

- Consensus during intersessional work.
- Replace the old chapter name in the B12 introduction and other chapters.

Discussion Topic #2: Reduce the error theory part

From: 4.2 Meaning, Sources, and Consequences of Uncertainty

Several reviewers (Canada, Denmark, France, Norway) proposed to **improve chapter readability by refocusing on the contributor**. Thus, **the error theory part was reduced** as well as parts targeting Trusted-Nodes and CSB users were removed.

Additional input:

- EH and DH proposed better wording during intersessional work to highlight/reiterate the **relevance of good metadata**. Accepted during intersessional work and integrated in the current version.
- Acknowledged the **error theory part in the original chapter** that might be made available as a **stand-alone document**.
- Jennifer Jencks (JJ) proposes to **resurrect some paragraphs from the original chapter**. Accepted during intersessional work and integrated in the current version.
- EH proposes some wording to emphasize the importance of CSB and **why people should contribute**. Integrated in the current version.

Decisions/Next Steps

- Consensus during intersessional work.

Discussion Topic #3: Emphasis on data quality/consistency

New part: 4.3 Data Consistency

DQWG recommends an emphasis on data quality and consistency assessment: **all quality assessed data is better than no data**. The definitions of **self-consistency assessment** and **peer-consistency assessment** were added:

- *"Self-consistency: Data should maintain integrity and positional consistency, at least when coming from the same data provider."*
- *"Peer-consistency: Data from different sources should be spatial consistent."*

Additional input:

- Improved the text (both 'self-consistency' and 'peer-consistency' definitions). EH proposed better wording during intersessional work. Accepted and integrated during intersessional work.
- Proposal to add a brief paragraph about **usefulness of CSB** to the nautical chart assessed **using meta quality**? DQWG docs may be a better place to dig into meta quality. The wording provided by EH sufficient to cover this part as well.
- JJ, EH, DH: Identify the potential **entities in charge of the Data Quality Assessment** (considering adding Trusted Node).
- Mathieu Rondeau (MR) and Giuseppe Masetti (GM): Recommend to be **Trusted-Node agnostic** to avoid putting the burden only on TNs. Furthermore, nobody (DCDB/HOs/TNs) seems currently eager to be in charge of DQA.

Decisions/Next Steps

- Consensus during intersessional work.
- Evaluate the addition of references to data quality/consistency in other B12 parts.

Discussion Topic #4: Data Quality Report

New part: 4.4 Data Quality Report

Canada and Denmark propose the addition of a **not-prescriptive data quality report** assessing and reporting data quality of CSB data.
Two aims:
1) Provide feedback to contributors to demonstrate the value of their effort and encourage further submissions.
2) Determine potential for use of contributor submissions (NavWarn, gaps filling, etc.).
Feedback articulated in 3 main sections: overall rating (e.g., from 0 to 100), usability rating and a series of recommendations to increase quality of further submissions.

Additional input:

- Recommended (**not prescribed**) a feedback (i.e., a Data Quality Report) from the Trusted-Node/DCDB/Hos (**voluntarily not explicit in the document**) to the contributors to stimulate the collector's participation and engagement.
- An example is currently provided as annex. The format of the report is **not prescriptive**.
- Stuart Caie (SC) proposed better wording during intersessional work.
- JJ proposes the use of **softer words**. Accepted during intersessional work and integrated in the current version.

Decisions/Next Steps

- Consensus during intersessional work.

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Chapter 5: Additional Considerations

Discussion Topics

Overview

The data licensing text found in the Additional Considerations section was reviewed by NOAA and the IHO as part of the overall review of B-12. In consultation with NOAA legal counsel, US representatives proposed updates to clarify which entities potentially held rights to the CSB data, what permissions the IHO, DCDB, and users needed in those data to meet CSB policy objectives, and what data providers needed to do to provide those permissions.

While proposing these edits to the IHO, US representatives also proposed switching from the CC BY license to the CC0 public domain dedication, to confirm that data providers are relinquishing any potential rights in the data and that there are no restrictions on use.

CC0 still includes a disclaimer of warranty and other legal terms, is one of the Open Knowledge Foundation's recommended comformant licenses, avoids any suggestion that data not eligible for copyright protection is being afforded such status, and eliminates the problem of attribution stacking when integrating multiple datasets.

The IHO Secretary General is in strong agreement of these proposed changes and endorses the suggested updates.

Minor Edits - Drafting Team Consensus

(1)

Original Text: Those using data from the IHO DCDB need to consider the nature and the uncertainty of the data and whether it is fit for the purposes intended

Replaced with: …consider the nature and the quality of the data…

Discussion Topic #1:

Original Text: The following notes, which are not exhaustive, are intended for information only

Suggested Changes:

1. Revise to state: The following informational notes are not exhaustive, and may be updated periodically.
2. Downplay the statement - smaller font, not bold.

Decisions/Next Steps

- Consensus over the importance of stressing that the information is “not exhaustive”.
- **ACTION:** Rephrase covering statement or add text making it clear that this is relevant information as far as authors of B-12 can see, but stakeholders should review other information.
- Put to CSBWG for input and consensus.

Discussion Topic #2: “Passage Sounding”

Original Text: Mariners proposing to collect bathymetric data as a “passage sounding” activity need to be aware of conditions that may be associated with collecting such environmental information within waters of national jurisdiction;

Replaced With: Mariners proposing to record (collect) and share bathymetric data as a CSB activity, should make themselves aware of any relevant local restrictions or considerations, especially as relates to operating within waters subject to national jurisdiction.

Decisions/Next Steps

- Consensus

Discussion Topic #3: Data Licensing

Original Text: The IHO CSB Programme operates under the Creative Commons licensing framework (www.creativecommons.org). Data supplied to the IHO DCDB by vessels, either directly or through Trusted Nodes, is licenced in accordance with the “Attribution 4.0 International” license (CC BY 4.0) (https://creativecommons.org/licenses/by/4.0/), and the “Attribution 3.0 IGO” license (CC BY 3.0 IGO) (https://creativecommons.org/licenses/by/3.0/igo/). The IHO may, in the future, update its selected licenses as the versions and terms of the Creative Commons licenses change. However, the IHO will maintain at least the rights currently provided by the CC BY 4.0 and the CC BY-IGO 3.0 licenses.

Replaced With: Data supplied to the IHO DCDB by vessels, are most often provided through Trusted Nodes, which aggregate such data and ensure necessary permission from vessel owners. However, regardless of whether the data are provided to the IHO DCDB by a Trusted Node or an individual, the data is dedicated to the public domain in accordance with the “Creative Commons Zero” universal public domain dedication (CC0 1.0)[1]. By voluntarily supplying CSB data to the IHO DCDB, the CSB data provider consents to the public release of those data under these terms. The data license will be captured in the metadata and included in the CSB data package downloaded from the DCDB.

Decisions/Next Steps

- Consensus

Discussion Topic #4: Updating data licenses

Current Text: The IHO may, in the future, update its selected licenses as the versions and terms of the Creative Commons licenses change.

Suggested Text: The IHO may, in the future, update its selected licenses as the versions and terms of the Creative Commons licenses change. Publication of any updates to the license in B-12 will be an administrative change to the document, and CSB stakeholders will be notified by IHO Circular Letter and on the DCDB Website.

Decisions/Next Steps

- Added suggested sentence that addresses concern over how the public would be notified of such a reference change.
- Put to CSBWG for input and consensus.

Discussion Topic #5: TN Agreement Form

New Text:

CSB data providers (either as Trusted Nodes or individuals) are expected to acknowledge that by providing their data for inclusion in the IHO DCDB database, they are doing so in good faith and for the purpose of increasing bathymetric knowledge of the world's seas, oceans and waterways. By consenting to the IHO CSB Trusted Node Agreement Form, the Trusted Node agrees that the IHO, and by proxy the IHO DCDB, may use and disseminate their CSB data to the public, and that the public may use and disseminate the data consistent with the licensing framework described above. If the data provider is not a Trusted Node, the IHO will provide a similar agreement form. In no event is the IHO or the IHO DCDB liable to the data provider for third-party use of data provider-provided data.

Points for discussion:

- DK: proposes to make all the new agreements publicly available on the DCDB website
- The IHO will be the signatory and that this will be at Director level
- As a default position, signed agreements will not be freely available to MS, however if a particular situation arises where a MS insists on seeing a signed agreement, the IHO will do our best to gain permission to do this from the other signing party, potentially redacting sensitive parts of personal data and technical content of the agreement if required.

Decisions/Next Steps

- New text put to CSBWG for input and consensus.

B-12 Guidance on Crowdsourced Bathymetry

IHO CSB Trusted Node Agreement Form

Discussion Topics

Discussion Topic #1: “without restrictions”

Original Text: The DCDB archives and shares, openly and without restrictions, depth data contributed by mariners.

Suggestion: The DCDB archives and shares, openly, depth data contributed by mariners.

Additional input:

- DK proposed mentioning national caveats in background; pointed out that there ARE restrictions
- New suggestion matches text in Chapter 1, section 1.1. Do we need to describe restrictions here when they are described in Section C?

Decisions/Next Steps

- Seeking input at CSBWG12

Discussion Topic #2: Reference Documents

Decisions/Next Steps
● The latest edition of B-12 and the new CSB Submission Guidance document will be referenced in the table and include a URL for direct access.

Discussion Topic #3: Current trusted nodes

Decisions/Next Steps
● This form will be presented to current trusted nodes and they will be asked to fill out and sign.