

Agenda Item 15.1

National Reporting

Reports from Parties

Document Inf.15.1.j

**2015 Annual National Report:
United Kingdom**

Action Requested

- Take note

Submitted by

United Kingdom



**NOTE:
DELEGATES ARE KINDLY REMINDED
TO BRING THEIR OWN COPIES OF DOCUMENTS TO THE MEETING**

2014 ASCOBANS Annual National Reports

This questionnaire has been pre-filled with answers given in 2013 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

> United Kingdom

Report prepared by

This should indicate the name and affiliation of the lead person for filling in the report.

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Coordinating Authority and National Coordinator

Please confirm the Coordinating Authority responsible for the national implementation of the Agreement, and give the name and contact details of the officially appointed National Coordinator (Focal Point).

> Department for Environment, Food, and Rural Affairs (Defra).

Dr Emma Rundall

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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

> Department for Environment, Food, and Rural Affairs (Defra). Contact: Emma Rundall (Emma.Rundall@defra.gsi.gov.uk)

> Joint Nature Conservation Committee (JNCC). Contact: Eunice Pinn eunice.pinn@jncc.gov.uk (<http://jncc.defra.gov.uk/>)

> Centre for Environment, Fisheries and Aquaculture Science (Cefas). Contact: stuart.reeves@cefas.co.uk (<http://www.cefas.defra.gov.uk/>)

> Marine Management Organisation (MMO). Contact: Claire Bowers claire.bowers@marinemanagement.org.uk (<https://www.gov.uk/government/organisations/marine-management-organisation>)

- > Natural England - <http://www.naturalengland.org.uk/> Contact: enquiries@naturalengland.org.uk
- > Natural Resources Wales - <http://naturalresourceswales.gov.uk> Contact: tom.stringell@naturalresourceswales.gov.uk
- > UK Cetacean Strandings Investigation Programme (CSIP). Contact: Rob Deaville (Institute of Zoology) rob.deaville@ioz.ac.uk (<http://ukstrandings.org/>)
- > Sea Mammal Research Unit (SMRU). Contact: Simon Northridge spn1@st-andrews.ac.uk (<http://www.smru.st-andrews.ac.uk/>)
- > The Royal Society for the Prevention of Cruelty to Animals (RSPCA). Contact: wildlife@rspca.org.uk (<http://www.rspca.org.uk>)
- > Whale and Dolphin Conservation (WDC), Contact: Ali Wood ali.wood@whales.org
- > Sea Watch Foundation (SWF). Contact: Dr Peter G.H. Evans peter.evans@bangor.ac.uk. Ewyn y Don, Bull Bay, Amlwch, Isle of Anglesey LL68 9SD
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Habitat Conservation and Management

Fisheries Interactions

Direct Interaction with Fisheries

1.1 Investigations of methods to reduce bycatch

> The two main species affected by fishing in UK waters are the harbour porpoise and the short-beaked common dolphin. All Reports to the European Commission on activities conducted by the UK under Regulation 812/2004 (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:150:0012:0031:EN:PDF>), and under Article 12(4) of the Habitats Directive, provide details of the monitoring work undertaken in the UK and estimates of cetacean bycatch. The most recent reports on cetacean bycatch in UK waters submitted to the European Commission under the requirements of EC Regulation 812/2004 can be found on the Department for Environment Food and Rural Affairs (Defra) website:

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=18535>.

A dedicated cetacean bycatch monitoring programme is in place and operated by the Sea Mammal Research Unit (SMRU). Fisheries research laboratories operating fisheries observer programmes in the UK also provide data which are included in our assessment of cetacean bycatch. Whilst the UK observer scheme relies upon good collaborative links with industry, fisheries regulations have been enacted in England and Scotland to ensure that there is also a legal obligation for skippers and owners to allow observers on board when asked to do so. There is also an obligation under the DCF (in Northern Ireland) for offshore vessels to accommodate scientific observers when requested to do so and an active observer programme is run by AFBI. Additionally, the DARD Inshore Fisheries Work Programme deploys observers to inshore vessels, though there is no “obligation” and this is undertaken by AFBI through good relations with the industry. This programme aims to maintain at least 42 observer days annually who will report cetacean bycatch from the Northern Ireland static gear fishery.

The principle area of concern for cetacean bycatch remains the south-western waters of the Western Channel and Celtic Sea. Monitoring remains focused in the SW to reflect bycatch risk, but has also been carried out to a lesser extent in the North and Irish Seas. As sufficient data are compiled, more robust estimates of current bycatch rates will become available.

The latest UK cetacean by-catch report for 2014 as required under EU Regulation 812/2004 continues to indicate that porpoise bycatch rates may have increased slightly in recent years; the reasons for this are not understood.

Furthermore, unlike in previous years where estimates were only included for those fisheries where sufficient sampling had been undertaken (leading to bycatch estimates of around 700-800 porpoises per year), in 2013 and in 2014 estimates have been extrapolated to include all UK gillnet fisheries, whether they have been sampled or not, so as to provide an overall estimate for all UK vessels using gillnets in all areas. Estimates produced in this way are higher than those that were restricted to core fisheries and areas, but are also likely to be biased for several reasons. Overall estimates for 2014 were in the region of 1400 to 1700 porpoises. However, due to the number of assumptions made there is significant uncertainty in the estimates and so they should to be treated with caution and considered conservative or absolute maximum values. Work is ongoing to try to refine the estimates by overcoming some of the statistical issues that are evident in the current analysis.

> Efforts to reduce bycatch

During 2014, investigations on methods to reduce bycatch have been limited to continued monitoring of vessels using acoustic deterrent devices (ADDs), or ‘pingers’. The bass pair trawl fishery, which in the past has been a source of concern with respect to dolphin bycatch, was effectively ended in 2014 and no further monitoring of pinger effectiveness in that fishery has been undertaken. Monitoring of pingers has therefore been restricted to the offshore gillnet fleet that operates from Cornwall to maintain an overview of longer term effects of pingers on cetacean bycatch rates and seal depredation levels in these fisheries.

A number of research projects have been carried out by the Scottish Government, including a project on ‘Evaluating and Assessing the Relative Effectiveness of Acoustic Deterrent Devices and other Non-Lethal Measures on Marine Mammals’. The aim of this project was to carry out a comprehensive literature and data review on the capabilities of current and developing non-lethal measures for deterring marine mammals. The final report is now available at: <http://www.gov.scot/Publications/2014/10/8271>. Further details on this and other cetacean bycatch avoidance research undertaken by the Scottish Government can be found at <http://www.scotland.gov.uk/Topics/marine/marineenvironment/species/19887/20826>.

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1.2 Implementation of methods to reduce bycatch

> The UK continues to fully implement and enforce Council Regulation (EC) 812/2004 through the use of acoustic deterrent devices attached to fishing nets. Implementation of the regulation in the UK has involved close liaison with the industry and on-going monitoring and support to aid compliance. This has been led primarily by the MMO. Enforcement of the regulation at the quayside is carried out by MMO officers, the Marine Scotland Compliance and Enforcement Unit. Further information can be found at http://www.marinemanagement.org.uk/fisheries/monitoring/regulations_cetaceans.htm
Routine inspections of the UK over 12m gillnetter fleet resulted in three infringements relating to the correct use of pingers, which have subsequently been addressed. The MMO intends to conduct further trials into pinger detectors towards the end of 2015, to ensure that detectors uniformly perceive all types of pingers available on the market, and compliant under the Regulation or under derogation.

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1.3 Other relevant information

Other relevant information, including bycatch information from opportunistic sources

> Additional information on potential incidents of bycatch is also provided through necropsies carried out under the UK Cetacean Strandings Investigation Programme (CSIP).

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1.4 Report under EC Regulation 812/2004

Please provide the link to your country's report under EC Regulation 812/2004.

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<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=18535>

Reduction of Disturbance

2.1 Anthropogenic Noise

Please reference and briefly summarise any studies undertaken

> Most marine construction or development activities generating noise (e.g. piling) require the developer to apply for consent and carry out the necessary assessments e.g. Environmental Impact Assessments (EIA), Appropriate Assessments (AA) under the Habitats Directive. The Marine Management Organisation (MMO) is responsible for marine licensing in Welsh offshore waters and English waters. DECC also has a regulatory responsibility for UK waters in relation to the oil and gas sector and associated projects. In Scottish offshore and inshore waters Marine Scotland are the licensing body, in Welsh inshore waters it is Natural Resources Wales, and in Northern Ireland inshore waters it is the Department of Environment Northern Ireland (DOENI). See: <https://www.gov.uk/how-marine-licensing-works>

Noise mitigation measures may be required where there is a risk that the activity may disturb or harm cetaceans, including the need for Marine Mammal Observers, soft start, and delay of piling activity when cetaceans are present. Relevant guidance can be found on the UK government website (<https://www.gov.uk/oil-and-gas-offshore-environmental-legislation>).

The MMO also has a voluntary notification system for non-Oil and -Gas geophysical surveys occurring in English waters, so that we have a record of these activities taking place and can make mitigation measures as appropriate. See: <http://www.marinemangement.org.uk/protecting/wildlife/geophysical.htm>.

A JNCC contract will be published in spring 2015 on the potential effects of seismic surveys on cetaceans. The report will analyse data from Marine Mammal Observer reports, submitted as part of the consenting regime for any seismic surveys within the United Kingdom Continental Shelf (UKCS), analysing data from 1994- 2010. The work will build on earlier analysis of Marine Mammal Observer reports (e.g. Stone and Tasker, 2006), but will allow for longer term analysis of potential effects of seismic activities on cetaceans, as well as general trends in the implementation of the JNCC seismic guidelines throughout this time period. See: http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Seismic%20Guidelines_August%202010.pdf.

> The UK is also required to meet obligations on impulsive sounds and ambient noise under the Marine Strategy Framework Directive (MSFD). The UK has been developing a noise registry which will collate and store records of activities that may generate impulsive sounds in the UK marine environment. This will aid regulators and industry in providing a clear picture of the distribution in space and time of impulsive noise generating activities and help the UK to assess whether it is delivering Good Environmental Status (GES). Part two of the UK Marine Strategy outlining UK monitoring programmes was published in July 2014. The final part of the UK Marine Strategy, programmes of measures necessary to achieve GES, underwent public consultation which ended in April 2015 (<https://consult.defra.gov.uk/marine/msfd-programme-of-measures>). As a framework directive MSFD brings together activities to allow us to establish an overarching understanding of the status of our seas and the impact of any measures taken. In the UK, the programme of measures to achieve GES of cetaceans in UK waters includes:

- EC Habitats Directive 92/43/EEC and the Conservation of Habitats and Species Regulations
- International Whaling Commission (IWC): The Whaling Industry Regulation Act 1934, as amended by the Fisheries Act 1981.
- ASCOBANS (Agreement of the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas) (Daughter Agreement Under the Convention on Migratory Species)
- Convention on the International Trade of Endangered Species (CITES)
- Bycatch Measures: Implementation of EC Regulation 812/2004: South West Territorial Waters (prohibition of pair trawling) order 2004: Domestic legislation banning the seasonal use of pair trawls in English waters within the South West English Channel to prevent the bycatch of dolphin
- Guidance and codes of conduct: Guidance is also in place in the UK for marine users who are planning to carry out activities in the marine environment which have the potential to kill, injure or disturb a marine European Protected Species (i.e. any cetacean species). The JNCC, Natural England, Scottish Natural Heritage, and the Countryside Council for Wales have good practice guidelines and protocols in place for specific activities to minimize the risk of injury and reduce disturbance to cetaceans.

The UK also continues to actively engage more widely on noise issues within Europe. The UK is currently Vice Chair of OSPAR (Oslo and Paris Conventions for the protection of the marine environment of the North-East Atlantic) and within this Convention is the Chair of the Biodiversity Committee (BDC) which considers cetaceans more generally. The UK also plays an active role in the ICG-MSFD which helps improve regional MSFD coordination and in the EIHA (Environmental Impacts of Human Activities) Committee which considers the impacts of marine noise. Additionally, The UK Underwater Sound Forum continues to provide an opportunity for industry, non-government organisations and other interested stakeholders to engage directly with Defra and Ministry of Defence (MoD) to discuss emerging issues and exchange information on the impacts of noise in the marine environment. Furthermore, marine plans are being developed across the UK (all areas should be covered by 2021) which are expected to provide guidance on managing noisy activities.

> Other relevant work includes:

- Dekeling, R. P. A., Tasker, M. L., Ainslie, M. A., Anderson, M., André, M., Castellote, M., Young, J. V. (2013). Monitoring Guidance for setting up underwater noise monitoring in European Seas - 2nd Report of the Technical Subgroup on Underwater Noise and other forms of energy (TSG Noise) (pp. 1-112).
- Dekeling, R. P. A., Tasker, M. L., Ainslie, M. A., Anderson, M., André, M., Castellote, M., Young, J. V. (2013). Monitoring Guidance for setting up underwater noise monitoring in European Seas - 2nd Report of the Technical Subgroup on Underwater Noise and other forms of energy (TSG Noise) (pp. 1-112).
- Merchant, N. D., Fristrup, K. M., Johnson, M. P., Tyack, P. L., Witt, M. J., Blondel, P., & Parks, S. E. (2014). Measuring acoustic habitats. *Methods in Ecology and Evolution*. doi:10.1111/2041-210X.
- Merchant, N. D., Pirotta, E., Barton, T. R., & Thompson, P. M. (2014). Monitoring ship noise to assess the impact of coastal developments on marine mammals. *Marine Pollution Bulletin*, 78, 85-95. doi:10.1016/j.marpolbul.2013.10.058.
- National Oceanographic and Atmospheric Administration. (2013). Draft Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammals Acoustic Threshold Levels for Onset of Permanent and Temporary Threshold Shifts (pp. 1-83).

Incident							
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You have attached the following Web links/URLs to this answer.

[IWC Ship Strikes Working Group: Seventh progress report to the Conservation Committee](#) - On pages 7-8 of this report, details of the work undertaken by the UK in relation to ship strikes is detailed

2.3 Major Incidents

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

	Date	Location	Type of Incident	Further Information
Incident	16/02 /14	St. Cyrus, Aberdeenshire, Scotland	Mass stranding	Two juvenile harbour porpoises found dead stranded in close proximity.
Incident	10/03 /14	Near Muness, Unst, Shetland, Scotland	Mass stranding	Two sperm whales (moderate-advanced decomposition) found dead stranded in close proximity.
Incident	27/03 /14	Bay of Holland, Stronsay, Scotland	Mass stranding	Three white-beaked dolphins (moderate-advanced decomposition) found dead stranded in close proximity.
Incident	30/03 /14	Aberdeen, Aberdeenshire	Mass stranding	Two harbour porpoises found dead stranded in close proximity.
Incident	24/07 /14	Laggan Sands, Loch Buie, Mull, Scotland	Mass stranding	Fourteen short-beaked common dolphins mass (live) stranded. Twelve refloated by members of public in the vicinity.

You have attached the following documents to this answer.

[Additional Major Incidents Affecting Significant Numbers of Cetaceans in the UK in 2014.xls](#) - Additional Major Incidents Affecting Significant Numbers of Cetaceans in the UK in 2014

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.

> During 2014 the results of an analysis of organophosphate flame retardant and plasticisers in blubber and liver tissues from 20 harbour porpoises stranded in the UK in 2012 was completed. This was the result of an on-going collaboration between Cefas, the UK Cetacean Strandings Investigation Programme (CSIP), and a number of other European partner organisations. Fourteen of the twenty compounds analysed were below the limits of quantification in all samples. Six could be quantified at maximum concentrations (in blubber) between 6.7 and 246 µg kg⁻¹ wet weight, which is up to 50 times lower than historical peaks obtained for PBDEs and HBCD. Although these replacement flame retardants for PBDEs are being found in high levels in abiotic compartments in the environment, such as sediment, air and water, they are readily metabolised and these levels do not suggest a high level of concern regarding potential impacts to marine mammals and do not indicate that routine monitoring in UK porpoises is warranted at this time. A publication has been prepared and submitted to Marine Pollution Bulletin outlining this work. See: Alexandra Papachlimitzou; Jonathan L Barber; Sara Losada; Philippe Bersuder; Rob Deaville; Andrew Brownlow; Rod Penrose; Paul D Jepson; Robin J Law: Organophosphorus flame retardants (PFRs) and plasticisers in harbour porpoises (*Phocoena phocoena*) stranded or bycaught in the UK during 2012.

The study of temporal trends of PCBs in UK harbour porpoises was extended to include animals stranded up to the end of 2012 (now 1990-2012). PCB concentrations have shown no significant decline since 1997 following earlier reductions due to regulation of commercial use. Further reductions in PCB levels in UK waters are likely to take decades. Blubber PCB concentrations are still at toxicologically significant levels in many stranded harbour porpoises (Jepson et al 2005). This work was combined with the data collected in 2013 for bottlenose dolphins and killer whales (under ASCOBANS project reference SSFA2010-3, see below), and an unpublished data set of PCB results in striped dolphins from the Mediterranean, to produce a paper with PCB results from >1000 animals (still to be published). The results show that that several European cetacean species have very high mean blubber PCB concentrations likely to cause population declines and suppress population recovery. Further reductions in PCB inputs into the marine environment are undoubtedly needed to mitigate risk from PCB exposure in these species. In addition, PCB analysis was conducted on one historically stranded harbour porpoise from 1999 and 22 common dolphins stranded between 1998 and 2013 to expand a dataset used in an investigation of the relationship between contaminant burden and reproductive tract disorders being conducted by Sinead Murphy of the Institute of Zoology. Blubber concentrations for most animals were above the threshold for onset of physiological effects in experimental marine mammal studies (Kannan et al, 2000). Finally, PCB levels were determined in a pilot whale from the 2012 mass stranding event, which was found to have blubber concentrations below the threshold for physiological effects.

The final report under a small ASCOBANS project in 2010 (reference SSFA2010-3) was also submitted to the ASCOBANS Secretariat in 2014 (Jepson and Deaville 2014). In addition, during 2014, a publication was

produced on levels of persistent organic pollutants in long-term mortality patterns of Caspian seals (Wilson et al. 2014).

- Jepson, P.D. and Deaville, R. (2014) Draft report on Project SSFA2010-3 “Pollutant exposure in coastal top predators: assessing current levels of exposure and toxic effects” (submitted to the ASCOBANS Secretariat)
- Wilson, S.C., Eybatov, T.M., Amano, M., Jepson, P.D. and Goodman, S.J. (2014) The roles of disease epidemiology and persistent organic pollutants in long-term mortality patterns in Caspian seals, *Pusa caspica*. PLOS ONE doi: 10.1371/journal.pone.0099265

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2.5 Other Forms of Disturbance

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

> In the UK, wildlife licences are issued to control and monitor certain activities which may cause disturbance to cetaceans. In English and Welsh waters, the Marine Management Organisation (MMO) is the wildlife licensing authority and enforcement body for marine wildlife legislation, including disturbance offences. In Scottish waters, Marine Scotland has this responsibility. As wildlife licensing authorities, the MMO and Marine Scotland assess wildlife licence applications to ensure that any activity is permissible under UK law, that it will not impact on the Favourable Conservation Status of a protected species, and that there are no other suitable alternatives. Any wildlife licences issued to permit the disturbance of cetaceans will include conditions which minimise any disturbance to the greatest extent possible, and require ‘end of licence reports’ to be submitted on activities undertaken.

Where enforcement action is necessary under marine wildlife legislation, this will be taken by police, the MMO, or Marine Scotland as appropriate.

The MMO is also a proactive member of the Cornwall Marine Wildlife Group, which has established a register so disturbance incidents in the South West of England can be reported, recorded, and forwarded to the relevant enforcement authorities as necessary. A coastal code of conduct to reduce disturbance of marine species has also been created (see:

http://www.cornwallwildlifetrust.org.uk/livingseas/cornwall_marine_and_coastal_code). The MMO also chairs the Partnership for Action Against Wildlife Crime (PAW) Marine Wildlife Working Group, which seeks to coordinate enforcement activities to tackle wildlife crime, including disturbance offences, under the relevant wildlife legislation. This group includes enforcement authorities and NGOs. See:

<http://www.marinemanagement.org.uk/protecting/wildlife/paw.htm>.

> There is growing evidence that bottlenose dolphins may be affected by recreational activities within Cardigan Bay, West Wales, including within Cardigan Bay SAC. Abundance (from line transect surveys) within the SAC has declined since 2006 but it remains difficult to attribute a decline to any one cause; an inverse relationship between vessel numbers and dolphin encounter rates has been suggested; and in areas with high vessel traffic, social structure appears to be disrupted and whistle characteristics altered (Pierpoint et al., 2009; Veneruso & Evans, 2012a; Richardson, 2012; Thompson, 2012; Feingold & Evans, 2013). In Cardigan Bay, West Wales, mark-recapture abundance estimates of the bottlenose dolphin population in the last two years (2013 & 2014) reached lowest values since 2002 (Norrman et al., 2015). The latest estimate coincided with high emigration rates and a high probability of animals staying outside the Cardigan Bay SAC (Norrman et al., 2015). A study around New Quay indicated that behavioural responses to vessels have significantly increased over the past five years, including both vertical and horizontal evasion (Hudson, 2014). Comparisons of residency between individuals in the local population revealed that residents display a degree of habituation to specific vessels, resulting in fewer response behaviours. However, surfacing intervals in the population as a whole decreased in the presence of vessels, with a greater effect on mother and calf pairs (Hudson, 2014). Diurnal and seasonal comparisons found that as vessel activity increased, dolphin sightings decreased, indicating that dolphins were engaging in short-term site avoidance (Hudson, 2014). Further research is required to substantiate these behavioural findings.

> In November 2014, Marine Scotland reported on a study it had commissioned to investigate ‘Estimates of Collision Risk of Harbour Porpoises and Marine Renewable Energy Devices at Sites of High Tidal-Stream Energy’ (see <http://www.gov.scot/Publications/2014/11/6894>).

The study had been commissioned to determine the possibility of marine vertebrates colliding with submerged tidal turbines used to extract energy from fast flowing tidal currents. The aim of the study was to

assess how often porpoises occurred in two areas of immediate interest for tidal-stream development on the west coast of Scotland: the tidal narrows of the Sound of Islay (between the islands of Islay and Jura) and the Kyle Rhea (between Skye and the mainland).

- > • Ben Wilson, Steven Benjamins, Jim Elliott, Jonathan Gordon, Jamie Macaulay, Susannah Calderan, Nienke van Geel (2014) Estimates of Collision Risk of Harbour Porpoises and Marine Renewable Energy Devices at Sites of High Tidal-Stream Energy. <http://www.gov.scot/Publications/2014/11/6894>
- Feingold, D. and Evans, P.G.H. (2014) Bottlenose Dolphin and Harbour Porpoise Monitoring in Cardigan Bay and Pen Llyn a'r Sarnau Special Areas of Conservation 2011-2013. Natural Resources Wales Evidence Report Series No. 4. 124pp
- Pierpoint, C., Allan, L., Arnold, H., Evans, P., Perry, S., Wilberforce, L., and Baxter, J. (2009) Monitoring important coastal sites for bottlenose dolphin in Cardigan Bay, UK. Journal of the Marine Biological Association of the UK, 89: 1033-1043.
- Richardson, H. (2012) The effect of boat disturbance on the bottlenose dolphin (*Tursiops truncatus*) of Cardigan Bay in Wales. MSc thesis, University College London. 71pp.
- Thompson, K. (2012) Variations in Whistle Characteristics of Bottlenose Dolphins (*Tursiops truncatus*) in Cardigan Bay, Wales. MSc thesis, University of Bangor. 62pp.
- Veneruso G. and Evans P.G.H. (2012) Bottlenose dolphin and harbour porpoise monitoring in Cardigan Bay and Pen Llyn a'r Sarnau Special Areas of Conservation. CCW Monitoring Report No. 95: 1-65.

> Unexploded ordnance:

The UK has nothing to report on this issue for 2014. The UK's Ministry of Defence (MOD) follows the JNCC guidelines for minimising the risk of disturbance and injury to marine mammals whilst using explosives (2010) (see: <http://jncc.defra.gov.uk/page-4900>). However, the approach taken may differ from these guidelines should the safety of the disposal teams or the public otherwise be compromised.

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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.

> It is believed that existing and planned measures on MPAs, including European Protected Sites, will contribute to achieving Good Environmental Status (the key objective of MSFD) for cetacean species. Although the UK will assess progress once all the targets and indicators for cetaceans are fully operational, assessments carried out under the Habitats Directive lend support to the robustness of existing and planned measures. There is a very strong element of working collaboratively at the regional level so we are working closely in OSPAR with other contracting parties on targets and measures for cetaceans. Further information on the implementation of the MSFD in Europe can be found on the European Commission website: http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/reports_en.htm.

> The following MPAs in place in the UK which specifically name cetaceans as either a qualifying or non-qualifying feature:

[ASCOBANS Secretariat - please see attached excel file. Grateful if the table could be incorporated here]

> Other protected areas including other Special Areas of Conservation (SACs), Nature Conservation Marine Protected Areas (NC MPAs), and Marine Conservation Zones (MCZs) in place for other features in the UK (and the management measures associated with them) will also indirectly contribute to the conservation of cetaceans in UK waters. Site Information Centres now exist for all designated offshore sites, detailing site summary information, and regularly updated information on conservation objectives, data and management. See: <http://jncc.defra.gov.uk/page-6895>.

Since 2013 the Joint Nature Conservation Committee (JNCC) has undertaken an analysis of the largest and most comprehensive set of data for harbour porpoise in UK waters, with the aim of identifying possible sites for SAC designation. The initial stages of this work completed in 2014 indicated that there are several potential sites around the UK. This work will continue throughout 2015, during which time we expect that a formal consultation on the potential sites will be launched.

> Scotland:

The Marine (Scotland) Act and Marine and Coastal Access Act includes new powers for Nature Conservation Marine Protected Areas (NC MPAs) in the seas around Scotland, to recognise features of national importance

and meet international commitments for developing a network of MPAs. Scottish Natural Heritage (SNH) and the Joint Nature Conservation Committee, as part of the Marine Scotland-led Scottish MPA Project, so far designated 30 NC MPAs for a variety of marine habitats and species. These join the 29 MCZs designated in 2013 around England, Northern Ireland and Wales. Site information centres for the offshore sites can be viewed at: <http://jncc.defra.gov.uk/page-5269>. For further information on all NC MPA sites, visit the SNH webpages: <http://www.gov.scot/Topics/marine/marine-environment/mpanetwork>.

Within Scottish territorial waters three species of cetaceans, Risso's dolphin, white-beaked dolphin and minke whale were identified as MPA search features. White-beaked dolphin have been removed from consideration due to the inability to identify areas that could be considered essential to the species (see section 3.5 in http://www.snh.org.uk/pdfs/publications/commissioned_reports/780.pdf). SNH have now developed three MPA proposals for cetacean features including one site for Risso's dolphin and two sites for Minke whale. Further information can be found at [http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/marine-protected-areas-\(mpa\)/scottish-mpa-network-advice/](http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/marine-protected-areas-(mpa)/scottish-mpa-network-advice/).

Work was on-going to review four MPA search locations for these species and SNH have now completed their formal advice to Marine Scotland and this can be found at:

http://www.snh.org.uk/pdfs/publications/commissioned_reports/780.pdf Further information on this project can be found at [http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/marine-protected-areas-\(mpa\)/](http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/marine-protected-areas-(mpa)/) and <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork>

> WDC conducted boat based field surveys off the north-east coast of the Isle of Lewis, in the NE Lewis proposed MPA in 2014. WDC published a paper focusing on Risso's dolphins in the proposed MPA - Hodgins, N.K., Dolman, S.J. and Weir, C. (2014). Potential hybridism between free-ranging Risso's (*Grampus griseus*) and bottlenose dolphins (*Tursiops truncatus*) off north-east Lewis (Hebrides, UK)". Marine Biodiversity Records, 7, e97 doi:10.1017/S175526721400089X. WDC also provided acoustic data to enable the completion of the masters thesis: Brown, A. 2014. The significance of the east coast of the Isle of Lewis for the harbour porpoise (*Phocoena phocoena*). Edinburgh Napier University. WDC also published the report: The necessity of Management Options for effective harbour porpoise conservation in the UK: Case studies of emerging Areas of Concern (2015).

WDC manages the Shorewatch Programme which supports trained volunteers to collect effort-based sightings of bottlenose dolphins from sites within the Moray Firth SAC (as well as wider species at further sites around Scotland). This citizen science data can be demonstrated to show inter-annual and inter-site variation in bottlenose dolphin sightings within the SAC over time as shown in Embling, C., Walters A.E.M., and Dolman, S.J. (accepted). How much effort is enough? The power of citizen science to monitor trends in coastal cetacean species. Data collected from wider sites has contributed to WDC recommendations on Scottish proposed MPAs in NE Lewis for Risso's dolphins (and sandeels) and the Southern Trench and Sea of Hebrides for minke whales (and basking sharks).

> Wales:

Natural Resources Wales (NRW) commissioned the monitoring of bottlenose dolphin in Cardigan Bay and Pen Llŷn a'r Sarnau Special Areas of Conservation in 2014. Using only Capture Mark Recapture techniques, a much reduced abundance survey was completed because of limited funding (a contract report is being prepared). Additionally, NRW commissioned WDC to conduct vantage-point and, where possible, boat-based surveys of Risso's dolphins off Bardsey Island (North Wales) (report in preparation).

SWF continued to conduct boat-based line-transect surveys of bottlenose dolphins and harbour porpoise around Cardigan Bay and Pen Llŷn a'r Sarnau SAC's and Isle of Anglesey, along with photo-ID studies of the dolphins. The project provides information on the distribution, population structure and abundance of dolphins, porpoises and seals in the region. Winter surveys also took place in the Anglesey area of North Wales to which the species disperses seasonally.

An updated bottlenose dolphin photo-identification catalogue comprising 513 individuals spanning the years 1990 to 2011 was published on behalf of Natural Resources Wales (Feingold & Evans, 2014a, b). The photo-ID studies in Cardigan Bay have found that peak calving occurs between July and September, when 76% of all births are recorded. Females give birth on average every three years (range 2-7 years). Using an open population model, birth rates in 2014 were 4.85% in Cardigan Bay SAC and 4.8% in the entire Cardigan Bay. These compare with long-term averages of 7.5% in Cardigan Bay SAC and 8.5% in the entire Cardigan Bay. Calf mortality rates were calculated from a sample of 71 mother-calf pairs born between 2001 and 2013, and found higher rates in the first two years (15% in year one and 17% in year two) than in the third year (7%), with 60% of calves surviving into their fourth year (Norrman et al., 2015).

> Northern Ireland:

The Department of Environment for Northern Ireland held a Marine Conservation Zone Workshop in March 2015 that presented proposed boundaries for Special Areas for Conservation for Harbour Porpoises Stakeholders. NGOs were invited to provide feedback.

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You have attached the following documents to this answer.

MPAs in place in the UK which specifically name cetaceans as either a qualifying or non-qualifying feature.xls -
MPAs in place in the UK which specifically name cetaceans as either a qualifying or non-qualifying feature

3.2 GIS Data

Please indicate where GIS data of the boundaries (and zoning, if applicable) can be obtained (contact email / website).

> Details of all UK SACs can be found at <http://jncc.defra.gov.uk/page-23>. Details of designated NC MPAs and MCZs can be found on the respective lead agency sites. All offshore sites have a Site Information Centre hosted at <http://jncc.defra.gov.uk/page-6895>, and contain boundary information amongst all other available site information.

All inshore MCZs can be found at: <https://www.gov.uk/government/collections/marine-conservation-zone-2013-designations#inshore-sites>

All inshore and offshore NC MPAs can be found at: <http://www.gov.scot/Topics/marine/marine-environment/mpanetwork/developing/DesignationOrders>

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Surveys and Research

4.1 Abundance, Distribution, Population Structure

Overview of Research on Abundance, Distribution and Population Structure

> In 2006, the Joint Cetacean Protocol (JCP) project (see <http://jncc.defra.gov.uk/page-5657>) was initiated. The JCP assembled disparate effort-related cetacean sightings datasets from all major sources covering north-west European Atlantic waters e.g. SCANS I & II; CODA surveys; ESAS; SWF; Atlantic Research Coalition (ARC). It also included data from non-governmental and marine renewable industry sources. Three analyses of the JCP data resource have been completed to date, with the Phase III analysis producing species specific density layers at the UK scale. The final outputs were modelled density surfaces for seven species averaged over time, with associated uncertainty. The report and associated products from this analysis are due to be published by summer 2015. A meeting of the JCP steering group will be scheduled when a publication date is set for the JCP report package.

> Natural Resources Wales (NRW) commissioned the monitoring of bottlenose dolphin in Cardigan Bay and Pen Llŷn a'r Sarnau Special Areas of Conservation in 2014. Using only Capture Mark Recapture techniques, a much reduced abundance survey was completed because of limited funding (a contract report is being prepared). Additionally, NRW commissioned WDC to conduct vantage-point and, where possible, boat-based surveys of Risso's dolphins off Bardsey Island (North Wales) (report in preparation).

> Systematic offshore vessel-based surveys were conducted by SWF in various parts of the UK (Irish Sea, Hebrides, Grampian Region, Shetland, and Eastern England), and regular systematic land-based watches took place in locations all around the British Isles. Most effort was between April and October. An analysis of the land watch data from 1990-2014 (funded by JNCC) was undertaken to identify coastal hotspots for harbour porpoise and bottlenose dolphin for consideration as potential SACs (Evans et al., 2015). These also revealed both seasonal and long-term trends for the two species at a regional and overall UK scale, with significant increases in harbour porpoise in coastal waters from Northumberland round to South Devon, and in bottlenose dolphin from the southern Moray Firth to Northumberland between 1990 and 2014.

Sightings survey data collected by SWF over the last twenty years contributed to a study to identify discrete and persistent areas of relatively high harbour porpoise density around the UK with a view to identifying areas for potential SACs for the species (Heinänen & Skøv, 2015).

> WDC conducted photo-ID surveys for Risso's dolphin, harbour porpoise and other marine species off the Isle of Lewis in Scotland in 2014 and from Bardsey Island in North Wales in 2014. Additionally, the WDC Shorewatch Programme has collected effort-based cetacean sightings from Spey Bay since 2005 and from wider sites around Scotland since 2010 (www.whales.org/shorewatch). WDC holds records of more than 30,000 effort-based cetacean watches by trained observers. The Shorewatch database will go live in 2015 and will be fully web-accessible for trained volunteers with reduced accessibility for the wider public. In accordance with SNH funding, all recorded sightings are made fully available to the public through the NBN gateway (www.nbn.org.uk/).

> See also:

- J. Clark: https://www.researchgate.net/researcher/2008938739_J_Clark/
- M.N. DeBoer: https://www.researchgate.net/researcher/2018822782_M_N_DeBoer/
- M.F. Lepold: https://www.researchgate.net/researcher/2020300894_MF_Lepold/
- M.P. Simmonds: https://www.researchgate.net/researcher/47639344_MP_Simmonds/
- M.P. Simmonds, M Green, V James and S Einfeld. 2014. Assessing the Cardigan Bay bottlenose dolphin SACs. *ECOS* 34(3/4): 46-55.
- P.J.H. Reijnders: https://www.researchgate.net/researcher/2019021308_PJH_Reijnders/

- G. Aarts 2014. The influence of topographical and dynamic cyclic variables in the distribution of small cetaceans in a shallow coastal system. *Plos ONE* 9(1): e86331.

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4.2 Technological Developments

New Technological Developments

> The Sea Mammal Research Unit (SMRU) has continued to develop and refine new methods to track porpoises underwater using three dimensional drifting wide aperture passive acoustic arrays with funding from the Scottish Government. Improved towed arrays are also being developed to estimate porpoise density more accurately, by localising trains of echolocation clicks.

> A shore-based digiscoping project (funded by Environment Wales) has been in operation within Cardigan Bay SAC, collecting images for the long-term photo-ID monitoring project. See <http://www.seawatchfoundation.org.uk/cardigan-bay-monitoring-project/>
WDC organised a workshop at the International Marine Conservation Committee (IMCC) on noise reduction technologies for pile driving in 2014.

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4.3 Other Relevant Research

> The following publications have been supplied by Northern Ireland DoE, CSIP, SWF, WDC:

Akritopoulou, E. (2014) Investigation of spatio-temporal trends in skin lesions of bottlenose dolphins in Wales. MSc thesis, University of Bangor. 83pp.

Banguera-Hinestroza, E., Evans, P.G.H., Mirimin, L., Reid, R.J., Mikkelsen, B., Couperus, A.S., Deaville, R., Rogan, E and Hoelzel, A.R. (2014) Phylogeography and population dynamics of the white-sided dolphin in the North Atlantic Conservation Genetics DOI 10.1007/s10592-014-0578-z.

Barratclough A., Jepson P.D., Hamilton P.K., Miller C.A., Wilson K., Moore M.J. (2014) how much does a swimming, underweight, entangled right whale (*Eubalaena glacialis*) weigh? Calculating the weight at sea, to facilitate accurate dosing of sedatives to enable disentanglement. Marine Mammal Science doi: 10.1111/mms.12132.

Brown, A. 2014. The significance of the east coast of the Isle of Lewis for the harbour porpoise (*Phocoena phocoena*). Edinburgh Napier University.

Davison, N.J., Barnett, J.E.F., Koylass, M., Whatmore, A.M., Perkins, M.W., Deaville, R.C. and Jepson, P.D. (2014) *Helicobacter cetorum* infection in striped dolphin (*Stenella coeruleoalba*), Atlantic white-sided dolphin (*Lagenorhynchus acutus*), and short-beaked common dolphin (*Delphinus delphis*) from the southwest coast of England. Journal of Wildlife Diseases doi: <http://dx.doi.org/10.7589/2013-02-047>

Dolman, S.J., Tetley, M.J., Eisfeld-Pierantonio, S.M., Green, M., Read, F., Ritter, F. and Evans, P.G.H. (2015). The necessity of Management Options for effective harbour porpoise conservation in the UK: Case studies of emerging Areas of Concern. A WDC Report.

> Embling, C., Walters A.E.M., and Dolman, S.J. (2015). How much effort is enough? The power of citizen science to monitor trends in coastal cetacean species. *Global Ecology and Conservation*. (3), pp. 867–877.

Evans, P.G.H., Anderwald, P., and Wright, A.J. (2014) Marine mammal research: its relationship to other scientific disciplines and to wider society. *Journal of the Marine Biological Association of the UK*, 94: 1073-1077.

Evans, P.G.H. (editor) (2014) Chemical Pollution and Marine Mammals. Proceedings of the ECS/ASCOBANS/ACCOBAMS Joint Workshop, held at the European Cetacean Society's 25th Annual Conference, Cadiz, Spain, 20th March 2011. ECS Special Publication Series No. 55. 93pp.

Evans, P.G.H., Pierce, G.J., Veneruso, G., Weir, C.R., Gibas, D., Anderwald, P., and Santos, M.B. (2015) Identification whether persistent areas of harbour porpoise and bottlenose dolphin are supported by available evidence. JNCC Report No. 543. Joint Nature Conservation Committee, Peterborough. 147pp.

Evans, P.G.H. and Bjørge, A. (2014) Impacts of climate change on marine mammals. *Marine Climate Change Impacts Partnership (MCCIP) Science Review*: 134-148.

Feingold, D. and Evans, P.G.H. (2014a) Bottlenose Dolphin and Harbour Porpoise Monitoring in Cardigan Bay and Pen Llŷn a'r Sarnau Special Areas of Conservation 2011-2013. NRW Evidence Report Series Report No. 4. Natural Resources Wales, Bangor. 124pp.

Feingold, D. and Evans, P.G.H. (2014b) Connectivity of Bottlenose Dolphins in Welsh Waters: North Wales Photo-Monitoring Interim Report. NRW Evidence Report Series Report No. 5. Natural Resources Wales, Bangor.

Fernández, R., Pierce, G.J., MacLeod, C.D., Brownlow, A., Reid, B., Rogan, E., Addink, M., Deaville, R., Jepson P.D. and Santos, M.B. (2014) Strandings of northern bottlenose whale (*Hyperoodon ampullatus*) in the NE Atlantic: seasonality and stomach contents. *Journal of the Marine Biological Association of the United Kingdom*

<http://dx.doi.org/10.1017/S002531541300180X>

García-Párraga D, Crespo-Picazo JL, Bernaldo de Quirós Y, Cervera V, Martí-Bonmati L, Díaz-Delgado J, Arbelo M, Moore MJ, Jepson PD, Fernández A. 2014. Decompression sickness ('the bends') in sea turtles (2014) *Diseases of Aquatic Organisms* 111(3):191-205

> Heinanen, S. and Skøv, H. (2015) The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area. JNCC Report No. 544. Joint Nature Conservation Committee, Peterborough. 108pp.

Hintner, K. (2014) *The Magic Dolphin*. Creative Conservation, Milton Keynes. 124pp. ISBN 978-0-9930819-0-3.

Hodgins, N.K., Dolman, S.J. and Weir, C. 2014. Potential hybridism between free-ranging Risso's (*Grampus griseus*) and bottlenose dolphins (*Tursiops truncatus*) off north-east Lewis (Hebrides, UK)". *Marine Biodiversity Records*, 7, e97 doi:10.1017/S175526721400089X.

Hudson, T.A. (2014) Bottlenose dolphin (*Tursiops truncatus*) responses to vessel activities in New Quay Bay. MSc thesis, University of Bangor. 72pp.

James, K. (2014) National Whale and Dolphin Watch 2014 Report. Sea Watch Foundation, New Quay, Wales. 19pp. <http://www.seawatchfoundation.org.uk/wp-content/uploads/2015/03/NWDW2014.pdf>

Jepson, P.D. (Chair) and Deaville, R. (Rapporteur) (2014); Report of the IWC workshop on "Euthanasia Protocols to Optimize Welfare Concerns for Stranded Cetaceans", held at IoZ in September 2013.

http://iwc.int/private/downloads/bcfekn9k5f4s5sgg4owscw80c/IWC%20Euthanasia%20Workshop%20Report_FINAL_31-03-14.pdf

Lambert, E., Pierce, G.J., Hall, K., Brerton, T., Dunn, T.E., Wall, D., Jepson, P.D., Deaville, R. and MacLeod, C. (2014) Cetacean range and climate in the eastern North Atlantic: future predictions and implications for conservation. *Global Change Biology* DOI: 10.1111/gcb.12560

Learmonth, J.A., Murphy, S., Luque, P.L., Reid, R.J., Patterson, I.A.P., Brownlow, A., Ross, H.M., Barley, J.P., Begoña Santos, M., Pierce, G.J. (2014) Life history of harbor porpoises (*Phocoena phocoena*) in Scottish (UK) waters. *Marine Mammal Science* 30, 1427-1455.

Louis, M., Viricel, A., Lucas, T., Peltier, H., Alfonsi, E., Berrwo, S., Brownlow, A., Coevlo, P., Dabin, W., Deaville, R., de Stephanis, R., Gally, F., Gauffier, P., Penrose, R., Silva, M.A., Guinet, C. and Benoit, S-B. (2014) Habitat-driven population structure of bottlenose dolphins, *Tursiops truncatus*, in the North-East Atlantic. *Molecular Ecology* 23, 857-874

Louis, M., Fontaine, M.C., Spitz, J., Schlund, E., Dabin, W., Deaville, R., Caurant, F., Cherel, Y., Guinet, C. and Benoit, S.B. (2014) Ecological opportunities and specializations shaped genetic divergence in a highly mobile marine top predator. *Proc. Roy. Soc. B* 281, 20141558.

> Massey, D. (2014) Whistle variations within the bottlenose dolphin population of Cardigan Bay, Wales. MSc thesis, University of Bangor. 57pp.

McClellan, C. M., Brereton, T., Dell'Amico, F., Johns, D. G., Cucknell, A.-C., Patrick, S. C. Godley, B. J. (2014). Understanding the distribution of marine megafauna in the English channel region: identifying key habitats for conservation within the busiest seaway on earth. *PLoS one*, 9(2), e89720. doi:10.1371/journal.pone.0089720

Metcalfe, M., Macklin, G., & Perry. (2014). *The ShoreFin Report 2014* (pp. 1-36).

Murphy, S., Perrott, M., McVee, J., Read, F., and Stockin, K. A. (2015). Deposition of growth layer groups in dentine tissue of captive common dolphins *Delphinus delphis*. NAMMCO Scientific Publication Volume 10: Age estimation of marine mammals with a focus on monodontids. doi: <http://dx.doi.org/10.7557/3.3017>

Murphy, S. 2014. A preliminary report from the Joint ACCOBAMS/ASCOBANS Working Group on the Marine Strategy Framework Directive (MSFD). Report to the 21st ASCOBANS Advisory Committee Meeting, 29th September - 1st October, Gothenburg, Sweden. AC21/Doc.13.3.1 (WG)

Norrman, E., Dussan-Duque, S., and Evans, P.G.H. (2015) Bottlenose Dolphins in Wales: Systematic Mark-Recapture Surveys in Welsh Waters. *Natural Resources Wales Evidence Report Series No. Natural Resources Wales, Bangor*. 83pp.

Peltier H., Dabin, W., Jepson P.D., Deaville, R., Van Canneyt, O., Daniel, P. and Ridoux, V. (2014) The contribution of stranding data to monitoring and conservation strategies for cetaceans: developing spatially explicit mortality indicators for common dolphins in the eastern North Atlantic. *Ecological Indicators* 39; 203-214.

Peña, A. Vergara (2014) Temporal changes in site usage by bottlenose dolphins (*Tursiops truncatus*) in New Quay Bay, Wales. MSc thesis, University of Bangor. 90pp.

Stevens, A. (2014) A photo-ID study of the Risso's dolphin (*Grampus griseus*) in Welsh coastal waters and the use of Maxent modeling to examine the environmental determinants of spatial and temporal distribution in the Irish Sea. MSc thesis, University of Bangor. 97pp.

Van Bresse, M.-F., Duignan, P.J., Banyard, A., Barbieri, M., Colegrove, K.M., De Guise, S., Di Guardo, G., Dobson, A., Domingo, M., Fauquier, D., Fernandez, A., Goldstein, T., Grenfell, B., Groch, K.R., Gulland, F., Jensen, B.A., Jepson, P.D., Hall, A., Kuiken, T., Mazzariol, S., Morris, S.E., Nielsen, O., Raga, J.A., Rowles, T.K., Saliki, J., Sierra, E., Stephens, N., Stone, B., Tomo, I., Wang, J., Waltzek, T. and Wellehan, J.F. (2014) Cetacean Morbillivirus: Current Knowledge and Future Directions. *Viruses* 6, 5145-5181

Van Elk, C.E., van de Bilt, M.W.G., Jauniaux, T., Hiemstra, S., van Run, P.R.W.A., Foster, G., Oesterhaus, A.D.M.E. and Kuiken, T. (2014) Is dolphin morbillivirus virulent for white beaked dolphins (*Lagenorhynchus albirostris*)? *Veterinary Pathology* 51(6) 1174-1182

Wilson, S.C., Eybatov, T.M., Amano, M., Jepson, P.D. and Goodman, S.J. (2014) The roles of disease

epidemiology and persistent organic pollutants in long-term mortality patterns in Caspian seals, *Pusa caspica*.
PLOS ONE doi: 10.1371/journal.pone.0099265

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Use of Bycatches and Strandings

Post-Mortem Research Schemes

5.1 Contact Details

Contact details of research institutions and focal point

> UK Cetacean Strandings Investigation Programme (CSIP).

Contact point- Rob Deaville, Institute of Zoology, Regents Park, London, NW1 4RY, ENGLAND.

rob.deaville@ioz.ac.uk

www.ukstrandings.org

Natural Resources Wales – Dr Thomas Stringell, Senior Marine Mammal Ecologist

tom.stringell@naturalresourceswales.gov.uk

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5.2 Methodology

Methodology used (reference, e.g. publication, protocol)

> Methodology in Deaville and Jepson et al (2011) followed;

Deaville and Jepson (compilers) (2011) CSIP Final Report for the period 1st January 2005-31st December 2010. Pp 1-98

[http://randd.defra.gov.uk/Document.aspx?Document=FinalCSIPReport2005-2010_finalversion061211released\[1\].pdf](http://randd.defra.gov.uk/Document.aspx?Document=FinalCSIPReport2005-2010_finalversion061211released[1].pdf)

To note: There is an on-going collaboration between CSIP, the RSPCA, others, into the investigation of methods for humane euthanasia of cetaceans.

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5.3 Samples

Collection of samples (type, preservation method)

> A range of samples are routinely collected according to the method of Deaville and Jepson et al (2011). A variety of tissues are routinely sampled for any bacteriological, virological and/or histopathological investigations when deemed appropriate. A number of preservation methods are employed;

- stored frozen at -20oC or -80oC;
- stored in 70% ethanol (parasites);
- or in 10% buffered formalin (fixed samples)

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5.4 Database

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

> The CSIP holds data on nearly 11700 cetaceans which were reported stranded around the UK between 1990 and 2013. In addition, detailed pathological data is also held on over 3300 UK stranded cetaceans which were necropsied by the CSIP during the same period. Data collected on strandings and during necropsies are routinely recorded in a web-accessed relational database (<http://data.ukstrandings.org>). A proportion of data held on this system is also made available to the public via a Defra funded portal, the NBN gateway (www.nbn.org.uk/).

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5.5 Additional Information

Additional information (e.g. website addresses, intellectual property rights, possibility of a central database)
 > The CSIP is co-funded by Defra, Scottish Government, and Welsh Government, with additional funding also provided by Natural Resources Wales.

Further information on the CSIP is available at www.ukstrandings.org. Intellectual property rights to the data directly generated as a result of CSIP research belong to Defra.

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Activities and Results

5.6 Necropsies

Number of necropsies carried out in the reporting period

	Recorded cause of death	Number
<i>Phocoena phocoena</i>	Bottlenose Dolphin Attack (n=12), Starvation (n=6), Bycatch (n=6), Physical Trauma (n=3), Pneumonia, Parasitic (n=3), Dystocia & Stillborn (n=3), Generalised Bacterial Infection (n=3), Others (n=3), Generalised Mycotic Infection (n=2), Starvation (neonate) (n=2), Gastritis and/or Enteritis (n=2), Live Stranding (n=1), Entanglement (n=1), Not Established (n=2), pending (n=11)	60
<i>Tursiops truncatus</i>	Live Stranding (n=1), (Meningo)encephalitis (n=1), Gastritis and/or Enteritis (n=1), Starvation (n=1), Neonatal Death (n=1), Others (n=1), Not Established (n=2)	8
<i>Delphinus delphis</i>	Live Stranding (n=3), Others (n=2), Starvation (n=1), Physical Trauma (n=1), Physical Trauma, Boat/Ship Strike (n=1), Bottlenose Dolphin Attack (n=1), Generalised Bacterial Infection (n=1), Gastritis and/or Enteritis (n=1), Starvation (neonate) (n=1), (Meningo)encephalitis (n=1), Not Established (n=1), pending (n=1)	15
<i>Stenella coeruleoalba</i>	(Meningo)encephalitis (n=3), Starvation (n=1), pending (n=1)	5
<i>Grampus griseus</i>	Generalised Bacterial Infection (n=1)	1
<i>Globicephala melas</i>	Live Stranding (n=2), (Meningo)encephalitis (n=1)	3
<i>Globicephala macrorhynchus</i>		
<i>Lagenorhynchus albirostris</i>	Live Stranding (n=3), Pneumonia, Bacterial (n=1), Pneumonia, Parasitic (n=1), Physical Trauma (n=1), Not Established (n=1)	7
<i>Lagenorhynchus acutus</i>		
<i>Orcinus orca</i>	Others (n=1)	1
<i>Hyperoodon ampullatus</i>	Live Stranding (n=2)	2
<i>Mesoplodon bidens</i>	Live Stranding (n=2)	2
<i>Kogia breviceps</i>	Generalised Bacterial Infection (n=1)	1
Other (please specify under number)	Live Stranding (n=2), Physical Trauma, Boat/Ship Strike (n=1)	3, <i>Physeter microcephalus</i>
Other (please specify under number)	Others (n=2), Generalised Bacterial Infection (n=1)	3, <i>Balaenoptera acutorostrata</i>
Other (please specify under number)	Entanglement (known) (n=1)	1, <i>Megaptera novaeangliae</i>
Other (please specify under number)	Live Stranding (n=1)	1, <i>Ziphius cavirostris</i>
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

> NB Causes of death in some individuals contained in the above table are provisional and pending the results of follow up analyses. Finalised causes of death will be given in the CSIP 2014 annual report to Defra and the Devolved Administrations in the UK, which will be published at:

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=17835&FromSearch=Y&Publisher=1&SearchText=strandings&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>.

> The CSIP Annual Report to Defra for the period 1st January-31st December 2013 (compiled by R. Deaville, 2014) may be accessed via the following link:

http://sciencesearch.defra.gov.uk/Document.aspx?Document=12306_UKCSIPAnnualReport2013_Final.pdf

The Scottish Marine Animal Strandings Scheme is an on-going project which provides a systematic and coordinated approach to the surveillance of marine animal strandings. It builds on the wider UK Cetacean Strandings Investigation Programme (CSIP) which is supported by Scottish Government. It aims to collate, analyse and report data for all cetacean, marine turtle, seal and basking shark strandings around the Scottish coast; to determine the causes of death; and to undertake surveillance on the incidence of disease in stranded cetaceans in order to identify any substantial new threats to their conservation status. See:

<http://www.strandings.org/>

Northern Ireland's Department of the Environment (DoE) Marine Division also record cetacean strandings along the Northern Irish coast. Any stranding records submitted directly to the Irish Whale and Dolphin Group are forwarded to the DoE Marine Division and vice versa.

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Relevant New Legislation, Regulations and Guidelines

6.1 New Legislation, Regulations and Guidelines

Please provide any relevant information

> In February 2015 it was announced that the Aberdeen Harbour Board, East Grampian Coastal Partnership, Police Scotland and Scottish Natural Heritage have developed the Code of Practice with advice from WDC in order to protect the resident pod of bottlenose dolphins regularly found around the converging currents at the mouth of the busy harbour. Please refer to the following links:

<http://www.aberdeen-harbour.co.uk/news/news-and-events/new-code-launched-to-protect-dolphins-at-aberdeen-harbour/>

<http://www.marinecode.org/>

<http://uk.whales.org/news/2015/02/new-code-launched-to-protect-dolphins-in-aberdeen>

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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.

> CSIP staff from the Zoological Society of London (ZSL) ran a CSIP exhibit at Whalefest in Brighton over 14th-16th March 2014 (featuring skeletal and pathological material from the programme) and also helped the ASCOBANS Secretariat facilitate an exhibit on marine debris, using material gathered from Brighton beach.

Approximately 8000 people attended Whalefest over the weekend.

CSIP staff from the Natural History Museum (NHM) and ZSL helped run exhibits on UK strandings/cetaceans at 'Science Uncovered' at the NHM on 26th September 2014. Skeletal material, parasites and fixed material was on display, along with video footage of necropsies carried out at ZSL. Over 10000 people attended on the evening.

The role of ASCOBANS was publicized throughout both events. The work of the CSIP in the UK (and the role of ASCOBANS) has also been publicized during 2014 through numerous presentations, demonstration necropsies and social media activity by CSIP staff

e.g. <http://www.facebook.com/pages/Cetacean-Strandings-Investigation-Programme-UK-strandings/142706582438320>

> The thirteenth annual National Whale & Dolphin Watch week was organised by Sea Watch Foundation between 26 July and 3 August 2014. Dedicated effort-based watches were conducted at over 100 sites and onboard thirteen vessels around the British Isles from Shetland to the Isle of Scilly and Channel Islands. Around three hundred persons participated directly in the event with over 900 hours of observation effort, resulting in 1150 sightings (totalling 5,426 individuals) involving eleven cetacean species (in descending order of frequency: harbour porpoise, bottlenose dolphin, minke whale, short-beaked common dolphin, white-beaked dolphin, killer whale, Risso's dolphin, humpback whale, fin whale, long-finned pilot whale, and pygmy sperm whale). The event received widespread regional and national media coverage. A full report was published (see <http://www.seawatchfoundation.org.uk/wp-content/uploads/2015/03/NWDW2014.pdf> (James, 2014)).

Sea Watch continued to run a Dolphin Adoption scheme aimed particularly at children, to encourage them to take on individual responsibility for safeguarding photo-identified dolphins and to follow their fortunes. An educational book about bottlenose dolphins, aimed at children, was published (Hintner 2014).

Other educational and public awareness programmes were undertaken throughout the UK, with displays, lectures and training courses. Sea Watch also participated in the World Whale Conference held in Brighton on 15-16 March 2014, with talks, species ID demonstrations and exhibits.

> Whale and Dolphin Conservation (WDC) reached out to more than 100,000 people through its Wildlife Centres and Shorewatch volunteer programme in Scotland. 5,000 children participated in WDC's education programme, also based in Scotland. In the city of Aberdeen, WDC organised a large outdoor public art event (in partnership with the ARCHIE Foundation and events company Wild in Art) which raised awareness of the dolphins off the east coast of Scotland. The event's dolphin trail was seen by tens of thousands of people and included a school's educational programme that 33 schools participated in. In south west England, a project with all 21 schools local to WDC's office in Chippenham also reached out to almost 4000 children through a series of assembly sessions and creative workshops, followed by a three-week exhibition of the children's work in the town. WDC have also continued to provide advice, ideas and assistance with facts, proofing and language to the development of the ASCOBANS website Kids Zone section.

> The Irish Whale and Dolphin Group held its annual Whale Watch Ireland event on the 24th August 2014 with more than 700 people covering 20 sites around Ireland and Northern Ireland. This resulted in sightings of three cetacean species; harbour porpoise, shortbeaked common dolphin & bottlenose dolphin.

> ASCOBANS is mentioned in the MSFD Programme of Measures Consultation Document in the Annex on D1, 4, 6 Marine Mammals. It was also mentioned at the related stakeholder events (London 17th Feb and Cardiff 6th Mar). Additionally, whilst not ASCOBANS-specific, Celtic Seas Partnership have set up two task groups to support delivery of the MSFD: one on Marine litter, which aims to support the development of Eco-schools and generally raise awareness of the causes and problems of marine litter, and one on underwater noise which aims to develop training resources related to the impacts of underwater noise.

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Possible difficulties encountered in implementing the Agreement

Difficulties in Implementing the Agreement

Please provide any relevant information

> None

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Marine Protected Area	Qualifying Cetacean Features	Non-qualifying Cetacean Features
Cardigan Bay/Bae Ceredigion SAC	Bottlenose dolphin	Harbour porpoise
Moray Firth SAC	Bottlenose dolphin	Harbour porpoise
Skerries and Causeway SAC	Harbour porpoise	Bottlenose dolphin
Pen Llyn a`r Sarnau/ Lley Peninsula and the Sarnau SAC	Bottlenose dolphin	Harbour porpoise
UK section of Dogger Bank SAC	None	Harbour porpoise
Croker Carbonate Slabs SAC	None	Harbour porpoise
Pisces Reef Complex SAC	None	Harbour porpoise
Wight-Barfleur Reef SAC	None	Harbour porpoise and Bottlenose dolphin
Pobie Bank Reef SAC	None	Harbour porpoise
Solan Bank Reef SAC	None	Harbour porpoise
Sound of Barra SAC	None	Harbour porpoise and Bottlenose dolphin
Mousa SAC	None	Harbour porpoise
Solway Firth SAC	None	Harbour porpoise
Plymouth Sound and Estuaries SAC	None	Harbour porpoise and Bottlenose dolphin
Fal and Helford SAC	None	Harbour porpoise and Bottlenose dolphin
Lundy SAC	None	Harbour porpoise and Bottlenose dolphin
Pembrokeshire Marine/ Sir Benfro Forol SAC	None	Harbour porpoise and Bottlenose dolphin
Isles of Scilly Complex SAC	None	Harbour porpoise and Bottlenose dolphin
St Kilda SAC	None	Harbour porpoise and Bottlenose dolphin
Papa Stour SAC	None	Harbour porpoise
Loch nam Madadh SAC	None	Harbour porpoise
Lochs Duich, Long and Alsh Reefs SAC	None	Harbour porpoise
Sound of Arisaig (Loch Ailort to Loch Ceann Traigh) SAC	None	Harbour porpoise
Firth of Lorn SAC	None	Harbour porpoise
Ascrib, Isay and Dunvegan SAC	None	Harbour porpoise
Sullom Voe SAC	None	Harbour porpoise
Treshnish Isles SAC	None	Harbour porpoise

Firth of Tay & Eden Estuary SAC	None	Harbour porpoise and Bottlenose dolphin
Wyville Thomson Ridge SAC	None	Bottlenose dolphin
North West Rockall Bank SAC	None	Harbour porpoise
Haisborough, Hammond and Winterton SAC	None	Harbour porpoise
Inner Dowsing, Race Bank and North Ridge SAC	None	Harbour porpoise
The Maidens SAC	None	Harbour porpoise
Monach Islands SAC	None	Harbour porpoise

<u>Date</u>	<u>Location</u>	<u>Type of Incident</u>	<u>Further information</u>
20/08/2014	Sandscale Haws, Cumbria, England	Mass stranding	Two harbour porpoises found dead stranded in close proximity.
29/08/2014	Ornsay, Skye, Highland, Scotland	Mass stranding	Two northern bottlenose whales found dead stranded in close proximity.
26/09/2014	Balnakeil beach, Durness, Highland, Scotland	Mass stranding	Two white-beaked dolphins found live stranded in close proximity. Both refloated but one subsequently found dead stranded nearby.
30/09/2014	Balnakeil beach, Durness, Highland, Scotland	Mass stranding	Two Sowerby's beaked whales found dead stranded in close proximity.
December 2014- January 2015**	Scotland and Northern Ireland (also contemporaneous strandings in Ireland)	Unusual mortality event	Over a 45 day period between 11 December 2014 and 30 January 2015, a total of 15 Cuvier's beaked whales stranded along the western seaboard of Ireland (n = 9) and Scotland (n = 6). It was not possible to determine the cause of death for any of the Cuvier's beaked whale carcasses that stranded in Ireland or Scotland from December 2014 to January 2015. This was due to a lack of a post-mortem scheme in Ireland and Northern Ireland, and the advanced state of decomposition of those carcasses that stranded in Scotland. It is well documented that Cuvier's beaked whales are one of the most sensitive species to acoustic disturbance. However, a lack of data on sources of anthropogenic sounds over this time period prevents an independent and conclusive assessment. (Taken from the Joint Statement on an unusual mortality event of Cuvier's beaked whales in Ireland and Scotland from Hebridean Whale and Dolphin Trust, Irish Whale and Dolphin Group, Whale and Dolphin Conservation and Humane Society International). Investigation of this potentially unusual mortality event is ongoing by the CSIP, IWDG and others.

** Investigation of this event is on-going. Further details on this and other events in this table will be made available in the CSIP 2014 annual report, which will be published at:
<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=17835&FromSearch=Y&Publisher=1&SearchText=strandings&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description>.