

MEDIN – Business Plan for 2011-2014

MEDIN Executive Team, September 2010

Executive Summary

This document presents the MEDIN Business Plan for 2011-2014 a plan for UK marine data. It outlines a three-year programme to complete the development of a UK-wide operational framework for the management of marine data and information, which will provide:

- A single point of access for UK marine data and information.
- A robust network of definitive integrated Data Archiving Centres (DACs).
- Provision of priority data sets to underpin UK and EU legislative and policy requirements.
- Facilitation of full data flow to the DAC network for all government sponsored contracts in the marine and coastal zone environment.

Recognising the current financial situation MEDIN is requesting 533k per year from sponsors for 2011-14, a 30% reduction in budget from 2008-11. This reduction is achieved through efficiency savings, a refocusing of objectives, facilitating cross government cooperation and working closely with other data related initiatives.

The proposed programme is focussed tightly on key priorities, recognising in particular requirements flowing from the new marine management regimes established across the UK as a result of the Marine Acts passed earlier this year, the need to prepare for the EU Marine Strategy Framework Directive, and increasingly onerous obligations to make public data more freely available. All in the marine sector will stand to gain from the improved efficiency in sourcing, retrieving and reusing marine data and common resources that MEDIN will deliver.

Once fully operational the MEDIN framework will provide core capability in support of UK Government's marine objectives and will act for the whole marine data and information community, delivering a range of practical benefits, including:

- An improved evidence base for decision making and marine planning.
- Efficiency gains in sourcing and ingesting data to meet project aims
- Improved access to data, supporting its re-use and so maximising past investment in data
- Coordination of marine survey and research activities, resulting in efficient use of expensive marine facilities.
- Consistent and clearer terms and conditions for data use, resulting in lower uncertainty, sustainability and more accurate project cost estimates.
- Support to marine public sector information holders in meeting their INSPIRE and Government Transparency agenda obligations.

However, partner commitment to MEDIN remains critical. The long-term success of MEDIN will only be achieved if members of the marine community rigorously review their data management arrangements and implement the best practices proposed by MEDIN. These require the adoption of standards, the generation and publication of metadata, the archival of data within the MEDIN DAC network and cooperating in the generation and support of key reference data.

1. Introduction

MEDIN is a collaborative and open partnership, established in April 2008, working to improve the management of marine data and information, and to 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, and reports to, the Marine Science Coordination Committee (MSCC).

Marine data and information are acquired, maintained and used for a wide variety of different purposes by numerous public and private sector organisations to support their statutory, regulatory, development, compliance and commercial activities. Common to all these activities is the recognition that good quality, comprehensive data and information is essential as input to good management and evidence based decision making.

This document presents the MEDIN Business Plan for 2011-2014. It describes previous work and outlines a three-year programme to build on these foundations and establish a UK-wide operational framework for the management of marine data and information, which will provide:

- A single point of access for UK marine data and information.
- A robust network of definitive integrated Data Archiving Centres (DACs).
- The provision through the Data Archiving Centres of priority data to underpin UK and EU legislative and obligatory requirements, for monitoring and marine planning, in line with INSPIRE principles and the UK Governments Open Data Policy.
- Facilitation of full data flow to the DAC network for all government sponsored contracts in the marine and coastal zone environment.

MEDIN will provide core capability in support of UK Government's marine objectives and will act for the benefit of the whole marine data and information community, including government bodies, research organisations, the private sector and the general public. MEDIN will work closely with the newly formed Marine Management Organisation (MMO¹) in England, Marine Scotland, and the equivalent bodies in Wales and Northern Ireland, helping to ensure these bodies have access to the data sets they require for their planning, management and licensing activities.

2. Why is MEDIN Still Needed?

Marine data and information are acquired, maintained and used for a wide variety of different purposes by numerous public and private sector organisations to support their statutory, regulatory, development, commercial and compliance activities. Common to all these activities is the recognition that good quality comprehensive marine data and information are essential as input to good management and evidence based decision making.

¹ The MMO signed as a MEDIN Sponsor in summer 2010.

MEDIN is working to benefit its stakeholders in the following five key areas:

- Marine Monitoring: Enabling UK organisations to meet their obligations under National and International Environmental Legislation.
- Marine Management and Planning: Supporting a harmonised and improved marine management regime in UK seas.
- Supporting Scientific Research: Delivery of the UK Marine Science Strategy
- Increasing availability of marine data to the public: Making marine environmental data more widely available in accordance with the aims of the UK government's Open Data Policy and the European INSPIRE directive.
- Cost Reduction: Addressing inefficiencies and reducing costs for data collection and re-use.

Each of these priority drivers requires improved access to marine environmental information.

Marine Monitoring

The UK Government and devolved administrations have adopted a shared vision for clean, healthy, safe, productive and biologically diverse oceans and seas. Specific legislative drivers that relate to this vision include commitments to international treaties, such as the OSPAR Convention, and requirements of European Union Directives, such as The Birds Directive, The Habitats Directive, The Water Framework Directive, and the Marine Strategy Framework Directive (See Annex 1). The EU Marine Strategy Framework Directive, with the stated aim of achieving Good Environmental Status for European Seas by 2021, extends the responsibility for monitoring and managing the marine environment out to national limits. Together these obligations demand an ever increasingly complex set of environmental quality and status assessments supported by formal, evidence-based, uses of marine data and information.

All these drivers depend on a robust and relevant monitoring regime, generating a variety of raw, processed and interpreted marine data, and access to authoritative, consistent background or base information to provide historical and spatial context. The UK Marine Monitoring and Assessment Strategy (UKMMAS), established to coordinate marine monitoring in the UK, is predicated on a fully operational robust national framework for marine data and information to provide the necessary data management support.

Marine Management and Planning

A major objective of the Marine Acts passed by the Westminster and Holyrood parliaments in 2010, is the harmonization and integration of the marine licensing and spatial planning regime and a unified approach to marine conservation zone selection. This involves the review and analysis of a wide range of marine environmental data. Without access to authoritative marine data and information the Marine Management Organisation (MMO), and the bodies with the equivalent responsibilities in Scotland, Wales and Northern Ireland, will not be able to carry out their functions. Marine planning will require a wide range of existing data resources to be improved, new datasets created and new methodologies and tools developed. Whilst the delivery bodies are in the process of developing and testing tools, the precise details of what data are required within the system are still evolving. MEDIN has a vital role in helping to define, facilitate access to and improve the

reference data that will be required to deliver marine plans. This includes specifying data products, providing guidance on how these are created, supported, maintained and improved and how the quality of these data products are assessed and communicated to users.

Supporting Marine Scientific Research

The UK Marine Science Strategy, published by the Marine Science Coordination Committee in 2010, sets out a framework for enabling the delivery of world class marine science for the UK. The strategy highlights the need to foster a culture of data sharing and good management, including common protocols for data collection and quality assurance for data obtained and specifically identifies the key role MEDIN has to establish this in the UK.

Publishing Marine Data to the Public – INSPIRE, the UK Location Programme and Data.gov.uk

In recent years there has been an increasing demand for wider access to spatial and environmental data, addressed by a number of national, European and international initiatives. The European INSPIRE (Infrastructure for Spatial Information in Europe) Directive places obligations on bodies holding public spatial information in terms of the way they manage, present and describe these data. Nationally, the [UK Location Programme](#) (UKLP) and the Coalition Government's Transparency Agenda is driving the release of all public service information, including geographic and marine information, under common licence terms through a consistent and open set of technologies. The [data.gov.uk](#) portal enables the central searching of metadata from a variety of sources and resources are being developed to help public sector bodies meet their obligations under INSPIRE, as well as FOI, EIR and ROPSI legislation.

MEDIN is working closely with the above initiatives to tailor and develop additional resources specific to the marine domain, as well as informing and providing the necessary guidance for preparing and publishing marine specific data and metadata. The UK geoportal will harvest metadata published to the MEDIN portal and reference geographies established within the UKLP extended to include MEDIN specified marine and coastal reference data. Overall, MEDIN will provide the insight and coordination required to ensure the marine community realises the benefits of these wider initiatives, whilst at the same meeting the needs, developing the resources and providing the required leadership to the marine sector.

Cost Reduction and Efficiency Gains

Everyone in the marine sector stands to benefit from efficiency gains in data access and re-use. The wide range of potential beneficial impacts include:

- Improved capture and re-use of industry and research generated data to save industry money and achieve better value from public and private funding.
- Research to be better informed and coordinated with less replication of effort and collaboration opportunities more easily identified.
- Wider availability of data to support transparency in decision-making.
- Reductions in the proportion of project budgets spent on locating, accessing and retrieving marine data.

3. What has MEDIN Delivered?

MEDIN has successfully promoted collaboration in marine environmental data and management in the UK and already provided better coordinated access to the UK's marine data resources. As detailed below, MEDIN has established a single point of access to UK marine data, a network of accredited marine data archive centres, and developed a suite of standards for data and metadata.

MEDIN is working under a current five year plan of delivery, to deliver a coordinated framework for managing marine data and information. Half way into this five year programme, good progress has been made in establishing the operational MEDIN framework as planned, providing the capability to archive data, to search and identify marine data needed for specific applications and to retrieve data from the Data Archive Centres.

The key deliverables under the five-year plan are considered below with reference to the deliverables already achieved.

Single Point of Access to Data – The MEDIN Data Discovery Portal

The MEDIN portal went online in June 2010 and provides a single point of access to marine data and information for users. It supports simple and advanced search capabilities allowing users to identify relevant marine data sets pertinent to their search. The retrieved information provides more detail together with information on how to access these data. The portal held approaching 1000 records when it was first released in June with the aim to build a complete coverage of major UK marine data holdings by 2014.

Network of Data Archive Centres

The network of MEDIN accredited marine Data Archive Centres (DACs) is now established and operational, providing the capability to upload and retrieve marine data. The DACs are required to meet a series of accreditation benchmarks to operate through MEDIN which ensure that they offer the best data management solution to MEDIN partners, with data managed according to best practice and readily available for re-use in-line with obligations from UK government and the European INSPIRE directive.

The network currently comprises Data Archive Centres for Geological and Geophysical Data (British Geological Survey), Marine Research and Oceanographic Data (British Oceanographic Data Centre), Marine Species and Habitats Data (Data Archive for Seabed Species and Habitats), and Bathymetry Data (UK Hydrographic Office). By March 2011 it is anticipated that coverage of the DAC network will expand to include Marine Meteorology data (at the Meteorological Office) and Fisheries data (at CEFAS, Marine Scotland Science and AFBI – Northern Ireland). Discussions are being held on the best solution for Marine Archaeological Data.

Provision of Priority Data Sets, Facilitation of Data Flow into the DAC Network

MEDIN has now supported a series of twelve individual projects to bring in priority data sets and to establish data flows from partners into the DAC network. A list of supported projects is provided on the MEDIN Web site. These important data sets are gathered from sites around the UK, cover a variety of data types from marine species to sea level, and date back in some cases to the 1920's. In 2010-11 MEDIN will be supporting pilot projects with partners and others to test and establish data archiving procedures to the MEDIN DACs.

MEDIN has developed a "Marine Data Clause" which it is encouraging MEDIN partners to sign up to and adopt. This clause specifies that arrangements for archiving data should be agreed as part of the initial planning process. There is more work required in this area to ensure MEDIN partners insert the required Marine Data Clause as a normal element of issuing a contract. Further development of the data standards detailed below will also inform the process.

Standards

Significant resources can be saved by the application of standards which provide efficient access to, and use of, geographical data. The Government has stated² that they "will ensure that all data published by public bodies are published in an open and standardised format, so that it can be used easily and with minimal cost by third parties". MEDIN has already delivered standards work to inform the marine community and elsewhere.

In particular MEDIN has delivered the following standards in the initial phase of work:

- A Discovery Metadata Standard – this standard underpins the data discovery portal. It is compliant with the INSPIRE metadata requirements and with the UK GEMINI2 standard (recently adopted by the UK Location Programme). Therefore we are able to encourage partners to create MEDIN discovery records, as in doing so they will also be complying with the metadata regulations of INSPIRE and the Location Programme aims. The MEDIN standards group is playing a leading national role in this field, and the technical knowledge and expertise of this group has been built on and reused within a number of initiatives and organisations (including the UK Location Programme).
- Data guidelines define the data and information to be stored with a particular data type and ensure the data can be easily reused. Standards for twelve different data types have been derived and many more are under development. These are already helping to save time and resources when transferring and using data and also ensure best practice.

European and International Links

MEDIN continues to provide a centre for links to relevant European and International Initiatives:

- Supporting DEFRA in planning for data requirements under the EU Marine Strategy Framework Directive; including participation in the Working Group for Data, Information and Knowledge Exchange.
- Participation in IOC's International Oceanographic Data and Information Exchange Committee³.
- Participation in ICES Working Group on Data and Information Management.
- MEDIN Partner SeaZone provides the facilitator of the INSPIRE Annex III Technical Working Group for Sea Regions and Ocean Geographic Features
- MEDIN Partner UKHO participates in the INSPIRE Annex II Technical Working Group for Elevation (bathymetry)

² "Government Transparency": <http://programmeforgovernment.hmg.gov.uk/government-transparency/index.html>

³ <http://www.iode.org/>

- Participation in the Expert Group for EMODNET (European Marine Observation and Data Network). EMODNET was established in 2008 as a preparatory action under the EU Integrated Maritime Policy to improve the availability Europe of high quality marine data, and to support a better coordination of marine monitoring across Europe.

Resources and Applications

The availability and support of data products representing key reference data has been consistently identified as a high priority for users. Tools, specifications and supporting guidelines deliver significant benefits to MEDIN partners, especially so when these resources are developed centrally and shared. In addition, MEDIN monitors its performance and identifies the changing and emerging needs through the uses cases and questionnaires.

MEDIN has identified key reference datasets and attempted to streamline their availability through a number of provider driven projects. Three projects were funded and when completed later in 2010 will have delivered a broad scale marine gazetteer, population of additional heritage data and a plan to address conflicts in infrastructure datasets. The number of reference datasets addressed and proposals received following a call in October 2009 was disappointing and resulted in an under spend of budget allocated. In addition, few MEDIN partners have been able to articulate and specify their resource needs and in both cases MEDIN will be more proactive in terms of specifying resources and data improvement projects in order to deliver the required benefits.

Overall, MEDIN has delivered in all key areas in the first half of the five year programme. It is recognised that further work is needed in terms of widening the coverage of the network, working with data providers to establish routine processes to archive data, and developing improved tools and functionality to support evaluation and view capabilities. It is also important to gain some objective measures of how partners are benefiting from the MEDIN network, now that it is becoming operational.

4. Financial Context

By March 2011 MEDIN will be three years into the five year development plan that was accepted by sponsors in 2008. Under unchanged economic circumstances a work programme requesting continued funding at the same level (£763,000 per year) would have been proposed. However it is recognised that the current financial situation demands a revised approach, and so a reduced plan is proposed with a cut to requested funding by 30% of the original level leaving a budget of £533,000 per year.

Thus the Business Plan presented here is based upon consolidating what has been achieved so far and refocusing on developments most likely to provide the greatest efficiency gains and meeting sponsors' key needs. No further development or expansion of the network is planned e.g. to support the management of socio-economic data, though this could be reconsidered if additional funding were to become available. To counter this, changes in data policy and related initiatives elsewhere in Government means that MEDIN will benefit from marine data holders mobilising to meet these obligations, rather than MEDIN being the sole driver, and from the sharing of common resources being developed under these initiatives. For the marine community to benefit fully from these

initiatives, MEDIN will provide leadership and coordination by collaborating fully with these initiatives, while providing a degree of autonomy for the marine sector.

5. MEDIN Objectives for 2011-2014

The Work Programme proposed for 2011-2014 is based upon an immediate move to an “operational” MEDIN, consolidating what has been developed so far and focussing only on delivering to key sponsor needs. No further development or expansion is planned beyond what is absolutely essential to meet top priority requirements. In particular the Marine Strategy Framework Directive and INSPIRE Directive have key delivery dates between 2011 and 2014 (see Annex 1). A summary of key objectives is provided below, with a more complete description available through the *MEDIN 2011-2014 Work Programme*.

Thus, the MEDIN programme for 2011-2014 will retain the headline objectives listed at the beginning of Section 3, and will:

- **Increase the content and usage of the portal** - increasing the content of the portal is critical if it's true value is to be realised. It currently contains just over 1000 records which provide good initial coverage. However, there is a vast amount of additional data within MEDIN partners and the wider marine community (public and private sector) which needs to be published through it. In addition, the functionality of the portal will be reviewed with users and enhanced as required.
- **Consolidate the current DAC network** - by 2011 the network is expected to cover marine research and oceanography (BODC), Geology and Geophysics (BGS), Marine Species and Habitats (DASSH), Marine Meteorology (Met Office) and Fisheries Data (CEFAS, Marine Scotland Science and AFBI Northern Ireland). Whilst no further expansion of this DAC network is planned, resources, in addition to operating costs, have been allocated to improve internal efficiency and data publication (particularly meeting demands through INSPIRE / UK Location Programme and building direct links between the metadata records viewable on the portal and data download capability).
- **Maintain good communication and linkage across relevant UK initiatives** – in addition to ensuring that the progress within MEDIN is communicated to the marine community it is also important that the developments both complement and contribute to other relevant initiatives across the UK. This includes the UK Location Programme (where MEDIN represents the marine sector) and other data centric initiatives and portals.
- **Ensure a good fit of MEDIN with key international and European data initiatives** – it is important that the MEDIN framework also meets any obligations or requirements to share data at larger scales. Over the next phase MEDIN will critically review the relevant initiatives and standards and ensure that the developments within MEDIN are complementary or where greater engagement/join up is required.

- **Establish widespread adoption of standards for metadata and data** – the standards already developed through MEDIN will be reviewed with users, and adapted where necessary. Also new standards will be developed to fill in significant gaps where standards are missing and limiting the re-use of data. A critical element of this work will be reviewing and, where necessary, developing tools to encourage the uptake of the standards.
- **Establish streamlined publication of data from MEDIN partners** – critical to the success of MEDIN is the uptake of the principles and standards by MEDIN partners to ensure data collected become available through the DAC network. MEDIN will work with partners to encourage the update of the data clause, to ensure data standards are adopted and arrangements for archiving data are included in projects costs. Establishing a streamlined flow of these data from data providers through the DAC network and onto the MEDIN portal will be one of the real measures of the initiative's success.
- **Coordinate and provide access to reference data** – a number of core reference data sets have been identified by users as critical to a wide variety of applications. MEDIN will be proactive in coordinating the specification, creation, publication and maintenance of these data sets by working with competent authorities and other key data holders. Where possible, these data sets will be published under the Government's Open Licence and form a marine subset of reference data (aka marine geographies) that contribute to the UK Location Programme. A marine data policy statement and strategy will be prepared to reflect and articulate these aims.
- **Assess MEDIN performance against user expectations and needs** – through use cases and other form of user interaction MEDIN will track its performance against its core aims, identify and deliver on the common needs of its sponsors and partners.

By 2014 MEDIN aims to have met all of its original objectives defined in 2008, resulting in a fully operational, coordinated framework for managing marine data and information and adopted by the large majority of the marine community. This management framework will deliver practical benefits to MEDIN's sponsors and partners in terms of reduced costs and improved access to marine data as evidence to support UK's marine policy objectives and decision making, and ensure the marine sector is seen as an exemplar of good practice within the wider UK and international marine communities.

6. What do MEDIN Partners Need to Do?

Continued partner commitment is critical to the long-term sustainability of the MEDIN framework. Through active engagement in the MEDIN working groups partners can ensure the standards and resources that are developed are relevant to their needs. However, the fundamental requirement for the long term success of MEDIN is that members of the marine community critically review their data management arrangements and implement the best practices proposed by MEDIN. These include the adoption of standards, the generation and publication of metadata, the archival of data within the MEDIN DAC network identifying common resource requirements and cooperating in the creation and maintenance of core reference data (aka marine geographies). In this way partners can be sure their data will be well managed and available for re-use, and that their obligations to publish data and metadata are met.

MEDIN will continue to build on the membership already established through invitation to partners meetings, active encouragement to get involved with working groups and the MEDIN online publication 'Marine Data News'.

7. Funding, Organisation and Management

MEDIN is requesting 533k per year from sponsors for 2011-14, representing a 30% reduction in budget from 2008-11. The proposed sponsorship levels are included in Annex 2, and a detailed description of the allocation of these costs is provided in the *MEDIN 2011-2014 Work Programme*. Based on experience from previous years, it is anticipated this direct funding from sponsors will be supplemented by in-kind support from MEDIN partners to the value of at least £240,000 per year. The core costs of operating the MEDIN Data Archive Centres, estimated as at least £1.5M per year, are funded directly by the host organisations or through other arrangements⁴.

The original five-year plan (agreed in April 2008) set sponsorship at 763k per year and recommended five years funding for MEDIN to develop and establish the MEDIN network. The work programme has now been revised in response to the economic climate so that MEDIN will move to an operational approach two years earlier than originally planned (by April 2011).

As indicated above, the annual level of operational funding is 30% less than the development funding. This reduction has been effected by a decrease in overall staff time across work streams, specifically the communications and international work streams, and a reduction in funds available for contracted work. The MEDIN core team will reduce from 4 to 2.6 Full Time Equivalent staff. The core team will continue to provide leadership for work stream activities and secretariat support on an operational basis.

The top level organisation of MEDIN will remain the same with the Marine Science Coordination Committee as parent body, Sponsors' Board as the executive body, and the MEDIN Executive Team providing guidance and decision making at quarterly meetings. Professor Peter Liss, CBE, FRS, will continue as chair of the Sponsors' Board and Executive Team.

8. Benefits to be Delivered

Once fully operational and adopted by the marine community the MEDIN framework can be expected to deliver a range of practical benefits to the UK marine community, including:

- An improved evidence base for decision making and marine planning built on best available data.
- Efficiency gains in sourcing and ingesting data to meet project aims. Market studies for the Atlantis Initiative⁵ (investigating better coordination of data for flood modelling and response) revealed that 25-50% of effort within a project was sent on data clean up and preparation.
- Improved access to data thereby supporting its re-use and maximising past investment in data, surveys and science.

⁴ See "MEDIN Data Archive Centre Network – A Review of Future Funding Options."

⁵ <http://www.projectatlantis.net/>

- Coordination of marine survey and research activities, resulting in efficient use of expensive marine facilities.
- Consistent and clearer terms and conditions for data use, providing clarity for users on data quality and applicability, added to more accurate project cost estimates.
- Support in meeting obligations to publish data (and metadata) through legislation (E.g. Environmental Information Regulations (2004) and INSPIRE).
- Contribution to international data bases ensures understanding of climate change is based on the best possible evidence base.
- The sharing of technology and awareness with the international community and partners, leading to resource savings, knowledge of compliance needs and improved interoperability.
- Access to a network of assured data archiving centres will allow a measured judgement of the benefits of carrying out archiving in house or as part of a wider coordinated network.
- A set of agreed standards for metadata and data products ensures a level playing field for sub-contractors procuring data and preparing value added data products.
- Ready access to historic data aids decision making and reduces the need to undertake expensive survey work.

Within the next year MEDIN will have put processes in place to monitor the benefits enjoyed by partners in terms of measurable reductions in the costs of locating, accessing and retrieving marine data, and increased number of successfully furnished requests for archived marine data.

Specific benefits to sponsor organisations include:

- A seat on the Sponsors' Board provides a voice in determining the direction and priorities of the marine data and information framework.
- The "multiplier" effect of joint sponsorship. By contributing a relatively small percentage of funding, the sponsors gain access to (and a management role in) resources funded to a much higher level (to the total value of £2.3M over three years). Thus resources are developed together that could not have been supported by any single organisation on its own.
- Access to state of the art knowledge and expertise and an opportunity to influence the future of marine data and information in the UK and beyond.

Failure to implement a Marine Data and Information Framework

The consequences of failing to properly address this issue, and by continuing the previous uncoordinated sectoral approach to the gathering and management of marine data and information are potentially severe, resulting in:

- Failure to comply with new and emergent EU legislation (e.g. INSPIRE, Habitats Directive, Water Framework Directive and Marine Strategy Framework Directive)
- Failure to meet the data requirements of the new Marine Management Regimes being put into place (to support Marine Spatial Planning, Marine Conservation, Licensing)
- Inability to provide a sufficient evidence base to support the understanding of global effects including changes in climate and sea-level, and to plan and develop adaption strategies.
- Inability to assess the state of the UK marine environment in a meaningful manner (as required for, e.g. OSPAR)
- Inability to deliver the necessary evidence to support decision making as required by the Marine Management Organisation (for England) and equivalent bodies for the devolved administrations.
- Continued inefficiencies and replication in data gathering and compilation

The establishment of MEDIN resulted from the UK Government's and associated agencies acceptance that "something" needed to be done about more efficient use of marine data. The implementation of MEDIN answers this challenge by putting in place a framework to address the unglamorous, but vital, core management processes necessary to secure UK marine data and make it widely available to answer complicated (and increasingly political) questions.

Without this framework it will cost ever increasing sums to assemble an escalating number of pieces of a more complicated jigsaw and the resultant picture may then not be fit for purpose. Investment in a marine data and information framework will achieve the coordinated, consistent and best practice approach to data management that ultimately will save money and benefit the whole of the marine community, including the private sector, in the UK well into the future.

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.cefass.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	
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)
MMO	Marine Management Organisation, Sponsor
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)
OceanWise Ltd	Private independent consultancy specialising in marine data acquisition, management and GIS
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

AGI	Association for Geographical Information
DAC	Data Archive Centre
EMODNET	European Marine Observation and Data Network
FRS	Fellow of the Royal Society
GEMINI2	Discovery metadata standard managed by the AGI and adopted by UKLP
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
MEDIN	Marine Environmental Data and Information Network
MMO	Marine Management Organisation.
MSCC	Marine Science Coordination Committee
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)

Annexes

Annex 1: Key Policy & Legislative Drivers for Marine Data and Information, with key dates.

	Driver	Reporting Requirement / Objectives	Date
International	OSPAR Convention	Quality Status Report Annual Reporting Protection of the North-East Atlantic	2010
	Convention on Biological Diversity	"Significant reduction" in biodiversity decline	2010
European	European Environment Agency	State of the Environment reporting	
	Marine Strategy Framework Directive	Characterisation Report	2012
		Assessment of Good Environmental status	2018
	Water Framework Directive	Operational programme of Measures	2012
		Meet environmental Objectives	2015
	Common Fisheries Policy	Annual Assessment	annual
	Habitats Directive	SAC ⁶ s assessment of status	2013
	Floods Directive	Preliminary Flood Risk Assessment	2011
		Hazard and risk maps	2013
		Management Plans	2015
Birds Directive			
INSPIRE Directive		Annex I ⁷ discovery metadata published	Dec. 2010
		View services for Annex I Data	May 2011
		Download services for Annex I Data	June 2012
		Annex II/III Metadata Discovery published	Dec 2013
		View and download services for Annex II/III Data	Dec 2013
		Data publishing services	2015-2019
UK	UK National Assessment	Charting Progress 2	2010
	Marine and Coastal Access Act 2009	Licensing and Planning: Environmental Impact Assessments (EIAs)	as required
	Marine (Scotland) Act (Scotland) 2010	Licensing and Planning: Environmental Reports	as required
	Biodiversity Action Plan	Halt biodiversity decline	
	UK Location Plan / data.gov	Linked to INSPIRE	
Regional / Local	Development proposals / licensing	Strategic Environmental Assessments (SEAs)	as required
	Marine Conservation Zones	To be established	

⁶ SAC –Special Area of Conservation

⁷ For INSPIRE Annex III includes marine environmental data, Annex II includes bathymetry

Annex 2: Proposed Annual Sponsorship Levels for 2011-14

Sponsor Name	Requested Funding
DEFRA: Department of Environment Food and Rural Affairs	£175,000
NERC: Natural Environment Research Council	£131,000
Scottish Government	£100,000
DECC: Department of Energy and Climate Change	£30,000
Met. Office	£14,000
Countryside Council for Wales	£14,000
The Environment Agency	£14,000
Marine Management Organisation	£14,000
Maritime and Coastguard Agency	£10,000
The Crown Estate	£7,000
SeaZone	£7,000
UK Hydrographic Office	£7,000
The Joint Nature Conservation Committee	£5,000
Northern Ireland Environment Agency / Agri-Food Biosciences Institute	£5,000
TOTAL	£533,000