

# 19<sup>th</sup> BSHC Conference National Report of Germany

May 2014

## Executive Summary

The present report outlines and summarizes the activities carried out since the 18th BSHC Conference by the Federal Maritime and Hydrographic Agency (BSH). The report concentrates on the Baltic Sea.

Issues of special interest have been:

- Design of a new combined survey and research vessel powered by LNG;
- Continuation of the scientific investigation of LIDAR in the southern Baltic Sea;
- BSH is going to implement the CARIS Publications Module to produce parts of the Notices to Mariners and Lists of Lights;
- Automatic derivation of seabed topography for nautical purposes based on high resolution DTM;

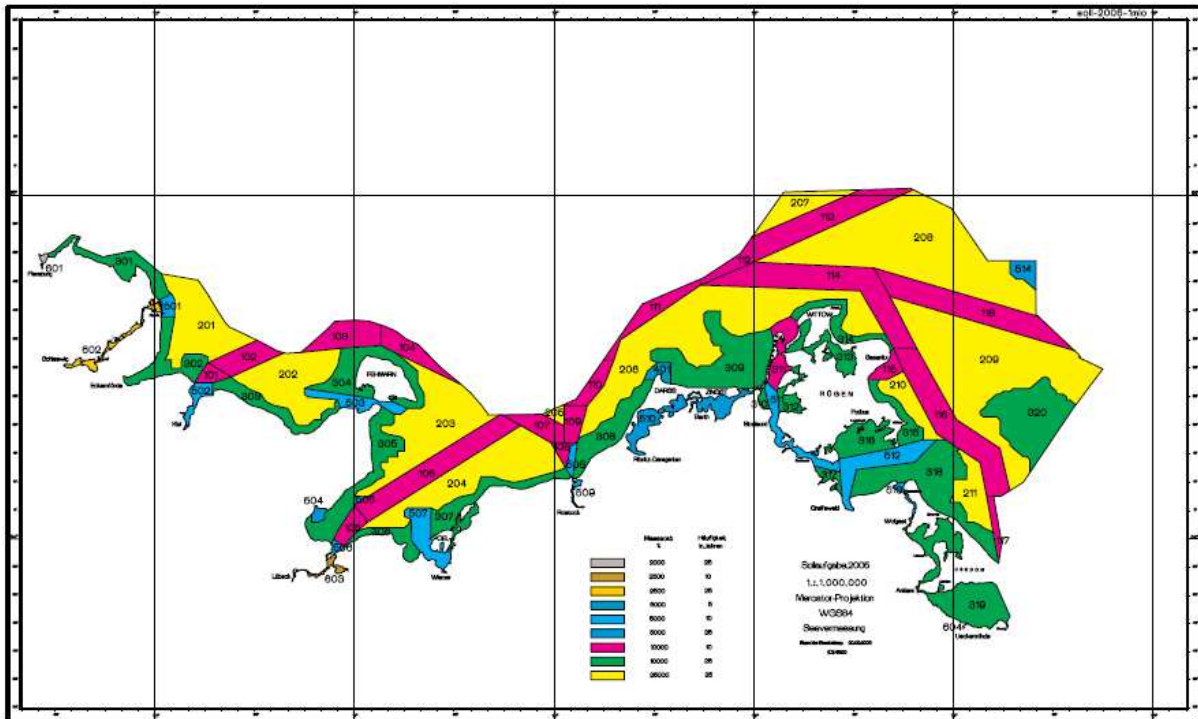
## 1. Hydrographic Office

The Bundesamt für Seeschifffahrt und Hydrographie (BSH, Federal Maritime and Hydrographic Agency of Germany) is an agency within the remit of the Federal Ministry of Transport, Building and Urban Development and has headquarters in Hamburg and Rostock. It encompasses responsibilities in hydrography, oceanography and shipping. The department "Nautical Hydrography" covers the obligations as the national Hydrographic Office and is mainly situated in Rostock. Alongside the BSH the national Water and Shipping Administration (WSV) belonging to the same Ministry manages and maintains the federal maritime waterways.

## 2. Surveys

### Coverage of new surveys

The BSH conducts hydrographic surveys on a general schedule, which is being updated on a yearly basis and amended if necessary. The survey area is subdivided into different slices of similar quality demands. The quality aspects include the re-survey rate as well as survey standards.



<general survey scheme for the German part of the Baltic Sea>

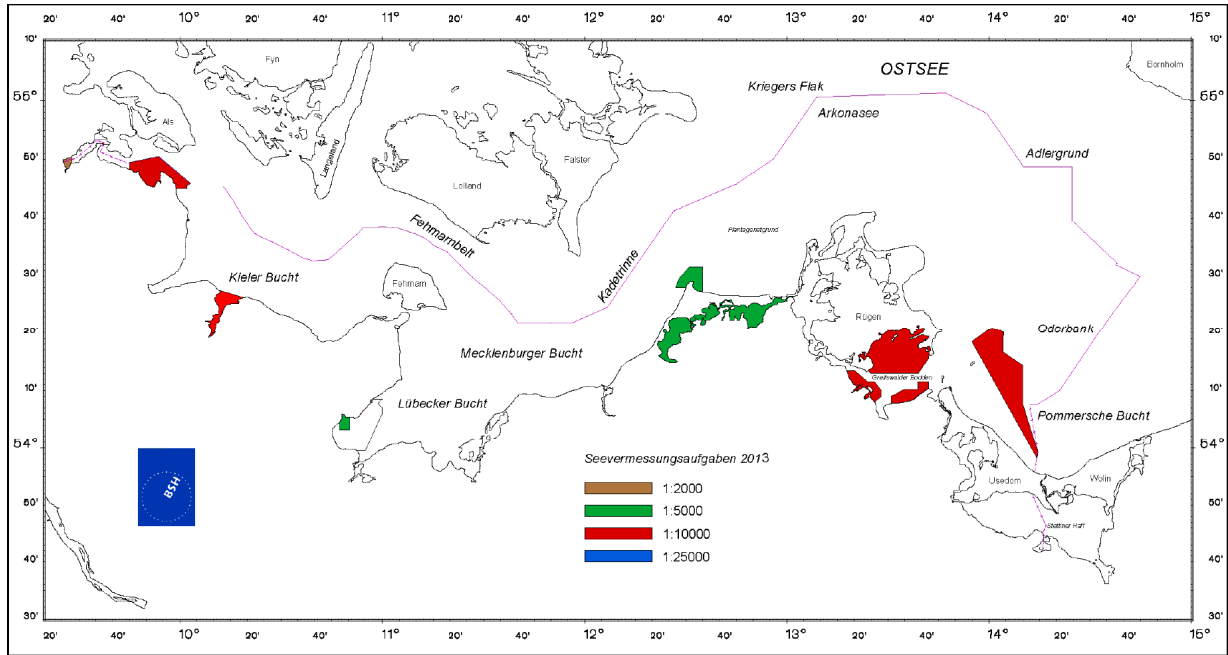
The hydrographic surveys are being executed by vessels from the Hydrographic Office. Due to the relatively high mobility of the seafloor and high morphological energy in combination with dense traffic and many obstructions and wrecks, the area is being resurveyed quite often. The resurvey rate ranges from 5 to 25 years. In 2013 Germany started to resurvey the main routes according to the latest S 44 Standard for the second time.

The detailed survey plans for 2013 and 2014 are provided in a graphical format on the next page. For further details reference is made to the HELCOM Resurvey Site:

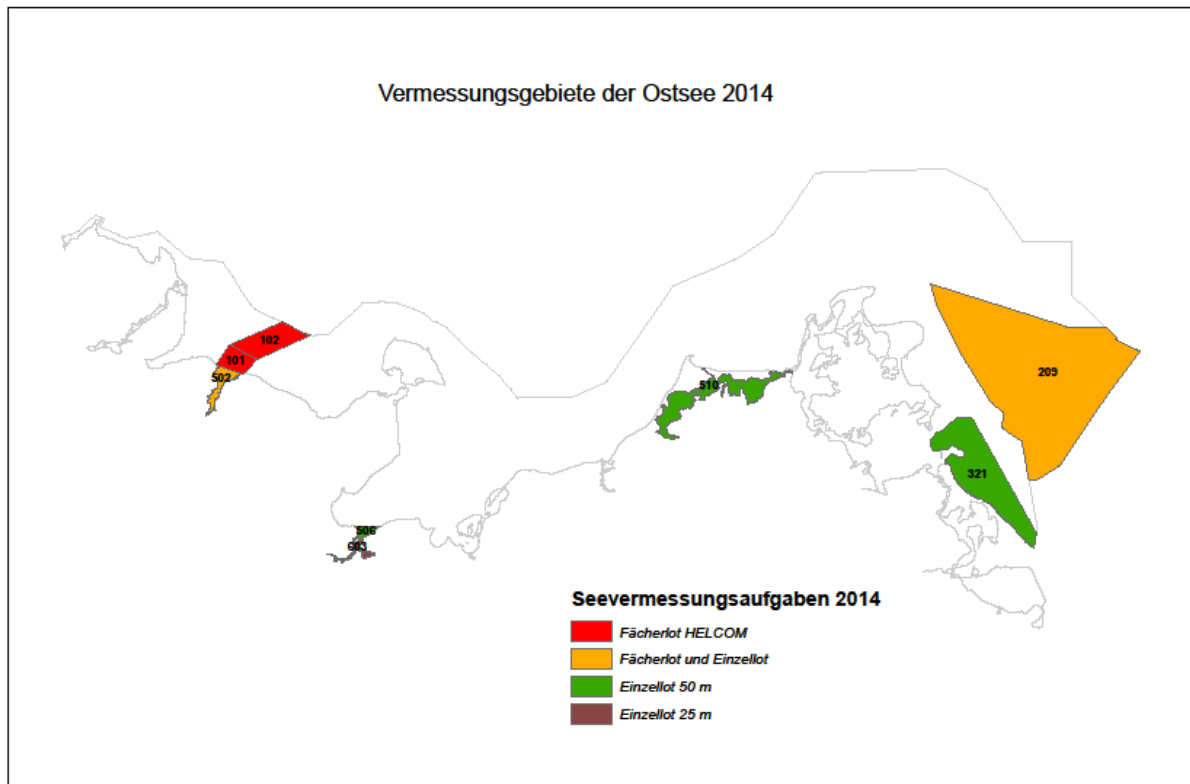
<http://helcomresurvey.sjofartsverket.se/HELCOMRESURVEYSITE/>

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Surveys planned in 2013:



Surveys planned in 2014:



### **Wreck search**

BSH investigated 61 wrecks in 2013 in the Baltic Sea, 15 of them were new found obstructions or wrecks, the others were reinvestigated on a regular schedule. The reinvestigation is necessary due to possible changes caused by currents or other effects. The frequency of the reinvestigation is depending besides other aspects mainly on the likeliness and the impact of changes.

### **New technologies and /or equipment**

From 2012 to 2014 the German Hydrographic Office is investigating the usability of laser bathymetry within the Western and Southern Baltic Sea. Due to new technological developments recently, the technique may be of use in certain shallow areas. In early May the third LIDAR campaign has been accomplished in the test area. A final report will be provided shortly after the end of the project. A workshop with the neighboring countries is scheduled for the end of May.

The way of processing the survey data is currently undergoing a major change. A new survey database has been implemented this year. It provides a high resolution seamless bathymetry in a TIN format including structural information of the topography. From this database a gridded bathymetry will be derived and the standard product will be a 50 meter grid. This will be published via the spatial data infrastructure.

### **New ships**

No new ships have been put into service since the last report, but plans are underway to replace the survey, wreck search and research vessel ATAIR in the coming years. For this new vessel one option for the propulsion and power supply is the application of LNG (Liquid Natural Gas).

### **Problems encountered**

No new problems were encountered since the last report.

### **3. New charts & updates**

Charts (paper as well as ENC's) covering the German waters are produced and updated by BSH. For the whole Baltic Sea BSH issues and updates 125 charts.

#### **ENCs**

The German waters have been covered with 151 ENC's in various navigational bands. All the ENC's are updated on a weekly basis.

#### **ENC Distribution method**

All the German produced ENC's and updates (ERs) are distributed through a network of IC-ENC authorized distributors.

#### **INT charts**

43 German produced INT charts (for the North Sea and the Baltic Sea) have been updated. For the Baltic Sea, BSH is producer of 23 INT charts and printer of 57 INT charts produced by the Hydrographic Offices of Denmark, Poland, Sweden, Finland, Latvia and Russia.

#### **National paper charts for domestic waters**

The overall chart portfolio of the German waters comprises 66 charts (including INT charts) and 11 Small Craft Charts Series - all produced according to international charting standards. For the German waters of the Baltic Sea BSH issues 5 Small Craft Charts Series and a general planning chart.

#### **National paper charts for foreign waters**

For the Baltic Sea outside German waters, BSH produces 47 national charts besides the above mentioned INT charts. The main editing task is the application of INT1 standards for chart signatures. The preferred production method for foreign charts published by BSH is the adoption of digital repro mats of INT or national charts from the producer nations based on bilateral arrangements. For the majority of these charts the editing is made in a hybrid system which allows superimposition of the raster repro mats with vector elements.

For Polish Waters, 3 Small Craft Charts Series are produced in co-operation with the Polish Hydrographic Office (HOPN).

#### **Withdrawal of paper charts for foreign waters**

Due to decreasing customizers request for those charts and increasing internal capacity needs for chart production of domestic waters, BSH will terminate the issue of INT charts and national paper charts for foreign waters by the end of 2014. The exception from this withdrawal is INT chart No. 98 covering the whole Baltic for which BSH continues in its role as nominated producer. BSH will approach all members of this Commission who are in cooperation under bilateral arrangements to adapt these arrangements appropriately.

#### **Other charts, e.g. for pleasure craft**

Routingguide for the Baltic Sea.

Updates for small craft charts via internet

#### **Problems encountered**

None

#### 4. New publications & updates:

##### New Publications

None

##### Updated Publications (July 2014)

20031	Ostsee-Handbuch, südwestlicher Teil 2013
20034	Sailing Directions Baltic Sea, southwestern Part 2013
20061	Nordsee-Handbuch, südöstlicher Teil 2014
20064	Sailing Directions North Sea, southeastern Part 2014
20001	Handbuch für Brücke und Kartenhaus 2014
2010	Winterbetonung 2013/2014
2115	Gezeitentafeln , Europäische Gewässer 2014
2155	Jachtfunkdienst Nordsee, Ostsee und Englischer Kanal 2013
2175	Nautisches Jahrbuch, Ephemeriden und Tafeln 2013
2452	Katalog der Seekarten und Bücher 2014
3001	Wegepunkte in der Ost- und Nordsee 2014
4003	Leuchfeuerverzeichnis Teil 2, westliche Ostsee und Ostseezufahrten 2013
5000	Handbuch Nautischer Funkdienst 2013 Wetter- und Warnfunk 2014 (Internet version only)
40011	Leuchfeuerverzeichnis Teil 1 Band 1 2014
40012	Leuchfeuerverzeichnis Teil 1 Band 2 2014

The following publications are scheduled to be updated later in 2014 and in 2015

2010	Winterbetonung 2014/2015
2115	Gezeitentafeln , Europäische Gewässer 2014
2155	Funkdienst für Klein- und Sportschiffahrt 2015
2176	Nautisches Jahrbuch, Ephemeriden und Tafeln 2015
2452	Katalog der Seekarten und Bücher 2015
3001	Wegepunkte in der Ost- und Nordsee 2015 Wetter- und Warnfunk 2014 (Internet version only)

##### Superseded and updated publication

None

##### Supplements

None

##### Means of delivery, e.g. paper, digital

Nautical Publications will be delivered as paper and digital copies. Some Publications are only available on the Internet.

Charts will be delivered as paper copies and ENC. GeoTiffs are available for all charts. Alternative digital formats and products such as pdf or shape files will be produced on request.

##### Problems encountered

None

**5. MSI**

**Existing infrastructure for transmission**

Incoming hydrographic data is immediately assessed for vital information. Urgent updates are issued as chart-updating Notices to Mariners (NtMs) or Navigational Warnings (Radio Navigational Warnings - NAUTISCHE WARNNACHRICHTEN, NWN).

The NtMs are issued weekly by the BSH. The NtMs provide information on important navigational measures, incidents, and changes concerning the German navigable waterways, the high seas, and the territorial waters of other European states (the greater part in German/English).

NWN are issued by the VTS centres for their areas of responsibility, and by the 24-h maritime warning service in Emden for the entire German warning area, and are broadcast as radio messages. In special cases, the maritime warning service also informs about dangers outside its area of responsibility (e. g. dangerous wrecks in the main shipping lanes).

Navigational warnings in English language relating to the area of responsibility of the Federal Republic of Germany are broadcast on 518 kHz (international NAVTEX service) by the Swedish coastal radio station Gislövshammar Radio, identification character J, for the Baltic Sea, and by the Pinneberg radio station of the German Meteorological Service (DWD), identification character S, for the North Sea.

A national NAVTEX service in German language is broadcast on 490 kHz by the Pinneberg radio station (identification character L) for the entire navigational warnings area of the North and Baltic Seas.

**New infrastructure in accordance with GMDSS Master Plan**

None

**Problems encountered**

None

**6. C-55**

Excerpt of C-55 for Germany in INT Region E updated 1 July 2011, which is still valid.

Status of surveys

A1	A2	B1	B2	C1	C2	Comment
98	0	2	0	0	0	A regular re-survey scheme is in place, taking into account the rapid changes of the sea floor topography. For more details for the Baltic Sea see <a href="http://helcomresurvey.sjofartsverket.se/HELCOMRESURVEYSITE/">http://helcomresurvey.sjofartsverket.se/HELCOMRESURVEYSITE/</a> .

Status of nautical charting

Offshore passage/Small			Landfall Coastal passage/Medium			Approaches Ports/Large			Comment
A	B	C	A	B	C	A	B	C	
100	0	100	100	0	100	100	0	100	

## **7. Capacity Building**

BSH is chairing in the Capacity Building Subcommittee. A Cat A course in Hydrography is offered in english language at the Harbour City University (HCU) in Hamburg. TechAWI in Bremerhaven provides recognized Cat B courses.

## **8. Oceanographic activities**

The BSH operates several services such as daily water level forecasts, storm surge warnings, ice reports, ice charts and charts of the sea-surface-temperature. It surveys and evaluates the physical and chemical conditions of the North and Baltic Sea.

## **9. Other activities**

The BSH is responsible for spatial planning and is the building permit authority within the German EEZ. It has several administrative tasks in the shipping sector and is certified for type testing and approval.

### **9.1 Participation in IHO Working Groups**

BSH is actively involved in the work done by

- HSSC,
- IRCC,
- CBSC,
- SRWG,
- CSPCWG including INT1 subWG,
- DIPWG,
- MSDIWG,
- SNPWG,
- TSMAD,
- TWLWG.

Within BSHC:

Baltic Sea Bathymetric Database Working Group (BSBDWG),  
Baltic Sea International Charting Coordination Working Group (BSICCWG),  
Baltic Sea Marine Spatial Data Infrastructure Working Group (BSMSDIWG),  
Chart Datum Working Group (CDWG),  
Resurvey Monitoring Working Group (MWG).

### **9.2 Other international activities**

BSH is also participating in IMO Committees, namely MSC and NAV as well as IOC.

BSH contributes to the annually held HPD User Group Meetings.

Germany (BSH and BKG, Federal Agency for Cartography and Geodesy) is taking part in the preparation of the FAMOS project, especially in relation to the vertical reference.



### **9.3 BSH to implement the CARIS Publications Module to produce parts of the Notices to Mariners and Lists of Lights**

After an extensive testing time BSH is going to implement the CARIS Publications Module into their production line and starts creation of printed List of Lights by means of this tool with the beginning of 2015.

The Publications Module enriches the production possibilities out of the CARIS Hydrographic Production Database (HPD) for existing and new publications.

Building upon the rich database of hydrographic information which is already stored in HPD, Publications Module will help to streamline the production and management of nautical publications including Notices to Mariners and Lists of Lights.

All information is stored within the same hydrographic database. Users can prepare publication records and submit them for review, before assembling and populating publications. The structure and content of publications can also be reviewed. The final content is exported to XML (Extensible Markup Language) format text file for import into desktop publishing tools.

### **9.4 Automatic derivation of seabed topography for nautical purposes based on high resolution DTM**

The BSH designed a workflow for a database-supported digital terrain model of the German North- and Baltic Sea as well as for the German estuaries. Based on this terrain model the changings of waterdepth at high morphodynamic areas should be reported faster than today. To produce an nautical surface of the seabed, the large data volumes of different authorities have to be quickly transferred, analyzed an harmonized. The terrain model will be the starting point of the automation of nautical generalizations. Therefore the BSH developed and tested different algorithms and compared the resulting depth contours with those generated manually in the traditional manner.

## **10. Conclusions**

Despite the ongoing crisis of international shipping, BSH is observing an all times high in ENC sales. At the same time the Baltic Sea Hydrographic Data Base as provided under the auspices of BSHC gained enormous recognition among all of the stakeholders focused to the Baltic sea.