Flagship Project: Speed up of re-surveys on major ports and routes

Finnish Transport Agency

Baltic Sea Action Plan/Priority Area SAFE
Steering Committee 9th Meeting

13 November 2013
Vilnius, Lithuania

Juha Korhonen

13.11.2013

Content:

1. **Status of Baltic Sea Harmonised Re-survey Scheme**
2. **Outcome of HELCOM Ministerial Meeting 3 October 2013**
3. **Future Actions related to re-surveys**

1. Status of Baltic Sea Harmonised Re-survey Scheme

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Background - Harmonised Re-survey Scheme

2001: **HELCOM Ministerial** Copenhagen Declaration

2002: BSHC approved the Harmonised Hydrographic Re-Survey Plan and established a Monitoring Working Group. Sweden developed the meta-database.

2008: BSHC decided on a major revision of the harmonised re-survey scheme.

2009: BSHC approved the new Vision for the re-surveys.

2010: **HELCOM Ministerial** Moscow Declaration extended the re-surveys to cover all areas used for navigation.

2010: BSHC agreed to develop harmonised scheme by end 2013

2013: **HELCOM Ministerial** Copenhagen Declaration

Baltic Sea Hydrographic Commission

International Hydrographic Organisation

Baltic Sea Hydrographic Commission

Baltic Sea Harmonised

Hydrographic Re-Survey Scheme

(Version 2.0, Draft by 30 May 2008)

The Hydrographic Offices of Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden have developed this Scheme during 2002 - 2008.

This Scheme proposed to be approved on BSHC 13th Conference on 19-21 August 2008.

Harmonised Re- Survey Scheme - Version 2.0_Draft May2008 Page: 1 of 6 30/05/2008

Re-survey Scheme is based on National Plans

- **All BSHC Members have developed their national re-survey plans, including time schedule estimations**
- **Some general principles have been used and some harmonisation of national plans have been done**

- **Re-survey Database** developed and maintained by Sweden
- **Browser interface** open to all

  http://helcomresurvey.sjofartsverket.se/helcomresurveysite/
- **Restricted interface** for granted *National Database Operators* at HOs
- **Statistics** can be derived form the database

Status of information in the Re-survey Database

Status by:
25 October 2013

CAT I

Status of information in the Re-survey Database

Status by:
25 October 2013

CAT II

Status of information in the Re-survey Database

Status by:
25 October 2013

CAT III

Status of information in the Re-survey Database

Status by:
25 October 2013

All Categories

We are approaching the BSHC 2009 Vision!

Draft Summary statistics [by August 2013]

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Summary statistics [by August 2013]

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Summary statistics [by August 2013]

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Summary statistics [by August 2013]

Estimated Time Schedules for completing re-surveys

Country	CAT I	CAT II	CAT III	Remarks
Denmark	2013	2030	Not spec	
Estonia	2018	2028	2032	
Finland	2015	2015	2030	
Germany	2019	2025	N/A	Periodical 5 – 25 years
Latvia	2010	2022	2045	
Lithuania	2016	2010	2036	
Poland	2015	2017	2020	Periodical 5 – 25 years
Russia	2018	2018	2017	
Sweden	2020	2020	Not spec	
Latest year	2020	2030	See Notes	

All BSHC Members are funding their re-surveys by their Government.

External co-funding e.g. EU TEN-T Motorways of the Seas: MonaLisa project, proposals for TEN-T 2014 -2020 financial perspective

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MonaLisa – Sub-Activity 3.1 To speed up re-surveys

- **By Finland and Sweden**
- **Years 2011 – 2013**
- **Total some 16 Mill € for external re-surveys**
- **Also some internal re-surveys**
- **Co-operation has been successful and fruitful**
- **Common specifications and requirements**
- **Cost reductions**
-
- **Endorsed by BSHC, HELCOM, NHC,**

- **Plans for seeking future co-funding on TEN-T financial perspective 2014 -2020**
  - **all BSHC members will be invited to participate**
  - **Sweden to coordinate**

.

Example status and plans: Finland

Status in Database (CAT I, II, III)

Remaining (CAT I, II), Plan 2014

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2. Outcome of HELCOM Ministerial Meeting 3 October 2013

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2013 Ministerial Declaration

"ADOPT"

- HELCOM-BSHC Harmonised Re-survey Scheme 2013, with time schedule estimations and funding arrangements,
- bearing in mind that these are likely to be modified when new national needs or priorities arise;

2013 Ministerial Declaration

"FURTHER AGREED"

- Finally, WE AGREE to fully implement the 2007 Baltic Sea Action Plan by 2021. With this Declaration with its general and specific approaches, actions and measures
- WE FURTHER AGREE to step up **efforts for further strengthened implementation** of the BSAP
- WE NOTE WITH APPRECIATION the following **further general and specific approaches, actions and measures**. WE WILL **continuously REVIEW and REPORT** how these commitments are implemented

2013 Ministerial Declaration

"FURTHER AGREED"

14 (M). RECALLING the HELCOM Copenhagen 2001, Krakow 2007 and Moscow 2010 commitments on hydrographic re-survey and

COMMENDING WITH APPRECIATION the **subsequent substantial progress** made in systematic re-surveying of major shipping routes and ports in the region according to the HELCOM-BSHC Re-survey Scheme aimed at ensuring that **safety of navigation** in the Baltic Sea region is not endangered by inadequate source information;

2013 Ministerial Declaration

"FURTHER AGREED"

15 (M). WE AGREE to **take actions to ensure the completion of the re-surveys for areas used by navigation (CAT I and II) within the time schedules estimated** in the 2013 Re-survey Scheme,

to **promote wider use of accurate and reliable depth information** by e.g. developing existing and/or new products including an enhanced and freely accessible Baltic Sea Depth Model, and

to **foster CAT III re-surveys** of other areas not primarily for safety of navigation purposes, e.g. for environmental protection;

Supporting document to 2013 Ministerial Declaration

The supporting document HELCOM-BSHC Baltic Sea Re-survey Scheme is regarded to be a part of the 2013 Ministerial Declaration. This document includes more details of the scheme and the time schedule estimations for completing resurveys for CAT I and II, which are referred in the Declaration

HELCOM MINISTERIAL MEETING COPENHAGEN 3 OCTOBER 2013

Draft BSHC-HELCOM Revised Baltic Sea Harmonised Hydrographic Re-Survey Scheme

This document is a part of the

2013 HELCOM Ministerial Declaration

and is proposed to be adopted by the 2013 HELCOM Ministerial Meeting

HELCOM

Baltic Marine Environment Protection Commission

Supporting document to 2013 Ministerial Declaration

IHO Baltic Sea Hydrographic Commission

Helsinki Commission
Baltic Marine Environment Protection Commission

The BSHC-HELCOM Revised Baltic Sea Harmonised Hydrographic Re-Survey Scheme

The HELCOM Ministerial Declarations in 2001 and 2010 requested the Baltic Sea countries jointly to develop a scheme for systematic re-surveying of the areas used by shipping in order "to ensure that safety of navigation is not endangered by inadequate source information". The Baltic Sea countries are to present their national re-survey plans by 2013 including time schedule estimations and plans for sufficient funding for re-surveys.

All Baltic Sea countries are committed to the Baltic Sea Harmonised Re-survey Scheme.

This work is coordinated by the Baltic Sea Hydrographic Commission (BSHC) of the International Hydrographic Organisation.

The BSHC has developed the revised Re-survey Scheme. The Scheme is available on the internet http://helcomresurvey.sjofartsverket.se/helcomresurveysite/. See Figure below.

The Hydrographic Offices of Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russian Federation and Sweden have developed this Scheme during 2002 - 2013.

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There are still extensive areas to be resurveyed, as can be seen on the *Fig.1* and *Table 1* below.

Fig. 1. Re-survey areas remaining by Categories.

Country	CAT I	CAT II	CAT III	Remarks
Denmark	2013	2030	Not spec	
Estonia	2018	2028	2032	
Finland	2015	2015	2030	
Germany	2019	2025	N/A	Periodical 5 – 25 years
Latvia	2010	2022	2045	
Lithuania	2016	2010	2036	
Poland	2015	2017	2020	Periodical 5 – 25 years
Russia	2018	2018	2017	
Sweden	2020	2020	Not spec	
Latest year	2020	2030	See Notes	

Table 1: Summary of time schedules of National Re-survey Schemes.

The BSHC Members have a clear goal to complete the re-surveys of areas for safety of navigation (CAT I and II) by 2030. The re-surveys are mainly funded by national budgets.

Contracting Parties agree to take actions to ensure that there will be sufficient funding available for completing the re-surveys of areas for safety of navigation purposes in estimated time schedules.

The main details and statistics of the Harmonised Re-survey Scheme are described in the Annex 1.

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Supporting document to 2013 Ministerial Declaration

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Annex 1

Report of the IHO Baltic Sea Hydrographic Commission (BSHC)

Background

Hydrographic surveys are a long term activity. In the early 2000s, it was clearly recognised that the status of hydrographic surveys of the Baltic Sea is not satisfactory. Precise satellite based positioning is available for all, but many of today´s nautical charts are based on surveys of up to 100 years old and with poor positional accuracy. Navigation with electronic charts is increasing and IMO has approved ECDIS to be a mandatory navigation tool within few years. The increasing size and speed of ships today set new requirements for chart information. In exceptional cases (e.g. ice conditions or accidents) as well as environmental protection, there are many needs for accurate depth information also outside the main routes. Thus there are clear needs for re-surveying the areas used for shipping with modern technology. The re-surveys have already proved to be most useful. New shallows or areas shallower than previously known have been found in critical areas. The efficiency of the re-survey work has been increased. More examples are listed below in the Chapter *Benefits of Re-surveys*.

The HELCOM Copenhagen 2001 Ministerial Declaration requested the Governments of the Contracting Parties to develop *a scheme for systematic re-surveying of major shipping routes and ports in order to ensure that safety of navigation is not endangered by inadequate source information. The survey shall be carried out to a standard not inferior to the latest edition of IHO S-44,* [1], [2].

The BSHC approved the first Version of the Harmonised Hydrographic Re-Survey Plan in December 2002. These routes were based on the list of main ports used as a background document for the Copenhagen Declaration [3]. See *Fig.2*. There were no fixed time schedules for these re-surveys.

Fig. 2. Original Re-survey Scheme (based on Copenhagen 2001 Declaration)

During the past ten years it has been found that there are several reasons to revise the original scheme, e.g. new routeing measures approved and planned new high priority areas outside the original routes, AIS data allows accurate tracking of ships routes. In addition there are other needs than navigation. In 2009, the BSHC approved a new Vision for a revised re-survey scheme so to extend the original scheme to cover the whole Baltic Sea area. The re-surveys are in three Categories: CAT I for original re-survey scheme, CAT II for extension needed for the safety of navigation, and CAT III for areas to be re-surveyed for other reasons, (e.g. for environmental reasons). In the *Fig. 3* there is a scheme of this Vision.

Fig. 3. In 2009 the BSHC approved a Vision for re-surveys.

The HELCOM Moscow 2010 Ministerial Declaration agreed to extend the scope of the HELCOM Copenhagen Declaration and present time schedule estimations for re-surveys. The Moscow Declaration 2010 and its supporting documents can be found in references [4], [5] and [6].

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Fig.4. Example of a Nautical Chart before and after re-surveys. After re-surveys more detailed depth contours can be seen on the chart and a critical shallow 9.7 m found very near to a fairway of 10.0 m draft.

Fig.5. Examples of co-operation of re-survey work between neighbouring countries (Finland/Sweden, Denmark/Germany).

Fig.6. Examples of Baltic Sea Depth Model of the Bothnian Sea with varying density of survey data. The resolution in the overall dataset from the Baltic Sea Bathymetric Database is 500 m, but in re-surveyed areas it could be 25 m or more dense. The rectangle area on the right demonstrates how detailed the sea floor features (e.g. drumlins) can be seen with a 4 m grid.

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3. Future Actions

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Future Actions related to re-surveys

BSHC and the Baltic Sea Hydrographic Offices have tasks to take actions to ensure the completion of the re-surveys for areas used by navigation (CAT I and II), to promote wider use of accurate and reliable depth information, and to foster CAT III re-surveys. Below are listed some of the actions which are on-going or planned.

- Re-surveys are going-on
- FAMOS - Finalizing the Motorways of the Sea
- Joint European Mapping programme initiative (EU DG MARE)
- BSHC Bathymetric Database
- BSHC LIDAR Seminar 2014
- BSHC Harmomisation actions
- MWG to continue
- Promote BSHC co-operation (Articles to IHR)

FAMOS - Finalizing the Motorways of the Sea

Re-surveys are continuing, mainly with national resources.

The EU TEN-T MonaLisa project 2011-2013 is almost finished and remarkable results have been achieved.

BSHC Members are invited to participate in a joint application to EU TEN-T for co-financing completing CAT I and II re-surveys within the EU TEN-T 2014 - 2020 financial perspective.

Replies from BSHC Members are expected by 30 November 2013.

Sweden will coordinate this project.

Sweden to tell more details.

Joint European Coastal Mapping Programme Initiative

There is under preparation a proposal to EU DG MARE for a feasibility study on Joint European Coastal Mapping Programme.

The main planned aims are

- to evaluate harmonised priorities for shallow water and coastal area surveys and
- evaluate the feasibility of laser survey technologies.

- This initiative is in very early phase.
- This should be harmonised with TEN-T projects

BSHC Web site

The BSHC has established its own web site (http://www.bshc.pro/).

There will be uploaded information on BSHC activities and plans, e.g. links to the Re-survey Scheme and the Bathymetric Database.

This web site could be linked to other web sites.

Baltic Sea Bathymetric Database

Baltic Sea Bathymetry Database has been developed by Sweden.

The database is now operative and can be accessed via the link http://data.bshc.pro.

Data density will be improved when new survey data is available.

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Evaluation of LIDAR technology

- Feasibility of this technology on shallow water surveys, (mainly CAT III)
- Feasibility especially on Baltic Sea environment
- Tests are on-going on Baltic Sea
- BSHC agreed to arrange a LIDAR Seminar 2014 in Germany

BSHC Hydrographic Harmonisation Activities

BSHC actions for harmonising hydrographic activities and products are continuing, including e.g.

INT chart coordination,

ENC harmonisation,

harmonisation of vertical references, etc.

Promoting BSHC Hydrographic Co-operation - Baltic Sea Issue of International Hydrographic Review (IHR)

- IHR is a digital publication of the IHB, two editions annually including both peer-reviewed Articles and short Notes.
- BSHC 18th Conference endorsed to forward articles to IHR to a Special Baltic Sea Edition in autumn 2014.
- This is excellent possibility forward information on the successful cooperation within all nine Baltic Sea Hydrographic Offices. The timing fits well to the forthcoming IHO Extraordinary Conference in October 2014.
- Proposed topics: Re-survey Scheme, MonaLisa project, Laser bathymetry, experiences of contracting out survey work, Baltic Sea Depth Model, wider use of hydrographic data, harmonisation actions, …

BSHC MWG Work Programme

The MWG will continue its work according to the Work Plan 7.0 as agreed at BSHC 18th Conference in September 2013. Main tasks are fostering and monitoring the re-surveys, updating and developing re-survey database and contributing the actions listed below.

Tasks for 2013 - 2014:

No	Task	Resp.	Priority	Remarks/Status
A.1	MWG to report via BSHC to HELCOM MM2013	Chair	High	
B.1	MWG to monitor the implementation of Re-survey Scheme	All	High	
B.2	MWG Members to update national re-survey plans	All	High	
B.3	MWG Members to take necessary harmonisation actions between countries	All	High	
B.4	MWG Members to keep Re-survey database updated	All	High	
C.1	MWG to develop specifications for new re-survey database	All	High	
C.2	To contribute to IHO C-55 development and harmonise the developments	Chair/ BSHC Chair	Medium	
D.1	To liaise with other relevant organisations (HELCOM, NMAs, NSHC, ...),	Chair	Medium	
D.2	To report to BSHC yearly	Chair	High	
D.3	To write articles (IHR, ...)	Chair	Medium	

Summary

- Re-surveys are a long term activity
- Re-surveys are going on by all Baltic Sea countries
- Substantial progress have been made by national budgets and TEN-T co-financing
- High level political support (Ministerial Declarations)
- BSHC co-operation well recognised and appreciated worldwide
- Clear plans to re-survey all areas used for navigation (CAT I and II) by 2020
- Increasing needs to re-survey areas not primarily used for navigation (CAT III)
- New implementation projects will come to speed up re-surveys, e.g. FAMOS

Thank you!

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