# 20th BSHC Conference
# National Report of Germany

August 2015

## Executive Summary

The present report outlines and summarizes the activities carried out since the 19th BSHC Conference by the Federal Maritime and Hydrographic Agency (BSH). The report concentrates on the Baltic Sea.

Issues of special interest have been:

- Completion of the scientific investigation of LIDAR in the southern Baltic Sea;
- Publication of depth information via MSDI;
- Automatic derivation of seabed topography for nautical purposes based on high resolution DTM;

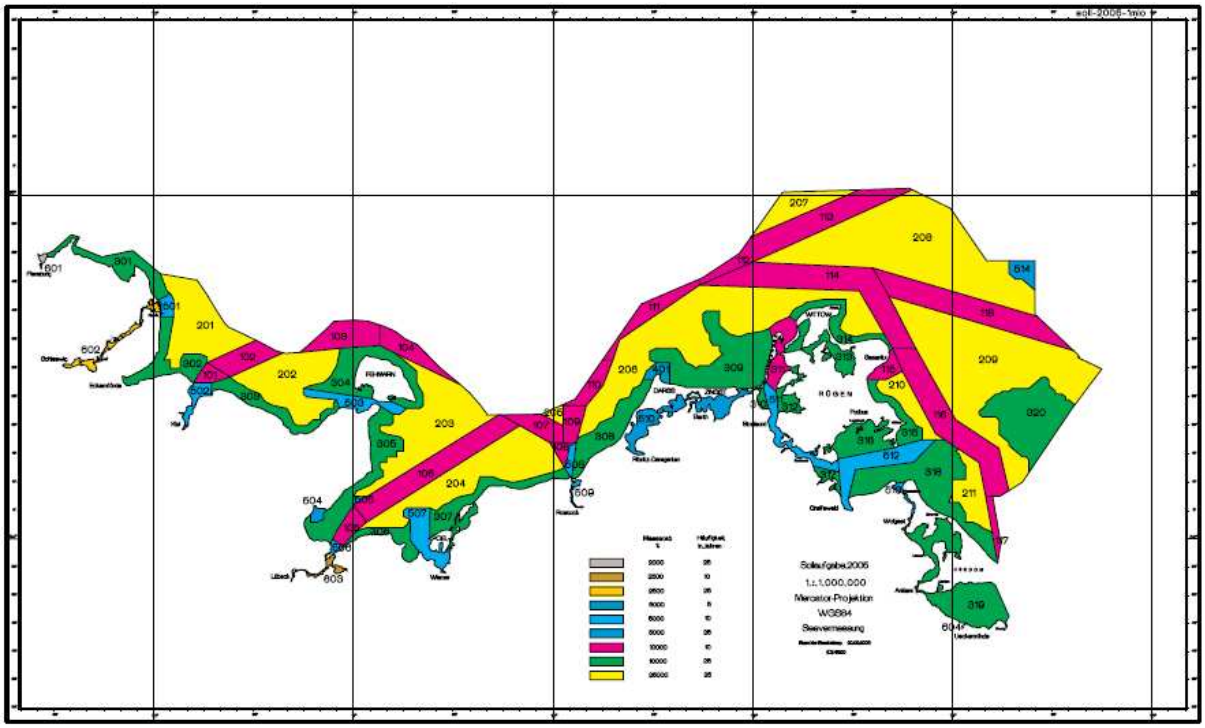
## 1. Hydrographic Office

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.

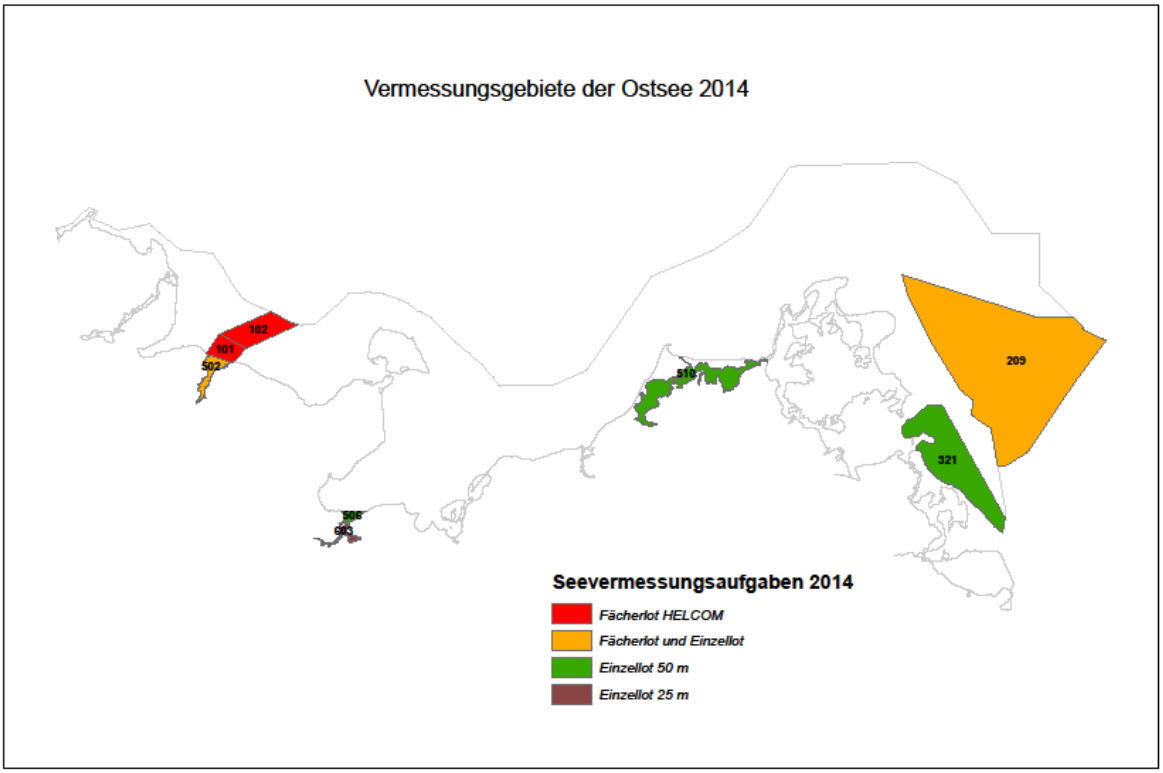


<general survey scheme for the German part of the Baltic Sea>

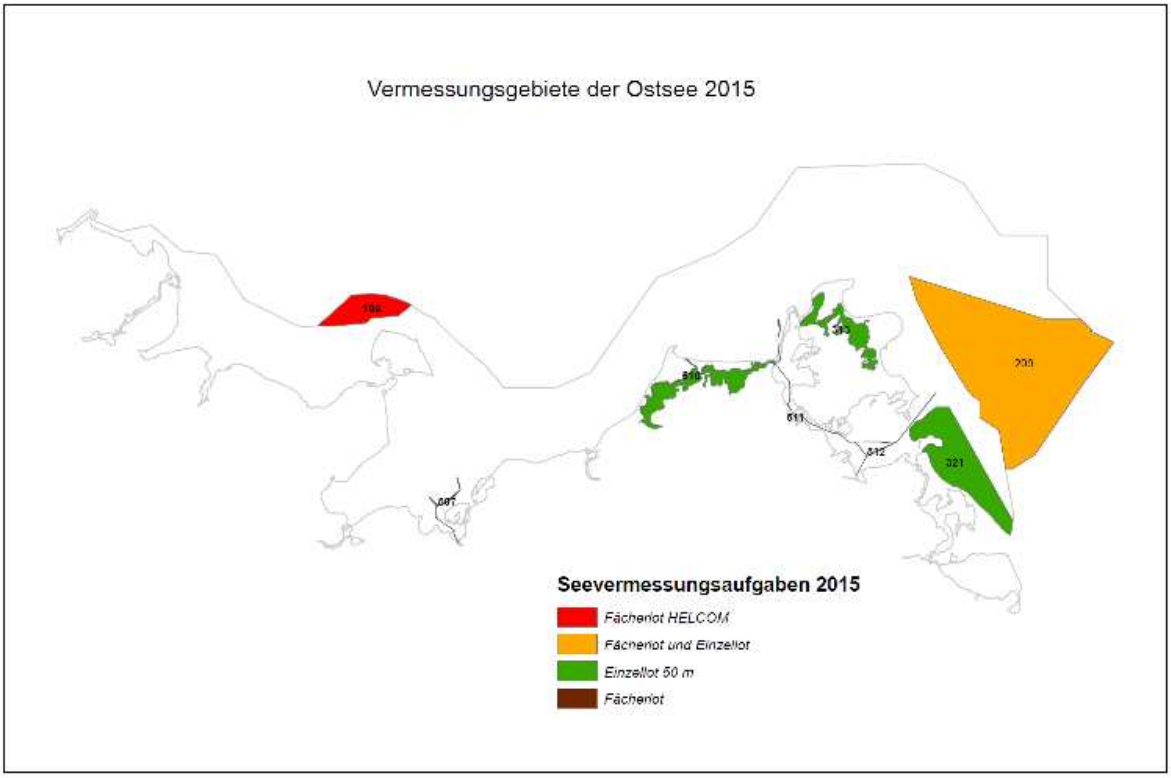
The hydrographic surveys are being executed by vessels from the Hydrographic Office. Due to the relatively high mobility of the seafloor and high morphological energy in combination with dense traffic and many obstructions and wrecks, the area is being resurveyed quite often. The resurvey rate ranges from 5 to 25 years. In 2014 Germany continued to resurvey the main routes according to the latest S 44 Standard for the second time using multi beam.

The detailed survey plans for 2014 and 2015 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/

Surveys planned in 2014:




Surveys planned in 2015:



**Wreck search**

BSH investigated 34 wrecks in 2014 in the Baltic Sea, 10 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 2015 the German Hydrographic Office investigated 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. The final report has just been finalized. Currently BSH investigates the potential output and further development of the survey configuration.

The way of processing the survey data is currently undergoing a major change. A new survey database has been implemented last year. It provides a high resolution seamless bathymetry in a TIN format including structural information of the topography. From this database a gridded bathymetry is being derived and the standard product is a 50 meter grid. This is being published via the BSH MSDI (www.geoseaportal.de/gdi-bsh-portal/ui). The data is available free of charge.

**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 where encountered since the last report.

## 3. New charts & updates

Charts (paper as well as ENCs) covering the German waters are produced and updated by BSH. For the whole Baltic Sea BSH issues and updates 39 charts.

**ENCs**
The German waters have been covered with 153 ENCs in various navigational bands. All the ENCs are updated on a weekly basis.

**ENC Distribution method**
All the German produced ENCs and updates (ERs) are distributed through a network of IC-ENC authorized distributors.

**INT charts**
45 German produced INT charts (for the North Sea and the Baltic Sea) have been updated. For the Baltic Sea, BSH is producer of 27 INT charts.

**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 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 terminated 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.

**Other charts, e.g. for pleasure craft**
Routing guide for the Baltic Sea.
Updates for small craft charts via internet

**Problems encountered**
None

## 4. New publications & updates:

**New Publications**
None

**Updated Publications (July 2015)**

| | |
|---|---|
| 20031 | Ostsee-Handbuch, südwestlicher Teil 2013 |
| 20061 | Nordsee-Handbuch, südöstlicher Teil 2014 |
| 20001 | Handbuch für Brücke und Kartenhaus 2014 |
| 2010 | Winterbetonnung 2014/2015 |
| 2115 | Gezeitentafeln , Europäische Gewässer 2015 |
| 2155 | Funkdienst für Klein- und Sportschifffahrt 2015 |
| 2175 | Nautisches Jahrbuch, Ephemeriden und Tafeln 2015 |
| 2452 | Katalog der Seekarten und Bücher 2015 |
| 3001 | Wegepunkte in der Ost- und Nordsee 2015 |
| 5000 | Handbuch Nautischer Funkdienst 2015 |
| | Wetter- und Warnfunk 2015 (Internet version only) |
| 5001 | Handbuch Revierfunkdienst 2015 |
| 4001 | Leuchtfeuerverzeichnis LfV südwestliche Ostsee 2015 |
| 4003 | Leuchtfeuerverzeichnis LfV südöstliche Nordsee 2015 |

**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 and the German EEZ.

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 Gislovshammar 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 August 2015.

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 http://helcomresurvey.sjofartsverket.se/HELCOMRESURVEYSITE/. |

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 Universtity (HCU) in Hamburg. TechAWI in Bremerhaven provides recognized Cat B courses.

## 8. Oceanographic activities

The BSH operates several services such as daily water level forcasts, 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 ans 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,
- NCWG - NAUTICAL CARTOGRAPHY WORKING GROUP,
- NIPWG - NAUTICAL INFORMATION PROVISION WORKING GROUP,
- MSDIWG,
-
- S-100 WORKING GROUP,
- TWCWG - TIDES, WATER LEVEL AND CURRENTS WORKING GROUP.

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 FAMOS project, especially in relation to the vertical reference. In this framework, Germany conducts gravity measurement to improve the quality of the quasi geoid.

### 9.3 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. Together with the German company SMILE Consult the BSH developt a software to generate automatically conturlines for nautical charts. To see more, visit: http://nautilus.smileconsult.de/

## 10. Conclusions

The National Hydrographer of Germany, Mathias Jonas is currently holding the chair of IC-ENC steering committee. In this role he observes increasing acceptance of the WEND/RENC-Concept by global grow in membership and steady ENC sales. Moreover, ENCs are under enhanced request from stakeholders beyond classic SOLAS applications. National drivers of hydrography remain marine spatial planning and the approval process for offshore wind energy farming.