

22nd BSHC Conference National Report of Germany

August 2017

Executive Summary

The present report outlines and summarizes the activities carried out since the 21st BSHC Conference by the Federal Maritime and Hydrographic Agency (BSH). The report concentrates on the Baltic Sea.

Issues of special interest have been:

- By the end of 2017 start of cutting and keel-laying of a new survey, wreck search and research vessel, replacing the oldest BSH-vessel ATAIR. The new vessel will be equipped with a hybrid engine using mainly LNG (Liquid Natural Gas);
- Automatic derivation of seabed topography for nautical purposes based on high resolution DTM.

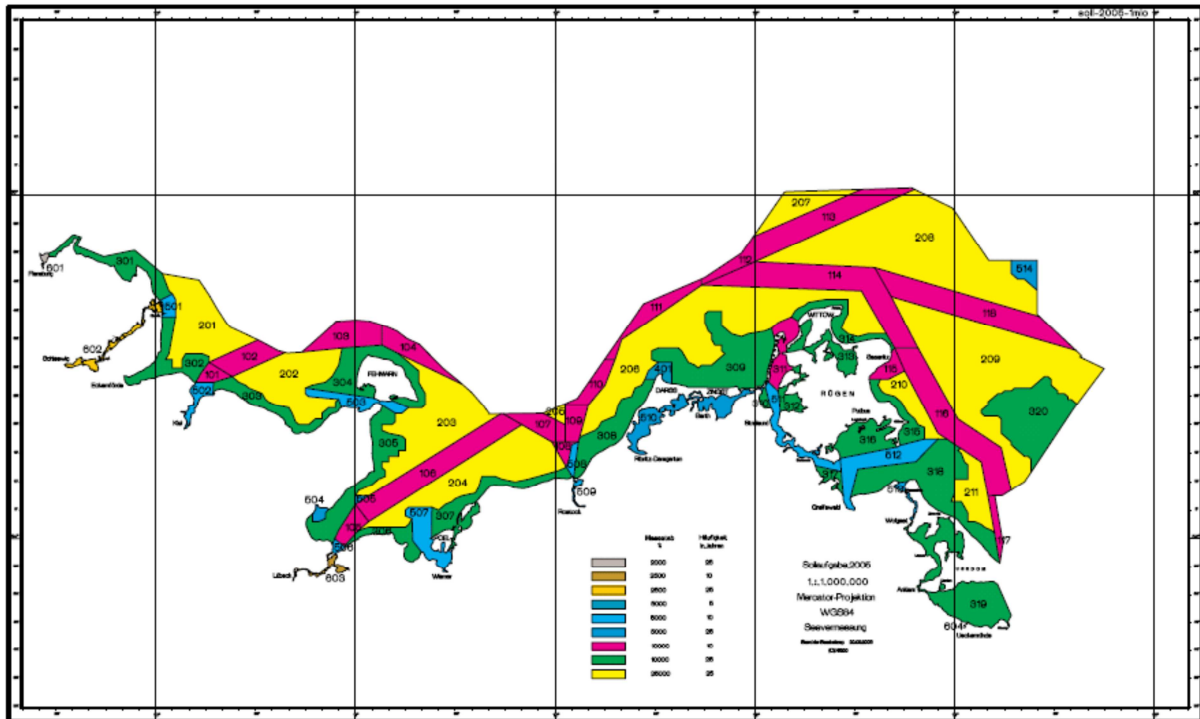
1. Hydrographic Office

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 Waterways 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.

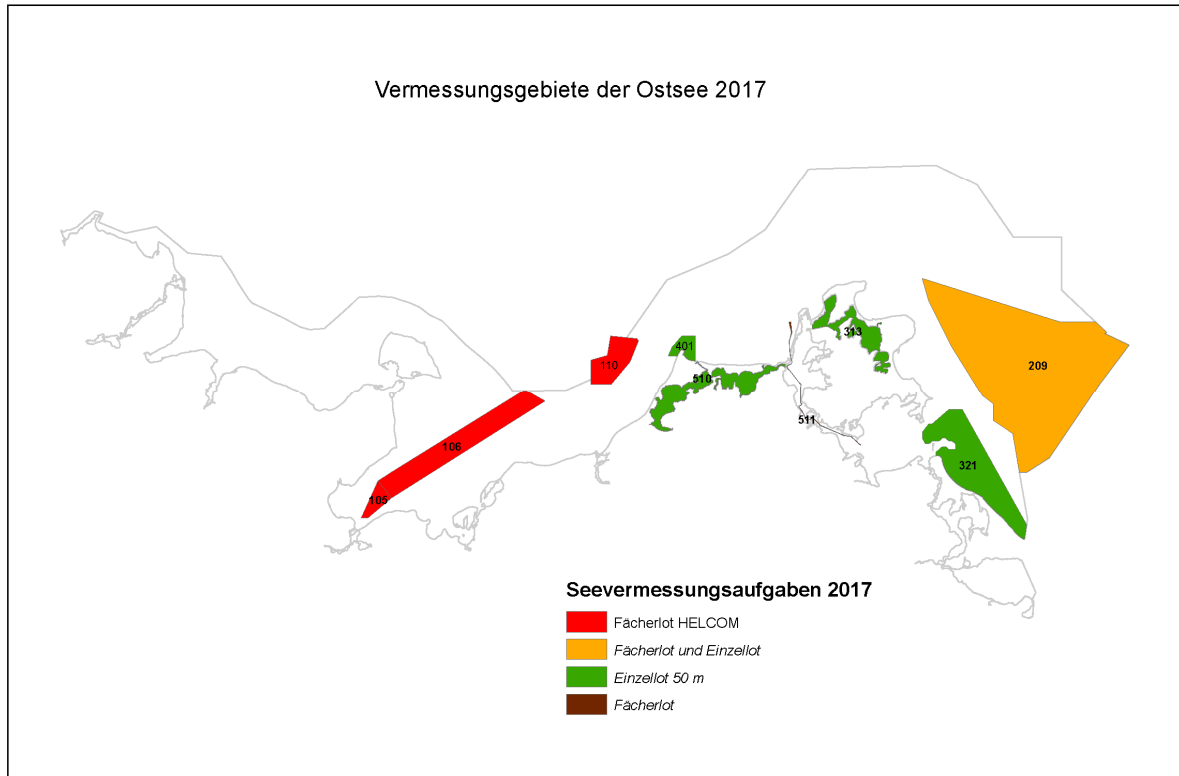


<general survey scheme for the German part of the Baltic Sea>

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 2017 Germany continues to resurvey the main routes according to the latest S 44 Standard for the second time using multi beam.

The detailed survey plan for 2017 is 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 2017:

Wreck search

BSH investigated 38 wrecks in 2016 in the Baltic Sea, 4 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

The regular use of communication satellites to broadcast the GNSS corrections to the survey vessels in a higher precision and in real-time is currently under investigation.

New ships

The survey, wreck search and research vessel ATAIR is going to be replaced by a new one in the near future, probably in 2020. This new vessel will be equipped with a hybrid engine using mainly LNG (Liquid Natural Gas). It is going to be the largest vessel of the BSH-fleet with a length of approximately 74 m and a width of almost 17 m. Contract partner is the FASSMER shipyard near Bremen. The construction will be executed at the GERMAN NAVAL YARDS in Kiel. Start of cutting is scheduled for end of October and keel-laying will be in December this year.



Principle sketch of the new vessel



New BSH multipurpose vessel

Problems encountered

No problems where encountered since the last report.

3. New charts & updates

Charts (paper as well as ENC) covering the German waters are produced and updated by BSH.

ENCs

The German waters have been covered with 163 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

48 German published INT charts (for the North Sea, the Baltic Sea and Antarctic Waters) have been updated. For the Baltic Sea, BSH is the producer of 22 INT charts.

National paper charts for domestic waters

The nearly A0 sized chart portfolio of the German waters comprises 60 charts (including INT charts) - all produced according to international charting standards. For regional shipping BSH has published in 2017 first 28 A1 sized charts for the North Sea in German language from HPD. In this system the German-English windpark charts are included. Additionally 4 Small Craft Charts Series and a general planning chart are issued for the German part of the Baltic Sea.

National paper charts for foreign waters

Germany is the producer of INT 120 (DE 98) covering the whole Baltic and 3 INT charts for Antarctic waters

Withdrawal of paper charts for foreign waters

None for the Baltic Sea.

Other charts, e.g. for pleasure craft

Routeing guide for the Baltic Sea INT 1200 (DE 2911) and for German Bight INT 1410 (DE 2910).

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

Updates for small craft charts via internet

First windpark chart in A1 size DE 2610 for windparks Baltic 1 and Baltic 2 has been published in July 2017

Problems encountered

None

4. New publications & updates:

New Publications

None

Updated Publications (August 2017)

20031 Ostsee-Handbuch, südwestlicher Teil 2017
2010 Winterbetonung 2016/2017

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2115	Gezeitentafeln , Europäische Gewässer 2017
2155	Funkdienst für Klein- und Sportschiffahrt 2017
2175	Nautisches Jahrbuch, Ephemeriden und Tafeln 2017
2452	Katalog der Seekarten und Bücher 2017
5000	Handbuch Nautischer Funkdienst 2015 Wetter- und Warnfunk 2017 (Internet version only)
5001	Handbuch Revierfunkdienst 2017
4001	Leuchfeuerverzeichnis LfV südwestliche Ostsee 2017
4003	Leuchfeuerverzeichnis LfV südöstliche Nordsee 2017

Superseded and updated publication

None

Supplements

None

Means of delivery, e.g. paper, digital

Nautical Publications will be delivered as paper copies. Selected Publications are digital and 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 broadcasted as radio messages. In special cases, the maritime warning service also informs on 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 broadcasted 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 August 2017.

Status of surveys

A1	A2	B1	B2	C1	C2	Comment
100	0	0	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 providing the chair of the Capacity Building Subcommittee since 2011 and the CB-Coordinator for the BSHC. A Cat A course in Hydrography is offered in english language at the Harbour City University (HCU) in Hamburg.

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. It is as well certifying body for the construction and operation of offshore wind energy farms in the German EEZ.

9.1 Participation in IHO Working Groups

BSH is actively involved in the work done by

- HSSC,
- IRCC,
- CBSC,

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- NCWG - NAUTICAL CARTOGRAPHY WORKING GROUP,
- NIPWG - NAUTICAL INFORMATION PROVISION WORKING GROUP,
- MSDIWG,
- S-100 WORKING GROUP,
- TWCWG - TIDES, WATER LEVEL AND CURRENTS WORKING GROUP
- HSPT – HSSC Project Team on Standards for Hydrographic Surveys.

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 NCSR as well as IOC.

BSH contributes to the 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 work on the automatisisation for a database-supported nautical surface of the German North- and Baltic Sea as well as for the German estuaries. This nautical surface is the essential condition for the upcoming BSH Service to provide bathymetric ENC for the German Pilots.

The requirement to produce contour lines and selected soundings in a short time, BSH asked the German Companies "Smile Consult" and "7Cs" to create a software which corresponding to our need.

The ENC Bathymetry Plotter is the result. This Plotter can be used to create contour lines and selected soundings for incorporation into ENCs or other digital hydrographic chart products. Point Cloud or Gridded bathymetry data that serve as input is processed and transformed into a so called Nautical Elevation Model. A Nautical Elevation Model is a shoal-biased smoothed-out underwater terrain model.

The result of the Nautical Elevation Model creation process can be imagined as draping a sheet over a rough and bumpy surface to make it appear much smoother. The degree of generalization can be defined by the user to suit the targeted scale of the final chart product. To see more, visit: <https://www.sevencs.com/enc-production-tools/enc-bathymetry-plotter/>

10. Conclusions

The National Hydrographer of Germany, Mathias Jonas has been elected as the new Secretary General of the IHO and will leave the BSH by the end of August.