

Agenda Item 12.1

National Reporting

Reports from Parties

Information Document 12.1.e

**2013 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**

2013 ASCOBANS Annual National Reports

Pre-filled with answers given in 2012 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 submitted by

Name	Oliver Schall
Function	National Focal Point of ASCOBANS
Organization	BMUB (Federal Ministry for the Environment, Nature Conservation Building and Nuclear Safety)
Address	Robert-Schuman-Platz 3; 53175 Bonn, Germany
Telephone/Fax	+ 49 228 305 2632
Email	oliver.schall@bmub.bund.de

Changes

Changes in Coordinating Authority or appointed Member of the Advisory Committee

> Since the end of 2013 the Ministry of Environment has a new denomination and changed competencies - cf. "BMUB" above.

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), Unit N I 3 (Species Protection), 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, Mercatorstrasse 3, D-24106 Kiel (MELUR)

> 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, Schlossgarten 1, D-25832 Tönning (LKN)

> 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

Habitat Conservation and Management

Fisheries Interactions

Direct Interaction with Fisheries

1.1 Investigations of methods to reduce bycatch

> Acoustic Alerting Device "PAL" (Porpoise ALarm)

PAL (Porpoise ALarm) is a newly developed acoustic warning system for porpoises which imitates the communication sound of porpoises in order to protect the animals from fishing nets.

The alarm system was developed by Prof. Dr. B. Culik (F3 Forschung. Fakten.Fantasie.,Heikendorf) together with the L-3 EALC Nautik (Kiel). The testing phase is carried out together with the Thünen Institute of Baltic Sea Fisheries.

Harbour porpoises communicate by clicks and click-trains. Certain click-trains ("upsweep chirp") have been identified to be used and understood by the animals as a warning sound. The PAL device, a click generator is configured in such a way that it generates corresponding warning clicks with increasing frequency.

In order to test the effectiveness of the device in a field study a project, funded by the BMELV (Federal Ministry for Food, Agriculture and Consumer Protection, now: "BMEL" - "Federal Ministry for Food and Agriculture") is carried out by the Thünen Institute of Baltic Sea Fisheries. The project started in July 2012 with field studies. First results have shown that the animals understand the signal correctly and react with intensive acoustic inspection. This reaction of harbor porpoises has still to be confirmed during ongoing field experiments.

For the field study the Thünen Institute cooperates with local fishermen and has equipped gillnets with the PAL system over the time period of one year. Based on those results, the study is also aiming at further optimizing the warning system and to enable in a first step, the small-scale production of a prototype [BMEL/TI/F3: Forschung Fakten Fantasie / L-3 EALC Nautik].

Further information can be found at:

http://www.elac-nautik.de/_uploads/images/pdf/L3_ELAC_Nautik_Protection_of_Marine_Mammals.pdf

> Alternative fishing gear

The project "Testing and where applicable further development of alternative and ecosystem-friendly fishing gears for the prevention of bycatch of sea birds and harbour porpoises in the German EEZ of the Baltic Sea" (duration: December 2012 - October 2015) is funded by the Federal Agency for Nature Conservation (BfN) and conducted by the German NGO NABU ("Naturschutzbund Deutschland" / Nature And Biodiversity Conservation Union) in cooperation with international institutions (BirdLife International, National Fishery Institution, Gdynia/Poland, Institute of Coastal Research, Sweden and the Swedish Board of Fisheries).

Aim of the project is the practical test of different fishing gears as an alternative to gillnets in the German Baltic Sea fisheries. In a first step, one fishing boat will be equipped with 4 Jigging-Reels and one with an automated long-lining system. Further boats will be equipped with fish traps in the course of the project. With this program, the cost effectiveness as well as the feasibility will be tested. The project contributes to the implementation of a sustainable and ecosystem-friendly fishery within the marine Natura 2000 sites. The program is accompanied by a monitoring scheme to analyze catch rates, bycatch of target and non-target species as well as the economic feasibility of the different alternative fishing gears [Pusch, BfN; Detloff, NABU].

1.2 Implementation of methods to reduce bycatch

> Pingers in vessels > 12m length according to EU Regulation 812/2004. [Kock, TI]

> Voluntary agreement (17.12.2013) 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):

For the protection of harbour porpoises, the 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 < 6m to a total length of 1,5km. This applies for the period from 1st of July till 31st of August respectively.

> 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

> Monitoring of marine mammal bycatch in commercial fisheries in the North and Baltic Sea through marine mammal observers (sampling) in accordance with EU Regulation 812/2004 [Kock, v. Dorrien, TI]

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

> 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. The project is coordinated by the ITAW, in close cooperation with the BfN and other research institutions (University Aarhus, Denmark; DW-ShipConsult, Germany; University St. Andrews, UK). The main goal is to develop verifiable norms for the estimation of the impact of underwater noise on marine organisms. Therefore it covers a broad spectrum of diverse and varied tasks:

a. Temporary threshold shift:

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 five audiograms of free-ranging harbour porpoises were collected and two animals were exposed to an airgun impulse to validate the temporary threshold shift value. The auditory thresholds were determined at 2, 4 and 8 kHz.

b. Sound induced stress:

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>).

c. Behavioral changes:

In addition, so far six 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.

d. Acoustic noise mapping:

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, Müller, Lehnert ITAW; Wittekind, Schuster DWShipConsult; Teilmann, Miller, Madsen, Univ. Aarhus; Johnson, Univ. St. Andrews].

> Project: "PoMM" (Protection of Marine Mammals)

An international, 3 years project "PoMM" within the European Defence Agency (EDA) to establish a common marine mammal database for risk assessment was continued and finished in the end of 2013. The database contains information on sighting records, probabilities of occurrence, habitat use and species' characteristics. It includes a shared final database for the EDA partners. These data will be implemented into a national database for risk mitigation purposes to support the German Navy.

The project consists of 2 work packages:

In work package 1 (WP 1) a comprehensive marine mammal database, being essential for risk mitigation tools, will be established. In WP2 special investigations on marine mammal acoustics will be carried out. The database will provide knowledge on marine mammals with focus on abundance, seasonal distribution and density of different species in areas of operational interest for European Navies. The database will be used in the planning as well as operational phases, to avoid negative impact on marine mammals by military active sonars.

The database consists of four parts:

- **encyclopedia:** species' characteristics, dictionary of methods and units, position and time of object, information on data source
- **observations :** information on sightings, cetacean groups and individuals, examination results, sighting effort
- **distribution maps:** gridded and polygon maps of abundance, seasonal distribution and density of different species
- **acoustics:** information on vocalization and recording

WP 1 consists of the work elements (WE) 1.1 Definition of Database Characteristics, WE 2.1 Collection and Description of Basis Data Sets, WE 1.3 Development of In- and Output Tools and WE 1.4 Construction of Common Database

The aims of WP 2 are to develop tools and concepts for acoustic detection (WE 2.1) and to provide a tool for the acoustic classification of marine mammals considering particularly the most critical groups and species. Participating institutions are from following countries: Germany, Norway, United Kingdom, Netherlands, Italy and Sweden. [Puffpaff, Ludwig, BMVg / Siebert, Lorenzen ITAW]

> Measurements of shock waves attenuation

A new bottom-mounted sensor unit was used to measure the attenuation of shock waves during disposal of old ammunition in the Baltic Sea. It could be successfully used as a recording device to investigate the effect of underwater explosions for assessing potential acoustic impacts [Ludwig, BMVg].

> Acoustic activity recording FINO 3

As part of a joint project of measuring underwater noise in the German North Sea, further click detectors (C-PODs) were deployed in the area of the research platform FINO 3 to record harbour porpoise activity. Harbour porpoise presence could be recorded [Ludwig, BMVg].

> Environmental monitoring of the wind farm "alpha ventus"

In 2010 started the environmental monitoring of the operational phase at the first German offshore wind farm the test site "alpha ventus" with a total of 12 offshore wind energy plants approximately 45 km north of the island of Borkum (water depth ca. 30 m). In 2011 monitoring was carried out in the second year of operation phase. Aerial surveys and POD investigations were conducted in 2012 to survey the operation of the turbines for "alpha ventus". The project ended in 2013 with the data assessment and final report [Siebert, Dähne, Gilles, Ruser ITAW].

> Noise mitigation measures and monitoring during wind farms installation phases

In 2013 five wind farms conducted installation work, including pile driving in the German EEZ, four of them in the North Sea and one in the Baltic Sea. All five wind farms applied noise mitigation measures according to the incidental provision Nr. 14 of the licences given by BSH. The noise mitigation measures include both a tight monitoring of the pile driving activities including measures to prevent the presence of marine mammals in the vicinity of the construction location and technical measures to reduce pile driving noise. At the five construction sites in 2013 the technical mitigation measures applied, were based on big bubble curtain systems. By the end of 2013 at least 15 different big bubble curtain configurations were developed and applied to fulfil the specific requirements of each construction site in regard with pile dimensions, piling procedure, construction vessel and water depth. Moreover, two converter platforms were installed in the German EEZ of the North sea employing cofferdams for the noise mitigation and one converter was installed with the frame used as an isolating shield.

The general schema of the monitoring and prevention measures included following items:

- **Hydro-acoustic measurements** at 750m, 1.500m and in the next conservation site (SCI)
- **Passive acoustic measurements** of the harbour porpoise activity combined with the hydro-acoustic measurements
- **Operation of ADDs (pingers)** 40 min before pile driving activities start
- **Operation of AHD (seal scarer)** 10 min after the deployment of the ADDS – ADDs and AHD are removed at latest five minutes after starting with hammering
- **Soft-start procedure** with hammer energy increasing smoothly and remaining below 500 kJ for ten to twenty minutes

The technical noise mitigation measures in 2013 included following main mitigation systems:

- **Simple big bubble curtains** (400 m to 1.000 m long) operated with three to seven air compressors in water

depths from 23 to 44 m and with different radii to the piling site

- o With outer ballast chain
- o With inner ballast chain
- o With one-sided air supply
- o With two-sided air supply

- Double big bubble curtains (700 m to 2.000 m long) operated with five to nine air compressors in water depths from 23 to 34 m

- Triple big bubble curtain (3.000 m long) operated with five air compressors in water depths from 25 to 30 m

- Combination of two big bubble curtain systems

- Two special developed cofferdams for converter platforms

- A noise mitigation system employing the base-frame as a cofferdam (construction in 2012, results available in 2013)

The results of the passive acoustic monitoring revealed that no marine mammals remained in the vicinity of the construction site after the deployment of ADDs and AHD. The first results regarding the effectiveness of the noise mitigation systems look promising. Still, the threshold of 160 dB re 1 μ Pa in 750 m radius could not always be achieved.

- Some of the big bubble curtain configurations were successful in meeting the threshold

- In some of the construction sites it proved to be critical to meet the threshold with big bubble curtain systems

- The combination of two big bubble curtain systems was successful.

- The application of cofferdam in two platforms showed that the systems need further development

The application of the system using the base frame as a cofferdam was successful [Boethling, BSH].

> Development, deployment and evaluation of a big bubble curtain for mitigating underwater noise associated with pile-driving activities:

The project HYDROSCHALL-OFF BW II was funded by the Federal Ministry for the Environment, Nature Conservation and Nuclear safety (BMU) under the project ref. no. 0325309A/B/C; project coordinator: BioConsult-SH GmbH & Co KG, Husum; project partners: Hydrotechnik Lübeck GmbH, Lübeck; Itap GmbH, Oldenburg; duration: 01.04.2011 - 31.12.2012.

In the last years a number of offshore wind farms were constructed along European coastal waters. Most turbines are built on steel foundations rammed into the sea floor, which creates considerable underwater noise during construction. Several studies demonstrated clear avoidance behaviour of harbour porpoises in quite extended areas around such construction sites due to underwater noise.

Within the framework of the project a new noise mitigation system appropriate for series production was developed and tested during pile driving for the offshore wind farm Borkum West II, currently being constructed by company TRIANEL WINDKRAFTWERK BORKUM GmbH & Co. KG. The wind farm, positioned 45 km north of Borkum Island, consists of 40 wind turbines (WEA) and a transformer station. During foundation work for the turbines (tripod constructions), 120 piles with a diameter of 2.5 m were driven into the sediment by a hydraulic hammer.

In order to reduce noise emission during pile driving a Big Bubble Curtain (BBC) was developed. This system could be layed out before pile driving started and was tested and operated during construction process of the wind farm Borkum West II. Noise mitigation regarding the Sound Exposure Level (SEL) ranged from 9 dB to 13 dB for the most suitable bubble curtain configuration BBC 2 (hose with small nozzles at short distances to each other) under full air supply. This proved to be very efficient since it reduced the noise-polluted area by 90%. When operating configuration BBC 2 with full air supply the 5% percentile of the sound exposure level (SEL) undershot noise protection norms of 160 dBSEL5 in 750 m distance with 73% of the WEA foundations; the remaining 27% fell between 160 dBSEL5 and 163 dBSEL5 and never exceeded 163 dBSEL5. Acoustic monitoring of harbour porpoises approved a strongly reduced disturbance of animals by usage of a Big Bubble Curtain during pile driving since no avoidance behavior could be proven statistically below median SEL levels of 144-146 dB re 1 μ Pa. Due to these findings the project was the worldwide first where a noise mitigation system was successfully operated under offshore conditions on a large scale, and in which its positive effect on a marine mammal species was demonstrated. The Big Bubble Curtain was proven to be suitable in principle as a noise mitigation system for pile driving [Diederichs, Rose, Höschle, BioConsult SH].

> Marine Mammal Database

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 [Ludwig, BMVg].

> Financial support for publications

Germany has supported with the regular annual voluntary contribution ASCOBANS activities in the field of underwater noise reduction (preparation of a review and development of a briefing) [Schall, BMUB].

> Sound Protection Concept

After the nuclear catastrophe of Fukushima - 3years ago- the German government had decided a shut down schedule for all nuclear reactors in Germany. The most important compensation for the losses of nuclear energy is foreseen by growing use of renewable energies. However, this means i.e. that more wind energy plants in the open sea will be necessary and more pile driving and more noise burdens for harbour porpoises. In order to guarantee a sufficient noise protection of cetaceans a "Concept for the Protection of Harbour Porpoise from Sound Exposures during the Construction of Offshore Wind Farms in the North Sea" was developed under the auspices of the Ministry of Environment and has taken effect at the 1st December 2013 by the decision of the Minister for Environment himself. It is intended to foster greater clarity with regard to the requirements of a sufficient implementation of German nature conservation law during the construction of offshore wind farms. As soon as the translated version of this German concept will be available in English, presumably in early spring 2014, ASCOBANS will receive this English version (BMUB).

2.2 Ship Strike Incidents

Please list all known incidents and provide information separately for each

	Incident 1	Incident 2	Incident 3	Incident 4	Incident 5
Date	April 3, 2013	May 9, 2013	May 22, 2013	May 31, 2013	June 11, 2013
Species	Phocoena phocoena	Phocoena phocoena	Phocoena phocoena	Phocoena phocoena	Phocoena phocoena
Type of Injury	Internal injuries, bleeding; salivated blood	Internal, death rattle	Head injury	Head injury caused by ship propeller	Head injury, potentially caused by ship propeller
Fatal Injury (Yes/No)	yes	yes	yes	yes	yes
Type of Vessel (length, tonnage, speed)	unknown	unknown	unknown	unknown	unknown
Location (coordinates)	Elbe river, Hamburg Övelgönne	Elbe river opposite site of Airbus (Elbchaussee)	Elbe river Otterndorf	Elbe river Hamburg Harbour	Elbe river Wedel
More Information (name, email)	Wenger@delphinschutz.org	Wenger@delphinschutz.org	Wenger@delphinschutz.org	Wenger@delphinschutz.org	Wenger@delphinschutz.org

2.3 Major Incidents

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

	Incident 1	Incident 2	Incident 3	Incident 4	Incident 5
Date	04.03. - 08.29 2013				
Location	Elbe river				
Type of Incident	Possible ship strikes; other causes: possibly due to the effects of underwater noise or pollutants				
Further Information	more than 20 dead harbour porpoises were found along shores from Hamburg harbour to Wedel [Wenger, GRD]				

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.

> Chemical Pollutant Levels

Within a project funded by the Federal German Agency of Environment (UBA), the current status of knowledge on chemical pollutant levels in marine mammals and effects of pollutants on the health of marine mammals as investigated and a research plan is developed [Wehrmeister, Siebert, ITAW].

2.5 Other Forms of Disturbance

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

> No further relevant information

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

Within 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 marine mammals/harbour porpoises are being designed and proposed to authorities. 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 (BfN, ITAW) [Unger, Herr, Siebert, ITAW].

> Marine Protected Areas in the Exclusive Economic Zone (EEZ)

In Autumn 2013 the 18th Parliamentary period started in Germany: during this period the issue of ordinances for the German marine protected sites in the EEZ of the North - and Baltic seas -including those sites of importance for harbour porpoises - is a foreseen task to be tackled early during this period [Schall, BMUB].

> Support for a Workshop on MPA Management

Germany has supported with the regular German annual voluntary contribution the ECS Workshop on MPA Management (7 April 2013) [Schall, BMUB].

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 information on 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 surveys

The following dedicated visual surveys to assess abundance and distribution of harbour porpoises were conducted by the ITAW:

In 2013, 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 July 2013, a survey of the western German Baltic Sea (Kiel Bight and Mecklenburg Bight) was conducted. These surveys are part of the German monitoring programme of Natura 2000 sites, funded by the Federal Agency for Nature Conservation (BfN) [Siebert, Gilles, Viquerat, ITAW].

In July 2012 a vessel-based survey for estimating harbour porpoise density and abundance in the GAP area was conducted in the Western Baltic, Kattegat and Belt Sea, in cooperation between Denmark, Sweden and Germany. Data were analysed, presented and published in 2013. This survey is part of a project funded by the Federal Office for Agriculture and Food (BLE) [Siebert, Viquerat, Herr, Gilles, Peschko, ITAW].

> Acoustic Monitoring Wadden Sea

In Fall 2013 a monitoring scheme with four to five CPOD-stations in the German Wadden Sea was established by the Nationalpark Wattenmeer. The ITAW is carrying out the work. Three positions are in the Schleswig-Holstein Wadden Sea and one in the Lower Saxony Wadden Sea [Siebert, Dähne, Meyer-Klaeden, ITAW, Eskensen LKN, Czeck, NP-LS].

> Acoustic Monitoring

The C-POD station in the vicinity of the island Minsener Oog and a new, in 2013 installed C-POD station at the mouth of the Jade Bay, were successfully operational in 2013. The results again back up former findings that harbour porpoises enter coastal waters of Lower Saxony mainly in spring (march/april), but for reasons unknown the activity measured in 2013 was lower than in 2012 [Czeck, NP-LS]

> Static acoustic monitoring Baltic Sea

With the financial support from the Federal Agency for Nature Conservation (BfN), the German Oceanographic Museum is conducting static acoustic monitoring of harbour porpoises using C-PODs (porpoise click detectors) in the Baltic Sea. Our long-term study 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].

> SAMBAH

The aim of the pan-Baltic project SAMBAH (Static Acoustic Monitoring of the Baltic Harbour 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 (01.05.2011 - 31.04.2013) on the harbour porpoise in the Baltic Sea. Germany was responsible for 16 stations in the German waters.

More information is available at:

<http://www.meeresmuseum.de/wissenschaft/forschungsprojekte.html>

[Gallus, DMM].

> STUK3-Monitoring of harbour porpoises at the offshore wind farm "alpha ventus"

Over five years (from 2008 to 2013), BioConsult SH together with IfaÖ, Rostock, (on behalf of Stiftung Offshore Windenergie (DOTI)) collected data on abundance and distribution of marine mammals, following the Standard Investigation Programme (StUk3, BSH 2007) within an area of appr. 2,000 km² around the first German offshore wind farm (OWF) „Alpha ventus“, which is located approximately 45 km north of the island of Borkum, North Sea.

The effects of the construction and operation of OWF „Alpha ventus“ on harbour porpoises (*Phocoena phocoena*) and other marine mammals were analysed by comparing data of three years construction phase and one year operation phase to those of the one year baseline survey. Three different methods were used to assess the presence of marine mammals in the study area during the project phases. Animals were monitored by Passive Acoustic Monitoring (PAM) with porpoise detectors (PODs) at 12 stations positioned at different distances to the wind farm area, and by monthly aerial and ship-based surveys over the whole study period of 5 years.

The area around and easterly of "Alpha ventus" was characterised by lower harbour porpoise densities and

phenologies differ from those at the Natura 2000 SCI Borkum Reef Ground. Differences in habitat use of porpoises can be explained by various biological/ecosystem functions of the investigated subareas. The Borkum Reef Ground, known as an area rich in fish, seems to serve as a feeding ground year round for porpoises, whereas the area around and easterly of „Alpha ventus“ might function as (feeding) habitat only at certain times of a year, and may partly just be a transition zone between areas of high porpoise densities like Danish waters and Sylter Outer Reef (summer habitats), and Borkum Reef Ground and Dutch/Belgium waters (winter habitats).

It was shown that noise emissions from offshore pile driving caused short-term, large-scale displacement of harbour porpoises which was more severe with longer duration of hammerings. A negative behavioural response of harbour porpoises started at 143 dBSEL50 re 1 μ Pa. Even though animals came back into the wind farm area within two days after pile driving stopped, density and detection rates were lowered in the OWF area and its close surroundings for two more years after construction (2010 and 2011). Numbers gradually increased until Baseline values were reached again or exceeded in the third year after construction (2012). The lower detection rates in the two years following the construction period can be discussed by a longer endurance of a negative effect due to higher ship traffic and occasional works in 2010 and 2011. The gradual increase over years might be explainable by a potential positive effect of the wind farm over time, as organisms start to grow on the foundations and increase foraging possibilities. Furthermore, a general increase of harbour porpoise densities during the last few years in the southern North Sea might have been relevant for the observed pattern. No effects of the construction work at the wind farm Borkum West II, located ca. 8 km north-west of „Alpha ventus“, on harbour porpoises could be seen in the range of the „Alpha ventus“ POD stations [Diederichs, Rose, Höschle, BioConsult SH].

> Strandings

An article about strandings of harbour porpoises has been supported. See:
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0062180>
[Czeck, NP-LS]

> Harbour porpoises in the Elbe and Weser rivers

The results of an opportunistic sighting scheme implemented by GRD's biologist Denise Wenger in 2007, including the collection of data on sightings of harbour porpoises in Northern Germany's rivers, show that harbour porpoises are increasingly frequenting the rivers Elbe and Weser in springtime during the months from early March through late May. The spatial-temporal pattern shown 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.

Due to intensive media work and public awareness campaigns in 2013, more than 300 people reported their sightings to GRD with detailed descriptions.

A. Elbe river:

Sightings:

For the Elbe river we received 233 reports of sightings in 2013 (including multiple sightings). The first sighting occurred on February 27, followed by sightings on March 6 and 9. From March 10 on, harbour porpoises were spotted within the Hamburg harbour region nearly every day during daylight hours until the end of May. Most sightings were made from land by pedestrians giving evidence that the small cetaceans were swimming close to shore in shallow water (as close as 2 m from shore, 42 sightings within a 2m-20m range from shore). Mostly, the animals were seen swimming calmly. Also from board of the Hamburg ferries many sightings occurred.

Habitat preference:

The data indicate habitat preferences: From Hamburg harbour in the Koehlbrand region (which is a lateral branch of the Elbe main stream where it divides into Süderelbe and Norderelbe at the other side) we obtained reports of harbour porpoise groups of as many as 10 individuals foraging many hours in the afternoon every day over several weeks in late March, early April.

In the Billwerder Bay (Norderelbe) harbour porpoises were observed hunting smelt.

Near Teufelsbrück (Elbe river km 630), too, foraging behaviour was observed. Many sighting reports came from this area because there is a café and a restaurant where many people sitting at the pontoon in the afternoon could observe the harbour porpoises. (data not bias/effort corrected)

Harbour porpoises were also foraging off Wedel (Elbe river km 643); this was confirmed by a CPOD we had installed which registered nearly 23 hours harbour porpoise activity with many foraging click trains.

A detailed analysis will be made; the results will be reported to ASCOBANS as soon as they are available. © D. Wenger, GRD

Strandings/dead animals:

25 reports concerned findings of dead animals (multiple reports, 19 dead animals from Hamburg harbour to

Wedel). Additional strandings were reported to the "Institut für Hygiene (Hamburg State Institute for Hygiene and Environment), publishing the number of about 20 dead animals in 2013 within the Hamburg area with having 5 of them examined. Further 5 animals from different sites, mainly the Schleswig-Holstein side of the Elbe at Wedel or Haseldorf, were brought to ITAW (Institute for Terrestrial and Aquatic Wildlife Research) Büsum for necropsies. Most dead animals were found from May 13 to June 11.

B. Weser river

Sightings:

In 2013 78 sightings of harbour porpoises in the river Weser were reported. Sightings were also reported in the harbor of Bremen and as far as 65km south of the city Bremen. Sporadic sightings were also reported from the tributaries of the Weser Lesum, Hunte and Hamme.

Strandings/dead animals:

For the river Weser 3 dead animals have been reported for 2013: 16th of May 1 calf (no necropsies), 24th of May 1 animal (no necropsies due to decomposition) and 20th of October 1 animal (brought to ITAW (Institute for Terrestrial and Aquatic Wildlife Research) Büsum for necropsies).

Publication in prep.; results and further studies within the context of a dissertation [Wenger, GRD].

Information can be found at:

<http://www.delphinschutz.org/projekte/schweinswale/kleiner-wal-in-großer-not/715-schweinswale-in-weser-und-elbe-ergebnisse-2013>

<http://www.delphinschutz.org/projekte/schweinswale/kleiner-wal-in-großer-not>

online opportunistic sighting map:

<https://maps.google.com/maps/ms?msa=0&msid=211379784517064666770.0004d3cd073b366cedb1a&hl=de&ie=UTF8&t=m&ll=53.602285,8.492432&spn=1.629832,2.334595&z=8&source=embed>

> Database

New data for a marine mammal data base (containing sightings, strandings, worldwide maps of occurrence and characteristics of 126 species) were integrated from freely available and provided sources, e.g. collected within an EDA project for the protection of marine mammals [Ludwig, BMVg].

> Support for Workshops

Germany has supported with the regular German annual voluntary contribution a SAMBAH Stakeholder Workshop and an ECS 2013 Workshop on Population Structure [Schall, BMUB].

4.2 Technological Developments

New Technological Developments

> CProject COSAMM

The COSAMM project is an investigation of the comparability of the various static passive acoustic monitoring methods used for detection of harbour porpoises and other tooth whales. All available click detectors for harbour porpoises are compared in this project. This is done in order to make representative and comparable statements on the abundance of harbour porpoise, despite the deployment of different devices [Gallus, DMM].

> Effectiveness of real-time detection of harbour porpoises

The high noise levels produced by constructing offshore wind farms may induce negative effects on marine mammals. Besides the application of noise mitigation methods such as the use of a bubble curtain, acoustic

deterrent (pingers) and harassment devices (seal scarer) prior to pile driving, it is stipulated in German waters that no animal is present within an area where high noise levels can still cause injury. Two C-PODs (passive acoustic monitoring) are deployed to document how efficient the mitigation measures have been.

Additional, a new passive acoustic monitoring technique, the Seiche 'Wireless Detection System' (WDS) is used to verify a successful deterrence of harbour porpoises (*Phocoena phocoena*) in realtime. It furthermore enables immediate mitigation action if necessary. The detection system consists of an autonomous network of up to nine buoys deployed around the pile driving location in 1.500 m distance. Each buoy is equipped with a broadband hydrophone, GPS and radio telemetry. The receiving and processing station is located on a dedicated vessel and the buoys can be turned on and off remotely. The software PAMGUARD displays the characterization by using spectrograms, bearing patterns and high/low frequency to classify a candidate porpoise echolocation.

To ensure successful deterrence of animals within a defined zone it is crucial to know the probability of a detection of a real harbour porpoise click train by the WDS buoy and C-POD. We therefore tracked porpoises visually with a geopositioned theodolite from a cliff 20m above sea level. The tracks of surfacing porpoises were compared with the acoustic detection rate from both acoustic detectors, WDS and C-POD, which were bundled. Knowing the distance of the detected animal from the WDS buoy and its heading angle, a detection function was calculated. The detection function of the WDS determines the deployment design of the WDS buoy network around pile driving operations and allows a comparison to the standardized usage of the C-POD [Diederichs, Rose, Höschle, BioConsult SH].

> High definition video technique – advanced approach to offshore surveying of marine mammals
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 1.800-2.000 feet 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 an ongoing study in the German Bight, North Sea, we conducted high definition video surveys on harbour porpoises, a small cetacean which is very common in the area. The videos provided high sighting rates of both surfacing and submerged porpoises and the techniques proves to be highly useful for surveys on small cetaceans [Diederichs, Rose, Höschle, BioConsult SH].

4.3 Other Relevant Research

> Project: StUkplus - Effects of the construction and operation of the wind farm

The final results of the StUkplus-project at the Testfield wind farm alpha ventus were presented in October 2013. The investigation of the effects of the construction and operation of the wind farm alpha ventus on harbour porpoises was one of the main issues of discussion during the conference in Berlin. The presentations may be found under:

<http://stukplusconference.com/conference-material-presentations/>
[Boethling, BSH]

> Project: BIAS (Baltic Sea Information System on the Acoustic Soundscape)

In 2013 the EU-Life plus project BIAS (Baltic Sea Information System on the Acoustic Soundscape) started with underwater sound measurements in the Baltic Sea. The measurements are planned to cover a whole year.

Five measurement sites were chosen in the German EZZ and coastal area of the Baltic Sea. The main objective of BIAS is the implementation of the MSFD requirements for the Descriptor 11 (Noise) in the Baltic Sea. Lead partner is Sweden (FOI). Five more partners are involved: Germany, Denmark, Poland, Finland, Estonia (see: <http://biasproject.wordpress.com/>).
[Boethling, BSH]

> Project: Do man-made structures and water depth affect the diel rhythms in click recordings of harbor porpoises

The construction of industrial offshore structures may lead to colonization by a variety of marine organisms resulting in locally enhanced biodiversity and biomass, which may then affect the habitat use and behavior of marine predators. For harbor porpoises high nocturnal echolocation activity was demonstrated near industrial structures and it was hypothesized that this was caused by increased feeding opportunities at night. Here we tested the hypothesis that bridge pillars will lead to more nocturnal echolocation activity by porpoises near them than at positions further away. The daily rhythms in porpoise detections near bridge pillars tended to be slightly more pronounced and a greater proportion of clicks occurred during the night. However, water depth had a greater impact on these rhythms, with more nocturnal porpoise echolocation activity and more pronounced daily rhythms in deeper waters. This may be related to different feeding techniques and prey choice by porpoises in deep and shallow water. In deeper water porpoises may be feeding pelagically on herring and cod, which show more activity and are easier to catch at night. In shallow water they may be targeting mainly gobies using a bottom feeding technique and this may not be more efficient at night [Diederichs, Rose, Höschle, BioConsult SH].

Published in: MARINE MAMMAL SCIENCE (2014). DOI: 10.1111/mms.12112

> Classification of marine mammals sounds

A study about the classification of marine mammal signatures with methods of speech recognition was continued and finished in the end of 2013. Within this study, as part of an European Defence Agency (EDA) project, a software detector for the classification of marine mammal sounds was developed [Ludwig, BMVg].

> Acoustic detection of marine mammals

A new towed hydrophone array for the acoustic detection of marine mammals was tested and can be used after finishing further test trials [Ludwig, BMVg].

> Strandings

Collection of information about harbour porpoises found dead is continued in the Federal States of Lower Saxony [Czeck, NP-LS/Ramdohr, LAVES], Schleswig Holstein [MELUR/ITAW] and Mecklenburg - West Pomerania [DMM]. Results are available at:

[http://www.nationalpark-wattenmeer.de/nds/service/publikationen/1129_schweinswale-im-](http://www.nationalpark-wattenmeer.de/nds/service/publikationen/1129_schweinswale-im-k%C3%BCstenmeer-gis-daten-und-berichte)

[k%C3%BCstenmeer-gis-daten-und-berichte](http://www.nationalpark-wattenmeer.de/nds/service/publikationen/1129_schweinswale-im-k%C3%BCstenmeer-gis-daten-und-berichte) [Czeck, NP-LS/Ramdohr, LAVES]

<http://www.meeresmuseum.de/wissenschaft/schweinswale/totfunde>

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 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

> 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 Sea funded by the Foundation of Baltic Sea.

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

> LS: metric measurements were taken of carcasses of harbour porpoises found by official bodies in the district of Cuxhaven. Necropsies will be performed due to carcass condition. No necropsies of harbour porpoises were performed in 2013.

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: No samples could be taken from carcasses of harbour porpoises in 2013 due to decomposition.

5.4 Database

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

> SH: MySQL, PostgreSQL, Access, Excel

-North Sea: 91 dead harbour porpoise

-Baltic Sea: 97 dead harbour porpoise

-River Elbe: 4 dead harbour porpoise

-Unidentified cetaceans: 14

Between 1990 and 2013 the following number of data sets has been collected per species (data recorded until 14.01.14):

Phocoena phocoena: 3.375

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 melaena: 3

Tursiops truncatus: 1

Mesoplodon bidens: 1

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

- 33 dead harbour porpoises.

> LS: Metric data on 19 carcasses found in the district of Cuxhaven were collected and registered in the IFF Cuxhaven for report to ASCOBANS. Further 10 carcasses outside from District Cuxhaven were reported from

the NLWKN to the IFF Cuxhaven

- 7 dead harbour porpoises

5.5 Additional Information

Additional information (e.g. website addresses, intellectual property rights, possibility of a central database)
> MV: The German Oceanographic Museum is collecting information about incidental strandings and sightings see at:

<http://www.meeresmuseum.de/wissenschaft/schweinswale/totfunde> and

<http://www.meeresmuseum.de/sichtungen>)

Activities and Results

5.6 Necropsies

Number of necropsies carried out in the reporting period

	Number	Recorded cause of death
<i>Phocoena phocoena</i>	SH: 23 / MV: 25	MV: Recorded strandings only partially to be necropsied; recorded cause of death: drawn, parasitic diseases, bacterial infection, pneumonia, dystocia
<i>Tursiops truncatus</i>		
<i>Delphinus delphis</i>	1	
<i>Stenella coeruleoalba</i>		
<i>Grampus griseus</i>		
<i>Globicephala melas</i>		
<i>Globicephala macrorhynchus</i>		
<i>Lagenorhynchus albirostris</i>		
<i>Lagenorhynchus acutus</i>		
<i>Orcinus orca</i>		
<i>Hyperoodon ampullatus</i>		
<i>Mesoplodon bidens</i>		
<i>Kogia breviceps</i>		
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 mitigation measures

The incidental provision 14 of the licenses for offshore wind farms given by the BSH requires the application of noise mitigation measures to meet the threshold of 160 dB re 1 μ Pa (SEL) in 750 m. At this time several noise mitigation systems are available or under development. In 2013, BSH published instructions for the determination of the effectiveness of noise mitigation systems [Boethling, BSH].

Information can be found at:

http://www.bsh.de/de/Produkte/Buecher/Standard/Offshore_wind_farms_-_Measuring_specification_for_the_quantitative_determination_of_the_effectiveness_of_noise_control_systems.pdf

> Fisheries and Bycatch reduction

Federal State regulation for the revision of the federal state regulation for coastal fisheries (4th of December, 2013) [MELUR].

> EU legislation

Currently the EU is in a revision process of the EU regulation 812-2004 (Bycatch regulation).

The EU Parliament has developed a valuable proposal taking care of harbour porpoise protection issues. Germany is lobbying to care for a good compromise between the position of the EU Council and the EU Parliament in this issue [Schall, BMUB].

> Marine Protected areas

Cf. contribution under 3. Marine Protected areas in the EEZ [Schall, BMUB].

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.

> Tourism-Human-Nature

In the frame of the bilateral (Danish-German) INTERREG IVa project "Tourism-Human-Nature", several exhibition modules are being developed. The project is funded by the European regional development fund and modules will be placed in the project partner's different science centers around Southern Denmark and Northern Germany. Thematically, the modules will focus on research and protection of marine mammals and domesticated terrestrial animals as well as on the management of invasive marine species. Teaching programs and expedition boxes for schools are developed to train children and teachers in marine sciences [Knickmeier, Witte CAU, Siebert ITAW].

> Sailors on the Lookout for Harbour Porpoises

The German Oceanographic Museum became responsible for the sailor project which was previous a project by the Society for the Conservation of Marine Mammals. This project includes registration of sightings of harbour porpoises and the findings of dead porpoises. Through the webpage of the museum and on our flyers on projects we provide information on sightings of porpoises

(<http://www.meeresmuseum.de/sichtungen.html>) and dead animals

(<http://www.meeresmuseum.de/totfunde.html>) and explain what people should do if they encounter a porpoise or find one dead. It is possible to contact us by post, email or telephone [Gallus, DMM].

> Ministerial Support for the Baltic Harbour Porpoise Day

Peter Altmaier, Federal Minister for Environment in 2013, issued 11.5.2013 a Press Release on the occasion of a visit in the Marine Museum in Stralsund timely closely related to the Baltic Harbour Porpoise Day and underlined the critical situation of harbour porpoises in the Baltic and the need of their protection. This release was used by a lot of German media to spread information about the issues of harbour porpoise protection and additionally it was published on the BMU Internet page. In this release the SAMBAH project was highlighted too as an essential help to clarify the current distribution situation of porpoises in the Baltic [Schall, BMUB].

> Children Pages on ASCOBANS Webpage

Germany has supported with the regular annual German voluntary contribution the Development of Children's Pages on ASCOBANS Website [Schall, BMUB].

Possible difficulties encountered in implementing the Agreement

Difficulties in Implementing the Agreement

Please provide any relevant information

> No difficulties to report.