Finnish Transport Agency
Hydrographic Office
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Paper for Consideration by IRCC3

Baltic Sea Hydrographic Commission Approach for Coordinating Hydrographic Surveys on the Baltic Sea and for Displaying Survey Status

1. Introduction

The IRCC2 action "*5a) Report of methodology used for assessing and displaying survey status, taking into account navigational and MSDI requirements*" requests RHCs to report to IRCC3 meeting by 20 April 2011.

The Baltic Sea Hydrographic Commission (BSHC) discussed at its 15th Conference in September 2010 on this issue in connection with the status report of the Baltic Sea Re-survey Scheme. The meeting tasked Re-survey Monitoring Working Group (MWG) to make a brief report of the Baltic Sea re-survey scheme as an example for C-55 (*BSHC15 Action 9*).

2. Baltic Sea Harmonised Re-survey Scheme

The background to the BSHC Harmonised re-survey scheme is to the request of the Baltic Sea environmental Commission (HLECOM). The HELCOM Copenhagen 2001 Ministerial Declaration requests 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. The scheme shall be elaborated jointly by the hydrographic services responsible for the areas in question not later than by the end of 2002 with the aim to begin implementation by 2003.

During 2002 the BSHC developed the Harmonised re-survey Plan which includes routes to main harbours and ports (based on the amount of shipping traffic with dangerous goods and passengers). The routes were estimated based on information available. There were no fixed time schedules for re-surveys.

In 2008 the BSHC 13th Conference approved to make a major revision to the re-survey scheme. This was found feasible, because new accurate information the routes and areas shipping is actually using (based on AIS tracking). In Baltic Sea there are approved or planned new routeing measures, and also many high priority areas outside the original routes.

In 2009 the BSHC approved a new Vision to the Baltic Sea re-surveys to cover the whole Baltic Sea area with a revised re-survey scheme. The re-survey areas are defined into three categories: CAT I for original re-survey areas, CAT II for extended areas which need to be re-surveyed also for safety of navigation, and CAT III areas which need to be re-surveyed for other (e.g. environmental) reasons. In ***Fig 1.*** there are some pictures to clarify the original BSHC Harmonised Re-survey Scheme, example of actual shipping routes (based on AIS tracking data) and the new BSHC Vision for re-surveys.

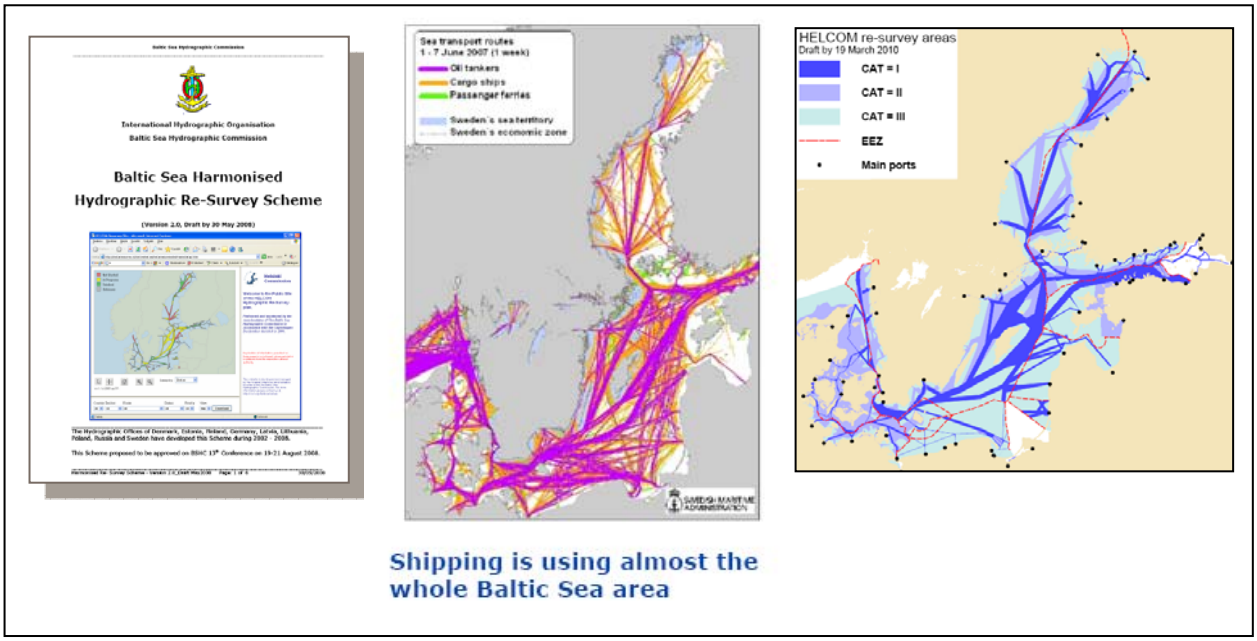

Fig 1. *The original BSHC Harmonised Re-survey Scheme (2002), example of actual shipping routes based on AIS data (during one week in June 2007), and the new BSHC vision for re-surveys re-survey (2009).*

The revision of the Baltic Sea Re-survey Scheme, including its principles, has been agreed on a political level (HELCOM Ministerial Meeting on 20 May 2010, Moscow).

In 2010 the HELCOM Moscow 2010 Ministerial Declaration agreed to extend the scope of the 2001 HELCOM Copenhagen Declaration to cover all routes and other areas used for navigation according to the revised Baltic re-survey Vision 2009 for the re-surveys on the Baltic Sea and

- to present their national re-survey plans preferably by 2013, but not later than 2015, including time schedule estimations;
- to undertake necessary measures to ensure that sufficient funding, including external funding, will be available for re-surveys;
- to undertake measures to improve mariners' abilities to assess and interpret hydrographic content in nautical charts and publications either in printed or digital form, especially in the Electronic Chart Display and Information System .

The BSHC 15th Conference in September 2010 confirmed that the Baltic Sea Hydrographic Offices are committed to the implementation of the Moscow 2010 Declaration, and approved the BSHC Re-survey Monitoring Working Group (MWG) Work Programme and the draft outlines for implementation the revised re-survey scheme by 2013 (2015).

3. Baltic Sea Re-survey Database

The Re-survey database (metadata only) has been developed and is administered and maintained by Sweden. The database contains only metadata of the re-survey areas: routes divided into sections, each section has several attributes (e.g. route and section names, type, category, length, area, dates for planned and completed surveys, status of surveying, etc.; in total 28 attributes). Populating and updating the database can be done by the HOs via a restricted web interface. The use of this is granted to National Database Operators in each HO. It is also possible to populate the database also by loading shape-files of sections (from national databases). The content of the database can be downloaded e.g. into an Excel file for statistical analysis.

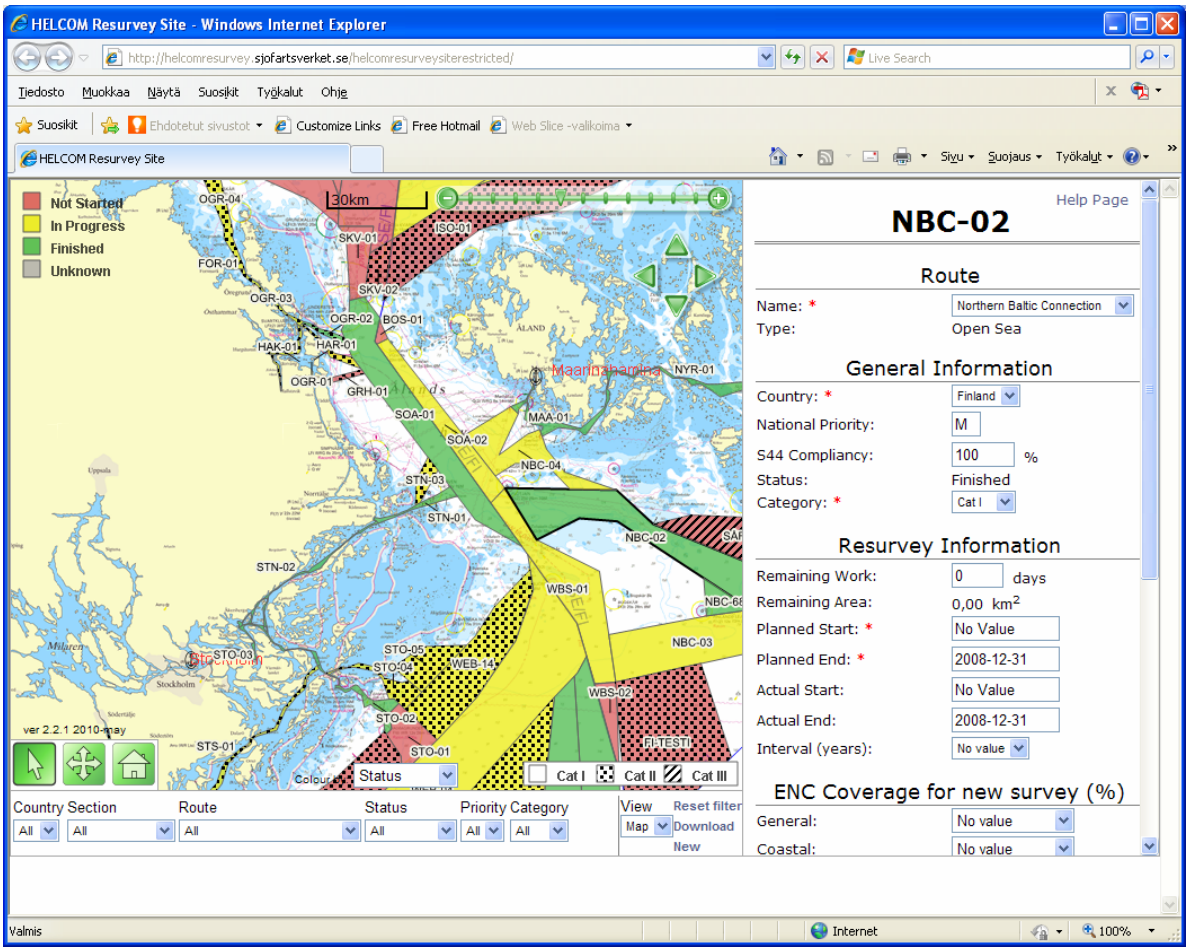

Fig 2. *A view to the restricted interface of the Re-survey database showing some of the sections and some of the attribute of a selected section (NBC-02).*

A new version of the database has been released in June 2010 allowing the revised re-survey scheme being loaded and updated in the database. See ***Fig.3*** on the current status of re-survey database.

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http://helcomresurvey.sjofartsverket.se/helcomresurveysite/

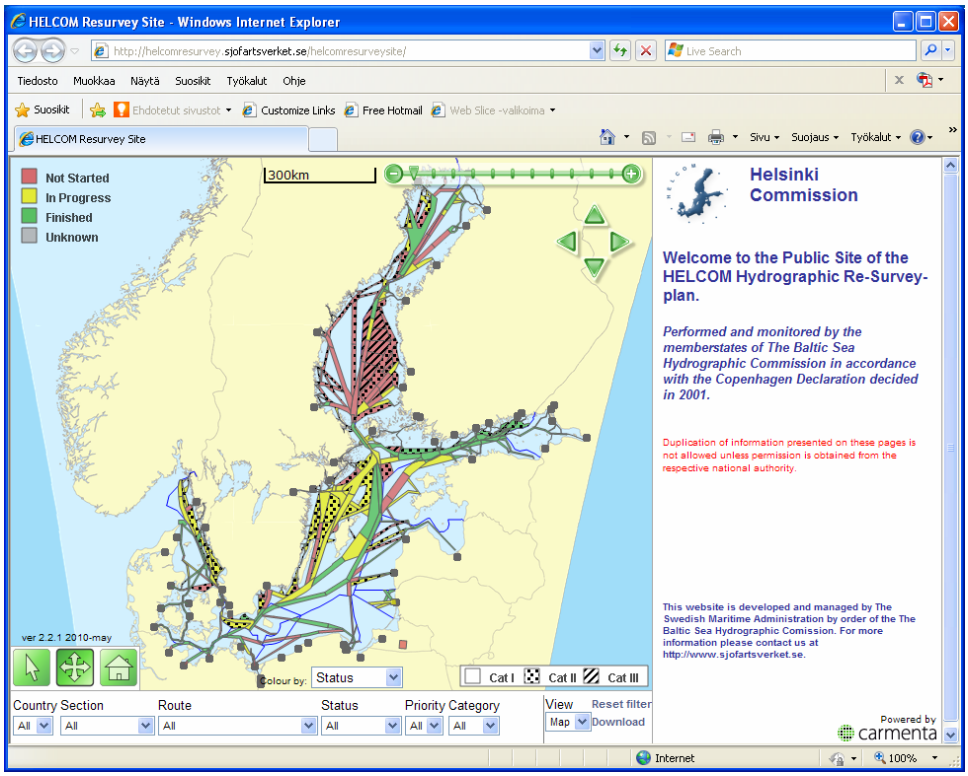

Fig 3. *Current status of the BSHC Harmonised Re-survey Scheme. Already some CAT II and CAT III re-survey areas are loaded into the database.*

4. Discussion

The re-surveys are a long term activity. Currently re-surveys have been mainly on CAT I areas. The amount of re-surveyed areas has been increasing. Still there are a lot of re-surveys left even on CAT I areas.

The current database system is based relatively old techniques. It has quite a limited functionality. However, the experiences of the use of the Re-survey database are positive, it is possible to maintain the re-surveys scheme and its status with quite small resources. The cooperation within the HOs needs efforts.

There are several ideas how to develop the database and the user interface further on. At the BSHC15 meeting the IHB representative gave some information about the plans to develop the IHO C-55 further on. The intention is to follow up the IHO further developments of the C-55 database and to do our further developments in harmony with the IHO C-55, and to link the BSHC re-survey database to the C-55 database in a feasible way.

One practical example under the Motorways of the Seas concept is a *MonaLisa* project approved by the European Union TEN-T. The main aim is to contribute to improve the safety of navigation on the Baltic Sea in co-operation with relevant BSHC Working Groups. One of the four main activities is related to hydrography. The aim of this activity is to speed up the implementation of the revised Baltic Sea Re-survey Scheme on Finnish and Swedish area of responsibility by ordering a remarkable amount of hydrographic survey work from private survey companies during 2011 - 2013. There are also sub activities to development of Baltic Sea Depth Model and a system for exchange of high density depth data and harmonized data sets, and for a pilot implementation of harmonized vertical reference.

5. Proposals and ideas for C-55 further developments

Some comments, opinions, ideas and proposals for the C-55 further development:

- The expected use of C-55 is to be clarified
  - Who are the users? (HOs, other organisations, etc.)
  - For what purposes the information is used (Capacity building, other uses?)
  - Used by links to other regional sites (e.g. to EU, HELCOM, …)?

- The information which should included in C-55 need to be clarified
  - Is the current C-55 data content enough?
  - (As an example, the whole Baltic Sea area covered by the harmonised scheme)

- To clarify how the information is organised or grouped
  - Should be based on the users' needs
  - The current organisation in C-55 is not very user friendly (e.g. division <200m/>200m is not useful in Baltic Sea,
  - the Baltic sea approach is to group the re-survey areas by "for navigation use"/"for other use"

- C-55 should be a real GIS database solution allowing various queries, and chart and list outputs
  - based on modern GIS tools
  - interfaces to other GIS services (e.g. WMS)

- It should be possible to populate and update C-55 directly via web interface directly by the HOs
  - to allow "on-line" updating by the HOs
  - to reduce IHB workload

- C-55 should be compatible or in harmony with other relevant hydrographic (regional) databases
  - To allow links e.g. to S-11 (for INT charts),
  - Links to RENCs (for ENCs),
  - Links to other MSDI databases?, … etc.

6. Actions to IRCC3 meeting

This information has been forwarded as an example of regional cooperation within a RHC and perhaps to give some ideas for developing the C-55 database.

The IRCC3 meeting is invited to take note this information and to decide on appropriate actions.

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