BSHC Chart Datum Working Group (CDWG)

CDWG Report to the BSHC 19th Conference

[9 May 2014]

The CDWG TORs request the CDWG to report annually to the BSHC.

1. Status of Work of CDWG

Mr. Jyrki Mononen has acted as the Chair and *Mr. Juha Korhonen* has acted as the secretary of the CDWG. All the BSHC countries have nominated a member to the working group, however not all have been active or participated to the meetings. BOOS has nominated their Point of Contact. There are also observers from Finnish Geodetic Institute, Finnish Meteorological Institute, Swedish National Land Survey and Norwegian Mapping Authority.

Mr. Juha Korhonen will retire this year and thus will not continue as a secretary of the CDWG. CDWG invites BSHC19 to give proposals for the new secretary.

The main tasks for the CDWG have been to prepare the implementation of the EVRS in the Baltic Sea, to study the validation, interpolation, prediction and distribution of water level information, and to cooperate with relevant other international bodies e.g. BOOS.

The BSHC 18th Conference in 2013 decided on continuation of the CDWG.

The communication within the CDWG has been by CDWG Letters and e-mails. Meeting was held on 5-6 February 2014 in Helsinki, Finland.

2. CDWG6 meeting 5 – 6 February 2014, Helsinki

CDWG 6th meeting was held in Helsinki on 5-6 February 2014. The main issues were to review and further plan the cooperation with BOOS, prepare the draft Road Map, Time Line and Communication Plan for implementation of the common vertical reference, and to review and update the TORs and the Work Programme for the years 2014-15.

Co-operation with BOOS and informing about the harmonisation of the vertical references in the Baltic Sea were noted to be essential issues. Thus in the meeting it was decided to write an article to BOOS newsletter (CDWG6 Action #3). The article "*A Harmonized Vertical Reference System for the Baltic Sea*" was sent to BOOS in March to be published in the Newsletter, spring 2014. Also it was agreed that a short note will be written on BOOS to be published in the Baltic Sea Special Edition of IHR, October 2014 (CDWG6 Action #4).

It was generally agreed in the meeting that a common name for the harmonised vertical reference would be useful. In the meeting the following name was approved: "*Baltic Sea Chart Datum 2000*". *The Chair* sent a request for all the CDWG members to comment the approved name (CDWG6 action #15). No opposing comments were given. CDWG invites BSHC to endorse the use of the proposed name within all the Baltic Sea Countries.

3. IHO HSSC TWLWG6

TWLWG6 meeting was held in Wollongong, Australia at 24-28 March 2014. The CDWG Chair gave in the meeting a presentation of the CDWG work.. The work was understood to be important for the Baltic Sea and the cooperation within BSHC was appreciated.

Proposed amended IHO resolution 3/1919 was approved by the HSSC5 meeting in November 2013.

4. Future Work of the CDWG

The CDWG6 meeting decided to make revisions to CDWG TORs, because some of the tasks of the TORs approved by the BSHC 14th Conference 2009 have already been finalised. A proposed revised TORs (6 February 2014) is in *Annex 1*. BSHC is invited to approve this revised TORs.

The Work Programme Version 4.1 for 2012-2013, approved by the BSHC 17th Conference has been remained the same since then. Because many of the WP 2012-2013 items have been already finalised, the CDWG6 meeting revised the WP for the years 2014-2015. A proposed WP 2014-2015 is in *Annex 2*. Major change is to focus on tasks related to guide and follow up the progress of the implementation of the harmonised vertical reference. There are included also other tasks identified to be important for the development of chart datum in the Baltic Sea, bearing in mind the resources the BSHC members have. BSHC is invited to approve this revised Work Programme 2014-2015 V.6.

To be able to guide and follow up the implementation of the harmonised vertical reference, to inform and communicate with relevant organisations, the CDWG noted that it is essential to have a common time schedule, communication plan and general road map feasible for all the Baltic Sea countries. A draft Road Map and Time Line were prepared and approved at the CDWG6 meeting. CDWG invites BSHC to approve the attached draft Road Map in *Annex 3* and Time Line in *Annex 4*.

The CDWG6 meeting noted that the cooperation with BOOS is important for the implementation and usage of the harmonised vertical reference. Thus it was decided in the meeting that an earlier proposed (in 2009) draft MoU between BSHC and BOOS shall be re-introduced for both organisations to be approved. BOOS will address this draft MoU on its Annual Meeting in May 2014. CDWG invites BSHC to approve the attached MoU in *Annex 5*.

The CDWG plans to have its next meeting late 2014.

5. Actions for the BSHC 19th Conference:

The BSHC 19th Conference is requested to

1. note this Report
2. approve CDWG TORs (*Annex 1*)
3. approve CDWG Work Programme 2014-2015 V.6 (*Annex 2*)
4. approve the Road Map (*Annex 3*)
5. approve the Time Line (*Annex 4*)
6. approve MoU between BSHC and BOOS (*Annex 5*)
7. endorse the proposed name "*Baltic Sea Chart Datum 2000*" for the harmonised vertical reference
8. forward proposals to CDWG secretary

Annexes:

1. Proposed CDWG TORs, 6 February 2014.
2. Proposed CDWG Work Programme 2014-2015.
3. Proposed Draft Road Map.
4. Proposed Time Line.
5. Proposed MoU between BSHC and BOOS.

Terms of Reference

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

[Proposed to be approved by BSHC19 June 2014]
[6 February 2014]

The BSHC18 (September 2013) decided to continue CDWG work and wished the harmonized Baltic Sea vertical reference to be implemented.

The Working Group should

1. To continue implementation of the EVRS.

2. To prepare the road map for transition, including e.g:

   - to establish a network of relevant bodies involved into the transition and efficiently communicate and give guidance within this network

   - to invite relevant bodies to inform the users

   - to review of progress of national plans and actions

   - to propose harmonization actions.

3. To cooperate with relevant bodies on water level related issues e.g:

   - to study the validation, status and distribution of water level information, and to study interpolation and prediction of water levels

   - to study on display schemes for displaying joint Baltic Sea water level information

   - to study 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].

4. To further development of a common harmonized height reference, including further development of a common geoid model for the whole Baltic Sea area and supporting geoid and oceanographic studies relevant to these purposes.

5. To cooperate with BOOS and other relevant international bodies.

6. To liaise with relevant IHO bodies.

The Working Group should report to the BSHC Conferences.

BSHC Chart Datum Working Group (CDWG)

Proposed ChartDatumWG Work Programme V 6 for 2014 – 2015

[Proposed to be approved by the BSHC 19th Conference, June 2014]
[6 February 2014]

Note: This Work Programme includes those Tasks which were identified as the priority issues and which are expected to be fostered during 2014 - 2015 bearing in mind the resources the BSHC members have.

Tasks:

1. Guide the implementation process of vertical reference within the Baltic Sea region.
   a. Prepare a draft road map for harmonization of the vertical reference to be accepted in BSHC.
   b. To monitor and follow up the status of the relevant actions identified.
   c. To ensure efficient communication with relevant bodies.
2. Review of progress of national plans and actions.
3. Propose harmonization actions.
4. Foster studies and further development of a common geoid model for the whole Baltic Sea area.
5. Foster studies related to dynamic topography of sea surface.
6. Cooperate with BOOS and other relevant institutes and organizations.
7. Support other IHO working groups and EU projects in issues concerning vertical references, e.g. FAMOS-project.

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Annex 3 to
CDWG Report to BSHC19

Road Map for Implementation of Harmonized Vertical Reference System

DRAFT by 13.3.2014

A. OVERVIEW

This is a Draft Road Map describing the transition to the Harmonized Vertical reference System within the Baltic Sea. The purpose of the Road Map is to give guidelines for BSHC member countries to make the national transition plans and to make possible for the CDWG to monitor and harmonize the transition within the Baltic Sea region.

A.1 Final outcome

Harmonized vertical reference in use within the whole Baltic Sea by the year 2020.

A.2 Vision

Transition to S-100 environment and usage of new S-100 based products will happen in the future, S-101 based ENCs should be available and in use by 2018 . Change from separate national vertical references to harmonized one makes it possible to take all the advantages of the new environment in to use in the Baltic Sea region.

A.3 Benefits

- Future navigation more reliable and safe
  - Only one vertical reference in use within the Baltic Sea
  - Depth and water level information consistent within the Baltic Sea
- Future navigation more effective by possibility to utilize all the new features and possibilities of S-100 based systems
- Water level information more efficiently in use
  - Better utilization of ship's cargo carrying capacity

A.4 Commitments

- BSHC commitments
- IHO resolutions (3/1919) - technical specifications
- HELCOM ministerial declarations - political support
- INSIPRE - requirements

A.5 Role of CDWG

- Foster and support the transition process
- Propose harmonize actions
- Follow up (monitor) progress
- Communicate with and support other stakeholders (e.g. BOOS, IHO/TWLWG)
- Giving general information e.g. by articles, presentations and posters
- Report to BSHC and relevant international bodies

B. MAIN PHASES OF IMPLEMENTATION

Here is presented some main steps as general guidelines leading to harmonized vertical reference bearing in mind that there will be national differences in the implementation.

B.1 Evaluate national actions and time schedules

- National decisions needed
  - political commitment
  - time schedule
  - resources
- National feasibility studies
  - scope of the transition (all the data or not, precision of the transformation etc.)
  - legislation regulations
  - technical standards
- Establish a national contact network
  - identify relevant national stakeholders (national administrations, pilots, ports, ship-owners etc.)

B.2 Prepare national plans to organize the transition

- Nomination of the leading organization (national HO?)
- Organizing the transition, e.g.:
  - as a separate project or
  - included in normal work routines
- Planning the main milestones for the transition period

B.3 Analyse of present national situation

- Source data (depth data, other chart objects with depth or height information)
- Data systems
- Products
- Connection to national height reference frame
- Water level data

B.4 National implementation plan

- Detailed national milestones
- Overview how following issues has been taken into account in the national implementation plan
  - water level information
  - data systems
  - transformation of the data to new datum
  - publishing the products

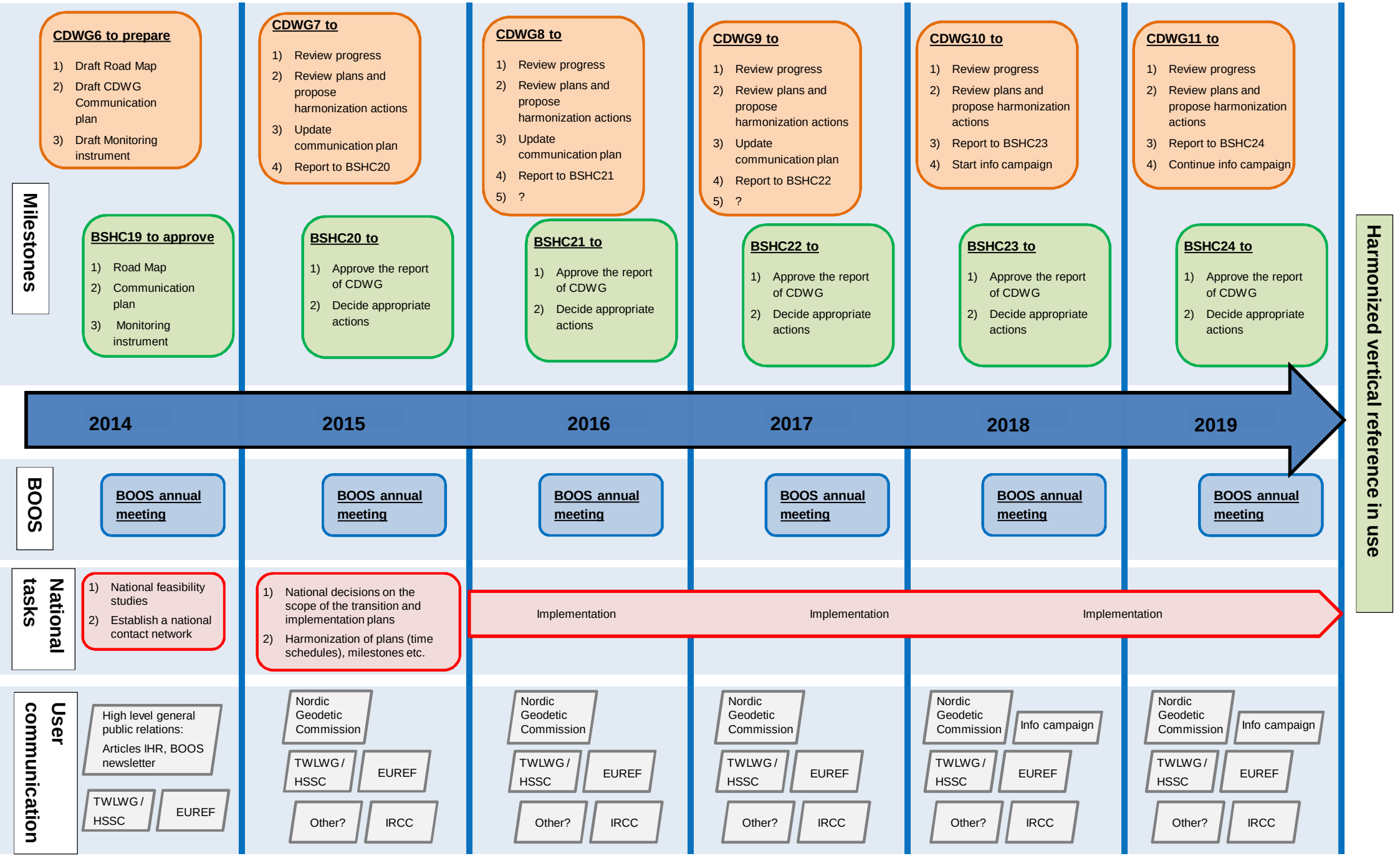
APPENDIX 1: Sweden_Reply

Reply of Sweden to the Questionnaire to BSHC Members on their Commitment and Plans for the Transition to a Harmonised Vertical Reference (21.12.2012). Reply gives an example of the issues to take into account while analysing the present situation and drafting an implementation plan.

BSHC CDWG / Harmonized Vertical Reference / Time Line

Draft by 12 March 2014

Annex 4 to
CDWG Report to BSHC19



Draft Memorandum of Understanding

between BOOS and BSHC

[on transition to a harmonised vertical reference

on the Baltic Sea]

[Draft by 18 March 2014]

Noting that

- the IHO Baltic Sea Hydrographic Commission (BSHC) has approved the goal to have a harmonised vertical reference on Baltic Sea for all water level and depth related information (e.g. tides, mareographs, interpolation and prediction of water levels, nautical charts). Chart datum Working Group was established to promote transition to the harmonised vertical reference which will be based on the European Vertical Reference System,

- the Baltic Oceanographic Observation System (BOOS) has similar goal to have a harmonised vertical reference based on European Vertical Reference System on Baltic Sea,

- and both organisations expect that there will be many benefits with mutual co-operations and other relevant bodies

both organisations agree to co-operate [on the transition to a common vertical reference for depth and water level information], with the aim to avoid duplication of work and to maximize mutual assistance.

Signatures

Place, date *Place, date*

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BOOS Chair BSHC Chair