Marine Environmental Data and Information Network (MEDIN)

Annual Report for 2012-13

'Measure once, use many times'

1 Highlights in 2012-13

1.1 MEDIN, a collaborative partnership established in 2008, works to improve the management of marine data and information. MEDIN reports to the UK Marine Science Co-ordination Committee (MSCC). See governance details in **Appendix A.**

1.2 2012-13 saw important progress being made, building on that reported last year, although there are still areas where further work is needed before an operational framework is fully established (See Section 7). The Data Archiving Centre (DAC) network expanded to include the first components of the Fisheries DAC (Cefas and Marine Scotland Science) and the Historic Environment DAC (Archaeology Data Service). There are now seven MEDIN accredited DACs:

- British Oceanographic Data Centre (for water column oceanography data),
- British Geological Survey (for geophysical and geological data),
- DASSH (for marine species and habitats data),
- UK Hydrographic Office (for bathymetric data),
- Met Office (for marine meteorological data),
- Cefas and Marine Scotland (for fisheries data),
- Archaeology Data Service (for historic environment data)

1.3 A priority for 2012-13 was to encourage the adoption of MEDIN standards for data and metadata, and so make it easier for data to be discovered and re-used. Ten workshops were held focussing primarily on the MEDIN discovery metadata standard and supporting tools. Over 260 people are now registered to access the metadata tools, and the helpdesk continues to be well used. MEDIN has supported an MMO project to develop data guidelines for recreation mapping.

1.4 During 2012-13, the number of portal metadata records describing data sets increased from 2,600 to over 4,200 records. The number of portal users has remained steady at just over 12,500 visits in the year, this is expected to increase again once the portal upgrade is completed and the improved portal publicised.

1.5 Further progress has been made in developing web access to key reference data layers. with a dedicated web page now available. Difficulties in identifying appropriate licensing conditions to apply to some of these layers has frustrated complete release. The marine gazetteer has been updated.

1.6 MEDIN continues to provide important links to European and international initiatives and has supported, for example, a joint workshop with UK Location on how to meet obligations to publish public data under the INSPIRE directive.

1.7 MEDIN provided the UK focus for input to the development of the European Marine Observation and Data Network (EMODnet) (an initiative supported by the EC to provide access to European marine data). EMODnet is expected to be important in terms of agreeing appropriate linkage with the European Marine Strategy Framework Directive data flow.

1.8 As part of a continuing process of improved access, an external review of the oceannet.org website was conducted and a number of improvements implemented.

1.9 An independent review of MEDIN was initiated by the MEDIN Sponsors on behalf of the MSCC. Its remit was to review the progress that has been made towards the original objectives and to make recommendations on the future direction of MEDIN. It will report in summer 2013.

1.10 There was again a significant turnover of staff in the MEDIN Core Team. Efforts were made to avoid consequent delays, although this was not possible for some areas of work. The team is now stable again.

1.11 Progress updates were reported to MSCC plenary meetings, and MEDIN contributed to the MSCC's submission to the House of Commons Science and Technology Select Committee's inquiry into Marine Science.

2 Progress against Key Performance Indicators

Progress against Key Performance Indicators: 2012-13

2012-13 Key Performance Indicator	Progress
1. **Increase the content of the Portal** a. The portal should provide comprehensive coverage of all marine data in the UK. b. 5500 metadata records by March 2013. c. Increase in number of records accessible through MEDIN collected since 2007.	**Largely Achieved** a. Fisheries and marine archaeological records are now also included. b. Increased to ~4200 from 2,600 in March 2012 c. Increased from 1022 in March 2012 to 1326 in March 2013.
2. **Increase the use of the Portal** Establish the portal as the recognized central source of information for marine data. Google analytics provide statistics against 2011-12	**Not Achieved** Portal usage has increased from 12,549 to 12,631 visits. Effort will be put into advertising the portal in 2013-14 once the improved search capability is operational.
3. **Consolidate the DAC network / increase the transfer and flow of data**. Measures provided through the DAC Annual Reports, with respect to a 2012 baseline: a. number of new data sets archived within the MEDIN DACs within the year b. no. of requests for data received by DACs. c. no. of MSCC members sending data to DACs	**Fully Achieved** DAC network has grown to 7 DACs, now incorporating the first components of the Fisheries & Historic Environment DACs. a. In total 4397 data sets are now held in the MEDIN DAC network, with 358 new data sets archived in 2012-13 b. Over 200,000 requests for data in 2012-13 (including online requests). (4% more than 2011-12) c. 17 out of 20 MSCC members send data to DACS
4. **Maintain good communication & linkage across relevant initiatives.** a. hold partners mtg and stds workshops, b. publish 4 issues of Marine Data News and increase its circulation c. increase the number of visits to the MEDIN website. d. publish metadata, data view and download services to data.gov /INSPIRE	**Largely Achieved** a. A number of well attended standards workshops were held. Partners meeting postponed until 2013-14. b. 4 issues were published. Slight decrease in subscribers from 674 to 667. c. Website visits decreased by 122 (1%) d. Ongoing with the first 50 records to be transferred imminently.
5. **To articulate the role of MEDIN within UK and European data initiatives** Produce a report which articulates the role of MEDIN within UK, European, and other international data sharing initiatives and identifies the more strategic issues that need to be tackled to establish a joined-up system**.**	**Fully Achieved** Updated report was produced in March 2013. Participation in WG DIKE (MSFD), INSPIRE, MODEG and EMODnet pilot projects together with EU funded projects and networks such as MarBEF, SeaDataNet and Geo-Seas. Further effort is required to ensure appropriate joined up linkage between the MEDIN DACs and these initiatives
6. **Establish widespread adoption of standards for metadata and data.** a. Number of new data sets arriving at DACs in MEDIN standard formats (reported by DACs) b. Number of MSCC members that are enforcing the use of MEDIN standards. c. Number of downloads / registrations for use of MEDIN tools	**Progress Achieved** a. Not able to measure. b. All 4 MSCC organizations that collect data ensure MEDIN discovery metadata are produced. 3 out of 4 use the MEDIN data guidelines. All 7 MSCC organisations that contract data collection ensure MEDIN discovery metadata are available. None insist that contractors use MEDIN data guidelines though 2 reference MEDIN data guidelines in contracts. c. 275 people are registered for the Online Tool; 265 people have downloaded Metadata Maestro and 270 have downloaded the tools to convert metadata from the Geographical Information System software ARC to MEDIN format
7. **Coordinate / provide access to reference data.** Measured by number of reference datasets available through MEDIN portal.	**Largely Achieved** Currently an internal demonstration version of a web application for download of reference datasets. This holds 30 data layers. Go live planned for June 2013
8. Assess MEDIN performance against user expectations and needs Compile report based on questionnaire and feedback from Partner Meeting.	**Underway** No questionnaire exercise was carried out in 2012-13. An independent MEDIN Review is currently underway which will report in summer 2013.

2.1 2012-2013 was the second year under the current three year (2011-14) Business Plan. In this period MEDIN is moving to an operational phase from a developmental phase, albeit with a 30% reduced level of funding, from £763k per year before 2011 to £528k in the last year.

2.2 Priorities in the MEDIN Business Plan, addressed in the 2012-13 Work Plan, are identified by the 2012-2013 Key Performance Indicators (KPIs, see table on next page)

2.3 Referring to the KPI table above, six of the eight Key Performance Indicators have been largely or fully achieved, one (KPI 8) was postponed because of the decision to hold an independent MEDIN review, whilst progress was achieved towards the remaining KPI (KPI6 - adoption of Data Standards).

2.4 **KPI 1 – Increase the Content of the Portal:** was largely achieved, but the ambitious target number of metadata records (5500) will not be reached until summer 2013, due to metadata records not being received as expected from some partners / projects. Nonetheless this increase represents a significant increase in content and coverage. We anticipate a slowing of the year on year increase in portal content as we approach complete coverage of all the key datasets.

2.5 **KPI 2 – Increase the Use of the Portal** - has been achieved (albeit marginally), measured in terms of the number of visits in the year. The number of users accessing the portal and the MEDIN web pages has been maintained and indeed slightly increased. This levelling off may reflect that the majority of the marine community has now been engaged. A planned publicity campaign to promote the use of the portal has been postponed until the upgrade to the portal functionality has been completed.

2.6 **KPI 3 – Consolidate the DAC Network / Increase the transfer and flow of data** - has been fully achieved. Work on consolidating the DAC network and increasing the flow of data (KPI 3) is of key importance, the network now includes 7 DACs, now holding 4397 data sets, and the number of requests for data increased by 4% from 2011-12

2.7 **KPI 4 – Maintain Good Communication and Linkage Across Relevant Initiatives** – has been largely achieved. MEDIN has held well attended standards workshops and continued to publish the quarterly newsletter. Links for publishing metadata records to data.gov.uk are under development. The number of web pages visits was slightly lower than in 2011-12.

2.8 **KPI 5 – Articulate the Role of MEDIN within UK and European Initiatives–** has been fully achieved. MEDIN has been active in leading input to UK and European data initiatives, and ensuring these activities are well coordinated

2.9 **KPI 6 - Establish widespread adoption of standards for metadata and data -** progress towards this KPI has been achieved**.** Whilst a strictly objective measure is not available, we are confident that there**.** has been an increase in the adoption of MEDIN standards, as evidenced through the attendance at Standards Workshops the number of contracting organisations that are including the adoption of MEDIN standards in contract clauses (including DEFRA, CEFAS, The Crown Estate and the Welsh Assembly Government). and the take up of the MEDIN metadata tools. However, it has proved difficult in current metrics for the DACs to provide a measure of data sets being provided in MEDIN standards – the DACs do not have processes in place to capture this information. An alternative way of measuring standards take up is being considered.

2.10 **KPI 7 - Coordinate and provide access to reference data -** has been largely achieved, but delays by the suppliers of reference data in providing licensing conditions has meant that the web application could not go online in 2012-13. It is expected to go live in early summer 2013. There is also an ongoing obstacle of data holders not accepting responsibility for key datasets and/or not making these available, as required. (See Para 4.19 for further details).

2.11 **KPI 8 - Assess MEDIN performance against user expectations and needs** was superseded, MEDIN did not carry out its own assessment of MEDIN performance against user expectations and needs as an independent review of MEDIN was commissioned, which will report in summer 2013.

2.11 The significant changeover in personnel during the year without doubt had an impact on overall efficiency throughout the year, and especially on the core team's ability to progress work on the portal and reference data (affecting KPI's 1, 2 and 7). The changeover of personnel, together with constraints on MEDIN's available finance, was a contributory factor behind the Executive Team's decision not to hold a partners meeting in the year (KPI 4).

3 Financial Summary 2012-13

3.1 £529,051 was available to fund MEDIN activities in 2012-13, as follows:

MEDIN Sponsorship income (Table 1):	***£528,000***
Carried forward from 2011-12:	***£1,051***
Funds available:	***£529,051***

Sponsor Name	**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	£7,000
The Crown Estate	£7,000
UK Hydrographic Office	£7,000
HR Wallingford	£5,000
The Joint Nature Conservation Committee	£5,000
Northern Ireland Environment Agency / Agri-Food Biosciences Institute	£5,000
TOTAL	**£528,000**

MEDIN Sponsors for 2012-13

3.2 The income from Sponsors in 2012-13 was £528,000.

3.3 £1,051 was carried forward from 2011-12

3.4 The use of funds across work streams, and according to category, is given in

the table below. Of the £529,567 total spend, £314,267 was allocated to cover the costs of employment of the MEDIN Core Team (2.9 Full Time Equivalent staff members in 2012-13); £14,120 on Travel and Subsistence, and £201,180 on contracts which both contributed to the maintenance and operation of the MEDIN network as well as some of the developments described in this report. The major items of external expenditure in 2012-13 are given in Appendix B.

3.5 The Work Streams with the highest allocation of costs were the DACs (WS1), Management (WS7), Portal (WS3), and then Standards (WS2) – all with costs of more than £75,000. WS4 (International Links), WS5 (Resources and Applications, and WS 6 (Communications), had costs of less than £40,000.

3.6 According to these provisional figures, an end of year overspend of £516 is anticipated.

Total MEDIN income 11/12	**£**		**Actual spend**	**£**	**Work stream**	**£**
2011-12 Carry forward	*£1,051*		*Employment Costs of Core Team*	*£314,267*	*WS1: DACS*	*£136,029*
Sponsor funds	*£528,000*		*Travel and Subsistence*	*£14,120*	*WS2: Standards*	*£76,214*
			Contracts	*£201,180*	*WS3: Portal*	*£101,328*
					WS4: International Links	*£15,828*
					WS5:Resources and Applications	*£39,821*
					WS6: Communications	*£35,930*
					WS7:Management	*£124,417*
Total Available	***£529,051***		***Total spend***	***£529,567***		***£529,567***

MEDIN Spend in 2012-13, by category and by work stream

4 MEDIN Work Streams 2012-13

4.1 Detailed summaries of the activities of the seven MEDIN Work Streams for 2012-13 are in Appendix C. Highlights are provided below:

WS1 Network of Data Archive Centres

4.2 The DAC network has expanded in 2012-13 to include the first components of the Fisheries DAC (Cefas and Marine Scotland Science) and Historic Environment (Archaeology Data Service). The network now includes:

- British Oceanographic Data Centre (for water column oceanographic data),
- British Geological Survey (for geophysical and geological data),
- DASSH (for marine species and habitats data),
- UK Hydrographic Office (for bathymetric data),
- Met Office (for marine meteorological data),
- Cefas and Marine Scotland (for fisheries data),
- Archaeology Data Service (for historic environment data).

4.3 Work is continuing to include the remaining components of fisheries and marine historic environment DACs.

4.4 The DAC network is working towards INSPIRE compliance according to the relevant programme deadlines, and provide the principal point of contact for marine data in the UK. A number of data flow initiatives were implemented in 2012/13.

4.5 A separate MEDIN DAC network report will be published later in 2013, and the number of data sets archived in 2012-13 will be published then. It has been established that 17 out of 20 MSCC members are archiving data in MEDIN accredited DACs.

WS2 Standards for Data and Metadata

4.6 Ten practical workshops were held in Southampton, Bangor, London and Liverpool, focused primarily on the MEDIN discovery metadata standard and the tools that MEDIN supply to create and validate it.

4.7 UK-IMON has confirmed that it will require adoption of MEDIN standards across all data that falls under this initiative.

4.8 A member of the MEDIN core team is chair of a correspondence group on Noise data, as a sub-group of the MSCC underwater sound

4.9 Data guidelines relating to socio-economic activity are under discussion; a review of the leisure and recreation data guidelines was initiated in conjunction with the MMO. A MEDIN guideline for ad-hoc sighting data has been published.

4.10 The number of people registering for/downloading MEDIN tools to create discovery metadata is over 260 for both the online metadata editor and the stand alone tool “Metadata Maestro”. In addition, over 270 users have downloaded the tool to create MEDIN metadata using ARC10 software.

4.11 It has not proved possible to record the number of data sets being presented to DACs using MEDIN data guidelines, as existing processes do not allow an accurate measure. A request for MSCC members to indicate how they enforce / encourage the adoption of MEDIN standards has been issued through the MSCC secretariat.

4.12 MEDIN maintains close links with those involved with implementing the UK Location Infrastructure and the INSPIRE directive. A joint workshop was held in October 2012 to support partners in meeting their obligations in publishing metadata and data to data.gov.uk and INSPIRE. This is a key legislative requirement.

WS3 Web Portal Products and Services

4.13 There has been a significant increase in portal metadata records from 2,600 to over 4,200 in the last year. It is expected that the target of 5,500 records will be reached in summer 2013.

4.14 Portal use showed a slight increase from the previous year, from 12,549 to 12,631.

4.15 An upgrade to the MEDIN portal has been undertaken under contract during this period. New and improved features have been added to the portal including a more intuitive search interface. A campaign to advertise the portal is planned for 2013 once this upgrade is finalised.

4.16 The system for automatic transfer of portal records to data.gov.uk is nearing completion. This service will be performed for MEDIN partners who request it, some partners have their own route for submission of records to data.gov.uk.

WS4 International Awareness, coordination and data delivery to global databases

4.14 Activities within this work stream ensure that UK developments are linked in and consistent with European and other international initiatives, and that obligations to provide data to global databases are met.

4.15 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).

4.16 MEDIN provided the UK focus for input to the development of the European Marine Observation and Data Network (EMODnet) (an initiative supported by the EC to provide access to European marine data), and ensured UK compliance with IOC and ICES Data Policies. EMODnet is especially important in terms of agreeing appropriate linkage with the European Marine Strategy Framework Directive. MEDIN partners are also involved in EU funded projects and data initiatives, including MarBEF, SeaDataNet and Geo-Seas.

4.17 MEDIN also supports the near real time transmission of temperature and salinity data from CTDs, and tagged seals, to the Global Telecommunication System, from where they can be incorporated into operational ocean models.

WS5 Resources and Applications Development

4.18 Provision of an online service for key reference data sets was initiated in 2012-13. A web application for delivery of these data sets is being tested and is expected to go online in June 2013, this is behind the planned schedule as there was a delay in the provision to MEDIN of the necessary licensing and copyright information. There are some data layers ready for publication but further work is needed on drawing together the metadata for more of the targeted layers, and improving others.

4.19 A workshop to consolidate plans for infrastructure reference layers was held at the UKHO in September 2012 and a position paper: “Options Paper for the Management of Location Data for Offshore Infrastructure in the UK” generated (currently under review).

4.20 An update to the Marine Gazetteer was produced by Geodata under contract. This Gazetteer now provides an authoritative and comprehensive single national source for naming marine locations and regions. It has been developed in

cooperation with the Ordnance Survey and provides a link between terrestrial and marine gazetteers where one did not previously exist.

WS6 Communications: Outreach, forums, publicity

4.21 The website was frequently updated and various enhancements included to maintain and increase effectiveness. In 2012-13 there were 12,427 visits to the MEDIN website from 7,167 visitors.

4.22 Publication of Marine Data News continued on a quarterly basis. There are 667 subscribers.

4.23 A number of well attended standards workshops were held across the country including, London, Southampton and Liverpool which continue to prove popular and are often oversubscribed.

WS7 Management, Planning and Coordination

4.24 MEDIN has again worked closely with the UK Marine Monitoring and Assessment Strategy (UKMMAS) community, to reduce the meeting load on the core team, MEDIN partners have been funded to represent MEDIN on some of the Evidence Groups.

4.25 A key requirement on MEDIN in support of UKMMAS is to develop plans for data management and setting up data transfer arrangements in support of the UK implementation of the European Marine Strategy Framework Directive. Some early plans have been drawn up, and initial test metadata (on Charting Progress 2 data sources) prepared for submission to the EEA.

4.26 David Cotton continues to attend meetings of the Marine Assessment Review Group, and is on the Executive Committee for the UK Integrated Marine Observation Network.

4.27 Engagement with MSCC has continued, with official MEDIN representation at MSCC plenary meetings now provided through Rob Hensley (UKHO). David Cotton attends the MSCC Industry Liaison Group, and Gaynor Evans attends the underwater sound forum.

4.28 MEDIN continues to engage closely with UK Location and data.gov.uk initiative to coordinate input from the marine community, and to ensure that the MEDIN and data.gov.uk resources developed for publishing data and metadata are consistent and linked. A joint workshop with UK Location was held in October 2012.

4.29 Meetings have been held with AFBI and SEPA – to encourage and plan adoption of MEDIN standards and procedures, and greater uptake of the MEDIN data clause, and review progress in some pilot data archiving projects (SEPA).

5 Progress against MEDIN Business Plan 2008-13

5.1 Progress against the objectives of this five-year programme are discussed in more detail in a separate review document[1], a summary is provided below

2013 Objectives	Progress
1. Single point of access to all marine data	**Achieved: Portal online** – operational from June 2010. Contained >4,200 metadata records by March 2013. Emphasis now on moving towards complete coverage of all key marine data sets, and improving linkage between metadata records and data view / download capabilities.
2. Network of integrated Data Archiving Centre (DACs).	**Achieved: Comprehensive DAC network in place**. The network now includes 7 accredited DACs covering geology & geophysics, oceanography, marine species and habitats, bathymetry, metocean, fisheries and historic environment
3. Provision of priority data sets to underpin UK and EU legislative and obligatory requirements	**Work in progress**: European Marine Strategy Directive and INSPIRE are priorities. MEDIN is working closely with DEFRA, UKMMAS and UK Location to develop processes to meet the necessary obligations. Once these processes are in place this will be an ongoing responsibility
4. Facilitation of data flow to DAC network for all government sponsored contracts	**Work in progress**: MEDIN is working with partners to establish data flow to DACs. Meetings are held with key agencies and pilot projects supported to establish data submission processes and identify any problem areas.
5. The necessary links with EU Directives & initiatives	**Achieved:** Necessary links have been established through activities under WS4. Now a matter of ongoing work.
6. Measurable reductions in costs of locating, accessing and retrieving marine data	**Work in progress:** Partners have been asked to report on practical benefits, but have found it difficult to provide accurate estimates of financial benefits. MEDIN is planning to establish some case studies.
7. An increased number of successfully furnished requests for archived marine environmental data	**Work in progress** DACs are required to monitor and report as part of their annual reporting requirement. Over 200,000 requests for data in were received in 2012-13 (including online requests), which represents a 4% increase from 2011-12

[1] MEDIN Review and Forward Look; A paper for the MEDIN Sponsors' Board, 9th November 2012

6 Look ahead for 2013-14

6.1 The 2013-2014 MEDIN Work plan covers the final year of the consolidation / operational phase that started in 2011-12. It will continue to address the priorities identified in the 2011-14 Business Plan:

6.2 **Increase the content and usage of the portal** - this is critical for the true value of the portal to be realised. Currently it contains just over 4,200 records. The aims in 2013-14 are to:

- Continue to increase coverage and content by including records from the Fisheries DAC, the Channel Coast Observatory and the Crown Estate, plus additional data held by MEDIN partners and the wider marine community (public and private sector).
- Complete the upgrade to the portal functionality and publicise the portal.

6.3 **Consolidate the current DAC network** – Consolidation of the recently launched Fisheries and Historic Environment DACs will continue. MEDIN will:

- Work with the MMO and Marine Scotland in investigating options to improve management of socio-economic data.
- Review, with relevant partners, current arrangements for noise and litter data and consider options for these data types.
- Begin to archive data from the Marine Conservation Zone surveys carried out with DEFRA funding in Q1 2013, though additional funding would be required.
- Continue to develop the necessary capabilities in DACs to meet the data publication (view and download) specifications of INSPIRE / UK Location and to build direct links between these services and metadata records.

6.4 **Maintain good communication and linkage across relevant UK initiatives** – In addition to communicating progress within MEDIN 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 Marine Monitoring and Assessment Strategy (UKMMAS), its four Evidence Groups and additional Steering Groups, UK Location (where MEDIN represents the marine sector), the Environmental Observation Framework, the MSCC Industry Liaison Group, the Underwater Sound Forum, and other data centric initiatives (e.g. UK-IMON).

6.5 **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. Key amongst these are the European INSPIRE Directive, and the mechanisms being put in place for reporting data and information for the Marine Strategy Framework Directive. 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.

6.6 **Establish widespread adoption of standards for metadata and data** –

- Work will focus on encouraging uptake through theme specific workshops, and tracking uptake.
- Where resources allow, further guidelines may be published if gaps are identified, and tools developed for existing guidelines to make them easier to apply and validate.

6.7 **Establish streamlined publication of data from MEDIN partners** – It remains critical to the success of MEDIN that the principles and standards are adopted across the marine community, to ensure data collected become available through the DAC network. MEDIN will:

- Work to raise awareness of the need for all (public sector) marine data acquisition contracts to require a data management plan, which must include an allocation of funds to support one-off data archiving costs.
- Measure success by monitoring the flow of data from data providers through the DAC network and to the MEDIN portal

6.8 **Coordinate and provide access to reference data** - A set of core reference data sets have been identified as critical to a wide variety of applications[2]. 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 Infrastructure. However, obstacles remain stopping data holders accepting responsibility for some datasets and making them available, as required.

[2] See http://www.oceannet.org/library/key_documents/documents/action_plan_for_ref_data_14apr11_rev1.doc

7 Summary

7.1 MEDIN continues to build collaboration in marine environmental data and management in the UK and through the MEDIN data management framework has established better coordinated access to the UK's marine data resources. This framework offers a single point of access to UK marine data, a network of accredited marine Data Archive Centres, and a suite of standards for data and metadata.

7.2 The network of Data Archive Centres accredited by MEDIN has now grown to seven to include Fisheries and Historic Environment data and provides coverage across all main marine environmental themes. A period of consolidation and operation is now expected

7.3 The coverage of the MEDIN portal has also grown significantly and now includes records for over 4,200 data sets. Enhanced search functionality will soon be available on the portal.

7.4 The adoption of MEDIN standards and practices has been supported by a series of well-attended workshops held at various venues across the country. It is encouraging that more partners and initiatives are becoming pro-active in requiring the adoption of MEDIN standards.

7.5 Defra and the devolved administrations published the Marine Strategy Framework Directive Initial Assessment in December 2012. This built on the Charting Progress 2 report[3], Scotland's Marine Atlas[4] and the N Ireland State of the Seas[5] Report, which had all benefitted for the evolving and improving data management structure being implemented by MEDIN in recent years.

7.6 During 2012-13 MEDIN continued to work to a challenging budget, reduced by 30% from the previous phase. This has limited the funds available to support archiving of data sets and the further development and maintenance of tools.

7.7 There was again a significant turnover of staff in the MEDIN Core Team in 2012-13 with the departure of one key member of staff (Mark Charlesworth), and another two members returning from periods of special leave. There was an inevitable short term loss of efficiency as the returning staff picked up the threads from their temporary replacements, but we now look forward to a period of greater stability. We would like to note our appreciation of Mark Charlesworth's significant contribution to MEDIN over the past 4 years, and wish him well for the future.

7.8 In March 2012 DEFRA initiated an independent review of MEDIN to look at the progress made by MEDIN so far towards its original objectives and identify priorities for the operational development of MEDIN beyond 2014. The review will report in summer 2013 and will help to inform the development of a business plan for post March 2014, and the work programme for 2013-14.

7.9 The challenge facing MEDIN is now to build adoption of the framework across all UK marine organisations and establish data flow into the MEDIN Data Archive Centre network from all government contracts, and the provision of data from that network to support UK and EU legislative and obligatory requirements. The full support of the MSCC membership will be required to achieve this and fully implement MEDIN targets across Government and encourage best practice within the private sector.

[3] http://chartingprogress.defra.gov.uk/

[4] http://www.scotland.gov.uk/Topics/marine/science/atlas

[5] http://www.doeni.gov.uk/niea/water-home/state_of_the_seas_ni_report.htms:

APPENDIX A: MEDIN Aims, Benefits, Priority Drivers and Organisational Arrangements

A.1 MEDIN aims, benefits, and priority drivers

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 (MSCC), and reports to that body.
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.
    - Improve 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).
3. 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.
4. 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.

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

Marine Monitoring

6. 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. 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.
7. 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.
8. Thus MEDIN is working closely with UKMMAS to help ensure the data needed are more easily accessible. A key driver for the immediate future is getting ready for reporting data and information for the Marine Strategy Framework Directive. MEDIN is helping by providing expert input to the working groups developing plans for data and information provision to the EU.

Marine Management and Planning

9. A major objective of the Marine Acts passed by the Westminster and Holyrood parliaments in 2009 and 2010 respectively, is the harmonization and integration of the marine licensing and spatial planning regime and a unified approach to marine conservation zone / marine protected area 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), Marine Scotland and the bodies with the equivalent responsibilities in Wales and Northern Ireland, will not be able to carry out their functions.
10. 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

11. 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, UK Location and Data.gov.uk

12. 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, data.gov.uk 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.

13. 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 UK Location infrastructure 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

14. 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:

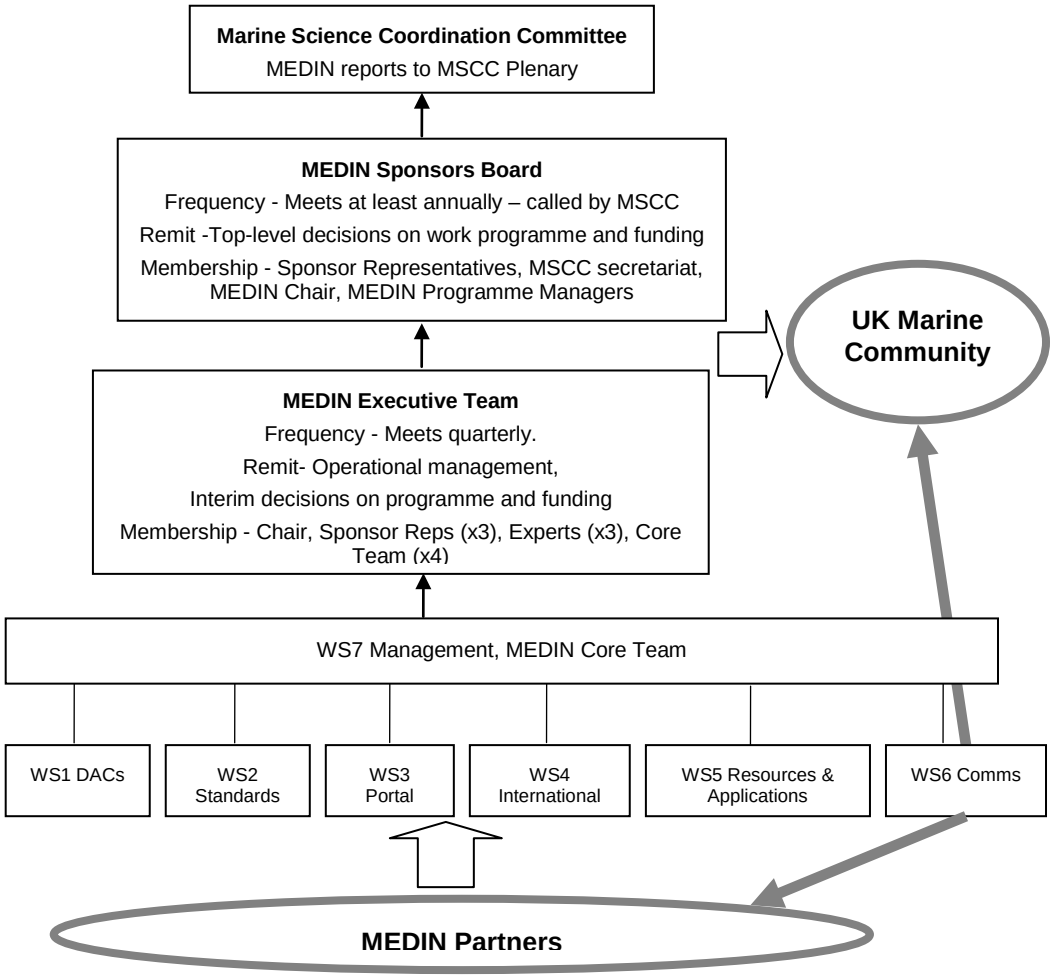
    · Improved capture and re-use of industry and research generated data to save industry money and achieve better value from public and private funding.

    · 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.

A.2 MEDIN Organisational arrangements



15. The Marine Science Coordination Committee (MSCC) 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 as requested. MSCC has requested that MEDIN supports a representative on the MSCC communications group.
16. 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 of the MEDIN Sponsors' Board and the Executive Team is Professor Peter Liss, CBE FRS.
17. The MEDIN Executive Team meets quarterly, with the remit to provide interim guidance and management of the MEDIN work programme between Sponsors Board meetings.
18. The MEDIN work programme is carried out within seven work streams (see Figure above). Work stream leaders have been appointed and are responsible for the management and planning of the work stream activities.
19. A MEDIN core team of five 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.

Organisations active in MEDIN

red indicates sponsor

ABPmer	Marine Environmental Consultancy, (www.abpmer.co.uk)
ADS	Archaeological Data Services Accredited MEDIN DAC http://archaeologydataservice.ac.uk/
AFBI	Agri-Food and Biosciences Institute (Northern Ireland), (www.afbini.gov.uk)
Atkins Global	Consultancy http://www.atkinsglobal.com/
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)
The Crown Estate	http://www.thecrownestate.co.uk/
DASSH	Data Archive for Seabed Species and Habitats, hosted at MBA. Accredited MEDIN DAC. (www.dassh.ac.uk)
DECC	Department of Energy and Climate Change, (www.decc.gov.uk)
DEFRA	Department for Environment Food and Rural Affairs. (www.defra.gov.uk)
EA	Environment Agency. (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)
Fugro Geos	Met-Ocean Services http://www.geos.com/
Gardline Group	Marine services http://www1.gardline.com/
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. (www.hrwallingford.co.uk)
IFCA	Inshore Fisheries and Conservation Authorities See links at http://www.southern-ifca.gov.uk/
IMAREST	Institute for Marine Science and Technology. (www.imarest.org.uk)
JohnPepper Consultancy	Consultantcy http://www.johnpepperconsultancy.com/home
JNCC	Joint Nature Conservation Committee.(www.jncc.gov.uk)
Mainstream Renewable Power	Offshore Renewables http://www.mainstreamrp.com
Marine Atlas	Consultancy http://marineatlas.co.uk/
Marine Conservation Society	UK Charity http://www.mcsuk.org/
MMO	Marine Management Organisation (http://www.marinemanagement.org.uk)
MPC	Marine Planning Consultants http://www.marineplanning.org.uk/
Marine Scotland Science	http://www.scotland.gov.uk/topics/marine
MBA	Marine Biological Association (www.mba.ac.uk)
MCA	Maritime and Coastguard Agency.(www.mcga.gov.uk)
MES	Marine Ecological Surveys http://www.seasurvey.co.uk/
Met Office	www.metoffice.gov.uk
MOD	Ministry of Defence. (www.mod.uk)
Natural England	http://www.naturalengland.org.uk/
NRW	Natural Resources Wales (www.naturalresourceswales.gov.uk) *formerly CCW, Countryside Council for Wales*
NERC	Natural Environment Research Council, (www.nerc.ac.uk)
NIEA	The Northern Ireland Environment Agency,(www.ni-environment.gov.uk)
OceanWise Ltd	Private independent consultancy specialising in marine data acquisition, management and GIS

	(www.oceanwise.eu)
Ordnance Survey	http://www.ordnancesurvey.co.uk/oswebsite/public-sector/index.html
RCAHMS	Royal Commission on the Ancient and Historic Monuments of Scotland (www.rcahms.gov.uk)
RCAHMW	Royal Commission on the Ancient and Historic Monuments of Wales www.rcahmw.gov.uk
RES Offshore	Renewable energy development http://www.res-offshore.com/
SAMS	Scottish Association for Marine Science (www.sams.ac.uk)
Senergy	Renewable energy development http://www.senergyworld.com/home
Scottish Government	www.scotland.gov.uk
SNH	Scottish Natural Heritage (www.snh.org.uk)
SeaZone	Commercial Company delivering marine GI products, (www.seazone.com)
SETech	Geo-Technical Surveying and Engineering http://www.setech-uk.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)
Titan Surveys	Marine environmental Surveys http://titansurveys.com/
UHI	University of the Highlands and Islands http://www.uhi.ac.uk/en
UKHO	United Kingdom Hydrographic Office. MEDIN Accredited DAC for Bathymetry data (www.ukho.gov.uk)
Wessex Archaeology	www.wessexarch.co.uk

Glossary

AGI	Association for Geographical Information
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
GEMINI2	Discovery metadata standard managed by the AGI and adopted by data.gov.uk
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.

APPENDIX B: External Expenditure

Work Stream 1: Data Archive Centres

Major Items of External Expenditure:

Bringing New data sets into MEDIN	DASSH	£12,090
Archiving and Rationalising the Dorset Integrated Seabed Study (DORIS) Data	DASSH	£11,720
Archiving IFCA data and establishing SOPs	DASSH	£10,793
Managing Socio-Economic Data Review	Oceanwise	£5,100
Archiving Archaeological data to DACS: Phase 3	BGS	£11,200
BGS JNCC Archiving	BGS	£10,000
Archiving CEFAS SMART Buoy data	BODC	£10,264
BGS DAC costs contribution	BGS	11,000
BODC DAC Costs contribution	BODC	11,000
DASSH DAC costs contribution	DASSH	11,000
UKHO DAC Costs contribution	UKHO	11,000
Miscellaneous Costs (telecoms, catering, etc):		£180
2012-13 Total Cost		**£115,347**

Work Stream 2 Standards

Major Items of External Expenditure:

MEDIN Standards WG support (following MC's departure) May –Sept	DASSH	£9,911
Metadata Maestro Support	SeaZone	£7,965
Standards Workshop Support	Seazone	£2,740
Standards Workshop Suppor*	DASSH	£9,721
Miscellaneous		£884
2012-13 Total		**£31,221**

Work Stream 3: MEDIN Website, Portal and Webtools

Major Items of External Expenditure:

Maintenance of the UKDMOS website	Maris	£1500
Provision of Metadata Service to MEDIN by STFC	STFC	£11,051
MEDIN Metadata Support	MBA	£10,116
Portal Upgrade	GeoData Institute	£6,575
Public source code repository for MEDIN portal code (GitHub)	GeoData Institute	£600
MEDIN portal hosting by GeoData	GeoData Institute	£1200
MEDIN portal hosting by GeoData last FY (Oct 2011 to Mar 2012)	GeoData Institute	£600
Maintenance of the UKDMOS website	Maris	£1500
2012-13 Total		**£31,642**

Work Stream 5: Mapping and Applications

Major Items of External Expenditure:

MB0102 metadata records	DASSH	870
Gazetteer	Geodata	£14,000
2012-13 Total		**£14,870**

Work Stream 6: Communications

Major Items of External Expenditure:

Marine Data News	Newsweaver	£2,088
Meeting Registrations	Various	£160
FishDAC notice email to community	CMS	£156
2012-13 Total		**£2,404**

Work Stream 7: Management

Major Items of External Expenditure:

Chairing MEDIN meetings	Peter Liss	£4,200
MARG / HBDSEG Support	MBA	£1,325
Meeting Costs	Various	£172
2012-13 Total		**£5,696**

NB There were no major items of External Expenditure in WS4

APPENDIX C: Work Stream Deliverables

WS1 Network of Data Archive Centres

1. Key to the work plan for 2012-13 was to facilitate the DAC Working Group and the Accredited DACs to operate proactively under the MEDIN banner. The following Key Targets have been established for WS1:

KT1.1 Consolidation of the DAC network, reports delivered on internal data gaps. DAC meeting reports.

KT1.2 DACs produce evidence of INSPIRE compliant view and download services in place.

KT 1.3 New data accessible through DACs and associated discovery metadata records in MEDIN Portal through data archiving pilot projects.

2. The key areas to be addressed during the year were:

A. Operational DAC Network
- To continue to build and consolidate the DAC network as an operational capability accessible to all UK Marine organisations using the MEDIN portal.
- Consider capability needed for social-economic data (and litter and noise)
- Reporting, including benefits experienced by users

B. Expansion of data within the DAC network
- Archiving key data sets, establishing data flows with key partners

C. Development and future planning
- DAC network to plan ahead for effective archive and for effective publication/delivery of data and metadata. In particular to look to install INSPIRE compliant view and download services

The current status of the MEDIN DAC network

Name	Coverage	Contact Information	Web links	MEDIN Status
BODC	Marine Data	enquiries@bodc.ac.uk	www.bodc.ac.uk	Accredited , operational
British Geological Survey	Marine geoscientific data	offshoredata@bgs.ac.uk	www.bgs.ac.uk	Accredited , operational
DASSH	Marine Species and Habitats	Dassh.equiries@mba.ac.uk 01752 633291	www.dassh.ac.uk	Accredited , operational
Met Office	Marine Meteorological Data	enquiries@metoffice.gov.uk	www.metoffice.gov.uk	Accredited , operational
UK Hydrographic Office	Bathymetry	Andrew.talbot@ukho.gov.uk	www.ukho.gov.uk	Accredited, operational. Web delivery under development
FishDAC	Fish and Shellfish, Fisheries, Aquaculture and related samples	England and Wales: data.manager@cefas.co.uk	www.cefas.defra.gov.uk	Accredited: metadata production under development
		Scotland: enquiries@marlab.ac.uk	www.scotland.gov.uk	Accredited: metadata production underway
Marine Historic Environment	Marine Historic Environment fieldwork derived datasets	help@archaeologydataservice.ac.uk	archaeologydataservice.ac.uk	Accredited

3. The Fisheries DAC is now in place with accreditation for Fisheries DACs with Marine Scotland and CEFAS covering Scotland, England and Wales. In England DASSH will archive the inshore fisheries data for the IFCAs.
4. The Archaeological Data Service (ADS) has been accredited as the first component of the Marine Historic Environment DAC. The other DAC components, EH and RCAHMS (and RCAHMW), will discuss arrangements and timing to work towards accreditation.
5. Two DAC workshops were held and included reviews of data (e.g. identification of gaps in data sources, with particular reference to data needed for MSFD and data from MSCC organisations) and an overview of the current status of, and MEDIN's relationship with INSPIRE/data.gov.
6. In addition to the archiving projects below, several data sets have been identified including the MCZ survey data (CEFAS managed projects) and the Crown Estate (Round 2/3 Renewables, Marine Data Exchange and the Small Consents Programme).

Progress of MEDIN funded Data Archiving Proposals

7. A further series of pilot projects, to establish data flows from MEDIN partners into the DAC network were commissioned and are underway. They are reported below:

DAC	Project	Progress/timeline
Wessex Arch, ADS, BGS	Archiving Archaeological data to DACs: Phase 3	Almost completed; final report due from DAC.
DASSH	Audit of DBRC Marine Data and Metadata Creation	Completed; report received.
DASSH	Archiving and Rationalising the Dorset Integrated Seabed Study (DORIS) Data	Delayed because of staff shortages at DERC; staff in place and metadata is being created. Revised completion - mid May 2013.
BODC	Archiving CEFAS SMART Buoy data	Data received; ongoing
DASSH	Archiving IFCA data and establishing Standard Operating Procedures	Metadata received from all IFCAs. Project report to be submitted by end of January 2013. DAC WG to review IFCA data and SOPs.
BGS	BGS JNCC archiving	In progress, but JNCC data only received in December 2012.

WS1 Deliverables

Deliverable	Status	Relevant KPI
Q1		
DAC Annual Reports (2011-12) according to updated pro-forma (KT1.1)	Completed	KPI3
Report on internal DACs and data collation gaps (KT1.1)	In progress	KPI3
Improve DAC content on web site (according to template provided by MEDIN Core Team)	Completed	KPI3
Q2		
Marine Historic Environment (Archaeology Data Service (ADS)) accreditation finalised (KT1.1)	Completed	KPI3
Response to review of socio-economic data (KT1.1)	Draft response - Discussing with MMO and MS	KPI3
Best practice and common standards Web site update	Completed	KPI3
First DAC WG meeting (and possible regional workshop) (KT1.1)	Completed	KPI3
Q3		
FishDAC (Cefas, Marine Scotland and AFBI) accreditation finalised (KT1.1)	Completed for Cefas and Marine Scotland Science; FishDAC launched	KPI3
Workshop on management/provision of data for MSFD GES descriptors (target D5 Eutrophication)	Awaiting input from MARG	KPI3
Report on progress in providing INSPIRE compliant view and download services (KT1.2)	Completed	KPI3
Q4		
Second DAC WG meeting (KT1.1)	Completed	KPI3
Reports (and metadata records) from funded data archiving projects (KT1.3)	In progress	KPI3

WS2 Standards for Data and Metadata

1. 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.

2. In 2012-2013, in agreement with the MEDIN Standards Working Group the following work key targets were established:

KT 2.1 Hold at least 3 workshops to disseminate MEDIN standards to the wider community
KT 2.2 Ensure coordination of standards with national and international initiatives
KT 2.3 Monitor number of downloads and registrations for MEDIN tools

3. All work has been completed as follows:

- Workshops have been held in conjunction with MEDIN partners at MMO, NW IFCA, GeoData, CCW, Crown Estate, BODC. In general the workshops focused predominantly on the MEDIN discovery metadata standard and the tools that MEDIN supplies to create them. However the workshops at CCW concentrated on MEDIN data guidelines. The majority of people attending the workshops were associated with offshore renewable industries.
- MEDIN maintains close links with those involved with data.gov.uk and the DEFRA team charged with implementing the INSPIRE directive. The final versions of the relevant INSPIRE data specifications were not released during the year, so MEDIN continues to evaluate how to ensure all INSPIRE requirements are encompassed in the MEDIN data guidelines and this task is carried forward.
- Registrations/downloads of the three tools MEDIN supply for creating and validating MEDIN metadata were monitored at DASSH and BODC. In total 275 people are registered for the MEDIN Online Tool, 265 people have downloaded Metadata Maestro and 270 (101) have downloaded the tools to convert metadata from the Geographical Information System software ARC9 (and ARC10) to MEDIN discovery metadata.

4. In addition the other work completed in 2012-2013 includes:

- The MEDIN Discovery Metadata Standard is the standard which underpins the portal and allows people to create metadata that is INSPIRE compliant via the various tools we have produced. There have been minor changes to the standard and these changes have filtered down to the tools.
- The tools to generate MEDIN discovery metadata are well received by those attending the Standards workshops.
- All data guidelines are undergoing minor changes to ensure continuity across the suite of guidelines.
- A new data guideline for ad-hoc sightings has been released.
- The seabed survey guidelines are viewed as overly complicated and their structure is under ongoing discussion within the Standards Working Group.
- Data guidelines relating to socio-economic activity are under discussion and a review and update of the leisure and recreation data guidelines are underway with the MMO.

- The management of the Marine Species of the British Isles and Adjacent Seas (MSBIAS) web application (**http://www.marinespecies.org/msbias/index.php**) was transferred to DASSH. This has been promoted via the MEDIN website and at all MEDIN workshops. It provides a way to ensure British marine species can be referred to unambiguously.
- MEDIN promotes the use of controlled vocabularies within both the discovery metadata standard and the data guidelines to ensure standardised metadata entries. A mechanism to govern MEDIN controlled vocabularies has been established and is operated from BODC.

5. Note that Mark Charlesworth, member of the MEDIN core team and co-chair of Work Stream 2, left MEDIN in May 2012. Whilst a replacement member of staff was being recruited, DASSH were funded to provide interim cover on operational aspects of standards work. Mark's replacement, Clare Postlethwaite, started in September 2012 and has taken on the co-chair role in place of Mark. Also during the year Ulric Wilson (JNCC) took over the other co-chair role from Steve Wilkinson (also JNCC) . MEDIN would like to record its thanks to Steve for his many valuable contributions.

Deliverable	Status	Relevant KPIs
Q1 Hold MEDIN Standards Meeting and agree how to meet aims of the work programme Review final INSPIRE data specifications and identify implications for MEDIN Data Guidelines Discuss with UK Location for GEMINI2 discovery standard to include additional MEDIN elements Plan and advertise 3 workshops	All completed	 KPI6 KPI5 KPI5 KPI4, KPI6
Q2 Publicise MSBIAS widely Hold at least 1 workshop	All completed	 KPI4 KPI4, KPI6
Q3 Hold MEDIN standards meeting Hold at least 1 workshop	All completed	 KPI6 KPI3, KPI6
Q4 STDs Work Plan for 2012-2013 STDs Report for 2011-12 To be determined	All completed	 KPI6 KPI6

WS3 Web Portal, Products and Services

1. The following Key Targets were identified for WS3 for 2012 – 2013:

KT 3.1 Increase the number of records in the portal to 5500 by end March 2013
KT 3.2 Upgrade MEDIN portal to provide improved search functionality
KT 3.3 Establish transfer of metadata records to data.gov.

2. The number of records in the portal reached 4229 in March 2013 from a starting point of 2611 in April 2012 **(KT3.1)**. Achievement of the aim of 5500 metadata records (KP1) has not been attained although over 1600 records have been added in the past year. Advice from partners is that the creation of compliant MEDIN records can sometimes be technically difficult and time consuming.

3. The contract to upgrade the MEDIN portal and improve search functionality **(KT3.2)** is approaching completion and has been much delayed in delivery. The outstanding tasks are to assess the demonstration search page, sign off when ready and 'go live'.

4. The keyword to enable identification of those records to be delivered to data.gov.uk **(KT3.3)** has been set up and also the procedure for the central harvester to recognise these records. STFC have created a CSW (catalogue service for the web) as a holding repository that links to data.gov.uk. Some technical tasks remain before the system is fully automated. All partners have been asked if they wish to use this MEDIN service and, of the responders, six have answered positively (others have set up their own routes for publication to data.gov.uk). The Archaeology Data Service has added the keyword to their records and these records will go across once the system is fully operational.

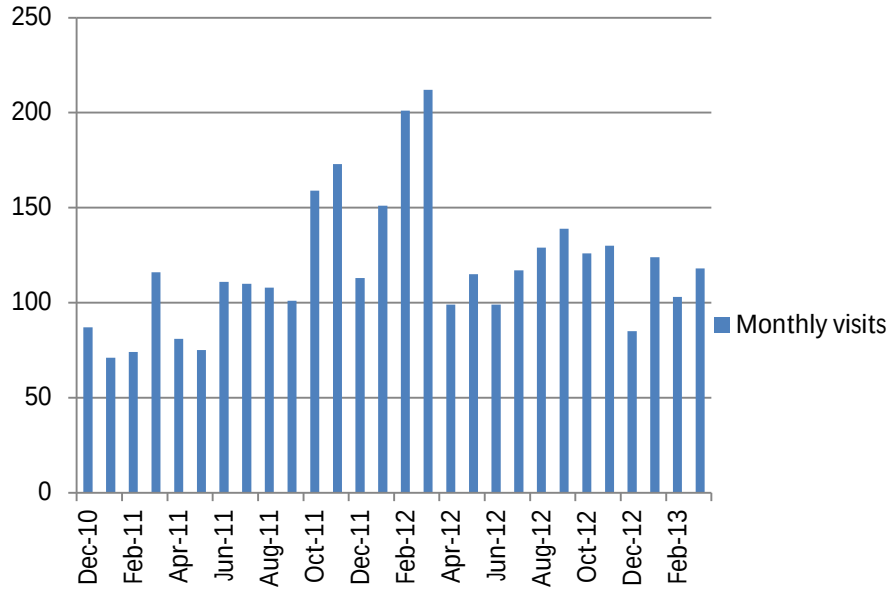
5. DASSH has continued to be under contract to MEDIN to provide valuable metadata support and facilitate the flow of records into the portal. This has included one-to-one meetings between DASSH and partners, the organising of metadata workshops plus the manning of a metadata hotline and email helpdesk (over the year 62 queries were dealt with).

6. Work has begun on the reference data pages (see WS5) and the metadata url for reference data records are checked against the content of the portal.

7. Due to staffing and technical issues, an export of UKDMOS to MARIS (who maintain ukdmos.org) was not completed in 2012. Requests for updates to UKDMOS are sent out in the first quarter of each calendar year. These, along with updates sent in response to MSCC's recent prompting, are in the process of being published to the UKDMOS database. An export of the database to update the website will then be sent in the second quarter of 2013, and again as and when further updates are received. The transfer of UKDMOS content to the UK Environmental Observation Framework (UK-EOF) catalogue has not been done and carries over to 2013 – 14.

8. Many MSFD related metadata records are now available on the UK Directory of Marine Observing Systems (UKDMOS) http://www.ukdmos.org/, where a search facility is available to identify metadata records that satisfy the range of MSFD descriptors. These records will be migrated to the MEDIN portal in summer 2013.

9. The number of visits to the portal page has remained more or less constant during this annual period.



Visits to the portal page at http://portal.oceannet.org/search/full

Portal and Web Services Deliverables table 2012 - 2013

Deliverable	Status	Relevant KPI
Q1		
Finish portal upgrade	Ongoing	KPI 2
Installation of portal discovery service onto MEDIN virtual server at BODC.	Ongoing	KPI 2
Batch tool to generate MEDIN format metadata	Done	KPI 1
Provide CSW (or WAF) service link to UK Geoportal (and hence INSPIRE).	Ongoing	KPI 1
Advertise the Discovery Portal	Not done	KPI 2
Generate web stats for portal	Done	
Q2		
Generate web stats for portal	Done	
Q3		
Generate web stats for portal	Done	
Q4		
Generate web stats for portal	Done	
Portal and Web Services Work Plan for 2013-2014	Done	
Portal and Web Services Report for 2012-13	Done	

WS4 International Awareness, Coordination and Data Delivery to Global Databases

Overview

WS4 ensures that UK developments are linked in and consistent with European and other international initiatives, and that obligations to provide data to global data bases are met. The following Key Targets have been identified:

KT 4.1 Provision of feedback (via short reports) from international working groups (e.g. WG DIKE, MODEG, etc) illustrating how key European and international data initiatives impact on MEDIN.

KT 4.2 All near-real-time temperature and salinity data received by MEDIN passed on to the Global Telecommunications System. Increase the number of data suppliers.

KT 4.3 Deliver 50% of backlog of historical CTD data to international repositories (e.g. World Data Center for Oceanography (Silver Spring), ICES Data Centre and CLIVAR and Carbon Hydrographic Data Office (CCHDO))

KT 4.4 Ensure the role of MEDIN is clearly stated within the broader range of UK and European data sharing initiatives

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. In addition, the transfer of temperature and salinity data to the Global Telecommunication System (GTS) in near-real-time has been undertaken. This is important as these data can then be assimilated into operational models by the Met Office.

A focus for information on European and International initiatives/drivers relevant to MEDIN (KT4.1, KT4.4)

1. Ongoing provision of advice, primarily to Defra in relation to EMODnet and its preparatory actions especially in relation to MSFD data issues. Attendance at three meetings of the EU Marine Observation and Data Expert Group (MODEG), including a focus on reviewing progress of the EMODNet preparatory actions (the UK is involved with all six of these). Calls for tender for the next phase of EMODNet were announced by DG-MARE announced in the summer of 2012. The successful consortia will begin the new projects in June 2013. MEDIN DACs are involved in most of these.

2. The WG on Data Information and Knowledge Exchange (DIKE) was set up to ensure that the data and information needs of the MSFD are met; MEDIN provides technical input to Defra who are the policy lead. Most specifically this group will oversee the development of WISE-marine - (Water Information System for Europe) which will be the formal route by which countries will report on the progress on the implementation of the directive to the EC. A Technical Group was also established and met in July 2012 with a view to further developing the “5 quick wins” concept.

3. On 29 August the European Commission adopted the Green Paper on "Marine Knowledge 2020; from seabed mapping to ocean forecasting". It includes an interim evaluation of EMODnet and considers how to move EMODnet from a

series of projects to an efficient sustainable process. A consultation period to help frame discussions on future direction ran until 15 December. Input was provided by 240 respondents (~140 organisations, 100 individuals). 21 responses were received from the UK (including UK Government, Marine Scotland/Scottish Government, CCW, NOC, SAHFOS, English Heritage, HR Wallingford). The results are currently being analysed and the Commission will prepare a feedback statement summarising the contributions. In the meantime all of the responses are available at:

http://ec.europa.eu/dgs/maritimeaffairs_fisheries/consultations/marine-knowledge-2020/index_en.htm

Support and links to global databases (KT4.2, KT4.3)

4. A system is in place for the near-real-time transmission of temperature and salinity data from CTDs to the Global Telecommunication System – new data are checked and transmitted when received. Data have been received from RV Scotia/Marine Scotland and transmitted to the GTS. Temperature and salinity data from Tagged Seals are also routinely provided to the GTS. New this year, temperature data from drifters are now being supplied to the GTS.
5. Further historical CTD data have been supplied to the Carbon Hydrographic Data Office (CCHDO) for use in generating the Argo Reference Data Set. Discussions are underway with regard to supplying the backlog of historical data over the coming months.

WS4 Deliverables 2012-13

Deliverable	Status	Relevant KPI
Q1		
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	*Meetings attended*	KPI5
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	*Completed*	KPI5
Q2		
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	*Meeting attended*	KPI5
Plan delivery of water bottle and CTD data to global data centres (KT4.3)	*Ongoing*	KPI5
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	*Completed*	KPI5
Q3		
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	*None attended this period*	
Update the international initiatives table and compile a document on getting ready for reporting data and information for the MSFD (KT4.4)	*Completed*	KPI5
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	*Completed*	KPI5
Delivery of water bottle and CTD data to global data centres (part 1) (KT4.3)	*Completed*	KPI5
Q4		
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	*Completed*	KPI5
Further updates to the international initiatives table (KT4.4)	*Completed*	KPI5
Delivery of water bottle and CTD data to global data centres (part 2) (KT4.3)	*In progress*	KPI5
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	*Completed*	KPI5

WS5 Resources and Applications Development

Overview

1. The Objectives for WS5 in 2012-13 were to:

- Identify, design and develop resource requirements of MEDIN sponsors, including those of direct relevance to the data and data management needs of the UKMMAS.
- Create and maintain a catalogue of reference datasets, commencing with those which are a priority to marine planning and licensing and planning, and extending these to other datasets as required (objective 1).
- Encourage and work in collaboration with identified data holders (identified under objective 2) to develop and strengthen data products and services by publishing metadata via the MEDIN portal, and publishing actual data directly or, where this is not possible, via the MEDIN portal.
- Assist in the delivery and monitor the performance of existing and new data resources through use cases where these can be readily identified.

2. Provision of an online service for key reference data sets was initiated in 2012-13. A web application for delivery of layers has been built and is currently being tested. There are some GIS layers loaded to this application but further work is needed on drawing together the metadata for more key reference layers.

3. A workshop to consolidate plans for infrastructure reference layers was held at the UKHO in September 2013 and a position paper: “Options Paper for the Management of Location Data for Offshore Infrastructure in the UK” generated.

4. An update to the Marine Gazetteer was produced by Geodata under contract. The update adds 67 further sea areas that provide an extension to SeaVOx, a new point gazetteer containing over 5,000 points, and includes alternate names and selected zoom levels. This authoritative new resource has been developed in cooperation with the Ordnance Survey and provides a link between terrestrial and marine gazetteers where one did not previously exist.

WS5 Deliverables 2012-13

Deliverable	Status	KPI
Q1		
1.1 Launch of reference data pages on the MEDIN portal encompassing all priority MEDIN and MCZ datasets 1.2 Publication of initial catalogue of reference data with > 8 datasets available for view and download	Web pages expected online summer 2013 with MCZ and reference data sets available for download	KPI 7
Q2		
2.1 Publication of version 2 of the MEDIN Marine Gazetteer 2.2 Use of MEDIN Marine Gazetteer as a source of search terms in the MEDIN portal 2.3 Use of the revised gazetteer by Defra, Data.gov.uk, MCA and at least 2 others	Completed spring 2013 To be included in future upgrade Is in use by data.gov.uk	KPI 7
Q3		
3.1 Publication of a revised action plan, identifying clearly where priority data needs to improve and how. 3.2 Publication of > 5 quality improved datasets by > 2 data holders.	Infrastructure paper published Has proved difficult to encourage organisations to take on “extra” responsibilty	KPI 7
Q4		
4.1 Publication of a single gazetteer product by Ordnance Survey and MEDIN.	Version 2 of MEDIN Marine Gazetteer delivered and under review, linked to names from OS 1:50 K gazetteer.	KPI 7
4.2 All central government organisations following the action plan and utilizing MEDIN developed resources where available.	Has proved difficult to get commitment. Requires significant work. MSCC to play a role?	KPI4, KPI 6
4.3 All datasets identified as a priority being published under a form of the Open Government Licence.	There are issues of derived data to be teased out and addressed.	KPI 3

WS6 Communications: Outreach, Forums, Publicity

1. Activities under this work stream include all forms of publication and outreach (direct emails, newsletter, the holding of workshops and partners meetings, and the presentation of MEDIN at seminars and workshops). This is a key activity for MEDIN as it is essential to communicate to the marine community the resources that have been developed, to provide advice and support on how to use them, and to receive feedback on the utility of these resources.

2. Communications and outreach activities continued throughout the reporting year. We provide details below, but the general highlights are:

- The website was frequently updated and various enhancements included.
- Publication of Marine Data News continued on a quarterly basis.

Website: Oceannet.org

3. The figures presented below compare:

• the number of visits to the site,

• the number of new visitors, (Unique Visitors is the number of unduplicated (counted only once) visitors to the website over the course of a specified time period.)

• the total number of pages viewed (Repeated views of a single page are counted.)

from 01/04/11 - 01/04/12, and 01/04/12-01/04/13.

Period	Visits	Visitors	Pageviews
2011-2012	12,549	6,769	43,417
2012-2013	12,631	7,205	43,298
% change from last year	**+1%**	**+6%**	**--0.3%**

Webstats from comparable time periods in 2011-12 and 2012-13.

4. The top ten pages (as measured by the number of times a page was viewed) are listed below and account for over half of all page views (57%):

Page	Pageviews	% Pageviews of whole site
Home page	10,267	24%
Marine Data Standards	2,648	6%
MEDIN Discovery Standard	2,358	5%
Useful links	2,129	5%
Submitting data	1,898	4%
Portal	1,440	3%
MEDIN Data Guidelines	1,075	2%
Submitting Metadata	903	2%
About Us	854	2%
Search	806	2%
Top ten total	**24,378**	**56%**

Top ten pages from 1st April 2012 – 1st April 2013

5. MEDIN continually seeks to update and improve the oceannet.org website in order to increase its effectiveness. Following feedback from an external reviewers, a number of improvements were made to oceannet.org, most notably to the visual impact and navigation of the site.

Marine Data News

6. Publication of Marine Data News continues with Issues 22 and 23 being published in May 2012 and Jan 2013 respectively. Articles included the announcement of the Marine Species of the British Isles and Adjacent Seas, Rescue of Historical Sea Level data, South West Peninsula Historic Seascape Characterisation Project and the launch of FishDAC.

Total subscribers to Marine Data News currently stands at 661, down from 674 last year.

Conference Presence and Meetings

Scottish Biodiversity Information Forum SNH (Perth)	May 2012
GeoMaritime Conference in London	13-14 June 2012
MASTS (ePoster and workshop)	13th September 2012
Sustain Conference, Southport, UK	18th September 2012
North West Coastal Forum	18th September 2012
MEDIN UK Location workshop	11th October 2012
Improving Quality of Data to MPAs	8th November 2012
Setting the Course for Operational Oceanography	16-18 January 2013
LIFE NATURA 2000 inception event, Bangor, UK	6th February 2013

Other publications and articles.

- Article by D Cotton in October 2012 issue of 'Soundings' - MEDIN: A partnership approach to managing marine data and information in the UK.

Other

7. The MEDIN twitter account (@MEDIN_marine) is followed by over 150 organisations and private individuals interested in marine science and data, representing a two-way communications outlet with the potential to reach a global audience. Additions to the website as well as other general announcements are broadcast on twitter using scheduling software to ensure tweets are sent at a time most likely for them to be read.

WS6 Deliverables 2012-13

Deliverable	Status	KPIs
Q1 2012-13		
Issue of Marine Data News	*Complete*	KPI4
Attend meetings as required for outreach	*Complete*	
Quarterly Progress report	*Complete*	
Q2 2012-13		
Issue of Marine Data News	*Complete*	KPI 4
Attend meetings as required for outreach		
Arrange MEDIN partners meeting	*Complete*	KPI 4
Improvement and maintenance of website	*Complete*	KPI 4
Quarterly Progress Report	*Complete*	KPI 4
Q3 2012-13		
Edition of Marine Data News		
Produce more publicity material as required	*Complete*	KPI 4
Publish articles in on-line newsletters and magazines on MEDIN portal and standards		
Q4 2012-13		
Attend meetings as required for outreach	*Complete*	KPI 4
Edition of Marine Data News		
Edit and maintain website		

WS7 Management, Planning and Coordination

1. 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.
2. In 2012-13 there was again a high turnover in staff, with two staff members returning from long-term absence, and the departure of a key member of staff Mark Charlesworth in May 2012. Clare Postlethwaite was appointed as Mark's replacement, and took post in September 2012. In the interim, DASSH was funded to provide cover for some operational aspects of the standards work stream. This inevitably, again, required the diversion of management effort to ensure continuity of work in the work streams affected (WS2 – Standards, WS3 – Portal, WS5 – Mapping and Applications, and WS6 – Communications).
3. MEDIN has again worked closely with the UKMMAS (UK Marine Monitoring and Assessment Strategy) community:
    - A key requirement on MEDIN in support of UKMMAS is to develop plans for data management and setting up data transfer arrangements in support of the UK implementation of the European Marine Strategy Framework Directive. Some early plans have been drawn up, and initial test metadata (on Charting Progress 2 data sources) prepared for submission to the EEA.
    - To reduce the meeting load on the core team, Dan Lear (DASSH) is now being supported to represent MEDIN at the Healthy and Biodiverse Seas Evidence Group, as is Mike Osborne (Oceanwise) to represent MEDIN at the Productive Seas Evidence Group
    - David Cotton continues to attend meetings of the Marine Assessment Review Group, and is on the Executive Committee for the UK Integrated Marine Observation Network. He has also attended meetings of UKMMAS Human activities and Pressures Steering Group, and the Aerial Monitoring Group
4. Engagement with MSCC has continued. Progress reports are provided to the 6 monthly meetings, and official MEDIN representation is now provided through Rob Hensley (UKHO). A briefing note is provided in advance of each meeting and a report provided back to the MEDIN Executive Team. David Cotton attends the MSCC Industry Liaison Group, which is looking at a high level how access to industry data can be improved, and Gaynor Evans attends the underwater sound forum.
5. MEDIN continues to engage closely with UK Location and data.gov.uk initiative to coordinate input from the marine community, and to ensure that the MEDIN and data.gov.uk resources developed for publishing data and metadata are consistent and linked. A joint workshop with UK Location was held in October 2012.
6. Meetings have been held with AFBI and SEPA – to encourage and plan adoption of MEDIN standards and procedures, and greater uptake of the MEDIN data clause, and review progress in some pilot data archiving projects (SEPA).