



SAIHC18 CSB Annual Report 2022



To: Members of the IHO Southern African and Islands Hydrographic Commission (SAIHC)

Subject: **ANNUAL REPORT: CROWD-SOURCED BATHYMETRY (CSB) WITHIN THE SOUTHERN AFRICAN AND ISLANDS HYDROGRAPHIC COMMISSION (SAIHC)**

25th April 2022

BACKGROUND, INTRODUCTION AND PURPOSE

1. In 2014, the IHO initiated a collaborative project to enable mariners to collect “crowd-sourced bathymetry”. The IHO Crowd-Sourced Bathymetry Working Group (CSBWG) was formed and tasked to develop B-12 IHO Guidance on Crowd-sourced Bathymetry that states the IHO’s policy towards, and best practices for, the collection and contribution of CSB. IHO Data Centre for Digital Bathymetry (DCDB) built a data pipeline that allows the public to contribute, and discover and download CSB data via a web-based map viewer interface.

The purpose of this document is to provide a short annual report for the Southern African and Islands Hydrographic Commission (SAIHC), as an output identified at SAIHC17. The report focusses the 11th Crowd-Sourced Bathymetry Working Group (CSBWG11) Meeting Report and notable action items for SAIHC, as well as CSB activities within the SAIHC region.

TERMS OF REFERENCE (TORS)/RULES OF PROCEDURE (ROP)

2. SAIHC recognised the importance for all Member States to communicate and collaborate in support of Seabed 2030 activity. Previously there was no dedicated Point of Contact (POC) within SAIHC for this activity, so the SAIHC MSDIWG was assigned as interim coordinator which was incorporated into the TORS. During SAIHC17 however, South Africa was endorsed as the coordinator for Crowd Sourced Bathymetry/Seabed 2030. As such, minor amendments to the TORS for the SAIHC-MSDIWG have been edited (please note the SAIHC-MSDIWG 2022 Annual Report).

CURRENT STATUS OF CSB WITHIN SAIHC

3. **South Africa**. The SA Navy Hydrographic Office (SANHO) reached an agreement to participate in a trial with the IHO and Seabed 2030 by deploying data loggers in RSA waters, for eventual roll-out to SAIHC. The SANHO, in collaboration with the Institute for Maritime Technology (IMT), commenced with the two part trial in 2020. The trial concept is as follows

- a. **Part 1: Data Collection**: Data collection involves the collection of bathymetry data by means of installing data loggers onboard vessels of opportunity. Seabed 2030 supplied 50 TeamSurv NMEA data loggers to South Africa in 2020. In 2021, a further 50 Yacht Devices Voyage Recorder data loggers was delivered. Once vessel of opportunity partners were identified, IMT conducted technical visits, logger installation, setting to work and initial data processing. The SANHO performs the final checking of rendered data before preserving the data in a central database, where after it is made available to GEBCO/Seabed 2030 community
- b. **Part 2: Data Sharing**: Data sharing is the collection of existing bathymetry data from various sources. This includes but is not limited to existing survey data in the form of bathymetric datasets and gridded products from the survey, exploration and engineering sectors. As per Seabed 2030 recommendations, low density datasets and gridded products with large grid/bin sizes or polygons of areas surveyed/explored where data exists can also be submitted and shared with the SANHO.
- c. **Executing The Trial**: The task of identifying and introducing the concept to local and regional role-players (Part 1 & 2) is ongoing. A total of 28 stakeholders have been identified and approached, of which 23 responded favourably. These included commercial fishing industries, recreational boating (fishing and diving charters), government vessels (SA Navy and research vessels), small scale/subsistence fishing community, private sector and SAIHC Member States.

Thus far, 5 suitable vessels have been identified, feasibility studies conducted, and data loggers installed and set to work onboard the M/V Edinburgh, National Sea Rescue Institute (NSRI) boats, and recreational private boats. The M/V Edinburgh and NSRI boats have submitted data already, with data from the two recreational boats expected by May 2022. In terms of Data Sharing (Part 2), 8 stakeholders providing datasets and gridded products to the SANHO, one stakeholder providing polygons of areas surveyed, and 5 stakeholders provided further contact information only. The data was checked, verified, collated, and submitted to GEBCO in February 2022 (Figure 1).

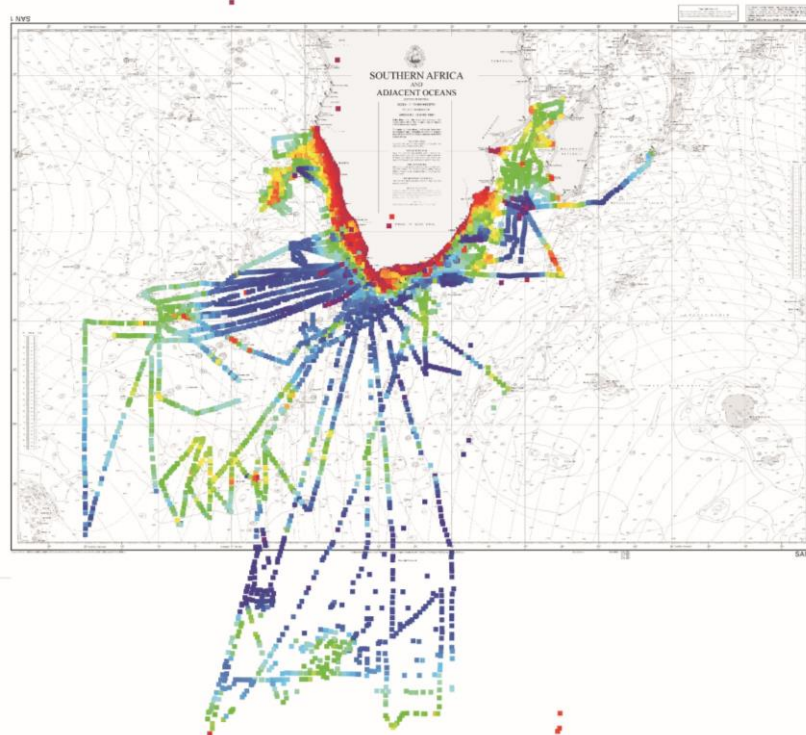


Figure 1.

d. Lessons learnt thus far.

- i. Low/tentative responses from commercial fishing and offshore mining industries. This is driven by concerns over commercially sensitive information but they are trying to overcome this by continuing dialogue to show that data will be in safe custody, as well as developing a showcase model to help demonstrate the benefit.
- ii. Lengthy decision making processes for participation approval makes it difficult to generate and maintain momentum.
- iii. Limited off-the-shelf deployments. Most deployments are performing nearshore operations.
- iv. SAIHC MS not committed to CSB yet.
- v. Data acquisition and processing: variety of sensors presents variety of data formats, especially with TeamServ loggers. Python open source code adaptable to meet individual data string requirements for processing essential data, but at this point there is no “one code for all” solution.
- vi. TeamServ USB reliability: 2/4 TeamServ loggers experienced faulty USB devices, resulting in 2nd M/V Edinburgh deployment data not being recorded. Solution is to replace TeamServ USBs with 16GB commercial off the shelf USB devices.
- vii. Data quality: lack of calibration and sensor synchronisation presenting possible quality issues ito SP-44.

4. **Monaco Explorations - Indian Ocean Expedition.** Monaco Explorations aim to conduct an Indian Ocean Expedition (Figure 2) in 2022, with the Objective to
- a. advise stakeholders through a holistic scientific approach (sustainability science);
 - b. share knowledge through an ambitious outreach programme; and
 - c. mobilize governments by making available information and analyses to support sustainable management of maritime areas.

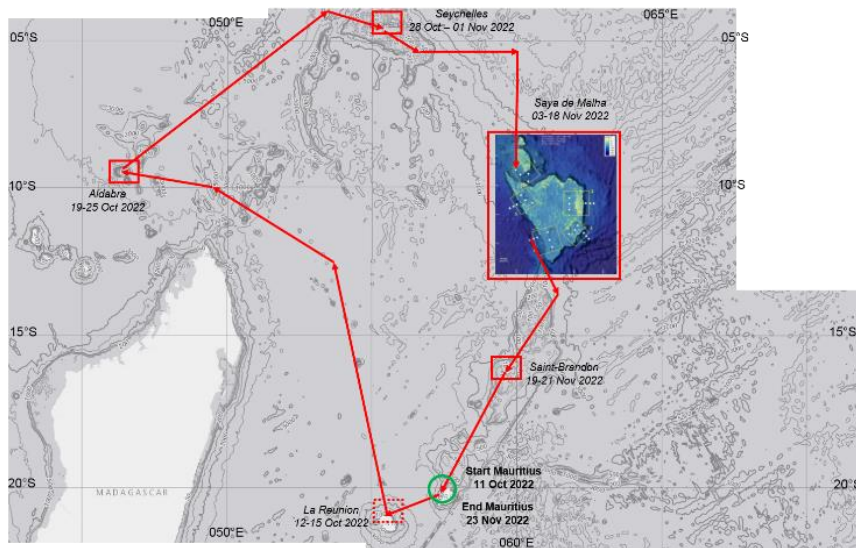


Figure 2.

The SANHO supports the expedition through by assisting with the planning for the collection of bathymetric data as regional Seabed 2030 coordinator, in liaison with the Atlantic and Indian Oceans Regional Center. It is envisaged that survey operations will be conducted with S.A. Agulhas II (deep sea single beam echo sounder).

CURRENT STATUS OF IMPLEMENTATION WITHIN SAIHC

5. Members States are encouraged to report CSB implementation as part of their national report and updates to be included SAIHC8.

IHO CSB ACTIVITIES

5. The IHO-CSBWG11 last met virtually on 14 – 16 September 2021, with an intersessional meeting to review B-12 over the period 7 – 10 March 2022. Key points to note from IHO-CSBWG11 as follows:

- a. The Chair noted that whilst virtual meetings made much of the working groups business much harder, it did afford the opportunity to meet more regularly and to allow wider participation than ordinarily possible. This was reflected in the turnout at CSBWG11, with 40+ participants.

- b. IHO Director Luigi Sinapi emphasised the importance of continued outreach activity, especially through the network of Regional Hydrographic Commission (RHC) CSB/SB2030 Ambassadors.
- c. Encourage all RHC Chairs to bring the IRCC CL 1/2020 to the attention of all coastal states within their respective RHC, encouraging them to offer a positive response, even if qualified, to enable provision of CSB data into the public domain collected from ships within waters subject to their national jurisdiction.
- d. Encourage Member States to release datasets or subsets into the public domain via the IHO DCDB.
- e. Encourage Member States to support the CSB initiative with positive actions, such as requiring all research vessels to collect bathymetric data for late uploading, when on passage or when it does not interfere with other research activities.
- f. CSB/Seabed 2030 RHC Coordinators provided updates and thoughts on CSB related activity in their RHCs, and the CSBWG11 report is to be noted for details.
- g. B-12 Edition 2 went under review during an intersessional meeting (CSBWG12), and Edition 3.0.0 is due for submission to the IRCC for endorsement in June 2022 at IRCC14. From there, the publication will be promulgated to Member States via IRCC Circular Letter, seeking approval for the publication to enter into force.
- h. Notable action items for Member States are as follows:
 - i. IHO website: Check IHO website for documents and information.
 - ii. Circulate presentations, articles and papers on CSB to ensure consistent harmonized message is provided at events to advertise CSB, and identify opportunities to highlight CSB and its uses.
 - iii. Renew efforts to engage with administrations to try and achieve some level of data provision.
 - iv. Provide feedback on DCDB developments to allow further development and to highlight areas that could be improved to enhance the user experience.
 - v. Encourage all RHC Chairs to bring the IRCC CL 1/2020 to the attention of all coastal states within their respective RHC.

TRAINING AND CAPACITY BUILDING REQUIREMENTS AND OPPORTUNITIES

6. There is nothing new to report from a training perspective since SAIHC17. Please provide your training and capacity building requirements relating to CSB, either within the national report update, or through the SAIHC CSB Coordinator at hydrosan@iafrica.com

RELATED MSDI ACTIVITIES AND SUCCESSES

7. The Chair of the IHO CSBWG thanked the SAIHC CSB Coordinator and the SANHO for their leadership in the work done by South Africa in terms of CSB. The Chair recommended that RHC Chairs should consider inviting the SAIHC CSB Coordinator to present the South African CSB project at their next meetings. Evert Flier further advocated the premise of the Primary Charting Authorities working to support the concept of CSB and encouraging the release of data holdings. Jamie McMichael-Phillips, Seabed20203 Director, clarified that Seabed2030 stands ready, through the leadership of the IHO CSBWG, to continue to supply support for trials such as this.

FUTURE INITIATIVES

9. Other than the Monaco Explorations expedition already noted, no other activities have been identified. Please provide your future CSB initiatives and requirements relating to CSB, either within the national report update, or directly through the SAIHC CSB Coordinator at hydrosan@iafrica.com

ACTIONS AND NEXT STEPS FOR SAIHC 18

10. SAIHC18 is invited to:
- a. Note this annual CSB report.
 - b. Consider and update the SAIHC CSB Coordinator on any CSB activity in the SAIHC region.
 - c. Note the action items on all Member States from CSBWG11.
 - d. Offer a positive response to the IHO or IRCC Circular Letters
 - e. States not part of the CSBWG to consider joining and/or attending the CSBWG.
 - f. Report the state of regional and national ocean mapping efforts to the SAIHC SCB Coordinator.