D.3.1. REPORT ON THE INVENTORY OF PARTICIPANTS AND MAIN RELEVANT EU PROJECTS DATA AND SDI, WITH A QUALITY ASSESSMENT AND AN IDENTIFICATION FOR NEEDED ACTIONS ON HARMONISATION TASKS

Version 1.3

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Abstract

The PEGASO project aims to build a shared ICZM Governance Platform with scientists and end-users, linked with new models of governance. To support this Platform and the integrated assessments that PEGASO will develop for the coastal zones of the Mediterranean and Black Seas, a Spatial Data Infrastructure (SDI) needs to be constructed. The construction of an SDI involves a collaborative process, which requires a commitment and contributions on behalf of the entire project consortium. The results from surveys within PEGASO partners' institutes on existing technical capacities evidenced interesting opportunities to share data and expertise. An inventory on local and European or basin-wide datasets and databases gathered a wealth of information available to start populating the SDI and geonodes, and allows planning for the first steps in sharing harmonized datasets for the entire area covered by the project (Mediterranean and Black Seas). Achieving a common understanding and common view on how the SDI should deliver the objectives of the ICZM Platform, and ultimately, the strategic objectives of the PEGASO project, are a crucial next step. Capacity building and training, and further strengthening the existing linkages between work packages are instrumental to achieve this common view.

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Executive Summary

The main goal of the PEGASO project is to construct a shared ICZM Governance Platform with scientists and end-users, linked with new models of governance. The PEGASO ICZM Platform will be supported by the development of a Spatial Data Infrastructure (SDI) and the suite of sustainability assessment tools required for making multi-scale integrated assessments in the coastal zone.

The PEGASO Project WP3 Deliverable 3.1. (D 3.1) aims to assess participant's expertise and capacity to develop the geonodes within the SDI (Subtask 3.1.1) and aims to assess data availability for the development of the PEGASO SDI (Subtask 3.1.2.). It also covers an inventory of the available geodata, indicators (including statistical data) and other relevant spatial applications within European (and non EU) countries databases, projects and initiatives with regard to the Mediterranean and Black Seas (subtask 3.1.3.). Taken together, these 3 subtasks aim at assessing potential data and information sources to address the PEGASO project strategic objectives (through a common SDI) and the capacities to implement the SDI.

This document summarizes the results from the surveys and the inventory. The introduction provides context, scope and objectives of the report and reference to further background. The methodology section gives guidance on how the surveys and assessments were developed. The results are presented in section 3 and reference is included to detailed information in the Annexes and Survey Reports (intermediate deliverables).

The conclusions are summarized in section 4. The results from the surveys evidenced a great capacity within the consortium, with promising opportunities to share data and expertise between the partners. A wealth of data and information exists to start populating the SDI and geonodes for the entire area covered by the project (Mediterranean and Black Sea). It is anticipated that data identified in this first inventory will act as a basis for repositories of geo-information. An important core of PEGASO partners have the resources required to implement a functional network of geonodes and (local) SDI. However, it is necessary first to achieve a common understanding and common view on how the SDI should deliver the objectives of the ICZM Platform and, ultimately, the strategic objectives of the PEGASO project. The development of the PEGASO SDI as a well-adapted tool for improving the sharing of geographical information among partners and the wider consortium of CASES, end-users, stakeholders, will require efforts into the capacity building process.

Proposed actions for next steps include further strengthening the existing linkages between WP3 (Shared Information Infrastructure) and the development of ICZM Tools (WP4), and further optimizing communication with the needs of the Regional Assessments and the CASES (WP5). Strengthening these linkages will allow a fine-tuning of data requirements to populate the SDI. Meanwhile the first steps to design and develop harmonized (meta) data structures can be addressed once basic data requirements (background data layers) are identified. The construction of an SDI involves a collaborative process which requires a commitment and contributions on behalf of the entire consortium. Capacity building and training are crucial elements in this process.

1. Introduction

1.1. The Spatial Data Infrastructure

The main goal of the PEGASO project is to construct a shared **ICZM Governance Platform with scientists and end users**, linked with new models of governance. The PEGASO ICZM Platform will be supported by the development of a **Spatial Data Infrastructure (SDI) and the suite of sustainability assessment tools** required for making **multi-scale integrated assessments in the coastal zone**.

A Spatial Data Infrastructure is a group of technologies, policies, standards, services and human resources, necessary for the compilation, manipulation, accessibility, distribution and use of geographic data at different levels. More background information on the principal components of an SDI and related concepts is available in the section 'Background on SDI'. Implementing a Spatial Data Infrastructure, following the INSPIRE Directive, implies that local geonodes must be developed, spatial data must be standardized and harmonization must take place in order to start sharing data.

The ICZM Platform will use an interactive visor to share spatial data and information with the stakeholders and end users. The idea is to build a **functional network of geonodes** with all partners, supporting and building - where requested/required - capacity in the Mediterranean and Black Sea countries. To this purpose, local geonodes must be created that allow sharing spatial datasets. Data then will be easily accessible through a geoportal on the Internet, which will also stimulate communication and dissemination of results amongst partners and the Shared ICZM Platform components. The PEGASO project will support **harmonization of data and metadata**, which are the key to build assessment tools (WP4) and to support the regional assessment (WP5). The development of this SDI and the **support to develop the network of geonodes**, is tackled by Work Package 3 (WP3) and led by Universidad Pablo de Olavide (UPO) in Sevilla, Spain. Task T3.1, is a preparatory task aimed at carrying out an assessment on the data availability and existing capacity for the development of the PEGASO Spatial Data Infrastructure.

1.2. Purpose and scope of the report

WP3 Deliverable 3.1. (D 3.1) aims to assess participants' expertise and capacity to develop the geonodes within the SDI (Subtask 3.1.1) and aims to assess data availability for the development of the PEGASO SDI (subtask 3.1.2.). It also covers an inventory of the available geodata, indicators (including statistical data) and other relevant spatial applications within European (and non EU) countries databases, projects and initiatives with regard to the Mediterranean and Black Seas (subtask 3.1.3.). Taken together, these 3 subtasks aim at assessing potential data and information sources to address the PEGASO project strategic objectives (through a common SDI) and the capacities to implement the SDI.

To this purpose, three actions were carried out:

1) Survey 3.1.1. to create an inventory of available resources (data, hardware, products, institutional and human resources) from partners' environments.

2) Survey 3.1.2. to take stock of available data resources in every partners' environment.
3) Inventory 3.1.3. to address data from relevant EU projects that are related with the scientific topics of PEGASO.

During the development of these subtasks, communication with the other work packages from which relevant input to this deliverable is expected (scientific stock-take in WP2, selection of indicators and LEAC in WP4 and CASES issues and needs in WP5) ensures the necessary feedback and optimizes linkages where possible. While the analysis of the expertise and capacity of the participants (Survey 3.1.1.) will be used in next steps to design and plan technical training events for the implementation of SDI, the data stock-take will allow planning the incoming activities related to data harmonization, data model definition, etc. This is necessary to organize the functionalities of the SDI so that it can efficiently support the objectives and planned deliverables of PEGASO (e.g. the Regional Assessment, the socio-economic valuation, the scenarios etc).

At the moment of the finalization of this report, the preliminary list or core set of indicators (environmental, socio-economic, governance indicators,..) is not available yet. This core set is important to help focus the data exploration and screening of existing databases. A final assessment on the availability of datasets required to populate the selected set of indicators is therefore needed, once the needs of these PEGASO tools are further

fine-tuned in the coming months. This final assessment will identify the best-harmonised and most suitable interoperable sets of geodata and statistical data.

2. Methodology of the surveys and assessments

2.1. Survey on Capacity levels (3.1.1)

The assessment of this survey is based on two components: the survey results and the posterior classification of answers.

Partners were invited by e-mail to complete the survey, which was designed and prepared through the OS LimeSurvey platform (http://www.limesurvey.org, see Annex I). One of the advantages of using this platform is that it is user-friendly and that the answers remain at the platform. Information on background and purpose of the survey was included in the accompanying invitation letter. The survey contains questions about generic Information Technology (IT) resources available in each partner's system, the use of GIS products and applications, and the capacity to create all or some of the services and applications required by the development of the PEGASO SDI. The WP3 team classified the answers received from the partners' surveys according to different levels that describe their expertise and capacity to develop geonodes within a SDI. Finally, some proposals and recommended actions are included in this report.

The report of this subtask has been updated several times, following the progressive reception of completed surveys. The subtask extensive report is available on the intranet as Intermediate Deliverable 3.1.1.

2.2. Data availability survey (3.1.2)

Partners were invited by e-mail to complete a survey form (French and English versions as attachments to the e-mail) the purpose of which was explained in an accompanying letter (French and English versions). The survey refers to generic data resources available in each partner organization, classified in three main groups: (1) Statistical data such as demography, economic, land use, environment, tourism, etc., (2) Cartography such as imagery, land use maps, thematic maps, and (3) Indicators for coastal zone management developed within the partner Institutes.

The questionnaire form is included in Annex III and the subtask extensive report is available on the intranet as Intermediate Deliverable 3.1.2

2.3. European Projects Databases (3.1.3)

The WP3 assessment on data availability and data needs for the development of the PEGASO Spatial Data Infrastructure includes an inventory of the available geodata, covering indicators and other relevant spatial applications within European projects and initiatives with regard to the Mediterranean and Black Seas.
This data inventory and assessment focuses on data that are 'open source', available online and geographically referenced. Moreover, the inventory focuses on background data relevant within the ICZM policy context (land cover, use of the sea, environmental data, elevation, bathymetry, ecosystem and administrative boundaries,…) to set up a context for the (core set of) indicators. The inventory also takes into account the potential future data requirements as preliminary identified for LEAC (WP 4.2) and the CASES and Regional Assessment (WP 5). Some of the identified data holdings will be used to set up the initial PEGASO Spatial Data infrastructure.

The issues and associated data needs as (preliminary) identified by LEAC and CASES were linked to the relevant themes of the INSPIRE Directive and categorized using the INSPIRE classification. INSPIRE Themes

that were considered less relevant to the purpose of the PEGASO project and those themes for which no data was required or no projects were found, were omitted from the table.

3. Results and proposals

3.1. Overview of Survey Results by partner

Table 1 gives an overview of the answers obtained from the partners on Survey 3.1.1 and Survey 3.1.2.

Twenty-one (21) partners have completed the on-line questionnaire on SDI (3.1.1.).
Nineteen partners (19) have responded to the survey 3.2. on Data Availability: seventeen (17) partners have answered the survey 3.2 through the format (X), or provided the relevant URL's to allow access to (meta)data or (meta)data catalogues (XX), while two (2) partners have responded that the survey 3.2 is not applicable (*) because they are not data-holding or data managing institutes. The Data and Information Coordinator provided support to increase response rates, through bilateral contact with the less-responsive partners.

Table 1: Overview of Survey response (Surveys 3.1 and 3.2) by partner

Partner	Capacity level Survey 3.1	Data availability Survey 3.2
P1-UAB (Universitat Autónoma de Barcelona, Spain)	X	XX
P2-UPO (Universidad Pablo Olavide, Spain)	X	X
P3-Plan Bleu (Plan Bleu pour l'Environnement et le Developpement en Méditerrannee)	X	X
P4-IFREMER (Institut Français de Recherche pour l'exploitation de la Mer, France)	X	XX
P5-ACRI-EC (ACRI Etudes et Conseil, Morocco)	-	-
P6-IOC-UNESCO: (Intergovernmental Oceanographic Commission-United Nations Educational, Scientific and Cultural Organization)	X	XX
P7-PAP-RAC (Priority Action Programme–Regional Activity Centre, Croatia	X	*
P8-IUCN (Unión Internacional para la Conservación de la Naturaleza, Intergovernmental)	X	X
P9-UNOTT (The University of Nottingham, United Kingdom)	X	*
P10-VLIZ (Vlaams Instituut voor de Zee vzw, Belgium)	X	X
P11-Universita Ca'Foscari Di Venezia (Univ' Ca Foscari, Italy)	X	X
P12-JRC (Commission of the European Communities – Directorate General Joint Research Centre, European Commission)	X	XX
P13-UNIGE-GRID (Université de Genève, Switzerland)	X	X
P14-HCMR (Hellenic Centre for Marine Research, Greece)	X	X
P15-MEDCOAST (Akdeniz Kiyi Vakfi, Turkey)	X	X
P16-DDNI (Institutul National de Cercetare Dezvoltare Delta Dunarii, Romania)	X	X
P17-UM5a (Université Mohammed V-Agdal, Morocco)	X	X
P18-AREA-ED (Association de Réflexion, d'Échanges et d'actions pour l'Environment et le Développement, Algeria)	-	-
P19-NIOF (National Institute of Oceanography and Fisheries, Egypt)	-	-
P20-UOB (University of Balamand, Lebanon)	X	-
P21-MHI (Marine Hydrophysical Institute-Ukrainian National Academy of Sciences, Ukraine)	X	X
P23-TdV (Fondation Tour du Valat, France)	X	X

Partner	Capacity level Survey 3.1	Data availability Survey 3.2
P24-NARSS (National Authority for Remote Sensing and Space Sciences, Egypt)	X	-
P25-BSC PS (Permanent Secretariat of the Commission on the Protection of the Black Sea against Pollution)	X	X

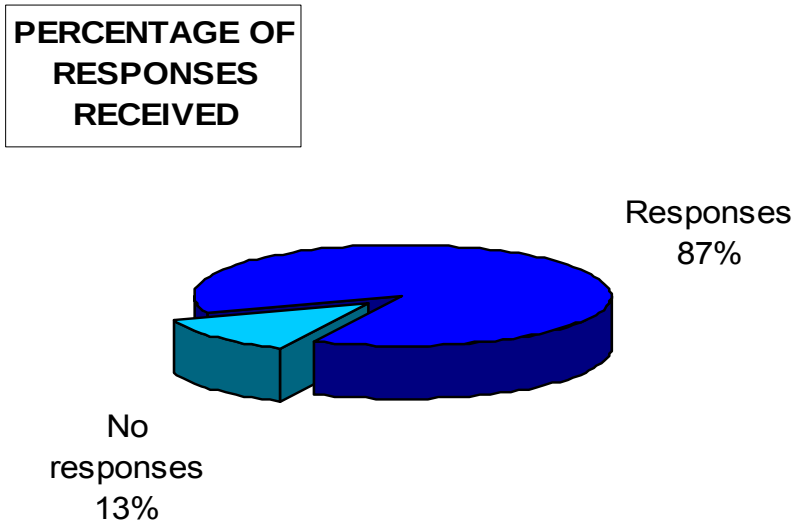
Notes: XX: URL access to (meta)data
*: not applicable
-: no answer

3.2. Results of the Survey on Capacity levels to implement SDI

RESPONSE RATES AND CLASSIFICATION

Twenty-one (21) partners have completed the on-line questionnaire on SDI, a response rate of 87%. Partners 5, 18 and 19 have not responded yet to the questionnaire and are therefore not included in the classification.

Figure 1: Response rates to Survey 3.1.1. on the capacity to create a geonode/SDI



After initial analysis of the responses to survey 3.2, five levels or types were identified according to the partners' capacities to implement SDI services. Each Institute was assigned to one of the 5 types.

Type 1. The Institute already has an operational SDI. It can act as local SDI.
Type 2. The institute has an operational Geoportal with the capacity to become a local SDI (or is in the process of implementing it)
Type 3. The Institute can implement a portal (WMS Client) and perhaps a local SDI.
Type 4. The Institute can implement a map server as a geonode data provider.
Type 5. The Institute does not have the capacity to implement any type of services, or it is not part of the core business or objectives of the institute to implement such services.

The types are associated to expected levels of training or capacity requirements and related to possibilities to generate metadata. For partners classified as 'Type 5', the possibilities to generate metadata are low. Those in Type 4 could have some difficulties and they may need training. Partners in levels 2 and 3 are qualified to

generate metadata and those in level 1 already have an operational platform with the required information or enough metadata to build it.

Figure 2: Results of survey 3.1.1. according to classification of capacity levels to create a geonode/SDI

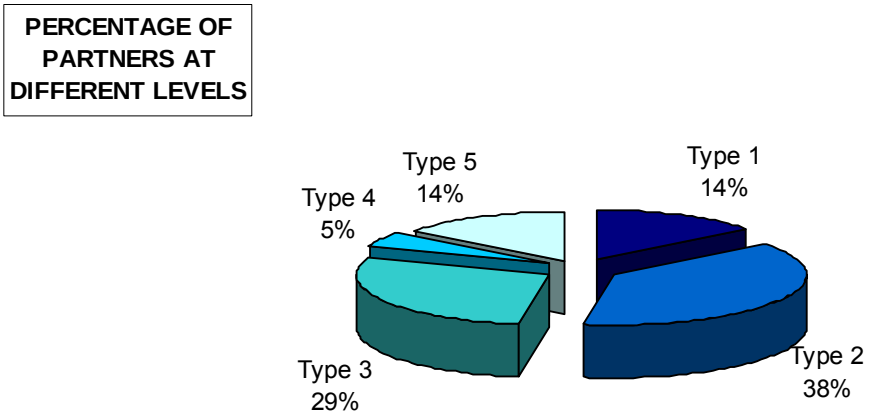


Table 2: Results of the classification of capacity levels to implement a geonode/SDI according to the completed questionnaires from Survey 3.1.

INSTITUTE	Type 1	Type 2	Type 3	Type 4	Type 5
P4 IFREMER	X				
P6 IOC-UNESCO	X				
P10 VLIZ	X				
P1 UAB		X			
P2 UPO		X			
P3 Plan Bleu		X			
P12 JRC		X			
P13 UNIGE-GRID		X			
P16 DDNI		X			
P21 MHI		X			
P24 NARSS		X			
P11 UNIVE			X		
P14 HCMR			X		
P15 MEDCOAST			X		
P20 UOB			X		
P23 TdV			X		
P25 BSC PS			X		
P8 IUCN				X	
P7 PAP-RAC					X
P9 UNOTT					X
P17 UM5a					X

Several partners (3) already have similar resources to those proposed by the PEGASO project (Type 1) in the sense of thematic SDI's constituted by basic components like a catalogue with metadata, viewers and other geo-resources. A group of 11 partner Institutes is in a condition to create either local geoportals (Type 3) or local SDI's (Type 2). They may be at different stages of development towards this goal, and may have a variety of available resources to implement this. But all of them, at least according to the answers collected in the survey, have sufficient capacity and are able to carry out the formal building of resources for the project. Rated at Types 4 and 5, there is a group of 4 partners who may want to receive capacity building and training at least to have the possibility to contribute (meta)data.

A detailed list of the classification of Institutes according to 5 capacity levels is available from Annex II.

PROPOSED ACTIONS RELATED TO LEVEL OF CAPACITY

Some general actions are proposed in order to achieve the PEGASO project objectives, according to each level of capacity:

- In order to agree a formal harmonization of the respective geoportals' contents, partners in the **Type 1** can already initiate tasks, start sharing available information (metadata, catalogue, geodata, etc.) and determine the ISO metadata profile that can be proposed to the whole consortium.

- Partners classified at **Types 2 and 3** should be informed about how to prepare their environments for the building of the respective geoportals or local SDI's. Initial guidance documents or "guidelines" should be elaborated and shared/distributed to this purpose. Regardless of the final contribution from these partners to the development of the project, this kind of guidance can provide a preparation to publish metadata and data (capacity building training).

- For partners at **Types 4 and 5,** regardless of the support they will receive to acquire the minimum capacity on publishing their data in WMS, actions for now can focus on facilitating the online presence of their (meta)data.

3.3. Results of the Survey on Data Availability

Nineteen (19) Institutes have responded to the survey on Data availability (see Table 1) of which 17 effectively provided data sources. Partners either completed the questionnaire format (13) (see Annex III for the questionnaire format) or provided a list of the URL's where metadata catalogues or other data products can be consulted (4). A summary of partners´ responses to the various questions is presented in the Annex IV.

Some partners (2) have responded that they are not a data-holding institute and they have no data to deliver for contributing with this task (e.g. PAP-RAC and UNOTT). Other partners (4) such as JRC, UAB, IFREMER and IOC-UNESCO are important data holders, and they have provided URL's to access their datasets. Also, from within the network of ODINAFRICA, which is coordinated, by IOC-UNESCO and which is the organisation developing the 'African Marine Atlas' additional response was achieved from Tunisia (Institut National des Sciences et Technologies de la Mer).

Two broad **groups of institutions** could be drawn from the survey, those who have vast repositories of data covering the basins, including in some cases data at national-regional scale, and those who own data from different studies and research projects at local and regional scale. The first group will be very significant in terms of providing not only background data to populate the SDI but also, in some cases, data to build the (core) set of indicators; meanwhile the second group of partners will be key in the construction of the indicators as they could providing specific data at local scale.

Some partners **have a wealth of information** for the entire area covered by the project (Mediterranean and/or Black Sea) as it is expected that they may act as significant repositories of geo-information to meet the requirements of a majority of partners.

Following the proposal of WP4 in the Preliminary Report (draft Deliverable 4.1.) based on the review of indicator initiatives, data needs should be organised in two groups: generic or **background layers** and **indicator data** (spatial and statistical information to develop and populate the set of indicators). Furthermore, the spatial information could be grouped thematically, in a kind of hierarchy, based on the INSPIRE Directive. Linking both approaches, a first classification of data to populate the SDI could be made as follows: a group of basic layers at basin or regional scale, such as topography, bathymetry, urban settlements, protected areas, most of them accessible from European databases and Public organisations. The second group of layers will include spatial and statistical data required to build the indicators. This group will be mostly defined by the (core) set of indicators and on the availability of data to produce the indicators at the various scales.

BACKGROUND LAYERS

Background layers in this context, refer to basic spatial data layers at basin-wide scale and/or information available at local level selected with the general purpose of supporting the interpretation of the indicators (e.g. cause-effect of observed trends) as well as to create the adequate background for the Geoportal/Atlas. The selection criteria for these data layers will be based on the availability within partner Institutions, European databases and Public organisations in Mediterranean and Black Sea countries. They will be quality-controlled datasets available through interoperable web services INSPIRE compliant. The selection process will follow on the analysis of the results of the questionnaire from which WP3 collects URL´s and other references to the relevant basic spatial data layers. it will also be determined by the contribution of partners that have defined relevant background data according to the needs of the CASES and through the 'data availability' questionnaire.

Examples of Background layers can consist of the following thematic layers (examples selected by WP3):

Table 3. Example of Background layers to populate the SDI

Group	Thematic spatial layers
Geographical location	Geographical names
Administrative units	Official administrative units (NUTs)
	Government management zones
	Postal codes/regions
Elevation	Terrestrial elevation
	Bathymetry
	Coastline
Land surface	Land cover
	Orthophoto-images
Society and population	Urban and rural settlement
	Area regulation
	Protected sites
Air and climate	Climate zones
Water bodies/Hydrography	Surface water bodies/ Hydrography networks
Ocean and seas	Oceanographic spatial features
	Sea regions

Note: Hierarchy based on the INSPIRE Directive

INDICATOR DATA

The second group of data, to populate and calculate the indicators, will be varied in terms of typology (spatial data or statistic data), in terms of thematic information (Transport, Society and population, Biota/biodiversity, Natural resources, Natural and technological risks) and also regarding the scale (local, national, (sub)regional, EU-wide) and resolution. The 'Indicator data' are defined as the data directly needed to calculate and spatially represent the (core set of) indicators. This indicator set will be selected and their definitions will be elaborated by WP4 (task 4.1). This set of indicators will follow from the ICZM Policies, and particularly address the elements and articles from the Bucharest and Barcelona Conventions and from the Strategies focused on delivering ICZM and measuring Sustainable Development in coastal zones.

Indicator sets will include:

1) ICZM Progress Indicators, to evaluate the degree of implementation and compliance with the established in the relevant ICZM Policies

2) Indicators of Sustainable Development (ISD) to measure the evolution towards more sustainable coasts (land and sea) according to the goals set in the ICZM Policies

The ISD will consist of a core set of indicators, which due to their high degree of relevance for the EU or regional ICZM policies will have a basin-wide application. Next to this core set, a number of additional indicators can be selected from the set of indicators, to fulfil local objectives. The selection criteria for the latter will be based on participative processes involving all CASES/partners, starting from a proposed list/set by the WP4.1 team and validated by members from the wider PEGASO consortium.

3.4. Results of the Inventory of European Projects and databases

The list of available data is extensive and is presented in the table included as Annex V to this report. The table is built on the Column Headings which are explained as follows:

- **INSPIRE theme:** the themes needed for environmental applications of the INSPIRE Directive. These themes are subdivided in three annexes. The list is available online: http://inspire.jrc.ec.europa.eu/index.cfm/pageid/2/list/7

- **Description INSPIRE theme**: a description of the INSPIRE themes in accordance with the "Drafting Team "Data Specifications" – deliverable D2.3: Definition of Annex Themes and Scope". Available online: http://inspire.jrc.ec.europa.eu/reports/ImplementingRules/DataSpecifications/D2.3_Definition_of_Annex_Themes_and_scope_v3.0.pdf

- **Requested by LEAC**: the data requested by LEAC within WP 4.2, according to the preliminary discussion document (draft version circulated December 2010).

- **Requested by CASES**: the "Issues" as brought forward by the CASES within WP5 (draft version of the 'CASES Identification Report').

- **Project name & URL**: the name of the project or dataset and the link to where data can be found. If available, the link to the WMS (Web Mapping Server) is also given.

- **Project description**: a short abstract about the project or dataset.

SPATIAL DATA STANDARDS AND HARMONIZATION
Existing and accessible data systems and data holdings were identified and matched in the overview following the INSPIRE themes (Annex V). For most themes and data needs, relevant and freely accessible European data holdings were identified. Special attention was given to freely available spatial data that are using OGC web services standards. If available, a WMS link to the spatial data was included in the overview table. Providing the web services use OGC standards, this will ensure interoperability across different data providers. The data specification currently developed under the INSPIRE directive were considered when building this first inventory, however these standards are not always relevant for all partners (e.g. in non-EU countries). We therefore use OGC standards to build up the individual components of the PEGASO SDI.

DATA QUALITY ASSESSMENT
The quality of the spatial data available within the different partners' institutes and the quality of the different European databases was not assessed individually. However, the listed data holdings result mainly from scientific research and official national monitoring facilities. This and the fact that these data holdings have to go through a set of quality control procedures, guarantees a minimum required level of quality of the individual spatial datasets.

ADDRESSING THE DATA NEEDS AND HARMONIZING (META)DATA FLOWS
As stated above, European coverage of freely accessible data holdings was identified for most themes and data needs. Besides the African Marine Atlas (developed by IODE-ODINAFRICA from IOC-UNESCO) however, relatively few data holdings were identified that focus specifically on the part of the Mediterranean bordering the African continent. The inventory should be improved by adding specific spatial data sets for the southern Mediterranean.
A first attempt to link available data with the data needs of LEAC and CASES was drafted in this report. The data needs both for LEAC and for the CASES were grouped thematically and matched with the existing INSPIRE categories (see INSPIRE themes, Annex V). Using this classification, allows a harmonized overview of the different data sets to communicate with the data needs from other work packages.

However, as stated above, at the moment of the finalization of this Deliverable report the preliminary list or core set of indicators was not available and a fine-tuning of the data needs and requirements for the indicators is necessary. As the objective of the task is to determine the feasibility to implement the indicator products (regional assessment, indicator-based assessments, LEAC, scenarios, socio-economic valuation) in terms of obtaining and accessing the needed data and information resources, it seems necessary to conduct the final feasibility analysis once the needs of these PEGASO tools are further fine-tuned.

4. Discussion and Conclusions

The results from the surveys evidenced a great capacity within the consortium, with promising opportunities to share data and expertise between the partners.

Although most partners agreed that the SDI in PEGASO is not just a tool but a core part of the project, there is still a long way to go. It is necessary first to achieve a **common understanding and common view** on how the SDI should deliver the objectives of the ICZM Platform, and ultimately, the strategic objectives of the PEGASO project. The development of the PEGASO SDI as a well adapted tool for improving the sharing of geographical information among partners and the wider consortium of CASES, end-users, stakeholders, will require **efforts into the capacity building process**.

As stated in section 3.2 several partners (3) already have the resources required to **implement a functional network of geonodes and SDI** (Type 1) while a significant core of partners (11) is available to create either local geoportals (Type 3) or local SDI's (Type 2). Special attention will be given to discuss with the partners that were identified as types 4 and 5 (in terms of implementation of geonodes) the degree of capacity building and the level of capacity that they want to achieve. As a conclusion, the majority of the organizations (3 at Type 1 and 11 at Types 2 or 3), are capable of addressing the set of operations aimed at creating web services and SDI local Geoportals within the scope of the PEGASO project strategic objectives.

The assessment of available data in partners' institutions (see overview in Annex IV) made clear that some project partners have a wealth of information for the entire area covered by the project (Mediterranean and Black Seas). However the accessibility of the data is not obvious. It is anticipated that data identified in this first inventory will act as a basis for repositories of geo-information. The sometimes poor and little feedback from the partners appears to be a reflection of the complexity and difficulty of making a preliminary inventory of available resources. It is understood that many partners do not have those resources for the time being, but this can be achieved as the needs for the project are further clarified.

Linking the responses of the survey on data availability to the survey on capacity levels, it is concluded that a few partners have either their own resources to set up geo-services or have access to resources from third parties. Intense efforts will be needed to solve specific cases raised by the project. This requires strengthening linkages between WP3 and WP6 (capacity building). Before starting to design a strategy and defining next steps in terms of Capacity Building, it is important to know what the capacities and plans are of those institutes that were not able to respond to the questionnaire(s). Although some partners have explicitly expressed their intention to build their geonode, it is a crucial next step to assess what other partners' institutional intentions are.

5. Proposed Actions

5.1. Data Inventory and Data Sharing

— As a first step, the **definition of a basic set of background layers** needs to be concluded in close collaboration with WP4 (ICZM tools) and in consultation with WP5 (CASES and Regional Assessment). Consequently WP3 will be in a position to develop a strategy to populate the SDI with this first set of background layers at the regional level (basin-wide) and make them available through the central geonode of PEGASO (hosted in UAB-ECT/SIA). Metadata will be made available through the PEGASO catalogue. Focus in this first stage will be on quality-controlled basin-wide datasets (see section 3.4).

— At the same time, communication with WP4 must be further strengthened, in particular the close collaboration with Task 4.1 in charge of selecting the set of indicators. The **selection of the (core) set of indicators** will provide the much needed guidance to conduct a more selective or a second phase of screening and assessing targeted datasets. This may also require adjusting or synchronizing the schedule of the final version of the current report (deliverable 3.1.).

— Secondly, **a demonstration** of the basic utilities **of the PEGASO Geoportal prototype** (developed in ECT-SIA/UAB) will be done at the occasion of the **Second General PEGASO Meeting in Romania** (4-9 July 2011). The objective of this demonstration is to show the project consortium what the strengths of a Geoportal are, and exemplify that building an SDI involves a **collaborative process which requires a commitment and contributions on behalf of the entire consortium**. This demonstration will show in practice on how data can be presented (metadata) and downloaded, how layers can be combined and overlayed, etc.

5.2. Capacity Building

— Based on the outcomes and analysis of the survey 3.1.1. and the structured discussions coordinated by WP6 on Capacity Building (virtual forum, general meeting, others) and input from the CASES identification document (Issues and needs), a tailored data workshop should be organized. This workshop should focus on geographic and spatial data and how to set up a local SDI that can contribute to the PEGASO objectives. This training has to be very concrete, with sufficient examples, not only ready-made ones.

— To be effective, the training should be “hands on”, as much as feasible, permitting that individual problems can be addressed. Prior to the training it is important to explain the role of the geonodes and the needs in terms of resources (computer, software and human resources), difficulties and constraints, benefits, etc. the importance of SDI (main components and functionalities). For that purpose, further collaboration through participation and synergies with partners involved in other similar projects (such as UNIGE in enviroGRIDS), or those that have already developed an SDI or a geoportal would be very important.

Background Information on Spatial Data Infrastructure

WHAT IS AN SDI?
A Spatial Data Infrastructure is a group of technologies, politics, standards, services and human resources, necessaries for the compilation, manipulation, access, distribution and use of geographic data in different levels.

- A SDI is a basis for the discovering of spatial data, its evaluation and its use by different kinds of users, either from public, or business, or academic, government or citizens sector. Conceptually, the data infrastructure have the same purpose as the roads and highways: Improving the communications, making access easier, etc.

- A good road network infrastructure provides a better accessibility; this brings a better communication between regions and, therefore, an increase of commerce. This is, nevertheless, the SDI's purpose: Making the access and use of geographic information easier, and promoting its commerce.

WHAT ARE THE PRINCIPAL COMPONENTS OF AN SDI?
Not only Spatial Data Infrastructure is based on data set, but also SDI is a set of services, supplying functions useful and interesting for the citizens. SDI services supplies functions through Internet, and users only need a browser to access them, they do not need any kind of software.

Web Catalogue Service (WCS)
Catalogue services support the ability to publish and search collections of descriptive information (metadata) for data, services, and related information objects. Metadata in catalogues represent resource characteristics that can be queried and presented for evaluation and further processing by both humans and software. Catalogue services are required to support the discovery and binding to registered information resources within an information community.

Web Map Service (WMS)
A Web Map Service (WMS) produces maps of spatially referenced data dynamically from geographic information. This International Standard defines a "map" to be a portrayal of geographic information as a digital image file suitable for display on a computer screen. A map is not the data itself. WMS-produced maps are generally rendered in a pictorial format such as PNG, GIF or JPEG, or occasionally as vector-based graphical elements in Scalable Vector Graphics (SVG) or Web Computer Graphics Metafile (WebCGM) formats. Provides three operations (GetCapabilities, GetMap, and GetFeatureInfo) in support of the creation and display of registered and superimposed map-like views of information that come simultaneously from multiple sources that are both remote.

Metadata
Metadata (metacontent) is defined as data providing information about one or more aspects of the data, such as means of creation of the data, purpose of the data, time and date of creation, creator or author of data, location on a computer network where the data was created, standards used. Why do we need metadata? Metadata describe the content, quality, condition, and other characteristics of a data set. Creating metadata or data documentation for geospatial data sets are crucial to the data development process. The development of a metadata standard and a mandate to provide geospatial metadata, is creating both restrictions and opportunities to spatial data developers to create and exchange data products and share them with a wider public of end-users.

OTHER ASPECTS

Geoinformation/Geodata: Geoinformation is an abbreviation of geographic information. Geographic information is created by manipulating geographic (or spatial) data (generally known by the abbreviation geodata) in a computerized system.

Shapefile: A shapefile stores non-topological geometry and attribute information for the spatial features in a data set. The geometry for a feature is stored as a shape comprising a set of vector coordinates. Shapefiles can support point, line, and area features.

What means "data harmonization"

It is the process of developing a common set of data product specifications in a way that allows the provision of access to spatial data through spatial data services in a representation that allows for combining it with other harmonised data in a coherent way.

Data Model Harmonization is the process of comparing similar conceptual and logical data models to determine the common data elements, similar data elements and dissimilar data elements in order to produce a resulting unified data model.

What is a Geonode?

Every provider of geoinformation has to offer it by means of an Internet geoservice, which can be achieved by using a Web map server, with Standard connections based on OGC Specifications. These services will allow the users to access the geoinformation by means of a WMS Client, to visualize it or to download it (under conditions defined by the provider). A provider can have one or more Web Map Servers containing each one several Services. The different services have to be described by the correspondent Services Metadata, which will be published in a Web Catalogue.

Every provider of geoinformation has to be considered as a "node" within the network of web MAP Servers which form a particular SDI.

What is a Geoportal?

A geoportal is a web application offered by an organization which offers a standard access to its own geoinformation by means of WMS Client (viewer) and also to other geoinformation available from the network of web MAP Servers to which the SDI allows to connect. It can include a Catalogue of metadata related to its own geodata.

Most of the partners will be able to create a Geoportal that means to allow accessibility to their information by the WMS/WFS services through their own WMSClient, which includes the availability to connect to other external data sources, local or international, to be merged and combined with their own data.

Annex I. Survey 3.1. Questionnaire form

ON CAPACITY LEVELS AND CAPACITY BUILDING TO CREATE A GEOPORTAL, CREATE METADATA, IMPLEMENT GEOSERVICES

Taking into account that main objective is to make a review of participant's expertise and capacity to develop geonodes within a Spatial Data Infrastructure, the survey is formed by questions about generic Information Technology (IT) resources available in each partner system, the use of GIS products and applications, and the capacity to create all or some of the services and applications required by the development of PEGASO SDI.

The questionnaire is developed in LimeSurvey (www.limesurvey.com) an open source product. LimeSurvey allows users to quickly create intuitive, powerful, online question-and-answer surveys that can work for tens to thousands of participants without much effort. The survey software itself is self-guiding for the respondents who are participating.

The questionnaire is available on-line at: http://simonazzi1.limequery.com/index.php?sid=16248. The questions are listed below.

Capacity building to create a Geoportal, create metadata, implement geoservices

1. Please, add the name of your organization

2. D.6. Does your organization have any formal computer systems services (or IT Services) and specific GIS service or technical support team?

Yes (please, specify number of persons dedicated to this activity)
No

3. D.7. Does your organization have the human resources to create and maintain metadata?

Yes (please, specify number of persons dedicated to this activity)
No

4. D.8. Does your organization have the human resources to create and maintain a Geoportal?

Yes (If yes, please specify, Catalog, WMS service, Client/Viewer)
No

5. D.9. Has your organization enough capacity to implement some of the basic components of a Geoportal/SDI? (Please indicate which of the following components)

Yes

No

6 Generic Uses: Does your organization use internet services like E-mail, Intranet, Skype, FTP, other (please specify):

Yes (please, specify)

No

7 Do you use any GIS software?

8 Do you have a Geoportal or an SDI already operational?

Yes (please, add URL)

No

9 If the answer was NO, please answer the following questions: Do you have an internet server?

10 If the answer was NO, please answer the following questions

I can't implement any server

I can implement an Internet Server and connect it to Internet

I can use external services, in that case please describe

11 Do you have a Map server?

12 If the answer was NO, please specify

I can't implement any map server

I can implement a Map Server

I can use external services I can use external services

13 Do you have any WebMap applications?

No

If Yes, please specify the URL

Annex II. Survey 3.1. Results

Twenty-one responses have been received from the 24 partners. Three institutes did not respond and hence their capacity levels were not assessed.

Five capacity types were considered in this classification.

- Type 1. The Institution already has an operational SDI. They can act as local SDI.
- Type 2. The institution has an operational Geoportal with the capacity to become a local SDI.
- Type 3. The Institution can implement a portal (WMS Client) and, perhaps, a local SDI.
- Type 4. The Institution can implement a map server as a node data provider.
- Type 5. The Institution does not have the capacity to implement any type of services.

Partners with responses still pending:

- P5: ACRI-EC (ACRI Etudes et Conseil, Morocco)
- P18: AREA-ED (Association de Réflexion, d'Échanges et d'actions pour l'Environment et le Développement, Algeria)
- P19: NIOF (National Institute of Oceanography and Fisheries, Egypt).

TYPE 1:

P4–IFREMER (Institut Français de Recherche pour l'exploitation de la Mer, France):
http://wwz.ifremer.fr/esonet_emso

P10–VLIZ (Vlaams Instituut Voor de Zee Vzw, Belgium):
http://www.vliz.be/vmdcdata/vlimar

P6—IOC-UNESCO: (Intergovernmental Oceanographic Commission-United Nations Educational, Scientific and Cultural Organization)
http://geonetwork.iode.org

TYPE 2:

P21–MHI (Marine Hydrophysical Institute-Ukrainian National Academy of Sciences, Ukraine)

P12–JRC (Commission of the European Communities – Directorate General Joint Research Centre, European Commission):
http://fate-gis.jrc.ec.europe.eu

http://emis.jrc.ec.europa.eu

P13–UNIGE-GRID (Université de Genève, Switzerland):
http://geodata.grid.unep.ch

http://geonetwork.grid.unep.ch

P24–NARSS (National Authority for Remote Sensing and Space Sciences, Egypt):
http://195.43.3.158/egyptsat1

P1–UAB (Universitat Autònoma de Barcelona, Spain):
http://158.109.174.165:8080/geonetwork/srv/en/main.home

P2–UPO (Universidad Pablo Olavide, Spain):
http://www.juntadeandalucia.es/medioambiente/site/web/rediam/

P3–Plan Bleu (Plan Bleu pour l'Environnement et le Développement en Méditerrannee):
http://simedd.planbleu.org/simedd

P16: DDNI (Institutul National de Cercetare Dezvoltare Delta Dunarii, Romania)
http://85.204.149.94/N2000/

TYPE 3:

P11–Universita Ca'Foscari Di Venezia (Univ' Ca Foscari, Italy)

P14 – HCMR (Hellenic Centre for Marine Research, Greece)

P25–BSC PS (Pollution, Intergovernmental) Permanent Secretariat of the Commission on the Protection of the Black Sea).

P23–TdV (Fondation Tour du Valat, France)

P15: MEDCOAST (Akdeniz Kiyi Vakfi, Turkey)

P20: UOB (University of Balamand, Lebanon.

TYPE 4:

P8 – IUCN (Unión Internacional para la Conservación de la Naturaleza, Intergovernmental)

TYPE 5:

P7–PAC-RAC (Priority Action Programme– Regional Activity Centre, Croatia

P17–UM5a (Université Mohammed V-Agdal, Morocco)

P9–UNOTT (The University of Nottingham, United Kingdom)

Annex III. Survey 3.2. Questionnaire form

ON DATA AVAILABILITY

Questionnaire 3. 2. Data availability (Spatial data and Statistics)

CONTEXT

Within **PEGASO Project**, Work Package 3 is in charge of the *creation of a shared information infrastructure for Mediterranean and Black Sea basins*; and in order to achieve this, the first task of the work plan is to **asses on the data availability and data needs for the development of the PEGASO Spatial Data Infrastructure (task 3.1).**

As part of this task an inventory will be developed to stock take available geodata, including indicators and other relevant spatial applications, within participants organizations involved in the project. After the compilation of the data from the questionnaires, a quality analysis on existing data and applications will be done to assess comparability of data and indicators. Therefore, a harmonization and normalization work will take place on data and metadata to construct the common SDI of PEGASO.

This task within WP3 requires your contribution as partners of the PEGASO consortium. To obtain the geo-information needed (statistics, cartography, thematic geodata, etc), we are circulating this questionnaire which would compile a catalogue for the construction of the indicators, the Atlas, and finally the implementation on the CASES.

In this survey you will be asked to identify and describe spatial and statistic information (sections A and B) available in your organization as well as information that can be accessed from other providers in your network. Section C refers to the development and use of indicators in your institution that are relevant for the coastal and marine area, and - where applicable - asks you to define the underlying data.

The deadline to answer the questionnaire is the 30th October 2010

Please take your time in answering the questions and do not hesitate to ask for assistance if required.

Please upload the document once completed to the Intranet folder WP3/Documents/task3.1 with the name of your institution.

(I) A.- Please identify and describe statistic data available from your organization

One numbered answer for every type of data, please continue numbering as you complete the tables.

ID.	*Type of data*	Name	Description	Digital format	Available on Internet?	Owner	Restrictions
	Demography, Economic, Land Use, Environment, Tourism	*Title*	*Content, period, attributes…*	*MS Excel, css, MS access….*	*Specify the URL*	*If is not available from your organization, which is the source? Name of organization*	*Specify restrictions of use it*
4							

(II) B.- Please identify and describe cartography (basic, thematic) available from your organization

Note: You can be the owner of this cartography or licensed to use it. *One answer for every type of product.*

ID.	*Type of cartography*	*Source*	*Scale*	*Attributes*	*Describe by Metadata*	*Accessed by WMS*	*Other formats*	*Legal Constraint*
	Imagery, ortophoto, topography, thematic…	*Provider organization*		*Edition data, coverage...*	*If yes, specify the URL*	*Specify the URL*	*Is available in other formats like shape, dgn…*	*Specify restrictions of use it or access*

C.- Have you developed any Indicator for coastal management?

Yes: **No:**

If YES:

One answer for each indicator (Please fill both tables)

ID.	*Name*	*Description*	*Does it need cartography for its visualization?*		
	Name of indicator		*Type of cartography*	*Available in internet. Specify URL*	*Available in other formats*

ID.	*Does it need cartography to calculate some parameter?*					*Can be viewed in any web page*
	Description	*Access by WMS*	*Available in other formats*	Constraints	*Described by Metadata*	
	Name, source, scale	*Specify URL*	*Shape, dgn..*	*Legal/Economic*	*Specify URL*	*Specify URL*

Annex IV. Summary of data availability in each partner institution

Note: the summaries presented below are extracts from the survey forms completed by the partners. The complete forms can be accessed through intranet WP3

HCMR

- Statistic data mainly about fishing, trawls and other sea activities. Not complete. Access restrictions (confidential).
- Thematic cartography 1/50.000 with several thematic layers, especially hydrography (lakes, ports, rivers, channels....), not digital, with access restrictions.
- No indicators developed.

UM5A

- Statistic data about economy, demography, industry, production, socio-economy, tourism, fisheries, coastal erosion, water pollution, land use is available (consultations) from official governmental web pages.
- Thematic digital cartography such as topography, geological and structural maps, terrestrial Biodiversity cartography, transport (Roads highways and railroads), Elevation Map , hydrography, watershed boundaries, Protected areas and rainfall and climate type map is available in raster format, in scales ranging from 1/25.000 to 1/100.000)
- Indicators have been developed (ecology, cultural heritage, environment, socioeconomic, biodiversity, etc.), represented in thematic maps.

MHI

- Only indicators on environmental aspects have been elaborated (Biological oxygen demand, oxygen, oxygenation, DIN & DIP, Pollution load index (PLI), TRIX, Macro to trace elements ratio, Porg/Pmin ratio) in textual format, no maps available.

PLAN BLEU

- The base for its geodata is available in the “Mediterranean Information System on Sustainable Development – SIMEDD”, at http://simedd.planbleu.org/simedd.These data are related to all the Sustainable development pillars, issues, and themes: water, energy, tourism, urban and rural, ecosystems, etc.
- The data coverage is mainly the Mediterranean region and more specially the Mediterranean bordering countries, watersheds, administrative units, cities, etc.
- A list of shape files containing several thematic objects is already available, and in the future it is possible to prepare a specialized repository for the PEGASO project (WMS) to access this geodata.
- The Plan Bleu is working on many indicator sets linked to different programs and issues; everything is available on the Plan Bleu website. http://www.planbleu.org/indexUK.html
- The indicators for the follow-up of MSSD (Mediterranean Strategy for Sustainable Development). http://www.planbleu.org/methodologie/indicateursSmddUk.html
- Some indicator sets for specific issues such as water, energy, tourism, rural and more especially coastal issue. http://www.planbleu.org/methodologie/indicateurs_cotiersUk.html
- The indicators used in the CAMPs (Coastal Area management Programs) elaborated with the “Imagine” approach: Malta, Lebanon, Slovenia, Algeria and Cyprus. Task 4.1: http://www.planbleu.org/publications/littoralUk.html

TOUR DU VALAT

- Geoinformation mainly consists of satellite images and aerial photos form the most important providers of such type of data (Spot, Landsat, etc.), with use restrictions. Also topographic digital cartography 1/25.000 and several thematic datasets related on tourism, floods, fishing, hydrology, biodiversity, etc.
- Coverage of available data is Rhone Delta and the French region of Camargue.
- No indicators developed

UNIVE

- Statistical data are referred to beach quality, historical tidal level, rain data and river quality-type. Most of them with some restrictions of use.
- Thematic digital data are available a variable scale and with no restrictions use. It covers maps on DEM, land Use, geology, fisheries, morphology, beaches and coastlines, base map, vegetation, administrative boundaries, climate models outputs maps (several hazard metrics), hydrodynamic models outputs maps (several hazard metrics) and biogeochemical models (several parameters). Covering the area of the Veneto and Friuli regions.
- A big battery of indicators is available in raster format. It does include vulnerability indicators of coastal environments and components (river mouths, coasts, fisheries, beaches, agricultures areas, etc), hazards indicators and those produced in the models (hydrodynamic, biogeochemical, etc).
- The data format is raster maps, data is not available on Internet.

VLIZ

- The databases which contain statistical data available are related to Belgium, southern North Sea and adjacent regions. But some general links to European statistics are identified.
- Spatial and thematic digital data available from VLIZ: ESRI shapefiles related to geographical names, countries and hydrography, elevation data (GEBCO and Etopo), land cover, and geology, spatial information about sea regions (fishing areas, continental margins, etc) and marine ecoregions, and species distributions. VLIZ is coordinator for the EMODNET- biology (European Marine Observation and Data Network in the context of the Marine Strategy Framework Directive and the Integrated maritime Policy), which is EU wide and connects to the chemistry and hydrology component of EMODNET. VLIZ also hosts the European Ocean Biogeographic Information System, EurOBIS, a distributed system that allows searching multiple datasets simultaneously for biogeographic information on marine organisms. EurOBIS has been developed within the MarBEF network and acts as the European node of OBIS. Another global database coordinated by VLIZ is the taxonomic World Register of Marine Species WoRMS. More information on databases: http://www.vliz.be/vmdcdata/wlist.php
- About 45 Indicators, created within the DEDUCE European Project (2007), available for France, Malta and Catalunya. EU ICZM working groups on indicators and data in EU context (including France, Malta, Cataluña) is provided, including DEDUCE. Some of them are Europe 2020 indicators, Euro indicators/ PEEIs, Sustainable Development Indicators, Employment and social policy and equality indicators, Globalisation Indicators, Coastal and Seas indicators from EEA.

UPO

- The data information network of Andalusia is a free-access platform from various Public Regional and National Governments Institutions such as Puertos del Estado (oceanographic and marine data), statistic information about population, demography, tourism and land use could be accessible from IEA (Andalusian Statistic Institute) and natural resources and ecosystems statistics data is accessible from the Environmental Regional Agency.
- The base for its geodata is available in the ttp://www.juntadeandalucia.es/medioambiente/site/web/rediam, the Environment Information Network of the Regional Ministry for the Environment. Thematic and spatial data are related to

water, energy, tourism, urban and rural, ecosystems, etc. (bathymetry, ecosystems, natural areas, fisheries, aquiculture, salinity, marine limits, coastlines and beaches, etc.) are of different typology, scale and formats.
- The data coverage is mainly the Atlantic and Mediterranean region of Andalusia.
- A list of shape files containing several thematic objects is already available, and in the future it is possible to prepare a specialized repository for the PEGASO project (WMS) to access this geodata.
- There are no specific indicators on coastal management.

DDNI
- Statistics data with licence agreement based on Red Natura 2000 protected areas; land use and land cover (EEA).
- Spatial data available (licence agreement) from the institution are satellite images, Landsat Satellite images Spot5 and Orthophotos SRTM 90 from the entire Romanian territory. Either of the datasets are described by metadata.
- A set of indicators have been developed at the institution for the Danube FloodPlain Romanian part, but they can be applied for Costal Zones as well. The lists of indicators are: terrain Use Index, Land Segregation Index, agriculture production Index, environmental Index, status Index. All of them are shapefiles, none available though internet.

BSC PS
- Two main sources of statistical data in form of indicators are available at the institution, public domain access, (1) the National Indicators for the State of the Black Sea Coastal Zone (2006-2011) and the (2) Indicators for Measuring Progress in the Implementation of ICZM in the Black Sea Coastal Countries (2009).
  - (1) Country ICZM reporting format based on the set of statistical indicators aggregated at the national level (Legal and institutional, Population and geography, Energy, Water and wastewater, Biodiversity, Coastal erosion, Economy, Tourism, Health, Solid waste management, Agriculture, Industry, Transport, Climate).
  - (2) Based on the indicator set developed for the EEA to measure the progress in the implementation of ICZM in Europe.
- Thematic spatial data for regional scale (Black Sea) is available from ESRI: Political boundaries, Populated sites (cities, towns…), Administrative boundaries, roads and railways, River network, Water objects (seas, lakes, reservoirs…), Wetlands, Elevations, Coastline, EEZ, Protected areas, Environmental Sensitivity Index (ESI) in MARPLOT format, Spawning areas, Pollution Hot Spots and Temperature, Salinity, Current velocity from http://myocean.eu in jpg format.

MEDCOAST
- Statistic data available from the Institution consists in measured wave data, wind and deep water wave climate at several locations along the Turkish coast (Black Sea, Aegean and the Med) and in Gelendzhik (Russia) (wave parameters are provided in graphical form as time series). Only general information is free accessed.

INSTM
- Statistic data available from the Institute consists on statistic sets of tourism (Hotel capacity), Economic (Oil concessions, Fishing Harbours) and Economy/Demography data (Annuaire statistique de la Tunisie). There are free of use and available via web site.
- Available cartography (no free of charge) is refereed to Bathymetry, topography and orthophoto from the Office de topographie et de cartographie. The scale is variable dependent on the spatial area (http://www.otc.nat.tn).

UNIGE-UNEP

- Geodata availability includes a vast set of spatial data (local, regional and world scale), with statistical data related to and from different sources. Most of them available through URL (WMS) or shapefile format. Sources of data are NOAA, WWF, FAO UNEP/DEWA/GRID-Europe, ESA, University of Montana, USGS, WorldClim, JRC, SEDAC/CIESIN, GEBCO, ESRI and UNGIWG.
- Available data from the institution is related to geographical names and grids, Administrative units (international and administrative boundaries), Population (population, Human Settlements, cities, urban extent), Elevation (DEM, Terrestrial elevation, Bathymetry, level curves), hydrography network (Black sea Catchment, rivers, watersheds, waterbodies), Soil (Soil map, Vegetation and Land Cover, land use), Climate (temperature, precipitation, insolation, atmospheric emissions), Biodiversity Hotspot, Protected Areas and Environmental Protection, Agriculture production, Water consumption and Resources.
- No indicators have been developed within this Institution.

IUCN

- Statistical data that is freely accessible relates to assessments of risk of extinction for fish (513) and cetacean (12) species in the Mediterranean (Biodiversity)
- Spatial data (shapes) include distribution maps of native, endemic and threatened species of fish and cetaceans in the Mediterranean Sea, and for the Alboran region: shapes of protected areas and special conservation sites, terrestrial and coastal human activities, marine and coastal fauna and flora, and the physical marine environment.
- No indicators have been developed within this Institute

Annex V. Inventory and preliminary assessment of the European databases and datasets

EUROPEAN PROJECTS GROUPED BY INSPIRE ANNEXES AND INDICATION OF NEED BY LEAC OR CASES

ANNEX I

INSPIRE Theme	Description INSPIRE Theme	Requested by LEAC (WP 4.2)	Requested by CASES (WP 5)	Project name & URL	Project description
Administrative units (I.4)	Units of administration, dividing areas where Member States have and/or exercise jurisdictional rights, for local, regional and national governance, separated by administrative boundaries.			**MarBound** http://www.vliz.be/vmdcdata/marbound/	A Geodatabase containing a polygon and a polyline shapefile of the World Maritime Boundaries (Exclusive Economic Zones), developed by VLIZ
				ESRI Countries http://www.arcgis.com/home/gallery.html	World Countries 2008 represents the boundaries for the countries of the world, as they existed in January 2008.
Transport networks (I.7)	Road, rail, air and water transport networks and related infrastructure. Includes links between different networks.		Marine transport (Lebanon) Transportation (Greece) Boat traffic (Turkey) Sea port and Navy activities (Ukraine) Shipyard & other maritime activities (Ukraine)		
Hydrography (I.8)	Hydrographic elements, including marine areas and all other water bodies and items related to them, including river basins and sub-basins.		Erosion (Lebanon) Coastal erosion (Romania) Erosion (Georgia)	**Eurosion** http://www.eurosion.org http://www.eurosion.org/database/quickstart.html http://www.eea.europa.eu/data-and-maps/data#c5=all&c11=&c17=	The implementation of the project ran from January 2002 till May 2004. Through supporting the Integrated Coastal Zone Management Practitioners Network and facilitating access to relevant data and information, EUROSION offers a follow-up to the EU demonstration program on Integrated Coastal Zone Management - with an emphasis on pilot projects which focused on erosion management -

				&c0=5&b_start=0&c12=erosion	and is consequently biased towards ICZM strategies.
				Waterbase http://www.eea.europa.eu/data-and-maps/data/waterbase-water-quantity-5	Waterbase is the generic name given to the EEA's databases on the status and quality of Europe's rivers, lakes, groundwater bodies and transitional, coastal and marine waters, and on the quantity of Europe's water resources
Protected sites (I.9)	Area designated or managed within a framework of international, Community and Member States' legislation to achieve specific conservation objectives.	Maps of coastal and Marine Protected areas	Habitat Loss (Georgia) Nature Conservation (Turkey) Management of habitats (Turkey) Management of endangered species (Turkey)	**Protect Planet Ocean** http://protectedplanet.net/	Protectedplanet.net allows you to search in any language to find information about individual protected areas. The World Database on Protected Areas is managed at UNEP-WCMC in Cambridge, UK supported by IUCN staff and World Commission on Protected Areas members all over the world.
				Natura2000 http://natura2000.eea.europa.eu/# http://www.eea.europa.eu/data-and-maps/data/natura-2000	Natura 2000 is an ecological network of protected areas in the territory of the European Union. Natura 2000 is based on the 1979 Birds Directive and the 1992 Habitats Directive. The green infrastructure it provides safeguards numerous ecosystem services and ensures that Europe's natural systems remain healthy and resilient.

ANNEX II

INSPIRE Theme	Description INSPIRE Theme	Requested by LEAC (WP 4.2)	Requested by CASES (WP 5)	Project name & URL	Project description
Elevation (II.1)	Digital elevation models for land, ice and ocean surfaces. Includes terrestrial elevation, bathymetry and shoreline.	Bathymetric charts		**General Bathymetric Chart of the Oceans (GEBCO)** http://www.gebco.net/ WMS: http://www.gebco.net/data_and_products/gebco_web_services/web_map_service/mapserv?	General Bathymetric Chart of the Oceans (**GEBCO**, 30arc-seconds) consists of an international group of experts who work on the development of a range of bathymetric data sets and data products, including gridded bathymetric data sets, the GEBCO Digital Atlas, the GEBCO world map and the GEBCO Gazetteer of Undersea Feature Names.
				ETOPO1 http://www.ngdc.noaa.gov/mgg/global/global.html http://map.ngdc.noaa.gov/wmsconnector/com.esri.wms.Esrimap/etopo1 WMS: http://maps.ngdc.noaa.gov/soap/web_mercator/gebco08_hillshade/MapServer/WMSServer?request=GetCapabilities&service=WMS	**ETOPO1** is a 1 arc-minute global relief model of Earth's surface that integrates land topography and ocean bathymetry. It was built from numerous global and regional data sets, and is available in "Ice Surface" (top of Antarctic and Greenland ice sheets) and "Bedrock" (base of the ice sheets) versions.
				Emodnet (lot1: hydrographic data) http://www.emodnet-hydrography.eu http://portal.emodnet-hydrography.eu/products/	For the lot on hydrographic data of the **Emodnet (lot1: hydrographic data)** project Digital Terrain Models (DTM) will be produced. In the pilot project, these will be created for a selection of maritime basins in Europe. The DTM's have been produced from collated bathymetric data sets that are integrated into a central DTM.
Land cover (II.2)	Physical and biological cover of the earth's surface including artificial surfaces, agricultural areas, forests, (semi-)natural areas,		Coastal changes (climate and erosion) (nile delta) Erosion	**CORINE Land Cover** http://www.eea.europa.eu/data-and-maps/data/corine-land-cover-2000-coastline	CORINE (Coordination of information on the environment) is a European programme on collecting, inventarise, and management of information about environment, especially for the European Union privileged themes like pollution of air, water, and soil, land

INSPIRE Theme	Description INSPIRE Theme	Requested by LEAC (WP 4.2)	Requested by CASES (WP 5)	Project name & URL	Project description
	wetlands, water bodies.		(Lebanon) Coastal erosion (Romania) Erosion (Georgia)		cover (**CORINE Land Cover**), coastal erosion and protection of biotopes (CORINE Biotope).
Orthoimagery (II.3)	Geo-referenced image data of the Earth's surface, from either satellite or airborne sensors.			**Global Earth Observation System of Systems (GEOSS)** http://www.earthobservations.org/ http://www.geoportal.org/web/guest/geo_home	The **Group on Earth Observations** (GEO) is coordinating efforts to build a Global Earth Observation System of Systems (GEOSS). GEO was launched in response to calls for action by the 2002 World Summit on Sustainable Development and by the G8 (Group of Eight) leading industrialized countries. These high-level meetings recognized that international collaboration is essential for exploiting the growing potential of Earth observations to support decision making in an increasingly complex and environmentally stressed world.
				GlobCorine (space map) http://ionia1.esrin.esa.int/globcorine/	**GlobCorine (space map)** demonstrates an automatic service that can generate in a consistent way a land cover / use map, based on a CLC-compatible legend using MERIS FRS time series. The GlobCorine main User is the European Environmental Agency (EEA). ESA incorporated EEA's requirements to support regular update of the land and ecosystem accounts. The GlobCorine project is based on Envisat MERIS fine resolution (300m) mode data and it was executed for two periods, producing two Pan-European land cover/use maps for 2005 and 2009. GlobCorine is implemented by Université Catholique de Louvain - UCL.
Geology (II.4)	Geology characterised according to composition and structure. Includes bedrock, aquifers and geomorphology.	Sediment and nutrients fluxes from the rivers and into the sea	Coastal changes (climate and erosion) (nile delta)	**EMODNET-Geology (lot 2)** http://www.bgs.ac.uk/emodnet/ WMS: http://geomaps2.gtk.fi/ArcGIS/services/EMODNET-Geology/MapServer/WMSServ	The **EMODNET-Geology (lot 2)** project is one of four preparatory action projects that, in addition to marine geology, bring together information on marine chemistry, marine biology and hydrography. Each project will define the processes, technologies and approximate costs of implementing a fully functioning European Marine

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				er	Observation and Data Network. For the EMODNET-Geology project, the project partners are compiling data layers for the Baltic Sea, Greater North Sea and Celtic Sea. (*Not yet Mediterranean)* The geology data available includes: • sea-bed sediments • sea-floor geology • boundaries and faults • rates of coastal erosion or accumulation • geological events (submarine slides, earthquakes etc.) • minerals
				OneGeology-Europe http://www.onegeology-europe.org/	**OneGeology-Europe** aims to create dynamic digital geological map data for Europe. It will make a significant contribution to the progress of INSPIRE - i.e. develop systems and protocols to better enable the discovery, viewing, downloading and sharing of core European spatial geological data. 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. OneGeology-Europe is a natural offshoot of the global OneGeology initiative and consists of a consortium of European geological surveys and representatives from the user community.

Annex III

INSPIRE Theme	Description INSPIRE Theme	Requested by LEAC (WP 4.2)	Requested by CASES (WP 5)	Project name & URL	Project description
Soil (III.3)	Soils and subsoil characterised according to depth, texture, structure and content of particles and organic material, stoniness, erosion, where appropriate mean slope and anticipated water storage capacity.		Coastal changes (climate and erosion) (nile delta) Erosion (Lebanon) Coastal erosion (Romania) Erosion (Georgia)	**Eurosion** http://www.eurosion.org/	Cfr Hydrography I.8
Land use (III.4)	Territory characterised according to its current and future planned functional dimension or socio–economic purpose (e.g. residential, industrial, commercial, agricultural, forestry, recreational).		Land use (nile delta) Land property (Romania) Management of recreational activities (Turkey) Coastal development projects (Georgia) Tourism and recreational activities (Ukraine)	**The Land Use Database for Europe** http://gcmd.nasa.gov/records/GCMD_EEA_LANDUSE.html http://www.eea.europa.eu/data-and-maps/data#c5=all&c11=landuse&c17=&c0=5&b_start=0&c12=use	The Land Use Database for Europe is the total area excluding area under inland water bodies (major rivers and lakes). Agricultural Area is the sum of Arable land, Permanent crops and Permanent pastures. Arable Land is the land under temporary crops, temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow (less than five years). Permanent Crops is the land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest. Permanent Pasture is the land used permanently (five years or more) for herbaceous forage crops, either cultivated or growing wild. Forests and Woodland include land under natural or planted stands of trees, whether productive or not.
Environmental monitoring Facilities (III.7)	Location and operation of environmental monitoring facilities includes observation and measurement of emissions, of the state of environmental media and of other ecosystem parameters	Pollution data at local/Regional level	Marine pollution (Lebanon) Water quality management (Turkey) Bathing water quality (Georgia)	**Southern European Seas Ecosystems (SESAME)** http://www.sesame-ip.eu/ http://isramar.ocean.org.il/sesamemeta/	**SESAME** aims to assess and predict changes in **the Southern European Seas** (Mediterranean and Black Sea) **ecosystems** and in their ability to provide key goods and services with high societal importance, such as tourism, fisheries, ecosystem biodiversity and mitigation of climate change through carbon sequestration in water and sediments. The Mediterranean

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	(biodiversity, ecological conditions of vegetation, etc.) by or on behalf of public authorities.		Beach litter (Georgia)		and Black Sea, are unique and evolve rapidly with large interannual to decadal variability and abrupt fluctuations. For this reason, SESAME will merge economic and natural science in order to study the changes in the Western and Eastern Mediterranean and Black Sea. To this end, it will bridge the gap between natural and socio-economic sciences in order to assess the ability of the ecosystems to sustain these essential functions.
				Bathing water: http://www.eea.europa.eu/data-and-maps/explore-interactive-maps/eye-on-earth http://www.eea.europa.eu/data-and-maps/data/bathing-water-directive-status-of-bathing-water-2	The data set presents the latest information as reported by the Member States (EU27) for the 2009 bathing season, as well as some historical data since 1990.
				Waterbase http://www.eea.europa.eu/data-and-maps/data/waterbase-water-quantity-5	Cfr Hydrography I.8
Agricultural and aquaculture facilities (III.9)	Farming equipment and production facilities (including irrigation systems, greenhouses and stables).	Fishery and aquaculture	Fisheries (Turkey) Fisheries (Greece) Fisheries (nile delta)	**GeoInfo of the European Aquaculture Society** (EAS). http://www.easonline.org/ & http://www.fao.org/fishery/geoinfo/en	**GeoInfo of the European Aquaculture Society** (EAS). All information organized and disseminated by the FAO Fisheries and Aquaculture Department includes a geographic dimension – an essential element for monitoring fisheries at global level and for supporting decision-making for FAO Members concerned with global fisheries governance.
		Fishery and aquaculture		http://www.seaaroundus.org/	The **Sea Around Us** was established to document large-scale impacts on marine ecosystems and find solutions to the challenges they pose. Its work is cataloged and accessible on the web, offering ecosystem data, distribution maps and catch data for more than 1,000 species, historical trends and peer-reviewed publications

INSPIRE Theme	Description INSPIRE Theme	Requested by LEAC (WP 4.2)	Requested by CASES (WP 5)	Project name & URL	Project description
					(http://www.fisheries.ubc.ca/).
Population distribution and demography (III.10)	Geographical distribution of people, including population characteristics and activity levels, aggregated by grid, region, administrative unit or other analytical unit.		Uncontrolled development of tourism (Romania) Demographical variation (Romania) Tourism (Greece)	**DEDUCE** http://www.deduce.eu/index.html	**DEDUCE** (Développement durable des Côtes Européennes) is a transnational project concerning Integrated Coastal Zone Management (ICZM), co-financed by the European Commission and the participating regions, in the framework of Interreg IIIC South.
			Political will (to deliver ICZM) City development & municipal activities (Ukraine) Urban sprawl and artificialisation (Lebanon) Urbanization (Greece) Coastal population (Al Hoceima, Morocco)	**Eurostat** http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/	Eurostat is the statistical office of the European Union situated in Luxembourg. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions.
Natural risk zones (III.12)	Vulnerable areas characterised according to natural hazards (all atmospheric, hydrologic, seismic, volcanic and wildfire phenomena that, because of their location, severity, and frequency, have the potential		Climate change, extreme meteorological events, storms. (Ukraine)	**EM-DAT the International *Disaster* Database** http://www.emdat.be/	Since 1988 the WHO Collaborating Centre for Research on the Epidemiology of Disasters (CRED) has been maintaining an Emergency Events Database EM-DAT. EM-DAT was created with the initial support of the WHO and the Belgian Government. The main objective of the database is to serve the purposes of humanitarian action at national and international levels. It is an initiative aimed to rationalise decision making for disaster preparedness, as well as

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	to seriously affect society), e.g. floods, landslides and subsidence, avalanches, forest fires, earthquakes, volcanic eruptions.				providing an objective base for vulnerability assessment and priority setting.
Meteorological geographical features (III.14)	Weather conditions and their measurements; precipitation, temperature, evapotranspiration, wind speed and direction.		Climate Change (Al Hoceima, Morocco) Climate Change (Turkey)	**European Meteorological Society (EMS)** http://www.emetsoc.org/ **European Climate Assessment & Dataset (ECA&D)** http://eca.knmi.nl/ http://www.eumetnet.eu/ http://www.eumetnet.eu/ECSN_home.htm	The European Meteorological Society (EMS) provides a forum for disseminating information and facilitating discussions on themes and issues connected with meteorology, hydrology, oceanography, earth observation and the climate system. Presented is information on changes in weather and climate extremes, as well as the daily dataset needed to monitor and analyse these extremes. ECA&D is initiated by the European Climate Support Network ECSN and supported by the Network of European Meteorological Services EUMETNET.
Oceanographic geographical features (III.15)	Physical conditions of oceans (currents, salinity, wave heights, etc.).	Ocean colour maps Sediment and nutrients fluxes from the rivers and into the sea		**Sea Surface Temperature & Vegetation** http://earth.esa.int/ers/eeo4.10075/atsr_med.html/ http://www.esa.int/esaMI/Space_for_our_climate/SEMH0W2VQUD_0.html/ **MOON, Mediterranean Operational Oceanography Network** http://www.moon-oceanforecasting.eu/	**Sea Surface Temperature & Vegetation** with ATSR-2 for the Mediterranean Basin from the European Space Agency (ESA). Also available: wind and waves, ocean colour, algae blooms, El Niño, … MOON specific objectives are to: • consolidate and expand the Mediterranean Sea concerted monitoring and forecasting systems, and ensure full integration to the overall operational oceanography global ocean European capacity • co-ordinate, improve and harmonise observation and information systems • increase the quality of, and harmonise user-oriented operational products identify new customers and further develop the market for operational oceanographic products co-operate with UNEP-MAP

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					and other relevant bodies acting at regional level • improve and further establish services to meet the requirements of environmental and maritime user groups • encourage Mediterranean scientific research on monitoring/forecasting activities and their link with operational oceanographic services • facilitate the availability and dissemination of long term high quality data required to advance the scientific understanding of the Mediterranean Sea • promote the transfer of operational oceanography expertise through training and education
				WOD World Ocean Database http://www.nodc.noaa.gov/OC5/WOD/pr_wod.html http://en.wikipedia.org/wiki/World_Ocean_Database_Project	The **World Ocean Database Project**, or **WOD (2009)**, is a project established by the Intergovernmental Oceanographic Commission (IOC). The World Ocean Database represents the world's largest collection of ocean profile-plankton data available internationally without restriction.
				WOA World Ocean Atlas http://www.nodc.noaa.gov/OC5/WOA09/pr_woa09.html	**World Ocean Atlas 2009 (WOA09)** is a set of objectively analyzed (1° grid) climatological fields of in situ temperature, salinity, dissolved oxygen, Apparent Oxygen Utilization (AOU), percent oxygen saturation, phosphate, silicate, and nitrate at standard depth levels for annual, seasonal, and monthly compositing periods for the World Ocean. It also includes associated statistical fields of observed oceanographic profile data interpolated to standard depth levels on both 1° and 5° grids .
				Ocean monitoring and forecasting - MyOcean http://www.myocean.eu.org/ http://behemoth.nerc-essc.ac.uk/ncWMS/wms?SERVICE=WMS&REQUEST=GetCapabilities&VERSION=1.3.0&DATASET=MED_ANALYSE	MyOcean is a project granted by the European Commission within the GMES Program (7th Framework Program), whose objective is to define and to set up a concerted and integrated pan-European capacity for ocean monitoring and forecasting. The areas it is aimed at are: Maritime Security, Oil Spill Prevention, Marine Resources Management, Climate Change, Seasonal Forecasting, Coastal Activities, and Monitoring Ice Sheet

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				S_ITALY WMS: http://behemoth.nerc-essc.ac.uk/ncWMS/ecoop.html	surveys, Water Quality and Pollution.
Sea regions (III.16)	Physical conditions of seas and saline water bodies divided into regions and sub-regions with common characteristics.			**IHO Sea Areas** http://www.vliz.be/vmdcdata/vlimar/downloads.php#IHO	This dataset represents the boundaries of the major oceans and seas of the world. The source for the boundaries is the publication 'Limits of Oceans & Seas, Special Publication No. 23' published by the IHO in 1953.
Bio-geographical regions (III.17)	Areas of relatively homogeneous ecological conditions with common characteristics.			**ICES Ecoregions** http://www.ices.dk/aboutus/icesareas.asp http://www.ices.dk/InSideOut/mayjun09/j.html **Marine Ecoregions of the World, MEOW (Spalding et al., 2007)** http://www.worldwildlife.org/science/ecoregions/marine/item1266.html http://www.nature.org/tncscience/news/meow.html	The International Council for the exploration of the Sea created shapefiles with delimitations of **Ecoregions**, based on **ICES** Advice ACFM/ACE report (2004) ICES EcoRegions are large-scale management units for the ICES regional seas and are used in advisory reports to segment advice into the different sea areas. The EcoRegions were first referenced by the predecessor to ACOM (Advisory Committee) in 2004. MEOW is a biogeographic classification of the world's coasts and shelves. It is the first ever comprehensive marine classification system with clearly defined boundaries and definitions and was developed to closely link to existing regional systems. The ecoregions nest within the broader biogeographic tiers of Realms and Provinces.
Habitats and biotopes (III.18)	Geographical areas characterised by specific ecological conditions, processes, structure, and (life support) functions that physically support the organisms that live there. Includes terrestrial and aquatic areas distinguished	fuzzy maps of sea bottom		**EUSeaMap - Mapping European seabed habitats** http://jncc.defra.gov.uk/EUSeaMap/ (Western Mediterranean) http://jncc.defra.gov.uk/page-5020 WMS: http://213.122.160.71/scripts/mapserv.exe?map=D:\\Websites	**EUSeaMap** is a broad-scale modelled habitat map that covers over 2 million square kilometres of European seabed. Building on the highly successful INTERREG IIIB-funded MESH and BALANCE projects, EUSeaMap has improved and harmonised predictive benthic habitat layers across the Celtic, North and Baltic Seas under the EUNIS classification, as well as undertaking broad-scale mapping of the western Mediterranean for the first time.

INSPIRE Theme	Description INSPIRE Theme	Requested by LEAC (WP 4.2)	Requested by CASES (WP 5)	Project name & URL	Project description
	by geographical, abiotic and biotic features, whether entirely natural or semi-natural.			\\EUSeamap\\map\\ExternalEUSeamapWMS.map	
				EUNIS (European nature information system) http://eunis.eea.europa.eu/about.jsp	**EUNIS (European nature information system) data** are collected and maintained by the European Topic Centre on Biological Diversity for the European Environment Agency and the European Environmental Information Observation Network to be used for environmental reporting and for assistance to the NATURA2000 process (EU Birds and Habitats Directives) and coordinated to the related EMERALD Network of the Bern Convention. EUNIS consists of information on Species**,** Habitat types and Sites.
				The **GlobWetland project** http://www.globwetland.org/ *(no data online yet)*	The **GlobWetland project** is conceived as a user-oriented project, where the final Information Service should **provide a clear response to specific user needs**. Therefore, the project is built up around the information requirements provided by a User Group made up of the National Authorities responsible for the implementation of the Ramsar Convention in several countries worldwide. This set of information needs represents the core of the project and the basis for the development of the GlobWetland Information Service, which should be implemented, validated and assessed for a representative set of wetland areas (mainly Ramsar Sites) proposed by the members of the User Group in their respective countries. The project shall last 2 years and be completed at the fall of 2011 in order to present the outcome of the project at the next Ramsar Conference of the Parties (COP-11) that is currently scheduled to take place in the beginning of 2012.
Species distribution (III.19)	Geographical distribution of occurrence of animal and	local maps of		**The European Ocean Biogeographic Information**	**The European Ocean Biogeographic Information System, EurOBIS,** is a distributed system that allows you

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	plant species aggregated by grid, region, administrative unit or other analytical unit.	benthic communities		**System, EurOBIS** www.marbef.org/data/eurobis.php	to search multiple datasets simultaneously for biogeographic information on marine organisms. EurOBIS has been developed within the MarBEF network and acts as the European node of OBIS. The ultimate goal of EurOBIS is to provide the end-user with a fully searchable biogeographic database, focused on three main parameters of a distribution record: taxonomy, temporal and geographical cover.
		Fishery and aquaculture	Fisheries (Turkey) Fisheries (Greece) Fisheries (nile delta) Overexploitation of natural resources (Romania)	**FIGIS** http://www.fao.org/fishery/topic/14793/en	Through the Fisheries Global Information System (FIGIS) it is possible to access a variety of online mapping tools. Linked to the main FAO gateway of maps and geo-referenced datasets, GeoNetwork, the user can search, visualize and download a large number of GIS or static maps form different domains. Online maps for fisheries include: • a collection of Species Distribution Maps that the user can browse and visualize in real-time, and • an atlas of global distribution of catches at 5° latitude by 5° longitude resolution for tuna and tuna-like species. As technology advances, so will the tools available for charting fisheries which in turn will assist decision-makers in shaping future fisheries management approaches and policies.
				FAO Landings http://faostat.fao.org http://www.fao.org/economic/ess/ess-capacity/countrystathome/en	FAOSTAT provides time-series and cross sectional data relating to food and agriculture for some 200 countries. The national version of FAOSTAT, CountrySTAT, is being developed and implemented in a number of target countries, primarily in sub-saharan Africa. It will offer a two-way data exchange facility between countries and FAO as well as a facility to store data at the national and sub-national levels.
		Data base on alien species		**Delivering Alien Invasive Species Inventories for**	Biological invasions by non-native or 'alien' species are one of the greatest threats to the ecological and economic well-being of the planet..

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				Europe (DAISIE) http://www.europe-aliens.org/	Alien species can act as vectors for new diseases, alter ecosystem processes, change biodiversity, disrupt cultural landscapes, reduce the value of land and water for human activities and cause other socio-economic consequences for man.. To help those tackling the invasive species challange, this website provides a 'one-stop-shop' for information on biological invasions in Europe.. This website is the result of the DAISIE project, funded by the European Commission under the Sixth Framework Programme (Contract Number: SSPI-CT-2003-511202).
		Species data from birdlife international		**BirdLife** http://www.birdlife.org/ http://www.birdlife.org/datazone/home	BirdLife International is a global Partnership of conservation organisations that strives to conserve birds, their habitats and global biodiversity, working with people towards sustainability in the use of natural resources. We're the World's largest partnership of conservation organisations.
				EMODNet Biology http://bio.emodnet.eu/	*This project website provides information on the progress of the biological preparatory action and gives access to the marine biological data portal and metadata catalogue. The EMODNet Biological data portal is built on the **EurOBIS** datasystem*
Energy Resources (III.20)	Energy resources including hydrocarbons, hydropower, bio-energy, solar, wind, etc., where relevant including depth/height information on the extent of the resource.		Population access to resources (Romania) Overexploitation (Romania)		
Mineral Resources (III.21)	Mineral resources including metal ores, industrial minerals, etc., where relevant including depth/height information on the extent of the resource.		Population access to resources (Romania) Overexploitation (Romania)		

OTHERS (UMBRELLA WEBSITES/PROJECTS/DATABASES)

1. **SEADATANET, Pan-European infrastructure for Ocean & Marine Data Management,** aims to develop an efficient distributed Pan-European Marine Data Management Infrastructure for managing these large and diverse data sets.
   The objective is to network the existing professional data centres of 35 countries, active in data collection, and provide integrated databases of standardized quality on-line. (vooral psychocemical data)
   www.seadatanet.org
2. **GCMD Global Change Master Directory**
   The GCMD holds more than 25,000 Earth science data set and service descriptions, which cover subject areas within the Earth and environmental sciences. The project mission is to assist researchers, policy makers, and the public in the discovery of and access to data, related services, and ancillary information (which includes descriptions of instruments and platforms) relevant to global change and Earth science research. Within this mission, the directory also offers online authoring tools to providers of data and services, facilitating the capability to make their products available to the Earth science community. In addition, citation information to properly credit data set contributions is offered, along with direct links to data and services. As an integral part of the project, keyword vocabularies have been developed and are constantly being refined and expanded. These vocabularies are also used in other applications within the broader scientific community. Users may perform searches through the Directory's website using controlled keywords, free-text searches, map/date searches or any combination of these. Users may also search or refine a search by data center, location, instrument, platform, project, or temporal/spatial resolution.
   http://gcmd.nasa.gov/
3. **European Atlas of the Seas - European Commission**
   Maps usually show Europe as a group of countries surrounded by the seas. They focus on cities, roads and landscapes – the seas fall into the background. The new European Atlas of the Seas takes the opposite perspective: it puts the seas and all their different uses in the foreground.
   In the Atlas you can find reliable data on topics such as the European fishing fleet, motorways of the seas, the relief of the ocean floor, coastal erosion, maritime transport… It is regularly being updated as new data becomes available.
   http://ec.europa.eu/maritimeaffairs/atlas/index_en.htm
4. **IUCN Atlas / United Nations Atlas of the Oceans**
   The UN Atlas of the Oceans is an Internet portal providing information relevant to the sustainable development of the oceans. It is designed for policy-makers who need to become familiar with ocean issues and for scientists, students and resource managers who need access to databases and approaches to sustainability. The UN Atlas can also provide the ocean industry and stakeholders with pertinent information on ocean matters.
   http://www.oceansatlas.org/index.jsp
5. **IUCN Red List**
   The IUCN Red List of Threatened Species™ provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as **Critically Endangered**, **Endangered** and **Vulnerable**). The IUCN Red List also includes information on plants and animals that are categorized as **Extinct** or **Extinct in the Wild**; on taxa that cannot be evaluated because of insufficient information (i.e., are **Data Deficient**); and on plants and animals that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme (i.e., are **Near Threatened**).
   http://www.iucnredlist.org/
6. **GISCO**
   GISCO is the Geographic Information System of the European Commission. Originally conceived as a prototype GIS cell that would serve a wide spectrum of users and uses, the GISCO project has developed a service-oriented dimension, namely in geographical database development, thematic mapping, desktop mapping and dissemination of data. Providing these types of services is directly related to key parts of the GISCO mandate.

The GISCO team consists of four distinct modules with the following tasks:

- GISCO Reference Database;
- Mapping and Spatial Analysis;
- Contact with users, producers and COGI;
- INSPIRE.

http://epp.eurostat.ec.europa.eu/portal/page/portal/gisco/introduction

7. **Global Monitoring for Environment and Security (GMES)**
   GMES (Global Monitoring for Environment and Security) is the European Programme for the establishment of a European capacity for Earth Observation.
   - geoland2 (land monitoring)
   - MyOcean (marine environment monitoring)
   - MACC (atmosphere monitoring)
   - SAFER (emergency management)
   - G-MOSAIC (security)
8. **African Marine Atlas**
   The purpose of the African Marine Atlas (AMA) is to identify, collect and organize available geospatial datasets into an atlas of environmental themes for Africa, under the sponsorship of the ODINAFRICA Project of the Intergovernmental Oceanographic Commission's (IOC) International Oceanographic Data and Information Exchange (IODE) Programme. The African Marine Atlas will include and involve a number of other geo-spatial data projects on and around the African continent.