

## **BSHC Chart Datum Working Group**

# **Report to the BSHC 14<sup>th</sup> Conference**

**[31 August 2009]**

The BSHC 13<sup>th</sup> Conference guided to work of the **Chart Datum Working Group** with the revised TORs as in [Annex 1](#). The Work Program of the ChartDatumWG was subsequently modified. The ChartDatumWG Membership is in [Annex 2](#).

### **1. Status of Work of Chart Datum Working Group**

The ChartDatumWG has worked according to the Work programme.

The Chair has sent four ChartDatumWG Letters asking for information on current situation and proposals for further work.

The TORs of the HSSC Tidal and Water Level WG has been modified to include also non-tidal water level issues. The ChartDatumWG Chair participated to the TWLWG-1 meeting on March 2009. The meeting agreed some Tasks to the TWLWG WP dealing with these water level issues.

The ChartDatumWG has sent a letter to BOOS proposing to BOOS to evaluate possibilities to use a common vertical datum based on European Vertical Reference System for all depth data and water level information and their distributions. Also relevant land survey and oceanographic institutes, and maritime administration should be contacted. Furthermore, the ChartDatumWG proposes jointly to prepare a common Memorandum of Understanding between BSHC and BOOS to study possibilities to use of a common vertical reference for depth and water level information. The BOOS Chair *Mr. Bertil Håkansson* has replied that the BOOS supports this proposal and more intensive cooperation with ChartDatumWG. Further communication on this issue is going on.

The ChartDatumWG had one meeting on 13 - 14 May 2009 in Norrköping, Sweden.

### **2. Brief conclusions of the current situation**

Based on the information gathered it seems that there is a good possibility and willingness to harmonise the Baltic Sea datums (which are in line with EVRF2000/EVRF2007) in the near future. The Baltic Levelling Ring (BLR) adjustment, which has the NAP (European height zero) origin, seems to be the only feasible basis.

Some more information is collected to clarify the details of the existing datums and the differences between them.

Also information was collected on which mareographs and possibly other equipments and methods are used for water level observations for hydrographic surveys and for information to mariners.

### **3. Proposals for further actions to Chart Datum Working Group**

The ChartDatumWG proposes the some amendments to its TORs, as indicated in [Annex 3](#).

The ChartDatumWG proposes the some amendments to its Work Program 3.0, as indicated in [Annex 4](#).

The next ChartDatumWG meeting is proposed to be held in early 2010, before the TWLWG-2 meeting in April 2010.

### **5. Actions for the BSHC 14<sup>th</sup> Conference:**

The BSHC 14<sup>th</sup> Conference is requested to

1. endorse this Report
2. approve the revised TORs for the ChartDatumWG
3. approve the revised Work Program 3.0 for the ChartDatumWG
4. support further communications with BOOS aiming to have a MoU between BOOS and ChartDatumWG.

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#### Annexes:

1. TORs for the ChartDatumWG
2. ChartDatumWG Membership
3. Proposed revised TORs for the ChartDatumWG
4. Proposed revised Work Program 3.0 for the ChartDatumWG

## **Terms of Reference**

### **for BSHC Working Group for the Harmonization of the Chart Datums of the Baltic Sea**

[Approved by the BSHC 13<sup>th</sup> Conference 19-21 August 2008]

#### **The Working Group should**

- **to study the feasibility to use the European geodetic height reference system as a principal alternative for a harmonised vertical reference system for Baltic Sea nautical charts,**
- **to specify the existing differences of chart datums used in the Baltic Sea area, especially**
  - o **possible inconsistency in the nations area**
  - o **differences across the borders of the neighbouring countries**
  - o **differences compared to the common geodetic height datum**
- **to study**
  - o **the status of water level information**
  - o **distribution of water level information**
  - o **interpolation and prediction of water levels**
- **to prepare recommendations how the sea level and its variations should be shown on nautical paper and ENC charts and publications, and conveying water level information to mariners** [ref. IHO T.R. A2.5.2. note ii].
- **to study possible time schedules and necessary preconditions with each of the Baltic Sea countries could move to use this harmonised datum on their nautical charts.**
- **to study and to develop recommended principles how the transfer period will be implemented** (also in the case if one or more countries are not joining to a common reference).

#### **In addition, the Working Group should**

- **to prepare an introductive presentation of existing geodetic height datums which cover all countries around the Baltic Sea**
- **to clarify the role of other international bodies on this subject and find out point of contacts to them**
- **keep close contact to HSSC Tidal and Water Level Working group**

**The Working Group should report to the BSHC 14<sup>th</sup> Conference.**

**BSHC Working Group  
for  
the Harmonization of the Chart Datums  
of the Baltic Sea  
(By 12 May 2009)**

**Annex 2 to  
ChartDatumWG Report to BSHC/14**

Country	Organis.	Name	E-mail address	Fax number	Phone number	Mobile Phone
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<sup>1</sup> Chairman of the ChartDatumWG

<sup>2</sup> Secretary of the ChartDatumWG

**Proposed Terms of Reference**  
**for the BSHC Working Group**  
**for the Harmonization of the Chart Datums**  
**of the Baltic Sea**

[Draft by 14 May 2009]

**[To be approved by the BSHC 14<sup>th</sup> Conference , September 2009]**

The BSHC has found feasible to use the European Vertical Reference System (EVRS) as a principal alternative for a harmonised vertical reference system for Baltic Sea nautical charts. Specifically the ChartDatumWG has identified [for most countries] the existing differences of chart datums used in the Baltic Sea area, the inconsistencies in the nations area, differences across the borders of the neighbouring countries and differences compared to the common geodetic height datum.

**The Working Group should**

- to continue preparations for implementation of the EVRS in Baltic Sea
- to forward to TWLWG a proposal for a more specific definition of Mean Sea Level suitable especially for non-tidal waters and areas with land uplift, including a proposal to allow a well defined geodetic datum [if available] to be adopted as a chart datum [*ref. TWLWG WP E1*]
- to study possible time schedules and necessary preconditions with each of the Baltic Sea countries could move to use this harmonised datum on their nautical charts.
- to study the validation and status of water level information
- to study the distribution of water level information
- to study interpolation and prediction of water levels
- to study on display schemes for displaying joint Baltic Sea water level information
- to prepare recommendations to IHO how the sea level and its variations should be shown on nautical paper and ENC charts and publications, and conveying water level information to mariners [*ref. IHO Technical Resolutions*].
- to study and to develop recommended principles how the transfer period will be implemented (also in the case if one or more countries are not joining to a common reference).

**In addition, the Working Group should**

- to prepare an introductory presentation of existing geodetic height datums which cover all countries around the Baltic Sea.
- to clarify the role of other international bodies on this subject and find out point of contacts to them.
- actively participate to the work of the HSSC Tidal and Water Level Working Group.

The Working Group should report to the BSHC 15<sup>th</sup> Conference.

Finnish Maritime Administration  
Hydrographic Department  
Jukka Varonen/Juha Korhonen  
18 May 2009

**Annex 4 to  
ChartDatumWG Report to BSHC/14**

The BSHC Working Group for the Harmonization of the Chart Datums of the Baltic Sea

## Proposed ChartDatumWG Work Programme Version 3.0:

[Version 2.0 approved by the BSHC 13<sup>th</sup> Conference, August 2008

Updated at ChartDatumWG meeting on 13-14 May 2009

Version 3.0 proposed to be approved by the BSHC 14<sup>th</sup> Conference, September 2009]

**Priorities:** *High, Medium, Low*

**Status:** *Planned, Ongoing, Completed*

Task	Work Item	Responsibility	Priority	Deadline/ Milestones	Status	Actions/Remarks
<b>1. Feasibility to use the European geodetic height reference system</b>						
T.1.1	Study the current situation and plans in each country	All	High	8/2008	Completed	ChartDatumWG Report to BSHC13.
<b>2. Studies on current practices, time schedules and necessary preconditions</b>						
T.2.1	Study the time schedules on each country	All	High	8/2008	Completed	ChartDatumWG Report to BSHC13.
T.2.2	Study the necessary preconditions in each country	All	High	8/2008	Completed	ChartDatumWG Report to BSHC13.
T.2.3	Make an overview report of the current situation and plans	Chair	High	8/2008	Completed	ChartDatumWG Report to BSHC13.
T.2.4	All to define differences between their current national datums and	All	High	ASAP	Ongoing	DEN, EST, LAT, RUS info missing

Task	Work Item	Responsibility	Priority	Deadline/Milestones	Status	Actions/Remarks
	the BLR.					
T.2.5	All to specify the relations of the earlier survey data (and earlier datums if they still have significant influence on charts) and datums of the present charts to national datum and/or BLR. The differences should be analyzed in terms of accuracy and reliability.	All	High/ Medium	ASAP	Ongoing	DEN, EST, LAT, RUS info missing
T.2.6	Especially Finland and Sweden (with a long coastline and the effect of land uplift) to study and describe their national datums in more details.	Finland, Sweden	High	ASAP	Ongoing	SWE and FIN to make short reports to be reported to TWLWG.
T.2.7	Chair to collect a database (file) on these differences	Chair	High	Before BSHC14	Ongoing	Into an Excel table as agreed.
T.2.8	All to specify which mareographs and possibly other equipment and methods are used for water level observations for hydrographic surveys and for information to mariners.	All	High	Before BSHC14	Ongoing	Ref. <b>TWLWG WP F1:</b> To maintain an inventory of tide gauges used in the Baltic Sea to be published on the IHO/TWLWG web site.
<del>T.2.9</del>						Moved to Task 7.6.
T.2.10	Forward to TWLWG a proposal for a more specific definition of Mean Sea Level suitable especially for non-tidal waters and areas with land uplift, including a proposal to allow a well defined geodetic datum [if available] to be adopted as a chart datum.	All, Chair	High	Before/After BSHC14 ???  To TWLWG-2	Ongoing	Ref. <b>TWLWG WP E1.</b>  [ref. IHO T.R. A2.5.2. note ii, and relevant specifications in M-4 (i.e. B-302.2, B-308.0, B-405), S-57 and S-100].
T.2.11	Study possibility to have common Baltic Sea water level information requirements from users (e.g. mariners, hydrographic surveyors,	All	High		Planned	Needed e.g. for discussions with BOOS.

Task	Work Item	Responsibility	Priority	Deadline/ Milestones	Status	Actions/Remarks
	marine protection users) and possibility to link this to S-44.					
<b>3. Study recommended principles for the transfer period</b>						
T.3.1	Evaluate feasible principles for the transfer period	All	Medium		Planned	
<b>4. Develop recommendations how the sea level and its variations should be shown on nautical paper and ENC charts and publications</b>						
T.4.1	Study the current practices for paper and ENC charts and nautical publications	All	Medium		Planned	
T.4.2	Develop recommendations for the future	All	Medium		Planned	
T.4.3	To study principles and methods for conveying tidal and water level information to mariners	All	Medium		Ongoing	See TWLWG TOR 3a (vii).
<b>5. Prepare an introductory presentation of existing geodetic height datums</b>						
T.5.1.	Prepare a presentation based on the results of the Task T.2.3		Medium		Planned	
<b>6. Study possibilities to display Baltic Sea water level information</b>						
T.6.1	Prepare a list based on the results of the Task 2.3.		High		Planned	Task deleted.
T.6.2	To study on display schemes for displaying joint Baltic Sea water level information		High		Ongoing	
<b>7. Clarify the role of other international bodies</b>						
T.7.1	Evaluate relevant international bodies	All	Medium		Ongoing	
T.7.2	Prepare a clarification document for		Medium		Planned	



Task	Work Item	Responsibility	Priority	Deadline/ Milestones	Status	Actions/Remarks
	the roles of international bodies					
T.7.3	To refer to the TWLWG an issue of methods and equipment for distribution of real time sea level data (to the Mariners, AIS, VTS, etc.)	Chair	Medium	<b>BSHC13 (Autumn 2008)</b>	Planned	BSHC12 Action7.  Reported briefly at BSHC/13 but no report sent to TWLWG.
T.7.4	To provide the members of BSHC with a report on activities providing real time sea level data for mariners and VTS or other authorities.	Chair	Medium	<b>8/2008</b>	Completed	BSHC13_EN-FIN "Real Time Water Level Information Services for Mariners by Finnish Maritime Administration".
T.7.5	Actively participate to the work of the HSSC Tidal and Water Level Working Group.	Chair	High	<b>Before HSS1</b>	Ongoing	BSHC 13 Action 10. BSHC/ChartDatumWG representative to TWLWG
T.7.6	To investigate the possibility to use BOOS as common water level information system.	Chair	Medium	<b>Before BSHC14</b>	Ongoing	BSHC 13 Action 9. (Previous T.2.9)
<b>8. Chart Datum WG meetings</b>						
T.8.1	ChartDatumWG meeting 2009	Chair	High	<b>Early 2009</b>	Completed	Meeting in Norrköping on 13-14 May 2009
T.8.2	<a href="#">ChartDatumWG meeting 2010</a>	Chair	High	<b>Early 2010</b>	Planned	Before TWLWG-2 meeting on April 2010