UK Seabed Biology Datasets access programme.

Scoping study and infrastructure development.

Jon Parr

Keith Hiscock

Dan Lear

Report to the UK National Biodiversity Network and the Department for Environment, Food and Rural Affairs

April 2004

Reference:

Parr, J., Hiscock , K., & Lear, D. 2004. *UK Seabed Biology Datasets Access Programme. Scoping Study and Infrastructure Development*. Report to the UK National Biodiversity Network and the Department for Environment, Food and Rural Affairs from the Marine Biological Association. Plymouth: Marine Biological Association.

CONTENTS

UK Seabed Biology Datasets access programme.

Scoping study and infrastructure development.

Report to the UK National Biodiversity Network and the Department for Environment, Food and Rural Affairs from the Marine Biological Association.

Jon Parr, Keith Hiscock & Dan Lear
April 2004

SUMMARY AND RECOMMENDATIONS

1. Infrastructure development for the Marine Life Information Network (*MarLIN*) at the Marine Biological Association was undertaken through training in and implementation of a SQL (Structured Query Language) Server Database Management System.
2. Access to a range of dataset 'types' was trialed through:
   i. obtaining the most up-to-date dataset for United Kingdom Offshore Operators Association seabed surveys and accessing data for selected locations;
   ii. working with the Conchological Society of Britain and Ireland to convert their distributional data to a form for incorporation into the NBN Gateway;
   iii. working with Unicomarine and ERT on data holdings and costs of cataloguing or converting datasets.

Working with those datasets demonstrated that a wide range of different data formats can be incorporated into NBN format for inclusion in the NBN Gateway.

3. Discussions were held with a range of data holders regarding the principle of obtaining access to data sets for NBN. There was great willingness to make information available but, because of the requirements of staff time in accessing and sometimes 'cleaning' that data, funds would usually be required to support staff time. In some instances, data may need to be transferred from paper to electronic format which is costly.

Recommendations:

1. There should be a 'campaign' to access marine life data sets from the wide range of sources not currently a part of the NBN data access programme.

2. Projects aiming to access datasets from institutes, consultancies, societies and individuals should include financial provision for local staff time to access that data.

4. Maintenance of data from seabed biological surveys is often poor. Many datasets are likely to be held by individuals who, once retired or dead, have not lodged the data in an archive (their institute library, the UK National Marine Biological Library etc.). The outcome is loss of data that might have been especially valuable for detecting long-term change, preventing unnecessary re-survey of an area, filling gaps in knowledge of species distribution, etc.

5. A facility for notifying data holdings already exists in the form of the well-established European Directory of Marine Environmental Datasets (EDMED) which includes marine biological datasets. EDMED is co-ordinated by the British Oceanographic Data Centre (BODC) at the Proudman Oceanographic Laboratory and liaison with their staff has been undertaken as a part of the JVA programme.

Recommendations:

3. Government-funded institutes including research laboratories, university departments and museums, should have a data archiving policy that actively ensures data sets are not lost.

4. The UK National Marine Biological Library should establish (following allocation of funds and as a complementary facility to that available at the Proudman Oceanographic

Laboratory) an archive and cataloguing service for marine life data sets that are from individuals or institutes where 'in perpetuity' facilities for curation are not available.

5. EDMED metadata fields should be enhanced to ensure that marine biological data types are properly addressed and Marine Recorder fields supplemented to ensure compatibility with EDMED (measures needed are identified) and ISO 19115:2003.

6. Conclusions from a number of Government consultations have recognized the need to access and make best use of available data. Apart from the Irish Sea Pilot project and the work of NBN (including *MarLIN* activities funded especially by the Crown Estate, British Marine Aggregate Producers Association, ABP MER and JNCC), resources have not been provided to achieve the aim of making data widely available. Industry and consultancies are content to benefit from access to a wide range of survey data but have, with exceptions above, shown no interest in funding data acquisition to provide contextual information except where required to by licensing obligations. All-in-all, the outlook for funding for data access and interpretation for the NBN from non-government sources is bleak but government departments that regulate activities could do much to encourage industry to provide funding. That funding might come from levies or licences designed specifically to support environmental research.

Recommendation:

6. Develop the application of levies on development so that funds are available for environmental protection projects including provision of marine life data sets to NBN.

7. There are national, European and international initiatives (other than ones already linked to NBN) that aim to access and share data or metadata. They include the EDMED programme, the work of the Inter Agency Committee on Marine Science and Technology (IACMST) Coastal Data Co-ordinator, the UK Marine Information Council (UKMIC), the EU 6th Framework Programme Marine Biodiversity and Ecosystem Function (MARBEF) data management work package and the European Ocean Biogeographical Information System (EurOBIS). All need to be in partnership and work to common goals without overlap.

Recommendation:

7. The MBA *MarLIN* team to maintain and develop collaboration with the EDMED team, the IACMST Coastal Data Co-ordinator, UKMIC and the Flanders Marine Institute (VLIZ) (MARBEF and EurOBIS lead organization) to ensure common/complementary goals and standards for marine life data access.

8. Use of chart information is needed if marine life records are to be seen in the context of their bathymetric environment. Using GIS, layers could also be added for seabed habitats if that information is available for a location. Providing a chart backdrop for identifying location of sightings and for displaying distributional information on the NBN Web site is feasible and the level of information that would be most relevant to NBN has been determined. Cost for the Hydrographic Office chart backdrop would be £12,100 for purchase of initial electronic charts at all scales for UK and Ireland and £4,235 per annum licence fee (the annual fee is 35% of the initial cost).

Recommendation:

8. With appropriate financial support, work with Metoc plc to obtain and install a chart backdrop as an option for NBN reporting schemes and for searchnbn.net.

9. Organizations that commission research may be willing to require contractors to supply marine life data to the NBN but need a form-of-words to incorporate into contracts.

Recommendation:

9. Provide a form of words (suggested in the body of this report) to organizations commissioning marine life surveys that will require contractors to submit their data to NBN.

UK Seabed Biology Datasets access programme.

Scoping study and infrastructure development.

1. PROJECT OVERVIEW

The report describes the work carried out under the Defra – NBN Joint Venture Agreement. The work was carried out between November 2003 and March 2004 in accordance with an agreed work programme (Appendix 1).

The work was undertaken by the Marine Life Information Network (*MarLIN)* an Internet initiative of the Marine Biological Association (MBA) to provide information for marine environmental management, protection and education.

2. TASK A. ESTABLISH SQL DATA MANAGEMENT SYSTEM

This part of the project was undertaken to enable migration of data and information on the existing Microsoft Access database to a more scalable and robust database using SQL (Structured Query Language) database.

The MBA Information Systems Co-ordinator, Dan Lear, undertook SQL Server Administration training in February 2003.

A trail of migrating the data from Microsoft Access has been successfully undertaken and the full transfer of data and updating of associated Web pages will be carried out during April to June 2004. The translation of Web page-associated queries proved more complex than anticipated and increased the time allotted for this section of work. Technical difficulties have been overcome and structure and data transfer is now a straight-forward task.

3. TASK B. UNDERTAKE 'ROADSHOW' TO OBTAIN FURTHER FINANCIAL SUPPORT AND DATA SETS

3.1 Introduction

MarLIN staff have contributed to meetings and have undertaken targetted visits as a part of Task B. The need to access data sets to obtain the most comprehensive possible view of species and biotope distributions has long been a theme in presentations given by *MarLIN* staff. In undertaking liaison, it has been particularly important to link to other initiatives especially those involved in gathering meta data or data and the meetings which linked to the European Directory of Marine Environmental Data (EDMED) and to the Inter-Agency Committee on Marine Science and Technology (IACMST) have been especially important.

The main body of work was undertaken was to:

1. obtain data sets, looking at costs and issues faced;
2. analyze the data made available for its relevance to the drivers;
3. develop recommendations as to what types of investment (or complimentary activity) are likely to make significant progress to providing data for each driver, and
4. elicit funding to continue work to access datasets.

MarLIN staff have made a number of visits to potential data providers and data users. The visits were undertaken to:

1. communicate the facilities and services in place at *MarLIN* to tackle the data accessibility problems,
2. ensure commitment to the review of the JVA-funded mobilization (Task C), and
3. see if *MarLIN* has established a good strategy/business case that yields data significantly relevant to the key drivers.

Visits and contacts were made that included representatives from:

- Astra Zeneca, Brixham
- Dti Oil and Gas, Aberdeen
- JNCC, Aberdeen
- UKOAA, Aberdeen
- Fisheries Research Services, Aberdeen
- ERT Consultancy, Edinburgh
- Crown Estate, Edinburgh & London
- Unicomarine, Hertfordshire.
- BMT-Cordah, Edinburgh
- Marine Ecological Surveys (MES), Cornwall.
- Flanders Marine Institute

Initial contacts have also been made with ABP MER Consultants and substantive discussions will follow.

3.2 The European Directory of Marine Environmental Data (EDMED)

The European Directory of Marine Environmental Data (EDMED) was initiated in 1991 by the British Oceanographic Data Centre (BODC) within the EC-MAST framework and has established itself as a *de-facto* European standard for indexing and searching datasets relating to the marine environment. It covers a wide range of disciplines and is a high level inventory, describing both Datasets and Data Holding Centres. At present, EDMED describes more than 2300 Datasets from over 500 Data Holding Centres across Europe. EDMED is co-ordinated from BODC at the Proudman Oceanographic Laboratory.

The *MarLIN* programme has consulted with BODC staff since the initiation of the *MarLIN* Data Access Sub-Programme in 1999 and promotes EDMED as an important metadata resource. As a part of the current NBN Defra JVA initiative, a meeting was held with BODC staff in November 2003. A significant update of EDMED holdings is planned but there is no intention to hold raw marine biological data. BODC are also comparing fields in EDMED with those of the emerging ISO standard for geo-spatially referenced metadata (ISO 19115:2003) to ensure compatibility. It seems (Gaynor Evans, personal communication) that EDMED includes the relevant fields and will need little, if any, adjustment to conform.

As a part of the current JVA review, a comparison has been made between the metadata fields required to be completed for EDMED and the fields in Marine Recorder. A full description on EDMED fields can be found via http://www.bodc.ac.uk.

Part A of the information required in EDMED is a description of the data holding centre. That description should be of the NBN or its agents including *MarLIN* that hold datasets. However, the description will exclude the categories “Currency-date” and “Revision-date” which should be specific to datasets.

Part B of the information required in EDMED is a description of each dataset. Metadata information collected in Marine Recorder should be directly transferable to EDMED but was found not to be directly comparable. On the other hand, the naming of metadata fields in EDMED was sometimes unsuitable or unclear for marine life data. Table 1 is a comparison of EDMED and Marine Recorder fields and includes a summary of suggested actions to make the two compatible.

Table 1. Comparison of EDMED ‘Data set description’ fields and Marine Recorder fields.

EDMED ITEM (description of items paraphrased)	MARINE RECORDER FIELD	NOTES AND RECOMMENDATIONS
Dataset-name. (To include temporal and spatial coverage.)	Survey name [A typical Marine Recorder entry might be “1994 MNCR Ardnamurchan Point and North Mull littoral survey”]	To ‘work’ within EDMED, the Marine Recorder entry should indicate that it is a marine biological survey or (e.g.) a survey of algae.
Time-period.	“Start date” and “End date”	No change needed
Geographic coverage. (Open text. To include general description of geographic coverage, co-ordinates and general sea areas, coastal location etc.). the EDMED database includes a field for specific entry latitude and longitude if they are given.	Geographic coverage by name in “Survey name”. Latitude & Longitude fields relevant.	Geographic coverage already in “Dataset-name” (EDMED). A separate category in EDMED data entry forms for latitude & longitude would be helpful.
Project. (Relates to national or international projects of which the dataset is a part.)	In ‘Associated metadata’, “contact/project” (not a required field).	Can be ignored. Could be NBN or its agents including *MarLIN* that hold datasets.
Parameters. (Measured variables/samples represented within the dataset.)	Nothing similar	EDMED uses the word “Parameters” when what is meant is “Environmental factors/variables measured”. A “parameter” is a measure against which sampled measurements are compared. EDMED will change at next overhaul.

EDMED ITEM (description of items paraphrased)	MARINE RECORDER FIELD	NOTES AND RECOMMENDATIONS
Instruments. (Types of instrument/gear or methodology used to collect data.)	= 'Sample' there is a methods check list via drop-down list.	Marine Recorder requirements fully compatible with EDMED.
Summary. (Overview of data)	= 'Description' (free text but guidelines from JNCC)	Marine Recorder requirements compatible with EDMED but JNCC guidelines could be improved to match EDMED list.
Reference. (Published literature)	= 'References'	Marine Recorder requirements fully compatible with EDMED.
Data-Website (URL for further information about dataset)	No separate field in Marine Recorder.	Could default to searchnbn.net but that would need a field for contact information.
Originator. (Organization or individual responsible for intellectual content of the dataset.)	= "Survey run by:"; "Survey run for:" Also: "Copyright holder".	Marine Recorder requirements fully compatible with EDMED.
Centre. (Centre or group holding the data set.)	= "Data held by".	Already entered in EDMED Part A.
Storage-medium (number and type, e.g. "10 magnetic tapes".)	Not included.	This field should indicate if data is field notes, specimens (e.g. herbarium), images (film/digital) etc. Marine Recorder should be modified to indicate type of data. EDMED will be modified to make it clear that "data" can be images, specimens etc. at next overhaul.
Availability. (From freely available to restricted access.)	Drop-down box of categories.	Marine Recorder requirements fully compatible with EDMED.
Supply details. (Form, format and media in which data could be supplied.)	Not relevant.	Default to searchnbn.net (however, full data not available there and no indication of where can be obtained from).

EDMED ITEM (description of items paraphrased)	MARINE RECORDER FIELD	NOTES AND RECOMMENDATIONS
Contact. (Person or officer to contact with full contact details.)	May be in the general description. May = "Survey run by:"; "Survey run for:" Also: "Copyright holder".	Critically important to ensure that contact details are a clear field in Marine Recorder and, possibly, on searchnbn.net.
Completed-by	= Audit 'Entered by'	Marine Recorder requirements fully compatible with EDMED.
Currency-date	= Audit 'Date entered'	Marine Recorder requirements fully compatible with EDMED.
Revision-date	= Audit 'Changed Date'	Marine Recorder requirements fully compatible with EDMED.

It is noted here that repetition in information entry is liable to irritate hard-pressed individuals asked to update EDMED entries and there is room for significant streamlining in EDMED.

3.3 The Inter Agency Committee on Marine Science and Technology (IACMST)

The IACMST Marine Environmental Data Action Group (MEDAG) met on 11 December and a presentation on the NBN/*MarLIN* and the data access initiative described here was given by Keith Hiscock. The meeting was also provided with a draft report on 'Marine Data and Information', authored by Professor Mike Cowling, that reviews data needs. Following the meeting, the *MarLIN* team suggested to Professor Cowling some changes to the report that should accurately reflect marine life data access issues and the importance of NBN. Specifically, it was suggested that the work of the NBN in accessing marine life data should be acknowledged in the section of the report entitled "Some progress". At the time of preparation of this NBN/Defra JVA report, the Cowling report had not been published.

Liaison is ongoing with the IACMST Coastal Data Co-ordinator (Jule Harries) based at CEFAS, Burnham-on-Crouch.

3.4 Results of contacts

The visits were to two distinctive groups: those that hold data and those that use the data.

Those that hold data, the consultancies and academia, are broadly supportive of the efforts to make data more publicly available but point to the lack of resources, especially time, as the problem in releasing data they have access to. All the contacts suggested that if funds were available for staff to process data then it would be identified and released.

The other issue that data holders face is that the data often belongs to the client organization e.g. water companies who have long lost interest in the data or the personnel

have changed. They also indicate some confusion over who requires the data. With exercises like the Irish Sea Pilot, data holders have been approached by two or more organizations for the same data. These organizations include JNCC who have an NBN role. It would be preferable for the approach to be made by one partner through better communication. The results of the contacts and past contacts do however reveal that there is a wealth of data to be accessed at a price.

Those that have a need for data, often the regulators, were contacted to discuss their requirements and drivers. Their needs were broadly similar to each other but there is continued lack of co-operation in organization, release of data or funding.

Regulators may be unwilling to fund access to data. In the case of dti Oil and Gas in Aberdeen, it was made clear that they are awaiting the outcome of the report undertaken by Professor Mike Cowling on marine data before deciding a policy. (It was felt by the *MarLIN* team that a report was not needed to realize the importance of accessing available datasets.)

3.4.1 Specific Contacts and datasets

Astra Zeneca at Brixham undertake contract surveys especially in relation to environmental assessments and to identifying impacts from industrial plants. Their largest data set, from the Tees estuary, has been extensively used in data analysis. Other survey locations have been listed but data are often in confidential reports and a dedicated exercise would be needed to mobilize data sets.

Dti oil and gas, **UKOOA (United Kingdom Offshore Operators Association) and JNCC** in Aberdeen were visited to explain the NBN and *MarLIN* to the oil industry and agree access to offshore data. The visit was well received and agreement was reached for the release of the large UKOOA offshore datasets collated and compiled by ERT at Heriot Watt University, Edinburgh. However, there was no enthusiasm for funding data access (see later comments).

The UKOAA dataset is a compilation of seabed biological and other surveys undertaken since the mid-1970's. The data is widely available from the UKOOA Web site and on CD-ROM but more up-to-date compilations are available. There are a very large number of datasets, many of which include sparse marine biological data but many of which include detailed and high quality data including 19 that can be considered time series studies. The consultancy Environment Resource & Technology Ltd (ERT) (which incorporates the Institute of Offshore Engineering at Heriot Watt University) have been contacted and are to provide the most up-to-date UKOAA dataset. UKOAA data has also been acquired in analyzed form from the Plymouth Marine Laboratory and a subset translated into Marine Recorder. The translation was successful and the whole UKOOA dataset is recommended to be reviewed and relevant datasets installed on the NBN Gateway.

Fisheries Research Services, Aberdeen. Fisheries Research Services (FRS) is an agency of the Scottish Executive Environment and Rural Affairs Department (SEERAD). FRS provides expert scientific and technical advice to Government on marine and freshwater fisheries, aquaculture and the protection of the aquatic environment.

A presentation was given to eight FRS staff at the laboratory.

The laboratory undertook a wide range of benthic surveys from the 1950s to the 1990s. Unfortunately the benthic team at the laboratory has been much reduced, the location of data holdings is often uncertain and there is a present danger of important datasets being

lost. Much data was held on personal computers and out-of-date software that is now inaccessible. Paper copies (usually field and laboratory notebooks) were kept and these may be accessed. An exercise was carried out to catalogue the datasets and the catalogue was promised to the *MarLIN* team. In a separate communication, Professor A. Eleftheriou provided a list of locations where he had undertaken surveys in the 1960's and 1970's for the laboratory. Intertidal sampling had been undertaken at Traigh Eais and Traigh Iar (North Uist), Kentra Bay, Aberdeen Beach, St Fergus, Culbin Sands, Ardtoe, Dornoch Firth, Scottish north coast and St Andrews. Subtidal surveys had been undertaken in the Firth of Clyde, Scapa Flow, the North Sea and Sullom Voe and Yell Sound. Of particular interest are the Scottish sea loch data which pre-date fish farm development and extensive trawling. This data was previously captured electronically under a JNCC contract but no trace can be found of the electronic version. The *MarLIN* team has ascertained that the data is still available in its original notebook form.

The FRS experience is not unusual and shows that resources will need to be mobilized to recover and use the data to meet the drivers for data. Some of that recovery must be considered urgent as paper and computerized data finds its way to land-fill sites as workers retire and die.

A follow-on to the meetings at FRS fuller work is needed to:

1. check their catalogue of data sources;
2. assemble data holding (notebooks electronic files etc) and then archive them;
3. convert paper data to electronic form;
4. transfer marine life data to NBN.

The above actions require a dedicated post and initial contact has been made with the Scottish Office to explore funding for the activity.

Unicomarine. Unicomarine have been providing biological analysis services to those involved with the management of the aquatic environment since 1985. They have details of over 450 surveys some of which have already been added to the NBN Gateway through *MarLIN*. A list of the metadata obtained from Unicomarine is attached in Appendix 2. Unicomarine analyze data as subcontractors to other consultants. At times, they are not aware of the exact locations of data points. While Unicomarine hold the data there is a danger of duplication as other consultancies also hold the same data. The question of ultimate data ownership and therefore permissions to transfer data to NBN arises.

ERT Consultancy, Edinburgh. The consultancy services of Heriot Watt University Institute of Offshore Engineering, now included in ERT, compiled the UKOAA dataset. ERT are currently undertaking, with the help of a two-day-a-week assistant, the addition of post-1999 UKOOA data and checking positioning. ERT hold further datasets which could be catalogued with some staff time input. ERT have indicated a sum of £2000 plus VAT to carry out the work.

Crown Estate, Edinburgh & London The Crown Estate own 55% of the foreshore and nearly all of the seabed out to the twelve mile limit. They also own the mineral rights beyond the twelve miles. As part of licensing for activities including for aggregate extraction and fish farming, they receive environmental assessments that often have biological survey data. As such they potentially are a valuable source of information. More investigation of how data is held and best sources to access it is required.

BMT-Cordah, Edinburgh. The *MarLIN* team have established a strong link with BMT Cordah and undertaken data access work with them for an English Nature contract. BMT Cordah have agreed in principal to the release of their data but, like ERT, indicate a lack of resources to currently do so.

Marine Ecological Surveys (MES), Cornwall. MES undertake a number of surveys and data analysis similar to Unicomarine. They have quantitative information for the benthic infauna (and sediment composition) based on Hamon grab samples at generally 50-70 stations at many proposed marine aggregate sites in the English Channel and North Sea. The data include numbers of individuals of each taxon and biomass of main phyla. They also have the particle size composition of the deposits at each of the sampling stations. The sites are mainly 'baseline' (pre-dredge) surveys for maybe 20-30 areas, including some surveyed by others (EMU) in the East Channel region. There is some duplication here with other consultants where MES are a subcontractor.

MES indicate that they can provide their data but indicate they are a small commercial company with staff currently fully committed on their current work schedule for clients. The only way data can be made available would be for a budget to be provided to cover staff time. MES stress that “we think it is a good idea that these data are logged in an accessible form for use by others.” MES wondered whether Defra or BMAPA or a possible future round of Marine Aggregates Sustainability Fund applications might support the access to data.

Regional marine faunas and floras. Lists of the species present in a geographical region are often very detailed and may contain important information on breeding biology, temporal changes in abundance etc. They will almost certainly be in paper format and need significant work if they are to contribute to NBN records. Often, location is given descriptively and identifying position of a record by latitude and longitude will be challenging. Records of fauna exist for the regions of St Andrews, Cullercoats, Plymouth, Scilly, Lundy, Dale and Millport. Records for the Bangor (North Wales) area are on record cards. Records of algal flora exist for Devon and for a series of locations visited on British Phycological Society collecting trips: all of which will have been entered to the recently published British Phycological Society Seaweed Atlas and for which information is available electronically.

3.5 Drivers

Access to marine survey data is required by a wide range of users and interest groups. There are many drivers from environmental managers for data. Some of the key drivers are described below:

1. The Oslo and Paris Commissions for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) are identifying ‘Species and habitats in need of protection’. A set of criteria (the Texel-Faial criteria) have been developed by OSPAR contracting parties to help identify those species. Survey data will help support the identification for distributional data for these species and habitats.
2. Marine protected areas (MPAs). Survey data is required to support the selection of MPAs, which will contribute both to protection of threatened species and habitats and to the conservation of areas which best represent the range of species, habitats and ecological processes in the OSPAR area. They are relevant to the extension of the Habitats Directive offshore, in relation to possible new UK

initiatives and to the imperative from the World Summit on Sustainable Development to establish a representative network of MPAs by 2012.

3. EcoQOs (Ecological Quality Objectives). A series of EcoQOs are being developed for the North Sea that will provide a means of assessing the ecological status of the North Sea ecosystem. EcoQOs are being developed for a range of sea life including benthic communities. Access to survey data will be crucial to assess ecological status.
4. Environmental Assessments including Strategic Environmental Assessments are a means of identifying areas that may be unsuitable for certain activities because they contain rare, sensitive or 'important' marine life. Environmental assessments therefore need information on species and biotopes present in an area or for that information to be collected by new survey.
5. Marine Environment High Risk Areas (MEHRAs). It is uncertain what will be in the Government launch of MEHRAs but existing information suggests that a potentially valuable tool in identifying areas at risk from shipping will not include sensitivity based on survey information. However, survey data should provide information to apply a sensitive species and biotope aspect to identifying where risk of damage to wildlife features is relevant.
6. Incident response. Taking action that will protect rare, fragile or sensitive species and habitats is essential in responding to incidents such as oil spills. Access to information needs to be rapid and from the most comprehensive possible range of sources. Access also needs to be rapid and existing survey data needs to be brought together in electronic format for such rapid access. (Work also needs to be undertaken to make that information useful by linking survey data to information on sensitivity and on rarity.)
7. The Water Framework Directive requires location of indicator species and data that can be used to identify measures of quality related to taxonomic diversity. Access to survey data will be essential in supporting measures of character and quality.
8. Reporting commitments in relation to distribution and abundance/extent of UK Biodiversity Action Plan habitats and species;
9. State of the Seas report – the Defra led report will require survey data to back up recommendations.
10. Regional sea management approach as exemplified by the Irish Sea Pilot. The approach incorporates development of spatial planning approaches that will require information on where nationally rare and scarce species and biotopes occur and in what abundance. Access to the widest range of survey data is essential in informing spatial planning initiatives.
11. Marine Stewardship Report (Defra 2002). The report noted that: "integrated management must be informed by improved co-ordination and access to spatial data and mapping of the marine environment. We will move towards ensuring that publically funded marine environmental data is made as freely available as possible."

We are particularly aware of the need to identify datasets that will help to interpret change in existing seabed communities due to global warming and change due to the introduction and spread of non-native species. Although there will be large gaps in information for

many areas, we need to fully identify those gaps and access what information there is.

Reference has been made to the above drivers in contacting potential data owners and users and the datasets unearthed have been analysed alongside the use.

3.6 Future funding

The *MarLIN* programme has benefited from past funding for data access from the Crown Estate the British Marine Aggregate Producers Association, the Environment Agency and the Scotland and Northern Ireland Forum For Environmental Research (which includes the Scottish Environment Protection Agency). A major potential beneficiary of information, the oil industry, has always resisted or ignored requests to fund access to data but has been generous in making its survey data available. During the current exercise, efforts have again been made to engage the oil industry and to encourage their regulators, dti, to support or encourage the funding that would bring together offshore seabed data. The major point raised in correspondence with dti and at the meeting with dti in Aberdeen is that they are awaiting the conclusions of the Review of Marine Data and Information being undertaken by Professor Mike Cowling on behalf of the Inter Agency Committee on Marine Science and Technology (IACMST). Draft copies of that report have not included conclusions or recommendations that would encourage mobilization of marine life data and the possibility of funding for data access from either the oil industry or their regulators seems as far away as ever. Industry and consultancies are content to benefit from access to a wide range of survey data but have shown no interest in funding data acquisition to provide contextual information except where required to by licensing obligations. All-in-all, the outlook for funding for data access and interpretation for NBN from non-government sources is bleak but government departments that regulate activities could do much to encourage industry to provide funding. That funding might come from levies or licences designed specifically to support environmental research. Such levies have been initiated for offshore wind farm developments and are being renewed for aggregate extraction.

3.7 Data supply requirement

Organizations commissioning new surveys may be willing to require contractors to supply data to the NBN but need a form of words to incorporate into contracts. The following is suggested:

- The contractor shall supply validated marine life datasets to the UK National Biodiversity Network. The contractor can most usefully use Marine Recorder software but spread sheets, the Unicorn database and other electronic means are suitable. Metadata must include:
    - Survey name
    - Start date and end date
    - Latitude and Longitude for the area surveyed
    - Variables measured/methods
    - Reference (publication if appropriate)
    - Company / individual responsible for the work
    - Data held by:

- Availability: any restrictions on publication/access
- Completed by:

Metadata will be forwarded to the European Directory of Marine Environmental Data (EDMED) programme (see www.bodc.ac.uk/services/edmed).

The data will be supplied to the UK National Biodiversity Network (see www.searchnbn.net) directly or partner organizations with responsibility for marine life datasets (the Marine Biological Association *MarLIN* programme: www.marlin.ac.uk).

Raw data can be archived at the UK National Marine Biological Library at Plymouth if the contractors do not have facilities for storing data in perpetuity. (Data includes images, site maps and field notes.)

3.8 European context

The major initiative that will develop access to data and establishment of standards for marine life information in Europe is the Marine Biodiversity and Ecosystem Functioning (MARBEF) programme which started in February 2004 (http://www.marbef.org). The data access programme within MARBEF is run by the Flanders Marine Data and Information Centre (part of the Flanders Marine Institute: VLIZ) who are also developing the European section of the Ocean Biogeographic Information System (EUROBIS) (MARBEF will effectively be the European node of OBIS). (See www.vliz.be/vmdcdata/imis2.)

As a part of the JVA contract, a meeting was held with Edward Van den Berg to discuss experience and collaboration. The following are key points to understanding where collaboration and integration can occur with European initiatives:

- The key requirements of data access as defined in the presentation at the MARBEF inaugural meeting are already those established for marine life data access in NBN/*MarLIN*.
- Existing established projects are/ will be adapted by MARBEF including the European Directory of Marine Environmental Datasets (EDMED), Aquatic Sciences and Fisheries Abstracts (ASFA) and OBIS (which in turn links to the Global Biodiversity Information Facility - GBIF).
- MBA/*MarLIN* will provide a UK marine node for the MARBEF data access programme (Work Package 1 of MARBEF) and will help to develop and adopt its standards.
- MBA/*MarLIN* also needs to link to MARBEF Work Package 6 (Quality Assurance).
- VILZ needs to have access to the NBN database for marine species (as already agreed for OBIS).

The Institute of Oceanography Crete provide a further European OBIS with links to the Mediterranean.

There are, however, some conflicts or issues to be resolved:

- The European Register of Marine Species (ERMS) is (to be) the dictionary for MARBEF: the NBN has its own species dictionary project.
- MARBEF will not be a one-stop-shop programme for European marine life data – NBN will always have its own Web presence.

- NBN links to *MarLIN* Biology and Sensitivity Key Information reviews for detailed information on species, but VLIZ have developed their own (very similar) species pages. Ideally, MARBEF should take advantage of the *MarLIN* database of information and help to populate it. Some additional fields might be needed in the *MarLIN* database. A MARBEF Web front-end for the *MarLIN* database is possible. If ownership issues result in separate research and information for the same species, links should be made between the two.
- There is a danger that VILZ /MARBEF will be yet another organization asking institutes to spend staff time finding, cataloguing and contributing data.
- MARBEF/VLIZ have not addressed the question of cost of supplying data – good will is expected although VLIZ will have a post responsible for uploading data.

It should be an encouragement to data providers in the UK if they are not only contributing to the UK NBN but also to the MARBEF European node of OBIS.

A MBA-VLIZ co-ordination meeting was undertaken in Belgium on 27-29 April 2004.

It is recommended that NBN supports collaboration with MARBEF/EUROBIS through liaison with VLIZ to ensure that common standards are adopted including that MARBEF/EUROBIS developments take advantage of the UK NBN experience.

4. TASK C1. DATASETS OBTAINED

Datasets have been obtained from UKOOA and Unicomarine. Metadata details have been entered into Marine Recorder and will be made available through the NBN Gateway. The datasets uncovered are in excess of the requirements of the Defra/NBN JVA specification. The intention is to enter as many datasets as possible as full datasets.

In the case of the UKOOA dataset, a subset will be made available through the *MarLIN* and NBN Web sites. In related work, a significant dataset has been obtained from CEFAS covering trawl data from the Celtic Sea, Irish Sea, Western Approaches and English Channel. The data will shortly be available on the *MarLIN* Web site and, when possible, on the NBN Gateway.

5. TASK C2. REVIEW THE WORK TO OBTAIN DATASETS

The work undertaken in obtaining the datasets has identified a number of issues and from them recommendations.

Issues:

- Data holders in principle support the release of data or metadata to the wider community.
- Data holders do not have the resources to make their data available. All the consultancies indicate that they would need staff time (on average one man-month) to make the data available.
- Some older datasets and institutions with staff turnover (e.g. FRS at Aberdeen) have a wealth of data in non-electronic format. These datasets will take considerable effort to capture.

Recommendations:

- Any future funding proposal should include an amount for release of data (similar to that agreed with the Conchological Society see 6., task D).
- Older datasets (non electronic) should be considered against needs. FRS hold Scottish sea loch data and it is strongly recommended that funds be found to release the data.

The datasets have been considered against the relevant drivers (see 3.5). For Government and the agencies to meet their obligations under the drivers they need to have access to datasets to allow evaluation. The datasets identified will support those drivers and the general trend towards spatial mapping.

Much of the older consultancy data is inshore or estuarine (e.g. Harwich Haven surveys). Such datasets are important in assessing any change in quality and will have importance for the Water Framework Directive, Marine Protected Areas, and the State of the Seas report as well as any local designations (SACs etc.).

The UKOAA and CEFAS datasets are important offshore datasets and have relevance along with National Marine Monitoring Programme data (already captured) for drivers such as OSPAR, marine spatial planning and strategic environmental assessments (SEA).

For the data sets to be truly useful and integrated into marine spatial planning and decision making the data or an analysis of it needs to be available. Raw or analyzed data is far more valuable than metadata which can only point in a direction and not solve any of the access issues. It merely encourages users to try and access data which is not in a suitable format. *MarLIN* has established a system for processing the data into Marine Recorder and the NBN that would make the data directly available to decision makers. The project has also established the data is available and that there is a willingness to contribute at reasonable cost.

6. TASK D. DEVELOP CAPACITY IN VOLUNTARY GROUPS

Volunteers as well as professional marine biologists collect and supply information to a small number of the Local Records Centres (Cornwall, Devon and Dorset in particular). Those records should be entered to Marine Recorder and find their way to NBN. This part of the project is therefore directed at independent and often long-established volunteer groups and is aimed at encouraging a ‘culture’ of ensuring that the records they hold are contributed to the NBN.

The main project within this task is to work with the Conchological Society of Britain and Ireland to access their marine mollusc datasets and to progress them to NBN. The Conchological Society holds a large amount of information on the distribution of marine molluscs: probably the most challenging volunteer marine life data set to interpret. Access to the Conchological Society database has been delayed but is planned to be undertaken in late March 2004.

Other voluntary groups who hold significant marine biological data are identified as:

- Underwater/Marine Conservation Society. The Underwater Conservation Society undertook a successful recording scheme in the 1970’s. The record cards from that scheme have been provided to *MarLIN* and are being validated and entered to Recorder as time permits.

- Sealife surveys. Recording schemes run by the *MarLIN* programme aim to generate interest in making observations and submitting observations to *MarLIN* that, once validated, are forwarded to NBN.
- The Seasearch Programme engages volunteer divers to undertake especially habitat surveys but now some species recording. As a contribution to and in collaboration with the Seasearch Programme, *MarLIN* has produced an identification guide for species that it is felt volunteer divers can most usefully record. They are especially species that are key structural or functional, that might change in distribution and abundance as a result of seawater warming, and they are non-native species. Records are being entered into Marine Recorder on the initiative of the *MarLIN* team. The intention is for records to be then passed on to the NBN Gateway.
- The British Phycological Society (BPS) has recently published the Atlas of the Seaweeds of the British Isles. The distribution maps are produced with information from an electronic database and also include records from the Marine Nature Conservation Review. Initial enquiries have been made about accessing the distributional information for NBN and a request has been made asking the BPS Council to consider allowing access to the database to forward records to the NBN.
- The Porcupine Marine Natural History Society maintains a recording scheme that mainly accepts records from the Society field excursions. Contact and any agreement to subscribe information to the NBN has still to be made formally. Completion of this task has been agreed in collaboration with the Conchological Society of Britain and Ireland.
- The British Marine Life Study Society invites observation from its e-mail forum members and newsletter. BMLSS were keen to contribute to a national scheme if the technology proves to be robust enough. Their records are observations in an unstructured format.
- United Kingdom Marine Fish Recording Scheme (UKMFRS). The UKMFRS is managed by the National Marine Aquarium (NMA) at Plymouth and aims to build up a comprehensive and reliable source of information on the distribution of marine and estuarine fish around the British Isles. The scheme was started in 1998 by Douglas Herdson who continues to manage records. Most of the records are from south west England. At present the records are on sheets of paper filling five thick files but a Microsoft® Access database has been developed to hold records and is being trialled at the time of writing. The system is compatible with Recorder 2000.

  The backlog of records requiring data entry is substantial but data entry relies on very limited staff time and volunteer availability. Similarly, promotion of the scheme can only be undertaken if dedicated staff time is available.

  Since the database was set up, at least six new species of fish have been recorded in the UK for the first time and about eight species found for the second or subsequent time. Most of our reports come from commercial fishermen and fish merchants, followed by sea anglers, divers, yachtsmen and the general public.

  Fish records are a particularly important ‘resource’ for NBN to ‘capture’ as they attract public interest. Furthermore, fish will be first to respond (with plankton) to seawater temperature warming and temporal records are highly important to maintain if we are to understand the speed and importance of impacts of global warming.

MarLIN is well-placed to collaborate with the NMA and it is recommended that future funding for marine life data access should include provision for funds for the NMA to ensure records are entered to a form compatible with Marine Recorder and with the help of *MarLIN* staff.

- Others. Mar*LIN* are aware of many other recording groups and local centres who record data but currently do not store it systematically. Work is underway to encourage them to use MarLIN recording technology and/or link into the Local Record Centre Network.

As part of the work of this contract, the project team has promoted the idea of a marine recorder conference for all groups (including cetacean recording. The idea has been well received and a provisional date made for 29th July at Exeter University. Funding for the event is being sought.

7. TASK E. BUSINESS CASE FOR CHART BACKDROP TO MARINE SURVEY INFORMATION.

7.1 Introduction

The UK National Biodiversity Network (NBN) currently uses Ordnance Survey maps to identify and illustrate locations of biodiversity information. Species distribution information does not therefore illustrate any marine features offshore of mean low water level.

The (NBN) provides Ordnance Survey (OS) map tiles to recorders at a price of £15 per set of CD's that contain all 812 map tiles of England, Scotland and Wales. The map tiles enable users to visually pin-point sightings instead of manually reading and entering OS grid references.

Publicly-accessible information on searchnbn.net on the distribution of species has the Ordnance Survey map backdrop.

It is desirable to facilitate marine recording and the illustration of marine biodiversity information using hydrographic charts as a backdrop.

UK Admiralty Hydrographic charts provide information that will:

1. obtain co-ordinates for observation locations named by marine features and/or depth at which found
2. interpret trends in the distribution of a species by depth (e.g. "only recorded deeper than 10 m");
3. provide context to survey records especially in terms of bathymetric features;
4. assist in locating survey points according to marine features and depth;
5. identify anomalies (wrong co-ordinates recorded) (e.g. a record from 25 m that plots to the 10 m depth contour).

Electronic charts are widely available and are used by fishermen and recreational boats. Some versions permit information to be overwritten onto the chart backdrop (for instance, where there are obstructions, favoured locations for diving or fishing).

The UK Hydrographic Office has licensed Metoc plc to act on their behalf in developing commercial uses of Admiralty charts. The *MarLIN* team has therefore, following initial discussions with Hydrographic Office personnel, worked with Metoc to develop this Business Case.

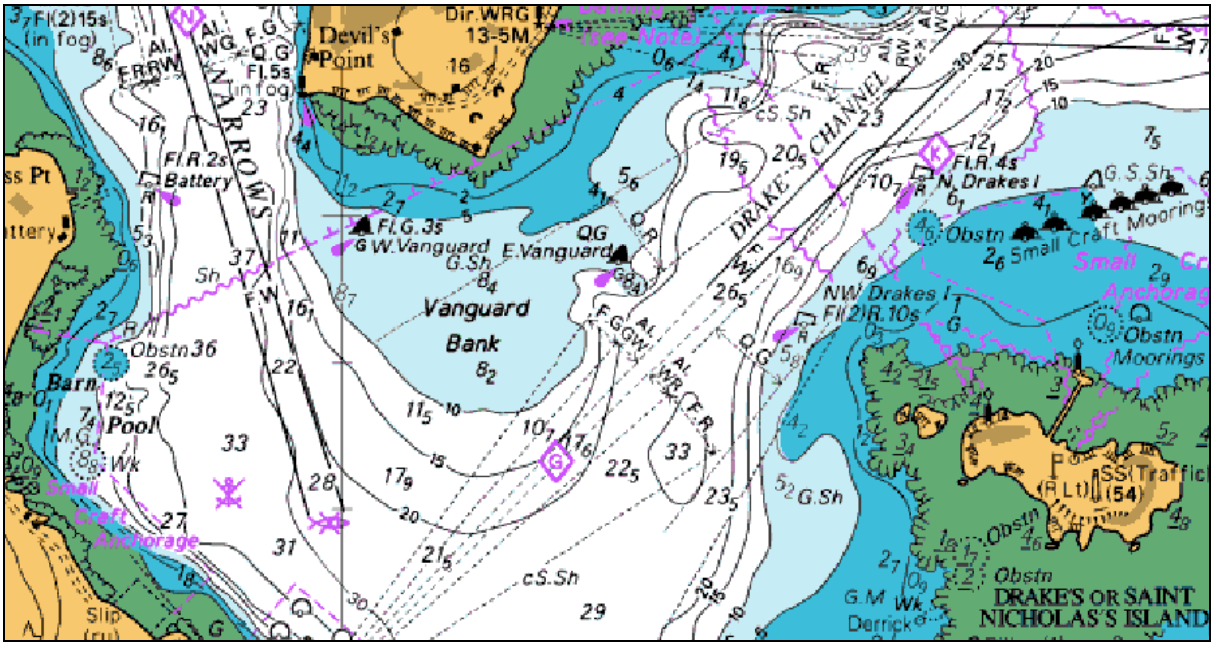

Figure 1. Maximum publicly available information from a large scale (1:7500) chart in a 'busy' area. Reproduced under licence. Not to be used for navigation.

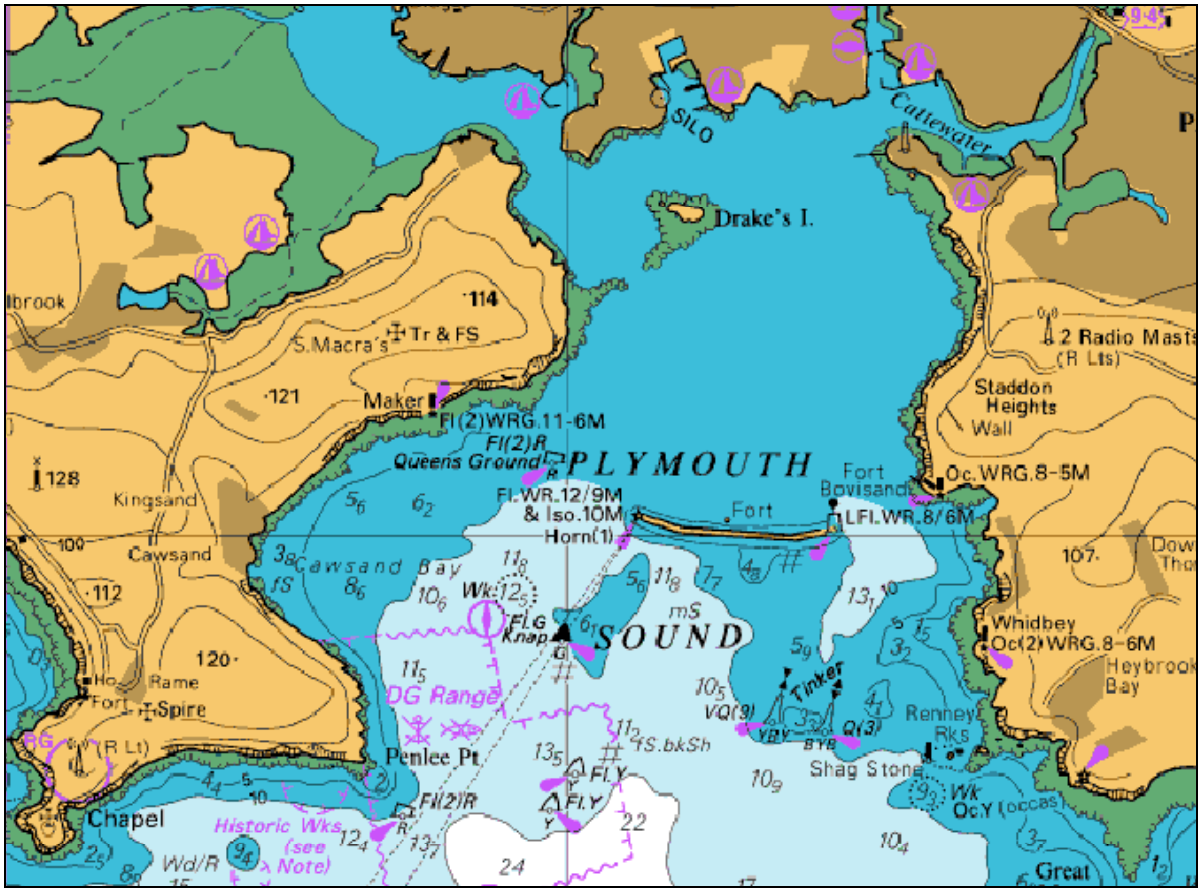

Figure 2. Likely minimum level of information to enable identification of survey site location and contextual interpretation of records. Deep water channels in enclosed areas are not shown on such charts. The chart scale is 1:75,000. Reproduced under licence. Not to be used for navigation.

7.2 Definition of requirements

Charts exist at many scales and have many layers of information. A review was undertaken of the likely optimum requirements for marine recording and for displaying chart information as a backdrop to survey data.

Table 2. Summary of requirements and solutions for the use of charts in marine recording and the presentation of information.

Requirement	Reason	Description	Solution	Notes
Electronic charts available as information to recorders to identify position (latitude and longitude) visually.	In a minority of cases, recorders will only have a descriptive location.	Electronic copies of charts at various scales are required that give a read-out of latitude and longitude for cursor-identified locations. Charts to cover all of Britain and Ireland.	1. Recorders able to purchase electronic chart CD-ROM(s) at a discounted rate, or 2. NBN develops suitable resource from SeaZone Vector bathymetry and topography layers.	Charts do not need to be up-to-date for navigation. Available high resolution electronic charts are not 'seamless' for Britain and Ireland but are raster versions of existing paper charts. See, for instance, http://www.admiraltyleisure.co.uk/newsinfo/rya_chart_plotter.asp A specific product may be required which could be developed either by the NBN or by Metoc acting under contract. See Gazeteer requirement below.

Requirement	Reason	Description	Solution	Notes
Charted information as backdrop to displays of species distributional information on NBN Web site.	Contextual information in terms of depths and habitats is important in interpreting the distribution of species and biotopes.	Chart backdrops showing and naming marine features, depth contours and spot depths.	Electronic 'seamless' charts at an agreed scale sufficiently 'fine' to include major topographical features and depth contours preferably at 5, 10, 15, 20, 30, 50, 100, 200m.	Depth and 'feature' information is only required at a local scale. Maps of British Isles distribution or, for instance, distribution across south Devon, do not require chart details.
Scale bar on each screen	Screen presentation and zoom facilities make scale (e.g "1:10,000") meaningless in measuring distance from a screen or screen dump.	A scale bar in kilometers and nautical miles to be visible in the same position on-screen.	Inclusion of scale is an inherent feature of most GIS solutions and would function independently of any charted layers.	The scale will be approximate because of projection.
Boundaries of marine protected areas (incl. SSSI, MNR, SPA, SAC, protected wrecks etc.) on display chart backdrops.	If distributional information for species (especially nationally rare or scarce species) is to be seen in the context of marine protected areas, then boundaries are required.		Internal NBN issue as boundary information is held by nature conservation agencies. The boundaries would be a GIS layer and would be presented as currently exemplified on searchnbn.net.	There are significant problems in matching different projections used in terrestrial and marine maps. Some electronic boundaries, especially intertidal, may not 'sit well' on a chart backdrop.

Requirement	Reason	Description	Solution	Notes
Zoom facility.	Many requirements for species distributional information are on a localized basis (environmental assessments, incident response, “has species x been recorded before at location y?”, curiosity about ‘your’ area).	The zoom facility is for Britain and Ireland to the 200m contour. It is a cursor-driven box and links to exactly the area defined.	The zoom facility is a part of the standard GIS tools and would be available in any developed solution.	A chart will only be accessed if the area defined is sufficiently small.
Gazetteer (enter name of feature and be taken to selected location on electronic chart of distributional information)	A person undertaking a search may not know where ‘Hand Deeps’ is or might want a quick way to an area.	The facility is the same as that which is currently widely used in identifying locations on terrestrial maps (e.g. streetmap.co.uk)	Limited descriptive information associated with the SeaZone charts. Can be added to, but would require significant development time to develop full coverage.	Not yet available. Software would need to ‘offer’ alternative locations. For instance, whilst there is only one Rame Head, there are many Black Rocks in Britain and Ireland.
Coverage for Britain and Ireland to midlines or 200m grid contour	Records that are relevant to the UK NBN are for UK waters. All of Ireland is included for contextual reasons and because biogeography does not follow political boundaries.			Most realistic option

Requirement	Reason	Description	Solution	Notes
Coverage for Britain and Ireland and adjacent continental Europe and Scandinavia	The 'north-east Atlantic' is a meaningful biogeographic area. Species distributions for the UK can be seen in the context of near-Europe distributions where survey data is available.			Preferred option
Scale of detail sufficient to identify locations and view contextual information. [Scale is referred to here as a surrogate for level of detail presented. Scales will be irrelevant on different size screens or using zoom facilities.]	Open coastal areas will have sufficient detail at a scale of 1:25,000. However, universal coverage for Britain and Ireland is at a scale of 1:75,000. The inner areas of some inlets are not charted at scales smaller than 1:2,500.	If the level of detail available from one scale is to be used then 1:75,000 is likely to be what is available.	Accept that charts will be accessed at different scales depending on what is available. Develop procedure to link to largest scale in identified area.	If 1:75,000 is the scale chosen, then records from the inner parts of estuaries may best be displayed on Ordnance Survey.
Development software available at JNCC and MBA	JNCC and MBA will be the centres undertaking development on behalf of the NBN.	SeaZone Vector bathymetry and topography layer data for British and Irish waters.	The nature of vector data enables the inclusion of layers in GIS solutions, separate 'development' licensing not required.	Unclear what is in 'Charted features' and whether required.

Requirement	Reason	Description	Solution	Notes
Reasonable cost to NBN, free at point of access to users.	The Hydrographic Office is required to make best commercial use of its assets and to cover running costs. The NBN is undertaking work for the public good and is a registered charity.	It is desired to minimize cost to NBN and agree terms that allow free public access for registered NBN users.	Following initial negotiations, the 'package' outlined below is forwarded to the NBN.	

The issues and the conclusions expressed in Table 1 have been discussed with Metoc plc (Dr Mike Osbourne, Informatics Group Manager).

Many electronic charting products include a facility to track the position of a vessel by linking to the GPS system on the vessel. Such a facility is not relevant to NBN requirements.

7.3 Copyright and other issues

The Hydrographic Office would not wish NBN-accessible charts to be used for navigation purposes or to allow those with access to the Internet to print-off sections and avoid purchase of paper or electronic charts.

There may be an analogy between chart accessibility and the use of OS map tiles where all of the tiles are encrypted, require a 'key' for NBN and only work in conjunction with a registered copy of *Recorder 2002 / Marine Recorder*. It may be that only a restricted number of tiles can be accessed at any one time.

If a specific Licence Agreement for 'Supply and Use' of any electronic chart information is required, there is a model developed for NBN for the Digitised Watsonian Vice Counties Boundary data that might provide a starting point.

Licence negotiation should allow for the copying of charted information for purposes of education and study including illustrating lectures. Any commercial use must be subject to permission.

7.4 Development responsibilities

Development of Internet-based facilities would fall to relevant institutions currently collaborating in the development of the NBN. For marine applications, the UK Joint Nature Conservation Committee and the Marine Biological Association of the UK should undertake development.

7.5 Costs and risks

If both the raster and vector data are purchased a discount of 20% is applicable.

Charts for development. All scales and all UK and Irish waters

Item	Cost	Notes
1. Development version of SeaZone Vector Bathymetry and Topography Layer data	£9,680	One-off payment
2. Charted features	£2,400	One-off payment
3. Development (JNCC and MBA) of links to Marine Recorder and of links to GIS layers (e.g. protected site boundaries).	[Consider later]	
4. Annual license fee	35% of total cost.	Annual update fee.

Charts for development. Single scale (1:75,000), almost all UK and Irish waters to approximately 27 nautical miles (c. 50 km) offshore.

Item	Cost	Notes
1. Development version of SeaZone Vector Bathymetry and Topography Layer data in GIS project file	£4,800	One-off payment
2. Charted features	£1,115	One-off payment
3. Development (JNCC and MBA) of links to Marine Recorder and of links to GIS layers (e.g. protected site boundaries).	[Consider later]	
4. Annual license fee	35% of total cost.	Annual update fee.

Internet access to chart backdrop on searchnbn.net

Item	Cost	Notes
Raster charts displaying species distributional information as overlay with choice of additional layers (e.g. protected site boundaries)	Raster charts are available at 1/3 the cost of the full vector charts.	Free to users, providing the information is displayed less than 10cmx10cm or less than 21 dpi.

Above prices are excluding VAT.

APPENDIX 1. PROJECT SPECIFICATION.

JVA Task Number	Task Description	Outputs	Mile-stone
19A	Establish SQL Server Database Management System at MBA and migrate existing database. The Microsoft Access database currently used by *MarLIN* is reaching the limit of its capacity. The successful addition of data and the rapid querying of it necessitate upgrading to a more scaleable and robust database.	SQL Database Management System running and data transferred from Access database.	1
19B	'Roadshow' to obtain further financial support and data sets. Roadshow to a) communicate the facilities and services in place at Marlin to tackle the data accessibility problems and b) to ensure commitment to the review of the JVA funded mobilization (task C) to see if has established a good strategy/business case and yields data significantly relevant to the key drivers (see background)	Funding secured to approx. £100k.	2
19C	Datasets obtained. [There are expected to be in excess of 100 datasets consisting of samples from 10+ sites with all species present recorded ("significant datasets") and many more that are of a restricted group of species or from only one or a few sites.]	Approx. 20 significant and 20 smaller datasets secured and metadata entered.	2
19D	Review the work to obtain data sets, looking at cost, issues faced, and analyze the data made available for its relevance to the drivers. Develop recommendations as to what types of investment (or complimentary activity) are likely to make significant progress to providing data for each driver.	Provide recommendations as a project report.	2

19E	Develop capacity in voluntary groups and trial access to externally owned data through collaboration with the Conchological Society. [The Conchological Society holds a large amount of information on the distribution of marine molluscs and probably the most challenging volunteer dataset to interpret. Members are active and collaboration should be developed.]	Access agreement and strategy for accessing marine mollusc data agreed.	2
19F	Liaise with Hydrographic Office and in collaboration with IACMST Coastal Data Co-ordinator re. chart backdrop for survey data. [Obtaining a chart backdrop to survey data points is highly desirable for both locating where a survey took place and for visualizing the bathymetric context of data points. It is very difficult to predict how an agreement might be achieved. Nevertheless, key contacts within the Hydrographic Office have expressed willingness to address the issue.]	Business case including costs for using chart backdrop to marine survey information.	2

APPENDIX 2. DATA CATALOGUE FROM UNICOMARINE

The list (22pp) is included to illustrate the range of survey data likely to be identified from a consultancy.

Title	StartDate	EndDate	AreaName
Comparison of Mini-Hamon and DGB	1-Jan-00	1-Jan-00	Wash
MAFF Aggregate area 107 NE of the Wash	1-Jan-00	1-Jan-00	Wash
MAFF Aggregate area 107NE northeast of the Wash	1-Jan-00	1-Jan-00	Wash
MAFF Aggregate area 107NW northeast of the Wash	1-Jan-00	1-Jan-00	Wash
MAFF Aggregate area 107 northeast of the Wash + Race Bank + Docking shoal	1-Jan-00	30-Nov-95	Wash
MAFF Aggregate area 107 northeast of the Wash + Race Bank + Docking shoal	1-Jan-00	30-Apr-96	Wash
MAFF Aggregate area 107 northeast of the Wash + Race Bank + Docking shoal	30-Jan-97	30-Jan-97	Wash
1998 CEFAS Aggregate survey Area 107	30-Aug-98	30-Aug-98	Wash
1999 CEFAS Aggregate survey Area 107	30-Aug-99	30-Aug-99	Wash
AO903 Isle of Wight	1-Apr-00	2-Apr-00	Wight
AO908 Isle of Wight	1-May-00	2-May-00	Wight
Acer - MABLETHORPE ?or SOS ? CHECK	1-Jan-00	1-Jan-00	Wash
Acer - MABLETHORPE ?or SOS ? CHECKC	1-Jan-00	1-Jan-00	Wash
Acer - MABLETHORPE ?or SOS ? CHECK	1-Jan-00	1-Jan-00	Wash
Acer	1-Jan-00	1-Jan-00	Wash
Acer	1-Jan-00	1-Jan-00	Thames
ERITH SURVEY 02	14-Jan-02	14-Jan-02	Thames
NMBAQCS Year 7 MB08 data	1-Apr-00	1-Apr-01	Thames
NMBAQCS Year 9 MB10 data	1-Apr-02	1-Apr-03	Thames
Diver survey - HNDA	1-Jan-00	1-Jan-00	Firth of Forth
Aggregate dredging benthic survey	12-Nov-93	1-Jan-00	Wash
Small Aggregate dredging benthic survey	19-Apr-94	1-Jan-00	Wash
CEFAS survey off Humber, AREA 408. CIR 4a/00	1-Apr-00	2-Apr-00	Wash
Canary Wharf Riverside Ecological Survey	20-Sep-01	20-Sep-01	Thames
Benthic survey at Atlas Wharf, Isle of Dogs	2-Nov-00	2-Nov-00	Thames
IW survey area Dolphin	1-Jan-00	1-Jan-00	Wight
IW survey area Inner Owers	1-Jan-00	1-Jan-00	Wight
IW survey area North Nab	1-Jan-00	1-Jan-00	Wight
IW survey area Selsey	1-Jan-00	1-Jan-00	Wight
Survey of sound of Barra for bridge construction	8-Sep-99	10-Sep-99	Minch
Blakeney & Brancaster littoral	19-Jul-93	1-Jan-00	Wash
NRA Survey of Barking Creek on the Thames	18-Jan-95	1-Jan-00	Thames
EA survey of Bellamys Wharf on Thames - March 2000	14-Mar-00	14-Mar-00	Thames

Survey by AMS at Burghead in Moray Firth	16-Jul-98	16-Jul-98	Moray Firth
Blackfriars bridge pontoon	21-Jan-99	21-Jan-99	Thames
Bangor (NI) HNDA outfall diver survey	21-Aug-96	22-Aug-96	Belfast
Bangor (NI) HNDA outfall diver survey	12-Sep-97	12-Sep-97	Belfast
NRA	1-Jan-00	1-Jan-00	Thames
NRA	1-Jan-00	1-Jan-00	Thames
JNCC MNCR survey of Blackwater and nearshore	1-Jan-97	1-Jan-97	Thames
NRA	1-Jan-00	1-Jan-00	Thames
EA Ipswich Enteromorpha study, Blythborough - May 2000.	24-May-00	24-May-00	Thames
EA Ipswich Enteromorpha study, Blythborough - August 2000.	7-Aug-00	7-Aug-00	Thames
EA Ipswich Enteromorpha study, Blythborough - November 2000.	6-Nov-00	6-Nov-00	Thames
UWWTD survey off Banff	5-Dec-94	1-Jan-00	Moray Firth
NRA	1-Jan-00	1-Jan-00	Thames
Bow Creek Survey (Pura Foods)	24-Sep-98	24-Sep-98	Thames
Outfall survey near Bridlington	1-Jan-00	1-Jan-00	Yorkshire
Portobello outfall survey	30-Jul-96	30-Jul-96	East Channel
NRA	4-Apr-95	1-Jan-00	Thames
Blackwater NMMP sampling be EA	3-May-00	3-May-00	Thames
Blackwater NMMP sampling by EA	9-Apr-99	9-Apr-99	Thames
Dredge survey - HNDA	1-Jan-00	1-Jan-00	Firth of Forth
Mussel bed study by CCW	9-Sep-97	9-Sep-97	Anglesey
CEFAS Area 222 - Thames	22-Jul-01	24-Jul-01	Thames
CEFAS Area 222 - Thames	1-Jul-02	1-Jul-02	Thames
CEFAS survey off Humber, area 408. CIR 5A/01	31-May-01	1-Jun-01	Wash
CEFAS Survey off Humber, Area 408.	30-Jul-02	30-Jul-02	Wash
Survey off Humber, Area 408 2003, END4a/03	1-Jul-03	1-Jul-03	Wash
CEFAS Area X - Hastings	25-Jul-01	26-Jul-01	East Channel
CEFAS Area X - Hastings	2-Aug-02	2-Aug-02	East Channel
CEFAS Area Y - Hastings	25-Jul-01	26-Jul-01	East Channel
CEFAS Area Y - Hastings	1-Apr-02	3-Apr-02	East Channel
CEFAS Hastings Broadscale	1-Jul-02	1-Jul-02	East Channel
IOW survey, AO903	8-Jun-01	9-Jun-01	Wight
CEFAS Liverpool Bay Temporal	1-Sep-02	1-Sep-02	Liverpool Bay
CEFAS PRINCE MADOG 2000	22-Aug-00	22-Aug-00	Liverpool Bay
CEFAS PRINCE MADOG 2001	22-Aug-01	22-Aug-01	Liverpool Bay
CEFAS Nab Tower 2001	6-Sep-01	6-Sep-01	Wight
CEFAS Roughs Tower 2001 - offshore Harwich	6-May-01	6-Jun-01	Thames
CEFAS Roughs Tower 2002 - offshore Harwich	1-Jun-02	1-Jun-02	Thames
Site Z Liverpool Bay	23-Aug-01	23-Aug-01	Liverpool Bay

Liverpool Bay, Site Z- 1998	1-Sep-98	1-Sep-98	Liverpool Bay
Site Z Liverpool Bay	1-Aug-99	1-Aug-99	Liverpool Bay
Cuckmere Estuary Managed Retreat Scheme	20-Jun-01	30-Jul-01	East Channel
CG monitoring cores	1-Jan-00	1-Jan-00	Wash
CG monitoring	3-Nov-92	1-Jan-00	Wash
CG monitoring	3-Nov-93	1-Jan-00	Wash
NRA	30-Mar-95	1-Jan-00	Thames
Carlingford Lough Dredge Monitoring Survey	29-Jul-99	29-Jul-99	Belfast
NRA	1-Jan-00	1-Jan-00	Thames
NRA	1-Jan-00	1-Jan-00	Thames
Survey of the R. Colne by NRA	1-Jan-00	1-Jan-00	Thames
Intertidal Survey of R. Colne	24-Aug-98	28-Aug-98	Thames
Harwich Cutline survey 1995	21-Sep-95	1-Jan-00	Thames
NRA	1-Jan-00	1-Jan-00	Thames
Deptford Creek May, 1997	14-May-97	15-May-97	Thames
Deben cores Bird Study	29-May-01	29-May-01	Thames
NRA survey of outer Dee	1-Jan-00	1-Jan-00	Liverpool Bay
NRA	1-Jan-00	1-Jan-00	Thames
2001 National Monitoring Plan - NI offshore	1-Aug-01	2-Aug-01	Belfast
2001 National Monitoring Plan - NI offshore	1-Aug-01	2-Aug-01	Clyde & Argyll
2002 National Monitoring Programme - NI Offshore	28-Feb-02	28-Feb-02	Belfast
2002 National Monitoring Programme - NI Offshore	28-Feb-02	28-Feb-02	Clyde & Argyll
Strangford Lough Pre-sorted Grabs	1-Jan-90	1-Jan-90	Belfast
Dowells Wharf survey	3-Jun-98	3-Jun-98	Thames
Drogheda, Co. Louth 1999	23-Nov-99	23-Nov-99	Dublin
Dreadnought Wharf Survey	19-May-98	19-May-98	Thames
Survey of Harwich Deep Water Approach Channel 01	1-Jan-00	1-Jan-00	Thames
Survey of Harwich Deep Water Approach Channel 02	1-Oct-96	2-Oct-96	Thames
EA Avonmouth intertidal cores	4-Dec-02	5-Dec-02	Bristol Channel
Blackwater NMMP02	24-Apr-02	24-Apr-02	Thames
BOW CREEK (Pura Foods)	23-Oct-02	23-Oct-02	Thames
Cardigan Bay Survey	3-Jun-03	5-Jun-03	Cardigan Bay
East Coast beach recharge survey	30-Aug-01	30-Aug-01	Thames
East Coast beach recharge survey	30-Aug-01	30-Aug-01	Thames
East Coast beach recharge survey	30-Aug-01	30-Aug-01	Thames
East Coast beach recharge survey	30-Aug-01	30-Aug-01	Thames
East Coast beach recharge survey	30-Aug-01	30-Aug-01	Thames
South Coast Enteromorpha Study	7-Aug-01	9-Sep-01	East Channel

South Coast Enteromorpha Study	7-Aug-01	9-Sep-01	Thames
South Coast Enteromorpha Study	7-Aug-01	9-Sep-01	Wight
South East Coast Enteromorpha Study	7-Aug-02	14-Aug-02	Thames
South East Coast Enteromorpha Study	7-Aug-02	14-Aug-02	Thames
South East Coast Enteromorpha Study	7-Aug-02	14-Aug-02	Thames
South East Coast Enteromorpha Study	7-Aug-02	14-Aug-02	Wight
Medway baseline survey for EAHAB Kent 2000 April	12-Apr-00	19-Apr-00	Thames
Medway baseline survey for EAHAB Kent 2001 April	12-Apr-01	12-Apr-01	Thames
Medway baseline survey for EAHAB Kent 2001 October	18-Oct-01	19-Oct-01	Thames
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Thames
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Thames
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Thames
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Thames
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Thames
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Thames
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
Environment Agency habitat survey South Coast estuaries	6-Dec-01	30-Jul-02	Wight
London Gateway	4-Oct-01	4-Oct-01	Thames
London Gateway	4-Oct-01	3-Apr-02	Thames
NMMP samples from Poole Harbour	1-Sep-01	2-Sep-01	Portland
NMMP samples from Poole Harbour	27-Mar-02	27-Mar-02	Portland
NMMP samples from Poole Harbour	5-Apr-03	5-Apr-03	Portland
NMMP samples from EA Southern	16-Jun-03	16-Jun-03	Wight
Thames Tideway - Spring Samples, March 2001	2-Mar-01	14-Mar-01	Thames
Thames Tideway - Autumn Samples, Sept/Oct 2001	7-Sep-01	4-Oct-01	Thames
Thames Tideway	4-Mar-02	4-Apr-02	Thames
Thames Tideway	10-Sep-02	26-Sep-02	Thames
2001 NMMP samples from Tamar Estuary	1-Sep-01	2-Sep-01	Plymouth
2002 NMMP samples from Tamar Estuary	23-Apr-02	23-Apr-02	Plymouth

2003 NMMP samples from Tamar Estuary	23-Apr-03	23-Apr-03	Plymouth
NMMP II - 2001	23-Aug-01	23-Aug-01	Wash
NRA surveys of east coast estuaries	1-Jan-00	1-Jan-00	Thames
EA East coast sampling 1998	10-Aug-98	29-Sep-98	Thames
EA East coast sampling 1998	10-Aug-98	29-Sep-98	Thames
EA East coast sampling 1998	10-Aug-98	29-Sep-98	Thames
EA East coast sampling 1998	10-Aug-98	29-Sep-98	Thames
EA East coast sampling 1998	10-Aug-98	29-Sep-98	Thames
English Channel Aggregate Survey	24-Aug-99	28-Aug-99	East Channel
2000 Estuarine Classification	5-Apr-00	3-May-00	Belfast
2000 Estuarine Classification	5-Apr-00	3-May-00	Belfast
2000 Estuarine Classification	5-Apr-00	3-May-00	Belfast
2000 Estuarine Classification	5-Apr-00	3-May-00	Belfast
2001 Estuarine Classification	5-Apr-01	3-May-01	Belfast
2001 Estuarine Classification	5-Apr-01	3-May-01	Belfast
2001 Estuarine Classification	5-Apr-01	3-May-01	Belfast
2001 Estuarine Classification	5-Apr-01	3-May-01	Belfast
1999 Estuarine Classification	30-Apr-99	30-Apr-99	Belfast
1999 Estuarine Classification	30-Apr-99	30-Apr-99	Belfast
1999 Estuarine Classification	30-Apr-99	30-Apr-99	Belfast
1999 Estuarine Classification	30-Apr-99	30-Apr-99	Belfast
2002 National Monitoring Plan - Inshore	12-Mar-02	15-Apr-02	Belfast
2002 National Monitoring Plan - Inshore	12-Mar-02	15-Apr-02	Belfast
2002 National Monitoring Plan - Inshore	12-Mar-02	15-Apr-02	Belfast
Subtidal Benthic Survey at Erith, London	11-Feb-00	11-Feb-00	Thames
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
1997 Estuarine Classification	1-Jan-97	1-Jan-97	Belfast
Essex & Suffolk (Blackwater, Maldon)	11-Sep-00	11-Sep-00	Thames
Essex & Suffolk (Blackwater, Maldon)	19-Apr-01	19-Apr-01	Thames
Essex & Suffolk (Blackwater, Maldon)	30-Aug-01	30-Aug-01	Thames
Essex & Suffolk (Blackwater, Maldon)	26-Mar-02	26-Mar-02	Thames
Essex & Suffolk (Blackwater, Maldon)	16-Sep-02	16-Sep-02	Thames
Essex & Suffolk (Blackwater, Maldon)	23-Apr-03	23-Apr-03	Thames

Essex & Suffolk (Blackwater, Maldon)	23-Aug-99	23-Aug-99	Thames
Blackwater Way 2003	1-Jul-03	1-Jul-03	Thames
MAFF intertidal clam study in the Exe	7-Jul-95	1-Jan-00	Portland
MAFF intertidal clam study in the Exe	22-Nov-95	23-Nov-95	Portland
NRA survey in Hamford Water	7-Jul-94	1-Jan-00	Thames
Exmouth survey April 1992 VC,IS,PW,MFD	1-Jan-00	1-Jan-00	Portland
JNCC survey of maerl beds in Fal	27-Oct-97	28-Oct-97	Plymouth
Brian Cleator re-sort of Fleet survey samples	1-Jan-00	1-Jan-00	Portland
Survey of Firth of Forth by ERM	21-Apr-98	24-Apr-98	Firth of Forth
Shore & wall survey for Arup (Rialto Homes) at Gargoyle Wharf, Wandsworth	6-Jul-00	6-Jul-00	Thames
Great Ouse Estuary Ecological Study	1-Nov-82	1-Feb-83	Wash
Great Ouse Estuary Ecological Study	1-Apr-83	7-Apr-83	Wash
Great Ouse Estuary Ecological Study	1-Jul-83	7-Jul-83	Wash
Great Ouse Estuary Ecological Study	1-Oct-83	7-Oct-83	Wash
Great Ouse Estuary Ecological Study	1-Feb-84	7-Feb-84	Wash
Great Ouse Estuary Ecological Study	1-Apr-83	7-Apr-83	Wash
Great Ouse Estuary Ecological Study	1-Jul-84	7-Jul-84	Wash
Great Ouse Estuary Ecological Study	1-Oct-84	7-Oct-84	Wash
Gosport Marina Survey	17-Sep-97	17-Sep-97	Wight
NRA Greatham Creek	22-Sep-93	1-Jan-00	Yorkshire
Greenwich Reach West	20-May-98	20-May-98	Thames
Greenwich Walkway intertidal sampling	17-Sep-99	17-Sep-99	Thames
x	1-Jan-00	1-Jan-00	Thames
Hammersmith Steps	10-Oct-00	19-Oct-00	Thames
CEFAS Hastings Plume study	1-Jan-95	1-Jan-95	East Channel
Hamon Comparison 2000 (I.O.W)	1-May-00	31-May-00	Wight
NRA humber, cores	1-Jan-00	1-Jan-00	Wash
NRA humber, grabs	1-Jan-00	1-Jan-00	Wash
Survey of the north shore of Humber	28-Jul-99	28-Jul-99	Wash
Continuation of Humber Estuary surveys	1-Jan-01	1-Mar-01	Wash
Survey of the north shore of Humber	30-Aug-96	30-Aug-96	Wash
Survey of the north shore of Humber	30-Aug-97	30-Aug-97	Wash
Survey of the north shore of Humber	30-Aug-98	30-Aug-98	Wash
Helwick Bank aggregate survey	1-Jul-01	10-Jul-01	Cardigan Bay
Humber Estuary NMMP stations 24 & 7708 (Previously called HENMMP24)	1-Aug-00	1-Sep-00	Wash
Humber Estuary NMMP2 Station 24 smp. A-E (follow survey called HENMMP00)	23-May-00	26-May-00	Wash
Harwich Harbour Instigated Survey #1	24-Feb-94	1-Jan-00	Thames
Harwich Harbour Instigated Survey #2	8-Apr-94	1-Jan-00	Thames

Harwich Harbour Instigated Survey #3	8-Apr-94	1-Jan-00	Thames
Additional Sole Stomach Contents Analysis - Harwich Haven Authority	23-Mar-02	18-Nov-02	Thames
Additional Sole Stomach Contents Analysis - Harwich Haven Authority	23-Mar-02	18-Nov-02	Thames
Additional Sole Stoamch Contents Analysis - Harwich HAven Authority	3-Jan-03	7-Apr-03	Thames
Harwich Haven Authority Fish Survey - January 2000	26-Jan-00	27-Jan-00	Thames
Harwich Haven Authority Fish Survey - January 2000	26-Jan-00	27-Jan-00	Thames
Harwich Haven Authority Fish Survey - February 2000	24-Feb-00	25-Feb-00	Thames
Harwich Haven Authority Fish Survey - February 2000	24-Feb-00	25-Feb-00	Thames
Harwich Haven Authority Fish Survey - March 2000	22-Mar-00	23-Mar-00	Thames
Harwich Haven Authority Fish Survey - March 2000	22-Mar-00	23-Mar-00	Thames
Harwich Haven Authority Fish Survey - April 2000	18-Apr-00	19-Apr-00	Thames
Harwich Haven Authority Fish Survey - April 2000	18-Apr-00	19-Apr-00	Thames
Harwich Haven Authority Fish Survey - May 2000	22-May-00	23-May-00	Thames
Harwich Haven Authority Fish Survey - May 2000	22-May-00	23-May-00	Thames
Harwich Haven Authority Fish Survey - June 2000	20-Jun-00	21-Jun-00	Thames
Harwich Haven Authority Fish Survey - June 2000	20-Jun-00	21-Jun-00	Thames
Harwich Haven Authority Fish Survey - December 2001	18-Dec-01	19-Dec-01	Thames
Harwich Haven Authority Fish Survey - December 2001	18-Dec-01	19-Dec-01	Thames
Harwich Haven Authority Fish Survey - January 2002	16-Jan-02	17-Jan-02	Thames
Harwich Haven Authority Fish Survey - January 2002	16-Jan-02	17-Jan-02	Thames
Harwich Haven Authority Fish Survey - February 2002	13-Feb-02	14-Feb-02	Thames
Harwich Haven Authority Fish Survey - February 2002	13-Feb-02	14-Feb-02	Thames
Harwich Haven Authority Fish Survey-March 2002	13-Mar-02	14-Mar-02	Thames
Harwich Haven Authority Fish Survey-March 2002	13-Mar-02	14-Mar-02	Thames
Harwich Haven Authority Fish Survey - April 2002	26-Apr-02	27-Apr-02	Thames
Harwich Haven Authority Fish Survey - April 2002	26-Apr-02	27-Apr-02	Thames
Harwich Haven Authority Fish Survey - May 2002	28-May-02	29-May-02	Thames
Harwich Haven Authority Fish Survey - May 2002	28-May-02	29-May-02	Thames
Harwich Haven Authority Fish Survey - May 2002	28-May-02	29-May-02	Thames
Harwich Haven Authority Fish Survey - June 2002	25-Jun-02	26-Jun-02	Thames
Harwich Haven Authority Fish Survey - June 2002	25-Jun-02	26-Jun-02	Thames
Harwich Haven Authority Fish Survey - June 2002	25-Jun-02	26-Jun-02	Thames
Harwich Haven Authority Fish Survey - July 2002	30-Jul-02	31-Jul-02	Thames
Harwich Haven Authority Fish Survey - July 2002	30-Jul-02	31-Jul-02	Thames
Harwich Haven Authority Fish Survey - July 2002	30-Jul-02	31-Jul-02	Thames
Harwich Haven Authority Fish Survey - August 2002	28-Aug-02	29-Aug-02	Thames
Harwich Haven Authority Fish Survey - August 2002	28-Aug-02	29-Aug-02	Thames
Harwich Haven Authority Fish Survey - August 2002	28-Aug-02	29-Aug-02	Thames

Harwich Haven Authority Fish Survey - September 2002	24-Sep-02	25-Sep-02	Thames
Harwich Haven Authority Fish Survey - September 2002	24-Sep-02	25-Sep-02	Thames
Harwich Haven Authority Fish Survey - September 2002	24-Sep-02	25-Sep-02	Thames
Harwich Haven Authority Fish Survey - October 2002	22-Oct-02	23-Oct-02	Thames
Harwich Haven Authority Fish Survey - October 2002	22-Oct-02	23-Oct-02	Thames
Harwich Haven Authority Fish Survey - October 2002	22-Oct-02	23-Oct-02	Thames
Harwich Haven Authority Fish Survey - November 2002	26-Nov-02	27-Nov-02	Thames
Harwich Haven Authority Fish Survey - November 2002	26-Nov-02	27-Nov-02	Thames
Harwich Haven Authority Fish Survey - November 2002	26-Nov-02	27-Nov-02	Thames
Harwich Haven Authority Fish Survey - December 2002	17-Dec-02	18-Dec-02	Thames
Harwich Haven Authority Fish Survey - December 2002	17-Dec-02	18-Dec-02	Thames
Harwich Haven Authority Fish Survey - December 2002	17-Dec-02	18-Dec-02	Thames
Harwich Haven Authority Fish Survey - January 2003	22-Jan-03	23-Jan-03	Thames
Harwich Haven Authority Fish Survey - January 2003	22-Jan-03	23-Jan-03	Thames
Harwich Haven Authority Fish Survey - January 2003	22-Jan-03	23-Jan-03	Thames
Harwich Haven Authority Fish Survey - February 2003	19-Feb-03	20-Feb-03	Thames
Harwich Haven Authority Fish Survey - February 2003	19-Feb-03	20-Feb-03	Thames
Harwich Haven Authority Fish Survey - February 2003	19-Feb-03	20-Feb-03	Thames
Harwich Haven Authority Fish Survey - April 2003	16-Apr-03	17-Apr-03	Thames
Harwich Haven Authority Fish Survey - April 2003	16-Apr-03	17-Apr-03	Thames
Harwich Haven Authority Fish Survey - April 2003	16-Apr-03	17-Apr-03	Thames
Harwich Haven Authority Fish Survey - June 2003	18-Jun-03	19-Jun-03	Thames
Harwich Haven Authority Fish Survey - June 2003	18-Jun-03	19-Jun-03	Thames
Harwich Haven Authority Fish Survey - June 2003	18-Jun-03	19-Jun-03	Thames
Harwich Haven Authority Fish Survey - June 1999	16-Jun-99	17-Jun-99	Thames
Harwich Haven Authority Fish Survey - June 1999	16-Jun-99	17-Jun-99	Thames
Harwich Haven Authority Fish Survey - July 1999	14-Jul-99	15-Jul-99	Thames
Harwich Haven Authority Fish Survey - July 1999	14-Jul-99	15-Jul-99	Thames
Harwich Haven Authority Fish Survey - August 1999	10-Aug-99	11-Aug-99	Thames
Harwich Haven Authority Fish Survey - August 1999	10-Aug-99	11-Aug-99	Thames
Harwich Haven Authority Fish Survey - September 1999	13-Sep-99	14-Sep-99	Thames
Harwich Haven Authority Fish Survey - September 1999	13-Sep-99	14-Sep-99	Thames
Harwich Haven Authority Fish Survey - October 1999	12-Oct-99	13-Oct-99	Thames
Harwich Haven Authority Fish Survey - October 1999	12-Oct-99	13-Oct-99	Thames
Harwich Haven Authority Fish Survey - November 1999	11-Nov-99	12-Nov-99	Thames
Harwich Haven Authority Fish Survey - November 1999	11-Nov-99	12-Nov-99	Thames
Harwich Haven Authority Fish Survey - December 1999	13-Dec-99	14-Dec-99	Thames
Harwich Haven Authority Fish Survey - December 1999	13-Dec-99	14-Dec-99	Thames
Harwich Juvenile fish survey April 2002	22-Apr-02	27-Apr-02	Thames
Harwich Juvenile fish survey April 2002	22-Apr-02	27-Apr-02	Thames

Harwich Haven Authority Pelagic Fish Survey - April 2002	28-Apr-02	28-Apr-02	Thames
Harwich Haven Authority Pelagic Fish Survey - April 2002	28-Apr-02	28-Apr-02	Thames
Harwich Haven Authority Pelagic Fish Survey - May 2002	30-May-02	30-May-02	Thames
Harwich Haven Authority Pelagic Fish Survey - May 2002	30-May-02	30-May-02	Thames
Harwich Haven Authority Pelagic Fish Survey - June 2002	27-Jun-02	27-Jun-02	Thames
Harwich Haven Authority Pelagic Fish Survey - June 2002	27-Jun-02	27-Jun-02	Thames
Harwich Haven Authority Pelagic Fish Survey - July 2002	29-Jul-02	29-Jul-02	Thames
Harwich Haven Authority Pelagic Fish Survey - July 2002	29-Jul-02	29-Jul-02	Thames
Harwich Haven Authority Pelagic Fish Survey - August 2002	30-Aug-02	30-Aug-02	Thames
Harwich Haven Authority Pelagic Fish Survey - August 2002	30-Aug-02	30-Aug-02	Thames
Harwich Haven Authority Pelagic Fish Survey - September 2002	26-Sep-02	26-Sep-02	Thames
Harwich Haven Authority Pelagic Fish Survey - September 2002	26-Sep-02	26-Sep-02	Thames
Harwich Haven Authority Pelagic Fish Survey - October 2002	24-Jan-02	24-Oct-02	Thames
Harwich Haven Authority Pelagic Fish Survey - October 2002	24-Jan-02	24-Oct-02	Thames
Harwich Haven Authority Pelagic Fish Survey - November 2002	28-Nov-02	28-Nov-02	Thames
Harwich Haven Authority Pelagic Fish Survey - November 2002	28-Nov-02	28-Nov-02	Thames
Harwich Haven Authority Pelagic Fish Survey - December2002	19-Dec-02	19-Dec-02	Thames
Harwich Haven Authority Pelagic Fish Survey - December2002	19-Dec-02	19-Dec-02	Thames
Harwich Haven Authority Pelagic Fish Survey - January 2003	22-Jan-03	23-Jan-03	Thames
Harwich Haven Authority Pelagic Fish Survey - January 2003	22-Jan-03	23-Jan-03	Thames
Harwich Haven Authority Pelagic Fish Survey - February 2003	19-Feb-03	20-Feb-03	Thames
Harwich Haven Authority Pelagic Fish Survey - February 2003	19-Feb-03	20-Feb-03	Thames
Harwich Haven Authority Pelagic Fish Survey - March 2003	20-Mar-03	20-Mar-03	Thames
Harwich Haven Authority Pelagic Fish Survey - March 2003	20-Mar-03	20-Mar-03	Thames
Harwich Haven Authority Pelagic Fish Survey - April 2003	16-Apr-03	17-Apr-03	Thames
Harwich Haven Authority Pelagic Fish Survey - April 2003	16-Apr-03	17-Apr-03	Thames
Harwich Haven Authority Pelagic Fish Survey - June 2003	18-Jun-03	19-Jun-03	Thames
Harwich Haven Authority Pelagic Fish Survey - June 2003	18-Jun-03	19-Jun-03	Thames
Harwich Haven Authority Plankton Survey - December 2001	18-Dec-01	19-Dec-01	Thames
Harwich Haven Authority Plankton Survey - December 2001	18-Dec-01	19-Dec-01	Thames
Harwich Haven Authority Plankton Survey - January 2002	16-Jan-02	17-Jan-02	Thames
Harwich Haven Authority Plankton Survey - January 2002	16-Jan-02	17-Jan-02	Thames

Harwich Haven Authority Plankton Survey - February 2002	13-Feb-02	14-Feb-02	Thames
Harwich Haven Authority Plankton Survey - February 2002	13-Feb-02	14-Feb-02	Thames
Harwich Haven Authority Plankton Survey - March 2002	13-Mar-02	14-Mar-02	Thames
Harwich Haven Authority Plankton Survey - March 2002	13-Mar-02	14-Mar-02	Thames
Harwich Haven Authority Plankton Survey - April 2002	26-Apr-02	27-Apr-02	Thames
Harwich Haven Authority Plankton Survey - April 2002	26-Apr-02	27-Apr-02	Thames
Harwich Haven Authority Plankton Survey - May 2002	28-May-02	29-May-02	Thames
Harwich Haven Authority Plankton Survey - May 2002	28-May-02	29-May-02	Thames
Harwich Haven Authority Plankton Survey - May 2002	28-May-02	29-May-02	Thames
Harwich Haven Authority Plankton Survey - June 2002	25-Jun-02	26-Jun-02	Thames
Harwich Haven Authority Plankton Survey - June 2002	25-Jun-02	26-Jun-02	Thames
Harwich Haven Authority Plankton Survey - June 2002	25-Jun-02	26-Jun-02	Thames
Harwich Haven Authority Plankton Survey - July 2002	30-Jul-02	31-Jul-02	Thames
Harwich Haven Authority Plankton Survey - July 2002	30-Jul-02	31-Jul-02	Thames
Harwich Haven Authority Plankton Survey - July 2002	30-Jul-02	31-Jul-02	Thames
Harwich Haven Authority Plankton Survey - August 2002	28-Aug-02	29-Aug-02	Thames
Harwich Haven Authority Plankton Survey - August 2002	28-Aug-02	29-Aug-02	Thames
Harwich Haven Authority Plankton Survey - August 2002	28-Aug-02	29-Aug-02	Thames
Harwich Haven Authority Plankton Survey - September 2002	24-Sep-02	25-Sep-02	Thames
Harwich Haven Authority Plankton Survey - September 2002	24-Sep-02	25-Sep-02	Thames
Harwich Haven Authority Plankton Survey - September 2002	24-Sep-02	25-Sep-02	Thames
Harwich Haven Authority Plankton Survey - October 2002	22-Oct-02	23-Oct-02	Thames
Harwich Haven Authority Plankton Survey - October 2002	22-Oct-02	23-Oct-02	Thames
Harwich Haven Authority Plankton Survey - October 2002	22-Oct-02	23-Oct-02	Thames
Harwich Haven Authority Plankton Survey - November 2002	26-Nov-02	27-Nov-02	Thames
Harwich Haven Authority Plankton Survey - November 2002	26-Nov-02	27-Nov-02	Thames
Harwich Haven Authority Plankton Survey - November 2002	26-Nov-02	27-Nov-02	Thames
Harwich Haven Authority Plankton Survey - December 2002	17-Dec-02	18-Dec-02	Thames
Harwich Haven Authority Plankton Survey - December 2002	17-Dec-02	18-Dec-02	Thames
Harwich Haven Authority Plankton Survey - December 2002	17-Dec-02	18-Dec-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	26-Apr-02	27-Apr-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	26-Apr-02	27-Apr-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	28-May-02	29-May-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	28-May-02	29-May-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	28-May-02	29-May-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	25-Jun-02	26-Jun-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	25-Jun-02	26-Jun-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	25-Jun-02	26-Jun-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	30-Jul-02	31-Jul-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	30-Jul-02	31-Jul-02	Thames

Sole Stomach Contents Analysis - Harwich Haven Authority	30-Jul-02	31-Jul-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	28-Aug-02	29-Aug-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	28-Aug-02	29-Aug-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	28-Aug-02	29-Aug-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	24-Sep-02	25-Sep-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	24-Sep-02	25-Sep-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	24-Sep-02	25-Sep-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	22-Oct-02	23-Oct-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	22-Oct-02	23-Oct-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	22-Oct-02	23-Oct-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	26-Nov-02	27-Nov-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	26-Nov-02	27-Nov-02	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	26-Nov-02	27-Nov-02	Thames
Sole Stomach Contnets Analysis - Harwich Haven Authority	15-Apr-03	17-Apr-03	Thames
Sole Stomach Contnets Analysis - Harwich Haven Authority	15-Apr-03	17-Apr-03	Thames
Sole Stomach Contnets Analysis - Harwich Haven Authority	15-Apr-03	17-Apr-03	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	18-Jun-03	19-Jun-03	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	18-Jun-03	19-Jun-03	Thames
Sole Stomach Contents Analysis - Harwich Haven Authority	18-Jun-03	19-Jun-03	Thames
Stour and Orwell subtidal biotope mapping survey	23-Jul-02	25-Jul-02	Thames
Stour and Orwell subtidal biotope mapping survey	23-Jul-02	25-Jul-02	Thames
Stour and Orwell subtidal biotope mapping survey	23-Jul-02	25-Jul-02	Thames
Harwich Juvenile fish survey, May 2002	22-May-02	24-May-02	Thames
Harwich Juvenile fish survey, May 2002	22-May-02	24-May-02	Thames
Harwich Juvenile fish survey June 2002	20-Jun-02	21-Jun-02	Thames
Harwich Juvenile fish survey June 2002	20-Jun-02	21-Jun-02	Thames
Harwich Juvenile fish survey, July 2002	18-Jul-02	19-Jul-02	Thames
Harwich Juvenile fish survey, July 2002	18-Jul-02	19-Jul-02	Thames
Harwich Juvenile Fish Survey, August 2002	15-Aug-02	16-Aug-02	Thames
Harwich Juvenile Fish Survey, August 2002	15-Aug-02	16-Aug-02	Thames
Harwich juvenile fish survey, Sept 2002	17-Sep-02	18-Sep-02	Thames
Harwich juvenile fish survey, Sept 2002	17-Sep-02	18-Sep-02	Thames
Harwich juvenile fish survey, October 2002	16-Oct-02	17-Oct-02	Thames
Harwich juvenile fish survey, October 2002	16-Oct-02	17-Oct-02	Thames
Harwich juvenile fish survey, Nov 2002	19-Nov-02	20-Nov-02	Thames
Harwich juvenile fish survey, Nov 2002	19-Nov-02	20-Nov-02	Thames
Harwich Juvenile Fish Survey, December 2002	17-Dec-02	18-Dec-02	Thames
Harwich Juvenile Fish Survey, December 2002	17-Dec-02	18-Dec-02	Thames
Harwich Juvenile Fish Survey - January 2003	21-Jan-03	21-Jan-03	Thames
Harwich Juvenile Fish Survey - January 2003	21-Jan-03	21-Jan-03	Thames

Harwich Juvenile Fish Survey, February 2003	18-Feb-03	18-Feb-03	Thames
Harwich Juvenile Fish Survey, February 2003	18-Feb-03	18-Feb-03	Thames
Harwich Juvenile Fish Survey, April 2003	15-Apr-03	17-Apr-03	Thames
Harwich Juvenile Fish Survey, April 2003	15-Apr-03	17-Apr-03	Thames
Harwich Juvenile Fish Survey, June 2003	17-Jun-03	17-Jun-03	Thames
Harwich Juvenile Fish Survey, June 2003	17-Jun-03	17-Jun-03	Thames
Harwich Haven Authority Pelagic Plankton Survey - April 2002	28-Apr-02	28-Apr-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - April 2002	28-Apr-02	28-Apr-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - May 2002	30-May-02	30-May-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - May 2002	30-May-02	30-May-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - June 2002	27-Jun-02	27-Jun-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - June 2002	27-Jun-02	27-Jun-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - July 2002	29-Jul-02	29-Jul-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - July 2002	29-Jul-02	29-Jul-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - August 2002	30-Aug-02	30-Aug-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - August 2002	30-Aug-02	30-Aug-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - September 2002	26-Sep-02	26-Sep-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - September 2002	26-Sep-02	26-Sep-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - October 2002	24-Oct-02	24-Oct-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - October 2002	24-Oct-02	24-Oct-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - November 2002	28-Nov-02	28-Nov-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - November 2002	28-Nov-02	28-Nov-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - December 2002	19-Dec-02	19-Dec-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - December 2002	19-Dec-02	19-Dec-02	Thames
Harwich Haven Authority Pelagic Plankton Survey - January 2003	22-Jan-03	23-Jan-03	Thames
Harwich Haven Authority Pelagic Plankton Survey - January 2003	22-Jan-03	23-Jan-03	Thames
Harwich Haven Authority Pelagic Plankton Survey -	19-Feb-03	20-Feb-03	Thames

February 2003			
Harwich Haven Authority Pelagic Plankton Survey - February 2003	19-Feb-03	20-Feb-03	Thames
Harwich Haven Authority Pelagic Plankton Survey - March 2003	20-Mar-03	20-Mar-03	Thames
Harwich Haven Authority Pelagic Plankton Survey - March 2003	20-Mar-03	20-Mar-03	Thames
Harwich Haven Authority Pelagic Plankton Survey - April 2003	16-Apr-03	17-Apr-03	Thames
Harwich Haven Authority Pelagic Plankton Survey - April 2003	16-Apr-03	17-Apr-03	Thames
Horsey Island survey 3 - 1992	1-Jan-00	1-Jan-00	Thames
Holes Mouth	1-May-01	28-Jun-01	Bristol Channel
Benthic Cores from Horsey Island	6-Jun-01	6-Jun-01	Thames
Harwich Plankton Monitoring Survey	1-Jan-00	1-Jan-00	Thames
Harwich Plankton Monitoring Survey	1-Jan-00	1-Jan-00	Thames
Harwich Plankton Monitoring Survey	1-Jan-00	1-Jan-00	Thames
Harwich Plankton Monitoring Survey	1-Jan-00	1-Jan-00	Thames
Harwich Plankton Monitoring Survey	11-Mar-93	1-Jan-00	Thames
Harwich Plankton Monitoring Survey	1-Apr-93	1-Jan-00	Thames
Harwich Plankton Monitoring Survey	20-May-93	1-Jan-00	Thames
Harwich Plankton Monitoring Survey	10-Jun-93	1-Jan-00	Thames
Outfall survey near Hull in R.Humber	1-Jan-00	1-Jan-00	Wash
NRA / AWA survey in Humber, Grimsby	30-Sep-87	1-Jan-00	Wash
NRA / AWA survey in Humber, Tioxide old	1-Jan-00	1-Jan-00	Wash
Hungerford Bridge mat experiment	17-Nov-00	17-Nov-00	Thames
Hungerford Bridge	1-Nov-99	1-Nov-99	Thames
Harwich Well Monitoring Survey #1	16-Sep-93	1-Jan-00	Thames
Harwich Well Monitoring Survey #2	29-Sep-94	1-Jan-00	Thames
Harwich Well Monitoring Survey #3	2-Oct-96	1-Jan-00	Thames
HNDA survey by Installocean for Metoc for AWplc	10-Jul-95	20-Jul-95	Wash
IMER Great Ouse & Wash Survey, October 1973	1-Oct-73	7-Oct-73	Wash
IMER Great Ouse & Wash Survey, March 1974	1-Mar-74	7-Mar-74	Wash
IMER Great Ouse & Wash Survey, March 1984	1-Mar-84	7-Mar-84	Wash
IMER Great Ouse & Wash Survey, October 1984	1-Oct-84	7-Oct-84	Wash
NRA / AWA survey in Humber, Immingham	6-Sep-90	1-Jan-00	Wash
Survey with Installocean around outfall	1-Jul-95	1-Jan-00	Wash
Survey with Installocean around outfall	1-Jul-95	1-Jan-00	Wash
x	1-Jan-00	1-Jan-00	Wight
Survey SE of Isle of Wight	15-Sep-95	1-Jan-00	Wight
Aggregate survey off Isle of Wight	9-Sep-99	9-Sep-99	Wight

Aggregate survey off the Isle of Wight 1999	31-Mar-99	31-Mar-99	Wight
Survey of Islay outfalls Lagavulin and Caol Ila	30-Aug-98	30-Aug-98	Clyde & Argyll
Survey of Islay outfalls Lagavulin and Caol Ila	30-Aug-98	30-Aug-98	Clyde & Argyll
JNCC surveys of Lizard Peninsula & Ardnamurchan Peninsula	1-Jan-00	1-Jan-00	Plymouth
NCC Surveys	28-Jun-95	28-Jun-95	Cardigan Bay
NCC Surveys	1-Jan-00	1-Jan-00	Cardigan Bay
JNCC Welsh littoral survey - batch 1	5-Jun-97	5-Jun-97	Cardigan Bay
JNCC Welsh littoral survey - batch 2	30-Jul-97	30-Sep-97	Anglesey
JNCC Welsh littoral survey - batch 2	30-Jul-97	30-Sep-97	Cardigan Bay
JNCC Welsh littoral survey - batch 3	30-Aug-97	30-Aug-97	Anglesey
JNCC Welsh littoral survey - batch 3	30-Aug-97	30-Aug-97	Anglesey
JNCC Orkney 680, 681, Scapa, St. Kilda	2-Oct-97	2-Oct-97	Orkney
JNCC Orkney 680, 681, Scapa, St. Kilda	2-Oct-97	2-Oct-97	Orkney
JNCC Orkney 680, 681, Scapa, St. Kilda	2-Oct-97	2-Oct-97	Uist
JNCC Wash survey	17-Sep-97	19-Sep-97	Wash
JNCC Welsh littoral survey Milford Haven	30-Aug-98	30-Aug-98	Bristol Channel
MNCR survey	1-Jan-00	1-Jan-00	Clyde & Argyll
Larne outfall survey 2000	5-Apr-00	5-Apr-00	Belfast
MAFF Liverpool Bay Dredging study	30-Oct-93	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Oct-93	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Oct-93	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Apr-94	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Apr-94	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Oct-94	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Apr-94	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Oct-94	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Apr-95	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Oct-95	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Apr-95	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Oct-95	1-Jan-00	Liverpool Bay
MAFF Liverpool Bay Dredging study	30-Apr-96	30-Apr-96	Liverpool Bay
Liverpool Bay sludge disposal ground time series 1989-1999	1-Jan-89	31-Dec-99	Liverpool Bay
Liverpool Bay Dredge Disposal Site (Z)	1-Jul-97	1-Jul-97	Liverpool Bay
Liverpool Bay Dredge Disposal Site (Z)	30-Aug-97	30-Aug-97	Liverpool Bay
MAFF spoil ground survey	1-Jan-00	30-Sep-96	Liverpool Bay
Survey of river wall at Levens Wharf	30-Sep-98	30-Sep-98	Thames
Lincs coast Inshore Environmental Monitoring	15-Aug-00	15-Aug-00	Wash

Lincs coast Inshore Environmental Monitoring	15-Aug-00	15-Aug-00	Wash
Lincs coast Inshore Environmental Monitoring	25-Sep-00	29-Sep-00	Wash
Lincs coast Inshore Environmental Monitoring	19-Feb-01	23-Feb-01	Wash
Lincs coast Inshore Environmental Monitoring	15-Feb-99	18-Feb-99	Wash
Lincs coast Inshore Environmental Monitoring	14-Jun-99	17-Jun-99	Wash
Lincs coast Inshore Environmental Monitoring	27-Sep-99	1-Oct-99	Wash
ERM Survey of Liverpool Bay	28-Jul-01	30-Jul-01	Liverpool Bay
Locke's Wharf wall & shore survey	13-Jul-98	13-Jul-98	Thames
Locke's Wharf wall & shore survey	19-Aug-99	19-Aug-99	Thames
Lyme Bay Dorset - Pre drilling survey	1-Jan-00	1-Jan-00	Portland
Lyme Bay Dorset - Post drilling survey	28-Oct-95	30-Oct-95	Portland
Lyme Bay Dorset - initial survey	15-May-94	1-Jan-00	Portland
Marenco samples from nr. Bunbeg, North Donegal.	7-Mar-00	7-Mar-00	North Donegal
Survey by Marenco of dredge, store, and dump areas	13-Jul-98	13-Jul-98	Dublin
Greenore/172. Survey undertaken by Marenco.	13-May-99	14-May-99	Dublin
CODLING BANK SURVEY	1-Sep-01	30-Sep-01	Dublin
Codling Bank cable route	29-May-02	30-May-02	Dublin
Drogheda (Boyne Estuary) cores	25-Sep-02	25-Sep-02	Dublin
Marenco cable route cores	27-Jun-02	27-Jun-02	Dublin
Marenco cable route cores	27-Jun-02	27-Jun-02	Dublin
Marenco greencastle, Donegal, grabs	13-Aug-02	16-Aug-02	Antrim
Rogerstown intertidal survey - May	21-May-02	21-May-02	Dublin
Rogerstown intertidal survey - July	25-Jul-02	25-Jul-02	Dublin
Rogerstown intertidal survey - October	31-Oct-02	31-Oct-02	Dublin
Rogerstown intertidal survey - January	31-Jan-03	6-Feb-03	Dublin
Solway windfarm, subtidal survey	6-Oct-01	13-Oct-01	Solway
Solway windfarm survey extra stations	15-Feb-02	15-Feb-02	Solway
Solway windfarm cable run	4-Mar-02	4-Mar-02	Solway
Solway windfarm, intertidal survey	26-Feb-02	26-Feb-02	Solway
Marenco- Lough Swilly	10-Dec-02	10-Dec-02	North Donegal
Small Aggregate dredging benthic survey	30-Jun-94	1-Jan-00	Wash
Morcambe Bay Outfall	9-Sep-97	11-Sep-97	Liverpool Bay
Millenium Dome Project	7-Mar-98	7-Mar-98	Thames
Medway sampling by Cliff Thurlow	25-Jul-00	25-Jul-00	Thames
Milford Haven Benthic Survey	29-Sep-97	29-Sep-97	Bristol Channel
Milford Haven Benthic Survey 1998	27-Oct-98	27-Oct-98	Bristol Channel
Millport workshop	4-Apr-97	9-Apr-97	Clyde & Argyll

Survey of north bank of Thames at Millennium Bridge site	10-Mar-00	10-Mar-00	Thames
Survey of north bank of Thames at Millennium Bridge site	22-Apr-99	22-Apr-99	Thames
Survey of Millennium Pier (south bank of Thames)	22-Feb-00	22-Feb-00	Thames
Survey of Millennium Pier	20-Nov-98	4-Dec-98	Thames
Mersey monitoring survey	1-Jan-00	1-Jan-00	Liverpool Bay
Mersey monitoring survey	1-Jan-00	1-Jan-00	Liverpool Bay
Mersey monitoring survey	1-Jan-00	1-Jan-00	Liverpool Bay
Mersey monitoring survey	1-Jan-00	1-Jan-00	Liverpool Bay
Mersey monitoring survey	1-Jan-00	1-Jan-00	Liverpool Bay
Mersey monitoring survey	30-Sep-95	1-Jan-00	Liverpool Bay
Mersey toxicology survey	1-Jan-00	1-Jan-00	Liverpool Bay
HNDA outfall diver survey of Mundesley outfall	7-Aug-96	9-Aug-96	Wash
Naze benthic and particle size sampling	19-Jul-00	19-Jul-00	Thames
Naze benthic and particle size sampling	17-Mar-99	17-Mar-99	Thames
North coast dredge monitoring	27-Jun-00	27-Jun-00	Belfast
MNCR survey	1-Jan-00	1-Jan-00	Northumberland
MNCR survey	1-Jan-00	1-Jan-00	Northumberland
NRA survey of Nene+WellWith	1-Jan-00	1-Jan-00	Wash
NRA survey of Nene+WellWith	1-Jan-00	1-Jan-00	Wash
Nine Elms Pier	15-Jun-02	15-Jun-02	Thames
2000 National Monitoring Plan - Inshore	28-Mar-00	6-Apr-00	Belfast
2000 National Monitoring Plan - Inshore	28-Mar-00	6-Apr-00	Belfast
2000 National Monitoring Plan - Inshore	28-Mar-00	6-Apr-00	Belfast
2000 National Monitoring Plan - Offshore	21-Feb-00	20-Apr-00	Belfast
2000 National Monitoring Plan - Offshore	21-Feb-00	20-Apr-00	Belfast
2000 National Monitoring Plan - Offshore	21-Feb-00	20-Apr-00	Clyde & Argyll
2001 National Monitoring Plan - Inshore	28-Mar-01	6-Apr-01	Belfast
2001 National Monitoring Plan - Inshore	28-Mar-01	6-Apr-01	Belfast
2001 National Monitoring Plan - Inshore	28-Mar-01	6-Apr-01	Belfast
1997 National Monitoring Plan - Inshore	1-Jan-97	1-Jan-97	Belfast
1997 National Monitoring Plan - Offshore	1-Jan-97	1-Jan-97	Belfast
1997 National Monitoring Plan - Offshore	1-Jan-97	1-Jan-97	Clyde & Argyll
1998 National Monitoring Plan - Inshore	16-Sep-98	16-Sep-98	Belfast
1998 National Monitoring Plan - Inshore	16-Sep-98	16-Sep-98	Belfast
1998 National Monitoring Plan - Inshore	16-Sep-98	16-Sep-98	Belfast
1998 National Monitoring Plan - Offshore	23-Feb-98	4-Mar-98	Clyde & Argyll
1999 National Monitoring Plan - Inshore	30-Apr-99	30-Apr-99	Belfast

1999 National Monitoring Plan - Inshore	30-Apr-99	30-Apr-99	Belfast
1999 National Monitoring Plan - Inshore	30-Apr-99	30-Apr-99	Belfast
1999 National Monitoring Plan - Offshore	22-Feb-99	24-Feb-99	Clyde & Argyll
CEFAS North Norfolk study 1996	1-Jan-96	1-Jan-96	Wash
CEFAS North Norfolk study 1997	1-Jan-97	1-Jan-97	Wash
Nobel Bank aggregate licence area	14-Jul-01	14-Jul-01	Cardigan Bay
Survey of Block 9/18 for AEC/AMBIOS	30-Apr-93	30-Apr-93	Viking (West)
Nuttalls Wharf (River Darent)	17-Aug-99	17-Aug-99	Thames
NW Hutton survey 1997	30-Nov-97	30-Nov-97	Viking (West)
NW Hutton survey 1999	30-Jan-99	30-Jan-99	Viking (West)
Survey of two areas in Orkney	25-May-97	25-May-97	Orkney
Survey of two areas in Orkney	25-May-97	25-May-97	Orkney
NRA	1-Jan-00	1-Jan-00	Thames
Survey of R. Orwell	4-Aug-97	6-Aug-97	Thames
Orwell core survey for Posford Duvivier	2-Sep-99	2-Sep-99	Thames
x	1-Jan-00	1-Jan-00	Portland
Lincolnshire coast monitoring	16-Feb-99	18-Feb-99	Wash
Portsmouth	30-Jun-93	1-Jan-00	Wight
x	18-Oct-94	1-Jan-00	Thames
Atlas Wharf, Isle of Dogs	2-May-02	2-May-02	Thames
Powergen Windmill EIA 1998	4-Jul-98	7-Jul-98	Wash
Sampling of experimental monopile	28-Sep-99	28-Sep-99	Wash
Pier Head, Isle of Dogs	9-Jul-97	9-Jul-97	Thames
Plymouth	1-Aug-96	1-Aug-96	Plymouth
Plymouth workshop	18-Apr-97	25-Apr-97	Plymouth
Plymouth workshop	18-Apr-97	25-Apr-97	Plymouth
Plymouth workshop	18-Apr-97	25-Apr-97	Plymouth
Grab and Trawl samples for Felixstow South	19-May-03	22-May-03	Thames
Trimley marsh set back site	11-Dec-01	11-Dec-01	Thames
Trimley marsh set back site	4-Apr-02	4-Apr-02	Thames
Trimley marsh set back site	18-Jun-02	18-Jun-02	Thames
Trimley marsh set back site	11-Oct-02	11-Oct-02	Thames
Trimley Marsh Set Back Site	25-Mar-03	25-Mar-03	Thames
HNDA outfall survey	21-Aug-96	22-Aug-96	Antrim
Pye Sand survey	13-Aug-97	13-Aug-97	Thames
WRc	1-Jan-00	1-Jan-00	Wash
NRA / Installocean ? survey in Humber, Pyewipe	1-Jan-00	1-Jan-00	Wash
NRA	1-Jan-00	1-Jan-00	Thames
RHYC Marina	19-May-93	1-Jan-00	Thames

Roughs Tower 2000 - CEFAS	1-Apr-00	2-Apr-00	Thames
Roughs Tower 2000 - HHA	19-Jul-00	19-Jul-00	Thames
Roughs Tower 1995 - CEFAS	30-Jun-95	30-Jun-95	Thames
Roughs Tower 1997 - CEFAS	30-May-97	30-May-97	Thames
North Lincolnshire Coast saline lagoon survey	18-Aug-01	20-Aug-01	Wash
North Lincolnshire Coast saline lagoon survey	18-Aug-01	20-Aug-01	Wash
Env. Assessment survey in Percuil River by Spalding Assoc.	3-Dec-01	3-Dec-01	Plymouth
Sellafield survey - 1 (Grabs)	2-Dec-91	1-Jan-00	Solway
Sellafield survey - 2 (Cores)	23-Jan-92	1-Jan-00	Solway
Sellafield survey - 2 (Grabs)	17-Jan-92	1-Jan-00	Solway
Sellafield survey - 2 (Plankton)	1-Jan-00	1-Jan-00	Solway
Sellafield survey - 3 (Cores)	28-Feb-92	1-Jan-00	Solway
Sellafield survey - 4 (Cores)	27-Mar-92	1-Jan-00	Solway
Sellafield survey - 4 (Grabs)	7-Apr-92	1-Jan-00	Solway
Sellafield survey - 5 (Cores)	27-Apr-92	1-Jan-00	Solway
Sellafield survey - 5 (Plankton)	1-Jan-00	1-Jan-00	Solway
Sellafield survey - 6 (Cores)	27-May-92	1-Jan-00	Solway
Sellafield survey - 6 (Grabs)	19-May-92	1-Jan-00	Solway
Sellafield survey - 7 (Cores)	24-Jun-92	1-Jan-00	Solway
Sellafield survey - 7 (Grabs)	26-Jun-92	1-Jan-00	Solway
Sellafield survey - 8 (Cores)	12-Aug-92	1-Jan-00	Solway
Sellafield survey - 8 (Grabs)	20-Aug-92	1-Jan-00	Solway
Sellafield survey - 8 (Plankton)	1-Jan-00	1-Jan-00	Solway
Sellafield survey - 10 (Cores)	22-Sep-92	1-Jan-00	Solway
Sellafield survey - 10 (Grabs)	12-Oct-92	1-Jan-00	Solway
Sellafield survey - 11 (Grabs)	8-Dec-92	1-Jan-00	Solway
DTI SEA2 survey of Dogger Bank	30-Jun-01	30-Jun-01	Dogger
DTI SEA2 survey of North Norfolk Sand waves	30-Jun-01	30-Jun-01	Wash
Severn 1990 survey Wallace Evans	1-Jan-00	1-Jan-00	Bristol Channel
Severn 1993 survey Wallace Evans	8-Nov-93	1-Jan-00	Bristol Channel
Severn Industrial Outfall survey 1997	10-Mar-97	10-Mar-97	Bristol Channel
South Falls	1-Apr-00	2-Apr-00	Thames
x	1-Jan-00	1-Jan-00	Minch
Swale & Medway littoral	1-Jul-93	1-Jan-00	Thames
Swale & Medway sublittoral	9-Aug-93	1-Jan-00	Thames
Reference collection (spare samples) from Monitoring of Sullomvoe and area by Cordah	6-Jun-02	15-Jun-02	Shetland
Monitoring of Sullomvoe and area by Cordah	6-Jun-02	15-Jun-02	Shetland

SNIFFER fish farm study	11-Jul-96	12-Jul-96	Clyde & Argyll
x	1-Jan-00	1-Jan-00	Liverpool Bay
Southwark Riverside Walkway	15-Jun-97	15-Jun-97	Thames
2000 Sewage Sludge Disposal Monitoring	30-Mar-00	5-Apr-00	Belfast
2001 Sewage Sludge Disposal Monitoring	30-Mar-01	5-Apr-01	Belfast
1994 Sewage Sludge Disposal Monitoring	1-Jan-94	1-Jan-94	Belfast
1995 Sewage Sludge Disposal Monitoring	1-Jan-95	1-Jan-95	Belfast
1997 Sewage Sludge Disposal Monitoring	1-Jan-97	1-Jan-97	Belfast
1998 Sewage Sludge Disposal Monitoring	16-Sep-98	16-Sep-98	Belfast
1999 Sewage Sludge Disposal Monitoring	30-Apr-99	30-Apr-99	Belfast
Environment Agency survey in Copperas bay, R. Stour	24-May-99	24-May-99	Thames
Survey of Copperas Bay. R. Stour by Environment Agency	19-Aug-99	19-Aug-99	Thames
Environment Agency survey in Copperas Bay, R. Stour	3-Nov-99	3-Nov-99	Thames
Southend April, 1989	19-Apr-89	1-Jan-00	Thames
Southend October, 1989	30-Oct-89	1-Jan-00	Thames
?Southend, October 1991	1-Jan-00	1-Jan-00	Thames
?Southend, 1992	1-Jan-00	1-Jan-00	Thames
Survey of Strangford Lough by DANI	27-Jul-99	27-Jul-99	Belfast
Intertidal biotope mapping of Stour and Orwell, 2000	11-Oct-00	16-Oct-00	Thames
Intertidal biotope mapping of Stour and Orwell, 2000	11-Oct-00	16-Oct-00	Thames
Stour and Orwell biotope mapping (lower shore)	25-Apr-01	27-Apr-01	Thames
Stour and Orwell biotope mapping (lower shore)	25-Apr-01	27-Apr-01	Thames
Dredge disposal monitoring Survey of R. Stour, Essex	17-May-00	18-May-00	Thames
NRA	1-Jan-00	1-Jan-00	Thames
NRA	1-Jan-00	1-Jan-00	Thames
Survey of R. Stour, Essex	23-Jun-97	8-Jul-97	Thames
Dredge disposal monitoring Survey of R. Stour, Essex	20-Oct-98	22-Oct-98	Thames
Dredge disposal monitoring Survey of R. Stour, Essex	29-Apr-99	29-Apr-99	Thames
Bathside Bay	11-Jul-01	12-Jul-01	Thames
1998 STW Outfalls	7-Apr-98	30-Apr-98	Belfast
1998 STW Outfalls	7-Apr-98	30-Apr-98	Belfast
1998 STW Outfalls	7-Apr-98	30-Apr-98	Belfast
HHA survey of new spoil ground	23-May-98	25-May-98	Thames
HHA survey of Inner Gabbard spoil ground	26-May-99	27-May-99	Thames
HHA survey of Inner Gabbard spoil ground	14-Jun-00	15-Jun-00	Thames
Swansea Bay 1993	17-Aug-93	1-Jan-00	Bristol Channel
MAFF spoil ground survey	1-Jan-00	30-May-95	Bristol Channel
Subtitdal sampling of Lough Swilly by KMM Marenco	7-Oct-99	7-Oct-99	North

			Donegal
Solway survey - 1 (Cores)	2-Dec-91	1-Jan-00	Solway
Solway survey - 1 (Grabs)	2-Dec-91	1-Jan-00	Solway
Solway survey - 2 (Grabs+Quadrats)	17-Jan-92	1-Jan-00	Solway
Solway survey - 2 (Plankton)	1-Jan-00	1-Jan-00	Solway
Solway survey - 3 (Grabs+Quadrats)	18-Feb-92	1-Jan-00	Solway
Solway survey - 4 (Grabs+Quadrats)	16-Mar-92	1-Jan-00	Solway
Solway survey - 5 (Grabs+Quadrats)	13-Apr-92	1-Jan-00	Solway
Solway survey - 5 (Plankton)	1-Jan-00	1-Jan-00	Solway
Solway survey - 6 (Cores)	13-May-92	1-Jan-00	Solway
Solway survey - 6 (Grabs)	13-May-92	1-Jan-00	Solway
Solway survey - 7 (Cores)	9-Jun-92	1-Jan-00	Solway
Solway survey - 7 (Grabs)	17-Jun-92	1-Jan-00	Solway
Solway survey - 8 (Cores)	23-Jul-92	1-Jan-00	Solway
Solway survey - 8 (Grabs)	30-Jul-92	1-Jan-00	Solway
Solway survey - 8 (Plankton)	1-Jan-00	1-Jan-00	Solway
Solway survey - 9 (Cores)	3-Sep-92	1-Jan-00	Solway
Solway survey - 9 (Grabs)	14-Sep-92	1-Jan-00	Solway
Solway survey - 10 (Cores)	12-Oct-92	1-Jan-00	Solway
Solway survey - 10 (Grabs)	12-Oct-92	1-Jan-00	Solway
Solway survey - 11 (Cores)	23-Dec-92	1-Jan-00	Solway
Solway survey - 11 (Grabs)	22-Dec-92	1-Jan-00	Solway
Solway survey - 12 (Cores)	25-Mar-93	1-Jan-00	Solway
Solway survey - 12 (Grabs)	25-Mar-93	1-Jan-00	Solway
Solway survey - 13 (Cores)	18-May-93	1-Jan-00	Solway
Solway survey - 13 (Grabs)	19-May-93	1-Jan-00	Solway
Solway survey - 14 (Cores)	22-Jun-93	1-Jan-00	Solway
Solway survey - 14 (Grabs)	21-Jun-93	1-Jan-00	Solway
Tamar NMMP samples	11-Aug-00	11-Aug-00	Plymouth
Tees middle estuary intertidal samples	29-Jul-99	29-Jul-99	Yorkshire
MAFF survey of Tees dumping ground	1-Jan-00	1-Jan-00	Yorkshire
Survey of Constable Bank wind farm site by Titan	1-Nov-01	3-Nov-01	Liverpool Bay
Teignmouth Survey #1	1-Jan-00	1-Jan-00	Portland
Teignmouth Survey #2	1-Jan-00	1-Jan-00	Portland
Teignmouth Survey #3	1-Jan-00	1-Jan-00	Portland
Thames sampling	1-Jan-00	1-Jan-00	Thames
Thames sampling - MAFF validation exercise	1-Jan-00	1-Jan-00	Thames
Thames tideway monitoring - March 2000	14-Mar-00	27-Mar-00	Thames
Thames tideway monitoring - September 2000	4-Sep-00	13-Sep-00	Thames
1993 Thames Sludge Dump monitoring	12-Jul-93	1-Jan-00	Thames

1996 Thames Sludge Dump monitoring	12-Jul-95	13-Jul-96	Thames
1997 Thames Tideway survey	30-Sep-97	2-Oct-97	Thames
Thames Estuary Push Net Samples	20-Aug-98	20-Aug-98	Thames
Thames tideway monitoring - March 1999	3-Mar-99	14-Mar-99	Thames
Thames tideway monitoring - September 1999	8-Sep-99	15-Sep-99	Thames
Tilbury Intertidal and Subtidal sampling	1-Dec-99	1-Dec-99	Thames
Tollesbury Marsh (April 2000) Collection ofcolonisation plates and samplers	27-Apr-00	27-Apr-00	Thames
Tollesbury Marsh (October 2000) Trawl survey	16-Oct-00	17-Oct-00	Thames
Tollesbury Marsh (=TOL96)(September - Core survey)	12-Sep-96	12-Sep-96	Thames
Tollesbury Marsh (August - Net survey)	14-Aug-96	14-Aug-96	Thames
Tollesbury Marsh (October - Net survey)	14-Oct-96	14-Oct-96	Thames
Tollesbury Marsh (=TM97A)(February - Net survey)	7-Feb-97	7-Feb-97	Thames
Tollesbury Marsh (May - Core survey)	19-May-97	20-May-97	Thames
Tollesbury Marsh (Net survey)	21-May-97	22-May-97	Thames
Tollesbury Marsh (Net survey)	28-Jul-97	29-Jul-97	Thames
Tollesbury Marsh (August - Trawl survey)	16-Aug-97	16-Aug-97	Thames
Tollesbury Marsh (October - Core survey)	8-Oct-98	9-Oct-98	Thames
Tollesbury Marsh (October - Net survey)	8-Oct-97	9-Oct-97	Thames
Tollesbury Marsh (December - Net survey)	10-Dec-97	11-Dec-97	Thames
Tollesbury Marsh (April - Core survey)	7-Apr-98	8-Apr-98	Thames
Tollesbury Marsh (April - Net survey)	7-Apr-98	8-Apr-98	Thames
Tollesbury Marsh (May - Trawl survey)	11-May-98	11-May-98	Thames
Tollesbury Marsh (October - Trawl survey)	21-Oct-98	21-Oct-98	Thames
Tollesbury Marsh (November - Net survey)	25-Nov-98	26-Nov-98	Thames
Tollesbury Marsh (December - Trawl survey)	7-Dec-98	8-Dec-98	Thames
Tollesbury Marsh (April - Core Survey)	13-Apr-99	13-Apr-99	Thames
Tollesbury Marsh (May - Net survey)	12-May-99	12-May-99	Thames
Tollesbury Marsh (May - Trawl Survey)	17-May-99	18-May-99	Thames
Tollesbury Marsh (June - Trawl Survey)	12-Jun-99	13-Jun-99	Thames
Tollesbury Marsh (September - Trawl survey)	9-Sep-99	10-Sep-99	Thames
TRIMLEY MARSH SET BACK SITE MONITORING	4-Jun-01	5-Jun-01	Thames
Trimley Marsh Setback Site Monitoring	6-Sep-01	6-Sep-01	Thames
Tees monitoring	30-Jul-93	30-Jul-93	Yorkshire
Tees monitoring	30-Jul-93	30-Jul-93	Yorkshire
R. Thames, Tower Pier walkway	10-Sep-98	10-Sep-98	Thames
WRc Tenby survey 1 [April 1986]	1-Jan-00	1-Jan-00	Bristol Channel
WRc Tenby survey 2 (diver) [Septmeber 1986]	1-Jan-00	1-Jan-00	Bristol Channel
WRc Tenby survey 2 [September 1986]	1-Jan-00	1-Jan-00	Bristol

			Channel
WRc Tenby survey 3 [April 1987]	1-Jan-00	1-Jan-00	Bristol Channel
WRc Tenby survey 4 (diver) [September 1987]	1-Jan-00	1-Jan-00	Bristol Channel
WRc Tenby survey 4 [September 1987]	1-Jan-00	1-Jan-00	Bristol Channel
Aggregate dredging benthic survey	18-Apr-94	1-Jan-00	Thames
Benthic survey of Wandle (Wandsworth) for WS Atkins	5-Sep-00	5-Sep-00	Thames
Warrenpoint (Carlingford Lough) Survey	28-May-98	28-May-98	Belfast
NMMP II - 2000	23-Aug-00	23-Aug-00	Wash
NMMP II - 1999	2-Aug-99	2-Aug-99	Wash
West Bay Dorset	1-May-96	3-May-96	Portland
NRa surveys of Wash and estuaries	1-Jan-00	1-Jan-00	Wash
EA surveys of Wash and estuaries	12-Aug-97	14-Aug-97	Wash
Benthic survey at Westminster Pier	25-Jul-00	25-Jul-00	Thames
Weymouth LSO study	1-Jan-00	1-Jan-00	Portland
Weymouth LSO study	1-Jan-00	1-Jan-00	Portland
Weymouth LSO study	1-Jan-00	1-Jan-00	Portland
Weymouth LSO study	1-Jan-00	1-Jan-00	Portland
Weymouth LSO study - diver	1-Jan-00	1-Jan-00	Portland
Weymouth LSO study	1-Jan-00	1-Jan-00	Portland
Weymouth LSO study - diver	1-Jan-00	1-Jan-00	Portland
SoS Weymouth LSO survey	1-Jan-00	1-Jan-00	Portland
MAFF clam survey	20-Dec-94	1-Jan-00	Thames
Pegwell Bay - Intertidal Survey	10-Apr-03	10-Apr-03	Thames
NRA WASH SAMPLES	1-Jan-00	1-Jan-00	Wash
NRA survey of Gt. Yarmouth 1992	1-Jan-00	1-Jan-00	Wash
Gt Yarmouth Benthic Survey	30-Aug-97	30-Aug-97	Wash
Site Z 2000 (CEFAS Liverpool Bay - disposal site)	1-Oct-00	31-Dec-00	Liverpool Bay