Maritime Administration of Latvia
Hydrographic Office

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

*Please return to Thomas Hammarklint by email (thomas.hammarklint@sjofartsverket.se) at the latest by **15 March 2025**.*

Member state	LATVIA
Date of reply	2025-03-06
Point of Contact	Bruno Spels, MAL, bruno.spels@lhd.lv

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?

All decisions have been done in Year 2020 and all nautical charts are in BSCD 2000.

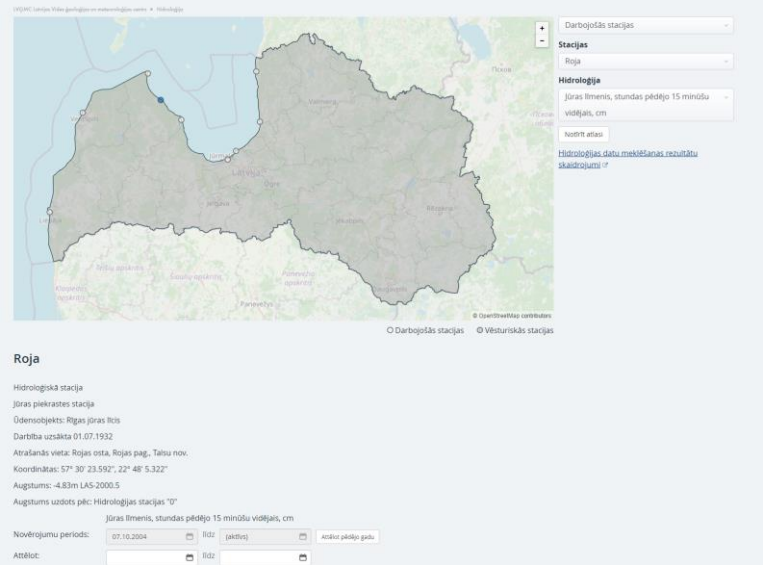
1.2. What are the national decisive organizations?

Latvian Geospatial Information Agency,
Maritime Administration of Latvia,
Ministry of Defence,
Latvian Environment, Geology and Meteorology Centre (LVGMC)

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

2.1. What actions have already been done?

- All new hydrographic surveys started 2021 or later refer to BSCD2000.
- The depths database including old scanned navigation charts and survey plans was cloned and transformed to the Latvian realisation LAS-2000.5 of the BSCD2000 at the end of 2020.
- Since 2024 all Latvian Sea Level station information operated by LVGMC is provided in Latvian realisation LAS-2000.5 of the BSCD2000 solely. Users can calculate to old chart datum themselves knowing the difference of each station
- Chart datum BSCD2000 is fully implemented.

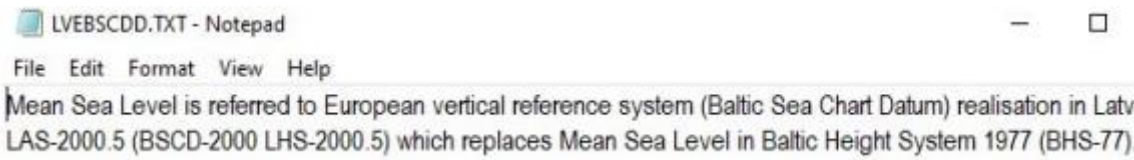


2.2. What actions have been planned to be executed and what is the schedule?

- All Paper Charts of Latvia are already implemented to BSCD, LAS-2000,5 since 24.01.2024
- All approach and other scale band ENC's are implemented to BSCD, LAS-2000,5.
- Further planned actions are to continue production in BSCD, LAS-2000,5 and to implement it into S-100 standard.

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).

- All approach and other scale band ENC's are implemented to BSCD, LAS-2000,5.



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

Yes

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?

"Latvian Environment, Geology and Meteorology Centre"
https://videscentrs.lvgmc.lv/lapas/vsia-latvijas-vides-geologijas-unmeteorologijas-centrs

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?

LAS-2000,5 (EVRF2007 epoch 2000,0)

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?

Information about each water level station zero values are given in LAS-2000,5 (EVRF2007 epoch 2000,0) that is referred as MSL

Roja

Hidroloģiskā stacija

Jūras piekrastes stacija

Ūdensobjekts: Rīgas jūras līcis

Darbība uzsākta 01.07.1932

Atrašanās vieta: Rojas osta, Rojas pag., Talsu nov.

Koordinātas: 57° 30' 23.592", 22° 48' 5.322"

Augstums: -4.83m LAS-2000.5

Augstums uzdots pēc: Hidroloģijas stacijas "0"

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?

Yes

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

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?

Marine related organizations (ports, etc.)

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?

Mariners are informed via products and publications such as nautical charts and Notices to Mariners about the reference system that is used in new – just released chart edition. Explanatory works with ports and other interest groups have been done and now all interest groups have accepted the transition of CD

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 reliable gravimetry and geoid model data for Baltic sea territory of Latvia.
- Information to the users about the transition to the chart datum Baltic Sea Chart Datum 2000 (BSCD2000) was a major challenge and created misunderstandings but in recent years due to explanatory works those misunderstandings have decreased.

5.2. What measures has been planned to avoid them?

- We are keen to receive new data from gravimetric surveys in Latvian territorial waters that was performed in 2023.
- To keep end users informed about transition

6. Connections to neighbouring countries

6.1. Which are the relevant countries to cooperate?

Estonia, Lithuania, Sweden.

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)?

There is no synchronising done in regards to time schedule. It is up to each and every member state to implement the agreed vertical reference system (EVRS) and reference level. All steps towards EVRS will improve the existing situation.

7. Are there any needs for support from BSHC?

Support not needed yet, only to continue information exchange between members about updates of the implementation.

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?

In areas with acceptable coverage we are using GNSS with RTK corrections LATPOS Network RTK service provided by Latvian Geospatial Information Agency (LGIA). In areas in open sea with poor coverage or where the height component is inadequate we only use the horizontal component from RTK or SBAS DGPS. Depths are then corrected by tide models 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.)

EGNOS SBAS DGPS, LATPOS Network RTK service provided by Latvian Geospatial Information Agency (LGIA)

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.)

WGS84 Most surveys are made in UTM34N. We use Mean Sea Level (BSCD, LAS-2000,5) height reference system now. Any other transformations, if necessary, usually are done during post processing.

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?

Technically we are prepared to measure the GNSS-height and refer the depth to the geoid? Problem is reliable geoid model for Latvian waters in the Baltic Sea.

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)?

Not for now.

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

It might be necessary in the future. There are implementation in process of new coordinate system of Latvia prepared by LGIA (LKS2020) that is planned to be both static and dynamic.

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?

- Necessary organisations that are responsible of water level and surface currents and points of contact are deliberated for further actions
- Meeting with LVGMC officials has been held about S-104 and S-111

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

- Maintain cooperation with organisations that are responsible of S-104 and S-111 data
- Make an agreements with them of data providing model and other issues regards to this
- Prepare and provide data according agreements and to S-100 standards

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

No, we will investigate this in 2024-2025.

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

First, we will investigate this in 2024-2025 and then take the decisions.

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

"Latvian Environment, Geology and Meteorology Centre" (LVGMC) https://videscentrs.lvgmc.lv/lapas/vsia-latvijas-vides-geologijas-unmeteorologijas-centrs is responsible for water level.

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

LV are not represented.

Annex

PIEEJAS ENC KARŠU SHĒMA / APPROACH ENC (USAGE 4) OVERVIEW

All Paper Charts since 24.01.2024. are implemented to BSCD, LAS-2000,5

All approach and other scale band ENC's are implemented to BSCD, LAS-2000,5.