

State of the Art and Data audit for North Sea Region WP 3.1 and 3.2 – Final report

**Understanding the present state of geographic data and
metadata in the North Sea region and building a BLAST
metadatabase.**

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Table of Contents

1. Introduction.....	4
2. Background.....	4
3. State of the art	6
3.1 Identification of managed datasets	6
3.2 Review of related international projects	6
3.3 Experiences from the work with metadata.....	6
3.4 INSPIRE compliant metadata.....	8
3.5 Conclusions of the state of the art.....	9
4. Concept	9
4.1 Introduction	9
4.2 Metadata in the BLAST project.....	9
4.3 The BLAST metadata catalogue	10
5. BLAST metadata catalogue	12
5.1 Discover data registered in the BLAST metadata catalogue.....	12
5.2 Populating the BLAST metadatabase	14
5.3 Further development.....	14
6. Conclusions	15
Appendix 1: Related projects	17
Appendix 2: INSPIRE Principles.....	24
Appendix 3: Metadata and INSPIRE.....	25
Appendix 4: Theme Lists	27
Appendix 5: Guidelines for registering data in the BLAST metadatabase.....	30
Appendix 6: Guidelines for searching data in the BLAST metadatabase.....	38

1. Introduction

The purpose of the BLAST Work Package 3 (WP3) is to develop a Marine and Coastal Reference Base of the North Sea. In order to achieve this, the present state of marine geographic data in the North Sea region must be ascertained and understood. There was also a need to gain an overview of existing data in the participating countries and catalogue these in a standardized manner.

Marine geographic data are managed by an array of cross border organisations in the North Sea. Additionally, various projects (European Union funded and other) have been conducted in and around the region, and many of these have created marine geographic data deliverables. In order to ultimately generate the Reference Base for the North Sea, BLAST WP3 is required to understand the nature, currency, provenance and availability of these various datasets and feature types. Through the development and adoption of metadata standards, much of this information can be presented to users of marine geographic information in metadata files and/or services.

The first part of this document aims to support the identification of projects that may produce relevant datasets for the BLAST project and to identify whether standardized metadata exists in support of these datasets. The second part of this document describes the considerations behind the BLAST metadata catalogue, and the collecting of metadata. It was decided to develop a dedicated BLAST metadata catalogue to store and display available data, either by harvesting from already existing metadata catalogues or by registering new metadata for each country's BLAST data.

Describing and publishing metadata has been solved by using a GeoNetwork metadata catalogue. This approach is taken to ensure that the project metadata are collected and published in a standardized manner and in line with the INSPIRE principles.

There is a link between WP3 and WP6 as the metadata catalogue developed in WP3 also will contain data used in the Decision Support System developed in WP6. An interface between the DSS and the metadata catalogue will be developed in collaboration between the two work packages. As a consequence of this the metadata catalogue is not completed with this report, but will continue to be adjusted and populated throughout the BLAST project. It is also essential that the metadata catalogue continues to be maintained after the completion of the entire project.

2. Background

The BLAST (Bringing Land and Sea Together) project is an Interreg IVB North Sea project that promotes maritime safety in the North Sea region. It involves 17 partners

from 7 countries, including government agencies, universities and private companies. The BLAST partners are collaborating to demonstrate the potential for improvements in maritime safety, economy, and environmental management that can result from trans-national harmonisation and integration of land and sea data. BLAST is divided into 6 Work Packages and a variety of projects that will be carried out from late 2009 through 2012. The BLAST website (www.blast-project.eu) summarises the project and provides detail on the individual work packages.

This report forms part of the deliverable for the first and second activity of WP3, the main deliverable of task 3.2 being the metadata catalogue itself. The two activities are part of the first steps towards the development of the Marine and Coastal Reference Base for the North Sea. The Reference Base will encompass geographic datasets that are important for conducting such activities such as marine spatial planning, environmental protection, socio-economic development, risk management and mitigation.

By merging datasets and providing a metadata catalogue, this project will also establish an overview of the data that are available within the individual countries. These data vary in standard, origin, quality, etc., which can make them difficult to integrate, both in national and cross-boundary contexts. These differences make it even more important to provide a systematic and comparable register of metadata.

The State of the Art and Data Audit initiatives are based on the first logical steps in this process:

- Examine the state of the art in the field of metadata
- Define a proof of concept for establishing a metadata catalogue
- Establish a metadata catalogue
- Populate the metadata catalogue

The first step draws from the experiences of other EU-projects in terms of the need for metadata and the establishment of metadata catalogues. 17 previous or present EU-projects¹ have been reviewed along with projects as Emodnet, ICZMap, and Wise Marine. The state of the art of metadata management that is derived from these projects' experiences will maintain an INSPIRE perspective as a key element.

The second step will focus on how to organise and structure metadata in order to achieve a proper use of metadata. This is done by describing a concept for establishing a metadata catalogue.

The third step - to develop and implement a metadata catalogue - is based on the findings of the previous steps, the developing INSPIRE specification and drawing on the know-how from previous experience of spatial data infrastructures (SDIs).

¹ These are described at http://www.blast-project.eu/?parent_text=3&page=3&language=en&links

After the establishment of the metadata catalogue, it will be populated as far as practicable with metadata that may contribute to the Reference Base and later, with data required for WP6. This deliverable forms a key dependency to the delivery of the Marine and Coastal Reference Base, and the wider BLAST requirements.

3. State of the art

3.1 Identification of managed datasets

In order to acquire an understanding of the themes identified as contributing to the Reference Base, all WP3 project partners have been asked to complete a list of themes indicating, among other things data title, data provider and a point of contact for each theme. This is the first step in identifying responsible persons for populating the metadata catalogue. The responsible persons are then given access to the metadata catalogue and requested, through the project partners, to populate this with more detailed descriptions of the data themes.

3.2 Review of related international projects

The review (see appendix 1) reveals several international projects, both on-going and completed, whose output is relevant for BLAST.

A review has been undertaken of a number of European projects (see appendix 1) whose output is relevant for BLAST. The review focused on the project deliverables in the context of geographic data and standardised metadata; i.e. was geographic data a part of the output, and if so – is metadata available? If metadata is available, is it INSPIRE compliant?

The review has been superficial and limited to what has been published on the project web-pages, and no further literature review or interviews with responsible partners has been undertaken. Some of the projects are not yet finalized, which may also affect the described deliverables.

Although several of the projects have georeferenced data as part of their deliverables, few of them provide standardised metadata. This makes it difficult to obtain an overview of relevant and accessible information. It is clear that complete and standardised discovery metadata are in demand in order to acquire an understanding of the data deliverables from the various projects.

3.3 Experiences from the work with metadata

About Metadata

To ensure correct and proper use and interpretation of data, all users and owners of data should have a common understanding of the meaning or semantics of the data. To achieve this common understanding, a number of characteristics, or attributes of the data have to be defined, also known as metadata.

Metadata is often defined as *data about data*. It is “structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use or manage an information resource”, especially in a distributed network environment like for example the internet or an organization.

History of metadata in a www perspective:

Modern information systems, and web information systems in particular, are faced with access to almost unlimited amounts of data and information - particularly from the Internet – but very often only with very little knowledge about these topics.

Early in the history of the Internet, it became clear that an optimal use of data and information would require a special effort primarily focused on seeking data, but also to ensure an identical understanding of the data's content.

Already at the Second International World Wide Web meeting in Chicago in October 1994, the problem was discussed and a need for a “core” set of descriptors to help discover content on the Web was identified.

Consequently, a workshop was held in Dublin in spring 1995, with the goal to reach consensus on a core set of metadata elements to describe networked resources - to promote better discovery standards for electronic resources.

The resulting metadata element set defines fifteen metadata elements for resource description in a cross-disciplinary information environment – the “Dublin Core Metadata Element Set”.

Consequently the organisation “Dublin Core Metadata Initiative” (DCMI) was established, and is today an active participant in the ongoing development of metadata. The work of DCMI has been the basis for a number of standardization initiatives related to metadata, e.g.

- 1998: Dublin Core Element Set version 1.0
- 2000: European Recommendation: CEN CWA 13874
- 2003 (rev. 2009): International standard: ISO 15836
- Etc.

The experiences from working with metadata concerning geospatial data are in a way quite limited.

Although the understanding of metadata is present amongst both businesses and governments, the need for metadata is recognized and the opportunities for establishing standardized metadata is present, there seems to be a certain hesitation in relation to publish these data. Trying to get an overview of metadata, especially across national borders, seems to be almost impossible.

It is perhaps very significant for the overall management of metadata and metadata status in organizations, that even the participants in the BLAST primarily have access to their own metadata – and not always in the proper ISO format. There is also a significant language barrier, as most countries first and foremost register metadata in their national language. As a consequence, non-English speaking countries have to supplement their existing metadata with an English abstract in order to make them comprehensible for the BLAST project.

The implementation of the INSPIRE directive is not yet so far advanced that it has had any significant impact. Even in countries where a national metadatabase has been established and is accessible for all, the level of voluntary contributions varies significantly from one type of data owner to the next. These contributors can overall be classified into three “main types” – a pattern that must be expected to be more or less general:

1. The national mapping agencies – perhaps partly funded by the tax partly by the sale of data, topographic maps and hydrographic charts. These organisations have a clear commercial interest in contributing the metadata and data specifications related to these products.
2. For private companies that produce maps or orthophotos, metadata are not necessarily available – either in the context of the company’s work, or at all. The metadata might be the same as the product specification.
3. In public authorities at all levels (municipality, county or national), there are relevant data holdings related to such activities as planning and ICZM. However, there has never been a shared understanding or agreement surrounding the issue of metadata. In many cases, the availability and definition of metadata depended on the personal commitment of single individuals who are particularly enthusiastic about the issue. In a handful of cases, metadata can also be harvested from documents, databases, GIS-systems or other internal resources.

In short, one of the experiences from the work with a national metadatabase has been that it is not enough that the technical framework is in place as long as the contributors lack incentive to share their metadata.

3.4 INSPIRE compliant metadata

Metadata comprise a very important factor when sharing and using geospatial data resources. They allow data users to determine the content, quality and other important factors associated with data. Metadata are particularly important when organizations in different countries need to cooperate across national borders. Without good and valid descriptions of the relevant data, it can be difficult to integrate these into a single, appropriate platform.

Metadata are primarily important for the organization that owns the data that they describe. But when metadata are completed and made available, they provide the

considerable advantage of becoming searchable, and can be discovered and used by others.

Several standards exist for metadata development, but within the geospatial community, ISO 19115 is the most commonly used standard. The INSPIRE directive employs this standard, which makes it relevant for all countries in the EU. Although there has been a general agreement upon these standards, and the importance of metadata, most organisations are still in the process of implementing them. The collection of metadata is a time consuming process, and can be alleviated to some degree by ensuring that the collection process is as efficient and as close to the source or the data owner as possible. As long as the metadata complies with the standards agreed upon, it can subsequently be harvested and presented in other metadata catalogues.

3.5 Conclusions of the state of the art

Our experience is that it is difficult to obtain an understanding of existing datasets without metadata collected and based on a common standard. Data are best maintained and updated at the source; this also applies to metadata. We have therefore in the BLAST project chosen to work with some of the technologies that make it possible for partners with their own databases to receive updated metadata from other partners (harvest data from each other).

4. Concept

4.1 Introduction

Within the BLAST project, it is of great importance that all the work packages have an overview of relevant and accessible data. It was therefore decided to develop a metadata catalogue dedicated to the BLAST project. Registration of data is performed at two levels. First an overall registration of relevant reports and projects, and secondly a detailed registration of metadata complying with INSPIRE standards for the spatial data that are relevant to BLAST. See Appendix 2: INSPIRE Principles.

4.2 Metadata in the BLAST project

To generate an overview of information relevant to the project as a whole, work group 3 initially developed an internet questionnaire. The input data is stored in a database with a web-interface for entering and viewing data in a structured way.

The intent was first to achieve an overview of existing projects, reports, documents and data, rather than a static report based on the current situation. The questionnaire was meant to be a preparation for more detailed metadata, and an opportunity to register knowledge gradually throughout the project.

In order to conduct a data audit in conjunction with the development of a North Sea Reference Base, a means for registering and searching for more detailed metadata

was also needed. To ensure a common standard for describing data and to ensure that the resultant metadata can be applied beyond the BLAST project to benefit society and the geospatial organizations in Europe, the project uses, as a minimum, the INSPIRE metadata profile. See appendix 3: Metadata and INSPIRE.

In order to ensure a stable and inexpensive metadata infrastructure that will be in service far beyond the project period, the BLAST metadata catalogue was implemented on the same platform as the metadata catalogue of the Danish Ministry of the Environment. This metadata catalogue is ISO 19115 compliant and based on an OpenSource GeoNetwork solution. In this way, the BLAST project has acquired a metadata catalogue that is compliant with the INSPIRE-specifications, and can provide standardised metadata across national borders.

Task 3.2 provides the technical framework for the metadata catalogue, but it is important that each project partner is responsible for entering its own metadata. If an organization already has a complete set of metadata complying with the same standard, it is possible to harvest these metadata through a catalogue web service, thereby avoiding registering the same data twice. If an organisation does not have its own ISO-compliant metadata catalogue, it can either bulk upload metadata to the BLAST database using an XML-file, or by using a web interface.

4.3 The BLAST metadata catalogue

As mentioned above, it is vital that the BLAST project uses the INSPIRE metadata profile. The initial data register is based on a subset of a subset of the INSPIRE metadata profile.

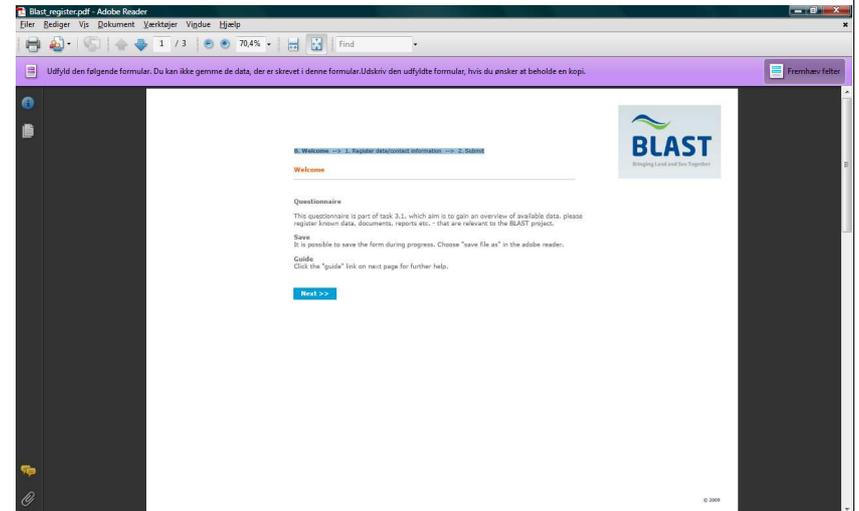
Registration of data for the BLAST project is divided into two phases.

- Initial data register (just a few of the elements of INSPIRE profile) by using a form or plain XML
- Metadata (complete INSPIRE profile) to be carried out in task 3.2

To create an immediate overview of what data the project partners could provide to the project, a simple data register form was made accessible from the BLAST web page, and the BLAST project partners were asked to complete this.

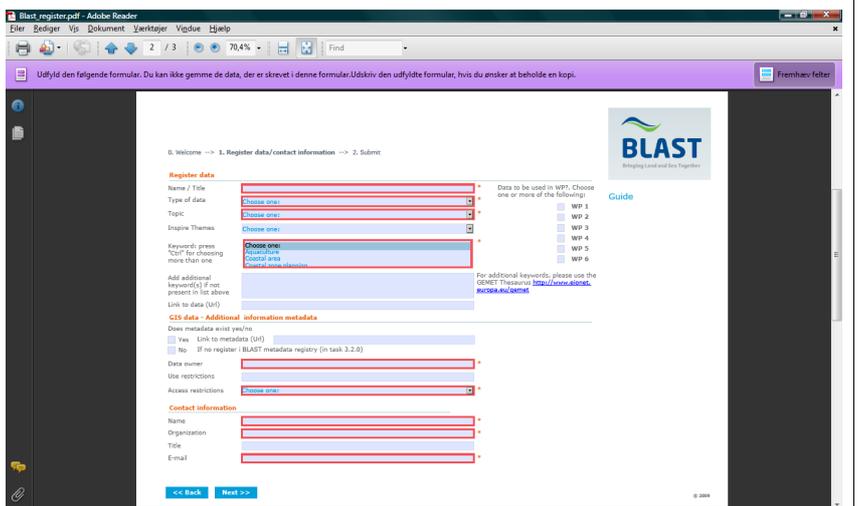
Step 1.

Welcome page.



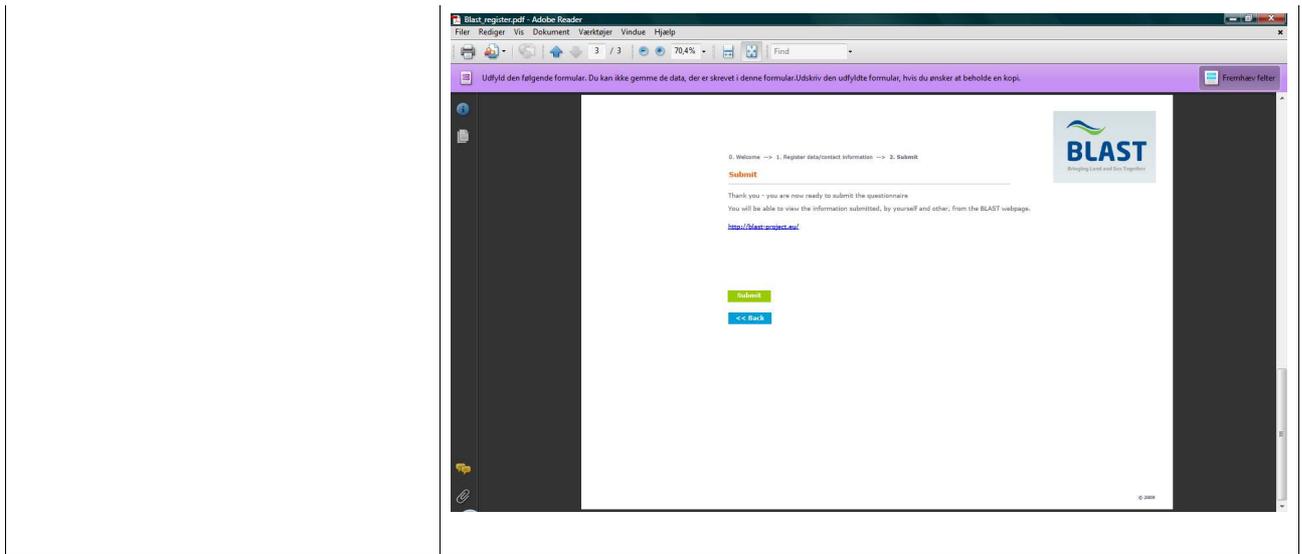
Step 2.

Information about the dataset is entered.



Step 3.

Information is submitted.



Apart from the form, it was also possible for partners to register their data using xml and a reporting form.

Whichever method is used (Pdf or XML), the final product is an ISO 19139 xml file (INSPIRE metadata profile).

As there was very little response from the project partners in relation to providing an initial overview of available data through the registration form, a different approach was agreed upon at the WP3 meeting in Hirtshals in September 2010. SeaZone initiated a Theme List with suggested data themes, consisting of an Excel spreadsheet containing a list of suggested data and a number of related information regarding each dataset. This Theme List was e-mailed to the project partners with a request for completion (appendix 4).

5. BLAST metadata catalogue

Parallel to the registration form being completed, the actual BLAST metadata catalogue was developed as part of task 3.2.

5.1 Discover data registered in the BLAST metadata catalogue

As illustrated in the diagram in appendix 4, the data are published on the web in a GeoNetwork opensource metadata register.

For the BLAST project, the National Survey and Cadastre established a subsection of its national metadata catalogue specifically for BLAST data. This means that these data are available through the Danish national metadata catalogue – and that they are also maintained in conjunction with maintenance of the Danish data catalogue as a whole.

GeoNetwork opensource is a catalogue application that manages spatially referenced resources. It provides powerful metadata editing and search functions as well as an embedded interactive web map viewer.

GeoNetwork opensource has been developed to connect spatial information communities and their data using a modern architecture that is both powerful and low cost, based on the principles of Free and Open Source Software (FOSS) and International and Open Standards for services and protocols (from ISO/TC211 and OGC). (<http://geonetwork-opensource.org/>)

Main features in GeoNetwork opensource (<http://geonetwork-opensource.org/>) are:

- Immediate search access to local and distributed geospatial catalogues
- Up- and downloading of data, graphics, documents, pdf files and any other content type
- An interactive Web Map Viewer to combine Web Map Services from distributed servers around the world
- A randomly selected Featured Map
- Recently updated entries, also accessible as RSS news feeds and as GeorSS.
- Online editing of metadata with a powerful template system
- Native support for ISO19115/ISO19119/ISO19139/ISO19110 and ISO Profiles, FGDC and Dublin Core formatted metadata
- Scheduled harvesting and synchronization of metadata between distributed catalogues (GeoNetwork, CSW, Z39.50, OGC WxS, WebDav, Thredds, Local filesystem, OAI-PMH)
- Support CSW 2.0.2 ISO Profile, OAI-PMH, Z39.50 protocols
- Fine-grained access control
- Group and user management
- Multi-lingual user interface

Further information on GeoNetwork opensource are available at the Geonetwork website at <http://geonetwork-opensource.org/>.

The BLAST data are currently based in the following GeoNetwork site, published by the Danish Ministry of the Environment:
<http://mimmetadata.kms.dk/geonetwork/srv/en/main.home>

Because of certain technical and time limitations, the first version of the BLAST metadata catalogue does not have its own GeoNetwork site. This is, however, a goal for a second version.

Users need to be registered before they can enter data into GeoNetwork. This can be done by using the same credentials as on the BLAST web page.

5.2 Populating the BLAST metadatabase

Upon completion of the Theme List, an e-mail containing guidelines for registering the actual metadata was sent to the primary contact for metadata in each country, with a request for them to register metadata as soon as possible (appendix 5). After a few months, a reminder was sent out.

Status for metadata collecting, as of May 2011 is as follows:

Norway - Has an Inspire compliant metadata catalogue based on GeoNetwork, from which data can be harvested. This has been proved on two datasets, but due to inconsistencies between the different versions of GeoNetwork, complete harvesting of the Norwegian data awaits an upgrade of the BLAST GeoNetwork installation. This upgrade is expected to be completed by June 2011, There remains an issue regarding language, as all metadata is in Norwegian. This is a problem which is applicable to the other non-English speaking countries involved in BLAST.

UK has provided ISO 19139 encoded XML metadata conforming, as far as possible, with INSPIRE.

Belgium – Has registered a few themes using the GeoNetwork interface. However, Belgium experiences problems with data not owned by any of the project partners. As task 3.1 showed, there is a large deficit of publicly available, standardised metadata. It is vital that it is the data owners themselves who register metadata, and it has proven difficult to impose such a task on other organisations.

Denmark – Has registered metadata which is either owned by the National Survey and Cadastre, or publicly available through the Danish Environmental Portal. As Belgium, Denmark is experiencing difficulty collecting metadata on data owned by other organisations.

Germany – Has completed the Theme List, but has not registered any metadata.

The Netherlands – Has completed the Theme List, but has not registered any metadata.

5.3 Further development

Although this report concludes the tasks 3.1 and 3.2, work on the BLAST metadata catalogue is by no means finalized. The metadata catalogue will continue to be maintained by the National Survey and Cadastre throughout the project, and for a limited time after the finalization of BLAST.

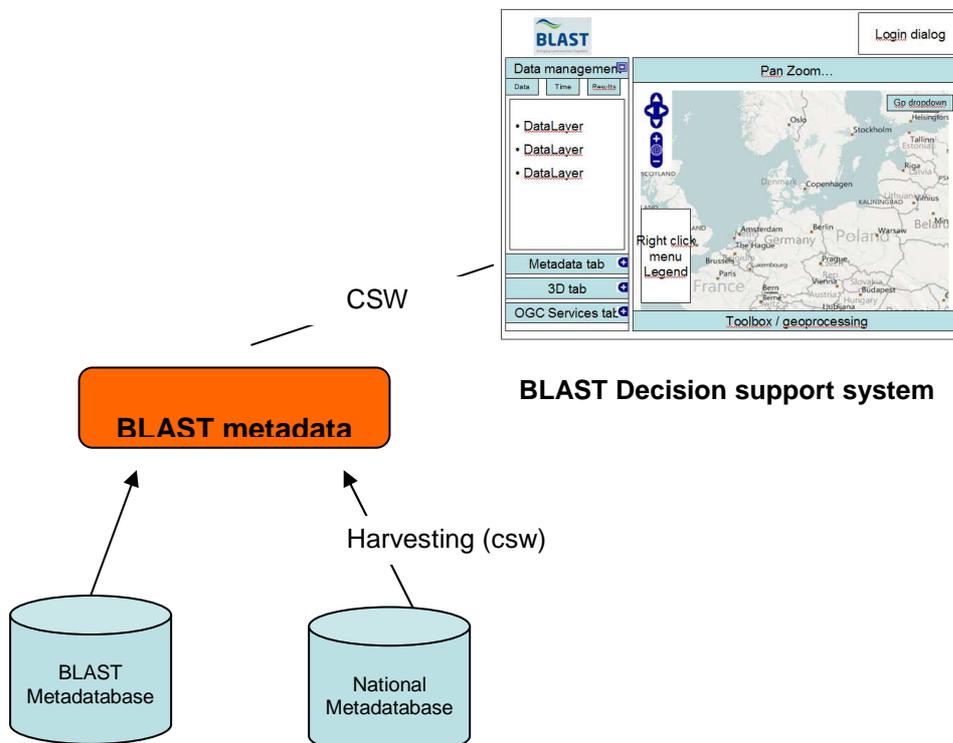
It is also scheduled for the Danish National Survey and Cadastre to have undertaken the following improvements by September 2011:

- Upgrade GeoNetwork to version 2.6.4
- Move the BLAST metadata catalogue to its own site. This will allow for a layout that resembles that of the BLAST website.

- Complete harvesting of Norwegian metadata
- Harvesting of Danish metadata from <http://geodatainfo.dk/Portal/>
- Continue registering of metadata

It is also expected that the registering of metadata will continue.

In the scope of WP6 the metadata catalogue will be integrated with the web based decision support system developed, allowing for searching and viewing data here. Hopefully this will also improve the incentive for the data owners to register metadata.



6. Conclusions

As mentioned in section 3 several international projects have documented the widespread need for metadata – a need that has only been met at a cursory level.

Countries have addressed the challenges of defining metadata for their purposes and developing metadata catalogues on an individual basis. Only since the introduction of the INSPIRE Directive and the recommendation of ISO 19 115 as a standard approach to metadata have these resources and initiatives become relevant in cross-border contexts.

The implementation of the above-mentioned ISO standard does not address all the challenges associated with metadata. The management of metadata is not only an issue of standardisation or technical platforms for search, display and exchange, but to a large degree are also an issue of governance. It is not enough that it is possible to submit metadata to shared resources – it needs to be required. This has been made very clear in task 3.2 where the amount of resources required to collect metadata have been underestimated. Although there seems to be full agreement among the project partners concerning the importance of metadata, the actual acquisition of metadata has proven to be a challenge.

When metadata are being shared in the context of international projects, language barriers also present obstacles. Technical details are often easy to understand across language boundaries, but descriptive details are not. Automatic translation tools like the one currently employed by Google could help provide a part of the solution, but can by far cover all nuances of the different languages, especially in regard to terminology used within specific subjects.

Appendix 1: Related projects

Related projects that are currently registered in the database.

<p>Transfer Standard Maintenance and Application Development Working Group (TSMAD):</p>	<p>A WP under IHO with the objectives to maintain, develop and extend the IHO transfer standard for digital hydrographic data including the existing Special Publication S-57 and the coming new geospatial standard for hydrographic data S-100 incl. the future ENC product specification S-101 (S-100 can support a wide variety of hydrographic-related digital data sources. It is fully aligned with mainstream international geospatial standards, in particular the ISO 19100 series of geographic standards, thereby enabling the easier integration of hydrographic data and applications into geospatial solutions.)</p> <p>Comment: S57/S100/S101 are standards that the metadata base must be able to hold.– It is possible to download bathymetric and other data. There are certain metadata, but not in a standardized, queriable form.</p>
<p>Freightwise</p>	<p>FREIGHTWISE aims at bringing together three different sectors:</p> <ul style="list-style-type: none"> Transport Management: Shippers, Forwarders. Operators and Agents; Traffic and Infrastructure Management: Rail, Road, Sea, Inland waterways; Administration : Customs, Border Crossing, Hazardous Cargo, Safety and Security <p>The project will support the co-operation of these sectors in order to develop and demonstrate suitable intermodal transport solutions in a range of business cases. The project shall support the complex service integration into integrated transport chains. The technical expertise in the project will focus on the development of a reference architecture for intermodal transport and the integration of relevant IT systems.</p> <p>Comment: No information on metadata or available geographic data.</p>
<p>EfficienSea</p>	<p>One of the goals of the project is to test a new tool for integrated coastal zone management, i.e. specifically a</p>

	<p><i>dynamic sensitivity map</i>. The map will consist of various data layers – including bathymetry; geology; habitat type; water column parameters as environmental ‘layers’; and various resource uses (ship traffic, aquaculture, installations) as anthropogenically driven layers.</p> <p>Comments: No information on metadata or available geographic data.</p>
<p>MarNis</p>	<p>The development of a a safety structure in European waters through the use of Vessel Traffic Management (VTM). The safety structure includes continuous monitoring of high risk vessels along the European coasts using AIS and Long Range (LR) AIS.</p> <p>Comment: No information on metadata or available geographic data.</p>
<p>One Geology-Europe</p>	<p>OneGeology-Europe aims to create dynamic digital geological map data for Europe.</p> <p>OneGeology-Europe will address licensing and multi-lingual aspects of sharing geological knowledge and demonstrate best practice examples of the delivery and application of geological spatial data in the public and private sectors.</p> <p>OneGeology-Europe will make geological spatial data held by European geological surveys both discoverable and accessible</p> <p>Comment: The architecture of the project respects, as far as possible, the INSPIRE architecture: the National datasets are implemented by view and download services (through WMS and WFS). They are discovered thanks to the defined metadata profile and the discovery service (metadata catalogue with CSW interface, harvesting mechanism). The datasets are provided in a common data specification.</p> <p>The profile used i OneGeology-Europe project is fully compliant with the INSPIRE Regulation on Metadata</p>
<p>Safe Sea Network (SAFESEANET)</p>	<p>SAFESEANET, a European Platform for Maritime Data Exchange between Member States' maritime authorities, is a network/Internet solution based on the concept of a distributed</p>

	<p>database.</p> <p>SAFESEANET's main objective is to aid the collection, dissemination and harmonised exchange of maritime data. The network assists communication between authorities at local/regional level and central authorities thus contributing to prevent accidents at sea and, by extension, marine pollution, and that the implementation of EU maritime safety legislation will be made more efficient.</p> <p>SAFESEANET has implemented a Central Index System that stores only references to the data locations and not the actual data itself. It functions as a central hub for all communication between data requesters and data providers - somewhat like a telephone switchboard.</p> <p>The establishment of the network will facilitate</p> <ul style="list-style-type: none"> • Collection and dissemination of data related to maritime activities; • Harmonised exchange of this data. <p>Comment: There is no standardised metadata or available geographic data.</p>
<p>Sustainable Coastal Development in Practise (SUSCOD)</p>	<p>SUSCOD aims to make a step change in the application of integrated coastal zone management (ICZM). In doing so coastal potentials (economical, social and environmental) can be utilized to the full advantage and broader support for coastal management measures can be secured through a practical web based tool.</p> <p>Comment: No information on metadata or available geographic data</p>
<p>C-scope</p>	<p>C-scope aims to develop a coastal management tool and a coastal atlas over Flanders, Belgium. Data produced is relevant for WP6.</p> <p>Comment: Some downloadable, but only for the Flandern region. It is difficult to get a real overview of data, as there is no discovery metadata catalogue.</p>
<p>Impact of Climate Change on the Quality of Urban and Coastal</p>	<p>The projects aims to collect knowledge on the imoact of climate changes on water quality, to communicate and raise awareness towards this knowledge, to improve the ability of decision makers to counteract these on local and international</p>

<p>Waters Diffuse Pollution (DiPol)</p>	<p>level, and to facilitate public participation herein.</p> <p>Comment: Existing data for different testsites will be gathered and modelled. No information available about database or databasestructure.</p>
<p>BaltSeaPlan</p>	<p>The different maritime sectors, such as shipping, fishery, offshore wind energy or mineral extraction are more and more competing for the limited space of the Baltic Sea. A wise, proactive Maritime Spatial Planning could not only help avoiding conflicts between the uses, but through creating synergies lay basis for a sustainable maritime economy.</p> <p>Information will be collected with application of newest tools and methods, such as sea-bed modelling and climate change scenarios. All data will be harmonised according to requirements of the EC INSPIRE directive and compiled in a joint database.</p> <p>BaltSeaPlan partners will prepare an update based on the INSPIRE directive and ISO standards.</p> <p>The data exchange will be in Lat/Lon (WGS 84). As rule of a thumb the best available quality/scale of data should be chosen. However, BaltSeaPlan should not be limited by the quality of the available data - the database can combine data of different quality, important is the overall image of the Baltic Sea which will be produced as a result. It has a show-case character and does not have to be perfect.</p> <p>Comment: No information on how metadata will be handled in the project.</p>
<p>BalticClimate</p>	<p>The project aims to identify how the climate change phenomenon will also present opportunities and chances and not only obstacles for the development of municipalities and regions when they are accounting for climate change information in their long term strategies and planning. The process of doing so will increase the competitiveness of small and medium sized cities and rural areas and their surrounding regions. BalticClimate's main outputs will be made transferable and disseminated to the local and regional level in all BSR countries to multiply the achieved results in the whole BSR. This will also improve the sustainable development perspectives on the national, Baltic Sea Region, European, and</p>

	<p>global levels.</p> <p>Comment: No information on databases.</p>
CleanSeaNet	<p>The project aims to enhance maritime safety and monitor ship-source pollution. Satellite based monitoring system for marine oil spills.</p> <p>Comment: Data output in the form of satellite imagery. Restricted use (see license agreements).</p>
Forum Skagerrak	<p>The project aims to widen knowledge of, and deliver concrete actions for, a cleaner and more attractive sea and coast.</p> <p>The ICZM work package is relevant for WP6. Mapping for increased knowledge on sensitive deep sea beds. Output from the project is, among other things, a database of monitoring data in Skagerrak which allows for viewing and editing data.</p> <p>Comment: There is no actual metadata related to the database.</p>
Safety at Sea	<p>Maritime Risk Atlas – GIS application. Search facility only in Norway. Harmonisation of risk management, Routing and safe seaways, Coastal zone management, Risk assessment and safety awareness.</p> <p>Comment: No standardised discovery metadata.</p>
Baltic Sea Management - Nature Conservation and Sustainable Development of the Ecosystem through Spatial Planning (BALANCE)	<p>BALANCE aims to develop transnational marine spatial planning tools for marine management planning and decision making.</p> <p>Comment: Outputs include data management, inter calibration and collation of data, and a BALANCE data- and metadata portal for publishing and searching data. The Metadata in the Balance project will follow the ESRI implementation of the ISO 19115 metadata standard. .</p>
Innovative Management for Europe's Changing Coastal Resource (IMCORE)	<p>A Comparator Data Base Tool will be developed to improve the capacity of decision makers concerned with coastal issues to quickly and easily compare and contrast their situations with respect to other management approaches in the NW Europe region. This is relevant for WP1.</p> <p>Demonstration Technologies for the Visualisation of Coastal</p>

	<p>Futures covering three technological approaches; Geographic Information Systems (GIS), Web Based Virtual Reality, and a Customised Simulator will be developed to demonstrate potential aids to adaptive management in response to climate change impacts in the coastal zone. Relevant for WP3 The project ends in 2011. Comment: No standardised metadata.</p>
Emodnet	<p>European Marine Observation and Data Network – Aims at building a European marine data infrastructure Nearly all require data of different natures – physical, chemical, biological etc. - and are greatly dissatisfied with the current marine infrastructure. Data are hidden with over-restrictive access and re-use conditions, few indications of quality, incompatible standards, unrealistic pricing and insufficient temporal and spatial resolution. Five basic principles for improvement: Sustainable EU support, interoperability, multi-use, charging at marginal cost and clearer indications of ownership, accuracy and precision. Comment: A hydrographic portal is launched in May 2010, for viewing and distributing data, such as water depth, depth profiles and coastlines. Metadata and data access service is based on the SeaDataNet CDI service, for identifying and retrieving survey data sets from many data providers. All layers are OGC WMS services.</p>
ICZMap – Seazone	<p>Developing a national integrated Coastal Zone Map over the UK. Comment: No standardised metadata</p>
Global Monitoring for Environment and Security – European Earth Observation Programme. (GMES)	<p>Contains a database of projects funded by the European Commission and the European Space Agency.: http://www.gmes.info/pages-principales/projects/project-database/database-of-projects/. Good possibility to search the projects using either text search, or through various keywords. The GMES Programme covers six thematic areas: marine, atmosphere, security, emergency, land and climate change.</p>
WISE Marine	<p>The aim of this project is to build an integrated spatial information system www.water.europa.eu Comment: Output is a data web portal which contains a wide range of downloadable data about Europe’s environment, but</p>



	no standardised metadata.
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Appendix 2: INSPIRE Principles

The INSPIRE initiative intends to improve the current situation by triggering the creation of a European Spatial Data Infrastructure for the access and use of spatial information built on the basis of the following principles:

(http://inspire.jrc.ec.europa.eu/reports/position_papers/inspire_dpli_pp_v12_2_en.pdf)

- Data should be collected once and maintained at the level where this can be done most effectively
- It must be possible to combine seamlessly spatial information from different sources across Europe and share it between many users and applications
- It must be possible for information collected at one level to be shared between all the different levels, e.g. detailed for detailed investigations, general for strategic purposes
- Geographic information needed for good governance at all levels should be abundant and widely available under conditions that do not restrain its extensive use
- It must be easy to discover which geographic information is available, fits the needs for a particular use and under what conditions it can be acquired and used
- Geographic data must become easy to understand and interpret because it can be visualised within the appropriate context and selected in a user-friendly way.

Appendix 3: Metadata and INSPIRE

In order to comply with the INSPIRE Directive regarding metadata on discovery level the following metadata element must be recorded as a minimum:

Metadata elements	Multiplicity	Condition	Remarks	Where to enter in the GeoNetwork U Interface
Resource title	1			Identification Info: Title
Resource abstract	1			Identification Info: Abstract
Resource type	1		This can be either a dataset or a dataset series	Data quality info: Hierarchy level
Resource locator	0..*	Mandatory if a URL is available to obtain more information on the resource, and/or access related services.		Distribution info / Transfer options: Online resource
Unique resource identifier	1..*		Unik id. ex. Organization	Identification Info / Data identification / Citation Identifier
Resource language	0..*	Mandatory if the resource includes textual information.		Identification Info: Language
Topic category	1..*		The content of this element comes from D.2 in the implementing rules for metadata	Identification Info: Topic category code
Keyword	1..*		At least one of the keyword must come from general environmental multilingual thesaurus (GEMET). It is allowed to use keywords from other sources as long as one originates from GEMET.	Identification Info: Descriptive keywords
Geographic bounding box	1..*		The coordinates of the bounding box are expressed in any geographic coordinate reference system with a Greenwich Prime Meridian	Identification Info / Extent / Geographic bounding box: Topic category code
Temporal reference	1..*			Identification Info / Extent: Temporal Extent
Lineage	1			Data quality info: Statement
Spatial resolution	0..*	Mandatory for data sets and data set series if an equivalent scale or a resolution distance can be specified.		Identification Info / Equivalent scale: Denominator
Conformity	1..*		Describe the conformity of a dataset or dataset series against the specification used for producing the dataset or dataset series.	Data quality info / data quality / report / result / conformance result / specification No conformity against specification. * * The Implementing Rules for metadata de Part D 5 three degrees of conformity: conformant, not conformant and not evaluated. In ISO 15926 it is possible to report about the conformity to a specification when it has been evaluated, but the only way to express the fact that the conformity with a given specification has not been evaluated is not to report anything in the metadata.
Conditions for access and use	1..*			Identification Info / Data identification / resource constraints / Legal constraints: Use limitations Other constraints
Limitations on public access	1..*			Identification Info / Data identification / resource constraints / Legal constraints: Access

				constraints / Use constraints
Responsible organisation	1..*			Identification Info: Point of contact
Metadata point of contact	1..*			Metadata: Metadata author
Metadata date	1			Metadata: Data stamp
Metadata language	1			Metadata: Language

A more thorough description of the metadata element described in the table above can be found in the following document:

- [COMMISSION REGULATION \(EC\) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata](#)
[INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119](#)

Appendix 4: Theme Lists

	A	B	C	D	E	F
1	Data list from WP3 work plan	Data title	Data Management Organisation	Data Provider	Point of contact	E-mail
2	Coastline: MHW(S)	Kort10 Coastline	KMS	KMS	Carsten Riise-Jensen	cr@kms.dk
3	Coastline: MLW(S)	Kort10 elevation	KMS	KMS	Carsten Riise-Jensen	cr@kms.dk
4	Coastline: LAT	NoData				
5	Elevation: Bathymetry	DTM	KMS or/and Danish Maritime Safe	KMS or/and Danish M	Carsten Riise-Jensen	cr@kms.dk
6	Elevation: Coastal LiDAR	DHM-meteadata-beskrivelse-ver	KMS	KMS	Carsten Riise-Jensen	cr@kms.dk
7	Elevation: Terrestrial Survey	NoData				
8	Tidal Elevations: Surfaces	to be confirmed	Danish Maritime Safety Administra	Danish Maritime Safe	Carsten Riise-Jensen	cr@kms.dk
9	Tidal Elevations: Tide Stations	to be confirmed	Danish Maritime Safety Administra	Danish Maritime Safe	Carsten Riise-Jensen	cr@kms.dk
10	Seabed and Coastal Geology: Superficial Deposits	to be confirmed	Geological Survey of Denmark and	Geological Survey of	Carsten Riise-Jensen	cr@kms.dk
11	Seabed and Coastal Geology: Bedrock	to be confirmed	Geological Survey of Denmark and	Geological Survey of	Carsten Riise-Jensen	cr@kms.dk
12	Offshore Infrastructure: Oil & Gas Installations	to be confirmed	Danish Maritime Safety Administra	Danish Maritime Safe	Carsten Riise-Jensen	cr@kms.dk
13	Offshore Infrastructure: Cables	to be confirmed	Danish Maritime Safety Administra	Danish Maritime Safe	Carsten Riise-Jensen	cr@kms.dk
14	Offshore Infrastructure: Pipelines	to be confirmed	Danish Maritime Safety Administra	Danish Maritime Safe	Carsten Riise-Jensen	cr@kms.dk
15	Aquaculture infrastructure: e.g. Fish Cages	to be confirmed	Danish Maritime Safety Administra	Danish Maritime Safe	Carsten Riise-Jensen	cr@kms.dk
16	Debris: Wrecks, Obstructions and Navigational Hazards	to be confirmed	Danish Maritime Safety Administra	Danish Maritime Safe	Carsten Riise-Jensen	cr@kms.dk
17	Shoreline Constructions: e.g. Pontoons, Piers, Wharves, Piles	Kort10	KMS	KMS	Carsten Riise-Jensen	cr@kms.dk
18	Shoreline Constructions: e.g. Pontoons, Piers, Wharves, Piles	to be confirmed	Danish Coastal Authority	Danish Coastal Auth	Carsten Riise-Jensen	cr@kms.dk
19	National Limits and Boundaries: e.g. 12 Nautical Mile / Fishing / Continental Shelf	MaritimeBoundaries	KMS	KMS	Carsten Riise-Jensen	cr@kms.dk
20	Licensed Development and Activity Areas: Aggregate Extraction	to be confirmed	Danish Energy Agency	Danish Energy Agenc	Carsten Riise-Jensen	cr@kms.dk
21	Licensed Development and Activity Areas: Renewables	to be confirmed	Danish Energy Agency	Danish Energy Agenc	Carsten Riise-Jensen	cr@kms.dk
22	Licensed Development and Activity Areas: Oil & Gas	to be confirmed	Danish Energy Agency	Danish Energy Agenc	Carsten Riise-Jensen	cr@kms.dk
23	Named Sea Areas: Marine Gazetteer	Chart Only	KMS		Carsten Riise-Jensen	cr@kms.dk
24	Protected & Conservation Areas	Natura 2000	Danish Nature & Environment Por	Danish Nature & Envl	Sophie Hohwü-Christens	sohoh@kms.dk
25	Protected & Conservation Areas	Protected areas	Danish Nature & Environment Por	Danish Nature & Envl	Sophie Hohwü-Christens	sohoh@kms.dk
26	Protected & Conservation Areas	Historic sites	Danish Nature & Environment Por	Danish Nature & Envl	Sophie Hohwü-Christens	sohoh@kms.dk
27	Flora	Protected habitats	Danish Nature & Environment Por	Danish Nature & Envl	Sophie Hohwü-Christens	sohoh@kms.dk
28	Fauna					
29						

	A	B	C	D	E	F
6	Elevation: Bathymetry	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
7	Elevation: Bathymetry	Fishery data base	NHS	NHS	Per-A. Jakobsen	sjodata@statkart.no
8	Elevation: Coastal LiDAR		Norwegian mapping authority	NMA	Roy Mellum	roy.mellum@statkart.no
9	Elevation: Terrestrial Survey		Norwegian mapping authority	NMA	Roy Mellum	roy.mellum@statkart.no
10	Tidal Elevations: Surfaces		NHS, Data acquisition section	NHS	Swen Roemer	swen.roemer@statkart.no
11	Tidal Elevations: Tide Stations	Tide tables	NHS	NHS	Per-A. Jakobsen	sjodata@statkart.no
12	Seabed and Coastal Geology: Superficial Deposits	Marine jordarter (to be confirme	Geological Survey of Norway (NGU)	NGU	to be confirmed	ngu@ngu.no
13	Seabed and Coastal Geology: Bedrock	NGU_Bedrock_Superficial_Ge	Geological Survey of Norway (NGU)	NGU	to be confirmed	ngu@ngu.no
14	Offshore Infrastructure: Oil & Gas Installations	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
15	Offshore Infrastructure: Oil & Gas Installations	Subsurface facility (to be confi	Norwegian petroleum directorate (	OD	to be confirmed	postboks@npd.no
16	Offshore Infrastructure: Oil & Gas Installations	Surface facility (to be confirme	Norwegian petroleum directorate (	OD	to be confirmed	postboks@npd.no
17	Offshore Infrastructure: Oil & Gas Installations	Exploration wellbores (to be co	Norwegian petroleum directorate (	OD	to be confirmed	postboks@npd.no
18	Offshore Infrastructure: Cables	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
19	Offshore Infrastructure: Pipelines	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
20	Offshore Infrastructure: Pipelines	Pipelines (to be confirmed)	Norwegian petroleum directorate (	OD	to be confirmed	postboks@npd.no
21	Aquaculture infrastructure: e.g. Fish Cages	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
22	Debris: Wrecks, Obstructions and Navigational Hazards	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
23	Shoreline Constructions: e.g. Pontoons, Piers, Wharves, Piles	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
24	National Limits and Boundaries: e.g. 12 Nautical Mile / Fishing / Continental Shelf	Primary data base	NHS, Data management section	NHS	Per-A. Jakobsen	sjodata@statkart.no
25	Licensed Development and Activity Areas: Aggregate Extraction					
26	Licensed Development and Activity Areas: Renewables					
27	Licensed Development and Activity Areas: Oil & Gas	Production licences (to be conf	Norwegian petroleum directorate (	OD	to be confirmed	postboks@npd.no
28	Named Sea Areas: Marine Gazetteer	to be confirmed	to be confirmed	to be confirmed	to be confirmed	to be confirmed
29	Protected & Conservation Areas	to be confirmed	Direktoratet for Naturforvaltning (DI	DN	to be confirmed	postmottak@dimat.no
30	Flora	to be confirmed	Institute of marine research (IMR)	IMR	to be confirmed	post@imr.no
31	Fauna	to be confirmed	Institute of marine research (IMR)	IMR	to be confirmed	post@imr.no
32						

A	B	C	D	E	F
1 Data list from WP3 work plan	Data title	Data Management Organisation	Data Provider	Point of contact	E-mail
2 Coastline: MHW(S)	TOP10NL				
3 Coastline: MLW(S)	TOP10NL				
4 Coastline: LAT	TLDB	NLHO, dept. Chart Production	NLHO, copyright man J. Schaap		sales@hydro.nl
5 Elevation: Bathymetry	BAS/RBB	NLHO, dept. Chart Production	NLHO, copyright man J. Schaap		sales@hydro.nl
6 Elevation: Coastal LIDAR		Rijkswaterstaat	Rijkswaterstaat, Data & ICT Dept.		
7 Elevation: Terrestrial Survey		Rijkswaterstaat	Rijkswaterstaat, Data & ICT Dept.		
8 Tidal Elevations: Surfaces	LAT2006, GEONZ97	NLHO, dept. Geodesy & Tides	NLHO, copyright man L.L. Dorst		sales@hydro.nl
9 Tidal Elevations: Tide Stations		Rijkswaterstaat, North Sea Directo	Hydro Meteor Center N	Chris Slegt	
10 Seabed and Coastal Geology: Superficial Deposits		Geological Survey of the Netherlands (TNO-NITG)			
11 Seabed and Coastal Geology: Bedrock		Geological Survey of the Netherlands (TNO-NITG)			
12 Offshore Infrastructure: Oil & Gas Installations		Ministry of Economic Affairs, State Supervision of the Mines (SODM)			
13 Offshore Infrastructure: Cables		Ministry of Economic Affairs, State Supervision of the Mines (SODM)			
14 Offshore Infrastructure: Pipelines		Ministry of Economic Affairs, State Supervision of the Min	A.M.A.J. van Kuijk		A.M.A.J.vankuijk@minez.nl
15 Aquaculture infrastructure: e.g. Fish Cages		Ministry of Agriculture			
16 Debris: Wrecks, Obstructions and Navigational Hazards		NLHO, dept. Chart Production	NLHO, copyright man J. Schaap		sales@hydro.nl
17 Shoreline Constructions: e.g. Pontoons, Piers, Wharves, Piles		NLHO, dept. Chart Production	NLHO, copyright man J. Schaap		sales@hydro.nl
18 National Limits and Boundaries: e.g. 12 Nautical Mile / Fishing / Continental Shelf		NLHO, dept. Geodesy & Tides	NLHO, copyright man L.L. Dorst		sales@hydro.nl
19 Licensed Development and Activity Areas: Aggregate Extraction		Rijkswaterstaat North Sea			
20 Licensed Development and Activity Areas: Renewables		Rijkswaterstaat North Sea			
21 Licensed Development and Activity Areas: Oil & Gas		Ministry of Economic Affairs, State Supervision of the Min	H. Duijts		rik.duijts03@rws.nl
22 Named Sea Areas: Marine Gazetteer	HPD	NLHO, dept. Chart Production	NLHO, copyright man J. Schaap		sales@hydro.nl
23 Protected & Conservation Areas		Ministry of Agriculture			
24 Flora		Ministry of Agriculture			
25 Fauna		Ministry of Agriculture			
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31					
32					

A	B	C	D	E	F
1 Data list from WP3 work plan	Data title	Data Management Organisation	Data Provider	Point of contact	E-mail
2 Coastline: MHW(S)	Coastline MHW	BSH	BSH	Bernd Vahrenkamp	bernd.vahrenkamp@bsh.de
3 Coastline: MLW(S)	n.a.				
4 Coastline: LAT	n.a.				
5 Elevation: Bathymetry	SV-Modell	BSH	BSH	Bernd Vahrenkamp	bernd.vahrenkamp@bsh.de
6 Elevation: Coastal LIDAR	n.a.				
7 Elevation: Terrestrial Survey	DGM-D	BKG	BKG	Martina Sacher	Martina.sacher@bkg.bund.de
8 Tidal Elevations: Surfaces	LAT-Modell	BSH	BSH	Bernd Vahrenkamp	bernd.vahrenkamp@bsh.de
9 Tidal Elevations: Tide Stations	Pegeldaten	WSV	BSH	Bernd Vahrenkamp	bernd.vahrenkamp@bsh.de
10 Seabed and Coastal Geology: Superficial Deposits	Shelf Geoplotter	BSH	BSH	Manfred Zeiler	manfred.zeiler@bsh.de
11 Seabed and Coastal Geology: Bedrock	Geopotential North Sea	BGR	BGR	Lutz Reinhardt	lutz.reinhardt@bgr.de
12 Offshore Infrastructure: Oil & Gas Installations	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
13 Offshore Infrastructure: Cables	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
14 Offshore Infrastructure: Pipelines	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
15 Aquaculture infrastructure: e.g. Fish Cages	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
16 Debris: Wrecks, Obstructions and Navigational Hazards	DUWHAS	BSH	BSH	Hartmut Pietrek	hartmut.pietrek@bsh.de
17 Shoreline Constructions: e.g. Pontoons, Piers, Wharves, Piles	HPD (S-57)	BSH	BSH	Stefan Grammann	stefan.grammann@bsh.de
18 National Limits and Boundaries: e.g. 12 Nautical Mile / Fishing / Continental Shelf	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
19 Licensed Development and Activity Areas: Aggregate Extraction	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
20 Licensed Development and Activity Areas: Renewables	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
21 Licensed Development and Activity Areas: Oil & Gas	CONTIS	BSH	BSH	Nico Nolte	nico.nolte@bsh.de
22 Named Sea Areas: Marine Gazetteer	HPD (s-57)	BSH	BSH	Stefan Grammann	stefan.grammann@bsh.de
23 Protected & Conservation Areas	Habitat Mare	BFN	BFN	Bettina Lübben	bettina.luebben@bfn.de
24 Flora	n.a.				
25 Fauna	n.a.				

A	B	C	D	E	F
1 Data list from WP3 work plan	Data title	Data Management Organisation	Data Provider	Point of contact	E-mail
2 Coastline: MHW(S) (line between land area and intertidal area)	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Hans Poppe	hans.poppe@mow.vlaanderen.be
3 Coastline: MLW(S)	Bathy DataBase TRITON	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Hans Poppe	hans.poppe@mow.vlaanderen.be
4 Coastline: LAT (line between sea area and intertidal area)	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Hans Poppe	hans.poppe@mow.vlaanderen.be
5 Elevation: Bathymetry	Bathy DataBase TRITON	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Marc Roesbeke	marc.roesbeke@mow.vlaanderen.be
6 Elevation: Coastal LIDAR	Coastal LIDAR	MCS - Coastal Division	MCS - Coastal Division	Annelies Geldhof	annelies.geldhof@mow.vlaanderen.be
7 Elevation: Terrestrial Survey	DGPS/RTK Survey	MCS - Coastal Division	MCS - Coastal Division	Annelies Geldhof	annelies.geldhof@mow.vlaanderen.be
8 Tidal Elevations: Surfaces	Bathy DataBase TRITON	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Hans Poppe	hans.poppe@mow.vlaanderen.be
9 Tidal Elevations: Tide Stations	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Hans Poppe	hans.poppe@mow.vlaanderen.be
10 Seabed and Coastal Geology: Superficial Deposits	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Nadia Bos	nadia.bos@mow.vlaanderen.be
11 Seabed and Coastal Geology: Bedrock	Bathy DataBase TRITON	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Marc Roesbeke	marc.roesbeke@mow.vlaanderen.be
12 Offshore Infrastructure: Oil & Gas Installations	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
13 Offshore Infrastructure: Cables	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
14 Offshore Infrastructure: Pipelines	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
15 Aquaculture infrastructure: e.g. Fish Cages	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
16 Debris: Wrecks, Obstructions and Navigational Hazards	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Philippe Formesyn	philippe.formesyn@mow.vlaanderen.be
17 Shoreline Constructions: e.g. Pontoons, Piers, Wharves, Piles	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
18 National Limits and Boundaries: e.g. 12 Nautical Mile / Fishing / Continental Shelf	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
19 Licensed Development and Activity Areas: Aggregate Extraction	Aggregate extraction cartography and monitoring - Aggregate resource mapping	FPS Economy	FPS Economy	Koen Degrendele	koen.degrendele@economie.fgov.be
20 Licensed Development and Activity Areas: Renewables	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
21 Licensed Development and Activity Areas: Oil & Gas	Does not exist in the BE				
22 Named Sea Areas: Marine Gazetteer	VLMAR, the VLIZ Marine Gazetteer	Flanders Marine Institute (VLIZ)	Flanders Marine Institute (VLIZ)	Nathalie De Hauwere	nathalie.dehauwere@vliz.be
23 Protected & Conservation Areas	Nautical DataBase HPD	MCS - Flemish Hydrography	MCS - Flemish Hydrography	Peter Vlietinck	peter.vlietinck@mow.vlaanderen.be
24 Flora	To be confirmed: Institute for Agricultural and Fisheries Research (ILVO)?				
25 Fauna	To be confirmed: Institute for Agricultural and Fisheries Research (ILVO)?				

	A	B	C	D	E	F
1	Data list from WP3 work plan	Data title	Data Management Organisation	Data Provider	Point of contact	E-mail
2	Coastline: MHW(S)	OS MasterMap Topography	Ordnance Survey GB	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
3	Coastline: MLV(S)	OS MasterMap Topography	Ordnance Survey GB	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
4	Coastline: LAT	Chart Only	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
5	Elevation: Bathymetry	Survey Bathymetry (DTM)	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
6	Elevation: Coastal LiDAR	Coastal LiDAR	Environment Agency	Environment Agency	Andrew Iwanoczko	Andrew.Iwanoczko@SeaZone.com
7	Elevation: Coastal LiDAR	Coastal LiDAR	Ordnance Survey GB	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
8	Elevation: Terrestrial Survey	OS Profile Plus	Ordnance Survey GB	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
9	Tidal Elevations: Surfaces	VORF	UKHO	UKHO	Mark Halliwell	Mark.Halliwell@UKHO.gov.uk
10	Tidal Elevations: Tide Stations	Total Tide	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
11	Seabed and Coastal Geology: Superficial Deposits	SBS250	BGS	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
12	Seabed and Coastal Geology: Bedrock	Bedrock250	BGS	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
13	Offshore Infrastructure: Oil & Gas Installations	UKDEAL	Common Data Access Limited	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
14	Offshore Infrastructure: Oil & Gas Installations	Surface / Subsea	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
15	Offshore Infrastructure: Cables	Cables	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
16	Offshore Infrastructure: Pipelines	UKDEAL	Common Data Access Limited	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
17	Offshore Infrastructure: Pipelines	Pipelines	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
18	Aquaculture Infrastructure: e.g. Fish Cages	To be confirmed: Cefas?				
19	Debris: Wrecks, Obstructions and Navigational Hazards	Wrecks & Obstructions	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
20	Shoreline Constructions: e.g. Pontoons, Piers, Wharves, Piles	OS MasterMap Topography	Ordnance Survey GB	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
21	National Limits and Boundaries: e.g. 12 Nautical Mile / Fishing / Continental	Limits	UKHO	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
22	Licensed Development and Activity Areas: Aggregate Extraction	Aggregate Licences	The Crown Estate	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
23	Licensed Development and Activity Areas: Renewables	Renewable Licences	The Crown Estate	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
24	Licensed Development and Activity Areas: Oil & Gas	Oil & Gas Licences	Common Data Access Limited	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
25	Named Sea Areas: Marine Gazetteer	Does not exist in the UK				
26	Protected & Conservation Areas	Conservation Data (numerous)	Natural England	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
27	Protected & Conservation Areas	Conservation Data (numerous)	Scottish Natural Heritage	SeaZone	Marisha Rust	Marisha.Rust@SeaZone.com
28	Flora	To be confirmed: Cefas?				
29	Fauna	To be confirmed: Cefas?				
30						

Appendix 5: Guidelines for registering data in the BLAST metadatabase

BLAST metadatabase

You will find the BLAST GeoNetwork Metadatabase at this link:

<http://mimmetadata.kms.dk/geonetwork/srv/en/main.home>

Start by logging in to the GeoNetwork interface (1). Username and password are the same as the ones used for the BLAST website. If you are not registered, or if you encounter any problems, please send a mail to jenan@kms.dk or sohoh@kms.dk.

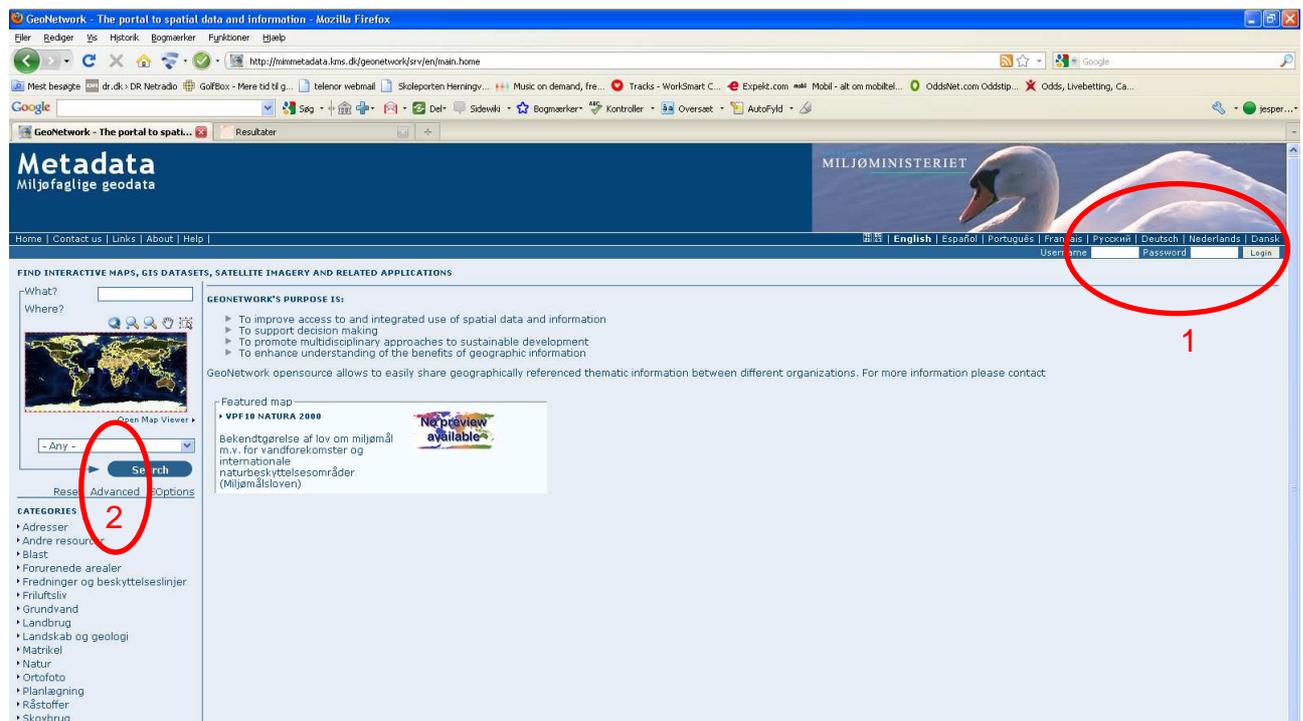
Once you are logged in, the easiest way to register data is by either:

- copying an existing INSPIRE compliant metadata and subsequently entering new information into the relevant fields, or
- uploading an XML file.

Copying an existing INSPIRE compliant metadata

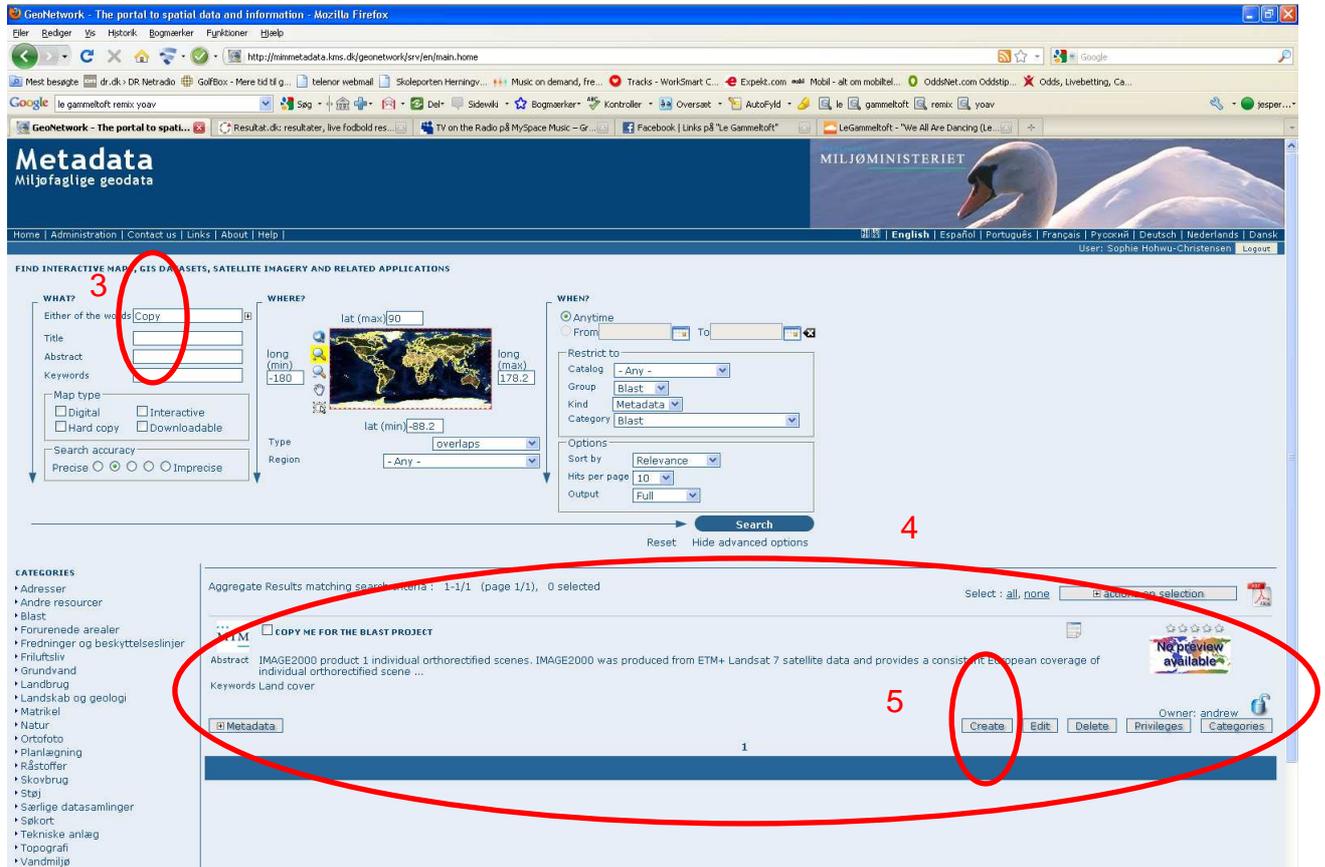
Once you are logged in, you must first find the dataset to duplicate. Search for a metadataset named "Copy me on the BLAST project". This dataset is a copy of an INSPIRE compliant dataset, and the one we want to duplicate.

Use "Advanced" search (2).



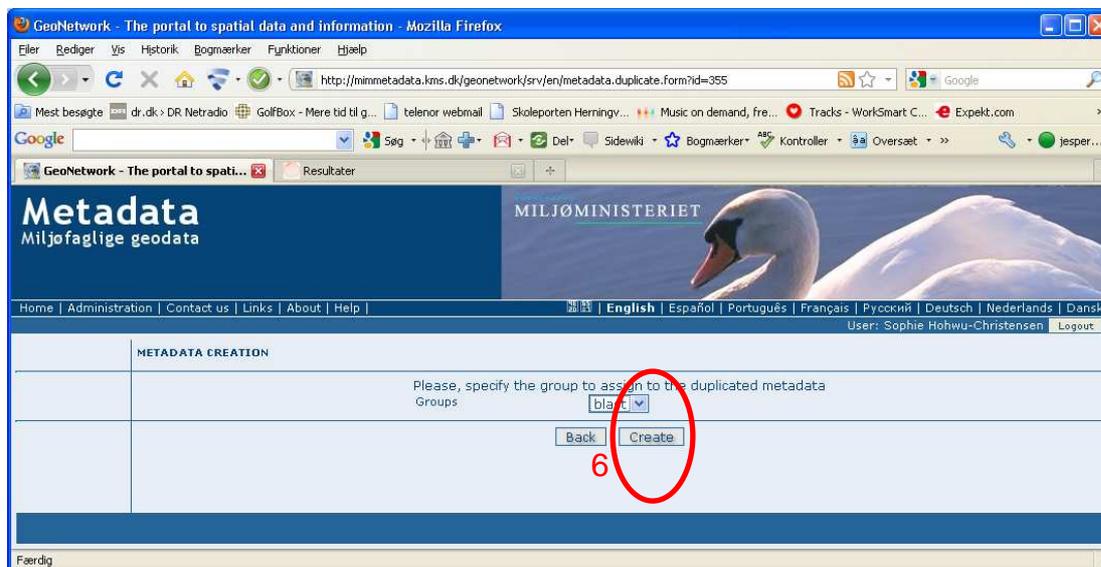
The screenshot shows the GeoNetwork web interface. At the top right, there are login fields for Username, Password, and a Login button, which are circled in red and labeled '1'. On the left side, there is a search interface with a 'Where?' field, a map, and a search button. Below the search button, there are options for 'Reset', 'Advanced', and 'Options', with 'Advanced' circled in red and labeled '2'. The main content area displays 'Metadatabase' and 'Miljøfaglige geodata' with a swan image and 'MILJØMINISTERIET' text. Below this, there is a section for 'FIND INTERACTIVE MAPS, GIS DATASETS, SATELLITE IMAGERY AND RELATED APPLICATIONS' and a 'GEONEWORK'S PURPOSE IS:' section with bullet points. A featured map for 'VPE10 NATURA 2000' is also visible.

Enter the word "Copy" (3) and press search. The dataset will be found (4). Now press "Create" (5) to create a duplicate of the dataset for editing.



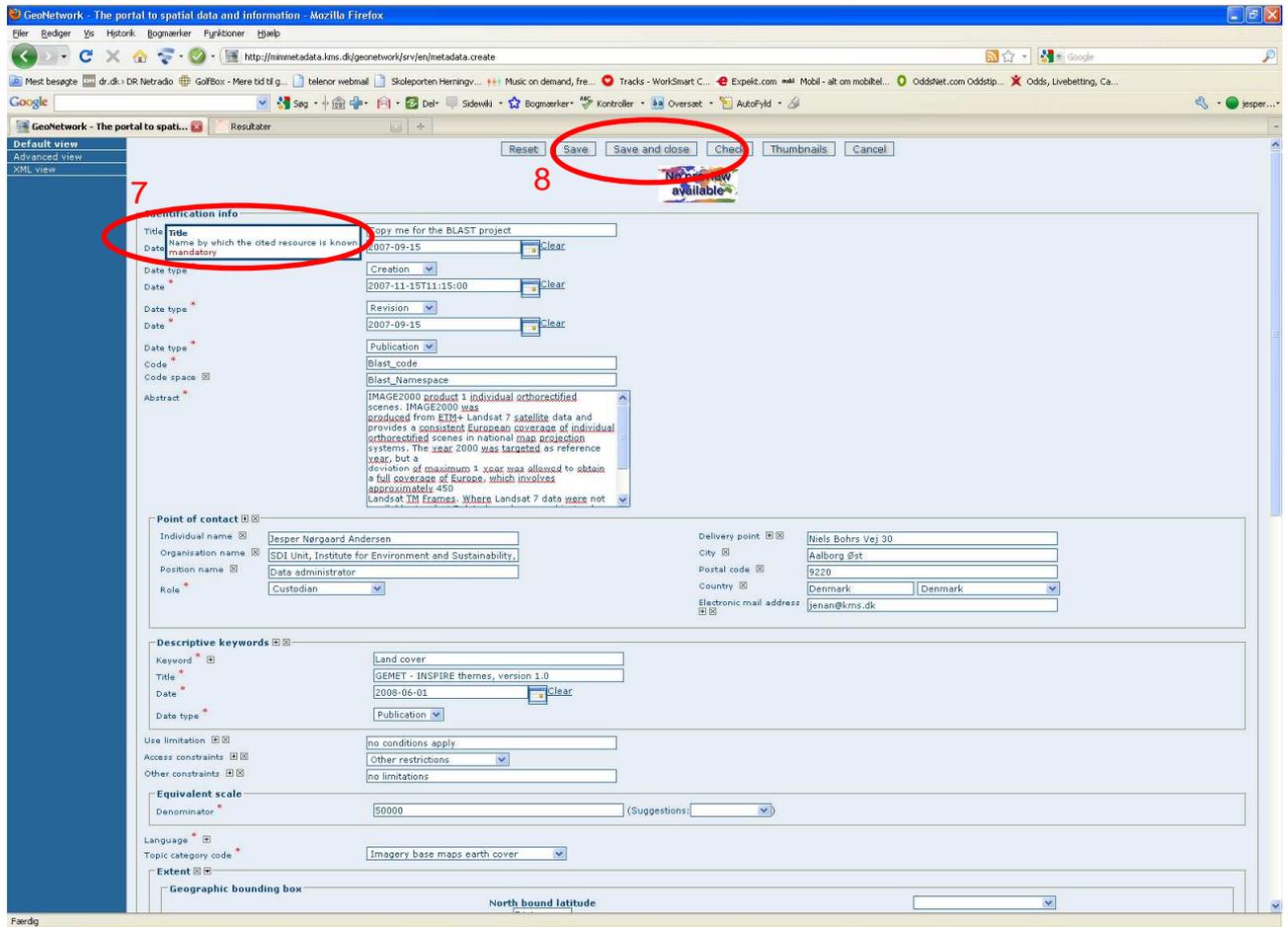
The screenshot shows the GeoNetwork search interface. In the 'WHAT?' section, the word 'Copy' is entered in the search box (3). The search results show a dataset titled 'COPY ME FOR THE BLAST PROJECT' (4). In the action bar below the dataset, the 'Create' button is highlighted (5).

Click "Create" (6)



The screenshot shows the 'METADATA CREATION' form. The instruction reads: 'Please, specify the group to assign to the duplicated metadata'. The 'Groups' dropdown menu is set to 'blast' (6). The 'Create' button is highlighted.

You can now begin to edit the metadata fields (Title, Date, Point of contact etc.). You can view a description of each item by clicking on it (7). When you are done editing the metadata, click on "Save and Close" (8).



The screenshot shows the GeoNetwork metadata editor in Mozilla Firefox. The browser address bar shows the URL: <http://metadata.kms.dk/geonetwork/srv/en/metadata.create>. The interface includes a navigation menu on the left with options like 'Default view', 'Advanced view', and 'XML view'. The main content area is titled 'Identification info' and contains several sections:

- Title:** Copy me for the BLAST project
- Date:** 2007-09-15
- Date type:** Creation
- Date:** 2007-11-15T11:15:00
- Date type:** Revision
- Date:** 2007-09-15
- Date type:** Publication
- Code:** Blast_code
- Code space:** Blast_Namespace
- Abstract:** IMAGE2000 product 1 individual orthorectified scenes. IMAGE2000 was produced from ETM+ Landsat 7 satellite data and provides a consistent European coverage of individual orthorectified scenes in national map projection systems. The year 2000 was targeted as reference year, but a deviation of maximum 1 year was allowed to obtain a full coverage of Europe, which involves approximately 450 Landsat TM Frames. Where Landsat 7 data were not
- Point of contact:**
 - Individual name: Jesper Nergaard Andersen
 - Organisation name: SDI Unit, Institute for Environment and Sustainability,
 - Position name: Data administrator
 - Role: Custodian
 - Delivery point: Niels Bohrs Vej 30
 - City: Aalborg Øst
 - Postal code: 9220
 - Country: Denmark
 - Electronic mail address: jenan@kms.dk
- Descriptive keywords:**
 - Keyword: Land cover
 - Title: GEMET - INSPIRE themes, version 1.0
 - Date: 2008-06-01
 - Date type: Publication
- Use limitation:** no conditions apply
- Access constraints:** Other restrictions
- Other constraints:** no limitations
- Equivalent scale:** Denominator: 50000
- Language:** Imagery base maps earth cover
- Extent:** Geographic bounding box: North bound latitude

Once you have registered your first dataset, this can be used as a template for the following registrations.

Uploading an XML file

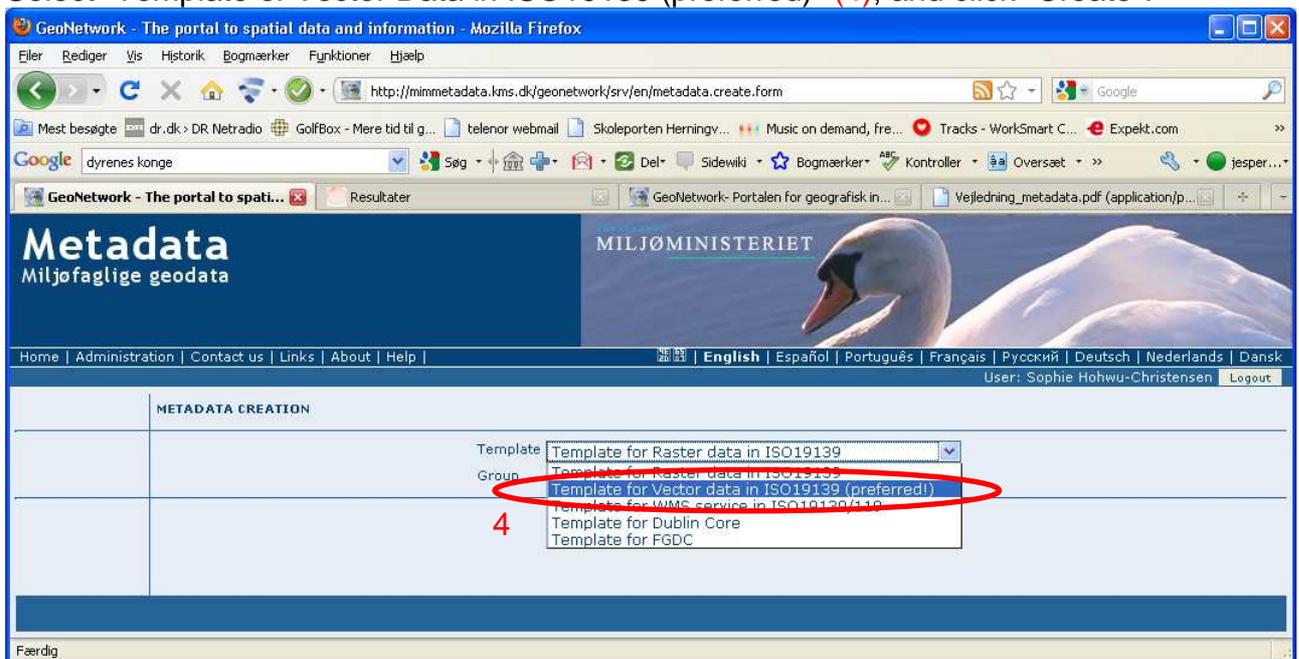
If you already have registered metadata, you can deliver an XML metadata file directly to GeoNetwork. Below is an example (XML) that you can build upon if you wish to use this method.

Log in as described earlier in this document (1).

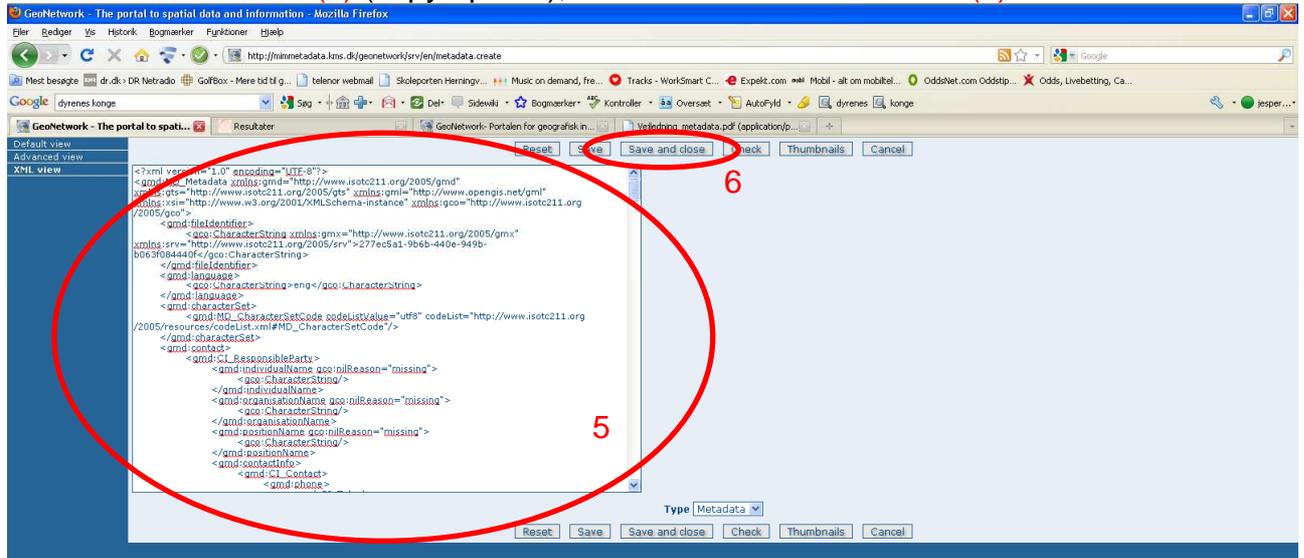
Click on "Administration" (2) and select "New Metadata" (3)



Select "Template of Vector Data in ISO19139 (preferred)" (4), and click "Create".



Then add the xml file (5) (copy / paste), and click "Save and Close" (6)



XML example:

```
<?xml version="1.0" encoding="UTF-8"?>
<gmd:MD_Metadata xmlns:gmd="http://www.isotc211.org/2005/gmd"
xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:gco="http://www.isotc211.org/2005/gco"
xmlns:csw="http://www.opengis.net/cat/csw/2.0.2"
xsi:schemaLocation="http://www.isotc211.org/2005/gmd
http://www.isotc211.org/2005/gmd/gmd.xsd">
  <gmd:fileIdentifier>
    <gco:CharacterString xmlns:gmx="http://www.isotc211.org/2005/gmx"
xmlns:srv="http://www.isotc211.org/2005/srv">dfaaab3e-eaed-462c-b2d8-31f1846ff3c5</gco:CharacterString>
  </gmd:fileIdentifier>
  <gmd:language>
    <gmd:LanguageCode codeList="http://www.isotc211.org/2005/resources/codeList.xml#LanguageCode"
codeListValue="eng"/>
  </gmd:language>
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode codeList="http://www.isotc211.org/2005/resources/codeList.xml#MD_ScopeCode"
codeListValue="dataset"/>
  </gmd:hierarchyLevel>
  <gmd:contact>
    <gmd:CI_ResponsibleParty>
      <gmd:individualName>
        <gco:CharacterString>Jesper Nørgaard Andersen</gco:CharacterString>
      </gmd:individualName>
      <gmd:organisationName>
        <gco:CharacterString>SDI Unit, Institute for Environment & Sustainability, Joint Research
Centre</gco:CharacterString>
      </gmd:organisationName>
      <gmd:positionName>
        <gco:CharacterString>Data administrator</gco:CharacterString>
      </gmd:positionName>
      <gmd:contactInfo>
        <gmd:CI_Contact>
          <gmd:address>
            <gmd:CI_Address>
              <gmd:deliveryPoint>
                <gco:CharacterString>Niels Bohrs Vej 30</gco:CharacterString>
              </gmd:deliveryPoint>
              <gmd:city>
                <gco:CharacterString>Aalborg Øst</gco:CharacterString>
              </gmd:city>
              <gmd:postalCode>
                <gco:CharacterString>9220</gco:CharacterString>
              </gmd:postalCode>
              <gmd:country>
                <gco:CharacterString>Denmark</gco:CharacterString>
              </gmd:country>
              <gmd:electronicMailAddress>
                <gco:CharacterString>jenan@kms.dk</gco:CharacterString>
              </gmd:electronicMailAddress>
            </gmd:CI_Address>
          </gmd:address>
        </gmd:CI_Contact>
      </gmd:contactInfo>
      <gmd:role>
        <gmd:CI_RoleCode codeList="http://www.isotc211.org/2005/resources/codeList.xml#CI_RoleCode"
codeListValue="pointOfContact"/>
      </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:contact>
</gmd:MD_Metadata>
```

```

<gmd:dateStamp>
  <gco:DateTime xmlns:gmx="http://www.isotc211.org/2005/gmx" xmlns:srv="http://www.isotc211.org/2005/srv">2010-09-
  21T10:17:57</gco:DateTime>
</gmd:dateStamp>
<gmd:metadataStandardName>
  <gco:CharacterString xmlns:gmx="http://www.isotc211.org/2005/gmx" xmlns:srv="http://www.isotc211.org/2005/srv">ISO
  19115:2003/19139</gco:CharacterString>
</gmd:metadataStandardName>
<gmd:metadataStandardVersion>
  <gco:CharacterString xmlns:gmx="http://www.isotc211.org/2005/gmx"
  xmlns:srv="http://www.isotc211.org/2005/srv">1.0</gco:CharacterString>
</gmd:metadataStandardVersion>
<gmd:identificationInfo>
  <gmd:MD_DataIdentification>
    <gmd:citation>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>Copy me for the BLAST project</gco:CharacterString>
        </gmd:title>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco>Date>2007-09-15</gco>Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
              codeList="http://www.isotc211.org/2005/resources/codeList.xml#CI_DateTypeCode" codeListValue="creation"/>
            </gmd:dateType>
          </gmd:CI_Date>
        </gmd:date>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco:DateTime>2007-11-15T11:15:00</gco:DateTime>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
              codeList="http://www.isotc211.org/2005/resources/codeList.xml#CI_DateTypeCode" codeListValue="revision"/>
            </gmd:dateType>
          </gmd:CI_Date>
        </gmd:date>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco>Date>2007-09-15</gco>Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
              codeList="http://www.isotc211.org/2005/resources/codeList.xml#CI_DateTypeCode" codeListValue="publication"/>
            </gmd:dateType>
          </gmd:CI_Date>
        </gmd:date>
        <gmd:identifier>
          <gmd:RS_Identifier>
            <gmd:code>
              <gco:CharacterString>Blast_code</gco:CharacterString>
            </gmd:code>
            <gmd:codeSpace>
              <gco:CharacterString>Blast_Namespace</gco:CharacterString>
            </gmd:codeSpace>
          </gmd:RS_Identifier>
        </gmd:identifier>
      </gmd:CI_Citation>
    </gmd:citation>
    <gmd:abstract>
      <gco:CharacterString>IMAGE2000 product 1 individual orthorectified scenes. IMAGE2000 was
      produced from ETM+ Landsat 7 satellite data and provides a consistent European coverage of individual
      orthorectified scenes in national map projection systems. The year 2000 was targeted as reference year, but a
      deviation of maximum 1-year was allowed to obtain a full coverage of Europe, which involves approximately 450
      Landsat TM Frames. Where Landsat 7 data were not available, Landsat 5 data have been used instead. The spatial
      resolution is 25 metres for multispectral and 12.5 metres for panchromatic imagery.</gco:CharacterString>
    </gmd:abstract>
    <gmd:pointOfContact>
      <gmd:CI_ResponsibleParty>
        <gmd:individualName>
          <gco:CharacterString>Jesper Nørgaard Andersen</gco:CharacterString>
        </gmd:individualName>
        <gmd:organisationName>
          <gco:CharacterString>SDI Unit, Institute for Environment and Sustainability, Joint Research
          Centre</gco:CharacterString>
        </gmd:organisationName>
        <gmd:positionName>
          <gco:CharacterString>Data administrator</gco:CharacterString>
        </gmd:positionName>
        <gmd:contactInfo>
          <gmd:CI_Contact>
            <gmd:address>
              <gmd:CI_Address>
                <gmd:deliveryPoint>
                  <gco:CharacterString>Niels Bohrs Vej 30</gco:CharacterString>
                </gmd:deliveryPoint>
                <gmd:city>
                  <gco:CharacterString>Aalborg Øst</gco:CharacterString>
                </gmd:city>
                <gmd:postalCode>
                  <gco:CharacterString>9220</gco:CharacterString>
                </gmd:postalCode>
              </gmd:CI_Address>
            </gmd:address>
          </gmd:CI_Contact>
        </gmd:contactInfo>
      </gmd:CI_ResponsibleParty>
    </gmd:pointOfContact>
  </gmd:MD_DataIdentification>
</gmd:identificationInfo>

```



```

        </gmd:postalCode>
        <gmd:country>
          <gco:CharacterString>Denmark</gco:CharacterString>
        </gmd:country>
        <gmd:electronicMailAddress>
          <gco:CharacterString>jenan@kms.dk</gco:CharacterString>
        </gmd:electronicMailAddress>
        </gmd:CI_Address>
      </gmd:address>
    </gmd:CI_Contact>
  </gmd:contactInfo>
  <gmd:role>
    <gmd:CI_RoleCode codeList="http://www.isotc211.org/2005/resources/codeList.xml#CI_RoleCode"
codeListValue="custodian"/>
  </gmd:role>
  </gmd:CI_ResponsibleParty>
</gmd:pointOfContact>
<gmd:descriptiveKeywords>
  <gmd:MD_Keywords>
    <gmd:keyword>
      <gco:CharacterString>Land cover</gco:CharacterString>
    </gmd:keyword>
    <gmd:thesaurusName>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>GEMET - INSPIRE themes, version
1.0</gco:CharacterString>
        </gmd:title>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco:Date>2008-06-01</gco:Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
codeList="http://www.isotc211.org/2005/resources/codeList.xml#CI_DateTypeCode" codeListValue="publication"/>
            </gmd:dateType>
          </gmd:CI_Date>
        </gmd:date>
      </gmd:CI_Citation>
    </gmd:thesaurusName>
  </gmd:MD_Keywords>
</gmd:descriptiveKeywords>
<gmd:resourceConstraints>
  <gmd:MD_Constraints>
    <gmd:useLimitation>
      <gco:CharacterString>no conditions apply</gco:CharacterString>
    </gmd:useLimitation>
  </gmd:MD_Constraints>
</gmd:resourceConstraints>
<gmd:resourceConstraints>
  <gmd:MD_LegalConstraints>
    <gmd:accessConstraints>
      <gmd:MD_RestrictionCode
codeList="http://www.isotc211.org/2005/resources/codeList.xml#MD_RestrictionCode" codeListValue="otherRestrictions"/>
    </gmd:accessConstraints>
    <gmd:otherConstraints>
      <gco:CharacterString>no limitations</gco:CharacterString>
    </gmd:otherConstraints>
  </gmd:MD_LegalConstraints>
</gmd:resourceConstraints>
<gmd:spatialResolution>
  <gmd:MD_Resolution>
    <gmd:equivalentScale>
      <gmd:MD_RepresentativeFraction>
        <gmd:denominator>
          <gco:Integer>50000</gco:Integer>
        </gmd:denominator>
        </gmd:MD_RepresentativeFraction>
      </gmd:equivalentScale>
    </gmd:MD_Resolution>
  </gmd:spatialResolution>
  <gmd:language>
    <gmd:LanguageCode codeList="http://www.isotc211.org/2005/resources/codeList.xml#LanguageCode"
codeListValue="eng"/>
  </gmd:language>
  <gmd:topicCategory>
    <gmd:MD_TopicCategoryCode>imageryBaseMapsEarthCover</gmd:MD_TopicCategoryCode>
  </gmd:topicCategory>
  <gmd:extent>
    <gmd:EX_Extent>
      <gmd:geographicElement>
        <gmd:EX_GeographicBoundingBox>
          <gmd:westBoundLongitude>
            <gco:Decimal>3.93</gco:Decimal>
          </gmd:westBoundLongitude>
          <gmd:eastBoundLongitude>
            <gco:Decimal>7.57</gco:Decimal>
          </gmd:eastBoundLongitude>
          <gmd:southBoundLatitude>
            <gco:Decimal>52.1</gco:Decimal>
          </gmd:southBoundLatitude>
          <gmd:northBoundLatitude>
            <gco:Decimal>54.1</gco:Decimal>
          </gmd:northBoundLatitude>
        </gmd:EX_GeographicBoundingBox>
      </gmd:geographicElement>
    </gmd:EX_Extent>
  </gmd:extent>

```



```

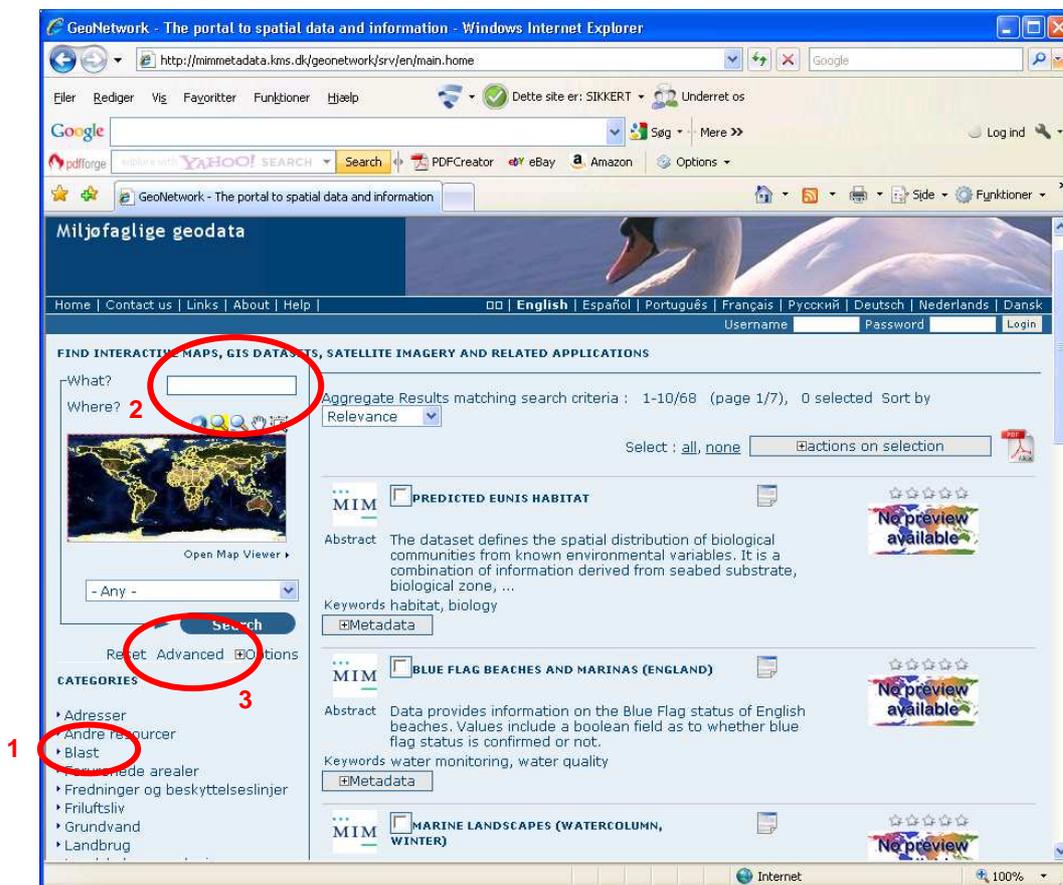
    </gmd:geographicElement>
  </gmd:EX_Extent>
</gmd:extent>
<gmd:extent>
  <gmd:EX_Extent>
    <gmd:temporalElement>
      <gmd:EX_TemporalExtent>
        <gmd:extent>
          <gml:TimePeriod gml:id="IDdf6c00cb-ffa7-4027-98c2-c92eb3f52908" xsi:type="gml:TimePeriodType">
            <gml:beginPosition>1977-03-10T11:45:30</gml:beginPosition>
            <gml:endPosition>2005-01-15T09:10:00</gml:endPosition>
          </gml:TimePeriod>
        </gmd:extent>
      </gmd:EX_TemporalExtent>
    </gmd:temporalElement>
  </gmd:EX_Extent>
</gmd:extent>
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<gmd:distributionInfo>
  <gmd:MD_Distribution>
    <gmd:distributionFormat>
      <gmd:MD_Format>
        <gmd:name>
          <gco:CharacterString>tiff</gco:CharacterString>
        </gmd:name>
        <gmd:version>
          <gco:CharacterString>1.0</gco:CharacterString>
        </gmd:version>
      </gmd:MD_Format>
    </gmd:distributionFormat>
    <gmd:transferOptions>
      <gmd:MD_DigitalTransferOptions>
        <gmd:onLine>
          <gmd:CI_OnlineResource>
            <gmd:linkage>
              <gmd:URL>http://image2000.jrc.it</gmd:URL>
            </gmd:linkage>
          </gmd:CI_OnlineResource>
        </gmd:onLine>
      </gmd:MD_DigitalTransferOptions>
    </gmd:transferOptions>
  </gmd:MD_Distribution>
</gmd:distributionInfo>
<gmd:dataQualityInfo>
  <gmd:DQ_DataQuality>
    <gmd:scope>
      <gmd:DQ_Scope>
        <gmd:level>
          <gmd:MD_ScopeCode codeListValue="dataset"
codeList="http://www.isotc211.org/2005/resources/codeList.xml#MD_ScopeCode"/>
        </gmd:level>
      </gmd:DQ_Scope>
    </gmd:scope>
    <gmd:lineage>
      <gmd:LI_Lineage>
        <gmd:statement>
          <gco:CharacterString>Product 1 scenes correspond to the path/row of the Landsat orbit. All
Image2000 product 1 scenes are ortho-corrected. The ortho-correction method consisted of using a physical model
of the satellite&apos;s flight during the scene acquisition, which was then complemented with Ground Control Points
(GCP&apos;s) and a Digital Elevation Model (DEM). Map projection information is attached to the model. The resulting
product has excellent accuracy between the spectral bands, sub-pixel location accuracy throughout the image and
excellent preservation of radiometric characteristics. The geometric correction was done on a Country basis -
according to the relevant national map projection system(s). A rigorous orbital model was used. Control point
measurements were used in a weighted least squares adjustment to estimate optimal values for the orbital and
attitude parameters. The adjusted parameters were used to resample the raw scene by cubic convolution in a single
step, instead of the usual two step procedure of first producing a system-corrected scene and then resampling a
second time, thus causing unnecessary smoothing of the data. The final pixel size after resampling is 12.5m for the
panchromatic band, 25m for the multispectral bands and 60m for the thermal band. All the orthorectified scenes are
well within the requirement of Root Mean Square Error (RMSE) &gt; 25m.</gco:CharacterString>
        </gmd:statement>
      </gmd:LI_Lineage>
    </gmd:lineage>
  </gmd:DQ_DataQuality>
</gmd:dataQualityInfo>
</gmd:MD_Metadata>

```

Appendix 6: Guidelines for searching data in the BLAST metadatabase

You will find the BLAST GeoNetwork Metadatabase at this link:
<http://mimmetadata.kms.dk/geonetwork/srv/en/main.home>

Select Blast under 'Categories' to display all registered BLAST data themes (1), or type a keyword in the appropriate field (2).



Use the Advanced option (3) to refine your search, or to combine several search



crit
eria

Selected data can be displayed by relevance, change date, popularity, rating or title (4) and can be exported to .pdf or XML-format (5,6).



Aggregate Results matching search criteria : 1-10/16 (page 1/2), 0 selected Sort by Relevance Select: all, none Actions on selection

Change date
Popularity
Rating
Relevance
Title

Display selected only

PDF

Metadata

Full metadata can be displayed by choosing the 'Metadata' button



Metadata

Identification info

Title: Dynamic Collation SAC's NI
 Date: 2009-01-26
 Date type: **Publication:** Date identifies when the resource was issued
 Abstract: Special Areas of Conservation which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and marine areas out to 12 nautical miles are afforded protection through the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). The Dynamic Collation may be updated more frequently than the Submitted SAC Dataset.
 Purpose: --Suggested use WP3--Suggested use WP6--

Point of contact

Organisation name: Joint Nature Conservation Committee
 OnLine resource: <http://www.incc.gov.uk/>
 Role: **Point of contact:** Party who can be contacted for acquiring knowledge about or acquisition of the resource

Descriptive keywords: conservation , environmental conservation , marine conservation area .
 Topic category code: Environment
 Topic category code: Oceans

Extent

Geographic bounding box

North bound latitude	60.63	
West bound longitude	-9.25	East bound longitude
South bound latitude	49.79	

Reference system info

Code: urn:ogc:def:crs:EPSG::29902

Metadata

File identifier: 57e9b7b2-dc59-4bce-b1a8-67c630d9d96d
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