



## 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 **15 August 2021**.

Member state	LATVIA
Date of reply	2021-08-12
Point of Contact	Bruno Spels, MAL, <a href="mailto:bruno.spels@lhd.lv">bruno.spels@lhd.lv</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?

Decisions has been done in middle 2020 and implementation has started

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

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

2.1. What actions have already been done?

Details regarding depth conversion to BSCD2000 are given in chart notes

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

At the end of previous year MAL published first harbour navigation chart that are referred to MSL (BSCD, LAS-2000,5). Further planned actions are to step by step implement BSCD, LAS-2000,5 to new editions of charts in a following sequence – harbour charts, coastal charts, general charts.

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, 2021. 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).

Latvia have **3** new ENCs with the new reference datum:  
New Berthing cell LV6B3310 issued on 26 January, 2021  
New Harbour cell LV5H3720 issued on 14 April, 2021  
New Approach cell LV4A2257 issued on 21 June, 2021



LVEBSCDD.TXT - Notepad

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Mean Sea Level is referred to European vertical reference system (Baltic Sea Chart Datum) realisation in Latvia LAS-2000.5 (BSCD-2000 LHS-2000.5) which replaces Mean Sea Level in Baltic Height System 1977 (BHS-77).

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

Latvia implemented the attribute M\_SREL in S-57 (ENC) see 2 attached files.

#### Attributes - M\_SREL



##### Attributes

Textual description in national language	LVLBSCDD.TXT
Textual description	LVEBSCDD.TXT
Information	Sounding datum: BSCD 2000 (LAS 2000.5)

### 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-un-meteorologijas-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). and BAS-77

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 both reference systems that are used today.



NS Andrejosta


Darbība uzsākta: 14.01.1930.  
Ūdenstilpe: Daugava  
Baseins: Daugavas  
Koordinātas:  
Platums 56°57'39"Z

Garums 24°05'38"A  
Stacijas nulles atzīme: -1.26 m LAS-2000,5 (-1.41 m BAS-77)  
Attālums no upes grīvas: 13 km

**Hidroloģiskie novērojumi:**  
Automātiskie  
Ūdens līmenis

**Papildinformācija:**

- Hidroloģisko režīmu ietekmē Rīgas HES darbība un Rīgas līcis;
- Novērojumu datus izmanto hidroloģiskā režīma izpētē, hidroloģisko prognožu sastādīšanā.



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

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.



**4. 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 geoid model for Baltic sea territory of Latvia
- Information to the users about the transition to the chart datum Baltic Sea Chart Datum 2000 (BSCD2000) is a major challenge and creates misunderstandings.

5.2. What measures has been planned to avoid them?

Investigate for best possible geoid models for Baltic sea territory of Latvia  
To keep end users informed about transition

**5. 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)?

Not yet.

**6. Are there any needs for support from BSHC?**

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

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

No.

**8. 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.)

EGNOS, TRIMBLE VRS, LATPOS

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.