



## Questionnaire to BSHC Member States on their implementation status of the transition to a Harmonised Vertical Reference, Baltic Sea Chart Datum 2000 (BSCD2000).

Please return to Thomas Hammarklint by email ([thomas.hammarklint@sjofartsverket.se](mailto:thomas.hammarklint@sjofartsverket.se)) at the latest by **21 February 2020**.

Member state	Germany
Date of reply	12.02.2020
Point of Contact	BSH, Dr. Patrick Westfeld, <a href="mailto:patrick.westfeld@bsh.de">patrick.westfeld@bsh.de</a>

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

*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. These deviations are far below the accuracy statements in the BSCD2000 definition paper and the uncertainty of the upcoming BSCD2000 quasigeoid model.*

*In accordance with the technical guideline, which specifies the requirements for the implementation of legal measures from the Federal Georeference Data Act (Bundesgeoreferenzdatengesetz), the nautical sea chart datum for the Baltic Sea is equivalent to the German height system. The introduction of the designation "BSCD2000 (realized by ETRS89/DHHN-2016)" as chart datum for the German Baltic Sea is thus the next logical step.*

#### 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 (Federal Waterways and Shipping Administration) 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 final coordination between WSV and BSH is currently taking place. After that, BSH focuses on the introduction of BSCD2000 as new designation for chart datum specification in the nautical publications provided. WSV needs to transform or better resurvey all gauge reference points with respect to DHHN-2016.*

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 is 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 (WSV)*

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?

*Today, water level information are provided with respect to mean sea level (MSL), which is in the German Baltic Sea coast close to EVRS2007. In mean, absolute height differences of 479.57mm occur (abs min 26.34mm, abs max 162.73mm). Germany will provide water level information with respect to DHHN-2016, and thus with respect to BSCD2000, in future (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?

*Yes.*

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?**

*No.*

5.1. What are the major obstacles or issues?

5.2. What measures has been planned to avoid them?

**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.*

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?**

*No.*

**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 and commercial PPP services.*

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*