Marine Environmental Data and Information Network (MEDIN)

Annual Report for 2009-10

'Measure once, use many times'

1 Introduction

1.1 MEDIN is a collaborative and open partnership, established in April 2008, working to improve the management of marine data and information, and provide better access to the UK's marine data resources. Sponsors include government departments, research councils, environmental and conservation agencies, trading

funds and commercial organisations. It operates under the auspices of the Marine Science Coordination Committee, and reports to that body.

1.2 MEDIN aims to establish a coordinated framework for managing marine data and information, with the following key objectives:

- A single point of access to all relevant marine data and information.
- A robust network of definitive integrated Data Archiving Centres (DACs).
- The provision through the DAC network of priority data sets to underpin UK and EU legislative and obligatory requirements, for monitoring and marine planning, in line with INSPIRE principles.
- Facilitation of full data flow to the DAC network for all government sponsored contracts in the marine and coastal zone environment.
- Coordinate input to the development of international data commitments and drivers that may influence marine data management in the UK.
- Improving mechanisms to facilitate international data exchange (including contributing to global databases).
- Develop and maintain new/existing MEDIN resources that support improved access to marine data (data catalogues and inventories, data products, services, guidelines and tools).

1.3 MEDIN recognises that the funding support from the major government sponsors is based upon the expectation that MEDIN will provide improved access to and more efficient management of data sets required to meet key drivers, which include:

- The UK Marine Monitoring and Assessment Strategy (UKMMAS), which in turn addresses the reporting for more than 40 national and international obligations including OSPAR, Water Framework Directive and other marine environmental directives, and conventions on biodiversity. MEDIN sits on all the UKMMAS evidence groups, and is a member of the steering group for Charting Progress 2, the second UK National Assessment of the Marine Environment, which will be published in 2010.
- Supporting the functions of the National Marine Management Organisations (MMOs) and bodies in the devolved administrations with equivalent responsibilities. MEDIN has been in regular discussion with the England MMO, which is due to become fully operational in April 2010 and is already benefitting from MEDIN initiatives.
- Preparation for the first Characterisation Report under the Marine Strategy Directive, due in 2012.
- The UK Location Programme (UKLP) is delivering key government requirements for public access to spatial data and acting to ensure INSPIRE obligations are met. MEDIN is supporting UKLP, acting as a demonstration case and providing a lead role in the development of standards and resources.

2 Highlights in 2009-10

2.1 The network of MEDIN accredited marine Data Archive Centres (DACs) is now established and operational. This network provides the capability to upload and retrieve marine data, ensuring the data are managed according to best practice and are readily available for re-use. The contribution of the UK Hydrographic Office as a MEDIN bathymetry DAC is now agreed, and options for fisheries and heritage data are being considered.

2.2 MEDIN has supported a number of programmes to bring in priority data sets and to establish data flows from partners into the DAC network. These important data are gathered from sites around the UK, cover a variety of data types from marine species to sea level, and date back to the 1920's.

2.3 The MEDIN discovery metadata standard, developed to comply with national and international standards including UK Gemini 2, ISO and INSPIRE, has been implemented and tools have been developed to support its use. It has proved to be a fore-runner of its kind and has been adopted as a model of good practice by other communities.

2.4 MEDIN has also developed a number of data guidelines for specific data types, which are important to ensure interoperability and re-use of data.

2.5 Following a detailed review of user requirements MEDIN has completed the specification of a Marine Discovery Portal – with the aim of providing a single central search capability to enable users to identify and source marine data sets for all uses. The Portal will be completed and available on line in April-May 2010.

2.6 MEDIN now also maintains the UK Directory of Marine Observing Systems (UKDMOS). Established to support the UK Marine Monitoring and Assessment Strategy, UKDMOS provides detailed information on all Marine Monitoring programmes in the UK and so helps to coordinate and review monitoring activity.

2.7 MEDIN has initiated a number of projects to support improved access to reference data sets: infrastructure (e.g. cables, pipelines, well heads), marine gazetteer, and wrecks and shipping losses since 1946.

2.8 MEDIN continues to provide important links to European and International Initiatives:

- Supporting DEFRA in planning for data requirements under the European Marine Strategy Directive. Includes participation in the Working Group for Data, Information and Knowledge Exchange.
- Participation in IOC's International Oceanographic Data and Information Exchange Committee twentieth meeting (IOC/IODE-XX, 4-8 May, Beijing, China)
- Participation in ICES Working Group on Data and Information Management
- Participation in the Expert Group for EMODNET (European Marine Observation and Data Network)

2.9 A review of data policy within the UK marine community has been initiated, which will help to clarify how the application of different approaches impacts on the availability of data for re-use.

2.10 MEDIN was delighted to welcome Hannah Freeman to the MEDIN Core Team in September 2009. Hannah joins as a metadata scientist and is supporting partners in the generation and publication of metadata.

3 MEDIN Organisation

3.1 The MEDIN system of governance is described in Figure 1, below.

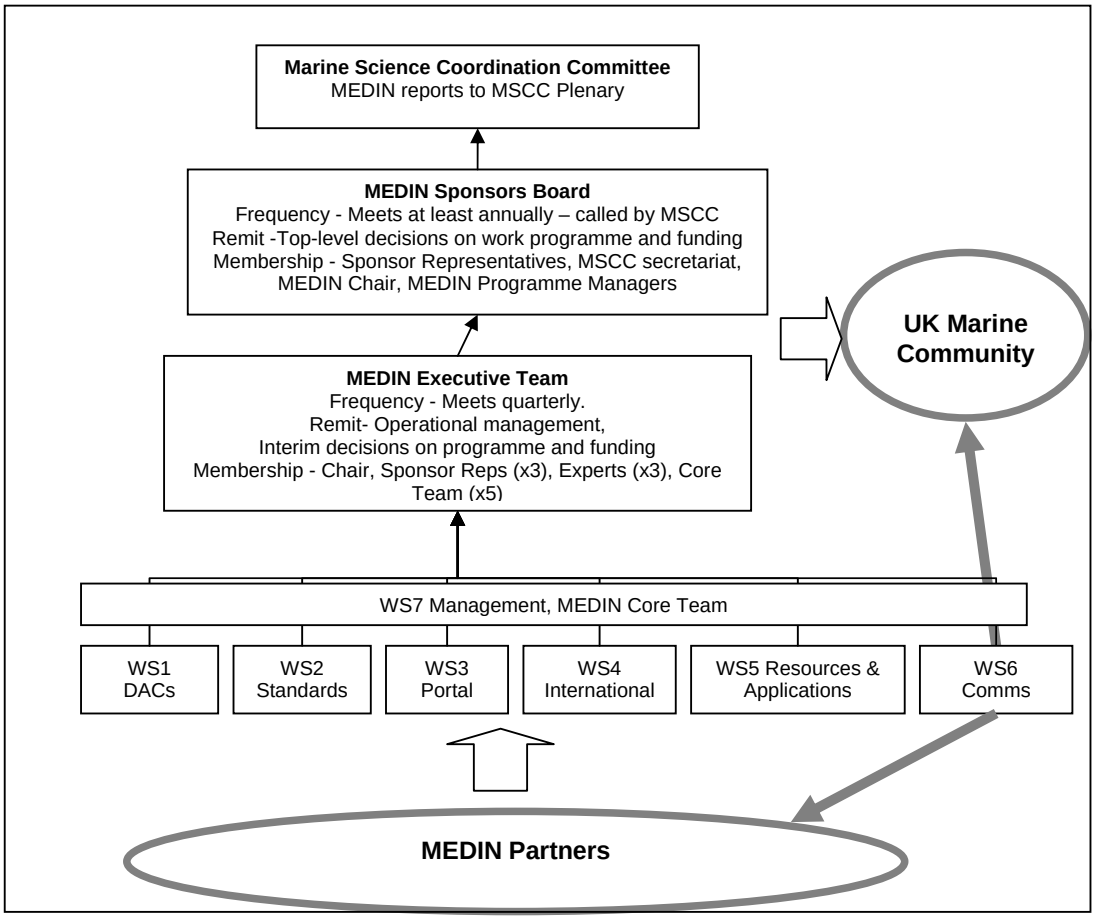

Figure 1: An overview of the MEDIN organizational structure

3.2 The Marine Science Coordination Committee is the parent body for MEDIN, it provides strategic direction to MEDIN and defines high-level goals. MEDIN reports to MSCC, through this annual report and shorter progress updates on request. MSCC has asked MEDIN to support a representative on the MSCC communications group.

3.3 The MEDIN Sponsors' Board is the executive body, responsible for approving budgets and work plans. It will meet at least once each year, to be called by MSCC. The current chair is Professor Peter Liss, FRS.

3.4 The MEDIN Executive Team meets quarterly, with the remit to provide interim guidance and management of the MEDIN work programme between Sponsors Board meetings. The current chair is Professor Peter Liss, FRS.

3.5 The MEDIN work programme is carried out within seven work streams (See Figure 1). Work stream leaders have been appointed and are responsible for the management and planning of the work stream activities.

3.6 A MEDIN core team of six staff is hosted the British Oceanographic Data Centre, which provides administrative and logistic support to MEDIN. The MEDIN core team provides project management, leadership for six of the seven work streams and secretariat support.

4 MEDIN Work Streams

4.1 In this section we provide short summaries of the activities of the seven MEDIN Work Streams in 2009-10.

WS1 Network of Data Archive Centres

4.2 The aim of this work stream is to support an operational network of MEDIN accredited marine Data Archive Centres (DACs) which provide: secure long-term storage for marine data, the capability to upload and retrieve data, to make available clear searchable information on their data holdings and to provide a source of expertise for the management of marine data. These DACs are not directly managed by MEDIN, but have committed to managing data according to a set of best practice procedures established by MEDIN.

4.3 The current status of the MEDIN DAC network is described in Table 1.

Name	Relevant Expertise	Contact Information	Web links	MEDIN Status
British Geological Survey (BGS)	Seabed and sub-seabed geology, geophysics	Paul Henni phoh@bgs.ac.uk	www.bgs.ac.uk www.bgs.ac.uk/geoindex/home.html	Accredited
British Oceanographic Data Centre (BODC)	Oceanographic Data, marine data from NERC programmes.	Polly Hadziabdic enquiries@bodc.ac.uk	www.bodc.ac.uk www.bodc.ac.uk/data/where_to_find_data	Accredited
Data Archive for Marine Species & Habitats (DASSH)	Benthic flora, fauna and habitats	Dan Lear dble @mba.ac.uk	www.dassh.ac.uk	Accredited
UK Hydrographic Office	Bathymetry Data	Chris Howlett chris.howlett@ukho.gov.uk	www.ukho.gov.uk	Accreditation approved
MEDIN Fisheries DAC	Fisheries survey data	Marine Scotland Science CEFAS, AFBI		Preparation for accreditation in progress

Table 1: Status of MEDIN DAC Network

4.4 In 2009-10 discussion continued on options for bringing the management of fisheries, heritage and met-ocean data within the MEDIN DAC network. A general approach for fisheries data has been agreed, but progress has been slower than planned due to difficulties in recruiting data managers at the relevant agencies.

4.5 A review from Geodata on funding of DACS was completed in 2009, and further discussions on models for sustainable long-term funding of DACs will continue in 2010.

4.6 In 2009-10 MEDIN allocated £240,000 from sponsorship funds to support the archival of important data sets so that they are available for re-use by the wider community, and to establish data flows into the DAC network from partners.

4.7 Ten projects were supported under this initiative, which involved the MEDIN Data Archive Centres and Marine Scotland, the Countryside Council for Wales, the Department for Energy and Climate Change, Joint Nature Conservation Committee, Scottish Association for Marine Science, Geodata and Wessex Archaeology. A wide range of data types were involved from locations across UK waters, with some data sets dating back to the 1920's.

4.8 MEDIN is also working with the partners in an important DEFRA funded Marine Protected Areas data layers project to ensure the layers produced are archived and available to the wider community.

WS2 Standards for Data and Metadata

4.9 Standards are essential to support the location and evaluation of marine data sets, to provide guidelines for the generation and preparation of data according to recognised standards and best practice, and to help partners meet their obligations under the INSPIRE directive. This aspect of MEDIN activity aims to establish, promote, document and provide guidance for standards for data and metadata to cover an expanding range of data types.

4.10 The MEDIN discovery metadata standard, the first vital step to improving the reuse of datasets, has been finalized and formally adopted. It is consistent with the relevant standards including UK Gemini 2, ISO and INSPIRE and is available, with guidelines on the MEDIN website. It has proved to be a fore-runner of its kind and has been adopted as a model of good practice by other communities.

4.11 Online and desktop tools to support the creation of metadata have been developed and are available through the MEDIN website. Using this standard will help MEDIN partners to meet their obligations (for metadata) under INSPIRE.

4.12 Data guidelines set out requirements that must be recorded when data of a certain theme is being collected. MEDIN is developing guidelines where partners indicate they are needed.

4.13 Guidelines for Sediment Sampling by Grab or Core for Benthos and Digital Photographs were developed in 2009-10 and are available on the MEDIN website.

4.14 Further guidelines have been prepared and are under review. These cover generic sampling techniques and specific packages of techniques

4.15 Guidelines are also in preparation to cover seabed survey and mapping. These will cover a range of techniques and will coordinate with activity under the DACs Work Stream in which a common strategy for processing and archiving of Multi-Beam Echo Sounder data is being developed in a collaboration between BGS, MCA, the UKHO and JNCC.

WS3 Web Portal, Products and Services

4.16 A priority for MEDIN is to establish a web portal that allows users to rapidly identify data or derived information products for a particular geographic area and/or by a particular data theme (e.g. temperature), assess relevance of data to their need through reviewing the associated metadata, and provide a clear route to access the actual data and products of interest

4.17 JNCC provided a review of MEDIN portal user requirements which was used as the basis for the specification for the new MEDIN Marine Data Discovery Portal. Following an open Invitation to Tender, Geodata were selected to build the portal which is now close to completion and will be available in April/May 2010.

4.18 The UK Directory for Marine Observing Systems (UKDMOS), developed by BODC for UKMMAS, is managed and the content updated by MEDIN. This portal contains content specifically related to marine monitoring programmes carried out by UK agencies. It provides UKMMAS members with key information on monitoring programmes to allow them to coordinate with other partners and so make most effective use of their resources.

WS4 International Awareness, coordination and data delivery to global databases

4.19 It is essential that developments in the UK are linked to key initiatives and developments in Europe and internationally.

4.20 MEDIN acts as a focus for and continues to provide support for UK input to INSPIRE (the European directive underpinning the development of a European Spatial Infrastructure) and to WISE marine (the marine component of the Water Information System for Europe). It provided the UK focus for input to the development of the European Marine Observation and Data Network (EMODNET), and ensured UK compliance with IOC and ICES Data Policies.

4.21 In addition MEDIN has carried out the regular transfer of Marine Scotland Science CTD (temperature/salinity/depth) data to the Global Telecommunication System (GTS) in near-real-time. This is important as these data can then be assimilated into operational models by the Met Office.

WS5 Resources and Applications Development

4.22 The objective of this work stream is to take an overview of how well the MEDIN framework and resources are meeting key user needs. Workshops and other fora are used to identify issues, monitor performance and user satisfaction, and to specify user requirements for further MEDIN resources and applications.

4.23 An Announcement of Opportunity was issued to facilitate the improvement of key reference and application datasets. Three projects were selected for funding: Improvement of the data base for shipping losses (English Heritage), Establishing Definitive Marine Marine Infrastucture Data Sets (Seazone, Common Data Access Ltd and Seafish Marine Services) and Development of a Marine Gazetteer (Geodata). These three projects started in Q4 2009 and will continue into 2010-11.

4.24 WS5 also supports the maintenance and updating of catalogues on the Oceannet website (tide & sea level, waves, current meters, and cruise database).

WS6 Communications: Outreach, forums, publicity

4.25 MEDIN continues to publish Marine Data News (MDN), to which submission of articles remains open to all organisations. In 2009-10 four issues of MDN were published and distributed to over 500 subscribers.

4.26 The website continues to be updated with tools and guidelines and information on relevant current initiatives.

4.27 An open MEDIN partners meeting was held in Liverpool in June and was well attended. MEDIN progress was discussed and new partners invited to contribute to the Work Stream activities.

4.28 MEDIN attended a number of events, including the Wales Environmental Information Forum, AGI 2009, Oceanology International 2010, and IMDIS (International Conference on Marine Data and Information Systems). MEDIN also sponsored the Coastal Futures 2010 meeting in January. MEDIN now has a high profile in the Marine Community and receives regular enquiries from potential new partners.

WS7 Management, Planning and Coordination

4.29 Work Stream 7 covers the management, planning and coordination activities as provided by the core team based at BODC, with the support of the MEDIN Executive Team. This includes the organisation of MEDIN Executive Team meetings, quarterly and annual reporting, and the production of an annual Work Plan.

4.30 MEDIN coordinates with and supports relevant initiatives working to improve access to environmental data, including the Environmental Research Funders Forum (ERFF), The UK Location Programme, and the development of a Data Sharing Charter for Wales.

4.31 MEDIN has initiated a review of data policy within the UK marine community, aiming to understand better how the application of different approaches to licensing impacts on the subsequent availability of data for re-use. This review will take into account all relevant recent developments within Government and is due in June 2010.

4.32 A key aspect of this work stream is also to continue to encourage partners as sponsors to adopt MEDIN best practices and standards as the ONLY way to ensure a sustainable long-term approach. Panel A summarises these standards and practices.

MEDIN Partner Commitments

–Apply and document recognised Quality Control procedures.
–All marine data of long-term interest to be lodged with DACs recognised by MEDIN. In return DACs to ensure data are always freely available to supplier.
–Generate metadata records for all marine data in MEDIN format and make these metadata freely available to MEDIN.
–Establish a clear policy with regard to data ownership, licensing and access as they apply to individual data sets.
–***Address these issues from the beginning – i.e. in data collection contracts.***
Contribute to the activities of the work streams – help to develop and implement standards and build resources

Panel A – MEDIN Partner Commitments

5 Progress Against Key Deliverables

5.1 The objectives for 2009-10 as given in the 2008-9 Annual Report are listed below in Table 2, together with progress achieved:

2009-10 Objectives	Progress
1. Progress the accreditation of two further DACs, for fisheries and meteorological data.	Progress with the fisheries DAC has been slower than planned because of difficulties found by partners in recruiting data managers. Progress on the Meteorology DAC has been dependant upon discussions within the Met Office.
2. The archival of a large volume of highly important marine environmental data into the MEDIN DAC network, data that were previously not accessible by the wider community.	Completed through a series of MEDIN funded projects as described in paragraph 4.7 and Appendix C
3. A significantly enhanced MEDIN discovery portal for marine data	The new portal has been fully specified and will be on-line in April-May 2010 (paragraph 4.17)
4. Continued development of key standards, in particular those required for evaluation metadata, in line with INSPIRE requirements and in parallel with developments under the UK Location Strategy.	Completed as described in paragraphs 4.9 to 4.15
5. Close working arrangements between MEDIN and the new organisations being established to manage the UK's marine environment.	MEDIN has been in regular discussions with the England MMO, and has had initial discussions with Marine Scotland and the Wales Assembly Government about the arrangements being established.
6. Continued delivery of UK data sets to global data-bases	This activity continues under WS4.

Table 2: MEDIN Objectives for 2009-10

5.2 It is also useful at this stage to review progress against the objectives of the 5 year MEDIN plan, established in 2008, see Table 3 below:

2013 Objectives	Progress
1. Single point of access to all marine data	Will be provided through the MEDIN portal – operational in April/May 2010
2. Network of integrated Data Archiving Centre (DACs).	Initial phase of DAC network in place.
3. Provision of priority data sets to underpin UK and EU legislative and obligatory requirements	Work in progress. European Marine Strategy Directive a main focus (Initial status due in 2012)
4. Facilitation of data flow to DAC network for all government sponsored contracts	To be achieved through partner implementation of Data Clause, agreed data flow arrangements. Pilot projects to establish data submission processes with partners
5. The necessary links with EU Directives & initiatives	Established – in WS4
6. Measurable reductions in costs of locating, accessing and retrieving marine data	Partners are asked to monitor practical benefits
7. An increased number of successfully furnished requests for archived marine environmental data	DACs are required to monitor and report.

Table 3: MEDIN Objectives for 2008-13

5.3 Bearing in mind that MEDIN is two years into the five-year programme, it can be said that good progress has been achieved. Of the seven deliverables, two are largely or fully achieved (2 and 5), and another (1) will be achieved within two months. Progress on (3) will be seen in 2012. (4) will be supported through pilot projects in 2010, and through partner efforts in implementing the data clause. The success in meeting (6) and (7) will become evident in the next 2 years, now that the MEDIN framework is established.

6 Financial Summary

6.1 Total **income** to MEDIN in 2009-10 was as follows:

2008-09 carry forward	£229,265
Committed Sponsor funds*	£728,000
Total income:	**£957,265**

* EA declined to continue their sponsorship of MEDIN at £20,000 for 2009-10, but have agreed to renew in 2010-11.

6.2 The provisional **actual spend** to the end of the 2009-2010 financial year are as follows:

Provisional Actual Spend to End March 2010

Employment Costs of Core Team:	£381,109
Travel and Subsistence Costs:	£18,794
Contracts	£412,947
Bought In Costs	£4,368
Total spend	**£817,217**

6.3 Thus the provisional **end of year balance is £140,048**

6.4 The original 2009-2010 work plan included a planned total spend of £985,618, as follows:

Employment Costs of Core Team:	£454,092
Travel and Subsistence Costs:	£35,850
Contracts	£495,676
Planned Total Spend for 2009-10	**£985,618**

6.5 The reasons for the under-spend against the planned budget are summarised below.

6.6 Approximately £70,000 less than planned was spent on MEDIN staff costs. The prime causes were that the metadata scientist was recruited in September rather than June, and because the portal build took place later in the year than intended and so an allocation of IT support time to support the implementation of the portal at BODC was not used.

6.7 £17,000 less than planned was spent on travel.

6.8 If bought in costs are included with contracts, approximately £78,400 less than planned was spent on contracts. The main cause of this was the lower than expected response to the Announcement of Opportunity for improvement to reference data, thus only £48,500 has been used of the original £102,000 allocation. The remaining ~£30,000 under-spend was an unused allocation within the DAC Work Stream intended to support the implementation of new DACS (which were delayed), and the generation of metadata in the new format (which was not bid for).

7 Conclusions

7.1 Important progress has been achieved by MEDIN in 2009-10.

- The MEDIN DAC network is now operational.
- Key standards for discovery metadata and data guidelines have been developed and are being adopted by the marine community.
- The final part of the MEDIN Framework, the MEDIN marine discovery portal is being built and will be online within 2 months.
- Through the allocation of £240,000 to ten data projects, major marine data sets are now available to the UK marine community, and data upload processes have been established between MEDIN partners and the DAC network.
- Work has begun on improving key reference data sets.

7.2 Together, these developments mean that MEDIN partners and the wider community are beginning to experience real benefits in terms of easier access to an increasing range of marine data and information.

7.3 MEDIN is already playing a vital role in delivering the UK Marine Science Strategy, through the following activities:

- Fostering a culture of data sharing and good management, including common protocols for data collection and quality assurance of the data obtained.
- Supporting efficient and easy access to marine data from all sources, including data and information from all sectors of the marine community as identified in the Marine Science Strategy: UK Marine Industry, Government Departments, NGOs, Research and Academia.

7.4 The importance of making scientific data more widely available, the key aim of MEDIN, has been emphasised by the House of Commons Science and Technology Committee in its report on climate data at the University of East Anglia[1], which stated: "We therefore consider that climate scientists should take steps to make available all the data that support their work ....."

7.5 The 2010-2011 MEDIN Work plan will include:

- Expanded coverage of the MEDIN DAC network to include (provisionally): Fisheries, meteorology and heritage data.
- Establish data flows into the network through pilot projects with partners and wider implementation of the data clause.
- Continued developments of standards, including guidelines for geophysical benthic surveys and plans to identify a common strategy for processing and archiving of multi-beam echo sounder data.
- Full implementation of the MEDIN discovery portal, and development towards full coverage of UK marine data sources
- Review of DAC funding options.
- Continued support for MMOs and equivalent bodies, for UK Location Programme, and Implementation of European Marine Strategy Directive and INSPIRE

7.6 During 2010 MEDIN will build a 3 year work plan and business case for 2011-2014. A key aspect will be to establish a long term sustainable funding model for

[1] "The disclosure of climate data from the Climatic Research Unit at the University of East Anglia" 31/03/10. http://www.publications.parliament.uk/pa/cm200910/cmselect/cmsctech/387/387i.pdf

MEDIN and for the DAC network.

Organisations Active in MEDIN

ABPmer	Marine Environmental Consultancy, (www.abpmer.co.uk)
AFBI	Agri-Food and Biosciences Institute (Northern Ireland), (www.afbini.gov.uk/)
DECC	Department of Energy and Climate Change *Sponsor*, (www.decc.gov.uk/)
BGS	British Geological Survey, *Accredited MEDIN DAC* (www.bgs.ac.uk)
BODC	British Oceanographic Data Centre, *Accredited MEDIN DAC* (www.bodc.ac.uk)
CEFAS	Centre for Environment Fisheries and Aquaculture Science, (www.cefas.co.uk)
CCW	Countryside Council for Wales (www.ccw.gov.uk). *Sponsor*
The Crown Estate	*Sponsor*
DASSH	Data Archive for Seabed Species and Habitats, hosted at MBA. *Accredited MEDIN DAC*. (www.dassh.ac.uk)
DEFRA	Department for Environment Food and Rural Affairs. *Sponsor* (www.defra.gov.uk)
EA	Environment Agency, *Sponsor*. (http://www.environment-agency.gov.uk/)
EDINA	Unit of Edinburgh University. Provides GI services for academic Community, (www.edina.ac.uk)
English Heritage	(www.english-heritage.org.uk)
Finding Sanctuary	A project aiming to create a network of Marine Protected Areas of the South West Coast of England. (www.finding-sanctuary.org/)
Geodata	Consultancy based at University of Southampton, specialising in environmental data management. (www.geodata.soton.ac.uk)
Historic Scotland	www.historic-scotland.gov.uk
HR Wallingford	Marine consultancy. *Sponsor* (www.hrwallingford.co.uk)
IMAREST	Institute for Marine Science and Technology. (www.imarest.org.uk)
JNCC	Joint Nature Conservation Committee. *Sponsor* (www.jncc.gov.uk)
Marine Scotland Science	(www.marlab.ac.uk)
MBA	Marine Biological Association (www.mba.ac.uk)
MCA	Maritime and Coastguard Agency. *Sponsor* (www.mcga.gov.uk)
Met Office	*Sponsor* (www.metoffice.gov.uk)
MOD	Ministry of Defence. *Sponsor* (www.mod.uk)
NERC	Natural Environment Research Council, *Sponsor* (www.nerc.ac.uk)
NIEA	The Northern Ireland Environment Agency, *Sponsor* (www.ni-environment.gov.uk)
RCAHMS	Royal Commission on the Ancient and Historic Monuments of Scotland www.rcahms.gov.uk
SAMS	Scottish Association for Marine Science (www.sams.ac.uk)
Scottish Government	*Sponsor* (www.scotland.gov.uk)
SNH	Scottish Natural Heritage (www.snh.org.uk)
SeaZone	Commercial Company delivering marine GI products, *Sponsor* (www.seazone.com)
SEPA	Scottish Environment Protection Agency. (www.sepa.org.uk)
SSMEI	Sustainable Scotland Marine Environment Initiative. (clydeforum.org/SSMEI/) and (www.nafc.ac.uk/Marine_Management/General/SSMEI/)
UKHO	United Kingdom Hydrographic Office. *Sponsor, and MEDIN Accredited DAC for Bathymetry data* (www.ukho.gov.uk)
Wessex Archaeology	(www.wessexarch.co.uk/)

Glossary

CTD	"Conductivity, Temperature, Depth" – shorthand for a standard water column profile measurement of temperature and salinity against depth
DAC	Data Archive Centre
EMODNET	European Marine Observation and Data Network
FRS	Fellow of the Royal Society
GTS	Global Telecommunications System
HBDSEG	Healthy and Biologically Diverse Seas Evidence Group
IACMST	Inter Agency Committee on Marine Science and Technology (www.marine.gov.uk)
ICES	International Council for the Exploration of the Sea
INSPIRE	Infrastructure for Spatial Information in Europe, EC Directive (inspire.jrc.it/)
IOC	Intergovernmental Oceanographic Commission
IPR	Intellectual Property Rights
ISO	International Organisation for Standards
MDN	Marine Data News
MEDIN	Marine Environmental Data and Information Network
MMO	Marine Management Organisation.
MSCC	Marine Science Coordination Committee
NGO	Non Governmental Organisations
OSPAR	International Commission for the Protection of the Marine Environment of the North-East Atlantic (www.ospar.org)
OPSI	Office of Public Sector Information
UKDMOS	UK Directory of Marine Observing Systems – an initiative under the UK Marine Monitoring and Assessment Strategy to provide information on marine monitoring programmes.
UKLP	UK Location Programme
UKMMAS	UK Marine Monitoring and Assessment Strategy. The UK government led programme to coordinate marine monitoring necessary to meet government objectives of a clean, healthy, safe, productive and biologically diverse marine ecosystem (see www.defra.gov.uk/environment/water/marine/uk/science/monitoring.htm)
WISE	Water Information System for Europe, a joint initiative between the European Environment Agency and the European Commission.

Appendices

A Work Stream Deliverables

Work Stream 1: Data Archive Centre Network		
Deliverable	**Status**	**Commentary**
Q2 2009-10		
Fisheries DAC workshop: consolidated plans to establish FishDAC	*ongoing*	Workshop held in Q2, actions for Marine Scotland, CEFAS and AFBI agreed. Initial plans to engage SFCs established
Issue contracts to incorporate new data sets	*completed*	10 contracts issued and projects started
Q3 2009-10: DAC funding Review available (Q3)	*Completed*	A process is to be established to respond to this
Workshop to discuss Maritime Heritage DAC	Completed	Workshop organised by EH at National Monuments Records. Further discussions required
Met Office to submit DAC accreditation proposal	*Postponed*	Meeting planned April 2010
Paper from MEDIN Core team on DAC requirements from Charting Progress 2	*Completed*	To be discussed within UKMMAS Evidence groups
Finish Marine Science Scotland, CEFAS FishDAC accreditation	MS have submitted accreditation. CEFAS and AFBI have not	DAC WG to discuss with MSS how to progress. CEFAS and AFBI to be encouraged to submit.
Q4 2009-10 Initiate process to establish Maritime Heritage DAC	Completed	Workshop organised by EH at National Monuments Records. Further discussions required
Agreements for data responsibilities	ongoing	DAC WG chairs are discussing a proposed process
Met Office to submit DAC accreditation proposal	ongoing	Meeting planned April 2010
DAC Annual Reports	ongoing	Received from DASSH, BODC and BGS
Annual WS Report	ongoing	

Work Stream 2: Standards		
Deliverable	**Status**	**Commentary**
Q1 2009-10		
Initial document specifying what is 'evaluation' metadata and proposal for elements to include.	*Ongoing*	Discussions with NERC and MCA
Rerun the Marine Recorder species list through WoRMS	*Completed*	
Approve and publish the data guideline for benthos.	*Ongoing*	Being reviewed by NMBAQC, and Countryside Agencies
Let contracts as required to define thematic data guidelines for geology and geophysics.	*Ongoing*	Awaiting feedback by UKMMAS Seabed mapping group
Provide document on future of protocols database in coordination with WS 5	*Completed*	Options provided to UKMMAS Protocols Group
Define and agree high level keyword list to allow searches from the portal	*Ongoing*	Awaiting agreement on MEDIN scope. Initial research completed
Q2 2009-10		
Implement the keyword list in NERC vocab server and link to existing vocabs	*Completed*	
Q3 2009-10		
Revision of MEDIN discovery standard following release of GEMINI2.	*Completed*	
Implementation of an evaluation metadata standard	*Ongoing*	Approach Agreed
To work with JNCC to make the Marine Recorder species list WoRMS compliant	*Completed*	
Publish further Data Guidelines	*Ongoing*	Digital Photograph published, others under development.
Implementation of an evaluation metadata standard	*Ongoing*	Approach Agreed
Q4 2009-10		
Publish all data guidelines originally identified in development of guidelines document (Feb 2009).	*Ongoing*	All drafted, some published, others awaiting completion of the review
Identify other data guidelines that require development	*Ongoing*	See minutes from last WG and priorities for 2010
Consider other standards required to support the operation of MEDIN	*Ongoing*	See minutes from last WG and priorities for 2010
Annual WS Report	*Ongoing*	In preparation

Work Stream 3: Web Portal and Services		
Deliverable	**Status**	**Commentary**
Q2 2009-10		
Specification for MEDIN discovery portal	*completed*	10/09/09
Implement the IT fix to the current portal	*completed*	
Recruit metadata and IT support	*completed*	Aug 09
Q3 2009-10		
Issue contract for portal build	*completed*	As of 07/12/09
Work plan for metadata generation by DACS and partners	*completed*	See paper for WS1
Q4 2009-2010		
Delivery of Portal contract	*ongoing*	Expected 01/04/2010
Portal online, following testing	*delayed*	Now expected Q2 2010

Work Stream 4: International Links and Coordination		
Deliverable	Status	Commentary
Q1 2009-10		
Report on IOC IODE-XX Committee meeting, especially UK relevant issues Report on ICES WG-DIM meeting, especially UK relevant issues	*Completed*	
Q3 2009-10		
Report on UK obligations and contributions to global databases	*In progress*	Activities under "Provide a UK view on European and International Initiatives relevant to MEDIN" and OPEG are contributing to this
Q4 2009-10		
Report on UK obligations and contributions to global databases	*In progress*	As above
Delivery of water bottle and CTD data to global data centres (part 1)	*Deferred*	Assessment of CTD data before end December 2009; water bottle data to be reviewed and resubmitted to WDC Silver Spring in 2010.
Delivery of CTD data from NERC vessel to the Global Telecommunication System	*Ongoing*	Data continue to be submitted to the GTS from Marine Scotland

Work Stream 5: Resources and Application Development		
Deliverable	Status	Commentary
Q2 2009-10		
Workshop 'Sea areas and gazetteer'	*not done*	
Progress on 'Base reference layers'	*not done*	
Q3 2009-10		
Progress 'Sea areas and gazetteer' to deliver a product	*not done*	Addressed by Geodata Proposal
Maintenance of existing resources[1]	*ongoing*	
Q4 2009-10		
RAWG meeting		Teleconf held between MO, DC and MH
Maintenance of existing resources[1]	*Ongoing*	Ongoing, as reported above
Use case reporting	*Not done*	

Work Stream 6: Communications		
Deliverable	Status	Commentary
Q2 2009-10		
Partners' Meeting	*Complete*	30th June 2009 in Liverpool
Attend meetings as required for outreach		World Hydrography Day (18/06/09)
Q3 2009-10		
Maintain website	*Ongoing*	
Issue of Marine Data News	*Ongoing*	4th and final issue of 2009
Q4 2009-10		
Issue of Marine Data News	*Ongoing*	1st issue this year published, 2nd on schedule
Executive meeting	*Complete*	25th March 2010 in Liverpool
Publicity materials	*Complete*	Updated and distributed

Work Stream 7: Management, Planning and Coordination		
Deliverable	Status	Commentary
Q2 2009-10		
Updated Plans for Year 2	*completed*	Modified according to input from Sponsors
Consolidated version of partnership agreement.	*completed*	Modified according to input from Sponsors and partners
Contract to Review Current Data Policy position	*completed*	Contract let in 02/10
Plan for partners / sponsors to adopt data clause.	*ongoing*	
Q3 2009-10		
Updated guidance for implementation of data clause	*not started*	Awaiting feedback from previous implementations
Q4 2009-10		
Plans for Year 3	In preparation	
Annual Report	In preparation	
Report from Partners on MEDIN Commitments		11 received
Report on adoption of, and experience from, Marine Data Clause		Limited feedback.
Summary of Sponsor Visits	To be prepared	

B Summary of Partner Questionnaires

Eleven completed questionnaires were submitted by the following organisations:
Firth of Clyde Forum, Historic Scotland, Marine Science Scotland (MSS), MCA, MOD, RCAHMS, SAMS, SEPA, SNH, SSMEI Shetland, the Crown Estate, Wessex Archaeology (WA)
A number of organisations are interested in a meeting with MEDIN staff: Marine Scotland, SEPA, SAMS, SNH

- The main interests in MEDIN seem to be an improvement in access to data, improved standards and use of standards/guidelines. Targets for MEDIN were highlighted as DACS, getting standards adopted, EASY TO USE tools and legacy data. Most organisations were interested in Workstreams 1-5 and in particular 1-3.
- Participation in MEDIN was primarily through meetings; using predominantly between 1-10 days of staff time, with the MCA accounting for 15 days and MSS for 1 month due to working on in-house data management. Resource costs were usually from 0-£1000.
- There has no contribution to Marine Data News from these organisations (SSMEI wrote an article for the MDIP newsletter)
- Internal MEDIN promotion varies significantly between organisations: Marine Scotland have appointed a data manager to target MEDIN; Historic Scotland promoted MEDIN objectives to Corporate GIS and grant programmes; MCA invited MEDIN to the Annual Committee on Shipping Hydrography; Visit to the Crown Estate; MOD internal awareness only to those with an interest in marine data; WA promoting use of MEDIN standards; SAMS executive now agreed to adopt the MEDIN standards across activities. Most organisations are happy to receive material from MEDIN.
- Most organisations collect a wide range of marine data with the exception of Historic Scotland and the Crown Estate. All organisations contract out marine data except SAMS, SEPA and The Crown Estate. No MEDIN data clauses have yet been invoked; SSMEI, Historic Scotland and the Firth of Clyde will in future. The MCA suggest that the principles are already covered in the standard MCA specification.
- Almost all organisations hold value added marine data (e.g. GIS layers) except for the Crown Estate (currently).
- Management of data varies; three organisations house their data within a MEDIN accredited DAC or are in the process of doing so; a number of organisations manage data in-house, some sending contaminants data to MERMAN and specific datasets to MEDIN DACs; three organisations archive their data with third parties such as the RCAHMS. SAMS have indicated that they would prefer a better data management system.
- Metadata is currently produced in some form by most organisations except the MOD and the Firth of Clyde Forum. SAMS (NERC data) and the MCA are already producing MEDIN format metadata. MSS and SSMEI are working on creating MEDIN format metadata. Metadata is produced in-house by SEPA, however, they have asked for guidance. The Crown Estate claims that their metadata is INSPIRE, ISO, GEMINI and MEDIN compliant and is currently produced and stored in-house. Historic Scotland metadata is GEMINI compliant and WA produces metadata to heritage guidelines.

- SEPA, SSMEI and SNH are willing to annually report against the requirements listed in the partnership agreement.
- Examples of activities relevant to MEDIN – 7 organisations did not fill in this section; MSS re-submission Fisheries DAC accreditation, SNH are adopting Marine Recorder (or equivalent) for benthic data and making a lot of information available through geoView (internal GIS viewer), Firth of Clyde Forum willing to use their Seabed habitat map as a pilot project and to follow MEDIN standards throughout their Action ENV2 project, MCA highlight the Civil Hydrography Annual Seminar and the Hydro Data Sharing MoU.

Glossary

BODC – British Oceanographic Data Centre
DACs – Data Archiving Centres
GEMINI – A UK based Geo-spatial discovery metadata interoperability initiative
GIS – Geographic Information Systems
INSPIRE - Infrastructure for Spatial Information in the European Community (metadata)
ISO - International Organization for Standardization
Marine Recorder – Marine specific database application
MCA – Marine Coastguard Agency
MEDIN – Marine Environmental Data and Information Network
MERMAN - Marine Environment Monitoring and Assessment National database - Data on contaminants and biological effects are collected and stored under the Clean Safe Seas Environmental Monitoring Programme (CSEMP)
MOD – Ministry of Defence
MoU – Memorandum of Understanding
MSS – Marine Science Scotland
NERC – Natural Environment Research Council
RCAHMS – Royal Commission on the Ancient and Historical Monuments of Scotland
SAMS – Scottish Association for Marine Science
SEPA – Scottish Environmental Protection Agency
SG – Scottish Government
SNH – Scottish Natural Heritage
SSMEI - Scottish Sustainable Marine Environment Initiative
WA – Wessex Archaeology