

Agenda Item 4

Annual National Reports 2008

Document 32 rev.1

Reports received from the United Kingdom

- a) **Seismic Survey Report**
- b) **Annual National Report**
- c) **Stranding Questionnaire**

Action Requested

- Briefly present highlights from reports (max. 5 minutes)
- Take note of the information submitted
- Comment

Submitted by

United Kingdom



NOTE:
IN THE INTERESTS OF ECONOMY, DELEGATES ARE KINDLY REMINDED TO BRING THEIR OWN COPIES OF DOCUMENTS TO THE MEETING



GENESIS



**Department for Energy and Climate
Change - DECC**

Report

Information on Seismic Survey Activities by the United Kingdom 2007- 2008

Genesis Job Number J-71172/A

February 09

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CLIENT:

DECC

PROJECT/JOB TITLE:

ASCOBANS 2009

DOCUMENT TYPE:

Report

DOCUMENT TITLE:

**Information on Seismic Survey
Activities by the United Kingdom
2007-2008**

GENESIS JOB NUMBER:

J-71172/A

**DOCUMENT NO./
FILE NAME:**

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Rev	Date	Description	Issued By	Checked By	Approved By	Client Approval
D2		Incorporated additional survey data	SM			
D1	02/02/09	Final	SM	SM	IS	CN
B2	02/02/09	Incorporate Client Comments	SM			
B1	20/01/09	Issue for Client Comment	SM			

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1 INTRODUCTION

The United Kingdom is a Party to The Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS).

ASCOBANS has *inter alia* been developing its approach to the conservation of small cetaceans with respect to seismic surveys. This includes requesting Parties to introduce mitigation measures, such as those used in the UK and commended by ASCOBANS, and to introduce monitoring systems and also inviting Parties to report on high energy seismic surveys. Currently, the UK reports all seismic surveys via the UKDEAL portal (www.ukdeal.co.uk).

At the 12th 13th and 14th meeting of the Advisory Committee to ASCOBANS (March 2005 and April 2006), the UK presented data on 2D and 3D seismic survey activity in the UK maritime area for 1997-2003 and 2004-2005, respectively. This was in accordance with agreements reached at the 7th meeting of the Advisory Committee to ASCOBANS (March 2000) and at the 4th Meeting of the Parties in the Report of Working Group II (August 2003).

The following agreed information is collected and reported:

- Shot point density information per 1° by 1° rectangle
- Data resolved for each month
- Size/power of survey gun (if easily obtainable)
- Use of marine mammal observers (if easily obtainable)

This report continues the reporting of 2D and 3D seismic survey activity for 2007 and 2008. For previous years (1997-2006) reference should be made to the earlier UK submissions.

No data has been collated on airgun power or Marine Mammal Observers.

2 BASIS OF CALCULATION

Shot point density (SP/km²) is obtained by dividing the number of seismic shot points per quadrant by the offshore sea area within each quadrant up to the median line (land, islands and coastal waters are subtracted). Given this, and the curvature of lines of longitude, quadrants are all of varying sizes.

The following methodology is used to calculate shot point density.

- For 2D seismic surveys the average shot point interval is assumed to be 25 metres. This results in a shot point count of 40 SP/km.
- For 3D seismic surveys the average shot point interval is assumed to be 25 metres, with an average line spacing of 50 metres. This results in a shot point

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count of 800 SP/km². It is assumed that shot point density is uniform within the outline polygon of the survey area.

The 2D and 3D shots were then added together for each quadrant and the shot point density calculated by dividing the number of shots per quadrant per month and per year by the offshore area of each quadrant.

4D surveys are not captured in this report although it is known that they are beginning to be used routinely in the UKCS. Before this information can be incorporated, it is necessary for contracting parties to agree a methodology for calculating shot point density.

In addition to exploration surveys, 'site surveys' using airguns of less than 200 cubic inches are undertaken for purposes such as detecting shallow gas prior to siting a jackup rig. These surveys are not included in the reported figures as the airguns are small, stationery and the survey is of very short duration. During 2007, 58 site surveys were reported, of which one had incomplete data. From the remaining 57 8059km were surveyed which corresponds to approximately 322351 shot points. During 2008, 94 site surveys were undertaken totalling 10206km and approximately 408249 shot points.

Two 3D close out reports in 2007 and four 2D and three 3D close out reports in 2008 reported the total km or km² surveyed per month for two blocks rather than individually. In these cases, the survey was assumed to be equally divided between the two blocks.

3 RESULTS

3.1 Overall

A summary of 2D and 3D seismic survey activity is shown in **Figure 3-1**. The great majority of survey activity (measured by shot points) is 3D. Between 2007 and 2008 the number of 2D surveys decreased as did the total number of surveys showing a correlation between the total number of shot points and the total number of surveys.

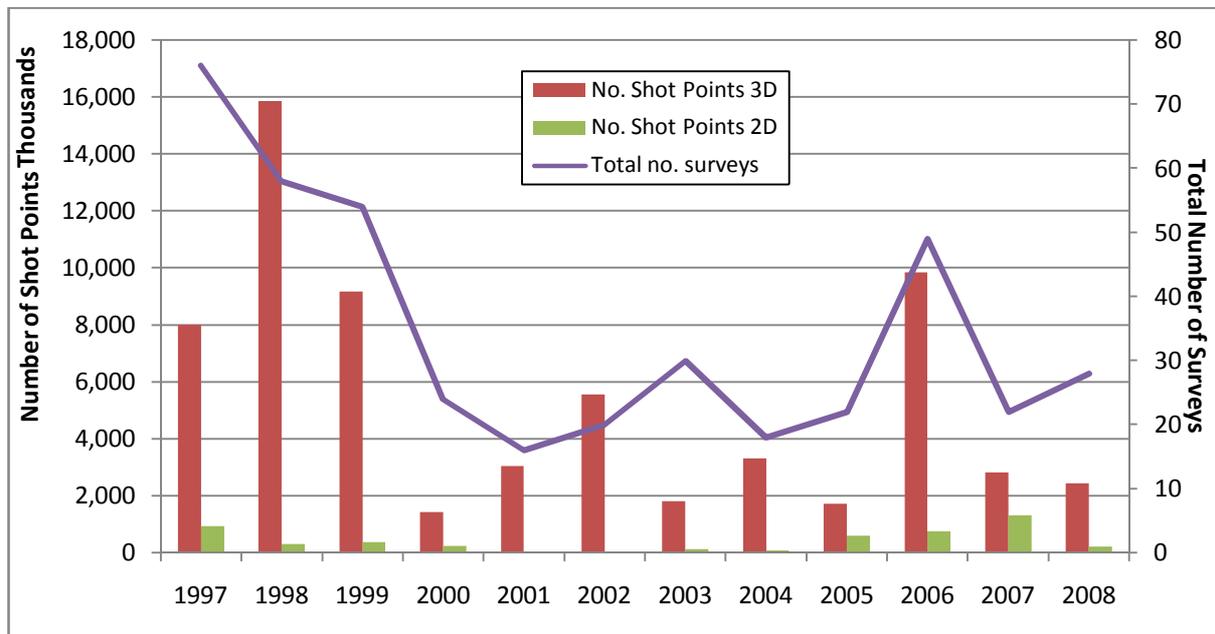


Figure 3-1 Overview of survey activity 1997-2008

The maximum shot point density over a quadrant over an entire year was 744.77 SP/km² in 2007 and was 94.8 SP/km² in 2008.

3.2 Monthly analysis

Monthly plots of shot point density by quadrant have been constructed from the post-survey reports submitted to the DECC and JNCC. These are shown in **Appendix A**.

The maximum shot point density over a quadrant over a month was 288.38 SP/km² in 2007 and 88.19 SP/km² in 2008.

3.3 Data Gaps

Approximately 92% and 83% of post-survey reports were received in 2007 and 2008, respectively. In addition, in 2007 three close-out reports were incomplete with the data from these close-out forms not being included in this report. It should be noted this report was prepared in February 2009 and there is a 12 week post-survey period in which operators submit their close-out forms. Thus, additional 2008 close-out forms may be submitted subsequent to the completion of this report which would increase the percentage of post-survey reports completed. This data will be available for incorporation into the 2010 report.



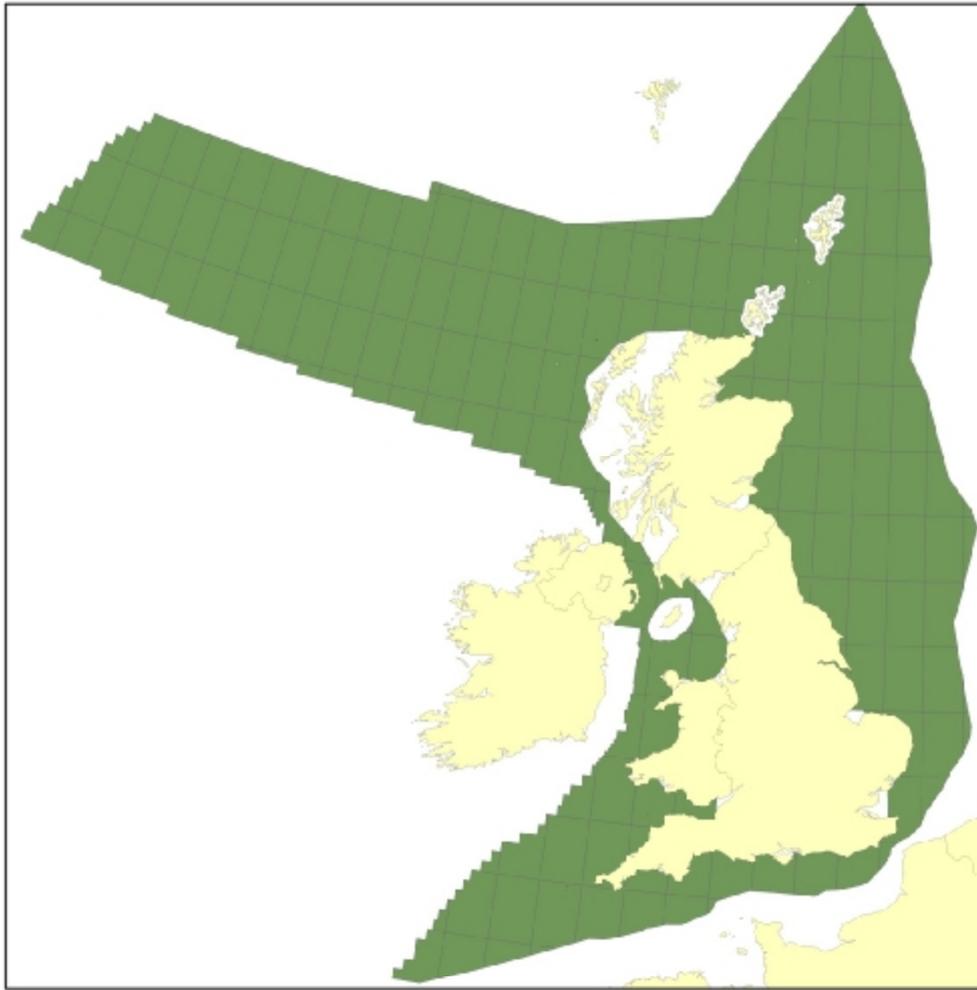
DECC

Information on Seismic Survey Activities by the
United Kingdom 2007-2008



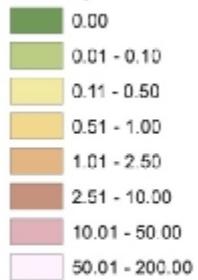
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APPENDIX A – MONTHLY SHOT POINT PLOTS 2007

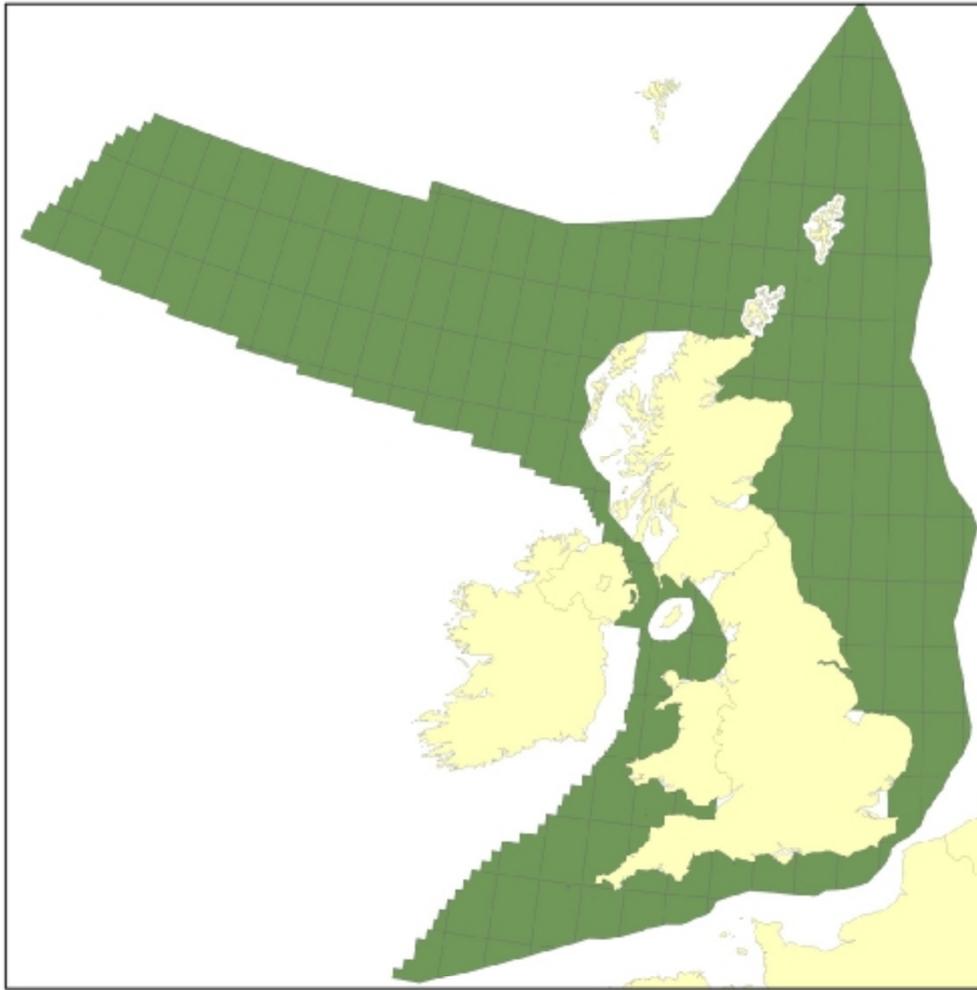


Shot Point Density 2007 (Shots per km²)

January

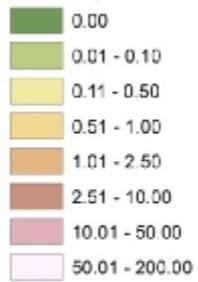


January 2007 Seismic Survey Activity (Density SP/km²)

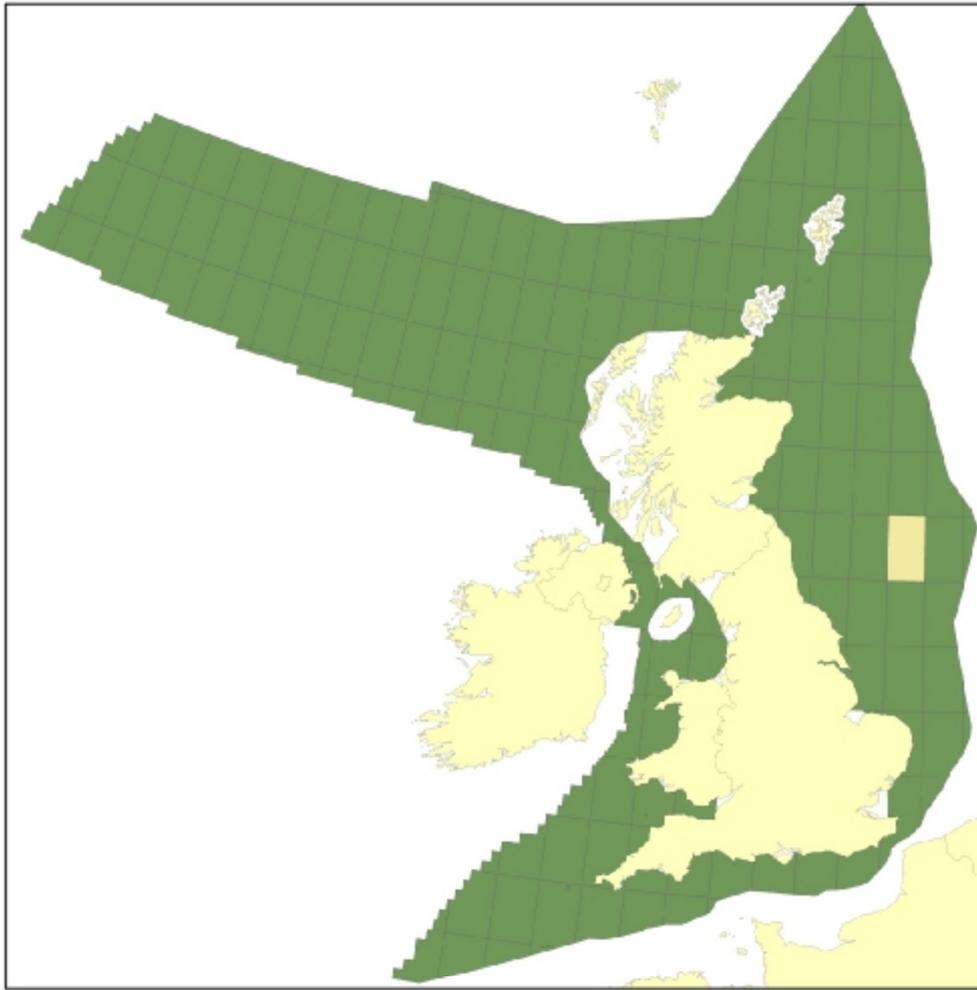


Shot Point Density 2007 (Shots per km²)

February

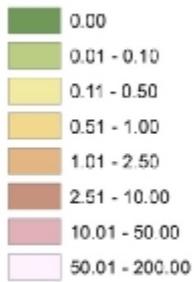


February 2007 Seismic Survey Activity (Density SP/km²)

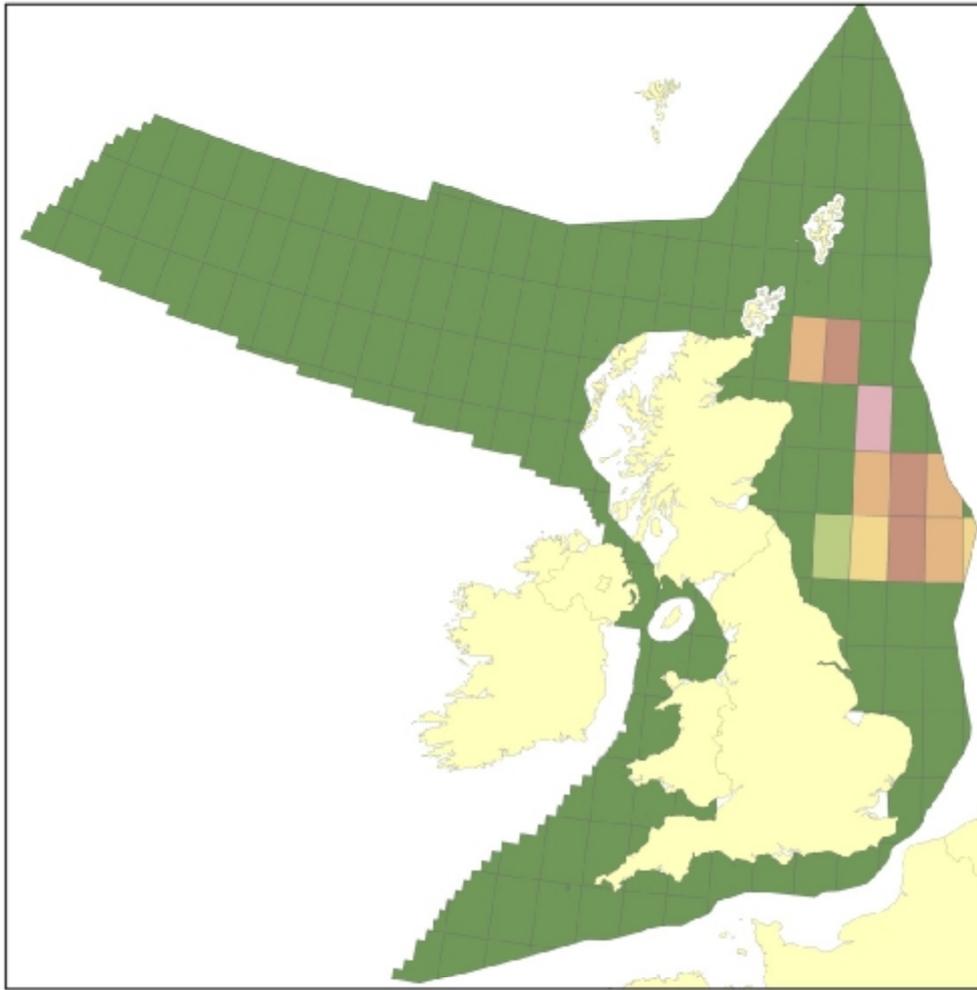


Shot Point Density 2007 (Shots per km²)

March

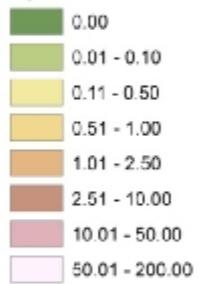


March 2007 Seismic Survey Activity (Density SP/km²)

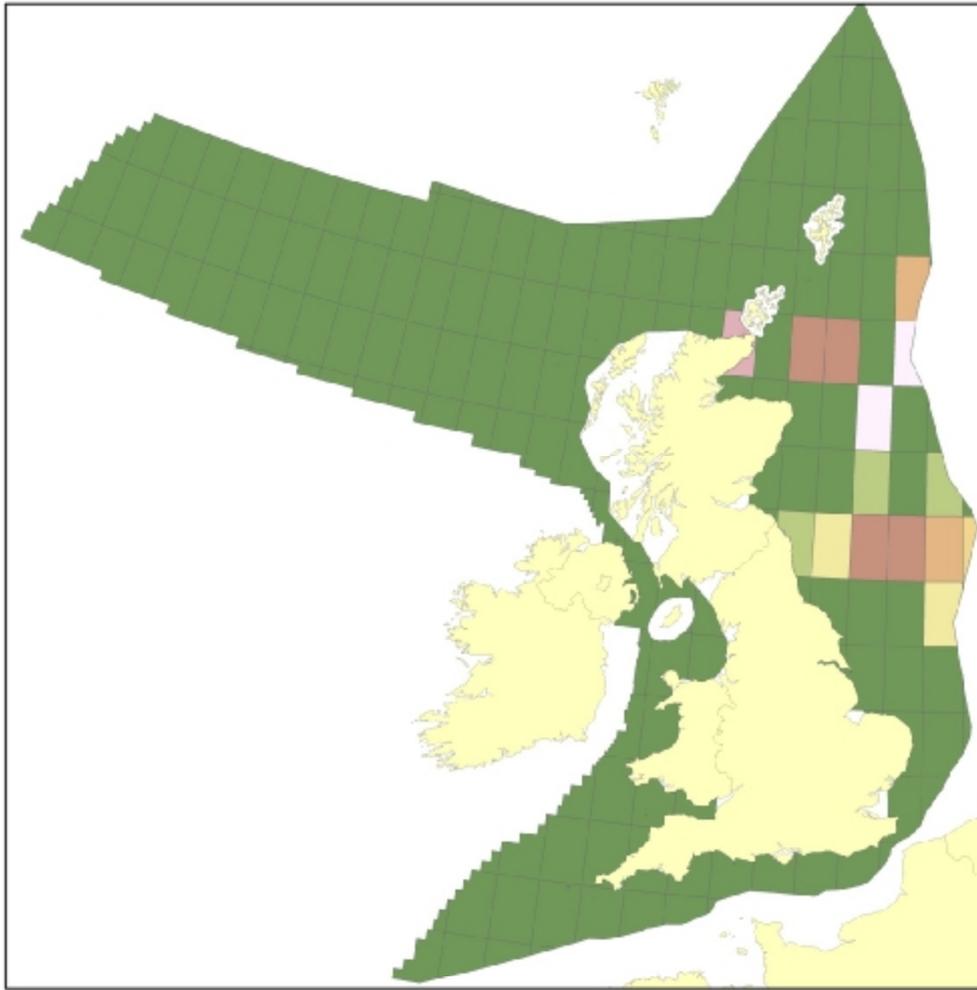


Shot Point Density 2007 (Shots per km²)

April

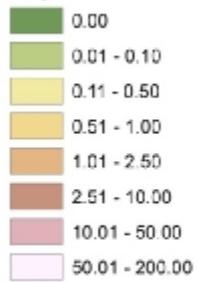


April 2007 Seismic Survey Activity (Density SP/km²)

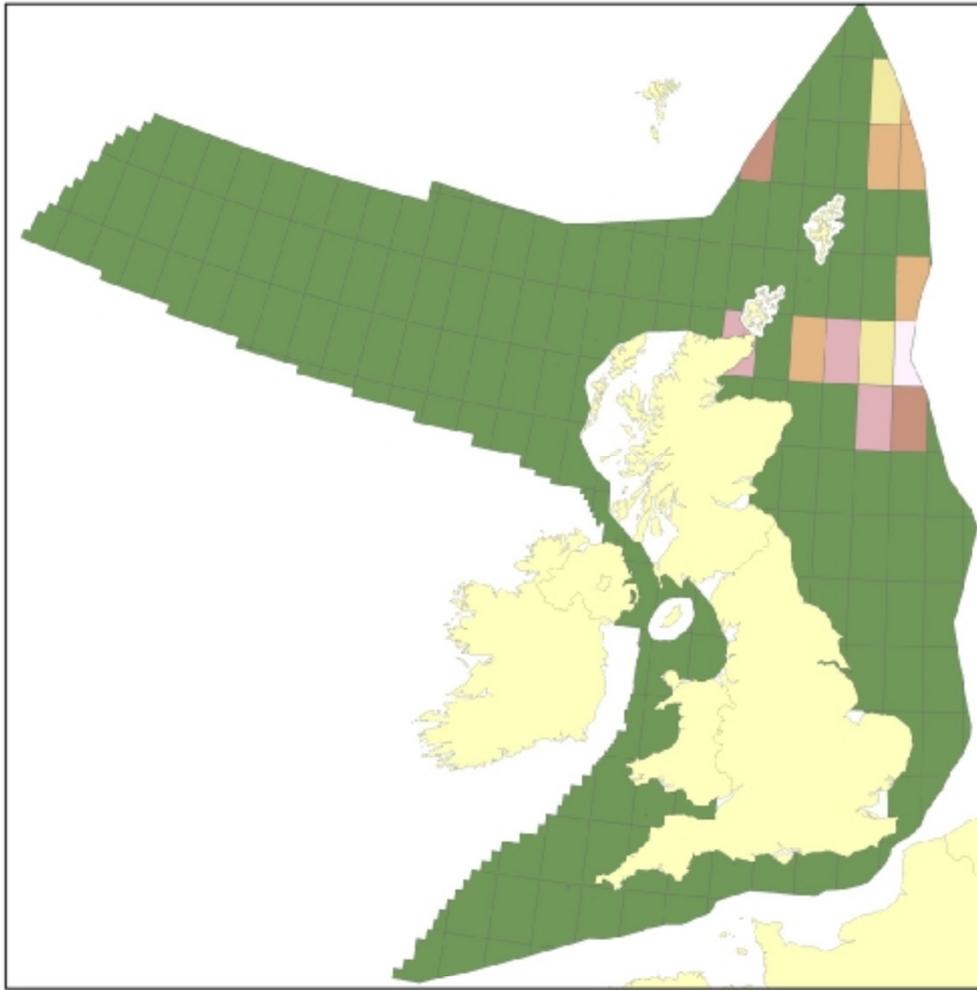


Shot Point Density 2007 (Shots per km²)

May

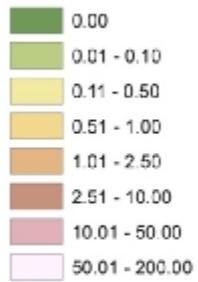


May 2007 Seismic Survey Activity (Density SP/km²)

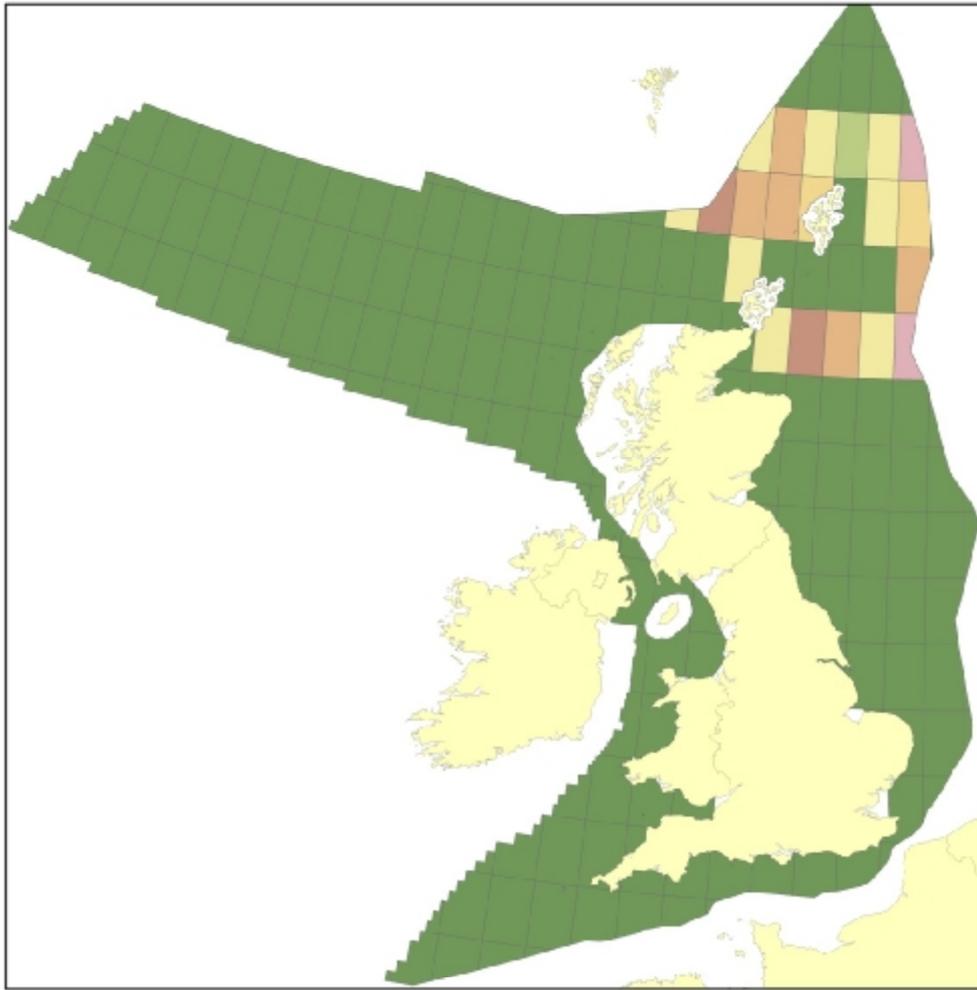


Shot Point Density 2007 (Shots per km²)

June

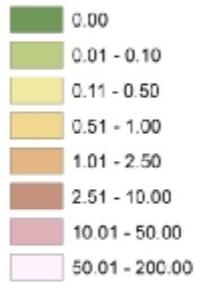


June 2007 Seismic Survey Activity (Density SP/km²)

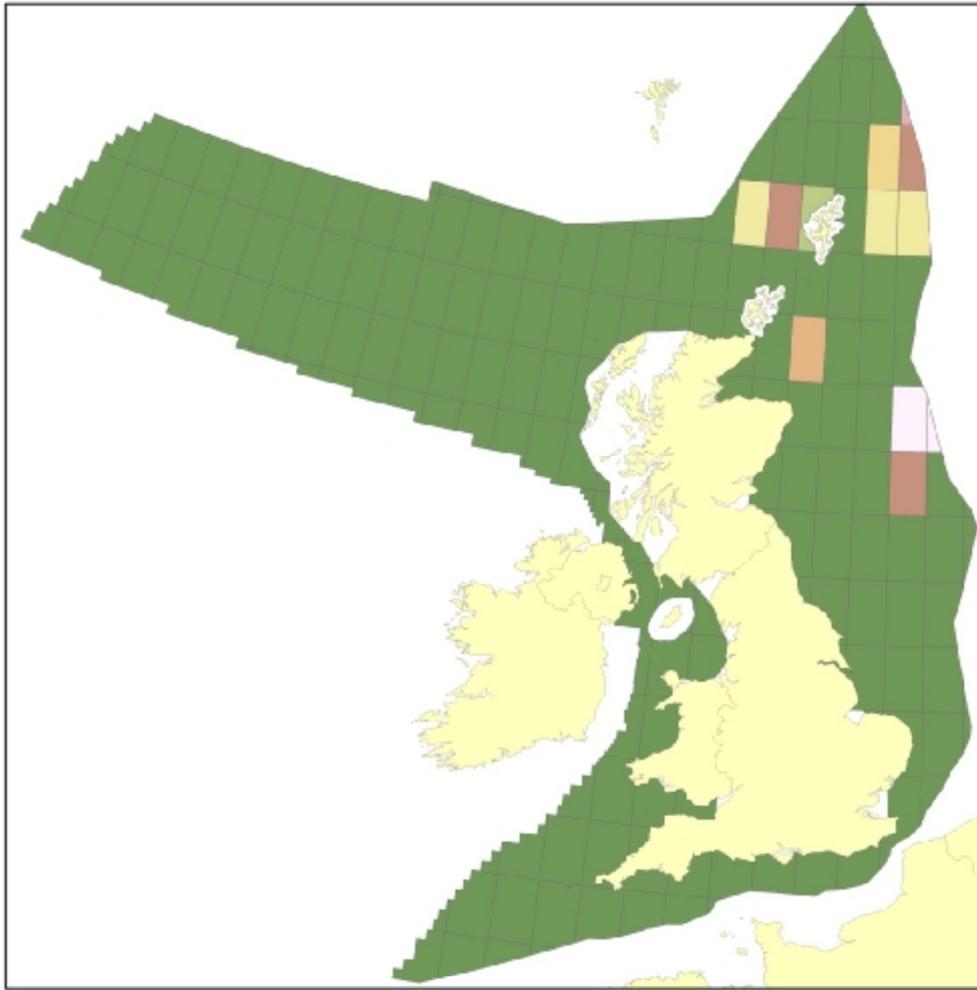


Shot Point Density 2007 (Shots per km²)

July

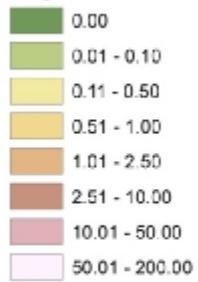


July 2007 Seismic Survey Activity (Density SP/km²)

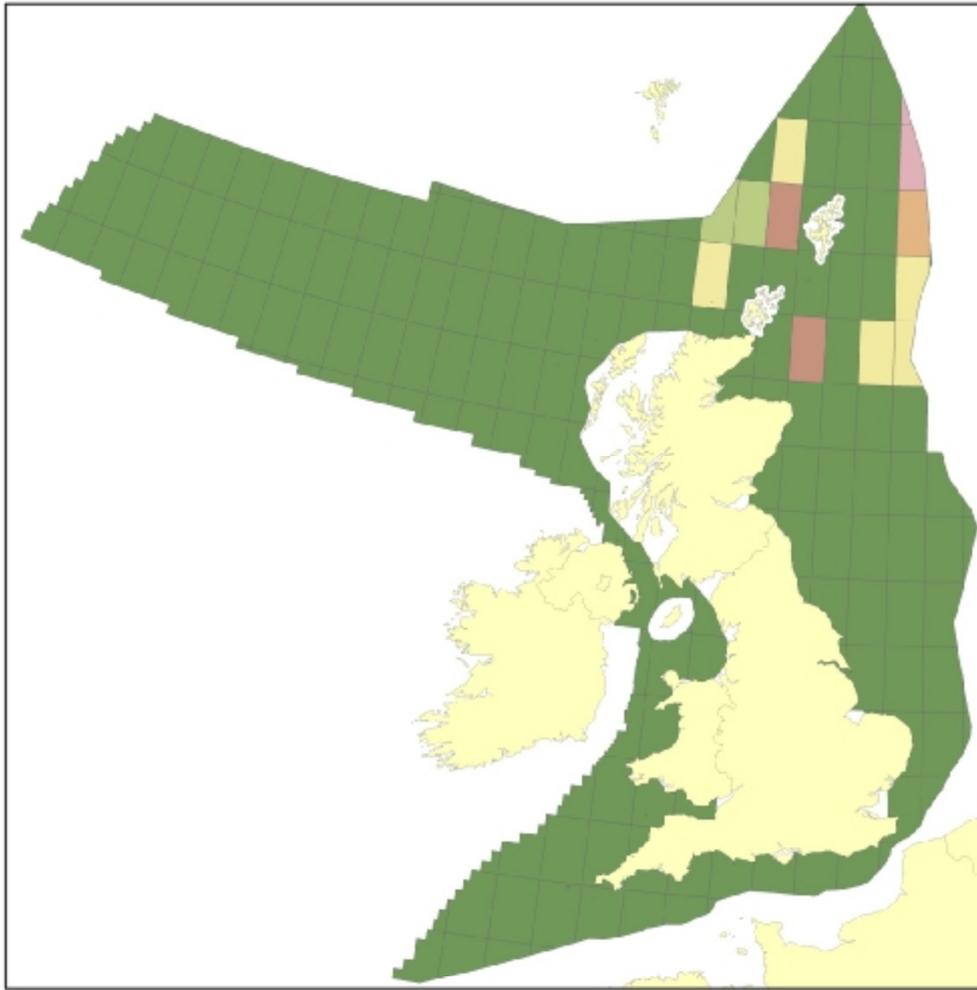


Shot Point Density 2007 (Shots per km²)

August

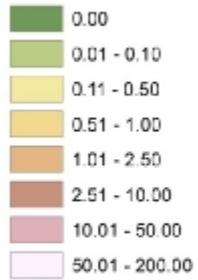


August 2007 Seismic Survey Activity (Density SP/km²)

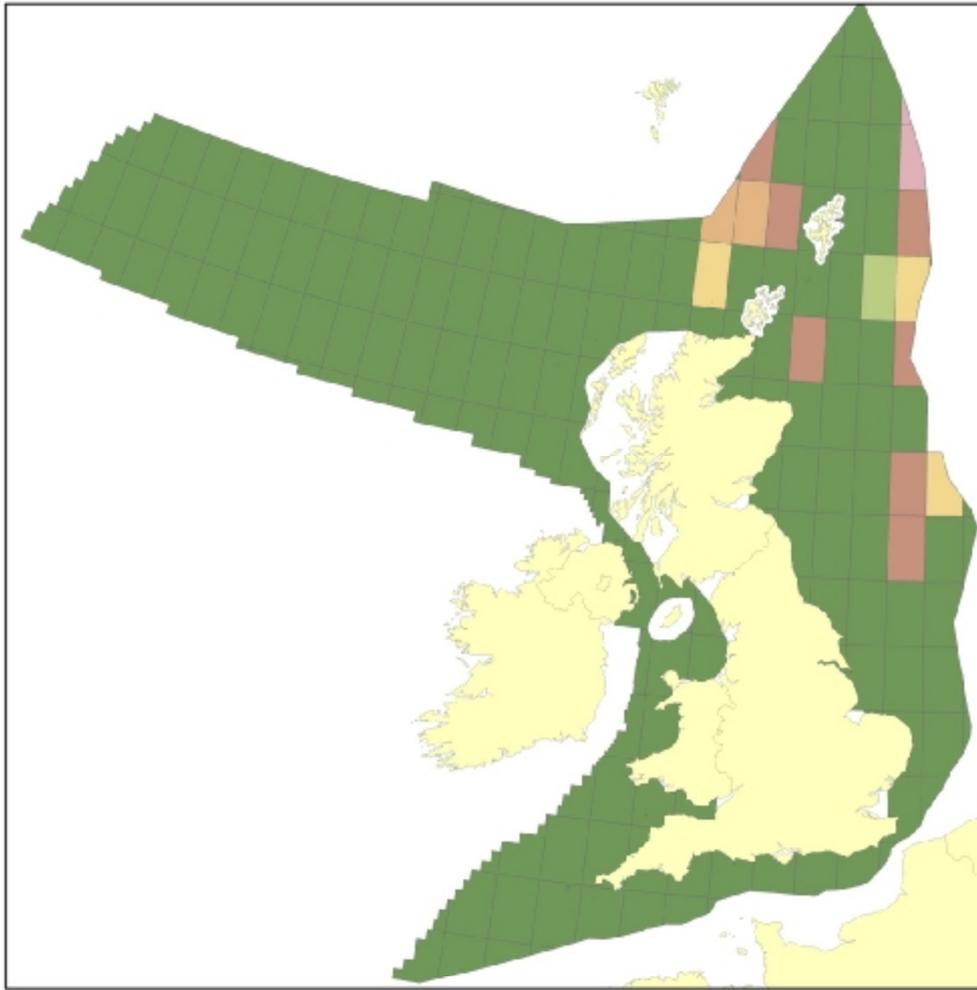


Shot Point Density 2007 (Shots per km²)

September

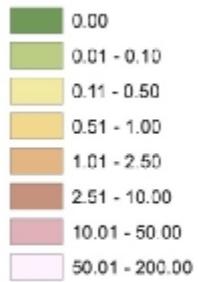


September 2007 Seismic Survey Activity (Density SP/km²)

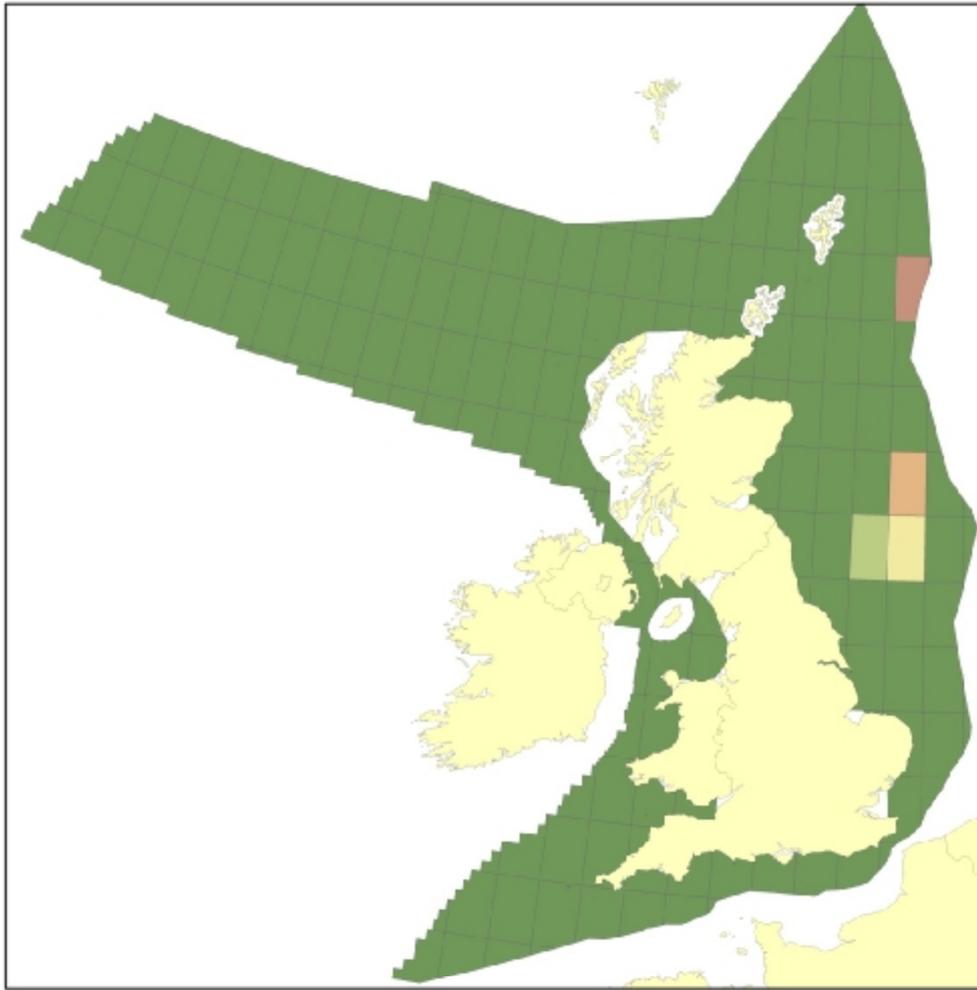


Shot Point Density 2007 (Shots per km2)

October

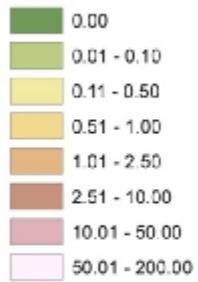


October 2007 Seismic Survey Activity (Density SP/km²)

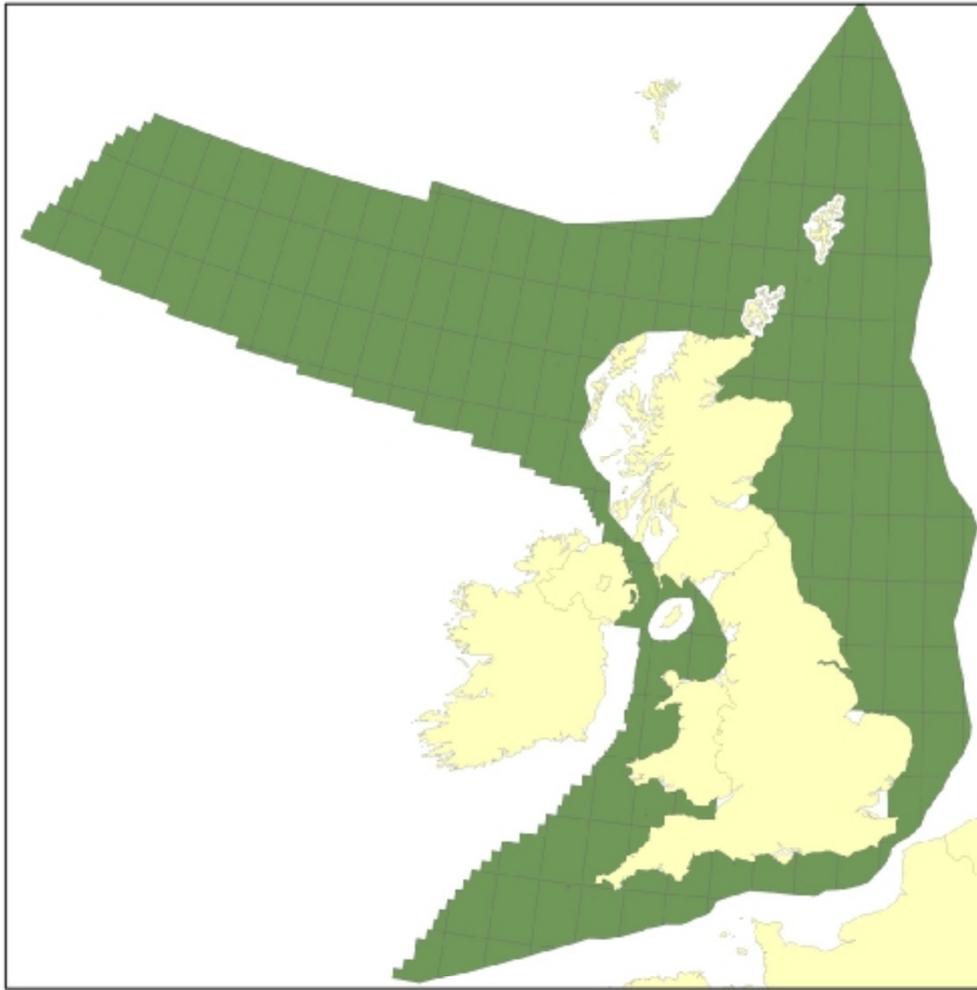


Shot Point Density 2007 (Shots per km²)

November

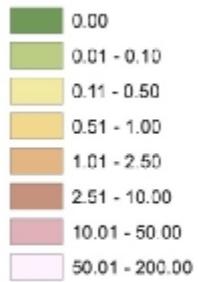


November 2007 Seismic Survey Activity (Density SP/km²)

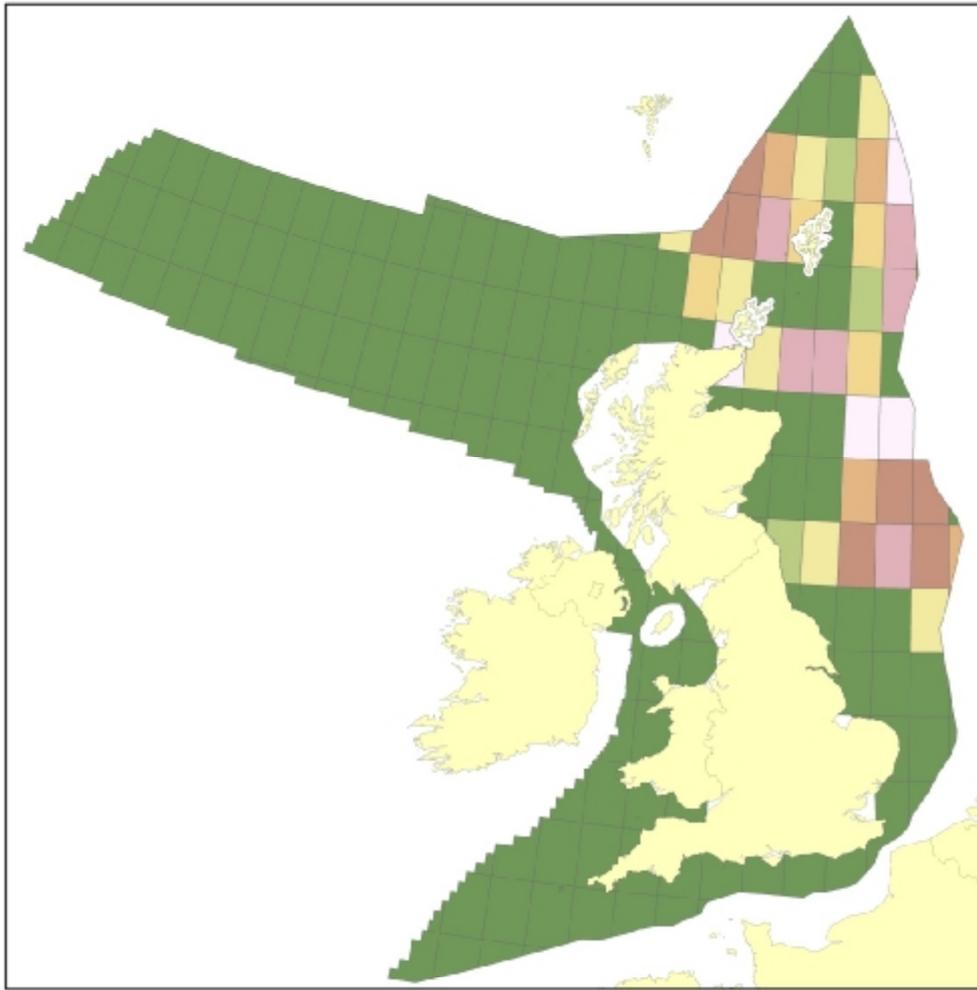


Shot Point Density 2007 (Shots per km²)

December

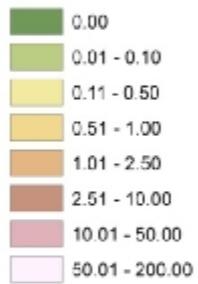


December 2007 Seismic Survey Activity (Density SP/km²)



Shot Point Density 2007 (Shots per km²)

Annual



Annual 2007 Seismic Survey Activity (Density SP/km²)



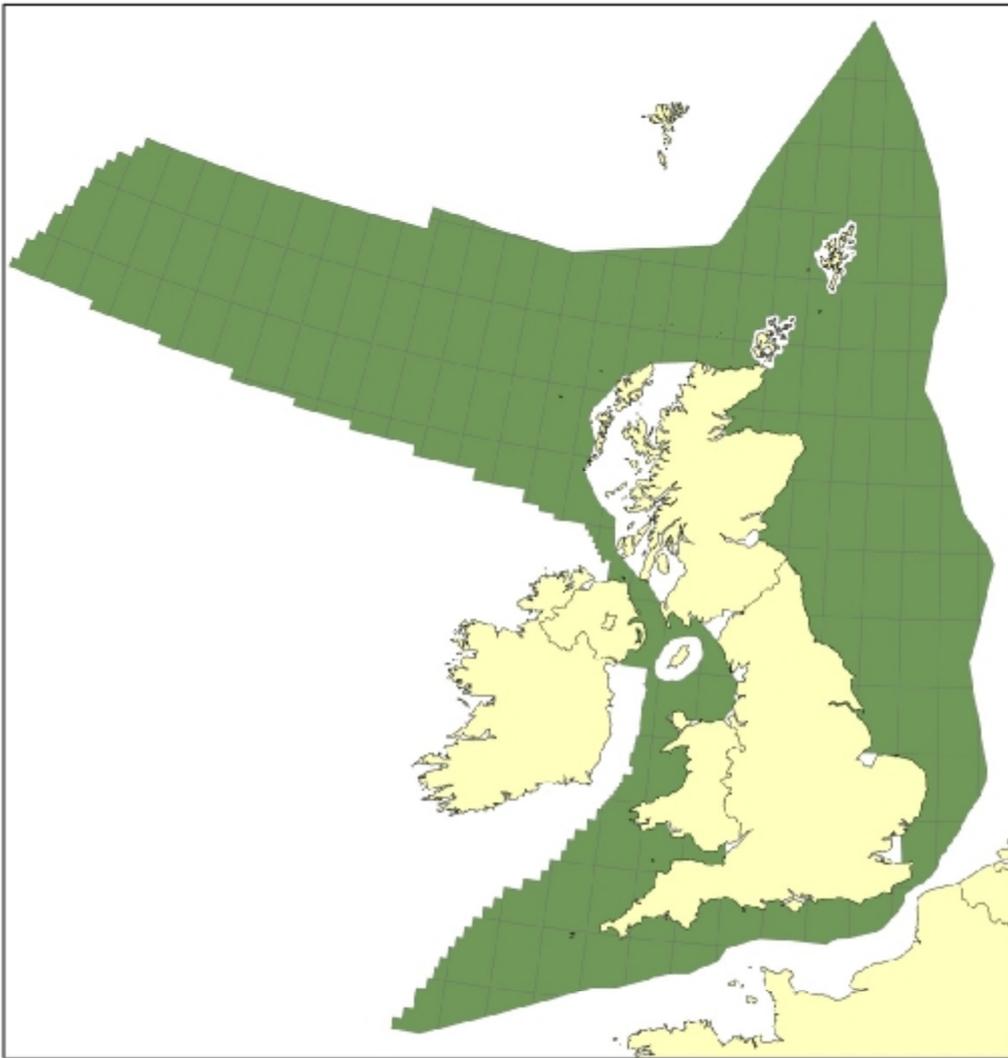
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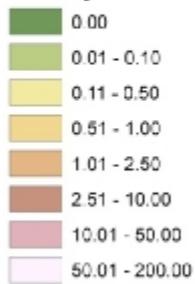
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APPENDIX B – MONTHLY SHOT POINT PLOTS 2008

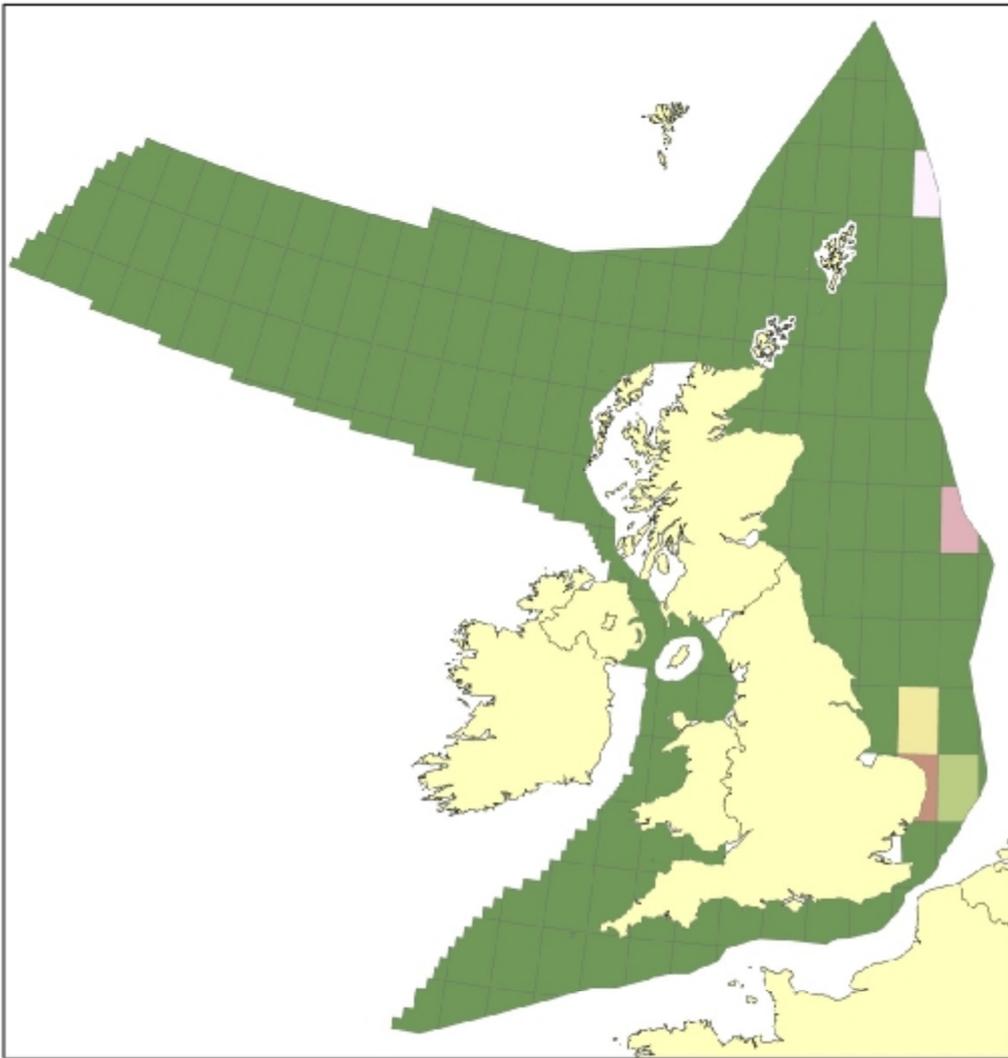


Shot Point Density 2008 (SP/km²)

January

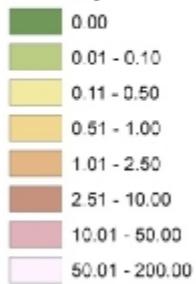


January 2008 Seismic Survey Activity (Density SP/km²)

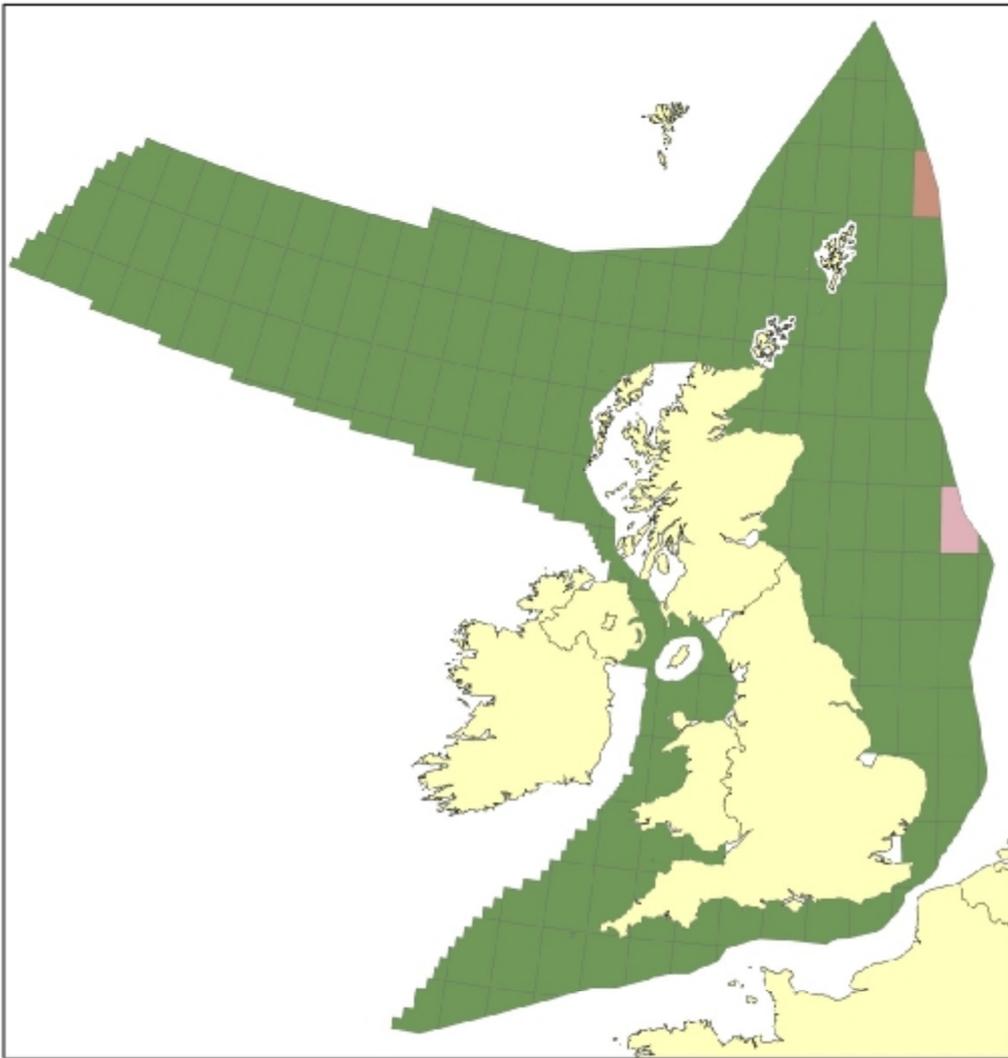


Shot Point Density 2008 (SP/km²)

February

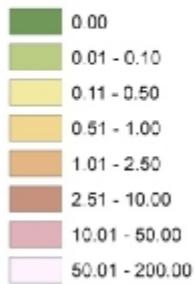


February 2008 Seismic Survey Activity (Density SP/km²)

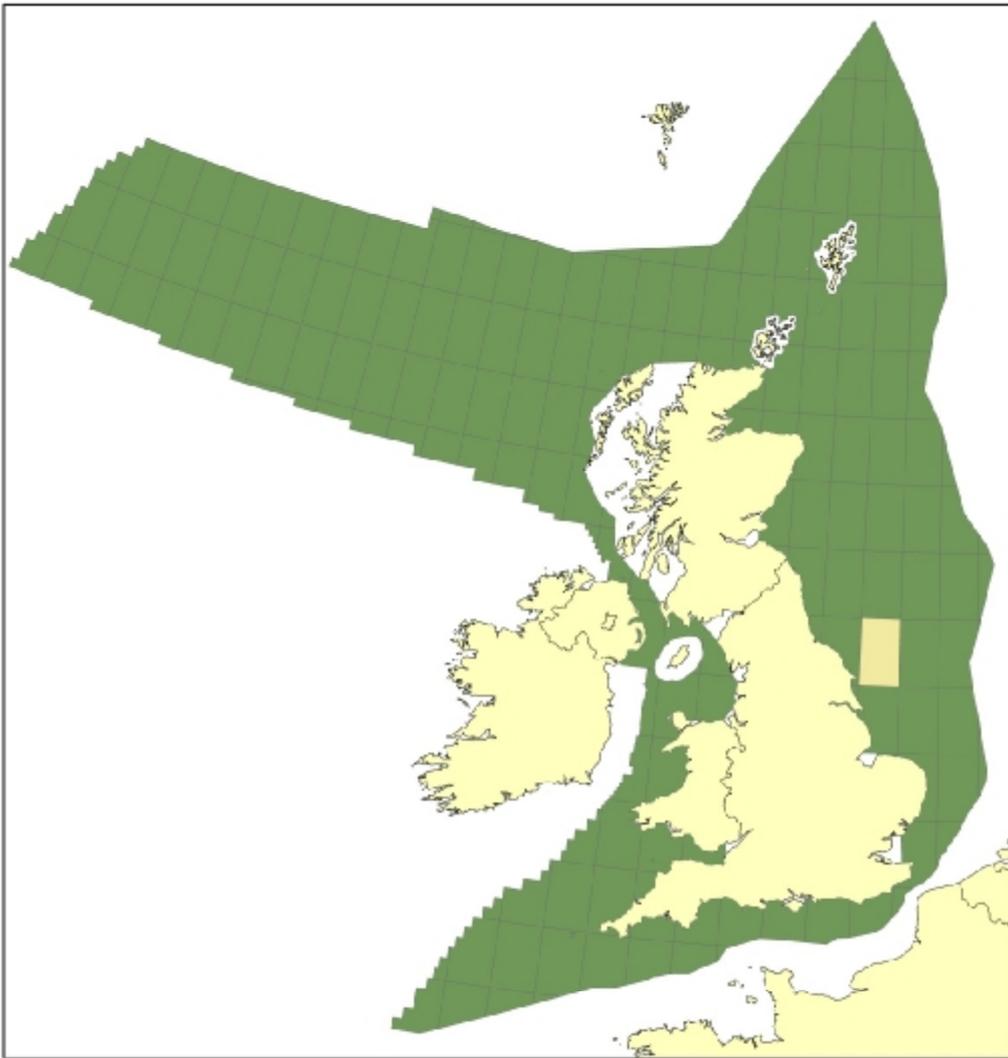


Shot Point Density 2008 (SP/km²)

March

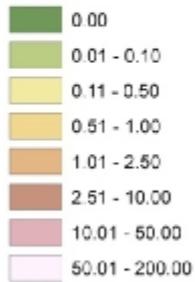


March 2008 Seismic Survey Activity (Density SP/km²)

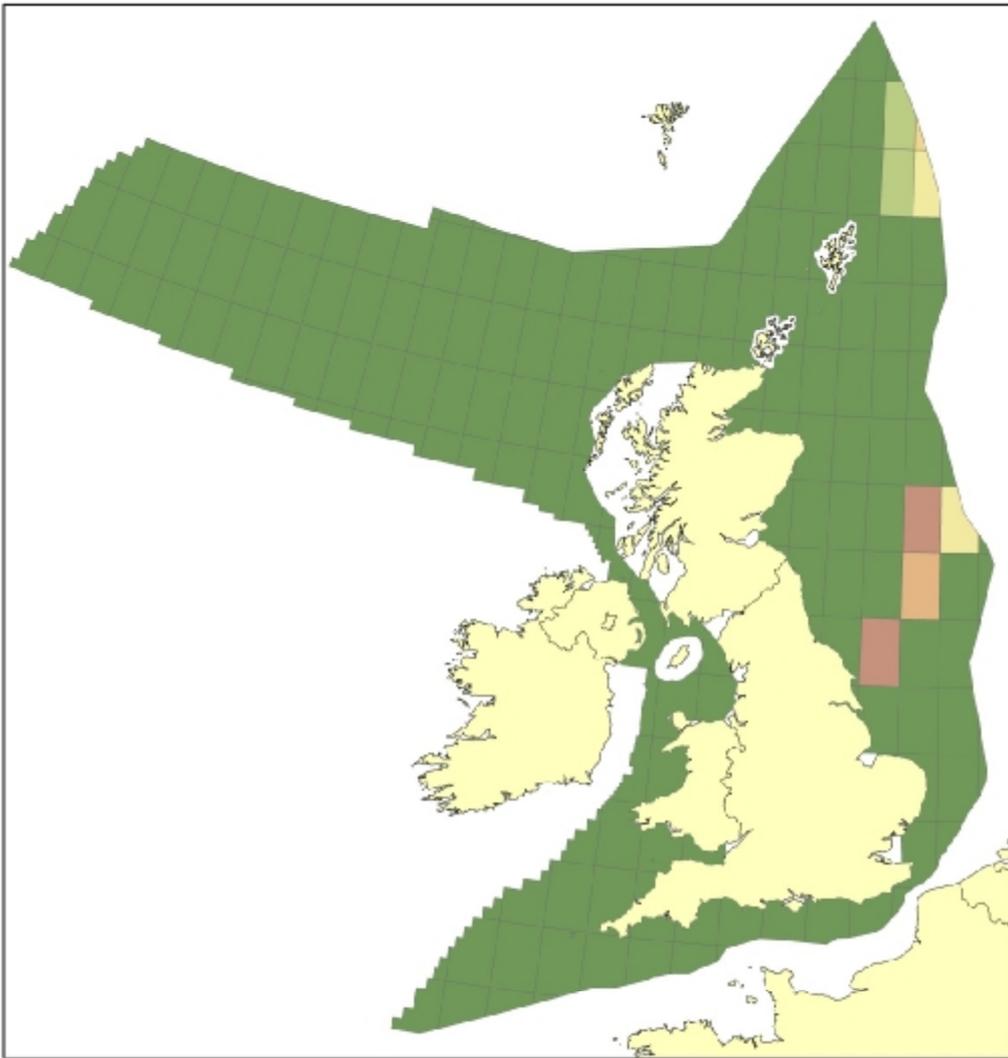


Shot Point Density 2008 (SP/km2)

April

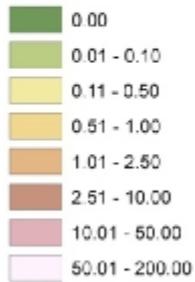


April 2008 Seismic Survey Activity (Density SP/km²)

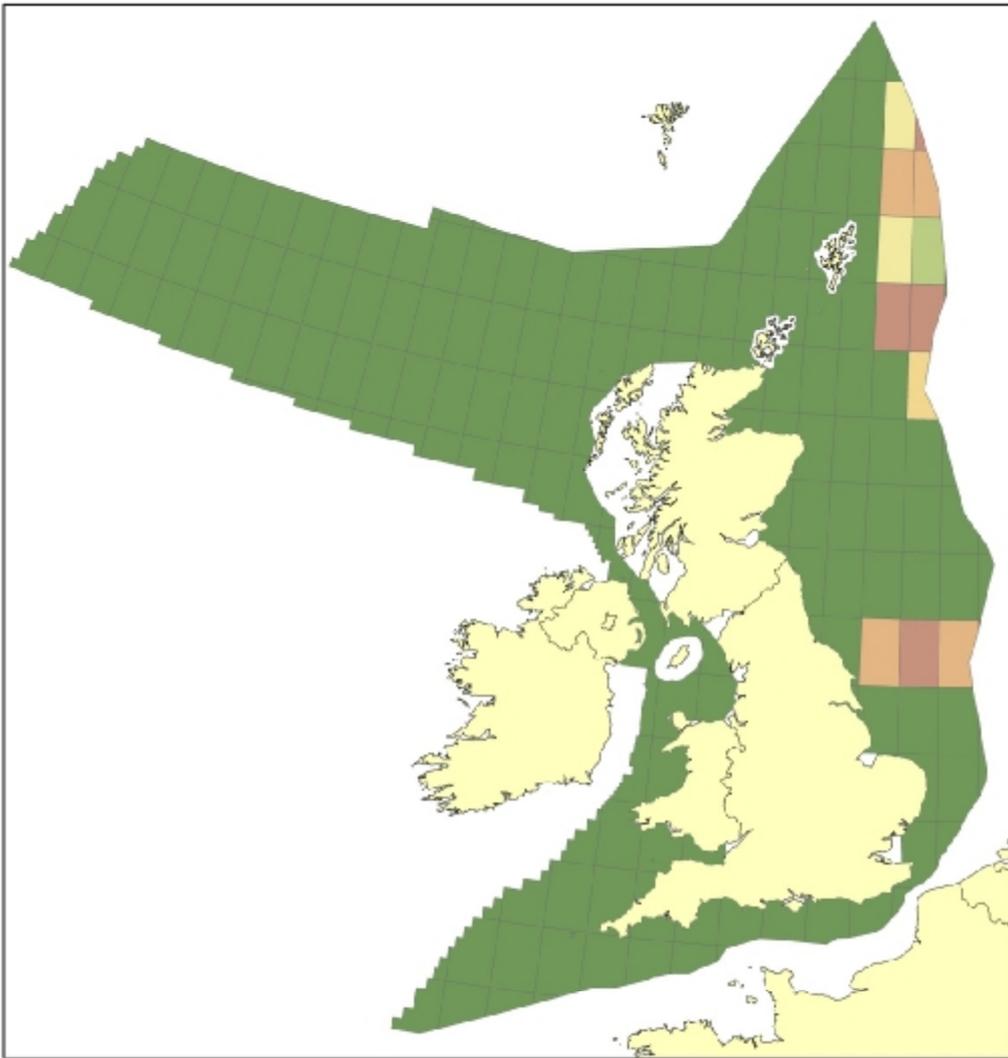


Shot Point Density 2008 (SP/km²)

May

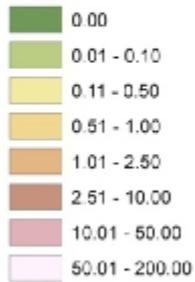


May 2008 Seismic Survey Activity (Density SP/km²)

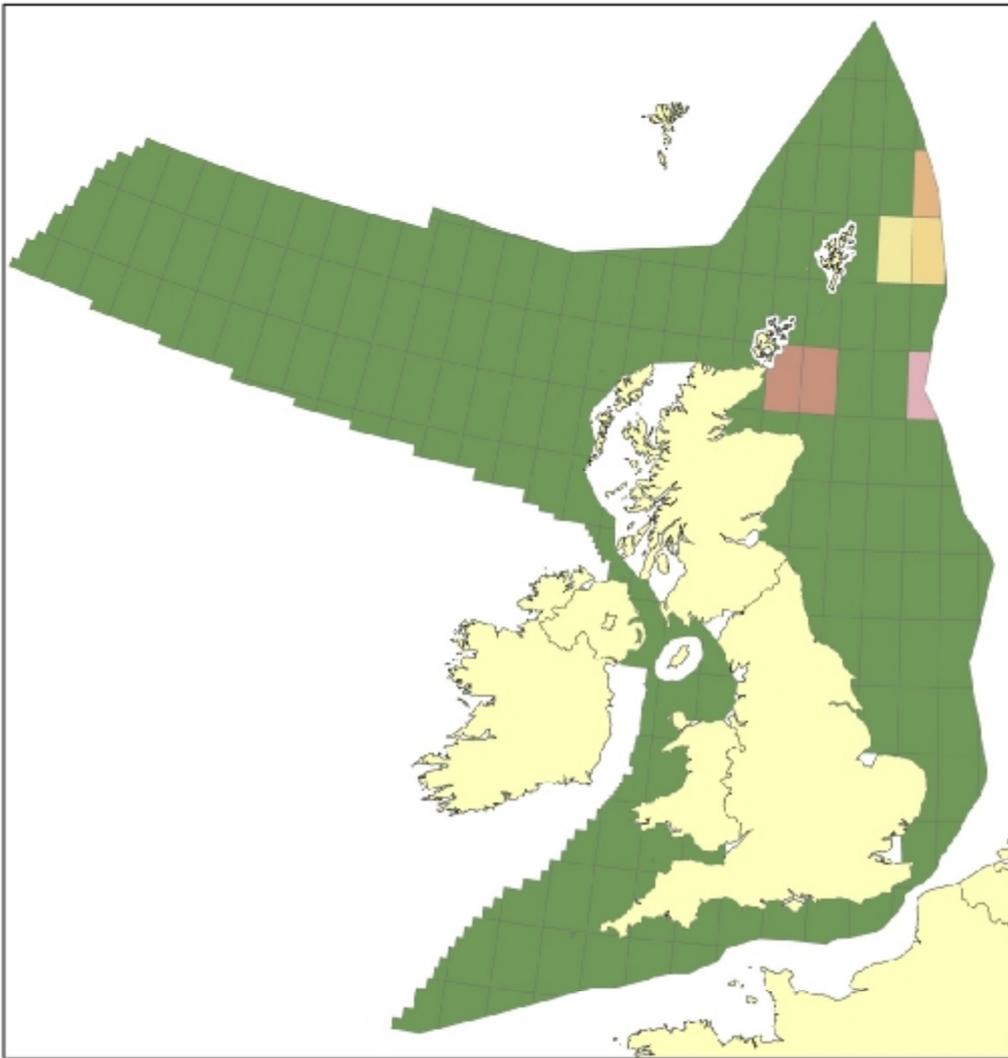


Shot Point Density 2008 (SP/km2)

June

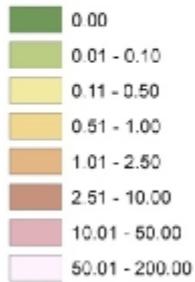


June 2008 Seismic Survey Activity (Density SP/km²)

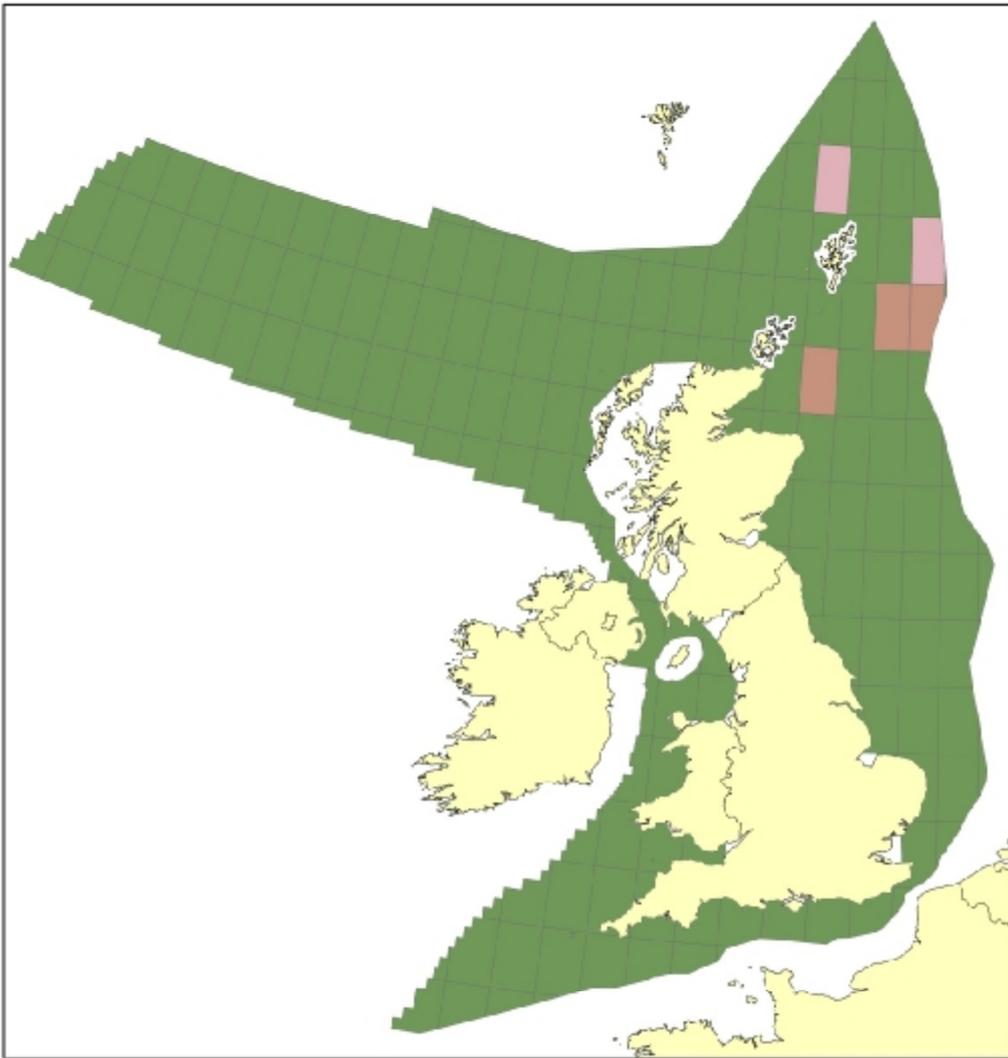


Shot Point Density 2008 (SP/km²)

July

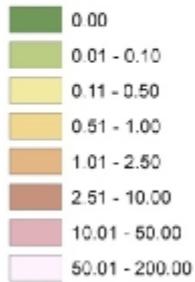


July 2008 Seismic Survey Activity (Density SP/km²)

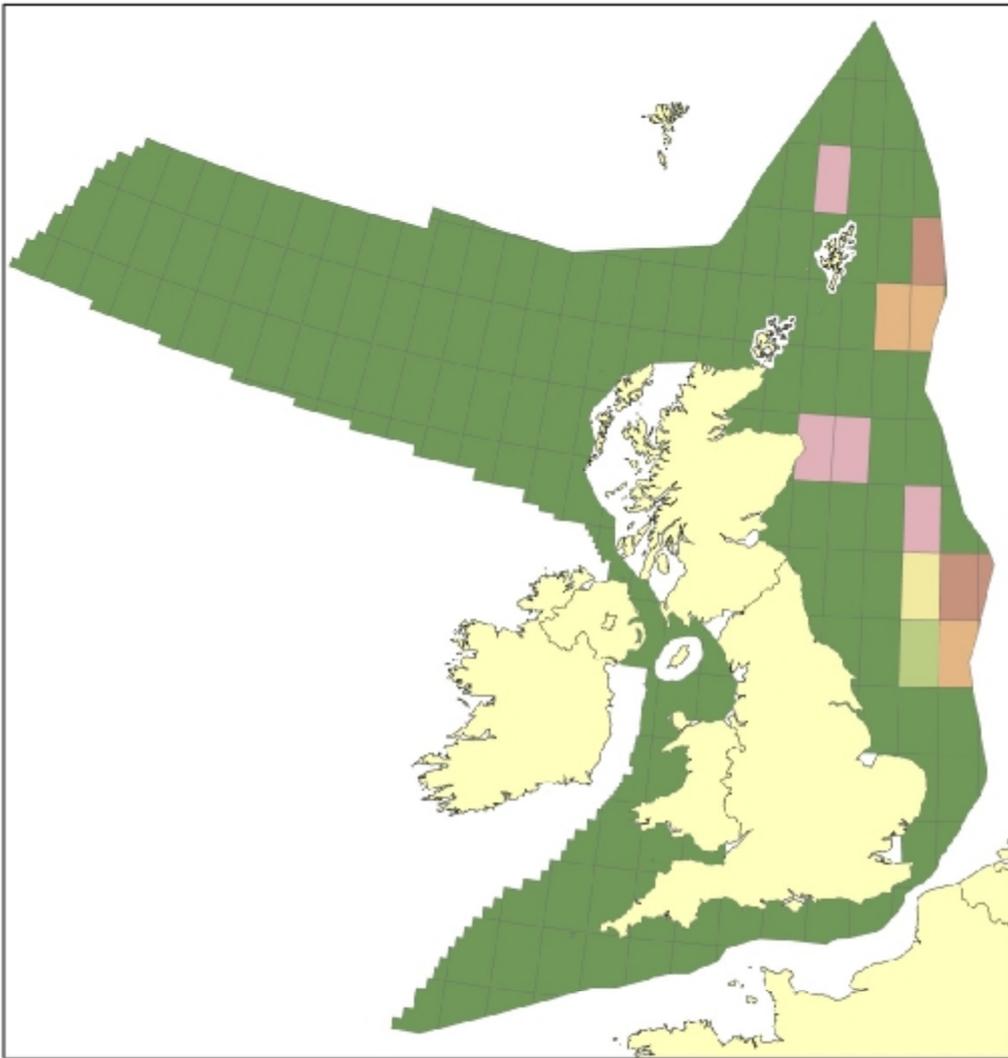


Shot Point Density 2008 (SP/km2)

August

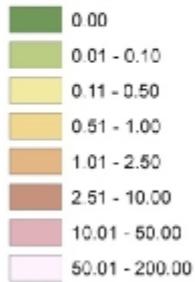


August 2008 Seismic Survey Activity (Density SP/km²)

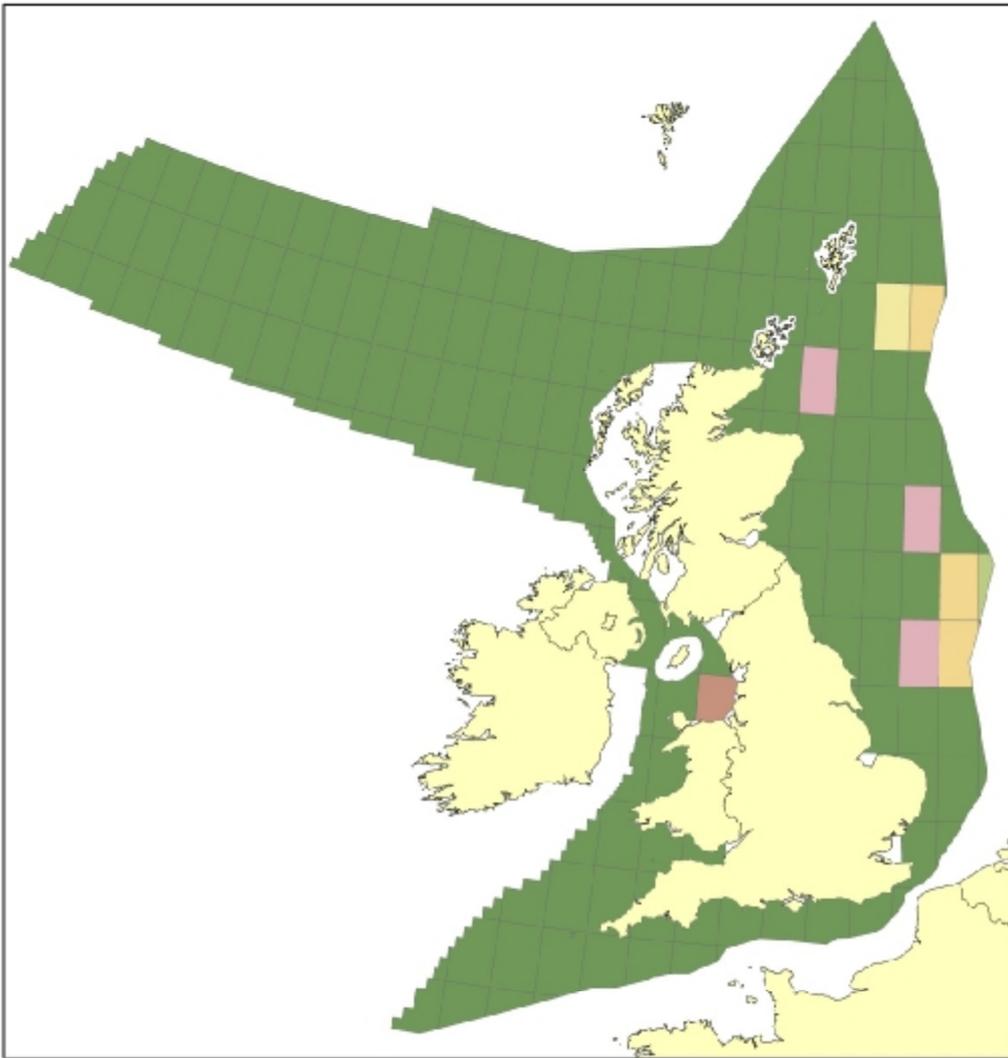


Shot Point Density 2008 (SP/km²)

September

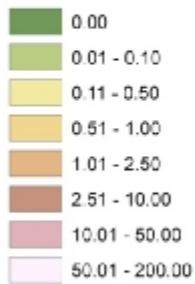


September 2008 Seismic Survey Activity (Density SP/km²)

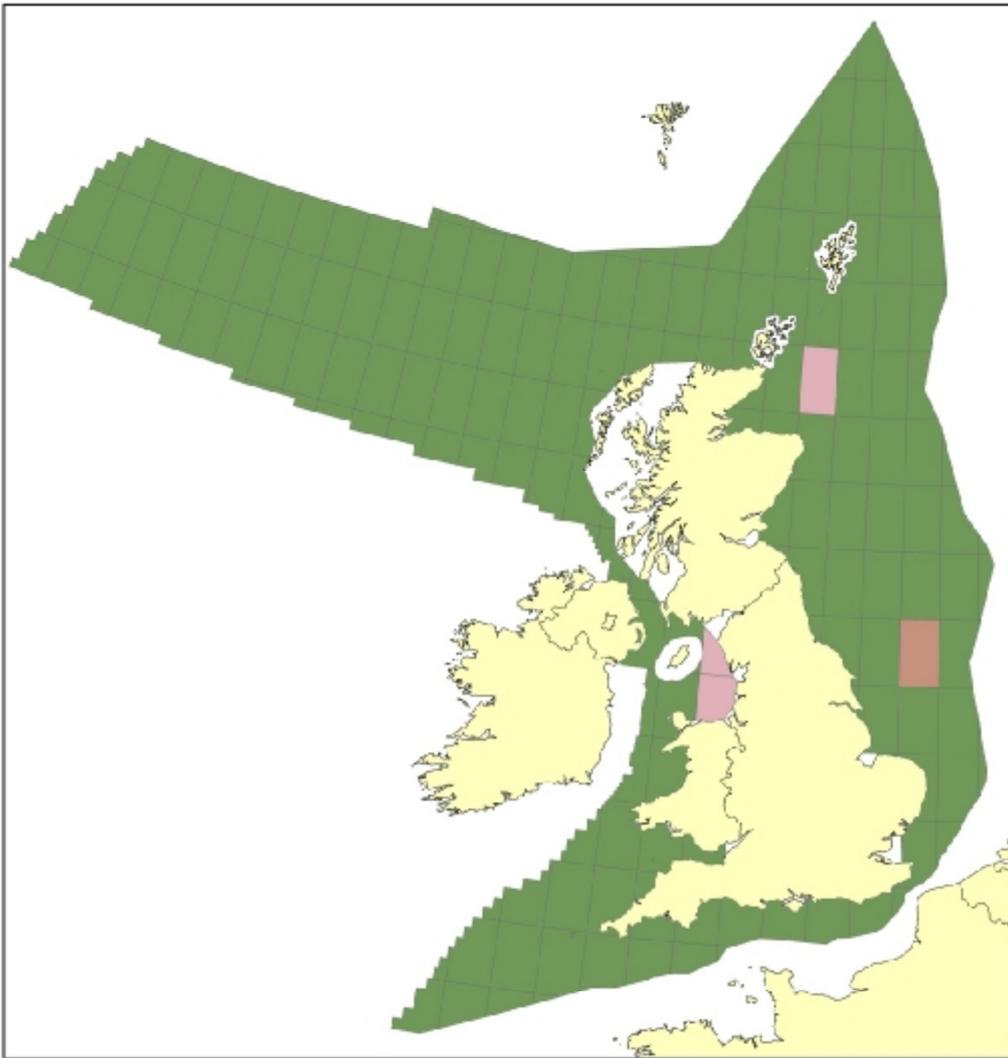


Shot Point Density 2008 (SP/km²)

October

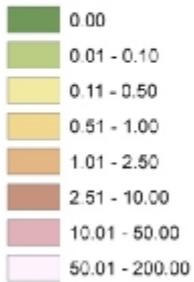


October 2008 Seismic Survey Activity (Density SP/km²)

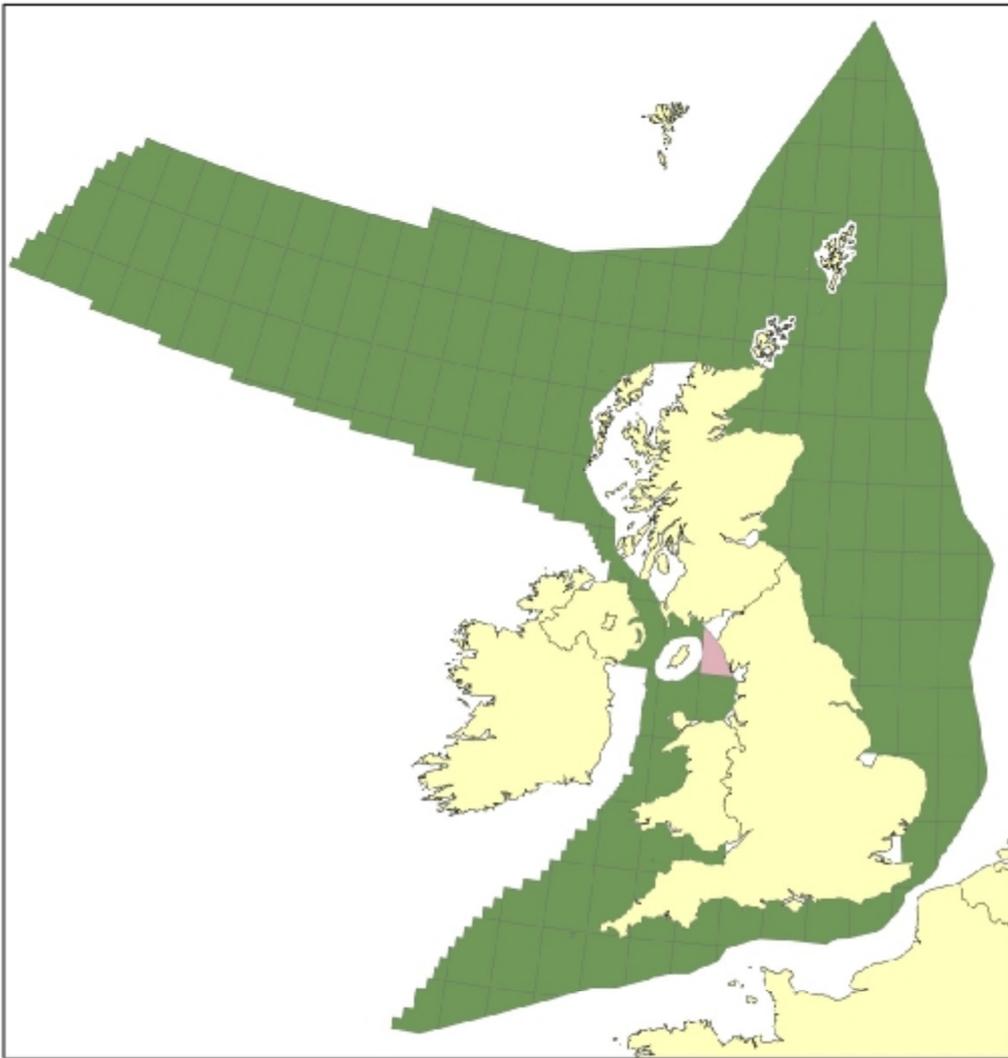


Shot Point Density 2008 (SP/km²)

November

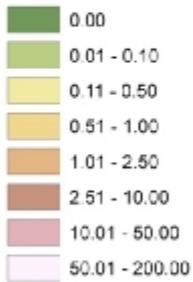


November 2008 Seismic Survey Activity (Density SP/km²)

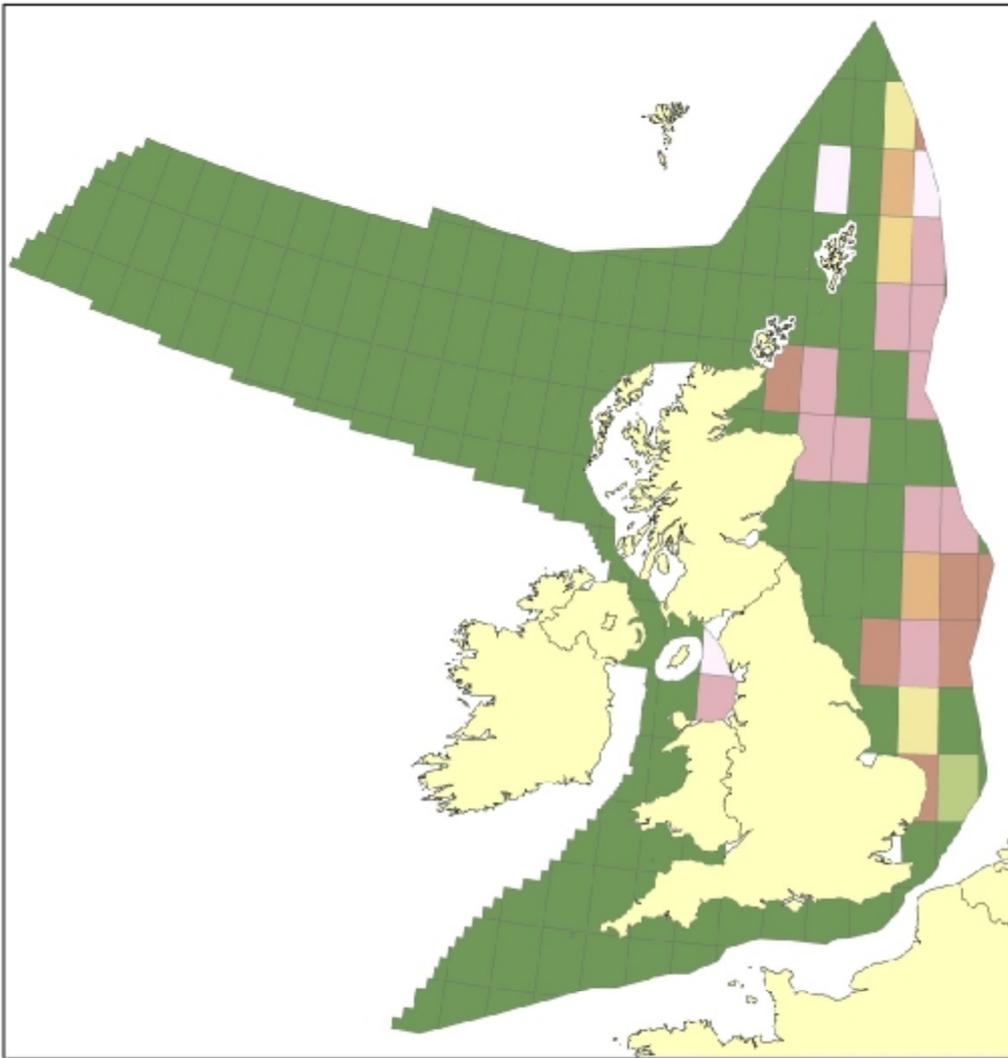


Shot Point Density 2008 (SP/km²)

December

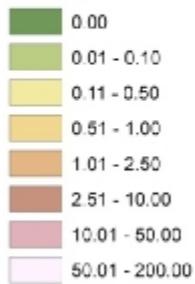


December 2008 Seismic Survey Activity (Density SP/km²)



Shot Point Density 2008 (SP/km²)

Annual



Annual 2008 Seismic Survey Activity (Density SP/km²)

ASCOBANS Annual National Report

A. General information

Name of party UNITED KINGDOM	Period covered 1 January - 31 December 2008
Name of report compiler James Gray Marine Biodiversity Division, Department For Environment Food and Rural Affairs (Defra)	Date of report 31 March 2009
Any changes in coordinating authority, appointed member of advisory committee N/A	

B. NEW measures/action towards meeting the resolutions of the Meeting of Parties

1. Direct interaction of small cetaceans with fisheries

Investigations of methods to reduce by-catch

Acoustic deterrent devices (model DDD-02F) have been tested in the bass pair trawl fishery following on from earlier work in 2006-2007. No cetacean bycatches were observed (though sample sizes are still relatively small) and these results lend further support to the notion that these devices represent an effective way of minimising or eliminating bycatch in this fishery. Investigations on the use of exclusion devices in the pelagic pair trawl fishery have been shelved at present because of the apparently greater degree of bycatch reduction that can be achieved using these acoustic devices.

Gillnet pingers (model DDD-02) that are somewhat louder than the pingers mandated in Annex II of Council regulation 812/2004 have been tested in conjunction with T-Pods on a standard tangle net in Cornwall in order to determine how far porpoises and dolphins might be displaced by such devices. This study followed a similar one in 2007. The 2007 experiment suggested that the degree of exclusion was inversely related to distance from the devices out to about 1.5-2km from source. The 2008 experiments suggested a slightly greater degree of exclusion, again inversely related to distance (i.e. not complete exclusion) out to around 2.5-3km. Following these results DDD-02 devices have been deployed with three UK registered gill and tangle net boats in order to test the effectiveness in reducing bycatch of porpoises and dolphins.

Results from these trials are expected in the Spring of 2009, but early indications are that they are indeed an effective means of minimising porpoise bycatch at a spacing of 2km. Use of this model would mean using far fewer devices while maintaining an appropriate level of bycatch mitigation, which in turn would mean that devices can be attached and detached from nets before and after hauling, thereby minimising breakages. These devices are also rechargeable on board and this should help ensure that battery replacement is not an issue. These three studies are being carried out by the Sea Mammal Research Unit at the University of St. Andrews and are funded by Defra.

The Scottish Government is currently funding a project to investigate the occurrence and causes of minke whale entanglement in Scottish waters. Using photo-identification techniques and strandings data, the project aims to discover how widespread such events are and whether there are any simple measures that might be taken to lessen the risk. The results of this project will be available in Autumn 2009.

Implementation of methods to reduce by-catch

All vessels involved in the bass pair trawl fishery are now voluntarily using DDD-02F devices to minimise dolphin bycatch. Skippers are convinced that these devices are an effective solution to this problem. Scientific investigations continue alongside this voluntary deployment in a collaborative study with industry

(see above). Three static net vessels are also using DDD-02s in the gill and tangle net fisheries in ICES Division VII. Two of these are over 12m and are required to use pingers under Council regulation 812/2004 and are using these devices as part of a scientific study under the derogations specified under Article 2 para 3 and Article 3 para 2 of Council regulation 812/2004.

Estimates of by-catch in set net and pelagic trawl fisheries

Bycatch monitoring is being undertaken to meet the requirements of EU Council Regulation 812/2004 and the Habitats Directive (92/43/EC). Bycatch estimates for 2008 are not yet available, but will be produced for the Report on Regulation 812/2004 that is due for submission to the Commission in June 2009. Data for 2007 are presented in the Annual Report of the United Kingdom to the European Commission on the implementation of Council Regulation 812/2004 on cetacean by-catch for 2007 and are summarised below.

Species	Estimated number of by-caught animals	Area (ICES area or more detailed)	Notes (type of fishery, effort, seasonal variations, etc.)
Porpoise	592	VIIadefghj	All set gillnet and tangle net fisheries
Common Dolphin	114	VIIadefghj	Hake gillnet and Tangle net fisheries (turbot, monkfish, skates, rays, crayfish, spider crabs)

2. Reduction of disturbance to small cetaceans

Information on levels of disturbance (e.g. seismic surveys, new high-speed ferry routes, studies about acoustic impacts on cetaceans, etc.)

Further trials have been completed to assess the extent to which acoustic deterrent devices (pingers, model DDD-02) may displace porpoise and dolphins. Such devices may be used in certain fisheries to minimise bycatch and there is a concern that widespread usage may have an impact on foraging success of dolphins and porpoises in the area whilst also protecting them from entanglement. Trials in 2008 suggested that displacement effects are detectable out to at least 2km for both porpoises and dolphins, but if all over 12m UK – based vessels were to deploy such devices the area of affected would likely be less than 1% of the area available for foraging in the Celtic Sea.

The Ceredigion County Council Study of cetacean site use and boat traffic along the Marine Heritage Coast and Cardigan Bay SAC is in its 16th year with over 8000 hours of volunteer effort.

Implementation of guidelines, new legislation, etc. to reduce disturbance

The Joint Nature Conservation Committee (JNCC) has produced statutory guidance relating to the deliberate disturbance and injury offences contained in the Conservation (Natural Habitats, &c.) Regulations 1994 and the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 in the marine area. The primary focus of the guidance is on the deliberate disturbance and injury of cetaceans, as these are the most prevalent Annex II species found in UK waters. We expect the guidance will be published on the JNCC website shortly.

The UK Government has introduced the Marine and Coastal Access Bill in Parliament. Subject to parliamentary approval we anticipate the Bill receiving royal assent later this year. The Bill includes proposals for a new system of marine planning and licensing, modernized inshore fisheries management, and new tools to designate and protect areas as Marine Conservation Zones (MCZs) for nature conservation purposes.

3. Protected areas for small cetaceans

Measures taken to identify, implement and manage protected areas

Scottish Natural Heritage (SNH) has a Memorandum of Agreement until 2012 with the Lighthouse Field Station, Aberdeen University, to monitor the bottlenose dolphin feature of the Moray Firth SAC. The latest report (2008) indicates that the number of dolphins using the Moray Firth is stable, although variable between years. Individuals from this population are known to travel outside the SAC, along the east coast of Scotland at least as far as the Firth of Forth, but the SAC still remains a core area for the population.

The Countryside Council for Wales (CCW) had 6 TPODs deployed in coastal locations in the Cardigan Bay SAC. The use of acoustic data loggers such as TPODs provide a method of collecting data continuously irrespective of light and weather conditions and is particularly useful for collecting data on rates of habitat use and revealing diel cycles of activity about which we currently know little. Bottlenose dolphin and harbour porpoise detection rates are negatively correlated and increased competition for limited prey may be a factor that may also be a reason for the rise in porpoise deaths resulting from attacks by bottlenose dolphin.

The report of Cardigan Bay and Pen Llyn a'r Sarnau SAC bottlenose dolphin and harbour porpoise monitoring from 2005 to 2007 has been produced along with a photoID catalogue. CCW continued to grant-aid Seatrust to conduct a small cetacean survey of the Bristol Channel (2007-2010).

CCW has grant-aided Seawatch to carry out a baleen whale survey of the Irish Sea (2007-2010). CCW has grant-aided West Wales Divers to survey harbour porpoise around Pembrokeshire Islands. The surveys are conducted on an opportunistic basis as part of tourist wildlife trips and has resulted in some novel statistical analysis.

CCW has grant-aided Marine Awareness North Wales to undertake further land and boat based surveys of harbour porpoise, 2006-2009 to support selection of SACs for this species. Analysis of data gathered in a previous study period (2002-2004) showed that a relatively high density of porpoise is found during the summer months. Distribution is not homogeneous with particular areas showing higher densities than others.

Connectivity of Bottlenose Dolphins in Welsh Waters has also been produced: A Bottlenose Dolphin PhotoID study conducted in collaboration with CCW, Seawatch Foundation and Marine Awareness North Wales. As a result of CCW funding for Bottlenose Dolphin PhotoID studies in North Wales, we now know a significant proportion of the Cardigan Bay SAC population use these waters during autumn and winter.

4. Further research on small cetaceans

Implementation of schemes to use and gain information from stranded cetaceans

In 2008, 583 cetaceans were reported to the UK Cetacean Strandings Investigation Programme (CSIP), 6.2% higher than the number reported in 2007. Of these, 485 were found stranded and dead, 81 were seen to have stranded alive and 17 were dead cetaceans found at sea. Consistent with previous years, the most common UK-stranded cetacean species in 2008 were the harbour porpoise (*Phocoena phocoena*, n=270) and the short-beaked common dolphin (*Delphinus delphis*, n=113). In addition, reports of 27 stranded marine turtles and six basking sharks (*Cetorhinus maximus*) were also received in 2008.

In 2008, 136 cetacean strandings (comprising 13 species), 10 loggerhead turtle (*Caretta caretta*) strandings and one Kemp's ridley (*Lepidochelys kempii*) turtle stranding were examined at post mortem using standardised protocols. No basking sharks were examined at post-mortem during 2008. The most common causes of mortality of the 69 stranded harbour porpoises examined at post-mortem in 2008 were starvation (n=28), pneumonias due to combinations of parasitic, bacterial and/or mycotic infections (n=14), bottlenose dolphin attack (n=12) and by-catch (n=8). Cases of fatal attack from bottlenose dolphins occurred in west Wales (n=5), north-east Scotland (n=4) and Cornwall (n=3) where porpoises have sympatric distributions with resident or semi-resident bottlenose dolphin groups.

Stranding alive (in otherwise healthy animals) was the most common cause of death in 29 of the 41 (71%)

UK-stranded short-beaked common dolphins examined in 2008, including the mass stranding event (MSE) in Cornwall in June 2008. In contrast, only two UK-stranded common dolphin carcasses were diagnosed as by-catch in 2008, a marked reduction compared to the previous 18 year period where by-catch was the most common cause of death in the large number of common dolphins that predominantly stranded in south-west England (Cornwall and Devon) between January and April. The reason for the reduction in numbers of stranded harbour porpoises and common dolphins that were diagnosed as by-catch in 2007 and 2008 (mainly in south-west England) is not known.

There were two unusual stranding events in the UK during 2008. The first involved 12 Cuvier's beaked whales (*Ziphius cavirostris*) (mainly in western Scotland), 11 long-finned pilot whales (*Globicephala melas*) (ten in Scotland, one in west Wales), three Sowerby's beaked whales (*Mesoplodon bidens*) (mainly in Western Scotland) and one unidentified beaked whale (in Wales) that stranded between 21 January and 10 April 2008. Most carcasses were found dead and in a degree of decomposition that was largely unsuitable for detailed post-mortem examination. The degree of decomposition appeared to deteriorate further as strandings progressed over time, consistent with death occurring at a similar point in time. This mortality event was investigated as part of larger cluster of strandings that occurred between 13 January and 14 April 2008 and included another 13 long-finned pilot whales and three unidentified beaked whales that stranded in Ireland (Dolman *et al* 2008). The cause(s) of the unusual mortality event was not established, predominantly due to the degree of carcass decomposition (Dolman *et al* 2008).

The second unusual mortality event was the MSE of common dolphins first discovered in the Fal estuary, Falmouth Bay, Cornwall on the morning of 9 June 2008. At least 26 dolphins stranded alive and died and more were refloated back to open water by rescue groups and bystanders. A full investigation of the MSE was funded by UK Government (Defra) through a variation to the existing contract. Detailed post-mortem examinations were conducted along with a comprehensive range of additional diagnostic tests for bacteria (including *Brucella* sp.), viruses (including morbilliviruses) and histopathological examinations in all 26 animals, together with the quantification of algal and chemical toxin levels in tissue samples from the adults only (n=7), making this one of the most intensively investigated cetacean MSEs ever undertaken. On post-mortem examination, all 26 dolphins were found to have empty stomachs and to be in good nutritive condition and all were suspected to have stranded alive. A number of potential causes of this MSE can be either excluded or considered highly unlikely. These include distemper (morbillivirus), brucellosis, other infectious diseases, gas embolism, fat embolism, boat strike, by-catch, attack from killer whales or bottlenose dolphins, feeding unusually close to shore, ingestion of harmful chemical or algal toxins, abnormal weather/climatic conditions and high-intensity acoustic inputs from seismic airgun arrays, recreational craft and natural sources (e.g. earthquakes). An international naval exercise was conducted in the South Coast Exercise Area prior to the MSE but information provided freely by the *UK Ministry of Defence*, under strict legally binding *Freedom of Information* legislation, indicates a period of approximately 60 hours between the cessation of mid-frequency antisubmarine sonar deployment and the discovery of the MSE. The naval exercise is therefore considered unlikely to have directly triggered the MSE. Ultimately, a definitive cause for the MSE could not be determined. The findings were most consistent with an adverse group behavioral response to an unknown trigger, or an intrinsic "error of navigation", or a confluence of additional unknown factors within an otherwise healthy social group of dolphins. Greater insight into the causes of any future MSEs may require either a direct observation of the onset, or the emergence of an unusual level of coincidence of MSEs or violent reactions with one or more causal factors. A report on this MSE will become available later in 2009.

Data and tissue samples generated from the systematic examination of UK-stranded cetacean carcasses since 1990 continues to support a broad range of multidisciplinary scientific research activity and has resulted in over 150 publications within the peer-reviewed scientific literature in that period.

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Research on abundance, population structure etc.

The Scottish Government and Scottish Natural Heritage are funding a project examining the distribution, abundance and population structure of bottlenose dolphins in Scottish coastal waters. The project is a

collaboration between the University of Aberdeen, Sea Mammal Research Unit (SMRU) and Scottish Association for Marine Science (SAMS) and is due for completion in September 2009.

Welsh Marine Mammal Atlas: CCW has contracted Seawatch Foundation to collate and analyse all available cetacean distribution and abundance data, provided by various NGO's, developers and CCW. This will result in a high resolution dataset for Wales based on a GIS platform and will underpin CCW's advice on oil, gas and renewable energy exploration. Additionally, in Wales a number of reports have been produced on Bottlenose dolphin monitoring and identification (see references below).

During 2008, a preliminary assessment of how Joint Cetacean Protocol data might be used to detect changes in abundance or range of UK and Ireland cetacean species was undertaken. The monitoring objectives that arise from Article 11 of the EC Habitats Directive were reviewed, and consideration was given to what measures might feasibly be monitored. Targets such as having high power to detect a 1% annual decline in abundance or range over a 6 year reporting period are not remotely feasible, and it is suggested that a 15-30% annual decline may be detectable over that period. Analysis of JCP data is difficult because the data are sparse, are collected over a range of spatial and temporal scales and often lack direct information about detectability. Potential analysis methods are reviewed, and methods for data integration and conduct an exploratory analysis of JCP datasets suggested. This assessment is provided as part of the documentation for the 2009 AC (Thomas, 2009).

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Thomas, L., 2009. Potential Use of Joint Cetacean Protocol Data for Determining Changes in Species' Range and Abundance: Exploratory Analysis of Southern Irish Sea Data. Report to Joint Nature Conservation Committee; National Parks and Wildlife Service; and Countryside Council for Wales.

Research on the effects of pollutants on cetacean health

PCB contamination has been linked to reduced pregnancy rates in harbour porpoises (Pierce et al., 2008). 17mg/kg lipid has been identified as the critical level at which the concentration of PCBs begins to affect harbour porpoise health (Jepson et al., 2008). This level has recently been proposed as one of the criteria used to assess the health status of harbour porpoises under monitoring plans being developed for the species by OSPAR.

Levels of hexabromocyclododecane (HBCD) have been found in harbour porpoises has decreased since 2003, possibly linked with the closure of a manufacturing plant at that time (Law et al., 2008a). Attention has also focused on perfluorooctane sulphonate (PFOS), a synthetic chemical with a wide range of uses including provision of resistance to water and oil, use as a flame retardant and as an active ingredient in pesticides and cleaning products. This has been found in significant concentrations in harbour porpoises stranded or bycaught in UK waters (Law et al., 2008b). This data is contributing to the OSPAR assessment of efficacy of regulatory controls and voluntary limitations on PFOS use. Currently the European Commission are considering measures to restrict the production, marketing and use of PFOS.

In order to improve our understanding of the scale and impacts of human derived noise occurring in the marine environment, the UK intends to complete a call for research proposals in early 2009. This call will be to identify and take forward research on assessing the current status of marine noise occurring in the marine environment, including shipping, and assessing what the impacts is on marine life.

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5. Public awareness and education

Measures taken in the fields of public awareness and education to implement or promote the Agreement

A new website has been launched to promote the work of the UK Cetacean Strandings Investigation Programme (CSIP) <http://www.ukstrandings.org>

A link to the ASCOBANS homepage has been placed on the whale and dolphin pages of the Defra website.

The Scottish Marine Wildlife Watching Code, launched in 2006, continues to promote responsible and sustainable wildlife watching by providing guidance on minimising disturbance to marine wildlife. It is relevant to both commercial tour operators and recreational users of the marine environment.

Questionnaire
on post mortem research schemes
within the ASCOBANS Agreement area

Name and address of reporting institution	UK Cetacean Strandings Investigation Programme (CSIP), Institute of Zoology, Regents Park, London, NW1 4RY, ENGLAND
Name of respondent	Mr Rob Deaville, Project Manager UK CSIP (0207 449 6672, rob.deaville@ioz.ac.uk)
What data are recorded routinely?	Data routinely collected include; <ul style="list-style-type: none"> • Temporal and spatial data • Biological parameter data (species, sex, sexual maturity, length, girth etc) • Post-mortem data (pathologist, carcass condition etc) • Cause of death data • Data on samples taken during post mortems and data on subsequent analyses
Description of methods and units of measurement used	Follow methods of Jepson <i>et al</i> (Jepson, P.D. (editor) (2005) Cetacean Strandings Investigation and Co-ordination in the UK 2000-2004. Final report to the <i>Department for Environment, Food and Rural Affairs</i> . Pp 1-79. http://randd.defra.gov.uk/Document.aspx?Document=WP01011_7735_ANN.pdf). Appropriate units of measurement used for each parameter.
List of tissue samples usually taken	A range of samples are routinely collected according to the method of Law <i>et al</i> . A variety of tissues are routinely sampled for any bacteriological, virological and histopathological investigations when deemed appropriate. Any non-routine samples are also collected as necessary.
How are the samples preserved?	A number of preservation methods are employed; <ul style="list-style-type: none"> • stored frozen at -20°C or -80°C; • stored in 70% ethanol (parasites); • or in 10% buffered formalin (fixed samples)
How are carcasses disposed of?	Any animals investigated at post mortem are disposed of using appropriate methods, usually by incineration.
Are data recorded in a computer database? Please describe	Data collected from strandings, post-mortem examinations and samples collected during post-mortem examinations conducted by the CSIP are routinely recorded onto a relational database. This database is in the progress of migration to a web-accessed system and a proportion of data collected by the CSIP will shortly be made publicly available via the NBN gateway (http://www.nbn.org.uk/).
How many data sets (by species) do you have?	The CSIP holds data on nearly 2700 UK stranded cetaceans investigated at post mortem between 1990 and 2008, comprising 18 species. A range of data is held for each stranding examined at post-mortem.
Which computer software is used?	Post mortem reports are stored in Microsoft Word format. The web-accessed relational database will be run on a Microsoft SQL Server platform.
Do you foresee any problems (e.g. regarding intellectual property rights etc.)	Intellectual property rights to the data directly generated as a result of CSIP work belong to UK government (Defra/Scottish Government/Welsh Assembly Government).

related to a central database?	
What advantages would you expect from a central database?	A central database would facilitate closer integration and collaboration between European stranding networks and help flag up any transboundary unusual mortality events (UME's) that might have occurred in the past and any that might occur in the future.
Additional Information (e.g. website addresses)	Further information on the CSIP is available at www.ukstrandings.org