

Agenda Item 15.1

National Reporting

Reports from Parties

Document Inf.15.1.e

**2014 Annual National Report:
Germany**

Action Requested

- Take note

Submitted by

Germany



**NOTE:
DELEGATES ARE KINDLY REMINDED
TO BRING THEIR OWN COPIES OF DOCUMENTS TO THE MEETING**

2014 ASCOBANS Annual National Reports

This questionnaire has been pre-filled with answers given in 2013 National Report - please update!

This format for the ASCOBANS Annual National Reports was endorsed by the 6th Meeting of the Parties in 2009. Reports are due to be submitted to the Secretariat by 31 March of each year.

Parties are requested to use this report to provide NEW information on measures taken or actions towards meeting the objectives of the Conservation and Management Plan and the Resolutions of the Meeting of the Parties.

The 7th Meeting of the Parties in 2012 agreed to move to online reporting with immediate effect. In order to benefit fully from the opportunities for synergies among CMS Family treaties afforded by this tool, Parties decided that a revised national report format be developed by a small working group assisted by the Secretariat for consideration by the Advisory Committee in preparation for the 8th Meeting of the Parties. While retaining the questions related only to ASCOBANS, it should align more closely to the format used in CMS, AEWA and EUROBATS.

General Information

Name of Party

> Germany

Report prepared by

This should indicate the name and affiliation of the lead person for filling in the report.

Name	Oliver Schall / with the help of Patricia Brtnik
Function	National Focal Point of ASCOBANS
Organization	BMUB (Federal Ministry for the Environment, Nature Conservation Building and Nuclear Safety) / German Oceanographic Museum (DMM) on behalf of BfN (= Federal Agency for Nature Protection)
Address	Robert-Schuman-Platz 3; 53175 Bonn, Germany / Katharinenberg 14-20; 18439 Stralsund
Telephone/Fax	+ 49 228 305 2632 / +49 (0) 38 301 86 158
Email	oliver.schall@bmub.bund.de / Patricia.Brtnik@meeresmuseum.de

Coordinating Authority and National Coordinator

Please confirm the Coordinating Authority responsible for the national implementation of the Agreement, and give the name and contact details of the officially appointed National Coordinator (Focal Point).

> BMUB (Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety); Oliver Schall, Robert-Schuman-Platz 3; 53175 Bonn, Germany; phone: + 49 228 305 2632; Email: oliver.schall@bmub.bund.de

List of National Institutions

List of national authorities, organizations, research centres and rescue centres active in the field of study and conservation of cetaceans, including contact details

> Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), Robert-Schuman-Platz 3, D-53175 Bonn

> Federal Ministry for Food and Agriculture (BMEL), Rochusstr. 1, D-53123 Bonn

> Federal Ministry of Defence (BMVg), Kurt-Schumacher-Damm 41, D-13405 Berlin

> Federal Agency for Nature Conservation (BfN), AST Vilm, D-18581 Putbus

> Federal Environment Agency (UBA), Wörlitzer Platz 1, D-06844 Dessau - Roßlau

> Federal Maritime and Hydrographic Agency (BSH), Bernhard-Nocht-Str. 78, D-20359 Hamburg

> Johann Heinrich von Thünen Institute for Sea Fisheries (TI), Palmaille 9, D-22767 Hamburg

> Schleswig-Holstein's Ministry of Energy, Agriculture, the Environment and Rural Areas (MELUR), Mercatorstrasse 3, D-24106 Kiel

> Free and Hanseatic City of Hamburg, State Ministry for Urban Development and the Environment (BSU),

Administration for the National Park Wadden Sea of Hamburg, Neuenfelder Straße 19, D-21109 Hamburg

- › National Park Administration Wadden Sea of Lower Saxony (NP-LS), Virchowstr. 1, D-26382 Wilhelmshaven
- › Schleswig-Holstein's Government- Owned Company for Coastal Protection, National Parks and Ocean Protection (LKN), Schlossgarten 1, D-25832 Tönning
- › Lower Saxony State Office for Consumer Protection and Food Safety, Institute for Fish and Fishery Products, (LAVES), Schleusenstr. 1, D-27472 Cuxhaven
- › Institute of Terrestrial and Aquatic Wildlife Research (ITAW) of University of Veterinary Medicine Hannover (TiHo), Foundation, Werftstr. 6, D-25761 Büsum
- › German Oceanographic Museum (DMM), Katharinenberg 14-20, D-18439 Stralsund
- › BioConsult SH GmbH & Co. KG, Schobüller Str. 36, D-25813 Husum
- › Society for Dolphin Conservation (GRD), Kornweger Str. 37, D-81375 München
- › Christian-Albrechts-Universität Kiel (CAU), Olshausenstr. 40, D-24098 Kiel
- › Projektträger Jülich (PTJ), Department for Wind Energy, Forschungszentrum Jülich GmbH, Wilhelm-Johnen-Straße, D-52425 Jülich
- › F³: Forschung / Fakten / Fantasie; Prof. Dr. Boris Culik; Am Reff 1, D-24226 Heikendorf
- › NABU (the Nature and Biodiversity Conservation Union) Dr. Kim Detloff; Charitéstraße 3; 10117 Berlin
- University of Hamburg, Zoological Institute, Veit Hennig, Martin-Luther-King-Platz 3, D-20146 Hamburg
- Whale and Dolphin Conservation (WDC). Fabian Ritter, Leiter Meeresschutz, Implerstraße 55; D-81371 München

Habitat Conservation and Management

Fisheries Interactions

Direct Interaction with Fisheries

1.1 Investigations of methods to reduce bycatch

> Alternative fishing gear

NABU (Nature and Biodiversity Conservation Union) runs a research project on alternative gear types commissioned by the Federal Agency for Nature Conservation (BfN). The project aims to run test fisheries with automatic longlines and jigging machines and looks into potential test with baited pots in order to investigate their application and cost-effectiveness in German waters. Project goals are:

- Run test fisheries with different techniques in German Baltic waters
- Support innovative development of different gear types reconditions in German waters
- Prepare the ground for other techniques than gillnets
- Investigate catch rates and potential bycatch of seabirds and harbor porpoises, but also of undersized fishes
- Investigate cost-effectiveness of selected gear types
- Support sustainable fishery management in MPAs.

In November 2013 one vessel in the federal state of Schleswig-Holstein has been equipped with a complete set of an Oilwind longline system Type 07-22. Another vessel has been equipped with four DNG jigging machines. The project is accompanied by an intense monitoring and observer programme comparing new techniques with the established gillnet fishery. Test fisheries will be conducted until May 2015.

A close cooperation with fishermen and fisheries science (Thünen Institute) and international experts from Sweden and Poland has been established [Detleff, NABU; Pusch, BfN].

> Acoustic Alerting Device "PAL" (Porpoise ALarm)

The Thünen Institute for Baltic Sea Fisheries (TI) (Rostock) and F³:Forschung.Fakten.Fantasie (Kiel), with financial support from the German Federal Ministry of Food and Agriculture (BMEL), are carrying out a project to develop and test a new type of acoustic deterrent device - a 'Porpoise ALarm' (PAL).

The pingers that fishermen are currently using are potentially controversial as they are suspected of scaring porpoises away from feeding grounds creating a constant noise pollution. In contrast the PAL generates porpoise communication noises which in theory warn animals in the vicinity about the presence of nets, which in turn may reduce bycatch rates.

To test their practicability and effectiveness, PAL devices were deployed on a small number of German and Danish commercial gillnet vessels while carrying out their normal fishing activities in the Baltic Sea for several months in 2013 and 2014. For the trials, specifically those fisheries were selected that are active in areas where higher bycatch rates of harbor porpoises could be expected. During these trials, bycatch of five harbor porpoises in 2013 and two in 2014 was observed. Due to the trials setup, the very limited number of observed fishing vessels and the low number of documented bycatch events, it is not possible to further extrapolate the results.

First results concerning practicability and effectiveness of PAL are promising, but further development and trials are necessary. Thanks to additional funding from BMEL, this work will be carried over the years 2015-2017 [von Dorrien, TI; Culik, F3].

1.2 Implementation of methods to reduce bycatch

> Voluntary agreement

Since 17.12.2013 the voluntary agreement for the conservation of harbour porpoises and sea ducks in the Baltic Sea between the Landesfischereiverband (LFV) (Fishery Association of Schleswig-Holstein), the Fischereischutzverband (FSV) (Fishery Protection Union of Schleswig-Holstein), the Baltic Sea Info-Center Eckernförde (OIC) and the Ministry of Energy transition, Agriculture, Environment and Rural Areas Schleswig-Holstein (MELUR) is in force.

This voluntary agreement mandates a reduction of the total length of gillnets to 4km for boats > 8m, to 3km for boats between 6 und 8m and for boats

> Within the whale sanctuary of the Wadden Sea in Schleswig-Holstein, the new federal state regulation (4th of December 2013) for coastal fishing excludes any gillnet fishing within the 3 nautical miles zone. Additionally, outside the 3 nautical miles zone, gillnet fishing is prohibited with gillnets with a length of > 1,3m from upper line (headrope) to the ground-line (footrope) and a mesh size of > 150mm [MELUR].

1.3 Other relevant information

Other relevant information, including bycatch information from opportunistic sources
> no further information

1.4 Report under EC Regulation 812/2004

Please provide the link to your country's report under EC Regulation 812/2004.
> no further information

Reduction of Disturbance

2.1 Anthropogenic Noise

Please reference and briefly summarise any studies undertaken

> Changes in harbour porpoise population density related to pile driving noise

The project is funded by Vattenfall; project coordinator: BioConsult SH GmbH & Co KG, Husum, Germany; project partners: Aarhus University, Aarhus, Denmark. Duration: 01.11.2012 – 30.09.2015.

A number of offshore wind farms were constructed along European coastal waters during the last years. Mostly, turbines were built on steel foundations being rammed into the sea floor by hydraulic hammers, thus causing considerable underwater noise during construction. Several studies demonstrated displacement of harbour porpoises (*Phocoena phocoena*) around construction sites during and up to three days after ramming. During construction of the offshore wind farm DanTysk', located in the German North Sea 70 km west of Sylt and consisting of 80 turbines built on monopile foundations, harbour porpoise activities before, during, and after pile driving were assessed by 18 passive acoustic data loggers (two C-POD stations with three C-PODs each, and three transects placed at different distances and directions from the construction area and consisting of four C-PODs each). These devices recorded porpoise echolocation clicks, thus providing information on the presence of these animals on a high temporal resolution. Within the project, porpoise reactions to ramming are to be analysed with respect to different noise levels, as well as to different temporal and spatial distances from ramming.

Results will contribute to and improve DEPONS individual-based models (Disturbance Effects on the harbour porpoise Population in the North Sea; [Rose, Diederichs, Tougaard, Nabe-Nielsen & Nehls; BioConsult SH] Further information can be found at: <http://depons.au.dk/>

> Evaluation and improvement of a big bubble curtain for mitigating underwater noise associated with pile-driving activities

The project is funded by the Federal Ministry for Economic Affairs and Energy (BMWi); project coordinator: BioConsult SH GmbH & Co KG, Husum; project partners: Hydrotechnik Lübeck GmbH, Lübeck; Itap GmbH, Oldenburg; ISD, University of Hannover, Hannover; CREEM, University of St. Andrews, St Andrews, UK. Duration: 01.07.2013 - 31.03.2015.

In the last years a number of offshore wind farms was constructed using prototypes of single, double, or linear bubble curtains to mitigate noise emissions from offshore piling and construction and thus to protect marine mammals from injuries of the auditory system.

Within the framework of this project, the set-up of the noise mitigation systems was improved, assuring save handling at sea, maximum efficiency to attenuate noise, and cost effective layout procedures during the construction of the offshore wind farm Global Tech I. The wind farm, under construction 170 km north of Borkum Island, consists of 80 wind turbines and a transformer station. During foundation work for the turbines (tripod construction), 240 piles with a diameter of 2.5 m were driven into the sediment by a hydraulic hammer.

To analyze the effects of the offshore piling activities on marine mammals, and to evaluate the mitigation capabilities of various bubble curtain configurations, a grid of up to 15 monitoring stations was installed. These stations consisted of C-PODs to monitor harbour porpoise (*Phocoena phocoena*) activity, and hydrophones to measure sound exposure levels at various distances. Distances between stations and construction sites varied from a few hundred meters (stations in the construction area) to 20 km, hence allowing the investigation of long distance and long-term changes in harbour porpoise behavior.

The 'Big Bubble Curtain' has been proven to be suitable as a noise mitigation system for pile driving, and its effectiveness has been greatly improved during this project by optimizing airflow and air pressure, as well as layout and maintenance procedure. Harbour porpoise activity and reactions to piling are currently analyzed [Liesenjohann, Diederichs, Rose, Bellmann, Grunau, Rustemeier & Nehls; BioConsult SH]. Further information can be found at: www.hydrorschall.de

> Noise reduction technics

In 2014 all construction work for offshore windfarms in the German EEZ including pile driving used special technical systems for the noise reduction according to the incidental provision Nr. 14 of the licences given by BSH.

At one of the wind farms 77 monopiles of 6 m diameter have been installed in water depths 24-28 m. The noise mitigation system (NMS) developed by the IHC, Netherlands was successfully deployed in all 77 installations. The value of SEL5 measured at 750 m distances from the pile driving site was kept constantly below 163 dB re 1 µPa and for about 75 % the values for the SEL5 were at 160 dB re 1 µPa. The maximal hammer energy was kept below 800 kJ.

A combination of two systems was used for pile driving noise reduction by a second offshore wind farm: the NMS-system by the IHC and a big bubble curtain system have been successfully deployed for the installation of 80 monopiles (6 m diameter) at 20-22 m water depth. The SEL5 value was kept constantly below the threshold with the lowest value at 152 dB re 1µPa. The duration of the installation of the monopiles was three months and a half.

The third wind farm also chose a combination of two noise mitigation systems. A so called hydro sound damper (HSD) is used in combination with a big bubble curtain system. The results show that the low frequencies can be effectively mitigated by using the HSD-system.

In the reporting time three substations and two converter-platforms were also installed using in most cases big bubble curtain systems for noise mitigation. The SEL5 values were constantly kept at the threshold level and below this.

In summer 2014 BSH granted the first licence for one wind energy plant for research purposes based on a suction bucket foundation. The installation of the suction bucket foundation in one of the wind farms was successfully completed by the end of the summer [Boethling, BSH].

> In 2014 the monitoring of the construction phase in the German EEZ³ included hydroacoustic measurements at 750 m, 1.500 m and in vicinity to conservation sites (SCI)⁴ as well as passive acoustic monitoring of the harbour porpoise activity combined with the hydroacoustic measurements.

For the passive acoustic monitoring for harbour porpoises C-PODs and SM2M devices have been deployed. The parallel deployment of the two systems in the field has shown that the data are comparable and SM2M is a good alternative for the monitoring of harbour porpoise activity.

To give an insight at recent developments of noise mitigation systems, noise reduction achieved by single mitigation systems or by the combination of technical systems, the effect of other technical components like the type and properties of hammers used but also to get a feeling about cost-effectiveness issues a workshop (in German) was organized in October 2014 by BSH.

http://www.bsh.de/de/Meeresnutzung/Wirtschaft/Windparks/Workshops/index.jsp#Schallschutz_10_2014

The presentations give an overview on the ongoing research and development of noise mitigation systems in Germany [Boethling, BSH].

> Project: "Impacts of underwater noise on marine vertebrates"

The "underwater noise" project (Cluster 7 "Impacts of underwater noise on marine vertebrates"), funded by the Federal Agency for Nature Conservation (BfN), was continued, coordinated by the ITAW and in close cooperation with other research institutions (University Aarhus, Denmark, DWShipConsult, University St. Andrews, UK). It covers a broad spectrum of diverse and varied tasks.

The main goal is to develop verifiable norms for the estimation of the impact of underwater noise on marine organisms. In distinct subprojects the hearing sensitivity of harbor porpoises is investigated. The auditory study on harbour porpoises to validate the temporary threshold shift (TTS) level for impulsive noise was carried out. So far eight audiograms (twelve frequencies between 16 up to 160 kHz in 1/3 octave steps) of free-ranging harbour porpoises were collected and five animals were exposed to an airgun impulse to validate the temporary threshold shift value. The auditory thresholds were determined at 4 and 8 kHz.

Furthermore, blood-samples were taken to evaluate sound induced stress in exposed porpoises. Thereby, a baseline for stress hormones and mRNA expression levels of cytokines and acute phase proteins in blood samples of harbor porpoises in different stress levels was established (Müller et al. 2013; BMC Veterinary Research 9:145; <http://www.biomedcentral.com/1746-6148/9/145>).

In addition, so far nine porpoises in the natural environment have been equipped with new developed automatic data loggers capable to record the current sonic load in the water. The goal of such research is to gain improved knowledge about possible behavioral changes (escape reactions, changes in diving behavior or emigration from noisy areas) after noisy underwater events.

Furthermore, in order to complement the information about noise in the ocean, acoustic noise mapping in Natura 2000 protected areas of the North and Baltic Seas using stationary noise recording systems is carried out. Data was collected at different locations in the Baltic and North Seas [Siebert, Seibel, Ruser, Unger, Lehnert ITAW; Wittekind, Schuster DWShipConsult; Teilmann, Miller, Madsen, Univ. Aarhus, Denmark; Johnson, Univ. St. Andrews, UK].

> Monitoring of wind farm construction impacts

In concurrence with the Cluster 7, ITAW and DW-Shipconsult carried out a project in "Sylt Outer Reef" to estimate the impact of three ongoing wind farm constructions bordering this Natura 2000 site.

All positions were equipped in 2013 with noise loggers, recording in the audible range of humans, and C-PODs, recording the echolocation 'click' of harbor porpoise. In 2014 the project continued by deploying 11-12 positions in "Sylt Outer Reef" around the construction sites "Amrumbank West" and "Butendiek".

First part of the project ended in 2014 with a final report on the assessment in 2013. The project will continue until 2015 and is funded by the BfN [Dähne, Rasmussen, Siebert; ITAW; Wittekind, Schuster; DW-Shipconsult].

> Monitoring

Following the instructions for the German Navy on the protection of marine mammals and maritime habitats, marine mammal sightings are collected continuously by the German fleet and recorded in a database to improve knowledge about the distribution and habitat use of abundant species. This information is taken into account for the planning of the use of sonar systems during trials.

As part of a joint project of measuring underwater noise in the German North Sea, the deployment of click detectors (C-PODs) was continued in the area of the research platform FINO 3 to record harbour porpoise activity. A frequent presence of harbour porpoises could be observed.

During pile driving activities in the harbour of the Eckernförder Bight, Baltic Sea, sound pressure levels (SPL) were measured to assess the range of sound levels in the area [BMVg].

2.2 Ship Strike Incidents

Please list all known incidents and provide information separately for each

	Date	Species	Type of Injury	Fatal Injury (Yes/No)	Type of Vessel (length, tonnage, speed)	Location (coordinates)	More Information (name, email)
Incident							
Incident							
Incident							
Incident							
Incident							
Incident							
Incident							
Incident							
Incident							
Incident							
Incident							

2.3 Major Incidents

Major Incidents Affecting Significant Numbers of Cetaceans (two or more animals)

	Date	Location	Type of Incident	Further Information
Incident				

2.4 Pollution and Hazardous Substances

Please report on main types of pollution and hazardous substances (including source, location and observed effects on cetaceans). Please provide information on any new measures taken to reduce pollution likely to have an impact.

> Marine Debris

Aerial survey data (2010-2012) were analyzed in the course of a project funded by the German Federal Environment Agency (Umweltbundesamt) to gain information on the distribution of floating marine debris as major part of marine pollution. The impacts of marine macro debris, such as outer and inner injuries, on harbour porpoises will be analyzed next year by evaluating necropsy protocols drafted since 1990.

Furthermore, faeces samples of harbour porpoises collected during necropsies will be analyzed to provide information on the occurrence of microplastic particles in a top-predator species. [Unger, Siebert ITAW].

A review of harmful substances on marine mammals entitled “Development of concepts and methods for compilation and assessment of selected anthropogenic pressure in the context of the Marine Strategy Framework Directive” was conducted on behalf of, and funded by, the German Federal Environment Agency. [Wehrmeister, Siebert; ITAW]

2.5 Other Forms of Disturbance

Please provide any other relevant information, e.g. relating to recreational activities affecting cetaceans.

> Ship strikes

Marks that could be attributed to ship impacts were identified when conducting necropsies in order to contribute to the assessment of the potential impact of ship strikes on harbour porpoises in the North and Baltic Seas funded by the Ministry of Renewable Energies, Agriculture, Environment and Rural Areas of Schleswig-Holstein (MELUR) [Siebert, ITAW].

> Ship noise

Wild harbour porpoises were tagged with archival multi-sensor DTAG3 tags in order to assess the potential impact of shipping noise on the behaviour and energetics of free-ranging porpoises (for more details see Danish report). This work is part of the Cluster 7 and is funded by the BfN [Teilmann, Madsen Univ. Aarhus, Denmark].

Marine Protected Areas

Marine Protected Areas for Small Cetaceans

3.1 Relevant Information

Please provide any relevant information on measures taken to identify, implement and manage protected areas for cetaceans, including MPAs designated under the Habitats Directive and MPAs planned or established within the framework of OSPAR or HELCOM.

> Management Plan for harbour porpoises

The process of developing national management plans for the 8 designated German Special Areas of Conservation / SACs (pursuant to the Habitats-Directive), protection measures for harbour porpoises the negotiations is not yet entirely finalized.

The management of fisheries for the protection of harbor porpoises in SAC's can be developed only following the procedures of Article 11 und 18 of the EU-Regulation 1380/2013 on the Common Fisheries Policy. National proposals for such measures have to be presented to the Commission and the other Member States having an interest consisting of either fishing opportunities or a fishery taking place in the area. If the initiating Member State and the other Member States agree on the measures they will be submitted as a “joint recommendation” to the Commission. The Commission shall adopt the measures, taking into account any available scientific advice, within three months from receipt of a complete request.

In addition, for harbour porpoises, as an Annex IV species of the habitats directive, conservation plans are being developed for the whole German North and Baltic Sea.

> In 2014 German NGOs DNR, Greenpeace, WWF, NABU, DUH, BUND and WDC prepared an appeal to the court against the Federal Agency for Nature Conservation (BfN) - representing the German government - for not implementing necessary conservation measure in the Natura 2000 marine protected areas in the German EEZ. One focus area is the HD MPA “Oderbank-Pommersche Bucht” where harbour porpoises are regularly bycaught in gillnets. This appeal was placed 27th February 2015 [Ritter, WDC].

3.2 GIS Data

Please indicate where GIS data of the boundaries (and zoning, if applicable) can be obtained (contact email / website).

> www.HabitatMareNatura2000.de contains the needed delimitation of the protected sites, however with the traditional geographical maps instead of GIS [BfN].

Surveys and Research

4.1 Abundance, Distribution, Population Structure

Overview of Research on Abundance, Distribution and Population Structure

> Visual monitoring:

In 2014, four dedicated aerial surveys were carried out in the south (“Borkum Reef Ground”) and in the north-eastern part (“Sylt Outer Reef”) of the German EEZ in the North Sea in order to assess abundance and distribution of harbour porpoises. In addition to these scheduled monitoring surveys, a small area of the German North Sea around the offshore windfarm “Butendiek” was surveyed separately, between 27th June and 22th July 2014, in order to investigate the effects of pile driving on the distribution of harbour porpoises. These surveys are part of the German monitoring programme of Natura 2000 sites, funded by the BfN. [Siebert, Gilles, Viquerat; ITAW].

Results can be found at: http://www.bfn.de/0314_monitoringberichte.html

> Acoustic monitoring Wadden Sea:

Within the framework of the monitoring programme of the Federal Government and the German coastal “Länder” (Bund-Länder-Messprogramm), 6 C-PODs were deployed throughout waters of Lower Saxony and Schleswig-Holstein during 2014 in order to monitor acoustic activities in the German Waddensea. This work is funded by Schleswig-Holstein’s Government-Owned Company of Coastal Protection, National Parks and Ocean Protection (LKN-SH) and the Nationalpark office of Lower Saxony (NP-LS) and carried out by ITAW. [Dähne, Siebert, Meyer-Klaeden ITAW; Eskildsen LKN-SH; Czeck NP-LS]

Two C-POD stations were operating in 2014, one was installed in the vicinity of the island Minsener Oog and one at the mouth of the Jade Bay. It is planned to continue this monitoring of seasonal activity of harbour porpoises in the Wadden Sea of Lower Saxony. A first comprehensive report will be available in early 2015 [Czeck, NDS-NLPV].

> Static Acoustic Monitoring Baltic Sea

With the financial support from the Federal Agency for Nature Conservation (BfN), the German Oceanographic Museum (DMM) is conducting static acoustic monitoring of harbour porpoises using C-PODs (porpoise click detectors) in the Baltic Sea. Our long-term monitoring has shown seasonal and geographical patterns of harbour porpoises revealing annually migration behaviour. Furthermore, the study highlighted that the harbour porpoise still occurs in the entire German Baltic Sea despite the dramatic decline of the population [Gallus, DMM].

Further Information:

<http://www.deutsches-meeresmuseum.de/dmm/stiftungdeutschesmeeresmuseum/wissenschaft/schweinswale/forschungsprojekte/monitoring/>

Results can be found under:

Benke, H. et al. 2014: Baltic Sea harbour porpoise populations: Status and conservation needs derived from recent survey results. *Marine Ecology Progress Series* 495:275–290.

http://www.bfn.de/0314_monitoringberichte.html

> SAMBAH

The aim of the pan-Baltic project SAMBAH (Static Acoustic Monitoring of the BALTic Harbor Porpoise) is to initiate a best practice methodology and to provide data for reliable assessments of distribution and habitat use for this species to allow an appropriate designation of protected areas for this species within the NATURA 2000 network as well as other relevant mitigation measurement.

The SAMBAH project has collected two years of acoustic monitoring data (1.5.2011-31.4.2013) on the harbour porpoise in the Baltic Sea. Germany was responsible for 16 stations in the German waters.

In 2014, scientists of the Oceanographic Museum have been involved in the data analyses. The international SAMBAH project has now estimated the number of harbour porpoises in the Baltic Sea to approximately 447 animals (95% confidence interval 90-997) [Gallus, DMM].

More information is available at:

<http://www.deutsches-meeresmuseum.de/dmm/stiftungdeutschesmeeresmuseum/wissenschaft/schweinswale/forschungsprojekte/sambah/>

> Digital Surveys

In 2014 the investigation of harbour porpoise abundance and distribution in the frame of EIAs and monitoring of the construction and operation phase was switched from airplane-based surveys with observers at 183 m flight height to airplane-based digital surveys with video or still image systems at about 400 m flight height. The comparability of the data, the definition of minimal requirements and quality criteria are part of a research project (DigiTop) conducted by the Research and Technology Centre West Coast (FTZ) of the University of Kiel for the BSH.

Some information on digital survey activities in the German EEZ are found in the presentations given in the Workshop (in English) held in October 2014 at BSH, Hamburg: “Workshop on the Use of standardized Digital Survey Methods for Environmental Impact Assessment Studies in German Offshore Wind Farms” under:

http://www.bsh.de/de/Meeresnutzung/Wirtschaft/Windparks/Workshops/index.jsp#Digitale_Erfassung_10_2014

[Boethling, BSH].

> Long-term monitoring of harbour porpoises (*Phocoena phocoena*) in the Pomeranian Bay, Baltic Sea
The project was conducted in co-operation with Deutsches Meeresmuseum (Stefan Bräger, Anne Herrmann, Harald Benke, Ursula Verfuß und Jens Koblitz) und CREEM (Louise Burt, Len Thomas)
Increasing porpoise detection rates were recorded by passive acoustic monitoring in the Pomeranian Bay of the Baltic Sea over a period of eight years. From 2005 until 2012, two types of acoustic monitoring devices (so-called T-PODs and C-PODs) were deployed at 28 locations within an area of approx. 7000 km² to detect echo-locating harbour porpoises. Differences between POD type and individual devices were taken into account by determining and including calibration factors into statistical models. Predicted detection rates were obtained from a General Additive Model framework and averaged over all devices and all locations to compute an overall annual trend of porpoise presence within the Pomeranian Bay. The model revealed an exponential detection increase over the eight-year study, predominantly driven by the rise of a distinct annual summer/autumn peak, which is presumably connected to porpoises arriving from the Danish Belt Sea. A much less pronounced winter peak increased only moderately over the study period and is assumed to represent the annual visit of Baltic proper porpoises in the study area. The increase of the summer/autumn peak over the years might be explained by either an increase in the Belt Sea population size or a spatial shift in their density distribution and expansion towards the southeastern end of its range or a combination of both. Oxygen saturation near the bottom of the Arkona Basin showed a strong negative correlation with porpoise presence in the Pomeranian Bay during summer/autumn. This supports the hypothesis, that amongst other factors oxygen depletion in the Baltic Sea basins acts as driver and causes porpoises to leave the basins and to frequent the more oxygen rich areas of the shallow Pomeranian Bay during summer/autumn. Similarly, high concentrations of chlorophyll A during summer/autumn, representing periods of high primary production in the Pomeranian Bay were positively correlated with porpoise detection rates during the study period. High primary production is likely to increase the occurrence of planctivorous prey species of harbour porpoises in the Pomeranian Bay [Diederichs, Kosarev, Wollheim, Brandt; Bio-Consult SH]
To be published in MEPS.

> Opportunistic sightings in the German rivers Elbe and Weser
Opportunistic sightings of harbour porpoises in the German rivers Elbe and Weser were collected in the framework of the PhD thesis of Denise Wenger: "Distribution, habitat use, health status and conservation of harbour porpoises (*Phocoena phocoena*) in the north German rivers Elbe and Weser"; University of Veterinary Medicine Hannover, Foundation/ Institute for Terrestrial and Aquatic Wildlife Research, ITAW / Apl. Prof. Dr. Ursula Siebert;

Results of an opportunistic sighting scheme implemented by Denise Wenger at GRD since 2007 including the collection of data on sightings of harbour porpoises in Germany's rivers at the North Sea coast. Data show that harbour porpoises are increasingly regularly frequenting the rivers Elbe and Weser swimming up to the cities of Bremen and Hamburg in springtime during the months from early March through late May. The spatial-temporal pattern shown during the last years coincides with the pattern of the anadromous fish shoals of smelt (*Osmerus eperlanus*) and twaite shad (*Alosa fallax*) migrating from the North Sea upstream to their spawning grounds.

Sighting reports in 2014 (© D. Wenger, GRD/ITAW)

A. Elbe river:

In contrast to the previous year in 2014 just very few harbour porpoises have been sighted in the lower course of the Elbe river. The sightings were made from the 16th of April to the 24th of September. No clear temporal pattern like in the years before (Feb./March to May) was shown in 2014, but harbour porpoises showed up every month from the middle of April until the end of September. All together 8 sighting reports.

In the Hamburg port area where in 2013 harbour porpoises have been observed from March through May over weeks (also hunting prey; see report for ASCOBANS 2013), in 2014 in this area just 5 sighting reports were made: two middle of April (duo, single harbour porpoise), one in July (duo), one in August (2-3 harbour porpoises), one in September (single individual). The total number of thereby observed harbour porpoises was at least 8.

In the estuary further north near the river mouth and the city of Cuxhaven 3 sightings of single individuals were reported in May, July and August.

The fishermen along the Elbe river said that the migration of the smelt shoals upstream occurred in 2014 around four weeks earlier (end of January) than usually maybe due to the warm winter.

One dead harbour porpoise was found and examined (Hamburg State Institute for Hygiene and Environment). Publication in prep.; results and further studies within the context of a dissertation at the University of Veterinary Medicine Hannover, Foundation.

B. Weser river

Also in the Weser river in 2014 just few harbour porpoises were spotted. First sightings occurred as in the previous years at the end of February (23.2./26.2.14) with two single individuals near the cities of Brake and Nordenham, and two sightings in April, one far up the Weser near to the city of Bremen, one at Strohauser Plate (where an acoustic data logger, a C-POD, was installed).

One harbor porpoise was spotted in the river "Hunte" which flows into the Weser at Elsfleth, there is a known spawning ground of anadromous fish species.

From near the city of Bremerhaven at the river mouth 3 sightings were reported with at least 8 (one group of

5-6) animals between beginning of April (5.5.14) and end of August (27.8.14).
4 reports came from the outer Weser estuary with 10 animals all together (one group of 6 porpoises).
All together 11 sighting reports with at least 23 animals (two times groups of 5-6/6 animals) [Wenger, GRD].
For further information see: www.schweinswale.de

4.2 Technological Developments

New Technological Developments

> Tagging

In concurrence with the Cluster 7, DTAG3 tags were implemented with a fastloc GPS receiver, as well as with an ARGOS transmitter. GPS positions are recorded throughout the deployment and captures are stored, whereas the ARGOS system turns on when the tag releases and is only used for tag recovery (for more information see Danish report). This work is funded by the BfN [Teilmann, Madsen Univ. Aarhus, Denmark; Johnson Univ. St Andrews, UK].

> Effectiveness of real-time detection of harbour porpoises

Noise emissions from offshore pile driving of turbine foundations regularly exceed the sound level at which harbour porpoises suffer temporary threshold shifts (TTS). Therefore, harbour porpoises are to be deterred from the vicinity of the construction site before the start of noise intense activities, and the efficacy of this procedure is to be documented by C-PODs. However, C-POD data can only be viewed after C-POD recovery. To enable immediate initiation of mitigation procedures in case of porpoise presence, a real-time monitoring tool is needed. Therefore Seiche Ltd. (UK) developed the wireless detection system (WDS), which sends porpoise detection data in real-time from the remote recording device to a receiving station on board a ship.

The WDS was tested during the installation of 48 piles of the windfarm NordseeOst in the German North Sea. Some porpoises were detected by the WDS, which lead to the immediate redeployment of the seal-scarer, which proved to be successful.

Furthermore, the performance of the WDS was tested and compared to that of the C-POD. Simultaneous deployments of the C-POD and WDS at the windfarm NordseeOst revealed that both instruments recorded generally similar data. Most porpoise detections (73-89 %) on one device were also recorded by the other within ± 6 min. Visual observations of porpoises compared to the acoustic recordings on the WDS and C-POD revealed a maximum detection radius for the WDS of 194 m when single clicks and click trains are considered and of 140 m if only click trains are taken into account. In comparison, the mean maximum detection range for the C-POD (which only detects clicks in trains) was 106 m. Both devices recorded no or only very few detections when porpoises were at distances greater than 200 m. Of 80 tracks when porpoises approached the WDS and C-POD closer than 200 m, 39 tracks (49 %) were recorded by the WDS and 32 tracks (40 %) were recorded by the C-POD. Porpoises had to spend on average 271 sec within a 200 m radius of the WDS and 398 sec within a 200 m radius of the C-POD in order to be acoustically detected with a 50 % probability. Several parameters significantly affected detection probability with most recordings when porpoises were swimming towards the WDS and C-POD, were feeding, and occurring in a group size of two (mostly mother calf pairs).

It was found that the WDS was comparable to the C-POD in terms of porpoise detection probability and detection range. The WDS proved to be a very useful tool for real-time monitoring of harbour porpoises within the danger zone around pile driving. It currently is the only remote real-time monitoring tool for porpoises that has successfully been tested under field conditions [Höschle, Gelippi, Pierpoint, Kosarev, Diederichs, Nehls; Bio-Consult SH].

> High definition video technique - new technique provides excellent data on marine mammals for impact studies

Increasing human activities at sea require solid data on marine mammal distribution and abundance in order to balance economic activities with conservation demands. In order to obtain unbiased survey data high definition video techniques have been developed offering the possibility to cover large areas by high definition imaging with a resolution of 2 cm. A flight altitude of 549 m allows surveying in offshore wind farms which will be closed for conventional survey flights for safety reasons. Digital aerial surveying will thus replace conventional survey techniques in the near future. However, surveying marine mammals by digital imaging is often discussed as being a challenge due to the fact that animals spent most of the time under the sea surface.

In several studies in the German Bight, North Sea, we conducted high definition video surveys on harbour porpoise and harbour seals. The videos provided high sighting rates of both surfacing and submerged animals and the techniques proves to be highly useful for surveys on small cetaceans.

Sighting rates and densities of harbour porpoises will be compared between conventional visual survey method and digital video technique and the quality of the different survey techniques will be discussed. On few selected pictures exceptional observations could be made like fish balls surrounded by a group of porpoises [Diederichs, Büttger, Weiß, Nehls; Bio-Consult SH].

4.3 Other Relevant Research

> Detection and classification of marine mammal signatures

A study about the detection and classification of marine mammal signatures (= phonograms) was continued, with the focus on the improvement of the classification algorithms and processing of signatures in real-time. New bioacoustic data were integrated into a marine mammal data base (containing sightings, strandings, worldwide maps of occurrence and characteristics). Acoustic samples of sperm whales were used within a study to investigate the automated estimation of the number of individuals from acoustic recordings, using clustering and grouping techniques of the click signatures.

The detection probability of harbour porpoises at the surface was investigated with a mounted digital video camera at the research platform FINO 3 during a pilot study, using automated image processing algorithms. A new towed hydrophone array for the acoustic detection of marine mammals was further tested during a research trial.

For the use within the German Navy an html-based atlas of marine mammals was further developed, containing information on species characteristics, behaviour, abundance, distribution and acoustics [BMVg].

> Stranding Monitoring

In Schleswig-Holstein all stranded cetaceans from the North and Baltic Seas were collected by the local stranding network. Necropsies were conducted to assess the health status and identify anthropogenic effects on cetaceans in the North and Baltic Seas. In addition, reproduction biology, age, genetic structure and feeding ecology were studied [Siebert, ITAW].

> The collection of information on harbour porpoises found dead was continued in 2014; the number of dead animals in the district of Cuxhaven amounted to 2 carcasses [Pund, LAVES].

> Collection of information about harbour porpoises found dead at the coast of Lower Saxony was continued. The number of harbour porpoises found dead at the coast of Lower Saxony amounted to 49 carcasses in 2014. This total also included the carcasses mentioned in 4.3 & 5 from LAVES report [Czeck, NDS-NLPV].

The data since 1983 are available at:

http://www.nationalparkwattenmeer.de/sites/default/files/media/pdf/schweinswal_totfunde_2014_0.pdf

Use of Bycatches and Strandings

Post-Mortem Research Schemes

5.1 Contact Details

Contact details of research institutions and focal point

> Schleswig-Holstein (SH): Terrestrial and Aquatic Wildlife Research (ITAW) of the University of Veterinary Medicine Hannover (TiHo), Foundation, Werftstr. 6, D-25761 Büsum

> Mecklenburg – West Pomerania (MV): German Oceanographic Museum, Katharinenberg 14-20, D-18439 Stralsund

(sichtungen@meeresmuseum.de)

Phone: +49 (0)3831 2650 333

Fax: +49 (0)3837 2650 209

> Lower Saxony (LS): National Park Authority, LAVES-Institute for Fish & Fishery Products Cuxhaven (only district of Cuxhaven)

5.2 Methodology

Methodology used (reference, e.g. publication, protocol)

> SH: Measurements were taken in metric system [Siebert, ITAW, Schwarz-Kaack, MELUR]. Necropsies were only conducted on porpoises from the Baltic and North

> MV: Basic biological and anatomical data were collected and registered. Necropsy was performed occasionally.

> LS: Metric measurements of harbour porpoise carcasses in Lower Saxony (District of Cuxhaven) were taken. Due to advanced decomposition of the carcasses no necropsy examinations could be performed in 2014.

5.3 Samples

Collection of samples (type, preservation method)

> SH: Pathological samples were partly taken on porpoises from the Baltic Sea and North Sea.

> MV: Pathological samples will be collected and examined during necropsy if required.

> LS: Due to advanced decomposition of the carcasses no samples could be taken in 2014

5.4 Database

Database (number of data sets by species, years covered, software used, online access)

> SH: MySQL, PostgreSQL, Access, Excel

In 2014, 63 dead harbour porpoises were found at the coasts of SH in the North Sea and 98 were found at the coast of SH in the Baltic Sea

Between 1990 and 2014 the following number of data sets has been collected per species (data recorded until 19.01.15):

Phocoena phocoena: 3.536

Delphinus delphis: 8

Lagenorhynchus albirostris: 26

Lagenorhynchus acutus: 2

Stenella caeruleoalba: 1

Delphinapterus leucas: 1

Delphinapterus ampullatus: 1

Physeter macrocephalus: 7

Balaenoptera acutorostrata: 7

Balaenoptera physalus: 6

Globicephala melas: 3

Tursiops truncatus: 1

Mesoplodon bidens: 1

> MV: Data were collected and registered in Access database and Excel.

In 2014, 31 dead harbour porpoises were found at the coasts of MV.

> LS: The number of dead animals in the district of Cuxhaven amounted to 2 carcasses: Metric data from 1 carcass were collected and registered in the IFF Cuxhaven. Due to severe decay of the second carcass no data could be collected.

Further 3 carcasses outside of the Cuxhaven district were reported from the NLWKN to the IFF Cuxhaven.

5.5 Additional Information

Additional information (e.g. website addresses, intellectual property rights, possibility of a central database)
 > The German Oceanographic Museum collects information about incidental stranding and sightings (see at <http://www.deutsches-meeresmuseum.de/dmm/stiftungdeutschesmeeresmuseum/wissenschaft/schweinswale/sichtungen/sichtungsmelden/>)

Activities and Results

5.6 Necropsies

Number of necropsies carried out in the reporting period

	Recorded cause of death	Number
Phocoena phocoena	MV: Recorded strandings only partially to be necropsied; recorded cause of death: drawn, parasitic diseases, bacterial infection, pneumonia, dystocia	SH: 161 / MV: 15 / LS: -
Tursiops truncatus		
Delphinus delphis		1
Stenella coeruleoalba		
Grampus griseus		
Globicephala melas		
Globicephala macrorhynchus		
Lagenorhynchus albirostris		
Lagenorhynchus acutus		
Orcinus orca		
Hyperoodon ampullatus		
Mesoplodon bidens		
Kogia breviceps		
Other (please specify under number)		
Other (please specify under number)		
Other (please specify under number)		
Other (please specify under number)		
Other (please specify under number)		
Other (please specify under number)		

5.7 Other Relevant Information

Please provide any other relevant information on post-mortem / stranding schemes
 > No other relevant information

Relevant New Legislation, Regulations and Guidelines

6.1 New Legislation, Regulations and Guidelines

Please provide any relevant information

> Noise reduction concept

https://www.bfn.de/fileadmin/MDB/documents/themen/erneuerbareenergien/Strategie_Positionspapiere/schallschutzkonzept_BMU.pdf

Public Awareness and Education

7.1 Public Awareness and Education

Please report on any public awareness and education activities to implement or promote the Agreement to the general public and to fishermen.

> Publications in the BMUB-Journal "Umwelt"

An article about under-water noise protection of harbour porpoises ("Lärmschutz für die Wale in der Nordsee") was published in "Umwelt" (March 2014 / page 6 -10).

A further article about "POD"-research in the Baltic Sea ("Mit PODS auf der Pirsch"/ appeared in "Umwelt" (September 2014 / page 44 -47) [Schall, BMUB].

> Incidental Sightings Project

The German Oceanographic Museum is responsible for the "sailor on the lookout for harbour porpoises" project. This project includes registration of sightings of harbour porpoises and the dead porpoises Found. By the webpage of the museum and on our flyers of the projects we provide information on sightings of porpoises and dead animals and explain what people should do if they encounter a porpoise or find one dead. It is possible to contact us by App OstSeeTiere, post, email or telephone [Gallus, DMM].

[http://www.deutsches-](http://www.deutsches-meeresmuseum.de/dmm/stiftungdeutschesmeeresmuseum/wissenschaft/schweinswale/sichtungen/)

[meeresmuseum.de/dmm/stiftungdeutschesmeeresmuseum/wissenschaft/schweinswale/sichtungen/](http://www.deutsches-meeresmuseum.de/dmm/stiftungdeutschesmeeresmuseum/wissenschaft/schweinswale/sichtungen/)

> Exhibitions at the German Oceanographic Museum

Ghost nets

In 2013, the German Oceanographic Museum, together with WWF and archaeomare e. V. and the financial support of the Swiss Drosos foundation started a project on ghost nets in the Baltic Sea. For one year, divers documented 28 barriers (mostly wrecks) around the island Rügen where nets got lost. In summer 2014 the results of the project were shown in the framework of a touring exhibition in the German Oceanographic Museum Stralsund. Also, the WWF started to collect the ghost nets of that area and will continue in 2015 [Gallus, DMM].

Information can be found at:

<http://www.wwf.de/themen-projekte/projektregionen/ostsee/geisternetze-bergen/>

<http://www.wwf.de/themen-projekte/projektregionen/ostsee/schluss-mit-geisternetzen-von-der-idee-bis-zur-bergung/>

> "Kein Plastik Meer" no plastic ocean

Within the framework of the theme year "Kein Plastik Meer" (no plastic ocean) the German Oceanographic Museum as well as the Ozeaneum started the exhibition „Mensch Müll ·Meer“ (Man - Waste - Ocean) which is shown simultaneous in 14 different European countries [Gallus, DMM].

<http://www.deutsches-meeresmuseum.de/dmm/kein-plastik-meer/kein-plastik-meer-im-meeresmuseum/>

<http://www.deutsches-meeresmuseum.de/dmm/kein-plastik-meer/kein-plastik-meer-im-ozeaneum/>

> Exhibition "The last 300"

WDC, NABU, OceanCare and ASCOBANS partnered to set up an exhibition on the conservation of the harbour porpoise in the proper Baltic sea, based on the creativity competition that took place in 2013/14. The title is "Die letzten 300" ("The last 300") referring to the few remaining harbour porpoise in the central Baltic sea. Patron of the exhibition is German environmental minister Dr. Barbara Hendricks. The winning contributions of the competition were presented in person to the Minister on 09 July 2014. In 2014 a Video Welcome address of Minister Hendricks for the inauguration of the exhibition was produced.

This inauguration took place on 15 January 2015, with representatives from the German Ministry for Environment, Federal Agencies, scientists and the general public. A theater play dedicated to the harbour porpoise was presented as a premiere (see www.brehms-tierleben.com).The exhibition can be visited in the Oceanographic Museum in Stralsund until 19 April 2015.

See also: www.schweinswal.eu [Ritter, WDC].

> "Walheimat"

WDC Germany since 2012 is running the campaign "Walheimat" centered around hp conservation in German waters, with materials being produced, a dedicated website section on www.whales.org and a variety of activities. The public facing part of the campaign is backed by WDC representatives being present at conferences, expert groups and discussion panels (see <http://de.whales.org/kampagnen/chronik-der-kampagne-walheimat-sichere-schutzgebiete-jetzt>) .

Activities by WDC Germany are embedded in the international WDC campaign "Homes for Whales", where harbour porpoise research is taking place around Britain and regularly reports on conservation issues and scientific studies are published [Ritter, WDC].

> School lab

In the framework of the cooperation between the Kieler Forschungswerkstatt (a school lab at the University of Kiel) and the ITAW Büsum, several modules and learning units for environmental education of school students have been developed over the past three years.

The overall topic of these units is the ecology of marine mammals, especially bioacoustics in connection with marine mammals.

The contents of these units are applied in several events for school students, teachers and teachers-to-be, such as summer academies (for students from grade 6 to 8) or advanced teacher trainings. For school classes attending the marine science program in the school lab (duration: 2/3 day), there is also the opportunity to learn a lot about marine mammals. For this purpose, an acoustic station with hearing experiments was developed in the school lab and is now running for students from grades 5 to 13.

An additional module is about to be integrated into this unit in February 2015. The unit is about underwater acoustics and sound reduction under water in connection with offshore pile-driving.

However, the school lab also supports and fosters project work of individual students who are specially gifted. Currently, there is a female student from highschool (grade 12), who prepares a special learning achievement report, dealing with the topic "morbilliviruses in marine mammals", in particular the phocine distemper virus in harbor seals. Another female student (grade 11) is preparing a one-year-project-report on "cumulative effects of parasites and anthropogenic influences on marine mammals".

Therefore, she attended the Institute for Terrestrial and Aquatic Wildlife Research in Büsum several times for a participation in a dissection of dead stranded marine mammals and some PCR-analyses of marine mammal parasites in the lab under guidance of Dr. Kristina Lehnert [Witte, CAU Kiel].

Possible difficulties encountered in implementing the Agreement

Difficulties in Implementing the Agreement

Please provide any relevant information

> No difficulties to report.