

2015 ASCOBANS Annual National Reports

This questionnaire has been pre-filled with answers given in 2014 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.

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).

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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

> Agri-Food and Biosciences Institute (AFBI) Contact: Suzanne Beck, Suzanne.Beck@afbini.gov.uk

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

> UK Cetacean Strandings Investigation Programme (CSIP). Contact: Rob Deaville (Institute of Zoology) rob.deaville@ioz.ac.uk (<http://ukstrandings.org/>)

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

> Department of the Environment (DOE) – from 9 May 2016 the Department of Agriculture, Environment and Rural Affairs (DAERA) Contact: MarineDivision.InfoRequests@doeni.gov.uk

> Hebridean Whale and Dolphin Trust. Contact: Lauren Hartny-Mills science@hwdt.org (<http://www.whaledolphintrust.co.uk>)

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

> The Royal Society for the Prevention of Cruelty to Animals (RSPCA). Contact: wildlife@rspca.org.uk
(<http://www.rspca.org.uk>) (<http://www.rspca.org.uk>)

> Sea Mammal Research Unit (SMRU). Contact: Simon Northridge spn1@st-andrews.ac.uk (<http://www.smru.st-andrews.ac.uk/>)

> 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

> Whale and Dolphin Conservation (WDC), Contact: Sarah Dolman sarah.dolman@whales.org

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. Reports to the European Commission produced under Regulation 812/2004 (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:150:0012:0031:EN:PDF>), and Article 12(4) of the Habitats Directive, provide details of monitoring and estimates of cetacean bycatch in UK waters. 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 protected species bycatch monitoring programme is in place and operated by the Sea Mammal Research Unit (SMRU). Fisheries research laboratories operating discard 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 Data Collection Framework (DCF) (in Northern Ireland) for offshore vessels to accommodate scientific observers when requested to do so and an active observer programme is run by Agri-Food and Biosciences Unit (AFBI). Additionally, DARD (Department of Agriculture, Environment and Rural Affairs – Department of Agriculture, Environment and Rural Affairs (DAERA) as of 9th May 2016) Inshore Fisheries Work Programme deploys observers to inshore vessels, though there is no legal obligation, and this is undertaken by AFBI through good relations with the industry. This programme aims to maintain at least 42 observer days annually to 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 English 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 Sea and Irish Sea. As more data are collected and compiled, estimates of bycatch rates will improve.

The latest UK cetacean bycatch report for 2015, as required under EU Regulation 812/2004, estimates that for 2015 bycatch rates were in the region of 1200 to 1500 harbour porpoises. This data indicates that harbour porpoise bycatch rates may have increased slightly in recent years, but the reasons for this are not yet understood (please see the UK Report under Regulation 812/2004 for elaboration). It should be noted that unlike in earlier years where bycatch estimates were only included for those fisheries where sufficient sampling had been undertaken (leading to bycatch estimates of around 700-800 harbour porpoises per year), since 2013 estimates have included extrapolations for all UK gillnet fisheries, whether they have been sampled or not, so as to provide an overall maximum estimate for all UK vessels using gillnets. Estimates produced in this way will be higher than those estimates restricted to core fisheries and areas, and are likely to be overestimates and biased for several reasons, and should therefore be treated with caution. 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 2015, monitoring of vessels using acoustic deterrent devices (ADDs), or ‘pingers’ has continued. The bass pair trawl fishery, which in the past has been a source of concern with respect to common dolphin bycatch, was effectively ended in 2014 due to concerns over bass stocks and no further monitoring of pinger effectiveness in that fishery has been possible. Monitoring of pingers has since been restricted to the offshore gillnet fleet operating in ICES Subarea 7 from the South West UK and to the Spanish owned UK registered fleet when they operate in Subareas 4 and 7 where pingers are required. This monitoring is designed to help assess the longer-term effects of pingers on cetacean bycatch rates and other potentially associated effects (such as seal depredation levels) in these fisheries.

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 Marine Management Organisation (MMO). Enforcement of the regulation at the quayside in England is carried out by MMO officers, at sea in English and offshore Welsh waters by the Royal Navy dedicated fisheries patrol vessels in conjunction with MMO officers. In Scotland enforcement is undertaken by the Marine Scotland Compliance and Enforcement Unit. Further information can be found at

http://www.marinemanagement.org.uk/fisheries/monitoring/regulations_cetaceans.htm

Within the period covered by this report, routine inspections of the UK over 12m gillnetting fleet in Subareas 4 and 7 resulted in one infringement relating to the incorrect use of pingers, which has subsequently been addressed. The MMO is continuing to look into the use of pinger detectors as part of the implementation of regulation 812/2004 but is currently not using them as standard detection equipment.

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).

1.4 Report under EC Regulation 812/2004

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

>

<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 English inshore and offshore waters and in Welsh and Northern Ireland offshore waters. DECC (UK Department of Energy and Climate Change) also has a regulatory responsibility for all 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) (Department of Agriculture, Environment and Rural Affairs DAERA as of 9th May 2016). 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.marinemanagement.org.uk/protecting/wildlife/geophysical.htm>.

Two Joint Nature Conservation Committee (JNCC) reports based on data from Marine Mammal Observer reports were published in 2015. The data covered 1,196 seismic surveys in UK and adjacent waters between 1994 and 2010. The aim of the analysis covered in JNCC report 463a (<http://jncc.defra.gov.uk/page-6985>) was to identify any effects of seismic operations on marine mammals and any long term trends in compliance with the JNCC guidelines. This report also provides the first evidence for the effectiveness of soft start procedures in minimising the effect of seismic surveys on cetaceans. To accompany this report, a second report (JNCC report 463b; <http://jncc.defra.gov.uk/page-6986>) suggested recommendations for best practice for consideration in any future revision to the guidelines. It highlights items for consideration for when the JNCC seismic guidelines are next revised. However, these suggestions do not represent JNCC's position on recommended revisions and do not constitute any changes to the current guidelines at present. These reports built on earlier analysis of Marine Mammal Observer reports (e.g. Stone and Tasker, 2006), but allowed 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:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/341146/msfd-part-2-final.pdf.

The Marine Evidence Group published a report on pile driving and harbour porpoise 'An analysis of potential broad-scale impacts on harbour porpoise from proposed pile driving activities in the North Sea', available at: <http://randd.defra.gov.uk/Default.aspx?enu=Menu&Module=More&Location=None&ProjectID=19403&FromSearch=Y&Publisher=1&SearchText=harbour%20porpoise&SortString=Proje>

ctCode&SortOrder=Asc&Paging=10%20-%20Description

> A Scottish Government funded study on 'Tests of acoustic signals for aversive sound mitigation with harbour seals' was published in 2015. The project focused mainly on harbour seals but it also made reference to mechanisms designed to minimise the risk of disturbing harbour porpoise and other sensitive cetaceans from anthropogenic activities that produce intense sound in the marine environment. The mitigation measures to minimise the risk of causing damage or injury are often a requirement when licences are issued to carry out risky activities in the marine environment. More information on this project can be found online.

> 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 (<https://www.gov.uk/government/publications/marine-strategy-part-two-uk-marine-monitoring-programmes>). The final part of the UK Marine Strategy, a programme of measures necessary to achieve GES, was published in December 2015 (<https://www.gov.uk/government/publications/marine-strategy-part-three-uk-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 UK waters. Which include a number of measures which contribute to the protection of cetaceans:

- 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 Natural Resources Wales have good practice guidelines and protocols in place for specific activities to minimize the risk of injury and to cetaceans.
- The Marine Licensing System

> 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 (Intersessional Correspondence Group for 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, government and 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. The UK also co-chairs the European Union's Technical Group on Noise.

> UK scientists also conducted a study to investigate the effectiveness of Marine Mammal Observers in enabling mitigating measures to be implemented to reduce the risk of injury from loud sound sources. The results provide a simple method for case specific assessment of the extent to which MMOs can contribute to risk reduction (Leaper et al., 2015).

> Other relevant work includes:

Graham, I.M., Cheney, B., Hewitt, R.C., Hastie, G.D. and Thompson, P.M. 2015. Strategic Regional Pre-Construction Marine Mammal Monitoring Programme Annual Report 2015. Available at: http://www.abdn.ac.uk/lighthouse/documents/Project_Reports/MMMP_Annual_Report_2015.pdf

Leaper, R., S. Calderan and J. Cooke (2015). A simulation framework to evaluate the efficiency of using visual observers to reduce the risk of injury from loud sound sources. *Aquatic Mammals* 41(4): 375-387.

2.2 Ship Strike Incidents

Please list all known incidents and provide information separately for each

	Date	Species	Type of Injury	Fatal Injury (Yes/No)	Type of Vessel (length, tonnage, speed)	Location (coordinates)	More Information (name, email)
Incident	14/06/15	Fin whale	Distal third of carcass missing.	Unknown	Unknown. Minimal examination and sampling only due to decomposed condition	Harwich Port, England. Dead whale found on prow of a vessel inbound from Egypt	Rob Deaville (rob.deaville@ioz.ac.uk)
Incident	14/10/15	Fin whale	Excised tail flukes. Parallel, diagonal, linear incisions on the right and ventral aspect of the caudal peduncle.	Yes	Unknown (diagnosed from necropsy of stranded animal)	Botany Bay, Kent, England	Rob Deaville (rob.deaville@ioz.ac.uk)
Incident	12/11/15	Short-beaked common dolphin	Deep, parallel, diagonal incisions on the dorsal and right side of the body wall. Associated with hemorrhage and fractures of the spine and ribs.	Yes	Unknown (diagnosed from necropsy of stranded animal)	Hope Cove, Devon, England	Rob Deaville (rob.deaville@ioz.ac.uk)
Incident	13/12/15	Risso's dolphin	Partially excised tail flukes. Parallel, diagonal, linear incisions on the caudal peduncle.	Yes	Unknown (diagnosed from necropsy of stranded animal)	Freshwater West, Pembrokeshire, Wales	Rob Deaville (rob.deaville@ioz.ac.uk)
Incident							Rob Deaville (rob.deaville@ioz.ac.uk)
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Incident							Rob Deaville (rob.deaville@ioz.ac.uk)
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2.3 Major Incidents

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

	Date	Location	Type of Incident	Further Information
Incident	17/01/15	Grimsay, Western Isles, Scotland.	Mass stranding	Two short-beaked common dolphins found dead stranded in close proximity. Potentially mother and dependant calf.
Incident	02/06/15	Brogaig and Staffin Island, Skye, Scotland.	Mass stranding	Twenty-one long-finned pilot whales live stranded. Fourteen refloated by rescue groups (primarily BDMLR). Seven euthanized or died on the beach and were examined at necropsy. Investigations are ongoing and will be available in next year's report.

Incident	17/07/15	Mylor, Cornwall, England	Mass stranding	Six short-beaked common dolphins involved in mass stranding. All six refloated/moved from shallows. One short-beaked common dolphin found nearby on following day and euthanized due to extensive blistering across dorsal surface (presumed consequential to sunburn after period live stranded).
Incident	08/08/15	Burntisland, Fife, Scotland	Mass stranding	Two short-beaked common dolphins found live stranded in close proximity. Both refloated by rescue groups, one subsequently found dead stranded.
Incident	08/11/15	Redcastle, Highland, Scotland	Mass stranding	Two short-beaked common dolphins found stranded in close proximity (one live and one dead). The live animal was refloated.

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.

> As a result of the on-going collaboration between the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) and the CSIP, along with additional collaborations with a number of European partner organisations, the Institute of Zoology lead a large pan-European study of polychlorinated biphenyl (PCB) concentrations in over 1,000 cetaceans of four species that was submitted for publication in 2015 and published in 2016 (Jepson et al. 2016). The study included PCB data on harbour porpoises (HPs) (n=706), bottlenose dolphins (BNDs) (n=138), striped dolphins (SDs) (n=220) and killer whales (KWs) (n=24) sampled across Europe between 1990 and 2012. PCBs concentrations in all 4 species were moderately high (harbour porpoises) or excessively high (dolphins). The SDs, BNDs and KWs had mean and median PCB levels that markedly exceeded all known marine mammal PCB toxicity thresholds. Time trend analyses also showed that PCBs stopped declining in 1998 (UK HPs) and around 2002 for SDs in the Mediterranean Sea. The Iberian Peninsula was a global marine mammal “PCB hotspot” in both North Atlantic and Mediterranean Sea regions. Despite regulations and mitigation measures to reduce PCB pollution, their bioaccumulation in marine food webs continues to be a cause of concern regarding their potential impacts on some cetacean populations in the ASCOBANS region and beyond. The few remaining coastal KW populations appear close to extinction within the industrialized regions of Europe. Small or declining populations of BNDs and KWs in the NE Atlantic region were associated with low calf recruitment, consistent with PCB-induced reproductive toxicity. Jepson et al (2016) concluded that ‘high and stable PCB exposures are associated with small populations, long-term population declines or contraction of range in several dolphin species in Europe (NE Atlantic and Mediterranean Seas) that were not adequately explained by other factors (e.g. bycatch or other anthropogenic causes of mortality). Bycatch is common in the most abundant cetacean species in Europe, but is comparatively rare in Bottlenose Dolphins and virtually unrecorded in recent years for Killer Whales, suggesting that the on-going population declines in these two species are predominantly driven by other processes, with bioaccumulation of PCBs through marine food chains being the predominant factor’.

> Two other toxicological studies on UK-stranded HPs were published in 2015. The first showed PCB exposure in blubber of 329 UK-stranded female HPs (1990-2012) (Murphy et al. 2015). In sexually mature females, 25/127 (19.7%) showed direct evidence of reproductive failure (foetal death, aborting, dystocia or stillbirth). A further 21/127 (16.5%) had infections of the reproductive tract or tumours of reproductive tract tissues that could contribute to reproductive failure. Resting mature females (non-lactating or non-pregnant) had significantly higher mean Σ PCBs (18.5 mg/kg) than both lactating (7.5 mg/kg) and pregnant females (6 mg/kg), though not significantly different to sexually immature females (14.0 mg/kg). Blubber Σ PCBs were found to be a significant predictor of mature female reproductive status, with resting (non-pregnant) females more likely to have a higher PCB burden. HPs that died of infectious disease were significantly less likely to be pregnant than “healthy” trauma cases. Lactating females were also more likely to be in good health status compared to other individuals. Based on PCBs (>11 mg/kg lipid), at least 29/60 (48%) of resting females had not fully offloaded their PCB burden via gestation/lactation - consistent with foetal or newborn mortality. A much lower pregnancy rate of 50% was estimated for “healthy” females that died of traumatic causes of death, compared to other HP populations in more pristine environments that calve annually (e.g. Iceland; Greenland).

> The second HP toxicology study published in 2015 analysed a suite of 20 organophosphorus flame retardant compounds in blubber and liver tissue of 20 UK-stranded HPs during 2012 (Papachlimitzou et al. 2015). Fourteen of the twenty compounds were below the limits of quantification in all samples. Six could be quantified at maximum concentrations (in blubber) between 6.7 and 246 lg kg₋₁ wet weight. These levels do not suggest a high level of concern regarding potential impacts.

The study of temporal trends of PCBs in UK harbour porpoises was extended to include animals stranded up to the end of 2013 (now 1990-2013). PCB concentrations have shown no significant decline since 1997 following earlier reductions due to regulation of commercial use. However, Scotland is showing the beginning of a decline, which could become significant with more data. 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). Samples from 2014 have been analysed in early 2016 and results will be discussed in next year’s report.

> 20 harbour porpoises stranded in 2011 and 2012 have been analysed for levels of dioxins and dioxin-like PCBs in their blubber. Dioxin-like toxicity effect quotients (TEQs) for all samples were well below thresholds calculated to cause effects in marine mammals. The greatest contribution to TEQs came from dioxin-like PCBs, except for some samples from Scotland where polychlorinated dibenzofurans (PCDFs) had a higher contribution, generally because PCB levels were lower. TEQ values were similar to those found around Scotland and the North Sea around the late 1990s, in support of our studies that show that non-dioxin-like PCBs concentrations are stable in UK harbour porpoises. Submission of a manuscript for publication is anticipated in 2016 (Losada et al, (tbc)).

Finally, during 2015, twenty additional harbour porpoise blubber and liver samples were sent to CEFAS by the CSIP. Temporal trends of two other classes of contaminant are being assessed by analysing their concentrations in UK harbour porpoises. Hexabromocyclododecane (HBCDD) is being analysed in blubber of 20 animals stranded in 2014 and a suite of 15 perfluorinated chemicals, including perfluorooctane sulphonate (PFOS), is being analysed in liver of 51 animals stranded from 2012-2014. These classes of contaminants were last analysed in UK samples in 2006 and 2003, respectively. Results will be available in 2016.

> • Gajdosechova, Zuzana, Andrew Brownlow, Nicolas T. Cottin, Mariana Fernandes, Fiona L. Read, Dagmar S. Urgast, Andrea Raab, Jörg Feldmann, Eva M. Krupp. Possible link between Hg and Cd accumulation in the brain of long-finned pilot whales (*Globicephala melas*). *Science of the Total Environment* 545-546 (2016) 407-413. [available online in 2015]

• Jepson, P.D., Deaville R, Barber J.L., Aguilar À, Borrell A, Murphy S, Barry J, Brownlow A, Barnett J, Berrow S, Cunningham AA, Davison N.J., ten Doeschate M, Esteban R, Ferreira M, Foote AD, Genov T, Giménez J, Loveridge J, Llavana À, Martin V, Maxwell DL, Papachlimitzou A, Penrose R, Perkins MW, Smith B, de Stephanis R, Tregenza N, Verborgh P, Fernandez A and Law R.J. (2016) PCB pollution continues to impact populations of orcas and other dolphins in European waters. *Scientific Reports* 6: 18573 doi:10.1038/srep18573

• Murphy, S., Barber, J.L., Learmonth, J.A., Read, F.L., Deaville, R., Perkins, M.W., Brownlow, A., Davison, N., Penrose, R., Pierce, G.J., Law, R.J. and Jepson, P.D. (2015) Reproductive Failure in UK Harbour Porpoises (*Phocoena phocoena*): Legacy of Pollutant Exposure? *PLoS ONE*, DOI:10.1371/journal.pone.0131085

• Papachlimitzou A., Losada S., Barber J.L., Bersuder P., Deaville R., Brownlow A, Penrose R., Jepson P.D. and Law R.J. (2015) Organophosphorus flame retardants (PFRs) and plasticisers in harbour porpoises (*Phocoena phocoena*) stranded or bycaught in the UK during 2012. *Marine Pollution Bulletin* Available online 19 June 2015, ISSN 0025-326X <http://dx.doi.org/10.1016/j.marpolbul.2015.06.034>

> Pending, and expected in 2016:

Sara Losada, Jonathan L. Barber, Philippe Bersuder, Joanna Uzyczak, Malgorzata Wilczynska, Rob Deaville, Andrew Brownlow, Rod Penrose, Paul D. Jepson, Robin J. Law. PCDDs, PCDFs and dioxin-like CBs in harbour porpoises (*Phocoena phocoena*) stranded or bycaught in the UK during 2011-2012. [date and journal tbc]

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 offshore 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, in Welsh inshore waters Natural Resources Wales has the responsibility, and in Northern Ireland Inshore Waters this responsibility lies with the Department of the Environment (DEO). As wildlife licensing authorities, the MMO, Marine Scotland, and NRW 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.

Marine Scotland has produced guidance for marine users who are planning to carry out an activity in the marine environment which has the potential to deliberately or recklessly kill, injure or disturb a marine European Protected Species. The guidance can also be used by regulators, nature conservation agencies, enforcement authorities and competent authorities when considering whether an activity will cause or has caused death, injury or disturbance to a marine EPS. It has been prepared by Scottish Government (SG) in partnership with Scottish Natural Heritage (SNH) and can be found at the following link: <http://www.gov.scot/resource/0044/00446679.pdf>.

> 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>.

> During 2015, a PhD study (School of Ocean Sciences, University of Bangor) on the possible effects of recreational disturbance upon bottlenose dolphins in Cardigan Bay was started in collaboration with Sea Watch Foundation. The aim of this study is to investigate both short- and long-term impacts, and, working with the management authorities (NRW, Ceredigion and Gwynedd Councils) and key stakeholders, to develop appropriate measures to minimize possible effects. Studies include measurements of avoidance behaviour, dive patterns, spatial displacement, and changes in vocalizations of the dolphins.

> 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 at risk.

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.

> The following Natura sites are in place in the UK for Bottlenose dolphin or Harbour porpoise as either a qualifying or non-qualifying features:

[Excel file attached at the end of the document.]

> 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>.

The UK Statutory Nature Conservation Bodies (SNCBs) have continued work to identify potential SACs for harbour porpoise. A formal consultation on five possible SACs for harbour porpoise located in the waters of Wales, England, Northern Ireland and the offshore area was launched in January 2016. Responses to the consultation are currently being considered.

> Scotland:

The initial stages of the work to identify a Special Area of Conservation (SAC) for harbour porpoise in the West Scotland Management Unit (MU) (IAMMWG, 2015a) began late 2015. A formal consultation on a possible SAC for harbour porpoise in Scottish waters was launched in March 2016.

Monitoring work is ongoing in the Moray Firth and Firth of Tay for bottlenose dolphin. Aspects of this work have been ongoing for 25 years. See Thompson, P.M. & Hewitt, R. (2015) University of Aberdeen Lighthouse Field Station; 25 years of teaching and research in Cromarty. Available at:

http://www.abdn.ac.uk/lighthouse/documents/25th_Anniversary_Book.pdf. From 2013, Marine Scotland Science has deployed an array of Chelonia Ltd CPOD cetacean detectors around the east coast of Scotland (the ECOMMAS project). In addition to the ECOMMAS array, the University of Aberdeen Lighthouse Field Station has also been collecting CPOD data in the Moray Firth since 2008. Together these projects have resulted in an extensive dataset which are currently being analysed and a full report will be made available in due course.

See Williamson LD, Brookes KL, Scott BE, Graham IM, Bradbury G, Hammond PS, Thompson PM (2016) Echolocation detections and digital video surveys provide reliable estimates of the relative density of harbour porpoises. *Methods in Ecology and Evolution*, online in advance of print <http://dx.doi.org/10.1111/2041-210X.12538>

In 2014, formal advice was submitted to the Scottish Government advising on three NCMPAs to protect important areas on Scotland's west coast specifically for minke whales and Risso's dolphins. 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/). A consultation on these sites is expected to be undertaken in 2016. For further information on all NC MPA sites, visit the SNH webpages: <http://www.gov.scot/Topics/marine/marine-environment/mpanetwork>

> Whale and Dolphin Conservation (WDC) conducted boat based field surveys off the north-east coast of the Isle of Lewis, in the Eye Peninsula to Butt of Lewis MPA Search Location in the summer of 2015. They produced the following report that is relevant to cetacean issues in the ASCOBANS region: 'The necessity of

Management Options for effective harbour porpoise conservation in the UK: Case studies of emerging Areas of Concern. 2015.':

http://uk.whales.org/sites/default/files/wdc_harbour_porpoise_management_options_rpt_2015.pdf

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. (2015). How much effort is enough? The power of citizen science to monitor trends in coastal cetacean species. (Global Ecology and Conservation, 3, 867-877).

> Wales:

Consideration of Special Areas of Conservation (SACs) for harbour porpoise in the Celtic and Irish Seas Management Unit (MU) (IAMMWG, 2015a) is currently underway. Three sites around Wales have been proposed (www.naturalresources.wales/mn2k).

Natural Resources Wales (NRW) commissioned the monitoring of bottlenose dolphin and harbour porpoise in Cardigan Bay and Pen Llŷn a'r Sarnau Special Areas of Conservation in 2015. Boat-based line-transect surveys of bottlenose dolphins and harbour porpoise were undertaken around Cardigan Bay and Pen Llŷn a'r Sarnau SACs 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, and harbour porpoises in the region.

Twenty-one surveys were undertaken between April and October 2015, covering a total of 2,028 km, and yielding 93 bottlenose dolphin sightings and 44 harbour porpoise sightings (Lohrengel & Evans, 2016).

Abundance estimates from line-transects for the wider Cardigan Bay were 277 bottlenose dolphins (CV=35.87%) and 64 (CV=64.6%) within Cardigan Bay SAC (but note the wide confidence limits). The equivalent abundance estimates for harbour porpoise were 291 (CV=42.40%) in the wider Cardigan Bay, and 183 (CV=64.6%) for Cardigan Bay SAC.

Using a closed population model, mark-recapture population estimates from photo-ID yielded 159 (95% CL=130-228) bottlenose dolphins within Cardigan Bay SAC, and 222 (95% CL=184-300) for the wider Cardigan Bay. Bottlenose dolphin birth rates in 2015 using a closed population model were 6.8% in Cardigan Bay SAC and 5.8% in the entire Cardigan Bay. These compare with long-term (2001-15) averages of 5.3% in Cardigan Bay SAC and 6.3% in the wider Cardigan Bay.

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).

> 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. Four new MCZs have been proposed and the formal consultation ran from December 2015 until March 2016.

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).

> The boundaries of the harbour porpoise possible SACs currently undergoing consultation can be obtained by emailing JNCC at porpoise@jncc.gov.uk

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>

Surveys and Research

4.1 Abundance, Distribution, Population Structure

Overview of Research on Abundance, Distribution and Population Structure

> The Joint Cetacean Protocol (JCP) project (see <http://jncc.defra.gov.uk/page-5657>) was initiated in 2006. The JCP assembled disparate effort-related cetacean sightings datasets from all major sources covering north-west European Atlantic waters e.g. SCANS I and 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 JCP III report has recently been published (<http://jncc.defra.gov.uk/page-7201>).

> The UK is supporting the SCANS III survey which is being coordinated by the University of St Andrews. The survey began in June 2016 and aims to cover continental shelf and offshore waters of northwest Europe. The project will deliver updated abundance estimates for the most frequently seen species and will report in 2017.

> Natural Resources Wales (NRW) commissioned the monitoring of bottlenose dolphin in Cardigan Bay and Pen Llŷn a'r Sarnau Special Areas of Conservation in 2015 (Lohrengel & Evans 2016). 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).

> During June 2015, Sea Watch Foundation (SWF) organized a simultaneous cetacean & seabird line-transect survey of the Minch, West Scotland, in collaboration with the RSPB. The aim was to a) determine whether cetaceans and seabirds shared the same hotspots, and to examine environmental drivers of their distributions; and b) compare the at sea distributions of feeding auks (razorbills & guillemots) with those derived from birds from the Shiant Isles GPS tagged by the Royal Society for the Protection of Birds (RSPB). A total of 1,300 km were surveyed using double platform Distance methodology, resulting in 341 sightings/1,103 individuals of nine marine mammal species (seven cetaceans: harbour porpoise, minke whale, short-beaked common dolphin, white-beaked dolphin, Risso's dolphin, bottlenose dolphin, and humpback whale). The survey will enable abundance estimates to be derived for the commoner species, and help inform proposals for protected areas for harbour porpoise, minke whale and Risso's dolphin in the region.

> In 2015-16, as part of the NERC funded Marine Ecosystems Research Programme (MERP), SWF observers started to undertake cetacean & seabird surveys aboard Bangor University's research vessel 'Prince Madog' and the Cefas research vessel 'Cefas Endeavour'. These surveys cover mainly areas in the Celtic Sea and Irish Sea, but also off SW and eastern England. More coastal surveys have also been undertaken on a regular basis off the Yorkshire coast using whale watch vessels as platforms of opportunity. Also, as part of MERP, survey data sets of cetacean sightings, physical oceanographic variables and prey data from the last 30 years are being compiled to examine potential environmental drivers of spatio-temporal patterns in distributions of all regular cetacean species occurring in NW European waters.

> The Hebridean Whale and Dolphin Trust (HWDT) continued visual and acoustic line-transect surveys of the west of Scotland from their sailing research vessel *Silurian*. These surveys have been conducted annually between April and October since 2003 amounting to over 48,000 nautical miles of coverage in the study area (from the Mull of Kintyre to Cape Wrath and west of the Outer Hebrides). During 2015, 4,700 nautical miles of visual and acoustic effort was conducted over 790 hours in mostly good sea conditions resulting in 966 cetacean sightings. Since 1992, HWDT has also had a long-standing collaborative research project with Sea Life Surveys (<http://www.sealifesurveys.com>). During 2015, Sea Life Surveys contributed 4,900 nautical miles and 920 hours of survey effort data resulting in 489 cetacean sightings to the HWDT. Using the same methodology as Sea Life surveys a new research collaboration was formed with Elizabeth G, a live-aboard wildlife and scenery cruise boat which carries out cruises throughout the Hebrides. These data are used by SNH, Marine Scotland and JNCC to inform the boundaries of some proposed MPAs and SACs. HWDT uses the data to inform planning application submissions; namely objections to the use of acoustic deterrent devices on finfish aquaculture pens in areas known to support high relative abundances of cetaceans. In addition to the dedicated surveys carried out by the HWDT research vessel *Silurian*, HWDT also hold an incidental sightings database which is contributed to by members of the public via the HWDT website (<http://www.whaledolphintrust.co.uk>). Between January and December 2015, 1,247 sightings of 11 species of cetacean were reported. These data are particularly useful for monitoring bottlenose dolphins, as due to their coastal distribution they are often under-represented in the HWDT dedicated survey data.

> Data on the distribution of human activities known such as creels, acoustic deterrent devices and floating litter are also recorded with a view to assessing risk to cetaceans (e.g. acoustic disturbance and entanglement). A total of 38 minke whales were photo-identified during 2015 which are being added to HWDT's catalogue which has data from each year since 1990 and consists of 223 individuals. In 2014 HWDT was commissioned to write a report on ghost gear and entanglement in cetaceans. The primary finding was that box packing straps are a source of entanglement in minke whales, particularly around the rostrum (Ryan and Froud, 2015). HWDT collaborated widely with researchers in the UK and abroad during 2015:

- Ryan, C., Froud, K., Harries, O., van Geel, N., Calderan, S. (2015). Is the cetacean community of Western

Scotland changing? Presentation at the 29th Annual Conference of the European Cetacean Society, Malta, March 2015.

- Ryan, C., MacLeod, G., Dinsdale, C. and Cook, S. (In Review). Long-term association between a solitary short-beaked common dolphin *Delphinus delphis* and a harbour porpoise *Phocoena phocoena*. *Marine Biodiversity Records*.
- Cucknell, A-C., Frantzis, A., Boisseau, O., Romagosa, M., Ryan, C., Tonay, A. M., Alexiadou, P., Öztürk, A. A. and Moscrop, A. (In Review). Harbour porpoises in the Aegean Sea, Eastern Mediterranean; the species' presence is confirmed. *Marine Biodiversity Records*.
- Ryan, C., Whooley, P., Berrow, S.D., Barnes, C., Massett, N., Strietman, W.J., Broms, F., Stevick, P.T., Fernald Jr, T.W. and Schmidt, C. (2015). A longitudinal study of humpback whales in Irish waters. *Journal of the Marine Biological Association of the United Kingdom*, In Press.
- van Geel, N. (In prep). Bottlenose dolphin (*Tursiops truncatus*) movement patterns on the west coast of Scotland. PhD Thesis. Scottish Association for Marine Science.

> WDC conducted photo-ID surveys off the Isle of Lewis in Scotland and from Bardsey Island in North Wales in 2015. 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 went live during 2015 and is a 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/).

> In 2015 AFBI began collecting photo-ID images for bottlenose dolphins via social media and collated this with data collected by the Department of Environment for Northern Ireland and from the Irish Whale and Dolphin Group sighting scheme. Identifications will be cross-checked and where appropriate individuals will be incorporated into existing catalogues. Results from the work are due to be published in 2016.

4.2 Technological Developments

New Technological Developments

> A large research project on marine mammals, 'Marine Mammal Scientific Support Research Programme (MMSSRP)', was carried out by the Sea Mammal Research Unit with Scottish Government funding. It began in 2012 and the first phase was completed in 2015. A summary of the major findings is available here: http://www.smru.st-andrews.ac.uk/documents/scotgov/MMiS_scientific_research_supporting_policy.pdf One of the outputs of this research was a comprehensive study of the behaviour of marine mammals in areas of high tidal energy and was jointly funded by Scottish Natural Heritage and Marine Scotland in 2015. The tidal energy in the waters around the Inner and Outer Hebrides and Orkney Islands represents a considerable resource that will necessarily form part of Scotland's offshore renewable energy programme. There is, however, concern over the potential for interaction between marine mammals and tidal turbines. The most obvious, and probably the most important interaction at least in terms of public perception, is the potential for injuries or fatalities resulting from direct contact with moving parts of tidal power devices. The 'Demonstration strategy: Trialling Methods for Tracking the Fine Scale Underwater Movements of Marine Mammals in Areas of Marine Renewable Energy Development' developed and tested both passive and active acoustic monitoring systems for tracking the fine scale movements of marine mammals around tidal energy devices. These systems will be developed with a view to implementation at the first tidal energy projects to be deployed in Scottish waters to allow an understanding of the risk of direct interactions between marine mammals and tidal turbines. The project is being undertaken by the University of St Andrews and will report in spring 2016. A topic sheet providing more information on this project can be found online; see <http://www.gov.scot/Resource/0045/00458981.pdf> and <http://www.gov.scot/Topics/marine/Publications/TopicSheets/tslist/tracking>.

> Another relevant study - 'Tests of acoustic signals for aversive sound mitigation with harbour seals' - was carried out under phase one of MMSSRP and its outputs were published in 2015. The project focused mainly on harbour seals but it also make reference to mechanisms designed to minimise the risk of disturbing harbour porpoise and other sensitive cetaceans from anthropogenic activities that produce intense sound in the marine environment. The mitigation measures to minimise the risk of causing damage or injury are often a requirement when licences are issued to carry out risky activities in the marine environment. More information on this project can be found online <http://www.smru.st-andrews.ac.uk/pageset.aspx?psr=152#mr> A second phase of MMSSRP began in May 2015 and involves a 5 year programme which will be looking at three main issues, one of them being the impacts of Marine Renewable Energy on marine mammals.

> During 2015 the SMRU completed a Natural Environment Research Council (NERC) funded 'Knowledge Exchange' project. Designing and building an autonomous device to track harbour porpoise movements in tidal rapids. A report is available here: http://www.smru.st-and.ac.uk/documents/nerc/NERC_MRE_KEP_Tracking_Harbour_Porpoises_in_Tidal_Rapids.pdf

> ECOMMAS (East Coast Marine Mammal Acoustic Studies)

Ongoing project delivered by Marine Scotland Science. The array of acoustic loggers to detect harbour porpoises and dolphins along the east coast of Scotland will be deployed again in 2016, for the fourth consecutive year. The results will be used to inform impact assessments for renewables developments and also to provide data for reporting on MSFD Descriptor 11. More info on this can be found here: <http://www.gov.scot/Topics/marine/science/Publications/TopicSheets/ECOMMAS>

> 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.

> Natural Resources Wales working with SMRU Consulting, Sea Mammal Research Unit and the Scottish Association of Marine Sciences have recently published a new set of guidance on marine mammal surveying requirements at wave and tidal stream energy sites in Wales. This report now provides a framework for assessing risk to marine mammals from wave and tidal stream developments and provides guidance on how to tailor surveys to provide better information for impact assessments (Sparling et al 2015).
Sparling C, Smith K, Benjamins S, Wilson B, Gordon J, Stringell T, Morris C, Hastie G, Thompson D & Pomeroy P (2015) Guidance to inform marine mammal site characterisation requirements at wave and tidal stream energy sites in Wales. NRW Evidence Report Number 82. 87pp. Natural Resources Wales, Bangor. Available at: <https://naturalresources.wales/our-evidence-and-reports/guidance-to-inform-marine-mammal-and-tidal-stream-energy-sites-in-wales/?lang=en>

4.3 Other Relevant Research

> The following publications have been supplied by Government, UK Contracted Scientists, and the voluntary sector:

> • Barnett, J., Dastjerdi, A., Davison, N., Deaville, R., Everest, D., Peake, J., Finnegan, C., Jepson, P., Steinbach, F. (2015) Identification of Novel Cetacean Poxviruses in Cetaceans Stranded in South West England. PLoS ONE 10(6): e0124315. doi:10.1371/journal.pone.0124315

• Bertulli, C.G., Galatius, A., Kinze, C.C., Rasmussen, M.H., Deaville, R., Jepson, P., Vedder, E.J., Sánchez Contreras, G.J., Sabin, R.C. and Watson, W. (2015) Vertebral column deformities in white-beaked dolphins from the eastern North Atlantic. *Diseases of Aquatic Organisms* 116: 59-67

• Boys, R. (2015) Fatal Interactions between Bottlenose Dolphins (*Tursiops truncatus*) and Harbour Porpoises (*Phocoena phocoena*) in Welsh Waters. BSc thesis, University of Bangor. 133pp.

• Davison, N.J., Brownlow, A., McGovern, B, Dagleish, M.P., Perrett L.L., Dale E-J., Koylass, M, Foster, G. (2015) First report of *Brucella ceti*-associated meningoencephalitis in a long-finned pilot whale *Globicephala melas*. *Diseases of Aquatic Organisms* 116;237-241 doi:10.3354/dao02926 27/10/15

• 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. (editor) (2015) Introducing noise into the marine environment – what are the requirements for an impact assessment for marine mammals? Proceedings of an ECS / ASCOBANS / ACCOBAMS Joint Workshop held at the 28th Annual Conference of the European Cetacean Society, Liège, Belgium, 6 April 2014. ECS Special Publication Series No. 58: 1-113.

• Evans, P.G.H. and Anderwald, P. (2016) Addressing human pressures upon marine mammals: a European and global perspective. *Journal of the Marine Biological Association of the United Kingdom*, 1-3. doi:10.1017/S0025315416000539.

• 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., Pierce, G.J., Veneruso, G., Weir, C.R., Gibas, D., Anderwald, P., and Santos, M.B. (2015) Analysis of long-term effort-related land-based observations to identify whether coastal areas of harbour porpoise and bottlenose dolphin have persistent high occurrence and abundance. JNCC Report No: 543. 147pp.

> • Fernández, R., Schubert, M., Vargas-Velázquez, A.M., Brownlow, A., Vikingsson, G.A., Siebert, U., Jensen, L.F., Øien, N., Wall, D., Rogan, E., Mikkelsen, B., Dabin, W., Alfarhan, A.H., Alquraishi, S.A., Al-Rasheid, A.S., Guillot, G., Orlando, L. (2015). A genomewide catalogue of single nucleotide polymorphisms in white-beaked and Atlantic white-sided dolphins. *Molecular Ecology Resources*, doi: 10.1111/1755-0998.12427.

• Foster, G., Whatmore, A.M., Dagleish, M.P., Baily, J.L. Deaville, R., Davison, N.J., Koylass, M.S., Perrett, L.L., Stubberfield, E.J., Reid, R.J. and Brownlow, A.C. (2015) Isolation of *Brucella ceti* from a long-finned pilot whale (*Globicephala melas*) and a Sowerby's beaked whale (*Mesoploden bidens*) *Journal of Wildlife Diseases*, 51(4). DOI: 10.7589/2014-04-112

• Frinault, B.A.V. (2015) Maritime traffic effects on the semi-resident population of bottlenose dolphins,

- Tursiops truncatus*, inhabiting Cardigan Bay, West Wales. BSc thesis, University of Bangor. 72pp.
- 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.
 - IJsseldijk, L.L., Leopold, M.F., Rebelledo, R.B., Deaville, R., Haelters, J., IJzer, J., Jepson, P.D., Gröne, A. (2015) Fatal Asphyxiation in Two Long-finned Pilot Whales (*Globicephala melas*) Caused by Common Soles (*Solea solea*) PLoS One, DOI: 10.1371/journal.pone.0141951
 - James, K. (2016) National Whale and Dolphin Watch 2015 Report. Sea Watch Foundation, New Quay, Wales. 29pp. <http://www.seawatchfoundation.org.uk/wp-content/uploads/2015/03/NWDW2014.pdf>.
 - Jensen, S-K., Lacaze, J.P., Hermann, G., Kershaw, J., Brownlow, A., Turner, A. and Hall, A. (2015) Detection and effects of harmful algal toxins in Scottish harbour seals and potential links to population decline. *Toxicon* 97: 1-14
 - Lohrengel, K. and Evans, P.G.H. (2016) Bottlenose dolphin and harbour porpoise monitoring in Cardigan Bay and Pen Llŷn a'r Sarnau Special Areas of Conservation. Interim Report to Natural Resources Wales. Sea Watch Foundation, New Quay, Ceredigion. 85pp.
 - Monteiro, S.S., Ferreira, M., Vingada J.V., López, A., Brownlow A, and Méndez-fernandez P. (2015). Application of Stable Isotopes to Assess the Feeding Ecology of Long-Finned Pilot Whale (*Globicephala Melas*) in the Northeast Atlantic Ocean. *Journal of Experimental Marine Biology and Ecology* 465: 56-63.
 - Monteiro, S.S., Méndez-Fernandez, P., Piertney, S., Moffat, C.F., Ferreira, M., Vingada, J.V., López, A., Brownlow, A., Jepson, P., Mikkelsen, B., Niemeyer, M., Carvalho, J.C. and Pierce, G.J. (2015) Long-finned pilot whale population diversity and structure in Atlantic waters assessed through biogeochemical and genetic markers. *Marine Ecology Progress Series* 536: 243-257 DOI: 10.3354/meps11455
 - Murphy, S., Barber, J.L., Learmonth, J.A., Read, F.L., Deaville, R., Perkins, M.W., Brownlow, A., Davison, N., Penrose, R., Pierce, G.J., Law, R.J. and Jepson, P.D. (2015) Reproductive Failure in UK Harbour Porpoises (*Phocoena phocoena*): Legacy of Pollutant Exposure? PLoS ONE, DOI:10.1371/journal.pone.0131085
 - 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>
- > • 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.
- Papachlimitzou A., Losada S., Barber J.L., Bersuder P., Deaville R., Brownlow A, Penrose R., Jepson P.D. and Law R.J. (2015) Organophosphorus flame retardants (PFRs) and plasticisers in harbour porpoises (*Phocoena phocoena*) stranded or bycaught in the UK during 2012. *Marine Pollution Bulletin* Available online 19 June 2015, ISSN 0025-326X <http://dx.doi.org/10.1016/j.marpolbul.2015.06.034>.
 - Register, K.B., Ivanov, Y., Harvill, E.T., Davison, N. and Foster G. (2015) Novel, host-restricted genotypes of *Bordetella bronchiseptica* associated with respiratory tract isolates. *Microbiology* 161, 580-592
 - Ryan, C. and Froud, K. 2015. Documenting Ghost Fishing Gear and Cases of Cetacean Entanglement in Western Scotland. Report to World Animal Protection. Hebridean Whale and Dolphin Trust, Tobermory, Isle of Mull, UK. Pp. 15.
 - Sim, T.M.C. (2015) Associations or alliances? Comparisons of social relationships between male bottlenose dolphins (*Tursiops truncatus*) in Cardigan Bay and the Moray Firth. MSc thesis, University of Bangor. 102pp.
 - Taylor, V.C. (2015) Spatio-Temporal Variation in the Social Network of the Welsh Bottlenose Dolphin (*Tursiops truncatus*) Population, MSc thesis, University of Bangor. 102pp.
 - Villar, D., Berthelot, C., Aldridge, S., Rayner, T., Lukk, M., Muffato, M., Park, T., Deaville, R., Erichsen, J., Murchison, E.P., Jasinska, A.J., Turner, J.M.A., Limb, A., Flicek, P. and Odom, D.T. (2015) Enhancer evolution across twenty mammals. *Cell*. 160, 554-566

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

Scottish Marine Animal Strandings Scheme (SMASS)

Contact point - Dr Andrew Brownlow, SRUC, Drummondhill, Stratherrick Road, Inverness, IV2 4JZ

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

tom.stringell@naturalresourceswales.gov.uk

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

[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.

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)

5.4 Database

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

> The CSIP holds data on nearly 13000 cetaceans, which were reported, stranded around the UK between

1990 and 2015. In addition, detailed pathological data is also held on over 3600 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/).

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.

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.

Activities and Results

5.6 Necropsies

Number of necropsies carried out in the reporting period

	Number	Recorded cause of death
<i>Phocoena phocoena</i>	55	Bycatch (n=9); Starvation (neonate) (n=7); Physical Trauma (n=4); Live Stranding (n=4); Bottlenose Dolphin Attack (n=3); Grey Seal Attack (n=3); Pneumonia, Parasitic (n=3); Gastritis and/or Enteritis (n=3); Starvation (n=2); Generalised Bacterial Infection (n=2); Others (n=2); Dystocia & Stillborn (n=1); Neoplasia (n=1); Not Established (n=2); Pending (n=9)
<i>Tursiops truncatus</i>	1	Bycatch (n=1)
<i>Delphinus delphis</i>	24	Bycatch (n=5); Live Stranding (n=4); Others (n=4); Starvation (n=2); Physical Trauma (n=2); Generalised Bacterial Infection (n=2); Physical Trauma, Boat/Ship Strike (n=1); Gastritis and/or Enteritis (n=1); Pending (n=3)
<i>Stenella coeruleoalba</i>	7	(Meningo)encephalitis (n=4); Gastritis and/or Enteritis (n=1); Pending (n=2)
<i>Grampus griseus</i>	4	Physical Trauma, Boat/Ship Strike (n=1); Live Stranding (n=1); (Meningo)encephalitis (n=1); Not Established (n=1)
<i>Globicephala melas</i>	11	Live Stranding (n=9); Dystocia & Stillborn (n=1); Bottlenose Dolphin Attack (n=1)
<i>Globicephala macrorhynchus</i>		
<i>Lagenorhynchus albirostris</i>	4	Live Stranding (n=4)
<i>Lagenorhynchus acutus</i>		
<i>Orcinus orca</i>		
<i>Hyperoodon ampullatus</i>		
<i>Mesoplodon bidens</i>	1	(Meningo)encephalitis (n=1)
<i>Kogia breviceps</i>	1	Live Stranding (n=1)
Other (please specify under number)	4 (Balaenoptera acutorostrata)	Entanglement (n=2); Entanglement (known) (n=1); Gastritis and/or Enteritis (n=1)
Other (please specify under number)	2 (Balaenoptera physalus)	Physical Trauma, Boat/Ship Strike (n=1); Starvation (n=1)
Other (please specify under number)	1 (Megaptera novaeangliae)	Entanglement (n=1)
Other (please specify under number)	1 (Ziphius cavirostris)	Live Stranding (n=1)
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 are provisional and pending the results of follow up analyses.

Finalised causes of death will be given in the CSIP 2015 annual report to Defra and the Devolved Governments of Scotland and Wales, 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>.

> Other relevant information on post-mortem / stranding schemes:

- Brownlow, A., Baily, J., Dagleish, M., Deaville, R., Foster, G., Jensen, S-K., Krupp, E., Law, R., Penrose, R., Perkins, M., Read, F. and Jepson, P. (2015) Investigation into the long-finned pilot whale mass stranding event, Kyle of Durness, 22nd July 2011. Report to Defra and Marine Scotland.

http://sciencesearch.defra.gov.uk/Document.aspx?Document=12547_KyleofDurnessmasstrandingeventreport.pdf

- Deaville, R. (compiler) (2015) UK Cetacean Strandings Investigation Programme annual report, 2014 http://sciencesearch.defra.gov.uk/Document.aspx?Document=12562_Final_UK_CSIP_Annual_Report_2014.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/>

> Marine Environmental Monitoring – sub-contractors in Wales for the CSIP programme – also produce an annual report. A link to the most recent report is attached.

<http://www.strandings.com/Graphics%20active/2014%20Marine%20Mammal%20Strandings%20Annual%20Report.pdf>

The Welsh Government also provides additional funding to Marine Environmental Monitoring for the maintenance of Seal and Turtle strandings databases, and other stranding-related work.

> The Department of the Environment (DoE) for Northern Ireland Marine Division (Department of Agriculture, Environment and Rural Affairs DAERA as of 9th May 2016) 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. In 2015 AFBI opportunistically conducted post-mortem examinations on a juvenile fin whale and common dolphin. Post-mortem reports and samples were forwarded to CSIP.

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>

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 'Sunset Safari' at ZSL during July 2015 (featuring skeletal and pathological material from the programme). CSIP staff from the Natural History Museum (NHM) and ZSL helped run exhibits on UK strandings/cetaceans at 'Science Uncovered' at the NHM on 25th September. Skeletal material, parasites and fixed material were on display, along with video footage of necropsies carried out at ZSL. 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 2015 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>

> Scottish Marine Animal Strandings Scheme (SMASS) Volunteer Outreach Programme:

Since early 2013, significant effort has been put into increasing the reporting of strandings to the Scheme and increasing the availability of strandings data to both the scientific community and members of the public. In early 2014 a succession of volunteer training courses were undertaken with the aim of providing the Scheme with a network of trained volunteers able to visit strandings and accurately collect photos, data and samples from animals not deemed suitable for collection and necropsy. This citizen science programme has proved very useful and its development is on-going. In 2015 SMASS had a total of 100 trained stranding volunteers with at least one volunteer on North, South, East and West coasts. Courses and equipment are provided free of charge and training sessions are held throughout Scotland. Facebook and Twitter pages were set up in October 2012. The Scheme post regular stranding reports, selected photos and requests for information on strandings on both. Feedback has generally been good and at the end 2015 Facebook had over 3700 likes and Twitter had 414 followers. Both still prove a valuable resource for the reporting of strandings to the scheme. On 16 June 2015 UK CSIP, SMASS and staff at Edinburgh University met up with the Dutch Stranding scheme with aim of revising the European necropsy procedure and foster closer links between the UK and Dutch Schemes. This resulted in the following paper presented at ICES in Copenhagen, Denmark on 24/09/2015: Mariel ten Doeschate, Andrew Brownlow, Nick Davison, Rob Deaville, Paul Jepson, Graham Pierce, Fiona Read, Paul Thompson. "The pathology of strandings data: methods to improve the ecological value of the strandings record as a monitoring tool".

> The fourteenth annual National Whale and Dolphin Watch week was organised by Sea Watch Foundation between 25 July and 2 August 2015. Dedicated effort-based watches were conducted at 113 land sites and onboard 27 vessels around the British Isles from Shetland to the Isle of Scilly and Channel Islands. More than 1,500 persons participated in the event with 1,150 hours of observation effort, resulting in c. 950 sightings (totalling c. 5,000 individuals) involving thirteen cetacean species (in descending order of frequency: harbour porpoise, bottlenose dolphin, short-beaked common dolphin, minke whale, Risso's dolphin, white-beaked dolphin, killer whale, long-finned pilot whale, fin whale, beluga whale, humpback whale, Atlantic white-sided dolphin, and striped dolphin). The event received widespread regional and national media coverage. A full report has been published (see <http://www.seawatchfoundation.org.uk/wp-content/uploads/2016/02/NWDW2015.pdf> (James, 2015)).

Sea Watch continued to run a Dolphin Adoption scheme aimed particularly at children, to encourage them to get directly involved with the conservation of photo-identified individual dolphins and to follow their fortunes. Other educational and public awareness programmes were undertaken throughout the UK, with displays, lectures, training courses and social media postings, the latter estimated to reach over 10,000 people. More than 3,000 people from all around the British Isles contribute to SWF's national observer network as part of its long-standing citizen science programme, with effort-related shore watches (see Evans et al., 2016), offshore surveys (for which dedicated recording apps have been developed), and the reporting of casual sightings via an on-line recording template that is linked to a database. The latter resulted in a report of the first record of a bowhead whale in Europe, when one was seen and photographed in the Isles of Scilly in February 2015. A bowhead whale was also seen off mainland Cornwall and then Carlingford Lough in Northern Ireland, in May 2016, but it has not been possible to identify the animal(s) to determine whether the sightings are of one or several animals. This may therefore represent a new addition to the UK systematic list of marine mammal species.

> 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.

> HWDT conducted 28 events and engaged with a minimum of 1323 people in isolated coastal communities during 2015. The events comprised of a variety of workshops and public presentations about cetacean diversity, conservation issues and training on species identification to encourage participation in the Trust's Community Sightings Network. In addition, HWDT's education program delivered workshops to 1171 pupils in 28 schools across the Inner Hebrides (Mull, Islay, Colonsay, Tiree, Coll, Rum, Eigg, Easdale), Outer Hebrides (Barra, the Uists and Harris) and the west coast mainland (Oban, Fort William, Mallaig, Ullapool). The

education programme includes land-based school visits, 'floating classroom' workshops on board the research vessel Silurian and collaborative school events. Over 26,000 people passed through HWDT's educational visitor centre in Tobermory, Isle of Mull in 2015. Repairs and improvements were made to the visitor centre during 2015, which aim to strengthen public engagement and increase public awareness of cetaceans.

> The Irish Whale and Dolphin Group held its annual Whale Watch Ireland event on the 23rd August 2015 with more than 800 people covering 20 sites around Ireland and Northern Ireland. This resulted in sightings of four cetacean species; harbour porpoise, minke whale, shortbeaked common dolphin & bottlenose dolphin. To encourage participation in the IWDG ferry survey scheme the IWDG held a training day in the Ulster Folk and Transport Museum on the 11th April 2015 in collaboration with the Centre for Environmental Data and Recording (CEDAR).

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.

Possible difficulties encountered in implementing the Agreement

Difficulties in Implementing the Agreement

Please provide any relevant information

> None

Marine Protected Areas

Marine Protected Areas for Small Cetaceans

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/ Lleyn 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
Sanday SAC	None	Harbour porpoise
Sunart SAC	None	Harbour porpoise