



**Minutes of Meeting  
BSHC CDWG14 Meeting  
28-29 March 2023  
Göteborg, Sweden**

**Tuesday 28 March 2023 ([Rosenhill Seamen's Centre](#), Köpenhamngatan 25, Göteborg)**

**Welcome and opening of the meeting**

The meeting started with a warm welcome to Göteborg by Agneta Swenson, Head of the Seamen's Center in Göteborg. She welcomed the participants and provided an introduction to the facilities and the work they are doing at the Seamen's Center.

The participants were then welcomed to the meeting by the Chair. All participants briefly introduced themselves because some participants are new in the working group while others have participated for many years.

Anna Jensen was appointed secretary of the meeting.

The [List of Participants](#) was reviewed. Nikolaj Møller and Timo Saari participated only on day 1 and Johanna Linders only on day 2. [Photo of the Participants](#).

The forwarded [Program](#) and [Agenda](#) were reviewed and both were accepted by the participants.

**Review of the work of the CDWG and actions since CDWG13**

The Chair presented the [Chair's Report](#).

The [List of Actions](#) from the CDWG13 Meeting was reviewed. Most actions are completed since the last meeting. Item 3 and 19 from the list are, however, still open and will be added to the list of action items from this meeting.

[Minutes and Actions](#) from the [27<sup>th</sup> BSHC Conference](#) were reviewed by the Chair.

A new name of the working group was discussed considering the added tasks on work with S-104 and S-111 related to water level and currents respectively.

**Review of the national implementation plans and the status**

Answers to [Questionnaire 2023](#) can be found here: [Summary](#), [Denmark](#), [Estonia](#), [Finland](#), [Germany](#), [Latvia](#), [Lithuania](#), [Poland](#), [Sweden](#)

[Link to PPT](#) - Denmark (Nikolaj Möller): Replies provided in the above mentioned questionnaire are complete. It is pointed out that the sea area around Denmark is divided at Skagen; to the east DVR90 is used as reference surface, and to the west LAT is used as reference surface.

Estonia (Artu Ellmann): Replies provided in the above mentioned questionnaire are complete. It is further noted, that a re-organization has been carried out among government organizations, so the national HO is now part of the Estonia Transport Administration.

[Link to PPT](#) - Finland (Jarmo Mäkinen and Anni Jokiniemi): Replies provided in the above mentioned questionnaire are complete. Further, the N2000 project on a fairways and nautical chart reform which involves also the transition to the BSCD2000 was presented. It is a large workload to renew the depth information, but the time schedule is on track. Water level data is currently provided in both systems on the FMI web site for example, and this will continue until the transition to BSCD2000 is complete. Finally, the ongoing communication effort to end users was also presented.

Germany (Patrick Westfeld): Replies provided in the above mentioned questionnaire are complete. It is pointed out that the transition to BSCD2000 in Germany is complete, and the first chart was published in 2022.

Latvia (Krišs Dzenis): Replies provided in the above mentioned questionnaire are complete. It is further added that new surveys are carried out using the BSCD2000, and new charts are produced in the new system, one by one. Progress can be followed on their web site. Latvia has the same challenges as Finland with a very large effort needed in communication with end users.

Lithuania: Not present, but the above mentioned questionnaire is received and up to date.

[Link to PPT](#) - Poland (Witold Stasiak): Replies provided in the above mentioned questionnaire are complete. It is further added that the first steps were completed, and the first chart in BSCD2000 was published in 2021, but there is still much work to do and it will continue during 2023 and 2024. Information to the maritime user community is ongoing. New marine gravity data is being collected and work is ongoing with acquisition of online water level data.

Sweden (Thomas Hammarklint): Replies provided in the above mentioned questionnaire are complete. It is further added that work with the transition is ongoing, goal is to be finished in 2030. Conversion started from the North in the Baltic Sea and has reached to Stockholm. 44% of all charts converted to BSCD2000 by now. Much work with communication and outreach to the maritime community. Two project applications submitted this spring in order to start testing the implementation of the S-100 products.

## **FAMOS project finalization of Activity 2**

Joachim Schwabe presented the work [Link to PPT](#).

A release note is being prepared in order to describe the method applied and the quality of the BSCD2000 geoid grid. The plan is that the release note shall be published as an article in the IHR (submission until 31 August 2023).

Information was provided, that the „first edition” of the BSCD2000 geoid should be ready for publication in the second part of 2023. There was discussion about publishing the geoid model on the BSHC website and making it available to download to all users. It was suggested, that the project of the BSCD2000 geoid modelling will be continued and new

models can be issued in the future. In that purpose, the database is open for the new gravimetric data.

The presentation raised a discussion around maintenance and distribution of the geoid model. It was also discussed how the model will actually be used by the maritime community.

Since the questions are very complex it was suggested to establish a sub working group to further develop the challenges and possible solutions. Important to remember that this is a matter of a long term commitment. It was suggested that the sub working group should include the same organizations as participated in the FAMOS project, and both geodesists and mariners should be included. It was also pointed out that it is important to include also the Nordic Geodetic Commission (NKG) in the work to avoid having two bodies working on the same topic.

Discussions evolved into keeping the task in the WG (not in a sub group) because it has high importance and it was agreed that Germany (Patrick Westfeld) will take the action of providing a first suggestion on how this can be handled onwards (added as Action #13 to the [List of Actions](#)).

### **S-100 and a 3-D Baltic Geodetic System**

Anna Jensen presented different suggestions for how to deal with the future need for a 3D geodetic reference system in the Baltic Sea [Link to PPT](#).

The presentation raised discussion on the urgency of the need for a 3D geodetic reference system. It was also discussed that it is necessary to be in line with current work of the NKG, and it is necessary to further understand the need for high accuracy (i.e. cm-level) 3D positioning in the middle of the sea and to follow the development in the field of autonomous vessels (MAAS).

Sweden (Anna Jensen) will take the action of presenting a review of these matters at the next meeting of the CDWG.

### **Review of the [Specification of the BSCD2000](#)**

Jonas Ågren presented the last version of the specification.

The document is complete, but the first line on page 4 should be updated.

Given the previous agenda item, the topic of 3D transformations was revisited considering the second last paragraph in the document. Keeping the above discussion in mind, it was agreed that there is no need to change the present text on this topic in the specification.

**Wednesday 29 March 2023 ([Simulator Centre](#), Hörselgången 4, Göteborg)**

### **Guided tour Simulator Centre**

The second day of the meeting started with a guided tour at the Simulator Center in Göteborg. The participants were welcomed by Pilot Andreas Edvall who is responsible for the use of the simulator in the training of sea captains and pilots.

Mr. Edvall provided a very interesting introduction, tour and demonstration of the facilities. He also showed the first results of the use of data on water currents, as provided by the SMHI, in the simulator. The first tests have been carried out for the water flow around one of the locks in Göta Canal close to Trollhättan in Sweden.

The visit at the Simulator Centre was very interesting, and the participants showed appreciation to Mr. Edvall for the introduction and demonstration.

### **Review and update of [Terms of Reference](#) and [Work Programme](#)**

The Chair presented suggestions to additions to the ToR needed after the meeting of the BSHC Strategic Correspondence Group in March.

The meeting discussed the interpretation of the text “coordinate the implementation” [of S-111 and S-104]. This means to analyze and discuss the national differences that may cause challenges in the implementation. Also coordination of time schedules and plans as well as exchange of experiences should be covered.

To point number 4 in the ToR, the text “...to coordinate the finalization of the FAMOS Geoid model” should be revised to include also distribution and maintenance of the geoid model. A suggestion for such text will be circulated within the working group before the BSHC-meeting in September.

Finally, it was discussed that the Monitoring WG should be contacted in order to promote collection of bathymetry data in the Baltic sea with reference to the BSCD2000. Poland (Witold Stasiak) will take the lead on this.

Otherwise, the suggestions from the Chair to the ToR was accepted by the group.

The Chair presented suggestions to changes to the Work Programme. These were accepted by the group with no comments.

### **Review and update of the joint [Road map](#)**

The Chair presented the current road map and it was discussed whether an update was needed in order to include the work with coordination of implementation of S-104 and S-111 into the Road map. No decision was made at the meeting, but Sweden (Anna Jensen) will take an action of reviewing the text and provide suggestions for changes if this is deemed necessary.

## Cooperation and communication with BOOS

The Chair gave a [presentation](#) with introduction and status to the [water level stations around the Baltic Sea](#).

This was followed by a presentation given by Johanna Linders from the SMHI who was invited to the meeting [Link to PPT](#).

## Any other business

The position as permanent CDWG secretary is open. Anna Jensen agreed to help as secretary for one year. The CDWG still needs a permanent secretary, so members are encouraged to consider this before the next meeting.

The [List of Members](#) was reviewed. Some phone numbers were updated and a column with field of expertise was added to the list.

Johanna Linders, SMHI was encouraged to enter the group as an expert, and she agreed to do so.

Given the expanded ToR for the working group (see above), it was discussed how new members/experts/observers from meteorological and oceanographic institutes can be invited to the group to obtain a stronger representation with respect to the new topics related to S-104 and S-111. The Chair will bring this question to the BSHC Strategic Correspondence Group and ask for guidelines on how to proceed with respect to new members.

The [List of Actions](#) and unresolved issues of the meeting was reviewed and revised.

The name of the CDWG was discussed again, and it was concluded to propose the new name to be “Chart Datum, Water level and Currents Working Group (CDWCWG)” with the important addition or subtitle: “To implement a common reference system, S-104 and S-111 in the Baltic Sea”.

The next meeting; [CDWCWG meeting number 1](#), will take place during 26-27 March 2024. Finland will consider to host the next meeting, and if this does not work out, the meeting will be virtual.

The Chair closed the meeting and thanked everybody for the active participation in the meeting.