

DEAL and the SEA Project Datasets

By

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Abstract

The UK's Department for Trade and Industry (DTI) set up a series of eight Strategic Environment Assessments (SEA). The SEA process is designed to assess the economic and environmental implications of further licensing of the UK Continental Shelf (UKCS) for oil and gas exploration and production.

The DTI has two objectives for data collected during the SEA process:

- 1) To provide simple, easy access to the datasets that have been collected to date, via a website such as DEAL (<http://www.ukdeal.co.uk>)
- 2) To collect all the raw and interpreted datasets and published reports and store them in one repository for the foreseeable future.

The British Geological Survey (BGS) developed a methodology to collate SEA data, and a new data model to provide access to the data via the DEAL website. The new SEA web GIS provides a free, public, web-based service designed to promote and facilitate access to SEA data and information.

List of Acronyms

BGS	-	British Geological Survey
CDA	-	Common Data Access
CEFAS	-	Centre for Environment, Fisheries & Aquaculture Science
DTI	-	Department of Trade and Industry
SEA	-	Strategic Environmental Assessment
TOBI	-	Towed Ocean Bottom Instrument
NHDA	-	National Hydrocarbons Data Archive
NOCS	-	National Oceanography Centre, Southampton
UK	-	United Kingdom
UKCS	-	United Kingdom Continental Shelf
UKOOA	-	United Kingdom Offshore Operators Association

1 The SEA Project

The SEA Directive (directive 2001/42/EC) of the European Parliament came into force on the 21st July 2001. This directive concerns the "assessment of the effects of certain plans and programmes on the environment with a view to promoting sustainable development". (DTI, Reference 1, 2006)

A Strategic Environmental Assessment is a process designed to assess the environmental implications of a proposed plan or programme of development. For example, a SEA can be carried out to consider the potential environmental impact of a development such as oil and gas licensing rounds, and to factor environmental protection and sustainable development into that plan should it go ahead.

The European Union member states, including the United Kingdom (UK), were required to bring into force the necessary laws, regulations and administrative provisions to comply with the SEA directive before the 21st July 2004.

In the UK, the DTI is the principal regulator of the offshore oil and gas industry. In 1999 the DTI began a sequence of SEAs to assess the implications of further licensing of the UK Continental Shelf (UKCS) for oil and gas exploration and production. Although the European SEA Directive was not incorporated into UK law until 2004, it is worth noting that the earlier DTI SEAs were carried out in accordance with its requirements.

For the SEA project, the DTI divided the UKCS into eight areas, with a further three areas to be assessed for offshore wind-farm development (R2 areas). The SEA and offshore wind farm areas are shown in Figure 1. On completion of this project, the intention is that SEAs will exist for the entire UKCS.

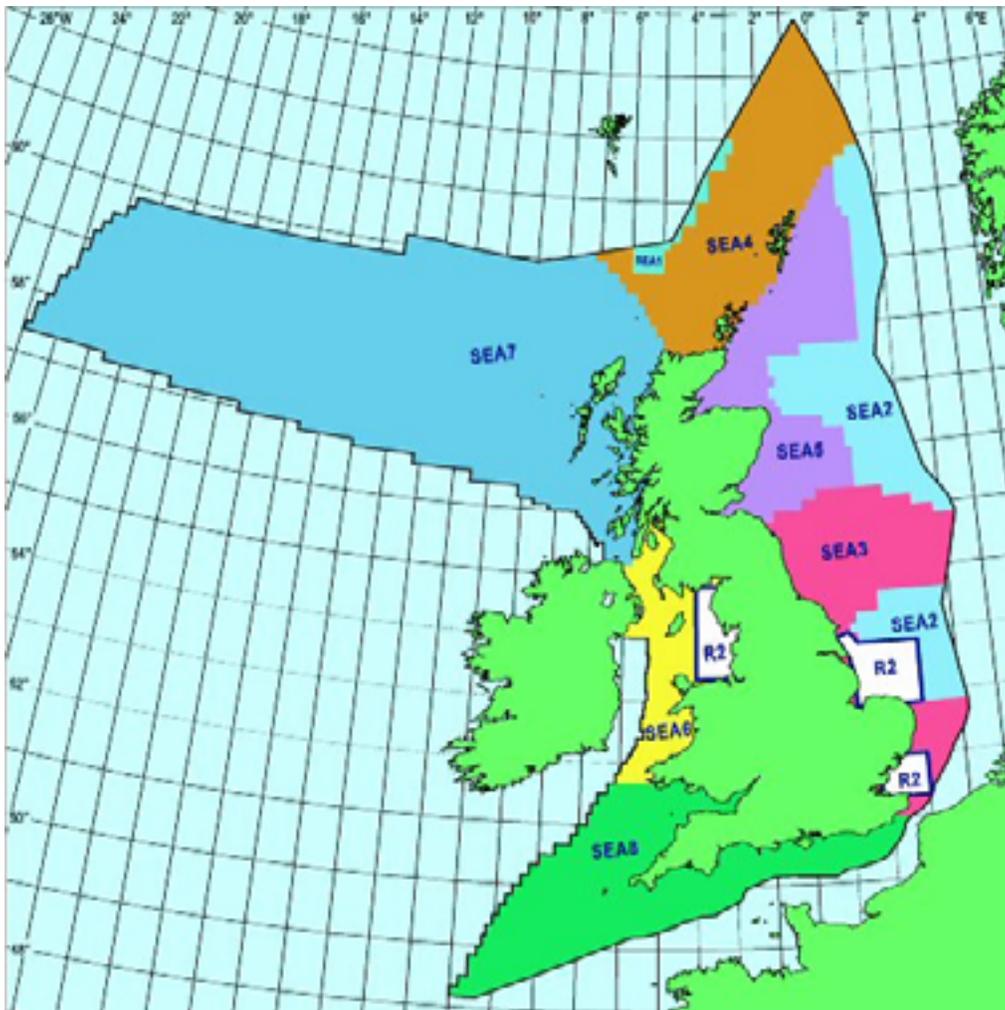


Figure 1. SEA Areas

2 The SEA Process

The SEA process begins when it is decided that a plan or programme will have a significant impact on the environment. Figure 2 provides an illustration of the stages involved in undertaking a SEA, as described by the SEA Directive.

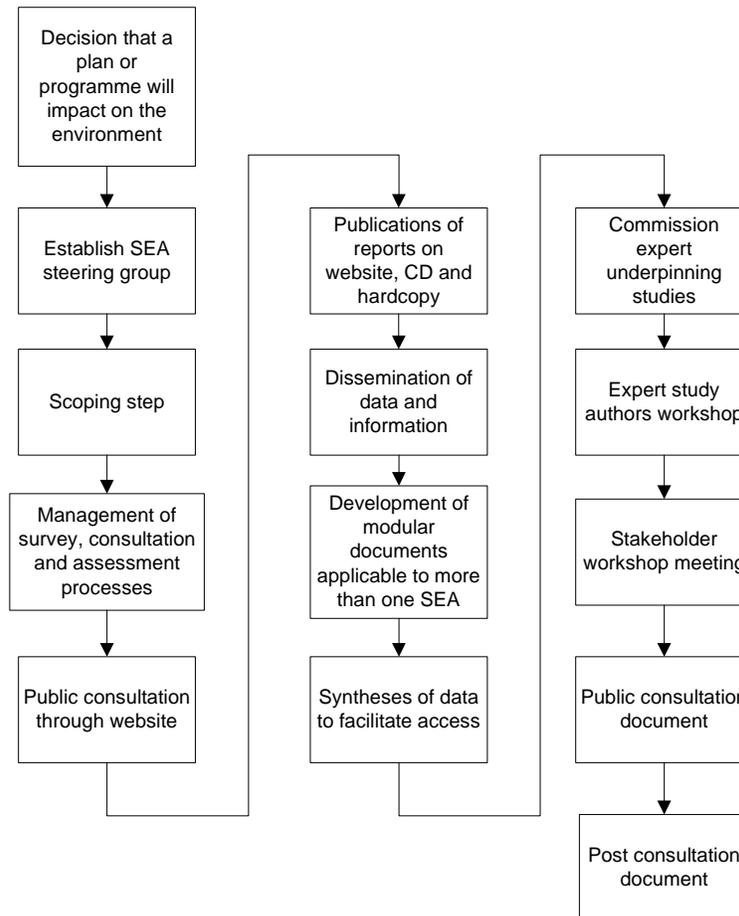


Figure 2. The SEA Process

The first stage of a SEA process is to set up a steering group of independent experts and departmental representatives who can help guide the SEA process as it progresses. In the case of the DTI, the SEA project was initially guided by the Oil and Gas SEA steering group and the Offshore Wind SEA steering group. In 2003 these two groups were merged to form the Offshore Energy SEA steering group (DTI, Reference 2, 2006). The Offshore Energy SEA steering group is made up of experts in oil and gas exploration and production, offshore energy and the environment.

The 'scoping step' is designed to identify specific issues that should be addressed by the SEA, information or data gaps that may need to be filled, promote awareness of the SEA and identify stakeholder issues and concerns with the proposed plan or development. If the scoping step identifies information gaps, then studies and surveys may be undertaken to fill those gaps.

A key requirement of the SEA process, from start to finish, is consultation with a wide range of individuals and organisations. A SEA typically takes about 2 years to complete and, as

illustrated in Figure 2, the process involves much consultation with such bodies as environmental organisations, the public and stakeholders in neighbouring states who may be affected by the proposed development (DTI, Reference 3, 2006). The consultation process must be assisted by the development of a public consultation website, which in the case of the DTI is available at '<http://www.offshore-sea.org.uk/site/index.php>'.

The outcome of the SEA process is a public consultation document that becomes available on the website for a period of 90 days. This document includes an environmental report that, in accordance with the SEA directive, includes such information as the plan or programme of development; the current state of the environment; likely evolution without development; likely significant effects on the environment; measures envisaged to prevent, reduce and offset adverse effects on the environment; details of how the assessment was undertaken and measures for monitoring the environment (DTI, Reference 4, 2006).

Following the public consultation, the points raised are gathered and incorporated into a post-consultation document. It is the post-consultation document that signifies the completion of the SEA process, and it is this document that is provided to the DTI for consideration of further licensing of the UKCS.

3 The DEAL Project

The DTI SEA project has generated about 320 datasets and reports, both digital and hardcopy, relating to the UKCS and the process is continuing. These items were created by a variety of organisations including government-owned science laboratories (BGS, The Centre for Environment, Fisheries & Aquaculture Science (CEFAS) and The National Oceanography Centre, Southampton (NOCS)), academic institutions, marine surveyors and other consultancies. The items include raw and interpreted marine survey datasets, technical reports and other documents of various kinds and much of this information still resides with the organisations that produced them. The DTI has two objectives for the reports and datasets generated during the SEA project,

- 1) To provide simple, easy access to the reports and datasets that have been collected, via the DEAL website (<http://www.ukdeal.co.uk>).
- 2) To collect all the raw and interpreted datasets and published reports and store them in one repository for the foreseeable future.

In 2005, The British Geological Survey was awarded a 3-year contract to provide a repository for datasets collected by the DTI SEA process, and to provide access to these datasets via the DEAL website. To assist this work, a catalogue of geographic data and reports, as well as the data and the reports themselves were made available to the BGS. The catalogue outlines exactly what data should be available in each SEA area, and therefore what data should be stored and made available via DEAL.

4 Why DEAL?

DEAL is a publicly available web-based GIS developed for the oil industry. With over 5000 registered users and over 1 million hits a month, DEAL is viewed by the industry as an essential tool in developing bids for licences in each DTI licence round. To quote the information given on the DEAL website,

"DEAL is a free, public, web-based service, designed to promote and facilitate access to data and information relevant to the exploration and production of hydrocarbons on the United Kingdom Continental Shelf (UKCS)." (DEAL, 2006)

DEAL was originally funded by CDA in 2000 and was developed by BGS in the same year. In 2004, CDA became a wholly owned subsidiary of the United Kingdom Offshore Operators Association (UKOOA) and funding moved to UKOOA directly. DEAL enables a user to search for the data they are interested in via forms or an interactive web map. Using forms, a user can search for data by selecting or entering keywords into a web-based search facility. Using the map, a user can search for datasets geographically, turn available layers on and off, zoom to and interrogate layers of interest.

The following datasets are available through DEAL,

- Hydrocarbon well data
- Seismic data
- Infrastructure (including pipelines)
- Licensing blocks
- Regional reports
- Hydrocarbon fields
- Cultural data

The DTI felt that DEAL, as the recognised offshore data portal in the UK was the obvious choice to provide SEA data. DEAL provides a large amount of DTI data already and the SEA data fits in naturally into this model. Adding SEA data to the DEAL map allows a user to view and overlay SEA layers with existing DEAL data such as hydrocarbon fields, pipelines and wells.

The DTI wanted to hold the SEA data in the National Hydrocarbons Data Archive (NHDA). In the UK, the BGS is the recognised NHDA and was the natural choice to provide a repository for SEA data. Storing data within the NHDA means that that data will be maintained in perpetuity.

The scalability and proven track record for data storage, management and provision make DEAL the ideal choice to provide storage and access to SEA data. The decision to implement SEA data on the DEAL website was taken in 2005, and a contract for the work awarded to the BGS in the same year.

5 Implementing SEAs on DEAL

A three-phase project for implementing SEA data on DEAL began in 2005. Phase 1 of this project is now complete and phases 2 and 3 are currently underway.

5.1 Phase 1

A SEA report contains information related to one more SEA areas. The aim of phase 1 was to develop a simple system for storing and providing access to SEA reports within the current DEAL environment. To achieve this aim, a layer of polygons representing the DTI SEA areas and renewable licence areas has been added to the DEAL map page, along with the ability to search for SEA reports via the forms and the map page.

Figure 3 shows the DEAL home page (<http://www.ukdeal.co.uk>) with a new link to the SEA data added to the list of data that is available on DEAL.



Figure 3. The DEAL home page

Clicking on the 'Strategic Environmental Assessments' link takes the user to information about the SEA data and how they can access it. As with the other datasets on DEAL, a user can search for SEA data via forms or the DEAL web map.

To access SEA reports via the DEAL web map a user must first make the 'Strategic Environmental Assessments' layer visible as illustrated in Figure 4.

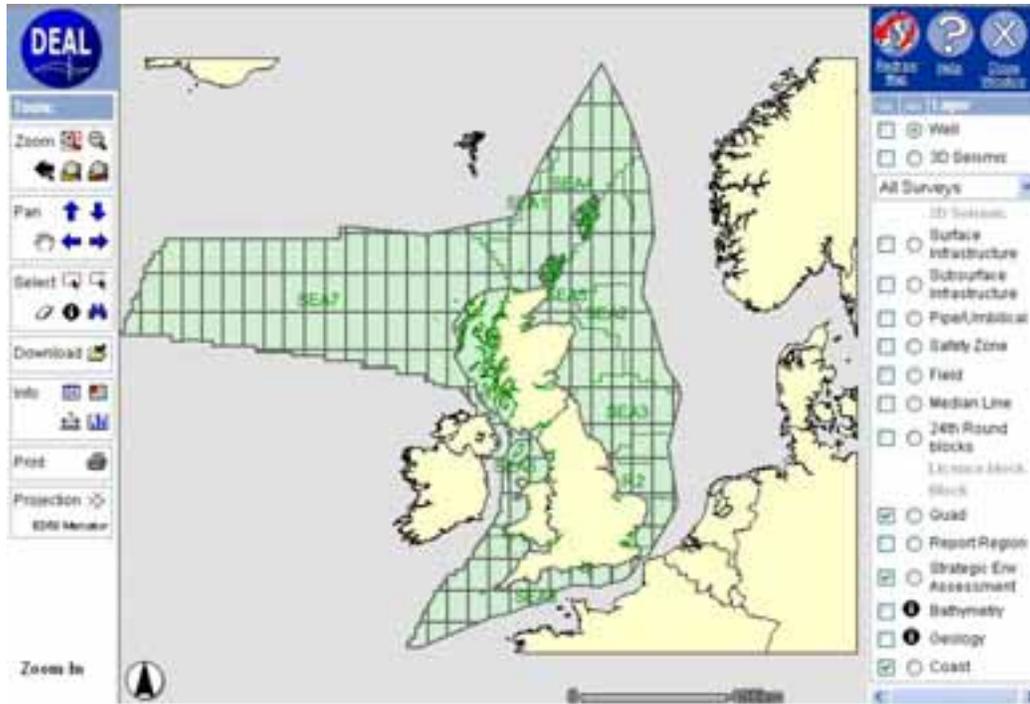


Figure 4. DEAL map showing the Strategic Environmental Assessments layer

By making the layer active and clicking on a SEA polygon with the information tool, a report window will show a list of the items available for that area. For example, as illustrated in Figure 5, if the user clicks on the 'SEA7' polygon, a report window becomes available from where the user can access a list of report items.

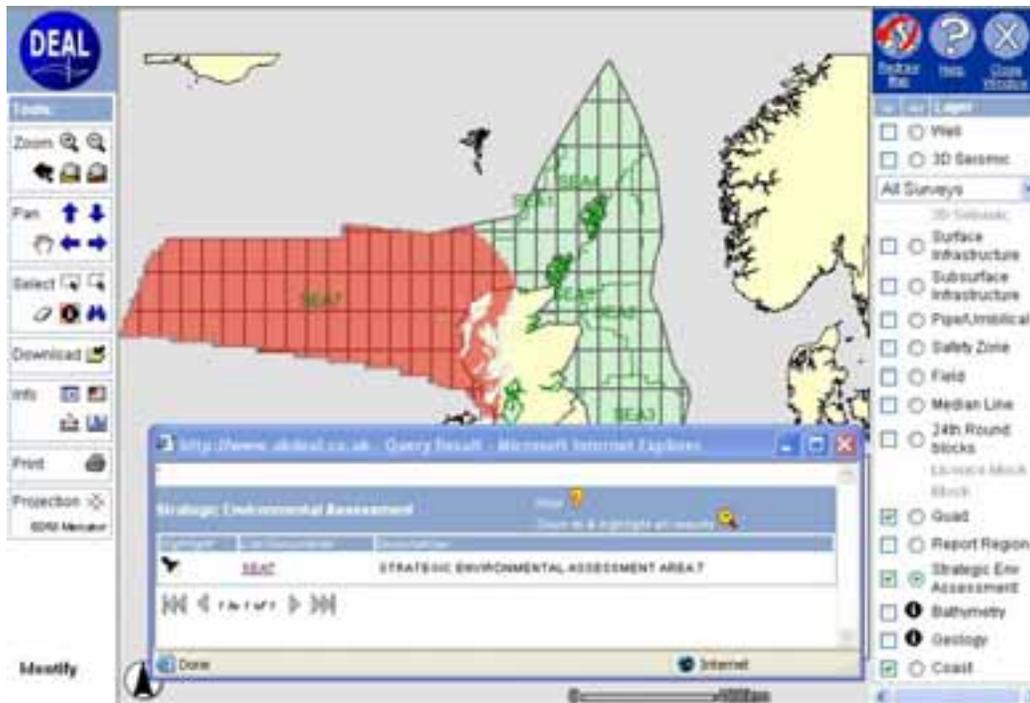


Figure 5. SEA7 information

Clicking on the 'List Documents' link for SEA7 takes the user to a list of items available for SEA7 as illustrated in Figure 6.

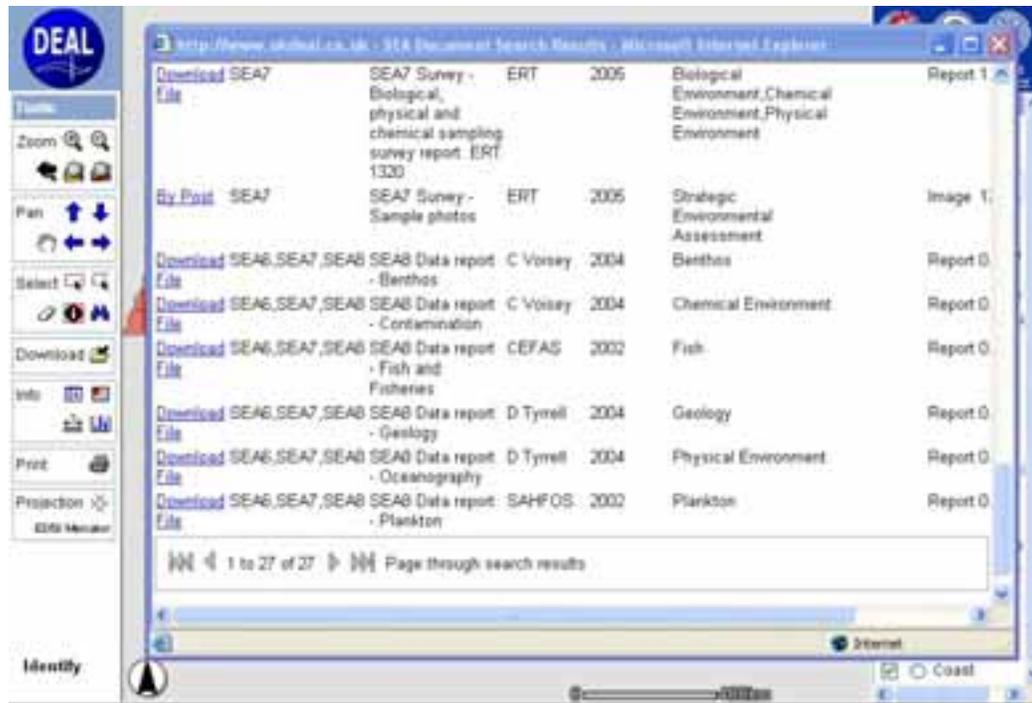


Figure 6. List of SEA7 items

The list of items, as shown in Figure 6, includes the associated metadata for each item. The metadata defines author, scientific subject, title and format so that the user can filter their choice of data. Where an item is a report in PDF, Microsoft Word or Excel format, then the URL links to that document directly so that it can be viewed on screen. For example, should a user click on the 'Download File' link for the 'SEA7 Survey – Biological, physical and chemical sampling survey report. ERT 1320' then that document is made available, as shown in Figure 7.

- EM1002 (swath bathymetry) images
- Seabed sample points
- Seabed photographic points
- Seabed video tracks
- Distribution of seabirds and marine mammals
- Seabed pockmarks
- Wind-farm locations

To assess exactly what spatial data is available for each SEA area, an investigation was carried out to determine what geographic data the BGS had available for each SEA. This investigation concluded that varying combinations of the datasets outlined above are available for each SEA area. As yet, no SEA area has all of the datasets available and in the case of SEA3, which was based on a desktop study, no geographic information is available.

The next stage of phase 2 will be to deploy a secondary map service to the existing DEAL map interface to provide access to the geographic data that is available for each SEA area. This will enable a user to view SEA datasets alongside selected default DEAL layers.

As there is a wide range of geographic data available for each SEA area, it is envisaged that a folder structure will be made available on the DEAL map table of contents. A folder structure will allow a user to drop down into, for example, a SEA7 folder. The SEA7 folder will provide a list of all the datasets that are available for SEA7. This structure has a number of advantages, particularly where a dataset covers a small geographic area and it would benefit a user to be able to zoom to that dataset within the SEA area.

Phase 2 of the project is due for completion at the end of 2006 when it is planned that the currently available SEA geographic datasets will be available on DEAL.

5.3 Phase 3

Phase 3 is an ongoing phase and will be implemented over the full term of the project, and for the remainder of the DTI SEA project. The aim of phase 3 is to acquire, record, index and store raw data for future delivery via DEAL. SEA data has been generated by many organisations and is held in various formats including text reports, raw data, images and movies. The aim of phase 3 will be to collate all the datasets related to the SEA project from the many organisations that currently hold them, and to continue to update the repository of SEA data available through DEAL.

After data is acquired, metadata will be recorded for all the SEA datasets. For SEA geographic data, metadata will be stored in accordance with the ISO 191115 standard for geographic information.

To help with phase 3, the data catalogue will continue to be updated until the end of the project and the BGS will receive catalogue updates on a regular basis. Following the receipt of updates, the DEAL website catalogue will be updated accordingly.

6 Summary

In July 2001, the SEA Directive of the European Parliament came into force regarding the assessment of plans and programmes on the environment with a view to promoting sustainable development. As a proactive measure, the DTI began a project in 1999 to conduct eight SEAs to assess the environmental implications of further licensing of the UKCS for oil and gas exploration and production. Although the DTI SEA project will not be complete until 2008, to date the SEA process has generated over 132 reports and datasets that are held by many individuals and organisations in varying formats. The DTI had two objectives for the data and reports generated by the SEA project,

- 1) To provide simple, easy access to the datasets that have been collected to date via the DEAL website.
- 2) To collect all the raw and interpreted datasets and published reports and store them in one repository for the foreseeable future.

The BGS was awarded a contract in 2005 to update the DEAL model to include a repository for, and access to SEA reports and datasets. This project started in 2005 and is being implemented in 3 phases. The aim of phase 1 was to provide access to SEA reports via the DEAL website and this phase is now complete. The aim of phases 2 and 3 are to collate and provide access to geographic data and other types of dataset respectively. At the end of the project, predicted in 2008, SEA data will be safely stored in one repository and will be easily and publicly available through DEAL.

7 Acknowledgements

The work detailed in this paper was completed by John McInnes, Robert Pedley, Graham Tulloch, Colin Graham, Paul Henni, Ruth Addinall, Graham Smith, Evelyn Campbell and Amelia Pickering of the British Geological Survey

8 References

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Reference 2 - http://www.offshore-sea.org.uk/site/scripts/documents_info.php?categoryID=39&documentID=5

Reference 3 - http://www.offshore-sea.org.uk/site/scripts/documents_info.php?documentID=5&pageNumber=4

Reference 4 - http://www.offshore-sea.org.uk/site/scripts/documents_info.php?documentID=5&pageNumber=5

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