



Questionnaire to BSHC Member States on their implementation status of the transition to a Harmonised Vertical Reference, Baltic Sea Chart Datum 2000.

Please return to Thomas Hammarklint by email (thomas.hammarklint@sjofartsverket.se) at the latest by **25 January 2019**.

Member state	Germany
Date of reply	28.01.2019
Point of Contact	Dr. Patrick Westfeld patrick.westfeld@bsh.de

1. Are all the decisions done to implement the Baltic Sea Chart Datum 2000?

1.1. When the decisions has been done or planned to be done?

In September 2016, Germany decided to introduce the new national height system DHHN-2016 plus the quasi geoid model GCG-2016. The zero level of DHHN-2016 is in accordance with Amsterdams Peil (NAP), the normal potential is defined by the Geodetic Reference System 1980 (GRS80). DHHN-2016 thus corresponds to EVRS, except for a few centimetres.

The official introduction was decreed in January 2018 and is binding for all institutions coming under the jurisdiction of the German Waterway and Shipping Administration.

1.2. What are the national decisive organizations?

Federal Maritime and Hydrographic Agency (BSH)

What is the national status of implementation of chart datum?

2.1. What actions have already been done?

Together with colleagues from WSV/WSA (Federal Waterways and Shipping Administration) we've discussed the topic "zero point of German gauges in DHHN2016" very intensive in the last year. We agreed on and now pursue the objective to introduce a homogenous chart datum for the Baltic sea based on our national reference frame (ETRS89+DHHN2016). We agreed that (in accordance with the Specification of the Baltic Sea Chart Datum 2000), this chart datum can be called BSCD2000, too.

2.2. What actions have been planned to be executed and what is the schedule?

The next step is to write a paper to inform all employees at WSV about our (internal) decision. For that I need an official document of our CDWG at hand. The step after this is to write another paper to our ministry holding our propose. Once we have a 'go-ahead', a decree will



follow claiming for DHHN2016-values for all Baltic Sea gauges in Germany.

We focus on the introduction of the BSCD to the nautical publications provided by BSH (federation) as soon as possible but need more time to walk through the process described above for the gauges (federal state).

2.3 Which ENC Approach have been updated with the new reference datum? If possible, attach a chart datum overview covering Your countries nautical charts, designed graphically or as a table, updated around January, 2019. Also, if possible, include an attribute to each named chart describing the CD difference to BSCD2000 in cm (CD minus BSCD2000). Example attached at the end of the Questionnaire (Annex).

Implementation pending

3. Has Your country established the national realization of EVRS and are the water level stations connected to this new height system (BSCD2000)?

3.1 Which organization/-s is responsible for the water level stations/data in Your country?

Federal Waterways and Shipping Administration

3.2 Which reference are used today to present water level information? Does Your country planning to present water level information referring to BSCD2000? Doing it already today? Date decided for change the reference to BSCD2000?

See 2.1 and 2.2

3.3 Are there any plans for digital service/-s intended for the users to have the option to choose MSL or BSCD2000 as the reference level for water level information?

Not at the moment.

3.4 GNSS supported UKC control/confirmation is probably the reality in a few years. But we also need reliable water level predictions for carrying out optimal loading and real time water level data to check the GNSS data. Do we need a shared service in the Baltic Sea for water level information (predictions/real-time), that fulfils nautical needs and demands?

Yes, of course, that make sense in my opinion, and I would support this idea.

3.5 Do we need to work together with the development of the IHO S-104 standard?

If we agree on 3.4, than yes.



4. Are the relevant national contacts and interest groups defined for the change of chart datum and water level reference?

4.1. What are the essential national interest groups in Your country?
From user side, all operators using (hydrographic) survey data. From administrative side, primarily the Federal Maritime and Hydrographic Agency, and partly the German Waterway and Shipping Administration and the German Federal Institute.

4.2. Are the relevant point of contacts known and contacts been made to them?

Not really because no relevant changes had to be reported.

4.3 Are You planning any information campaign about the change of chart datum and water level reference? If, yes have you published information about this somewhere?

No, because all Baltic Sea nautical charts and publications provided by BSH refer to DHHN as vertical chart datum. So only legend entry will change to something like 'BSCD2000 (realized by ETRS89, DHHN2016)

5. Have You identified any obstacles or major issues concerning transition to the harmonized vertical reference?

5.1. What are the major obstacles or issues?

No

5.2. What measures has been planned to avoid them?

N/A

6. Connections to neighbouring countries

6.1. Which are the relevant countries to cooperate?

Denmark, Sweden, Poland

6.2. Are the needed points of contacts already known?

Yes for Denmark; we have established an intensive knowledge exchange in the last year.

6.3. What actions have been agreed with the relevant countries (e.g. synchronising plans and schedules)?

DK: Periodic meetings, knowledge exchange, share data from alternative measurement techniques (laser bathymetry, satellite derived bathymetry etc).

7. Are there any needs for support from BSHC?



No

8. Do you have any other proposals or guidance to the CDWG to help and foster the transition process?

It would be very helpful to have an official document of our CDWG at hand. So its time to publish the 'Specification of the BSCD2000' asap 😊

9. Are you using GNSS and GNSS augmentation services for referring to your (bathymetric) surveys to the chart datum?

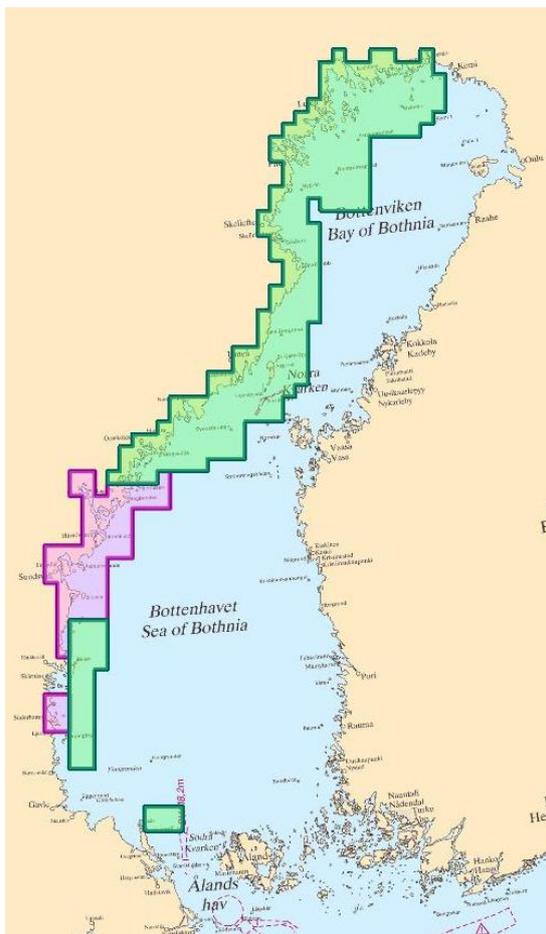
9.1 What GNSS augmentation service is used for hydrographic surveys? (If there are several augmentation services, list all of them.)

SAPOS satellite positioning service of the German land survey authorities

9.2 To which coordinate system, and vertical reference level/frame the GNSS augmentation service is referred to? (If there are several systems in use, list all of them.)

ETRS89 + DHHN2016

Annex



Example of ENC Approach from Sweden: **Green** cells are referring to the new chart datum BSCD2000, **purple** cells are ongoing adjustments to BSCD2000 and the rest of the cells refer to various Mean Sea Level.