

**UNITED KINGDOM PROGRESS REPORT ON CETACEAN RESEARCH,
APRIL 2005 TO MAY 2006, WITH STATISTICAL DATA FOR THE CALENDAR YEAR 2005**

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This report summarises information obtained from: British Antarctic Survey (BAS); Centre for Research into Ecological and Environmental Modelling, University of St. Andrews (CREEM); Centre for Environment, Fisheries and Aquatic Sciences, Burnham on Crouch Laboratory (CEFAS); Cetacean Research & Rescue Unit (CRRU); Ceredigion County Council; Countryside Council for Wales (CCW); Friends of Cardigan Bay; Institute of Zoology (IoZ); International Fund for Animal Welfare (IFAW); Marine Environmental Monitoring; Natural History Museum (NHM); Organisation Cetacea (ORCA); Scottish Agricultural College, Veterinary Services Division (SACVSD); Sea Mammal Research Unit (SMRU); Sea Watch Foundation; Sea Trust South and West Wales; University of Aberdeen, Dept. of Zoology (UAZD); Whale and Dolphin Conservation Society (WDCS); University of Aberdeen School of Biological Sciences, Lighthouse Field Station (UASBS); University (of London) Marine Biological Station Millport (UMBSM). (See also contacts list below).

1. Species and stocks studied

Common name	IWC recommended scientific	Area/stock(s)	Items referred to
Harbour porpoise	<i>Phocoena phocoena</i>	UK- North Sea, Wales, Scotland, NW Africa.	2.1.1, 2.1.2, 4.2, 4.3, 5, 7.1, 9,
Bottlenose dolphin	<i>Tursiops truncatus</i>	UK – Scotland, Wales; South Atlantic, Trinidad & Tobago, Dominican Republic	2.1.1, 2.1.2, 3.1.1, 4.3, 5, 9
Striped dolphin	<i>Stenella coeruleoalba</i>	UK, NW Africa	2.1.1, 4.3, 7.1,
Shortbeaked common dolphin	<i>Delphinus delphis</i>	UK	2.1.1, 2.1.2, 3.1.1, 4.3, 7.1
White-beaked dolphin	<i>Lagenorhynchus albirostris</i>	UK	4.3
Atlantic white sided dolphin	<i>Lagenorhynchus acutus</i>	UK	4.3
Pantropical spotted dolphin	<i>Stenella attenuata</i>	Trinidad & Tobago, South Atlantic	2.1.1, 2.1.2, 3.1.1
Risso's dolphin	<i>Grampus griseus</i>	UK	2.1.1, 3.1.1, 4.3, 5
Rough tooth dolphin	<i>Steno bredanensis</i>	South Atlantic	2.1.2
Pilot whale	<i>Globicephala melas</i>	UK	4.3
Killer whale	<i>Orcinus orca</i>	UK	2.1.2, 5
Boto	<i>Inia geoffrensis</i>	Brazilian Amazon	2.1.1
Tucuxis	<i>Sotalia fluviatilis</i>	Brazilian Amazon	2.1.1
Sperm whale	<i>Physeter macrocephalus</i>	NW Atlantic, Balearic Islands, Trinidad & Tobago	2.1.1, 4.3, 9
Pygmy sperm whale	<i>Kogia breviceps</i>	UK	5
Northern bottlenose whale	<i>Hyperoodon ampullatus</i>	UK	4.3
Cuviers beaked whale	<i>Ziphius cavirostris</i>	Indian Ocean	4.3
Sowerby's beaked whale	<i>Mesoplodon bidens</i>	UK	5
Minke whale	<i>Balaenoptera acutorostrata</i>	UK, NW Africa	2.1.1, 2.1.2, 4.3
Right whale	<i>Eubalaena glacialis</i>	NW Africa, Gulf of Maine,	2.1.1,
Bryde's whale	<i>Balaenoptera edeni</i>	NW Africa	2.1.1
Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine, Trinidad & Tobago, Dominican Republic, South Atlantic	2.1.1, 2.1.2, 3.1.1
Fin whale	<i>Balaenoptera physalus</i>	UK	4.3
Atlantic spotted dolphin	<i>Stenella frontalis</i>	Dominican Republic	2.1.1, 2.1.2, 3.1.1

2. Sightings data

2.1 Field work

2.1.1 SYSTEMATIC

Cetacean boat-based surveys have been conducted in west Wales since 2004 by the Friends of Cardigan Bay. Boat-based surveys were undertaken off two Sarns and offshore Cardigan Bay. Sarn Cynfelin was identified as a possible hotspot for bottlenose dolphin activity, mainly foraging (Hughes & Pownall, 2006).

The Sea Watch Foundation has been using line transect sampling techniques since 2005 in order to estimate absolute abundance of short-beaked common dolphin in the Celtic Deep and St Georges Channel. Throughout 2003-2005, Fernando Ugarte, Sea Watch Foundation, counted marine mammals in the Cardigan Bay SAC using distance sampling. Preliminary estimates indicate that there were 0.32-bottlenose dolphins/km² and 0.49 porpoises/km² in the inshore waters (Ugarte & Evans, 2006).

The Cetacean Research & Rescue Unit (CRRU) conducts systematic line-transect surveys along an 82-kilometre stretch of coastline comprising the southern outer Moray Firth – the coastal area between the ports of Lossiemouth and Fraserburgh. The transect routes are divided into 4 track lines, each comprising 4 sub-routes and covering a total area of approx 860 square kilometres. Shipboard surveys are carried out annually between the months of May and October on a weekly to fortnightly basis; the total survey area being covered – weather permitting – between 1 and 3 times per calendar month. During 2005, the CRRU's focal research studies concentrated on the following coastal species: the minke whale (*Balaenoptera acutorostrata*), the bottlenose dolphin (*Tursiops truncatus*) and the harbour porpoise (*Phocoena phocoena*). This work has also provided further insights into the factors which may drive interactions between bottlenose dolphins and harbour porpoises where the geographical ranges of two species overlap. Additional current studies include an MPhil/PhD study on the diving ecology and foraging behaviour of inshore, coastal minke whales in the outer Moray Firth, NE Scotland (co-supervised by Drs Kevin Robinson and Graham Pierce from the University of Aberdeen) and a PhD on the habitat preference and site fidelity of the species (co-supervised by Drs Kevin Robinson and John Goold from the University of Wales, Bangor).

In May 2005, whilst working off NW Africa conducting coastal searches for monk seals and monk seal habitat, IFAW conducted multi-species acoustic and visual surveys further offshore along the coast of southern Morocco, along predetermined track lines from the research vessel 'Song of the Whale'. The primary interest was in collecting data on the distribution of porpoises, as well as right whales and monk seals. Four track lines were designed following distance-sampling design principles. These tracks were a continuation of the track lines used in the project earlier in the year to survey for porpoises along the coast of northwestern Morocco, and covered the area between Capo Bojador to Guera. There were only 11 sighting-encounters of marine mammals during the month of surveying. These comprised of just 4 identified species - harbour porpoise, striped dolphin, minke whale and Bryde's whale. Of particular interest was the high number of acoustic detections of harbour porpoises made between Cap Bojador and Cap Corveiro. The east Atlantic distribution of harbour porpoises appears to be non-contiguous, with few records of animals between the Iberian Peninsula and southern Morocco. Acoustic data analysis from these surveys is currently underway.

IFAW carried out cetacean surveys and plankton sampling in the Gulf of Maine and Bay of Fundy between 29th July and 3rd September 2005 in collaboration with Provincetown Center for Coastal Studies (PCCS) and Dept. of Fisheries and Oceans, Canada. There were several aims of this research: to conduct joint visual and passive acoustic surveys for right whales (and opportunistically, other cetacean species) across the Gulf of Maine; to assess the efficacy of IFAW's real-time right whale acoustic detection system from a moving platform; to provide additional data on the distribution of right whales in areas (of the Gulf of Maine and Bay of Fundy) which experience little current survey effort; to contribute to ongoing distribution studies and informed conservation efforts for right whales; to provide a platform for opportunistic plankton sampling by scientists from the PCCS to allow investigations of additional potential right whale habitat within the Gulf of Maine, comprising on track 'control' samples and off-track 'with right whale' samples; to collect opportunistic sightings of other marine mammal species and basking sharks, and to collect photo-id information on any right whales encountered (and humpbacks and sperm whales where possible). Further information on the acoustic survey component is given in SC/58/ForInfo16.

IFAW conducted surveys in Trinidad and Tobago between 24th January and the 12th March 2006 and on the Saba Bank between 20th March and 25th March 2006. The project was conducted in support of the UN Environment Program's Protocol for Specially Protected Areas and Wildlife (SPA) and in close collaboration with the Institute of Marine Affairs (IMA) in Trinidad and Tobago. Visual and acoustic surveys were conducted for sperm whales, humpback whales, and small cetaceans. Detections of dolphins during the surveys off the

north, east and western coast of Trinidad, in late January through to mid March, included bottlenose, Pan-tropical spotted and spinner dolphins (*Stenella longirostris*). The sightings of spinner dolphins are notable, as this is a species not previously thought to have been reported in Trinidad and Tobago's waters. No large whale species were detected off Trinidad and Tobago during the survey. Humpback whales would be expected to be present in these waters at this time of year, when they migrate to the Caribbean to breed. Much seismic survey noise was heard on the hydrophones towed in waters off the east of Trinidad. During the survey of the Saba Bank in late March, humpback and sperm whales were detected visually and acoustically.

In collaboration with the Brazilian National Institute of Amazonian Research (INPA), SMRU carried out daily boat-based surveys of botos and tucuxis in the Mamirauá Reserve, Brazil. This is a long-term study of marked and unmarked animals, looking at population biology and ecology.

The British Antarctic Survey initiated a project to quantify baleen whale abundance and distribution in and around the Scotia Sea, using visual sightings on line transects and acoustic data from recording devices (the latter in collaboration with Cornell University).

SMRU is coordinating the Small Cetaceans in the European Atlantic and North Sea (SCANS-II) project <http://biology.st-andrews.ac.uk/scans2/>. The project is funded by the European Life-Nature programme and 12 European governments. The project will generate precise and unbiased estimates of abundance for the harbour porpoise and other cetaceans. Surveys of the European Atlantic continental shelf waters, from 36°-62°N, were carried out during July 2005 by 7 ships and 3 aircraft. The abundance estimates will contribute to the development of a management procedure to set safe bycatch limits for the harbour porpoise (contact: Kelly Macleod km53@st-andrews.ac.uk)

UASBS (Lighthouse Field Station) continued to conduct boat-based photo-ID surveys in Northeast Scotland for bottlenose dolphins. They also conduct land-based visual and acoustic studies of fine-scale behaviour and distribution of *Tursiops* and harbour porpoises within the Moray Firth. UASBS (Lighthouse Field Station)/SMRU/SAMS are conducting collaborative boat-based photo-ID surveys of bottlenose dolphin around the west and north coast of Scotland. (Contact: Simon Ingram)

UMBSM is conducting systematic boat surveys to investigate habitat use by bottlenose and spotted dolphins in the south-eastern waters of the Dominican Republic.

WDCS conducted surveys of Risso's dolphins, harbour porpoises and other cetaceans in Cardigan Bay, 2002-2006. Both land-based and boat-based survey techniques were used including acoustic porpoise detectors (or PODs). WDCS also conducted similar survey work in the outer Moray Firth in 2005-2006.

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

Throughout 2005-2006, and mainly from a dolphin-watching platform of opportunity, marine mammals in the Cardigan Bay SAC were counted by Fernando Ugarte using photo-identification techniques. Based on the number of dolphins photo-identified, the minimum population size is 119. An estimate based on the number of well-marked animals identified, and their percentage in the population, suggest a number of 140 bottlenose dolphins in the Cardigan Bay SAC.

UAZD in association with FRS Marine Laboratory have been recording data of encounters with killer whales on board of a commercial pelagic trawlers fishing for mackerel between northern Scotland and the Norwegian border (ICES IVa) during January through February 2006, showing the existence of such interactions as well as describing the characteristics of the foraging behaviour displayed by the whales during fishing operations. These findings point to the need for a more detailed directed study of these interactions in further studies (contact: Patricia Lastra: p.lastra@abdn.ac.uk, Craig Davis: C.G.Davis@marlab.ac.uk)

Organisation Cetacea (ORCA) (www.orcaweb.org.uk) continues to conduct opportunistic surveys from ferries, primarily from Southern England to Northern Spain. ORCA began a new route in Jan 2006 from Newcastle to Norway and intends to initiate two more routes to focus monitoring efforts throughout the North Sea. For the second winter, ORCA observers joined the International Bottom Trawl Survey in collaboration with IFREMER. All data contribute to ORCA's database. Experienced observers collect distance-sampling data, as on standard line-transect surveys, on monthly surveys. These data are made available to conservation and education projects.

UAZD is carrying out regular surveys along fixed transect routes on the west coast of Scotland using passenger ferries as research platforms. This work aims to study factors that affect the fine-scale spatial and temporal distribution of cetacean species in this area, as well as investigating the structure of the cetacean community.

Species studied include harbour porpoises, minke whales, common dolphins and bottlenose dolphins (contact: Sarah Bannon: s.bannon@abdn.ac.uk).

UAZD in collaboration with local researchers is involved in a project investigating the occurrence and distribution of cetaceans around the Island of Saint Helena, South Atlantic Ocean. Work includes land and boat-based surveys for habitat use as well as collection of pictures for photo identification. Species studied include pan-tropical spotted dolphins, bottlenose dolphins, rough-toothed dolphins and humpback whales (Contact Colin MacLeod: c.d.macleod@abdn.ac.uk)

UAZD is also involved in undertaking surveys using passenger ferries in the North Sea between Aberdeen and the northern isles (contact Colin MacLeod c.d.macleod@abdn.ac.uk)

In Samana Bay, in the north of the Dominican Republic, opportunistic sightings for dolphins were conducted from whale watching boats during Jan - March 2006. A total of 40 opportunistic trips occurred, with sightings of bottlenose and Atlantic spotted dolphins. Data were collected on a sightings sheet, photographs of animals were taken for photo-identification purposes when possible, and data were primarily collected by a researcher, although anecdotal sightings were also collected from boat operators (SC58/SM12). A cetacean sighting report scheme was also set up to elicit anecdotal cetacean sightings data from tour boat operators and fishermen in the southern waters of the Dominican Republic (UMBSM)

2.2 Analyses/development of techniques

The Centre for Research into Ecological and Environmental Modelling (CREEM), University of St. Andrews are undertaking the analyses of the SCANS-II data. Preliminary results were presented at the European Cetacean Society Conference (Macleod et al. 2006).

ORCA and University of Wales, Bangor (Dylan Walker, MSc thesis) investigated the prediction of areas of high cetacean biodiversity using data on oceanographic features in the Bay of Biscay.

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

Extended survey of Risso's dolphins, harbour porpoises and other cetaceans in Cardigan Bay, 2002-2005 using photographic identification. In 2005 three cetacean species were sighted and useful photographs of Risso's and bottlenose dolphins were captured for analysis that may shed light on life histories of individuals and how animals relate to others in different parts of the UK, Whale and Dolphin Conservation Society, 2006.

Common dolphin surveys in the Celtic Deep and St Georges Channel have been initiated in 2004 in order to estimate absolute abundance. Photo-identification techniques are being used by Sea Watch Foundation and Sea Trust.

The British Antarctic Survey collected fluke photos of humpback whales from the South Sandwich Islands in collaboration with Instituto Baleia Jubarte (Brazil).

The CRRU continues to collect photo-ID data on minke whales in northeast Scotland and is currently collaborating with HWDT on the West coast to cross reference sightings data. The CRRU continues to collect photo-ID data for the bottlenose dolphins in northeast Scotland; these studies continue to form part of an annual monitoring programme, while in 2006 the CRRU also began working on a joint project with the Lighthouse Field Station, University of Aberdeen.

UASBS (Lighthouse Field Station) continued to collect photo-ID data in Northeast Scotland for bottlenose dolphins, and have been used to underpin monitoring programmes for the Moray Firth SAC.

UAZD is involved in the photo-identification of pan-tropical spotted dolphins and other dolphin species around the island of Saint Helena, South Atlantic Ocean to determine residency of individuals in this area (contact Colin MacLeod c.d.macleod@abdn.ac.uk).

Species	Feature	Area/stock	Calendar year/season/no photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Risso's dolphin	Dorsal fin + General colour patterns	Bardsey Island	2	Y	30	Whale & Dolphin Conservation Society
Bottlenose dolphin	Dorsal fin	Cardigan Bay	Over 15 year period but not continuous	Y	350	Sea Watch Foundation
Short-beaked common dolphin	Dorsal fin+ General colour patterns	Southern Irish Sea	1	Y	50	Sea Trust & Sea Watch Foundation
Humpback whale	Fluke & flank	Scotia Sea	2005/2006 (27)	Y		Tony Martin BAS
Humpback whale	Fluke	S. Dominican Republic	2005-2006	Y	2	UMBSM; Allan Whaley
Bottlenose dolphin	Dorsal fin	Dominican Republic	2005-2006	Y	25	UMBSM; Allan Whaley
Atlantic Spotted dolphin	Dorsal fin	Dominican Republic	2005-2006	Y	17	UMBSM; Allan Whaley

3.1.2. ARTIFICIAL MARKING DATA

In collaboration with the Brazilian National Institute of Amazonian Research (INPA), SMRU (contact Tony Martin) marked 18 botos with freeze-brands in the Mamirauá Reserve, Brazil, bringing the total marked population to 395.

3.1.3 TELEMETRY DATA

None.

4. Tissue/biological samples collected

4.1 Biopsy samples

None.

4.2 Samples from directed catches or bycatches

Species	Area/stock	Calendar year total	Archived (Y/N)	Tissue type(s)*	Contact person/institute
Harbour porpoise	NORTH SEA	2	Y	Various	Paul Jepson (IoZ)

4.3 Samples from stranded animals

Species	Area/stock	Calendar year total	Archived (Y/N)	Tissue type(s)*	Contact person/institute
Harbour porpoise	UK	124	Y	Various	Paul Jepson (IoZ)
Shortbeaked common dolphin	UK	25	Y	Various	Paul Jepson (IoZ)
Striped dolphin	UK	5	Y	Various	Paul Jepson (IoZ)
White-beaked dolphin	UK	5	Y	Various	Paul Jepson (IoZ)
Atlantic white-sided dolphin	UK	5	Y	Various	Paul Jepson (IoZ)
Bottlenose dolphin	UK	2	Y	Various	Paul Jepson (IoZ)
Risso's dolphin	UK	2	Y	Various	Paul Jepson (IoZ)
Pilot whale	UK	2	Y	Various	Paul Jepson (IoZ)
Fin whale	UK	1	Y	Baleen	Richard Sabin (NHM)
Northern bottlenose whale	UK	1	Y	Skull, skeleton, skin, blubber, muscle	Richard Sabin (NHM)
Cuvier's beaked whale	INDIAN OCEAN	1	Y	Skull, vertebrae	Richard Sabin (NHM)
Short-beaked common dolphin	UK	2	Y	Skull, skeleton, internal organs, eyes	Richard Sabin (NHM)
Sperm whale	UK	2	Y	Teeth	Richard Sabin (NHM)
Minke whale	UK	1	Y	Various	Paul Jepson (IoZ)

4.4 Analyses/development of techniques

UAZD is carrying out an investigation and interpretation of unusually contrasting layering patterns present in the tooth ultra-structure (dentine &/or cement) of various cetacean species stranded in Scotland and NW of Spain to determine whether any association exists between these anomalies and (a) life history events (e.g. parturition, pregnancy, weaning, and achievement of sexual maturation), (b) the general health of individual and (c) environmental conditions (contact: Patricia Lastra: p.lastra@abdn.ac.uk)

5. Pollution studies

During 2005, samples from 65 UK-stranded cetaceans were submitted for toxicological analysis to the CEFAS Burnham Laboratory, Essex. These comprised 58 harbour porpoises (*Phocoena phocoena*), three Risso's dolphins (*Grampus griseus*), two bottlenose dolphins (*Tursiops truncatus*) and two Sowerby's beaked whales (*Mesoplodon bidens*). Data will be generated on polychlorinated biphenyls, organochlorine pesticides, butyltins and polybrominated diphenylethers.

The utilisation of pathology and toxicology data from UK-stranded harbour porpoises to investigate potential relationships between PCB exposure and health status resulted in two publications. The first conducted by IoZ investigated links between parasite burdens and blubber PCB levels (Bull *et al.* 2006), The second, conducted by SMRU in collaboration with IoZ, used a case-control approach to calculate the risk of PCB exposure on infectious disease mortality in harbour porpoises (Hall *et al.* 2006).

Levels of one category of flame retardant compounds, the brominated diphenyl ethers, were determined in 34 marine mammals of five species stranded in the UK between 1992 and 2002 (Law *et al.* 2005). The highest concentration of a sum of 10 individual congeners was found in a killer whale, identified in subsequent studies (as yet unreported) as a transient animal. Lower concentrations were found in four other killer whales (residents), and in the other species studied. Concentrations in these animals could generally be ranked in the order bottlenose dolphin > killer whale > Sowerby's beaked whale > pygmy sperm whale > hooded seal.

6. Statistics for large cetaceans

6.1 *Direct catches* - Not applicable to UK

6.2 *Non-natural mortality for the calendar year 2005*

6.2.1 STRANDINGS OR DEAD WHALES ENCOUNTERED AT SEA

Species	Area/stock	Males	Females	Total	Cause	Methodology
Sperm whale	59° 58'N, 05° 57'W	U		1	U	V
Comments on sperm whale: Observed about 150 miles due North of Cape Wrath, close to Faeroese median line. A gash was observed on dorsal midline, approx. two-thirds of way along body length towards tailstock. Carcass in fresh condition. Bleeding. Two photographs taken by P. Laycock (email supplied). Observed on 08/03/2006, reported to NHM on 27/03/2006 by Steve Isaac, Whale and Dolphin Conservation Society. NHM ref. SW.2006/83a.						

6.2.2 OBSERVED OR REPORTED SHIP STRIKES

None reported but see above.

6.2.3 FISHERY BYCATCH

Whale species	Sex	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Minke whale	F			D	NK	NK	F	

6.3 *Earlier years' statistics*

None.

7. Statistics for small cetaceans

7.1 For the calendar year 2005

7.2 Direct catches

None.

7.3 Non-natural mortality

7.3.1 STRANDINGS OR DEAD SMALL CETACEANS ENCOUNTERED AT SEA

Species	Sex	Location	Cause of death	Det.	Contact institution
Harbour porpoise (24 individuals)		UK	Entanglement in fishing gear (NK)	N	IoZ – see contact list
Common dolphin (14 individuals)		UK	Entanglement in fishing gear (NK)	N	IoZ – see contact list
Striped dolphin (1 individual)		UK	Entanglement in fishing gear (NK)	N	IoZ – see contact list
Comments:					

7.3.2 OBSERVED OR REPORTED SHIP STRIKES

None reported.

7.3.3 FISHERY BYCATCH

Species	No	Date	Location	Fate	Targeted fish species	Gear	How observed?	Source or contact
Common dolphin	135	Winter	UK	D	Sea Bass	PTM	M	SMRU
Comments:								

7.4 Earlier years' statistics

8. Strandings

The IoZ (with assistance from NHM) and SACVSD are contracted by Defra to investigate diseases and causes of death in marine mammal (mainly cetacean) strandings in the UK. IoZ and SACVSD maintain national databases and tissue archives derived from those UK stranded animals that have been necropsied.

In addition to the strandings co-ordination funded by Defra, the National Assembly for Wales is funding the Welsh Strandings Co-ordinator in conjunction with the Countryside Council for Wales (CCW), who collaborates with the IoZ/SACVSD/NHM scheme, while The Cornwall Wildlife Trust also maintains its own strandings database, with information that also goes to the NHM.

Natural History Museum, Cromwell Road, London, SW7 5BD. Strandings co-ordinator for England; collation of strandings data for all of UK, databasing UK records, reporting trends, archiving cetacean specimens in national research collection. <http://www.nhm.ac.uk/research-curation/projects/strandings/>

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, 2006).

9. Other studies and analyses

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 dolphins has increased since the introduction of the trip boat operators code of conduct (Pierpoint and Allen, 2005).

UASBS (Lighthouse Field Station) are studying the impacts of the construction of a demonstration windfarm on bottlenose dolphins and harbour porpoises in the Moray Firth. (contact Helen Bailey)

UASBS (Lighthouse Field Station) are conducting studies on anthropogenic noise within the Moray Firth SAC, and impact of noise and other disturbance on bottlenose dolphins. (contact Bridget Senior)

SMRU (Luke Rendell) has conducted sperm whale surveys and acoustic research in the northwest Atlantic (in collaboration with Hal Whitehead, Dalhousie University, Canada) and around the Balearic Islands of the western Mediterranean.

SMRU continues to operate on board observer schemes to monitor marine mammal bycatch in several UK fisheries, and is also engaged in ongoing research into minimising dolphin bycatch in trawl fisheries, and into understanding how porpoises become entangled in gillnets. Additional work focuses on life history parameters of common dolphins and harbour porpoises and into feeding habits of these two species.

UMBSM (with George Mason University, USA) is collecting data on whale watching tourism in the Dominican Republic, including tourist demographics and tourist opinions on cetacean conservation.

Details of WDCS educational, public awareness raising and other conservation work can be found at its website (www.wdcs.org).

10. Literature cited

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11. Publications

11.1 Published or 'In Press' papers only

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Cunha, H.A., da Silva V.M.F., Lailson-Brito J Jr, Santos M.C.O., Flores P.A.C., Martin A.R., Azevedo A.F., Fragoso A.B.L., Zanelatto R.C. and Solé-Cava A.M. (2005). Riverine and marine ecotypes of Sotalia dolphins are different species. *Marine Biology* 148: 449-457.

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