

# Marine Environmental Data and Information Network (MEDIN)

## Annual DAC Network Report for 2014-15



***'Measure once, use many times'***

## Summary highlights

MEDIN has established an operational network of seven linked marine data archive centres (DACs) covering bathymetry, fish and shellfish, fisheries, aquaculture and related samples, historic environment, marine geology and geophysics, marine meteorology, marine species and habitats, and water column oceanography. The 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 data sets held by the DACs is 8,567, almost 50% more than 2013-14, and almost 2.5 times more than 2011-12
- 1,894 new datasets were archived in the DACs (1.7 times more than in 2013-14 and 2.5 times more than in 2011-12)
- 911,105 requests for data were received by the DACs (50% more than 2013-14 and 4.7 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 Introduction

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 required capabilities of DACs within the MEDIN framework are:

- To ensure the secure, long term, curation of key marine data sets, according to best practice and to relevant national and international standards.
- To make available clear, searchable information on their data holdings, by the generation and publication of metadata on the MEDIN portal.
- To provide view and download services for data sets covered by INSPIRE.
- To form the first point of call of expertise for the management of marine data.

In addition MEDIN will, on request from the data provider, publish metadata records to data.gov.uk and hence INSPIRE.

As a condition of its accreditation, each MEDIN Data Archive Centre is required to provide a short annual report so that Sponsors can assess how well the DAC framework is operating.

The MEDIN Sponsors' Board has emphasised the following requirements:

- Provide a statement on funding and sustainability
- Include Key Performance Indicators, specifically measures of use (numbers of enquiries, numbers of downloads)
- Further information on dissemination – how is access to data currently served up and how do the DACs see their interaction with the portal.

This short document provides a report on the current status of DACs in terms of data sets held and recently uploaded, requests from users for data, and financial outlook. This is a summary of information from the individual DAC reports. These reports are available on request to [enquiries@oceannet.org](mailto:enquiries@oceannet.org).

## 2 DAC Listing

There are currently seven DACs in the MEDIN DAC network, as listed in the table below. More details are available on each DAC through links on the DAC web page on the MEDIN website at [http://www.oceannet.org/data\\_submission/index.html](http://www.oceannet.org/data_submission/index.html). These pages include information on what types of data are held, and top level guidelines on how to submit data to, and to access data from, each DAC. During the year the original four DACs (BODC, BGS, DASSH and UKHO) provided re-accreditation information which is currently being assessed.

Name	Coverage	Contact Information	Web links	MEDIN Status
BODC	Water column oceanography	<a href="mailto:enquiries@bodc.ac.uk">enquiries@bodc.ac.uk</a> 0151 795 4884	<a href="http://www.bodc.ac.uk">www.bodc.ac.uk</a>	Accredited 2009, undergoing re-accreditation; operational
British Geological Survey	Marine geoscientific data	<a href="mailto:offshoredata@bgs.ac.uk">offshoredata@bgs.ac.uk</a>	<a href="http://www.bgs.ac.uk">www.bgs.ac.uk</a>	Accredited 2009, undergoing re-accreditation; operational
DASSH	Marine Species and Habitats	<a href="mailto:Dassh.enquiries@mba.ac.uk">Dassh.enquiries@mba.ac.uk</a> 01752 633291	<a href="http://www.dassh.ac.uk">www.dassh.ac.uk</a>	Accredited 2009, undergoing re-accreditation; operational
Met Office	Marine Meteorological Data	<a href="mailto:enquiries@metoffice.gov.uk">enquiries@metoffice.gov.uk</a>	<a href="http://www.metoffice.gov.uk">www.metoffice.gov.uk</a>	Accredited (Dec 2011); operational
United Kingdom Hydrographic Office	Bathymetry	<a href="mailto:bathydac@ukho.gov.uk">bathydac@ukho.gov.uk</a>	<a href="http://www.ukho.gov.uk">www.ukho.gov.uk</a> (or for a direct link to the bathy DAC <a href="https://www.ukho.gov.uk/inspire/pages/home.asp">https://www.ukho.gov.uk/inspire/pages/home.asp</a> )	Accredited 2009, undergoing re-accreditation; operational
FishDAC (CEFAS, Marine Scotland)	Fish and Shellfish, Fisheries, Aquaculture and related samples	CEFAS: <a href="mailto:data.manager@cefas.co.uk">data.manager@cefas.co.uk</a>	<a href="http://www.cefas.defra.gov.uk/publications-and-data/fishdac.aspx">http://www.cefas.defra.gov.uk/publications-and-data/fishdac.aspx</a>	Accredited , operational
		Marine Scotland: <a href="mailto:jens.rasmussen@scotland.gsi.gov.uk">jens.rasmussen@scotland.gsi.gov.uk</a>	<a href="http://www.scotland.gov.uk/Topics/marine/science/MSInteractive/Themes/fishdac">http://www.scotland.gov.uk/Topics/marine/science/MSInteractive/Themes/fishdac</a>	Accredited; operational
Historic Environment DAC	Marine Historic Environment fieldwork derived datasets	Archaeological Data Service: <a href="mailto:help@archaeologydataservice.ac.uk">help@archaeologydataservice.ac.uk</a>	<a href="http://archaeologydataservice.ac.uk">http://archaeologydataservice.ac.uk</a>	Accredited; operational
		Royal Commission on the Ancient and Historical Monuments of Scotland: <a href="mailto:Peter.mckeague@rcahms.gov.uk">Peter.mckeague@rcahms.gov.uk</a>	<a href="http://canmore.rcahms.gov.uk/">http://canmore.rcahms.gov.uk/</a>	Accredited May 2014; operational

### 3 DAC Performance

Each year we ask the DACs to report on their performance based on a standard set of metrics which include the numbers of data sets held, the number of new data sets archived, the number of requests for data and the number of MSSC partners who have data archived in the DAC. The table below gives the figures for 2012, 2013, 2014 and 2015.

Please 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 are augmented each year with that year's new data. Thus over 6 million observations were added to the Met Office's four data sets during 2014-15.

#### 3.1 DAC Metrics

Name	No of data sets held 2012 / 2013 / 2014 / 2015	New data sets archived in 2012 / 2013 / 2014 / 2015	No. of Requests for Data in 2012 / 2013 / 2014 / 2015	No of MSSC partners with data in DAC 2012 / 2013 / 2014 / 2015
BODC	916 / 983 / 983 / 1008	237 / 240 / 218 / 254	83,594 / 72,205 / 115,626 / 85,041	4 / 14 / 15 / 15
British Geological Survey	533 / 675 / 768 / 864	16 / 77 / 75 / 4182	- / - / 80,000 / 96,000 <sup>1</sup> ~100 / ~100 / ~100 / 70 <sup>2</sup>	8 / 8 / 8 / 11
DASSH	1592 / 1973 / 2438 / 2622	378 / 20 / 70 / 6	111,490 / 113,852 <sup>3</sup> / 272,862 / 581,212	8 / 8 / 8 / 8
Met Office	4 / 4 / 4 / 4 <sup>4</sup>	0 / 0 / 0 / 0	Not recorded	1 / 1 / 1 / 1
United Kingdom Hydrographic Office	650 / 650 / 1409 / 3815	128 / 12 / 63 / 91	0 / 16 / 84,000 / 85,000	3 / 3 / 9 / 9
FishDAC (CEFAS)	0 / 0 / 46 / 58	0 / 0 / 5 / 7	Not recorded	0 / 0 / 1 / 1
FishDAC (Marine Scotland)	0 / 0 / 36 / 56	0 / 0 / 16 / 9	Not recorded	0 / 0 / 1 / 1
Historical Environment DAC (ADS)	0 / 112 / 126 / 139	0 / 9 / 3 / 0	0 / 17,170 / 26,501 / 31,926	0 / 1 / 1 / 1
Historical Environment DAC (RCAHMS)	0 / 0 / 1 / 1	0 / 0 / 609 / 798	Not recorded	0 / 0 / 0 / 0

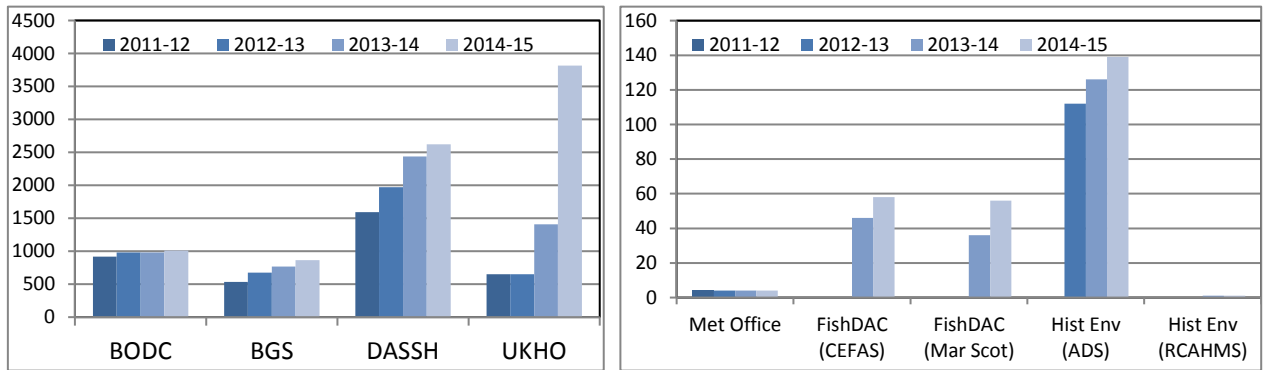
<sup>1</sup> Web map requests

<sup>2</sup> Based on manual email enquiries

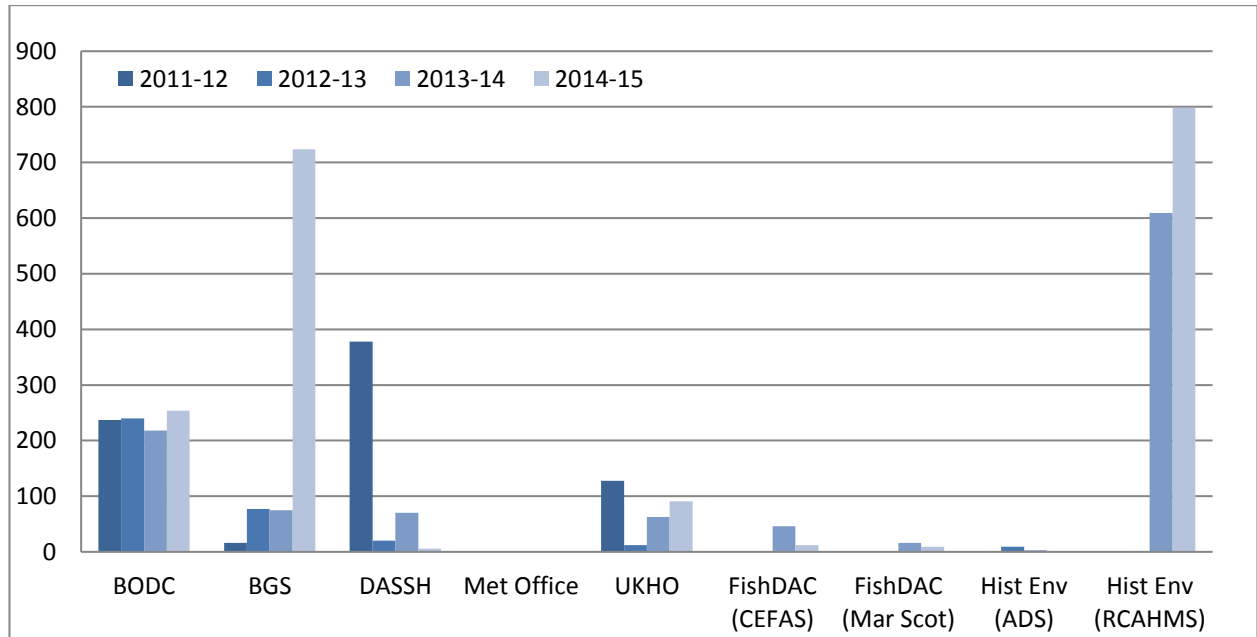
<sup>3</sup> Calculated differently from the first year – based on requests for data received through NBN. Statistics are provided for calendar year, 2011-12 values is annual total for 2012, later years are calculated pro-rata across the financial year.

<sup>4</sup> Over 6 million observations added to the data sets in 2014-15

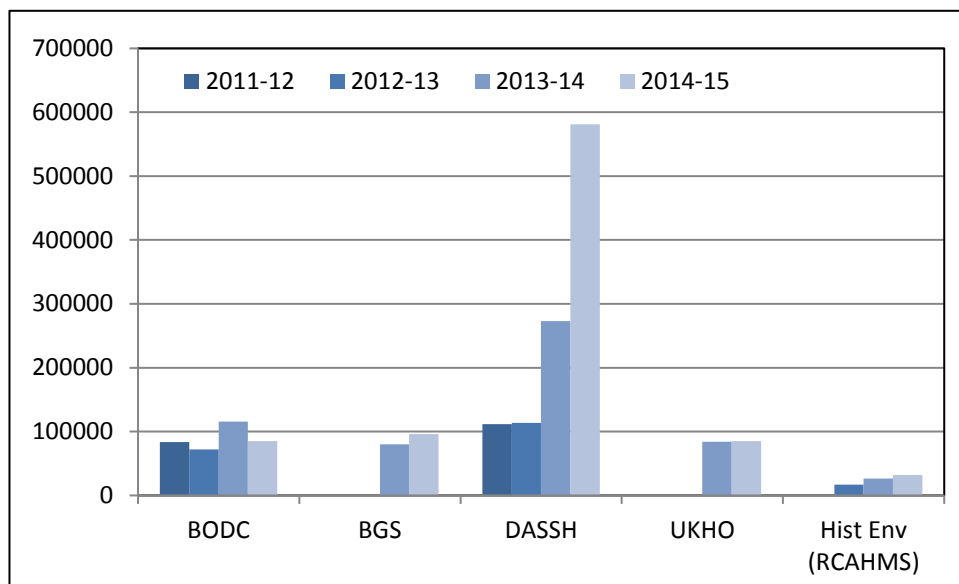
Figures 1-3 below provide graphical representations of the changes in each of the DACs and DAC components for several metrics. All DACs showed an increase in data holdings, with the Met Office and BODC adding substantial numbers of observations to existing datasets, and the rest of the DACs reporting an increase in the overall number of datasets held. The number of data sets added to the DACs by year shows a complicated picture, which partly reflects variation in funding available for the DACs to archive new data sets and how the DAC operates (as noted above the Met Office continually adds data to existing databases/data sets; BODC receives data accessions from a variety of projects and programmes which are integrated into existing data sets/ databases). It is encouraging to see that all well-established DACs have continued to receive significant numbers of requests for data and DASSH has seen a substantial increase since last year, indicating that DAC outputs are seen as increasingly useful.



**Figure 1: No. of data sets held by DAC by year**



**Figure 2: No. of new data sets archived (by year)**



**Figure 3: No. of requests for data (by year) from those DACs that record this information**

### 3.2 New datasets:

The past year has been very busy for the DACs in terms of major new datasets being archived. Table 1 summarises new datasets archived by each DAC during FY 2014/15.

BODC	UKHO
<p>During 2014/15 BODC received 254 accessions of data from 59 organisations in 11 countries as follows:</p> <ul style="list-style-type: none"> <li>135 accessions from NERC laboratories (including collaborative centres &amp; NOC)</li> <li>35 accessions from UK universities</li> <li>9 accessions from UK Government funded laboratories</li> <li>21 from commercial organisations</li> <li>3 from charitable organisations</li> <li>51 accessions from overseas laboratories</li> </ul> <p>The data comprise physical, chemical, biological and geophysical observations in a variety of forms including profiles, time series and discrete samples.</p> <p>Additionally, 37 datasets were added to the Published Data Library and received a DOI.</p>	<ul style="list-style-type: none"> <li>• 28 x Civil Hydrography Programme, 2 x Royal Navy, 5 x datasets received under the Government Data Sharing MoU, 57 x 3rd Party</li> <li>• 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)</li> </ul> <p><b>Met Office</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• In discussions with the Crown Estate regarding archiving 8 of their wind farm meteorological datasets from met masts.</li> </ul>

<p><b>ADS (Historic Environment DAC)</b></p> <ul style="list-style-type: none"> <li>• 79 OASIS records and 60 records about ADS maritime archaeology collections</li> <li>• All datasets are currently freely accessible by users through the ADS website from where they can be downloaded or viewed.</li> <li>• All marine related data sets, are added to the harvest index and therefore available to MEDIN</li> <li>• Access remains free, open and on line.</li> </ul>	<p><b>DASSH</b></p> <ul style="list-style-type: none"> <li>• UK Crab Atlas records</li> <li>• Natural England Article 17 data</li> <li>• Marine Conservation Zone Monitoring Data</li> <li>• UK Oil &amp; Gas monitoring data</li> <li>• Plymouth Marine Fauna and North Wales Marine Fauna datasets</li> <li>• UK Marine fish recording scheme dataset</li> </ul>
<p><b>RCAHMS (Historic Environment DAC)</b></p> <p>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.</p>	<p><b>Marine Scotland Science (FishDAC)</b></p> <ul style="list-style-type: none"> <li>• North Sea IBTS Q1 + Q3</li> <li>• West Coast IBTS Q1 + Q4</li> <li>• Herring Acoustic Survey</li> <li>• Mackerel Acoustic survey</li> <li>• 2 X Monkfish survey + 1 charter</li> <li>• Nephrops and Scallop Surveys</li> </ul>
<p><b>BGS</b></p> <ul style="list-style-type: none"> <li>• 27 surveys added to the BGS Coastal &amp; Marine Database included</li> <li>• 11 surveys were specifically received for MEDIN DAC (not including UKHO).</li> <li>• 686 sampling activities added to the BGS Coastal &amp; Marine Database</li> <li>• 3458 geophysical lines added to the BGS Coastal &amp; Marine Database</li> <li>• 32 MCA CHP HI Surveys have been received (some partial) + some additions to partial surveys previously received</li> <li>• 1400 Legacy BGS paper geophysical records scans from 900 records from 30 surveys were added to the collection.</li> </ul>	<p><b>CEFAS (FishDAC)</b></p> <ul style="list-style-type: none"> <li>• Western English Channel Groundfish Survey series</li> <li>• Bass Solent survey</li> <li>• 1000's of the Cefas historic otolith collection</li> <li>• FSP survey series</li> <li>• Historic surveys 1908 -1970s</li> <li>• Historic statistical charts</li> <li>• UK National Inshore Fishing Activities Data Layer</li> </ul>

## 4 Highlights

In addition to providing metrics, the DAC reports also detail highlights from the previous year, which together show levels of activity, examples of usefulness of the DAC network, and indicates how nationally and internationally integrated the DAC system is.

### 4.1 Partnerships:

The MEDIN DACs have established a wide range of national and international partnerships, with BODC increasingly making data available for searching from the SeaDataNet portal ([www.seadatanet.org](http://www.seadatanet.org)), and DASSH working closely with the National Biodiversity Network (NBN, [data.nbn.org.uk](http://data.nbn.org.uk)) providing data to the NBN Gateway and onward to the Global Biodiversity Information Facility (GBIF) and the Ocean Biogeographic Information System (OBIS,

<http://www.iobis.org/>). BGS data are available for download via the Geo-Seas portal ([www.geo-seas.eu/](http://www.geo-seas.eu/)), and CEFAS and Marine Scotland Science use the ICES DATRAS portal (<http://www.ices.dk/marine-data/data-portals/Pages/DATRAS.aspx>) for a number of key surveys. In addition, a number of the DACs are partners in the EMODnet thematic portal projects. BGS are leading the Geology theme; BODC is a partner in the Physics, Chemistry and Bathymetry themes and DASSH/MBA is a partner in the Biology portal. In addition, bathymetry data from the UKHO is included in the Bathymetry theme, near-real time data from the Met Office is included in the Physics theme and data from MERMAN is included in the Chemistry theme (see the EMODnet web site for further details of the data available and links to the thematic portals at: [www.edmodnet.eu](http://www.edmodnet.eu)).

## 4.2 Data Access and Sharing:

Increasingly data from the MEDIN DACs are being made available under the Open Government Licence (OGL) for data. Data from NERC (e.g. BGS and BODC), UKHO, Met Office, and the bulk of data from CEFAS are now made available under this licence. Additionally, access to data held by Marine Scotland and ADS is free, open and online, and where possible data held by DASSH are made freely available.

INSPIRE compliance is a key component of MEDIN, and a core responsibility of the DACs. Work to ensure compliance continues at the DACs. The current status is as follows:

- UKHO has INSPIRE compliant view and download services.
- BGS has INSPIRE view (e.g. Offshore Geindex) services; download is available but not INSPIRE compliant.
- Met Office has download for 1 data set for the last 24 hours data.
- The Cefas FishDAC has INSPIRE view and download under development.
- The Marine Scotland FishDAC have data sets with INSPIRE compliant View through the National Marine Plan Interactive and 3 have download *via* Marine Data Portal.
- View and download services exist at DASHH, but are not INSPIRE compliant. Future plans include development of this.
- BODC has download capability, but it is not INSPIRE compliant. INSPIRE compliance is under development.
- The RCAHMS has an INSPIRE compliant view service but not download.
- The ADS now has 126 collections available as INSPIRE view services, and 60 collections available as download services.

## 4.3 Highlights from the DAC network

In addition to providing the metrics summarised in section 3 above, the DAC reports also detail highlights from the previous year, which together show levels of activity and innovation and provide examples of how the DACs are working together to improve data access. Selected highlights from each of the seven MEDIN DACs are given below:

### Bathymetry DAC (UK Hydrographic Office)

- UKHO reached agreement with Cefas and BGS for systematic delivery of their back-catalogue of multi-beam data. Prioritisation is complete, and deliveries are now under way.
- 3815 bathymetric surfaces currently available on the UKHO portal (several surfaces may constitute a single dataset).

### Fisheries DAC (Cefas and Marine Scotland Science (MSS))



- Reports and the associated data are on the Cefas website for spawning and nursery grounds, fish stomach contents and the Inshore fishing activity layers. Data are available on request.
- Cefas have rescued 52 historical surveys of Bass trawl data from the Solent under MEDIN small project funding
- MSS are building a DKAN platform for data publishing – launched in November 2014. It is integrated with a DOI report and dataset reporting/landing pages. Some fisheries reports are here already (that are also on MEDIN); currently working on including DOI reporting into MEDIN standard.
- MSS are working on quality assessment of older data kept in a previous fisheries database and in flat file formats (1925 – 2012). A gradual project with long term plan to migrate data into current archiving system.

#### **Historic Environment DAC (ADS and RCAHMS)**

- RCAHMS: 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
- Through MEDIN DAC funding RCAHMS arranged for the digitisation of 149 tapes relating to 27 separate wrecks (15 tapes were not transferred as they held data rather than video). The tapes were in 5 different formats: VHS (10), Audio Cassette (44), mini DV (69), and DAT (26) tapes. Over 153 hours of dive video have been transferred to digital formats. An example dive tape from the Kinlochbervie wreck is provided: <http://canmore.org.uk/collection/1471487> which has a Running Time: 00:36:33 min and Video Clip Running Time:12:47
- 79 OASIS records and 60 records about ADS maritime archaeology collections; all with view services.

#### **Marine Geology and Geophysics DAC (BGS)**

- Legacy BGS paper geophysical records held at BGS Edinburgh have been scanned: 18700 scans from 13800 records from 200 surveys in total. This was a major project in preparation for the move to Heriot Watt and they are to be delivered online as Open Data.
- Continuation of agreement with DEFRA, CEFAS, JNCC, NE to archive Marine Conservation Zone (MCZ) data. 19 surveys were received from Cefas. Species data forwarded to DASSH. Agreement with Defra on funding, 26K to be received via MEDIN next FY.
- The BGS Offshore GeoIndex is available as a Web Map Service. With the introduction of a new WMS, this showed a significant increase in usage compared with the previous version.

#### **Marine Meteorology DAC (Met Office)**

- The Met Office climate database (MIDAS) contains over 140 million marine meteorological observations from ships, moored buoys, light vessels, coastal systems and rigs/platforms dating back to 1854 up to the current day. Data received over the WMO Global Telecommunications System (GTS) are ingested daily, adding up to around 16,000 observations per day.
- 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.

#### **Marine Species and Habitats DAC (DASSH)**

- 7.5% increase in datasets on MEDIN portal from 2013-2014
- Direct links from the metadata on the MEDIN portal will link to the DASSH View and Download Service (DBOSSH) - <http://www.dassh.ac.uk/data/search-data>.

#### **Water Column Oceanography DAC (BODC)**

- BODC added 37 datasets to the Published Data Library (these data received a DOI)

- The release, in December 2014, of the GEBCO 2014 Grid provided a significant update to 30 arc second bathymetry of the oceans (GEBCO) dataset. This was further extended in February 2015 to enable download in Esri ASCII raster and INT16 GeoTiff formats.
- BODC received 2,132,386 requests through the NERC vocabulary server (NVS2.0)

## 5 DAC Sustainability and Funding

An important aspect of the DAC network is the assurance of long-term sustainability and continuity of service provision. The MEDIN DAC network achieves this by requiring that the core capability of each DAC is underwritten by an organisation or group of organisations (usually the host organisation) that itself has a business requirement to manage data of a particular theme. This approach forms the backbone of the funding / cost model for the MEDIN DACs that is described below.

### Cost Model

The DAC cost model proposed and adopted in November 2010 identifies four aspects of the DAC function: Core Capability, MEDIN Coordination, Additional Archiving, and Data retrieval / distribution, as described below:

- **Core DAC Capability**

“Core” DAC capability includes infrastructure costs and some routine data archiving. It is expected that core DAC funding is provided by organisations with a strategic interest in a national DAC capability for specific data types. MEDIN acts to provide an overview and to consider whether funding of this core capability is secure or at risk.

*Funded by the organisation hosting the DAC, or in the case of DASSH by a consortium organisations.*

- **MEDIN coordination**

MEDIN acts to ensure common standards and service provision across the MEDIN DAC network. The cost of MEDIN coordination activities is shared between MEDIN Sponsorship funds and the DACs themselves.

*Funded by MEDIN Sponsor funds and DACs through in-kind effort*

- **Additional Archive Costs**

In the general case, the costs of archiving newly collected data should be funded by the data providers, in the form of one-off fees to the DACs in return for the services provided. This data archiving cost is not currently included in the overall budget of many monitoring and research programmes.

*Funded by data suppliers*

- **Data retrieval / distribution**

MEDIN DACs will provide data access to the original data provider at no cost, and will manage third party access to data sets according to terms agreed with the data provider. If no constraints are required by the owner, data will be made available to third parties at no cost, beyond any necessary to cover costs of retrieval / provision.

*No cost*