GERMANY, PROGRESS REPORT ON CETACEAN RESEARCH, May 2008 to April 2009 with statistical data for the calendar year 2008

compiled by

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1. Species and Stocks Studied

Common name	Scientific name	Area/stock	Items referred to
Harbour porpoise	*Phocoena phocoena*	Baltic	2., 4.2, 4.3, 4.4, 5., 7.1, 8., 9.
Harbour porpoise	*Phocoena phocoena*	North Sea	2., 4.2, 4.3, 4.4, 5., 7., 8., 9.
Various species		worldwide	9.

2. Sightings data

2.1 Field work

Aerial surveys were conducted by the Research and Technology Centre Büsum: Surveys were conducted in the south-western Baltic in February and June 2008. In the North Sea, surveys were conducted in the 12nm zone of Lower-Saxony in April and May 2008; in the area of Sylt Outer Reef in July/August 2008 and in the area of the offshore test field 'Alpha Ventus' in August and September 2008. Findings from surveys in previous years such as very high densities of harbour porpoise around Sylt Outer Reef and increasing densities in the southern part of the German Bight, were confirmed. In the Baltic, high densities of harbour porpoise were detected in the northern area of Kiel Bight and around the island of Fehmarn.

A research project funded by the Federal Agency for Shipping and Hydrography (BSH) has started to investigate effects on small cetaceans of the construction in the first German

offshore test-field for wind farms “Alpha Ventus” close to Borkum Reef, Germany. Visual aerial and ship borne surveys, as well as acoustic surveys with towed hydrophones and stationary acoustic monitoring using C-PODS were carried out.

Previous studies demonstrated the usefulness of static acoustic monitoring in the German Baltic Sea. The DMM in Stralsund continued this work in 2008 with 12 recording positions in the German Exclusive Economic Zone (EEZ). This project is part of the Natura 2000 monitoring scheme for Special Protected Areas (SPAs) in cooperation with the Research and Technology Centre Büsum (FTZ). Furthermore the DMM is involved in plans to study the harbour porpoise population in the central Baltic using stationary acoustic methods. In 2007 under water detonations to remove WWII ammunition in Kiel Bight (Baltic) were started by the German Navy Research Institute. These detonations could potentially harm marine mammals. NGOs, FTZ and DMM in cooperation with naval authorities started trials of testing mitigation measures. Trials were carried out in April and June 2008 testing air bubble curtains for their efficiency.

Since summer 2002, a public awareness campaign in cooperation with the Society for the Conservation of Marine Mammals (GSM) is addressing yachts people and other aquatic sports people as well as tourists in the Baltic to report opportunistic sightings of harbour porpoise. Since 2007, the project included data of stranded porpoises. Most of these sightings were confined to the western Baltic Sea. By 2003, the programme was well established in yachting circles. Over 3000 sightings were reported in 2008.

A number of surveys have been conducted for environmental impact assessments preceding potential wind farm construction sites.

2.2 Analyses/development of techniques

To further test and calibrate static acoustic measuring gear (T-PODs, Timing Porpoise Detectors) the AMPOD project is currently underway at the German Oceanographic Museum. T-PODs are calibrated in a test tank to estimate absolute threshold levels. Additionally, the project focuses on field trials in areas with a wide range of porpoise densities, where a

number of T-PODs are being deployed in the close vicinity in order to compare results obtained at different threshold levels, settings and densities. The aim is, to explore methods for data analysis in order to be able to compare results from different areas with differently set T-PODs or T-PODs with different threshold levels.

T-PODs are being replaced by C-PODs (Cetacean-PODs) since 2008. New methods for the calibration of instruments have been developed at the German Oceanographic Museum (GOM). It is planned to also develop calibration procedures for the Aquaclick 100 or so called PCL (Aquamark), UK. A new methodology to estimate the abundance of marine mammals and sea birds is currently under development at the GOM. They include two innovations: Firstly, photographic methods require development and/or refinement in order to detect harbour porpoise-like shapes automatically on aerial photographs. If this turns out to be successful, as a second step unmanned aerial vehicles (UAVs) or so-called drones can be used for surveys in small areas like wind farm construction sites or for surveys using opportunistic platforms.

3. Marking data

3.1 Field Work

3. 1.1 + 2 NATURAL AND ARTIFICIAL MARKING DATA

No marking using artificial marks was conducted. As a result, no photographs of whales of one of the IWC management area/stocks are currently held which can be utilized in photo ID studies.

3. 1. 3 TELEMETRY DATA

4. Tissue/biological samples collected

4.1 Biopsy samples

No biopsy samples were collected

4.2 Samples from by-catches

Species	Area/stock	2008: total no. of individuals	Archived	Tissue Types(s)	Contact person
Harbour porpoise	Baltic Sea Schleswig-Holstein	6	6	all organs, central nervous system, skeletal system	U. Siebert
Harbour porpoise	North Sea Schleswig-Holstein	0	0		
Harbour porpoise	Baltic Sea Meckl.-Prepom.	6	6	All organs, central nervous system, skelettal system	H. Benke

4.3 Samples from stranded animals

Species	Area/stock	2008: total no. of individuals	Archived	Tissue Type(s)	Contact person
Harbour porpoise	North Sea Schleswig-Holstein	106	106	Different tissues for histopathology, toxicology, genetics	U. Siebert
Harbour porpoise	Lower Saxony	38	38	Lung, liver, different tissues	M. Stede
	Baltic Sea Schleswig-Holstein	105	105	Different tissues for histopathology, toxicology, genetics	U. Siebert
	Baltic Sea Meckl.-Prepomerania	26	8	Skeleton, various tissues	H. Benke

4.4 Analyses carried out

The development and testing of effective mitigation methods for sound induced impacts on marine mammals is the topic of an ongoing study at the FTZ Westküste which is funded by the European Union and the State of Schleswig-Holstein. An air-bubble curtain has been tested for its sound absorption in Kerteminde harbour (Denmark) during construction work to replace the harbour wall. Attenuation of the ramming impulse noise due to the air-bubble curtain was observed up to 19 dB. While the harbour porpoises which are housed within the harbour in a semi-natural pool at a nearby research facility initially showed clear avoidance reactions to the sound emissions of the construction work, they returned to their normal behaviour after installation and use of the air-bubble curtain.

As part of the national monitoring funded by the State Ministry of Agriculture, Environment, and Rural Affairs of Schleswig - Holstein cetaceans stranded or by-caught were systematically investigated. These investigations include necropsies, histology, immuno-histology, microbiology, serology, parasitology, virology, age determination and more.

The ribosomale DNS of different lung nematodes of harbour porpoise were analyzed and sequences from different regions were compared.

5. Pollution studies

Samples for analyses of PFOs were taken and are currently under investigation

6. Statistics for large cetaceans

6.1 Corrections to earlier years

No corrections to earlier years have been made

6.2 Direct catches

Germany was not engaged in any whaling activity neither commercial nor aboriginal or under scientific permits

6.3.1 Anthropogenic mortality of large whales for the calendar year 2006

No anthropogenic mortality of large cetaceans was observed in 2006

6.3.2 Observed or reported ship strikes of large whales

No ship strikes of large whales were being reported in 2006

6.3.3 Fishery by-catch of large whales

No large whales has been taken as by-catch in fisheries

7. Statistics for small cetaceans in 2008

7.1 Corrections to earlier years

No corrections to earlier years have been made

7.2 Direct catches of small cetaceans for the calendar year 2006

No small cetaceans were taken in a directed fishery in Germany.

7.3 Fishery by-catch of small cetaceans in 2008

		Incidental Mortality			
Species	Area/stock	Reported	Estim. total	Source	Live capture
Harbour porpoise	North Sea	0	unknown		
Harbour porpoise	Baltic Sea Schleswig-Holstein	6	unknown	gill net	none
Harbour porpoise	Baltic Sea	2	unknown	gill net	none

	Mecklenburg-Prepomerania				

In addition to the six by-caught harbour porpoises from the Baltic Sea (Schleswig-Holstein) which were directly delivered by fishermen, pathological findings from 16 stranded harbour porpoises hardly affected by decomposition suggested that they had been initially by-catches.

8. Strandings in 2008

Species	Total	North Sea Lower Saxony	North Sea Schl.-Holstein	Baltic Schl.- Holstein	Baltic Mec.-Prepomm.
Harbour porpoise	288	51	106 [1)]	105[1)]	26
Unknown odontocet		1			

1) Number of harbour porpoise verified by necropsies. It is likely that this number is a minimum estimate of strandings: Not all stranded individuals were delivered to the authorities

9. Other studies and analyses

Species	Area/stock	Type of investigation	Contact address [*)]
Various species	world wide	Creation of a management orientated data base	S. Ludwig M. Knoll I. Nissen
Cuvier's beaked whale, various species	Mediterranean, North Atlantic	Passive acoustic monitoring (T-PODs), development of detection software	S. Ludwig
Harbour porpoise	Baltic Sea	Potential impacts of explosions, risk mitigation due to bubble curtains	E. Schmidtke S. Ludwig

Harbour porpoise	North Sea/Baltic Sea/Black Sea /North Atlantic	Stock structure, genetics	R. Tiedemann
Harbour porpoise	Belts, Baltic Sea	Stock discrimination	H. Benke
Harbour porpoise	Belt Sea, Baltic Sea	Reproduction, age structure, health status	H. Benke, U. Siebert,
Harbour porpoise	North Sea/Baltic	Pathology, life history, toxicology, stock identity, habitat use, telemetry, Impact of sounds, nutrition	U. Siebert
Harbour porpoise, other small cetaceans	North Sea/Baltic	Distribution and abundance, aerial surveys	H. Herr
Harbour porpoise, other small cetaceans	North Sea/Baltic	Anthropogenic impacts	H. Herr, U. Siebert, K. Lucke, H. Seibel
Harbour porpoise	North Sea/Baltic	Habitat use, distribution and abundance, nutrition	A. Gilles
Harbour porpoise	North Sea/Baltic	Impact of sounds	K. Lucke, J. Sundermeyer
Harbour porpoise	Baltic Sea, Kiel Bight	Impacts of underwater explosions, testing, mitigation measures	K. Lucke, M.Dähne, K. Krügel, J. Sundermeyer
Harbour porpoise	North Sea, test field Alpha Ventus	Testing the standard routine for EIAs	A. Gilles, K. Lucke, U. Siebert, K. Krügel, A. Brandecker
Harbour porpoise	North Sea, Baltic Sea	Acoustic surveys, porpoise detectors (PODs)	U. Verfuss, A. Meding, K. Lucke, M. Dähne
Harbour Porpoise	Lower Saxony	Abundance, distribution, aerial surveys	Nationalpark Watten-meer Niedersachsen, FTZ Büsum
Harbour porpoise	Baltic (Pommeranian Bay)	Acoustic surveys, porpoise detectors (PODs)	A. Meding, M. Dähne

Harbour porpoise	Baltic	Standardisation and methodology of static acoustic monitoring	U. Verfuss, M. Dähne
Harbour porpoise	Baltic	Use of aerial photography with drones for abundance estimates	M. Dähne, G. Grenzdörffer
Harbour porpoise	Baltic	Creation of a management – orientated data base	D. Sonnenschmidt H. Giewat U. Siebert
Harbour porpoise	North Sea	Acoustic surveys, porpoise detectors (PODs)	U. Siebert, K. Lucke, J. Sundermeyer
Harbour porpoise	Baltic, North Sea	Telemetry	U. Siebert, K. Lucke
Harbour porpoise	North Sea/Baltic	Pathology, Immunology, Virology	H. Seibel
Harbour porpoise	North Sea/Baltic	Life History	I. Hasselmeier K. Lehnert
Harbour porpoise	North Sea/Baltic	Pollutants, Immunology, Endocrinology	K. Das, U. Siebert
Harbour porpoise	North Sea/Baltic	Parasitology	K. Lehnert
Harbour porpoise	North Sea/Baltic	Incidental sightings, data bases	U. Siebert M. Rademaker S. Mueller D. Sonnenschmidt
Harbour porpoise	North Sea/Baltic	Immunology, Pollutants	A. Kakuschke
Harbour porpoise	North Sea/Baltic	Primary cell culture, Pollutants	V. Hellwig
Harbour porpoise	North Sea, Baltic	Feeding ecology	A. Gilles, U. Siebert
Harbour porpoise	North Sea, Denmark	Distribution and abundance	W. Piper
Harbour porpoise	Europe	Assessemt of impact of offshore windfarm noise	W. Piper
Bottlenose dolphin, short-finned pilot whale, Atlantic spotted	La Gomera	Abundance, distribution, behaviour, Photo-ID	F. Ritter

dolphin, rough-toothed dolphin			
Bottlenose dolphin, short-finned pilot whale, Atlantic spotted dolphin, rough-toothed dolphin	La Gomera	Land-based estimation of abundance and distribution	F. Ritter
Toothed whales, *Stenella*	worldwide	Morphology, development, evolution	S. Huggenberger

*) contact addresses see section 12

History of Whaling

Studies on the history of whaling were continued under the auspices of the 'Deutsches Schifffahrtsmuseum' and associated researchers and groups and dealt primarily with historic whaling in northern Europe.

10. Literature cited

None

11. Publications

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