



Questionnaire to BSHC Member States on the implementation status of Baltic Sea Chart Datum 2000 (BSCD2000), S-104 Water Level and S-111 Surface Currents

Member state	Poland
Date of reply	2024-03-12
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1. Are all the decisions done to implement the Baltic Sea Chart Datum 2000?

- 1.1. When the decisions have been done or planned to be done?
A written decision was issued by HOPN in July 2021 – *Guidelines and timetable for the implementation of BCD2000 (PL-EVRF2007-NH)*.
- 1.2. What are the national decisive organizations?
Head Office of Geodesy and Cartography (Główny Urząd Geodezji i Kartografii),
Hydrographic Office of the Polish Navy (Biuro Hydrograficzne Marynarki Wojennej).

2. What is the national status of implementation of chart datum?

- 2.1. What actions have already been done?
- corrections have been established between the local vertical datum (Amsterdam NN₅₅) and the EVRF for the costal water stations,
 - bathymetric measurements collected in the bathymetric database were transferred to the vertical reference system BSCD2000 (PL-EVFR2007-NH),
 - gravimetric measurements in Polish waters were completed,
 - information campaign about a new chart datum was carried out in Notice to Mariners (No 38/2021, No 39/2021).
- 2.2. What actions have been planned to be executed and what is the schedule?
- March/April 2024: additional information in the *Sailing Directions for Polish Waters* regarding corrections between Amsterdam NN₅₅ and BSCD2000; guidelines to get readings from water stations (tide gauges) in the BSCD2000; information about the mean sea level in major harbours in the BSCD2000 vertical reference system.
 - June 2024: new edition of *Guidelines for the hydrographic surveys on Polish waters* with decision on recommended quasi geoid (PL-EVRF2021 / BSCD2000).
 - August/September 2024: three days gravimetric campaign on Polish waters (continuation of surveys conducted in 2021 and 2022).
- 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. 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).

Charts converted in 2021/2022/2023/2024 to BSCD2000 (PL-EVRF2007-NH):
2021:

No	Paper chart No	ENC No	correction [cm] to BSCD2000	other info.
1.	No 41	PL4MAP41	-6.3	approach band
2.	No 59	no ENC equivalent	-8.5	approach band

2022:

No	Paper chart No	ENC	correction [cm] to BSCD2000	other info.
3.	No 16	PL5GDYNA	-8.7	harbour band
4.	No 19	PL5SWINO	-8.5	harbour band
5.	No 42	no ENC equivalent	-6.3	approach band
6.	No 45	ENC PL4P3030	-6.3	approach band
7.	No 46	ENC PL4MAP36	-8.5	approach band
8.	No 47	ENC PL4MAP37	-6.6	approach band
9.	No 48	ENC PL4MAP38	-1.8	approach band
10.	No 56	ENC PL4MAP56	-9.6	approach band
11.	No 57	ENC PL4MAP57	-9.8	approach band

2023:

No	Paper chart No	ENC	correction [cm] to BSCD2000	other info.
12.	No 18	PL5SZCZE	-1.8	harbour band
13.	No 74	no ENC equivalent	-8.5	approach band
14.	No 39	PL4MAP39	-8.5	approach band
15.	No 154	no ENC equivalent	-8.5	coastal band
16.	No 17	PL5GDANS	-6.3	harbour band
17.	No 44	no ENC equivalent	-8.7	approach band
18.	No 11	no ENC equivalent	-6.3	harbour band
19.	No 23	no ENC equivalent	-6.3	harbour band
20.	No 71	no ENC equivalent	-6.6	approach band
21.	No 52	PL4MAP52	-5.6	approach band
22.	No 73	no ENC equivalent	-6.6	approach band
23.	No 151	no ENC equivalent	-5.6	coastal band

2024:

No	Paper chart No	ENC No	correction [cm] to BSCD2000	other info.
24.	No 53	ENC PL4MAP53	-8.7	approach band
25.	No 54	ENC PL4MAP54	-8.6	approach band

2.4 If you implemented the attribute VERDAT in S-57 (ENC), are You using VERDAT=3 (Mean Sea Level)?

VERDAT=3 is used in all PL ENCs.



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?

Institute of Meteorology and Water Management (IMGW-PIB).

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?

Readings from the coastal water stations are presented in the local vertical reference system Amsterdam NN₅₅.

No information about the IMGW plans to present the data.

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?

N/N

3.4 GNSS supported UKC control/confirmation is probably the reality in a few years. 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), which fulfils nautical needs and demands?

Online, shared service would be very helpful to monitor situation on Baltic waters and for the safety of navigation.

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

Exchange the experience would be helpful.

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?

Maritime Offices (Gdynia, Szczecin), Harbour Authority, hydrographic and dredging companies.

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?



Information on the new chart datum was published in 2021 in Notice to Mariners issued by HOPN. More information will be published in 2024 on the HOPN website and in *Sailing Directions*.

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?

The main difficulty is the time necessary to prepare new editions on nautical charts in BSCD2000 and limitation in human resources.

5.2. What measures has been planned to avoid them?

Maintaining the time limits of the approved plan.

6. Connections to neighbouring countries

6.1. Which are the relevant countries to cooperate?

No cooperation in that matter.

6.2. Are the needed points of contacts already known?

Not required.

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

No actions.

7. Are there any needs for support from BSHC?

Not required.

8. Do you have any other proposals or guidance to the CDWCWG 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.)

Examples of GNSS services available on the Polish coast:

- ASG-EUPOS (free of charge GPS RTK),
- GPS RTK (Gulf of Gdańsk - local FM radio),
- SmartNet Poland (GPS RTK),
- TPI Netpro (GPS RTK),
- VRSNet (GPS RTK).



- 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.)

ETRS-89 (GRS-80h),
PL-EVRF2007-NH.

- 9.3 Does your HO require, in-house or procured, that Hydrographic survey system shall be prepared to be able to measuring the GNSS-height and refer the depth to the geoid?

Measuring the GNSS-height during hydrographic projects is recommended for the National Hydrographic Service (primary positioning method), but it is not required under current regulations.

- 9.4 Do you discuss within your HO the need of an altimetric measured Mean Sea Surface (MSS)? (For example, in order to support hydrodynamic models, shipping and / or adjust existing depth data)?

This topic is not discussed.

- 9.5 Has your HO assessed the need for dynamic geodetic reference systems (time-dependent transformation relationship) between primarily national and global reference frames?

This matter is not considered.

10. What is the national status of the implementation of IHO S-104 Water Level and S-111 Surface Currents?

- 10.1 What actions have already been done?

- project teams responsible for the implementation were defined,
- cooperation with the Institute of Meteorology and Water Management was established,
- an arrangement was concluded (February 2024) with the Institute of Oceanology of the Polish Academy of Sciences to provide data regarding water levels and surface currents (models),

- 10.2 What actions have been planned to be executed and what is the schedule?

- flow and data testing,

- 10.3 Are all the decisions done to implement S-104 and S-111?

- NO.

- 10.4 When the decisions have been done or planned to be done?

- 2024: decision regarding source of water level data, surface current data, production (support) software and promulgation system shall be done,

- 10.5 Which organization/-s is responsible for observed and modelled/ forecasted water level (Refer to 3.1) and currents in Your country?

Institute of Meteorology and Water Management.



10.6 How is Your country represented in the IHO Tides, Water Level and Currents Working Group (TWCWG)?

PL has no representation in the IHO Tides, Water Level and Currents Working Group (TWCWG)



BSHC CDWCWG

Hydrographic Office of the Polish Navy

Annex

Implementation progress of BSCD2000 on PL waters (approach band only).

March 2024: for 33 total nautical charts on PL waters (harbour, approach, coastal and general band), 25 charts are referred to BSCD2000 (76%).

