

**MEMORANDUM OF UNDERSTANDING
ON THE EXCHANGE OF MULTI-BEAM BATHYMETRIC SURVEY
DATA AND PLANNING OF FUTURE SURVEYS**

Revision 2: February 2011



This Memorandum is made between:

Agri-Food and Biosciences Institute, (hereafter referred to as AFBI) Newforge Lane, Belfast, BT9 5PX.

and

British Geological Survey (hereafter referred to as BGS) of Nicker Hill, Keyworth, Nottingham, NG12 5GG.

and

Countryside Council for Wales (hereafter referred to as CCW) Maes-Y-Ffynnon, Penrhosgarnedd, Bangor, LL57 2DW, Wales.

and

Centre for Environment Fisheries and Aquaculture Science (hereafter referred to as Cefas) of Pakefield Road, Lowestoft, Suffolk NR33 0HT.

and

Department for Environment, Food and Rural Affairs (hereinafter referred to as DEFRA) Marine and Fisheries Directorate of Nobel House, 17 Smith Square, London, SW1P 3JR.

and

Joint Nature Conservation Committee, (hereinafter referred to as the JNCC) of Monkstone House, City Road, Peterborough, PE1 1JY.

and

Marine Scotland, Scottish Government, Victoria Quay, Edinburgh, EH6 6QQ.

and

Maritime and Coastguard Agency (hereinafter referred to as the MCA) of Spring Place, 105 Commercial Road, Southampton, SO15 1EG, an Executive Agency of the Department for Transport.

And

Ministry of Defence (Hereafter referred to as MOD) of Main Building, Whitehall, London, SW1A 2HB.

and

Natural England (hereafter referred to as NE) of East Parade, Sheffield, S1 2ET.

and

Scottish Natural Heritage, (hereinafter referred to as the SNH) of Great Glen House, Leachkin Road, Inverness, IV3 8NW.

and

The Crown Estate, 16 New Burlington Place, London W1S 2HX.

And

The United Kingdom Hydrographic Office (hereafter referred to as UKHO) of Admiralty Way, Taunton TA1 2DN.

1 SUMMARY STATEMENT OF AIMS

- 1.1 The overarching aim of the “Exchange of Multi-beam Bathymetric survey data and planning of future surveys” Memorandum of Understanding (MoU) is to avoid duplication of survey effort by the participating organisations. This will result in efficiency gains for the participants. This shall be achieved in one of two ways (A &B):
- 1.2 (A) Exchanging existing and future multi-beam echosounder (MBES) data and backscatter data between participating organisations at no cost.
- 1.3 (B) Establishing a mechanism to ensure that participating organisations’ future surveys are programmed in such a way so as to avoid duplication where ever possible.

2 PARTICIPANTS (Annex A)

- 2.1 Eligible participants in this MOU are defined as “**Organisations who commission hydrographic surveys within and in close proximity to the proposed UK EEZ and or with a significant holding of MBES data that they can contribute**”
- 2.2 A list of the current members, their overarching remits and requirements can be found in Annex A.

3 DEFINITIONS AND INTERPRETATION

- 3.1 In this MoU, unless the context requires otherwise, the following words and phrases shall have the following meanings:-
- 3.2 “Commencement Date” means the date specified in the Memorandum of Understanding for the commencement of the Services;
- 3.3 “Condition” means a condition within the Memorandum of Understanding;
- 3.4 “Commercial Use” or “Commercial Purpose” means use of the data where any form of profit or advantage is acquired by the party using the data. This does not include parties to the MoU passing information to subsidiary or contractor companies, as long as the material is not used commercially and the use fits within the concept of the Inspire Directive and the participant’s public task, but will include data which is placed on a external website or passed externally to third parties, where the data being provided is in a form which is used commercially by third parties. When parties to this MoU place data on an external website or provide it for external use, it must be in a format whereby the material is degraded to the extent it cannot be re-used;
- 3.5 “Memorandum of Understanding” means the documents listed in the Authority’s Memorandum of Understanding Letter, including these Conditions, any Programme, Annex, Specification, details of Memorandum of Understanding Price and Pricing Schedule and all other documents listed in that letter;
- 3.6 “Memorandum of Understanding Letter” means the letter sent to Participants confirming that the Memorandum of Understanding has been finalised and listing the documents which are to form the Memorandum of Understanding;
- 3.7 “Memorandum of Understanding Manager” means the official, or other person employed in that capacity, appointed for managing the Memorandum of Understanding;

- 3.8 “Intellectual Property Right(s)” means patents, registered designs, registered trademarks or service marks and applications for any of the above, design rights, copyrights, database rights for the purposes of the Copyright and Rights in Databases Regulations 1997, unregistered trademarks or service marks, Know-How, trade names, technical information, domain names and any other similar rights in any jurisdiction for inventions or discoveries;
- 3.9 “Month” means calendar month unless otherwise defined;
- 3.10 Any reference to a “person” will as the context may require, be construed as a reference to any individual, firm, company, corporation, government department, agency or any association or partnership (whether or not having a separate legal personality);
- 3.11 Under this MoU, “Multi-beam Data” shall comprise full-density, fully-attributed multi-beam data sets with any rejected soundings being retained in the dataset but flagged as “deleted”;
- 3.12 The MoU shall not be applied to odd lines of multi-beam gathered opportunistically, but rather to survey where significant blocks of multi-beam data have been acquired;
- 3.13 Data collected which no participating organisation has ownership rights to are excluded from this MoU.

4 STRATEGIC FIT

- 4.1 The INSPIRE Directive (2007/2/EC) aims to provide a framework for establishing Infrastructure for Spatial Information in the European Community. Article 17 of the Directive on data sharing states that public authorities should be able to gain access to spatial data sets and services and to exchange and use those sets and services, and have measures in place for the sharing of spatial data. Any charges should be fully compatible with the general aim of facilitating the sharing of datasets and services between public authorities, and where charges are made; these should be kept to a minimum (to ensure the necessary quality and supply of data sets and services).
- 4.2 The UK Marine Monitoring and Assessment Strategy (UKMMAS) aims to shape the capacities for understanding the state of the marine environment through coordinated and integrated marine monitoring programmes and assessment initiatives. Data stewardship is fundamental to the Strategy which promotes the ‘collect once and use many times principle’.
- 4.3 The signatories support the data policy of ‘collect once use many times’ and are participants of the Marine Environmental Data and Information Network (MEDIN). One of the aims of this network is to make it easier to locate and access UK Marine Data and Information.

5 DETAILED REQUIREMENTS – OBJECTIVE 1 - DATA SHARING

- 5.1 At the commencement of this MoU, each participating organisation will provide a listing of relevant data currently held by the organisation and that will be available for exchange under this MoU.
- 5.2 This MoU only extends to multi-beam data collected after 1st January 2003.

- 5.3 Multi-beam data will be exchanged between participating organisations in the agreed format outlined in 5.4. Multi-beam data shall also include all multi-beam backscatter data gathered by the participants as outlined in 5.4.
- 5.4 Any multi-beam sonar data collected from the date this MoU is signed shall be exchanged in fully-attributed GSF (version 2.02 or later) format (including mean intensity backscatter for each sounding). Although this remains the preferred format, other existing forms are acceptable for data sets pre-dating this MoU which are not readily available as GSF files. Data shall also be supplied in the multi-beam manufacturer's raw proprietary format (where held) in order that participants can reprocess the data themselves (e.g. to recalculate backscatter from raw values). No smoothing of data should be undertaken prior to the exchange. Data will have undergone the necessary Quality Assurance steps.
- 5.5 All obligations for archiving fully calibrated backscatter data (e.g. in manufacturer's raw proprietary format) rest with each participant and are outside the scope of this MoU, however it is expected compliance with MEDIN occurs and data is lodged at the relevant Data Archive Centre (DAC).
- 5.6 Any data exchanged under this MoU shall also include a MEDIN-compliant metadata discovery file (as detailed on the MEDIN web page¹)
- 5.7 To ensure discoverability of survey data, all participants shall provide metadata files for all multi-beam surveys to the relevant MEDIN DAC for upload onto the MEDIN web-site portal.
- 5.8 When the relevant DACs are fully functional and fully populated, all requests for data should be made to these DACs. In the interim all requests for: MCA derived data will be made via UKHO Seabed Data Centre, (Bathy.dac@ukho.gov.uk), and via BGS for raw proprietary data; JNCC derived data will be made via the Marine Protected Sites Team; NE derived data will be made via the Geographic services Team (within the Evidence Services Team); and Cefas derived data will be made available via the Monitoring Programme Management (requests to: Group Manager of Applied Technology), SNH data will be made available via the Coastal and Marine Ecosystems unit.
- 5.9 The requesting participant will supply the necessary mass storage media for the exchange of data and should accompany the request with a Data Request Form (Annex B).
- 5.10 All administrative charges will be waived by the participant supplying the data on the first request. Where subsequent requests are made for the same dataset by the same participant, the supplier of the data may reserve the right to charge an administration fee.
- 5.11 Data exchanged under this MoU cannot be used for commercial purposes without the prior agreement of the participant supplying the data. Where exchanged data is used for commercial purposes, financial and copyright terms shall then be the responsibility of the affected organisations and should be negotiated and agreed outside of this MoU.
- 5.12 Navigational products produced by the UKHO are exempt from clause 5.11.
- 5.13 Participants shall request data for whole survey areas and shall not request subsets of whole survey areas. There will be no limit to the number of surveys that a

¹ To view standards: <http://www.gigateway.org.uk/metadata/standards.html>.

participant may request under this MoU. Where possible, survey requests should be grouped so as to minimise administrative costs for data-suppliers.

5.14 All participating organisations shall, where possible, gather bathymetric data in accordance with Annex D.

5.15 Each participating organisation shall provide an annual summary of surveys undertaken in the preceding financial year at the annual meeting, which will be held in September/October each year.

6 DETAILED REQUIREMENTS – OBJECTIVE 2 - PROGRAMME INTEGRATION

6.1 There shall be an annual exchange of information regarding future plans between all participants in a meeting held annually during the month of September or October. This meeting will enable synergies to be identified between the organisations.

6.2 Chairmanship and hosting of the meeting shall be rotated between the participants commencing with the MCA (completed September 2009 and chronologically followed in order by; Defra; JNCC, Natural England, Cefas, BGS, CCW, The Crown Estate, SNH, MOD and then AFBI

6.3 Where joint surveying opportunities exist, the participants shall work in cooperation to establish a detailed scope of the survey and any possible joint-funding arrangements. Annex E provides a template to allow exchange of details/requirements between the participating organisations.

6.4 If joint funding opportunities are identified the surveying organisation should when possible provide an itemised and auditable quote (at cost) to 'upgrade' or modify the survey requirements to reflect the additional work required.

6.5 The MCA will ensure that a web page which enables the participants to upload view and download each other's annual survey programmes [which fall under the auspices of this MoU] and associated areas of planned coverage shape files (for the forthcoming two years) is funded and developed. The web page will be based on an internet mapping server.

7 MANAGEMENT

7.1 For a list of authors and contacts for the day to day management of the MoU please consult Annex C.

8 DURATION

8.1 Revision 2 of this Memorandum of Understanding shall take effect from 11th February 2011 and supersede the version dated 26th January 2009. A review of the MoU will be undertaken on an annual basis by the signatories to assess its success and make any modifications/changes, and if it is still required given the current developments occurring with regards to data exchange via MEDIN.

9 DELIVERABLES

9.1 Multi-beam sonar data in fully-attributed GSF (version 2.02 or later) format (including backscatter as outlined in 5.4). Data shall also be supplied in the multi-beam

manufacturer's raw proprietary format in order that participants can reprocess the data themselves (e.g. to recalculate backscatter from raw values).

9.2 Associated MEDIN-compliant metadata file, together with a survey report (as detailed in Annex D).

9.3 A summary report from each participating organisation detailing the past year's survey operations and where possible promulgation of future survey plans for the forthcoming two years. As per 6.5

9.4 Organisations shall submit current shape files to the MCA on an annual basis. An annual meeting of participants to discuss marine survey programmes shall also be organised by the appropriate MoU manager and hosted by the designated organisation as of 6.2.

10 PAYMENT

10.1 Where datasets are not used for commercial purposes by participants, all data supplied between participants under this MoU shall be at zero cost in accordance with 5.10.

10.2 The cost of annual meetings (see above) under this MoU shall be borne by the hosting organisation.

10.3 The MCA intend to fund the cost of developing and maintaining a web-based facility for the participants to publicise their future survey plans.

11 DATA OWNERSHIP AND ELECTRONIC SECURITY

11.1 Intellectual Property Rights (IPR) in the datasets and associated documents, are unaffected by this MoU and no such rights are transferred or assigned as the result of the supply of data.

11.2 It is agreed that all Crown data covered by this MoU may be used by each of the participating organisations as part of their public tasks and responsibilities. This excludes commercial use or selling of the data (with the exception of the MCA/UKHO whom may use the data for navigational products). It is also agreed that participants may share the data with other users for non-commercial purposes, where required to fulfil their public task, but that any non-Crown body which intends to re-use the data in a commercial nature, will need to inform the owner of the data to ensure the necessary copyright and licensing requirements have been adhered to, and such use will be subject to the terms and conditions of the data owner for commercial data usage.

11.3 Data or reports must not be used by participants other than the MCA/UKHO for products or services used in support of navigation. Products or services other than those used by the MCA/UKHO in support of navigation must always carry a warning stating "Not to be Used for Navigation". Excluding data used by the MCA/UKHO in support of navigation, all reports are to carry an acknowledgement of the originating producer.

11.4 Electronic media of any type or format supplied to participating organisations must be checked for viruses before shipment. Details of the computer virus detection and virus eradication software (or hardware) that are used to prevent infection and the frequency at which it is updated should be supplied.

11.5 Any publicity material generated under the terms of this MoU shall be approved by all signatories to this MoU prior to its release. Any items (including those distributed over the internet) produced by signatories (with the exception of the MCA) should be clearly marked with the wording “Not to be used for navigational purposes.”

12 LIABILITY

12.1 Notwithstanding anything else contained in this MoU, the signatories accept no liability for the use or misuse of any data or reports supplied to each other under the MoU. Furthermore, notwithstanding anything else contained in this MoU, no party guarantees the accuracy of data or reports supplied to each other under this MoU.

13 VARIATION OF REQUIREMENT

13.1 Any of the signatories are permitted to seek variation to the requirements of the Memorandum of Understanding, should this at any time become necessary. Any resulting variation should be in writing and signed by all participants.

14 TERMINATION OF THE MEMORANDUM OF UNDERSTANDING

14.1 Any signatory shall be entitled to terminate their participation in this MoU by giving all participating organisations not less than thirty days notice to that effect.

For **Maritime and Coastguard Agency**

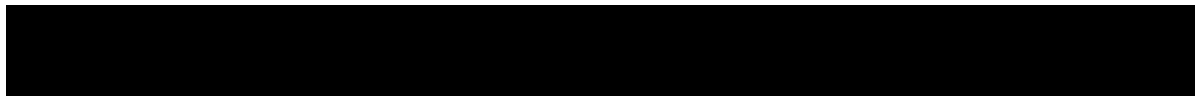
For **Department for Environment,
Food and Rural Affairs**



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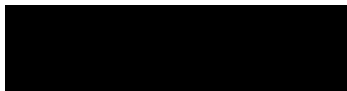
For **Joint Nature Conservation Committee** For **Natural England**



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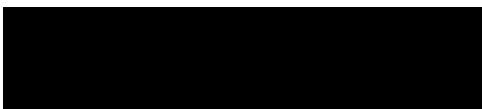
For **Centre for Environment, Fisheries & Aquaculture Science**



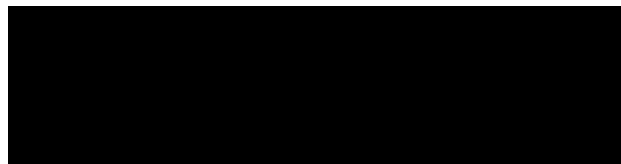
Date:

British Geological Survey

UK Hydrographic Office

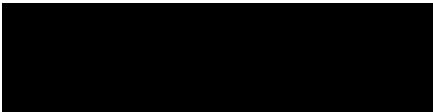


Date:



Date:

Countryside Council for Wales



Date

Marine Scotland



Date

Agri-Food and Bioscience Institute



Date:

Scottish Natural Heritage



Date:

The Crown Estate



Date

Ministry of Defence



Date

Annex A

Remit and overarching requirements of member organisations.

MCA's Remit and Overarching Requirements

- 1.1 The MCA is funded annually by the Department for Transport (DfT) to systematically survey the waters around the U.K in support of safety of navigation. This work is known as the "Civil Hydrography Programme" (CHP) and, under the programme, commercial contracts are let regularly to ensure accurate hydrographic information is gathered for updating the nation's nautical charts and publications. The area of CHP responsibility is shown in Figure 1. The CHP does not cover waters inside port limits.
- 1.2 The MCA works in close cooperation with the United Kingdom Hydrographic Office (UKHO) who assists them in discharging the United Kingdom's national hydrographic obligations under the International Convention for Safety of Life at Sea (SOLAS). Survey areas are prioritised using a risk analysis methodology.
- 1.3 Survey bathymetry data gathered under the CHP is archived on the MCA's behalf by the UKHO. Raw multibeam data is typically stored in the multibeam manufacturer's proprietary format and kept for the life of the original media. Raw data is also transcribed into a standardised format (currently "Generic Sensor Format" version 2.02) which is archived for posterity. The UKHO also store bathymetry data in various in-house "value added" formats.

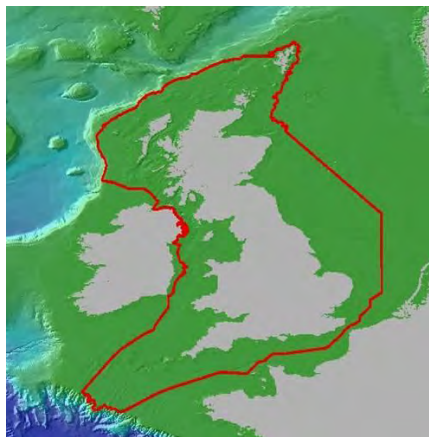


Figure 1

DEFRA's Remit and Overarching Requirements

- 1.4 Defra is custodian for UK marine and aquatic waters and leads on two new Public Service Agreements, which are key cross-government priorities:
 - Secure a healthy natural environment for today and the future; and
 - Lead the global effort to avoid dangerous climate change.
- 1.5 Defra itself does not collect survey data; it is its delivery agencies (Cefas, Natural England and JNCC) which are involved in the collection and storage of a range of data sets.
- 1.6 Defra has responsibility for the formation of policy in the marine environment including fisheries; marine nature conservation, licensing of a range of other human activities. A robust evidence base is critical for the formulation of policy, which requires access to a range of data types.
- 1.7 Defra has responsibility for the assessment of marine waters which requires data to be brought together from a wide range of marine organisations that are responsible for its collection. Collaboration in survey programmes, collecting data to common standards and sharing that data will reduce the overall costs of data collection and ensure that decisions are based on a common evidence framework. The use of common standards and sharing of marine data will also help achieve compliance with the EC INSPIRE (Infrastructure for Spatial Information in the European Community) Directive).
- 1.8 The Marine Strategy Framework Directive will require Defra to report in 2012 on the state of UK marine waters. The use of data will be required to deliver the marine and coastal access act, namely the selection of marine conservation zones and the ability of the Marine Management Organisation to deliver its Marine Spatial Planning functions.

Cefas Remit and Overarching Requirements

- 1.9 Cefas' purpose as an executive agency of Defra is to work alongside Government and other agencies, both UK and international, to play a vital role in securing healthy marine and freshwater environments for everyone's wellbeing, health and prosperity. This includes leadership in understanding the challenges presented by climate change on aquatic environments and ecosystems, and associated options for mitigation and adaptation. This is achieved by providing evidence-based scientific advice, managing related data and information, conducting world-class scientific research, and facilitating collaborative action through wide-ranging international relationships.
- 1.10 Cefas applies expertise and knowledge gained through over 100 years of applied science and research to: conserve and enhance marine and wider aquatic environments and ecosystems; ensure sustainable use of natural resources, in particular fish stocks; collect, interpret and manage data to underpin decisions and to support long term monitoring; protect society and the economy from the effects of aquatic contaminants and fish diseases; promote adaptation to the impacts of climate change on the aquatic environment and ecosystems; enable government and other customers' response to emergencies.
- 1.11 Cefas collects multibeam bathymetry and backscatter data as part of seabed and habitat mapping surveys. These surveys are predominantly conducted as part of environmental assessments of human activities or in the context of the identification and assessment of areas of conservation interest. Cefas has the capability to collect

multibeam data from its Research Vessel Cefas Endeavour, but data may also be collected by sub-contractors.

JNCC Remit and Overarching Requirements

- 1.12 The JNCC is the UK Government's wildlife Advisor with responsibility for the designation and management of Special Areas of Conservation (SAC's) and Special Protection Areas beyond 12 nautical miles² (under the Offshore Marine Regulations, 2007). The JNCC will also have responsibility under the marine and coastal access act to select Marine Conservation Zones in waters beyond 12 nautical miles.
- 1.13 The JNCC provide advice to the UK Government on suitable areas in UK offshore waters that may qualify as Special Areas of Conservation (SACs) in order to fulfil the UK obligations under the EU Habitats Directive (1992 Directive on the Conservation of natural habitats and of wild flora and fauna (92/43/EEC)). The JNCC has an active programme of survey to obtain physical and biological data to support the selection of possible SACs. This includes obtaining data to allow the extent of habitat types of community interest (listed under Annex I of the Habitats Directive) to be delineated, and for the biological communities present to be fully described.
- 1.14 JNCC operate a very open data access policy and as such data included within this MoU that is owned by JNCC will continue to be made available to others, beyond the membership of the MoU, without restriction.

MOD's Remit and Overarching Requirements

- 1.15 Defence has two high-level outputs, reflecting its roles as a Department of State and the nation's Armed Forces. These are:
- Defence policy, comprising the definition of the military capability and other objectives required of Defence to meet the Government's overall policy aims within planned resources; and
 - Military capability needed to deliver Defence policy and to support wider Government policy objectives.
- 1.16 Defence manages the Defence Hydrographic Programme, collecting hydrographic data and producing maritime geospatial products and data sets in support of defence interests worldwide. Delivery of this falls into a number of areas:
- 1.17 Defence Intelligence manages the defence customer requirements for maritime geospatial data and products and oversees the generation and delivery of the annual agreement against which the United Kingdom Hydrographic Office (UKHO) delivers to Defence.
- 1.18 The UKHO is an Agency of Defence with Trading Fund Status and its remit in this context is the delivery of products and services to Defence under the above agreement. The broader remit of the UKHO is detailed elsewhere.

Geographical Extent: 2 Continental Shelf Act 1967 for seabed features and UK Fisheries Exclusive Zone for features in the water column

- 1.19 Defence via the Royal Navy operates a number of ships with a hydrographic capability ranging from multibeam equipped survey motor launches through to a deep ocean multibeam sounding capability. These ships are programmed against defence requirements but are largely tasked to conduct Military Data Gathering. Both multibeam bathymetry and backscatter are routinely captured and other data sets can include side scan sonar imagery and sediment thickness data based on chirp sounder observations.
- 1.20 The majority of the Defence requirements for the gathering of military data are currently outside the UK EEZ and therefore fall outside this agreement. There are however Defence requirements within the UK EEZ and wherever possible this collection will be done in collaboration with MOU members and the data made available under the terms of this MOU.

Natural England Remit and Overarching Requirements

- 1.21 Natural England is the UK Government's wildlife Advisor with responsibility for English Territorial waters (0 – 12 natural miles) Natural England's core aims are to ensure: A **healthy** natural environment - England's natural environment will be conserved and enhanced; People are inspired to **value and conserve** the natural environment - more people inspired to enjoy, understand and act for the natural environment; **Sustainable** use of the natural environment - the use and management of the environment is more sustainable; A **secure** environmental future - decisions which collectively secure the future of the natural environment. Natural England's views are that a well managed MPA network is fundamental to the recovery and conservation of both biodiversity and ecological processes, and will make an essential contribution to sustaining wider marine ecosystem health. An MPA network is essential to ensure that healthy ecosystems have the capacity and resilience to adapt to ongoing climate change.
- 1.22 Natural England provide advice to the UK Government on suitable areas in English Territorial waters that may qualify as Special Areas of Conservation (SACs) in order to fulfil the UK obligations under the EU Habitats Directive (1992 Directive on the Conservation of natural habitats and of wild flora and fauna (92/43/EEC)). Natural England are developing a programme of survey and monitoring to obtain physical and biological data to report on the condition of new and existing European marine sites. This includes obtaining data to measure the extent of habitat types of community interest (listed under Annex I of the Habitats Directive), and for the condition of the biological communities present to be monitored.
- 1.23 Natural England is also developing a network of surveillance areas outside designated sites to fulfil reporting obligations under the Biodiversity Action Plans, future marine Strategy Framework Directive and OSPAR. This work outside SACs will also underpin the selection of Marine Conservation Zones proposed by the Marine and Coastal Access act
- 1.24 Natural England operates a very open data access policy and as such data included within this MoU that is owned by Natural England will continue to be made available to others, beyond the membership of the MoU, without restriction.

BGS Remit and Overarching Requirements

- 1.25 BGS is a part of the Natural Environment Research Council (NERC) and is its principal supplier of national capability in geoscience. BGS advances understanding of the structure, properties and processes of the solid Earth system through interdisciplinary surveys, monitoring, modelling and research for the benefit of society. It is the UK's premier provider of objective and authoritative geoscientific data, information and knowledge for wealth creation, sustainable use of natural resources, reducing risk and living with the impacts of climate change.
- 1.26 BGS produced the first reconnaissance marine geological maps of the United Kingdom Continental Shelf, based on more than 60,000 seabed samples and a grid of shallow seismic data (up to 300,000 line kilometres). Additional information was provided by the UKHO.
- 1.27 The first maps were a break through in understanding the seabed around the UK, but since these maps were produced the development of multibeam data has made it possible to greatly improve the resolution and quality of mapping.
- 1.28 BGS will focus its marine geology programme on a new generation of maps and digital products based on multibeam data (integrated with seismic data and around 90,000 seabed samples, of which around 30,000 were donated by other organisations). The maps are designed to underpin marine spatial planning, and will provide important evidence to support conservation, sustainable development of our marine resources, and marine spatial planning
- 1.29 BGS collects multibeam and backscatter data using its own shallow water multibeam system. It also utilises the deep water systems on the NERC research vessels and provides experts to work on joint projects with many organisations.

UKHO Remit and Overarching Requirements

- 1.30 The UK Hydrographic Office (UKHO) is a trading fund agency within the Ministry of Defence. Its mission is to meet national, defence and civil requirements for navigational and other hydrographic information. The hydrographic information it provides is crucial not only to support operations by the Royal Navy around the world but also to the majority of commercial shipping.
- 1.31 Although the MCA is responsible for meeting the UK Government's obligations under the United Nations Safety of Life at Sea (SOLAS) convention, UKHO discharges some of these on MCA's behalf. The UKHO is entirely reliant on the supply of adequate, accurate and up-to-date hydrographic information to fulfil its role in the provision of navigational products and services
- 1.32 The UKHO provides support to MCA in defining Civil Hydrography Programme (CHP) survey plans and specifications, providing oversight of surveys and then quality assuring the data collected. UKHO also holds the data for incorporation in navigational products and makes it available to third parties under licence. Consequently, although the UKHO does not commission bathymetric surveys, it is necessary for the UKHO to be a formal participant of this MoU.
- 1.33 The Marine Environmental Data and Information Network (MEDIN) has accredited UKHO as the Data Archive Centre (DAC) for bathymetry.

Marine Scotland Remit and overarching requirements

- 2.28 Marine Scotland (MS) was established on 1st April 2009 as a core Directorate of the Scottish Government. It is the lead marine management organisation in Scotland.
- 2.29 MS integrates the core marine functions involving scientific research, compliance monitoring, policy and management of Scotland's seas. MS is charged with leading delivery of the Scottish Government vision for the Scottish seas, which is sustainable economic growth through clean, healthy, safe, productive, biologically diverse marine and coastal environments, managed to meet the long term needs of nature and people. Marine Scotland is therefore the national centre in Scotland for policy, enforcement and research on aquatic ecosystems, fisheries, aquaculture and the aquatic environment in local, national and international contexts.
- 2.30 Marine Scotland comprises five divisions: Compliance, Fisheries, Performance & Aquaculture, Planning & Policy, and Science. In the context of this MoU, the most relevant are those dealing with marine planning and policy and marine science.
- 2.31 Marine Planning and Policy division is responsible for co-ordination of marine policies and delivery of Scotland's new marine planning system. This will contribute to sustainable economic growth from our seas and protect and enhance our valuable marine environment including marine species and the habitats that support them.
- 2.32 Marine Scotland Science division provides expert scientific and technical advice on marine and freshwater fisheries, aquaculture, and the protection of the aquatic environment and its wildlife. The aim of Marine Scotland Science is to support the principal policy and regulatory instruments by delivering a high quality scientific advice and regulation service built upon a focussed programme of monitoring and applied research. Marine Scotland Science aims to ensure that the policies and regulatory activities of Government are supported by full and up-to-date knowledge.

CCW Remit and Overarching Requirements.

- 2.33 The Countryside Council for Wales (CCW) champions the environment and landscapes of Wales and its coastal waters as sources of natural and cultural riches, as a foundation for economic and social activity, and as a place for leisure and learning opportunities. It was created by the Environmental Protection Act 1990 and is the Welsh Assembly Government's statutory advisor on sustaining natural beauty, wildlife and the opportunity for outdoor enjoyment in Wales and its inshore waters.
- 2.34 CCW works closely with the JNCC and other governmental and conservation bodies and organizations to study, monitor and advise on a wide variety of marine issues. It carries out a variety of monitoring programmes around the Welsh coastline to fulfill statutory legislative requirements such as those required for reporting under the EU Habitats Directive. Alongside its monitoring programme,

CCW regularly forms strategic partnerships to carry out scientific and conservation research or survey work. This forms an important part of the development of a strategic evidence base for management, and the support of policy development. In an advisory role, CCW provides independent, evidence based advice on a variety of marine issues, including marine ecosystems, marine spatial planning, marine renewable technologies, marine industries, and fisheries management. It is also heavily involved in advising the Welsh Assembly Government on the selection of Marine Conservation Zones in Welsh waters as part of the Marine and Coastal Access Act 2009.

- 2.35 CCW uses a wide variety of datasets, collected both internally or through partnership working, to carry out its monitoring and research work. This includes multibeam bathymetry and backscatter data, side scan sonar, seabed grab sampling, dive surveys and drop down video. This data feeds into projects such as seabed habitat mapping, assessing the impacts of maritime activities, reporting on the condition of habitats and species, invasive species monitoring, climate change work and providing advice and guidance during consultation exercises

The Agri-Food and Biosciences Institute (AFBI) Remit and overarching requirements

- 2.35. AFBI is a Non-Departmental Public Body of the Department of Agriculture and Rural Development for Northern Ireland (DARD). It was created on 1 April 2006 by the amalgamation of the former DARD Science Service and The Agricultural Research Institute for Northern Ireland. AFBI undertakes work programmes on behalf of DARD and other public bodies, and also work for commercial customers. The Institute has a staff complement of approximately 870 people, with a budget of approximately £50 million. AFBI is based at seven sites across Northern Ireland , with its Headquarters at Newforge Lane, Belfast.

Mission Statement

- 2.36. AFBI's mission is to develop a reputation as a world-class scientific institute, delivering proven value to Government and to customers.

The Corporate aims are to:

- deliver statutory scientific programmes in the areas of Agri-food, Animal and Plant Health, and the Environment;
- pursue scientific programmes for DARD and other customers which are designed to:
 - improve performance in the market; safeguard animal and plant health; maintain and invest in the environment; and build a successful rural economy and society;
- ensure AFBI's resources are adequately equipped to meet the challenges of change;
- provide high quality cost-effective services; Correct market failure in agri-food R&D, particularly where commerce finds such work difficult and unattractive by virtue of specialist facilities and skills required and their long term maintenance;

- provide access to specialist expertise and facilities for both industry and public sector bodies for contracted scientific services;
- become the partner or contractor of choice for local, national and international scientific programmes and contracts in chosen areas of expertise;
- maintain a critical mass of appropriate skills and resources to be able to provide an emergency response capability for DARD;
- develop the science base in Northern Ireland to contribute to local, national and international efforts where appropriate.

Scottish Natural Heritage Remit and overarching requirements

- 2.37 Scottish Natural Heritage is the Scottish Government's advisor on all aspects of nature and landscape across Scotland. SNH's role is to help everyone understand, value and enjoy Scotland's nature now and in the future.
- 2.38 SNH are responsible for developing and providing advice on Natura sites (Special Areas of Conservation - SAC's and Special Protection Areas - SPA's) and Nature Conservation Marine Protected Areas (under the Marine Scotland Act 2010), within Scottish territorial waters (0 - 12 nm).
- 2.39 In addition to the collation of existing data on marine biodiversity and geodiversity interests, SNH has an active programme of survey to obtain physical and biological data to support both the initial selection and future management of these protected areas.
- 2.40 SNH operate a very open data access policy and as such data included within this MoU that is owned by SNH will continue to be made available to others, beyond the membership of the MoU, without restriction.

The Crown Estate Remit and Overarching Requirements

- 2.41 The Crown Estate own virtually the entire seabed out to the 12 nautical mile territorial limit, including the rights to explore and utilise the natural resources of the UK continental shelf (excluding oil, gas and coal).
- 2.42 The Energy Act 2004 vested rights to The Crown Estate to lease the generation of renewable energy on the continental shelf within the Renewable Energy Zone out to 200nm. On 6 April 2009, this role was extended under the Energy Act 2008 to allow the offshore area to be used for methane gas and carbon dioxide storage.
- 2.43 For certain leases / development agreements (e.g. Offshore Wind Rounds 2 & 3) tenants are obliged to provide The Crown Estate with their survey data. Subject to the specific agreements The Crown Estate are therefore in a position to share data with the MoU group
- 2.44 The Crown Estate requires the best available MBES data to support their Marine Spatial Planning and Marine Stewardship activities.

Annex B

Data Request Proforma

MEMORANDUM OF UNDERSTANDING ON THE EXCHANGE OF MARINE SURVEY DATA AND PLANNING OF FUTURE SURVEYS

DATA REQUEST FORM

YOUR DETAILS	
NAME	
ORGANISATION	
ADDRESS	
	POSTCODE
PHONE	EXT
E-MAIL	

DATA REQUEST	
DATA OWNER	
DESCRIPTION OF DATA REQUIRED	
HI / SURVEY REFERENCE NUMBER(S)	
DATA FORMAT	
REASON FOR REQUEST	

DATE	
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All requests should be sent to the data owner organisation (see below) and should also be copied to [REDACTED] for collation	
E-MAIL	TELEPHONE SUPPORT
[REDACTED]	

Annex C

Key organisational contacts for this Memorandum of Understanding are outlined below. These individuals will act as the first point of call in each of the participating organisations:

BGS: [REDACTED]
[REDACTED]

CEFAS: [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED]

DEFRA: [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]
[REDACTED]

JNCC: [REDACTED]

MCA: [REDACTED]
[REDACTED]

MOD: [REDACTED]
[REDACTED]

NE: [REDACTED]
[REDACTED] [REDACTED]
[REDACTED]

UKHO: [REDACTED])

Marine Scotland: [REDACTED]
[REDACTED]

SNH : [REDACTED]

AFBI: [REDACTED] [REDACTED]

CCW: [REDACTED]

The Crown Estate: [REDACTED] [REDACTED]

Annex D

Requirements for Survey Reporting

Reporting for survey data exchanged under this MoU shall include the following requirements at a minimum:

1. A note of the horizontal datum to which the positions are referred (or the grid, if appropriate).
2. A note of the vertical datum to which the depths have been reduced.
3. The soundings should ideally be reduced using observed tides (not predicted tides from Tide Tables). But where predicted tides are used the model shall be stated.
4. Spurious data to be cleaned from the dataset.
5. Noise typically generates false shoal depths, and the surveyor is in the best position to determine which apparently shoal features are real and which are not. It can be misleading to pass false shoal depths through to the final chart – in order to avoid such a feature, a vessel may have to follow a course which is more dangerous than necessary. However data gathered exclusively for habitat mapping may contain extra detail but not be so critical of shoal depths which may compromise the extra detail required.
6. Cleaned digital data should have rejected soundings included, but flagged as deleted. The method used in any data-cleaning (e.g. Shoal or Median Biased) should be clearly stated.
7. Digital data should be full density (i.e. prior to any gridding, binning or tinning being applied).
8. The report shall include:
 - a. A list of the equipment and software (including version number) used, and the personnel involved.
 - b. How positioning equipment was set up and used
 - c. How the echo-sounder transducer was set up and levelled
 - d. How tides were measured, how the tide pole or tide gauge was levelled and how depths were reduced to chart datum. NB a levelling diagram is a useful method of confirming that datum adjustments have been carried out correctly.
 - e. Survey purpose: e.g. hydrographic survey, local habitat mapping survey, broadscale habitat mapping survey, etc.
 - f. Details on any multibeam backscatter processing undertaken.

In addition, where possible/feasible:

9. The accuracy of both the depth and position of soundings should meet IHO S44 Order 1 requirements. Ideally, the density of the data should be such that the minimum target sizes stated in IHO S44 Order 1 are always detected. A report should describe how the data was gathered and processed.

10. Reports should be written in the Royal Navy “Electronic Report of Survey” Microsoft Word template (template available from MCA on request).

Annex E
TASK ORDER REQUEST No

FROM:

TO:

Confirmation of tasking is requested in accordance with the attached work package

<u>Description of requirement</u> (Continue on separate sheet if necessary)	
Required commencement/ delivery date:	
<u>IPR</u> All results will be shared in line with MOU on multibeam bathymetry data. IPR ownership will rest with the main financial contributor	
<u>Quality</u> Applicable quality assurance standard (Continue on separate sheet if necessary)	
<u>Deliverable Items</u> (including dates, reports etc) (Continue on separate sheet if necessary)	
<u>Estimated / Actual cost</u>	
<u>Agreed financial contributions</u>	

On behalf of the [INSERT]	On behalf of [INSERT]
Signed:	Signed:
Name:	Name
Position	Position:
Date:	Date:

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