

# U.K. Progress Report on Cetacean Research April 2008 to May 2009 with statistical data for the calendar year 2008

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## 1. SPECIES AND STOCKS STUDIED

Common name	Scientific name	Area/stock(s)	Items referred to
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Dominican Republic	2.1.1, 3.1.1
Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>	UK, Ireland	4.3, 8
Beaked whale sp.		Eastern North Atlantic	2.1.1, 2.2
Blainville's beaked whale	<i>Mesoplodon densirostris</i>	Tongue of the Ocean, Bahamas	9
Blue whale	<i>Balaenoptera musculus</i>	Chile, Indian Ocean,	9
Bottlenose dolphin	<i>Tursiops truncatus</i>	UK Aruba, Belize, Costa Rica, Dominican Republic, Japan, Mediterranean Sea, Namibia, Pacific Ocean, Panama, South Africa, USA, Zanzibar	2.1.1, 2.2, 3.1.1, 4.3, 4.4, 8, 9
Bryde's whale	<i>Balaenoptera edeni</i>	South Africa	2.1.1
Chilean dolphin	<i>Cephalorhynchus eutropia</i> ,	Southern Chile	3.1.1, 9
Costero	<i>Sotalia guianensis</i>	Colombia, Costa Rica	9
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	UK	4.3, 8
False killer whale	<i>Pseudorca crassidens</i>	Tongue of the Ocean, Bahamas	9
Fin whale	<i>Balaenoptera physalus</i>	Offshore European Atlantic, USA	2.2
Guyana Dolphin	<i>Sotalia guianensis</i>	Costa Rica	2.1.1, 3.1.1
Harbour porpoise	<i>Phocoena phocoena</i>	UK, Ireland	2.1.1, 2.1.2, 4.3, 5 7.3.2, 8, 9
Humpback dolphin	<i>Sousa chinensis</i>	Thailand	3.1.1
Humpback whale	<i>Balaenoptera novaeangliae</i>	UK, Dominican Republic, South Africa.	2.1.1, 4.1, 4.3, 6.3.2, 9
Killer whale	<i>Orcinus orca</i>	UK, Canada (British Columbia) Norway, Global samples	2.1.1, 3.1.1, 4.4, 8, 9
Long-finned pilot whale,	<i>Globicephala melas</i>	UK, Ireland, Offshore European Atlantic	2.2, 4.3, 8
Melon headed whale	<i>Peponocephala electra</i>	Tounge of the Ocean, Bahamas	9
Minke whale	<i>Balaenoptera acutorostrata</i>	UK, Offshore European Atlantic	2.1.1, 2.2, 3.1.1, 3.1.3, 4.3, 6.3.2, 8, 9
Peale's dolphins,	<i>Lagenorhynchus australis</i> ,	Southern Chile	3.1.1, 9
Risso's dolphin	<i>Grampus griseus</i>	UK, Spain (Gran Canaria)	2.1.1, 3.1.1, 4.3, 4.4, 8, 9
Rough toothed dolphin	<i>Steno bredanensis</i>	Aruba, Dutch Antilles	2.1.1, 3.1.1
Short-beaked common dolphin	<i>Delphinus delphis</i>	UK, Ireland, Offshore European Atlantic	2.1.1, 3.1.1, 4.3, 5, 7.3.1, 7.3.2, 8
Short-finned pilot shale	<i>Globicephala macrorhynchus</i>	Tounge of the Ocean, Bahamas	9
Sperm whale	<i>Physeter macrocephalus</i>	UK, Caribbean, Chile, Mediterranean, Offshore European Atlantic	2.2, 4.3, 8, 9
Striped dolphin	<i>Stenella coeruleoalba</i>	UK, Mediterranean Sea, Offshore European Atlantic	2.2, 4.3, 7.2, 8, 9
White-beaked dolphin	<i>Lagenorhynchus albirostris</i>	UK	4.3, 8, 9

## 2. SIGHTINGS DATA

### 2.1 Field work

#### 2.1.1 Systematic

Target species	Date	Area	No. of sightings	Contact person/institute and references
Atlantic spotted dolphin		Dominican Republic		R. Sellares (FUND)
Common bottlenose dolphin		Turneffe Atoll, Belize		K.W.Patterson (ESP)
Common bottlenose dolphin		Dominican Republic		R. Sellares (FUND)
Common bottlenose dolphin		Bocas del Toro, Panama	276	L. J. May-Collado (ESP)
Common bottlenose dolphin		Gandoca-Manzanillo, Costa Rica	54	L. J. May-Collado (ESP)
Common bottlenose dolphin		Gulf of Chiriqui, Panama	177	L. J. May-Collado (ESP)

Guyana dolphin		Gandoca-Manzanillo, Costa Rica	88	L. J. May-Collado (ESP)
Rough-toothed dolphin		Aruba		J. Luksenburg (ESP)

AULFS (Barbara Cheney) in collaboration with SMRU and Scottish Association of Marine Science (SAMS) continue to conduct boat-based photo-identification surveys of bottlenose dolphins around the Scottish coast. The project, which is due to report in September 2009, will provide information on the distribution, population structure and abundance of dolphins around the coast. The project is also conducting winter surveys along the north east coast of Scotland to investigate the winter distribution of bottlenose dolphins associated with the Moray Firth Special Area of Conservation (SAC).

AULFS (Andy Foot) and SMRU (Volker Deeke) continues to survey killer whales in Shetland in inshore waters between May and August and in offshore waters in October. Additional field data was collected for the West Coast by the Hebridean Whale and Dolphin Trust (HWDT). In addition sightings data is submitted to the project by the public via a sighting network set up in 2006/2007. Further information on this project is available at <http://www.northatlantickillerwhales.com/>

CCW (Mandy McMath) has grant-aided a number of groups to conduct cetacean surveys in Wales. Under this grant-aid scheme Sea Trust are carrying out small cetacean surveys in the Bristol Channel (2007-2010) and the Sea Watch foundation is conducting a baleen whale survey of the Irish Sea (2007-2010). In addition CCW grant-aided Marine Awareness North Wales to undertake further land and boat based surveys of harbour porpoises between 2006-2009, to support selection of SACs for this species. Analysis of data gathered in a previous study period (2002-2004) showed that porpoise densities were relatively high during summer months and some particular areas were found to have higher densities than others. The report of cetacean boat based surveys conducted between 2006 and 2007 in West Wales by the Friends of Cardigan Bay is now available (Hughes & Hughes, 2009).

The CRRU (Kevin Robinson) continues to conduct systematic surveys of the southern outer Moray Firth in northeast Scotland between the months of May and October. During 2008, studies were once again concentrated primarily on coastal minke whales (*Balaenoptera acutorostrata*), bottlenose dolphins (*Tursiops truncatus*) and harbour porpoises (*Phocoena phocoena*), although opportunistic encounters with other cetacean species (Risso's dolphins, common dolphins, killer whales, humpback whales etc), turtles and basking sharks were also further recorded.

IFAW (Russel Leaper) conducted visual and acoustic surveys, primarily for beaked whales, in the eastern north Atlantic, between May 08 and November 08 from RV Song of the Whale. Investigations were carried out between locations where beaked whales have been regularly sighted (the Azores, Madeira and Canary Islands) with a particular emphasis on seamounts. In addition, some inshore survey effort was conducted in association with land based observers. Approximately 25,000 km of survey effort were completed in total, of which 12,000 km (455 hours) were offshore. The surveys were conducted in close partnership with collaborators from SMRU, Madeira Whale Museum, University of the Azores, University of La Laguna, Tenerife, Woods Hole Oceanographic Institution and Sociedad Para el Estudio de Los Cetáceos en el Archipiélago Canario (SECAC) in the Canary Islands. A primary purpose of the research conducted in 2008 was to contribute data to ongoing efforts to determine the efficiency with which beaked whales can be detected as a function of range from the track-line by a vessel towing a hydrophone.

SMRU (Aaron Banks) in collaboration with the Centre of Dolphin Studies has continued photo-ID surveys using research and whale-watching vessels to estimate Humpback whale abundance off the Southern Coast of South Africa

SMRU (Cormac Booth) conducted systematic line-transect surveys collecting sightings of marine mammals and basking sharks on the west coast of Scotland (between the Mull of Kintyre to Cape Wrath and out to Outer Hebrides) between March and September 2008. In addition acoustic surveys for harbour porpoise were also carried out. The study aims to investigate the temporal and spatial variation in harbour porpoise distribution on the West coast of Scotland and will model visual and acoustic detections of harbour porpoise with respect to oceanographic and environmental variables.

SMRU (Tess Gridley) conducted surveys for bottlenose dolphins around Barra (June) and Inner Hebridean waters (November) collecting sightings and acoustic recordings of whistle vocalisations. Data of opportunistic sightings of harbour porpoise were also collected.

SMUR (Tess Gridley), in collaboration with the Namibian Dolphin Project (Simon Elwen), collected sightings, acoustic and photo-ID data of bottlenose dolphins in Walvis Bay, Namibia. Opportunistic recordings of Heaviside's dolphins were also made. Further details are available at: <http://namibiandolphinproject.blogspot.com/>

SMRU (Tess Gridley) in collaboration with the Centre for Dolphin studies collected sightings data, acoustic and photo-ID data of bottlenose dolphins in Plettenberg Bay, South Africa.

SMRU (Vincent Janik) conducted systematic surveys for bottlenose dolphins (Japan, New Zealand, USA-Florida, Zanzibar), Risso's dolphins (Spain – Gran Canaria) and Killer whales (Canada – British Colombia). When animals were encountered researchers aimed to stay with them as long as possible for that day and photo-ID was conducted in all areas.

SMRU (Phil Hammond) have finalised the data from the Cetacean Offshore Distribution and Abundance in the European Atlantic surveys in July 2007 (see CODA 2009).

SMRU (Gwen Penry) in collaboration with the Centre for Dolphin Studies conducted surveys of Bryde's whales off South Africa between November 2005 and June 2008. Data are now being analysed to provide abundance estimates, population structure and temporal patterns of inshore Bryde's whales.

### 2.1.2 Opportunistic, platforms of opportunity

CCW has grant-aided West Wales Divers to survey harbour porpoise around Pembrokeshire Islands. The surveys are conducted on an opportunistic basis as part of tourist wildlife trips (Isojunno, 2009).

## 2.2 analyses/development of techniques

CREEM (Len Thomas) are continuing a research project to develop methods for estimating cetacean density from fixed passive acoustics (DECAF: see <http://www.creem.st-and.ac.uk/decaf/>)

SMRU (Phil Hammond) have completed abundance estimates of short-beaked common dolphin, striped dolphin, sperm whale, long-finned pilot whale and fin whale using design-based Mark-Recapture Line Transect sampling methods and model-based density surface modelling methods. Density is modelled as a function of physical and environmental covariates and predicted across the study area to generate distribution maps. Abundance of bottlenose dolphin, beaked whales (all species combined) and minke whale estimated using conventional line transect sampling methods. Details in CODA (2009).

SMRU (Vincent Janik) continue to analyse acoustic recordings and photo-ID of a number of odontocete species.

## 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
Bottlenose dolphin	Dorsal fin	Scotland		Y		CRRU
Bottlenose dolphin	Dorsal Fin	Scotland (Hebrides)		Y		T. Gridley SMRU
Minke whale	Dorsal fin	Scotland		Y		CRRU
Minke whale	All	Scotland				HWDT/SMRU
Risso's dolphin	Dorsal fin	Scotland		Y		CRRU
Common dolphin	Dorsal fin	Scotland		Y		CRRU
Humpback whale	Tail fluke/dorsal fin	Scotland		Y	3	CRRU
Irrawaddy dolphin	Dorsal fin	Thailand		Y		Kevin Robinson, CRRU/WFFT
Atlantic spotted dolphin	Dorsal Fin	Dominican Republic	IP	Y	IP	R. Sellares, FUND
Bottlenose dolphin	Dorsal Fin	Belize	IP	Y	IP	K.W.Patterson, ESP
Bottlenose dolphin	Dorsal fin	Costa Rica	IP	Y	IP	L.J. May-Collado, ESP
Bottlenose dolphin	Dorsal Fin	Dominican Republic	IP	Y	IP	R. Sellares, FUND
Bottlenose dolphin	Dorsal fin	Panama	IP	Y	IP	L.J. May-Collado, ESP
Fin whale	Dorsal Fin	W. Atlantic	IP	Y		J. Ambler, ESP
Guyana dolphin, Costero Costero	Dorsal fin	Costa Rica	IP	Y	IP	L.J. May-Collado, ESP
Rough toothed dolphins	Dorsal Fin	Dutch Antilles	IP	Y	IP	J. A. Luksenburg, ESP

Indo-Pacific humpbacked dolphin	Dorsal fin	Thailand		Y		Kevin Robinson, CRRU/WFFT
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AULFS (Barbara Cheney) continue to conduct photo-ID surveys of bottlenose dolphins in north east Scotland.

AULFS (Andy Foote) and SMRU (Volker Deeke) have identified 82 individual killer whales from 114 encounters in Scotland between 1992-2008. They found very limited movement of individuals between the three Scottish study areas (Northern Isles, the Hebrides and offshore Shetland), suggesting distinct ‘communities’.

CCW in collaboration with Seawatch Foundation and Marine Awareness North Wales conducted a study of bottlenose dolphin Photo-ID and has produced the publication “Connectivity of Bottlenose Dolphins in Welsh Waters” (Pesante, *et al.*, 2008. Results from this study show that a significant proportion of the Cardigan Bay SAC population use the surveyed waters between autumn and winter. In addition a photo-ID catalogue of bottlenose dolphins in Welsh waters has been produced (Pesante and Evans, 2008).

CRRU continues to conduct photo-ID of bottlenose dolphins and minke whales in the southern Moray Firth, Scotland.

CRRU and HWDT continue to collaborate on a joint database of photo-ID of minke whales in Scotland to cross reference sightings data. A preliminary analysis of Moray Firth images with records from the west coast of Scotland and Iceland was published by Baumgartner (2008).

CRRU and UALFS continue to work on the joint SEERAD funded project to assist in the assembly of a photo-identification archive for bottlenose dolphins of Aberdeen in collaboration with Ketos Ecology and UASZD.

CRRU currently photo-ID studies of Indo-Pacific humpbacked dolphins (*Sousa chinensis*) and Irrawaddy dolphins (*Orcaella brevirostris*) in Thailand.

SAMS (Ben Wilson) has been collecting and analysing photo-ID of bottlenose dolphins from the west coast of Scotland.

SMRU (Sonja Heinrich) with students in Chile is using photo-ID and mark-recapture techniques to estimate abundance and survival rates, determine individual ranging and movement patterns and investigate association patterns of local populations of Chilean dolphins and Peale's dolphins in the Chiloé Archipelago in southern Chile .

SMRU (Vincent Janik) has collected photo-ID on bottlenose dolphins (UK – Scotland, Japan, Namibia, New Zealand, South Africa, USA – Florida, Zanzibar), Risso's dolphin (Spain – Gran Canaria) and killer whales (UK – Shetland Island, Canada – British Columbia).

SMRU (Sanna Kunnigas) continues to collect photo-ID of northern Norwegian Killer whales to assess their population dynamics.

SMRU (Simon Northridge) and HWDT are using the HWDT photo-id catalogue to explore possible fishery interactions with minke whales.

### 3.1.2. Artificial marking data

None reported

### 3.1.3 Telemetry data

Species	Tag type	No. successfully deployed	Maximum time transmitting	Contact person/institute; refs
Minke whale	TDR	1	5	K.P. Robinson. CRRU, Scotland

CRRU (Kevin Robinson) continued its work with TDR suction tags in NE Scotland. However, only one opportunistic deployment was achieved in 2008 and the device did not remain in place.

## 3.2 Analyses/development of techniques

None reported

#### 4. TISSUE/BIOLOGICAL SAMPLES COLLECTED

##### 4.1 Biopsy samples (summary only)

Species	Area/stock	Calendar year/ season - no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Bottlenose dolphin	NE Atlantic	6	Y	-	-	SMRU (Vincent Janik)
Humpback Whale	Breeding Area/ C1 stock	10	Y	-	-	SMRU/ Centre for Dolphin Studies, South Africa (Aaron Banks)

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

None Reported

##### 4.3 Samples from stranded animals

Species	Area/stock	Tissue type(s)*	No. collected	Archived (Y/N)	No. analysed	Contact person/institute
Atlantic white-sided dolphin	UK	Skull	8	Y	N/A	Jerry Herman (NMS)
Atlantic white-sided dolphin	Ireland	Skull	1	Y	N/A	Jerry Herman, (NMS)
Atlantic white-sided dolphin	UK	Various	4	Y	N/A	Rob Deaville (IoZ)/Bob Reid (SACVSD)
Bottlenose dolphin	UK	Skull	5	Y	N/A	Jerry Herman, (NMS)
Bottlenose dolphin	UK	Various	1	Y	N/A	Vincent Janik (SMRU)
Bottlenose dolphin	UK	Various	2	Y	N/A	Bob Reid (SACVSD)
Common dolphin	UK	Skull	3	Y	N/A	Jerry Herman, (NMS)
Common dolphin	Ireland	Skull	2	Y	N/A	Jerry Herman, (NMS)
Cuvier's beaked whale	N. Atlantic	Lower jaw	1	Y	1	Kevin Robinson, Colin MacCleod (CRRU/ABZ)
Cuvier's beaked whale	UK	Various	1	Y	N/A	Bob Reid (SACVSD)
Cuvier's beaked whale	UK	Skull	1	Y	N/A	Jerry Herman, (NMS)
Harbour porpoise	UK	Skull	40	Y	N/A	Jerry Herman, (NMS)
Harbour porpoise	Ireland	Skull	1	Y	N/A	Jerry Herman, (NMS)
Harbour porpoise	UK	Various	69	Y	N/A	Rob Deaville (IoZ)/Bob Reid (SACVSD)
Harbour porpoise	Wales	Skin, muscle, teeth	14	Y	N/A	Rod Penrose (MEM)
Humpback Whale	South Africa	Various	3			Aaron Banks (SMRU/ Centre for Dolphin research)
Long-finned pilot whale	UK	Various	1	Y	N/A	Rob Deaville (IoZ)
Minke whale	UK	Various	1	Y	N/A	Bob Reid (SACVSD)
Northern bottlenose whale	UK	Various	2	Y	N/A	Rob Deaville (IoZ)/Bob Reid (SACVSD)
Pilot whale	Ireland	Skull	1	Y	N/A	Jerry Herman, (NMS)
Risso's dolphin	UK	Various	1	Y	N/A	Rob Deaville (IoZ)
Short-beaked common dolphin	UK	Various	44†	Y	N/A	Rob Deaville (IoZ)/Bob Reid (SACVSD)/ Rod Penrose (MEM)
Sowerby's beaked whale	UK	Various	5	Y	N/A	Rob Deaville (IoZ)/Bob Reid (SACVSD)
Sperm whale	UK	Various	1	Y	N/A	Bob Reid (SACVSD)
Striped dolphin	UK	Skull	1	Y	N/A	Jerry Herman, (NMS)
Striped dolphin	UK	Various	2	Y	N/A	Rob Deaville (IoZ)
White beaked dolphin	UK	Various	4	Y	N/A	Rob Deaville (IoZ)/Bob Reid (SACVSD)
White-beaked dolphin	UK	Skull	1	Y	N/A	Jerry Herman, (NMS)

† 26 of the 43 short-beaked common dolphins examined at post-mortem in the UK during 2008 were part of a mass stranding event (MSE) that occurred in Cornwall, England in June 2008.

##### 4.4 Analyses/development of techniques

SMRU (Vincent Janik) have analysed microsatellites and sequenced mtDNA from samples of bottlenose dolphins around the UK.

## 5. POLLUTION STUDIES

During 2008, the Centre for Environment, Fisheries & Aquaculture Science (CEFAS) Burnham Laboratory, Essex completed the analyses of PCBs and organochlorine pesticides in 43 female UK stranded common dolphins, as part of a SMRU (Sinead Murphy) investigation of potential links between contaminants and reproductive anomalies in this species. The project is supported by the Agreement on the Conservation of small cetaceans of the Baltic and North Seas (ASCOBANS), and the research project will report in August 2010. Focal species are harbour porpoises and common dolphins, and work includes analysis of gonadal and teeth samples obtained by the UK Cetacean Strandings Investigation Programme

In addition, CEFAS also completed the analyses of samples from around 80 UK stranded harbour porpoises for polybrominated diphenyl ethers (BDEs) including BDE-209 (decabromodiphenyl ether). These data have been combined with the nine BDE congener data common to all studies to date, giving a sample size of circa 400 animals to examine spatial and temporal trends in concentrations post the EU ban on penta- and octa-mix PBDE formulations. Samples were provided by the CSIP in both studies. Contact Rob Deaville.

Tissue samples collected by the CSIP from seven common dolphins examined at post-mortem during a Defra funded investigation into a mass stranding event (MSE) in Cornwall, England in June 2008 were sent to CEFAS for analysis for a range of persistent environmental contaminants, including PCBs and organochlorine pesticides.

## 6. STATISTICS FOR LARGE CETACEANS

### 6.1 Corrections to earlier years' statistics for large whales

None reported

### 6.2 Direct catches of large whales (commercial, aboriginal and scientific permits) for the calendar year 2008

Not applicable to the UK

### 6.3 Anthropogenic mortality of large whales for the calendar year 2008

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

None reported

#### 6.3.2 Fishery bycatch of large whales

Whale species	Sex	No	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Minke whale	F	1	16/01/08	Grobust, Orkney, Scotland	D	unknown	FPO	Stranded and diagnosed at necropsy-entanglement	Bob Reid (SACVSD)
Humpback whale	U	1	21/05/08	off Stronsay, Orkney, Scotland	R	unknown	FPO	Found alive entangled in creel ropes and freed following rescue	Bob Reid (SACVSD)
Minke whale	U	1	12/10/08	off Gills Bay, Highland, Scotland	D	unknown	FPO	Found floating-entangled in creel ropes	Bob Reid (SACVSD)

## 7. STATISTICS FOR SMALL CETACEANS

### 7.1 Corrections to earlier years' statistics for small cetaceans

**7.2 Direct catches of small cetaceans for the calendar year 2008**

Not applicable to the UK

**7.3 Anthropogenic mortality of small cetaceans for the calendar year 2008***7.3.1 Observed or reported ship strikes of small cetaceans (including non fatal events)*

Species	Sex	No.	Date	Location	Vessel type	Speed	Fate	How observed	Contact person/ institute and refs
Common dolphin	F	1	10/01/08	Milton Sands, Devon, England	U	U	D	Stranded and diagnosed at necropsy	Rob Deaville (IoZ)
Common dolphin	M	1	29/10/08	Whitesands, Pembrokeshire, Wales	U	U	D	Stranded and diagnosed at necropsy	Rob Deaville (IoZ)

*7.3.2 Fishery bycatch of small cetaceans*

Species	Sex	No	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Harbour porpoise	-	8	Jan-Dec 2008	UK	D	unknown	unknown	DA (diagnosed at necropsy)	Rob Deaville (IoZ)
Short-beaked common dolphin	-	2	Jan-Dec 2008	UK	D	unknown	unknown	DA (diagnosed at necropsy)	Rob Deaville (IoZ)
Harbour porpoise	M	1	09-Oct-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Harbour porpoise	M	1	10-Oct-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Bottlenose dolphin	M	1	26-Oct-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Harbour porpoise	U	1	20-Nov-08	Celtic Sea	D	Hake	GNS	FO	S. Northridge (SMRU)
Harbour porpoise	F	1	13-Apr-08	Celtic Sea	D	Hake	GEN	FO	S. Northridge (SMRU)
Harbour porpoise	M	1	31-Jul-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Harbour porpoise	M	1	16-Aug-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Harbour porpoise	M	2	26-Aug-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Harbour porpoise	U	2	26-Aug-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Harbour Porpoise	U	2	May-June 2008	Southern North Sea	D	Sea bass	GNS	FO	S. Northridge (SMRU)
Harbour porpoise	F	1	26-Aug-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Common dolphin	U	1	06-Feb-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)
Common dolphin	U	1	19-Mar-08	Celtic Sea	D	Monkfish	GEN	FO	S. Northridge (SMRU)

**8. STRANDINGS**

The UK Cetacean Strandings Investigation Programme (CSIP) is a consortium of organisations consisting of IoZ, SACVSD, NHM and MEM and is contracted by Defra and the Devolved Administrations to record information on all UK stranded cetaceans and to conduct standardised necropsies on 100 cetacean strandings per annum, to allow the investigation of diseases and causes of death. Data collected by the CSIP is now held on a recently constructed web accessed database and extracts from this will be periodically exported to the National Biodiversity Network Gateway (<http://data.nbn.org.uk/>), to facilitate wider access to information on UK strandings. IoZ and SACVSD also maintain extensive tissue archives derived from UK stranded animals which have been necropsied. Further information on the CSIP can be found at [www.ukstrandings.org](http://www.ukstrandings.org).



In addition to the strandings co-ordination funded by Defra, the Welsh Assembly Government is funding the Welsh Strandings Co-ordinator, Rod Penrose, Marine Environmental Monitoring, in conjunction with the Countryside Council for Wales (CCW), who collaborates with the IoZ/SACVSD/NHM scheme, (Penrose, 2009).

The Scottish Strandings Co-ordinator role is funded directly by the Scottish Government who have recently contracted the Scottish Agricultural College (Veterinary Division) to undertake additional necropsies in Scotland on cetaceans and seals.

The Cornwall Wildlife Trust Marine Strandings Network maintains its own strandings database, with all information feeding into the national UK CSIP database.

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)	Contact email address(es)
Harbour porpoise	270	69	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Short-beaked common dolphin	111	43†	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Long-finned pilot whale	25	1	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Minke whale	19	1	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Cuvier's beaked whale	17	1	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Atlantic white-sided dolphin	14	4	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
White beaked dolphin	12	4	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Risso's dolphin	9	1	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Bottlenose dolphin	6	2	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Striped dolphin	6	2	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Sowerby's beaked whale	6	5	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Sperm whale	4	1	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Northern bottlenose whale	3	2	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Fin whale	2	0	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Killer whale	1	0	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list
Cetacean (indeterminate species)	75	0	Rob Deaville (IoZ)/ Bob Reid (SACVSD)/ Richard Sabin (NHM)/ Rod Penrose (MEM)	IoZ/SACVSD/ NHM/MEM- see contact list

† 26 of the 43 short-beaked common dolphins examined at post-mortem in the UK during 2008 were part of a mass stranding event (MSE) that occurred in Cornwall, England in June 2008

## 9. OTHER STUDIES AND ANALYSES

AUNE (Christine Gleason) conducted a study to determine the conservation knowledge and opinions of tourists viewing humpback whales in Samana Bay, Dominican Republic. A secondary survey was used to assess the knowledge and conservation awareness of local residents involved in whale watching.

AULFS (Ana Candido) continue to monitor dolphins and porpoises on the East coasts of Scotland using passive acoustic monitoring.

AULFS (Andy Foote) and SMRU (Volker Deeke) as part of a study of killer whales in Scotland have been recording killer whales in Shetland and have obtained additional acoustic recordings from the Hebridean Whale and Dolphin Trust for comparison. In addition the project was able to confirm prey species in three predation events from inshore Shetland killer whales either through photographs of the prey or collecting prey samples for genetic analysis. All prey were identified as harbour seals.

Ceredigion County Council, continue their 11 year study of cetacean site use and boat traffic along the Marine Heritage Coast and Cardigan Bay SAC. Average separation distances during encounters with dolphins and the rate at which Visitor Passenger boats stopped when close to bottlenose dolphins has increased since the introduction of the trip boat operator's code of conduct (Pierpoint and Allen, 2005.)

CCW has contracted Sea Watch Foundation to collate and analyse all available data on cetacean distribution and abundance in Welsh waters, provided by NGO's, developers and CCW. The output of this project will be a Welsh Marine Mammal Atlas and a high resolution dataset for Wales based on a GIS platform and will underpin CCW's advice on oil, gas and renewable energy exploration and selection of SACs.

The CCW contract report of Cardigan Bay and Pen Llyn a'r Sarnau SAC bottlenose dolphin and harbour porpoise monitoring from 2005 to 2007 has been produced (Pesante *et al.*, 2008).

CCW is monitoring the distribution and occurrence of harbour porpoise and bottlenose dolphins using 6 TPODs deployed in coastal locations in the Cardigan Bay SAC. Results so far show that detection rates of bottlenose dolphin and harbour porpoise are negatively correlated.

CREEM (Danielle Harris) is developing methods of estimating whale abundance from sparse arrays of seabed-mounted hydrophones and are currently analysing blue whale vocalisations recorded near Diego Garcia in the Indian Ocean.

CREEM (Len Thomas) have conducted a preliminary assessment of how the Joint Cetacean Protocol (JCP) data might be utilized to detect changes in abundance or range of UK and Ireland cetacean species. Results indicate that such data would only be able to pick up an annual decline of 15-30% over a six year monitoring period. This is because of the variability in the data both in its temporal and spatial scales (Thomas, 2009). This project was managed by the Joint Nature Conservation Committee and was funded by the National Parks and Wildlife Service (Ireland) and the Countryside Council for Wales.

CWT are conducting a trial of voluntary use of pingers in inshore gill nets to reduce bycatch of porpoises, common dolphins and bottlenose dolphins. The trial will assess the practical issues for the fishers and will acoustically assess responses of the three cetacean species using C-PODs (multi-species echo-location loggers, Chelonia Limited.)

CRRU (Kevin Robinson) initiated a new research project in Thailand in collaboration with the Phuket Marine Biological Centre (PMBC) and the Wildlife Friends Foundation Thailand (WFFT)

CRRU (Kevin Robinson) working with AULFS, HWDT and the Marine Biodiversity Research Group, Ireland, found the first evidence for inter-coastal movements by bottlenose dolphins between the Moray Firth, west coast of Scotland and Ireland (Robinson *et al.* 2008).

CRRU observed the first ever documented attack on a minke whale by bottlenose dolphins in the Moray Firth in June 2008.

CRRU (Michael Tetley) continues his modelling work on the habitat preference and site fidelity of the species (PhD study co-supervised by Drs Kevin Robinson and Gay Mitchelson-Jacob from the University of Bangor).

ESP (L.J. May-Collado and students) are conducting studies on habitat use and group member associations in relation to boat traffic.

ESP (J Ambler) are investigating patterns of habitat use in fin whales in the coastal waters of Virginia, USA

ESP (K Patterson, M Draheim & J Ambler) conducted surveys on the demographics, attitudes and knowledge of whale watching tourists in Belize and Dominican Republic (target species bottlenose dolphins) and Virginia, USA (target species fin whales, humpback whales, right whales and bottlenose dolphins).

IFAW have funded a study to review technologies that may be used to reduce the underwater noise output from the loudest commercial vessels (Renilson, 2009). This study has been initiated in response to the International Maritime Organization adopting a new work item on "Noise from commercial shipping and its adverse impact on marine life" which was partially prompted by concerns over the effects of shipping noise on whales.

JNCC (Mark Tasker) in collaboration with other Countryside agencies and the SMRU have developed the UK Cetacean Surveillance Strategy to meet monitoring needs under the EU Habitats Directive. The key five actions of the strategy are: to continue the CSIP, continue the UK Bycatch Monitoring Scheme, continue decadal SCANS/CODA type surveys, introduce systematic annual surveys and implement the JCP.

The Joint Nature Conservation Committee (JNCC) has produced statutory guidance relating to the deliberate disturbance and injury offences contained in the Conservation Regulations 1994 and Offshore Marine Conservation Regulations 2007, with primary guidance on how these relate to cetaceans. The document is available at [http://www.jncc.gov.uk/pdf/consultation\\_epsGuidanceDisturbance\\_3..pdf](http://www.jncc.gov.uk/pdf/consultation_epsGuidanceDisturbance_3..pdf)

In the last year the UDMEG's (Russ Hoelzel) research into the ecology of cetaceans has focused on population genetic studies of the minke whale, killer whale, common dolphin, white-beaked dolphin, white-sided dolphin, striped dolphin, harbor porpoise and bottlenose dolphin. For all species some samples are from UK waters, though much of the work has extended to the Mediterranean, Portuguese coast, western North Atlantic and the

Pacific. Phylogenetic studies have focussed on species in the genus *Lagenorhynchus* and samples of killer whales from around the world. Studies have included both the assessment of neutral markers to estimate patterns of gene flow and genetic drift, and functional loci to assess the role of local adaptation.

LEVISCI was involved in organising the 3-day International Workshop on Shipping Noise and Marine Mammals held in Hamburg, Germany, between the 21<sup>st</sup> and 24th April 2008. This workshop was sponsored by Okeanos - Stiftung für das Meer (Foundation for the Sea) as part of their ongoing project on the issue of noise and marine mammals. This workshop resulted in a joint statement by all participants from academia, policy and industry calling for the reduction of noise energy produced incidentally by ships in the 10-300 Hz band initially by 3dB in 10 years and then by 10dB in 30 years, relative to current levels. Technical solutions were also offered and the International Maritime Organization (IMO) was identified as the appropriate forum for achieving this goal through voluntary guidelines. Parts of the report (Wright (ed) 2008) were used in the US petition to the IMO's Marine Environment Protection Committee (MEPC) to establish a correspondence group to further this idea, which was successful. The Correspondence group will present their finding and recommendation in July 2009.

SMRU (Ian Boyd) in collaboration with Bahamas Marine Mammal Research Organization, NOAA, Cornell University and Woods Hole Oceanographic Institution continued experimental studies on the behavioural response of Blainville's beaked whales to mid-frequency sonars in the Tongue of the ocean, Bahamas. Also included were playback experiments on short-finned pilot whales, false killer whales and melon-headed whales.

SMRU (Salome Dussan-Duque) in collaboration with the Sarasota Dolphin Research Program continues to investigate the abundance, distribution, habitat use, foraging and vocal behaviour of the Costero dolphin and bottlenose dolphin in the south of the Gulf of Morrosquillo, Colombia. This study has been ongoing since 2002.

SMRU (Sonja Heinrich) are using sighting and habitat survey data of Chilean and Peale's dolphins in the Chilóe Archipelago in southern Chile to refine and extend existing habitat use models developed by Heinrich in 2006. Studies of the acoustic repertoire of Chilean and Peale's dolphins are also underway (Sonja Heinrich, Ricardo Antunes) in collaboration with students and the Universidad Austral de Chile.

SMRU (Vincent Janik) are analysing the acoustic behaviour of Risso's dolphins (Spain – Gran Canaria) and killer whales (UK – Scotland, Canada – British Columbia).

SMRU (Vincent Janik) are analysing the geographic variation in whistles of bottlenose dolphins worldwide from a number of study sites (UK – Scotland, Japan, Namibia, New Zealand, South Africa, USA – Florida, Zanzibar)

SMRU (Vincent Janik) have developed a novel analysis technique to identify signature whistles of free-swimming wild bottlenose dolphins.

SMRU (Vincent Janik) are analysing genetic variability in bottlenose dolphins around the UK.

SMRU (Vincent Janik) are analysing sex-specific and kin-specific association patterns of bottlenose dolphins in Scotland.

SMRU (Simon Northridge) are operating a national fishery observer scheme to monitor and assess the level of cetacean bycatch in fisheries, and continue to work on measures to limit cetacean bycatch. Reports on UK bycatch levels are reported annually to the European Commission under European Council Regulation 812/2004 (<http://www.defra.gov.uk/marine/fisheries/conservation/cetaceans.htm>).

SMRU (Simon Northridge) continues to monitor the effects of the installation process of a marine tidal turbine on harbour porpoise in Strangford Lough in Northern Ireland.

SMRU (Simon Northridge) continues to test acoustic deterrent devices in the UK bass pair trawl fishery. Results indicate that these devices may be an effective method of minimising or eliminating bycatch in this fishery.

SMRU (Simon Northridge) continued to investigate the effects of a louder pinger on harbour porpoise and dolphin distribution on the south west coast of England as part of ongoing research into pingers funded by DEFRA. These pingers are currently being tested on three registered UK gill and tangle net boats to test their effectiveness at reducing porpoise and dolphin bycatch.

SMRU (Simon Northridge) in collaboration with the Hebridean Whale and Dolphin Trust (HWDT) continue to investigate the occurrence and causes of minke whale entanglement in Scottish waters. Using photo-identification techniques and strandings data, the project aims to discover how widespread such events are and whether there are any simple measures that might be taken to lessen the risk. The Scottish Government funds this work and the results of this project will be available in Autumn 2009.

SMRU (Simon Northridge & Jonathan Gordon) are investigating the effects of acoustic deterrent devices used at salmon farms on the distribution of porpoises.

University of St Andrews (Luke Rendell) has continued sperm whale surveys and acoustic research in the Caribbean (in collaboration with Whitehead, Dalhousie University, Canada) and around the Balearic Islands of the western Mediterranean.

University of St Andrews (Luke Rendell) in collaboration with Rodrigo Hucke-Gaete, Chile, have been recording blue whales in a proposed protected area in the Gulf of Corcovado, Chile.

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