Annual Report 2014-2015

Measure once, use many times

1 Highlights in 2014-15

Important progress has been achieved by MEDIN in 2014-15.

1.1 MEDIN's aim to provide the single point of contact for UK marine data got closer to being achieved this year. The number of datasets available on the MEDIN portal increased to over 9,500, up from around 6,000 in March 2014. The records cover a broad range of marine disciplines and originate from a variety of public and private organisations.

1.2 DACs continue to archive data from MEDIN partner and third party organisations to agreed individual programmes. The 2014-15 DAC annual reports show that:

- The number of datasets held by the DACs is 8,567, almost 50% more than 2013-14, and almost 2.5 times more than 2011-12
- 5,347 new datasets were archived in the DACs (4.8 times more than in 2013-14 and 7 times more than in 2011-12)
- 783,249 requests for data were received by the DACs (57% more than 2013-14 and 4 times more than 2011-12)
- All the DACs are receiving data from at least 1 MSCC member – the following DACs have multiple MSCC members supplying data: BODC (15), BGS (11), DASSH (8) and UKHO (9)

1.3 The network of MEDIN Data Archive Centres (DACs) expanded further this year, with one additional organisation accredited as a DAC in 2014-15. The Royal Commission on the Ancient and Historical Monuments of Scotland (RCHAMS) became the second member of the historic environment DAC. This brings the total number of organisations acting as DACs to nine.

1.4 Four established DACs are in the process of being reaccredited (UKHO, BGS, BODC and DASSH) to ensure they continue to provide the service that MEDIN requires of them.

1.5 MEDIN has improved its ability to archive complex, multidisciplinary datasets across several DACs. Archiving of Marine Conservation Zone (MCZ) survey data at multiple MEDIN DACs has continued, ensuring these valuable data are archived and the DACs operate as a coordinated network.

1.6 MEDIN-run training workshops were well attended and well received by private and public sector representatives of the marine community. *"I had some specific questions which were answered very well and found it a very useful day", "Much clearer thank you" "Much better understanding of MEDIN after this workshop. Thanks very much", "Excellent – useful, clear, interesting, easy to follow – Thanks!"*

1.7 MEDIN has published position papers on underwater noise and socio-economic data and has continued to explore ways to make less commonly available types of marine data more accessible. The MEDIN underwater noise data guideline has been reviewed, thus ensuring MEDIN guidance remains appropriate for this relatively new area of marine data.

1.8 MEDIN has supported its partners in reporting monitoring programmes for the Marine Strategy Framework Directive (MSFD) via its management of the UK Directory of Marine Observing Systems (UKDMOS). There are over 275 UK monitoring programmes described in UKDMOS, relating to 15,000 sites. Information for over 6,000 of these sites was updated in 2014-15.

1.9 MEDIN continues to investigate ways to increase access to data collected by the commercial sector. A project, co-funded by MEDIN in 2014-15, looking at access to industry data will report at the end of May 2015. This will complement a study being carried out by the Offshore Renewable Energy (ORE) Catapult looking at the use of marine data by the ORE sector.

1.10 Interactions with MEDIN's online newsletter, Marine Data News, have increased, suggesting that the articles are of greater interest to the marine community or are being presented in a more accessible way.

1.11 There has been a significant increase in the number of visitors to the MEDIN website that click on the "finding data" page. This highlights the ongoing desire to find and use marine data.

1.12 MEDIN continues to provide important links to European and international initiatives, and has supported the marine community in meeting obligations to publish public data under the INSPIRE directive. On request, MEDIN has published 177 records to data.gov.uk (and consequently to INSPIRE) on behalf of its partners.

2 Performance Summary

2.1 2014-15 was the first year under the new five year (2014-19) MEDIN Business Plan. MEDIN has moved to a fully operational phase from the transition phase with a reduced level of funding, from £763K per year before 2011 to £512K in the last year.

2.2 Priorities identified in the 2014-19 MEDIN Business Plan that were targeted in 2014-15 are identified by the High Level Objectives in table 1. Table 1 also details the Key Performance Indicators (KPIs) used to assess whether the objectives were met.

Not achieved	Partially achieved	Fully achieved
4	10	7

High Level Objective	Key Performance Indicators	Success	Details
1. The MEDIN framework is adopted across the UK	…DAC network, standards and metadata portal adopted across the UK within organisations' operational data strategy. This was measured by the following statistics:		
	a) Show increase in no. of datasets or no. of observations year on year (from 2012 baseline)	Fully achieved	The number of data sets held by the DACs is 8567; an increase of 46% since last year and 130% since 2012.
	b) Standards use – Increase no. of tool downloads/registrations from 370 to 450	Fully achieved	495 downloads of metadata maestro; 426 total registrations for online metadata editor
	c) Portal Use – achieve at least 50 views per month	Fully achieved	Averaged over 22,500 visits per month[1]
2. Coordinated DAC approach for archiving / retrieving data	….. with support for users		
	a) Centralised archiving guidelines – published on MEDIN website by end Q3	Not achieved	Staff shortages prevented this being achieved
	b) 2 worked examples of multidisciplinary data sets being archived by end Q3	Partially achieved	Staff shortages meant only 1 example possible. Marine Conservation Zone (MCZ) data archived at BGS and DASSH

[1] Number of times a request is sent from a given IP addresses to the MEDIN portal. If less than thirty minutes elapses between 'visits' from a given IP address this counts as one 'visit', if more than thirty minutes elapses between 'visits' from a given IP address, an additional visit is counted.

3. Support the partners in meeting INSPIRE obligations	…to publish metadata and provide compliant data view and download services		
	a) Report on meeting INSPIRE obligations by each DAC to MEDIN executive team by end Q3	Partially achieved	Only partially achieved as the DAC annual report was not available for reporting in Q3. Most DACs provide view and download services, but not all are INSPIRE compliant. See 3c.
	b) All MEDIN metadata records designated to be published on data.gov.uk successfully published there (253 records) by end of Q4.	Partially achieved	177 out of 253 published, outstanding issue with wrong keyword being addressed at DASSH
	c) Monitor number of DACs providing INSPIRE compliant view and download services	Fully achieved	UKHO is INSPIRE compliant; BGS, Met Office and FishDAC (Scotland) have some INSPIRE compliant services; these are planned or under development at BODC, BGS, Cefas and DASSH.
4. MEDIN portal provides comprehensive coverage	… enabling wide-ranging & dynamic access to UK Marine data, Reference data, view and download services and other data products in line with user requirements.		
	a) Stats on coverage of portal (at least 200 new datatsets, 40 new reference layers by end Q4)	Partially achieved	2813 new datasets added to the MEDIN portal; no new reference layers.
	b) Pilot linked online resources using MEDIN Gazeteer	Partially achieved	Step one of converting the MEDIN Gazetteer to linked data has been completed. Further work still required.
5. Manage data for use in MSFD	…Store, manage and make available UK monitoring data for use in MSFD assessment, according to the agreed approach		
	a) Provide paper on status of MSFD to MARG by May 2014	Fully achieved	
	b) UKDMOS developments to support MSFD reporting in place by Q2	Not achieved	Information required from DEFRA on which monitoring activities will be used to report on each MSFD indicator.
6. Provide access to data services and data products	… defined key data services and priority common data products		
	a) Stats on products and services hosted by MEDIN, and on usage (page views / downloads) to determine baseline for future comparisons.	Partially achieved	196 GIS reference layer downloads Apr 2014 to Mar 2015. No statistics for services as service data not yet available.

7. Promote the re-use of data	…. resulting in a sustained increase in the number of successfully furnished requests for archived data from the public, government and industry.		
	a) No / nature of data searches and downloads maintained at 2013/14 levels.	Fully achieved	Data searches and downloads are not recorded at all DACs. For those that do, the overall number of requests for data have increased year by year since 2012.
	b) Analysis of these reported to MEDIN Executive Committee in Q4.	Partially achieved	
8. Adoption of data guidelines across the marine sector,	… including MSCC members as a standard condition of funding for data collection.		
	a) Increase no of MSCC orgs applying MEDIN guidelines from 5 to 6 and no of MSCC orgs requesting MEDIN guidelines from contractors from 1 to 4.	Partially achieved	5 MSCC organisations applying MEDIN guidelines and 4 stipulating contractors use data guidelines.
	b) Workshop feedback to maintain positive level reported in 2013/14	Fully achieved	Feedback from workshops very good with diverse attendances showing wide audience are using or intending to use MEDIN data guidelines.
9. Demonstrate the value of using the MEDIN framework	Provide tangible case studies demonstrating the value of using the MEDIN framework when locating, accessing and retrieving data for projects.		
	a) Case study by end Q4	Partially achieved	MEDIN co-funded a project through the Productive Seas Evidence Group (PSEG) on the Use of Industry Data. This is due to report in Q1 2015-16.
10. Raise the profile of MEDIN	… in the academic and private sectors, attracting further members to the network and widening the sources of data.		
	a) 4 issues of Marine Data News	Partially achieved	3 issues published
	b) Partners Meeting with increased attendance compared to 2013/14	Not achieved	Staff shortages prevented this being achieved.
	c) At least 2 Publications	Not achieved	Staff shortages prevented this being achieved.

Table 1: Summary of 2014-15 Key Performance Indicators and progress

3 Performance Details

3.1 This section contains details on progress towards each Objective. The lack of progress with some of the KPIs was due to severe staff shortages during the year, exacerbated by a lack of project coordinator for 4 months. Where relevant, work has been transferred to the 2015-16 Work Programme.

3.2 The MEDIN Work Programme is carried out within 7 work streams. Each work stream defined between three and four Key Tasks in order to meet the Objectives. Progress towards these Key Tasks and their associated deliverables are described in Appendix C.

3.3 Objective 1 – MEDIN Framework adopted across UK

The MEDIN Framework consists of: the DAC network; the MEDIN metadata standard and suite of data guidelines; and the MEDIN discovery portal.

The MEDIN network of DACs provides secure long-term storage for marine data together with the capability to upload and retrieve data. All DACs have provided annual reports for 2014-15 detailing new data sets archived and number of data sets held. Note that it is difficult to compare between DACs, as the size of data sets can vary significantly between DACs (and even within DACs). For example, all the data held in the Met Office DAC are maintained in 4 data sets, which were augmented in 2014-15 with 6 million new observations, whereas there has been a large increase in data sets at the BGS DAC this year due to a large number of sampling activities and geophysical lines being archived in addition to a more usual number of surveys. Highlights for the new data sets archived are given in table 2.

<table>
<tr><th>BODC</th><th>UKHO</th></tr>
<tr><td>During 2014/15 BODC received 254 accessions of data from 59 organisations in 11 countries as follows:

135 from NERC laboratories (including collaborative centres & NOC)
35 from UK universities
9 from UK Government funded laboratories
21 from commercial organisations
3 from charitable organisations
51 from overseas laboratories

The data comprise physical, chemical, biological and geophysical observations in a variety of forms including profiles, time series and discrete samples.

Additionally, 37 datasets were added to the Published Data Library and received a Digital Object Identifier (DOI).</td><td>• 28 x Civil Hydrography Programme, 2 x Royal Navy, 5 x datasets received under the Government Data Sharing MoU, 57 x 3rd Party
• Agreement reached with Port of London Authority to release low-resolution datasets supplied specifically for the portal. These will become available at the next portal update (April 2015)

Met Office

• The Met Office are awaiting operational acceptance of the AMOS network – automatic weather stations designed for ships. Once this has been achieved, a new metadata record will be created.
• Summary of data sets archived (in the last year) – All 4 existing Met Office datasets have been added to over the past year, totalling an additional 6 million observations.
• In discussions with the Crown Estate regarding archiving 8 of their wind farm meteorological datasets from met masts.</td></tr>
<tr><th>ADS (Historic Environment DAC)</th><th>DASSH</th></tr>
<tr><td>• 79 OASIS records and 60 records about ADS maritime archaeology collections
• All datasets are currently freely accessible by users through the ADS website from where they</td><td>• UK Crab Atlas records
• Natural England Article 17 data
• Marine Conservation Zone Monitoring Data</td></tr>
</table>

can be downloaded or viewed. • All marine related data sets, are added to the harvest index and therefore available to MEDIN • Access remains free, open and on line.	• UK Oil & Gas monitoring data • Plymouth Marine Fauna and North Wales Marine Fauna datasets • UK Marine fish recording scheme dataset
RCAHMS (Historic Environment DAC)	**Marine Scotland Science (FishDAC)**
Cataloguing of archive material from ORCA archaeology's Scapa Flow 2013 Marine Archaeology Project which comprised geophysical survey analysis and diver inspection reports on 43 sites ranging from the German High Seas Fleet to Block Ships. 798 items of archive were added to the Collection.	• North Sea IBTS Q1 + Q3 • West Coast IBTS Q1 + Q4 • Herring Acoustic Survey • Mackerel Acoustic survey • 2 X Monkfish survey + 1 charter • Nephrops and Scallop Surveys
BGS	**CEFAS (FishDAC)**
• 27 surveys added to the BGS Coastal & Marine Database included • 11 surveys were specifically received for MEDIN DAC (not including UKHO). • 686 sampling activities added to the BGS Coastal & Marine Database • 3458 geophysical lines added to the BGS Coastal & Marine Database • 32 MCA CHP HI Surveys have been received (some partial) + some additions to partial surveys previously received • 1400 Legacy BGS paper geophysical records scans from 900 records from 30 surveys were added to the collection.	• Western English Channel Groundfish Survey series • Bass Solent survey • 1000's of the Cefas historic otolith collection • FSP survey series • Historic surveys 1908 -1970s • Historic statistical charts • UK National Inshore Fishing Activities Data Layer

Table 2: Summary of new data sets archived at the MEDIN Data Archive Centres in 2014-15

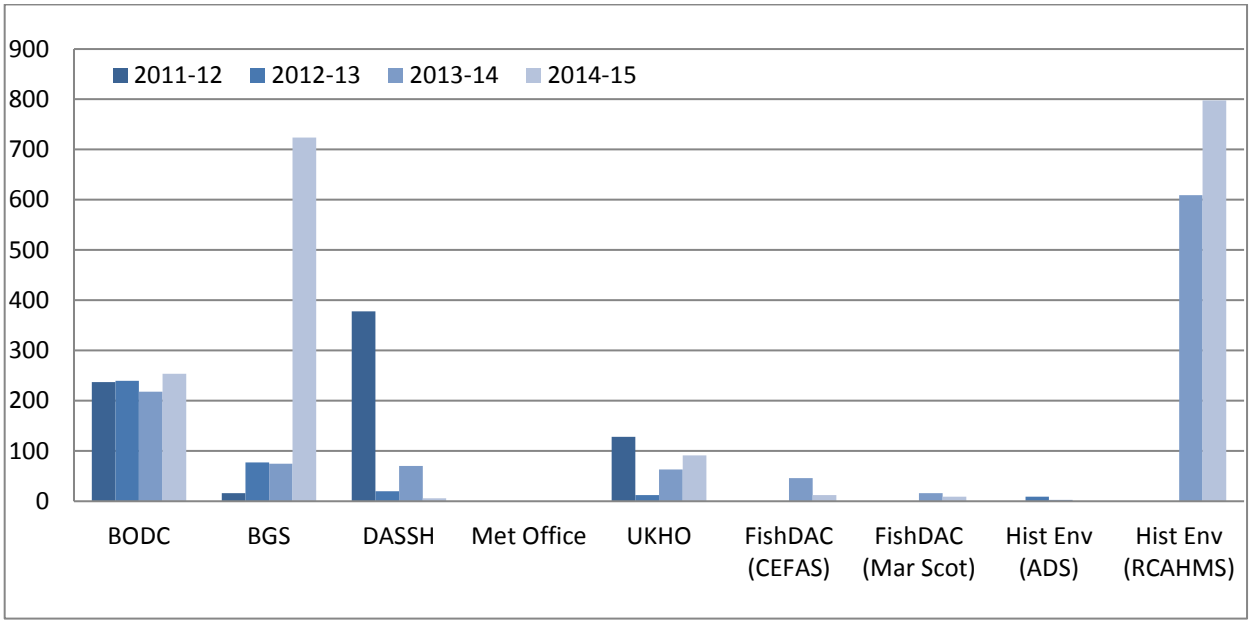

Figure 1: New datasets archived at MEDIN DACs since 2011.

This year, the tools to create MEDIN discovery metadata were upgraded. In particular a series of improvements to Metadata Maestro, funded by The Crown Estate to make the tool more user friendly, were completed and released. MEDIN provided guidance and acceptance testing throughout this process. This tool was downloaded nearly 100 times this year indicating that the tool remains relevant to its users. In addition, the number of registrations for the online tool increased by over 45 this year. NB no additional registration is required when the online tool gets upgraded so these are 'new' registrations. An upgrade to a third tool, which allows Geographical Information System (GIS) users to create MEDIN discovery metadata in ArcGIS, was published this year. This was downloaded 170 times following the release, predominantly by existing users.

The MEDIN portal aims to provide a single point to search for and access UK marine environmental data. Previously, only partial statistics were available to monitor use of this portal meaning the metric for the KPI was set low. The metric reported here is the number of visits from separate IP addresses to the MEDIN portal per month. This ranged from over 35,000 at the beginning of the financial year to around 15,000 towards the end (Figure 2). On average there were 22,600 visits to the MEDIN portal per month.

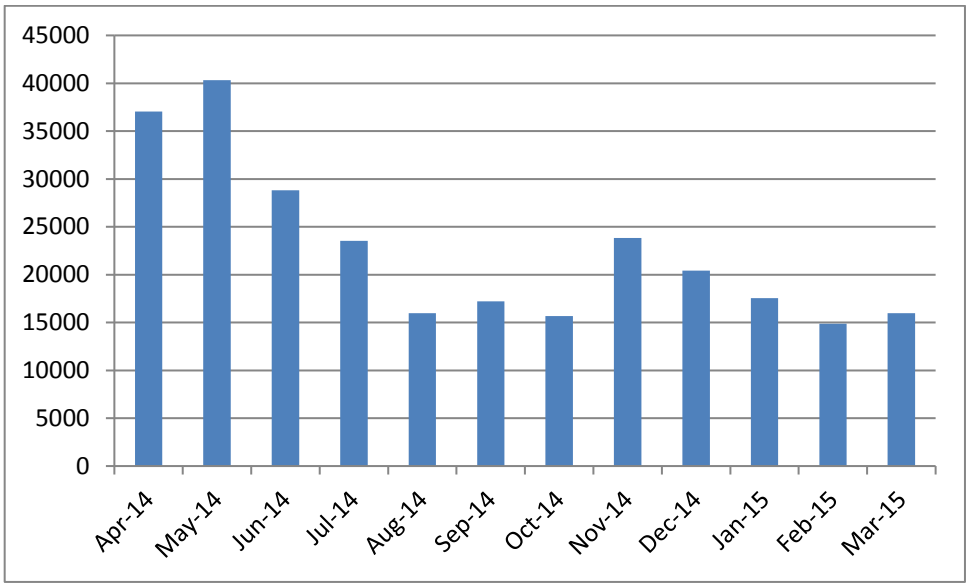

Figure 2: Total visits per month to the MEDIN portal in 2014/15[2].

3.4 Objective 2 - Coordinated DAC approach for archiving / retrieving data

The network of MEDIN Data Archive Centres is continuing to grow, with The Royal Commission on the Ancient and Historical Monuments of Scotland achieving accreditation and becoming the latest component of the Historic Environment DAC. The network of MEDIN DACs is taking a more coordinated approach to archiving complex datasets, with data starting to flow from one DAC to another where required. For example, datasets collected during Marine Conservation Zone surveys are being passed between DASSH, BGS and UKHO so data from these complex surveys are

[2] Number of times a request is sent from a given IP addresses to the MEDIN portal. If less than thirty minutes elapses between 'visits' from a single IP address this counts as one 'visit', if more than thirty minutes elapses between 'visits' from a given IP address, an additional visit is counted.

archived at the most appropriate DAC.

3.5 Objective 3 - Support the partners in meeting INSPIRE obligations

Table 3 below shows the current status of INSPIRE View and Download compliance at the DACs.

DAC Name	INSPIRE View & Download
British Oceanographic Data Centre	Download, but not INSPIRE compliant. INSPIRE compliance under development.
British Geological Survey	Some INSPIRE view (e.g. Offshore Geoindex). Download available but not INSPIRE compliant.
DASSH	View and download services exist, but not INSPIRE compliant. Future plans include development of this.
Met Office	1 data set for last 24 hours data
United Kingdom Hydrographic Office	Yes
FishDAC (CEFAS)	View and download under development
FishDAC (Marine Scotland)	Governed by progress within Scottish Government. No plans for FishDAC to have their own services. But 3 data sets have INSPIRE Compliant View through the National Marine Plan Interactive and 3 have download via Marine Data Portal.
Historical Environment DAC (ADS)	View – yes; download for 60 records
Historical Environment DAC (RCAHMS)	View but not Download

Table 3: Summary of MEDIN DAC provision of INSPIRE compliant view and download services.

MEDIN has set up a process whereby it can pass metadata to data.gov.uk and hence to INSPIRE on behalf of its partners on request. 177 metadata records have successfully been passed to data.gov.uk, helping MEDIN partners meet their obligations under INSPIRE.

3.6 Objective 4 - MEDIN portal provides comprehensive coverage

This objective was only partially met as MEDIN did not increase the number of reference layers it makes available. However, the increase in number of datasets on the MEDIN portal exceeded expectations this year with over 2,800 new datasets added, taking the total to over 9,500. This increase was partly due to the recently added records for bathymetry data for ports and harbours across the UK. These datasets are available to download from the Bathymetry DAC at UKHO.

3.7 Objective 5 - Manage data for use in MSFD

MEDIN submitted a paper to MARG in May 2014 summarising actions planned by MEDIN to support UKMMAS in the implementation of MSFD, and identifying potential gaps / issues that require further attention.

3.8 Objective 6 - Provide access to data services and data products

MEDIN provides a website to find and download reference data held in a catalogue it maintains. The catalogue currently holds 115 reference datasets. These are GIS datasets covering geographical names, energy license areas and some geological, species and habitats maps. This year there were 196 downloads of the GIS reference layers. This provides a baseline metric for the download of data products for future years.

There are not currently any web services described on the MEDIN portal. This year the metadata content for describing a service was reviewed and updated. Work started this year to allow the MEDIN portal to display service metadata but additional work is required.

3.9 Objective 7 - Promote the re-use of data

The benefits of re-using data are widely recognised by the marine community. This is demonstrated by the levels of data downloaded by the MEDIN DACs. Not all DACs are able to record requests received for data, but those who do all show an increase in the number of requests since 2012.

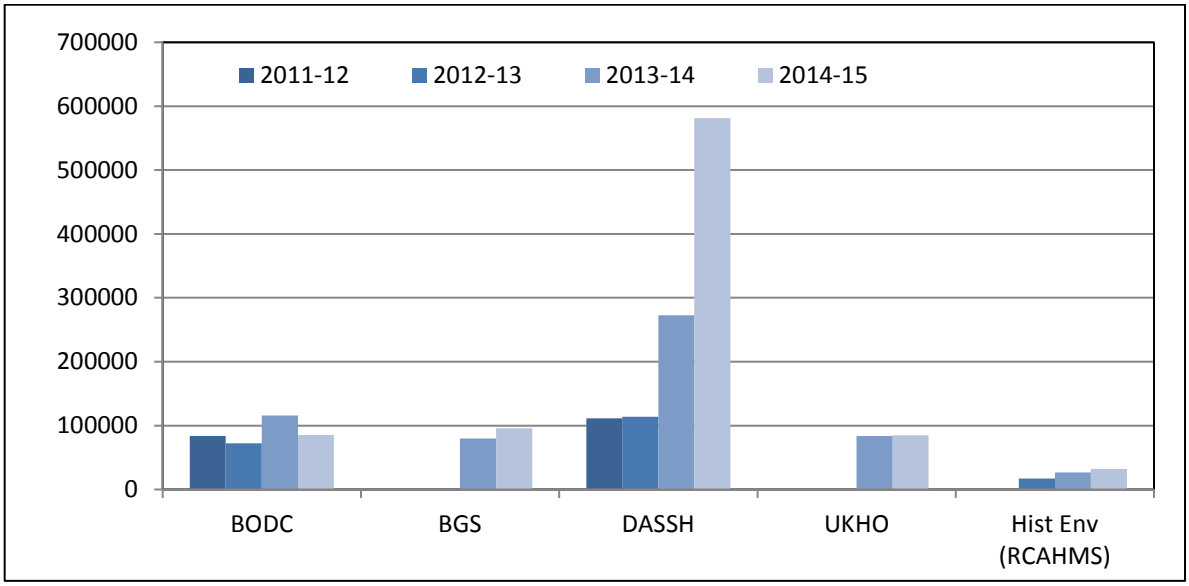

Figure 3: Number of requests for data received by each MEDIN Data Archive Centre since 2011 (for those that record this information).

3.10 Objective 8 - Adoption of data guidelines across the marine sector

The MEDIN data guidelines are easy to use guidance on the information that should be collected alongside data to ensure that a dataset is usable by others in the future. The ongoing programme to review and enhance the data guidelines continued this year with 4 guidelines updated to the improved, user friendly format. In addition, 2 new data guidelines have been drafted. One is for species or habitat data measured by a quadrat or transect and the other relates to data collected on a meteorological mast.

Member organisations of the Marine Science Coordination Committee are asked to report on whether they apply MEDIN Data Guidelines to data they collect or that they commission contractors to collect. This provides MEDIN with an assessment of the uptake of the data guidelines across this part of the marine community. Responses so far indicate that there are 5 MSCC organisations applying MEDIN data guidelines to data they collect and 5 that require contractors to adopt the data guidelines.

3.11 Objective 9 - Demonstrate the value of using the MEDIN framework

MEDIN has co-funded a project with Marine Scotland, the Marine Management Organisation and The Crown Estate to review access to industry data. The aim of this work is to ensure that data collected by commercial organisations for consenting, monitoring or other purposes is securely archived and made as widely available as possible. A component of the study is to articulate the benefits of sharing data to industry partners. The work is being carried out by ABPmer and will report at the end of May 2015.

3.12 Objective 10 - Raise the profile of MEDIN

Three editions of MEDIN's online newsletter Marine Data News were published this year. The newsletter featured articles submitted by MEDIN partners involving exciting events, innovation at data centres and international initiatives. There are 600 subscribers to Marine Data News, including 28 new subscribers and 6 un-subscribers.

Although staff shortages meant no MEDIN Partners' meeting was held this year, MEDIN's profile was raised at several national and international events including the International Marine Conservation Congress 2014, Coastal Futures 2015, Irish Sea Maritime Forum, International Hydrographic Organization (IHO) Marine Spatial Data Infrastructure Forum. The MEDIN Core Team was supported in this role by colleagues at DASSH.

4 Financial Summary 2014-15

4.1 £512,000 was available to fund MEDIN activities in 2014-15 from Sponsorship funds as detailed in table 4. In addition, £8,716 was carried over from 2013-14 and DEFRA committed £65,009 to fund archiving of Marine Conservation Zone (MCZ) data collected during the period April 2012-March 2014 (Table 5).

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
Natural Resources Wales	£14,000
Marine Management Organisation	£7,000
Maritime and Coastguard Agency	£7,000
The Crown Estate	£7,000
UK Hydrographic Office	£7,000
Joint Nature Conservation Committee	£5,000
HR Wallingford	£5,000
OceanWise	£5,000
Northern Ireland Environment Agency / Agri-Food Biosciences Institute	£5,000
TOTAL SPONSORSHIP	**£512,000**

Table 4 – MEDIN Sponsorship for 2014-15

4.2 The use of funds across work streams, and according to category, is given in table 5. Of the £443,364 total spend, £254,479 covered the costs of employment of the MEDIN Core Team (2.4 Full Time Equivalent staff members in 2014-15); £16,509 on Travel and Subsistence, and £172,376 on external 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 2014-15 are given in Appendix B.

4.3 The Work Streams with the highest allocation of costs were the Portal (WS3), the DACs (WS1), and Management and Coordination (WS7) all with costs of more than £95,000. WS4 (International Links), WS5 (Resources and Applications, and WS 6 (Communications), had costs of less than £35,000.

4.4 In 2014-15 there was a significant end of year under-spend of **£142,361**. NERC has confirmed these funds can be carried forward for use by MEDIN in 2015-16 and 2016-17 as approved by the MEDIN Sponsors' Board.

Total MEDIN income 2014/15	**£**		**Actual spend**	**£**	**Spend by Work stream**	**£**
Total Sponsorship commitments	£512,000		*Employment Costs of Core Team*	£254,479	*WS1: Data Archive Centres*	£103,973
Carry over from 2013-14	£8,716		*Travel and Subsistence*	£16,509	*WS2: Standards*	£62,949
Additional funds for MCZ archiving	£65,009		*Contracts*	£172,376	*WS3: Portal*	£110,875
					WS4: International Links	£16,903
					WS5:Resources and Applications	£18,141
					WS6: Communications	£34,924
					WS7:Management and Coordination	£95,599
Total Available	**£585,725**		***Total spend***	**£443,364**		**£443,364**

Table 5: MEDIN Spend in 2014-15, by category and by work stream

5 Look ahead for 2015-16

5.1 MEDIN is one year into a five year Business Plan that covers the period 2014-19. The overall objective is to consolidate the adoption of MEDIN across the UK as the national framework for marine data management.

5.2 The understaffing of the MEDIN core team in 2014-15 meant that progress towards this objective was slower than planned. It is anticipated that 2015-16 will see completion of the projects that were postponed during 2014-15.

5.3 In addition, in 2015-16, there will be more of an emphasis on enhancing user experience to ensure the marine community can get maximum scientific, policy and economic benefit out of reusing marine data.

5.4 Despite the significant progress made this year, MEDIN continues to face challenges. Although the benefits of sharing data are well recognised, it is more difficult to quantify the direct benefit of using MEDIN. Moreover there is a need to continually raise the profile of MEDIN across the marine sector, to ensure the work and achievements of MEDIN are well recognised and don't get duplicated elsewhere.

5.5 The significant underspend from 2014-15 will be carried over to 2015-16 and 2016-17 and has been allocated to a range of development projects that will address issues raised by stakeholders. It is the intention that these development projects will address the challenges mentioned above of enhancing user experience and quantifying the benefit of using MEDIN.

5.6 Of the total £142K 2014-2015 underspend**,** provisional plans are for £95K to be allocated to 2015-2016 for projects to enhance user experience and the remaining £47K to be allocated to 2016-2017 to, amongst other projects, carry out a cost benefit of using MEDIN.

6 Summary

6.1 MEDIN made significant progress towards the 2014-19 Business Plan this financial year.

6.2 MEDIN continues to build collaboration in marine environmental data 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.

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

6.4 The coverage of the MEDIN portal has also grown significantly and now includes records for over 9,500 data sets.

6.5 MEDIN continues to provide important links to European and international initiatives, and supports the marine community in meeting obligations to publish public data under the INSPIRE directive. This includes providing the UK focus for input to the development of the European Marine Observation and Data Network (EMODnet).

6.6 MEDIN also continues to work with DEFRA in liaising with the EEA and relevant working groups for providing the necessary access to the data underlying the initial assessment to the Marine Strategy Framework Directive.

6.7 Gaps in MEDIN's marine data management coverage are being addressed though draft papers having been published on underwater noise and socio-economic data.

6.8 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.

6.9 MEDIN now needs to focus more on the users, rather than suppliers, of data to ensure the service we provide matches their expectations.

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

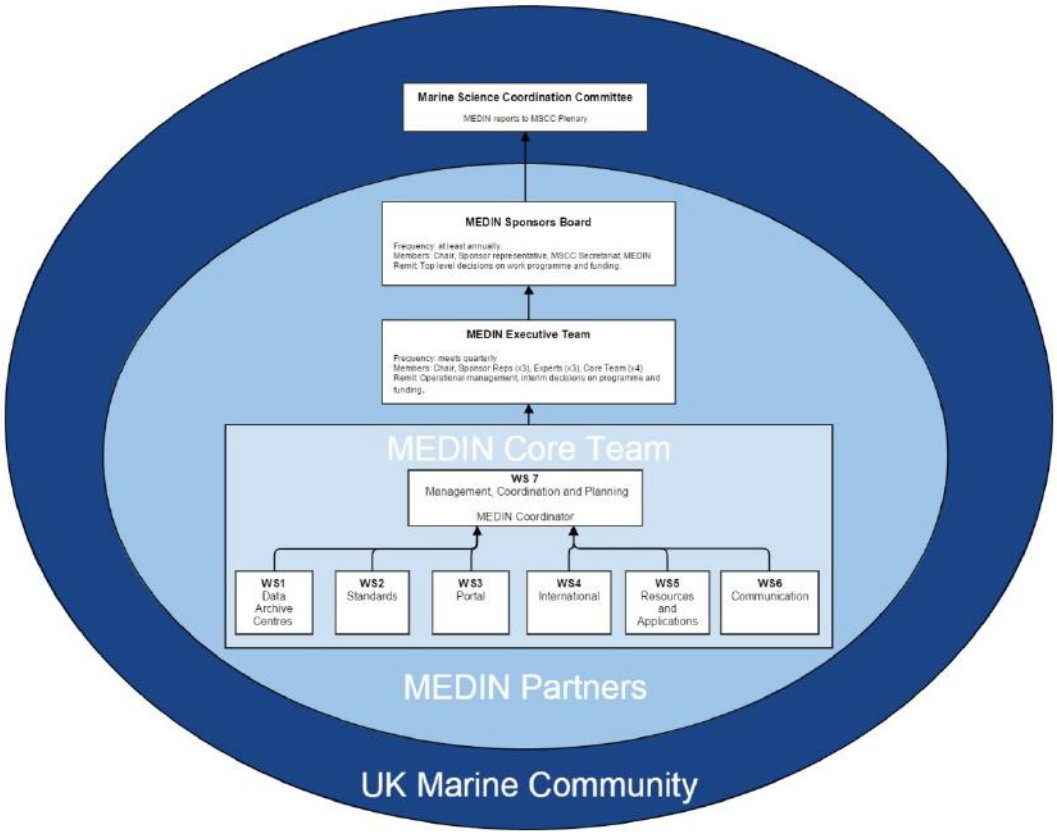

Figure 4: Schematic of the MEDIN organisational arrangements

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, along with other smaller groups, provides its progress updates via the Marine Assessment and Reporting Group (MARG).
16. The MEDIN Sponsors' Board is the executive body, responsible for approving budgets and work programmes. 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 4). 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 six staff is hosted by the British Oceanographic Data Centre, which provides administrative and logistic support to MEDIN. The MEDIN core team provides project management, leadership for 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, **Accredited MEDIN DAC.** (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	**Accredited MEDIN DAC.** 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	**Accredited MEDIN DAC.** 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. **Accredited MEDIN DAC**. (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)
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**. Accredited MEDIN DAC.** (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
DIKE	Data, Information and Knowledge Exchange
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

WS1 Network of Data Archive Centres

Supplier	Item	Cost
BGS	BGS DAC costs	£11,000
BODC	BODC DAC Costs	£11,000
DASSH	DASSH DAC costs	£11,000
UKHO	UKHO DAC Costs	£11,000
Met Office	Met Office DAC costs	£11,000
Cefas FishDAC	Cefas DAC costs	£5,500
Marine Scotland Fish DAC	Marine Scotland DAC costs	£5,500
ADS	ADS DAC Costs	£635
HC Consultants	Expert advice to MEDIN	£1,125
BGS	Meeting Costs	£110
ABPmer	Review of Access to Industry Data (joint funded with MMO, Marine Scotland and TCE). Project finances managed by MMO.	£10,200
Cefas	Data Archiving Project (Bass fisheries)	£5,832
ADS	Data Archiving Project (Improving metadata quality)	£4,860
RCAHMS	Data Archiving Project (Linked Data Meeting)	£338
RCAHMS	Data Archiving Project (Dive Tapes)	£4,900
	Telephone costs	£229
Total Spend		**£94,228**

WS2 Standards for Data and Metadata

Supplier	Item	Cost
DASSH	Standards Working Group Support April 2014-March 2015	£9,122
Seazone	Metadata Maestro support	£1,782
Algaebase	License for MSBIAS	£1,200
Multiple suppliers	Meeting costs	£87
Multiple suppliers	Workshop costs	£218
Multiple suppliers	Telephone costs	£341
HC Consultants	Expert advice to MEDIN	£1,125
University of Liverpool	Staff training	£85
Total Spend		**£13,960**

WS3 Web Portal, Products and Services

Supplier	Item	Cost
Maris	UKDMOS Portal Maintenance	£1,500
Geodata	Portal Hosting and Public source code repository for MEDIN portal code, portal code maintenance	£3,283
STFC	Provision of Metadata Service to MEDIN	£13,336
MBA / DASSH	Metadata Helpdesk Support	£17,246
HC Consultants	Expert advice to MEDIN	£1,575
Maris	Domain name registration for ukdmos.org (01/12/2014 - 30/11/2017)	£164
Total Spend		**£37,105**

WS4 International Awareness, Coordination and Data Delivery to Global Databases

No external expenditure was planned for WS4.

WS5 Resources and Applications Development

Supplier	Item	Cost
Multiple suppliers	Meeting Costs	£340
Multiple suppliers	Telephone costs	£387
OceanWise	Pilot study on wrecks and linked data	£10,800
Total Spend to Date		**£11,527**

WS6 Communications: Outreach, forums, publicity

Supplier	Item	Cost
DASSH/MBA	Representing MEDIN at IMCC meeting	£1,510
Liverpool University	Staff GIS training	£85
DASSH/MBA	Representing MEDIN at Coastal Futures	£429
Challenger Society	Challenger Society meeting attendance	£365
Total Spend to Date		**£2,389**

WS7 Management, Planning and Co-ordination

Supplier	Item	Cost
Multiple suppliers	Coordinator appointment costs	£250
DASSH/MBA	Representing MEDIN at HBDSEG meetings	£785
Eurest	Meeting costs at DEFRA	£569
HC Consultants	Expert advice to MEDIN	£3,375

Liss Associates	Chairing MEDIN meetings, representing MEDIN on MSCC and participating in MEDIN Coordinator interview.	£5,600
OceanWise	Representing MEDIN at MILG and PSEG meetings	£2,588
Total Spend to Date		**£13,167**

APPENDIX C: Work Stream Deliverables

WS1 Network of Data Archive Centres

MEDIN has established an operational network of linked marine data archive centres (DACs) to provide secure long-term storage for marine data. This network provides the capability to upload and retrieve data. Those organisations archiving data at a MEDIN DAC should have free access to their data, and DACs will manage third party access to these data according to the data provider's specification.

The following Key Targets have been established 2014-15 for WS1:

KT1.1 Archiving: maintain or improve upon 2012 levels of archiving across the DAC network, establish centralized archiving guidelines
KT1.2 Data Access: DACs develop first instance of INSPIRE compliant view and download and to agree timetable for further publishing
KT 1.3 Accreditation: Accreditation of at least one further DAC to join the network. Reaccreditation of BODC, BGS, DASSH and UKHO (Last accredited in February 2009)
KT1.4 Data retrieval: DACs to report on rates and changes in data requests as part of annual reporting

The Key Targets were partially met for WS1 as detailed below:

1. DACs continue to archive data from MEDIN partner and third party organisations to agreed individual programmes. All DACs have provided annual reports for 2014-15 detailing new data sets archived and number of data sets held. Note that it is difficult to compare absolute values between DACs, as the size of data sets can vary significantly between DACs (and even within DACs). For instance all the data held in the Met Office MEDIN DAC for marine meteorology data are held within 4 data sets, which were augmented in 2014-15 with 6 million new observations.

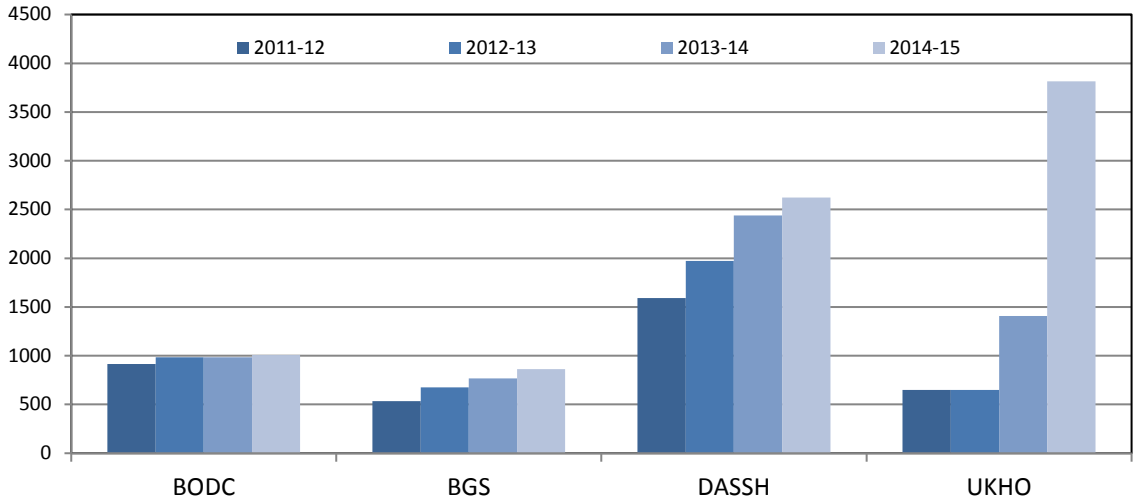

Figure 5a Number of datasets held at each MEDIN Data Archive Centre since 2011.

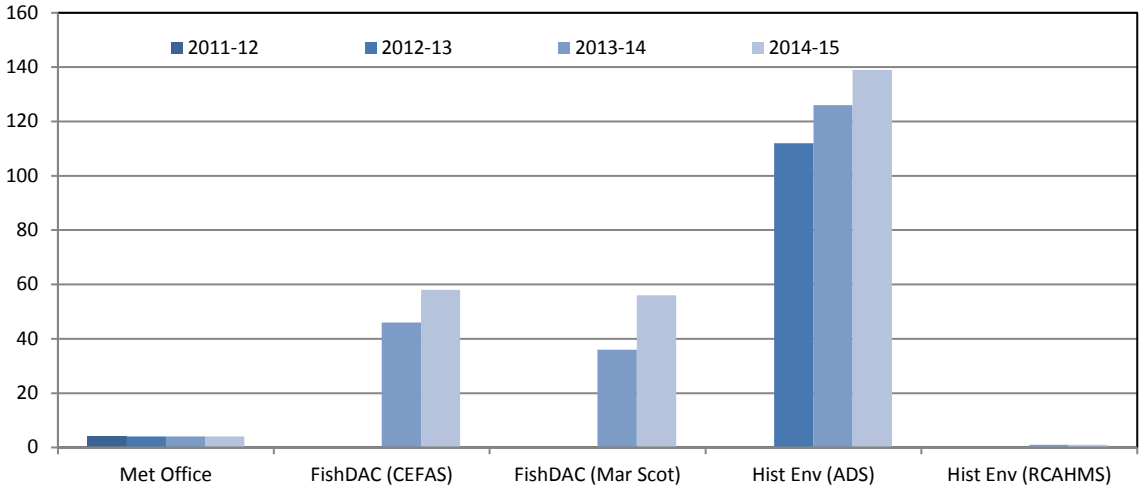

Figure 5b Number of datasets held at each MEDIN Data Archive Centre since 2011.

Development of centralized archiving guidelines was delayed due to staff shortages, but was discussed at the DAC Working Group meetings. This is being taken forward through two case studies: Round 3 Marine Renewables data from The Crown Estate's Marine Data Exchange (MDE) and the MPA/MCZ data sets. This task will continue into 2015-16. In parallel, DASSH have expanded their role of metadata helpdesk to also encompass data queries.

2. Information relating to INSPIRE compliance was requested as part of the DAC Annual Reports. Compliance amongst the DACs is increasing with 4 DACs (UKHO, Met. Office, ADS, FishDAC (Marine Scotland)) providing INSPIRE compliant view and download services for some or all of their data sets, RCAHMS and BGS have some INSPIRE View services and INSPIRE View and Download are planned or under development at 4 more DAC (BODC, BGS, DASSH, FishDAC (Cefas)).

3. There are currently seven DACs, of these the FishDAC has two accredited components (Cefas and Marine Scotland) and RCAHMS became accredited as the second component of the Historic Environment DAC in May 2014; ADS being the other accredited component. The four original DACs (BODC, BGS, DASSH and UKHO) were due for reaccreditation in 2014. They have each provided revised accreditation documentation. Staff shortages delayed progress but these are now being reviewed. The Marine Meteorological DAC will be due for reaccreditation in 2016.

4. Data searches and downloads are not recorded at all DACs. For example, BGS note that although they monitor web site visits and use of services, BGS do not have systems in place to generate fully detailed metrics to answer all of the information requested by MEDIN. With successive annual funding cuts limiting their resources, they are prioritising the archiving and delivery of data over the improvement of metric generation. Both FishDAC components direct users to the ICES DATRAS database and thus do not have any statistics. However, UKHO, Historic Environment DAC (ADS) and DASSH show an increase in the number of requests/data downloads compared with 2013-14 and all DACs who

record metrics show an increase since 2012. DASSH have provided a breakdown of distribution of data users as shown below.

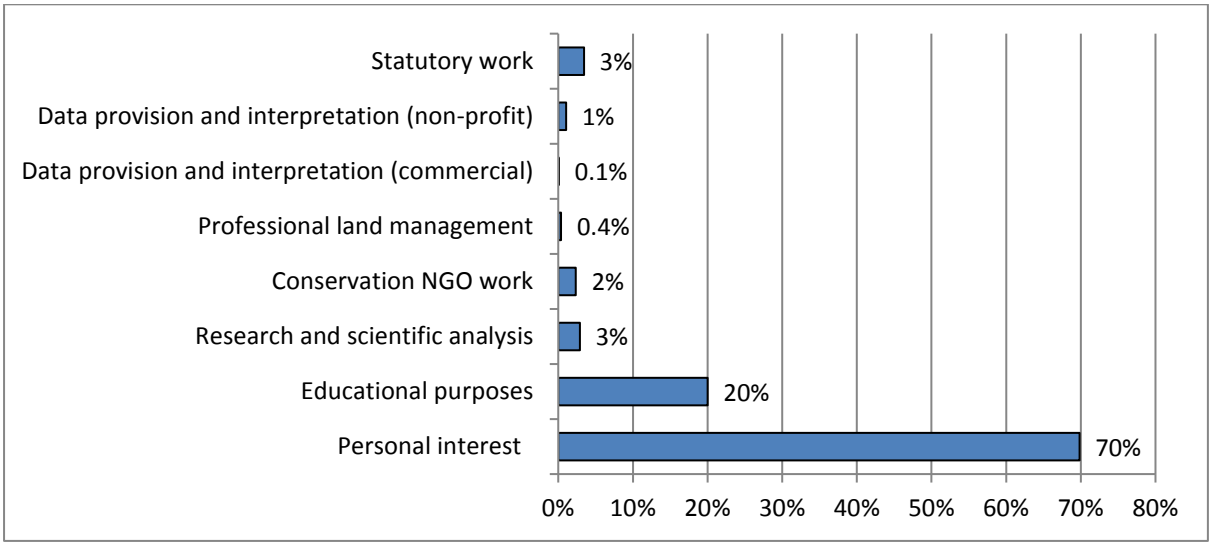

Figure 6: A summary of the users of data downloaded from DASSH

5. In general access to data made available by the DACS is free, open and online. Any terms and conditions are provided on the DAC web-sites. Most data from BGS, BODC and Cefas are made available under the Open Government Licence (OGL).

DAC WG Deliverables table 2014-15

Q1 Deliverables	Status	Commentary
DAC Annual Reports (2013-14) according to pro-forma	Achieved	Overview DAC annual report is also available on the MEDIN website.
Issue statements on litter, noise, socio-economic data	Partially achieved	Statement on noise and socio-economic data complete and published on MEDIN website (http://www.oceannet.org/data_submission/), litter statement in progress.
Accreditation of RCAHMS	Achieved	RCAHMS accredited as a MEDIN DAC in May 2014.
MCZ / MPA data archiving plan	Achieved	Plan in place for archiving MCZ data and funds have been confirmed. Initial discussions regarding MPA data took place in May 2014.
"Codefest" workshop	Not achieved	DAC Working Group decided to postpone the Codefest until after an internal run. Further postponed due to staff shortages.
Q2		
DAC Web site review	Partially achieved	Information requested and received from RCAHMS
Statement on AFBI inclusion	Partially achieved	Discussions underway with FISHDAC to clarify. AFBI ready to revisit situation.
DAC working group meeting coordinated with standards (submission guidelines)	Achieved	DAC working group meeting held in Q1. Joint meeting held in Q4

Produce data submission guidelines	Not achieved	This was postponed due to staff shortages. Discussed at DAC meeting in Q4 and will be followed up in 2015-16.
Re accreditation of BODC, BGS, DASSH, UKHO	Partially achieved	BGS, BODC, UKHO and DASSH have updated documents. 1 reviewer in place
Q3		
Historic Environment DAC consolidation	Partially achieved	Date for historic DAC meeting under discussion
DAC working group coordinated with portal (view and download services, tracing data access)	Achieved	Meeting 25th/26th March 2015
Plan of Action for an agreed approach for standards and deposition of data (KT1.1)	Partially achieved	This was postponed due to staff shortages. Discussed at DAC meeting in Q4 and will be followed up in 2015-16.
Q4		
DAC WG meeting coordinated with Resources and Applications (products)	Partially achieved	Held on 25th/26 March 2015
MCZ / MPA data archiving progress report	Partially achieved	Update received from BGS and Cefas. Cefas seeking clarification from DEFRA that the data can now be made public.
DAC work plan for 2015-16	Achieved	Draft written

WS2 Standards for Data and Metadata

Standards are essential to support locating and evaluating 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.

In 2014-15, in agreement with the MEDIN Standards Working Group the following key targets were established:

KT2.1 *Promote MEDIN data guidelines*

KT2.2 *Hold at least 4 workshops to disseminate MEDIN standards to the wider community*

KT2.3 *Ensure coordination with national and international initiatives*

All work has been completed as follows:

1. The MEDIN data guidelines were promoted throughout the year at MEDIN Workshops, national and international conferences and personalised visits to organisations. The ongoing programme to improve usability of the guidelines has continued with several geophysical and biological data guidelines benefiting from the upgrade. In addition, two new data guidelines have been developed this year, one for data collected on meteorological masts and one for biological data collected using a transect or quadrat. These are both ready for review.

2. Workshops to assist existing and new users of MEDIN metadata standards, data guidelines and associated tools, are an effective way to inform the marine community about MEDIN, as well as providing practical training sessions for users of the MEDIN tools. This year five workshops have been held in conjunction with MEDIN partners in Southampton, Edinburgh, London and Plymouth. Half of the workshops focused on

the MEDIN discovery metadata standard and the tools that MEDIN supplies to create and validate discovery metadata, and half focused on the MEDIN data guidelines. The workshops attracted attendees from nearly 20 organisations from both the public and private sector.

3. MEDIN maintains close links with those involved with data.gov.uk and the DEFRA team charged with implementing the INSPIRE directive and the UK GEMINI standard. MEDIN continued to evaluate how to ensure all INSPIRE requirements are encompassed in the MEDIN data guidelines, in conjunction with MEDIN Data Archive Centres. MEDIN continued to assist the AGI GEMINI Working Group as it upgrades GEMINI v2.2 to GEMINI v2.3.

In addition, other work completed in 2014-2015 includes:

4. The registrations/downloads of the tools MEDIN supply for creating and validating MEDIN metadata were monitored at DASSH and BODC. In total 426 people are registered for the MEDIN Online Tool, an increase of 41 from last year. 495 people have downloaded Metadata Maestro, an increase of 98 from the previous year with 21 repeat users and 41 new users. The tool to convert metadata from the Geographical Information System software ARC10 (and ARC9) to MEDIN discovery metadata was downloaded 170 times in FY2014/15. 162 of these downloads were from repeat users.

5. This year, all of the MEDIN tools to create MEDIN discovery metadata were updated to the latest version of the MEDIN standard. In addition, the interface for Metadata Maestro was improved to make it more intuitive to use. This was funded externally by The Crown Estate. Furthermore, updates to the tool to create metadata using ArcGIS software were published this year.
6. MEDIN uses controlled vocabularies to unambiguously refer to parameters, places and methods relevant to the marine community. These lists were revised as necessary throughout the year. Moreover, MEDIN has supported its partners by supplying marine related controlled vocabularies to a wider registry of lists that DEFRA is compiling for use by its family of organisations.

7. Clare Postlethwaite stepped down as project manager for WS2 in September 2014 and was replaced by Dr Sean Gaffney in November 2014.

STDs WG Deliverables table 2014-15

Q1 Deliverables	Status	Commentary
Hold MEDIN Standards Meeting and agree how to meet aims of the work programme	Achieved	Meeting held April 2014 in Edinburgh. Work programme for WS2 agreed by working group.
Plan and advertise 4 workshops	Achieved	4 workshops advertised.
Review discovery metadata standard for services	Achieved	A report was submitted to the Standards Working group. The MEDIN discovery Standard, Tools and Portal are in varying states of preparedness for handling services. A strategy was agreed on how to progress.

Commission guidance on archive standard for collating data	Not achieved	This was postponed due to a partially overlapping piece of work that MEDIN had already commissioned (Protocols for collating species data).
Convert at least 1 data guideline to new format	Achieved	MEDIN data guideline for Seismic Data updated.
Review INSPIRE data specifications	Achieved	The Standards working group received an update on the INSPIRE data specifications in Q2.
Q2		
Hold at least 1 workshop	Achieved	Workshop held on 16th September at NOC Southampton
Review updates to Metadata Maestro from The Crown Estate work	Achieved	The work was reviewed at several stages of the update and new version released.
Review discovery metadata for products	Not achieved	This work was not done due to staff shortages
Convert at least 1 data guideline to new format	Not achieved	This work was not done due to staff shortages
Hold joint MEDIN Standards/DACs meeting	Achieved	Standards working group met in July in Liverpool. Joint WG meeting held in Q4.
Request list of non-commercial products from DACs that could be included in the portal	Not achieved	This work was not done due to staff shortages
Q3		
Hold MEDIN standards meeting	Achieved	Standards working group met in October in Plymouth
Hold at least 2 workshop	Achieved	Data guideline workshop held in Edinburgh in October. Metadata workshop held in London in December
Publish new data guidelines	Partially achieved	Transect and Quadrat guidelines drawn up, feedback sent back to creators. Waiting for final version before publication
Review and publish guidance on archive standard for collating data	Not achieved	Not done – see Q1 comment about commissioning archive standard
Convert at least 1 data guideline to new format	Not achieved	This work was not done due to staff shortages
Request feedback from MSCC members on uptake of data guidelines	Achieved	Feedback received and reported
Q4		
Hold at least 1 workshop	Achieved	March 2015 meeting on Data Guideilnes in Plymouth
Request download statistics for MEDIN tools and data guidelines	Partially achieved	Completed for tools. Data guidelines statistics not available due to technical issues
Convert at least 1 data guideline to new format	Achieved	Side scan sonar guideline completed

STDs Work Plan for 2015-16	Achieved	
STDs Report for 2014-15	Achieved	

WS3 Web Portal, Products and Services

The MEDIN discovery metadata portal provides a single access point from which to find out about marine data from UK organisations across a wide range of marine areas. The Work Programme for 2014-15 fitted under the overall Business Plan for 2014-19.

The following Key Targets were identified for WS3 for 2014-15:

KT 3.1 *Improve portal usage as evidenced by increasing web visits by March 2015.*
KT 3.2 *Increase portal content of metadata describing products and services.*
KT 3.3 *Implement improvements to UKDMOS to support MSFD assessments.*

The Key Targets were partially met for WS3 as detailed below:

KT 3.1 was not achieved as the number of visits to the MEDIN portal remained relatively static throughout the year (Figure 7). The success criteria for High Level Objective 1 required **'at least 50 views per month'** based on the incomplete statistics that were previously available. This financial year, more detailed web statistics are presented. On average there were 22,600 visits[3] to the MEDIN portal per month, falling from 35,000 in the first quarter to around 20,000 for the rest of the year. The number of hits[4] to the MEDIN portal is dominated by non-human hits. Over 84% of the hits come from spiders/bots (Figure 8). The total number of human hits to the MEDIN portal was estimated by subtracting the hits from the 4 biggest contributing bots/spiders for each month. This figure was relatively static throughout the year with on average 170,600 hits to the MEDIN portal per month (Figure 7). The portal code has been transferred to BODC from the Geodata Institute but site-wide technical difficulties have delayed BODC being in a position to stably host the MEDIN portal.

[3] Visits count every time someone comes to the MEDIN portal from a given IP Address. If the same IP address visits the MEDIN portal after a 30 minutes interlude, a separate visit is logged.

[4] Hits outline how many times a request is made to the server. A user requesting a single page from the MEDIN portal will result in several hits because the hits also count each image on the page.

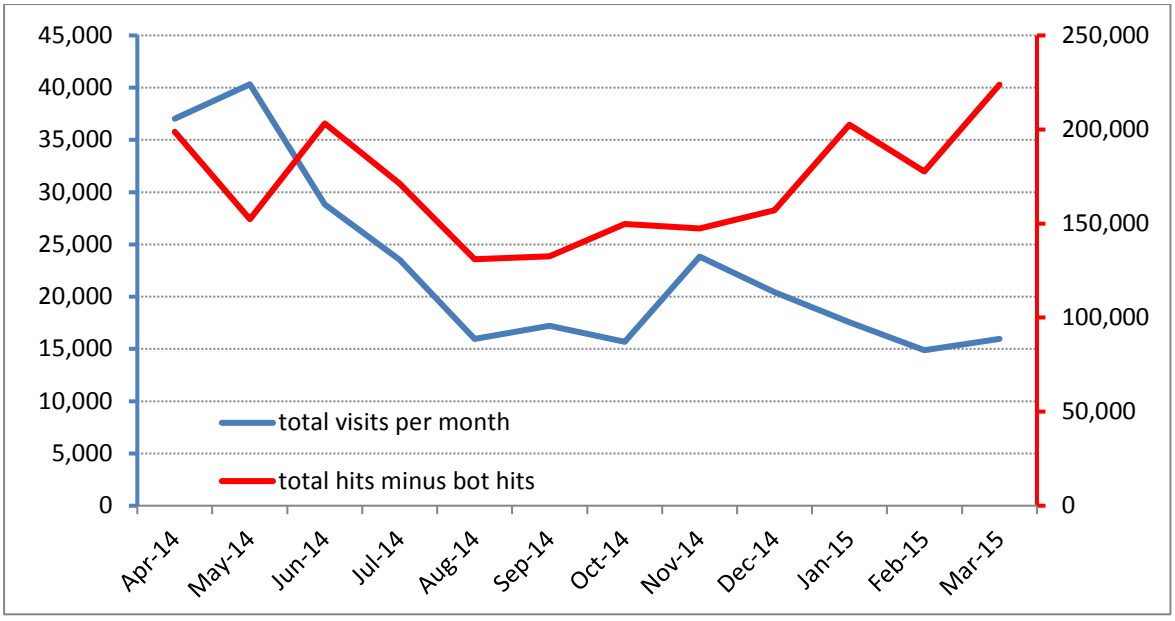

Figure 7 Monthly visits (blue line) and an estimate of total hits excluding those by bots/spiders (red line) to the MEDIN portal at http://portal.oceannet.org

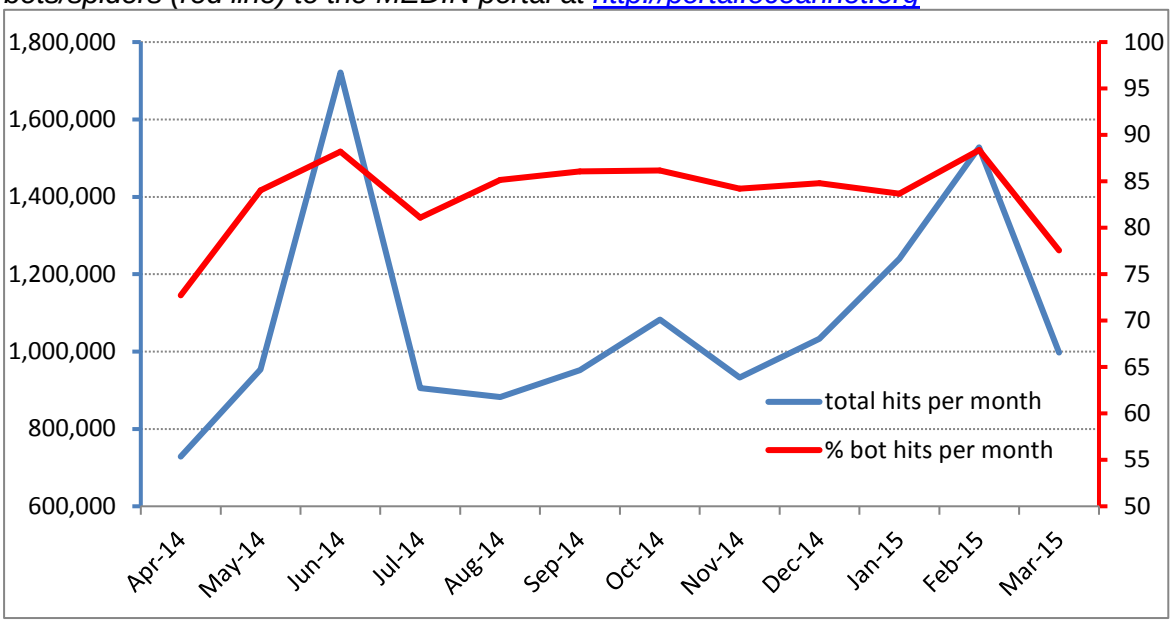

Figure 8 Monthly hits (blue line) and percentage of hits attributable to the 4 most significant bots/spiders (red line) to the MEDIN portal at http://portal.oceannet.org

KT 3.2 has been partially achieved this year. The success criteria for High Level Objective 4 are **'at least 200 new datasets, 40 new reference layers by end Q4'**. The increase in new datasets has exceeded expectations with a 40% increase from 6735 portal records in March 2014 to 9548 in March 2015. However, no new reference layers have been added to the MEDIN GIS layers tool this financial year and there are currently no service metadata in the portal (only dataset metadata). Minor work was started this financial year on the portal webpages and portal back end to allow display of service metadata, which require a slightly different set of discovery metadata elements.

The records in the portal cover a broad range of marine disciplines (Figure 9), which shows that UK organisations from across the marine community are embracing the drive to share data.

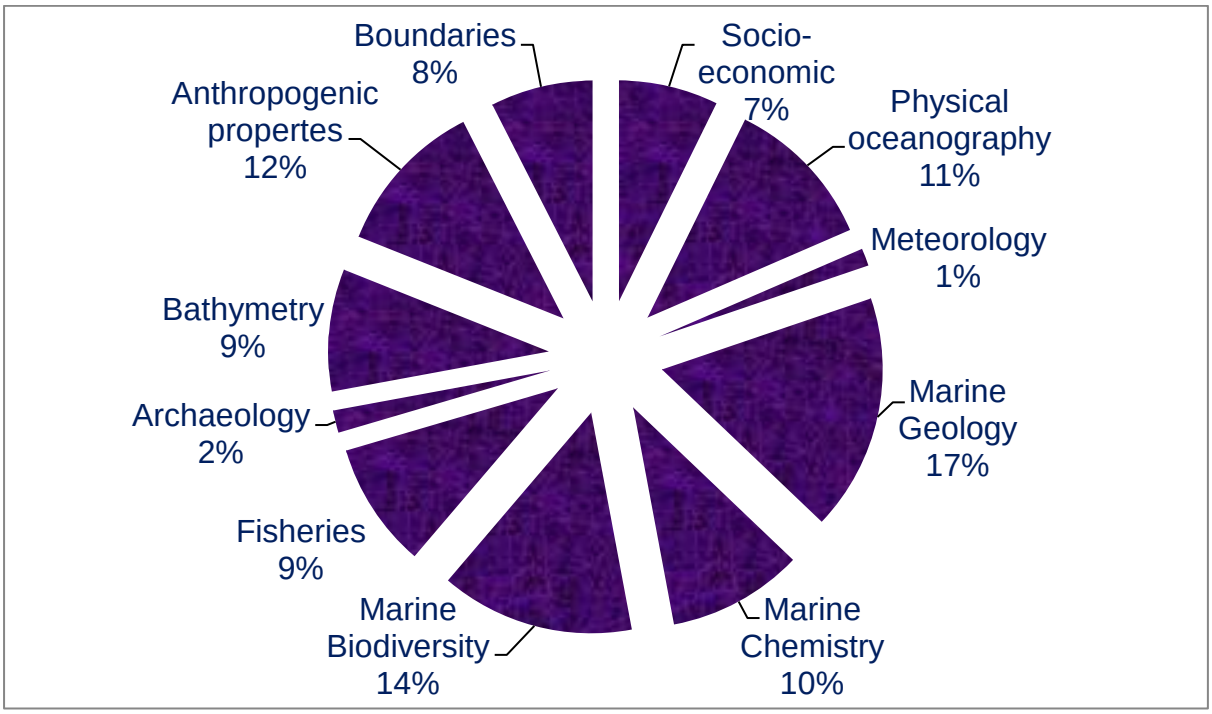

Figure 9: Composition of metadata records in the MEDIN portal by data type.

KT 3.3 has been achieved**.** MEDIN partners used and were assisted in the use of UKDMOS to prepare monitoring programme information for MSFD reporting in 2014-15. Developments to the UKDMOS interface facilitated this process. Improved symbology for point information has been implemented plus Web Map Service (WMS) and Web Feature Service (WFS) functionality. Issues arising during this reporting process instigated the Healthy and Biologically Diverse Seas Evidence Group (HBDSEG) to carry out a review of UKDMOS in reporting for MSFD. Results are available and will be used to target improvements in 2015/16. UKDMOS can now switch from being used to identify monitoring programmes that *could* be used to report to MSFD to a tool to identify the programmes that *are* being used to report to MSFD. The task to tag programme records according to the MSFD descriptor, criteria and indicator has been delayed while MEDIN wait for information from Defra and UK Marine Monitoring and Assessment Strategy (UKMMAS) Evidence Groups.

In addition, other work completed in 2014-15 includes:

1. UKDMOS content has been updated. The process to update UKDMOS programme records has continued throughout the year in response to the steady influx of partner correspondence. As of March 2015, all updates have been implemented and are visible online. UKDMOS will be used by the UK marine policy community as an information source on the UK monitoring programmes that deliver data for MSFD reporting. There are currently 276 monitoring programmes described in UKDMOS containing information about over 15,000 sites, 11,000 of which have been updated within the last 3 years (over 6,000 in 2014-15).

2. A simplified way for MEDIN to transfer records to data.gov.uk has been introduced. MEDIN offers a service to submit marine metadata to data.gov.uk on behalf of its partners on request. To enable the transfer of MEDIN portal records to data.gov.uk, record providers indicate whether a record is to be forwarded onto data.gov.uk by the presence /absence of a keyword. To aid this operation, a MEDIN Geonetworks page has been set up to manage the transfer of records from the MEDIN portal to

data.gov.uk which allows MEDIN core team, as opposed to STFC, to administer the flow of records from one portal to another. Of the 253 records to be submitted to data.gov.uk, 177 have been successfully transferred. Incorrect keyword designation is currently under investigation as a source of the problem for the remaining 76.

3. An automated way to monitor if metadata is getting to the portal has been introduced. In response to a request from the Standards Working Group, logs of metadata record harvest and ingest are available to metadata providers so that the flow of metadata can be monitored directly by providers. This makes it easier for suppliers of large quantities of metadata records to know if problems arise.

4. Ongoing tasks through the year have included facilitating metadata flow to the MEDIN portal and data.gov.uk and portal bug troubleshooting.

5. DASSH have maintained the 'MEDIN helpdesk' throughout the year and provided ongoing assistance to stakeholders. On average, each request takes between 15 – 30 minutes to resolve for metadata queries and approximately 1 hour to resolve for data guideline queries.

Deliverables Table 2014-15

Q1 Deliverables	Status	Commentary
Transfer of MEDIN portal source code to BODC	Achieved	BODC now holds the source code. Load balancing switch error at NOCL prevents completion
STFC to add Cefas Smartbuoy and Marine Archaeology DAC records to the data.gov CSW	Partially achieved	Marine Archaeology records issue still to be resolved
STFC to set up Geonetworks MEDIN page as a management tool for record flow to data.gov.uk	Achieved	A Geonetworks page is now operational
UKDMOS annual request to partners to update UKDMOS records	Achieved	All updates now implemented and live
Advertise the Discovery Portal (with WS6)	Achieved	Article published in Marine Data News in December 2014.
Q2		
UKDMOS MARIS contract to improve MSFD information access, the search interface and symbology	Achieved	WMS and symbology updates now live
Implement user review of the MEDIN portal	Postponed until 2015/16	This will be done as part of an upgrade to the MEDIN portal in 2015-16
Portal video 'How to search the portal' to be provided by WS6	Postponed until 2015/16	Delayed due to staff shortages
Q3		
Contract to enable portal support of service metadata	Postponed to 2015/16	Agreed task STFC task to be undertaken before BODC proceed
Report on Quality checking of portal metadata	Achieved	Method established.

Implement user review of UKDMOS	Achieved	HBDSEG initiated a review of use of UKDMOS in reporting to Marine Strategy Framework Directive. Results available and will be used to target improvements in 2015-16.
Joint WG meeting with DACs to plan consistent view and download services through portal	Achieved	Joint WG meeting held March 2015
Q4		
Portal and Web Services Work Plan for 2015-2016	Achieved	
Portal and Web Services Report for 2014-15	Achieved	

WS4 International Awareness, Coordination and Data Delivery to Global Databases

WS4 ensures that UK developments are linked in and consistent with international initiatives, and that obligations to provide data to global data bases are met.

The following Key Targets were identified for WS3 for 2014-15:

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 (GTS). Increase in number of data suppliers. Deliver 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 4.3 Review and update the report articulating the role of MEDIN within the broader range of UK and European data sharing initiatives.

The Key Targets were partially met for WS4 as described below:

1. KT4.1 was met: There was participation in a number of international working groups and meetings relevant to data initiatives and data management.
2. KT4.2 was partially met. Near real-time data was routinely forwarded to the GTS, but there was no increase in the number of data suppliers. Delivery of the backlog of historical temperature and salinity data to international repositories was delayed due to staff shortages. However contact has been established and discussions held with these repositories and some preliminary work has been carried out. With staff resource available and allocated for 2015-16 the situation will be rectified.
3. KT4.3 has not been met due to staff shortages. This will carry over into 2015-16.

WS4 Deliverables 2014-15

Q1 Deliverables	Status	Commentary
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	Achieved	ICES Data and Information Group Meeting, Copenhagen. European Environment Information and Observation Network (EIONET) – workshop and consultation.
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	Achieved	Routine updates.
Delivery of water bottle and CTD data to global data centres (KT4.2)	Partially achieved	Delayed due to staff shortage. New staff started work on this in Q4 and will continue in 2015-16.
Q2		
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	Achieved	No meetings this quarter.
Update the international initiatives table and compile a report for MARG (November 2014) defining MEDIN and UKMMAS member involvement in relevant European programmes relating to data and metadata management and provision for MSFD (KT4.3)	Not achieved	Delayed due to staff shortage. Initiatives table last updated in 2012. MEDIN and UKMMAS involvement will be reviewed in 2015-16
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	Achieved	Routine updates.
Q3		
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	Achieved	EIONET and EMODnet meetings
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	Achieved	Routine updates.
Delivery of water bottle and CTD data to global data centres (KT4.2)	Not achieved	Delayed due to staff shortage. New staff started work on this in Q4 and will continue in 2015-16.
Q4		
Feedback from relevant European/ International Expert/Working Groups (KT4.1)	Achieved	International Oceanographic Data and Information Exchange Committee (IODE-XXIII)
Further updates to the international initiatives table (KT4.3)	Partially achieved	To be finalized in 2015-16
Delivery of temperature and salinity data to the Global Telecommunication System (KT4.2)	Partially achieved	Some progress made. Discussions held with ICES Data Centre and World Ocean Database to determine current data holdings. Work to continue in 2015-16.
WS4 Work Plan for 2015-2016	Achieved	
WS4 Report for 2014-15	Achieved	

WS5 Resources and Applications Development

WS5 defines and facilitates access to data services and products that meet the needs of MEDIN users. The Work Programme for 2014-15 fitted under the overall Business Plan for 2014-19.

The following Key Targets were identified for WS5 for 2014-15:

KT 5.1 *Development of a comprehensive catalogue of reference datasets*

KT 5.2 *Creation of technology and knowledge based resources that demonstrate how data mining and linking methods can be utilised to effectively discover and access data more easily and effectively.*

KT 5.3 *Continue to develop the MEDIN Marine Gazetteer and to strengthen two key reference datasets, namely submarine cables and harbour areas*

The understaffing of the MEDIN core team during 2014-15 impacted on this work stream. Consequently progress on these activities has been less than planned and the Key targets have not been met. Details are provided below:

1. There has been no further development to the catalogue of reference datasets in 2014-15 so KT5.1 has not been achieved. However, there remains a desire by MEDIN to facilitate making key reference datasets available for download and via web services and this work will continue in 2015-16.

2. A pilot study to demonstrate how datasets originating from different organisations can be linked is underway and contributes to KT5.2. This study, being carried out by OceanWise, has ingested the UKHO wrecks dataset and stored the data in a relational database where it can be updated efficiently and in an open format and where it can be accessed simultaneously by different systems. The wrecks data is published to a WMS in a way that access can be limited to a specific data provider, a specific area or the whole dataset. The wrecks pilot is available http://wrecks.oceanwise.eu/. The pilot study will also integrate an English Heritage (EH) historic wrecks and archaeological features dataset to see how well they can be joined.

3. The Offshore Renewable Energy (ORE) Catapult is committed to making offshore renewable energy cheaper. One of the ways it hopes to do this is by decreasing the cost of acquiring marine data. MEDIN WS5 have been liaising with ORE Catapult to see how we can work together to help achieve our common aim of making it easier to share marine data.

4. The plan to make the MEDIN Gazeteer available as linked data has progressed in that BODC is now able to make polygons available as linked data. The next step is to add the MEDIN Gazetteer polygons to a spatial server, which is due to be implemented in the coming financial year. Once done, the linked data describing the names and bounding boxes will be connected with the polygon files on the spatial server so that users gain direct access to the shapefile for ‘Lyme Bay’ for example.

5. Following the MEDIN Review, comments by MSCC and outcomes from the Partner meeting, the process to identify the ‘data products and services’ of importance to MEDIN partners has continued. MEDIN has subsequently consulted its partners on whether data products should be discoverable via the MEDIN portal. Although consensus has not yet been reached, discussions have been held at a variety of forums including a workshop between MEDIN and ORE Catapult and a joint MEDIN working group meeting.

The following table summarises WS5 Deliverables for 2014-15 and their status at March 2015. The commentary column explains where and why deliverables have not been achieved.

WS5 Deliverables Table 2014-15

Q1 Deliverables	Status	Commentary
Implement improved Reference Data catalogue on MEDIN portal with min of 20 datasets for view and download	Achieved	109 reference layers available to download.
Commence data improvement project for key dataset in collaboration with stakeholders e.g. submarine pipelines	Partially achieved	In discussion with The National Archive to provide ready access to legislation defining harbour areas. Once established will appoint contractor to undertake manipulation work
Commence pilot project for data linking of relevant key datasets with substantial user involvement	Not achieved	Subsequent to DEFRA/CEFAS hosted linked data workshop, MEDIN with BODC to publish MEDIN Gazetteer as 5* dataset. First step of this process is completed. Wrecks pilot Started and due to complete in May 2015.
Q2		
Hold workshop of data holders to review availability of datasets identified in the Reference Data Action Plan on the MEDIN portal	Not achieved	Not held due to staff shortages.
Improve content and use of MEDIN Marine Gazetteer including as a source of search terms in the MEDIN portal and use in data linking.	Achieved	Work spec has been written but work has not been started due to staff shortages
Commence project data linking data with e.g. CEFAS to areas defined in MEDIN Marine Gazetteer	Not achieved	Discussions held with CEFAS but further work / discussion required.
Q3		
Meet with DAC WGs to discuss DAC role in products	Achieved	Discussion with DACs started but no consensus reached.
Commence second data improvement project for key dataset in collaboration with stakeholders e.g. Harbour Areas	Not achieved	Not done due to staff shortages
Data holders to have prepared improvement plans for key datasets to be discussed at partner meeting	Not achieved	No partners meeting held this year due to staff shortages.
Q4		
Reference Data catalogue on MEDIN portal to include MEDIN hosted datasets and outputs from projects.	Not achieved	Delayed until 2015-16 as project not yet completed.
Data linking resources published and knowledge transfer activities including holding a workshop for stakeholders.	Not achieved	Delayed until 2015-16. Needs data linking project to be completed.

Reference Data catalogue on MEDIN portal with min of 40 datasets including MEDIN hosted datasets and outputs from project started in Q1	Not achieved	Workshop not held due to staff shortages.

WS6 Communications: Outreach, forums, publicity

Communications and outreach are key activities 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. The Work Programme for 2014-15 fitted under the overall Business Plan for 2014-19.

The following Key Targets were identified for WS6 for 2014-15:

KT 6.1 *Increase profile of MEDIN in the academic and private sectors*

KT 6.2 *Publish 4 issues of MEDIN Newsletter*

KT 6.3 *Publicise portal once updates are complete and tested*

KT 6.4 *Web site >12,500 Web visits per year (maintain current level)*

Despite staff shortages in this work stream, 3 out of the 4 key targets were met. Work was completed as follows:

1. The profile of MEDIN has been boosted this year by representation at several conferences and forums, including IMCC, Coastal Futures, Irish Sea Maritime Forum, International Hydrographic Organization (IHO) Marine Spatial Data Infrastructure Forum.

2. MEDIN's online newsletter is known as **Marine Data News.** Three issues were published this financial year and are all available for viewing on the MEDIN website (http://www.oceannet.org/marine_data_newsletter/). The target to publish 4 was not achieved due to staff shortages at the start of the financial year. There are currently 600 subscribers to Marine Data News, including 28 new subscribers and 6 unsubscribers. A small decrease in total subscribers since last year is due to the automatic removal of email address that 'hard bounce' from the mailing list.

3. Following the move to a web based email marketing service for Marine Data News, MEDIN have access to an automatically compiled statistical analysis. The figures recorded in table 6 are accurate as of the 20th April 2015 and figures for issue 28 are expected to increase further. The number of successful deliveries to email has increased over the year as has the click rate implying that more readers are actually receiving the newsletter and interacting with it.

Issue number	***28***	***27***	***26***	***25***
Date	Apr-15	Dec-14	Sep-14	Nov-13
Overall Stats				
Total Recipients:	600	602	625	656
Successful Deliveries:	573	566	571	576
Bounces*:	27 (4.5%) 16 soft, 11 hard	36 (6.0%) 20 soft, 16 hard	54 (8.6%) 21 soft, 33 hard	80 (12.2%) 17 soft, 63 hard
Recipients Who Opened:	134 (23.4%)	147 (26.0%)	199 (34.9%)	74 (12.8%)
Total Opens:	385	533	814	74
Last Open Date:	4/20/15 12:00PM	4/15/15 9:09AM	4/13/15 5:20PM	1/10/14 10:32AM
Recipients Who Clicked:	29 (5.1%)	24 (4.2%)	28 (4.9%)	25 (4.3%)
Total Clicks:	123	32	36	81
Last Click Date:	4/20/15 10:41AM	1/22/15 2:38PM	10/20/14 9:35AM	12/6/13 2:13PM
Total Unsubscribes:	4	1	0	0
EepUrl clicks *(twitter)*	68	248	141	99

Table 6 Summary of Marine Data News electronic distribution and user interaction.
**** Soft bounce**: Temporary delivery issue, such as the recipient's inbox is full, their server is down, they're on vacation and have set up their email set to away. MailChimp will try sending to that address again, but will clean a soft bounce after five failed sends.*
***Hard bounce**: Email cannot be delivered. When a hard bounce happens, MailChimp will remove the address permanently from your list into the cleaned section.*

4. Articles for this year included:

    - NERC's Envirohack2015
    - The case for a UK Marine Spatial Data Infrastructure
    - Underwater noise data and its management
    - UK bathymetry contribution to EMODNet
    - Looking for marine data?
    - What is EMODnet?
    - Mapping habitats and biotopes from acoustic datasets to strengthen the information base of Marine Protected Areas in Scottish waters
    - 40-year North Atlantic model run

    The article entitled 'Looking for Marine Data' was a piece promoting the MEDIN portal and, along with the promotion of MEDIN at conferences, forums and workshops, contributed to achieving Key Target 6.3.

5. MEDIN's main website is available at http://www.oceannet.org/. This year the number of visits (sessions) was greater than 12,500 so Key Target 6.4 was achieved. Website statistics for the past 6 years are shown in table 7. Although there has been a decrease in the overall number of visits to the site and the number of visitors

(number of unduplicated visitors to the website over the specified period of time) (Figure 10), there was a small increase in the ratio of sessions used by new users compared to existing users. This indicates MEDIN is continuing to attract new audiences via its website.

Period	*Number of Sessions*	*Number of Users*	*Page views*	*Unique Page views*	*% new sessions*
FY09/10	8,494	4,907	28,046	21,826	55.80%
FY10/11	11,057	6,954	30,371	24,349	60.55%
FY11/12	12,547	6,767	43,415	34,431	55.79%
FY12/13	12,412	7,157	41,391	31,833	56.03%
FY13/14	13,736	7,590	62,276	37,276	52.82%
FY14/15	12,638	7,324	49,425	27,163	55.82%

Table 7: Summary of use of MEDIN website www.oeannet.org for past 6 years.

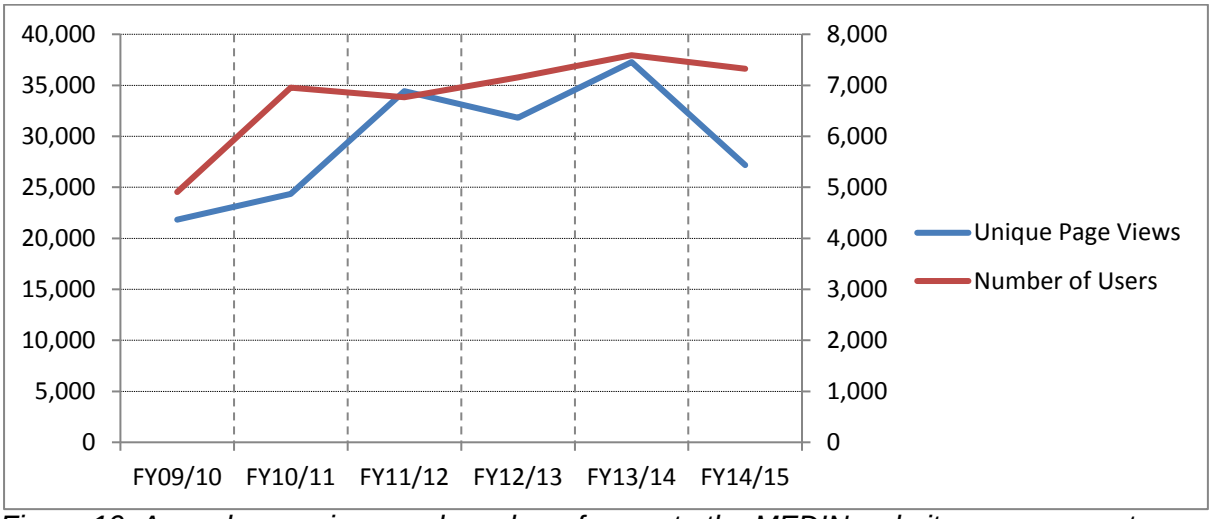

Figure 10: Annual page views and number of users to the MEDIN website ww.oceannet.org

6. The top ten pages (as measured by the number of times a page was viewed) are listed in table 8 for FY2014-15 and FY2013-14. Whilst the overall trend is a decline in visitor numbers, the number of visits to the 'finding data' page has significantly increased from that of the previous financial year, indicating that more visitors are using the website as a source to find marine data. The visits to the 'submitting metadata' page have also increased.

FY2013-14		*FY2014-15*	
Page	***Page views***	***Page***	***Page views***
Home Page	21,866 (35.11%)	Home Page	23,048 (46.63%)
Marine Data Standards	11,922 (19.14%)	Marine Data Standards	6,547 (13.25%)
Useful Links	6,660 (10.69%)	Useful Links	5,029 (10.18%)
??	4,041 (6.49%)	Finding Data	3,137 (6.35%)
Submitting Data	3,884 (6.24%)	Submitting Data	2,857 (5.78%)
Library	3,731 (5.99%)	Download GIS layers	2,565 (5.19%)
Download GIS layers	2,998 (4.81%)	Submitting Metadata	1,264 (2.56%)
Finding Data	2,543 (4.08%)	Library	982 (1.99%)
Search	923 (1.48%)	About Us	814 (1.65%)
Submit Metadata	889 (1.43%)	??	787 (1.59%)

Table 8: Top ten page views for the MEDIN website www.oceannet.org

7. MEDIN continually seeks to update and improve the oceannet.org website in order to increase its effectiveness.

8. The MEDIN twitter account (@MEDIN_marine) is followed by over 520 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 free scheduling software Hootsuite to ensure tweets are sent at a time most likely for them to be read.

WS6 Deliverables Table 2014-15

Q1 Deliverables	Status	Commentary
Edition of Marine Data News	Not achieved	Staff shortage
Publish articles in on-line newsletters and magazines on MEDIN portal and standards	Not achieved	Staff shortage
Hold Codefest	Not achieved	DAC Working Group decided to postpone the Codefest until an internal run has been carried out
Q2		
Edition of Marine Data News	Achieved	Marine Data News published in August
Publicise upgraded portal (with WS3)	Achieved	Upgraded portal publicised at IMCC meeting in August and at MEDIN workshops in September.
Produce tutorial videos	Not achieved	Work has started on a video to demonstrate how to use the MEDIN portal. Postponed until 2015
Produce material for academic community	Partially achieved	Material is currently being assembled to create
		a) general MEDIN talks for the academic community
		b) letter of introduction to university departments.
Q3		
Edition of Marine Data News	Achieved	Published Dec 2014
Hold MEDIN Partners Meeting	Not achieved	Postponed until 2015-16 due to staff shortages

Publish articles in on-line newsletters and magazines on MEDIN portal and standards	Partially achieved	First article published in Marine Data News (Dec 2015). This will be used as basis for further articles in other newsletters and magazines.
Q4		
Edition of Marine Data News	Achieved	Published in April 2015
Communications Work Plan for 2015-2016	Achieved	
Communications Annual Report for 2014-15	Achieved	

WS7 Management, Planning and Coordination

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 programme (insert hyperlink?).

1. Despite a period of understaffing, the management, planning and coordination of MEDIN continued as planned. In May 2014 Dr David Cotton resigned from his post as MEDIN Coordinator and his replacement, Dr Clare Postlethwaite, did not start until September 2014. During the intervening time the MEDIN core team took on additional responsibilities to ensure the programme continued to function.
2. 2014-15 was the first year of the 2014-19 Business plan and all sponsorship contracts were subsequently renewed. The MEDIN review in 2013 recommended that sponsors take a longer term approach to funding MEDIN and sponsorship contracts now range from one to five years in duration. The Marine Science Coordination Committee, the group that MEDIN report to, and the Natural Environment Research Council (NERC), the organisation that host MEDIN and manage MEDIN finances, require that funding agreements are in place between all MEDIN sponsors and NERC. This will be implemented in 2015-16.
3. There has been significant activity in 2014-15 looking at ways to improve access to industry data. In particular MEDIN co-funded a piece of work with the Marine Management Organisation, Marine Scotland and The Crown Estate to look at access to industry data. This work is due to complete at the end of May 2015. Elsewhere, MEDIN has been working with the Offshore Renewable Energy (ORE) Catapult, who commissioned some work looking specifically at what data is required for the ORE sector.
4. 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 (MSFD). MEDIN is an active participant in a Data Task Group, chaired by DEFRA and Marine Scotland, that has been set up to help implement this.
    - 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
    - Clare Postlethwaite attends meetings of MARG and has also attended meetings of UKMMAS Human Activities and Pressures Steering Group, and the Aerial Monitoring Group. Lesley Rickards is on the Executive Committee for the UK Integrated Marine Observation Network.

5. Engagement with MSCC has continued. MEDIN now has a seat on MSCC and official MEDIN representation is provided by Prof. Peter Liss, the Chair of the MEDIN Sponsors' Board and Executive Team. Progress reports are provided to the 6 monthly meetings and MEDIN, along with other smaller MSCC sub groups, are now required to report via MARG. Mike Osborne (OceanWise) is supported to represent MEDIN at the MSCC Industry Liaison Group, which is looking at a high level how access to industry data can be improved, and Dr Gaynor Evans attends the Underwater Sound Forum.
6. MEDIN continues to engage closely with the 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.
7. In addition to the twice yearly Sponsors' Board meeting, Clare Postlethwaite has initiated a programme of meetings with individual sponsors to help ensure MEDIN continues to meet the requirements of its sponsors. This financial year Clare met with two key policy sponsors, DEFRA and Scottish Government.

2.2 Work Stream 7 - Management, Planning and Co-ordination

Deliverables Table 2014-15

Q1 Deliverables	Status	Commentary
Exec Team Meeting	Achieved	Meeting held at Defra.
Renew Sponsorship agreements for 2014-19	Achieved	
MARG meeting – develop approach for MSFD data management	Achieved	
IMON Meeting		No meeting in Q1
Paper on main End Users / key priorities for MEDIN in 2014-19	Partially achieved	Paper on Main End Users submitted to Exec Team in February 2015 for discussion. Paper on key priorities for MEDIN in 2014-19 postponed to 2015-16 due to staff shortages.
Paper detailing how MEDIN supports MSFD implementation	Achieved	Paper submitted to MARG
Sponsors Board (or Q2 To be decided at Exec Team)	Not required	Sponsors Board meetings held in Q3 and Q4 due to staff availability.
Q2		
Paper to MSCC on use of MEDIN standards and DACs	Achieved	Update submitted to MSCC
MILG, IMON, MARG, MSCC meetings	Achieved	Mike Osborne attended MILG in September, Lesley Rickards attended IMON in September, Richard Moxon attended MSCC in Sept.
Meeting with EA, NRW	Partially achieved	Meeting with NRW took place. Meeting with EA postponed until 2015-16
Arrange meetings with 3 private sector organisations	Not achieved	Postponed until 2015-16 due to staff shortages
Report to MARG on preparedness of UKMMAS members for MSFD in terms of metadata / data management and dissemination	Achieved	Paper submitted to MARG for May meeting
Exec Team Meeting	Achieved	Meeting held August 2014, London
Sponsors Board (if not held in Q1)	Achieved	Held in November 2014
Q3		

MILG, IMON and MARG meetings	Achieved	CP attended MARG
Meetings with Scottish agencies and NI agencies	Partially achieved	CP teleconferenced with Scottish Government and Marine Scotland Science February 2015.
Exec Team Meeting	Achieved	Dec-14
Sponsors Board	Achieved	Held in February 2015
Q4		
MILG, IMON and MARG meetings	Achieved	Mike Osborne attended MILG Jan 2015, Lesley Rickards attended IMON Jan 2015. No MARG meeting.
Exec Team Meeting	Achieved	
Work Plan for 2015-2016	Achieved	
Annual Report for 2014-2015	Achieved	