Proposed amendments to IHO document B-12

Submitted by Shom

SUMMARY

Executive Summary: This document provides details on a proposal to review and update document B12 - *Guidance on Crowdsourced Bathymetry*, with the objective to improve its understanding by non-experts

Action to be taken:

Related documents: B12 "Guidance on Crowdsourced Bathymetry" Edition 2.0.3

Introduction/Overview

1. In January 2020, IHO publication B12 - *Guidance on Crowdsourced Bathymetry* - Edition 2.0.3 was made publically available.

2. While this document has been written and edited with caution by a panel of experts originating from the Crowdsourced Bathymetry Working Group (CSBWG), it is felt that some points may require some amendment and review in order to gain in accuracy with the current state of the documentation, but also in order to facilitate the reading for the non-bathymetry expert, at whom this document is mainly intended.

3. From the 14/01/2021 to the 20/02/2021, members of the CSBWG have been asked to provide their feedback.

Discussion

4. The table at Annex A identifies current limitations in Edition 2.0.3. They are classified as Major (relates to precision to be given, rephrasing for better understanding, etc.) or minor (typos, figures updating, etc.).

Recommendations

5. Each of the individual limitations identified in the previous table should be discussed within the CSBWG and corrected or modified accordingly, if necessary.

Action

6. The CSBWG is requested to:

   a. **Note** the information provided;
   b. **Consider and analyse** each item identified in the table at Annex A;

c. **Update** B12 where necessary; and
d. **Take** any other actions, as appropriate.

Annex A - Table of items identified for consideration by the CSBWG.

Reference to the text	Current text	Identified limitation	Level of importance (Major or minor)	Origin
Definition of terms		*"... the collection of single beam-based echosounder depth measurements from vessels ...." or "... the collection of depth measurements from vessels, using single-beam echosounder-based navigation instruments ...." as possible alternatives.* *Note: since the IHO does not consider MBES depth measurements from vessels engaged in routine operations as CSB., Removing MBES data acquisition from the definition of CSB does not mean the IHO should not separately establish a separate framework under which multibeam echosounder-based bathymetry can be acquired during transits and shared, however.*	M	FUGRO
Copyright		Update statement to capture current B-12 Edition number	m	NOAA/DCDB
Introduction		Should reference Seabed 2030	m	NOAA/DCDB
Introduction (section 2: targeted audience)	"...inform and guide collectors **…**"	Should include also "contributors"	m	NOAA/DCDB
Section 1 (Intro)	"through the DCDB CSB web portal"	Change to "through the DCDB Bathymetry Data Viewer" Add Viewer url: maps.ngdc.noaa.gov/viewers/iho_dcdb/ Also, identify if second paragraph, specifically on the Antarctic CSB data is relevant	m	NOAA/DCDB
Section 1.1		Change 1988 to 1990	m	NOAA/DCDB

	The DCDB was established by the IHO in 1988 […] All data hosted by the DCDB is accessible online via interactive web map services.	Change "via interactive web map services" to "via an interactive web map viewer" Update url: maps.ngdc.noaa.gov/viewers/iho_dcdb/		FLIR Systems
Section 1.2	All section on "trusted node"	The concept of trusted node should be refined. It should also be explained how to become a trusted node and how to contact a trusted node when you want to contribute. An improvement could be an on-line publication of available trusted nodes. Change contact email address to: bathydata@iho.int	M	Shom NOAA/DCDB SeaID
Section 1.3	All section	*Entire section and figures* to be updated by DCDB	M	NOAA /DCDB
Section 1.3.2		URL to https://maps.ngdc.noaa.gov/viewers/csb/index.html is not valid but transfer is made from old to new URL. Better to direct to new URL https://maps.ngdc.noaa.gov/viewers/iho_dcdb/.	m	FLIR Systems
Figure 1	Figure 1 includes the former logo of the IHO		m	Shom
Figure 4		View relates to old portal	m	FLIR Systems
Section 2.1.1		Focused	m	NOAA/DCDB
Section 2.1.1.1		Do we need to briefly describe new advancements for single beam technology? Should we add LIDAR?	M	FLIR Systems
Section 2.1.2		Better to only refer to GNSS or other systems like Beidou, Galileo, IRNSS and QZSS has to be mentioned as well. Today GNSS can also provide heading. Maybe that should be mentioned since a valuable input.	m	FLIR Systems
Section 2.1.1.2	"Vessels equipped with multibeam echo-sounders that wish to contribute data to the DCDB's	This sentence seems indicating that the document is solely focusing on single-beam crowdsourced	M	Shom NOAA/DCDB

	established multibeam pipeline should contact the DCDB directly at mb.info@noaa.gov."	bathymetry or/and that the trusted nodes are relevant only for single beam bathymetry. However, it seems relevant also to consider multibeam data (also considering that cruise liner are now being equipped by mulitbeam). Else some other sections should be simplified as they mainly apply to multibeam surveys (e.g. motion sensor)		FUGRO CIDCO
Section 2.1.3	"Vessels that are equipped with a motion sensor should include motion sensor data at the time of data collection in the dataset they send to their Trusted Node, as it can greatly improve the quality of the final dataset."	This comment should be associated with the previous one. It appears to be contradictory with the fact that holders of multibeam data should be redirected to mb.info@noaa.gov an optional provision should be made that, should this data be available, it should be logged as well. Also, angle conventions should be part of the metadata.	M	Shom CIDCO
Section 2.2.2	Section on understanding the NMEA 0183	Do we need a section on NMEA 2000?? NMEA-0183 is also adapted in a IEC standard 61162-1 in cooperation between IEC and NMEA. For SOLAS ships equipment is tested and approved on IEC standards.	M	NOAA/DCDB FLIR
Section 2.2.2.3		It is suggested to provide explicitly examples of existing NMEA recorders	M	FLIR Systems
Section 2.3.1		This offset method is likely the most simple and easy to use. Few ECS manufacturers have however implemented the reference to the GPS sensor I have noticed so hence a work to be done in that area.	M	FLIR Systems
Section 3.2.3 (to be added)	A section on the angular convention should be added	For data loggers who provide motion sensor data, Euler angles conventions should be part of the metadata submitted along with the raw data. This includes the reference frame (Ex:	M	CIDCO

		NED, ENU, etc) and the sign conventions (Ex: roll starboard positive, etc) if applicable.		
Section 4		Chapter 4 describes well Uncertainty with collected data. Probably well thought of and discussed before within the group. My comment is that it is quite comprehensive and not necessary in benefit of our cause to attract individuals to support in data collection since it might deter them from participating when so many things can go wrong and collected data not possible to use. Also we might want to consider separating matters to the Trusted Nodes, users and the collector, not to overload with information. Hence also the need for a quick guide of B-12.	M	FLIR Systems
Section 4, p30	"Similarly, if the sound wave reflects off fish in the water column (Figure 6), or if the echo-sounder captures acoustic noise from other boats in the area, errors (often distinguished as "blunders") could be introduced into the data."	Figure's numbering should be 7	m	Shom
Section 4, p30	Standards for Hydrographic Surveys, 5ed, 2008	Should be updated to the 6th edition	m	Shom DQWG
Section 4.2.3, p33	The Category Zone of Confidence (CATZOC) characteristic of the S-57 Electronic Navigational Chart (ENC) specification is an example of this type of subjective assessment.	The word "subjective" is not appropriate. The CATZOC follows well defined specifications. Classifying the confidence attached to bathymetric data is done through these specifications and metadata. We believe that there might be that a term like qualitative (in opposition to absolute or quantitative) should be more appropriate.	M	Shom

Section 4.2.4.3, p39	"Note that a 10% uncertainty in depth would be very important to known about, but a 10% uncertainty in the uncertainty (i.e., that it is in the range 9-11%) is probably not as important. Therefore, so long as the uncertainty estimate is plausible, and free from blunders as outlined above, the requirements for estimating the uncertainty are not as stringent. This idea can be used to rationalise the effort required to estimate uncertainties to a reasonable level."	The relevance of this paragraph on the uncertainty of the uncertainty for the potential users of the document is not obvious. It should be simplified or removed. Consider more specifically: "Clearly, the "safe" depth depends on the user's needs, and it would be incorrect, and unwise, to report simply the mean depth."	M	Shom DQWG
Section 4.3.3, p42	"A history of user behaviour could also be used to help identify changes in instrumentation"	User "behaviour" should be replaced by provider "behaviour". It is advised to be more explicit what is meant by "behavior" and how the trusted node/DCDB might use it in order to better estimate data uncertainty. Note that the behaviour of the provider could also reflect many other changes (staff, procedures, conditions/geographical areas,…).	M	Shom
Annex A		Add IRNSS and QZSS abbreviations Indian Regional Navigation Satellite System Quasi-Zenith Satellite System Add Beidou to the GNSS list	m	FLIR Systems FUGRO