

EMODNet, Crowd Sourced Bathymetry (CSB) and GEBCO/Seabed 2030 Report to the BSHC 30th Conference

Prepared by BSHC CSB and GEBCO/SEABED 2030 Coordinator, Sweden and SMA as Regional EMODNET Bathymetry Coordinator.

1. Status of EMODNET in the BSHC region

All partners have signed the EMODnet Consortium agreement for the project period 2024-2026. As earlier reported Anna Wall at SMA, acts as Project Manager for SMA, as well as regional coordinator for the Baltic Sea region. However, during her parental leave Linn Gardell is her substitute. SMA's responsibility area is the Baltic Sea region, east of 10°E, and in the Baltic Sea part of Denmark and Germany east of 9.4°E.

The EMODnet model has the resolution 1/16 Arc. Min. (115x57.5m at LAT 60deg.). Its unprojected grid often causes extreme amounts of interpolations as Zoning, according to INSPIRE grid specifications, is not used. As an example given the restrictions for bathymetry in Swedish territorial waters, maximum 2 out of 13 EMODnet cells (at 60° Lat) are populated by true soundings and the remaining cells are interpolated. The use of zoning would have meant that we had 1/16 Arc. Min. resolution in Lat and 1/8 Arc. Min. in Long for the Baltic Sea region and a more squareshaped cells 115x135m in the south and 115x93m in the northern part.

2. Performed work

All CDI:s from SMA, for the 2026 delivery, are delivered to SeaDataNet. Updated CDIs will be delivered again, later this year. SMA recently reminded all data providers about the deadline for delivery of their updated and approved DTMs to SMA, which is in January 2026. After SMA has received all data, we will start to work on merging and compiling the Baltic regional DTM. A positive step in our regions data collection is that Poland, who are not a partner within the consortium, contributes with data according to the EMODnet techniques.

3. EMODnet project period

All partners had signed the consortium agreement for the period of 2024 – 2026 in July 2025. The contract includes the possibility for a renewed contract period of 30 months for the period 2027-2029. Full partners from our region is Latvia (MAL), Germany (BSH), Sweden (SMA), and Stockholm University (SU). Denmark (DGA) continues as subcontracted data provider.

The goal is for the regional DTMs to be delivered for the final merging and QC by the end of May 2026 and that the final merged DTM will be published late fall.

4. Status of CSB in the BSHC region

At BSHC29, two actions were decided upon that are relevant to mention here.

ACTION BSHC29/15:

MS to revisit their respective national position on CSB as requested in the IHO-CL 21/2020 and report to Secretariat if changes occur.

To our knowledge, no changes have been made by BSHC-MS to the replies listed as of today. Sweden suggests that the action BSHC29/15 should be changed to a permanent action, as changes to legislations may change over time.

The current status, can be found at <https://iho.int/en/csbwg> under the link named “*Acceptance of CSB Activities and Provision of resultant datasets in Waters Under National Jurisdiction*”

ACTION BSHC29/16:

MS to consider encouraging the national shipping industry to contribute CSB data to IHO-DCDB

Sweden also suggests that action BSHC29/16 should be changed to a permanent action, as contacts with different parts of the shipping industry most likely occurs over time. Information materials and such can be found on this webpage <https://iho.int/en/iho-crowdsourced-bathymetry-initiative>

5. IHO-DCDB

Denmark has tested a methodology for revision of data prior to publication by the DCDB. See action BSHC29/12. A portal is available to assist Coastal States to review new datasets in a more efficient way.

DCDB also reported that they at the time of the meeting (April 2025) was one person short when it comes to the maintenance and development of their databases, and had no possibility of re-employment.

The DCDB is accessible at: <https://www.ncei.noaa.gov/iho-data-centre-digital-bathymetry>. However, they have on the 22 August started an upgrade of their systems and services might be interrupted for a period of several weeks.

6. CSBWG

The IHO Crowd Source Bathymetry Workgroup is a body under IRCC. They normally have one hybrid meeting and one intersessional meeting via VTC per year. Last IRL

meeting was 24-25 March 2025 in Wellington, New Zealand. The BSHC Coordinator from Sweden attended some of the sessions via VTC.

The most important outcomes from the meeting was that the proposed maintenance plan for the IHO B-12 “Guidance to Crowdsourced Bathymetry” was approved and will be put forward to IRCC. Maintenance of the standard is suggested to be managed on the GitHub platform. There is also proposed changes sent to IRCC concerning B-12 Chapter 3.3, and the impact is that DCDB specific information, such as data formats, required metadata, and so forth for inclusion of data into DCDB will be provided on a DCDB managed webpage. This makes it faster to make necessary changes as needed due to technical development, instead of having it in a document that takes more than one year to update.

It was also presented that several organizations have developed tools for their handling of CSB data. See the list below with some of the different toolsets that might be of interest:

CHS (Canada)	have created a set of plug-ins for QGIS
CCOM/UNB	https://github.com/CCOMJHC/OpenVBI
NOOA	https://github.com/anthonyklemm/Crowdsourced_Bathy_Processing
National Oceanographic Centre (UK)	have also developed a number of QGIS plugins for handling bathymetric data that can be useful also for CSB.
	https://plugins.qgis.org/plugins/marinetools/

Next CSBWG intersessional VTC-meeting is planned to be held 14-15 Oct. 2025.

CSBWG17 (IRL) are scheduled for the week commencing 2 March 2026. Location is still to be determined.

The presentations held during the IRCC CSB Workshop (held in April 2024) can still be found at [CSBWG IRCC Workshop 2024 | IHO](#) and brings up many aspects regarding CSB collection.

7. CSB from merchant vessels

At the CSBWG16, it was mentioned that 483 vessels around the world regularly delivers bathymetry from their passages. It was also announced that Carnival Cruises plans to deliver data from all of their 80 ships, and this is expected to be a major contribution to DCDB.

Considering that there are more than 100 000 large merchant vessels globally, the potential to increase the number of data collection is very huge, if more merchant vessels will start to deliver data. All MS are therefore encouraged to raise awareness among commercial vessels about the collection of CSB data.

8. GEBCO

GEBCO gets its main contributions for European waters from EMODNET but in some areas where the EMODNET DTM is based on sparse soundings they sometimes are

combined with CSB, or other obtainable data. They also make use of the CDI (SeaDataNet) metadata available for the majority of the EMODNET region.

GEBCO operates in a close connection to the IHO-DCDB and uses much of its content for their compilations. Another contributor is the OLEX database that has many users around the world providing CSB data. The GEBCO 2025 DTM was just released in August and is, as the earlier, produced in a resolution of 15 arc-seconds (1/4 arc-min). More information regarding the new DTM can be found here: <https://www.gebco.net/data-products-gridded-bathymetry-data/gebco2025-grid>

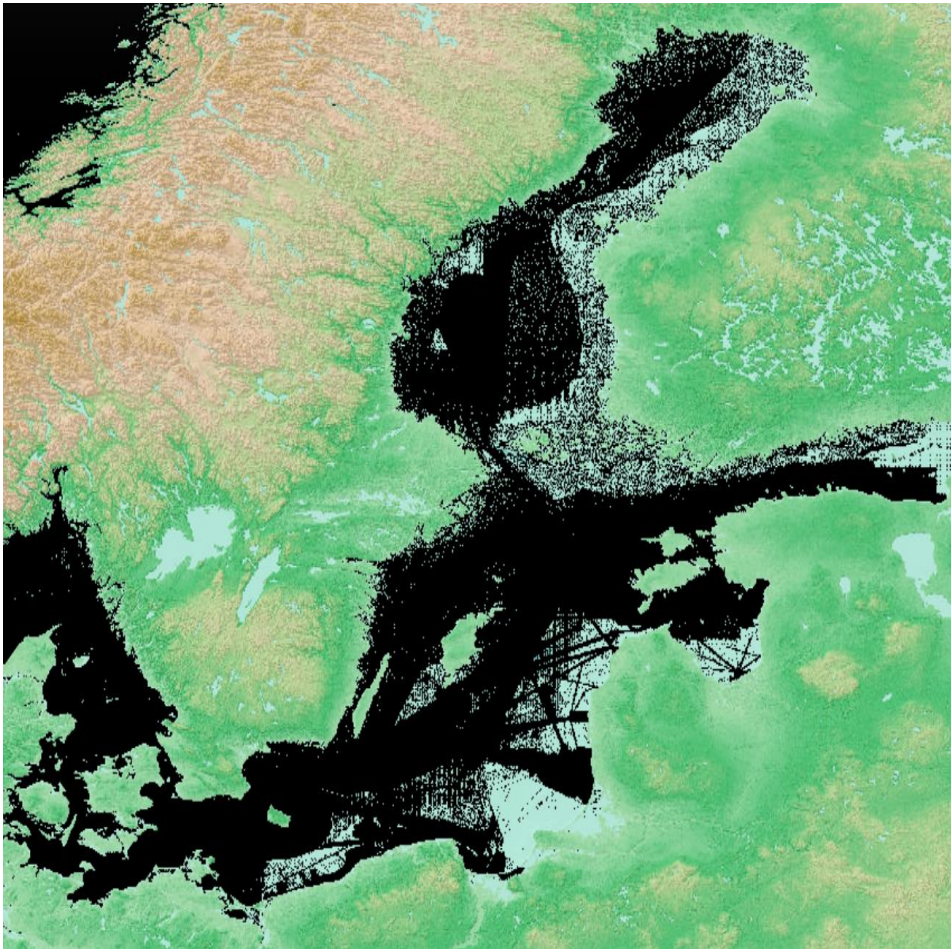
9. Seabed 2030

As there was an ACTION BSHC29/14 *"MS to consider signing the MOU with SEABED 2030 Project and report to BSHC30"* the Commission is encouraged to further discuss this during BSHC30.

The project has presented its result in form of webinars under the name "Map the Gaps Symposium" and the next one is planned to be held in Canada 27-28 October, followed by a meeting of the GEBCO Technical Sub Committee on the 29th. For more information, please visit: <https://www.oceanfloorexplorer.org/>

The recorded sessions from the 2023 (Monaco) symposium are still available on the site <https://www.mapthegaps.org/symposium>.

For the Baltic Sea region, we participate in the work for Seabed 2030 via EMODnet Bathymetry that provide data for inclusion in the GEBCO grid. However, in several places higher resolution data would improve the bathymetric models. The image on next page gives an overview of the data density in the 2025 GEBCO DTM for our region.



Data density for the Baltic Region in the GEBCO 2025 DTM

10. **Actions for the BSHC 30th Conference**

The conference is requested to:

1. Note this report
2. All data providers are requested to note the latest delivery date to SMA, January 2026, for the upcoming delivery.
3. Encourage data deliveries from BSHC-MS that is not partners or subcontractors to EMODnet Bathymetry.
4. Consider signing an MOU with SEABED 2030 Ref: BSHC29/14
5. Consider to change ACTION BSHC29/15 to a permanent action
6. Consider to change ACTION BSHC29/16 to a permanent action
7. Take any further actions as appropriate