

Denmark.

Progress report on cetacean research, March 2007 to March 2008, with statistical data for the calendar year 2007.

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1. SPECIES AND STOCKS STUDIED

IWC common name	IWC recommended scientific	Area/stock(s)	Items referred to
Harbour porpoise	<i>Phocoena phocoena</i>	Denmark	3.1.3, 3.2, 8, 9
Harbour porpoise	<i>Phocoena phocoena</i>	Germany	3.2
Bottlenosed dolphin	<i>Tursiops truncatus</i>	Florida	3.2
Bottlenosed dolphin	<i>Tursiops aduncus</i>	South-West Australia	9
Whitebeaked dolphin	<i>Lagenorhynchus albirostris</i>	Denmark	8
Atlantic whitesided dolphin	<i>Lagenorhynchus acutus</i>	Denmark	8
Killer whale	<i>Orcinus orca</i>	Denmark	8
Long-finned pilot whale	<i>Globicephala melas</i>	Denmark	8
Narwhal	<i>Monodon monoceros</i>	Baffin Bay	9
Sperm whale	<i>Physeter macrocephalus</i>	Greenland	8
Minke whale	<i>Balaenoptera acutorostrata</i>	Denmark	8
Minke whale	<i>Balaenoptera acutorostrata</i>	Iceland	2.1.1
Minke whale	<i>Balaenoptera acutorostrata</i>	West Greenland	2.1.1, 4.2, 6.2, 6.3.2
Minke whale	<i>Balaenoptera acutorostrata</i>	East Greenland	4.2, 6.2
Humpback whale	<i>Megaptera novaeangliae</i>	West Greenland	2.1.1, 3.1.1, 3.1.3, 6.3.1, 6.3.2, 8
Humpback whale	<i>Megaptera novaeangliae</i>	Brazil	3.1.3
Humpback whale	<i>Megaptera novaeangliae</i>	South and North Pacific	3.1.3
Fin whale	<i>Balaenoptera physalus</i>	West Greenland	2.1.1, 4.2., 6.2
Sei whale	<i>Balaenoptera borealis</i>	West Greenland	2.1.1
Bowhead whale	<i>Balaena mysticetus</i>	West Greenland	4.1, 6.3.2, 9
Bowhead whale	<i>Balaena mysticetus</i>	Alaska	3.1.3

2. SIGHTINGS DATA

2.1 Field work

2.1.1 Systematic

An aerial survey of cetaceans off West Greenland was conducted between 25 August and 29 September 2007. The survey platform was a Twin Otter operated by Air Greenland with four observer platforms and long range fuel tanks. The survey was conducted as a line transect survey with cue counting data collection for the three target species; minke whales, fin whales and humpback whales.

The survey was planned to systematically cover the banks off West Greenland from Uummannaq in the north to southernmost tip at Kap Farvel. East-west going parallel transects were chosen for most areas except for south Greenland where north-south-going transects were deployed. Complex fjord systems were covered by a zig-zag transect design.

The survey covered a total of 220924 km² and the accomplished effort was 9434 km flown in Sea State 5 and lower, of which 5285 were flown in Sea State 3 or lower. In terms of effort for cue counting estimation this corresponds to 190163 seconds in Sea State 5 or lower of which 126290 seconds were flown in Sea State 3 or lower. A total of 25 sightings of fin whales, 27 sightings of minke whales, 21 sightings of humpback whales and 8 sightings of sei whales were obtained.

A large visual survey effort was made through the TNASS project (Trans North Atlantic Sightings Survey) in July, 2007, from boats in all North Atlantic waters. Results from this survey are expected during 2008 (more information available from Christina Lockyer, NAMMCO)

Target species	Date	Area	No. of sightings	Contact person / institute and references
Minke whales	16 – 26 July	Southwest Iceland N 63°50' W 23°0'	81	Lee Miller, SDU
Humpback whale	June-Oct	Nuuk Fjord, Greenland	28	Malene Simon, GINR
Minke whale	June 27 - July 19	West Greenland	29	Malene Simon, GINR
Humpback whale Minke whale Fin whale Sei whale	August 25 - September 29	West Greenland	n.a.	Mads-Peder Heide-Jørgensen, GINR
All whales	July	North Atlantic	n.a.	Christina Lockyer, NAMMCO

2.1.2 Opportunistic, platforms of opportunity

2.2 Analyses/development of techniques

3. MARKING DATA

3.1 Field work

3.1.1 Natural marking data

Species	Feature	Area/stock	No. photo-id'd	Catalogue (Y/N)	Catalogue total	Contact person/institute; refs
Humpback whale	Fluke	Nuuk fjord, Greenland	54	Y	n.a.	Malene Simon, GINR

3.1.2. Artificial marking data

3.1.3 Telemetry data

Tagging of bowhead whales in Alaska was conducted in collaboration with Alaska Department of Fish and Game. Tagging of humpback whales in Brazil was conducted in collaboration with Instituto Aqualie. Tagging of humpback whales in the South and North Pacific was conducted with the National Marine Mammal Laboratory. The satellite tags were specially developed by the Greenland Institute of Natural Resources and Wildlife Computers and they were designed to be delivered by the ARTS (Mads-Peder Heide-Jørgensen, GINR).

Species	Tag type	No. successfully deployed	Maximum time transmitting	Contact person/institute; refs
Harbour porpoise	A-tag and satellite tag	1	n.a.	Jonas Teilmann, NERI
Humpback whale	D-tag	3	25 hrs	Malene Simon, GINR
Bowhead whale	n.a.	n.a.	n.a.	Mads-Peder Heide-Jørgensen, GINR
Humpback whale	n.a.	n.a.	n.a.	Mads-Peder Heide-Jørgensen, GINR

3.2 Analyses/development of techniques

Collaborative analysis between US NOAA labs and Age Dynamics, DK, of age from teeth from bottlenose dolphins, *Tursiops truncatus*, collected during the unusual mortality event in Florida 2006.

Collaborative analysis between University of Kiel (FTZ Westcoast), Germany, and Age Dynamics, DK, of age from teeth of harbour porpoise, *Phocoena phocoena*, collected from strandings off the coast of Germany.

The population structure based on genetic microsatellites and mitochondrial DNA has been conducted to investigate the present structure of harbour porpoises the Danish waters. Furthermore comparison with samples collected during the 1800s and during the 1940s is included (Jonas Teilmann, NERI).

4. TISSUE/BIOLOGICAL SAMPLES COLLECTED

4.1 Biopsy samples

Species	Area/stock	Calendar year/ season - no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Bowhead Whale	Disko Bay, Greenland	March-May 2007	Y	n.a.	157	Mads-Peder Heide-Jørgensen, GINR

4.2 Samples from directed catches (commercial, aboriginal and scientific permits) or bycatches

Tissue samples from animals caught in 2007 were obtained from five fin whales and 108 minke whales from West Greenland, and one minke whale from East Greenland (Lars Witting, GINR).

4.3 Samples from stranded animals

4.4 Analyses/development of techniques

5. POLLUTION STUDIES

6. STATISTICS FOR LARGE CETACEANS

6.1 Corrections to earlier years' statistics for large whales

6.2 Direct catches of large whales (commercial, aboriginal and scientific permits) for the calendar year 2006

Species	Type of catch	Area/stock	Males	Females	Total landed	Struck and lost
Fin whale	ASW***	West Greenland	6	4	10	2
Minke Whale	ASW***	West Greenland	38	121	161*	6
Minke Whale	ASW***	East Greenland	0	1	2**	0

* Including 2 of unknown gender

** Including 1 of unknown gender

*** Aboriginal subsistence whaling

6.3 Anthropogenic mortality of large whales for the calendar year 2006

6.3.1 Observed or reported ship strikes of large whales (including non-fatal events)

- A skiff collided with a humpback whale off Nuuk before May 2007. Man overboard, non-fatal.

6.3.2 Fishery bycatch of large whales

- One humpback whale (female) entangled in pond net for cod, euthanized (Greenland)
- One humpback whale entangled in pond net for cod, died (Greenland).
- One humpback whale entangled in pond net for cod, came free by it self (Greenland).
- One Bowhead whale entangled in fishing gear for crabs, came free by it self (Greenland).
- One Bowhead whale entangled, gear not specified, died (Greenland).

7. STATISTICS FOR SMALL CETACEANS

7.1 Corrections to earlier years' statistics for small cetaceans

No data available.

7.2 Direct catches of small cetaceans for the calendar year 2006

No data available.

7.3 Anthropogenic mortality of small cetaceans for the calendar year 2006

7.3.1 Observed or reported ship strikes of small cetaceans (including non fatal events)

7.3.2 Fishery bycatch of small cetaceans

In relation to EU Council Regulation 812/2004, DTU Aqua has had dedicated observers on board pelagic trawl fishery vessels for a total of 137 days at sea in the North Sea and 15 days at sea in ICES subdivision 21. No bycatch of cetaceans was observed.

8. STRANDINGS

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)	Contact email address(es)
<i>Greenland</i>				
Humpback whale	1	0	Nette Leverman, DFFL	Nele@gh.gl
Sperm whale	1	0	Nette Leverman, DFFL	Nele@gh.gl
<i>Denmark</i>				
Killer whale	1	1	Henrik Lykke Sørensen, SN	hls@sns.dk
Long-finned pilot whale	1	1	Henrik Lykke Sørensen, SN	hls@sns.dk
Whitebeaked dolphin	3	0	Henrik Lykke Sørensen, SN	hls@sns.dk
Whitesided dolphin	2	0	Henrik Lykke Sørensen, SN	hls@sns.dk
Minke whale	3	0	Henrik Lykke Sørensen, SN	hls@sns.dk
Harbour porpoise	95	2	Henrik Lykke Sørensen, SN	hls@sns.dk

Note: the two Greenland strandings were observations of whales floating dead in open fjord systems, not on land.

9. OTHER STUDIES AND ANALYSES

- Sonobouys were used for recordings of cetacean vocalizations in Baffin Bay in April and 57 hrs of recordings of primarily bowhead whale and narwhal vocalizations were obtained (Mads-Peder Heide-Jørgensen, GINR).
- Measurements of ambient noise in Nuukfjord (Malene Simon, GINR)
- Studies of bottlenose dolphin acoustics in Bunbury Bay, West Australia (Lars Pejder, Murdoch University, Peter Madsen, Aarhus University and Magnus Wahlberg, Fjord&Bælt).
- The National Institute of Aquatic Resources (DTU Aqua) has conducted research on mitigation of harbour porpoise by-catch in Danish waters. More specifically:
 - ⇒ Investigated the effects of alerting pingers on the by-catch in bottom set gill net fisheries;
 - ⇒ Investigated sound propagation from pingers under varying conditions;
 - ⇒ Investigated durability and handling of commercially available pingers
 - ⇒ Determined target strength of standard and high-density (iron-oxide and barium sulphate) gill nets
 - ⇒ Studied gill net detection capabilities of captive harbour porpoises

10. LITERATURE CITED

11. PUBLICATIONS

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Appendix 1. FOA fishing descriptions and codes

FAO FISHING GEAR CATEGORIES:		FALLING GEAR	
SURROUNDING NETS		Cast nets	FCN
With purse lines	PS	Falling gear (not specified)	FG
One-boat operated purse seines	PS1	GILLNETS AND ENTANGLING GEAR	
Two-boat operated purse seines	PS2	Set gillnets (anchored)	GNS
Without purse lines (lampara)	LA	Driftnets	GND
SEINE NETS		Encircling gillnets	GNC
Beach seines	SB	Fixed gillnets (on stakes)	GNF
Boat seines	SV	Trammel nets	GTR
Danish seines	SDN	Combined gillnet-trammel nets	GTN
Scottish seines	SSC	Gillnets and entangling gillnets (not specified)	GEN
Pair seines	SPR	Gillnets (not specified)	GN
Seine nets (not specified)	SX	TRAPS	
TRAWLS		Stationary uncovered pounds nets	FPN
Bottom trawls	TBB	Pots	FPO
Beam trawl	OTB	Fyke nets	FYK
Otter trawls (side or stern)	PTB	Stow nets	FSN
Pair trawls	TBN	Barriers, fences, weirs, etc	FWR
Nephrops trawls	TBS	Aerial traps	FAR
Shrimp trawls (not specified)	TM	Traps (not specified)	FIX
Midwater trawls			
Otter trawls (side or stern)	OTM	HOOKS AND LINES	
Pair trawls	PTM	Handlines and pole-lines (hand operated)	LHP
Shrimp trawls	TMS	Handlines and pole-lines (mechanised)	LHM
Midwater trawls (not specified)	TM	Set longlines	LLS
Otter twin trawls	OTT	Drifting longlines	LLD
Otter trawls (not specified)	OT	Longlines (not specified)	LL
Pair trawls (not specified)	PT	Trolling lines	LTL
Other trawls (not specified)	TX	Hooks and lines (not specified)	LX
DREDGES		GRAPPLING AND WOUNDING	
Boat dredges	DRB	Harpoons	HAR
Hand dredges	DRH	HARVESTING MACHINES	
LIFT NETS		Pumps	HMP
Portable lift nets	LPN	Mechanised dredges	HMD
Boat-operated lift nets	LNB	Harvesting machines (not specified)	HMX
Shore operated stationary lift nets	LNS	MISCELLANEOUS GEAR	MIS
Lift nets (not specified)	LN	RECREATIONAL FISHING GEAR	RG
		GEAR NOT KNOWN OR NOT SPECIFIED	NK
		SHARK CONTROL NETS	NSC
		DERELICT FISHING GEAR	