



**Minutes**  
**BSHC CDWG13 Meeting**  
**7 September 2021**  
**VTC**

**24 September 2021**

**1. Welcome and formalities**

Chair, Mr Thomas Hammarklint SE, welcomed participants warmly to the Zoom meeting.

Participants presented shortly themselves [Participants CDWG13](#) / [Photo](#). All the member states except Russia and Denmark were present. Several observer and experts joined the meeting.

Mr Lars Jakobsson SE and Mr Witold Stasiak PL were elected as the secretaries for the meeting.

Chair invite to consider the secretary position under agenda item 13.

Chair reviewed [CDWG13 Program](#) of the meeting and the [CDWG13 Agenda](#). Poland proposed one amendment to include in the agenda and was accepted.

**2. Review the work of the CDWG and actions since the last meeting**

Chair gave a short presentation of [Chairman's Report to CDWG13](#). CDWG main mission is to agree about and support the implementation of a common reference level in the Baltic Sea. CDWG have need for communication with many other organizations, shown by the [Roadmap](#). Chair pointed out the importance of geodetic infrastructure for future development. CDWG has been represented in several virtual meetings in other forums since the last CDWG meeting. The common reference level in the Baltic, BSCD2000 is registered in [IHO Geospatial Information Registry](#). An article about the CDWG work and the implementation of the Baltic Sea Chart Datum 2000 has been published in the International Hydrographic Review (IHR) in May 2020, page 63-83, [Link](#).

[CDWG12 Minutes](#) was outlined of Chair. [CDWG12 Photo](#)

[List of Actions CDWG12](#) since the last meeting was reviewed. All actions has been executed.

**3. Outcome of the BSHC 25th Meeting**

Chair commented the [BSHC25 \(2020\) Minutes and the CDWG Report](#) to BSHC25. BSHC25 approved CDWG's [TOR](#) and [Work programme](#) and continues to support gravity measurements. No actions from BSHC25 to CDWG.



#### 4. Review the national implementation plans and the status of implementation

Chair has compiled and presented [CDWG13 Implementation Status Summary](#) largely based on answers to questionnaire and noted that all member states except Denmark have answered the questionnaire and thanked the participants for the contribution. Questionnaire includes e.g. implementation status, time schedules of the implementation, publication plans, rising issues, good practices etc.

Answers to Questionnaire 2021 were received from;  
[Estonia](#) [Finland](#) [Germany](#) [Latvia](#) [Lithuania](#) [Poland](#) [Russia](#) [Sweden](#)

Mrs Gabriela Kotsulim EE presented the [Implementation Status of BSCD2000 in Estonia](#), see overview pages 5-8. All Berthing and Harbour cells are expected to be ready 2021. The plan is to continue with Approach cells, to be ready 2023. Two height system used parallel in the charts, not appreciated by everybody.

Mr Witold Stasiak PL presented the [Implementation Status of BSCD2000 in Poland](#). Actions for Berthing, Harbour and Coastal charts/cells planned to be managed 2021-2023. Corrections have been established between the local vertical datum (Amsterdam NN55) and the EVRF for coastal water stations. Bathymetric measurements collected in the bathymetric database were transferred to the vertical reference system PL-EVFR2007-NH. Gravimetric measurements in Polish waters were completed in 2021.

Mr Jarmo Mäkinen FI presented the [Implementation Status of BSCD2000 in Finland](#). Much focus on preparation and upgrade of different production system until now. Renewing of the depth information is right now going on in Kvarken and the plan is to continue southward later. Many similarities with the Swedish approach. Particularly ENC have been a challenge; how to inform ENC users for the new vertical datum. At the same time with the vertical reform, the chart presentation of the merchant shipping routes will change. Also, information in three languages is challenging/needs additional work. First new charts in BSCD2000 chart datum will be published in the end of this year.

Mrs Anni Montonen FI presented the work regard [change of reference level](#) managed of Finnish meteorological institute (FMI), responsible of sea level and mareographs. Until now the theoretical mean sea level have been used. But from Wednesday next week (September 15, 2021) it will be possible for the user to choose height reference (Mean Sea Level or BSCD2000/N2000). Time schedule; 2021 first chart finished, 2026 all charts completed.

#### 5. Review and update the joint road map, time line and communication plan

The joint road map already presented briefly by Chair under point 2. Chair encouraged all to study the [CDWG RoadMap](#) and [CDWG web page](#) on the web.



## 6. Specification of the Baltic Sea Chart Datum 2000

Chair reviewed shortly the [Baltic Sea Chart Datum 2000 Specification](#) and noted that the published version is approved and available at the CDWG webpage. The specification is though still open for needed amendments in the future. Chair asked Dr Jonas Ågren SE to update Fig. 4b (**Action #1**). It was noted that at this moment there is no need for further amendments.

## 7. Cooperation and communication with BOOS

Chair is representing CDWG in [BOOS](#) (Baltic Operational Oceanographic System) and gave an overview of [BOOS News](#) and current communication with BOOS. Not so many Swedish stations shown in the BOOS portal – Chair will contact BOOS and try to investigate the reason. (**Action #2**)

Dr Jonas Ågren SE raised the question about obvious systematic deviating water level data from Danish stations compared to other stations referring to BSCD2000. Is it possible make a remark that no difference defined to BSCD2000? Chair has, however, earlier received clear statement from Danish responsible authorities claiming that the reference level for the stations are DVR90. Earlier published information indicate that the difference between DVR90 and BSCD2000 should be less than a few cm. Dr Joachim Schwabe DE has a reasonable historical explanation the systematic 15 cm difference in water level data between Bornholm and Simrishamn. Chair will continue to search contact with responsible officials involved in water level measurements (**Action #3**). The conclusion is that it is important to continue engage Denmark in the CDWG work.

Chair also mentioned shortly the need of a smoother solution to handle the water level difference between Norwegian and Swedish waters. There is need to continue the ongoing bilateral dialogue (**Action #4**).

SMHI are responsible today to distribute sea level data from the Baltic Sea to [Copernicus Marine Service](#), which provides open marine data and services from all European Seas.

## 8. Presentations

Mrs Malgorzata Pajak PL and Mr Krzysztof Pырchla PL presented the [Polish marine gravimetry campaign in Southern Baltic](#), divided in three parts 2018-2021. West measurement campaign on the Polish EEZ consists of gravimetry measurements supported with GNSS presented as free-anomali. The centre campaign overlapped several earlier campaigns. The presentation also described height measurements performed by GNSS precise positioning, partly on land including reference points. Together all results constitutes cohesive survey data collected 2018-2021. Dr Jonas Ågren SE asked if any difference analyse has been done with other data. Mr Krzysztof Pырchla PL answered that comparison have been done and shows reasonable result. Mrs Malgorzata Pajak PL invite others to make similar analyses.

Dr Patrick Westfeld DE joined the meeting!

Dr Monika Wilde-Piórko PL with support of Dr Malgorzata Szelachowska PL presented the work with the gravimetric [quasi-geoid models, the current IGiK quasi-geoid and GNSS/levelling](#) in the northern Poland obtained within FAMOS project. The presentation include alignment analyses between different quasi-geoids and analysis of differences between quasi-geoid heights and GNSS/levelling height anomalies. An engage discussion about the presented result ended the presentation.

## 9. Finalization of FAMOS Activity 2 (Baltic geoid)

Dr Joachim Schwabe DE presented the [Status of the FAMOS Finalization of the BSCD2000 Geoid](#), initially with reference to a decision made at CDWG12 and including some proposals for the continuation of the work. FAMOS GravDB v3 was released 1 June 2021 including new data from, for example, late Polish campaign. New data from Lithuania makes a good contribution and great improvements. The analysis indicate good consistency with new Latvian data. The improvement contribution of new data is obvious in the new interim quasi-geoid solutions (based on GravDB v3). Time line:

- Proposed deadline to submit data; December 17, 2021 for the final computations. Confirmation by Russian data desirable.
- Proposed deadline to submit grids; February 28, 2022.
- Decision on BSCD2000 grid at CDWG14.
- Not clear how future management of the geoid should be financed but possibilities to get financing from EU would be desirable and should be investigated.

Dr Jonas Ågren SE propose to involve an expanded NKG (Nordic Commission of Geodesy) around the Baltic.

Dr Jonas Ågren SE and Dr Joachim Schwabe DE express that next step is to compute the height correction surface, etc.

Preliminary analyse result between national land geoid models and preliminary BSCD2000 geoid solutions is encouraging (Dr Joachim Schwabe DE presented extra slides).

Chair raised the question of the time schedule to finalise FAMOS activity 2.

## 10. CDWG TORs

Chair reviewed shortly [CDWG TORs](#) and pointed out that no requests for changes has been presented and encouraged all to study the TORs.

## 11. CDWG Work Programme and future work

Chair reviewed [CDWG WorkProgramme](#) and pointed out that no requests for changes has been presented and the meeting agreed to continue unchanged.

## 12. IHO Specifications and Resolutions

Chair provided information about existing, following IHO specifications and resolutions regarding datums and oceanographic matters. Specially coming IHO standard S-104 Water Level Information for Surface Navigation is relevant for CDWG. A new S-104 version is expected soon. No other comments.

- IHO Resolution 3/1919 [CL10/2017 pdf](#)
- IHO Specification S-104 [Tidal Information for Surface Navigation](#)
- IHO Specification S-111 [Surface Currents](#)

## 13. Any other business

Mr Jyrki Mononen FI was earlier ordinary secretary of the CDWG but has change employment and are no longer a member of CDWG. Chair announced the vacant position as secretary of the CDWG. Chair asks delegates to consider the assignment and mentioned that much work take place around the CDWG meetings.

[CDWG List of Members](#) was reviewed and updated;

- Prof. Artu Ellmann, Estonia and other experts were added to the list
- Mr Jarmo Mäkinen Finland instead of Mrs Janina Tapia Cotrino Finland
- Mr Leonid Shalnov, Russia

Chair reviewed and discussed the list of last and ongoing meetings and conferences:

- BSHC26 meeting, 21-23 September 2021, VTC. Chair will join the meeting as already mentioned.
- NKG meeting, 10-11 March 2020, Reykjavik, Iceland
- BOOS annual meeting, 4-6 November 2020, VTC
- TWCWG6 meeting, 16-18 March 2021, VTC
- NHC65 meeting, 3 April 2021, VTC
- NSHC35 meeting, 27-28 April 2021, VTC
- CDWG13 meeting, 7 September 2021, VTC
- BOOS annual meeting, 24-26 November 2021, VTC

## 14. Review of [CDWG13 List of Actions](#) and unresolved issues of this meeting

Mr Jarmo Mäkinen FI brought up the issue of the nautical charts metadata regarding vertical datum. He mentioned the problem with S-57 standard and VERDAT description, which is usually definite as Mean Sea Level regardless of the datum used.

He considered whether the matter should be referred e.g IHO-ENCWG, hoping the S-100 would solve the problem in the future. When there will be own VERDAT ID for BSHD2000. A discussion followed.

Mr Lars Jakobsson SE consider that information which supports under keel clearance (UKC) management is not supported good enough by ECDIS systems of today's. As the Swedish HO has understood, it is not mandatory to present the reference level in a clear way in ECDIS.



Mr Jarmo Mäkinen FI explains that Finland HO is using M\_NPUB with attribute INFORM to point out clearly the reference level for the user of ECDIS [page 8 in [presentation](#)].

For the future CDWG work, consider that it is an important need to define and specify the reference level clearly for the ECDIS user and to support automated UKC management. All to evaluate the Finnish solution and study S-100 regarding this aspect (**Action #5**). As a conclusion, the Chair made a proposal to add the issue of the VERDAT description as an action for 26<sup>th</sup> BSHC Conference (action see below).

Germany suggested to apply for founding planned for the planned continuation of FAMOS activity 2 (Baltic Geoid) from [Interreg Baltic Sea Program 2021-2027](#) for innovation projects around the Baltic Sea focused on fourth priorities: water smart societies, innovative societies, climate-natural societies and cooperation governance. Dr Patrick Westfeld DE pointed out that FAMOS Finalisation project meets the main goals of the Baltic Sea Region Programme and it is a good idea to apply for funds to support and accelerate works. Dr Monika Wilde-Piórko PL recommended that, in order to increase the chances of a successful application, member states should apply in a common project with as many countries as possible including Russia.

CDWG meeting agreed to have additional meeting for member states or institutions interested in Interreg Baltic Sea Region Programme participation, to discuss the details of the Programme and application options. Dr Joachim Schwabe DE to organize in the end of September or October a separate meeting for interested member states (institutions) regarding Interreg Baltic Sea Region Programme (**Action #6**). Preliminary date 28 September 2021 at 15-17 CET.

### **15. Report to BSHC 26th meeting**

Chair presented the [Chart Datum WG Report to BSHC26](#) for the [BSHC26 \(2021\) meeting](#). It will be a virtual meeting, hosted by Sweden, 21-23 September 2021 and Chair will join the meeting. Considering the comment of Mr Jarmo Mäkinen FI regarding VERDAT metadata and the difficulties to clearly present the vertical datum in ENC/ECDIS, Chair proposed adding the VERDAT issue to the report (**Action #7**). The content of the report was agreed with the participants.

### **16. Next meeting**

Chair proposed to organize a CDWG14 meeting (**Action #8**). Will be organized as physical face-to-face meeting 28-29 March 2023 in Göteborg, Sweden.

### **17. Closing of the meeting**

Chair thanked the participants for fruitful discussions and contribution in the meeting. The meeting was closed September 7, 2021 at 15:00 CET.